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Baseline Socio-economic Survey:

Mapping Current Nature-Based Products and Services and Stakeholders' Needs Assessment at the Baringo Great Rift Valley aspiring Geopark

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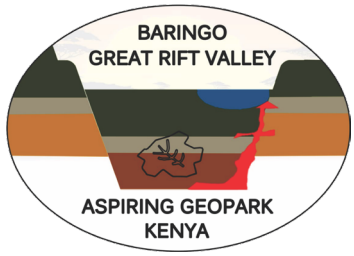

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Foreword

During the 38th General Conference of UNESCO in 2015, 195 member states of the organization ratified the creation of a new label, the UNESCO Global Geoparks. To this end, there are 195 UNESCO Global Geoparks in 48 countries and only two found in Africa - this shows a gap that needs to be filled in the continent by inscribing more Geoparks for the benefit of the local community and geo-conservation.

By working together across borders, UNESCO Global Geoparks contribute to increasing understanding among different communities and as such help peace-building processes. Studies have demonstrated that Geoparks have a potential to contribute to attainment sustainable development including the SDG 1 (End poverty in all its forms everywhere), SDG 4 (to ensure inclusive and equitable quality education and promote lifelong learning opportunities for all), SDG 5 (Achieve gender Equality and empower all women and girls), SDG 8 (Promote sustained, inclusive, and sustainable economic growth, full and productive employment, and decent work for all), SDG 11 (Make cities and human settlements inclusive, safe, resilient, and sustainable), SDG 12 (Ensure sustainable consumption and production patterns through experiencing a lifestyle in harmony with nature and value local products and sustainable living), SDG 13 (Take urgent action to combat climate change and its impacts), SDG 15 (Reversing man-made deforestation and desertification to sustain all life on earth), SDG 17: Strengthen the means of implementation and revitalize the global partnership for sustainable development

The nomination for the Baringo GRV Geopark will be a game-changer in sustainable development of the county, the country and the region. The Geopark concept is a bottom-up approach that promotes an environment where stakeholders will effectively be involved in decision making and ownership throughout the cycle. In addition, it provides for the social and economic needs of local populations, protects the landscape in which they live and conserves their cultural identity which is consistent with the three pillars of a Geopark namely protection, sustainable development, and education. The contribution of the Geopark going forward require that we map existing socio-economic data and information based upon which future monitoring of the impact can be done to understand the impact that this geopark has on local livelihoods, local economy and business enterprises. But capacity building is also particularly important so that we develop a critical mass of geoguides, enhanced entrepreneurship skills, among others. The purpose of this report is to assess the resources, goods and products produced within the geopark and the opportunities that could arise from value addition, leveraging on the geopark brand to increase marketability and incomes.

I want to take this opportunity to thank Baringo County Government, Baringo County Conservancies Association, Kerio Valley Development Authority, the German Commission for UNESCO, UNESCO Global Geopark Network, UNESCO, National Geopark Committee and the diverse partners that continue to walk with us on this journey. Once completed, this project will open up many opportunities for geotourism, improved livelihoods for the local people, partnerships and collaboration, conservation of the natural, cultural and geological heritage but above all, put Baringo on the global map once again.

I call upon all stakeholders to take advantage of this geopark brand to position themselves on how they are going to benefit including investment in the hospitality, alternative and emerging livelihood options from the Geopark, create jobs, spur investment and enterprises through branded goods and services produced sustainably from the geopark.

It is with no doubt that the formation of a Geopark in Kenya will immensely benefit the local communities and foster international collaboration and coordination through the Global Geopark Network. It will be a model for other counties, Kenya, and the rest of Africa. There is a lot of goodwill and let us leverage on it to make this Geopark model work for Baringo and Kenya.

I would like to express my sincere appreciation to all those who contributed to the survey and the report, and to the community of Baringo County for their commitment and dedication in the process . I am confident that with continued collaboration and partnership, we can achieve our shared goals for the benefit of all.

Dr. James Njogu , HSC
Ag. Secretary General / CEO
Kenya National Commission for UNESCO

Acknowledgment

This baseline survey was made possible with financial support from UNESCO through the Participation Programme (Request No. 2240112221 PPE). The Commission expresses gratitude to the Dr. Dickson Makanji the consultant who conducted this baseline survey and compilation of the report, Susan Jepkemoi, the Coordinator of the Baringo County Conservancies Association, local community who served as respondents during the survey, Samuel Makau of the Department of Agriculture for sharing data, Baringo County Government, and the participants who were involved in the validation process drawn from local communities from Baringo, the County Geopark Committee and the National Geopark Committee.

Finally, we wish to take this opportunity to thank the Kenya National Commission for UNESCO Staff who supported in one way or another during desktop review, planning, data collection and review of this report.

Abbreviations and Acronyms

AK	Athletics Kenya
ALDEV	African Land Development
BBB	Baringo Bogoria Basin
BCCA	Baringo County Conservancy Association
BGRVAG	Baringo Great Rift Valley aspiring Geopark
BSAP	Baringo Semi-Arid Project
CIDP	County Integrated Development Programme
CSOs	Civil Society Organizations
DFID	Department for International Development
EARS	Educational Assessment and Resource Centre
FAO	Food and Agriculture Organization
FGM	Female Genital Mutilation
GDC	Geothermal Development Corporation
GDP	Gross Domestic Product
GRV	Great Rift Valley
IBA	Important Bird Areas
ICT	Information and Communications Technology
ICH	Intangible Cultural Heritage
IUCN	International Union for Conservation of Nature
KALRO	Kenya Agricultural and Livestock Research organization
KATA	Kenya Association of Tour Agents
KCB	Kenya Commercial Bank
KEFRI	Kenya Forestry Research Institute
KEPROBA	The Kenya Export Promotion and Branding Agency
KLDP	Kenya Livestock Development Programme
KMFRI	Kenya Marine and Fisheries Research Institute
KNATCOM	Kenya National Commission for UNESCO
KNBS	Kenya National Bureau of Statistics
KTBH	Kenya Top Bar Hive
KWFT	Kenya Women Finance Trust
LBCB	Lake Baringo Community Based
MICE	Meetings, Incentives, Conferences Exhibition
NBEs	Nature-based Enterprises
NACOSTI	National Commission Science Technology and Innovation
NEMA	National Environment Management Authority
NGOs	Non-Governmental Organizations
NLC	National Land Commission
NMK	National Museums of Kenya
NOREB	North Rift Economic Block
RAE	Rehabilitation of Arid Environment
SACCO	Savings and Credit Cooperative
SDGs	Sustainable Development Goal
SWOT	Strengths Weaknesses Opportunities and Threats

TRA	Tourism Revenue Authority
UNEP	United Nation Environment Programme
UNESCO	United Nations Education, Scientific and Cultural Organization
UNWTO	United Nations World Trade Organization
WHS	World Heritage Site
WTTC	World Travel and Tourism Council

Executive Summary

UNESCO Global Geoparks are single, unified geographical areas where sites and landscapes of international geological significance are managed with a holistic concept of protection, education and sustainable socio-economic transformation. Their bottom-up approach of combining conservation of natural heritage, geological heritage and cultural heritage with sustainable development while involving local communities is becoming increasingly popular. At present, there are 195 UNESCO Global Geoparks spread across 48 countries out of which only two are in Africa (M'Goun UNESCO Geopark in Morocco and Ngorongoro-Lengai UNESCO Geopark in Tanzania). Despite the rich geological, cultural and natural heritage Africa is under-represented on the UNESCCO Global Geopark Network and the process to designate Kenya's Baringo Great Rift Valley aspiring Geopark for UNESCO's Global Geopark Network endorsement, is meant to bridge the gap. The functions of a Geopark are conservation, development and education. The purpose of a UNESCO Global Geopark is to explore, develop and celebrate the links between the geological heritage and all other aspects of the area's natural, cultural, and intangible heritages. UNESCO Geoparks also serve as sources of economic development to countries where they are established by contributing to geo-tourism. Already, efforts have been made to demonstrate the role of geoparks in achieving Sustainable Development Goals. In order to maximise benefits from the Geopark and in future assess the impact it has on local communities, the need for a baseline study was identified and involved mapping current status of goods and services, which would benefit from value addition, geopark branding and increased marketing opportunities, and ultimately increase revenues and improved fortunes for the local communities. Training needs assessment is necessary so that the capacity gaps can be filled and ensure that the local communities leverage on the Geopark to create opportunities especially for the guiding, interpretation personnel, enhancing visitor experience and providing employment opportunities.Consequently, a baseline survey, mapping current nature-based products and services, and stakeholders' needs assessment at the Baringo Great Rift Valley aspiring Geopark was commissioned.

The mainobjective of the study was to carry out a desk review and field data collection, to map current nature-based products and services, and stakeholders' needs assessment at the Baringo Great Rift Valley aspiring Geopark in order to generate data for stakeholder decision making.

The specific objectives for this survey were to:

1) Map present and potential nature-based enterprises within the BGRV aspiring Geopark, including identification of research opportunities.
2) Establish and map nature-based enterprises, stakeholders (including clients) and market volumes.
3) Undertake capacity needs assessment in areas of aspiring Geopark and sustainable development.
4) Undertake socio-economic baseline analysis bearing in mind interactions between the geo-sites and local communities.
5) Document impacts of socio-economic activities and livelihood enterprises on the communities within the aspiring Geopark.

6) Outline SWOT analysis options that would promote the Nature-based heritage of Baringo County

From the foregoing, the methodology involved a desktop study, that involved a review of various publications on the subject. Key documents that informed the desktop study included the Baringo County Integrated Development Plan (2018-2022), the Baringo Great Rift Valley aspiring Geopark Management Plan (2021-2026) and Kenya National Bureau of Statistics reports such as Census reports and economic survey reports.

The data collection involved fieldwork during which questionnaires were administered in the form of household interviews, focus group discussions, and key informant interviews. Secondary data was sourced from the Department of Agriculture, Baringo County Government.

A cross sectional survey design was adopted. Administration of the interview schedules were done at Kampi ya Samaki (Lake Baringo), Simoot twin falls, Releng Hot springs, Cheploch Gorge, Irong Community, and Mogotio/Equator Information Centre. Key informant information was acquired from National and County Government officers in Kabarnet.

The total number of questionnaires administered and completedwere 138, to both male and female respondents. These were 79 were male and 58 were female and one non-full response. There were four focus group discussions, Group 1 had 50 members (19 female and 31 male), Group 2 comprised of 9 people (3 female and 6 male), Group 3 had 12 respondents (4 female and 8 male), while Group 4 had 8 people (3 female and 5 male). There were 17 key informants of whom 6 were female and 11 were male.

Data analysis was done using both qualitative and quantitative methods and presented in charts, graphs and percentages based on the appropriate case. The findings from this survey demonstrates that the aspiring Geopark has high diversity of nature-based and sustainable enterprises, reliant on fauna, flora, geology. Baringo is a largely an Arid and Semi-Arid Land (ASAL) especially most parts of East Pokot, Baringo Central, Baringo North, Mogotio Districts and rainfall varies from 1,000mm to 1,500mm in the highlands to 350mm to 600mm per annum in the lowlands. The dry seasons are in the months of January - March and long rains in April-July and the short rain seasons are in August-November. Crop husbandry is therefore aligned to these seasons even though the effects of climate change and weather variability in the recent past is making it unpredictable. Overall, nature-based enterprises in Baringo are based on crop production, livestock farming, and tourism encompassing cultural activities such as dancing, fisheries, and quarrying activities. An attempt was made to determine crops grown during two seasons of the year. The following crops are grown during the rainy season: maize, tomatoes, beans, millet, melons, kales, butternuts, green grams, watermelons, onions, sisal, cowpeas, loiki, green grams, groundnuts, coffee, bananas, cassava, mangoes, carrots, potatoes, wheat, peas, macadamia, and assorted fruits of which mangoes are one. Crops planted during dry season include maize, tomatoes, beans, vegetables, green grams, watermelon, butternut, kale, onions, sorghum, sisal, spinach, Napier grass, cabbage, millet, sweet potatoes, cassava, avocados, lemons, papaya, peas, and mangoes. Irrigation activities were also noted especially in the lowlands. However, this has been limited by the rising waters of the lakes that has submerged some of the farmlands around the lakes.

On the occupation, most respondents indicated the following as the types of occupation members in their household engaged in: farming (small scale, crop, subsistence),livestock keeping (cattle goats, sheep, donkeys, chicken, and even camel keeping), selling milk, welding,

tourism and hotel industry, hair dressing, plant operations, fishermen and fish mongers, teaching, motorcycle taxi (*boda boda*) business, boat riding, honey business and mining. Many individuals in the community are also engaged in beekeeping and honey processing which is part of livestock farming. For this, both traditional log hives and improved hives are used. However, some of the respondents are in formal employment either in government or private sector. The products from these enterprises are consumed locally and some end up in markets beyond the aspiring Geopark. In fishing, the commercial species include lungfish (*Protopterus aethiopicus*), catfish (*Clarias gariepinus)* and Tilapia (*Oreochromis niloticus*). The other species include *Aplocheliches sp.,* Labeo (*Barbus intermedius australis*), *B. lineomaculatus, and Labeo cylindricus (Britton et al., 2006).*

The selected geosites in Baringo offer a great opportunity for local and non-local tourism. Lake Baringo and associated islands are examples of places where many touristic activities take place. According to the Baringo County Government, other key touristic attractions include the hot springs and geysers in Lake Bogoria, Cheparuas / Kapedo hot springs, Lake Kamnarok and Lake Bogoria National Reserves, Cheploch Gorge, Flamingos in Lake Bogoria, diverse species of birds, and magnificent hills and mountains. Additionally, the Reptile Park at Lake Baringois one of the largest reptile parks in the Rift Valley and a major tourist attraction. The Ruko Wildlife Conservancy, located north of the geopark, has scenic attractions ranging from wildlife to cultural villages. Korossi volcano, which rises 1,449m above sea level, offers an ideal spot for watching birds such as bat hawks and majestic Verreauxs eagle. Kabarnet National Museum and Kipsaraman Community Museum are located on top of Tugen Hills. The museums form unique tourist sites with varied attractions and house traditional Kalenjin artefacts, which include musical instruments, storage equipment, furniture and ornamental decorations. At Eldama Ravine, there are the Kursalal falls, a stunning waterfall within Lembus forests.

Traditional dancers from the Endorois, Ilchamus, Pokot and Turkana entertain tourists visiting the County. The county is also endowed with unique flora and fauna some of which is of global conservation concern or charismatic in nature. These include elephants, leopard, buffalos, Baringo Giraffe, Greater Kudus, White crocodiles, high diversity of birds for avitourism. This therefore means the geopark has opportunities for geotourism, avitourism, cultural tourism, wildlife-based tourism, geotrekking, agritourism and sports tourism among other segments of tourism. There exist a budding mining industry and although mining may have negative consequences on the environments, if done sustainably, it can propel industrial growth as well as conservation activities upon rehabilitation of the quarries, which then can be turned around for conservation and education purposes.

In terms of skills, few members of the community access extension services. It was noted that very few community members had attended any training in their areas of nature-based enterprises. Thus, this capacity need has to be bridged in the areas of tour guiding, entrepreneurship, primary production, value addition, branding and marketing of goods and services. In its widest sense and in-line with continuous improvement of livelihoods, capacity building is needed in all sectors.

In the long-term, there is need to diversify income generation enterprises, routine mapping of enterprises linked to seasonal variations in the weather including those associated with coping and adaptation to climate change and weather variability but also develop capacity in coping and adaptation to vagaries associated with climate change and weather variability. More socioeconomic studies to understand sustainability of the nature-based enterprises.

For example, understanding of the socio-economic and cultural issues surrounding honey production especially in periods of low or no rainfall, and how farmers are coping with low productivity if they have not diversified. More studies are needed to develop and track markets outside Baringo. For example, one is likely encounter honey sold elsewhere branded as Baringo honey, yet it may not be. Branding therefore is of value if it can be done for the unique products that emanate from the geopark. Future interventions should be invested in training the local producers on branding and marketing beyond the local confines of the County while leveraging on elements of geographical indication of the products and the Geopark brand. More research activities are needed on the issue of sustainable production because if sustainable production and consumption must be emphasized to avoid degradation. For example, in the honey industry, there are concerns that charcoal burning and the use of agrochemicals may affect the bee population and honey quality (pesticide contamination) hence reducing a major source of livelihood for some households. This is true especially where the market prefers organic honey or products. Research is also needed to help communities and other stakeholders understand the clients of the geopark and their needs. An understanding of consumers, and consumer behaviour and preferences would go a long way in helping bring about sustainability.

More in-depth anthropogenic studies are needed to map households and stakeholders in the selected geosites and those who are in the general area and how they interact. This is because unless otherwise stated, no community is homogenous. The needs of a crop farmer may not necessarily be those of a livestock farmer. The different needs ma results in conflict.

Detailed studies on enterprises, sustainable livelihoods and a value chain addition are need. It is common for example to find the community selling goats for meat, though they are not interested in the hides. A value chain approach may help the community reap maximum benefits ensuring there no waste.

There is need for more research to identify nature-based enterprises that may not have been captured in this study. For example, the trade in medicinal plants needs to be better captured. Further research also needs to be done to link seasonal variations in flora and fauna within the county to make accurate estimation of occurrence of certain events including tourism (e.g., Flamingos, elephants and any other migratory or itinerant species.

Based on the Strengths Weaknesses Opportunities and Threats (SWOT) analysis, the aspiring Geopark has many strengths and opportunities that can catapult socio-economic fortunes of the geopark and the local communities. Leveraging on these especially the geological, natural and cultural endowment, protection strategies (e.g., conservancies, forest reserves and national reserves), rich local indigenous knowledge systems, it is part of the trans-rift geo-trail network, existence, extensive archeological and geological research work has been conducted, rich microclimates that can support different crops and animals and fairly well-informed business community. In terms of opportunities, the county is already in the Global Tourism map (L. Baringo and L. Bogoria). The current goodwill from stakeholders should be exploited and complement this with leveraging on Magical Kenya brand. In addition, existing policy, legislative and institutional framework goodwill from international community including UNESCO and existing strong partnerships with diverse organizations can be useful.

Insufficient capital to support entrepreneurship, value addition, inadequate branding and marketing strategy products and services, inadequate skills to leverage on the Geopark to promote employment and livelihoods need to be addressed as a matter of urgency if the

local stakeholders are to optimise on the geopark to promote sustainable development in the region.

Finally, for threats that may compromise the ability of the geopark to flourish include global financial turmoil which limits the number of tourists, negative effects from modernization, weak entrepreneurship, and financial literacy skills, impacts of climate change on heritage, overexploitation of key species, bio-piracy, paleo-piracy and illicit trade in cultural and natural property and unreliable energy supply that limits economic activities were identified.

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Defination

Biodiversity: The variety and abundance of living organisms within a given area, including plants, animals, and microorganisms.

Cultural enterprises: Businesses or organizations that are primarily involved in the creation, production, preservation, and dissemination of cultural goods and services, including arts, crafts, music, literature, film, theater, heritage, and cultural tourism.

Cultural heritage: The human-made aspects of an area, including historical sites, artifacts, traditions, and cultural practices.

Ecotourism: Responsible travel to natural areas that conserves the environment, sustains the well-being of local communities, and educates visitors about conservation efforts.

Geo-conservation: The practice of preserving and protecting geological heritage for future generations.

Geodiversity: The variety of geological features, materials, and processes present in an area, including rocks, minerals, landforms, and geological history.

Geoheritage: The geological features and phenomena of scientific, educational, and cultural value that are preserved within a geopark.

Geological heritage: The unique geological features, formations, and processes that contribute to the scientific, educational, and aesthetic value of an area.

Geopark awareness: The promotion of public awareness and understanding of geological heritage, environmental issues, and sustainable practices within and beyond a geopark's boundaries.

Geopark network: The global network of UNESCO Global Geoparks, connecting geoparks worldwide to share knowledge, collaborate on conservation efforts, and promote geotourism.

Geopark: A geo-park is a single, unified geographical area where sites and landscapes of international geological significance are managed with a holistic concept of protection, education and sustainable development.

Geoscience: Science specializing in the study of Earth sciences, including geology, geophysics, paleontology, and related fields.

Geosite:	A specific location or site within a geo-park that holds significant geological, ecological, or cultural value, often designated for conservation and interpretation purposes.
Geothermal:	Utilization of heat energy from within the Earth's crust for various applications, including electricity generation, heating, and cooling. It involves tapping into naturally occurring hot water or steam reservoirs underground to harness the thermal energy for practical use.
Geotourism:	Tourism that focuses on visiting and experiencing geological sites and landscapes, while promoting sustainable practices and conservation.
Geo-trail:	A marked trail or route within a geo-park that allows visitors to explore and learn about its geological and cultural features.
Interpretation:	The process of explaining and communicating the significance and meaning of geological and cultural features to visitors and the general public.
Natural heritage:	Valuable and distinctive aspects of the natural world, including ecosystems, species, and geological features.
Nature-based enterprises:	Businesses or organizations that derive their economic value from sustainable utilization and conservation of natural resources.
Socio-economic survey:	A research method that examines and analyzes the social and economic aspects of a specific area or community, providing insights into the relationships between people and their environment.
Sustainable development:	Development that meets the needs of the present without compromising the ability of future generations to meet their own needs, incorporating environmental, social, and economic considerations.
Sustainable management:	The strategic planning and utilization of resources within a geopark to ensure long-term ecological, cultural, and economic sustainability.
Sustainable tourism:	Tourism that minimizes negative impacts on the environment, respects local cultures and communities, and provides economic benefits to the host region while involving visitors in a meaningful and educational experience.

Volcano tourism: Traveling to destinations that feature active or dormant volcanoes, where visitors can learn about volcanic processes, witness volcanic landscapes, and explore related cultural aspects.

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1.0 INTRODUCTION

1.1 Background

The Geoparks concept was first introduced at the Digne Convention in 1991 to protect and promote geological heritage and sustainable local development through a global network of territories containing geology of outstanding value (Martini, 1994; Jones, 2008). The term has two components namely "Geo" which refers to earth, ground or soil. The other part is the "park". In this report park is considered as a space in largely natural state for the enjoyment of state public having facilities for rest and recreation, often set apart and managed by a local or national government.

In 1997, in direct response to the 'Declaration of the Rights of the Memory of the Earth' the Division of Earth Sciences of UNESCO introduced the concept of a UNESCO Geoparks Programme to support national and international endeavours in Earth heritage conservation (Jones, 2008). The Geoparks concept was developed to meet the increasing demand from Earth scientists and non-government organizations for a global framework to promote and protect geodiversity of outstanding value (Eder & Patzak, 2004). The intention was for Geoparks to represent a global network of spatial areas that would be complementary to the World Heritage List, by providing a means of recognizing internationally vital sites which are of outstanding importance, but do not meet the strict criteria for the World Heritage List. Unlike other geological designations, the Geoparks initiative incorporates a highly innovative approach to the conservation and preservation of Earth heritage, by integrating it into a strategy for sustainable, local, and regional economic development, primarily through geo-tourism. According to UNESCO (2021), since the development of the UNESCO Geoparks initiative in 1999, the Geoparks concept has developed rapidly based on the need of states to have areas in their countries declared as such. The development of the Global Network of National Geoparks in 2004 has encouraged other countries such as Australia, Brazil, Iran, Malaysia and Vietnam to develop Geoparks Programmes and some of these areas have successfully achieved Global Geopark status.

In February 2004, representatives from the scientific board of the International Geoscience Programme, the International Geographical Union and the International Union of Geological Sciences along with international experts on geological heritage, conservation and promotion assembled in Paris to discuss the establishment of a Global UNESCO Network of Geoparks and the acceptance of operational guidelines for the designation of Global Geoparks. This meeting saw the merger of the European Geoparks Network and the National Geoparks Network of the People's Republic of China to form the Global UNESCO Network of Geoparks (Zouros, 2004). The European Geoparks Network was recognized as the model for the creation of other continental networks of Geoparks (Eder, 2004). It is also true that from the network, lessons can be learned by other countries and networks that want to establish Geoparks.

As a direct result of the European meeting, the *'First International Conference on Geoparks'* was held in Beijing in June 2004. This conference resulted in the acceptance of the Beijing Declaration, which aimed to promote and stimulate the further expansion of the Geoparks initiative across all continents. A World Geopark Office was also opened in Beijing at the

same time as the conference (Turner, 2006). It is also noted as per UNESCO (2021) that further operational guidelines and criteria for the application to the Global Geoparks Network were developed by UNESCO in March 2006. At present, there are 195UNESCO Global Geoparks in 48 countries. UNESCO (2021) and Farsani *et al.,* (2011) has argued that most geo-parks are driven by geo-tourism, which propels and defines their relevance and significance to conservation, education, or sustainable development. These views are also shared by Ng (2017). Geoparks has increasingly evolved in recent years, with the intent of promoting economic growth through tourism based on the geological resources (geo-tourism) as espoused by Dowling & Newsome (2006); Gray (2004).The concept of geo-parks has evolved to embrace more activities and processes that contribute to education, as well as other sustainable development outcomes, giving the concept a more holistic approach also incorporates what Dowling & Newsome (2018) referred to as engendered to nurture business growth, expand employment opportunities as well as improving community well-being. Ng (2017) demonstrates the possibilities of these opportunities by referring to China, who have engaged geoparks as a very fruitful rural poverty reduction programme. Indeed, Zouros (2010) opines that wherever geoparks are established, employment opportunities sprung up, as well as tourists and visitors.

There has been an increase in interest on what exactly geoparks do, with many students of conservation science thinking that they are national parks. The International Union for Conservation of Nature (IUCN, 2020) sought to explain geoparks as bottom-up, community-based approaches to engendering conservancy, education, and sustainable development, triggering an interest from local communities on geoparks. European Geoparks Network (2014) sought to provide opportunities for geoparks to incorporate and utilize established attractions and infrastructure as well as facilitating sustainable development around the attractions.

It is vital to note that UNESCO has provided for geoparks not to impose new legislative implications on their member states, where they are established and that the only requirement is that geopark management organizations should be legally incorporated under a host country's existing legislation (UNESCO, 2017). Essentials of UNESCO Global Parks include geological heritage of international significance, unified resources management, visibility, and networking. The strengths of the geopark concept, its integrated approach and a better understanding of the close connection of the natural environment and socio-economic needs for sustainable development is a major motivation for the Baringo GRV region to aspire for such a status.

China and Europe have successfully adopted geopark programmes to address rural poverty alleviation (Ecorys & Associates, 2011; Eder & Patzak, 2004; Zouros, 2010). Geoparks have therefore become holistic and socially constructive concept that has deepened conservation, community empowerment and economic growth. Dowling (2018) opines that geoparks personify social and economic transformation in action thus empowering local communities. Geoparks have the potential to access the local communities an opportunity to develop critical local and non-local partnerships and engagements which consequently promote significant geological processes, features, understanding of periods of time, historical themes linked to geology or outstanding geological beauty (Dowling, 2018). It is obvious that development of geoparks is highly motivated by geotourism, which often broadens regional investment, establishes new layers of businesses and jobs, as well as generating financial benefits to regional communities. In Baringo, the community conservancies association was established along the same lines, to promote conservation and promote communities' wellbeing.

Europe leads in number of UNESCO geoparks, with 92 geoparks, Asia with 75, North America with 7, and South America with 7 and Africa with paltry 2 as at May 2023. Studies have established that early establishment of geoparks has led to greater acceptance of them over time (Orus & Urqui, 2020). It has also been established that richness and diversity of geology in a country underpins geological tourist sites and this is confirmed by Spain, one of the most visited countries in the world, with 83.7 million international visitors in 2019 (Reuters, 2020). Geoparks have also done well where governance is decentralized, with Spain also achieving regional development through geoparks as a function of relatively decentralized administration, which empowers the local governments. This model has allowed a bottom-up approach combined with the flexibility of management bodies to devise their own structures to respond to localized challenges, opportunities, and priorities (Orus & Urqui, 2020). It can thus be argued that Kenya with a devolved system of government may also benefit the same way as Baringo becomes the centre of Geopark activities in Kenya.

Africa is grossly underrepresented in designated Geoparks by UNESCO. Efforts are being made to address under-representation of Africa on the UNESCO Global Geopark Network. Baringo Great Rift aspiring Geopark in as much as it exists as a de-facto Geopark, requires formal nomination to the UNESCO Geopark Network and plans to submit the nomination are at an advanced stage.

As part of promoting the conservation-development nexus of the geopark. The geopark concept advances the nature-society development nexus promoting and strengthening opportunities for the local communities that uplift their social, economic and cultural conditions, including employment opportunities consistent with SDGs 8.9, 13.3, 15.1, 15.2 and 15.9). Communities living here engage in various geo-products and nature-based enterprises with a potential to increase revenue through value addition, geopark branding and marketing of products and services and capacity building. Establish a baseline on the socio-economic activities in the area is important for long-term monitoring of the impact of the geopark on local economy. The baseline study, results and recommendations will contribute to ensuring ecological integrity, geo-conservation, promote culture heritage and diversity and compliance of the community culture, a prerequisite for the Baringo Great Rift Valley (BGRV) aspiring Geopark.

The establishment of a geopark in Kenya is in line with Constitution of Kenya 2010 under article 69 which states that; The State shall:

a) ensure sustainable exploitation, utilisation, management and conservation of the environment and natural resources, and ensure the equitable sharing of the accruing benefits;
b) work to achieve and maintain a tree cover of at least ten per cent of the land area of Kenya;
c) protect and enhance intellectual property in, and indigenous knowledge of, biodiversity and the genetic resources of the communities;
d) encourage public participation in the management, protection and conservation of the environment;
e) protect genetic resources and biological diversity;
f) establish systems of environmental impact assessment, environmental audit and monitoring of the environment;
g) eliminate processes and activities that are likely to endanger the environment; and
h) utilise the environment and natural resources for the benefit of the people of Kenya.

The issues mentioned in article 69 of the Constitution is consistent with the functions of the aspiring Geopark. Kenya's Vision 2030, The Wildlife Conservation and Management Act 2013, Forests Conservation and Management Act 2016 and the National Museums and Heritage Act (Cap. 216), among others also support the envisaged role to the Geopark in Kenya. The Nation is also a signatory to the United Nations Convention on Biological Diversity among other Multilateral Environment Agreements that are related to the function, use and management of the Baringo Great Rift Valley aspiring Geopark.

The Geopark and associated landscape have unique plant and animal species including those that are of global conservation concern. The Baringo aspiring geopark has 15 geosites of which Lake Bogoria National Reserve sites plus education centre is part of an existing UNESCO designation i.e., Kenya's Rift Valley Lakes World Heritage site. In addition, both Lakes Baringo with associated islands, and Bogoria are Ramsar sites. The other sites are Kormoson Viewpoint/Irong archaeological fortress, Lake Bogoria, Lake Baringo and associated Islands, Ling'ok footprints, Pakka Volcano, Sinibo Palaentological Site, Rondinin fossil and Toicho archaeological, Ngenyin Fossil Site in Bartabwa and Frog Rock, Releng hot springs/Kosirsir Cliff and water falls, Simoot Twin falls, Ng'niot viewpoint, Cheploch Gorge/Bridge, Morop Tarambus, Mangar rock falls and water springs, Kimngochoch/Royal camp, and Tugmoi Migratory Observation Site. Each site has its own uniqueness in terms of culture, nature, geology and is within human dominated landscape therefore the residents have more daily contact with these sites providing opportunities for tourism and recreation, hospitality, conservation, and sustainable utilization of these resources.

The Baringo Great Rift Valley aspiring Geopark using tourism, which is based on the geosites, can benefit from the concept of a bottom-up approach just like the other countries have done. Sustainable utilization of resources for local economic growth is another approach through which the bottom-up approach can be achieved. In addition, agriculture which is the mainstay of Baringo County if well harnessed will aid in the bottom-up approach to rural development. However, support from the local and national governments is required to actualize this trajectory of development.

Communities living around these areas have a rich culture woven around geology and one of the unique approaches used in designation of Geoparks is a strong community engagement approach that promotes appreciation, decision making and ownership of the process. Ownership and stakeholder engagement is important for sustainable management, conservation and preservation of this very important heritage which is already subject to the vagaries of climate change, development and other anthropogenic effects.

1.2 Nature-based enterprises and Economic Activity

According to Kooijman *et al.,* (2021), Nature-Based Enterprises (NBEs), can be defined as 'an enterprise, engaged in economic activity that uses nature sustainably as a core element of their product/service offering'. Here, nature may be used directly by growing, harnessing, harvesting or sustainably restoring natural ecosystems, and/or indirectly by contributing to the planning, delivery or stewardship of nature-based solutions.

The European Commission defines an enterprise as any entity engaged in economic activity, irrespective of its legal form' in which economic activity is defined as 'the sale of products or services at a given price, on a given market' (European Commission, 2015). Economic activities are organised into sectors - areas of business that make up a local, regional or country's economy. Sustainable enterprises aim to solve societal and environmental

problems through business activities. As such, they focus on creating sustainable value, i.e., economic, environmental and social value Schaltegger & Wagner (2011). Several scholars have defined different types of enterprises that contribute to sustainable development. Eco-enterprises (Schaltegger, 2002) and green enterprises (Gliedt & Parker, 2007)contribute to solving environmental problems indirectly, for example, by the creation of sustainable products and processes. Ecological and environmental enterprises contribute to solving environmental problems directly, for example, by restoring nature and biodiversity or decreasing environmental pollution and ecological degradation (Dean *et al.*, 2007; Gast *et al.*, 2017). Nature entrepreneurship is based on resources and experiences offered by nature, and activities of these types of enterprises are characterised by being nature-oriented, responsible, indigenous, local, and handicraft. Examples include nature tourism, harvesting of food products and recreational services (Rutanen *et al.,* 2000).

1.3 Main Objectives of the study

1.3.1. Main Objective

The overall objective of this study was to carry out a desktop review and field data collection, to map current nature-based products and services, and stakeholders' capacity needs assessment at the Baringo Great Rift Valley aspiring Geopark to generate data for future stakeholder decision making.

1.3.2 Objectives of the survey

i. Map present and potential nature-based enterprises within the BGRV aspiring Geopark including research opportunities.
ii. Establish and map nature-based enterprises stakeholders (including clients) and market volumes.
iii. Undertake capacity needs assessment in areas of geopark and sustainable development.
iv. Undertake socio-economic baseline analysis considering the interaction between the geo-sites and local communities.
v. Document impacts of these socio-economic and livelihood enterprises on the communities within the aspiring geopark.
vi. Outline SWOT analysis options that would promote the Nature-based heritage of Baringo County.

Plate 1: Tourists at Lake Baringo Snake Park

2.0 METHODOLOGY

2.1 Study area

Baringo County is situated in the Rift Valley Region and shares borders with 8 counties namely: West Pokot to the Northwest, Turkana to the North, Samburu to the Northeast, Laikipia to the East, Nakuru to the South, Kericho and Uasin-Gishu Counties to the Southwest, and Elgeyo-Marakwet to the West. The County is divided into 6 Sub-Counties, namely Baringo South, Mogotio, Eldama Ravine, Baringo Central, Baringo North and Tiaty (KNATCOM, (2023).

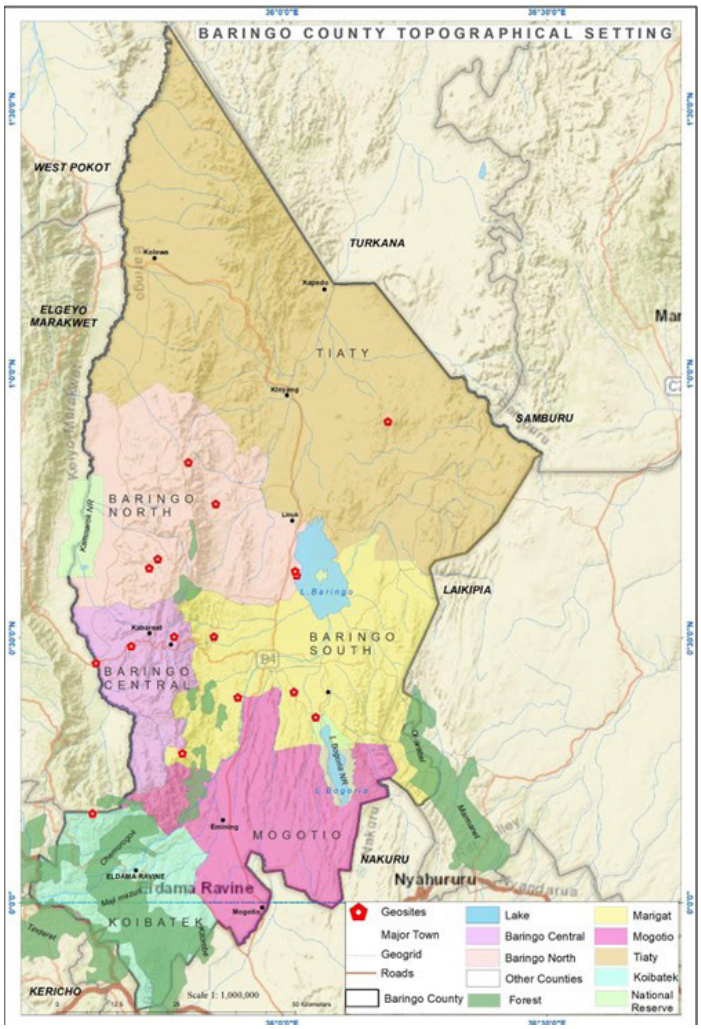


Plate 2: Map of the Study Area

(Source: Brian Kwatsima 2023)

Table 1: Administrative and Electoral Units in Baringo County

Sub-County	Area KM sq.	Electoral Wards	Locations
Baringo South	1,678	4	17
Mogotio	1,315	3	24
Eldama Ravine	1,003	6	16
Baringo Central	800	5	21
Baringo North	1,704	5	14
Tiaty	4,517	7	24
Total	**11,015**	**30**	**116**

Source: KNBS, Baringo 2013

Baringo County occupies an area of about 11,015 square kilometres and has a population of 666,763 with a density of 61 persons per square kilometre (KNBS, 2019). The main ethnic communities inhabiting Baringo County are the Tugen, Pokot and Ilchamus with minority groups such as the Endorois, Nubians, Ogiek, Kikuyu and Turkana.

2.1.1 Geological Heritage

The Baringo Great Rift Valley (BGRV) aspiring Geopark, located in Baringo County in Kenya, is part of the vast Afro-Arabian Rift system that extends for approximately 6,000km from the Gulf of the Suez, in the Middle East through the Red Sea to Mozambique. The aspiring Geopark is part of the East Africa Rift System (EARS). Its geologic structure is characterized by steep-fault scarps, deep gorges, step-faulted blocks, cliffs, escarpments, box faults, lakes system, cinder cones and craters on the rift floor, gushing geysers, and hot springs; to name a few. Additionally, there are volcanic, sedimentary, and metamorphic rocks; the older Proterozoic metamorphic rocks occur in a small region in the north, while the larger part of the geopark is covered by volcanic rocks (Baringo Geopark, 2023).

The region is characterized by faults such as the Saimo Fault, which delineates Tugen Hills in the west, while on the eastern part there are series of fault scarps forming the Laikipia Rift Border Fault. Baringo-Bogoria Basin (BBB) lies west of the Saimo Fault in the rift floor and is 50 km long and 20 km wide. The geopark has rich geothermal resources that are being exploited for purposes of energy production and indicated oil deposits and economic resources like extremophiles, natural spas diatomite, ruby, vermiculite, fluorite, bentonite, carbon dioxide, sand, and ballast.

2.1.2. Natural Heritage

The region is part of a biodiversity hotspot classified by Conservation International, Centres of endemism and Important Bird Areas (IBAs) as designated by Birdlife International. This can be explained by high species diversity for both plants and animals (including biome restricted) occurring at various altitudes and a variety of ecosystems ranging from savanna, aquatic, wetland to Afromontane ecosystems. Inventories for species for some sites have been documented. There exists unique species of plants and animals that are of global conservation concern including globally threatened flora and fauna (e.g., leopard, elephants,

cheetah, lesser flamingo), range restricted, biome restricted and congregator species (e.g., flamingos).

Some the geo-sites within the geopark are part of the African-Eurasian Migratory flyway – an important passage and wintering site for Palaearctic and afro tropical migratory bird species. Because of the importance of these areas in sustainable development, they have been gazetted as protected areas including forest reserves, national reserves, and community conservation areas or designated as water towers, conservancies under the Kenyan legislation and internationally designated as Ramsar sites under the Ramsar convention on wetlands of international significance (Lake Bogoria and Lake Baringo) and as World Heritage sites under the UNESCO World Heritage Convention (L. Bogoria).

2.1.3 Cultural heritage

According to UNESCO, Cultural heritage includes artefacts, monuments, a group of buildings and sites, museums that have a diversity of values including symbolic, historic, artistic, aesthetic, ethnological, or anthropogenic, scientific and social significance. It includes tangible heritage (movable, immobile, and underwater), intangible cultural heritage embedded into cultural, and natural heritage artefacts, sites and monuments (UIS, 2009).

In its broadest sense is both a product and process which provides societies with a wealth of resources, which is inherited from the past, created in the present and bestowed for the benefit of the future generations though times may change. Traditionally, cultural heritage has been associated with monuments and collection of objects. However, it now covers the traditional and living expressions inherited by ancestors and passed on to descendants. Baringo GRV aspiring geopark is culturally diverse and hosts various ethnic groups including Tugen, Pokot and Ilchamus. The different sub-groups/ sub dialects of the Tugen include: Arror, Samor, Endorois, Lembus, Pokor, Kakimor and Keben. Communities from other parts of Kenya are also represented. These communities have different sacred sites dotted across the geopark expansive landscape, which includes and not limited to sacrificial altars (*Kapkoros*), ritual sites, (*Kapindasim*), ceremonial sites (*Kaptum*). They also have traditional trails and pathways that connect the various cultural, natural, and sacred sites, facilitate trade and exchange, linking villages and communities, and used for traditional sports such as village marathons. Having interacted with each other over a long period of time, these communities also share common cultural practices, more so, as they are the main subgroups forming the Kalenjin community within the county. For example, they all share the same age-set system (*ipinda*) which provides a basis for indigenous governance mechanisms, fosters intercultural dialogues, understanding, peacebuilding, social cohesion, and inter-generational knowledge exchange and transmission. Each clan within the various subgroups have specific sites where they conduct initiation rites. Besides the age-set, they all also share a similar traditional food (yoghurt) famously known as *Mursik*. They also utilize various indigenous plants as medicine to treat various diseases and ailments. The names of the medicinal plants may differ slightly, but the etymology seems the same.

The different ethnic groups also have rich and diverse intangible cultural heritage such as oral traditions and expressions including language which acts a vehicle for intangible cultural heritage (ICH), performing arts, social practices, rituals, and festive events, traditional craftsmanship, ethnobotany, ethno-medicine, ethno-ornithology, and knowledge and practices concerning nature and the universe, which are all vastly disappearing because of modernity and rampant globalization. All these domains are well articulated under the 2003

UNESCO Conventions on Safeguarding Intangible Cultural Heritage, which Kenya became a signatory in 2007. Additionally, as a strong link between nature and conservation these communities have identity totems which include animals and natural features/ phenomenon such as thunder, moon, sun, stars, among others.

There also exist several cultural items made in the traditional tanneries such as shoes, bags, honey containers made of leather and wood, special livestock/ cowbells, sword handles and sheath, production of traditional beehives, swords, spears, hoes, and objects of personal adornment e.g., beaded necklace. All these products and associated Indigenous Knowledge Systems have enormous potential in terms of promoting sustainable environmental and wildlife conservation and boosting the creative cultural industry and socio-economic advancement of the region, and the Country as a whole. Traditional indigenous weather forecasting has been used as a tool for disaster risk reduction, preparedness and management, weather prediction and in planning for agricultural activities. The rich cultural activities that celebrate the rich ethnic diversity within the geopark, play an important role in promoting, peace building, social cohesion, and economic empowerment of the local communities.

2.2 Sampling method

Sampling was done bearing in mind the fifteen areas that host the geo-sites with guidance from the Baringo Community Conservancy Association input. Administration of the interview schedules, Lake Baringo beach Kampi ya Samaki, Simoot twin falls, Releng Hot springs, Cheploch gorge, Irong Community, and Mogotio/Equator Information Centre areas were visited.

2.3 Data Collection methods

Data was collected through two approaches. There was a desktopstudythat involved review of available from published and unpublished records. For primary data, the research employed mixed method research approach which entailed the use of an interview schedule and key informant interviews, as well as focus groups discussion to undertake the baseline survey. The study adopted a blend of descriptive and exploratory research designs (Creswell, 2013). A questionnaire was designed and pretested for consistency and validity before deployment. Subsequent to the piloting, some sections of the survey tool were amended for clarity and consistency based on the feedback from the piloted sample.

Key informant interviews were integrated to the survey to triangulate survey findings with interview data to enhance validity of the survey (Lincoln & Cuba, 1995). The survey also benefited from focus groups discussions which like the key informant interviews further explained and supplemented survey data.

A cross sectional survey method was employed for individual interviews. The survey site covered residents of Baringo County above 18 years of age and covers the local communities, local leaders, conservation associations, traders, and opinion leaders in the county. Seven focus groups were identified as well as 11 key informants. Key sites in the target population include: Ng'niot ViewPoint, Lake Bogoria National Reserve, Lake Baringo, Cheploch Gorge, Pika Volcano, Tugmoi Migratory Observation, Manger Rock Falls & Water Springs, Kapropita Rock, Kormoson Ancient Archaeological Fortress, Lingók Footprints Site, Sinibo, Morop Tarambas, Rondinin Fossils & Toicho Archaeological Geosite, Releng Hot Springs & Kosirsir WaterFalls, Bartabwa Ngenyin, and Frog Rock Kabarsero & Kaborion Archaeological Cave.

The sample population shall constitute the County Chief Officers of Culture, Tourism and Trade, Environment and Natural Resources, Manager (BGRV aspiring Geopark), residents of Simot, Releng, Sinibo, Lake Baringo (including Kokwa Island), Cheploch Gorge, Lake Bogoria, Irong community (to meet Beekeepers, Fruit Farmers, Kiborgoich Women Group, Karbanet town Traders association and National Museum of Kenya, Karbanet Office.

Secondary data was also acquired from Department of Agriculture, Baringo County Government.

2.4 Data analysis

Both quantitative and qualitative data analysis methods were employed. Data was collated and cleaned, coded and analysed using Ms Excel and presented in the form of tables, charts, bar graphs and percentages.

Plate 3: Data collection team at Simoot Twin Falls Geosite during the survey

Plate 4: Data collection team at Mangar Rock Falls and Water Springs Geosite during the survey

Plate 5: Geo-tourists being guided at Kimgochoch geosite by William Kimosop

3.0 RESULTS AND DISCUSSION

3.1 Results of the Desktop Study

The specific objectives of this review are to:

a) Identify the nature-based enterprises: natural (biotic and geological), socio-economic and cultural and volumes involved.

b) Map key stakeholders, including industries involved in value addition both local and outside Baringo and the volumes they handle.

3.1.1 Nature-based Enterprises in the Geopark

Baringo is large with varied microclimates and thus varied ecosystems, landscapes and natural resources. There are highland forests and lowland dry forests close to the lakes Baringo and Bogoria. The variation in ecology means that there are real and potential nature-based enterprises (NBEs) in the area. From the available literature, there exist several NBEs within the Geopark. There are cultural items made in the traditional tanneries such as shoes, bags, honey containers made of leather and wood, special livestock/cowbells, sword handles and sheath, production of traditional beehives, swords, spears, hoes, and objects of personal adornment e.g., beaded necklaces. These products are for home use and for sale to any willing buyer. In addition, it was noted that many nature-based enterprises are

Plate 6: Some Nature-based Enterprises in Baringo GRV aspiring Geopark

based on fauna and flora and associated services such as tour sites and stone quarries. These enterprises and associated Indigenous Knowledge Systems have enormous potential in terms of promoting sustainable environmental and wildlife conservation and boosting the creative-cultural industry and socio-economic advancement of the region, and the country.

Natural resources are the backbone of every nation and community as they play two basic roles including the provision of basic materials for production of goods and services as well as environmental services such as water, air and soil (Rodgers, 2004).Natural resources exist in various forms such as extractive resources which require extraction including oil, gas and minerals and land resources (such as water, soil, and forests) which do not require extraction (Anstalt, 2013). Baringo County has land resources, including water and associated bodies which provide both goods and services such as fish and water for domestic and commercial use. There are soil resources from which soil for house construction and quarrying activities are based. Dry land forest resources abound and here fodder, firewood and honey products are obtained, both for home and sale, thus entering the realm of Nature-based enterprises.

The wealth of a nation is founded on its natural resources, since it espouses the foundation of production of goods and services as well as environmental services which border water, air and soil (Rodgers, 2004). Sustainable development, which is the theme of SDG's is premised on utilization of social and economic benefits which are pursued alongside the maintenance of biodiversity preservation for the future (Keller *et al.*, 2000). Natural resources have globally been transformed into goods and services in various options as a community may determine in any society. The natural resources found in the aspiring Geopark will be utilized in accordance with the needs and socioeconomic endeavours of the locals in the geopark vicinity as envisaged by FAO (2004).

On the other hand, in ecosystems where fishing is the main economic activity, water serves the purpose of breeding fish. It is equally a fundamental natural resource for farming populations besides soil which is also used for pottery and brick making. The county is endowed with water bodies that are vital for fishing. These include Lake Baringo among other bodies. These water bodies also hold potential for a myriad of untapped water sports which can be developed to earn sustainable income for the community. The water bodies also provide an opportunity for ecotourism which has not been fully exploited for water lovers. It was noted through observation that during the festivities preceding the Kimalel Goat Auction there are water sport activities that are done at Kampi Samaki on Lake Baringo.

In the de-facto Geopark, plants are the most diversely utilized resource followed by wildlife. Plants are utilized for foodstuff, fodder, timber, fuel, and fibre for tools as earlier mentioned, as well as for construction of housing structures and fences, crafts, weapons, musical instruments, utensils, medicine, and for ritual purposes/product (FAO, 2004). Plants are consumed by man and his livestock and thus form the basis of primary production in any ecosystem. Wildlife also depends on plants as a source of nutrition. Plants and animals can thereafter enter the market and be traded for cash, thus forming part of the nature-based enterprises within the Geopark. The wildlife can also be indirectly used to earn income through sustainable tourism. Utilization of natural resources depends on the livelihood strategy of people though in some cases, it is the only source of economic activity for example in areas where the community is composed of largely crop farmers.

Within Baringo County and the Geopark, ecosystems provide for vibrant natural products and services that can transform the regional socio-economic processes and structures if

Plate 7: Community member creating and showcasing beadwork for sale

properly harnessed. Historically, global regions with the soils and topology like the Rift Valley region that hosts the geopark, presents a good opportunity for pottery and brick making as established (FAO, 2004). Even though this has not fully been exploited in the Geopark there are opportunities. The natural providence in Baringo can also be said to offer crucial accessories from plants as well as wildlife. Karigu (2012) discusses the potential of harnessing foodstuff, fodder, timber, fuel, and fibre for tools as well as construction tools, compound strain equipment's weapons, musical enablers as well other traditional accessories. The Baringo Great Rift Valley aspiring Geopark has a big potential for all that.

3.1.2 Geological based enterprises

The Baringo Great Rift Valley aspiring Geopark is set to open the region for socioeconomic development once the UNESCO formally designates it as a geopark. The aspiring geopark is set to enhance its tourism sector, a significant economic variable of the world (Telfer & Sharpley, 2008; Sharpley, 2009; Western, 2013; UNWTO, 2019). The rift valley segment in Baringo will join the rest or the world in making significant contribution to Kenya through employment creation and generation of foreign revenue, as similar geoparks in the world have done in injecting a shot at the tourism industry (UNTWO, 2018; WTTC, 2019b). Working on enhancing tourism in the rift valley region has the potential to positively impact on the socioeconomic lives of the residents, the county, and the country in general. Observing how tourism has impacted on national economies globally, the year 2018 comes to focus, as the industry contributed 10.4% of the world's GDP (US$8.8tn) and created 319 million jobs (WTTC,2019c).

Globally, tourism gives impetus to the socioeconomic and livelihood transformation of the poor communities through its direct, indirect, and induced effects (Honey & Gilpin, 2009). Tourism provides an opportunity to developing countries which are struggling with their economies due to weak industrial products and other trading products but endowed with natural and cultural resources by ploughing to such states substantial benefits which form the basis for fundamental source of their foreign exchange (Terfer & Sharpley, 2008; Carr *et al.,* 2016).

Arguments have been fronted on how tourism can compensate for anticipated intervention of development aid. Mitchell & Ashely (2010) hypothesized that in 2007 tourist spending was US$ 295bn in developing countries, almost three times larger than the amount of official development aid deployed in developing countries. The geopark initiative at the Rift Valley is therefore a potential game changer in Baringo County and Kenya in general. This is mostly because tourist attractions of developing countries are predominantly nature and culture based, as argued by Hawkins & Khan (1998); Deng *et al*., (2002). This is in line with Stanciulescu & Felicetti (2020) submissions that socioeconomic impact of ecotourism in the developing world is profound.

The Aspiring Rift Valley Geopark has the potential to exploit the competitive advantages of its ecotourism potential to advance sustainable destination development (Butcher, 2006). Panos (1997) and Vincent & Thompson (2002) argue that ecotourism represents 5% - 10% of the global travel market with an estimated annual growth of 10% - 30 % whereas Honey (2008) noted that ecotourism grows 10% - 15 % annually contributing US$154b to the world economy. Embracing ecotourism will thus propel the Baringo County and Kenya in general to be among the fastest growing and substantial niche tourism in the region. Subsequently, numerous destinations and regions assess their unique tourism resource potential and competitive advantages to develop eco and nature inclined places as it promotes the implementation of the principles of sustainable tourism in natural areas and sociocultural settings; considers sustainability and adheres to the triple-bottom line concept and gives emphasis on the educational component of a trip and thereby enhances visitors experience

Plate 8: Geological diversity of Baringo GRV aspiring Geopark

and helps to modify their behaviour and lifestyles into a more responsible traveller (Wang & Tong, 2012; Wang *et al*., 2020 & Wondirad *et al.,* 2020).

It is largely accepted that ecotourism also contributes to ecological conservation by generating a sustainable income to communities that own resources (Jamaliah & Powel, 2019; Lindsey *et al*., 2007. This argument is crystalized by Lindsey *et al*., (2007) assertion that communities tend to conserve environmental resources only when they believe that they are benefiting from their environmental protection efforts, as ecological conservation is only secondary to locals in the context of many developing countries where survival is a day-to-day struggle.

Since the Baringo Great Rift Valley aspiring Geopark has local communities who are at the heart of ecotourism in principle, integrating resource conservation with the local's livelihood could mostly be better achieved through ecotourism as compared to other mainstream tourism development models. This is elucidated by Wunder (2000) who portends that ecotourism is key for biodiversity rich, developing countries in their attempts to create income and employment opportunities through small – scale investments and enterprises.

It is a fact that empirically, many developing countries Kenya included, ecotourism revenue surpassed major traditional economic activities such as coffee export (Honey, 2008). The same can be said of Nicaragua, where ecotourism revenue exceeded coffee, meat and other traditional exports as of 2001 (Zapata *et al.,* 2011). Ecotourism therefore promotes the wise use of natural and cultural resources, the use of traditional knowledge in resource conservation and landscape management and community participation and empowerment as self-reliant tourism development model (Cole, 2006; Ramos & Prideaux, 2014; Rivera & Gutierrez, 2019; Scheyvens, 1996).

3.1.3 Cultural enterprises and their volumes

Bond (2014) appreciates culture as a key variable in tourism that isolates some countries from the global marketplace. Kenya stands out mostly due to its thriving tourism sector, which in many cases involved fauna, flora and cultural aspects Tourism provides a paradigm for culture to be enhanced and deepened, to bring its attribute to enhance livelihoods of a people though exploitation of cultural heritage, cultural production, and creativity (Dwyer & Kim, 2013). A country that invests in linking a strong bridge between tourism and culture therefore establishes a nation state that hosts destinations that are attractive and competitive to live, visit, work and invest in (Akama, 2012). Globally, culture and tourism are mutually beneficial as it strengthens the attractiveness and competitiveness of any country (Rumberger & Rotermund, 2012). Culture in the Baringo Great Rift Valley proposed geopark has several forms that are on offer for consideration. They include among others traditional homesteads of Kalenjin, Pokot and Turkana communities as discussed by Kiprutto et al., (2007), cultural artefacts, musical instruments, pottery, iron smelting products, clothing and adornments, guard containers and furniture of such communities in the region (Vesley, 2004). It is vital to note that there are also Maa speaking communities in Baringo whose culture is also important as part of tourism as explained below.

It is in no doubt that Baringo is a melting point of cultures (Akama, 2012) as the communities living there have a rich tradition that illustrate social and cultural diversity (CIDP, 2015). The existence of Ilchamus Community Cultural Centre at Eldepe enroute Lake Baringo is such an illustration of the intense cultural existence in the region. The Tugen Cultural Centre is also found towards Lake Bogoria. Britton (1989) proposes that the location of these cultural

Plate 9: Some of Baringo GRV aspiring Geopark cultural heritage

centres in the region has attracted major tourism interests in the neighbouring towns and centres, and consequently igniting a major economic transformation.

Tourism arrivals in Africa have remained relatively low in comparison to other continents. Having an aspiring geopark in Baringo County is such a welcome idea for Africa to enhance its tourism performance, to measure up to the likes of Europe and USA (UNWTO, 2013). In Kenya, Tourism has presented itself as the most developing sector and industry and currently retains the second position in foreign exchange earnings after tea which is at 25% contribution to GDP (GoK, 2014). The BGRV aspiring Geopark will likely tilt the current national tourism trend where Nairobi has remained the top destination in Kenya with 29.6 percent of tourists. Mombasa has followed closely with 14.7 percent, Naivasha 12.1 percent, Nakuru 5.6 percent and Diani Beach at 2.9 percent (KNBS, 2008). It is noted that most of the tourism trend in Kenya is inclined towards wildlife, natural sceneries and summer seasons. Globally, it has been appreciated that cultural tourism has resonated more with the Maasai people, yet it is a fact that other communities manifest equally richer varieties of culture, that if the aspiring geopark exploits can intensify cultural gains on tourism. The Pokot, Tugen and Ilchamus in Baringo have unique cultural capital that are unique in the region and tell a great deal of independence life of the Black people. This existence of such cultural wealth can be a major boost for Baringo in influencing its position as a tourist destination. It has been argued before by Ipsos (2013) that the increasing cultural attractions in Baringo provides stiff competition among tourism destinations at the local, regional, and international level. Richards (2011) opines that tourists will not visit a destination if their needs and priorities are not met, and this is the challenge that the BGRV as an aspiring geopark must address and focusing on the cultural practices of the local communities will heavily boost tourism in the region.

Dwyer & Kim (2013) proposed the key pillars of tourism competitiveness to be natural resources, cultural assets, and heritage items. This is in obvious cognizant of the created

sources as well which include infrastructure, quality of services, access to destinations and destination organizational theory. This assertion leaves no doubt that assets which are inherited from nature or created are foundations of any meaningful development in any state. Shaw & Williams (2004) avers that global contextualization of culture has led to the designation of World Heritage sites which have continued to attract massive visits annually. Sindiga (2009) observes that whereas the national and local level has had culture conceptualized as playing an important role in founding and defining people's distinct way of life, it also accords the people their sense of belonging and nationalism to a particular cause.

The cultural sub sector in the BGRV aspiring Geopark hosts various cultural groups, among them the 1,000 herbalists who have not fully registered their enterprises. Only 212 have formally registered for the trade. It is noted that herbalists in the region are yet to acquire certifications due to absence of standardized systems on their practice. The region is however actively utilizing herbal medicine harnessed from Baringo County (CIDP, 2018-2022).

3.1.4 Key Stakeholders, Industries and volumes handles.

Secondary sources of information were explored to find out the stakeholders in the Baringo GRV aspiring Geopark and their stake. This involved finding out those that operate inside and outside the aspiring geopark. Odada *et al.*, (2006) observes that the Rift Valley region has had key stakeholders who have attended to the region's natural products and services for purposes of value addition. The stakeholders have greatly focused on soil degradation, resulting from the large herds of cattle kept by the pastoralists, and consequently overgrazing the catchment vegetation. This practice has enhanced soil erosion, sedimentation in streams and the lake and the resultant flash floods. Related activities include deforestation and conventional agricultural tendencies. These challenges have interested several stakeholders, among them government agencies, non-governmental organizations (NGOs) who have agreed to take applicable measures to conserve the region. Therefore, a negative activity can

Plate 10: Dr. Emma Mbua, Chair, National Geopark Committee, making a point during the Geopark Baseline Survey Report, Stakeholders Validation Workshop

lead to the emergence of stakeholders for positive action. Among the various interventions include the Baringo Semi-Arid Project (BSAP) which has concentrated on land rehabilitation and has been active between 1980 and 1989, African Land Development (ALDEV) that has mainly focused on grazing schemes and provision of water since the 1940's, the Livestock Development Program (KLDP) for group ranches that began in the 1960's and the FAO Project for fuel and fodder that began in 1982.

Several stakeholders have continued to push the agenda of natural products and services preservation in the region. They have mainly adopted an approach that is intense on empowering the local communities for natural resource management, diversification of agriculture, agroforest systems, and microenterprises. In most recent times, more efforts have been geared towards fishing moratoria and soil and water conservation practices to intensify conservation efforts in the region. These efforts are mainly driven by the county and national governments using both law and policy approaches. Through this government actors or stakeholders have successfully reduced the pressures on key assets such as land, through initiatives that provide alternative sources of income, or by effecting direct conservation measures. The leading institutions in this endeavour include Kenya Marine and Fisheries Research Institute (KMFRI); Kenya Forestry Research Institute (KEFRI); Baringo County Government, Ministry of Agriculture and Livestock, Ministry of Water Resources and Development; Ministry of Environment and Natural Resources (Ministry of Environment, Climate Change and Forestry), Kenya Agricultural and Livestock Research Institute (KALRO). Private organizations include the Block Hotels, NGO's include World Vision, Rehabilitation of Arid Environment (RAE) as well as Community Based Organization such as Honey care and women groups (Odada *et al.*, 2006)

The United Nations Environment Programme (UNEP) and the Global Environmental Facility through the Lake Baringo Community Based (LBCB) Land and Water Management Project has facilitated integrated management of the lake and its basin. For the Baringo GRV aspiring Geopark to succeed, various stakeholders need to do their part and the table below projects the key actors in the delivery of the proposed geopark.

Table 2: Key Stakeholders

Stakeholder	Stakeholder Function
Local Communities (individuals and groups)	• Primary production, resource use, management, conservation, marketing, training, and policy formulation
Baringo County Government	• Policy formulation at county level • Establishment of Geopark management committees • Provision of human and financial resources • Provision and maintenance of infrastructure • Key county mandated managers of the sites • Enforcement and conservation programmes
Ministry of Environment, Climate Change and Forestry	• Policy Formulation, Inter-Ministerial Coordination of activities at National level
Kenya National Commission for UNESCO	• Link between Geopark and UNESCO • Capacity building

Stakeholder	Stakeholder Function
UNESCO	• Designation of the cultural, geological, and natural heritages as a World Heritage Site (WHS), Geopark and Biosphere Reserves
Ministry of Tourism, Wildlife and Heritage	• Cultural heritage policy formulation • Legislation and implementation • Domestication of UNESCO conventions • Documentation, inventory and safeguarding of cultural heritage. • Promoting national identity, peace, and social cohesion • Strengthening cultural creative industries • Conduct capacity building for county governments to coordinate and facilitate cultural exchange programmes for groups and individuals. • Register cultural groups and associations and agencies. • Promote traditional knowledge, traditional cultural expressions. • Develop tourism policy and support legislation. • Product design and development
Ministry of Water, Sanitation, and Irrigation	• Water resources management and governance for water availability and accessibility
Ministry of Agriculture and Livestock Dev.	• Extension service • Training in sustainable agriculture and value addition
Kenya Tourism Board	• Determination of branding and marketing strategy • Visitor experience design
National Museums of Kenya	• Policy formulation and implementation • Technical expertise • Capacity building • Gazettement of sites and monuments of national importance • Dissemination of information relating to Geoheritage
The Kenya Export Promotion and Branding Agency (KEPROBA)	• Branding and marketing of products at the Geopark
Research /Academic Institutions	• Identify research priority areas. • Human capital training • Provision of expertise to support Geopark. • Collaboration and Partnerships in Program implementation and stakeholder mobilization • Dissemination of research findings.
Kenya Utalii College	• Education and skills development

Stakeholder	Stakeholder Function
National Council for Science Technology and Innovation (NACOSTI)	• Establish research policy. • Prioritize issuance of research permits
Kenya National Convention Bureau	• Stimulate knowledge exchange and economic benefits from Meetings, Incentives, Conferences Exhibition (MICE) activities
Community conservancies	• Geosite management • Protection and conservation • Resource mobilization
Baringo County Conservancies associations (BCCA)	• Site management and stewardship
Kenya Association of Travel Agencies (KATA)	• Marketing, projections, statistics on visitors and sharing best practices
Media	• Media articles, advertisements
National Land Commission	• Land policy guidance • Advise on title deed acquisition
Civil Society Organizations	• Advocacy • Collaborations and Partnership • In stakeholder mobilization • Policy formulation, research, biodiversity monitoring
Geothermal Development Corporation (GDC)	• Exploration and exploitation of Geothermal energy
State department of mines and Geology	• Mapping and inventories of the geology and ore deposits • Issuance of exploration and mining licenses
Resource utilization Groups	• Advocacy/lobbying creation of awareness on the project
Tourism regulatory authority	• Setting standards in the tourism sector and certification, formulation and implementation of policies and standards
National Environment Management Authority (NEMA)	• Set and enforce environmental regulations
Athletics Kenya (AK)	• Talent scouting and nurturing. • Development of sports infrastructure
Kerio Valley Development Authority (KVDA)	• Economic development of the region
North Rift Economic Block (NOREB)	• Coordinate cross county development. • Enhance connectivity on shared resources

Modified from Baringo GRV aspiring Geopark Management Plan 2021-2031

Plate 11: Stakeholders during the validation of the baseline socio-economic report at Rift Hills Resort, Kabarnet

3.1.4.1 Industries involved in value addition locally and their volumes.

There are local industries involved in processing and or value addition for products in Baringo. However, the volumes processed cannot be easily ascertained due to lack of reliable data. Even where data is seemingly available for example from the various directorates in the county, there are glaring gaps that make it hard to give an accurate picture of the true quantities. The information obtained as in the table below through interviews and a validation exercise.

Table 3: Baringo Geo-products and volumes

Industry	Estimated Volume processed per year
Coffee	72,000 kilogrammes
Honey	50,000 Kilogrammes
Milk	1,080,000 litres/ 12, 600, 000 litres
Papaya wine	ND
Prosopis plant (for energy, fertilizer and animal feeds)	ND
Aloe vera	ND
Sandal wood	ND
Tamarind	ND
Pyrethrum	6,000 kilogrammes
Meat	ND
Cotton	ND
Water distillation	ND
Ballast/ Stone crushing	ND
Sisal	ND
Venom from bees, snakes and scorpions	ND

3.1.4.2 Industries in value addition outside Baringo and the volumes they handle.

Products from Baringo aspiring Geopark have a ready market outside the county and are traded almost every day. Due to lack of records, the values traded cannot be ascertained. The table below shows the situation as it is now.

Table 4: Industries and products value added.

Industry/ Good	Estimated Volume processed per year
Bees wax	No Data (ND)
Sisal	ND
Hides and skins	36,000 pieces of cow hide
Aloe vera	ND
Coffee husks	ND
Macadamia	ND
Cotton	2,000 Kilogrammes
Pyrethrum	2,000 Kilogrammes
Milk	11,500, 000 litres
Maize	ND
Water	ND
Honey	ND
Gemstones	ND
Meat	ND
Fruit	ND

Algae industry: Communities living around Lake Bogoria are aware of the potential commercial value of algae. This is based on literature on the same that shows the value in the biotech industry. The community doesn't have capacity to exploit this resource. However, they aver that with government support, this is a resource from which they can gain.

3.1.4.3 Potential for Geothermal Power to support manufacturing.

Manufacturing in the Baringo GRV aspiring Geopark defines Africa's pride in geothermal resources found in the Northern Rift as characterized by regional anomalous mantle uplift with associated tectonics and shallow magma injections (Peccerillo *et al.,* 2003; Biggs *et al.,* 2009; Ebinger *et al.,* 2010; Varet *et al.,* 2012). The Northern Rift region has uncontested 30 active volcanoes and several hot springs and fumaroles that provide massive hydrothermal activity. Geothermal production in the Rift Valley began 30 million years ago when rifting activities began in Lake Turkana and continued southwards until the formation of the graben structure which was later followed fissure eruptions in the axis of the rift to form flood lavas. Volcanic activities have become intense due to extension (Dunkley *et al.,* 1993). The hydrothermal activity has resulted to geothermal energy that can be harvested at shallow depths, facilitating both big and small sized development projects (Omenda, 2002; Mnjokava, 2012; Teklemariam, 2006). Porter (2007) holds the view that Africa must redouble its efforts to achieve stability on electrical power processing and Kenya is well placed to

exploit the existing natural resources in the Baringo GRV aspiring Geopark to make this strategic manufacturing stride. The aspiring Geopark has a huge potential for manufacturing industry. This guarantees the aspiring geopark all the support in form of natural products and services to achieve its strategic objectives. This geothermal power is vital for the socio-economic development of the country though it may not be the power consumed within the Geopark. Currently within the aspiring geopark, there is active exploration for this power. No geothermal power plants have been commissioned and are operational. Korosi, Paka and Silali have shown great potential after drilling. If measures are put in place to levy a fee on the same, the local communities can benefit even if they do not use the power for value addition once the projects have been commissioned.

3.1.5 Other Land Uses in Baringo County

In Baringo County, land use is highly informed by climate, cultural beliefs, and altitude. Baringo County has a land area of 11,035 km^2 out of the said land, 4,435km^2 is arable, with 5,700 km^2 being non- arable. At the same time 715km^2 of the land is urban land and other purposes (Baringo CIDP, 2018). Baringo County has undergone various land use changes that has revolved around agriculture, pastoralism, human settlement, vegetation cover and water bodies (CIDP, 2018). Ochuka *et al.*, (2019) evaluated land use in Baringo county for the period 1988- 2018 and provides a graph of increased land use changes where agricultural land use has gone up from 21.11% at the start of the evaluation year all the way to 26.03% by the year 2018. He recorded a decrease in pastoralism land use from 15.14% to a decrease of 23.01% by the year 2018. Human settlement increased by 2.47 by the year 2018, with vegetation cover decreasing at a very high rate of 3.78 % by 2018. This paints a picture of a county where land use in agriculture is on the increase, pastoralism is decreasing, human settlement is on the increase, vegetation cover is decreasing at a rising rate while water bodies is decreasing.

Baringo County is domiciled by three main indigenous local communities, who are descriptively differentiated by their diverse cultural orientations on land as a resource and consequently practicing a variety of livelihood options. The communities include Tugen, who are predominantly crop farmers and found at the hilly part of Tugen Hills region which has relatively reliable rainfall. The Tugen belong to the Kalenjin ethnic group and occupy four constituencies: Eldama Ravine, Baringo Central, and Baringo North and Mogotio constituencies. The Tugen community occupy a regional coverage of 4822km^2 with 1,770.4 km^2 being high potential, 2,069.6km^2 medium potential and 709.6 km^2 low potential. This explains the various socioeconomic undertakings in the community in pursuance of their livelihoods (Baringo CIDP, 2018). The community is estimated to number 422,312 persons in Baringo County as per the 2019 population census (KNBS, 2019).

The CIDP (2018) report indicates that the Tugen Community inherited their land from private land ownership, indicating existence of title deeds and allowing the community flexibility to integrate modernization in agriculture. The livelihood activities include crop farming of such crops such as maize and beans, fruit trees and horticultural crops and cash crops such as coffee. The coffee is farmed on a small scale.

Pokot are livestock keepers and live in the Northern region of the county and are the second largest local community in Baringo County. The Pokot belong to the Kalenjin ethnic group and domiciled in Tiaty Constituency. The Pokot live is an area of 4516.8km^2 consisting of 225.8km^2 high potential, 451.7 km^2 medium potential and 3834.8km^2 low potential while

4.5km^2 is covered by other land (CIDP, 2018). Livestock keeping is the primary source of livelihood with cattle, sheep, goats, camels, and donkeys dominating their herds. As of 2019, the community was estimated to have a population of 171,027 people (KNBS, 2019).

The Pokot Community occupation spans all the way from west Pokot to Baringo. The community is nomadic and moves from one area to another in search of livestock feeds and water. Their land is characterized by dry spells and frequent famine with acute water and food shortages defining the community. Mugabe *et al.*, (2016) observes that the land use in the region is defined by movement of livestock in response to the variables of sparse, erratic rainfall, short vegetation, and water.

The Ilchamus are the third largest community and are predominantly agro-pastoral occupying the region around Lake Baringo and belong to the 'Maa speaking ethnic group'. They derive their livelihood from livestock keeping, growing crops in small scale irrigation and fishing for subsistence purposes. Whereas they live in permanent residences, they occasionally move about with their livestock during the dry periods. Their total land area is 1678km^2 characterized by 167.8km^2 high potential, 251.7km^2 medium potential and 755.1km^2 for low potential.

Ondiege (1996) opines that the greatest challenge of the region domiciled by the Ilchamus is the leveraging on the livestock and crop land use, as rapidly expanding crop farming is choking the grazing fields. Related, is the emerging threat of the poisonous tree (Prosopis juliflora) which is diminishing both grazing and crop space. The challenge is compounded by the rising water levels of Lake Baringo which is precipitating floods in areas where some community members had established irrigated fields (Ondiege, 1996). The community has not come out strongly in having organized land use structures, as the land is free for all opening the region to illicit land processes such as land grabbing, land conflicts and invasion by other communities.

The livelihood assets of Baringo Great Rift Valley aspiring geopark will largely be influenced by government policies, both at the national and county levels. The resultant livelihood assets will have a resultant livelihood outcome. It will be the place for the residents within the proposed Baringo Great Rift Valley aspiring Geopark to adapt the applicable strategies by harmonizing the influence of the resultant policies, institutions, and processes to standardize aggregate livelihood outcomes. Cahn (2003) avers that contextualizing the structures and processes provides link between the micro levels of individuals, household and community and the macro levels of regional, national, and international actors and agencies. This position is supported by Ellis (2000), Scoones (1998), and DFID (1999).

The ability of the Baringo residents to tap in on the opportunities availed by the proposed geopark needs a strategy of entry by the county and national officials in a bid to guarantee the locals the applicable potential of harnessing the natural right to the opportunities. This is because both the micro and macro levels highly determine access, control, and use of assets (Cahn, 2003; DFID, 2010). It is contextually agreed that appreciating institutional processes allows identification or the challenges and opportunities to sustainable livelihoods and broaden the spectrum on the land use processes which provide the framework for livelihood sustainability (Caln, 2003).

3.1.6 Residents Access to Credit in Baringo GRV aspiring Geopark

The socioeconomic survey in the Baringo Great Rift Valley aspiring Geopark anticipated an evaluation of the nature of enterprises in the region that shall be enhanced by the geopark accreditation process. Local enterprises in Baringo face a herculean task of sustainability due to the nature of doing business in Kenya in general and at the counties. Quaye (2011) affirms that Micro, Small and Medium Enterprises (MSMEs) experience low chances of accessing credit facilities and support offered by micro lenders due to various reasons. In Baringo County, the local residents operate low level MSMEs that are unable to retain the much-needed collateral to offer to financial securities. The lenders equally experience high risks in dealing with lending to the said enterprises as it is almost impossible to predict the chances of repayment of the borrowed financial facilities.

On average, the small enterprises in rural counties such as Baringo do not own the much-needed high level range of collateral accessories that is acceptable to most lenders. Importantly as captured by Government of Kenya Report (2010), most small-scale enterprises do not keep their assets in a state that can be used as qualifying collateral to borrow loans. Samuel *et al*., (2019) affirms the role played by Small and Medium Enterprises (SMEs) in Baringo in deepening financial development and growth. Indeed, the scholars asserted that in the first three years of their operation, three out of five the SMEs in Baringo County do not thrive and those that make it to that stage, collapse in their fifth year. The greatest challenge in Baringo County therefore is access to credit facilities for small enterprises as most of the MSMEs in the county bank on personal savings, domestic aid sources such as family, friends and relatives for funding. The locals find the mainstream banks as inflexible and reluctant to extent credit to those enterprises that do not meet the minimum credit worth scale (Muguchu, 2013).

Chelimo and Sopia (2012) observes that those lucky enterprises able to access credit support have been able to grow extensively and expand, as measured by their profitability and increased business expansion to the county headquarters in Karbanet town. Komen (2014) singles out absence of formal training as a key barrier for enterprises to access financing as the business skill variable is highly valued by lenders. This has accounted for absence of women in the microfinancing process due to collateral matrix as little property is registered unto their ownership. The growth of enterprises in Baringo is likely to receive a major boost by the proposed BGRV aspiring Geopark as the challenges that face the enterprises are likely to be moderated by the geopark existence. Kimaru (2014) studied the effect of Micro-finance institutions interventions on the progress of micro enterprises in Mogotio Sub-County and established that very few of them manage to go beyond the value capital of fifty thousand shillings and consequently operate below the threshold of derivable profit margins. This dampens the growth graph of the enterprises. To illustrate the nature of enterprises dominant in Baringo County, Kimaru (2014) opined that most enterprises could only qualify for a loan facility of twenty thousand shillings only, which is too little to inspire high margins of profits. This is largely informed by absence of collateral to borrow more. As well as inability to innovate and integrate technology into the enterprising processes.

Wachira (2012) avers that in Eldama Ravine Town, high interest rates charged by micro credit facilities have pushed small enterprises further into the abyss of business failure and collapse. The interests charged by the micro finance sector have highly contributed to high level of unbanked revenues by the entrepreneurs, resulting to misuse of sales revenues

which in turn undermines profits among the enterprises. Financial lenders therefore play a major role in spurring enterprise growth, and that the aspiring geopark is being banked by the locals to attract intense competition among the institutions and consequently push them to lower their demands and threshold of lending to the local traders.

3.1.7 Financial Services in the Geopark

Baringo County has a growing population of financial institutions since the year 2010, mostly motivated by devolution. Devolution led to expansion of local employment opportunities and thus the need to have a banked population since most salary payments are made through banks. By the onset of devolved governance, the county had 14 banks, 13 Sacco and 32 other financial institutions that had gained ground on the county. The financial institutions are spread in major towns such as Kabarnet, Marigat, Koibatek and Mogotio. The growth of the financial institutions has not seen an equivalent energy for growth of insurance sector units. The Department of Commerce of the Baringo County has provided the information which is shared in table 3.

Table 5: Financial Institutions for the period 2012 - 2014

Sub County	Type of Financial Institution				
	Banks	Saccos	Insurances	Microfinance	Other Institutions
Baringo Central	5	2	0	0	18
Baringo North	1	1	0	0	0
Tiaty	0	1	0	0	0
Mogotio	2	2	0	0	2
Marigat	3	2	0	0	7
Koibatek	3	5	0	0	5
Totals	**14**	**13**	**0**	**0**	**32**

Source: Baringo County Department of Commerce (2012-2014)

Financial institutions in Baringo County for the period 2012-2014 were profiled by the Department of Trade, Tourism and Industrialization Enterprise of Baringo County Government as attending to various sectors and as dominated by Saccos as shown in Table 4.

Table 6: 2014 SACCO distribution and membership in Baringo County

Type of Sacco	Registered No.	Active SACCOs	Membership No.
Dairy	29	17	18,278
Coffee	25	20	4,890
Rural Sacco	5	2	28,189
Urban Sacco	41	28	55,101

Type of Sacco	Registered No.	Active SACCOs	Membership No.
Livestock	41	28	55,101
Housing	42	28	55,101
Bee keeping	4	3	458
Farmers marketing	4	3	458
Cereal produce	31	13	656
Irrigation	1	1	73
Fisheries	1	1	146
Aloe vera Utilization	1	1	1
Others	74	35	685
Totals	**299**	**180**	**232,236**

Source: County Government- Trade, Tourism & Industrialization Enterprise

3.1.8 Conceptualization of the Baringo GRV aspiring Geopark

The Great Rift Valley aspiring Geopark utilizes the ecotourism theoretical conceptualization, where ecotourism is encouraged in a region as a form of tourism development due to its presumed benefits to host communities in this case Baringo County. The benefits spread out to touch on the local economy as well as environmental conservation (Hawkins, 1994; Hawkins & Khan, 1998; Stem *et al.*, 2003; Carr *et al.*, 2016). Numerous developing countries have embarked on consideration of ecotourism with the goal of achieving the twin target of conservation and economic development (Eshun & Tagoe-Darko, 2015; Masud *et al.*, 2017; Abukhalifeh & Wondirad, 2019).

Ecotourism is an emerging segment of the tourism sector that has been identified for its observance to the doctrine of sustainability and intent to achieve both economic transformation and environmental sustainability (Wight, 2002; UNWTO, 2004; Bien, 2010; Mgonja *et al.*, 2015). International Ecotourism Society (TIES, 1990) posits ecotourism as "a responsible travel to natural areas that conserves the environment and improves the welfare of local people." This is precisely what the Great Rift Valley Geopark seeks to do, and this theoretical foundation is true to the letter and spirit of the drivers to the initiative. Ecotourism is embedded in three pillars; first, a type of travel which is sensitive to the natural environment. Secondly, a trip predominantly to the natural environment with conservation actions, even though exotic cultural dimensions can be targeted and thirdly a journey that strives to improve the well-being of the host community (Wondirad, 2020).

Ecotourism encompasses forms of travel to tranquil and unpolluted natural areas and exotic cultural destinations with the objective to study, experience and appreciate the natural providence of nature, espoused by scenery and wildlife with conservation as a prime bottom line. Scheyvens (2007); Tsang *et al.*, (2011); Wondirad (2019) suggest the themes of ecotourism such as ensuring local communities' participation and benefit, empowering and involving the youths and women, protecting and conserving the local culture and environment, generating economic benefits through employment and income creation as well as enduring tourist's satisfaction by delivering quality service. This is what this study embraces as the key tenets of the ecotourism theoretical foundation in conceptualizing the

Great Rift Valley aspiring Geopark.

This theoretical conceptualization posits ecotourism in the great rift valley not geared towards replacing the existing traditional economic activities as envisaged by Honey (2009); Mitchel & Ashely (2010) but to complement and integrate tourism into the existing local economic enterprises (Peake *et al.*, 2009; Sakata & Prideaux, 2013; Rivera & Gutiettez, 2019).

The figure below conceptualizes the ecotourism theoretical grounding.

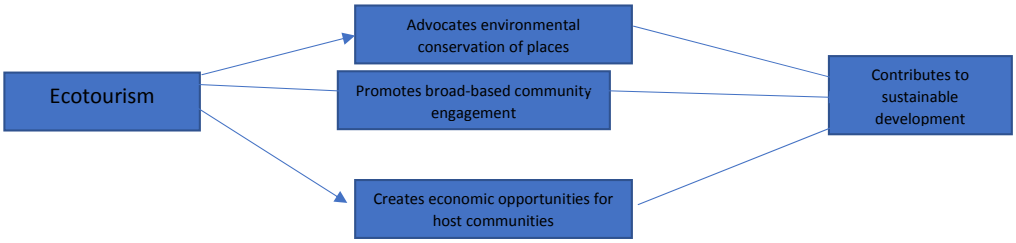


Figure 1: Ecotourism Theoretical Grounding Source (Adapted from Hawkins and Khan (1998)

3.2 Field Data Findings

This section presents results of the field survey, analysis and discussion. The findings are presented in line with the objectives listed below, but some general background information is provided.

1) Map present and potential nature-based enterprises within the BGRV aspiring Geopark including research opportunities.
2) Establish and map nature-based enterprises stakeholders (including clients) and market volumes.
3) Undertake capacity needs assessment in areas of geopark and sustainable development.
4) Undertake socio-economic baseline analysis considering the interaction between the geo-sites and local communities.
5) Document impacts of these socio-economic and livelihood enterprises on the communities within the aspiring geopark.
6) Outline SWOT analysis options that would promote the nature-based heritage of Baringo County.

3.2.1 Location of interviewees

The survey respondents were primarily from Baringo North and Baringo South. The diagram below highlights the different locations of the participants involved in the survey, within the red bordered Baringo County. Notably, few participants were from the Kerio River region.

The total number of questionnaires administered and filled were 138, to both male and female respondents, of which 79 were male and 58 were female, while 1 was no response. There were 4 four focus group discussions, Group 1 had 50 members (19 female and 31

male), Group 2 had 9 people (3 female and 6 male) Group 3 had 12, (4 female and 8 male), while Group 4 had 8 people (3 female and 5 male). There were 17 key informants of whom 6 were female and 11 were male.

3.2.2 Age Group

Adult respondents with above 18 years participated in the survey as highlighted in Figure 3 below. This is in line with the national definition of adulthood. Majority of the respondents were within the age group 39-45 at 22.46% while only 9.42% were 32-38. Notably, this age group accounts for the mean. It can therefore be argued that most of the respondents found at the study site were mostly young and at a productive stage of their lives. This gives impetus to the anticipation that the aspiring geopark will be instrumental in facilitating the young generation hinge their livelihood from its provisions. The oldest age bracket was 53 and above accounting for 18.12% of the respondents.

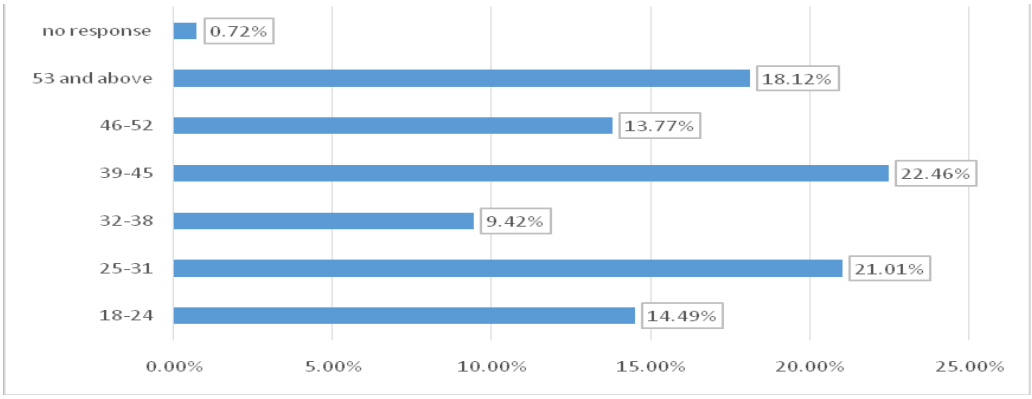


Figure 2: Range of age

3.2.3 Gender of the respondent

The findings of survey deduced that 57.25%, were male whereas 43.03% were female. A percentage of 0.72 did not respond to this question. It was clear from the survey that more men than women were engaged in business enterprises in the region within the aspiring geopark. This prospect of gender equal participation in a survey is critical in providing an opportunity for gender moderated approach to the socioeconomic activities and engagements of the region.

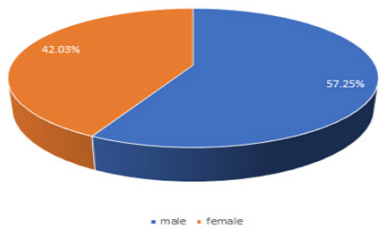


Figure 3: Gender of respondent

3.2.4 Household size

The number of members in the households can be summarized by the fact that most of the respondents live in a joint household of between 4 to 6 people at 42.75%. Only a minority of 13.04% live in a household with up to three people. Additionally, 13.04% indicated to live in a joint household with 10 or more people. The mean of 2.44 shows that most people either live in a shared household with 4-6 people or with 7-9 members. This gives a clear projection of a high dependency on the enterprises that dominate the socioeconomic activities in the region as most of the respondents were found in their daily economic engagements. The results of the members within a household are shown in the figure below.

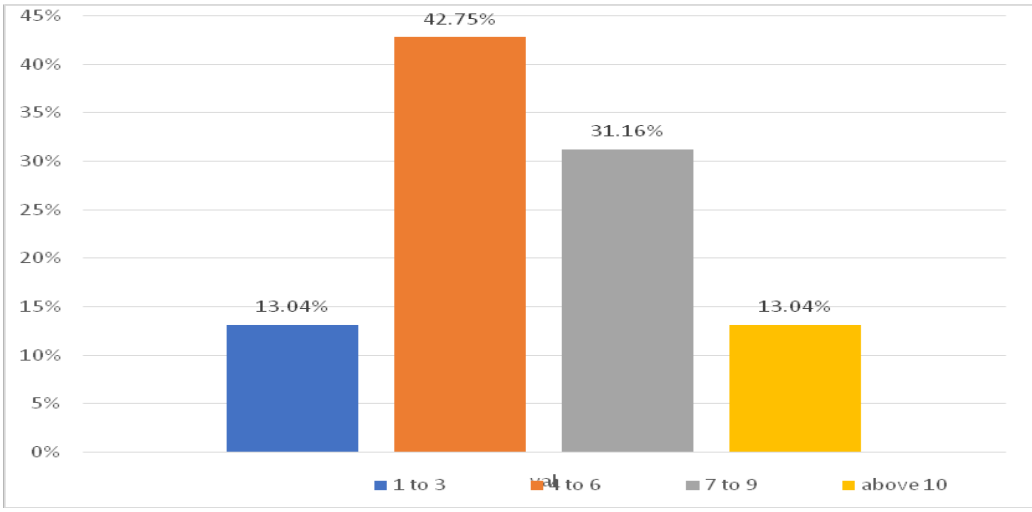


Figure 4: Household size

3.2.5 Level of Education

Years of schooling is avital tool for measuring different levels of knowledge acquisition. In this study different levels of terminal education were considered. In general, the findings indicated that 34.06% of the respondents had completed primary school, while 31.88% had completed secondary school Furthermore, only 7.97% had not continued their educational career after pre-school. On the hand, some respondents continued their education after secondary school to either earn a certificate/diploma, degree, or postgraduate degree at 17.39%, 7.97% at 7.97% respectively. In summary, most of the respondents have completed primary or secondary school. The low transition to attain certificates, degrees or postgraduate degrees may be attributed to high poverty levels. This is however a pointer that most of the residents will most likely spend their lifetime in the engagements they are currently undertaking in the places that the survey was undertaken, with alternative chances of migrating within the county towns. The graph below shows the education level ratings of the survey.

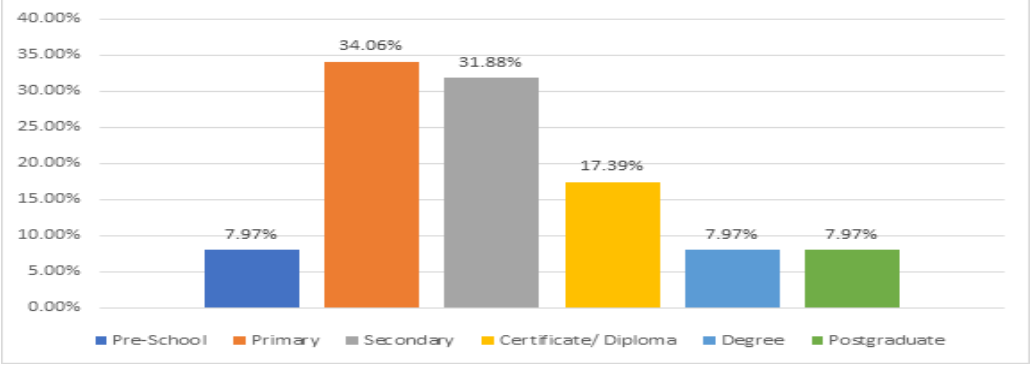


Figure 5: Level of Education

3.2.6 Occupations of respondents and other household members

The area in question is largely rural as earlier indicated in the desk review analysis. According to the survey, most of the respondents were farmers at 53.62% which also represents the mode. 4.35% respondents indicated that they are still students while 6.52% remain unemployed, though this depends on ones won perception given that there is high potential for self-employment. Among the employed respondents, 7.25% indicated that they have more than one job primarily having a private business besides their main employment. Overall, 18.12% have their own business while 7.97% indicated any other in their responses. Among these are welding, craftspeople, freelance guides, divers, shopkeepers and people working in the gastronomy area whereas divers being a majority. The different occupations are shown in the figure below.

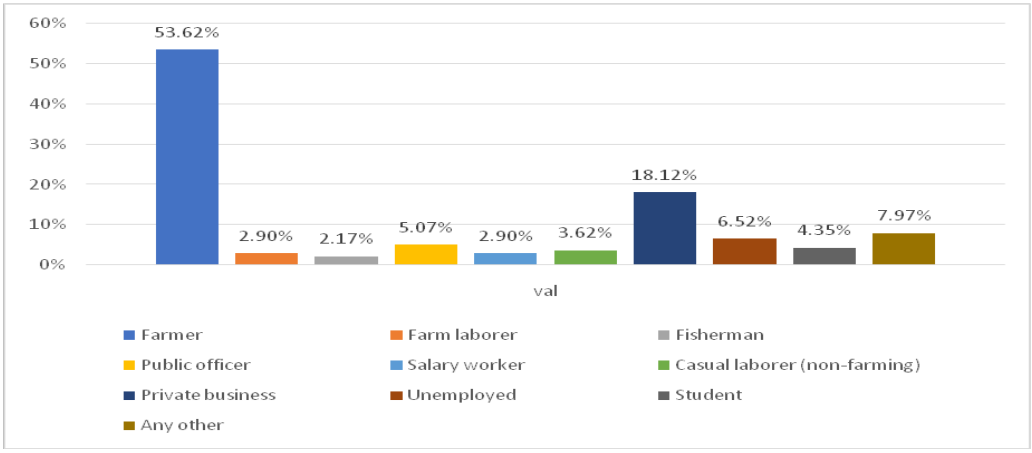


Figure 6: Occupations of respondents

Generally, the respondents indicated the following as the types of work members in their household engaged in; crop farming (small scale, subsistence and in some cases the same is sold), livestock keeping (goats, sheep, poultry, cattle with a few venturing in to camels) selling milk, welding, hospitality industry, hair dressing, plant operations, fishing, teaching, grazing, motorcycle taxi (boda boda) business, boat riding, honey business and mining. This at best brought out the picture of the most dominant socio-economic activities. It is also

indisputable that members of the community are employed both by government and private sector. There is permanent, contract and casual employees in various institutions within and outside the county. The county as an example is a major employer of permanent staff. This implies that remittances are also done by those who work away from home.

3.2.7 Familiarity with the Baringo Great Rift Valley aspiring Geopark

Regarding the BGRV aspiring Geopark, 87.68% were already familiar with the Geopark while 11.59% were not familiar with the Geopark. A percentage of 0.73 did not respond to this question. This communicates the anticipation the residents have on the aspiring geopark and the subsequent socioeconomic benefit of the geopark once the formalization process is completed.

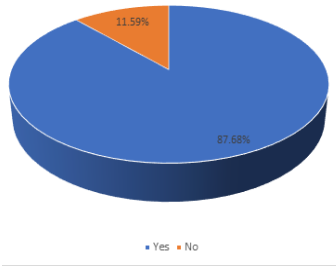


Figure 7: Familiarity with Geopark concept

Generally, 43.48% have gained their knowledge from family, friends or generally spoken from any word of mouth. Social media has been a source accounting for 10.87% whilst 12.32% have stated either brochures, websites, TV, signage, or daily newspapers as their source of knowledge. 19.57% remain to have been made familiar with the BGRV aspiring Geopark over other sources of knowledge. Individuals that were most familiar with the Geopark were either part of the county government or administrators by profession. Additionally, some had witnessed the founding of BGRV aspiring Geopark, had visited the site or were members of the geosite, or were individuals working in the wildlife or water service sector. Some of the respondents also highlighted KNATCOM as their source of knowledge.

3.2.8 Participation in Geopark related Workshops and Stakeholders at a Geosites

According to the survey, only 25.36% had attended any Geopark related workshop meaning that the rest had not, and 44.2% pointed out to being a stakeholder at the site, leaving the rest out as thinking that they have no stake.

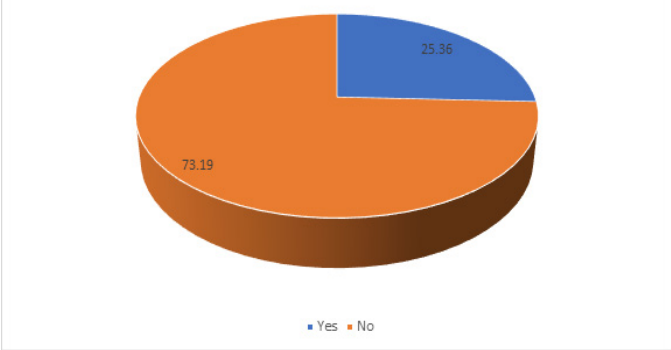


Figure 8: Attendance of workshops

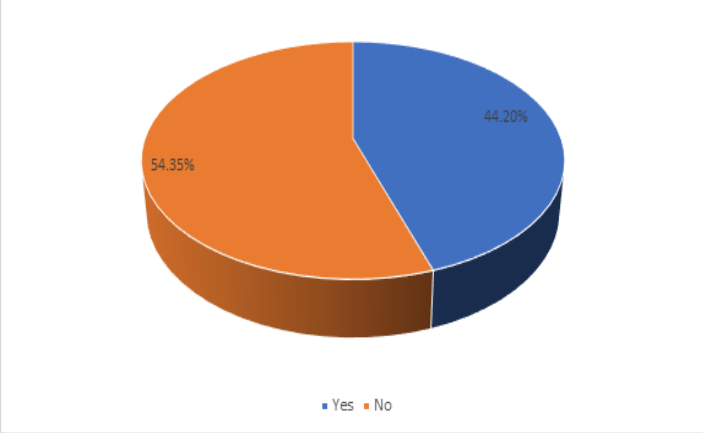


Figure 9: Stakeholder at a Geosite

The above scenario points to the need to do more in terms of training and capacity building for the locals to appreciate the premiums of the geopark. The capacity building workshops are expected to improve the locals' capabilities to assist in conserving the geopark, as well as maximising on its natural products and services.

3.2.9 Entrepreneurship and Employment

On entrepreneurship and employment, respondents were asked six statements. It is noted that 22.46% of respondents strongly agree that most of them save or invest their surplus whereas 25.36% agree. 16.67% were neutral whilst 17.39% disagreed and 15.94% strongly disregard. Analysis on the ease to the respondents' ease in running a sustainable a business revealed that 21.01% strongly agreed, with 33.33% agreeing with the statement. On the other hand, 12.32% were neutral with 21.01% disagreeing and 10.14% strongly disagreeing with the statement. Participants were also asked on their view on the ease of establishing a business. The analysis revealed that 21.74% strongly agreed and 31.16% of the respondents agreed with statement. Additionally, 13.77% indicated neutrality with 22.46% strongly disagreeing and 8.70% disagreeing. The respondents were also asked on whether there are many entrepreneurs in the county, 26.81% strongly agreed, 25.26% agreed,18.12% were neutral with 20.29% disagreeing and 7.25% strongly disagree. Regarding if there are enough employment opportunities, results indicated that 10.87% strongly agree with

the statement, 12.32% agree while 13.04% were neutral. On the other hand, 30.34% and 31.16% disagreed and strongly disagreed respectively.

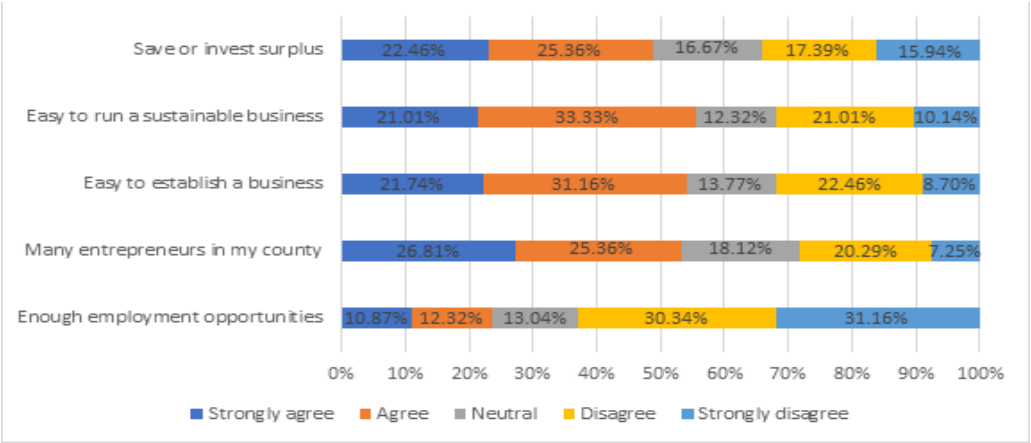


Figure 10: Entrepreneurship and Employment

3.2.10 Societal Roles

To assess the societal structure, respondents were availed with two statements: whether tasks are allocated based on gender and whether men are key decision makers. A relative majority of 38.41% strongly agreed to the first statement, while 18.84% agreed, accounting for about 57% of respondents that believe that tasks are indeed allocated based on gender.12.32% were neutral, 17.39% disagreed and 11.59% strongly disagreed., accounting for 29% who believe that the contrary is the case, i.e., tasks are allocated no matter the gender. The second statement produced a rather similar outcome with around 48% indicating that men are key decision-makers in their society while 34.83% strongly agreed and 13.04% agreed. Around 28% perceive the structure in their society differently, with either men and women making decisions equally or women being the key decision makers. The second statement saw 18.84% of the respondents disagree, 9.42% strongly disagree while 9.42% remained neutral. Both outcomes to the said statements allude to a society with rather strict gender roles and men often playing a more dominant role than women. This is depicted in the figure 12

3.2.11 Organizations Involved in Promoting Development of Community-Based Enterprises.

As a follow-up question to the work household members are engaged in, respondents were asked about organizations involved in promoting development of community-based enterprises, thus assessing key industries as well as possible areas of capacity needs. Notably, 55.8% of organizations promote development in the agricultural sector, which also is a major sector in Baringo County. Equally important, around 21% to 22% organizations tend to promote development in Banking / Cooperative, Water, as well as Tourism/Ecotourism/ Sustainable tourism. Tour guiding, Mining and other Community Based Enterprises received the least amount of support from organizations all below 4%. The findings reflect on sectors

in Baringo County that need support. These findings are reflected in figure 13.

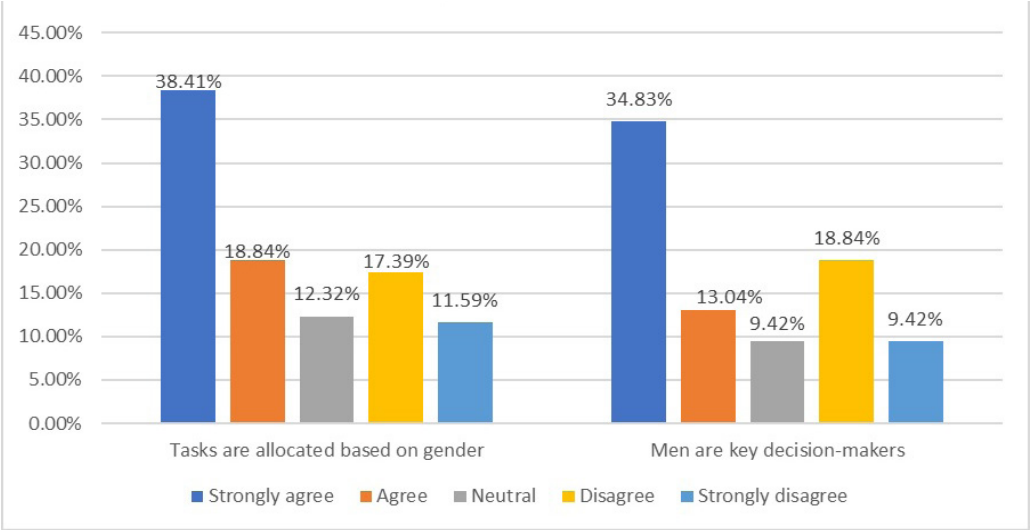


Figure 11: Societal Structure

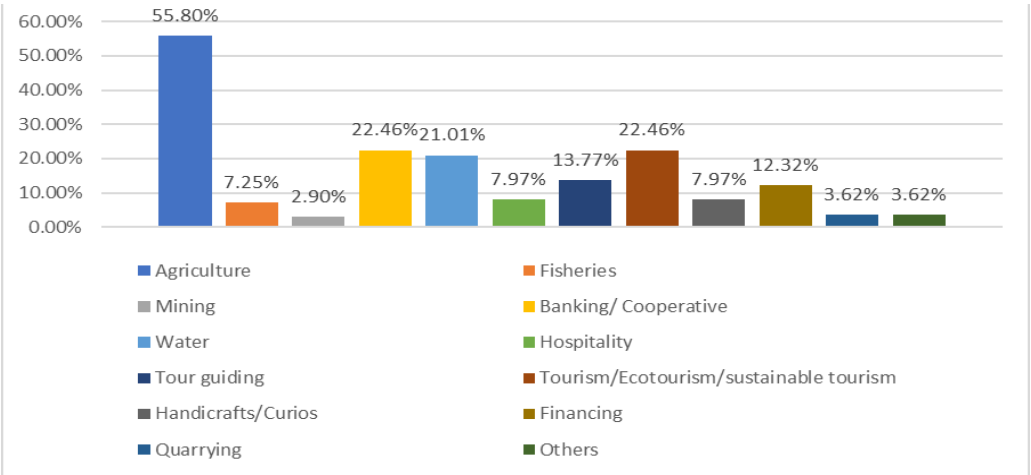


Figure 12: Organizations involved in promoting development.

3.2.12 Role of Different Organizations in Promoting Community Based Income Generating Initiatives

Results from the survey highlighted the different roles that organizations played in promoting Community based income generating/livelihood initiatives. Most of the organizations offered financial support, training and capacity building, and extension services at 36.96%, 31.96%

and 22.46% respectively. There was minimal support in the areas of monitoring impacts, buying finished products, buying raw materials, and branding, all below 8%. These reflect on the areas that should be prioritized by the various organizations that should focus on to support the community. The views are reflected in the figure below.

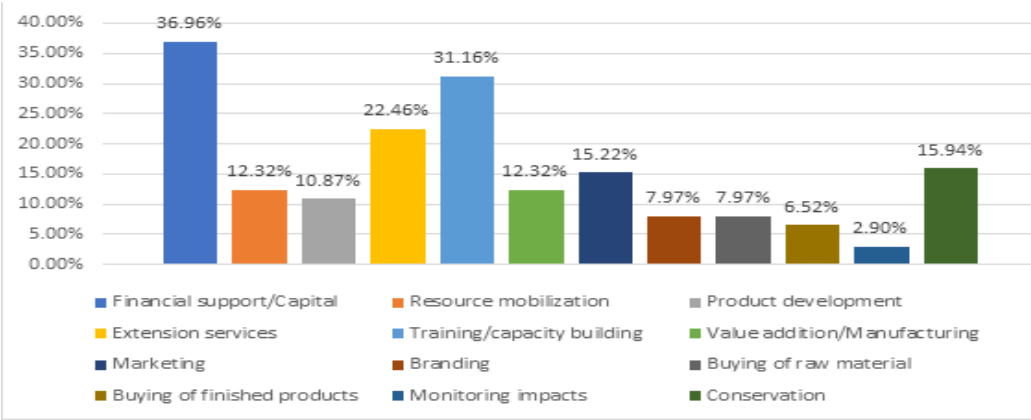


Figure 13: Role of support Organizations in income generation

3.2.13 Knowledge on Branding of Products and Services

The survey sought to understand the respondent's knowledge on branding of products. The results highlighted that 46.38% of the respondents had no knowledge on branding of products whereas 49.28% indicated having knowledge on the same. A percentage of 4.34 did not respond to this question. This reflects on the need for more sensitization and education on branding given that close to half of the respondents lacked knowledge in this area.

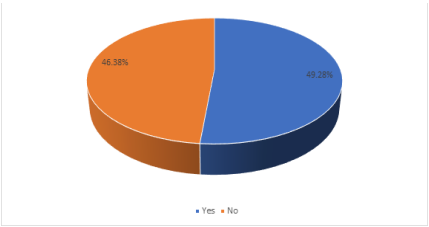


Figure 14: Knowledge about branding of products

3.2.14 Locally Branded Products

As a follow up question respondents were asked about some of the locally branded products. The following products and service were identified: honey, milk, coffee, animal products, tourism, farming, business, Kipsaraman tourist site, maize, Kenya seed, grass (rye), beef, goats, fishing, beans, mangos, herbs, ground nuts, handcrafts, tomatoes, onions, sweet potatoes, butternut and millet. It was clear that the locals had been assisted to brand their products for marketing strategizing and expansion.

3.2.15 Purpose of undertaking crop farming

The analysis established that 47.83% of the respondents practiced crop farming for subsistence purposes, 5.80% for commercial purpose whilst 41.30% practiced farming for both subsistence and commercial purposes.A percentage of 5.07 did not respond to this question. The crop farming responses give a pictorial of a community that heavily relies on erratic rainfall, causing major food shortage for both humans and animals. Diversification in economic activities becomes a dire need for the community. The responses are reflected in figure 17.

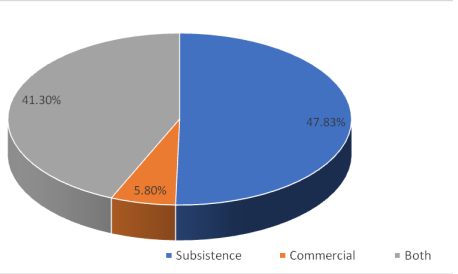


Figure 15: Purpose of Crop Farming

3.2.16 Arable land size in acres

Ownership and access to arable land is an important factor in nature-based enterprises. The survey sought to understand the size in acres, of arable land owned by the respondents. 21.01% of the respondents own 1 acre of land, 15. 22% own 2 acres of land whereas 9.42% owned 0.5 acres of land. Very few respondents owned more than 5 acres. These projections defined the nature and attributes of the agricultural activities possible for the locals in the aspiring geopark. The findings are reflected in the figure below.

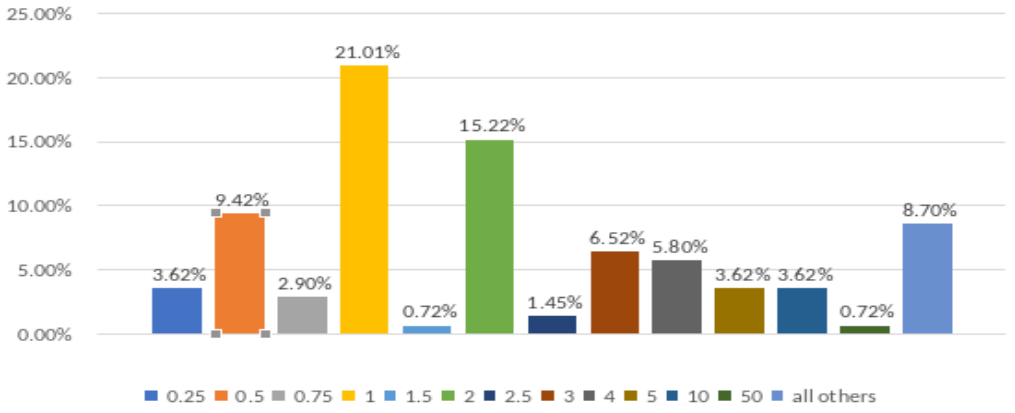


Figure 16: Size in acres of arable land

3.2.17 Crops grown in the rainy and dry seasons.

The following crops were identified to be grown during the rainy season: maize, tomatoes, beans, millet, melons, kale, butternut, green grains, watermelons, onions, grams, sisal, cow

peas (kunde), loiki, green grams, groundnuts, coffee, bananas, cassava, mango, carrots, potatoes, wheat, peas, macadamia, fruits. Crops planted during dry season include the following: maize, tomatoes, beans, vegetables, green grams, watermelon, butternut, kale, onions, sorghum, sisal, spinach, Napier grass, cabbage, millet, sweet potatoes, cassava, avocados, lemons, papaya, pawpaw, peas and mangoes.

3.2.18 Income from Agriculture

The survey established it that within the past 12 months (precisely between November 2021 up to November 2022) maize has clearly been the main source of income at 50%, followed by beans at 43.48% and millet at 27.54%. It is important to outline that multiple products could have been produced within this period. All the other products contributed up to 10% each of the yearly income. These include fruits such as mangoes (2.9%), oranges (2.17%), papaya (0.72%) and watermelon (4.35%) besides animal products such as honey (9.42%), meat (2.9%) and milk (10.14%) and other food products including cassava (5.8%), coffee (7.25%), groundnuts (9.42), sorghum (5.07%) and vegetables (7.25%) as well as aloe vera (0.72%) and in general others (6.52%).

Table 7: Income from crop farming

CROP	Percentage
Beans	43.48%
Cassava	5.80%
Coffee	7.25%
Groundnuts	9.42%
Honey	9.42%
Macadamia	0.00%
Maize	50.00%
Mangoes	2.90%
Meat	2.90%
Milk	10.14%
Millet	27.54%
Oranges	2.17%
Papaya	0.72%
Sorghum	5.07%
Sugarcane	0.00%
Vegetables	7.25%
Watermelon	4.35%
Others	6.52%

3.2.19 Average income per month in Kenya shillings

Notably, majority of the respondents, accounting for 57.25%, earn an average income of up to 10,000 shillings, 22.46% earn up to 20,000 shillings. Few people receive more than 50,000 Shillings per month at only 2.17%. This shows the anticipated livelihood attributes of the locals and the more the reason to desire the aspiring geopark. The survey findings are illustrated in the figure below.

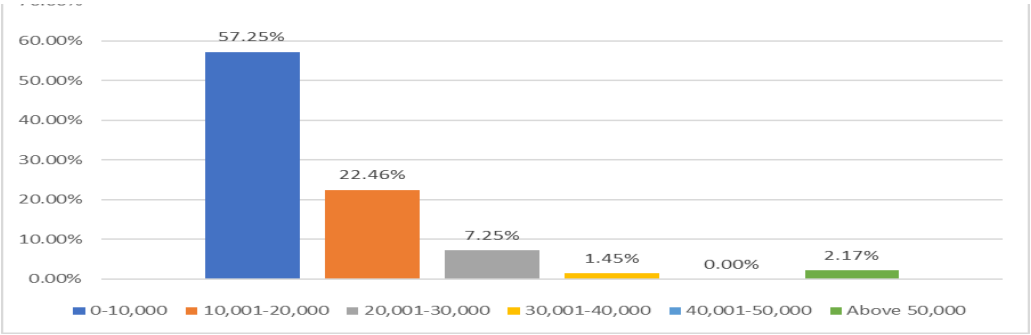


Figure 17: Average income per month in KShs.

3.2.20 Access to extension services

Extension services are essential in empowering farmers to undertake their socioeconomic endeavours. Those services cover gaining knowledge and offers the opportunity to get educated. As shown in the figure below only 22.46% have benefited from such services in BGRV aspiring Geopark whereas 65.94% have not. A percentage of 11.6 of the respondents did not respond to this question. This calls for extensive investment in extension services, by perhaps recruiting more officials at both national and county government to deliver the services.

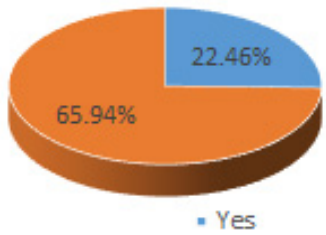


Figure 18: Access to extension services

3.2.21 Activities to increase benefits from community-based enterprises.

The respondents noted some of the activities that can be done to ensure benefits from community-based enterprises are realized. These include Capital/financial aid, workshops/ education/sensitization, water provision, infrastructure, provision of certified seeds, marketing, availing job opportunities, building value addition factories for fruits. Others include establishing dam/equipment for irrigation, Improving farming, expanding microbusinesses,

good roads toward Releng hot springs, training on agribusiness, public participation, government and NGO support (subsidies, funding), empowerment, promoting investments, team building, tourism, electricity, increase pricing of farm products, establishing market opportunities, mobilisation of resources, group meetings, improve production, provision of medical covers, extension services, equipment, protective gear, provide pesticides/fertilisers and loan.

3.2.22 Membership in Community Based Organisations

An analysis on the respondent's membership in community-based organisation revealed that 40.58% had membership to a community-based organization while 54.35% did not belong to any community-based organization. A percentage of 5.07 was non-committal on any response on this question. Some of the community based organizations highlighted include Irong Conservancy, Katombes Women Group, Dandelion Africa, Kapkuikui Livestock Improvement, Nyaebai Self-Help Group, Kiborkoch Group, Women Enterprise Fund, Nabrek Women Group, Mangar Community Water Project, Nyumba Kumi, Kapkun Beehive Organisation, Mangar Geosite, Chechim SHG, AIC, Progressive Group, Kerio Divers Rescue Team, Cheploch Group, Geopark Committee, Slick, Sunrise Youth Group, Pad A Girl Initiative, Anti-FGM, Kibaiga, Livestock Fattery RAE, Community Policing, Violence Against Women And Girls, Lake Baringo Information Boat And Drivers Self-Help Group, Boyotwe Women Group, Chambai Women Group, Kiptany Self-Help Group And Kakibungi Self-Help Group.

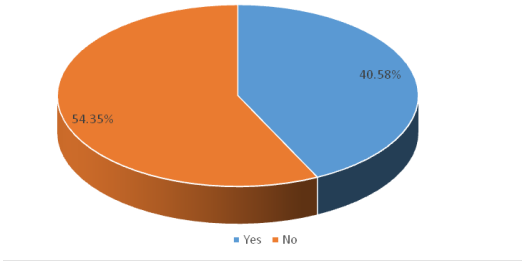


Figure 19: Involvement in any community-based organization

3.2.23 Role of stakeholders in supporting community-based enterprises

Respondents indicated that stakeholders can get involved in supporting community-based enterprises through the following activities; capital/financial aid, establishing dams, providing equipment for irrigation, mobilisation of resources, provision of raw materials, workshops/ education/sensitization, organising self-help groups, marketing, boosting Saccos, provision of loans with low interests, empowerment, extension services, community involvement, Improvement of infrastructure, government support programmes, access to markets, agricultural and livestock support, ecotourism and access to electricity

3.2.24 SACCO Membership

Results from the analysis pinpointed to 34.78%% of respondents being members of a SACCO and 61.59% not being members. A percentage of 3.63 of the sampled population did not respond to this question. Some of the SACCO'S Identified during the survey include Boresha Sacco, women table banking group, KCB Biashara, Commercial Bank, Teachers Sacco, KWFT, Skyline Sacco, divers, Cheploch group, Boda BodaSacco, Pamoja group

development organisation, Co-operative, KCB. These reflects on the need to sensitize the Baringo Community on the need to save as well as join SACCOs.

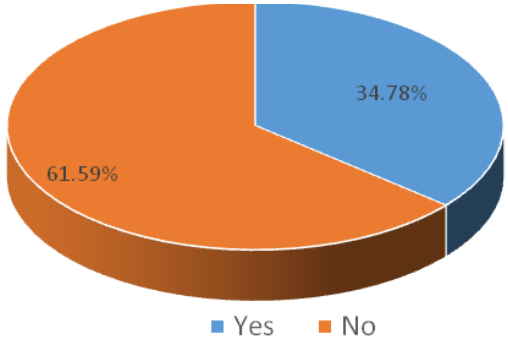


Figure 20: Sacco Membership

3.2.25 Main Challenges Associated with Individual Business

The survey provided insights on the main challenges experienced by the respondents in their individual business. They include: lack of capital/financial constraints, job opportunities, accessible and clean water, markets for products, raw materials, efficient transportation, electricity, infrastructure, extension services, climate change, pests and diseases, product competition, quality soils, reliable rainfall, costs of farm inputs, financial interest regime, rising waters in the region, drought, lack of fuel, lack of security, irregular customers, lack of insurance, tribalism, taxes, seasonal profits only and poor healthcare

3.2.26 Medicinal Trees/ Shrubs and other plants

As highlighted the BGRV aspiring Geopark is said to be rich in medicinal value trees and plants. Different community members may use the same or different plant for treatment of same or different disease. In some cases, one plant may be use in the treatment of more than one ailment. In this section, some of the plant names have been provided but the diseases have been left out. However, from published materials, another list is provided in the appendices that shows some of the plants and the ailments they treat. Some of the identified plants species include those in the following page.

Table 8: Some of the identified plant species of economic value

Akilkilwa	Akokiante	*Aloe vera*	Aporoche
Ariek	Armorwe,	*Ng'oswo, Ng'oswet Balanites aegyptiaca,*	Barkontil
Barkuntul,	Blue gum, *Eucalyptus globulus*	Bukwe	Burje
Chepkeno	Chepketip	Chepkorian	Chepkunikwe
Chepluswet	Chepnyoilibei	Cheree	Endet
Kapsilawa	Keilelwa,		Kelemende

Kelwo *Acocanthera oppositifolia*	Kelmete,	Kemel,	Ketba
Kipchekwere *Ekerbergia capensis*	Kipkoresit,	Kipkorol,	Kipkowaa,
Kipkowo	Kipnyarilpei,	Kipsaichok	Kiptitirwo,
Kipyetabei	Kokchante	Kokchat, *Zanthoxylum chalybeum*	Kokiande,
Kokyat,	Koloswe, *Terminalia brownii*	Kulelwe,	Kulelwet,
Kunyukwo,	Kuriot, *Teclea nobilis*	Kuruchi,	Lactano,
Lakokiawe,	Legetetwo, *Carissa edulis*	Lelekwe, *Erythrina abyssinica*	Likwan,
Lukwande,	Mai Kobil,	Mathenge, *Prosopis juliflora*	Meikutwo,
Milgoi,	Mindililwo, *Dovyalis abyssinica*	Misisitwe,	Mokwet,
Muchukwe,	Muyenwe,	Mwarubaini, *Azadirachta indica*	Nerhwet,
Nerkwo, *Garcinia livingstonei*	Ng'orore,	Ngowe,	Ngwandere,
Okelkelwa	Onon,	Riande,	Rorogwet,
Rorowe,	Sogotaiwa *Salvadora, persica*	Sandal wood *Osyris, lanceolata*	Senetwa,
Senetwet, *Senna didimobotyra*	Sengeiwo,	Sikuonthe,	Sinendet, *Periploca, linearifolia*
Sogee, *Sorbet Warbugia ugandensis*	Sohoi,	Sokyot,	Songowye,
Soset	Sungurtut	Sungurtute,	Surkwee,
Tegemen twet	Teleng'wet	Tengeretwee,	Tilkwo,
Tirim	Yemit *Olea africana*	*Tamarindus indica*	*Acacia / Vachellia sp*

NB: More species for medicinal purposes are attached as an appendix. For some of the species, the scientific names have not been inserted as they were not easily available in literature.

3.2.27 Current and potential nature-based enterprises within the aspiring Geopark

3.2.27.1 Current nature-based enterprises.

There are many current nature-based enterprises within the aspiring based on information from farmers and key informants. Majority are agriculturally based with some leaning towards tourism. The volumes traded or experienced are difficult to accurately predict. This is because most people are involved in production for home consumption as well as for sale. However, there is no real apportionment of what has to be sold and what is kept for the household. In some cases, sales of agricultural produce is due to immediate family needs such as school fees, medical or other societal needs including times of bereavement.

Table 9: Enterprises and known traded volumes

Enterprise	Volumes traded or known to be traded per household in a year
Aloe vera	300Kgs
Avocado	500 Kgs
Artefacts	120 pcs
Bananas	1,000 Kgs
Beads	150 pcs
Beans	180 Kgs
Beef cattle	4 animals
Bees Wax	48 Kg
Bird watching	2,500 (This is an estimate form wildlife officers)
Coffee	700 Kgs on average
Cotton	2,600 Kgs
Cowpeas	150 Kgs
Fish	10, 000 Kgs mainly from Lake Baringo
Fruit farming	400,000 Kshs
Groundnuts	1,100 Kgs on average
Goat meat	6 animals per year estimated at 50 Kgs
Honey	130 Kgs
Macadamia	25Kgs
Maize	10 bags of 90 Kgs per acre
Mangoes	500Kgs
Mats	480 mats
Milk	3,880 litres on average
Millet	135 Kgs
Pasture production	250 bales
Poultry	36 chicken
Sand	1,000 tonnes
Seed maize (Irrigation)	140,000
Snakepark	1,000 visitors per year

Enterprise	Volumes traded or known to be traded per household in a year
Tomatoes	1,500Kgs
Tourism, Bead work, Boat Rides, Tour Guiding,	50,000 Ksh per year
Tree seedlings	50,000 shillings
Underground Honey	144 Kg
Quarrying	1,825 lorries of quarry stones
Vegetable farming	600,000
Watermelon	3,000Kgs
Mursik in Sabatia Society	Potential 5,000 litres per day at full capacity
Culture/ dances/ Songs/ Textiles/ Bird watching/ Snakepark/ Ecotourism	Quantities were not easily determined

3.2.27.2 Volumes and values of NBE from County Department of Agriculture Reports for 2021

Table 10: Volumes based on the Department of Agrculture County Government of Baringo statistics

Crop	Quantity in Kgs	Value in Kshs
Beans	54,870	1,672,480,000
Cassava	326	17,260,000
Cow Pea	2,833	86,273,250
Finger Millet	4,590	246,654,000
Grain Amaranth	ND	ND
Green Grams	1,500	131,668,000
Groundnuts	19,886	368,600,000
Irish Potatoes	ND	ND
Legumes	ND	ND
Macadamia Nuts	ND	ND
Maize	70,968	1,906,143 000
Nuts And Oils	ND	ND
Oats	ND	ND
Pea	ND	ND
Pearl Millet	ND	ND
Pigeon Peas	ND	ND
Rice	ND	ND
Roots And Tubers	ND	ND
Sorghum	1,182	67,189,000

Crop	Quantity in Kgs	Value in Kshs
Soya Beans	ND	ND
Sweet Potatoes	ND	ND
Wheat	475	11,875,000

Just like in the data obtained from interviews and key informants, the data from the County Department of Agriculture is incomplete. It was therefore felt that even the data from KNBS was likely to be incomplete and hence has not been used.

Plate 12: Sale of some Geo-products at Kormoson View Point Geosite / Irong archeological fortress

3.2.27.3 Potential Nature-based Enterprises

A question was put to the respondents and key informants as to what they perceive to be potential nature-based enterprises that they may not have been largely exploited so far. The results are as presented in the following list presented in tabular form.

Aloe vera farming	Micro-enzymes (Algae)	Bird watching	Red, blue, yellow green ochre, Mineral mining, Diatomite mining
Renewable energy	Beads	Wood carvings	Museums
Research fees Paleo and Archaeological	Ecotourism, Nature Tours	Geo tourism	Hospitality
Cable cars		Herbal cure	Cultural Tourism
Sandal wood farming,	Water sports	Quarrying	Crocodile farming

Green energy	Carbon Dioxide	Pawpaw	Cassava
Sweet potato	Arrow roots	Castor oil	Croton oil
Camping	Hiking	Bird watching	Marathon
Sand harvesting and quarrying	Ostrich farming	Nature trails	Traditional archery

3.2.28 Opportunities for further Research

The study sought to understand potential research opportunities within the aspiring park from communities and key informants. These research opportunities are envisaged to help communities in achieving the objectives of the Geopark. The areas identified include the following:

- **Cummins *Prosopis juliflora* power plant:** This plant was set up but has not been running. Communities feel that there is need to revive it after in-depth studies to find out why it stalled.
- ***Aloe vera:*** Some areas of Baringo are known to produce various species of Aloe vera. Respondents felt the need to consider this as a source of income, hence the need for research to actualise growth and exploitation.
- **Commercial farming of Cactus:** The fruits of this plant can be used to make jam or jell, pancake syrup among other things. Because it grows wild in many ASALs including Baringo, communities feel that its farming can be of financial benefit to them. The juices have health benefits as known in other continents.
- **Climate change and its impacts:** This is an issue that is of importance at the local, national, and global level. A lot has been known about and yet much has not been done or known at the local level. This calls for research that is more localised to the communities.
- **Archaeology:** The Aspiring Geopark has many geological facets that need to be explored for the information to be stored and accessed by stakeholders. Not all the geological sites in Baringo have been mapped for inclusion as sites of value to the park.
- **Palaeontology:** More needs to be done on all the plant and animal fossils that are likely to be found in Baringo. This need is based on the previous research that has unearthed a lot in the area.
- **Hyper theology:** There is need to understand the underlying logical structures in philosophy, theology and other systems. Some community members who have seen early man footprints, believe that there is need for further studies like hyper theology.
- **Herbal medicine identification and usage:** There are many medicinal plants in the Aspiring Geopark, which are known by local names. Although attempts have been made to name and publish them, more needs to be done. There is even more need for the active ingredients to be known, an activity which learning institutions that have a presence in Baringo can do.
- **Rise of water bodies:** Water in Lakes in the Rift Valley have been rising. Varied reasons have been given for this. However, given that communities around Lake Baringo have been affected as their farmlands have been submerged, they would like to know the truth so that they can adjust accordingly. For example, they would like to know if the rise is permanent

- **Lake Kamnarok animal corridor:** This is a corridor used by the African elephant, Loxodanta africana. The lake has had challenges including drying up at certain times. Communities believe that research needs to be done as to why the lake is an animal corridor and what can be done to ensure it survival now that it is faced by degradation and other anthropogenic challenges.
- **Algae for commercialization:** Lake Bogoria has been known to be home to special algae that may be of commercial use. However, previous exploitation by foreigners have not yielded tangible benefits for the community. It is therefore important that local efforts be made to look into the biomedical potential of the algae.
- **Snake venom extraction:** Baringo aspiring Geopark is home to different snakes and even has a snake park as one of the attractions near Lake Baringo. However, extraction of venom has not benefitted the local communities. This is an area that requires attention.
- **Minerals of Baringo:** It is believed that Baringo has a number of mineral deposits. The community being stakeholders in the aspiring park is interested in knowing all about the mineral deposits, how they can be exploited and the benefits they can derive. Currently this information is lacking.
- **Carbon credits:** The Baringo Great Rift Valley aspiring Geopark has vast areas that are covered by tree vegetation. These trees have the potential of being marketed as carbon stores to the world. However, the communities are not aware of the process and requirements so that they can consider taking part.
- **Rhino fossils at Kiplombe:** As part of archaeological and paleontological research, the Rhino fossils at Kiplombe should be studied for science and aspiring geopark benefits.
- **Mapping of degraded areas and restoration:** due to both natural and anthropogenic activities, there has been land degradation which continues to date. It is vital to use the latest technology to map these areas. Using the information obtained, measures for restoration can be worked out involving local communities and their governments. This will be useful even for the neighbouring communities if the restoration activities are successful.
- **Peace building and security:** Some parts of Baringo have been noted to have communal conflicts. There is need for research to be done so as to find ways of building peace and ensuring security for both man and resources.
- **Floral and faunal ecology research:** Baringo is rich in both flora and fauna in terrestrial and aquatic areas given the lakes and rivers that flow in the county. Research needs to be done on the same to understand the species diversity, composition, and abundance. The ecology of the species also needs to be understood as the landscapes are faced with a myriad of challenges from man and climate change. The research will also support the activities of the Baringo Community Conservancies Associations.
- Understanding of prospects from **bioprospecting**, based on the rich medicinal plants is necessary.
- **Ethno-knowledge / indigenous knowledge documentation**

3.2.29 Nature-based enterprises stakeholders, clients and market volumes.

Efforts were made to find out the nature-based enterprises available, their clients and market volumes. Although it wasn't hard to find the stakeholders and clients, the volumes handled were not easy to determine.

Table 11: Nature-based enterprises stakeholders, clients and market volumes

Stakeholders	Clients	Market Volumes handled
Local communities	Schools	
County Government	Farmers	
Community Based Organizations	Tourists	
Farmers	Tertiary Institutions	
National Government	Brookside	6 million litres
Hospitality industry	Rivatex	
Local shop keepers	Pyrethrum Board	
Kenya Tourism Board	Millers	
Kenya Forestry Service	Community	
Kenya Wildlife Service	Kenya Meat Commission	4,000 cows, 24,000 goats
Geothermal Development Company		
Cotton		
Kerio Valley Development Authority		1,000 beehives
Non-Governmental Organizations		
Self Help Groups		
Brokers/Middlemen		
Hotels		
Schools		
Hospitals		
Telecommunication companies		

3.3 Capacity Building Needs

3.3.1 Capacity building needs for the aspiring geopark

Following interviews with farmers and Key Informants, the following areas were identified as those that need interventions in terms of capacity building.

Table 12: Capacity building needs for the aspiring geopark

1	Production of goods/ Cottage industries	12	Agritourism / agrotourism
2	Quality Control	13	Governance
3	Management training	14	Safety and life skills
4	Value addition	15	Climate resilience and adaptation
5	Benefit/Revenue sharing and negotiation skills	16	Financial Management/saving

7	Financial Literacy	17	Patenting of Geopark products
8	Awareness creation about the aspiring Geopark	18	Branding
9	Environmental Protection and Conservation	19	Post-harvest storage
10	Sustainable Utilization of Natural resources		
11	Entrepreneurship		

3.3.2 Capacity building needs for sustainable development in the aspiring Geopark

Sustainable development is vital especially when based on finite natural resources. Interviews were held with respondents to determine the training or capacity building they require to participate in it. The list is as provided below.

Table 13: A few of the potential nature-based enterprises that need to be explored further .

Agri-based enterprises:	Tourism-based enterprises	Sustainable Extractive enterprises
Sweet potatoes Arrowroots Ostrich farming Papaya Castor oil Crocodile farming Cassava Croton seed oil Livestock products Apiculture Mangoes Macadamia Melon Tamarind Fishing Local culinary Coffee Sandal wood Hay farming Aloe vera Maize	Ostrich farming Crocodile farming Camping Ecotourism eco-tours Cable cars Beads Fishing Caves Water sports Hiking and nature trails / geo-trails Wood carvings Geo-tourism Spas and hot springs Bird watching Wildlife viewing. Cultural tourism Boat competition Hotels (MICE) Marathon / sports tourism Traditional archery Museums Motorsports (rhino charge) Boat riding Paragliding Volcano tourism Traditional archery	Renewable energy (solar and geothermal) Sand harvesting Carbon dioxide Thatch grass Micro-enzymes prospecting Ochre Minerals

3.3.3 Participation in Training to Improve Skills and Capabilities

Results from the survey indicated that 36.96% of the respondents attended trainings to improve their skills and capabilities with 59.42% not having attended any training on the same. A percentage of 3.62 of the sampled population did not respond to this question. The findings also indicate that the topics in the training were 20.29% on agricultural livelihood trainings, 14.45% on business skills, and 9.42% on both Entrepreneurship and Business Plan. The topics with the least focus were on indigenous community land rights, community patrolling, and exposure visit and conflict resolution. This is illustrated in figure 23 below.

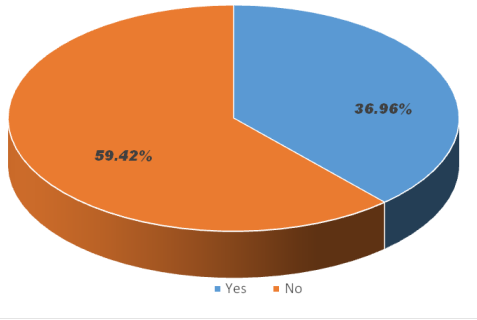


Figure 21: Attendance of training to improve skills

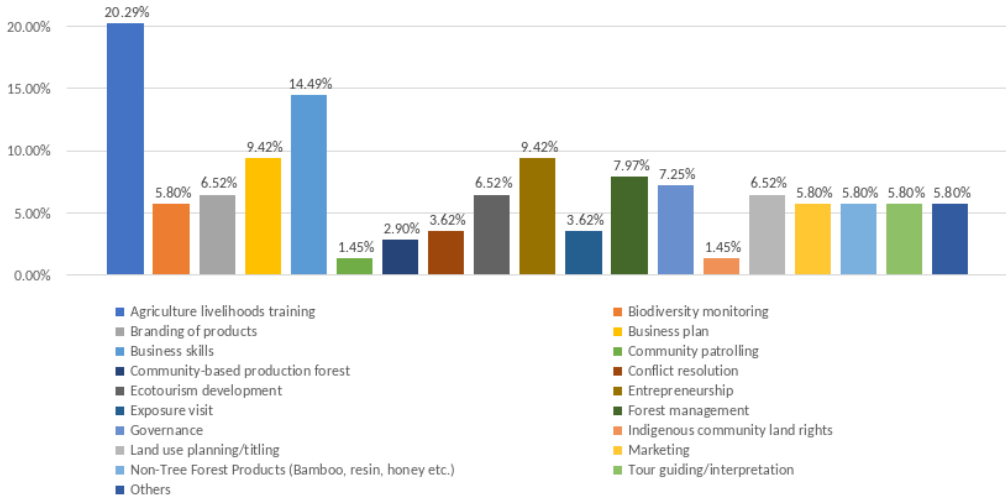


Figure 22: Topics included in the training

3.3.4 Capacity Needs Assessment

For the Geopark to benefit from capacity building activities, research was done the same. Participants had been confronted with statements to which they could either strongly disagree (1), disagree (2), remain neutral (3), agree (4) or strongly agree (5). The statements as well as the relative response is shown in Table 6. Most participants strongly agreed with the statements. The questionnaire included statements about personal skills as well as about activities conducted in the park. Referring to the last, more than 50% strongly agreed with the statements.

Table 14: Identified training needs assessment

Training attribute	1	2	3	4	5
I have skills in my business.	5.80	7.97	7.97	21.74	47.10
I have formal literacy skills.	8.70	18.84	7.97	23.19	33.33
I have customer relations skills.	2.17	7.25	11.59	24.64	46.38
I have skills in life savings.	5.80	13.77	15.94	20.29	35.51
I have skills in environmental conservation.	5.07	6.52	9.42	23.19	47.10
I am fluent in English.	13.04	15.22	14.49	25.36	22.46
I communicate well with tourists.	9.42	15.22	11.59	21.74	33.33
I need to be trained in marketing in my area of business.	1.45	2.17	7.25	15.94	63.77
I need to be trained on business registration and licenses.	2.17	2.90	6.52	14.49	60.87
There is need to keep off harmful human activity from the park such as quarrying.	2.90	2.90	5.07	9.42	68.12
In my opinion, cattle should not be grazed at the geosites.	7.25	9.42	7.25	7.97	55.07
Songs and dance should be enhanced by providing support in improving earnings (costumes, drums, artefacts).	2.90	0.72	2.17	3.62	80.43
Sculptures and carvings can be improved by more training and exposure to designs.	2.17	1.45	2.90	8.70	73.91
Logging should not be undertaken in the park.	7.97	1.45	2.17	3.62	71.74

The survey gave a catalogue of expectations that the locals have on the aspiring geopark, county and national government and applicable organizations. About 53% of the respondents indicated lacking skills in business and this is desirous of appropriate strategies to build the skills of the locals to respond to market demands for sustainable enterprises. Over 66% of the respondents felt that they do not have strong literacy skills and this calls for emphasis on this area of empowerment. It is important that the locals be assisted in their literacy levels to secure their enterprise sustainability and enhance their bookkeeping and record keeping

capabilities. Over 53% of the respondents confirmed inability to have sufficient customer relations skills and this is quite a gap that needs to be responded to. Only about 36% strongly agreed to have lifesaving skills compared to the number of respondents involved in diving activities. This makes them spectators of the activity rather than active people who can save lives when the divers are trapped. It was disturbing to note that only 3 out of every 10 people engaged in the diving business are strong and capable of dealing with the risks of drowning.

About 23% of the respondents confirmed strongly to be fluent in English. This means interactions with tourists is at its lowest and good business opportunities may likely be missed due to language barrier. Above 33% of the population confirmed confidently being able to communicate with tourists with the rest of the population struggling to relate to them. Over 80% of the population desired for training in marketing, with 75% of the respondents seeking to be assisted in business registration and licenses capacity building. The respondents agreed on the importance of conservation of the geoparks, with over 70% of the respondents supporting the view that harmful practices at the geoparks should not be allowed. Over 84% of the respondents vouched for culture as a critical tool for attracting foreign exchange and promoting songs and culture. At the same time, over 80% of the respondents agreed that sculptures and Artwork can be improved by training and value addition on their skills.

3.3.5 Products and services in the Geopark

Survey participants were asked about the products and services within the geopark. Some of the products highlighted include: mangoes, maize, cassava, groundnuts, tamarind, pumpkins, millet, bananas, poultry, tour guiding, trees, tourism, charcoal burning, food crops, honey, viewpoints, escarpments, hot springs, wild life, basketry, site seeing, culture, hiking, camping, adventure, bird and animal watching, bananas, avocados, swimming, fishing, coffee, boat racing, boat riding, tomatoes, transport services, divers, traditional medicine, , search and rescue services, livestock farming, aesthetics, art, waterfalls, baboons/monkey, hospitality, bead works, carving, geological features, handcrafts, traditional dances, artefacts, soap stones, paper making, salad spoon, Dik-dik, caves.

3.4 Socio-economic analysis of the Aspiring Geopark and enterprises

3.4.1 Socio-economic analysis of the interaction between the aspiring geo-sites and local communities

Questions on the value in terms of importance of the Aspiring Geoparks 15 sites was put to the respondents. They stated their opinion in terms of whether the sites are very important, not sure, or not important. The results are as shown in the following Table.

Table 15: Socio-economic analysis of the interaction between the aspiring geosites and local communities

Ranking by farmers and KII groups	Reasons for the ranking
1. Very Important	• Economic transformation: The sites can contribute to this. • Alternative livelihoods: The sites can offer alternatives away from farming and related activities • Cultural preservation: Through dances, and preservation of artefacts, literature • Social transformation: Community cohesion can be achieved • Environmental and heritage conservation: Training activities can lead to change
2. Very important	• They have capacity to economically transform these areas as heritage is preserved
3. Very important	• Conservation: The areas will contribute to conservation • Economic empowerment through activities connected to the Aspiring Geopark • Promote education and research will be done for all stakeholders. • Will improve infrastructure, as it is a requirement for accreditation. • Will enhance skills through training in the needs assessment identified
4. Very important	• Will create opportunities for income generation as both local and foreign tourists visit the site • Avenues for education and research will be created • Awareness on the value for heritage preservation especially for the younger generation • Peace and cohesion as communities share a bond through the geopark
5. Extremely Important	• The group indicated that the sites will be a source of alternative livelihood. However, without stating them by name, the group felt that 3 sites are very important, 11 are important and they arenot sure about the value of 4

3.4.2 NBEs that have caused transformation of people's lives.

In any community, there will be small, medium and large enterprises. All contribute to livelihoods of communities in a unique way. However, there are enterprises that can transform people's lives either as communities or individuals. The following Nature Based Enterprises were identified to have had a transformation on some people lives within the Aspiring Geopark. The import of this is that the transformation can be enhanced for much bigger and better outcomes.

- Bee keeping and honey processing.
- Goat keeping and auction.

- Lake Bogoria community by the lake.
- Kapkuikui honey processing.
- Bead work.
- Fruit farming
- Meat and Honey at Koriema.
- Radat Community-Rachemo Honey Processing
- Flower farming-Karen roses in Eldama Ravine created employment leading to higher demand for milk and potatoes.

3.5 SWOT for promotion of the nature-based heritage of Baringo GRV aspiring Geopark

SWOT is an abbreviation for Strength, Weakness, Opportunity, and Threat. A SWOT analysis guides you to identify your organization's strengths and weaknesses (S-W), as well as broader opportunities and threats (O-T). Developing a fuller awareness of the situation helps with both strategic planning and decision-making. The SWOT method was originally developed for business and industry, but it is equally useful in the work of agriculture, forestry, conservation, community health and development, education, and even for personal growth. The need to develop a road map for the Baringo GRV aspiring Geopark required a critical analysis of key factors, both internal and external, that influence its success in achieving its vision and objectives during the management planning period. The scan of the environment explored the use of the SWOT tool, which focuses on the Strengths, Weaknesses, Opportunities and Threats to the Geopark. The Strengths and Weaknesses were identified from the Geopark's internal environment while the Opportunities and Threats were from the external environment. It is envisaged that during the implementation of this management plan, efforts will be invested in leveraging on the strengths and opportunities while minimizing the weakness and threats that would compromise the effective management of the Geopark to ensure relevance, impact, effectiveness and efficiency of its programs and interventions.

Plate 13: Rachemo Pure Honey, processed and packaged by Rachemo Honey Marketing Co-operative Society Limited

Table 16: SWOT Analysis of the Geopark

STRENGTHS	WEAKNESSES
• Developed road network within the Geopark Developed hospitality facilities, Spectacular scenic sites. • Popular products and services popular sites for educational learning • Existence of resource and information centres, High value geological phenomena related to the EARS Scientifically significant archaeological heritage/fossils finds High species biodiversity including unique, charismatic and species of global conservation concern. • Melting point of diversity cultures Important bird migratory flyway Goodwill from the local community Some geosites recognized through internationally designations (e.g., IBAs, biodiversity hotspot, Ramsar sites and the UNESCO World Heritage) • Presence of multilingual and multi-skilled guides Existing conservation and protection strategies (e.g., conservancies, forest reserves and national reserves) • Rich local indigenous knowledge systems • Part of the trans-rift geo-trail network Existence of high-altitude athletic training centres • Basic fire and rescue services • Extensive archaeological and geological research work has been conducted. • Programs in place to strengthen Cultural Creative Industries (CCI). • Existence of public and private museums • Rich microclimates that can support different crops and animals. • Fairly well-informed business community	• Lack of sufficient capital to support upgrading of sites • Low priority in resource allocation by the county and other agencies • Inadequate branding and marketing strategy for the sites • Inadequate documentation, repository, and research on culture • Limited funds for geopark operations • Limited ICT infrastructure Limited professional capacity for tour guides. • Inadequate capital infrastructure • Inadequate civic education on Geopark awareness • Low brand visibility • Low capacity in cultural heritage management Limited promotion and packaging of products and services • Inadequate community awareness on the significance of geoheritage and how they can sustainably be used for economic gain. • Possible lack of continuity in government and other agencies priorities • Limited economic opportunities among the local communities that exerts pressure on the existing heritage resources. • Poor road infrastructure in some parts of the Geopark • Development of projects from the national/County government that are incompatible with Geopark priorities. • Insufficient internal policies, procedures, regulations, and reporting mechanisms • Complex bureaucratic procedures in implementation stage • Lack of political good will to implement appropriate land tenure systems. • Failure to enforce existing policies and regulations. • In some cases, lack of policies, procedures, regulations and reporting mechanisms

OPPORTUNITIES	THREATS
• The County is already in the Global Tourism map (Lake Bogoria and Lake Baringo) • Goodwill from stakeholders • Opportunities for twinning with other Geoparks Marketing by leveraging on Magical Kenya brand Leverage on the UNESCO World Heritage Site accreditation. • Existing policy, legislative and institutional framework that favours tourism. • Goodwill from international community including UNESCO. • Existing strong partnerships with diverse organizations with an interest in Geopark • Strong media presence and interest • The prestige associated with the Geopark brand, Existing educational and research institutions. • Diverse culture offering varied cultural identity.	• Global financial crisis which limits the number of tourists • Frequent change in political leadership • Weak Intellectual Property Rights Regime Negative effects from modernization • Health and Safety risks (disasters, pandemics, travel advisories, perceptions of insecurity) • Weak entrepreneurship and financial literacy skills among the locals • Competition from other tourism destinations regionally and globally Counterfeited products which pass as genuine local products produced within the territory. • Human impacts on heritage sites • Impacts of climate change on heritage Overexploitation of key species • Bio piracy, paleo piracy and illicit trade in cultural and natural property. • Unreliable energy supply/electricity that limits economic activities Emerging pandemics (e.g., COVID-19) with a potential to disrupt the global tourism sub-sector. • Natural disasters (flooding, landslides, fires) • Non-compliance by some researchers and unethical research practices • Corruption practices

Adopted from BGRV Global Geopark Management Plan 2021-2031

Plate 14: Stakeholders Validating the BGRV aspiring Geopark Baseline Socio-economic Survey Report

4.0 CONCLUSION

There are many nature-based enterprises in Baringo Great Rift Valley aspiring Geopark. This range tangible goods to services that are provided in some of the areas. The enterprises vary in size based on the demand and supply forces in the market. Crop and livestock production form some of the largest nature-based enterprises in the geopark. Fishing, honey production, and tourism are some of the activities that the local communities engage in.

Mangoes, maize, cassava, groundnuts, tamarind, pumpkins, millet, bananas, poultry, tour guiding, trees, tourism, charcoal burning, food crops, honey, viewpoints, escarpments, hot springs, wild life, basketry, site seeing, culture, hiking, camping, adventure, bird and animal watching, bananas, avocados, swimming, fishing, coffee, boat racing, boat riding, tomatoes, transport services, divers, traditional medicine, search and rescue services, livestock farming, aesthetics, art, waterfalls, baboons/monkey, dik-dik, hospitality, bead works, carving, geological features, handcrafts, traditional dances, artefacts, soap stones, paper making, salad spoon, , caves.

There are varied stakeholders in the Geopark. These range from individual at the local level who derive goods and services from nature, households, organized community groups, small, medium and large enterprises, the local administration, county governments to the national government. Research and Development organization are other stakeholders. Based on the literature review available, industries involved in value addition include milk, Honey and meat products that are processed locally and in other markets beyond Baringo.

There is need for more research activitieson Crops, Livestock, Tourism and other Natural Resources especially focussing on their potential and the volumes of trade that are currently moved. This will be vital for future planning especially in the face of changing climate. Poultry production is another area that may require attention given that currently there are challenges in getting white meat in some of the trading centres Together with research there is need for capacity building across the board from primary production to other industries.

The results of the study to largely show the socio-economic activities carried out by the communities including activities that are in the proposed sites within the Geopark. These are the activities mentioned above that are nature-based. These activities also form the base for community livelihoods.

A SWOT analysis has been provided and there exists options that would promote the nature-based heritage of the Geopark.

Plate 15: Traditional dancers entertaining tourists at Kabarnet Museum.

5.0 RECOMMENDATIONS

i. More mapping activities need to be done. These may be linked to seasonal variations to ensure an annual calendar of activities is possible. This will be more useful for product processing and tourism.

ii. Research is needed on the products produced year after year. This is because there are so many data gaps in reports of the county directorates involved in agriculture and related, that planning using the same is not easy.

iii. There is need to develop and track markets outside Baringo. For example, one is likely encounter honey sold elsewhere marked as Baringo Honey, yet it may not be. Branding therefore is of value if it can be done. Research is therefore needed on how to ensure that the community embraces branding and marketing beyond the local confines.

iv. More research activities are needed on the issue of sustainable production. The issue of sustainable production and consumption must be emphasized to avoid degradation. For example, in the honey industry, there are concerns that charcoal burning and the use of agrochemicals may affect the bee population hence reducing a major source of livelihood for some households. Research is also needed to help communities and other stakeholders understand the clients of the Geopark and their needs. There are a myriad Nature-based enterprises, both current and potential. An understanding of consumers and consumer behaviour would go a long way in helping bring about sustainability.

v. There is need to undertake capacity needs assessment in areas of geopark and sustainable development. Training in areas of inadequacy is important. A special training needs assessment beyond what the survey established may be needed. Further there is need for training on climate change related issues. This is because it has been noted through literature that climate may be an issue now and in the future within the Geo Park.

vi. More in-depth anthropogenic studies are needed to map households and stakeholders in the selected geosites and those who are in the general area and how they interact. This is because unless otherwise stated, no community is homogenous. The needs of a crop farmer may not necessarily be those of a livestock farmer. The different needs ma results in conflict.

vii. More detailed studies on enterprises and sustainable livelihoods should be done. This should take a value chain approach. It is common for example to find the community selling goats for meat, but they are not interested the hides. A value chain approach may help the community reap maximum benefits from their toil.

viii. Studies on the elements of SWOT to ensure that all provide opportunities for the socio-economic and environmental wellbeing of the park. Stakeholders, their stake and distribution were not well covered. This should be done.

ix. There is need for more research to identify Nature-based enterprises that may not have been captured in this study. For example, the trade in medicinal plants needs to be better captured. Further research also needs to be done on seasonal variations in flora and fauna within the county to make accurate estimation of occurrence of certain events. More socioeconomic studies also need to be made on issues of sustainability of the Nature-based enterprises. More research needs to be done in honey productions, coupled with an understanding of the socio-economic and cultural issues surrounding its production. For example, in periods of low or no rainfall, there is need to understand how humans are better able to cope with low productivity if they have not diversified.

The adaptation mechanisms need to be known. There is also need for research in the other areas of Baringo that were not visited. Further, an understanding is needed on the causes of the rising lake water levels in the area and what opportunities this presents to the county.

x. Based on the foregoing, there is need to enhance the capacity of Egerton University's' Dryland Research, Training and Ecotourism centre Chemeron, to be a renowned centre for data collection, processing and storage. The centre can also be upgraded to offer skills in ASAL natural resources management in the face of climate change. The centre can also be supported to establish laboratories for training and research in identifying active elements in the medicinal plants found in the GRV aspiring Geopark. This can then feed into the biomedical industry to be set up in Baringo.

Plate 16: High level political support: Hon. Peninah Malonza, Cabinet Secretary for Tourism, Wildlife and Cultural Heritage with other dignitaries including Baringo Governor H.E. Benjamin Cheboi and other officials.

BIBLIOGRAPHY

Abukhalifeh, A. N., & Wondirad, A. (2019). Contributions of community-based tourism to the socioeconomic well-being of local communities: The case of Pulau Redang Island, Malaysia. International Journal of Tourism Sciences, 19(2), 80-97.

Ajao, O. S., Oyeyemi, O. G., & Moses, O. I. (2016). Bookkeeping and sustainability of small-scale businesses in Nigeria: An assessment of Agbara Local Government Area, Ogun State. Unique journal of business management research, 3(1), 011-021.

Anderson, E., McGovern, P. M., Kochevar, L., Vesley, D., & Gershon, R. (2000). Testing the reliability and validity of a measure of safety climate. Journal for Healthcare Quality, 22(2), 19-24.

Anstalt, S. V. (2013). Food and agriculture organization of the United Nations.

Apata, T. G., Samuel, K. D., & Adeola, A. O. (2009). Analysis of Climate Change Perception and Adaptation among Arable Food Crop Farmers in South-Western Nigeria (No. 1005-2016-79140).

Baringo County Government (2023). https://www.baringo.go.ke/index.php?option=com_content&view=article&id=1749&Itemid=122. Accessed on 05.02.2023.

Baringo Geopark (2023).https://baringogeopark.org/about-baringo-geopark/. Retrieved 06-02-2023.

Besson, M., Komen, H., Aubin, J., De Boer, I. J. M., Poelman, M., Quillet, E., & Van Arendonk, J. A. M. (2014). Economic values of growth and feed efficiency for fish farming in recirculating aquaculture system with density and nitrogen output limitations: a case study with African catfish (Clarias gariepinus). Journal of Animal Science, 92(12), 5394-5405.

Bittar Rodrigues, C., & Prideaux, B. (2018). A management model to assist local communities developing community-based tourism ventures: a case study from the Brazilian Amazon. Journal of Ecotourism, 17(1), 1-19.

Bond, J. Q., Upadhye, A. A., Olcay, H., Tompsett, G. A., Jae, J., Xing, R., ... & Huber, G. W. (2014). Production of renewable jet fuel range alkanes and commodity chemicals from integrated catalytic processing of biomass. Energy & Environmental Science, 7(4), 1500-1523.

Briggs, A., Dowling, R., & Newsome, D. (2021). Geoparks–learnings from Australia. Journal of Tourism Futures.

County Integrated Development Plan (2018). County Government of Baringo County.

Dean, T.J.; McMullen, J.S. Toward a theory of sustainable entrepreneurship: Reducing environmental degradation throughentrepreneurial action. J. Bus. Ventur. 2007, 22, 50–76.

Dingwall P., Weighell T., Badman T. A Contribution to the Global theme Study of World Heritage Natural Sites 2005 Protected Area Programme IUCN

Dwyer, L., & Kim, C. (2003). Destination competitiveness: determinants and indicators. Current issues in tourism, 6(5), 369-414.

Eder F. W., Zhao X, Jiang J, Dong S., Li, Zhao T. The Global UNESCO Network of Geoparks 2004 Proceedings of the First International Conference on Geoparks 27–29 June 2004 Beijing Geological Publishing House 1-3

Eder W., Patzak M. Geoparks—geological attractions: a tool for public education, recreation and sustainable economic development Episodes 2004 27 162-164

Ellis, F. (2000). Rural livelihoods and diversity in developing countries. Oxford university press.
European Commission. (2015) User Guide to the SME Definition; Publications Office of the European Union: Luxembourg.
Farsani, N. T., Coelho, C., & Costa, C. (2011). Geotourism and geoparks as novel strategies for socioeconomic development in rural areas. International Journal of Tourism Research, 13(1), 68-81.
Gast, J.; Gundolf, K.; Cesinger, B. Doing business in a green way: A systematic review of the ecological sustainability entrepreneurship literature and future research directions. J. Clean. Prod. 2017, 147, 44–56
Gliedt, T.; Parker, P. Green community entrepreneurship: Creative destruction in the social economy. Int. J. Soc. Econ. 2007, 34,538–553.
Gray, M. (2004). Geodiversity: valuing and conserving abiotic nature. John Wiley & Sons.
Hawkins, D. E., & Khan, M. M. (1998). 11 Ecotourism opportunities for developing countries (p. 191). Abingdon, UK: Taylor & Francis.
Henriques, Maria Helena, and José Brilha. "UNESCO Global Geoparks: A strategy towards global understanding and sustainability." Episodes Journal of International Geoscience 40.4 (2017): 349-355.
Jones Cheryl (2008). Geological Society, London, Special Publications (2008), 300 (1): 273 https://doi.org/10.1144/SP300.21 Retrieved on 6th February 2023
Kenya National Bureau of Statistics KNBS, (2019). Demographics Report. Republic of Kenya
Kimaru, T., & Jagongo, A. (2014). Adoption of Turnover Tax in Kenya: A Snapshot of Small and Medium Enterprises in Gikomba Market, Nairobi Kenya. International Journal of Social Sciences and Entrepreneurship, 3(1), 18-30.
Kiprutto, N., Sitati, N., & Ngoriarita, J. (2012). Impediments to regional tourism development in Kenya's North rift region.
Kooijman, E.D.; McQuaid, S.; Rhodes, M.-L.; Collier, M.J.; Pilla, F. Innovating with Nature: From Nature-Based Solutions to Nature-Based Enterprises. Sustainability 2021, 13, 1263. https://doi.org/10.3390/su13031263
Manyara, G., & Jones, E. (2007). Community-based tourism enterprises development in Kenya: An exploration of their potential as avenues of poverty reduction. Journal of sustainable tourism, 15(6), 628-644.
Martini G. Actes du Premier Symposium International sur la Protection du Patrimoine Géologique Mémoires de la Société Géologique de France 1994 165 276
Martini G., Zouros N., Frey M. L. European Geoparks: Geological Heritage & European Identity—Cooperation for a Common Future 2001 Issue 1 European Geoparks Magazine 4
McKeever, P. J., Zouros, N. C., & Patzak, M. (2010, January). The UNESCO global network of national geoparks. In The George Wright Forum (Vol. 27, No. 1, pp. 14-18). George Wright Society.
Mkwizu, K. H. (2019). Digital marketing and tourism: opportunities for Africa. International Hospitality Review.
Muguchu, M. (2013). Relationship between access to credit and financial performance of small and medium enterprises in Nairobi, Kenya (Doctoral dissertation, University of Nairobi).
Newsome, D., & Dowling, R. (2006). The scope and nature of geotourism. In Geotourism (pp. 3-25). Routledge.
Ntara, C. (2013). Devolution and expected impact in Kenya. International journal of professional practice, 4(1-2), 7-14.

Ochuka, M., Ikporukpo, C., Mijinyawa, Y., & Ogendi, G. (2019). Land use/land cover dynamics and anthropogenic driving factors in Lake Baringo catchment, Rift Valley, Kenya. Natural Resources, 10(10), 367.
Odada, E. O., Onyando, J. O., & Obudho, P. A. (2006). Lake Baringo: Addressing threatened biodiversity and livelihoods. Lakes & Reservoirs: Research & Management, 11(4), 287-299.
Ondiege, P. O. (1996). Capital and performance of small enterprises in Kenya. Flexibility and Networking in an African Context. Ed. by Dorothy McCormick and Paul Ove Pedersen.
Orús, A. H., & Urquí, L. C. (2020). Twenty years of Spanish geoparks: analysis and future prospects. Geoheritage, 12(4), 1-18.
Patzak M. UNESCO and Geological Heritage. 2001 Proceedings of the 2nd European Geoparks Network Meeting 3–7 October 2001 Lesvos, Greece Natural History Museum of the Lesvos Petrified Forest 21-24
Pham, K., Andereck, K., & Vogt, C. (2019). Local residents' perceptions about tourism development.
Quaye, A. K., Volk, T. A., Hafner, S., Leopold, D. J., & Schirmer, C. (2011). Impacts of paper sludge and manure on soil and biomass production of willow. biomass and bioenergy, 35(7), 2796-2806.
Richards, G. (2011). Creativity and tourism: The state of the art. Annals of tourism research, 38(4), 1225-1253.
Rodrigues, J., de Carvalho, C. N., Ramos, M., Ramos, R., Vinagre, A., & Vinagre, H. (2021). Geoproducts–Innovative development strategies in UNESCO Geoparks: Concept, implementation methodology, and case studies from Naturtejo Global Geopark, Portugal. International Journal of Geoheritage and Parks, 9(1), 108-128.
Sakata, H., & Prideaux, B. (2013). An alternative approach to community-based ecotourism: A bottom-up locally initiated non-monetised project in Papua New Guinea. Journal of Sustainable Tourism, 21(6), 880-899.
Schaltegger, S. A framework for ecopreneurship: Leading bioneers and environmental managers to ecopreneurship. Greener Manag. Int. 2002, 38, 45–58
Schaltegger, S.; Wagner, M. Sustainable entrepreneurship and sustainability innovation: Categories and interactions. Bus. StrategyEnviron. 2011, 20, 222–237.
Scheyvens, R. (2007). Exploring the tourism-poverty nexus. Current issues in tourism, 10(2-3), 231-254.
Scoones, I. (1998). Sustainable rural livelihoods: a framework for analysis.
Sharpley, R. (2012). Tourism and vulnerability: A case of pessimism? Tourism Recreation Research, 37(3), 257-260.
Shaw, G., & Williams, A. M. (2004). Tourism and tourism spaces. Sage.
Stanciulescu, G. C., & Felicetti, G. (2020). Researching the Intent and Attitude of Local Communities from Protected Areas Regarding the Development of Eco-Sustainable Goods and Services through Ecotourism. The Case of National Park of Sibillini Mountains. Quality-Access to Success, 21(175).
Turner S. Promoting UNESCO Global Geoparks for Sustainable Development in the Australian-Pacific Region Alcheringa, Special Issue 2006 1 351-365
UNESCO Institute for Statistics (2009). UNESCO Framework for Cultural Statistics
UNESCO 2021 http://www.unesco.org/science/earth/geoparks.shtml.Retrieved 6th February 2023
UNESCO 2021https://en.unesco.org/global-geoparks/list Accessed 04-02-2023
Vincent, V. C., & Thompson, W. (2002). Assessing community support and sustainability for ecotourism development. Journal of travel research, 41(2), 153-160.

Wachira, J. M. (2012). Comparative analysis of greenhouse versus open-field small-scale tomato production in Nakuru-North district, Kenya (Doctoral dissertation, Egerton University).
Wojtowicz, B., & Wojtowicz, P. (2016). The prospects for the development of Geotourism in the Area of the Wadi Rum Desert. Journal of Tourism and Hospitality Management, 4(1), 1-14.
Wondirad, A., Tolkach, D., & King, B. (2020). Stakeholder collaboration as a major factor for sustainable ecotourism development in developing countries. Tourism Management, 78, 104024.
Wunder, S. (2000). Ecotourism and economic incentives—an empirical approach. Ecological economics, 32(3), 465-479.
Zapata, M. J., Hall, C. M., Lindo, P., & Vanderschaeghe, M. (2011). Can community-based tourism contribute to development and poverty alleviation? Lessons from Nicaragua. Current Issues in Tourism, 14(8), 725-749.
Zedková, A., & Kajzar, P. (2013). Cultural destinations as one of the most important generators of tourism. Scientific papers of the University of Pardubice. Series D, Faculty of Economics and Administration. 29 (4/2013).
Zouros N. (2004). The European Geoparks Network. Geological heritage protection and local development Episodes 27, 165-171
Zouros, N. (2016). Global geoparks network and the new UNESCO Global Geoparks Programme. Bulletin of the Geological Society of Greece, 50(1), 284-292
Zourosa N., Martini G., Zouros N., Martini G., Frey M. L. Introduction to the European Geoparks Network 2003 Proceedings of the 2nd European Geoparks Network Meeting 3–7 October 2001 Lesvos, Greece Natural History Museum of the Lesvos Petrified Forest 17-21

Plate 17: Tourists enjoying a boating experience in Lake Baringo Geosite.

APPENDICES

Appendix 1: Questionnaire

FORM CODE ……

THE BARINGO GREAT RIFT VALLEY GEOPARK SURVEY

We are collecting this information on behalf of the Kenya National Commission for UNESCO, Nairobi. We are conducting a study aimed at assessing socioeconomic status, the existing enterprises within the Baringo Great Rift Valley Geopark (BGRVG), value addition and capacity needed to leverage on the Geopark. The information gathered in this questionnaire will be used for the purposes of the study only and any personal private data collected will remain confidential.

A SECTION

Date .....

Time.....

Enumerator (code).....

GENERAL INFORMATION

1. Sub County .....
2. Location.....
3. Sub-Location.....
4. Age (*Tick as Appropriate)*

☐ 18-24 ☐ 25-31 ☐ 32-38

☐ 39-45 ☐ 46-52 ☐ 53 and above

5. Gender *(Tick as Appropriate)*

☐ Male ☐ Female ☐ No Response

6. Number of members in the household *(Tick as Appropriate)*

☐ 1-3 ☐ 4-6 ☐ 7-9 ☐ Above 10

7. Level of Education *(Tick as Appropriate)*

☐ Pre-School ☐ Primary ☐ Secondary

☐ Certificate/Diploma ☐ Degree ☐ Postgraduate

8. Occupation (please specify where applicable below)

☐ ☐ ☐

☐ Public office (specify) ☐ ☐

☐ Pr vate business (specify) ☐ ☐

☐ Any other (specify)……

9. Are you familiar with the Baringo Great Rift Valley Geopark?

☐ Yes ☐ No

If yes, how did you know about the Geopark?

☐ Brochure ☐ Website ☐ Social media

☐ TV ☐ Newsletter ☐ Signage

☐ Daily Newspaper ☐ Family/friends/word of mouth

☐ Any other (specify)……

10. Have you attended any geopark related workshop/s? If YES. How many times?

☐ Yes ☐ No

11. Are you a stakeholder at a Geosite?

☐ Yes ☐ No

B SECTION B SOCIOECONOMIC ASSESSMENT

B.1 Entrepreneurship and Employment

To what extent do you agree with the following statements?

(5-Strongly agree, 4-Agree, 3-Neutral, 2-Disagree, 1-Strongly Disagree)

Statement	5	4	3	2	1
There are enough employment opportunities in my County					
There are many entrepreneurs in my County					
It is easy to establish a business in my County					
It is easy to run a sustainable business in my County					
Most of us save or invest our surplus					

B.2 Societal Structure

1. To what extent do you agree with the following statements?

(5 Strongly agree, 4

Statement	5	4	3	2	1
Tasks are allocated based on gender in our culture					
Men are the key decision-makers on all matters of the family					

2. What work are you or any of your household member(s) engaged in?

   .....

   .....

3. Which organizations are involved in promoting the development of community-based income generating enterprises in the following areas?

   - ☐ Agriculture .....
   - ☐ Fisheries .....
   - ☐ Mining.....
   - ☐ Banking/Cooperatives .....
   - ☐ Water .....
   - ☐ Hospitality .....
   - ☐ Tour guiding.....
   - ☐ Tourism/Ecotourism/sustainable tourism .....
   - ☐ Handicrafts/Curios .....
   - ☐ Financing.....
   - ☐ Quarrying .....
   - ☐ Others (specify) .....
   - ☐

4. What role/s do these different organizations play in promoting Community based Income generating/ livelihood initiatives?

   - ☐ Financial support/Capital
   - ☐ Resource mobilization
   - ☐ Product development
   - ☐ Extension services
   - ☐ Training/capacity building
   - ☐ Value addition/Manufacturing
   - ☐ Marketing
   - ☐ Branding
   - ☐ Buying of raw material
   - ☐ Buying of finished products
   - ☐ Monitoring impacts
   - ☐ Conservation

5. Have you heard about branding of products and services produced sustainably for increased market value?

   ☐ Yes ☐ No

   If yes, which are some of the locally branded products produced within Baringo County? Please name below.

   a) .....

   b) .....

   c) .....

6. For what purpose do you undertake crop farming?

☐ Subsistence ☐ Commercial ☐ Both

7. What is the size (in acres) of the arable land you do the above?

.....

8. What crops do you grow during the rainy season?

.....

.....

9. What crops do you grow during the dry season?

.....

.....

B.3 INCOME

Income from agriculture within 12 months from November 2021 to November 2022 in KSH

Name of crop/product	Quantity for consumption	Quantity for sale	Quantity of gift	Average price per kg/Litre/Bag	Total
Aloe vera					
Beans					
Cassava					
Coffee					
Groundnuts					
Honey					
Macadamia					
Maize					
Mangoes					
Meat					
Milk					
Millet					
Oranges					
Others					
Papaya					
Sorghum					
Sugarcane					
Tea					
Vegetables					
Watermelon					

1. What is your average income per month in Ksh? *(Tick as Appropriate)*

☐ 0-10,000 ☐ 10,001-20,000 ☐ 20,001-30,000

☐ 30,001-40,000 ☐ 40,001-50,000 ☐ Above 50,000

2. What are the main sources of income of your household? Please indicate the order of importance and the amount per year.

☐ Bee keeping .....

☐ Boat Transport .....

☐ Boda-boda Business .....

☐ Handcraft (bee hive, basketry) .....

☐ Herbal medicine .....

☐ Lending money .....

☐ Local Divers .....

☐ Private business (specify) .....

☐ Quarrying .....

☐ Remittance from family members .....

☐ Salary from permanent job .....

☐ Selling farm products .....

☐ Selling fish .....

☐ Selling livestock/poultry .....

☐ Selling other products (specify) .....

☐ Shares .....

☐ Snake Park .....

☐ Venom harvest .....

☐ Wage from temporary job .....

☐ Others (specify) .....

2. D[illegible]you have access to extension services?

Yes No

[illegible]es, please specify .....☐.....

3. What do you think can be done to ensure benefits from community-based enterprises are increased?

2. To what extent do you agree with the following statements?

(5-Strongly agree, 4-Agree, 3-Neutral, 2-Disagree, 1-Strongly Disagree)

Statement	5	4	3	2	1
I have skills in my business.					
I have formal literacy skills.					
I have customer relations skills.					
I have skills in life savings.					
I have skills in environmental conservation.					
I am fluent in English.					
I communicate well with tourists.					
I need to be trained in marketing in my area of business.					
I need to be trained on business registration and licenses.					
There is need to keep off harmful human activity from the park such as quarrying.					
In my opinion, cattle should not be grazed at the geosites.					
In my opinion, songs and dance should be enhanced by providing support in improving earnings (costumes, drums, artefacts).					
Sculptures and carvings can be improved by more training and exposure to designs.					
Logging should not be undertaken in the park.					

D SECTION D

D.1 PRODUCTS AND SERVICES

List below the products and services available at the park.

.....

.....

D.2 FOCUS GROUP DISCUSSION GUIDE

1. Which dominant socioeconomic activities take place at the BRGV?

.....

.....

2. Which crops are dominant for growing at the BRGV?

.....

.....

3. Which are the dominant tourism attractions at the BRGV?

.....

.....

Thank you for your cooperation in this important study by the Kenyan National Commission for UNESCO

.....

4. Do you belong to any community-based organization?

☐ Yes ☐ No

If yes, which organization?.....

5. How do you think other stakeholders can get involved in supporting community-based enterprises?

.....

.....

6. Are you a member of any SACCO?

Yes ☐ No ☐

If yes, which one? .....

7. What are the main challenges associated with your individual business?

.....

.....

8. The BGRV park is said to be rich in medicinal value trees. Name a few of the medicinal trees.

.....

.....

C SECTION

CAPACITY NEEDS ASSESSMENT

1. Have you attended any training to improve on your skills/capabilities

☐ Yes ☐ No

If yes, what topics were included in the training? Please select all that apply.

☐ Agriculture livelihoods training.....
☐ Biodiversity monitoring .....
☐ Branding of products.....
☐ Business plan.....
☐ Business skills .....
☐ Community patrolling.....
☐ Community-based production forest.....
☐ Conflict resolution .....
☐ Ecotourism development.....
☐ Entrepreneurship.....
☐ Exposure visit .....
☐ Forest management .....
☐ Governance.....
☐ Indigenous community land rights.....
☐ Land use planning/titling.....
☐ Marketing .....
☐ Non-Tree Forest Products (Bamboo, resin, honey etc.) .....
☐ Tour guiding/interpretation .....
☐ Other (please specify) .....

2. To what extent do you agree with the following statements?

(5-Strongly agree, 4-Agree, 3-Neutral, 2-Disagree, 1-Strongly Disagree)

Statement	5	4	3	2	1
I have skills in my business.					
I have formal literacy skills.					
I have customer relations skills.					
I have skills in life savings.					
I have skills in environmental conservation.					
I am fluent in English.					
I communicate well with tourists.					
I need to be trained in marketing in my area of business.					
I need to be trained on business registration and licenses.					
There is need to keep off harmful human activity from the park such as quarrying.					
In my opinion, cattle should not be grazed at the geosites.					
In my opinion, songs and dance should be enhanced by providing support in improving earnings (costumes, drums, artefacts).					
Sculptures and carvings can be improved by more training and exposure to designs.					
Logging should not be undertaken in the park.					

D SECTION D

D.1 PRODUCTS AND SERVICES

List below the products and services available at the park.

.....

.....

D.2 FOCUS GROUP DISCUSSION GUIDE

1. Which dominant socioeconomic activities take place at the BRGV?

.....

.....

2. Which crops are dominant for growing at the BRGV?

.....

.....

3. Which are the dominant tourism attractions at the BRGV?

.....

.....

Thank you for your cooperation in this important study by the Kenyan National Commission for UNESCO

D.3 KEY INFORMANT INTERVIEW GUIDE TOOL

1. The BGRVG is rated as a very strong community engagement project. To what extent do you agree with the following statements? Community engagement approach…

(5-Strongly agree, 4-Agree, 3-Neutral, 2-Disagree, 1-Strongly Disagree)

Community engagement approach…	5	4	3	2	1
… promotes appreciation of the Geopark.					
… promotes decision making in the Geopark.					
… promotes ownership of the geopark.					
… is critical for sustainable development.					
… is important for park conservancy and preservation.					
… is important for promotion of livelihood options.					
… is important for provision of incentives for natural, geological and cultural heritage conservancy.					

2. In my opinion, what could be the resources available at the geo park that can engender socioeconomic development in the environs.

.....

.....

3. The BGRV aspiring Geopark is said to be rich in medicinal value trees. Name a few of the medicinal trees.

.....

.....

4. The BGRV aspiring Geopark can accommodate some of the emerging cash crops in the region. Identify some of them.

.....

.....

5. Identify some of the unique goods/products available at the Geopark.

.....

.....

6. Identify the key tourism attractions within the Geopark.

.....

.....

7. What are some of the scenic features of the Geopark?

.....

.....

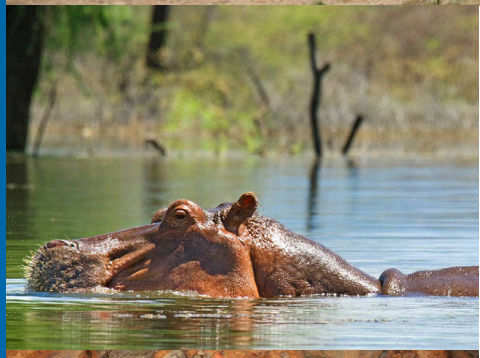
Appendix 2: Ethno-medicine of Tugen Community, Baringo County-Kenya

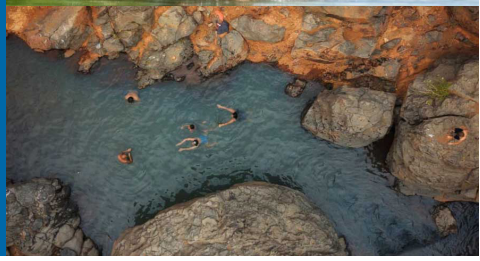
Source: ruffordorg.s3.amazonaws.com was first indexed by Google in January 2021. https://ruffordorg.s3.amazonaws.com/media/project_reports/19802-1%20Medicinal%20Plants%20of%20Baringo%2C%20Kenya.pdf. Retrieved 21-02-2023.

	Botanical Name	**Local Name (Tugen)**	**Disease**
1	*Garania livingstonei*	Nerkwo	a) Headache b) Skin rash
2	*Toddalia asiatica*	Ketemwo	a) An ingredient in the arrow poison. b) Cold flu
3	*Polystachya sp.*	Sigotye	Erectile dysfunction
4	*Boscia coriacea*	Sirwo	Impotence
5	*Secamone punctulata*	Chepkiskis	a) Gonorrhoea b) Syphilis
6	*Pavetta oliveriana*	Tontinwo	Malaria
7	*Prunus africana*	Timonwo	Prostate cancer
8	*Ocimum gratissimum*	Tomotop lagoi	Blood clotting
9	*Allophylus ferrugineus*		a) Diarrhoea b) Ulcers c) Gastrointestinal disorder
10	*Chaetacme aristata*	Ukwo	Haemorrhoids
11	*Euphorbia engleri*	Cheboshewa	Sexually Transmitted Infections (STI)
12	*Acanthus eminens*	Tekelte	a) Liver problems b) Bacterial infections
13	*Gouania longispicata*	Suseet	Diarrhoea
14	*Rubus apetalus*	Momonwo	a) Anaemia b) Diabetes
15	*Ehrectia cymosa*	Purpurtii	a) Brucellosis b) Diabetes
16	*Thalictrum rhynchocarpum*	Chebositewo	Bacterial infections
17	*Cyphostemma ukerewense*	Sikakaa	Intestinal worms
18	*Combretum molle*	Chepchoboiwo	Mental illness
19	*Maytenus undata*	Kibanyinyeyaan	Constipation
20	*Cluttia abyssinica*	Laktano	a) Coughs b) Skin rash
21	*Aparagus racemosus*	Kibungeiwo	Cultural plant
22	*Myrsine africana*	Seketeet	a) Diabetes b) Blood pressure
23	*Tinnea aethopica*	Kipkuntul	Diarrhoea
24	*Psiadia puctata*	Noskeech	Diarrhoea among infants
25	*Dodonacea visosa*	Tabulukwo	Pneumonia
26	*Carissa edulis*	Legetetwo	Brucellosis

27	*Erythrina abyssinica*	Kokorwo	a) Snakebites b) Malaria c) Sexually Transmitted Diseases
28	*Rhus longispes*	Sirwop boiyon	Erectile dysfunction
29	*Tarchonanthus camphoratus*	Lelekwo	Skin infections
30	*Grewia bicolor*	Misisitwo	Headache
31	*Leucas calostachys*	Ng'echepchan	E.C.F in livestock
32	*Garcinia buchananii*	Muikutwo	Heart disease
33	*Flacourtia india*	Tangururwo	Ulcer
34	*Heteromorpha trifoliolata*	Soyee	Goiter
35	*Olea Africana*	Emtit	a) Eye problem b) Chest pain c) Stomach problems
36	*Carissa spinarum*	Sekechewo	Measles
37	*Erythrina abyssinica*	Lelekwo	Allergy
38	*Zanthoxylum usambarensis*	Kokian	Cough
39	*Croton microstates*	Toboswo	Blood clotting and S.T.I
40	*Clausena anisata*	Chepkolol	a) Gastro-intestinal disorders Pneumonia b) Headache c) Hypotension d) Sore throat
41	*Ficus sp.*	Barsokonoon	Eye infection
42	*Clematis brachiata*	Bissing'wo	Allergy
43	*Croton dichogamus*	Kelelwa	Cancer
44	*Caesalpinia volkensii*	Ng'ulong'ulwo	Malaria
45	*Indigofera atriceps*	Barkelat	Body pain
46	*Verbena bonariensis*	Pirirwopsot	Mouth infection in babies
47	*Senna didymobotrya*	Senetwa	Wounds
48	*Solanum aculeastrum*	Sigowo	a) Eye problem b) Spinal cord problem c) Common colds
49	*Duranta erecta*	Barkowo	a) Fevers b) Malaria c) Measles d) Coughs
50	*Warbugia ugandensis*	Soge	a) Headache b) Chest problems c) Common colds d) Stomach complications e) Intestinal worms
51	*Vangueria volkensii*	Tobirbirwo	Diarrhoea
52	*Solanum dasyphyllum*	Lobotwo	Food poison
53	*Sida schimperiana*	Segut	a) Boil b) Wounds c) Skin infections
54	*Ficus thonningii*	Simotwo	Diarrhoea (Livestock)

55	*Croton megolocarpus*	Otonwo	a) Stomach problems b) Coughs (Livestock) c) Chicken feeds (Seeds)
56	*Bersama abyssinica*	Kibiriokwo	a) Hepatic diseases b) Stomach pains
57	*Hypoestes forsk*	Serar	Stomachache
58	*Mimusops kummel*	Lolwo	East Coast Fever (livestock)
59	*Bersama abyssinica*	Kontilwo	Heart disease
60	*Trimeria grandifolia*	Kipkowo	Allergy
61	*Rhamnus staddo*	Ng'oliny	Stomach wounds
62	*Periploca lineurifolia*	Sindendet	Cultural value
63	*Solanecio angulatus*	Lopotwo	a) Common colds b) Skin infections c) Joint pain d) Wounds e) Chest pain f) Fever
64	*Chasmonthera dependens*	Chepnyalilechbei	Malaria
65	*Senna abtusifolia*	Sinetwo ne mining	Stomachache
66	*Senna occidentalis*	Sinetwo	a) Yellow fever b) Skin infections
			c) Typhoid d) Stomach problem e) Intestinal worms f) Constipation g) Malaria
67	*Acacia nilotica*	Chebiywo	Sore throat and Coughs
68	*Berchemia disolor*	Muchukwa	Diarrhoea
69	*Terminalia brownii*	Koloswo	Yellow fever
70	*Balanites aegyptiaca*	Ng'oswo	a) Abdominal pains, b) Chest pain, c) Skin infections d) Skin diseases and e) Snake bites
71	*Zanthoxylum chalybeum*	Kokian	Coughs
72	*Aerva lanata*	Simotwo	Stomachache (Infants)
73	*Vangueria madagascariensis*	Komolwo	a) Constipation in children b) Fruits are edible (Vitamins)
74	*Tarmarindus indica*	Arwo	a) Diarrhea and b) Dysentery
75	*Acokanthera schimperi*	Kelwon	a) Gonorrhoea b) Ingredient in preparation of arrow poison
76	*Acacia mellifera*	Ng'ororye	Syphilis
77	*Osyris lanceolata*	Moyukobil	a) Diarrhea. b) Commercially harvested for pharmaceutical production.
78	*Vernonia myriantha*	Tebengwo	a) Colic pains b) Blood purification
79	*Teclea nobilis*	Kurionde	a) Allergy b) Malaria c) Headache d) Common cold e) Pneumonia f) Chest pain
80	*Vachelia xanthophloea*	Leng'ne	Synergistic plant
81	*Aloekedongensis*	Tengeretwa	Malaria
82	*Plectranthus barbatus*	Kang'urwo	Gastritis and intestinal spasms
83	*Bidens pilosa*	Chepkotiwo	Indigestion in infants
84	*Toddalia asiatica*	Ketemwo	Throat cancer
85	*Syzygium guineas*	Lomoiwo	Bronchitis





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