DEVELOPMENT OF TOURISM DESTINATIONS AND ITS IMPACTS ON TOURISTS' SATISFACTION, RESIDENTS' LIVELIHOODS TOWARDS QUALITY OF LIFE IN NORTHERN TANZANIA

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EXTENDED ABSTRACT

Tourism in Tanzania is largely concentrated in wildlife protected areas (PAs) and in areas that border and serve as entry points to PAs, known as gateway communities (GCs). As part of PA ecosystem, the GCs have become tourism destinations attracting tourists for over two decades. Tourism in GCs have been considered an alternative and crucial source of livelihoods to pastoral and agro-pastoralists enduring low productivity due to semi-arid and typical Savannah grasslands of northern Tanzania. Despite the existence of tourism in GCs for over two decades, there is unclear understanding on the extent of tourism development and its impacts. Review of studies on nature-based tourism in Tanzanian GCs indicates two areas requiring research initiatives. Firstly, there is inadequate knowledge about the development of tourism destination (i.e. tourism development stages). Secondly, unclear understanding of tourism development-impacts on tourists' satisfaction on one hand, and residents' livelihoods (i.e. change in livelihood assets) and quality of life (i.e. life satisfaction on well-being conditions), on another hand. This study was set to address these knowledge gaps by evaluating the development of tourism destination and it's impacts on tourists' satisfactions, residents' livelihoods towards quality of life.

Specifically, this study sought to: i) identify development stages of the life-cycle that tourism destinations have passed over the years up to the on-going stage in year 2019, ii) examine to what extent tourism development has created impacts through shaping the tourist perceptions on relative importance and performance of destinations' attributes influencing tourists satisfaction, iii) evaluate whether tourism development has established impacts to reduce vulnerability through access to livelihood assets between tourism beneficiaries and non-beneficiary households and iv) to evaluate impacts of

tourism development on residents quality of life, using community capitals. The study involved 18 villages from three GCs: Burunge, Loliondo and lake Natron. Both primary and secondary data were required to meet the aforementioned research objectives. Primary data were collected using semi-structured key informant interviews (122 individuals), 18 focus group discussions, participants and field observations and survey to 422 randomly selected tourists as well as random selection of 418 tourism beneficiaries and 432 non-beneficiary households. Secondary data comprised the official reports of tourism revenues, spending pattern of tourism revenue, number of tourists visiting these destinations over the years, investment trends and review of relevant literature on tourism development. The main method of analyzing qualitative data was thematic analysis while quantitative data were analyzed using descriptive statistics (i.e. mean, variance and frequencies) and inferential statistics: paired sample t-test, independent samples t-test and Logistic Regression and Difference in Differences impact estimator using Stata15 software while Confirmatory Factor Analysis, and Structural Equation Modeling were analyzed using AMOSv.21 software.

The study found that: i) in 36 years (1982-2018), all three destinations have experienced exploration, involvement and are currently at the development stage of the Tourism Area Life Cycle model, ii) tourists' satisfaction is derived from performance of four factors namely, Amenities, Accessibility, Core attractions and Ancillary services. It was also found that, attributes reflecting on "core attraction factor" (i.e. game viewing and cultural products) are the most important in shaping tourists' perceptions and also performed well. Although, the overall satisfaction of tourists was high, some attributes reflecting on accessibility, amenities and ancillary services factors were perceived to be underperforming, thus demanding immediate attention of destination managers to optimize tourists experience for the development of tourism destination, iii) within a period of ten years (2008/9-2018/19) tourism has significantly increased livelihood

capital assets index by 8%, thus, enabled the tourism-beneficiaries to reduce vulnerability to drought, livestock diseases, rise in food prices and illness, by effective shock-coping activities, iv) residents' actual and perceived quality of life is influenced by resident's satisfaction with both materials and non-materials tourism benefits which in turn led to residents support for further tourism development. These results led to the general conclusion that development of tourism destinations in GCs consistently abides to the life cycle stages, while on one hand, the natural and cultural attractions underline tourists' satisfaction. On the other hand, tourism development-impacts on increased livelihood assets among residents led to reduction in vulnerability to multiple shocks and in turn, affects positively the residents' quality of life.

For further development of tourism destination with greater capacity of improving residents' quality of life while optimizing tourist satisfaction, the following are recommended: i) initiatives should be done to improve road conditions, possibly using Public Private Partnership (PPP) investment arrangements; build capacity (e.g. training and grant/loan) to local residents to co-own and manage tourism assets like camps and lodges, ii) destination managers should allocate more resources to recruit professional chef, improve interior décor, address unhygienic environment (i.e., ensure cleanliness of washrooms) and moderate the perceived unreasonable high prices for food and accommodation. These actions are expected to optimize tourists' experience and increase duration of tourist staying beyond three days, iii) development stakeholders should disseminate knowledge to local residents on efficient farming and grazing. This entails technical know-how in micro catchment rain-water harvesting and the production of higher yield-drought resistant crops while encouraging pastoralists adaptation of their livestock breeding and grazing practices confined to fixed boundaries within land zoned for general-use while maintaining the hunting-use zone and wildlife corridor-use zones.

DECLARATION

I, **ALPHA JOHN MWONGOSO,** hereby declare to the Senate of Sokoine University of Agriculture, that this dissertation is my own original work done within the period of registration, and that it has neither been submitted nor being concurrently submitted to any other institution.

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DEDICATION

This work is dedicated to my beloved sons, Ivan and Akili who always put a smile on my face during my PhD study.

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BDC	Babati District Council
DFID	Department for International Development
GC	Gateway Community
GCA	Game Controlled Area
GDP	Gross Domestic Product
GR	Game Reserve
IUCN	International Union for Conservation of Nature
NDC	Ngorongoro District Council
PA	Protected Area
PSM	Propensity Score Matching
SLA	Sustainable Livelihood Approach
SSA	Sub Saharan Africa
TALC	Tourism Area Life Cycle
TANAPA	Tanzania National Park
TAWA	Tanzania Wildlife Management Authority
UNWTO	United Nations World Tourism Organization
URT	United Republic of Tanzania
WMA	Wildlife Management Area

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background Information

The global demand for nature-based tourism attractions in Africa is largely concentrated in Sub Saharan Africa (SSA) specifically in wildlife protected areas (PAs) (Chung *et al*., 2018; Manrai *et al*., 2019) and in areas that border and serve as entry points to PAs, defined as Gateway Communities (Frauman and Banks, 2011; Keitumetse and Pampiri, 2016). Tourism on natural attractions within SSA is dominant in nine countries: Botswana, Kenya, Mauritius, Namibia, South Africa, Tanzania, Uganda, Zambia, and Zimbabwe (Manrai *et al*., 2019; UNWTO, 2019).

In Tanzania, tourism is popular in the northern part, also known as northern tourist circuit, where famous PAs exist, such as, Kilimanjaro and Serengeti national parks and Ngorongoro conservation area, each recognized as world natural heritage site. Other PAs constituting the circuit include, Lake Manyara, Tarangire, Arusha and Mkomazi national parks. These PAs are not enclosed, thus allowing the natural movement of wildlife to gateway communities (Sulle *et al.*, 2014).

The gateway communities (GCs) have been described by Joyner *et al*. (2019) as ‘natural amenity communities’ as they have become a magnet for tourist’s visitation (Frauman and Banks, 2011). These communities provide space for wildlife migratory species whose survival depends on residents’ concern for conservation and benefits derived from nature-based tourism (Shah and Mukhani, 2019). Significant portion of outskirt lands under GCs falls within PAs ecosystem thus subjected to conservation initiatives on one

hand and tourism on the other hand (De Boer and Van Dijk, 2016). Sulle *et al.* (2011) posits an overlap of village lands with Game Controlled Areas in GCs where grazing and human settlement interacts with tourism activities in northern Tanzania. Therefore, GCs are very important because they sustain human-livelihood at one hand, and on the other hand, biodiversity, which are crucial tourism attractions for typical nature-based tourists.

Over the past two decades, GCs in northern Tanzania have become tourism destinations (Sulle *et al.*, 2011). A tourism destination is regarded by UNWTO (2007) as an area, of any scale, from village to a whole country, enabling visitors spend at least one night where an access to tourism services and attractions are managed to portray its market competitiveness. Tourism conduct in the GC-destination is normally associated with sustainable consumptions of game resources through trophy hunting (i.e. consumptive tourism) and game viewing (i.e. non-consumptive tourism). Other conducts include, cultural products offering, low capacity-lodges, concession agreements tied to land use restrictions, village-land membership scheme for conservation to nurture tourism and tourism revenue-sharing (Manyara and Jones, 2007; Jones *at el.*, 2015). Tourism activities within GCs across SSA are normally carried in the wildlife-resource management organ at the local level, including communal conservancies, community conservation trust, sanctuaries and wildlife management areas (Van der Duim, 2011).

Worth noting, tourism destinations are dynamic and varying (Butler, 1980). This claim implies that, tourism destinations experiences different development path with regard to changes in number of tourists, natural and built environment, marketing strategies, local resident’s involvement in tourism, and their attitudes toward tourism (Látková and Vogt,

2012). These changes are embedded within series of stages, namely; exploration, involvement, development, consolidation, stagnation, decline or rejuvenation as illustrated by Tourism Area Life Cycle (TALC) model (Butler, 1980). The model posits that; initially a natural attraction is explored by few numbers of adventurous tourists, then, local residents are involved to serve them, leading to development of the area in terms of infrastructural investments. Subsequently, the area is consolidated as tourism becomes the dominant sector, serving mass tourists and eventually, the area is stagnated due to social and environmental carrying-capacity challenges. Ultimately, the area, either decline as it loses its natural attractions or rejuvenate with re-introduction of new attractions or sometimes revamping of existing attractions.

As tourism destination stages of development change over time, the tourists' perceptions and satisfaction with consumption of destination attributes, do change as well (Bernini and Cagnone, 2014). In other words, tourists' perceptions and satisfaction varies along the stages of destination development. Tourists perceptions towards destination entails cognitive and affective positive or negative reaction on attributes constituting a destination (Marinao, 2018). On the other hand, tourists' satisfaction refers to the degree to which a tourists' assessment of the attributes of the destination exceeds his/her expectation for those attributes (Saqib, 2019). Tourist's degree of satisfaction with destination attributes would be lower when a destination is at the stagnation or decline stage compared to other stages (Bernini and Cagnone, 2014) Extent of tourists' satisfaction is determined by attribute performances of a destination, such that, when performance is perceived higher/lower than expectations, a positive/negative disconfirmation will result in satisfaction/dissatisfaction. Intensity of tourists' satisfaction

with destination attributes has the potentials to re-visit the destination, increase spending and duration of stay at the destination as well as positive word of mouth leading to successful tourism industry (Marinao, 2018; Chen *et al.*, 2010).

In the context of GCs, tourists' perception and satisfaction can be affected by attributes found in particular stage of destination development. In turn, tourists' perception and satisfaction shaped by a stage of tourism development may have a direct effect on host resident's livelihoods. This means, a satisfied tourist is more likely to re-visit the destination, increase spending and stay longer at the destination, and in turn the host/village and individuals directly involved in tourism will earn more revenue. The higher the revenue the more enhanced living conditions following increased spending pattern of tourism revenue into communal projects of priority sectors like health and education at one hand and increased household livelihood assets at the individual level (Panta and Thapa, 2017).

Tourism development over time, establishes economic, environmental and socio-cultural impacts, in the positive or negative aspects (Uysal *et al*., 2016; Woo *et al*., 2018; Eslami *et al*., 2019). For instance, increase flow of tourists and infrastructural development, as indicators of tourism development, may have negative impacts, namely: environmental pollution, traffic congestion, litter problems, modifying local culture and increased costs of living (Nunkoo and So, 2015). On contrary, positive impacts include: generating revenue, improved physical infrastructure, employment, cultural appreciation, enhance social interaction and improved conservation of natural resources (Flora *et al*., 2018). Impacts emanating from tourism development have the tendency of shaping perceptions among local residents. This implies, residents may either be satisfied or unsatisfied with

tourism benefits received, thus, affecting their overall perceived quality of life and level of support for further tourism development (Nunkoo and So, 2015; Woo *et al*, 2018).

The scope of tourism impacts can be attributed at the national, community and individual household level. For instance, by the end of year 2019, tourism was estimated to contribute about 25% of Tanzania foreign currency, 17% to the Gross Domestic Product (GDP), and employed over 500 000 people, that generated 2.59 billion US$ (URT, 2019). At community level, this include village receipts of daily bed-night fee per tourist and annual land fees from investment on communal lands. Given the consent of villagers, the village councils normally re-invest tourism revenue into several community development priority sectors, such as, health, education and physical infrastructural projects (Nelson, 2004). These development initiatives have implication to poverty reduction. The definition of poverty in this study is associated to vulnerability with notion of inadequate access to livelihood assets to meet basic life necessities (Ellis, 2000). Vulnerability is regarded as inability to escape from welfare loss when hit by exogenous shocks (Haq, 2015). The nexus between poverty and vulnerability is premised on the fact that poverty influence people vulnerable to multiple shocks like diseases, drought and earthquake, in turn, their vulnerability to such shocks accelerate their poverty and hence vulnerability to future shocks (Damas and Israt, 2004).

Tourism impacts at household level have a direct effect on residents' livelihoods (Panta and Thapa, 2017). Chambers and Conway contend that "A livelihood comprises the capabilities, assets (including both material and social resources) and activities required for a means of living" (1992, p.7). Financial assets like revenue at household level can be

earned from tourist spending a day in the hosts' residency (e.g. Maasai cultural house) coupled with the purchase of cultural items (Mgonja *et al*., 2015) or directly employment at tourism service-organizations. In most cases, household receipts are used to facilitate stock of livelihood assets (e.g. natural, human, social, physical and financial resources). These assets determine livelihood strategies capable to address livelihood vulnerability to multiple shocks such as: drought, rise in food prices and illness (DFID, 1999; Haq, 2015).

It follows that, the impacts of tourism development on household or a community level affects the overall perceived quality of life (QOL). The QOL is defined in this study as life satisfaction on well-being conditions. The tourism QOL is expected to establish some consequences such as: i) residents support for further tourism development when financial and non-financial benefits positively affect their livelihoods, ii) residents opposing tourism when tourism benefits do not make significance difference on their livelihoods. Basing on these premises, this study is set to evaluate the development of tourism destination and it's impacts on tourists' satisfaction, residents' livelihoods towards quality of life.

1.2 Statement of the Problem

After more than two decades of tourism conduct in GCs in northern Tanzania (Sulle *et al*., 2014), there is an outstanding question concerning how tourism has evolved in these destinations. An "understanding of the evolution of a tourism destination and the causes and consequences of changing supply and demand elements is a critical step toward sustainable tourism development" (Liu *et al*., 2016, p. 2). Unfortunately, tourism studies

(Nelson, 2004; Sulle and Banka, 2014; De Boer and Van Dijk, 2016) on GCs in northern Tanzania are not informed by tourism destination development theory or model like Tourism Area Life Cycle (TALC). At the absence of tourism development model, the GCs' tourism development path in Tanzania is poorly understood, thus, no effective planning can be determined with certainty.

Along with unclear knowledge of the development path that tourism destinations in GCs have experienced, the tourist perceptions and satisfaction with destination attributes available at particular stage of destination development is a subject that has been left inadequately attended by previous studies. The previous studies (Sulle *et al.,* 2011; Sulle *et al.,* 2014; Nelson, 2004; Nelson, 2008) paid greater attention on amount of tourism receipts to villages and expenditure on communal projects while masking information about the tourist satisfaction, despite the fact that tourists are the sources of tourism revenue to GCs. Therefore, an understanding about extent to which a particular stage of development of tourism destination shapes tourists' perception and satisfaction is very crucial. Noteworthy, a satisfied tourist is more likely to re-visit the destination, increase spending and stay longer at the destination, and in turn the host/village and individuals directly involved in tourism will earn more revenue which is likely to establish positive impacts on their livelihoods and quality of life.

Villages constituting GC, have been allocating tourism receipts to community development priority sectors such as, health, education and physical infrastructural projects (Nelson, 2012; Sulle *et al.,* 2014; De Boer and Van Dijk, 2016). Community development projects enabled through tourism receipts are geared towards creation of

enhanced livelihood outcomes that are expected to improve livelihood and quality of life of pastoral and agro-pastoralists enduring low productivity due to semi-aridity and Savannah grass-lands of northern Tanzania (Nelson, 2004).

However, there are contested observations regarding the livelihood conditions of local residents in GCs. At one hand, there is a claim that these areas are still vulnerable to a wide range of socio-economic and environmental livelihoods challenges such as: food insecurity, poverty, water shortage, poor infrastructure, human wild life-conflicts, diseases among others (Knapp *et al*., 2015; UNDP, 2018 Kean *et al*., 2020). On the other hand, there is a claim that poverty in Tanzania has decreased from 34.4% in 2007 to 26.4% in 2018, eventually, turning Tanzania into a group of middle-income countries (World Bank, 2019). This reduction in poverty has not escaped criticism because, poverty was assessed using consumption expenditure data and not livelihood asset-changes which fits well in the definition of wealth and poverty for local rural Tanzanians (Brockington, 2018; Howland *et al*., 2021).

Two outstanding questions prevails with regard to the aforementioned contested claims, specifically, with respect to tourism. Firstly, has the development of tourism in GCs over the years, become ineffective to establish impacts, thus, influence inadequate access to livelihood assets capable to address livelihood challenges to reduce vulnerability among local residents? Secondly, has tourism development, over the years, rendered positive impacts in terms of increased access to livelihood assets, thus, influenced the reported poverty reduction? Unfortunately, there are no clear answers to these questions because

empirical tourism studies on GCs in Tanzania have inadequately evaluated the impacts of development of tourism destinations on livelihoods and quality of life of local residents.

Eventually, there are knowledge gaps specifically to the following areas: i) there is no clear understanding of tourism development stages experienced by GCs over the years, thus, uncertain about destination potentials and sustainability, ii) initiatives for development of tourism destination in GCs and retention of tourists, who are the sources of revenues to GCs is largely constrained with inadequate awareness about existing destination attractiveness in terms of relative importance and performance of attributes that satisfies tourists to these areas, iii) it remains unclear whether tourism development over the years, has created positive impacts of reducing vulnerability, such that, increased in livelihood assets (Social, Human, Physical, Natural and Financial) among residents hosting tourists is higher than their counterpart and iv) there is inadequate analysis of tourism impacts with regard to relationship involving material and non-material benefits, extent of satisfaction with benefits and residents quality of life towards support for further tourism development in their areas.

Therefore, this study was set to address the aforementioned empirical gaps by evaluating the development of tourism destination and it's impacts on tourists' satisfaction, residents' livelihoods and quality of life in northern Tanzania.

1.3 Justification of the Study

Review of literature on nature-based tourism in Tanzanian GCs indicates two areas requiring research initiatives. Firstly, there is inadequate knowledge about the development of tourism destination (i.e. tourism development stages). Secondly, unclear

understanding of tourism development stages' impacts in shaping tourists' perceptions on destination attributes leading to satisfaction on one hand, and on the other hand, impacts on residents' livelihoods (i.e. change in livelihood assets) and quality of life (i.e. life satisfaction on well-being conditions). This study was set to address these knowledge gaps.

The rationale for revealing tourism development stages experienced by GCs over the years is on the premise of unclear understanding of tourism development-path, despite the fact that tourism destinations are dynamic and evolving over time. Effective management of tourism destination is enhanced through understanding of destination life cycle position. This imply, those in charge of formulating a tourism policy are able to decide the optimum carrying capacity for their area, basing on prevailing stage of life cycle (Kim *et al*., 2013). This study contributes to the body of knowledge by applying the Tourism Area Life Cycle (TALC) model to evaluate tourism development-path over the years in GCs, where previous researchers had not empirically tested this model. This model has been massively applied worldwide, with exception to Africa and Tanzania in particular. Results of TALC assessment provides input to planning for efficient and sustainable natural and cultural resources utilization, given the fact that, GCs sustain both biodiversity and livelihoods of local residents in the context of multiple land uses.

Despite the rich tourism potentials they possess, GC destinations' ability to attract and satisfy tourists to visit these areas, is a subject that has not been sufficiently explored by previous studies. This study addresses this empirical gap basing on the rationale that awareness of destination-attributes which tourists consider important is critical aspect for destination development (Castro *et al.*, 2015). A satisfied tourist is more likely to re-visit

the destination, increase spending and stay longer at the destination, and in turn the host/village and individuals directly involved in tourism will earn more revenue. The higher the revenue the more enhanced living conditions following increased spending pattern of tourism revenue into communal projects of priority sectors like health and education at one hand and increased household livelihood assets at the individual level (Panta and Thapa, 2017). This study employs Importance Performance Analysis (IPA) model to determine relative importance and performance of destination attributes from tourists' perspectives. The IPA results have managerial implications because information produced are inputs for tourism development planning to destination managers in order to optimize tourists' experiences.

It is important to evaluate tourism impacts in terms of extent to which tourism has reduced residents' livelihoods vulnerability overtime and whether tourism benefits influence residents' satisfaction and quality of life towards support for tourism development. The tourism impacts evaluation is necessary to provide feedback on effectiveness of global, national and local initiatives, policy, strategies and targets on livelihoods. For instance, the results of this study contribute to ascertain how far is the achievements of Tanzania Development Vision (TDV) 2025 which calls for achieving high quality and sustainable livelihoods through eradication of absolute poverty by year 2025. Aligned to TDV is the Sustainable Development Goals (SDG) that aim to end poverty (SDG No 1) and reduce inequalities (SDG No 10) by the year 2030, through ensuring that all men and women, particular the poor and the vulnerable, irrespective of age, sex, disability, race, ethnicity, origin, religion or economic or other status, have equal rights to economic resources, as well as access to basic services. The TDV is currently operationalized in the Five-Year Development Plan (FYDP) II, 2016/17-2020/21 which incorporated the main focus of the two frameworks, namely growth and

transformation (FYDP, I, 2011/12-2015/16) and National Strategy for Growth and Reduction of Poverty (NSGRP) II, 2010/11-2015/16 (URT, 2016). Similarly, this study is in line with the national tourism policy that aims at "promote the economy and livelihoods of the people, essentially poverty alleviation, through encouraging development of sustainable and quality tourism that is culturally and socially acceptable, ecologically friendly, environmentally sustainable and economically viable" (URT, 1999, p.5).

Therefore, this study is valuable and timely as tourism is an on-going economic activity in GCs and is expected to stimulate a wide range of livelihood opportunities to residents in Gcs.

1.4 Overall Objective

The overall objective of the study was to evaluate the development of tourism destination and it's impacts on tourists' satisfaction, residents' livelihoods towards quality of life in GCs of northern Tanzania.

1.4.1 Specific objectives

The specific objectives were**:**

i) To identify development stages of the life-cycle that tourism destinations in GCs has passed over the years.
ii) To examine extent to which tourism development has created impacts through shaping tourists 'perceptions of destinations' attributes influencing satisfaction

iii) To evaluate whether tourism development has established impacts to reduce vulnerability through access to livelihood assets between tourism beneficiaries and non-beneficiary households.

iv) To evaluate impacts of tourism development on residents' quality of life using community capitals.

1.4.2 Research questions

i) How has tourism evolved in GCs over the years up to year 2019?

ii) Has tourism development caused adequate positive impacts on tourists' perceptions of destinations' attributes leading to satisfaction?

iii) Has tourism in GCs established impacts that has reduced vulnerability through access to adequate livelihood assets among beneficiary households compared to their counterpart from year 2008/9 to 2018/19?

iv) Has tourism development established sufficient impacts on material and non-material community capitals that affects residents' quality of life?

1.5 Theoretical Framework

Theoretical and model stance guiding papers in this thesis draws from Tourism destinations perspective, Supply and Demand dimensions of Tourism destinations, Tourism Area Life Cycle (TALC) model which is framed in the evolutionary theory of tourism development, Expectancy-Disconfirmation theory in the context of destination attributes, Importance Performance Analysis model (IPA), Poverty and vulnerability, Asset-based poverty approach, Sustainable Livelihood Approach (SLA), Theory of change, Community Capital Framework (CCF), Social Exchange Theory (SET) and Quality of life.

1.5.1 Tourism destination

An area qualifies to be a destination basing on following attributes: geographical space with administrative boundaries that ranges from a size of country to a village, possessing accommodation facilities for visitors, transportation, infrastructure and hospitality resources. Other features include: the presence of tourism companies that promotes the area and manages tourism activities, thus, an image of the place exists in tourists' minds. Availability of Government laws and regulations that control different aspects of tourism and a mixture of tourism stakeholders i.e. private-sector enterprises, government agencies, non-profit organizations, individuals and other entities with an interest in tourism. (UNWTO, 2007; Morrison, 2013).

1.5.2 Supply and demand dimensions of tourism destinations

Descriptions of Tourism destination-attributes provided by UNWTO (2007), and Morrison (2013) indicate a complex of services, attractions and involvement of stakeholders ranging from tourists, destination managers, government to local residents. Apparently, this complexity of destination-features can be clustered into Supply and Demand sides (Formica and Uysal, 2006). The tourists generate demand on attractions found in tourism destinations. On the other hand, tourism supply entails availability of attractions and services constituting destinations. Tourism attractions that are necessary for tourism supply range from natural to man-made (Mihalic, 2013). In the context of GCs wildlife resources and culture of local residents (i.e the natives) entail the core offers that are supplied to the tourists (Mwongoso *et al.*, 2021).

In this study, demand (i.e. tourists) and supply (i.e. local residents in GCs) have been considered crucial sources of information required to get detailed explanations on how

tourism destination in GCs has been evolved over time and profound impacts felt/observed by tourist and local residents. Consistent to (Formica and Uysal, 2006), combination of supply and demand sides of tourism destinations, not only provide a comprehensive picture of the development of destinations, but also, enabling access to rich information required for tourism development policy implications and input to planning needed by destination managers for sustained tourism development.

1.5.3 Tourism Area Life Cycle (TALC) model

Similar to the notion that product sales undergo variation over time, the TALC model pioneered by Butler (1980) posits that an area used for leisure and tourism is prone to experience different development stages, namely; exploration, involvement, development, consolidation, stagnation, decline or rejuvenation. This means, initially a natural attraction is explored by few number of adventurous tourists, then, local residents are involved to serve them, leading to development of the area in terms of infrastructural investments. Subsequently, the area is consolidated as tourism become the dominant sector, serving mass tourists and eventually, the area is stagnated due to social and environmental carrying-capacity challenges. Ultimately, the area, either decline as it loses its natural attractions or rejuvenated with re-introduction of new attributes/attractions. Researchers validating TALC model often use a long-term duration and considers the likelihood of tourism destination to experience the whole cycle from the inception of the tourism area to the present time (Berry, 2001; Butler, 2006). This study adopted this approach.

Alternative to Butler (1980) TALC model is the model formulated by Haywood (1986) basing on Haywood's assumed simplicity of the Butler (1980) model. Therefore, apart

from change in actual number of tourist as main factor influencing change in destination life cycle stages advocated by Butler, Haywood (1986) recommended identification of destination life cycle stages based on four indicators of Virginal Tourism Bureau: Population Growth Rate (PGR), Traveler Spending Growth Rate (TSGR), Direct Travel Employment Growth Rate (DTEGR), and State Travel Tax Growth Rate (STTGR). Using these indicators, Haywood and his followers (Kim, 2002; Kim *et al*., 2012; Uysal *et al*., 2012; Yu *et al*., 2017) managed to described four stages: introductory stage, growth stage, maturity stage, and decline stage. For instance, if the annual population growth rate is more than half its standard deviation for the entire period, this stage is known as the growth stage. When the growth rate is between minus half and half the standard deviation, the maturity stage emerges. A model based on a standard deviation, however, requires an arithmetic mean, which in turn requires a complete set of data on aforementioned indicators, from the "exploration" stage through to the "decline" stage (Berry, 2001).

Following the requirement to access complete data set, which, is often unavailable, the Haywood (1986) destination stage model has received little attention compare to Butler's (Berry, 2001). The current study did not follow Haywood model and stick to Butler (1980) original model. Furthermore, this study considered external (i.e. macro-economic crisis) and internal factors (i.e. residents' attitude to tourism) affecting destination progress, number of tourist arrivals, state of tourism facilities, accessibility of destination and number of local resident population, because these are most popular factors used to evaluate tourism development stages in the case studies of TALC literature (Ma, 2013).

This study employed TALC model because it has persisted over three decades as useful framework, and a cornerstone for assessing tourism development (Yun and Zhang, 2017).

Therefore, tourism researchers agree that the TALC model has played, a significant facilitative role in destination development through planning and management (Liu *et al.*, 2016; Szromek, 2019). However, Butler (2006) called for more researches to test the model since a universal consensus about its validity and applicability is not yet completed.

1.5.4 Expectancy disconfirmation theory, destination attributes and tourism development

Tourists satisfaction largely depends on whether their perceived performance of attributes exceeds expectations (positive disconfirmation) or failed to meet expectations (negative disconfirmation) (Saqib, 2019). As tourism destination stages of development change over time, the tourists' perceptions and satisfaction with consumption of destination attributes, do change as well (Bernini and Cagnone, 2014). In other words, tourists' perceptions and satisfaction varies along the stages of destination development. Tourists perceptions towards destination entails cognitive and affective positive or negative reaction on attributes constituting a destination (Marinao, 2018). On the other hand, tourists' satisfaction refers to the degree to which a tourists' assessment of the attributes of the destination exceeds his/her expectation for those attributes (Saqib, 2019). Tourist's degree of satisfaction with destination attributes would be lower when a destination is at the stagnation or decline stage compared to other stages (Bernini and Cagnone, 2014).

Extent of tourists' satisfaction is determined by attribute performances of a destination, such that, when performance is perceived higher/lower than expectations, a positive/negative disconfirmation will result in satisfaction/dissatisfaction. Intensity of tourists' satisfaction with destination attributes has the potentials to re-visit the

destination, increase spending and duration of stay at the destination as well as positive word of mouth leading to successful tourism industry (Marinao, 2018; Chen *et al.,* 2010).

In the context of GCs, tourists' perception and satisfaction can be affected by attributes found in particular stage of destination development. In turn, tourists' perception and satisfaction shaped by a stage of tourism development may have a direct effect on host resident's livelihoods. This means, a satisfied tourist is more likely to re-visit the destination, increase spending and stay longer at the destination, and in turn the host/village and individuals directly involved in tourism will earn more revenue. The higher the revenue the more enhanced living conditions following increased spending pattern of tourism revenue into communal projects of priority sectors like health and education at one hand and increased household livelihood assets at the individual level (Panta and Thapa, 2017).

1.5.5 Importance Performance Analytical approach (IPA)

Tourists perceptions of destination attributes that are most important is cornerstone to tourism, marketing and management (Taplin, 2012; Nisco *et al.*, 2015; Deng and Pierskalla, 2018). Importance–Performance Analysis (IPA) is often used to evaluate the relationship between importance, performance, and overall satisfaction in tourism destinations (Lai and Hitchcock, 2015). The IPA approach was employed in this study to enable an understanding of tourists' satisfaction by measuring performance and importance of various destinations attributes. The IPA pioneered by Martilla and James (1977) is a widely applied model in service sector management. Initially employed in marketing industry, over the years and particular in the last decade, IPA has increased its application in various tourism contexts namely, exhibitions (Whitefield and Webber,

2011), parks (Sheng *et al.*, 2014), hospitality (Bhattacharya and Dey, 2015) and hotel (Babić-Hodović *et al.*, 2019).

There are other popular models such as Service Quality (SERVIQUAL) (Parasuraman *et al*., 1988) and Service Performance (SERVPERF) (Cronin and Taylor, 1994). The SERVIQUAL model focuses on difference between perceived service performance and expectation along five components: Responsiveness, Assurance, Tangibility, Empathy and Reliability (RATER). However, it is not easy to obtain people's expectations before leaving to a destination. Furthermore, it is inappropriate to assess their expectations on site by asking them to remember what they expected before leaving (Deng and Pierskalla, 2018; Nisco *et al*., 2015). The SERVPERF model on the other hand is premised only on perceptions of performance by excluding expectations. However, evaluation of attribute performance without knowledge of whether attributes are important or not is a weakness of SERVPERF model (Wade and Eagles, 2003). To overcome the challenges associated with SERVIQUAL and SERVPERF models, the destination 'attribute-importance and performance' is preferred and used in this study.

Researchers argue that IPA is more superior compared to other models because it enables understanding consumers' satisfaction by matching their perceptions on service-attributes they consider important and attribute-performance that can influence repetitive consumer purchase behaviour (Dabphet, 2017; Deng and Pierskalla, 2018; Nisco *et al*., 2015). Contrary to other service management models, IPA posits on assumptions that there is existence of the most important destination attributes that have to be identified and their performances measured because highly performed attributes have the highest impacts on

tourist's satisfaction while the lowest performing attributes decrease satisfaction, thus, must be improved immediately by destination managers (Dabphet, 2017; Nisco *et al*., 2015).

1.5.6 Poverty and vulnerability

Vulnerability is defined as inability to escape from welfare loss when hit by exogenous shocks (Haq, 2015). Households, particularly in rural areas of Tanzania and other SSA countries, often experiences multiple shocks that causes variability in their assets as they cope with them (Obrien *et al.*, 2009; Paumgarten *et al*., 2020). Shocks are defined as "adverse events that lead to a loss of household income, a reduction in consumption and/or a loss in productive assets" (Dercon *et al*., 2005, p. 5). This definition is adopted in this study. Shock can be either idiosyncratic or covariate. The former is specific, affecting individuals or households, for example, illness, injury or unemployment of household members. The latter has wide coverage affecting the entire community (e.g. village) such as floods, droughts or epidemics (Nguyen *et al*., 2020).

The concept of poverty has received massive application in the analysis of vulnerability because it entails the condition in which individual or households are not able to access basic life necessities such as proper hygiene, food, shelter, health services, education and drinking water. This study is framing vulnerability in poverty perspective in order to examine socio-economic and environmental challenges facing local residents in GCs. The nexus involving poverty and vulnerability implies integrating them in such a way that each causes the other. For instance, poverty influence people vulnerable to multiple shocks like diseases, drought and earthquake, in turn, their vulnerability to such shocks accelerate their poverty and hence vulnerability to future shocks (Damas and Israt,

2004).

People affected by shock do normally take coping initiatives to address. According to Snel and Staring (2001), coping refers to “all strategically selected acts that individuals and households in a poor socio-economic situation use to restrict their expenses or earn some extra income to enable them to pay for the basic necessities and not fall too far below their society’s level of welfare” (p.16). Therefore, access to livelihood assets is crucial for effective coping to reduce vulnerability (DFID, 1999).

1.5.7 Asset- based poverty approach

The concept of poverty has been considered to be complex with multidimensions. For example, poverty can be understood from objective or subjective contention. While the formal focuses on normative judgement as to what constitute poverty, the latter is basing on perceptual values (Suich, 2013). Furthermore, poverty can be measured from absolute or relative aspects. Both absolute and relative poverty employ income and consumption data, however, these approaches may not be in harmony because an individual can be poor in relative sense but, not poor in absolute sense. Furthermore, the consumption data used to establish poverty lines, excludes large durable assets, which are not frequently purchased and are not featuring household’s normal consumption level (URT, 2009). Similarly, these approaches do not count changes in assets, although assets are considered vital for rural livelihoods (Brockington *et al.*, 2018). With this regard, there has been emerging interest in the use of assets as proxies for poverty and prosperity (Howland *et al.*, 2021). The current study employs asset-based poverty approach to evaluate residents’ vulnerability.

The Asset-based approach is premised on the claim that ownership of, or at least the ability to use assets like land, livestock and small enterprises bears meaningful to local residents because assets are reliable means of storing and saving wealth (Brockington *et al.,* 2018; Howland *et al.,* 2021). Thus, poverty is linked to vulnerability with notion of inadequate access to livelihood assets to meet basic life necessities (Ellis, 2000). In other words, it refers to individual having insufficient wealth to meet their basic needs over time (UNECE, 2017). Households are featured with five livelihood capital assets: (i) natural assets such as land, and water; (ii) physical assets such as livestock, houses and productive equipment; (iii) financial assets such as savings, salaries, remittances or pensions; (iv) human capital assets such as skills, level of education, farm labour, gender composition and dependants; and (v) social assets such as community support, extended families and formal or informal social welfare network (DFID, 1999).

A thoroughly understanding of livelihood assets is given by Bebbington (1999) contending that ‘assets ‘are not just ‘things’ that go into a production process but also a basis for power to act and ultimately to bring about change in community. Thus, these assets take on three discrete roles: vehicles for instrumental action (making a living); hermeneutic action (making living meaningful) and emancipatory action (challenging the structures under which one makes a living) (Bebbington, 1999, p. 2022). Increased in livelihood assets, not only determine wealth-status of the households but also capacity to withstand adverse shocks and consequently, reduce vulnerability (DFID, 1999). Consistent to asset-based poverty perspective, this study relies on the application of Sustainable Livelihood Approach (SLA) whose pillars are the five livelihood assets.

1.5.8 Sustainable Livelihood Approach (SLA)

Being people's centred approach, the SLF primarily focuses on exploring the vulnerability conditions comprising shocks, trends and seasonality (e.g. social exclusion, diseases, drought, hunger, drastic change in commodity prices) people faces. Then, determines how the poor draw on a vast array of livelihood assets (i.e. "livelihood capitals": human, natural, financial, physical, and social capital). A combination of assets and presence of institutions, structure, laws and policies enables examining the vulnerable context and in turn help in identifying variety of livelihood strategies (i.e. agro-pastoralism, conservation and tourism) in pursuit of a wide range of livelihood outcomes (i.e. more income, improved well-being, reduced vulnerability, improve food security and more sustainable use of natural resources). The improved livelihood outcomes create impact on the asset base (DFID, 1999).

The DFID' SLF have been widely employed in different tourism destinations in SSA (Snider, 2013; Tefera, 2012). Basing on SLA components, this study is guided with the preposition that: increased in household wealth-status through increased access to livelihood assets from tourism enhance capacity to cope with multiple shocks and in turn reduce livelihoods vulnerability.

1.5.9 Conceptualization of Impacts through theory of change

The concept "Impact" can be explained from the lens of change-value chain approach (Wei-skillen *et al.*, 2007). This approach constitutes five aspects; (i) *Inputs* (resources like land, labour and money invested in support of activity); (ii) *Activities*(utilization of resources) (iii) *Outputs*(the direct and early results like products/services from the activity, e.g., health centers and schools built, trees planted, products sold to tourists); (iv)

Outcomes (immediate changes to people resulting from the outputs, i.e., increased skills, increased income, improved hygiene, increase food security); (v) *Impacts* (consequences or ultimate sustainable changes, i.e., tourists satisfaction, quality of life, self-esteem, surplus income for future investment and resilience to livelihood shocks). In evaluation context impacts refers to portion of the total outcome that happened as a result of the activity of the intervention/program, above and beyond what would have happened anyway (Wei-skillen *et al.*, 2007). The estimate of results of "what would have happened anyway" is determined by the counterfactual (i.e. outcomes that would have been in the absence of the intervention, observed from non-beneficiaries or control group).

In this study theory of change was used to evaluate to what extent does tourism development enable residents access to livelihood assets capable to address multiple shocks towards reduction of vulnerability. Specifically, the theory of change was operationalized by estimating change in wealth through livelihood asset accumulation within a period of ten years (2008/9-2018/19) between tourism beneficiaries' households and non-beneficiaries.

It should be emphasized that tourism development does not only establish impacts at individual household-level, but also, at the community level. This can be justified by community resource-capital utilization and exchange as conceptualized by the Community Capital Framework (CCF) and Social Exchange Theory (SET).

1.6 Framing Tourism Impacts in the Context of CCF and SET

1.6.1 Community Capital Framework (CCF)

The framework arose from the practice and application of the SLA (Kline *et al.*, 2018). The unit of analysis for CCF is community, contrary to SLA whose unit of analysis is households, The CCF was formulated to understand wider systems relating to poverty, natural resource management, and social equity (Flora and Flora, 2013). Capital, in the perspective of the CCF, entails a combination of resources available in the community that can be invested to produce other capitals and benefit the community (Flora and Flora, 2013). The CCF constitutes stock of seven interdependent capitals that can be divided into two main factors, vital to achieve a healthy sustainable community development (Emery and Flora, 2006). These include material factor (Financial, Built/Physical and Natural capital) and non-material (Social, Cultural, Human and Political capital). This study employed CCF because it has multiple dimensions, thus, extends the traditional tripartite tourism impacts (i.e. economic, social and environment) to other aspects such as: political, cultural, human and built-capital, thus, provide a comprehensive understanding about tourism impacts.

The key assumption of CCF as advocated by its proponents (Flora, 2018; Kline, 2018) contend that each community, regardless of its poverty, has resources, that it can use in an exchange to attain its own development and well-being. CCF provides a tool to analyze inputs (stock of capital used to produce other resources) and impacts (outcomes emanating from resource exchange or transformation). The input-outcome community capital mix is relevant to tourism practices in GCs of northern Tanzania and elsewhere in SSA. Residents in GCs of northern Tanzania have been relying on the natural attractions and cultural resources to engage in contractual partnerships with tourism investors

(Nelson, 2004: Mwongoso *et al.*, 2021). The investor reimburses the communal residents with revenue, which, in turn, is spent in community development projects of priority sectors like health and education (De Boer & Van Dijk, 2016). The community-investor agreements allow the investors to utilise a portion of village land for camping and game viewing over a specified period, in turn, the community benefits from tourist activity fee charged per person per day and annual land fees.

1.6.2 Social Exchange Theory (SET)

This study conceptualizes SET as "a general sociological theory concerned with understanding the exchange of resources between individuals and groups in an interaction situation" (Ap, 1992, p. 668). In tourism, researchers employ SET to describe "an exchange relationship between local communities and the tourism industry in an attempt to understand how such relationships shape residents' reactions to tourism development" (Nunkoo and So, 2015, p.1).

The SET proposition contends that "if the individual perceives benefits from an exchange, he or she is likely to evaluate it positively; however, if he or she perceives costs, he or she is likely to evaluate it negatively" (Woo *et al*., 2018, p.6). The interaction between residents and tourism industry is likely to continue only if both parties feel that they are benefitting more from the exchange (Nunkoo, 2016). The SET has a significant role in tourism impact-evaluation because it can be used to predict overall life satisfaction among residents. This implies, residents may either be satisfied or unsatisfied with tourism benefits received from the exchange process, thus, affecting their overall perceived quality of life (Nunkoo and So, 2015; Woo *et al.*, 2018).

1.7 Framing Tourism Impacts in the context of Quality of Life (QOL)

Enhancing Quality of life has been considered as one of the most important goals in the development agenda in many SSA countries. For example, Tanzania Development Vision (TDV) 2025, calls for achieving high quality and sustainable livelihoods through eradication of absolute poverty by year 2025. It should be emphasized that the concept "QOL" and "well-being" are often used interchangeably (Uysal *et al.,* 2016). The local residents' QOL can be influenced by tourism's positive impacts, such as increase in income or improved physical infrastructure, and negative impacts, such as traffic congestion and environmental pollution. There are many viewpoints conceptualizing the Quality of life (QOL). This study adopts Andereck and Nyaupane (2011) definition of the concept; "one's satisfaction with life and feelings of contentment or fulfillment with one's experience in the world" (p. 248).

The QOL can be evaluated at the individual, household, community, regional and national level (Sirgy, 2002 Evaluation approaches can be objective or subjective (Uysal *et al.*, 2015).

1.7.1 The objective approach of QOL

The approach emphasizes on measures of economic well-being (e.g., household income), environmental well-being (e.g., CO2 emissions), and health well-being (e.g., average life expectancy) (Uysal *et al*., 2015). This approach enables comparison of the status of QOL at the national or regional level by ignoring the individual perceptions of their living conditions which are assumed to vary from one person to another. However, the objective approach rely on accurate official statistics which are either lacking or difficult to access in developing countries (Howe *et al.*, 2012).

1.7.2 The subjective approach of QOL

The subjective aspects of QOL are prioritized to psychological constructs such as perceived individual's well-being, satisfaction or dissatisfaction with community, neighborhood and personal circumstances, or being happy or unhappy with life, feelings of fulfillment with one's experience in the world, to name a few (Eslami *et al*., 2019; Uysal *et al.,* 2015; Woo *et al*., 2016). Sirgy (2002) and Uysal *et al.* (2015) contending the popularity of subjective QOL approach in tourism researches basing on the premise that the traditional objective approach, using economic indicator like income and consumption composition cannot be equated with the more important indicators of development that capture subjective well-being (i.e., life satisfaction, perceived QOL, happiness, or life fulfillment). For example, increase in number of tourists and their spending can indicate economic growth, but may not translate to perceived QOL if residents are irritated with presence of large number of visitors associated with traffic congestion.

This study synthesized residents' perceived values of community-tourism capitals and objective indicators (e.g. household livelihood capital index, trend in tourism receipts and expenditure in social and physical infrastructure) to provide complementary information, useful to predict QOL in gateway communities. Noteworthy, tourism studies on QOL have rarely combined the objective and subjective evaluations to determine the QOL (Uysal *et al.,* 2015). Therefore, this study intends to make significant contribution to the body of knowledge in the area of QOL.

1.8 The Conceptual Framework

The Figure 1.1 illustrates conceptual framework guiding this study. The core of this study is on two conceptual themes: Development of tourism destination in GCs and Impacts of Development of tourism destinations. Using the first conceptual theme, the premise of this study is on the consideration that tourism in GCs is embedded in the wide ecosystem of PA's natural attractions (see the dashed line in Figure 1.1, showing the embedment of GCs to PAs ecosystem). In addition, the natural attractions are complemented by pristine culture of local residents in GCs, thus, underline destination core attractiveness compelling tourists' visitation to these areas. Taking advantage of proximity to PAs as well as the urge to diversify livelihoods, has necessitated the agro-pastoral residents to embrace the nature based tourism in GCs of northern Tanzania.

An area used for leisure and tourism is destined to experience development in evolutionary manner, involving six stages: exploration, involvement, development, consolidation, stagnation, decline or rejuvenation, shown in Figure 1.1. These development stages of tourism destinations are the pillars of the tourism area life cycle (TALC) model employed in this study. In Figure 1.1 tourists visitation to PAs and GCs' destinations is subjected to the respective stages of the life cycle.

Development of tourism destination through its respective stages causes impacts to the tourists (demand) on one hand, and hosts/residents (supply) on the other hand. For instance, as tourism destination stages of development change over time, the tourists' perceptions of destinations' attributes and degree of satisfaction change as well. In Figure 1.1, a direct relationship exists between tourist's perceptions of destinations' attributes

and satisfaction caused by particular stage of destination development. In other words, tourists' perceptions and satisfaction vary along the stages of destination development. Tourists' degree of satisfaction with destination attributes would be lower when a destination is at the stagnation or decline stage compared to other stages (Bernini & Cagnone, 2014). The extent of tourists' satisfaction is determined by attribute performances of a destination, such that when performance is perceived as higher or lower than expectations, a positive/negative disconfirmation will result in satisfaction or dissatisfaction.

A satisfied tourist is more likely to re-visit the destination, increase spending and stay longer at the destination, and in turn the host/communities and individuals directly involved in tourism will earn more revenue. This is illustrated by direct arrow emanating from tourists' side towards households and community (Figure 1.1). The higher the revenue the more enhanced living conditions following increased spending pattern of tourism revenue into communal projects of priority sectors like health and education at one hand and increased household livelihood assets at the individual level (Panta and Thapa, 2017) as well as access to material and non-material community capitals (Flora and Flora, 2013).

On the supply side, in the context of GCs, the communal residents use community capital like culture (i.e. non-material capital) and land/wildlife (i.e. material capital) for tourism purposes and access more capital like financial (material capital). The community-investor agreements allow the investors to utilise a portion of village land for camping and game viewing over a specified period, in turn, the community benefits from tourist

activity fee charged per person per day and annual land fees. However, this sort of resource exchange can be affected in the course of destination development such that, residents' use and access to community capital can either increase or decrease. For instance, development of tourism destination associated with increased tourist-flow over time, can be associated with positive (i.e, access more tourism revenue and improve infrastructure) or negative impacts (environmental pollution, traffic congestion and litter problems). These impacts can change the stock of community capitals and ultimately affect the residents' vulnerability to multiple shocks, QOL and extent of their support for further tourism development in their lands.

Figure 1.1 Illustrate direct relationship about impacts of tourism development on residents/hosts categorized in two levels; households and community. At the household level, tourism development is assumed to establish impacts by reduction of vulnerability to idiosyncratic shocks through enabling households' access to livelihood assets (human, social, physical, financial and natural) which safeguard households from shocks. These assets are the cornerstone of Sustainable Livelihood Approach (SLA) as shown in the Figure 1.1.

At the community level, tourism development is assumed to create positive impacts (i.e. reduced vulnerability to covariate shocks) through effective utilization of community material resources (communal revenue, built capital and land) and non-material resources (culture, social, human and political) as described by Community Capital Framework (CCF) used in this study.

In Figure 1.1, residents' reduced vulnerability to multiple shocks is expected to establish some consequences: 1) improved QOL, 2) residents support for further tourism development as tourism become effective alternative livelihood activity, 3) residents avoid excessive exploitation of natural resources on which tourism in GCs is relying. These are the desired long term consequences/outcomes that tourism stakeholders, development practitioners and policy makers would wish to happen.

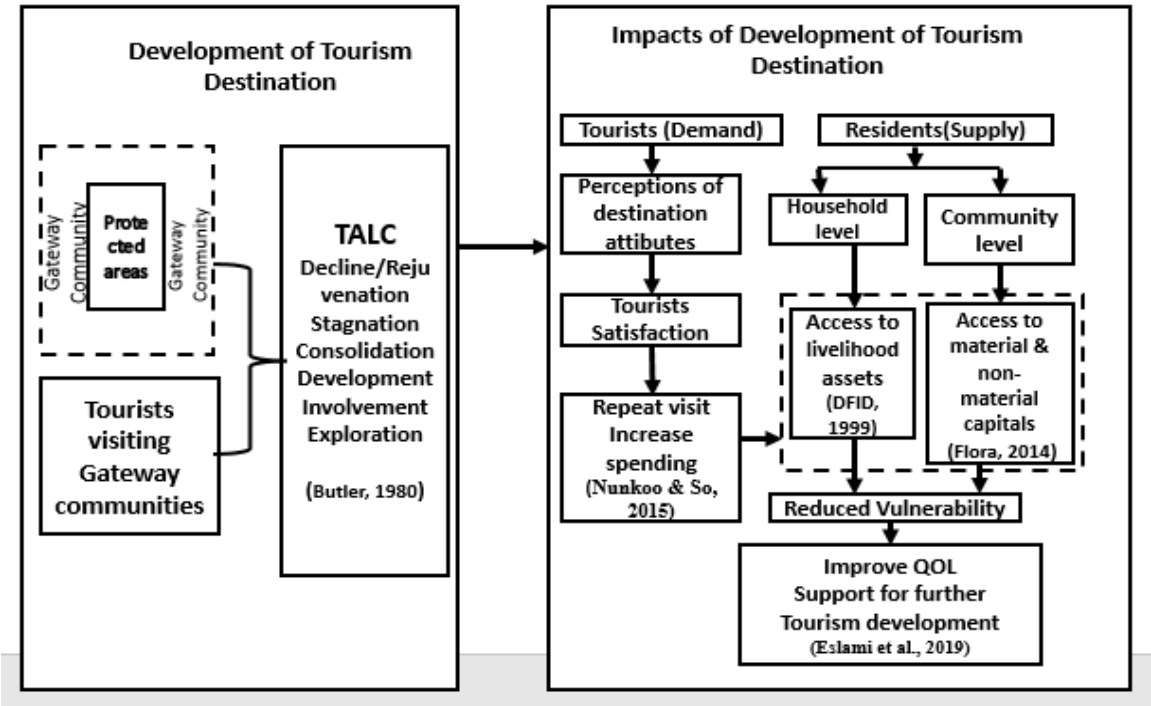

Figure 1.1: Conceptual framework

1.9 General Methodology

1.9.1 Description of the study area

The study was conducted in northern Tanzania. This part of the country was selected due to the fact that it is dominant with tourism as it is endowed with world natural heritage sites such as Kilimanjaro national park, Serengeti national park and Ngorongoro conservation area. Three GCs, namely, Loliondo, lake Natron and Burunge were

specifically studied. These GCs are part and parcel of famous PA ecosystems found in northern Tanzania, namely, Serengeti National Park (category II of IUCN) and Ngorongoro Conservation Area (category V) with their respective Loliondo and lake Natron game controlled areas (GCAs) (category VI of IUCN) (Dudley, 2008) and Tarangire-Manyara national parks (category II of IUCN) The GCAs are primarily designated for hunting tourism (Sulle *et al.,* 2011). The GCAs and village lands have been overlapping for many years (Sule *et al.,* 2011). Thus, in this study, GC entails a tourism destination containing a village or several villages share parts of its land with GCA.

The three selected GCs are the first to experience tourism conduct in northern Tanzania since early 1990s and over the time, they have become tourism destinations offering walking safaris, game viewing, cultural, trophy hunting and camping (Nelson, 2004). Studying multiple destinations enhance broader understanding about extent of the development of tourism and impacts experienced by local residents and the tourists, within and between destinations.

Loliondo and lake Natron GCs belong to Ngorongoro District (between latitude 3^{o} 30’ south of equator and 35^{o} 5425’ East of Greenwich), being one of the seven Districts of Arusha region while Burunge is part of Babati District (between the Latitude 3^{0}- 5^{0} South of the Equator and Longitude 35^{o}-37^{o} East of Greenwich) (Figure 1.2), one among six Districts of Manyara region.

From aforementioned GCs, a total of 18 villages with potential for tourism attractions constituted the study areas. The Loliondo destination constituted eight villages bordering with Serengeti National Park (SNP) to the west. These villages are: Ololosokwan, Soitsambu, Oloipiri, Sukenya, Olorien-Magaiduru, Maalon, Njooroi and Arash. According to village population data of year 2018/19, the total residents for the eight selected villages was 31 405. These villages are part of 29 villages forming Loliondo division. The large share of division is located at northern of Ngorongoro District and falls within the Loliondo GCA adjacent to SNP and Kenyan borders (Figure 1.2). The rainfall ranges from 400 and 1500 mm while temperature ranges from 15.6 ^{o}C and 21.1^{o}C (NDC, 2018). The typical semi-arid lands of Loliondo are the home to 95% Purko, Laitayok and Loita clans of Maasai pastoralist, shared with minority agro-pastoral, Sonjo. Livestock constitute local breeds of cattle, sheep and goats. Crops produced include maize and beans (NDC, 2018).

In the Lake Natron, two villages, Engaresero and Pinyinyi, bordering the world natural heritage site, Ngorongoro Conservation Area, were selected to represent the destination out of 17 villages constituting Sale division. Engaresero village hosts substantial tourism investments in entire division within the Natron GCA. According to Engaresero and Pinyinyi village population profile of year 2018/19, the total village residents were 6 491 for Engaresero and 10 262 for Pinyinyi. The destination is located south-east of Ngorongoro District, half way between SNP to the west and Kilimanjaro National Park to the east. The 95% of pastoralist, Salei Maasai clan dominates the Engaresero, while 65% agro-pastoral, Sonjo occupies the Pinyinyi. The rainfall ranges from 400 and 800 mm while temperature ranges from 9^{o}C and 27.1^{o}C (NDC, 2018). The aridity of the land limit

large scale farming. Thus, subsistence farming with traditional irrigation system, relying on river Pinyinyi is common, especially in Pinyinyi village. Crops produced are: maize, beans, sorghum, and sweet potatoes (NDC, 2018).

From 28 villages of Mbugwe division, eight tourism potential-villages were selected to form Burunge destination. These villages are: Minjingu, Vilima Vitatu, Mwada, Sangaiwe, Olasiti, Kakoi, Sarame and Kisangaji. According to village population data in year 2018/19, the total residents for the eight studied villages was 34 337. These villages are situated in semi-arid low land of northern Babati District, bordering Tarangire and Manyara National Parks. Rainfall ranges from 500 and 700 mm while temperature ranges between 18ºC and 33ºC. The agro-pastoralism is popular among the 25% Kisongo and 3% Waarusha Maasai clans, 60% Mbugwe, 4% Iraque and 6% Warangi while 2% Barbaig are hunter-gather group. Crops produced are: groundnuts, sorghum, cassava, maize, beans and sesame (BDC, 2015).

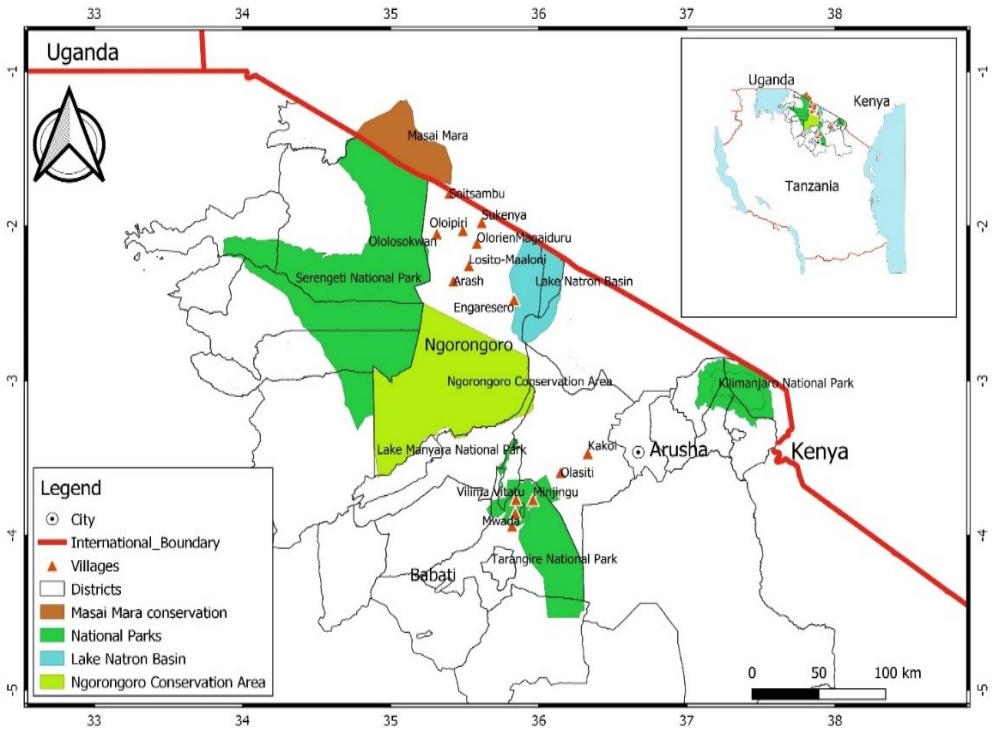

Figure 1.2: Map showing studied villages in three gateway community-destinations

1.9.2 Research design

The research design and methods used by this study were determined by the specific research objectives. The appropriate research design is necessary as it determines the type of data, data collection technique, the sampling method and analytical approaches. There are several versions of research designs and they can be grouped into three traditional categories: exploratory, descriptive and causal (Churchill and Iacobucci, 2004). The causal design was dominant in this study because the first objective focused on using tourism destination indicators causing changes in life cycle stages over time, while the second objective sought to examine destinations attribute importance and performance causing tourists visitation to GCs. The other objectives were set to evaluate impacts caused by development of tourism destination on change in livelihood assets among beneficiaries (treated) and non-beneficiaries (untreated/control) in quasi-experimental design (the third objective) and impacts on residents' quality of life (the fourth objective). Impacts evaluation studies are sensitive to time frame. During pre-survey it was found that there was either none or unclear livelihood data prior to tourism intervention in l990s in the study areas. Therefore, in this study, the impact evaluation baseline period was year 2008/9 and the current period was 2018/19. This baseline year was selected from consideration of convenient time-frame for respondents' ability to recall the access to livelihood assets and vulnerability context through occurrence of shocks.

1.9.3 Research methods

Conceptualizing research methods entails the focus in the categories of qualitative, quantitative and multi methods consistent with the collection of research data.

Information about tourism development, quality of life, and poverty and vulnerability evaluation cannot be collected and analyzed using a single method (Uysal *et al*., 2016). This study employed multi-method approach.

1.9.4 Sampling procedures and sample sizes

This study employed the multi stage sampling technique. The first stage involved a purposive sampling of two regions of northern Tanzania: Arusha and Manyara. The choice of the sample regions is influenced by the abundance of nature based tourism attractions with international recognized status of natural heritage sites. Similarly, the choice of study regions based on popularity of the regions in attracting significant number of domestic and international tourists, compared to other regions in Tanzania. The other criterion was the presence of GCs with tourism potentials. The second stage involved the selection of one district from each region using the same criteria applied in the first stage. Districts were Ngorongoro and Babati for Arusha and Manyara regions, respectively. The third stage of sampling involved the selection of three divisions using the same criteria. The divisions were Loliondo and Sale from Ngorongoro district and Mbugwe from Babati district.

The fourth stage of sampling involved the selection of one GC from each selected division basing on the established criteria used in the previous stages and the notion that a particular community was among the earliest to experience tourism activities. Thus, Loliondo, lake Natron and Burunge GCs were purposively selected from Loliondo, Sale and Mbugwe divisions, respectively. For the purpose of this study, these GCs are also considered as tourism destinations containing a village or several villages. Therefore,

village(s) is/are unit(s) constituting tourism destination consistent with the definition that “tourism destinations could be on any scale, from a whole country to a village” (UNWTO, 2007, p. 1).

The fifth stage involved selection of 18 sample villages from three GCs, basing on four criteria: i) village endowed with tourism attractions such as, wildlife view, scenic beauty and socio-cultural aspects, ii) village host at least one tourism investor possessing accommodation facilities like lodge or camp and provide amenities and ancillary services, iii) village should be an active tourism beneficiary (e.g. receiving tourism revenue and other tourism related socio-cultural and environmental benefits) for about 10 years or more (i.e. fit to the time frame of impact evaluation :2008/09 as the baseline year, to 2018/19), iv) similarity of non-beneficiary villages to the tourism beneficiary villages in terms of ethnicity, location (i.e. proximity to the beneficiary village), livelihood activities and tourism resource potentials. The similarity of villages was important to ensure fair comparison and enabling unbiased (correct) estimate of tourism impacts with regard to location.

Generally, the aforementioned criteria were crucial because they determined the suitability and variations in number of villages to be studied as per specific research objectives. For example, the first research paper involved 14 tourism beneficiary villages that were the first to experience tourism since 1990s, while the second and fourth paper involved nine out of 14 beneficiary villages that were still active beneficiaries up to the year 2019. The third paper involved 16 villages, where nine villages were the active

beneficiaries and seven villages as non-beneficiaries within the impact evaluation time frame of 2008/09 to 2018/19.

The last sampling stage involved selection of key informants, sample tourists and wealth-stratified tourism-beneficiary households and non-beneficiary households from respective villages in line with research objectives.

Key informants were purposive selected using the snowball sampling technique. It comprised 59 individuals conversant with tourism development in the selected villages. Similarly, individual key informants constituted 63 household heads known to have experienced severe livelihood shocks like crop-raid, food insecurity and chronic illness (see Chapter Four, section 4.2.3 for details). Thus, a total of 122 individuals were involved in the in-depth interview. Number of interviewees involved depended on saturation point which was attained when additional interviews indicated no new information concerned the study topic. Moreover, individual interviews were complemented with three group interviews involving six to seven participants. Likewise, this study used focus group discussion (FGD) involving 8-13 household heads in each of selected 18 villages constituting the three GCs. The FGDs focused on discussion about different facets of livelihood covariate shocks, coping mechanism and to determine indicators used to describe household wealth categories (see Appendix 1, section F and G.

The wealth-stratified household samples from selected villages and tourists' samples were randomly selected for the purpose of statistical inference. A total of 422 tourists from three destinations constituted the sample size for tourists' survey. The tourist sample size

was attained through following the general statistical rule governing sample sizes for multivariate studies involving latent variables (i.e. N:p ratio, such that, respondents [N] to variables [p] was conventionally set to 5:1, implying, five respondents should be represented by one variable (Kyriazos, 2018).

Household samples were obtained by the following procedures: i) using village registries to construct sample frame involving household heads who had been residents and also household heads before year 2008/9 up to the period of data collection in year 2019. In this study respondents qualified to be the head of household regardless of their sex as long as he/she is the key decision maker concerning access to and utilization of household resources (Zakaria *et al.*, 2015), ii) assign wealth status in two periods: 2008/9 and 2018/19 to each household in the constructed sample frames, iii) computing the minimum required sample size using formula developed by Cochran (1997) corrected for finite population (see Appendix 6 for derivation of the formula), iv) determining relatively larger sample size to reduce sampling error, which resulted into 418 tourism beneficiaries and 432 non-beneficiary households from three GCs, v) employing the wealth-stratified random sampling technique to select households (using random numbers) for the survey. For details on these steps, see Chapter Four section 4.2.3. Lastly, household sample sizes were subjected to statistical matching to obtain unbiased samples for effective impact evaluation as explained in the following section.

1.9.5 Determining unbiased samples for effective impact evaluation: propensity score matching

The effective impact evaluation requires estimating average outcome by comparing groups having similar socio-economic characteristics. This study used the Propensity

Score Matching (PSM) technique to obtain a similar pair of randomly selected households heads, basing on socio-economic characteristics they had in year 2008/9 (i.e. the baseline year chosen for impact evaluation). The PSM technique enabled the study to obtain a similar pair of randomly selected households heads residing in villages where tourism development has established impacts against randomly selected household heads without tourism intervention. The major advantage of using PSM is that it facilitates impact evaluations to be conducted where randomized control experiment has not been incorporated into the design of the intervention. Tourism intervention in GCs is a good example of non-randomized control trial.

1.9.6 Approaches used to determine impacts of tourism development on tourists' satisfactions, residents' livelihoods and quality of life

A mix of approaches were employed in this study to evaluate the interface of tourism development and its impacts on tourist satisfaction, resident's livelihoods and quality of life.

First, retrospective approach. This refers to tracking changes over time on the variable of interest by asking respondents to provide data about their past living conditions at the same time as they are providing data about their present conditions (Addison *et al*., 2008: Murray, 2002). This approach was useful in this study because historical information about tourism development and changes in residents' livelihood conditions were obtained

Second, self-reported tourist survey, was used to obtain their perception and evaluation about performance of destination attribute which, eventually, determining their satisfaction. The Importance-Performance framework enabled mapping the tourists

opinions into four quadrants whose analysis is important for tourists, destination managers and local residents.

Third, construction of livelihood capital index. The five capital assets of Sustainable Livelihood approach were adapted and used to compute index from a pool of livelihood indicators. The indicators were mathematically assigned weights using Entropy method. Index constructed allowed comparison, asses pattern and change in assets across household, time and space.

Fourth, the counterfactual: the study adhered to the general impact evaluation principle (s) which among other things requires counterfactual assessment using quasi-experimental design as recommended by Khandker *et al*. (2010). The non-beneficiary group provided information to enable understanding the situation that the beneficiary group would be in, had they not received tourism benefits.

Fifth, Differences in Difference impact estimation. Propensity score matching and Difference in difference impacts estimation techniques were combined to estimate the average outcome/treatment effect (ATT) on livelihood capital assets of matched treated (tourism beneficiary households) and untreated (non-beneficiary households).

Sixth, this study adapted “An integrated approach to assess the impacts of tourism on community development and sustainable livelihoods” pioneered by a Simpson (2007). This approach is relevant for tourism impact evaluation in GCs. The integrated approach requires data to be collected at the baseline year followed by a multi-method for data collection (i.e. identify and interview key informants, conducting participatory process

through focus group discussions, and household survey) and synthesis of qualitative and quantitative data analysis on livelihood impacts

1.9.7 Data collection methods

The study collected primary and secondary data. These two types of data were necessary in order to provide for triangulation through converging lines of inquiry (Yin, 2009). Primary data were collected using semi-structured key informant interviews, focus group discussions, field observations (e.g. participatory community resource-maps), participants' observation and survey for households and tourists (Appendix 1, 2, 3). Extensive field notes and audio recording were used during interview. Ethical consideration was maintained throughout the data collection sessions. Before the interview, informed consent was sought from interviewees and permission for audio recording after explaining the purpose for which the information was sought. Further, respondents were ensured of anonymous of their real identity in the subsequent reporting. Both English and Swahili were used during interview, depending on preference of interviewee. Interview session lasted from 1 to 2 hours. Secondary data comprised the official reports of tourism revenues, spending pattern of tourism revenue, number of tourists, investment trends and review of relevant literature on tourism development. Data collection took place in 18 villages constituting three GCs, from July to October, 2019.

1.9.8 Instrument validity and quality of data

Three months before the full session of data collection, pilot tests of both tourists and household survey tools as well as focus group discussion tools were conducted to improve reliability, validity, and ensure clarity of questions. The validity of survey

instrument (i.e. common method bias) was explored by Harman one factor test and the Common latent factor test. Quality of data collected was explored through normality test.

1.9.9 Univariate normality and multivariate normality

In this thesis statistical diagnostic was adhered. The study followed the recommendations provided by Lai and Hitckock (2014) and Lai and Hitckock (2015) to guide researchers in tourism and hospitality, especially when the focus of research is the application of IPA. The authors recommend the researchers to perform data normality test. Therefore, in this study Mardia's multivariate skewness and kurtosis tests were performed to access data normality. The assumption of normality is basing on the premise that scores on each attribute are normally distributed (univariate normality) and that the sampling distribution of the combination of two or more attributes is also normally distributed (multivariate normality) (Hair *et al*., 2010). Thus, testing for normality requiring an assessment of univariate normality and multivariate normality (Lai and Hitckock, 2014). Skewness and Kurtosis was used to assess univariate. Moreover, this study used graphical tools such as the scatter plot, Histogram and quantile–quantile plot (QQ plot) for assessing univariate normality. When the data are normally distributed, then the points plotted in the QQ plot will fall on a straight line Lai and Hitckock (2014).

Mardia's multivariate skewness and kurtosis test is adequate to prove both univariate normality and multivariate normality Lai and Hitckock (2015). If a set of variables is distributed as multivariate normal, all items should not exceed the cutoff value of 3 for skewness and 10 for kurtosis (Kline, 2011); the value of multivariate kurtosis should not be 30 or greater (Lai and Hitckock, 2014) in the results of Mardia's multivariate skewness

and kurtosis test. In this study the AMOSv, 21 was employed to detect influential multivariate outliers using the Mahalanobis d-squared value. Cases with large Mahalanobis d-squared value implied outliers, and were removed.

1.9.10 Data analysis

The choice of analytical approaches employed in this study was influenced by several factors, such as; type of data (i.e. qualitative or quantitative), sample size, number of variables, normality status of data, sample characteristics (i.e. Beneficiary or non-beneficiary), necessity of generalizing the results, validating relevance of underlying theory or model like TALC and the underlying research objectives. Therefore, thematic analysis was employed to analyze qualitative data (see Chapter Two in analysis section for the first paper), Confirmatory Factor Analysis (CFA) and paired sample t-test was used for the second paper (Chapter Three). With help from Stata13 software, independent sample t-test was used for the third paper (Chapter Four) and the Structural Equation Modeling (SEM) using AMOSv.21 software was used for fourth paper (Chapter Five).

1.9.11 Scope and limitations of the study

The study focused on 18 villages constituting three GCs, namely, Loliondo, lake Natron and Burunge. These GCs were the first to experience tourism in Tanzania since early 1990s (Nelson, 2004), thus, other GCs with relatively less than two decades of involvement in tourism were left out of the study. Among the limitations of the study was the remoteness of the lake Natron and Loliondo. These GCs are approximately 223 and 425 km respectively from the major city, Arusha, contrary to 120 km to access Burunge. These GCS are characterized by a poor road network and scattered villages, thus difficult

to access some villages. Another limitation was the lack of official baseline data on households' livelihood conditions before tourism started. To address this challenge tourism impacts evaluation was confined to a period of ten years: 2009/10 to 2018/19 where the year 2008/9 was a baseline period. Similarly, construction of baseline data on livelihood assets was deemed necessary. Thus, consistent to Bamberger (2009) recommendations, during data collection (Appendix 3), respondents' recall was enabled through associating their living conditions with occurrence of critical and memorable events like earthquake and volcano eruption of year 2007 to severe drought of 2008 which significantly affected agro-pastoralists of northern Tanzania. There were notable recall challenges, especially on financial capital which required data about household cash-revenue accessed recently and some years ago. To address this challenge, other financial capital indicators were used, including, asking whether a household had member accessed loan, salary or remittances. Furthermore, local residents' low literacy, was addressed through a face-to-face questionnaires administration, making the task tedious and time consuming. However, to ease the task, training on management of data collection instruments was conducted to research assistants familiar with the local language and terrain of the study villages.

1.9.12 Organization of the thesis

This thesis is organized in a publishable manuscript format. The thesis consists of six chapters. Chapter One constitutes the general introduction, the statement of the problem, the justification of the study, the overall and specific objectives, the research questions, a theoretical review and the general methodology. Chapter Two presents a published paper which identified development stages of the life cycle those tourism destinations in gate

way communities have passed over the years up to the on-going stage in year 2018. Chapter Three presents a published paper which evaluate to what extent tourism development have shaped the perceptions of tourists on attributes they consider important and performance of such attributes towards tourists' satisfaction. The implication is that, a satisfied tourist would revisit the destination and enable village access revenue to fund community projects geared to improve livelihoods of residents. Chapter Four presents a manuscript which evaluated whether development of tourism established impacts to reduce vulnerability through access to livelihood assets between tourism beneficiaries and non-beneficiary households. Chapter Five provides a manuscript which examined causal relationship involving influence of tourism impacts, satisfaction with impacts and quality of life towards residents' support for further tourism development. Manuscripts in chapter four and five have been accepted for publication. Chapter six provides a summary of major findings, conclusions, recommendations, contribution of the study and suggestions for further studies.

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CHAPTER TWO

Development of Tourism Destinations in Gateway Communities, Northern Tanzania

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CHAPTER THREE

Impacts of Development of Tourism Destinations on Tourist Perceptions of Destinations' Attributes and Satisfaction in Gateway Communities, Northern Tanzania

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CHAPTER FOUR

Impacts of Tourism Development on Household Vulnerability to Multiple Shocks: Changes in Livelihoods Assets in Gateway Communities, Northern Tanzania

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Abstract

There is a general consensus that development of nature based tourism in gateway communities diversify livelihood to residents and in turn, helps in reducing vulnerability to multiple shocks. However, there is unclear understanding on extent of reduction in vulnerability to shocks through tourism, especially at household level. This study makes contribution to the body of knowledge concerning tourism impacts on livelihood vulnerability to multiple shocks among residents in three gateway tourism destination communities: Loliondo, lake Natron and Burunge. A multi-method approach was used to collect data, where 63 Interviews, 16 focus group discussions and survey among 418 tourism beneficiaries and 432 non beneficiary households, subsequently matched by propensity scores, led to effective triangulation of data on shocks and coping mechanisms. Changes in household's livelihood capital for year 2008/9 and 2018/19 was estimated by employing the propensity score matching combined with the difference-in-differences (PSM-DID) approach. It was found that, tourism has significantly raised the livelihood capital assets among benefiting households than non-benefiting, thus, enabled them to reduce vulnerability to drought, livestock diseases, rise in food prices and illness, by effective shock-coping activities. Increase access to resident's financial and social resources are recommended for further reduction in vulnerability to livelihood shocks.

Keywords: Tourism, Vulnerability, livelihood shocks, northern Tanzania

4.0 Introduction

Tourism in Sub Saharan Africa (SSA) is largely concentrated in wildlife protected areas (PAs) and in areas that border and serve as entry points to PAs, known as gateway communities (Frauman and Banks, 2011). As part of PA ecosystem, the gateway communities (GCs) have, over the past two decades become tourism destinations as they are endowed with attractions for typically nature based tourism (Keitumetse and Pampiri, 2016; Nelson, 2012). In the northern Tanzania, GCs have experienced three evolutionary stages of Butler (1980) tourism destination development life cycle: exploration, involvement and development (Mwongoso *et al.*, 2021). Tourism conduct in GCs is commonly featured with trophy hunting, cultural products offering, game-viewing, low capacity-lodges, concession agreements tied to land use restrictions, village-land membership scheme and tourism revenue-sharing (Manyara and Jones, 2007).

Tourism revenue in GCs is usually allocated by village councils to improve infrastructure such as water, construction of schools and health centres (Nelson, 2004). These community projects are geared towards creation of desired livelihood outcomes that manifests into livelihood impacts capable to address vulnerability context at the household and community levels (Suich, 2013). Households, particularly in rural areas of Tanzania and other SSA countries, often experiences multiple shocks that causes variability in their assets as they cope with them (Obrien *et al.*, 2009; Paumgarten *et al*., 2020). In the absent of sufficient assets to smooth consumption, multiple shocks may lead to severe health challenges associated with reduced food (nutrient) intake (Nguyen *et al.*, 2020). Similarly, erosive coping such as sale of productive assets or interruption of education (i.e. drop-out), largely reduces human capital (Nikoloski *et al*., 2018;

Paumgarten *et al*., 2020). Therefore, local resident's vulnerability reduction towards multiple shocks is crucial as Obrien *et al*. (2009) contend, "vulnerability reduction is increasingly recognised as necessary for improving human well-being and human security in the face of multiple shocks and stressors" (p.23).

Efforts to improve residents living conditions through, either communal projects financed by tourism receipts or to individuals directly involved in tourism (e.g. local residents employed in tourist's lodges, tour guides or selling hand crafts to tourists) is very crucial especially in GCs of norther Tanzania. Nelson (2004; 2012) and Sulle *et al*. (2011) contend that tourism in GCs is the key alternative source of livelihoods' diversification to sustain well-being of pastoral and agro-pastoralists experiencing vulnerability condition due to low productivity caused by semi-aridity and typical Savannah rangelands of northern Tanzania. Tourism based-vulnerability reduction to residents in GCs is in line with the national and international agenda and policies. For instance, UNWTO (2002) argue, "Tourism not only provides material benefits for the poor, but can also bring cultural pride, a sense of ownership and control and, through diversification, reduced vulnerability" (p.65). In addition, it matches with the Tanzania tourism policy (1999) which, among other things, aims at promoting the economy and livelihoods of the people, essentially poverty alleviation, Tanzania Development Vision (TDV) 2025 which calls for achieving high quality and sustainable livelihoods through eradication of absolute poverty by year 2025, consistent with the Sustainable Development Goals (SDG) that aim to end poverty (SDG No 1) and reduce inequalities (SDG No 10) by the year 2030.

Despite the aforementioned tourisms supported initiatives, there are contested observations regarding the livelihood conditions of local residents in GCs. At one hand, there is a claim that these areas are still vulnerable to a wide range of socio-economic and environmental livelihoods challenges such as: food insecurity, poverty, water shortage, poor infrastructure, human wild life-conflicts, diseases among others (Knapp *et al*., 2015; UNDP, 2018 Kean *et al*., 2020). On the other hand, there is a claim that poverty in Tanzania has decreased from 34.4% in 2007 to 26.4% in 2018, eventually, turning Tanzania into a group of middle income countries (World Bank, 2019). This reduction in poverty has not escaped criticism because, poverty was assessed using consumption expenditure data and not livelihood asset-changes which fits well in the definition of wealth and poverty for local rural Tanzanians (Brockington, 2018; Howland *et al*., 2021).

Two outstanding questions prevails with regard to the aforementioned contested claims, specifically, with respect to tourism. Firstly, has the development of tourism in GCs over the years, become ineffective to establish impacts, thus, influence inadequate access to livelihood assets capable to address livelihood challenges to reduce vulnerability among local residents? Secondly, has tourism development, over the years, rendered positive impacts in terms of increased access to livelihood assets, thus, influenced the reported poverty reduction? Unfortunately, there are no clear answers to these questions because empirical tourism studies on GCs in Tanzania (e.g. Nelson, 2004; 2012; Sule 2014; Mosha, 2011) and elsewhere in SSA (Mbaiwa and Stronza, 2010; Snider, 2012; Tefera, 2014) have inadequately evaluated the impacts of development of tourism destinations on residents' vulnerability reduction. Furthermore, despite existence of studies on evaluation of resident's vulnerability in Tanzania (e.g. Sewando *et al.,* 2016) and elsewhere in SSA employing vulnerability analysis framework such as, Household Livelihood Resilience

Approach (HLRA), Qaundt (2018) in kenya, household livelihood index (HLI) by Antwi-agyei (2013) in Ghana and Nkondze *et al.* (2013). in Swaziland, a thoroughly understanding is needed about the link between changes in access to livelihood capitals towards addressing multiple shocks. This is because the prior studies focused on particular type of shock like drought, thus, limiting an understanding about severity of other shocks and perturbations facing households. Furthermore, prior studies did not consider dynamic nature of livelihood capitals to address vulnerability, thus, it remains unknown if the resident's vulnerability was reduced or increased over time, and, prior studies were not designed for counterfactual (i.e. comparing intervention-beneficiaries and non-beneficiary households to determine relative capacity of access to and using livelihood capital assets to address vulnerability context). Absence of counterfactual analysis over time causes inability to provide feedback on the effectiveness of policy intervention in addressing poverty through reduced vulnerability across households.

This study, therefore, intends to address the gap left by previous studies, by evaluating tourism impacts on livelihood vulnerability to multiple shocks among residents. The general objective is to evaluate to what extent does tourism enable residents access to livelihood assets capable to address multiple shocks towards reduction of vulnerability. Specifically, the study aims to, (i) estimate change in wealth through livelihood asset accumulation within a period of ten years (2008/9-2018/19), (ii) identify types of severe shocks experienced by households, and (iii) assessing coping mechanism used to address shocks over the years. Propensity score matching and Difference in difference impacts evaluation techniques were employed to estimate the average outcome/treatment effect (ATT) on livelihood capital assets of matched treated (tourism beneficiary households) and untreated (non-beneficiary households).

4.1 Theoretical Conceptualization of Shocks and Vulnerability

Shocks are defined as "adverse events that lead to a loss of household income, a reduction in consumption and/or a loss in productive assets" (Dercon *et al*., 2005, p. 5). This definition is adopted in this study. Shocks coming from different sources may lead to financial or non-financial loss, spread across space and time, and vary in frequency, duration, intensity and scope (Hakim *et al.,* 2018). For instance, the scope of shock can be either idiosyncratic or covariate. The former is specific, affecting individuals or households, for example, illness, injury or unemployment of household members. The latter has wide coverage affecting the entire community (e.g. village) such as floods, droughts or epidemics (Nguyen *et al*., 2020).

Vulnerability literature (Hakim *et al*., 2018 and Haq, 2015) commonly categorizes shocks into: (i) Natural/Agriculture shock (flood, drought, earthquake, loss of crops or livestock), (ii) Economic shock (Job loss, inflation/deflation, slow down, mass layoffs, business cycles, economic reforms,); (iii) Social shock (Civil unrest, war, crime, displacement, violence), and (iv) Health shock (illness, injury, death, epidemic). People affected by shock do normally take coping initiatives to address.

According to Snel and Staring (2001), coping refers to “all strategically selected acts that individuals and households in a poor socio-economic situation use to restrict their expenses or earn some extra income to enable them to pay for the basic necessities and not fall too far below their society’s level of welfare” (p.16), Popular coping strategies include the disposal of assets (e.g. livestock); the reallocation of labour; changes in household spending and consumption. Others are: the use of formal and informal savings,

borrowing and, the dependence on relatives, friends and community-support networks (social affiliation) and on external-aid organizations (Adimassu and Kessler, 2016; Paumgarten *et al*., 2020). Choice of particular coping strategy by households depends upon the type and duration of the shock and individual household characteristics (e.g. gender of head of household, number of livestock, farm size, production equipment). Similarly, contextual factors such as access to public, financial services and natural resources can determine the type of shock-coping activities (Paumgarten *et al*., 2020).

Vulnerability is simply defined as inability to escape from welfare loss when hit by exogenous shocks (Haq, 2015). There are four major perspectives used to conceptualize and guide different studies on Vulnerability (Nyamwanza, 2012). These perspectives are: (i) natural hazard: vulnerability is explained from severe loss caused by occurrence of natural events like earthquake, (ii) political economy: vulnerability is conceptualized from lack of opportunities following unequal distribution of power and sociopolitical, economic and environmental resources, such that some individuals or groups are at disadvantage position and prone to risk than others. The other perspectives are; (iii) couple vulnerability: focusing on multiple interacting perturbations and stressors where vulnerability analysis is on three components: exposure, sensitivity and adaptive capacity (Turner *et al*., 2003) and (iv) poverty perspective: where poverty is linked to vulnerability with notion of inadequate access to assets and social support to meet basic life necessities (Ellis, 2000).

This study employs the poverty perspective in examining the vulnerability conditions of local residents in GCs. This perspective is relevant in this study because the primary motivation of resident's involvement in tourism is to achieve decent livelihoods by re-

investing tourism revenue into projects leading to access to education, health services and improved physical infrastructural (Nelson, 2004), thus building resilience to multiple stressors and shocks.

Consistent to poverty perspective, this study relies on the capability approach to poverty analysis that translate poverty or vulnerability in terms of the skills, resources and entitlements accessed to households to address shocks and stresses. The capability approach focuses on the mix of capabilities in regards to five capital assets that are crucial for making a living (Manyumwa *et al.,* 2018). These capitals include: natural, physical, social, financial and human, drawing on the Sustainable Livelihoods Approach (SLA) proposed by the UK Department for International Development (DFID) (DFID, 1999).

The Fig. 4.1 illustrate the elements constituting SLA within the impact evaluation protocol featuring the theory of change as applied in GCs. The logic flow of SLA starts from analysis of vulnerable context (i.e. presence of shocks or undesired situations) facing households. Then, call for key actors who engages in policy formulation, laws, structures and process to organize resources leading to establishment of livelihood strategies (i.e. tourism intervention and agro-pastoralism) in order to attain livelihood outcomes (i.e. increased income, well-being and reduced vulnerability). As tourism destination in GC experience development life cycle-stages (i.e. Tourism Area Life Cycle-TALC) over the years (in this study, 2008/9-2018/19), the agro-pastoral households that have diversified to tourism (i.e. household A “treated”) are expected to observe change (i.e. outcomes) in livelihood assets along with their counterparts (i.e. agro-pastoral households that have not opted for tourism as livelihood strategy, B “untreated”).

Since, over time, household A “treated” and household B “untreated” observe change in livelihood assets (Human, Financial, Natural, Social and Physical), then, it is imperative to find whether significant difference in livelihood asset index exists between these households. When selection bias is controlled through matching, then, the observed average treatment effect on treated (ATT) would be attributed to the impacts of tourism development in establishing asset-base to reduce vulnerability in GC destinations (Fig 4.1)

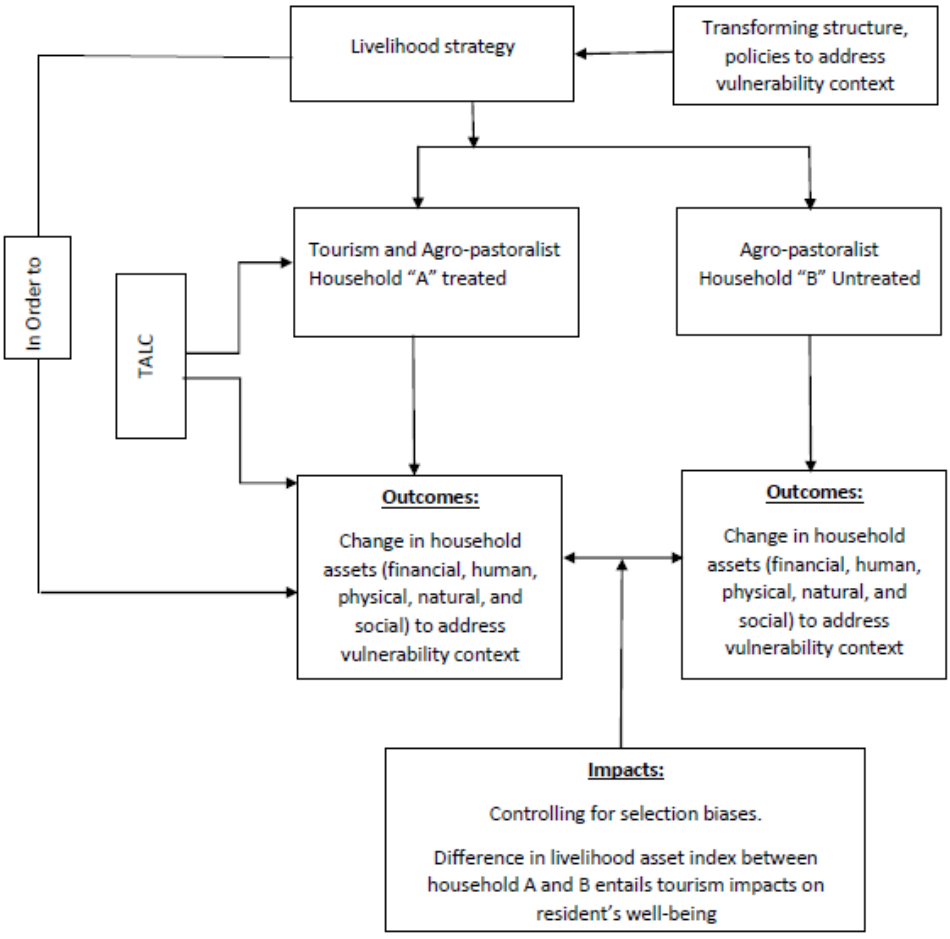

Figure 4.1: Sustainable Livelihood Approach (modified from original DFID framework) DFID, 1999.

4.2 Materials and Methods

4.2.1 Study areas

This study was conducted in 16 villages located in three GCs: Loliondo, lake Natron and Burunge. These GCs are part and parcel of famous PA ecosystems found in northern Tanzania, namely, Serengeti National Park (category II of IUCN) and Ngorongoro Conservation Area (category V) with their respective Loliondo and lake Natron game controlled areas (GCAs) (category VI of IUCN) (Dudley, 2008) and Tarangire-Manyara national parks (category II of IUCN) with its respective Burunge GCA, which changed in 2003 to 2006 to become Burunge Wildlife Management Area (WMA). Burunge GC lies on low land, wildlife migratory corridor between Tarangire and Manyara national parks of northern Babati district of Manyara region. Loliondo and lake Natron GCs are entry-points to world natural heritage sites of Serengeti National Park and Ngorongoro Conservation Area of Ngorongoro district in Arusha region.

Given their close proximity to tourism attractions in PAs, the three selected GCs have become tourism destinations offering walking safaris, game viewing, cultural, trophy hunting and camping since early 1990s (Mwongoso *et al.*, 2021; Nelson, 2004). The studied GCs have experienced three stages of the development of tourism destinations prescribed by Butler (1980). The relevant stages include, exploration, involvement and present, at development stage (Mwongoso *et al.*, 2021). These destinations were visited by very few (not more than 200) allocentric visitors in early 1990s, at exploration stage, due to accessibility challenges and inadequate awareness of the pleasant Maasai and

Mbugwe culture coupled with presence of pristine wildlife resources. For instance, seasonal wildlife migration (i.e. natural movement of wildlife for breeding and feeding) between PAs and selected GCs at one hand, and on the other hand, experiencing local residents' life styles, traditional dances and cultural handcrafts are critical nature-based tourism attractions in these GCs. Overtime, these GCs moved from Involvement to Development stage, whereby, increased number of Midcentric and near Psychocentric visitors in late 1990s and 2000s was associated with positive marketing efforts, improvement of air-transport services and the increase in quality and quantity of investment in tourism facilities like lodges and campsites (Mwongoso *et al.,* 2021). For example, number of luxury lodges increased from about 4 in year 2000 to almost 10 in year 2018 while number of tourists increased from 939, 668 and 399 in year 2000 to 4 335, 5 805 and 27 693 in year 2018 for Loliondo, Lake Natron and Burunge respectively (Mwongoso *et al.,* 2021). Along these aspects of development of tourism destination, the livelihoods capitals assets of local residents may have been impacted positively or negatively. Thus, the direction and magnitude of the impacts may affect the level of residents' capability to address vulnerability in the context of multiple shocks.

4.2.2 Research design

This study followed three approaches suitable to serve the purpose of evaluating tourism impacts on household vulnerability to multiple shocks through the lenses of changes in livelihood assets. Firstly, the study adhered to the general evaluation principles which require counterfactual assessment using quasi-experimental design as recommended by Khandker *et al*. (2010). Secondly, the study followed the livelihood capital and poverty-based vulnerability evaluation at household level, consistent with the methodological

review provided by Moret (2014). Thirdly, it followed procedures required in evaluating tourism impacts in GCs especially where the impacts are embedded on SLF (DFID, 1999) as recommended by Simpson (2007) integrated approach.

4.2.2.1 Quasi experimental design

This study is designed as Quasi-experiment that rely on non-beneficiary and benefiary units. Households and villages where an intervention (i.e. tourism activities) is conducted, are considered as target 'treated' group or tourism beneficiaries. Households living outside the target village, and thus, are not affected by intervention (i.e. there are no tourism activities) are considered as 'untreated', 'control' group or non-beneficiaries (Khandker *et al*., 2010). The basic reason of using a control group is counterfactual analysis. This entails to determine what conditions of livelihood vulnerability among residents in the beneficiary village/households would be, had the tourism activities not been conducted in that area. Ideally, livelihood vulnerability data from control and beneficiary households, before and after intervention can provide effective estimate of impacts from intervention (Ashley, 2000). During pre-survey it was found that there was either none or unclear household-livelihood asset data prior to tourism intervention in l990s in the study areas. Therefore, in order to serve the purpose of this study, it was deemed necessary to define the point in time, measured in years, through which changes can be attributed to tourism intervention.

Fortunately, adequate official data on tourism receipts to village and spending pattern on community projects were available from year 2009. Therefore, the study was designed to mimic the "before" and "after" impacts evaluation by taking the year 2008/9 as baseline

period or “before” and year 2009/10 as starting year (i.e. year one) towards year 2018/9 as post or “after” period. Thus, a duration of 10 years was considered adequate for impact evaluation. Despite the availability of official data on tourism at the village level in year 2009, the challenge remained on availability of livelihood capital assets data at the household level. Since the primary unit of observation was household asset-changes, then, to address this challenge, the study adopted the retrospective design. This design entails tracking changes over time on the variable of interest by asking respondents to provide data about their past living conditions at the same time as they are providing data about their present conditions (Addison *et al*., 2008: Murray, 2002).

Recall is the major challenge facing retrospective research design (Murray, 2002). Feasible solution to make retrospective method effective has been advocated by World Bank through the scholarly work by Bamberger, (2009; 2010) and Belli *et al*. (2009). The authors recommend that recall is enhanced when information sought are linked to critical events in the life course of the respondents. This study adopted the recommendations and ensured easy recall and quantification by designing questions that focused on access to important livelihood assets like number of cattle or acres cultivated during the severe drought of year 2008, a baseline period. Thus, minimizing recall challenge. Relevant studies have used retrospective method and Bamberger’s recommendation to estimate asset change over the years. For example, study by Bluwstein *et al*. (2018) that sought to estimate household asset-change from year 2007 to 2014 employing livelihood capitals in northern Tanzania, and study by Suich (2013) that evaluated change in household livelihood capital assets to determine poverty dynamic for ten years, (i.e. 2002 to 2012 in conservation based interventions in Mozambique and Namibia.

4.2.2.2 Livelihood capital and poverty- based vulnerability evaluation

Economic and Indicator based approaches are normally used to measure poverty-based vulnerability. Therefore, the common econometric methods are: vulnerability as low expected utility (VEU) and vulnerability as uninsured exposure to risk (VER) (Nkondze *et al*., 2013). The major drawback for these econometric approaches lies on availability of long time series data so as to measure the probability of a household's consumption of falling below a given minimum level in the future due to current or past shocks (Nkondze *et al*., 2013). Due to lack of panel data, the problem that is prevalent in most SSA (Howe *et al.,* 2012), the researchers have an alternative to use indicators based approach guided with framework like Household Livelihood Resilience Index (HLRA) by Qaundt (2018) and Household Livelihood Vulnerability Index (HLVI). Studies that have calculated HLVI (Antwi-Agyei *et al*., 2013; Nkondze *et al*., 2013) contend that HLVI classifies a household by evaluating external vulnerability that is brought by shocks like illness, hunger and drought and internal vulnerability of such a household to withstand shocks, then, categorises the household as coping, acute, or in an emergency situation depending on the household's ability to cope. The approach achieves this by assessing a household's access to five livelihood capital assets (Human, Social, Physical, Natural and Financial) with their respective indicators. The HLVI provides a snapshot in time of the vulnerability of a particular household and therefore, face the challenge because it does not capture its changes over time and space, unless baseline data are available (Antwi-Agyei *et al*., 2013. To address the challenge, this study employed indicators based approach using the Livelihood Capital Index (LCI) whereby the baseline data were constructed using the retrospective research design.

4.2.2.2.1 Measurement indicators of LCI

The LCI is commonly used to evaluate the extent to which a household has accessed five livelihood capital assets, basing on the premise that, a household with more livelihood-capital assets have higher capability to address multiple shocks and reduce vulnerability (Liu *et al.,* 2021; Ding *et al.,* 2018). In several literature (Paudel *et al.,* 2017; Wu *et al*., 2017; Su *et al.*, 2019; Wang *et al*., 2019; Yu *et al.*, 2020) about 15-19 indicators are used to reflect five components of livelihood capitals: Human, Physical, Social, Natural and Financial. Therefore, each component normally comprised at least three to four measurable indicators (Liu *et al.,* 2021). The indicators often used include; Labour available to the household, its health, education and skills, reflecting on Human capital, under the proposition that household with less educated and sick members is more vulnerable to shocks. The physical capital contains indicators such as: livestock and assets (e.g. buildings, equipment and consumer durables) under proposition that a household with more productive physical stock and decent dwelling is less vulnerable to multiple shocks. The natural capital is measured on land access and utilization, water and wildlife resources, whereby Financial capital is measured by stocks of money to which the household has access (e.g. savings, credit, salaries, remittances and receipts from sales) and Social capital is measured by access to information, social support, networks and connections to formal and informal groups. The general propositions for these indicators entails that households are less vulnerable to multiple shocks when utilize more land for productive purposes, access to social support, access to money, loans and savings when exposed to, multiple shocks.

This study was guided with 15 indicators that were used to measure livelihood capital index. Procedures in obtaining these indicators started by intensive review of relevant literature, where 19 indicators were adopted and incorporated in the questionnaire for pre-testing. During the survey pre-testing, consultation was made with 24 key informants (village council members) within five sub-villages with tourism experience, but not constituting studied villages. From series of consultations, eventually, 15 indicators (in Table 4.1) were observed to be appropriate to measure livelihood capitals, and were included in the final version of questionnaire.

The LCI is typical basing on relative weights that are useful to differentiate livelihood capital components. The Entropy method is used to derive weights to indicators (Liu *et al.,* 2021; Yu *et al.,* 2020). This mathematical method offset bias and elements of subjectivity that exists in indicators of livelihood capital assets because it extracts the objective information of statistics to present the value effect of indicator information (Ding *et al.,* 2018; Yu *et al.,* 2020 science of total). For instance, when the value difference between different components on the indicator being evaluated is high, while the entropy is small, it indicates that this component is more important and hence attracts greater weight (Su *et al.,* 2018).

In this study, the entropy weight was adopted following series of steps used by Yu *et al.* (2020): firstly, capital-variables are standardized using maximizing deviation method to 15 measurement indicators in year 2008 and 2018 to treated (beneficiary households) and untreated (non-beneficiary households. The standardized formula; $z_{ij=}(x_{ij} - \min(x_{ij})) / \max(x_{ij}) - \min(x_{ij})$, whereby: z_{ij} refers to the standardized value, and

x_{ij} refers to particular measurement indicators values of livelihood capital. Then, calculates the proportion (p_{ij}) of indicator value of research unit i in indicator j with formula $p_{ij} = z_{ij/} / \sum_{i=1}^{m} z_{ij}$. Then, it calculates the entropy (e_j) of indicator j with formula $e_j = -k \sum_{i=1}^{m} p_{ij} \ln p_{ij,} k = 1/\ln m$. Later, it counts the coefficient of variation (g_j) of indicator j with formula $g_j = 1 - e_j$. Last, it calculates the weight (w_j) of number j indicator with formula $w_j = g_j / \sum_{j=1}^{n} g_j$. (In the abovementioned formulas, $i = 1,2,...,m;$ and $j = 1,2,...n$).

Based on the weight and standardized value of measurement indicators of livelihood capitals in 2008 and 2018, this study calculates the five values of livelihood capitals and the value of the total Livelihood Capital or Livelihood Capital Index(LCI) with the formula LCI= $\sum_{i=1}^{5} \sum_{j}^{n} w_{ij} z_{ij}$; where w_{ij} refers to the weight of measurement indicator j in livelihood capital i; z_{ij} refers to the standardized value of measurement indicator j in livelihood capital i. The LCI values are between 0 and 1, where a lower LCI value indicates a lower livelihood capital level.

The results of indicator weights are in presented in Table 4.1. Noteworthy, the interpretation of indicators weights follows relative importance of indicators in sustain a

living. For example, an indicator “labour force” with a weight 0.156 among beneficiary households in year 2018 implies a higher demand of labourers for cultivation among non-beneficiary households than in beneficiary households. This is evidenced by higher weight (i.e. 0.152) among non-beneficiary in the indicator “cultivated land” for year 2018. In other words, scarce livelihood asset-indicators will be in higher demand, thus, more weight.

Table 4.1: indicators of livelihood capital and respective weight

Indicator/ capital	Measurement	Weights for Beneficiary		Weights for Non-beneficiary	
Human		**2008**	**2018**	**2008**	**2018**
Labour force	Number of active household members	0.101	0.119	0.155	0.157
Level of education	1=informal:2=primary;3=secondary;4=high school;5=College/University	0.072	0.073	0.010	0.010
Health condition	Any household member often in need of health-care:(1=yes:0=no)	0.028	0.008	0.035	0.033
Social capital					
Association-membership	Any household member affiliated to social organization: (1=yes:0=no)	0.024	0.028	0.033	0.022
Relative and friends support	Number of relative/friends support when needed: (0=no; one to 2=1;more than 2 supporters=2)	0.176	0.172	0.167	0.178
Physical capital					
Own motorbike	Owned motorbike: (1=yes:0=no)	0.009	0.010	0.006	0.006
Own plough	Owned: plough (1=yes:0=no)	0.004	0.004	0.004	0.004
Own radio	Owned: radio (1=yes:0=no)	0.008	0.008	0.009	0.009
Number of livestock	Total tropical livestock units (TLU); (LU= 0.1=goat/sheep;0.7 goats/sheep=1 cattle)	0.158	0.156	0.163	0.163
House structure	Materials used to construct house: (1=earth floor, mud walls, grass-roof;2=concrete floor, brick-walls, metal sheet-roof;3= concrete floor, block-walls, metal sheet-roof; 4=tiled floor, block walls, galvanized sheet)	0.025	0.026	0.017	0.017
Natural capital					
Grassland for grazing	Access adequate grassland for grazing: (1=yes:0=no)	0.174	0.156	0.097	0.047
Cultivated land	Land cultivated in acres: (0=not cultivate;1=less than 2 acres;2=2-4'3=5-10 acres;4=more than 10 acres).	0.026	0.044	0.103	0.153
Financial capital					
Salary job	Any household member with salary job: (1=yes:0=no)	0.014	0.018	0.004	0.004
Access loan	Any household member access loan: (1=yes:0=no)	0.184	0.015	0.196	0.010
Cash income	Estimated per capita annual cash earnings from different sources like enterprise profit, livestock and crop sales, off-farm and non-farm income	0*	0.1672	0*	0.1856

*Not used for computing weight and index because of missing or incomplete data as respondents could not be able to recall the cash values.

4.2.2.2.2 Specifying and modeling change on livelihood capital assets

The Difference in Differences (DD) impact evaluation method was employed in this study to evaluate change on livelihood capital access to residents in GCs. This method has been broadly used to evaluate the impact of policy and other deliberate intervention (Ravallion 2005; Ali and Abdulai 2010). In this study tourism is a policy based intervention. In a case where full experimental, randomization design like Randomized Controlled Trials (RCT) is not feasible, as it is the case for social science studies, then, quasi experimental design can be opted (Musau, 2022). The DD is quasi-experimental approach used to evaluate causal-effect change of intervention when data on outcome of intervention is available in two periods or more (i,e, panel data) (Villa, 2012). In this study, data featuring livelihood capital assets were collected from tourism beneficiary (treated) and non-beneficiaries (non-beneficiary/control), where, the respondents were asked to provide information about access and ownership of livelihood assets in year 2008 (i.e. baseline or “before” intervention period) and 2018 (post or “after”). The DD compared data of beneficiary and non-beneficiary respondents in two specified periods. In the first instance the difference is obtained and in the second instance, comparison is made on the difference observed from the first instance, thus, a difference- in- differences (DD). It follows that, if, for example, the difference between beneficiary and non-beneficiary at the baseline period is small than at the post period, then, this would indicate that the intervention has had positive effects on beneficiary respondents.

The key assumption that required for DD to identify effects of intervention is that, the difference between non-beneficiary and beneficiary groups at the second instance (i.e. post period) would have been the same as in the first instance (i.e. baseline period). This

is referred to as the parallel trends assumption. This assumption is guided with condition on time invariant unobservable characteristics that may confound with intervention outcome and likelihood to receive benefits. Thus, the focus is on observable respondents' characteristics associating with intervention outcome while unobservable characteristics are considered absent and time invariant. If the parallel trends assumption is true, then DD provides unbiased estimate of the impact of the intervention (White and Raitzer, 2017). However, this assumption may not hold because beneficiary respondents may have different observable and unobservable characteristics which favours them to receive intervention (tourism) benefits, because the procedures of ensuring an equal chance (i.e. randomization) of receiving benefits was not considered. This, is referred to selection bias problem (Heckman *et al.,* 1997).

To address the selection bias, this study used a non-parametric, propensity score matching (PSM) which resemble randomization of beneficiary and non-beneficiary groups by choosing a comparison group that have similar probabilities (i.e. propensity scores) of receiving intervention benefits (Gertler *et al.,* 2016). The comparison group obtained by PSM contains beneficiary and non-beneficiary respondents selected with similar characteristics at the baseline period (Liu *et al.,* 2021). PSM uses some assumptions, one of which is common support, which refers to the area where both beneficiary and non-beneficiary households have propensity score values in common. Thus, respondents with extreme values (outliers) are discarded from analysis. Furthermore, in order to reduce selection bias problem, PSM follows conditional independence assumption, implying selection is only depends on observable characteristics that affect both participation decision (i.e. being involved in tourism intervention) and the outcome (i.e. receiving

benefits that affects livelihood capital assets). In order to satisfy conditional independent assumption, this study used logistic regression model, whereby, dependent variable (treatment) was measured as dummy variable equals to "1" if the respondent is beneficiary of tourism and "0" otherwise. Through review of relevant literature (Mugizi and Obua, 2017; Wanyoike *et al.,* 2015; Paudyal *et al*., 2018; Ogunjinmi and Braimoh, 2018) eight variables were obtained and used as predictor covariates that influence both participation decision and the outcome (see Table 4.2 for details on measurement of variables used). PSM steps include: estimation of propensity scores using logistic/probit regression model, choosing a matching algorithm, checking on common support region, testing the matching balances and sensitivity analysis. This study follows all these steps whereby, Kernel density function, an efficiency matching estimator as recommended by Heckman *et al.* (1997) was used apart from other estimators like Nearest Neighbor, Caliper and Stratification. The Kernel match (K-match) and Kernel density graph was used to check for matching balances and common support region.

In this study, PSM was combined with DD because this combination provides more robust results (Gertter *et al.,* 2016). Therefore, to estimate propensity scores, the logistic regression was estimated. The PSM-DD model followed Smith and Todd (2005), Duond and Thanh (2019) and Liu *et al*. (2021) as:

$$ATT_{PSM-DD} = \frac{1}{N} \sum_{i \in /_1 \cap S_P} [(Y_{1i}^{t} - Y_{0i}^{t'}) - \sum_{j \in /_0 \cap S_p} w(i, j)(Y_{0j}^{t} - Y_{0j}^{t'})]$$

where ATT_{PSM-DD} can calculate the difference in the average changes after matching beneficiary and non-beneficiary respondents in GCs, which is defined as the treatment effect of tourism intervention; t' and t represents time periods (where $t' = 0$ for year

2008 and $t=1$ for year 2018 imply before and after the tourism intervention respectively); Y_{1i}^{t} and Y_{0j}^{t} are the livelihood capital index of beneficiary and non-beneficiary households at time t; $Y_{0i}^{t'}$ and $Y_{0j}^{t'}$ stand for the livelihood capital index of beneficiary and non-beneficiary at time t'; S_P entails the region of common support; $/_1 \cap S_P$ represents the intersection of the beneficiary group and the common support; and $/_0 \cap S_P$ is the intersection of the non-beneficiary group and the common support. $w(i, j)$ is the matching weight function used by the PSM-DID approach. This study uses kernel density function to match the samples: $\frac{K[(P_j - P_i)/h]}{\sum_{K \in I_0} K[(P_k - P_i)/h]}$ in which $K(\cdot)$ is the kernel density function, h is a bandwidth (or smoothing parameter), P_i is the propensity score of respondent i in the treatment group while P_j is the propensity score of respondent j in the non-beneficiary group based on a set of observed covariates X in t' ´. In kernel matching, each tourism beneficiary is matched to weighted averages of all the non-beneficiaries who have similar propensity scores, with greater weight being given to individuals with closer scores and vice versa using the samples in the baseline survey. Kernel matching is more favorable than the nearest-neighbor matching, as it loses fewer observations due to common support while obtains a greater bias reduction (Powell-Jackson and Hanson, 2012; Duong and Thanh, 2019; Liu *et al.*, 2021).

4.2.2.2.3 Integrated approach for evaluating tourism impacts in GCs

Sampling and data collection procedures were consistent with the Simpson (2007) integrated approach which requires data to be collected at the baseline year followed by a multi-method for data collection (i.e. identify and interview key informants, conducting participatory process through focus group discussions, and household survey) and synthesis of qualitative and quantitative data analysis on livelihood impacts. Tourism impacts studies that have adopted Simpson (2007) integrated approach in Sub Saharan Africa include, Snider (2013), Tefere (2014) and Mosha (2011).

4.2.2.2.4 Selection of study villages, participatory wealth ranking and household sample frames

The sample units for this study were villages with relative potentials for tourism attractions and heads of households. A total of nine beneficiary villages were selected basing on criterion that a village is hosting a tourism investor(s) and has been active beneficiary of tourism revenue for the past 10 years (2008/09 -2018/19). The villages were: Olasiti, Kakoi, Sangaiwe, Vilima vitatu and Mwada from Burunge; Ololosokwan, Sukenya and Arash from Loliondo and one village, Engaresero from lake Natron.

Consistent to the principles of impact evaluation which suggest that non-beneficiary area should be identical to the beneficiary area, prior to the time (i.e. before year 2009/10 for this study) of tourism intervention (Mark, 2014), this study selected seven non-beneficiary villages. These villages are: Pinyinyi from lake Natron; Soitsambu, Njooroi and Olorien-Magaiduru from Loliondo and Sarame, Kisangaji and Minjingu from Burunge destination. Selection criteria for non-beneficiary village based on similarity to

beneficiary village in terms of, ethnicity, location (i.e. proximity to beneficiary village), livelihood activities and tourism resource potentials such as wildlife view, scenic beauty and socio-cultural aspects.

The focus group discussions (FGDs) lasting for about 2 hours, comprised 8-13 local residents, typically heads of households, was conducted in each selected village. The FGDs captured residents' opinions on different facets of shocks and coping mechanism. Following conclusion made from prior studies (Afenyo and Amuquandoh, 2014; Hoole, 2009), that, tourism impacts on residents access to assets is not evenly distributed, this study, attempted to capture wealth inequality status through participatory wealth ranking (PWR) as advocated by Simpson (2007) integrated approach. A participatory wealth ranking lets community members rank each other according to their own perceptions of well-being, thus more effective than conventional wealth ranking methods that focuses on standardized income or consumption pattern of self-reported household heads (Van Campenhout, 2006).

Discussants in FGDs conceptualized on core livelihood resources that represent wealth status of individuals in their respective villages. While there were slight differences on type and number of criteria used to define wealth reflecting living conditions of year 2008 and 2018 across FGDs, there was greater divergent of opinions on number of wealth categories for year 2008 and 2018 across groups and villages. For instance, in Burunge, three FGDs from three beneficiary villages and two FGDs from non-beneficiary villages preferred four categories of wealth: very poor, poor, normal and rich to be used for year 2008 and added "very rich" group for the year 2018. On contrarily,

remaining two FGDs from beneficiary villages preferred five categories for the year 2008 and six categories by adding the “slightly poor” group while one FGD from non-beneficiary village preferred three categories: poor, normal and rich for 2008 and four categories for year 2018. These differences might be due to personal factors and subjectivity underpinning wealth ranking task

Therefore, after series of discussions, the discussants reached consensus on four categories to be used in year 2008 and 2018, as, very poor (coded 1), poor (2), normal (3) and rich (4), meanwhile, allowing change in quality and magnitude of criteria that defines these categories in specific years. These four categories were generally accepted because they appeared to be simple to comprehend compared to perceive complex of any number beyond four categories. Literature indicates that there are no exact number that define wealth categories when PWR is used such that, categories can be seven (Loiske, 1995; Brockngton, 2018), five (Van compenhunt, 2009) and four (Bluwstein *et al.*, 2018).

Similarly, consensus was reached regarding four livelihood resources representing particular wealth category in specific years. These include: house structure, possession of number of cattle, size of land cultivated and certainty of food availability. For instance, discussants during FGD associated very poor households with zero possession of cows in year 2008 and maximum of four cows in year 2018; did not cultivate (2008) and cultivated up to half acre (2018); houses made of earth-floor, mud walls, thatch-roof (2008) and houses made of earth-floor, mud walls, iron-sheet roof (2018) and afford a single meal (2008), afford two meals per day (2018).

In PWR, task, it is common practice to use key informants for allocating household into wealth categories, initially identified in FGD (Howe *et al.,* 2012). In this study, key informants were used consistent with other studies (Bronkngton, 2018; Swathi *et al.,* 2008; Bluwstein *et al.,* 2018; Van coumpenhunt, 2009; Krishna *et al.,* 2004). Key informants were purposely selected basing on characteristics that, they are typically old (e.g. above 55 years), native, experienced with neighborhood and a member of village council.

Prior to assigning households in their respective wealth categories, key informants used respective village registries to construct sample frames after updating the registries using official household statistics at national and district levels for Tanzania population census conducted in year 2002 and 2012 (Tanzania National Bureau of Statistics, 2013: 2016: Ngorongoro District Council, 2019: Babati District Council, 2019). The constructed sampling frame contained respondents who qualified to be the head of household regardless of their sex as long as he/she is the key decision maker concerning access to and utilization of household resources (Zakaria *et al.*, 2015).

Selection of household heads based on criteria that they had been household heads since year 2008 and are not immigrants but residents at least for past ten years (i.e. 2008/9 to year 2018/19). Other criteria required that household heads not possessing livelihood assets affiliated to individual aid from external donor-driven organizations like Tanzania Social Action Fund (TASAF) which is involved in cash transfer programs to poorest and vulnerable households. These criteria were important in order to ensure that tourism livelihood impacts are evaluated using the eligible people while constraining impacts emanating through help from outside the communal village. Subsequently, key informants, assigned appropriate wealth-category for the year 2008 and 2018/19 to each

household in the constructed sample frame so as to determine the households' wealth trajectories (i.e. change in livelihood assets over time). Then, determination of households' sample size followed.

4.2.3 Household sample size and data collection

The sample size for households was calculated using formulae 1 and 2. The first formula was employed following recommendations on small sample size corrected for a finite population as described by Daniel and Cross (2013):

$$n = \frac{Z^2 pqN}{e^2(N-1) + Z^2 pq} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \text{(1)}$$

Where: *n*= sample size; *p*= dichotomous probability (i.e. variation in the socio-economic characteristics of the population, such that, *p*=households possessing adequate livelihood assets and *q*=inadequate livelihood assets). The conservative value of 0.5 is used to allow for maximum variation. *N*= size of the population (i.e. the constructed list of eligible heads of households in the sample frame), *z*= standardize normal variate= 1.96 for a 95% confidence level. The *e* entails precision level (i.e. margin of error) taken at 9% which is accepted in social studies (Kish, 1995).

The aforementioned formula produced minimum required sample sizes of 111, 108, 99 beneficiary and 104, 107 and 105 non-beneficiary households for Loliondo, Burunge and lake Natron destination, respectively (Table 4.2). Then, sample sizes of households were made proportionate to number of households belonging to each selected village in regards to total eligible household population of each destination (Table 4.2).

Table 4.2: **Household Heads' sample sizes per tourism destination**

Beneficiary households	**Non-beneficiary households**
Sample size for Loliondo Destination	Sample size for Loliondo Destination
$n = \frac{(1.96)^2 0.5*0.5*1634}{(0.09)^2(1634-1)+(1.96)^2*0.5*0.5} = 111$	$n = \frac{(1.96)^2 0.5*0.5*827}{(0.09)^2(827-1)+(1.96)^2*0.5*0.5} = 104$
Sample size for Burunge Destination	Sample size for Burunge Destination
$n = \frac{(1.96)^2 0.5*0.5*1177}{(0.09)^2(1177-1)+(1.96)^2*0.5*0.5} = 108$	$n = \frac{(1.96)^2 0.5*0.5*1102}{(0.09)^2(1102-1)+(1.96)^2*0.5*0.5} = 107$
Sample size for L.Natron Destination	Sample size for L.Natron Destination
$n = \frac{(1.96)^2 0.5*0.5*588}{(0.09)^2(588-1)+(1.96)^2*0.5*0.5} = 99$	$n = \frac{(1.96)^2 0.5*0.5*968}{(0.09)^2(968-1)+(1.96)^2*0.5*0.5} = 105$

The aforementioned formula produced minimum required sample size. Since the accuracy of the survey is ensured by the reduction of sampling error through the increase of the sample size, then, it was deemed necessary to go beyond the minimum sample sizes in that, not less than 20 households formed the sample size from each selected village. As a result, 164 beneficiaries and 169 non-beneficiary respondents/households formed the sample sizes from Loliondo; 146 beneficiaries and 150 non-beneficiary households from Burunge and 108 beneficiaries and 113 non-beneficiary households constituted the sample sizes for lake Natron, making a grand total of 418 tourisms beneficiaries and 432 non-beneficiary households. The average household members for Loliondo and lake Natron was approximately 7.1 while for Burunges it was 6.3.

Table 4.3 and 4.4 presents the beneficiary and non-beneficiary households sample frames and calculated sample sizes in selected villages constituting destinations.

Table 4.3: Beneficiary households sample frame and sample size

Loliondo **Villages:**	**Beneficiary All HH by 2018/19**	**Eligible HH**	**Population**	**n**	**n***	**n****
Ololosokwan	954	620	620/1634*111	42	59	59
Sukenya	556	423	423/1634*111	29	49	49
Arash	833	591	591/1634*111	40	56	56
Total	**2 343**	**1 634**		**111**	**164**	**164**
Burunge destination						

Villages:						
Olasiti	491	309	309/1177*108	28	35	33
Kakoi	314	242	242/1177*108	22	29	28
Sangaiwe	266	189	189/1177*108	17	24	24
Vilima vitatu	253	185	185/1177*108	17	27	26
Mwada	395	253	253/1177*108	23	31	30
Total	**1 719**	**1 177**		**108**	**146**	**141**
L.Natron destination						
Engaresero	805	588	588/588*99	**99**	**108**	**108**
Total	**805**	**588**				
Grand Total	**4 867**	**3 399**		**318**	**418**	**413**

N	**Minimum sample size required**
n*	**Sample size used**
n**	**Sample size used for analysis following removal of respondents due incompleteness of data, outliers and miss-matching of propensity scores**
HH	**Household Heads**

Table 4.4: Non-beneficiary households sample frame and sample size

Loliondo **Villags:**	**Non-beneficiary All HH by 2018/19**	**Eligible HH**	**Population**	**n**	**n***	**n****
Soitsambu	502	296	296/827*104	37	58	57
Njooroi	393	244	244/827*104	31	54	52
Olorien-Magaiduru	423	288	288/827*104	36	57	56
Total	**1 318**	**827**		**104**	**169**	**165**
Burunge destination **Villages:**						
Sarame	397	262	262/1102*107	25	43	40
Kisangaji	634	386	386/1102*107	37	52	51
Minjingu	769	454	454/1102*107	44	55	55
Total	**1 799**	**1 102**		**107**	**150**	**146**
L.Natron destination						
Pinyinyi	**1 466**	**968**	968/968*105	**105**	**113**	**110**
Total	**1 466**	**968**				
Grand Total	**4 583**	**2897**		**316**	**432**	**421**

N	**Minimum sample size required**
n*	**Sample size used**
n**	**Sample size used for analysis following removal of respondents due incompleteness of data, outliers and miss-matching of propensity scores**
HH	**Household Heads**

After computation of the sample size from a respective constructed sample frame (population of eligible household heads in the village), a stratified random sampling techniques (using a random number table) was used to draw the respondents for the survey. Reference was made to the 2008/9 proportions of households' wealth strata, initially established through involvement of key informants. Then, the sampling of respondents across the four wealth strata was applied using the following formula:

$$\text{Respondents} = (\frac{n}{N} xVp) + (\frac{n}{N} xP) + (\frac{n}{N} xNo) + (\frac{n}{N} xR) \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(2)$$

Where: n is the required sample size calculated in the previous formula, N is the total households in the sampling frame. The Vp is the number of households in a "very poor"

wealth-stratum, *P* is the number of households in a “poor” stratum, *No* for ‘normal” households and *R* for “rich” households in the sampling frame. Following accomplishment of stratified sample sizes, questionnaires were administered to selected samples through face to face interview, thus guaranteed both high response rate and validity of responses as clarification of questions were made during interview. The items in the questionnaire were set to capture baseline period (year 2008) and a post period (2018/19) household livelihood capital assets so as to determine change over time. The 15 items for livelihood capital assets in Table 4.1 were used to produce two pair of data sets on livelihood assets possession, for baseline and post period. Similarly, through survey, the panel data on occurrence of severe shocks with respective coping pattern across years 2008/9-2018/19 was obtained.

In order to supplement and enrich data from survey, in-depth interview was conducted in each selected village, involving 63 households’ heads, known to experience severe loss from shocks. The snowball technique was used to identify target households. Saturation point was attained when additional interviews indicated no new information concerning the study topic. The interview session lasted for about 1 hour and audio was recorded when permission was granted.

4.2.4 Data analysis

Qualitative data were transcribed and analyzed thematically reflecting on severity of multiple shocks occurred over the years and shock-coping categories. Moreover, descriptive bivariate analysis using cross tabulation with row or column percentages on frequency count was used to analyze trend of different types of severe shocks and shock-

occurrences against coping activities across years 2008/9 to 2018/19. The stacked bar charts were used to present the data.

Quantitative data were analyzed to produce LCI along with its sub-index (Human, Social, Physical, Natural and Financial) using Stata15 software. Employing livelihood capital index to determine asset change instead of using wealth ranking approach was considered logically because capital index is derived from the entropy weighting method. The method is free from subjectivity and prevent bias that may be inherent in wealth ranking scores or any other method that is not mathematically based (Kuang *et al*., 2019; Su *et al*., 2018; Liu *et al*., 2021).

Data derived from computation of weighted livelihood capital indices were analyzed to find statististical significance difference in asset indices between beneficiary and non-beneficiary households, using the PSM-DD approach with Kernel matching algorithm. Before the major analysis, the quality of data was ensured through observation of missing data or incompleteness followed by normality and outliers test using Z-scores, histogram, and testing for parallel trend assumptions required for DD method.

Generally, it was observed that there were complete responses to all 15 items used to compute capital indices, except for cash-income variable under financial capital for the baseline year 2008.This incompleteness was attributed to recall challenge. Therefore, computation for capital indices did not include this variable for the year 2008 (see Table 1). Furthermore, two respondents from beneficiary group had outliers while seven respondents from non-beneficiary groups had missing data across several questions, and therefore, were excluded from the major analysis. Similarly, three and four respondents

from beneficiary and non-beneficiary groups, respectively, were discarded from the Kernel matching procedures because their propensity scores fell out of the region of common support. Eliminating the unmatched respondents was necessary so as to satisfy the assumption of common support requirements (Su *et al.,* 2019; Liang *et al.,* 2020). Noteworthy, the unmatched respondents eliminated from further analysis were relatively fewer than they could otherwise, if another matching algorithm like nearest neighbor had been used. Results in this study confirmed the argument put forward by Duong and Thanh (2019) about efficacy of Kernel matching in retaining adequate sample size on the common support.

Therefore, the sample size used for major analysis (i.e. average treatment effects) was reduced to 413 and 421 for beneficiary and non-beneficiary respondents, respectively, making a total of 834 matched households.

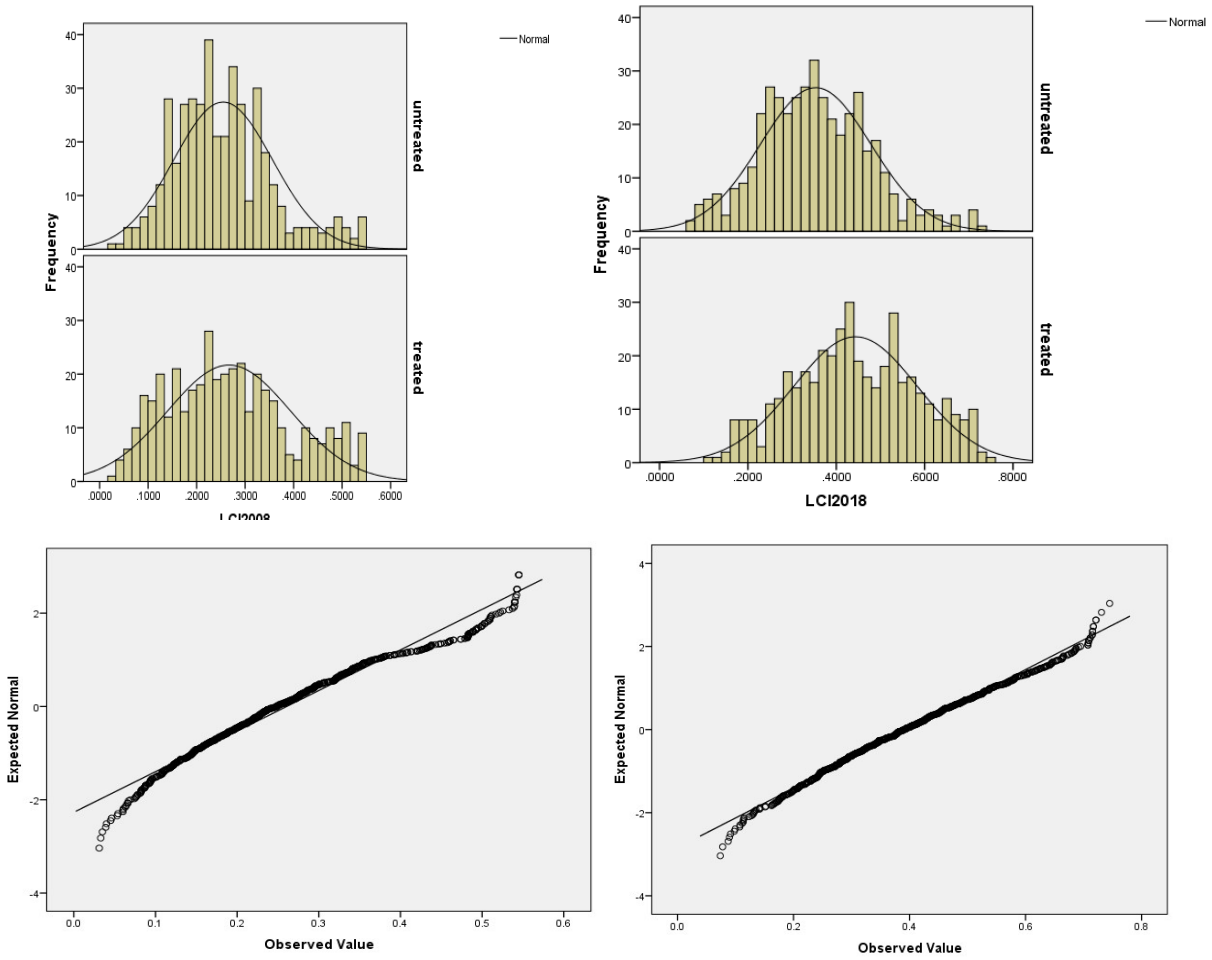

Figure 4.2: Normality stutus of data used to compute Livelihood Capital Index (LCI) for 2008 and 2018.

The histofram and QQ plots in the Fig. 4.2 were extracted after removal of outliers. From Figure 4.2 Normality stutus of data used to compute Livelihood Capital Index (LCI) for 2008 and 2018.

Figure 4.3: Histogram and scatter plot showing multivariate normality

Figure 4.3 present the histogram and chi-square distribution showing distribution of livelihood capital index for year 2008 and 2018 to beneficiary and non-beneficiary groups. The left sides are images of non-normal data while the right sides are images of normal data obtained after removal of outliers. Data used to compute livelihood capital index for year 2008 and year 2018 are approximately normal with 0.514 skewness and -0.216 kurtoss for year 2008 and 0.203 and -0.442 for year 2018, thus, allowing for estimating treatment effects between beneficiary and non-beneficiary groups.

4.3 Results and Discussion

4.3.1 Households' socio economic profile

Table 4.5 contains summary statistics of respondents' socio-economic characteristics for year 2008 and 2018 as well as description about measurements of these variables, including the impacts variables comprising livelihood capital indices. The eight variables (i.e. quantity of livestock possessed, age, sex, health status, education level of household heads) in Table 4.5 describing respondent's characteristics were also used as input (independent variables) to predict whether a household would receive tourism benefits (i.e. beneficiary =1) or otherwise (i.e. non-beneficiary =0), using probability or propensity scores. The results show that female headed households are under represented as male headed households accounts for about 78 percent with average age of 43 which reflects well the demographic composition of Tanzania. There was 36% increase of number of household labourers attaining secondary education, implying positive impacts of education policy in Tanzania. Similarly, slight change (6 percent) secondary level of education attained by hoouseholds heads between year 2008 and 2018. Furthermore, there was 82 percent increase of adult household labour-force, indicating adequate supply of

labourers who also appeared to be involved in social groups. Generally, the health status improved by 33 percent within ten years, along with increased possession of livestocks, measured on TLU, by 51 percent within ten years. Increase in TLU implies positive change in wealth since livestocks is a primary source of wealth in pastoral community (Homewood *et al.*, 2009; Slootweg, 2018).

The results show that the average value of farmers' livelihood capital index in 2008 was 0.25 and increased to 0.39 in 2018, which means that residents' livelihood ability to address vulnerability is at decent level below medium of 0.5 despite attractive percentage change of 52 within 10 years. Generally, the scores for the five components of the livelihood capital index showed a pleasant increase between 2008 and 2018. Specifically, the average score of residents' social capital reached 0.11 in 2018, which is the highest and also the largest increase among the five components. On contrary, the score of financial capital was the lowest 0.016 in 2008 and 0.043 in 2018.

Table 4.5: summary statistics of selected variables in the propensity score matching combined with difference in difference (PSM-DD)

Variable	Description	2008 Mean	SD	2018 Mean	SD
Outcome variables					
Livelihood capital index	Standardized score	0.259	0.123	0.392	0.144
Human capital	Standardized score	0.058	0.033	0.077	0.031
Social capital	Standardized score	0.077	0.065	0.114	0.074
Physical capital	Standardized score	0.052	0.041	0.068	0.049
Natural capital	Standardized score	0.053	0.055	0.087	0.065
Financial capital	Standardized score	0.017	0.051	0.044	0.064
Variables used in the PSM method					
Whether a tourism beneficiary	1= beneficiary; 0= non-beneficiary				
Total livestock units owned by household	Tropical livestock units (TLU); (LU= 0.1=goat/sheep;0.7 goats/sheep=1 cattle)	25.577	18.157	38.666	25.832
Sex of house hold head	1=male;0=female	0.785	0.411	0.785	0.411
Age of house hold head	Years	33.796	8.729	43.793	8.729
Education of house hold laborers	Number of household labourers with secondary education	0.418	0.494	0.568	0.483
Education of house hold head	1=informal:2=primary;3=secondary;4=high school;5=College/University	1.663	0.776	1.728	0.892
Number of adult productive laborers	Number	3.202	1.049	5.859	1.940
Poor health status of house hold members	Any household member often in need of health-care:(1=yes:0=no)	0.211	0.409	0.281	0.450
Membership to social groups	Any household member affiliated to social organization: (1=yes:0=no)	0.102	0.303	0.169	0.375

4.3.2 Results of propensity score matching

Table 4.6 presents the results of the logistic sample selection model determining likelihood for resident's participation in tourism. The results show that six out of eight variables were significant predictors along positive and negative coefficients. For instance, Sex of household heads had a negative and significant influence to participate in tourism, implying that female household heads are less likely to participate compared to

their counterpart. Possible reason is that, female in pastoral communities have adequate domestic duties which reduces time for their participation (Wanyoike et al., 2015). On the other hand, the motivation to participate was not significantly influenced by increase in age of household heads as other literature suggests (Ogunjinmi and Braimoh, 2018; Mugizi and Obua, 2017). This implies some tourism activities are not restricted by age. For example, cultural activities like story-telling and working at the traditional museums. However, participation in nature based tourism may attract young and energetic people given the type of tour guide activities such as long walking safaris, mountain climbing and cultural activities associating with dancing and entertainment. Number of adult productive age and poor health status were among the significant negatively predictors of participation. This means, household with members often sick requires constant care from other members, thus affecting the time to be involved in tourism activities. Similarly, an increase in number of adult productive labourers can influence the need to look for other labour intensive activities apart from tourism.

The significant positive predictors to participate include, household wealth (i.e. livestock units owned by household) and the level of formal education attained by both household head and labourers. In a context where availability of formal education services are scant, residents with minimum level of education, possibly at secondary level, are more likely to be employed in tourists lodges or working as tour guides or make positive decision to welcome tourism investors on their communal lands. Similarly, the wealthier households are likely to be involved in tourism activities like production and selling handcrafts items to tourists because they can easily sell cows and access financial-capital for starting a tourism based small- enterprises. In this study, contrary to Ogunjinmi and Braimoh (2018)

it was found that, membership to social groups do not significantly influence participation in tourism. The possible reason could be that, the existing social groups and social networks access and channel information not relating to tourism services to its members.

Table 4.6: Regression results of Logistic model for participating in tourism intervention

Variable	Coefficients	SD	Z	P-value
Total livestock units owned by household	0.008	0.003	2.590	0.010
Sex of house hold head	-0.310	0.118	-2.620	0.009
Age of house hold head	-0.010	0.007	-1.480	0.138
Education of house hold laborers	0.465	0.098	4.760	0.000
Education of house hold head	0.399	0.086	4.630	0.000
Number of adult productive laborers	-0.161	0.055	-2.940	0.003
Poor health status of house hold members	-0.442	0.117	-3.790	0.000
Membership to social groups	0.247	0.156	1.580	0.114
Constant	-0.339	0.347	0.440	0.658
Log-likelihood	-516.564			
Pseudo R^2	0.115			
Observations	850			

Although the PSM method can eliminate the selection bias emanating from observed factors, it is necessary to confirm by checking if at each value of the propensity score, the variables have the same distribution for the beneficiary and non-beneficiary groups (Lee, 2013). Table 4.7 presents the results of the balance test before and after matching. The results show that before matching, the beneficiary and the non-beneficiary groups were systematically different in terms of some observed characteristics like, livestock units, education level and health status of labourers. After employing the Kernel-based matching technique none of the mean differences of the selected variables between the beneficiary and the non-beneficiary households were statistically significant, even at the 10% level, suggesting that the balancing property of the covariates was satisfied (Ma *et al.*, 2018).

Table 4.7: Results of balance test of the unmatched and matched samples using Kernel-matching

Variable	Unmatched sample			Matched sample(ATT)		
	Average value of Beneficiary group	Average value of Non-beneficiary group	Diff[1]	Average value of Beneficiary group	Average value of Non-beneficiary Group	Diff[1]
Total livestock units owned by household	34.45	29.9	0.1961**	33.852	34.914	-0.046
Sex of house hold head	0.776	0.794	-0.0446**	0.768	0.777	-0.022
Age of house hold head	36.882	40.608	-0.377	37.124	37.757	-0.064
Education of house hold laborers	0.489	0.302	0.389***	0.472	0.534	-0.129
Education of house hold head	1.946	1.457	0.607***	1.841	1.774	0.082
Number of adult productive laborers	4.345	4.706	-0.177**	4.356	4.393	-0.179
Poor health status of house hold members	0.156	0.332	-0.419***	0.162	0.181	-0.045
Membership to social groups	0.136	0.134	0.007	0.135	0.103	0.095

Diff[1] is the difference between the beneficiary and non-beneficiary group; *$p < 0.10$; **$p < 0.05$ and ***$p <0.001$.

Figure 4.4 presents the region of common support showing the Kernel density plot and cumulative distribution balancing plot of probabilities before (i.e. raw) and after matching beneficiary and non-beneficiary respondents.

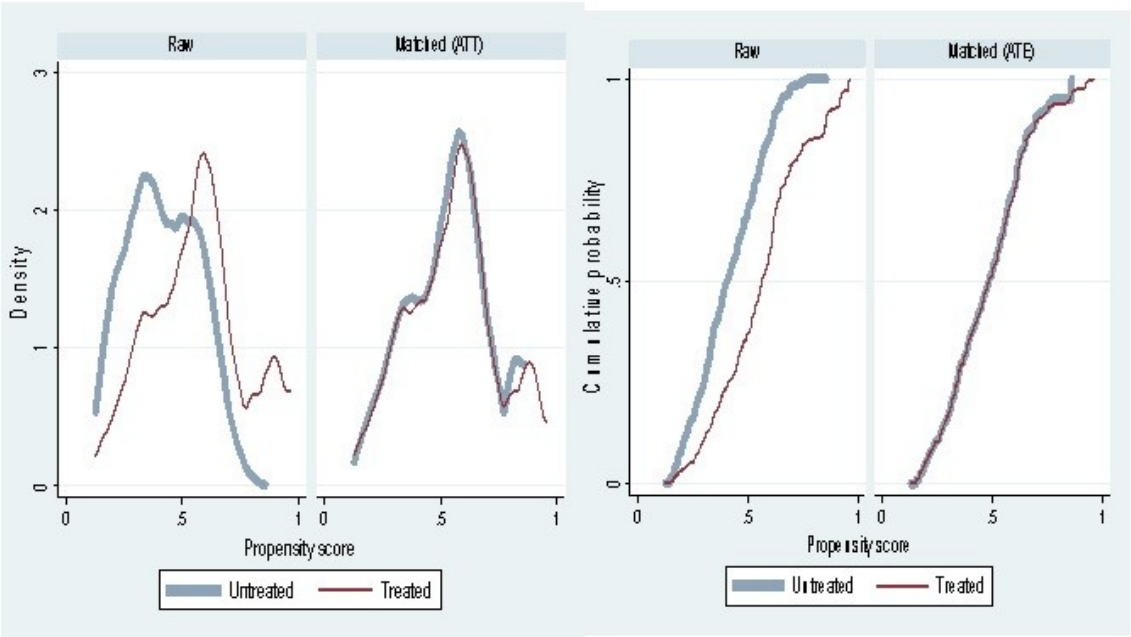

Figure 4.4: **Kernel distribution of propensity scores demonstrating common support**

4.3.3 Sensitivity analysis

The sensitivity analysis was conducted after PSM to test the extent of unobserved factors in influencing outcomes and treatment effects. This analysis is important because Pomeranz (2011) and Rosenbaum (2005) posit that treatment group may possess unobservable characteristics which may influence treatment effects and outcomes of intervention. This study employed the Rbounds module in Stata to determine sensitivity analysis. An outcome variable was computed at different level of critical value of gamma. The *p*-critical values were statistically significant, implying that estimated (i.e. ATT) tourism impacts in this study is insensitive to hidden bias.

4.4 Tourism Impacts on Residents' Livelihood Capitals

4.4.1 Assumption of parallel trends required for Difference in Differences Impacts evaluation

This study employed Stata "Igraph" software to construct trend lines in order to comply with the key assumption of parallel trends required for the Difference in Difference Impact evaluation, The graph in Figure 4.5 is showing the projected trends in average livelihood capital index. The two groups (non-beneficiary and beneficiary households) appeared to be following similar trends in access to livelihood capital prior to the 2009 (i.e. in the baseline year 2008), and then, the beneficiary group started to increase at a higher rate while the non-beneficiary group did not. This is the proof that parrel trends assumption was met in this study, thus, impacts evaluation using Difference in Differences approach (DD) was conducted.

Figure 4.5: Parallel trends lines

Table 4.8 presents the average treatment effects, using PSM-DID approach (ATT_{PSM-DD}). The impacts of tourism on livelihood capital was estimated using the Stata15 software diff command (Villa, 2016).

The results show that at the baseline year in 2008 (i.e. before), the mean livelihood capital index for 412 households in the beneficiary group (M = 0.26, SD = 0.14) was higher by 0.01, compared to 421 non-beneficiary households' livelihood capital (M = 0.25, SD = 0.10), demonstrated a non-significance difference in livelihood capital index t (832) = 1.41, p = 0.15 (two-tailed) in the baseline year 2008 (i.e. before). The effect size was very small, with a Cohen's d of 0.05. Afterwards, in the year 2018, the mean livelihood capital index for households in the beneficiary group increased (M= 0.44, SD = 0.14) significantly more than did those in the non-beneficiary group (M= 0.34, SD=0.12), t (832) = 10.13 p=.001, with increased effect size of Cohen's d of 0.35. The average treatment effect (ATT) on residents' livelihood capital index was 0.080, which was statistically significant, t(832) = 6.17, p = 0.001 (two tailed) with an effect size of a Cohen's d of 0.21.

This finding suggests that tourism has improved resident's overall livelihood capital index significantly than non-tourism beneficiaries (i.e., untreated). Moreover, tourism conducted in GCs have improved the specific livelihood capital indices, such as financial, human, social and physical capital.

The results in Table 4.8 show that at the baseline year 2008 (i.e. before), the mean score of human capital for residents in the beneficiary households was (M= 0.06, SD=0.03) higher by 0.01 than that of the non-beneficiary group (M= 0.05, SD=0.02), and the difference between them was significant, t(832) = 4.16, p = 0.001, with an effect size of a Cohen's d of 0.14. Afterwards in year 2018, the mean score (M= 0.08, SD=0.03) of human capital for residents in the beneficiary group increased by 0.02 higher than that of

the control group (*M*= 0.06, *SD*=0.02) and statistically significant, *t*(832) = 9.82, *p* = 0.001 (two tailed), with increased effect size of a Cohen's *d* of 0.34. The average treatment effect (ATT) on human capital was 0.012, statistically significant, *t*(832) = 4.0, *p* = 0.001 (two tailed), with a small effect size of a Cohen's *d* of 0.14 This results imply, being a tourism beneficiary a household receives benefits including health and education services from community projects financed from tourism receipts at the village level, thus, enhanced their human capital .From site observation, it was learned there is at least one dispensary or health center and a primary and secondary school established using tourism revenue to each beneficiary village while there was a single dispensary, primary and secondary facilities at the ward level for non-beneficiary households. The small effect size may imply that; tourism alone cannot improve the human capital because there are other institutional initiatives, specifically religious organizations that are also managing community projects to enhance the human capital.

The mean score of social capital for households in the beneficiary group was (*M*= 0.08, *SD*=.06), which was 0.01 higher than that of the non-beneficiary group (*M*= 0.07, *SD*=.07) in the baseline (before) year 2008. The difference between them was statistically significant at 10%, *t*(832) = 1.89, *p* = 0.06 (two tailed) with the very small effect size of a Cohen's *d* of 0.06.

Afterwards, in 2018, the mean score of social capital in the beneficiary households increased, (*M*= 0.12, *SD*=0.06) which was significantly 0.02 higher than that of the non-beneficiary group (*M*= 0.10, *SD*=0.07), *t*(832) = 5.00, *p* = 0.001 (two tailed) with increased small effect size of a Cohen's *d* of 0.17. The ATT on social capital was 0.02,

statistically significant $t(832) = 2.20$, $p = 0.05$ (two tailed) with an effect size of a Cohen's *d* of 0.08. This result is basing on the fact that tourism beneficiary households consider and prioritize social groups and social networking more than non-beneficiary households. Availability of women groups producing and selling handcrafts items to tourists and traditional dancing groups providing entertainment services to tourists, are among the examples of social groups available in the beneficiary household. The members in these social groups normally provides moral and physical support to a member experiencing shock and perturbations, thus, increased their social capital. The low effect size on treatment effect can imply that social network are effectively used by both beneficiary and non-beneficiary households.

In the baseline year, 2008 (before), the mean score of financial capital for the beneficiary group was (M= 0.02, SD=.05) which was similar to that of the beneficiary group (M= 0.02, SD=.04), and the difference between them was not significant, $t(832) = 0.24$, p = 0.81 (two tailed) with very small effect size of a Cohen's *d* of 0.01. Afterwards, in 2018, the mean score of financial capital for the beneficiary group increased to (M= 0.06, SD=0.07) while that for the control group was (M= 0.03, SD=0.06). Thus, the mean score of financial capital for the beneficiary group was 0.003 higher than that of the control group, which was statistically significant, $t(832) = 7.02$, $p = 0.001$ (two tailed) with increased effect size of a Cohen's *d* of 0.24. The ATT on financial capital was 0.03 and was statistically significant $t(832) = 4.80$, $p = 0.001$ (two tailed) with small effect size of a Cohen's *d* of 0.16. There are some reason for this finding. First, beneficiary households with member directly employed in tourism ensures diversification of sources of income through salary apart from household earning income from selling goats and cows. Second, individual access of income from tourism is re-invested in small business

enterprises, thus guarantee increase of financial capital. Thirdly, during FGDs, it was noted that availability of multiple sources of income within beneficiary communities stimulate formation of rotating serving and credit associations (ROSCAS) where members access loans rotationally following regular savings.

The physical capital index was observed to increase significantly from the baseline year 2008 and afterwards in year 2018. The ATT was 0.023, significant, $t(832) = 5.28$, $p = 0.001$ (two tailed) with small effect size of a Cohen's d of 0.18, following equality in average of physical capital among beneficiary group ($M= 0.05$, $SD=0.05$) and non-beneficiary group ($M= 0.05$, $SD=0.06$) attained in the baseline period (2008. But later on, the mean of beneficiary households ($M= 0.08$, $SD=0.05$) was significantly higher, compared to mean of non-beneficiary group ($M= 0.05$, $SD=0.06$), $t(832) = 9.50$, $p = 0.001$ (two tailed) with increased effect size of a Cohen's d of 0.33, in year 2018. The possible reason is due to increase in physical assets like livestock which is also a symbol of wealth in pastoral communities (Homewood *et al.,* 2009). During FGD, it was noted that, household directly involved in tourism earn added income that is spent on purchasing more cows and goats, thus enhanced their physical capital.

As for natural capital, in the baseline year, 2008 (before), the mean score of natural capital for the beneficiary group was ($M= 0.05$, $SD=0.06$) which was 0.01 significant lower than that of the non-beneficiary group ($M= 0.06$, $SD=0.05$) $t(832) = -2.42$, $p = 0.01$ (two tailed), with very small effect size of a Cohen's d of 0.08. Afterwards, in 2018, the mean score of natural capital for the beneficiary group increased ($M= 0.08$, $SD=0.06$) while that for the non-beneficiary group increased further ($M= 0.09$, $SD=0.07$) and significantly, $t(832) =2.21$, $p = 0.03$ (two tailed), an effect size of a Cohen's d of 0.07.

The mean score of natural capital for the beneficiary group was 0.01 less than that of the non-beneficiary group. The ATT on natural capital was 0.001 and was statistically not significant $t(832) = 0.15$, $p = 0.88$ (two tailed), with very small size of a Cohen's d of 0.01. This finding indicates that beneficiary group compared to non-beneficiary do not access and utilize adequate natural capital like land, thus, their natural capital is lower than that of non-beneficiary group. This is due to the fact that, being a tourism beneficiary, a household is subjected to restriction in land use for grazing and cultivation as portion of village land is set aside for tourist utilization.

Table 4.8: Impacts of tourism on changes in livelihood capital assets

Period	Group	Livelihood Capital Index	Human Capital	Social Capital	Physical Capital	Natural capital	Financial Capital
Before (2008)	Non-beneficiary group	0.25	0.05	0.07	0.04	0.05	0.019
	Beneficiary Group	0.26	0.06	0.08	0.05	0.04	0.020
	Diff[1]	0.01	0.00***	0.00*	0.00*	-0.01**	0.001
After (2018)	Non-beneficiary group	0.34	0.06	0.10	0.05	0.08	0.033
	Beneficiary Group	0.43	0.08	0.12	0.08	0.07	0.06
	Diff[1]	0.09***	0.02***	0.02***	0.02***	-0.01**	0.030***
Treatment effects (ATT)		0.08***	0.01***	0.01***	0.02***	0.001	0.029***
t-stat		6.17	4.00	2.20	5.28	0.15	4.80
Observations	834	834	834	834	834	834	834

Diff[1] is the difference between the beneficiary and non-beneficiary group; *$p < 0.10$; **$p < 0.05$ and ***$p < 0.001$.

In general, there has been a remarkable trajectory of increased livelihood capital among beneficiary households, thus, implying the increased capacity in addressing livelihood vulnerability context. The following section presenting finding on the extent of

households' exposure to severe shocks and coping activities employed between years 2008/9-2013 and 2013/14-2018/19.

4.4.2 Severe shocks experienced in years 2008/9-2013 and 2013/14-2018/19

For the purpose of understanding the magnitude of livelihood vulnerability context experienced by the beneficiary and control households within a 10 years' period, consideration was paid to those shocks perceived by respondents to be highly severe (i.e. adverse events caused extreme loss of assets, income or restlessness). The household heads were asked to mention maximum of five shock-events they experienced within the last 5 years (2013/14-2018/19**)** and prior (2008/9-2013), estimate severity of shock (i.e. high, low, medium) and coping activity used to address each shock across years.

Almost all surveyed households were found to experience at least three recurrent severe shock events over the years. Therefore, for purpose of clarity, the shocks were categorized into four groups consistent with other studies (Haq, 2015 and Tongruksawattana *et al.*, 2010). These groups include, (i) natural/agricultural shocks (i.e. drought, flood/heavy rains, crop-pests, volcano eruption, livestock diseases, crop riding and wild-animals attack livestock; (ii) economic (i.e. rise in food-price, business-loss and remittance stopped; (iii) health (i.e. chronic illness, death and people injured by wild-animals;(iv) social shocks (i.e. family conflicts, land-use conflicts and cattle-theft. Noteworthy, instead of natural/agricultural shocks this study adopts the term "ecological shock" similar to Tongruksawattana *et al*. (2010). This is necessary in order to capture those shock-events not directly affiliated to agriculture like volcanic eruption or wild animals attacking livestock (predation) which are location-specific (i.e. the risk of living

in areas prone to earthquake/volcano or residing in protected area eco-system, thus, susceptible to wild animal attacks). Moreover, consistent to the aforementioned studies, percentage of shock frequencies derived from total responses is used to present findings and not percentage on particular sample households. This is because multiple responses of perceived severe shocks were mentioned by respondents.

The first reported category of severe shock was ecological related shocks. This category contained eight sub-shocks which together amounted to 55%. The sub-shocks were: drought, wild animal attacking livestock/predation, livestock diseases, crop riding, crop pests, volcano eruption, flood/heavy rain, and wind damage houses). The second category was economic related shocks containing three sub-shocks and amounted to 19%. The sub shocks include, rise in food prices, remittances stopped and business-loss). The third category was health related shocks which constituted three sub-shocks that accounted for 16%. The sub-shocks were: chronic illness, death and personal injury by wild-animals). The last category was social related shocks containing three sub shocks which accounted for about 10%. The sub shocks include, cattle-theft, land-use conflicts and family conflicts. Percentage distributions of severe shocks reported are presented by the Pareto graph in Figure 4.6.

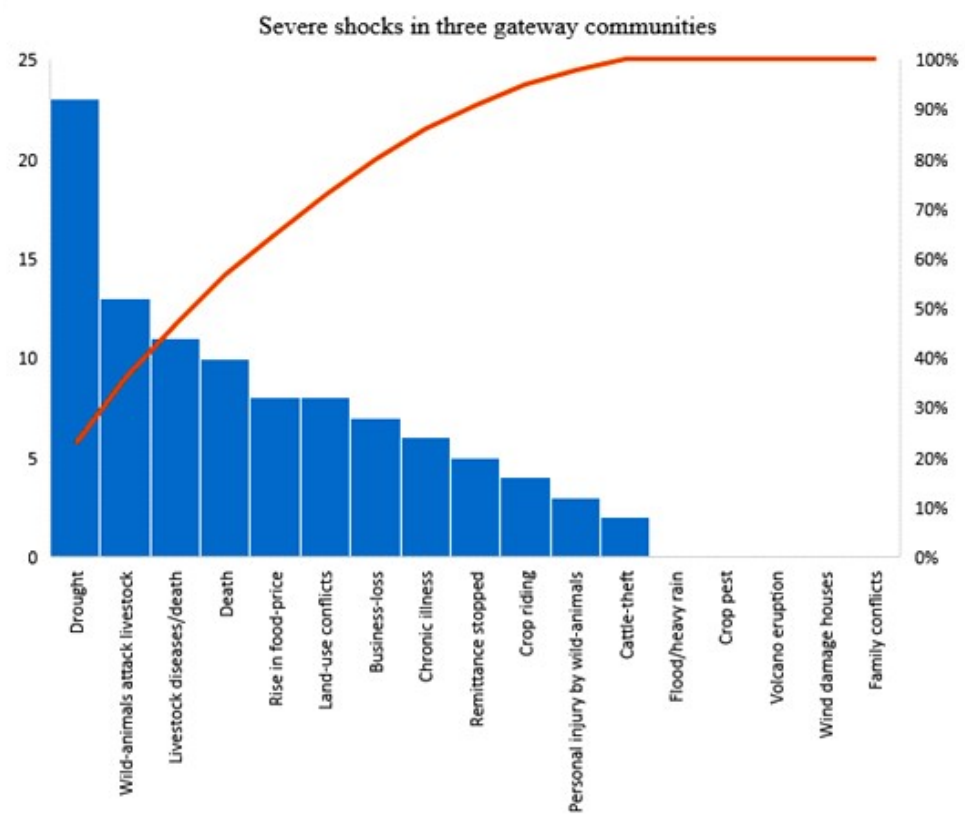

Figure 4.6: Pareto graph on severe shocks experienced between 2008/9- 2018/19

The ecological related shock was found to be the dominant. This result is consistent with the findings in other studies by Romano and Carraro (2015) and Haq (2015) who found that droughts, floods and crop diseases rank relatively higher than other shocks among rural households in Tanzania and Pakistan respectively. In this study, the popularity of ecological shocks indicates that it can be marked as covariate (i.e. affecting the entire community). The dominance of ecological shocks is justified by the fact that agro-pastoral is the main livelihood activity among surveyed households who happened to be located in typical semi-arid areas of northern Tanzania. Volcanic eruption that occurred in September 2007 in Lengai mountain following an earthquake in July 2007 which was felt widely in northern Tanzania and particular at lake Natron imposed significant fear of repeating in the subsequent years. While the volcanic powder caused skin disease to cattle

and sometimes death in lake Natron, the presence of tsetse flies in Burunge, especially in Sangaiwe village, was mentioned by respondents as a major threat to the survival of cattle. Furthermore, crop riding events caused concern among respondents as one interviewee in Sarame village said:

> *"crop riding by Elephants and Zebras is a serious issue in this village…and it is very disappointing because when you report the event, you have to wait for a long time for the DGO [District Game Officer] and his team to make compensation of the loss and the amount is not enough"*

In general, the frequency of reporting seriousness of ecological related shocks was observed to decline (i.e. from.51% as minimum and 62% maximum in 2008/9-2013 to 40% minimum and 55% maximum in years 2013/14-2018, see Figure 4.7), especially among the beneficiary compared to control households, in all destinations. Tree planting campaign and crop-riding preventive measures have played the role. For instance, the Babati District Game officer (DGO) commented that, there has been increased efficiency of Village Game scouts (VGS) through training, financial and material support from tourism investors and local residents increased awareness in conservation and handling wild animals from riding crops.

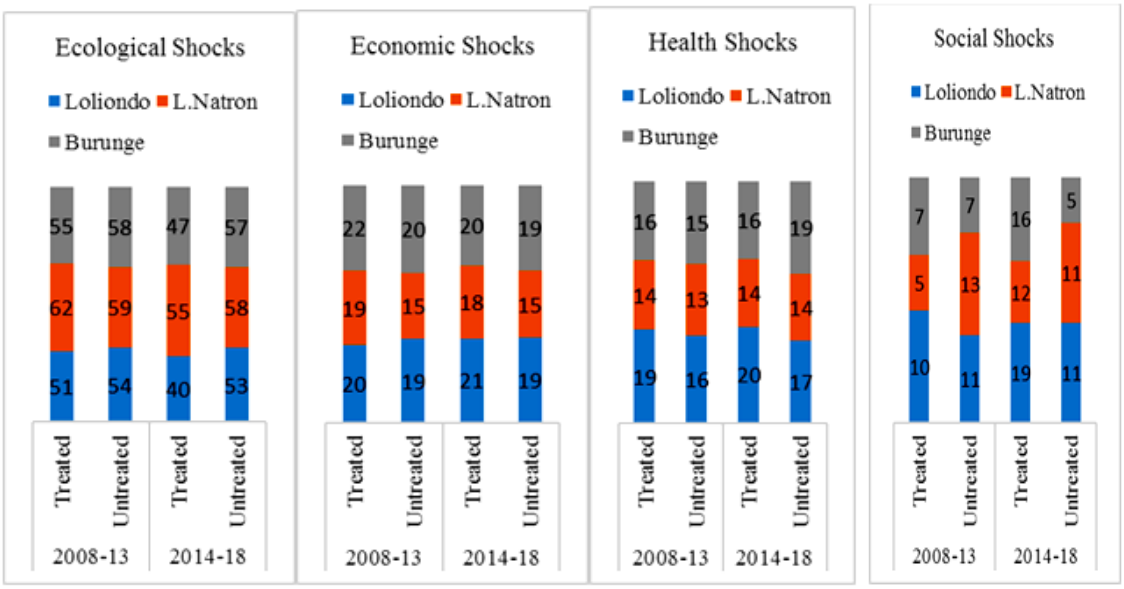

Figure 4.7: Percentage (frequency) of severe shock experienced within ten years

The second dominant severe shock with about 19% of frequencies (see Figure 4.7) was economic related, (e.g. the rise of food prices for maize, wheat and sugar). Food commodity price variations is covariate and most recurrent shock as it affects performance of business (i.e. business loss of revenue) as well as individual financial assistance through remittances.

In the in-depth interview sessions, participants in Ololosokwan, Engaresero, Minjingu, Olasiti, Mwada and Kisangaji mentioned about abrupt increase in price of sugar, maize and wheat in year 2009, 2011, 2013 and 2018, as serious constraints to their consumption. One interviewee in Minjingu village contended that:

> *"in 2011 we used salt in porridge instead of sugar…I could not afford to buy one kilogram of sugar sold at 3,500[T. shillings]" (1 US$ was equivalent to 1,760 Tanzanian Shillings in 2011)*

The reported shock events of increased in food prices is supported in the study by Romano and Carraro (2015) who found that rise in food prices affects two-thirds of surveyed rural and urban households in Tanzania.

From Figure 4.7, the frequency of reporting economic related shocks is observed to decline fairly overtime (19% minimum and 22% maximum in 2008/9-2013 to 18% minimum and 21% maximum in 2013/14-2018) among beneficiary households and slightly decline (i.e.15% minimum and 20% maximum to 15% minmum and19% maximum) among control households, especially in Burunge followed by Natron and Loliondo. The fact that beneficiary households, over time, perceived relatively fewer economic related shocks is directly related to the presence of tourism. Tourism development over time, has influenced the establishment of small and medium tourism-based enterprises (i.e. mostly hand crafts) among local residents in beneficiary villages, thus enabling access to financial capital that counterattack economic shock like rise in food prices.

Health related shocks (e.g. death, followed by chronic illness of members of household) were found to be the third in the frequency (i.e. about 16%) of highly severe shocks (see Figure 4.7). This result is consistent with finding from Romano and Carraro (2015) who included health shocks along with ecological and economic shocks as outstanding most frequent and severe shocks facing rural residents in Tanzania. Consistent with Nguyen *et al.* (2020) this study considers the health shock typical idiosyncratic as it affects individual households differently. In agro-pastoral communities, disease known as

“brucellosis” caused by consumption of unsafe meat and cattle-milk is detrimental to individual health. Along this disease is tuberculosis also mentioned as chronic diseases. One interviewee from Njooroi village commented:

> “*if you go to Soit sambu [dispensary] you will hear a lot of people coughing similar to those who uses heavy tobacco”*

Over the time, the non-beneficiary households in all destinations, led by Burunge, Natron and Loliondo were found to experience an increasing trend in health related shock events (i.e.13% minimum and 16% maximum in 2008/9-2013 to 14%mimimum and 19% maximum in 2013/14-2018). On contrary, beneficiary household had the constant (i.e. 14% minimum and 19% maximum, to 14% minimum and 19% maximum). The implication of the trend in incidences of health shocks between beneficiary and control households has a direct link to tourism development over time. For example, it was found that Ololosokwan village in Loliondo have spent more than Tsh.143 850 000 million (US$ 68 500) of tourism revenue on health facilities. Village allocation of significant amount of communal revenue from tourism, towards construction of dispensaries and health centres, especially in Loliondo and Burunge, have a positive livelihood impacts on health challenges to local residents.

The lowest (i.e. 10%) category of severe shocks was related with social relationship challenges involving individual interaction at the family level and interaction between household members with stakeholders in different public and private organizations, while serving their interests. Conforming to Haq (2015) this study consider social related shocks as idiosyncratic (i.e. household specific) given the nature of social conflicts

mentioned by respondents. These conflicts led to antagonistic relationship which culminated to social unrest. For example, some respondents in Loliondo recalled to the event when they were violently evicted from their premises, houses burnt and cattle displaced and lost following district authority measures to restrict them from interfere with hunting activities under Ortello Business Company (OBC) in year 2009. This finding is consistent to Gardner (2012) who narrated the pre and post violent conflicts between native Maasai and OBC in Loliondo. One interviewee in Soit sambu village said:

> *"in that year [2009] I felt like dying…I lost 62 cows and could not do anything because I was injured and detained for two weeks"*

4.4.3 Coping mechanism to address shocks in years 2008/9-2013 and 2013/14-2018/19

In regard to coping mechanism it was found that the survey households opted to at least two activities to address shocks within the ten years. Consistent to other studies (Haq, 2015 and Tongruksawattana *et al.*, 2010) focusing on coping activities towards shock events, this study grouped coping activities mentioned by respondents into four: (i) Borrowing, (ii) asset disposal, (iii) reduced consumption and (iv) remittances. It was found that respondents relied on borrowing loans from different sources such as, relatives, neighbours, friends and local money landers. This finding is in line with Haq (2015) and Tongruksawattana *et al*. (2010) who contend that local residents in rural areas rely on multiple sources of borrowing while addressing shocks. From Fig. 4.4, it can be observed that more non-beneficiary households in all destinations asserted to employ borrowing in addressing health and ecological shocks. Similarly, trend in borrowing activity for non-beneficiary households was found to increase over the years (i.e.

6%mimimum and 11% maximum in 2008/9-2013 and 7% minimum and 15% maximum in 2013/14-2018) (Figure 4.8).

Worth noting, the frequency of borrowing decline among beneficiary households over the years, starting 22% minimum and 56% maximum in 2008/9-2013 to 16% minimum and 48% maximum in 2013/14-18, especially in Burunge followed by Loliondo and lake Natron. This finding has an implication to tourism impacts, given the fact that the beneficiary households have reduced their dependence on borrowing to address health shocks over the years. In other words, there has been increased accessibility to health services among residents hosting tourism activities following continued investments of tourism revenue into health services. The Figure 4.8 presents a range of benefits (i.e. material and non-materials) accessed to beneficiary residents over the years, whereby, tourism receipts to host communities and spending pattern to priority sectors including health services are shown. In Figure 4.9, construction of health centers to support health services is one among the aspects that constitute the largest share of tourism spending to produce material benefits to residents.

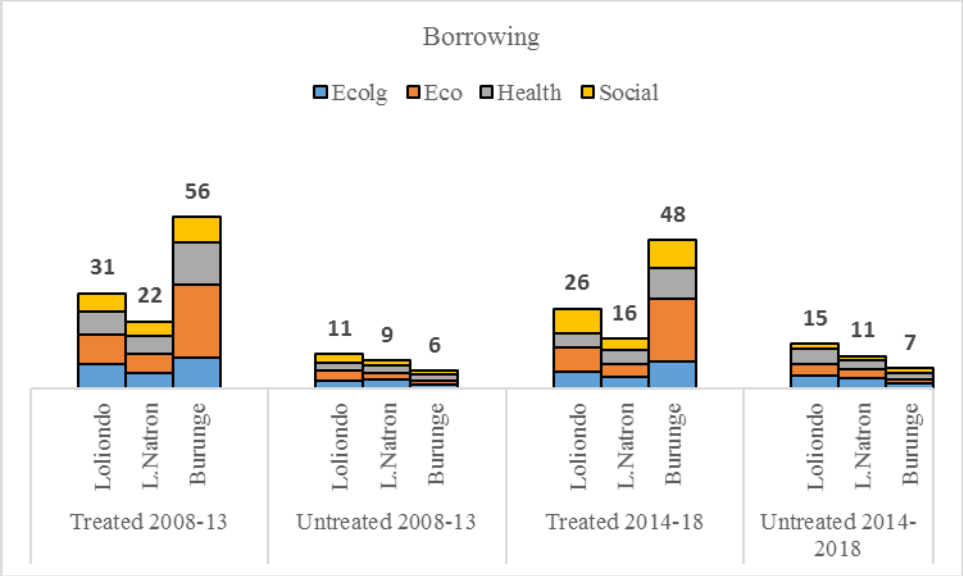

Figure 4.8: Frequency percentage of addressing multiple shocks by borrowing

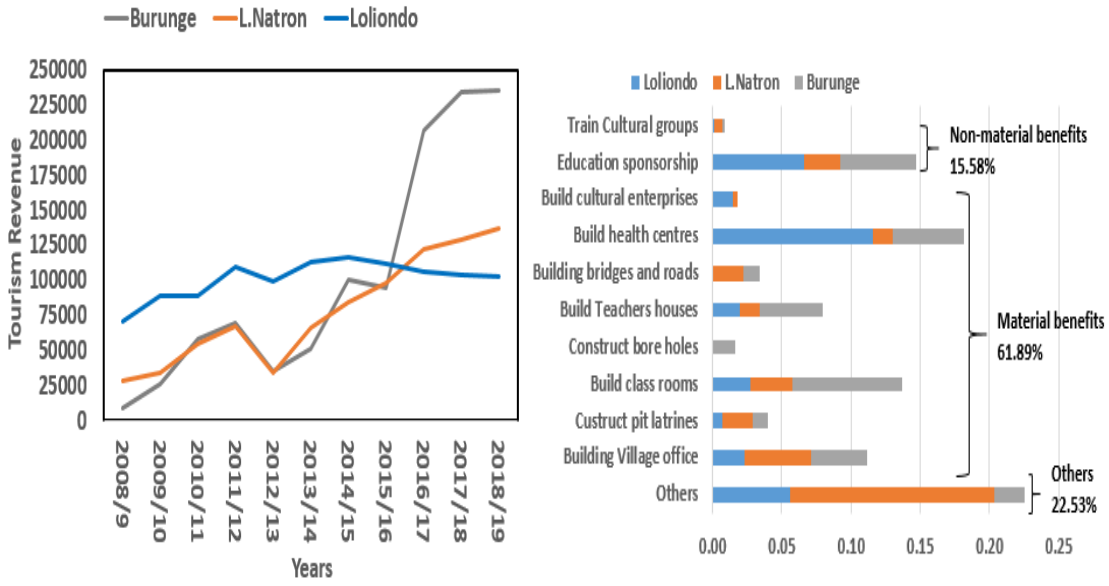

Figure 4.9: Tourism Revenue (in US$) and spending pattern in gateway Communities

As shown in Figure 4.10 non-material resources/benefits accounts relatively less in the share of expenditure of tourism receipts compared to material resources/benefits and other expenditure (e.g. administrative overhead expenses).

Despite the fact that tourism funded health facilities and services has enabled beneficiary household to reduced frequency of borrowing to address health related shocks, they are still borrowing, relatively higher compared to their counterpart, as seen in Fig 4.8. The reason for this borrowing tendency can be explained from microeconomic-household expenditure principle, which among other things, contend that, an economic active household is the one that involved in borrowing to access capital used for economic purpose like investment in small enterprises, while maintaining some savings for future use (Ledgerwood *et al.,* 2013). As seen in the Fig. 4.8, the non-beneficiary borrows to address health related shocks while the beneficiary households borrows to address economic shocks like, rise in food prices, remittances stopped or when the business experiences unexpected loss. Thus, external financing through borrowing enable them to smooth consumption or prevent business closure by covering the operating expenses.

The use of savings (i.e. financial assets) and sale of physical assets like livestock was found to be dominant among the surveyed households. This result conforms to findings by Haq (2015) whereby 54% of households in Pakistan responded to use asset-based coping strategies to address ecological shock events. In this study, a range of 21% minimum and 48% maximum in year 2008/9-2013 and 49%minimum and 71% maximum in 2013/14-2018 in Figure 4.10, among beneficiary households, was higher compared to non-beneficiary households opted for asset disposal (e.g. sale of goats/sheep) to combat economic, ecological and social shock-events. This result can be linked to tourism impacts in beneficiary households because the presence of tourism through tourists spending on cultural items or visiting Maasai homestead (i.e. “Boma”) lead to increase per capita income. In turn, this is a base for savings and acquisition of physical assets like livestock that can be used as buffers against severe shock events like drought or rise in food prices.

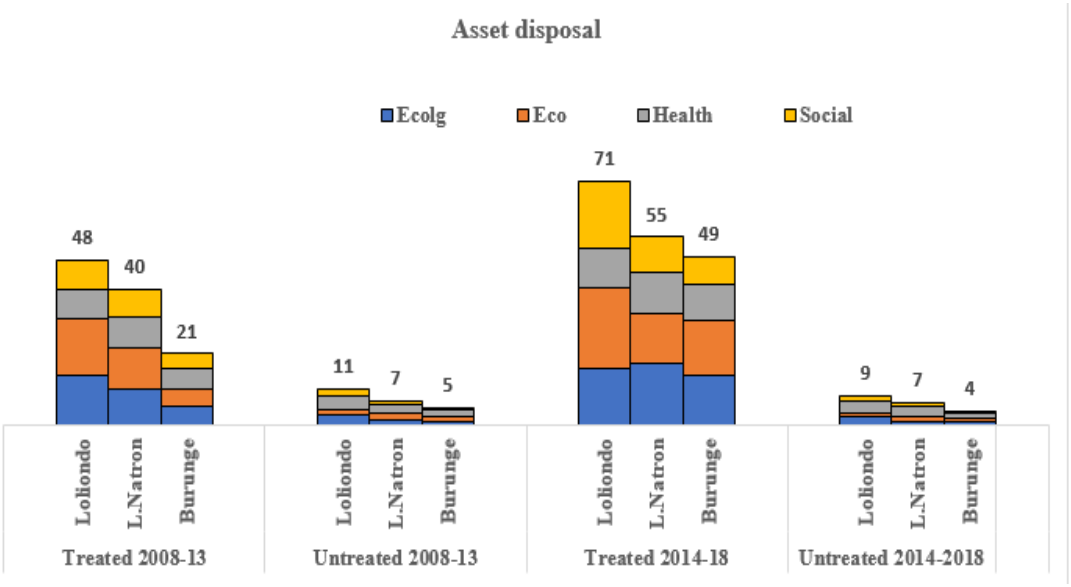

Figure 4.10: Frequency percentage of addressing multiple shocks by assets disposal.

The decision to reduce the quantity of food intake was observed to be among the shock-coping activity undertaken by survey households. This result conforms to the findings by Brinkman *et al*. (2010) who found that significant number of vulnerable individuals opted to reduce the quality and quantity of food consumed following the food price crisis in Haiti. Results in Figure 4.10 indicates control households compared to beneficiary ones, asserted to rely on reduced food intake (i.e. through fasting and skipping meals) as a coping means when addressing ecological and economic shock events. The trend for this type of coping among non-beneficiary households was observed to be relatively higher (55%minimum and 61% maximum) during the severe drought incident of year 2008/9 and increased more (58% minimum and 67%maximum) during 2013/14-2018 (Figure 4.11).

The fact that the surveyed beneficiary households relied less on reduced consumption as coping activity implies that tourism has played a role in reducing livelihood vulnerability

during drought events. This was evidenced during FGD session at Loliondo in Ololosokwan village, lake Natron in Engaresero village and Burunge in Kakoi village. It was reported that, during long dry-spell village normally resort to spend some of tourism revenues to purchase and supply maize-flour to the most vulnerable (i.e. very poor) households in the village.

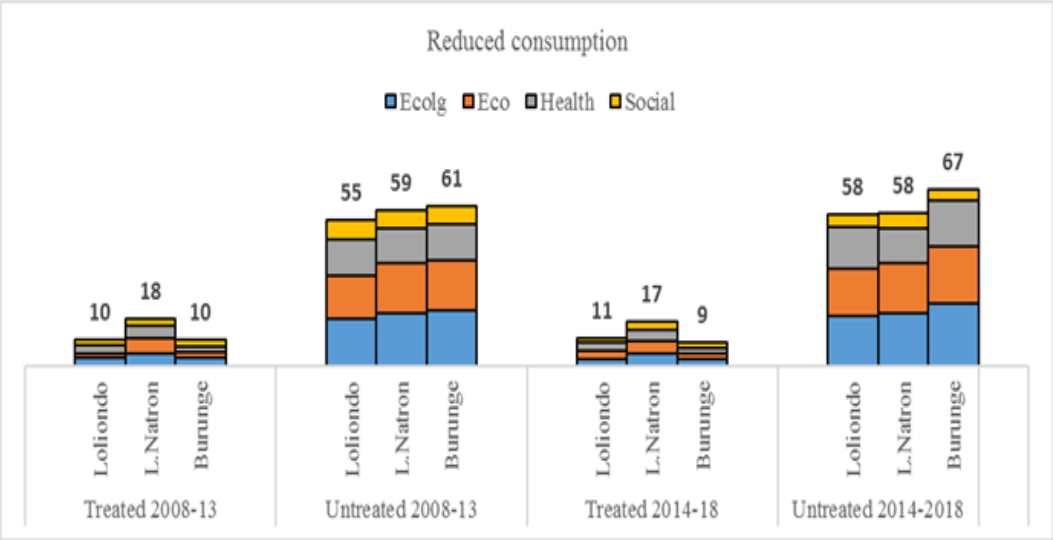

Figure 4.11: Frequency percentage of addressing multiple shocks by reduced consumption

In the wake of shock events, cash-income received from relatives through money transfer was observed to be an option among the coping activities. In this study, relatively fewer (11%mimimum and 23% maximum across years) beneficiary households in all destinations were found to rely on remittances as coping activity to health, social and ecological shocks events (Fig. 4.12). The lower level of dependence on remittances among beneficiary households can also be linked to presence of tourism in enabling the local economy to absorb multiple shocks facing tourism beneficiaries with minimal relying on external financial support.

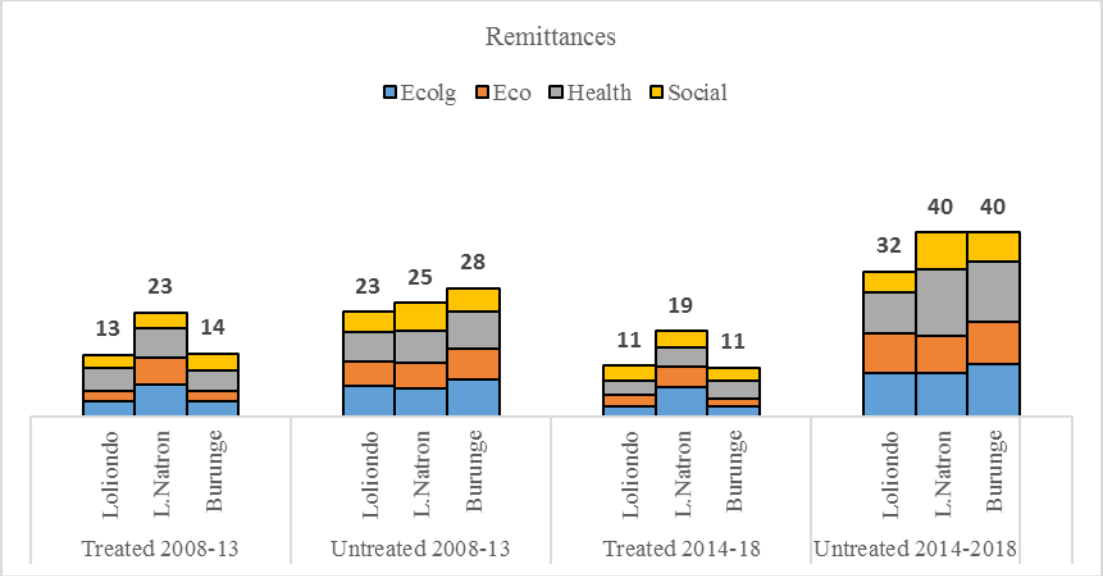

Figure 4.12: Frequency percentage of addressing multiple shocks by remittances.

4.5 Conclusion and Policy Implications

This study has used the SLA to provide a detailed understanding on contribution of tourism towards reduction in livelihood vulnerability to multiple shocks experienced by local residents for 10 years in three tourism destination in northern Tanzania. Findings indicates a change (increase) in livelihood capital assets over the years, 2008/9 to 2018/19, to both beneficiary and non-beneficiary households. This was evidenced by the parallel trends in livelihood capital index for both groups. However, using a powerful impact analysis approach, PSM-DD, the average difference in livelihood capital index between beneficiary and non-beneficiary households shows a 0.080 (i.e. eight percent), which was statistically significant at the 1% level ($p < 0.000$). This finding suggests that tourism has improved resident's livelihood capital assets significantly, thus, enhanced their capacity to cope with multiple shocks and in turn reduced livelihood vulnerability.

Therefore, this study has established findings which are needed to provide an answer to the debate leading to question whether tourism development over the years has any

significant impacts to resident's livelihoods. The findings of this study align with findings produced by World Bank, indicating reduction of poverty in Tanzania by 8% in 10 years, down from 34.4% in 2007 to 26.4% in 2018 (World Bank, 2019). Therefore, household livelihood capital index approach used in this study has produced similar results with the household expenditure approach used by World Bank. With this regard, this study recommends future research to employ household livelihood capital index method. The method is people-centered, since the capital asset-indicators are derived through participatory consultation with people, then, employing entropy as unbiased indicator-weighting method to calculate livelihood index.

Noteworthy, an increase in livelihood capital assets needed to reduce vulnerability was not even across the five livelihood capital index. The average score of all beneficiary and non-beneficiary residents was relatively higher in social capital, changing from 0.07 in year 2008 to 0.11 in year 2018/19. On contrary, the score of financial capital was the lowest, with 0.016 in 2008 and 0.043 in 2018. Moreover, households had different coping mechanism while addressing multiple shocks. Beneficiary households opted to effective coping such as spending on savings and livestock selling to address ecological, economic and health shocks. On the other hand, control households relied on less effective coping like remittances and reduce consumption. With this regard, the policy or local area interventions are required. For instance, more access to financial capital (i.e. liquid assets) and human capital (i.e. education, skills and ability to manage other resources) are recommended to tourism stakeholders and community development practitioners to be among the priority strategic areas to ensure further reduction in vulnerability to livelihood shocks. This can be achieved through increased spending of tourism revenue

on health and education projects. Furthermore, financial interventions at the group and individual levels are needed. These include establishment of financial cooperatives like savings and credit associations (SACCOs) to enable individuals to access credits to establish small enterprises so as to diversify livelihoods activities instead of relying merely on agro pastoralism. Encouraging pastoralists to sell their cows before drought season where they can fetch more revenue and do some savings instead of selling cows at low price during the dry season. Moreover, taking advantage of good base of social capital, the local government and development practitioners should encourage more social networks and groups where financial and non-financial (i.e natural resources management and governance issues) information and resources can be channeled.

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CHAPTE R FIVE

Impacts of Development of Tourism Destination on Residents' Quality of Life: Efficacy of Community Capitals in Gateway Communities, Northern Tanzania

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Abstract

Once a community becomes a tourist destination and experience some development, the lives of residents are affected by tourism, negatively or positively. This study combined objective and subjective tourism impact-indicators embedded on material and non-material capitals, to determine residents' quality of life and whether residents support for further tourism development. Multi method approach was employed to collect data. Focus group discussion with key informants coupled with trend data on livelihood capital index, tourism receipts and expenditure complemented the household survey. The hypothesized structural model was empirically tested, involving a randomly selected sample of 408 agro-pastoral residents from three gateway communities; Loliondo, lake Natron and Burrunge in northern Tanzania. It was found that residents support for further tourism development is a function of favourable perceived quality of life, influenced by effects of residents' satisfaction with both material impacts (i.e. increase in physical and financial assets) and non-materials (e.g. sustaining cultural values and social cohesion) tourism impacts. However, despite positive tourism impacts observed, residents endure costs in land-use in terms of restricted grazing and cultivation in order to sustain tourism. The study drew conclusion that **c**ommunity capital framework extends the traditional tripartite tourism impacts (i.e. economic, social and environment) to other aspects such as: political, cultural, human and built-capital, thus, provide a thorough understanding about tourism impacts in predicting residents' quality of life. Future studies should emphasize on livelihood capital index and efficacy of community capitals in the context of tourism development to estimate impacts on resident's quality of life.

Keywords: Community Capitals, Tourism Impacts, Quality of Life, Support for Tourism, Northern Tanzania

5.0 Introduction

The global demand for nature-based tourism attractions in Africa is largely concentrated in Sub Saharan Africa (SSA) specifically in wildlife protected areas (PAs) (Manrai *et al.,* 2019) and in areas that border and serve as entry points to PAs, known as gateway communities (Frauman and Banks, 2011). Tourism on natural attractions within SSA is dominant in eight countries: Botswana, Kenya, Namibia, South Africa, Tanzania, Uganda, Zambia, and Zimbabwe (Manrai *et al.,* 2019; UNWTO, 2019). In Tanzania, tourism in gateway communities (GCs) is considered a crucial source of livelihoods' diversification to sustain well-being of pastoral and agro-pastoralists facing low productivity due to semi-arid and typical Savannah rangelands of northern Tanzania (Nelson, 2004). Residents in GCs of northern Tanzania have been relying on the natural attractions and cultural resources to engage in contractual partnerships with tourism investors who reimburse community with revenue that community re-invest in community development projects (De Boer, 2016). The community-investor agreements allow the investors to utilize a portion of village land for camping and game viewing for several years (e.g. five years with options for extension), in turn, the community would benefit with tourist activity fee charged per person per day and annual land fees as a compensation to residents' restrictions to grazing, cultivation and settlement in a concessioned area.

The community-investor resource exchange implies, community resources as inputs (e.g. land and culture) are utilized and exchanged to produce further livelihood resources or capitals. The output can be on positive change in the stock of community capitals: generating revenue (financial capital), improved physical infrastructure (physical/built

capital), employment (using skills and knowledge as human capital), cultural appreciation, enhance social interaction (social capital) and improved conservation of natural resources (Flora *et al.*, 2018). However, an increase flow of tourists and infrastructural development, as outcome, may also contain negative aspects, namely: environmental pollution, traffic congestion, litter problems, modifying local culture and increased costs of living (Nunkoo and So, 2015). The input-output of community capital mix in tourism context, can be well described by Community Capital Framework (CCF) (Flora and Flora, 2004).

The CCF was formulated to understand systems relating to poverty, natural resource management, and social equity (Flora and Flora, 2013). The framework arose from the practice and application of the Sustainable Livelihoods Approach (SLA) which focuses on household livelihood assets that determine livelihood strategies capable to address shock-vulnerability (Kline *et al*., 2018). Capital, in the perspective of the CCF, entails a combination of resources available in the community that can be invested to produce other capitals and benefit the community (Flora and Flora, 2013). In this study, the term capital and resources are used interchangeable. The CCF constitutes seven types of capitals (detailed in Table 1) that can be divided into two main factors, vital to achieve a healthy sustainable community development (Emery and Flora, 2006). These include material factor (Financial, Built/Physical and Natural capital) and non-material (Social, Cultural, Human and Political capital). In the context of tourism in GCs, the output part of CCF may resemble the notion of tourism impacts. Tourism literature conceptualizes tourism impacts into three components: economic, social and environmental (Uysal *et al.*, 2015). However, conceptualization of CCF has dual advantage as capitals are inputs to

produce goods/services and also, output from production, which can be re-invested or changed for further achievement of desired outcomes (Kline, 2017).

The community capital-mix in regard to tourism activities and its development may cause a profound effect on residents' quality of life (QOL) from objective and subjective point of views. The objective component entails aspects like gross domestic product and average life expectancy while subjective point of view include subjective well-being, happiness and life satisfaction (Uysal *et al.*, 2015; Woo *et al.*, 2018). There is an increasing transition among recent tourism studies from objective evaluation to subject evaluation of tourism values and impacts basing on the premise that non-economic indicators should be given the emphasize they deserve (Uysal *et al.*, 2015). With regard to subjective evaluations, residents may either be satisfied or unsatisfied with perceived quantity and quality of derived material and non-material tourism benefits, thus, affecting their overall perceived QOL (Nunkoo and So, 2015; Woo *et al.*, 2018). However, there are inadequate tourism studies that have examined the residents' perceived QOL as function of impacts through the lenses of community capitals. Existing tourism studies paid greater attention in describing residents' QOL using bottom-up spillover theory along with Social Exchange Theory (SET). This entails that satisfaction from certain life domains grows up and eventually spills over to up the ladder-domains that influence the overall QOL. Domains may include leisure, spiritual, recreation, safety, work, love, social life, way of life and health. These domains are premised on a social interaction between local community and tourism industry where an exchange of perceived values determines residents' perceptions of tourism impacts, satisfaction and support for further tourism development (Andereck and Nyaupane, 2011; Eslami *et al.*, 2019; Woo *et al.*, 2018). Since there is dearth of tourism studies that have linked the aforementioned theories with

CCF, then, to fill this research gap, the present study contributes to the body of knowledge by adding the CCF components while adapting the SET and bottom-up spillover theories. This study synthesized residents' perceived values of community-tourism capitals and objective indicators (e.g. household livelihood capital index, trend in tourism receipts and expenditure in social and physical infrastructure) to provide complementary information, useful to predict QOL in gateway communities. Noteworthy, tourism studies on QOL have rarely combined the objective and subjective evaluations to determine the QOL (Uysal *et al.*, 2015). In this study, presence of community capitals and relationship across capitals invested for tourism and community development was evaluated on whether they evoke residents' favourable or unfavourable perceptions on material and non-material tourism effects, extent of satisfaction towards perceived QOL and whether they support for further tourism development. The understanding of this relationship is crucial so as to get insights on the role of tourism to community residents' QOL. Given the fact that tourism development is associated with both positive and negative impacts, one way to minimize the negative impacts is to monitor residents' opinions regarding perceived and actual impacts on QOL, so that, the positive ones are maximized by incorporating them into tourism destination planning in gateway communities.

5.2 Theoretical Framework

This study is underpinned by Community Capital Framework and Social Exchange Theory which are embedded on bottom-up spillover theory to predict residents' QOL in the context of tourism destinations.

5.2.1 Community Capital Framework

The CCF arose from the practice and application of the Sustainable Livelihoods Approach (SLA) which focuses on five household- livelihood-capitals (i.e. human, social, physical, natural and financial) that determine livelihood strategies capable to address shock-vulnerability (Kline *et al.*, 2018). Proponents of CCF (Flora *et al.*, 2018; Kline et *al.*, 2018) contend that each community, regardless of its poverty, has resources, that it can use in an exchange to attain its own development and well-being.

CCF provides a tool to analyze inputs (stock of capital used to produce other resources) and outputs (impacts emanating from resource exchange or transformation). Several studies have employed CCF in different tourism contexts, namely craft beverage (Arroyo *et al.*, 2021), where it was found that establishment of community capitals was largely influenced by creativity; food (Dougherty *et al.*, 2013), as finding indicated that local food tourism increases stocks of social, human and financial capitals; wildlife protected areas (Stone and Nyaupane, 2018), where it was found that upward and downward move of community capitals determined community livelihoods dynamic; community-based (Kline *et al.*,2018), where it was found that built capital was a catalyst for development of other forms of capitals through community projects. Other contexts include heritage (Kline, 2017) where it was learned that craft heritage affected multiple forms of community capitals and in agro-ecotourism (Duffy *et al.*, 2017), where it was found that agro-ecotourism is both a tool for economic diversification and ensures food security through improved community capitals. Studies that have applied CCF in GCs are scant. An exception is on the study by Bennett *et al.* (2012) involving five communities surrounding the Pacific Rim National Park in Canada where it was found that community

capitals was useful in evaluating and building capacity to foster tourism development. From the aforementioned previous studies, there is a knowledge gap concerning the application of CCF in framing tourism impacts to predict residents' quality of life in GCs locations, where existence of tourism may jeopardize residents living conditions. The present study is set to fill the gap. The knowledge sought by this study posits a unique understanding because analysis of tourism impacts is conducted through the lenses of community capitals to predict residents' QOL in the context of GCs where tourism development is subjected to residents' pragmatic decision on communal resource utilization as residents endure costs in land use in terms of restricted grazing and cultivation in order to sustain tourism. In other words, contrary to aforementioned studies, tourism conduct in GCs is at the expense of residents' limited use of communal resources, implying that, residents put their livelihood at risk by allowing the utilization of their prime natural resource (i.e. communal land) for tourism than for agro-pastoralism. Therefore, it is of great concern to find out whether residents consider tourism crucial to produce impacts that significantly affect stock of community capitals, their livelihood and QOL, through the lenses of community capitals. The CCF can be used together with other models or theories that are commonly applied in social science studies (Pitzer and Streeter, 2015). One of the theories is the Social Exchange.

5.2.2 Social Exchange Theory

SET is considered as "a general sociological theory concerned with understanding the exchange of resources between individuals and groups in an interaction situation" (Ap, 1992 p. 668). In tourism, researchers employ SET to describe "an exchange relationship between local communities and the tourism industry in an attempt to understand how

such relationships shape residents' reactions to tourism development", (Nunkoo and So, 2015 p.1).

Table 5.1: Community capital framework

	Seven Community Capitals
Natural Capital	Elements of nature present in a community including land and water resources, weather, and biodiversity
Cultural Capital	Values and perspectives of community members that play a major role in self-efficacy in affecting community change
Human Capital	Education, skills, health, and self-esteem of community members
Social Capital	Trust, collaboration, and shared vision among community members
Political Capital	Ability of groups or communities to influence policy and ensure that policies are implemented accordingly
Financial Capital	Monetary resources
Built Capital	Facilities that contribute to infrastructural capacity of communities

Flora and Flora (2013)

Relying less on economic cost-benefit values, SET posits that residents' attitudes toward, and support for tourism in their community is depending on their evaluation of the actual and perceived outcomes that tourism has in their community (Andereck and Nyaupane, 2011). This theory postulates that residents evaluate an exchange with regard to perceived costs and benefits earned at individual and community levels as a result of that exchange. The SET proposition contends that "if the individual perceives benefits from an exchange, he or she is likely to evaluate it positively; however, if he or she perceives costs, he or she is likely to evaluate it negatively" (Woo *et al.*, 2018 p.6).

5.2.3 Framing Quality of life in Bottom-up spillover Theory

There are many viewpoints conceptualizing the Quality of life (QOL). This study adopts Andereck and Nyaupane (2011) definition of the concept: "one's satisfaction with life and feelings of contentment or fulfillment with one's experience in the world" (p. 248). In tourism, QOL is commonly positioned at the top of satisfaction ladder as a results of spillover effect emanating from several life domains' satisfaction including leisure life, spiritual, recreation, safety, work, love and the like (Woo *et al.*, 2015). The QOL can be

evaluated at the individual, household, community, regional and national level (Sirgy, 2001). Evaluation approaches can be objective (i.e. income, physical health, standard of living) and subjective (i.e. perceived individual's well-being, satisfaction or dissatisfaction, or being happy or unhappy with life (Eslami *et al.*, 2019; Woo *et al.*, 2015). While subjective approach relies on individual perceptions which are criticized on inadequate consensus as perceptions varies from one individual to another, the objective approach, on another hand, disregard perceptions and employs standard measures which allows comparison of economic indicators between regions. The strong criticism of objective approach is on the fact that it does not capture personal evaluations of their quality of life, thus, causing a serious concern in generalization (Uysal *et al.*, 2015; Yang, 2016). For example, the regional economic growth can be associated with the increase in number of tourists along with their increased spending pattern, but may not translate to positive QOL since residents can be irritated with the presence of increased number of tourists coupled with traffic congestion (Uysal *et al.*, 2015). This study uses subjective approach as it is set to evaluate residents' perceived QOL through the interface between community resources, tourism impacts, level of satisfaction with impacts and if they are happy with further tourism development. In the pursuit to minimize limitations of each approach, the objective elements such as household livelihood capital index, trend in annual tourism net-revenue and expenditure are included in the present study to complement residents' subjective viewpoints towards predicting the overall QOL.

5.3 Empirical Studies

Perceived Tourism Benefits and Derived Satisfaction

Several studies out of Africa and particularly Tanzania have shown the link between residents' satisfaction and perceived tourism benefits. Study by Lin *et al.* (2017) in China was conducted with the aim to verify the effects of residents' life satisfaction and their perceived benefits and costs of tourism development on their value co-creation with tourists. The results showed that residents' perceived economic and social-cultural benefits of tourism development have positive effects on both value co-creation (i.e. tourism experience from resident-tourist social interactions) and life satisfaction, while perceived costs have negative effects. The economic benefits were measured with variables such as: employment opportunity, improved infrastructure, increased investment, and revenues for local governments while variables such as cultural activities and preservation of the local culture were used to measure perceived sociocultural benefits. Perceived costs of tourism impacts were evaluated by four items: tourism impacts on crowding, traffic congestion, noise and environmental pollution.

Study by Nunkoo and So (2015) conducted in Niagara region, Canada, found residents' power (i.e. being involved in decision concerning tourism) and their trust in government (i.e. trust in local government to look after the interests of the community) significantly predicted their life satisfaction (favorable feeling about life) and their perceptions of positive impacts (in terms of employment opportunities and more investments in public development).

In the study by Woo *et al.* (2018) conducted in four tourism destinations in the United States of America, the perceived economic benefit-variables used by Lin *et al.* (2017) were set to reflect '*perceptions of tourism impacts on material life*' construct. The

sociocultural variables and the value co-creation were confined to the construct '*perceptions of tourism impacts on non-material life*'. In that study, authors established the causal link between these two constructs and other two constructs focusing on satisfaction. It was found that perceptions of tourism impacts in material and non-material life domains on satisfaction with material and non-material life was more positive for residents affiliated to tourism (i.e. employed in tourism organizations) than those who are not affiliated. Similarly, consistent with Woo *et al.* (2015) material and non-material life domains were adopted by Eslami *et al.* (2019) and used in Langkawi Island, in northwest Malaysia. It was found that perceived sociocultural impacts of tourism (i.e. cultural exchange between residents and tourists) had a significant relationship with non-material life. Likewise, perceived economic impacts of tourism (i.e. local enterprise growth and revenue to local government) influenced both material and non-material life domains. Furthermore, variation in the value of perceived material and non-material life domains influences variation in the satisfaction of perceived material and non-material life (Woo *et al.*, 2015).

The categorization of perceived tourism benefits in terms of material and non-material life domains used by previous studies are resembling to material and non-material resources classification of capitals used in CCF. Therefore, basing on this premise and findings from aforementioned studies, this study formulates the two hypotheses as:

H1: Residents' perception about tourism material resources directly and positively affects satisfaction with material resources.

H2: Residents' perception about tourism non-material resources directly and positively influencing satisfaction with non-material resources.

5.4 Satisfaction with Tourism Benefits towards Perceived Quality of Life

Being one among the concepts that define QOL, the term satisfaction with life and QOL have been used interchangeably, although, they entail different level of magnitude. Matarrita-Cascante (2010), posits that Quality of life reflects a broader form in the totality of human life, whereas satisfaction emanating from "evaluative judgment of achievements and aspirations" (Theodori, 2000 p. 44). Basing on this premise, it is plausible to establish a causal link between satisfaction and QOL, such that, satisfaction with living conditions predicts overall perceived QOL. A review of tourism studies indicates that a tourism impact affects residents' satisfaction with perceived material and non-material and in turn, leading to perceived overall QOL. This claim is evidenced from study conducted by Woo *et al.* (2015) across five tourism destinations in the United States of America (USA). Similarly, the study by Eslami *et al.* (2019) modeled the satisfaction with material and non-material life as predictors of perceived overall QOL and found that there is a significant positive relationship. In line with bottom-up spillover theory, this study posits that the satisfaction with tourism resources affects overall QOL. Therefore, this study developed two set of hypotheses:

H3: Satisfaction with tourism material resources positively predicts perceived overall QOL.

H4: Satisfaction with tourism non-material resources positively predicts perceived overall QOL.

5.5 Perceived QOL towards Support for Further Tourism Development

Woo *et al.* (2015) contend that tourism impact studies have considered QOL as an outcome/dependent variable, though, overall QOL can also influence residents' attitude concerning further tourism development. Conducting their studies in Iran, Spain and the USA Olya and Gavilyan (2016), Campón-Cerro *et al.* (2017) and Woo *et al.* (2015) respectively, drew conclusion that support for tourism depends on residents' perceived QOL in any tourism destination. For instance, if tourism activities are perceived to worsen the quality of life in the community, the resident's attitude towards tourism become negative and reluctant to support for further tourism development in their community. On contrary, residents tend to support tourism activities that enhance their QOL. Therefore, this study establishes the followings hypothesis:

H5: There is a significant positive relationship between residents' overall quality of life and support for tourism development.

5.6 Covariate Variables

In impact evaluation, control for confounding variable is important so that the outcome (dependent variable) is precisely predicted by the concerned independent variables (Becker *et al.*, 2016). Therefore, covariates are included in statistical model for the multivariate analysis to account or control the variance they influence in the depending variable like QOL. In this study, covariates were used to statistically adjust groups to determine whether groups are equivalent with respect to structural relationship between constructs. The groups used in this study include households involved directly in tourism versus those not directly involved. The other group constitutes households with adequate

possession of livelihood capital as “wealthier” group, versus those with inadequate capitals.

The justification of including these groups emanates from findings in previous studies that indicates tourism benefits is skewed to individuals with potential to offer tourism services and the wealthier individuals (Afenyo and Amuquandoh, 2014; Ashley, 2000; Hoole, 2009). This implies residents’ perceived tourism impacts on QOL may vary depending on differences in group characteristics. Ashley (2000) contends that residents support for tourism is more likely to wealthier households who are likely to start a tourism business enterprise like curio shop or be employed in tourism enterprises. On the other hand, Ashley and LaFranchi (1997) posits that large-herd owners (i.e. wealthier) within the pastoral community may not support for tourism in a context like GCs where tourism is concerned with setting aside a large exclusive land for wildlife and tourists’ utilization at the expense of limited land for grazing. Basing on these premises, it was deemed necessary to include these groups as covariates as shown in Figure 5.1. This Figure. presents the proposed research model and depicts the hypothesized relationships between the constructs. In addition to the endogenous constructs, resident’s involvement in tourism and wealth status (i.e. possessing adequate livelihood capital) are used as covariate/control variables to determine if these variables impact the path relationships in the model.

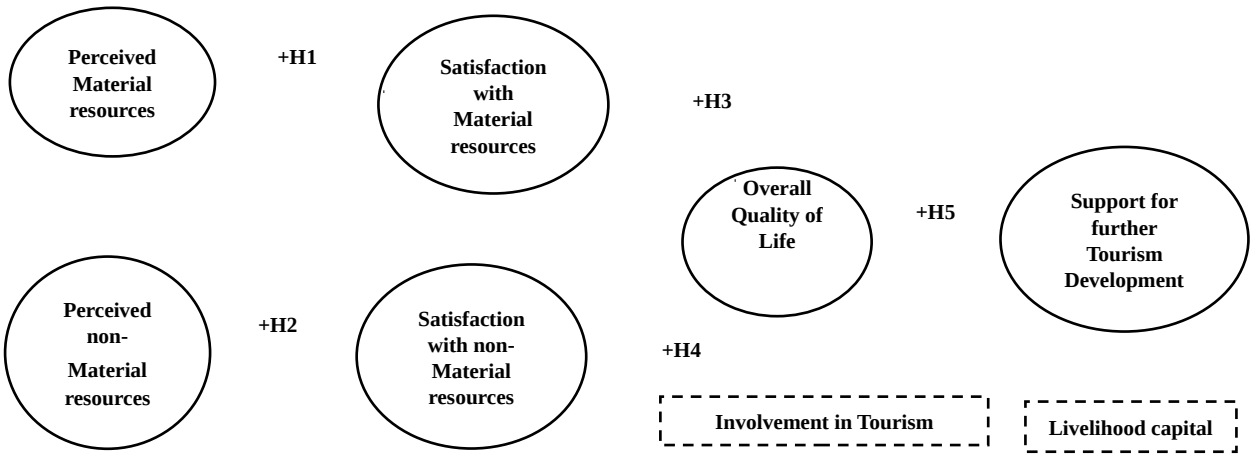

Figure 5.1: Theoretical model and hypotheses

5.7 Materials and Methods

Study Sites

This study was conducted in nine villages located in three GCs: Loliondo, lake Natron and Burunge. These GCs are part and parcel of world famous natural heritage sites involving PA ecosystems found in northern Tanzania, namely, Serengeti National Park, regarded by International Union for Conservation of Nature (IUCN) as category II and Ngorongoro Conservation Area (category V) with their respective Loliondo and lake Natron game controlled areas (GCAs) (category VI of IUCN, Dudley, 2008) and Tarangire-Manyara national parks (category II of IUCN) with its respective Burunge Wildlife Management Area (WMA). Loliondo and lake Natron belong to Ngorongoro district of Arusha region while Burunge is part of Babati district of Manyara region. The involvement of multiple study areas was necessary so as to broaden an understanding of residents' perceived community based tourism capitals, benefits, satisfaction, QOL, and whether they support for further tourism development.

Selected GCs have become tourism destinations offering walking safaris, game viewing, cultural, trophy hunting, hiking and camping since early 1990s (Mwongoso *et al.*, 2021; Nelson, 2004). The studied GCs have experienced three stages of the development of tourism destinations prescribed by Butler (1980). The relevant stages include, exploration, involvement and present, at development stage (Mwongoso *et al.,* 2021). These destinations were visited by very few (not more than 200) allocentric visitors in early 1990s, at exploration stage, due to accessibility challenges and inadequate awareness of the pleasant Maasai and Mbugwe culture coupled with presence of pristine wildlife resources. For instance, seasonal wildlife migration (i.e. natural movement of wildlife for breeding and feeding) between PAs and selected GCs at one hand, and on the other hand, experiencing local residents' life styles, traditional dances and cultural handcrafts are critical nature-based tourism attractions in these GCs. Overtime, these GCs moved from Involvement to Development stage, whereby, increased number of Midcentric and near Psychocentric visitors in late 1990s and 2000s was associated with positive marketing efforts, improvement of air-transport services and the increase in quality and quantity of investment in tourism facilities like lodges and campsites (Mwongoso *et al.,* 2021). For example, number of luxury lodges increased from about 4 in year 2000 to almost 10 in year 2018 while number of tourists increased from 939, 668 and 399 in year 2000 to 4,335, 5,805 and 27,693 in year 2018 for Loliondo, Lake Natron and Burunge respectively (Mwongoso *et al.,* 2021). Along these aspects of development of tourism destination, the livelihoods of local residents may have been impacted positively or negatively. Thus, the direction and magnitude of the impacts may affect the level of residents' satisfaction on QOL and support for further tourism development in their GCs.

5.8 Research Design

This study attempted to predict residents QOL through the lenses of tourism based community capitals by synthesizing subjective perceived values of community capitals at one hand, and objective impact indicators, on the other hand, In order to achieve this research objective, the study was designed to combine two approaches. Firstly, the study used livelihood capital indicators to construct index that can be used to predict QOL from objectivity evaluation. Secondly, the study adopted procedures required in evaluating tourism impacts in GCs as recommended by Simpson (2007) integrated approach. The integrated approach is relevant where tourism impacts are underpinned by Sustainable Livelihood Approach (SLA) consistent with CCF.

5.9 Livelihood Capital Indicators and Capital Index

The livelihood capital index (LCI) is commonly used to evaluate the extent to which a household has accessed five livelihood capital assets (i.e. human, social, physical, natural and financial), basing on the premise that, a household with more livelihood capital assets have improved wellbeing and can address socio-economic and environmental challenges such as illness, unemployment and drought (DFID, 1999).

In several literature (Paudel *et al.*, 2017; Wu *et al*., 2017; Su *et al.*, 2019; Wang *et al*., 2019; Zhang *et al.,* 2020) about 15-19 indicators are used to reflect five components of livelihood capitals. Therefore, each component normally comprised at least three to four measurable indicators (Liu *et al.,* 2021). The indicators often used include; Labour available to the household, its health, education and skills, reflecting on Human capital,

under the proposition that household with less educated and sick members is more vulnerable to socio-economic challenges. The physical capital contains indicators such as: livestock and assets (e.g. buildings, equipment and consumer durables) under proposition that a household with more productive physical stock and decent dwelling is less vulnerable to living condition challenges. The natural capital is measured on land access and utilization, water and wildlife resources, whereby Financial capital is measured by stocks of money to which the household has access (e.g. savings, credit, salaries, remittances and receipts from sales) and Social capital is measured by access to information, social support, networks and connections to formal and informal groups. The general prepositions for these indicators entails that wealthier households are less vulnerable to multiple socio-economic and environmental challenges as they utilize more land for productive purposes, access to social support, access to money, loans and savings.

This study was guided with 15 indicators that were used to measure livelihood capital index. Procedures in obtaining these indicators started by intensive review of relevant literature, where 19 indicators were adopted and incorporated in the questionnaire, followed by pre-testing. During the survey pre-testing, consultation was made with 24 key informants (village council members) within five sub-villages with tourism experience, but not constituting studied villages. From series of consultations, eventually, 15 indicators in Table 5.2, were observed to be appropriate to measure livelihood capitals, and were included in the final version of household questionnaire that sought to collect data on household access to and utilizing capitals for the year 2008 and 2018. This information within the specified time frame is adequate for impact evaluation because

change in capitals accessed by household is being tracked in a decade and considered to affect QOL.

The LCI is basing on relative weights that are useful to differentiate livelihood capital components. The Entropy method is used to derive weights to indicators (Liu et al, 2021; Zhang *et al.,* 2020). This mathematical method offset bias and elements of subjectivity that exists in indicators of livelihood capital assets because it extracts the objective information of statistics to present the value effect of indicator information (Ding *et al.,* 2018; Zhang *et al.,* 2020).

In this study, the entropy weight was adopted following series of steps used by Zhang *et al.* (2020). First, capital-variables are standardized using maximizing deviation method to 15 measurement indicators in year 2008 and 2018 to the sample households. The standardized formula; $z_{ij=}(x_{ij} - \min(x_{ij})) / \max(x_{ij}) - \min(x_{ij})$, whereby: z_{ij} refers to the standardized value, and x_{ij} refers to particular measurement indicators values of livelihood capital. Then, calculates the proportion (p_{ij}) of indicator value of research unit i in indicator j with formula $p_{ij} = z_{ij/} / \sum_{i=1}^{m} z_{ij}$. Then, it calculates the entropy (e_j) of indicator j with formula $e_j = -k \sum_{i=1}^{m} p_{ij} \ln p_{ij,} k = 1/\ln m$. Later, it counts the coefficient of variation (g_j) of indicator j with formula $g_j = 1 - e_j$. Last, it calculates the weight (w_j) of number

j indicator with formula $w_j = g_j / \sum_{j=1}^{n} g_j$. (In the abovementioned formulas, $i = 1,2,...,m$; and $j = 1,2,...n$)

Based on the weight and standardized value of measurement indicators of livelihood capitals in 2008 and 2018, this study calculates the five values of livelihood capitals and the value of the total Livelihood Capital or Livelihood Capital Index(LCI) with the formula LCI= $\sum_{i=1}^{5} \sum_{j}^{n} w_{ij} z_{ij}$; where w_{ij} refers to the weight of measurement indicator j in livelihood capital i; z_{ij} refers to the standardized value of measurement indicator j in livelihood capital i. The LCI values are between 0 and 1, where a lower LCI value indicates a lower livelihood capital level. The results of indicator weights are presented in Table 5.2.

Table 5.2: indicators of livelihood capital indices

Indicator/capital	Measurement	Weights	
Human		**2008**	**2018**
Labour force	Number of active household members	0.101	0.119
Level of education	1=informal:2=primary;3=secondary;4=high school;5=College/University	0.072	0.073
Health condition	Any household member often in need of health-care:(1=yes: 2=no)	0.027	0.008
Social capital			
Association-membership	Any household member affiliated to social organization: (1=yes:0=no)	0.024	0.028
Relative and friends support	Number of relative/friends support when needed: (0=no; one to 2=1;more than 2 supporters=2)	0.176	0.172
Physical capital			
Own motorbike	Owned motorbike: (1=yes:0=no)	0.009	0.010
Own plough	Owned: plough (1=yes:0=no)	0.0004	0.0004
Own radio	Owned: radio (1=yes:0=no)	0.008	0.008
Number of livestock	Total tropical livestock units (TLU); (LU= 0.1=goat/sheep;0.7 goats/sheep=1 cattle)	0.158	0.156
House structure	Materials used to construct house: (1=earth floor, mud walls, grass-roof;2=concrete floor, brick-walls, metal sheet-roof;3= concrete floor, block-walls, metal sheet-roof; 4=tiled floor, block walls, galvanized sheet)	0.025	0.026
Natural capital			
Grassland for grazing	Access adequate grassland for grazing: (1=yes:0=no)	0.174	0.156
Cultivated land	Land cultivated in acres: (0=not cultivate;1=less than 2 acres;2=2-4'3=5-10 acres;4=more than 10 acres).	0.026	0.044
Financial capital			
Salary job	Any household member with salary job: (1=yes:0=no)	0.014	0.018
Access loan	Any household member access loan: (1=yes:0=no)	0.184	0.015
Cash income	Estimated per capita annual cash earnings from different sources like enterprise profit, livestock and crop sales, off-farm and non-farm income	0*	0.167

*Not used for computing weight and index because of missing or incomplete information as respondents could not be able to recall the transaction on cash values.

5.10 Integrated Approach for Evaluating Tourism Impacts in GCs

Sampling and data collection procedures were consistent with the Simpson (2007) integrated approach which requires a multi-method for data collection (i.e. identify and interview key informants, conducting participatory process through focus group discussions, and household survey) followed by synthesis of qualitative and quantitative data analysis on livelihood impacts on residents' QOL.

5.10.1 Selection of study villages, participatory wealth ranking and household sample frames

Since not all GCs contain villages with even distribution of tourism attractions, nine villages were purposely selected from the total of 29, 17 and 28 villages constituting district administrative divisions of Loliondo, Sale (Ngorongoro district) and Mbugwe (Babati district), respectively. Village selection based on compulsory criteria that a village is hosting a tourism investor(s) and has been active beneficiary of tourism benefits for the past 10 years (2008/09 -2018/19). The selected range of years was necessary for the purpose of adequate time for impact evaluation and the fact that accurate official data involving tourism revenue and spending pattern could not be available before year 2008. The selected villages were: Olasiti, Kakoi, Sangaiwe, Vilima vitatu and Mwada from Burunge; Ololosokwan, Sukenya and Arash from Loliondo and one village, Engaresero from lake Natron. The agro-pastoral and firmed cultural-bond Maasai natives dominates Loliondo and Lake Natron by over 95% and about 28% in Burunge where they share with 60% of agro-pastoral Mbugwe natives as well as minority ethnic groups of Iraque, Warangi and hunter-gather group of Barbaig (Babati District Council, 2015; Ngorongoro District Council, 2016).

Following selection of study villages, population data and household heads' registries were used to select required households. The study used key informants who were identified and purposely selected basing on characteristics that, they are typically old (e.g. above 55 years), native, experienced with neighborhood and a member of village council. The key informants updated village registries from official household statistics at national and district levels for Tanzania population census conducted in year 2002 and 2012 (Tanzania National Bureau of Statistics, 2013: 2016: Ngorongoro District Council, 2019: Babati District Council, 2019). The key informants constructed sampling frame containing household heads who had to meet criteria that they are not immigrants but residents at least for past ten years (i.e. 2008/9 to year 2018/19) and had been household heads since year 2008/9. In this study respondents qualified to be the head of household regardless of their sex as long as he/she is the key decision maker concerning access to and utilization of household resources (Zakaria *et al.*, 2015). The other criteria required household heads to possess livelihood assets that are not affiliated to individual aid from external donor-driven organizations like Tanzania Social Action Fund (TASAF) which is involved in cash transfer programs to poorest and vulnerable households. These criteria were important in order to ensure that tourism livelihood impacts are evaluated using the eligible people while constraining impacts emanating through help from outside the communal village.

Furthermore, it was considered that tourism impacts on residents' livelihoods and QOL in terms of access to resources is usually unevenly distributed (Afenyo and Amuquandoh, 2014; Hoole, 2009). This implies portions of population would have different socio-economic status (e.g. wealth) following unequal access to tourism benefits. Therefore,

each household' head in the constructed sample frames was assigned by key informants to the respective wealth strata (i.e. very poor, coded 1, poor=2, normal=3 and rich=4) for the year 2008/9 and 2018/19 so as to determine tourism impacts on households' wealth trajectories (i.e. change in livelihood assets over time). The percentage distribution of households' wealth status for these years were also determined. Initially, the wealth ranking was established using participatory method whereby, Focus Group Discussion (FGDs) were conducted to conceptualize the core livelihood resources that represent wealth status of individuals in each selected village, consistent to Simpson (2007) integrated approach. The FGDs lasting for about two hours comprised 8-13 local residents, typically heads of households. A participatory wealth ranking (PWR) lets community members rank each other according to their own perceptions of well-being, thus more effective than conventional wealth ranking methods that focuses on standardized income or consumption pattern of self-reported household heads (Van Campenhout, 2006).

While there were slight differences on type and number of criteria used to define wealth reflecting living conditions of year 2008 and 2018 across FGDs, there was greater divergent of opinions on number of wealth categories for year 2008 and 2018 across groups and villages. For instance, some FGDs preferred three categories of wealth: poor, normal and rich for year 2008 and added a "very poor" category for year 2018, while in some groups, preference was on four categories: very poor, poor, normal and rich for year 2008 and added a "very rich" category for the year 2018. Therefore, a consensus had to be reached through series of debate and discussions. Eventually, discussants across villages and destinations agreed that four categories of wealth (i.e. very poor, poor, normal and

rich) had to be used in year 2008 and 2018, meanwhile, allowing change in quality and magnitude of criteria that defines these categories in specific years. These four categories were generally accepted because they appeared to be simple to comprehend compared to perceived complex of any number beyond four wealth categories. Similarly, consensus was reached regarding four livelihood resources representing particular wealth category in specific years. These include: house structure, possession of number of cattle, size of land cultivated and certainty of food availability. For instance, discussants during FGD associated very poor households with zero possession of cows in year 2008 and maximum of four cows in year 2018; did not cultivate (2008) and cultivated up to half acre (2018); houses made of earth-floor, mud walls, thatch-roof (2008) and houses made of earth-floor, mud walls, iron-sheet roof (2018) and afford a single meal (2008), afford two meals per day (2018). Then, determination of household heads' sample size and data collection followed.

5.10.2 Household heads' sample size and data collection

Establishment of household sample size preceded household survey. The sample size for households was calculated using formulae 1 and 2. The first formula was employed following recommendations on small sample size corrected for a finite population as described by Daniel and Cross (2013):

$$n = \frac{Z^2 pqN}{e^2(N - 1) + Z^2 pq} \qquad (1)$$

Where: n= sample size; p= dichotomous probability (i.e. variation in the socio-economic characteristics of the population, such that, p = households with better QOL and q = poor QOL). The conservative value of 0.5 was used to allow for maximum variation. N = size of the population (i.e. the constructed sample frame of eligible heads of households), Z=

standardized normal variate= 1.96 for a 95% confidence level. The *e* entails precision level (i.e. margin of error) taken at 9% which is accepted in social studies (Kish, 1995). The aforementioned formula produced minimum required sample sizes of 111, 108 and 99 households for Loliondo, Burunge and lake Natron destination, respectively (Table 5.3). Then, sample sizes of households were made proportionate to number of households belonging to each selected village in regards to total eligible household population of each destination (Table 5.4).

Table 5.3: **Formula used to determine Household Heads' sample sizes per tourism destination**

Destination sample size
Sample size for Loliondo Destination $n = \frac{(1.96)^2 0.5*0.5*1634}{(0.09)^2(1634-1)+(1.96)^2*0.5*0.5} = 111$ Sample size for Burunge Destination $n = \frac{(1.96)^2 0.5*0.5*1177}{(0.09)^2(1177-1)+(1.96)^2*0.5*0.5} = 108$ Sample size for L.Natron Destination $n = \frac{(1.96)^2 0.5*0.5*588}{(0.09)^2(588-1)+(1.96)^2*0.5*0.5} = 99$

Since the accuracy of the survey is ensured by the reduction of sampling error through the increase of the sample size, then, it was deemed necessary to go beyond the minimum sample sizes, in that, not less than 40 households formed the sample size from each selected village. Thus, as shown in Table 5.4, an ideal sample size for survey became 164, 146 and 108 households for Loliondo, Burunge and lake Natron destination, respectively. Thus, making a total of 418 household heads who represented 7.1 average household members for Loliondo and lake Natron and 6.3 average household members

for Burunge. Table 5.4 presents the households sample frames and calculated sample sizes in selected villages constituting destinations.

Table 5.4: Sample sizes proportion to village constituting tourism destinations

Loliondo	**Beneficiary**					
Villages:	**All HH by 2018/19**	**Eligible HH**	**Population**	**n**	**n***	**n****
Ololosokwan	954	620	620/1634*111	42	59	58
Sukenya	556	423	423/1634*111	29	49	49
Arash	833	591	591/1634*111	40	56	55
Total	**2 343**	**1 634**		**111**	**164**	**162**
Burunge destination						
Villages:						
Olasiti	491	309	309/1177*108	28	35	32
Kakoi	314	242	242/1177*108	22	29	26
Sangaiwe	266	189	189/1177*108	17	24	24
Vilima vitatu	253	185	185/1177*108	17	27	26
Mwada	395	253	253/1177*108	23	31	30
Total	**1 719**	**1 177**		**108**	**146**	**138**
L.Natron destination						
Engaresero	805	588	588/588*99	**99**	**108**	**108**
Total	**805**	**588**				
Grand Total	**4 867**	**3 399**		**318**	**418**	**408**
N	**Minimum sample size required**					
n*	**Sample size used**					
n**	**Sample size used for analysis following removal of respondents due incompleteness of information and multivariate outliers**					
HH	**Household Heads**					

Subsequently, the wealth-stratified sampling technique was employed. The technique was necessary so that the inference about overall perceived QOL would be made from a sample that truly represents a heterogeneous population characteristic in terms of wealth. To comply with this sampling technique another proportionate sampling approach, using a random number table, was used. The approach enabled obtaining the respondents for the survey so that an ideal sample size constitute each wealth stratum of the respondents proportionate to the population size of the stratum, using the following formula:

$$\text{Respondents} = \left(\frac{n}{N} xVp\right) + \left(\frac{n}{N} xP\right) + \left(\frac{n}{N} xNo\right) + \left(\frac{n}{N} xR\right) \quad (2)$$

Where: n is the ideal sample size of households per village, N is the ideal total households in particular destination. The Vp is the number of households in a “very poor” wealth-stratum, P is the number of households in a “poor” stratum, No for

‘normal” households and *R* for “rich” households in the village sampling frame. Thereafter, questionnaires were administered through face to face interview with selected 418 household heads, thus guaranteed both high response rate and validity of responses as clarification of questions were made during interview.

Although household questionnaire was the dominant method used for data collection, other methods such as FGDs, field-site observations and secondary data relevant to tourism impacts were used to complement survey data consistent to Simpson (2007) integrated approach. For instance, the FGDs, apart from performing PWR, it was also used to capture the general overview of tourism impacts on communal residents’ access to livelihood capitals which may have a profound effect on overall QOL.

5.11 Measurement Instrument

The survey instrument contained two parts. The first part collected information on household heads and household’s socio-economic characteristics including gender, age, level of education, involvement in tourism and households’ possession of livelihood capitals for year 2008 and 2018. The second part comprised of questions measuring the six constructs of this study. The questions covered 24 items (i.e. four items per construct), which most of them were adapted from a comprehensive review of relevant literature as shown in Table 5.5.

Specifically, a five-point rating scale; “strongly disagree” =1 and “strongly agree” =5 were employed to four items that measured perceived material resources (PMR) and other four items for perceived non-material resources (PNMR). On contrary, a 5-point

rating scale of “very unsatisfied” =1 to “very satisfied” =5, used in eight items that measured the constructs satisfaction with material resource benefits (SMR) and satisfaction with non-materials resources (SNMR), corresponding to items, initially used for PMR and PNMR. Noteworthy, total of eight items for SMR and SNMR were newly constructed for the purpose of this study. Furthermore, five-point rating scale of “strongly disagree” =1 and “strongly agree” =5 were employed in four items for QOL and the same scale was used to other four items measuring support for further tourism development (SFTD). The items in the questionnaire were translated into Swahili, language easily understood by local residents. To ensure clarity, three months before the full session of data collection, the survey-instrument was pre-tested among 53 household heads in five sub-villages with tourism experience but not constituting the targeted villages.

Before data analysis, this study tested whether the variances in responses are produced by the instrument rather than the genuine predispositions of the respondents (i.e. common method bias). Harman’s one-factor test was conducted with an unrotated factor solution. The test indicated an explained variance of 27.6%, which is below the threshold of 50%, thus, the instrument for data collection did not cause significance variances in responses. Subsequently, a common latent factor (CLF) test was conducted and comparison made between the standardized regression weights of all items for models with and without CLF. The differences in these regression weights were found to be very small (<0.200) proving the nonexistence of common method bias (Gaskin, 2017).

However, 10 questionnaires were discarded due to severe non-responses (3 cases) and multivariate outliers (7 cases). As a result, 408 valid questionnaires were retained and

considered adequate sample (Table 5.4) for multivariate analysis featuring Confirmatory Factor Analysis (CFA) (Brown, 2015).

In the process of ensuring that conditions are met for multivariate analysis such as the Confirmatory Factor Analysis (CFA), four out of 24 items were removed due to low factor loadings (i.e. less than 0.5) and multicollinearity problem as the Variance Inflation Factor was greater than 10, which is not acceptable (Gaskin, 2017). Thus, 20 items were retained. Moreover, univariate and multivariate normality check for the model items was conducted (Kline, 2011). Each item among 20 items had skewness score of less than 2 and kurtosis less than 5, implying univariate normality (Byrne, 2016). The presence of multivariate non-normality with multivariate outliers were observed using the Mardia's test and Mahalanobis distance by the application of AMOSv 21 software. In order to achieve multivariate normality, seven cases with observed multivariate outliers were removed. Eventually, the Mardia's multivariate test value was 26, which is less than 30, thus, multivariate normality was achieved (Newson, 2005).

Figure 5.2 presents a chi-square distribution including cases with multivariate outliers (left side) and cases without multivariate outliers (right side) following removal of cases with multivariate outliers.

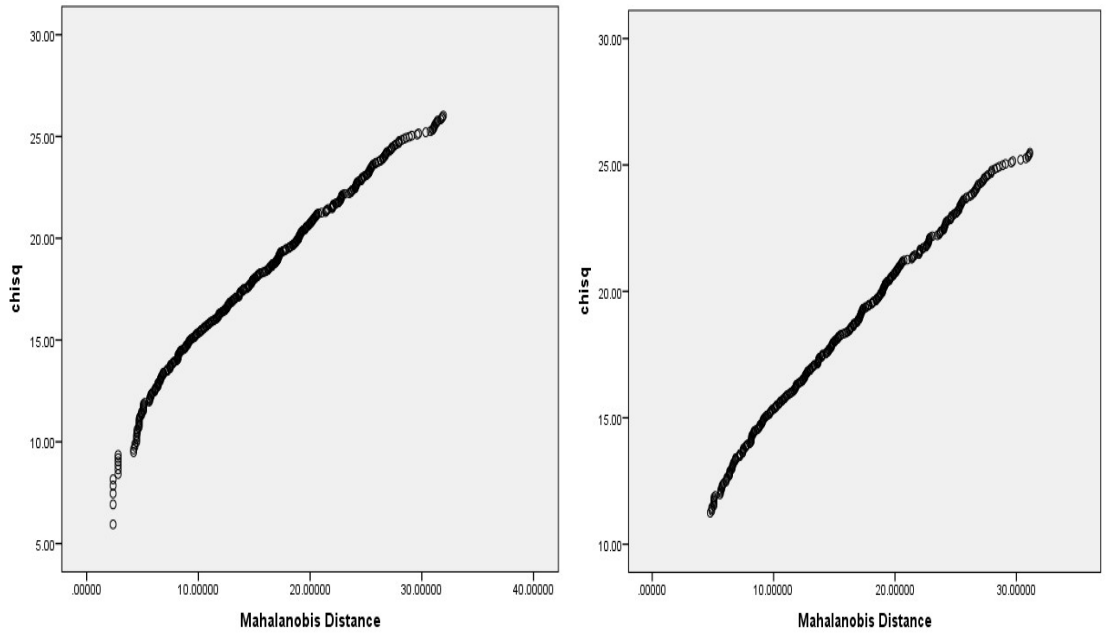

Figure 5.2: Scatter plot for chi-square distribution for multivariate outliers and multivariate normality

Table 5.5 contained the six constructs, respective 20 items, sources of items and important data like factor loadings and composite reliability (CR) and average variance extracted (AVE) values to justify the appropriateness of variables used in the further analysis.

Table 5.5: Description of Constructs and measurement variables/items used

Construct/items	Loading	AVE	Cronbach's α
Perceived material resources (**PMR**)	0.866 (CR)	0.683	0.866
PMR1 Natural capital: Tourism maintain natural environment and biodiversity (Eslami et al., 2019)	0.847		
Satisfaction with material resources(**SMR**)	0.926 (CR)	0.808	0.925
SMR1 Satisfied that Tourism maintain natural environment and biodiversity	0.852		
PMR2 Financial capital: Tourism ensures adequate access of revenue to village (Jeon et al., 2014)	0.801		
SMR2 Satisfied that Tourism ensures adequate access of revenue to village	0.951		
PMR3 Built capital: Tourism enable investment in physical infrastructures (Nunkoo and So, 2015)	0.831		
SMR3 Satisfied that Tourism enable investment in physical infrastructures	0.891		
Perceived non-material resources (**PNMR**)	0.931 (CR)	0.773	0.932
PNMR1 Human capital: Tourism facilitate development of formal education (Ko and Stewart, 2002)	0.901		
Satisfaction with non-material resources(**SNMR**)	0.924 (CR)	0.754	0.924
SNMR1 Satisfied that Tourism facilitate development of formal	0.902		

education			
PNMR2 Social capital: Tourism promotes cooperation among people (Park et al., 2016; Woo et al., 2015)	0.886		
SNMR2 Satisfied that Tourism promotes cooperation among people	0.861		
PNMR3 Cultural capital: Tourism sustain variety of local cultural activities (Eslami et al., 2019; Ko and Stewart, 2002)	0.890		
SNMR3 Satisfied that Tourism sustain variety of local cultural activities	0.839		
PNMR4 Political capital: Tourism empower residents to challenge accountability of political structures (Bennett et al., 2012)	0.840		
SNMR4 Satisfied that Tourism empower residents to challenge accountability of political structures	0.872		
Overall quality of life (**QOL**)	0.904 (CR)	0.761	0.898
QOL1 The conditions of my life are excellent (Woo et al., 2015)	0.918		
QOL2 I have the important things I want in life (Woo et al., 2015)	0.774		
QOL3 I am satisfied with my life as a whole (Woo et al., 2015)	0.918		
Support for further tourism development(**SFTD**)	0.881 (CR)	0.712	0.879
SFTD1 I want to see more visitors coming (Nunkoo and So, 2015)	0.883		
SFTD2 I believe well-being is improved with more tourism activities. (Woo et al., 2015)	0.854		
SFTD3 This village should remain a tourist destination (Nunkoo and So, 2015)	0.792		

5.12 Data Analysis

Since this study collected both qualitative and quantitative data, the analysis had to be done accordingly. Therefore, qualitative data obtained from the interview with key informants and FGDs were transcribed and analyzed thematically reflecting on CCF components and impacts in terms of benefits and costs affecting residents' QOL. Quantitative data on household livelihood capital-indicators were analyzed to produce LCI along with its sub-index (Human, Social, Physical, Natural and Financial) using Stata15 software. Employing livelihood capital index to determine asset change instead of using wealth ranking approach was considered logically because capital index is derived from the entropy weighting method. The method is free from subjectivity and prevent bias that may be inherent in wealth ranking scores or any other method that is not mathematically based (Kuang *et al.*, 2019; Su *et al*., 2018; Liu *et al.*, 2021).

Prior to the testing of the hypothesized model, descriptive analysis of respondents' socio-economic characteristics was conducted using the SPSS version 21. Furthermore, the internal consistency and uni-dimensionality were performed by examining Cronbach coefficient, loading values, composite reliability, convergent and discriminant validity. Later, a confirmatory factor analysis (CFA) was employed to test the goodness-of-fit of the measurement model. Specifically, this study made assessment of the goodness-of-fit indices to evaluate a model fit using χ^2, the normed fit index (NFI), the comparative fit index (CFI), and root mean square error of approximation (RMSEA). To test the five established hypotheses, the structural equation modeling (SEM) method was employed, using AMOS version 21software to obtain maximum likelihood estimates of the parameters based on the covariance matrix.

Multi group analysis was conducted following consideration that perceived QOL and support for tourism may vary due to the differences in characteristics of two groups. Thus, groups were taken as covariates. The group with household directly involved in tourism was coded=1 and, otherwise=0, while the group with adequate livelihood capital index above or equal median (LCI >= 0.5) or wealthier household was coded=1 and LCI< 0.5, not wealthy, was coded=0. Multi group analysis followed procedures recommended by Byrne (2010). First, a chi-square (χ^2) value is determined by computing hypothesized model fit of homogeneous sample-group. Second, constraints are added to various model parameters to be equal across groups (i.e. the group of households involved directly in tourism and the wealthier groups) then, the model is fitted, yielding a χ^2 value for the constrained model. This is followed by a χ^2difference test to see if the difference between the constrained-equal and unconstrained models is significant. If it is not significant, it

implies that the constrained-equal model is the same as the unconstrained model, leading to the conclusion that the model uniformly applies across groups.

5.13 Results

5.13.1 Descriptive statistics

Results from Table 5.6 indicate dominance of male headed households in all destinations with dominant age group of 29-38 years. The number of household heads who attained primary education was slightly above (i.e. about 39%) to those without formal education (37.7%). Lake Natron compared to other destinations, had relatively good number (41%) of individual household members worked in tourism based activities (e.g. tour guides, working at the lodges and selling cultural hand-crafts). The average livelihood capital index was found to increase from 0.2707(SD = 0.1404) in year 2008 to 0.4409 (SD =0.1449) in year 2018/19. Compared to other livelihood capitals, social capital had relatively higher score of 0.1265 (SD= 0.077) in year 2018, followed by human capital, 0.0869 (SD=0.0313).

Table 5.6: Respondents socio-economic characteristics

Household characteristics	**Loliondo n =162**		**L.Natron n =108**		**Burunge n =138**		**Overall n=408**	
Gender	Frq	%	Frq	%	Frq	%	Frq	%
Male	128	79.0	86	79.6	108	78.3	322	77.4
Female	34	21.0	22	20.4	30	21.7	86	20.7
Age								
29-38	56	34.6	59	54.6	54	39.1	169	40.6
39-48	72	44.4	26	24.1	61	44.2	159	38.2
49-58	23	14.2	20	18.5	20	14.5	63	15.1
59-68	9	5.6	3	2.8	3	2.2	15	3.6
69-78	2	1.2					2	.5
Education								
Informal	68	42.0	39	36.1	50	36.2	157	37.7
Primary	65	40.1	35	32.4	64	46.4	164	39.4
Secondary	22	13.6	27	25.0	17	12.3	66	15.9
College/ University	7	4.3	7	6.5	7	5.1	29	7.0
Involved in	39	22.4806	53	41.0852	37	28.6821	129	100

Tourism jobs								
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Livelihood capital index in *2008/09*	0.291	0.129	0.245	0.144	0.267	0.147	0.271	0.140
Human capital	0.072	0.040	0.065	0.036	0.048	0.030	0.062	0.037
Social capital	0.092	0.077	0.057	0.049	0.089	0.054	0.082	0.065
Physical capital	0.056	0.042	0.066	0.050	0.046	0.047	0.055	0.047
Natural capital	0.049	0.047	0.037	0.064	0.060	0.068	0.049	0.060
Financial capital	0.022	0.060	0.021	0.060	0.025	0.050	0.023	0.057
Livelihood capital index in *2018/19*	0.447	0.145	0.495	0.156	0.392	0.118	0.441	0.145
Human capital	0.091	0.032	0.098	0.025	0.074	0.031	0.087	0.031
Social capital	0.122	0.080	0.135	0.071	0.124	0.077	0.127	0.077
Physical capital	0.073	0.046	0.114	0.046	0.070	0.048	0.083	0.050
Natural capital	0.106	0.066	0.057	0.061	0.064	0.046	0.079	0.062
Financial capital	0.056	0.071	0.090	0.074	0.059	0.060	0.066	0.070

Frq=Frequency

5.13.2 Results of measurement model: Confirmatory Factor Analysis (CFA)

Measurement Model

The measurement model displayed a good model fit (χ^2 =270.128, d/f=155, *p*=0.000, RMSEA= 0.043, SRMR = .0354, NFI= 0.95 and CFI= 0.98). Similarly, internal consistency and uni-dimensionality were observed through measures such as Cronbach coefficient, values of factor loading and Composite reliability, Convergent, and Discriminant validity. For instance, internal consistency of the measurement model was confirmed with item-reliabilities ranging from 0.85 to 0.86. In addition, as shown in Table 5.6 and Table 5.7 convergent validity was achieved because the standardized factor loading of all 20 items and AVE for the six constructs were greater than 0.50, whereas, CR was not less than 0.7 (Hair *et al.*, 2010). Furthermore, Discriminant validity was also achieved since the square root of each constructs' AVE is higher than its significant correlation with another construct (Table 5.7). As important criteria for the measurement model was achieved, this study proceeded to the structural equation model analysis.

Table 5.7: Correlation between constructs and measurement properties (*N*=408)

Measurement properties and correlations between latent constructs							
	PNMR	SNMR	SFTD	PMR	QOL	SMR	AVE
PNMR	**0.879**						0.773
SNMR	0.227**	**0.868**					0.754
SFTD	0.177*	0.178*	**0.843**				0.712
PMR	0.107	0.300**	0.150*	**0.826**			0.683
QOL	0.161*	0.251**	0.297**	0.246**	**0.872**		0.761
SMR	0.085	0.249**	0.195**	0.363**	0.300**	**0.898**	0.808
Mean	3.412	3.632	3.816	3.761	3.431	3.571	
SD	0.532	0.588	0.541	0.530	0.560	0.573	
CR	0.931	0.924	0.881	0.866	0.904	0.926	

Note: The square root of the AVE appears along the diagonal in bold.
Model fit (χ^2 =270.128, d/f=155, p = 0.000, RMSEA= 0.043, NFI= 0.95, CFI= 0.98). ** p < 0.001; * p < 0.05

5.14 Results of Structural Model

5.14.1 Overall fit of the hypothesized structural model

The results from the estimation of the hypothesized model showed model fit indices of χ^2, (165) =332.32 at p=0.000. Moreover, the normalized Chi-squared statistic (NC=χ^2/df) was 2.01. Similarly, other model fit indices indicated RMSEA= 0.050, SRMR = .0773, NFI= 0.946, and CFI= 0.972. Thus, these values are within the threshold ranges for good model fit recommended by Kline (2011): $1 \leq NC \leq 3$; $0.05 < RMSEA \leq 0.08$; CFI ≥ 0.90 and NFI ≥ 0.90. The squared multiple correlations (SMC) determined the extent to which the model explains the variance of endogenous latent variables that is explained by exogenous (predictor) variables. The endogenous variable SMR had SMC= 0.13, SNMR with SMC= 0.05, QOL with SMC= 0.11 and SFTD with SMC= 0.09. The SMC for SMR was relatively more than others.

5.14.2 Parameter estimates analysis

The result of parameter estimates and significance tests is shown in Figure 5.2. The factor Perceived material resources (PMR), positively influence residents' satisfaction with material resources (SMR) significantly (β = 0.36, t= 6.72) and also, Perceived non-material resources (PNMR) influencing Satisfaction with non-material resources (SNMR) significantly (β = 0.23, t= 4.33). Thus hypotheses 1 and 2 were all supported. Both variables, Satisfaction with material resources (SMR) and Satisfaction with non-material resources (SNMR), positively predicted the quality of life (QOL) significantly, respectively (β = 0.26, t=5.03; β = 0.19, t=3.78). This result supported both hypotheses 3 and 4. Eventually, the overall quality of life (QOL) influenced Support for further tourism development (SFTD) significantly (β = 0.29, t=5.46). Therefore, Hypothesis 5 was also supported.

Results of multi group analysis in Table 8 indicates group invariances of the hypothesized model. Therefore, perceived relationship of satisfaction with material resources (SMR) and satisfaction with non-material resources (SNMR) on QOL is not significantly different between group of residents directly involved in tourism and those indirectly involved: χ^2 difference for parameter constrained was 2.686 at p= 0.101 and χ^2 difference for parameter constrained of 0.365 at p= 0.546, respectively. Furthermore, it was also found that there is group invariance in the relationship between QOL and support for further tourism development(SFTD) among group of residents with adequate livelihood capital (i.e. wealthier) and those with inadequate livelihood capital: χ^2 difference for parameter constrained was 0.276 at p= 0.600.

Table 5.8: Multiple group invariances

Model	DF	CMIN	P	NFI Delta-1	IFI Delta-2	RFI rho-1	TLI rho2
Measurement weights	14	15.38	0.35	0.002	0.003	-0.001	-.001
Structural weights	19	19.82	0.40	0.003	0.003	-0.001	-.001
Structural covariances	21	20.24	0.50	0.003	0.003	-0.002	-.002
Structural residuals	25	20.99	0.69	0.003	0.003	-0.003	-.003
Measurement residuals	45	160.75	0.00	0.025	0.027	0.015	.016
constrain_SMR-QOL	1	2.68	0.10	0.000	0.000	0.000	.000
constrain_SNMR-QOL	1	0.36	0.54	0.000	0.000	0.000	.000
constraint-QOL-SFTD	1	0.27	0.60	0.000	0.000	.000	.000

5.15 Discussion

This study investigated presence of community-tourism capitals, relationship across capitals invested for tourism and community development to examine whether they evoke residents' favourable or unfavourable perceptions on material and non-material tourism effects, extent of satisfaction towards perceived QOL and whether they support for further tourism development in three GCs of northern Tanzania. Historically, since 1990s the studied GCs have experienced three stages of the development of tourism destinations prescribed by Butler (1980). The relevant stages include, exploration, involvement and present, GCS are at development stage (Mwongoso *et al.*, 2021). The results of descriptive statistics showed a considerable increase of six percent (i.e from 0.2707 to 0.4409 livelihood capital index) in livelihood capitals accessed by residents between year 2008/9 and year 2018/19, thus, indicating reduction in poverty through increased livelihood capital index. Note worth, reduction in poverty reported in this study is consistent with the World Bank (2019) report indicating that poverty in Tanzanian has decreased from 34.4% in 2007 to 26.4% in 2018, eventually turning the country into a group of lower middle income countries. Results in this study can be attributed to tourism development and its impacts that may positively affect the overall QOL.

The results in Figure 5.3 shows that residents from three destinations: Loliondo, lake Natron and Burunge have positive perceptions of perceived material and non-material resource-benefits achieved as impacts of tourism development. In turn, the positive perceptions of materials and non-material resources, positively affects satisfaction with material and non-material resources (i.e. **H1** and **H2)**. On the other hand, the perceived QOL was significantly predicted by satisfaction with material resources (SMR) (i.e. **H3)** and satisfaction with non-material resources (SNMR) (i.e. **H4)**. Ultimately, positive perceptions with regard to support for further tourism development (SFTD) was predicted by perceived overall quality of life (QOL) (i.e. **H5**). The results are consistent to the findings from previous studies (Eslami *et al.*, 2019; Woo *et al.*, 2015; Woo *et al.*, 2018), These results can be explained using the CCF and SET, in the context of resources exchange between village and tourism investors, in and out flow of resources, social interaction and re-investment of resources.

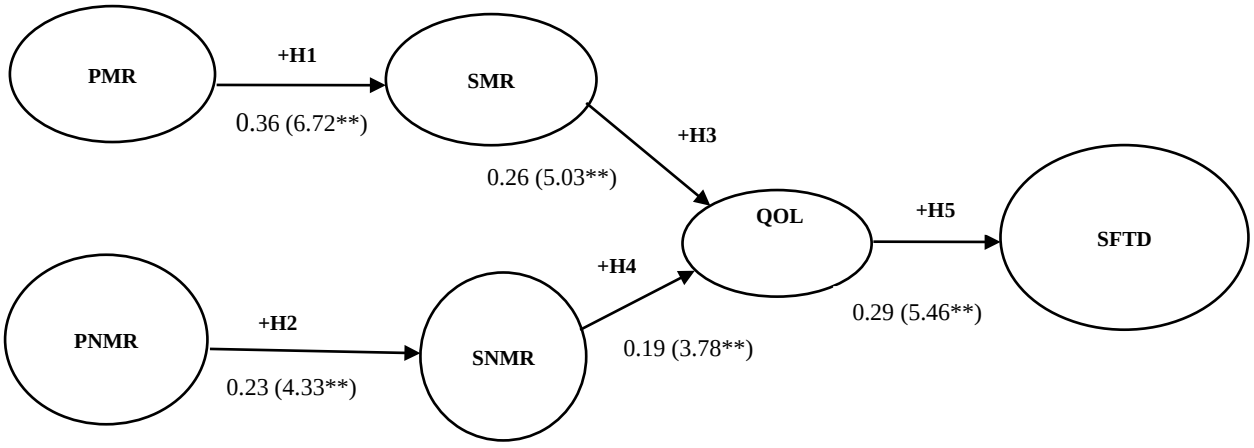

Figure 5.3: Parameter estimates for the research model

Model fit (χ^2 = 332.22, d/f =165, p = 0.000, CFI = 0.97; NFI = 0.94, RMSEA= 0.050, ** p < 0.001; * p < 0.05

Over the years, the residents in these three GCs have been involved in tourism through exchange in natural resources (e.g. land) uses to earn communal revenue. This form of involvement constitutes a contract between village and investors, where, the utilization of a portion of village lands for camping, lodging and game viewing, would benefit villages access to tourists bed-night fee and annual land fees as compensation for villagers' restriction to grazing, cultivation and settlement in the concessioned area. Terms of the contract is normally fixed to five years with option for renewal. Noteworthy, the consent to enter into this form of resources exchange with outsiders (investors) is built on the sense of strong determination (i.e. human capital) among community members. Similarly, social capital appeared to be vital. From the comments of some key informants during the FGDs, it was deduced that there is sense of shared vision among residents in the conservation of their lands to support nature-based tourism activities and residents' trust vested to their village governments that they can negotiate a fair-deal with investors to maximize their well-being. Moreover, the social encounter during the process of contract negotiation is nurtured on transparency (e.g. open dialogue in the series of village meetings) which ensures residents' confidence in holding the accountability of their representatives and local political leaders (e.g. village council members) as well as the power to reject or accept proposal for tourism investment and tourism financed communal projects. This entails decentralization of power in decision making, thus revitalizes political capital.

Apart from tourism revenue to communities, residents earn per capita tourism revenue through employment wages (e.g. working at the lodges and tour guide services), cultural dances and sale of hand-craft products to tourists. Access to tourism revenue at individual and community level provides capital flow to other types of material and non-material capitals where an effect accounts for both positive and negative consequences. This was evidenced from discussants during FGDs that tourism receipts to individuals influence purchase of livestock (e.g cows and goats), establish small enterprises and increased cultivation to ensure food availability at household level. While these initiatives on material capitals have an implication to increased household natural and physical livelihood capital and overall QOL, unfortunately, it influences incidents of cattle-theft, predation and crop-riding. Presence of these events ca be used to explain the position of physical capital index with a score 0.0828 in year 2018 which is behind human and social capital index scores as presented in Table 2.6.

Effects of material capitals at community level entails re-investment of tourism revenue to communal projects in terms of built capital such as: construction of schools, offices, health facilities, pit latrines, bridges and bore holes. Communal tourism revenue also affects non-material capitals at individual level because the revenue is re-invested in education sponsorship programs targeting children/youth from very poor families to cover education expenses from secondary to College/University. This has an impacts on human capital index increased from 0.0619 in 2008 to 0.0869 in year 2018.

Furthermore, tourism receipts have facilitated enterprise development through training. For example, in Sukenya village, Loliondo and in Vilima Vitatu village in Burunge, 17 and 24, respectively, groups of women entrepreneurs dealing with cultural handcrafts have been facilitated with training. These programs aim to enable access of skills and formal education, thus, positively affecting the human capital index. However, an access to tourism communal revenue entails a sacrifice as residents have to forego utilizing their communal lands (natural capital) to undertake livelihood activities like grazing and cultivation because the land is used for nature-based tourism activities and tourism investments. This kind of sacrifice is well explained by the slight change in natural capital index from 0.0598 in 2008 to 0.0623 in 2018. Although residents endure costs in terms of restricted grazing and cultivation to sustain tourism, their overall perceived QOL is not affecting residents basing on their distinctive socio-economic characteristics. This was proved by the results of multi group analysis where it was found that there is no significance difference between group of residents directly involved in tourism and those indirectly involved, about their perceived QOL predicted by tourism material and non-material impacts.

It was also found that, residents, equally support for further tourism development in their communities regardless of their differences in possession of livelihood capitals or wealth inequality. This result is contrary to the argument given by Ashley (2000) that residents support for tourism is more likely to wealthier individuals and residents who benefits more through directly involvement in tourism. Furthermore, results in this study is against proposition led by Ashley and LaFranchi (1997) that the large herd-owners are more likely not to support tourism whose conduct requires setting exclusive land for tourists'

utilization accompanied with restricted grazing and cultivation. There are two possible reasons that can explain deviation of results in this study from the prior prepositions by Ashley (2000). Firstly, the development of tourism destination in the studied GCs is still at the "development stage" of the life cycle (Mwongoso *et al.*, 2021). Thus, the destination has not yet experienced socio-economic and environmental carrying capacity problems as it is often the practice, beyond this stage. Therefore, residents have not yet formulated negative attitude towards tourism. Secondly, tourism benefits at community level can be observed more easly by residents compared to the tourism benefits at the individual level. This can be evidenced by spending pattern of tourism receipts over the year 2008/9 to 2018/19 on communal projects that benefits every resident, regardless of their status, especially on material benefits than non-material benefits as presented in Figure 5.4.

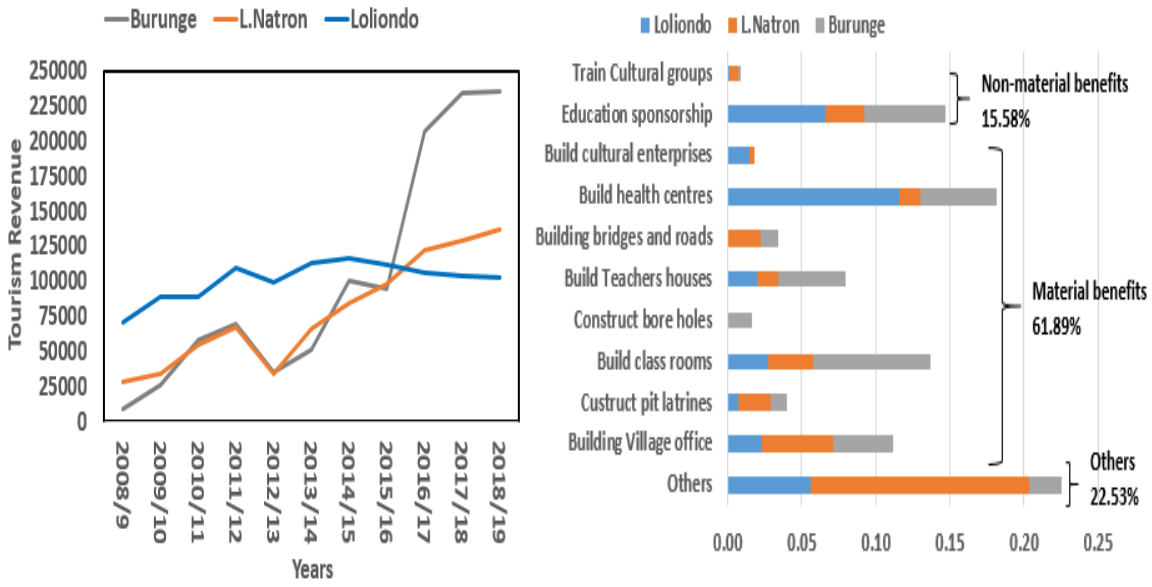

Figure 5.4: **Tourism Revenue (in US$) and spending pattern in gateway Communities**

As shown in Figure 5.3, non-material resources/benefits accounts relatively less in the share of expenditure of tourism receipts compared to material resources/benefits and other expenditure (e.g. administrative overhead expenses).

5.16 Conclusion

5.16.1 Theoretical contribution

This study has provided a thorough understanding about relationship involving residents' perception of tourism benefits, satisfaction, quality of life and support for tourism development using the lenses of CCF. The CCF was relevant in extending the traditional conceptualization of tripartite tourism impacts (i.e. economic, social and environment) to other aspects such as: political, cultural, human and built-capital, thus, provided a comprehensive insight about tourism impacts in predicting residents' QOL. Basing on CCF it was found that all seven capitals are effective and critical in shaping residents' positive perceptions on material and non-material tourism benefits. In turn, perceived benefits outweigh perceived costs (i.e. land-use restrictions) leading to satisfaction and eventually caused positive QOL, consistent to the proposition of bottom-up spillover theory. Basing on these premises, this study has contributed to the body of knowledge by adding CCF components in QOL studies while adapting the SET and bottom-up spillover theory.

5.16.2 Managerial implications, limitation and further researches

Understanding resident's opinions concerning QOL derived from tourism impacts is important for tourism destination planning. Therefore, tourism investors, destination managers and other stakeholders should strive to up-scaling the seven essential capitals,

underpinning CCF, because they co-exists in influencing growth of multiple capitals and shape a favorable perception in the minds of residents. For instance, the social capital index was found to be the leading capital experiencing greater change from 0.082 in year 2008 to 0.127 in year 2018/19 followed by financial capital index, 0.023 to 0.066. Therefore, tourism destination planning should maximize on effective re-investment of financial resources, encouraging further social cohesion and social networking as well as further involvement of residents in tourism value co-creation with tourists and investors. This study is not exception to limitation because data used to estimate perceived QOL and support for further tourism development can be suitable to the study sites and differ in another GCs following inherent nature of variances in individual perceptions. However, since this study combined subjective viewpoints with objective measurement using livelihood capital index to evaluate tourism impacts, then, the findings are reliable. It is recommended that future research to combine subjective and objective components in predicting QOL, using panel data to compute livelihood capital beyond two years.

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CHAPTER SIX

6.0 SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

This chapter focuses on the realization of the objectives of the study by providing the conclusion from the discussions of the previous chapters. Also, the chapter recommends some areas worth consideration in the future studies on development of tourism with its impacts. Section 6.1 provides a summary and conclusions of the major findings. Section 6.2 presents general recommendations of the study. Additionally, section 6.3 presents contribution of the study to the theories and models, and lastly section 6.4 offers the contribution of the study to the body of knowledge and suggestion for further studies.

6.1 Summary of Major Findings and Conclusions

6.1.1 Development of tourism destinations in gateway communities, Northern Tanzania

The purpose of the first paper was to identify development stages of the life-cycle that three gateway community-destinations: Burunge, Loliondo and Lake Natron have passed over the years up to the on-going stage in the end of year 2018 when data for this study was collected. The paper involved 78 key informants with vast knowledge about tourism development within gateway communities (GCs). It was found that, in 36 years (1982-2018), all three destinations have experienced exploration, involvement and are currently at the development stage of the model.

The paper drew conclusion that, development of tourism in GCs is a function of interface between regulations, infrastructure, conservation of resources (e.g. nature and cultural)

and effects of positive returns from tourism investments to residents' livelihood, tour operators and institutions overseeing both game-hunting and game-viewing tourism activities.

6.1.2 Tourists' perceptions and satisfaction on destination attributes

In the second paper, the Importance-performance Analysis (IPA) technique was employed to assess tourists' perceptions on destination attributes they consider important, and rating performance of the attributes in relation to their overall satisfaction. Total of 422 tourists were involved. The study found, tourists' attributes perception and satisfaction is a function of four factors namely, Amenities, Accessibility, Core attractions and Ancillary services. These factors were validated using confirmatory factor analysis. It was found that, attributes reflecting on "core attraction factor" (i.e. game viewing and cultural products) are the most important in framing perceptions and also performed well ("Keep Up the Good work" quadrant of IPA grid). Although, the overall satisfaction of tourists was high, some attributes reflecting on accessibility, amenities and ancillary services factors were perceived to be underperforming ("Concentrate here" quadrant), thus demanding immediate attention of destination managers to optimize tourists experience for the development of tourism destination.

This study paper concludes that, tourists' perception and satisfaction are shaped by the quality and quantity of attributes available in GC destinations, which are at the development stage of tourism area life cycle. The overall satisfaction of tourists is a function of higher performance of attributes which they consider to be important in influencing them to visit the destinations. This implies tourists' satisfaction is not

affected by the higher performance of the least important attributes. Moreover, a satisfied tourist is more likely to revisit, stay longer, and spend more, thus, enabling host village to improve livelihoods by funding community projects through tourism receipts.

6.1.3 Reducing vulnerability to multiple shocks through access to livelihood capital derived from tourism development

The third paper evaluated to what extent does tourism enable residents access to livelihood assets capable to address multiple shocks towards reduction of vulnerability. Specifically, the paper aimed to, (i) estimate change in livelihood capital asset accumulation within a period of ten years (2008/9-2018/19), (ii) identify types of shocks experienced by households, and (iii) assessing coping mechanism used to address shocks over the years. The impact evaluation involved 418 tourism beneficiaries and 432 non-beneficiary households, matched by propensity scores while treatment effects were estimated by Difference in Differences method. It was found that, tourism has significantly raised the livelihood capital asset among benefiting households than non-benefiting, thus, enabled them to reduce vulnerability to drought, livestock diseases, rise in food prices and illness, by effective shock-coping activities.

The paper concludes by admitting the effectiveness of tourism, in that, the reduction in vulnerability to multiple shocks is a function of incremental livelihood capital assets derived directly and in-directly from material and non-material tourism benefits. This is particular a case when access to and ownership of livelihood assets reflects on household wealth status.

6.1.4 Impacts of tourism development on residents quality of life

Paper Four was set to examine causal relationship involving influence of tourism impacts, satisfaction with impacts and quality of life towards residents' support for further tourism development. A structural model was empirically tested to a randomly selected sample of 408 residents from three GCs: Loliondo, lake Natron and Burrunge in northern Tanzania. It was found that, residents support for further tourism development is a function of favorable perceived quality of life, influenced by resident's satisfaction with both materials and non-materials tourism benefits within the context of community capitals.

The general conclusion of the manuscript is that the tourism development in GCs has not established serious negative/costs (i.e. residents' restrictions from cultivation, grazing and settlement on communal lands allocated for camping/lodging and conservation) that residents cannot bear and instead there are more benefits if further tourism development is encouraged.

6.1.5 Overall findings and conclusion

Generally, it can be concluded that, the development path of tourism destinations beyond "exploration" and 'involvement" stages of the life cycle have a profound effect on incremental change in accessibility of livelihood assets capable to reduce vulnerability to multiple shocks among tourism beneficiaries than their counterpart. Similarly, tourists' reaction (i.e. perspectives) on destinations' attributes importance and performance towards satisfaction is largely influenced by the presence of conserved natural and cultural attractions (e.g. wildlife resources and pristine culture). On the other hand, local

residents' reaction (i.e. perceptions) on quantity and quality of material impacts (e.g. tourism financial receipts, built-infrastructure and state of natural resources) and non-material impacts (e.g. cultural integrity, social cohesion and self-actualization) derived from tourism development, influences overall quality of life and extent of support for further tourism development.

6.2 Recommendations

Although the three GCs have experienced exploration, involvement and development stages of TALC model, some constraints threatening further destination development were observed. These include; accessibility challenge due to poor roads in Loliondo and lake Natron, inadequate capacity of local residents to own and manage lodges and disputes arising from multiple land-uses involving contested interest of game-hunting tourists, game-viewing tourists and local residents demanding area for grazing and cultivation to sustain their livelihoods. Therefore, it is recommended that: initiatives should be done to improve road conditions, possibly using Public Private Partnership (PPP) investment arrangements; build capacity (e.g. training and grant/loan) to local residents to co-own and manage tourism assets like camps and lodges; establishing effective land-use zones embed it to the proposed integrated sustainable tourism development plan.

In regard to tourists' perceptions and satisfaction on destination attributes, the IPA model employed in this study identified attributes that tourists consider relatively important, but, are underperforming, thus, requires immediate improvements. These attributes are featuring the "amenities factor": quality of food and accommodation, maintained lodge

facilities (for lake Natron); value for money spent on food and accommodation (Burunge and lake Natron) as well as the attribute namely, quality of roads to and within destination, reflecting on “accessibility factor” (for lake Natron). It is, therefore, recommended that destination managers should allocate more resources to recruit professional chef, improve interior décor, address unhygienic environment (i.e., ensure cleanliness of washrooms) and moderate the perceived unreasonable high prices for food and accommodation. These actions are expected to optimize tourists’ experience and increase duration of tourist staying beyond three days. Similarly, destination managers and District planning department should establish a Public Private Partnership (PPP) road construction projects to enable easier tourists’ accessibility to the destinations.

This study has provided findings showing efficacy of tourism in establishing impacts leading to reduction of vulnerability through improved livelihoods attributed from incremental change in access to livelihood assets at household level. However, financial and non-financial benefits from tourism has not completely guaranteed households from facing recurrent covariate shocks such as drought, livestock diseases and crop-riding as well as idiosyncratic shocks such as, illness, livestock predation and cattle-theft. Thus, tourism is not a panacea to all shocks facing residents.

Therefore, it is recommended tourism to be considered along with other key sectors like agro-pastoral, off-farm and non-farm business activities (not related to tourism) capable to address shocks and reduce vulnerabilities. With this regard, tourism stakeholders and other development practitioners should focus at maximizing residents’ access to and efficient utilization of financial, human and natural assets. For example, the village

councils may allocate a certain portion (e.g. 30%) of tourism receipts to establish micro-credit projects and insurance organizations. These initiatives would enable residents access loans to start small and medium enterprises, thus, diversifying livelihood options while insurance services offer the safety-net when unexpected risk events occur, such as illness, deaths, loss of property, crop failure, livestock diseases and food-shortage.

Furthermore, District game officer and PAs authorities like TAWA and TANAPA should increase outreach collaboration with village governments and local residents to minimize human-wildlife conflicts. For example, initiate forum to increase awareness about effective techniques of handling wild animals from riding crops or engaging in some crops like sesame which elephants do not eat. Similarly, there is a need to review the regulation concerning compensation in the events of crop riding and livestock predation. Moreover, development stakeholders should disseminate knowledge to local residents on efficient farming and grazing. This entails technical know-how in micro catchment rain-water harvesting and the production of higher yield-drought resistant crops while encouraging pastoralists adaptation of their livestock breeding and grazing practices confined to fixed boundaries within land zoned for general-use while maintaining the hunting-use zone and wildlife corridor-use zones.

Policy recommendations

Although this study was able to provide feedback on effectiveness of the national tourism policy especially on people livelihood enhancement, however, the policy does not well feature the potentials, constraints and prospects of tourism destination in GCs. Therefore, this study recommends the tourism policy to be reviewed to recognize and state tourism development strategies customized to GCs because tourism in these areas have a profound

direct role of diversifying livelihoods and reduce vulnerability to multiple shocks facing local residents.

6.3 Contribution of the Study to the Theories and Models

This study has validated the applications of Butler (1980) model in GCs where the model had not been empirically tested by previous researchers. This entail significant contribution concerning TALC model relevance in describing life stages of emerging gateway destinations in developing country.

This study has also made contributions by verifying the relevance and usefulness of the Importance Performance Analysis (IPA) model because there is scant of studies that have employed IPA model in Tanzania tourism destinations. So far, there is only one study conducted by Wade and Eagles (2003) in Serengeti and Kilimajaro National parks, while none has been done to the GCs.

This study found a four construct-model (Ancillary services, Amenities, Attractions and Accessibility) to be suitable in describing attractiveness of GC- destinations. This means, the two constructs namely, “Available packages” and “Activities” which are present in the parent model of the “6 As” proposed by Buhalis (2000), are not specified in this study. This observation can be considered a contribution of this study in specifying the accuracy and validity of the popular former model.

Moreover, this study advances the asset-based theory within the context of Sustainable Livelihood Approach (SLA) at household level, in GCs. In this study, the SLA

application was extended to the aspect of “reduced vulnerability” following observation that in previous tourism-impacts studies, this important aspect was given inadequate attention, thus, widening the SLA application-gap in the vulnerability analysis. This study narrows the gap by providing findings that refute unclear understanding whether tourism development over the years, have created positive impacts in reducing vulnerability such that, increased in livelihood assets (Social, Human, Physical, Natural and Financial) among tourism beneficiaries is higher than their counterpart.

Lastly, the study employed the Community Capital Framework (CCF) which is an extension of Sustainable Livelihood approach (SLF) and Social Exchange Theory (SET). The CCF and SET are used to understand the residents’ perceived benefits from exchange of several community capitals (e.g. land, culture, social ties), degree of satisfaction with tourism benefits received in relation to perceived quality of life that may affect support for further tourism development. The synergy of a theory and a framework in the same study can be considered as the significant contribution because it makes justification about complementary role of theories and models within the body of social science.

6.4 Contribution of the Study to the Body of Knowledge and Suggestions for Further Studies

This study has successful provided knowledge by answering the outstanding question: “How has tourism evolved in GCs over the years up to year 2018?”. However, since the study was conducted in three GC-destinations of northern Tanzania, the results of destination stages of development can be limited to the studied areas. Hence, it is recommended that future research to apply the TALC model in other SSA countries’ GCs for further validity.

The proponents of IPA model advocates that the model has relative stronger managerial implications compared to other service management models like Service Performance (SERVPERF) and Service Quality (SERVQUAL). This study recommends future research to apply the IPA model in other tourism destinations. Thus, it could be interesting to conduct a study, where IPA model is contested with other service management models. This study examined tourists' perceptions and satisfaction derived from destination attributes using homogeneous sample, further studies may consider stratified samples of tourists' perceptions and satisfaction basing on socio-demographic characteristics.

This study evaluated household livelihood based on asset-ownership as a proxy of household capability to withstand recurrent severe ecological, economic, health and social shocks. These multiple shocks are assumed to affect households' vulnerability to poverty. Livelihood capital index was employed to determine capital asset change covering year 2008/9 to 2018/19. The results showed 8% increase in household capital asset over time similar to the results of household consumption expenditure method that have indicated in Tanzania poverty has decreased by 8% points in 10 years, down from 34.4% in 2007 to 26.4% in 2018 (World Bank, 2019). Therefore, this study recommends future research to employ livelihood capital index method because it is free from subjectivity evaluation, and if constitute relevant livelihood indicators can produce results similar to other methods like consumption and expenditure.

This study justifies efficacy of CCF in extending the traditional conceptualization of tripartite tourism impacts (economic, social and environment) to other aspects such as, political, cultural, human and built-capital, thus, providing a comprehensive insight about tourism impacts in predicting residents' QOL.

Lastly, for further contribution to the body of knowledge on tourism impacts and quality of life, it is recommended that further studies to replicate the structural equation model used in this study to other GCs to extend the model validity and reliability.

APPENDICES

Introduction

My name is **Alpha Mwongoso**, a PhD candidate from Sokoine University of Agriculture (SUA), College of Forestry Wildlife and Tourism, Department of Tourism and Recreation. I am conducting academic research concerning ***Development of Tourism Destinations and its impacts on Residents' Livelihoods Towards Quality of Life in Gateway Communities of Northern Tanzania.*** Me and my team will be interviewing many households' heads and some groups in this village and nearby villages. Please be informed that other villages without tourism activities will be involved in this research so that their livelihoods conditions are also understood.

You are being invited to take part in this research because we believe, you are valuable, relevant and reliable source of information for this research. Therefore, it is very important that you answer all the questions, although, you have the right to withdraw at any moment The answers you give will be treated in total confidence. Information will only be used in aggregate and for academic purposes. The individual data gathered will not be revealed to anyone.

It is expected this study will be of benefit to individuals and communities in this area, Government and private sector involved in tourism. Results of this study will provide insight into gateway communities tourism development and livelihood matters where policy recommendations can be drawn, following publication of the results.

If you have any questions to this research, you may contact the researchers anytime and I will be happy to clarify them to you.

Alpha Mwongoso.

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Permission to proceed

Do you have any questions? If it is alright with you I would like to start.

Appendix 1: Key informants Interview

A. Check-list guide to Government agencies

Date of interview:

Information about interviewee

1. Agency name:
2. Position:
3. Responsibility:
4. Contact details (phone and email):

Information about tourism development in the study areas (Loliondo, Lake Natron and Burunge)

1. Could you talk about tourism development phases that Burunge experienced in general?
2. Please talk about very important events that may have influenced Burunge destination development from years tourism activities started to date?
3. What are critical factors that may contribute to the tourism development in Burunge?
4. What are the key roles played by private tourism-investors in Burunge from years tourism activities started to date?

NOTE: The same above questions asked about Burunge will be asked for the case of Loliondo and Lake Natron

General information about Government agencies involvement in development of tourism on community lands of Burunge, Loliondo and Lake Natron

1.What specific roles played by this agency (name of the agency, e.g. TTB) in the development of tourism on community lands (i.e. Gateway Community)?
2. What information does agency (name of the agency, e.g. TTB) use when deciding where to promote tourism development on community lands?
3. From the perspective of this agency (name of the agency), to what extent is tourism on community lands contribute to change the living conditions (livelihoods) of poor local residents?

Recommendation for future tourism development (tourism development plan)

1.What do you recommend should be done for further tourism development of this area?

Access to documents relating to tourism development

1. This agency (name) is known by its involvement in tourism development at local and national levels. Therefore, is there any way, I may obtain copy of documents relating

to tourism investments, number of tourist arrivals and tourism revenue distribution reports, covering the period from years tourism started in the study areas to date?

B. Check-list guide to tourism facility owners and managers at Burunge, Loliondo and Lake Natron

Date of interview:

Information about interviewee

1. Position:
2. Time worked at the company:
3. Responsibility:
4. Contact details (phone and email):

Information about the company

1. When was this company established?
2. Describe the nature of ownership of this company.
3. What are the main tourism activities/offer performed by this company?
4. What has been the source of managers for this company?

NOTE, source: locally, within the country and outside the country

5. what is the minimum number of the staff (employees) is this company had since commencing operation in this area to date?
6. what is the maximum number of the staff (employees) is this company had since commencing operation in this area to date

PROBE for number of staff (full time and part-time employees)

Information on compliance of the study areas to Butler's (1980) TALC criteria

1. In which years was this area experienced first/earliest visitors?
2. What was the state of tourism during the years this area received first/earliest visitors?

PROBE for details on quality and number of tourism facilities existed, state of infrastructure, average number of visitors per week, type of attractions preferred by earliest visitors and intensity of interaction between local residents and visitors.

3.Could you talk about extent of local people involvement in provision of tourism services after this area received first/earliest visitors?

4.Like any other business, tourism requires marketing efforts to communicate with potential visitors about attractions of the area. Please, could you talk about the conduct of marketing efforts in this destination?

PROBE for details on years' promotion started, types of promotion used, who was involved in promotion campaign, frequency of promotion and message used, change in number of visitors following promotion initiatives.

5. Apart from marketing efforts to promote the area, please, could you talk about investment efforts done to support tourism development?

PROBE for details on extent of Government, private sector and other stakeholder's involvement in provision of infrastructure, the years when investment projects such as, lodges, roads and air ports were constructed, and how the physical appearance of the area changed after these investment projects.

6. Could you talk about the extent of change in number of visitors to this area following accomplishment of investments in infrastructure?

PROBE for details on accessibility of the area, if number of visitors happened to exceed number of local residents during peak season, ask for details on bed occupancy level.

7.What are your thoughts on whether tourism has ever become the dominant sector as the major source of livelihood of local residents in this area compared to crop cultivation and livestock keeping?

8. What are the likely attitude of local residents with regard support for more tourism investments in this area?

9.What are your comments with regard availability of any signs that conduct of tourism activities in this area has started to become incapable to balance between the interest of local residents and investors?

PROBE for details on any signs of carrying capacity problems associated with number of visitors that exceed local residents during peak season.

10. Consider the current situation of tourism, what can you comment on the extent of attractiveness of the area to visitors?

PROBE for details on current number of tourist/visitors compared to previous years, ask whether the area no longer receives new visitors, ask whether there is decline in accommodation-taking and duration of stay.

11.Existance of tourism in an area may be associated with advantages (benefits) and disadvantages (costs). At times, disadvantages may exceed advantages. Please, can you talk about any occasion where local residents felt annoyed with presence of, or sacrifice associated with tourism in this area?

PROBE for details on availability of wastes and loss of vegetation, incidence of crimes, sense of cultural deterioration among people, people's feelings about insufficient of tourism employment opportunities and insufficient tourism revenue.

12. What are your comments with regard any possibility that viability of tourism business in this area has recently become questionable?

PROBE for details on presence of a new, competitive and alternative destination/attraction which tourists prefers to go rather than this destination, ask if there is decline in advertising budget at the moment, and if there is decline in profit margin

13. looking at the current situation of tourism in this area. Are there any plans with intention to change the image of this destination?

PROBE for details on presence of new ideas to replace old facilities, intention to introduce new services such as, Spa, conference facility, Casino and sport events.

Recommendation for future tourism development (tourism development plan)

1.What do you recommend should be done for further tourism development of this area?

Access to documents relating to tourism development

1.Is there any way, I may obtain copy of documents relating to terms and conditions of collaboration agreement with village, tourism facility-investments, number of tourist arrivals and tourism revenue distribution reports, covering the period from years tourism started in the study areas to date?

C. Key informant's (Villagers representative's /Village council members) Group Interview

Information on agreement between village and tourism private-investors (tourism Joint Venture)

1. Is there any agreement for collaboration between village and tourism-investor?

2. What were the influencing factors that lead to establishment of the first agreement for collaboration between village and tourism-investor?

PROBE for livelihood status conditions existed by 1990s, that may influence village acceptance of tourism collaboration agreement as alternative livelihood activity apart from agriculture/livestock keeping.

3. How was the contract negotiation process went?

PROBE for degree of involvement of local people in decision to accept or reject tourism investment proposal from private investors, ask if the process went smooth, the time it took to reach agreement

PROBE for terms and conditions of the contract, ask if the agreement was perceived as a 'fair deal' by local residents

Information about tourism development

1. What are major events associated with tourism development in this area since the first collaboration agreement to the current agreement?

PROBE for presence of **TALC** indicators in each events or phase/term of the contract

2. What are the key roles played by private tourism-investors in tourism development in this area since the first collaboration agreement to the current agreement?

Information on effects of tourism on livelihoods of local residents

1. How is existence of tourism affects access to life-sustain-resources (livelihood capital/assets) among local residents?

PROBE for access to types of resource/capital (human, social, financial, physical and natural), quality and amount of resources accessed at community and individual levels.

2. What benefits or advantages are associated with existence of tourism on village lands?

3. What are the costs or disadvantages associated with existence of tourism on village lands?

PROBE for extent to which people are satisfied/dissatisfied with life/living conditions (quality of life) following their perceptions on benefits and costs emanating from existence of tourism on village lands.

Information on local resident's involvement in management or ownership of tourism facilities

1. Do private investors involves local people in the management of tourism business?

PROBE for details on employment status of local residents in managerial positions.

2. Do village council/ AA have any plans to become owners or co-managers of tourism facilities in this area?

PROBE for any future plan e.g. Tourism contract-exit with possibility of transferring ownership of tourism facilities and management to AA or Village council.

Recommendation for future tourism development (tourism development plan)

1.What do you recommend should be done for further tourism development of this area?

Access to documents relating to tourism development

1.Is there any way, I may obtain copy of documents relating to terms and conditions of collaboration agreement with private investors, number of tourist arrivals, tourism revenue distribution reports and community projects funded by tourism revenue covering the period from years tourism started in the study areas to date?

D. Key informant's (Village Executive Officers and Village representatives) Group Discussion.

PARTCIPATORY COMMUNITY ASSET MAPPING

MAPPING THE PAST

1. Consider up to before the commencement of tourism activities. i.e. early 1990s. Then Draw the map of your community (e.g. ward) and indicate assets the community had. The discussion will focus on the maps and assets drawn.

2. Which assets/capitals the community had in abundance in the past?

3. Which assets/capitals were scarce?

4. How was capital scarcity solved? (Any relationships or links between capital scarcity and abundance?)

5. How have they changed, i.e. has this change been positive or negative?

MAPPING THE PRESENT

1. Draw the map of your community and indicate assets your community currently has.

2. What is the relationship between you current and past maps?

3. Which assets/capitals the community has in abundance now?

4. Which forms of capital have dwindled now?

5. Are there any linkages/relationship that can be explained by asset abundance on the one hand vs. dwindling on the other?

6. What does this asset abundance and dwindling mean to:

i) Tourism existence in the area (Discussions)

ii) Community well-being (discussions)

iii) Capacity to address vulnerable context. e.g. socio-economic shocks such as: unemployment, food shortage, diseases and production constraints

7. Let's assume now we stop use one of the natural capital, for example; specifically, wildlife, do you think tourism would enhance community livelihoods?

FUTURE MAPPING ASSESSMENT

1. Draw your community map and show how you would like your community to look like in the future in regard to: i) Tourism attractions in the area,

ii) Community socio-economic infrastructures.

2 With the current forms of capital you have now, do you think your future map and assets you have drawn is attainable?

3. Which forms of capital are important in determining the future of:

i) Tourism development

ii) Community well-being.

E. Check-list guide to Repeat-Visitors

Date of interview:

a) Where do you come from?

b) What is the purpose of your visit to this area?

c) How many times have you visited this area before?

d) How would you comment on accessibility to this area with regard road transport services?

e) If you have visited this area before, how has this area changed since your first visit?

PROBE for changes of products and facilities with regard to presence of **TALC** indicators in development stage

f) How did you know about this area?

PROBE for presence of **TALC** indicators in development stage, where there is massive advertisement campaign.

g) Do you prefer travel arrangements in group or individually?

h) Which tourism attractions do you prefer most in this area?

i) How do you rate the quality of accommodation services?

j) What are the local people's attitudes to visitors in this area?
k) Do you think attitude of local people has changed over time?
l) What distract you mostly in this area?
m) What should be changed for further tourism development in this area?

F. Key informant's (Village representatives/Household-heads) Focus Group Discussion.

WEALTH RANKING.

Participants to discuss together what constitutes a state of poverty in the eyes of the local residents and how a household can be defined as very poor, poor, normal, and rich.

Question: what would a particular household in your village considered as:

a) Very poor?
b) Poor?
c) Normal?
d) Rich?

G. Key informant's (Village representatives/Household-heads) Focus Group Discussion.

VULNERABILITY CONDITIONS-COVARIATE SHOCKS

1. Referring back in years 2008-2013, what were the 5 significant severe problems/shocks your village faced?
2. For each of these events, how severe was it for your village? ['Severity']
3. For each of these events, how much damage [in local currency] did it cause your village? ['Damage'] [Where damage is not quantified in monetary terms, use: Very low (1), Low (2), Medium (3), High (4), Very high (5)]
4. What are the things your village did to deal (**cope**) with the events you just mentioned?
5. Were you satisfied with measures taken by your village to address those shocks?
6. Following the events, you just mentioned: How many months did it take your village to return to a satisfactory situation? [Record answer in months (for example, 1 year = 12 months).]

7. Referring back in years 2014-2018, what were the 5 significant severe problems/shocks your village faced?
8. For each of these events, how severe was it for your village? [‘Severity’]
9. For each of these events, how much damage [in local currency] did it cause your village? [‘Damage’] [Where damage is not quantified in monetary terms, use: Very low (1), Low (2), Medium (3), High (4), Very high (5)]
10. What are the things your village did to deal (**cope**) with the events you just mentioned?
11. Were you satisfied with measures taken by your village to address those shocks?
12. Following the events, you just mentioned: How many months did it take your village to return to a satisfactory situation? [Demand answer in months (for example, 1 year = 12 months).]

H. In-depth interview (Household-heads).

VULNERABILITY CONDITIONS- IDIOSYNCRATIC SHOCKS

1. Referring back in years 2008-2013, what were the 5 significant severe problems/shocks your household faced?
2. For each of those events, how severe was it for your household? [‘Severity’]
3. For each of those events, how much damage [in local currency] did it cause your household? [‘Damage’] [Where damage is not quantified in monetary terms, use: Very low (1), Low (2), Medium (3), High (4), Very high (5)]
4. What are the things your household did to deal (**cope**) with the events you just mentioned?
5. Following the events, you just mentioned, how many months did it take your household to return to a satisfactory situation? [Demand answer in months (for example, 1 year = 12 months)]
6. Referring back in years 2014-2018, what were the 5 significant severe problems/shocks your household faced?
7. For each of those events, how severe was it for your household? [‘Severity’]
8. For each of those events, how much damage [in local currency] did it cause your household? [‘Damage’] [Where damage is not quantified in monetary terms, use: Very low (1), Low (2), Medium (3), High (4), Very high (5)]

9. What are the things your household did to deal (**cope**) with the events you just mentioned?
10. Following the events, you just mentioned, how many months did it take your household to return to a satisfactory situation? [Demand answer in months (for example, 1 year = 12 months).]

Appendix 2: Tourist Survey

Dear Sir or Madam!

Good morning/afternoon and welcome to this tourism spot in this tourist destination. It is a great pleasure that you decided to stay in this spot here. If you have spent at least one night at this spot, please, kindly participate in this survey which will help the spot management to make your future stay here even more pleasant. The interview will take about 10-15 minutes and is conducted anonymously.

NOTE: for the purpose of this survey, the word **SPOT** refers to the **LODGE, RESORT OR CAMPSITE** while **DESTINATION** implies the **SPATIAL AREA BORDERING** to **core PROTECTED AREA** of Tarangire-Manyara, Serengeti and Ngorongoro conservation Authority.

PART A.

1. Where did you learn about this tourist destination? *(mark the appropriate answer, more answers possible)*

1. I already knew of it.
2. The Internet.
3. Friends and relatives.
4. Media.
5. Books and guides.
6. Travel agency.
7. Fairs and/or exhibitions.
8. It was part of the travel package.
9. Other, what: _____

2. Is this your first visit to this tourist destination? *(mark the appropriate answer)*

1. No. → How many times have you visited this tourist destination in the last three years? _____
2. Yes.

3. Have you ever visited any other similar destinations in Northern Tanzania in the last three years?? *(mark the appropriate answer)*
   1. Yes. → which other destinations?
   2. No.

4. How many nights did you plan to stay at this tourist destination? __

5. What are the main reasons for your visit to this tourist destination? *(mark the appropriate answer)*
   1. Rest and relaxation.
   2. Visiting relatives and friends.
   3. Business reasons.
   4. Attending a conference, congress, seminar, and other forms of educations.
   5. Culture.
   6. Fun.
   7. Sports and recreation.
   8. Health.
   9. Religious reasons.
   10. Other, what: _____

6. Below are listed some statements which refer to the general image of this tourist destination. For each statement please indicate to what extent you agree with it. »1« means you completely disagree with it, and »5« means you agree with it completely.

	I completely disagree			I completely agree		I don't know
	1	2	3	4	5	
1. I think most people have a positive opinion about this tourist destination.	1	2	3	4	5	
2. The staff at this tourist destination are friendly towards the guests.	1	2	3	4	5	
3. This tourist destination has a unique image.	1	2	3	4	5	
4. I think this tourist destination is popular.	1	2	3	4	5	
5. The staff at this tourist destination always put guest first.	1	2	3	4	5	
6. This tourist destination respects the natural environment.	1	2	3	4	5	

PART B. 7-8. Below are listed some elements that you might consider when you chose a tourist destination. Please evaluate them twice. First, please indicate HOW IMPORTANT is each of these elements to you when you chose THIS tourist destination (specifically) (rate them on a scale »1« - completely unimportant to »5« - very important). Then, please indicate on a scale 1 – 5 to what extent do you agree with the statement that these elements are EXCEPTIONAL or are at the EXCEPTIONALLY HIGH LEVEL at THIS tourist destination (where »1« means – I completely disagree, »5« - I completely agree).

ATTRIBUTES OF TOURIST DESTINATION	»HOW IMPORTANT IS THIS ELEMENT?«						»AT THIS DESTINATION, THIS ELEMENT IS EXCEPTIONAL/AT EXCEPTIONALLY HIGH LEVEL «					
	Completely Unimportant			Very Important		I don't know	I completely disagree			I completely agree		I don't know
	1	2	3	4	5		1	2	3	4	5	
1.Promptly health-care	1	2	3	4	5		1	2	3	4	5	
2.Visitor's center	1	2	3	4	5		1	2	3	4	5	
3.Interaction with natives	1	2	3	4	5		1	2	3	4	5	
4. Reliable tour-guide	1	2	3	4	5		1	2	3	4	5	
5.Safe water and hygienity	1	2	3	4	5		1	2	3	4	5	
6.Pre-visit information	1	2	3	4	5		1	2	3	4	5	
7.Credit cards and ATMs	1	2	3	4	5		1	2	3	4	5	
8.Safety and security	1	2	3	4	5		1	2	3	4	5	
9.Shopping on handcrafts	1	2	3	4	5		1	2	3	4	5	
10.Walking safari with sun set view	1	2	3	4	5		1	2	3	4	5	
11.Quality-food and accommodation	1	2	3	4	5		1	2	3	4	5	
12.Opportunity for Hiking/Mountaineering	1	2	3	4	5		1	2	3	4	5	
13.Value for money on food and accommodation	1	2	3	4	5		1	2	3	4	5	
14.Well maintained facilities (lodges, camps)	1	2	3	4	5		1	2	3	4	5	
15.Cultural dance entertainment	1	2	3	4	5		1	2	3	4	5	
16.Easy wildlife viewing/accessible	1	2	3	4	5		1	2	3	4	5	
17. Friendliness of local residents	1	2	3	4	5		1	2	3	4	5	
18.Natural scenic beauty and calmness of the area	1	2	3	4	5		1	2	3	4	5	
19. Variety of cultural and artistic works	1	2	3	4	5		1	2	3	4	5	1
20.Cultural and Historical uniqueness	1	2	3	4	5		1	2	3	4	5	1
21.Variety of natural attractions	1	2	3	4	5		1	2	3	4	5	1
22.Opportunity to access nearby destinations	1	2	3	4	5		1	2	3	4	5	1
23.Quality of roads to and within destination	1	2	3	4	5		1	2	3	4	5	1
24.Availability of air strips												

9. Next, we would like to ask you to rate the general quality of this tourist

destination offer on a scale 1 -5, where
»1« means the quality of the offer is very poor and »5« - the quality is excellent.

	Very low				Very high	I don't know
	1	2	3	4	5	
General quality of this tourist destination offer is …	1	2	3	4	5	

10. Was your trip to this tourist spot organized by a travel agency / another organizer? (*mark the appropriate answer)*

a. Yes.
b. No.

11. The next set of questions refers to expenses connected with your stay at this tourist destination. For each of the following statements please indicate to what extent do you agree with them, »1« means you completely disagree and »5« that you completely agree with the statement.

	I completely disagree			I completely agree		I don't know
	1	2	3	4	5	
1. Making a booking at this tourist spot was easy.	1	2	3	4	5	
2. The price of Bed and Breakfst/half board/ in this tourist spot is reasonable.	1	2	3	4	5	
3. Full board in this tourist spot is reasonable.	1	2	3	4	5	
3.Game package is affordable	1	2	3	4	5	
4. The prices of additional offer at this tourist spot (i.e. prices of food and drink, prices of souvenirs, prices of handcrafted products, prices of excursions, prices of beauty and relaxing programs) are favorable.	1	2	3	4	5	

12. This part of the questionnaire refers to your feelings and comprehension of the value of your stay at this tourist destination. For each of the following statements, please tell us to what extent you agree with it. »1« means you completely disagree and »5« that you completely agree with the statement.

	I completely disagree			I completely agree		I don't know
	1	2	3	4	5	
1. Overall, staying in this tourist destination has been very valuable to me.	1	2	3	4	5	
2. I have gained a lot of new knowledge and experiences in this tourist destination.	1	2	3	4	5	
3. Staying at this tourist destination is worth every unit of money paid.	1	2	3	4	5	

13. In this part of the questionnaire we ask you to rate your <u>overall satisfaction</u> with

your visit to this tourist destination on a scale 1 - 5. Here »1« means you are completely dissatisfied and »5« that you are completely satisfied.

	I completely disagree			I completely agree		I don't know
	1	2	3	4	5	
What is your overall satisfaction with your visit to this tourist destination?	1	2	3	4	5	

14. Now we would like to ask you to tell us to what extent do you agree with the following statements (»1« means you completely disagree and »5« that you completely agree with it):

	I completely disagree			I completely agree		I don't know
	1	2	3	4	5	
1. I am pleased that I decided to visit this tourist destination.	1	2	3	4	5	
2. The visit to this tourist destination exceeded my expectations.	1	2	3	4	5	
3. I will speak highly of this tourist destination to my friends and colleagues.	1	2	3	4	5	

15. Have you had any reason to complain since you have been staying in this tourist destination? *(mark the appropriate answer)*

a. Yes. → Have you filed a complaint? *(mark the appropriate answer)*

i. Yes.

ii. No.

b. No.

16. We would like to ask you again to indicate whether you agree or disagree with the following statements and to what extent on a scale »1« (I completely disagree) to »5« (I completely agree).

17.

	I completely disagree			I completely agree		I don't know
	1	2	3	4	5	
1. If I had to decide again I would choose this tourist destination again.	1	2	3	4	5	
2. I will recommend this tourist destination to my friends and relatives.	1	2	3	4	5	
3. I will return to this tourist destination.	1	2	3	4	5	
4. I feel at home in this tourist destination.	1	2	3	4	5	

<u>Now a few questions about your holiday or travel:</u>

18. Who is accompanying you on your current visit to this tourist destination?

(mark the appropriate answer)

a. No one.

b. Partner.

c. Family and /or relatives. → How many children under the age of 15 are accompanying you?_____

d. Friends.

e. Co-workers.

f. Business partners.

g. Other, what: _____

19. When did you decide to stay at this tourist destination? (*mark the appropriate answer*)

a. Less than a month ago.

b. 1 to 3 months ago.

c. More than 3 months ago. → → *Please continue with question 20.*

19a. Was it a last minute offer? (*mark the appropriate answer)*

1. Yes.
2. No.

20. How often do you go on holidays lasting at least 5 days? (*mark the appropriate answer)*

a. Every few years.

b. Once a year.

c. Several times (2-4 times) a year.

d. More than 4 times a year.

PART C

For the very end, a few questions about you.

21. Please, name your country of residence: _____

22. My education level is (tick the appropriate)

□ Less than High school

□ Non Degree

□ Graduate

□ Post-Graduate

23. What is your employment status? *(mark the appropriate answer)*

a. Employed.

b. Self-employed.

c. Unemployed.

d. Retired / renter.

e. Student / pupil.

f. Other, what: _____

24. Your Age: _____

25. Gender *(mark the appropriate answer):*

a. Male.

b. Female.

We would like you to give us any comments that would help for improvement

_____

_____

_____

Thank you very much for your time and answers!

Appendix 3: Household Survey

HOUSEHOLD, VILLAGE IDENTITY AND WEALTH RANKING

1.1 Village ID:	
1.2 House hold ID:	
1.3 Date and time of interview:	
1.4 Enumerator:	
1.5 Household Wealth Rank 2018 Code : 1=very poor; 2=poor; 3=normal; 4=rich	
1.6 Household Wealth Rank 2008 Code: 1=very poor; 2=poor; 3=normal; 4=rich	

INTRODUCTION

We shall start our interview by getting information concerning the head of the household.

RECALL THE LIVING CONDITIONS OF 2008/9

The interviewer should do the following:

The interviewer is going to ask about the situation now (2018/2019) and as things were in the year 2008/9. The interviewer will ask if the respondent remembers how life was for the homestead and the community in 2008/9. The interviewer should help the respondent remember by explaining that the year 2007 was the year that the volcano Ol Doinyo Lengai in Northern Tanzania erupted (in September) following an earth quake (July 2007), both felt in much of northern Tanzania. Moreover, the interviewer can help the respondent to recall the past by asking about occurrence of severe draught covering the northern Tanzania in 2008(whose significant effect has not been observed for the past 20 years). Also, ask the respondent in Loliondo to recall the injustice and violent actions conducted by OBC in 2008 where many houses and assets were lost. Ask the respondent to think back and recall the circumstances of his/her household's livelihood around that period in the following questions.

1.7. Do you recall these events and are you able to recall the circumstances of your livelihood around this period?

Recall *Code*	
Code 1: 1=yes; 0=no; -7= refuses to answer;-8=does not apply; -	

If the answer in 1.7 is NO, the interviewer should make effort to get another household member, an adult (more thant 25 years) who knows well the household affairs and able to remember the livelihood situation of 2008/9.

THE FIRST SECTION: HEAD OF HOUSEHOLD INFORMATION

A.HEAD OF HOUSEHOLD [***information to be issued by head of household or other member who knows well the household matters]***

A0.01. Is the respondent head of household? Code: 1= Yes 0=No ►**A0.02**. [*cycle the right number]*	
A0.02. relationship with head? Code: 1=wife; 2=head; 3=child; 999=other(mention)	
A0.03. Gender of head of household Code : 1=Male; 2=Female	
A0.04. head of household age?	*[number of years]*
A0.05 Were head also a household head (head of "*Olmarei"* for Maasai) in 2008/9? *Code 1: 1=yes; 0=no; -7= refuses to answer;-8=does not apply;*	
A0.06 Head of household married now in 2018/19 Code: 1= Yes 0=No; 2=divorced;3=separated	
A0.07 Head of household married then 2008/9? Code: 1= Yes 0=No2=divorced;3=separated	
A0.08. has head of household lived all his/her years in this village? Code: 1= Yes 0=No►**A0.09 and A 0.10**	
A0.09 how long has the head lived in this village?	[*number of years*]
A0.10. where did the head live before? Code: 1=another village/town in this district;2=another district in this region;3=another region in Tanzania,4=out of Tanzania; 999=other (mention)	
A0.11. Education of head:1=informal:2=primary;3=secondary;4=high school;5=College/University	

THE SECOND SECTION. HUMAN RESOURCES AT HOUSEHOLD LEVEL.

A1. INFORMATION ON HUMAN RESOURCES AT HOUSEHOLD LEVEL.

[information to be issued by head of household or other member who knows well the household matters]

A.1.0 We would like to know members of this household for the year 2018 and 2008: how many they are, including you, ages, number of children, gender.

A.1.1.Members	Total (#) 2018	**A.1.2**.Members	Total (#)2008
Children		**Children**	
1.Children age 0-3		1.Children age 0-3	
2. Children age 4-10		2. Children age 4-10	
Male		**Male**	
3. Male age11-14		3. Male age11-14	
4. Male age 15-50		4. Male age 15-50	
5. Male age 51+		5. Male age 51+	
Female		**Female**	
6.Female age11-24		6.Female age11-24	
7.Female age 25-50-		7.Female age 25-50-	
8.female age 51+		8.female age 51+	
TOTAL		TOTAL	

A1.3. INFORMATION ON HUMAN RESOURCES AT HOUSEHOLD LEVEL.HEALTH SITUATION

NOW 2018		**THEN 2008**	
A1.3.1.Any household member often in need of health-care	1= Yes 0=No	**A1.3.2**. Any household member often in need of health-care	1= Yes 0=No

A 1.4. How many members of household with education level…?(mention) from the list.

EDUCATION LEVEL IN 2018	**1.4#**	**EDUCATION LEVEL IN 2007/8**	**1.5#**
1.No formal education		1.No formal education	
2.Pre-primary		2.Pre-primary	
3.Primary		3.Primary	
4.Secondary form IV		4.Secondary form IV	
5.Secondary form VI		5.Secondary form VI	
6.Tachnician/certificate		6.Tachnician/certificate	
7.Higher education-College/University		7.Higher education-College/University	

A2. INFORMATION ON HUMAN RESOURCES.LIVELIHOOD ACTIVITIES.

JOBS AND ACTIVITIES 2018 A2.1. how many household members are working or doing…?[read from the list]		**LIVELIHOOD ACTIVITIES-2018 A.2.2.what are the main life sustaining jobs done by household members?**	**JOBS AND ACTIVITIES 2008 A2.3. how many household members are working or doing…?[read from the list]**		**LIVELIHOOD ACTIVTIES -2008 A.2.4. what are the main life sustaining jobs done by household members?**
JOBS AND ACTIVITIES 2018	#	**MAIN LIVELIHOODS 2018**	**JOBS AND ACTIVITIES 2008**	#	**MAIN LIVELIHOODS 2008**
1.Not doing anything (dependents)		1.Pastoralism. Code: 1=yes; 0=no	1.Not doing anything (dependents)		1.Pastoralism. Code: 1=yes; 0=no
2..Working without salary		2.Pastoralism and Agriculture. Code: 1=yes; 0=no	2..Working without salary		2.Pastoralism and Agriculture. Code: 1=yes; 0=no
3.Working with paid salary/wage/allowance		3. Tourism .Code: 1=yes; 0=no	3. Working with paid salary/wage/allowance		3. Tourism .Code: 1=yes; 0=no
4.Representative WMA/CBO		4. Other (mention)	4.Representative WMA/CBO		4. Other (mention)
5.Member at village council			5.Member at village council		
6.Village chair VC			6.VC		
7.VEO			7.VEO		
8.Sub village chair			8.Sub village chair		

A3. INFORMATION ON HUMAN RESOURCES.HOUSEHOLD MEMBERS ATTACHED TO TOURISM ACTIVITIES

NOTE: The following questions should be asked to households with a member/s affiliated with tourism activities in the village.

ACTIVITIES AND EMPLOYMENT IN TOURISM		**MOTIVATION**	**EXPERIENCE**	**CAPABILITY AT WORK**	**CLOSENESS TO TOURISTS**	**ESTIMATE OF TOURISM REVENUE TO THE TOTAL REVENUE**
A3.1.is there any member of household attached to tourism activities? 0=no 1=yes► [ask names and write initials*]*	**A3.2. is** [name] doing what specific tourism activity? (mention one main activity) *Write the activity code against the name*	**A3.3.** what motivated(NAME) to be attached in tourism? *Mention one main reason*	**A3.4. how long has** (NAME) been working at this… (mention) activity? *Read the list of time/duration*	**A3.5. What is the capability of** [name] in doing activity… (mention activity)?	**A3.6. to what extent is**[name] interact with tourists? *Read the codes for tourists closeness/interaction*	**A3.7.for an estimate, what is the tourism revenue to the total revenue obtained by this household last year (2018)**? *Read the codes for tourism revenue estimates.*
1						
2						
3						

A3.2. TOURISM ACTIVITIES: Code:1=Co-coordinating "Maasai-Boma"visit/ tour guide to Maasai home-visit; 2 = managing a restaurant;3 = selling traditional cloths and handcraft items;4 = Tour Driver;5 = employees at the camp/lodge owned by tourism investor; 6= traditional dance entertainer;7= Tracker-Tour guide; 8=Game scout/VGs.. 999 = OTHER (mention)

A3.3 MOTIVATION, Code:1 =inadequate income in other activities;2 =has talent to produce items demanded by tourists;3= has the required knowledge to do tourism activities; 999 = OTHER (mention)

A3.4. TIME/DURATION, code: 1= less than a year; 2 = one year; 3 = 2-3 years; 4=3-4years; 5= more than 4 years

A3.5. CAPABILITYI, code: 1= very capable;2=somewhat capable;3= not capable;4= completely not capable;99= don't know

A3.6. CLOSENESS, code: 1= very close; 2= closer; 3= less closer;4=no any closeness,99= don't know

A3.7. ESTIMATE OF TOURISM REVENUE, Code: 1= <100,000; 2= about 100,000-200,000;3= about 201,000 – 300,000; 4= about 301,000-400,000; 5= ≥ 401,000 ,99 = don't know.

B1. INFORMATION ON NATURAL RESOURCES-CAPITAL

Land

B1.1 Is the land on which main house is built, owned by this household NOW year 2018/19?	Code 1=yes, 0=no	**B1.2**. if yes, what type of land ownership model used? Code: 1=lease; 2= purchase;3= customary (inheritance)	**B1.3. who, specifically own the land on which main house is built NOW**? [cycle appropriate number] 1= head of household-male ; 2= head of household-female; 3= all; 4= another member of household; 99=unknown owner
B1.4 Is the land on which main house is built, owned by this household year 2008/2009?	1=yes, 0=no	**B1.5**. if yes, what type of land ownership model used? 1=lease; 2= purchase;3= customary (inheritance)	**B1.6. who, specifically own the land on which main house is built in year 2008/9**? 1= head of household-male ; 2= head of household-female; 3= all; 4= another member of household; 99=unknown owner

B2. Land uses	Amount 2018/19	Amount 2008/9
B2.1 In 2018, how much land…[mention]		
1. in acres owned by household?		
2.in acres rented by household?		
3.in acres allocated for food cultivation(subsistence)?		
4. in acres actual used for subsistence?		
5. Organic fertilizer in(kgs) used for subsistence farming?	Kgs	Kgs
6.in acres actual used for cash crop?		
7. in acres taken away by force by person or any authority?		
8. in acres allocated for farming but uncultivated?.		
9. Access adequate grassland for grazing?	code1=Yes, 0 = No	code1=Yes, 0 = No
B3.2 how far(time) is the farm from household?	Distance 2018/19	Distance 2008/9

B4. Efficiency in producing food crops	Year2018/19	Year 2008/9
B4.1 Type of food crops?	**B4.2** productivity(kg) per 1 acre?	**B4.3** productivity(kg) per 1 acre?
1.Maize		
2.Sorghum		
3.Legume(beans, groundnuts)		
4.Other..		

B5.0. On average, how many meals do household members access per day? 1, =1; 2=2;3=3 and >3=4	Average meals per day in year 2018/19, #	Average meals per day in year 2008/9, #

CONFLICTS BASING ON NATURAL RESOURCES UTLIZATION

B5.1. is this household involved in conflicts with presence of wild animals in 2018? code1=Yes, 0 = No	
B5.2. if YES, what type of conflicts? …… (tick that applies) 1.wild animals damaging crops. 2.wild animals kills the livestocks. 3.wild animals attacking people/human. 4.Game scout attacking people and their livestocks. 5.Tourism investors prohibiting agriculture activities. 6.WMA/CBO preventing farming and grazing in consession/conserved areas.	

C1. INFORMATION ON HOUSEHOLD FINANCIAL CAPITALS

Household financial assets in year 2018/19 and in year 2008/9.
Interviewer: ask respondent to make an estimate in total **Tsh** of income for each source concerned. Obtain figures in monthly basis or season/weekly, then work out for yearly total.[put zero if source is not concerned]

C1.1 Did you or any household member access money from these sources in year…? [mention each source]	**C1.1.1** 2018/19 1=yes 0=no OR *tick*	**C1.2. Estimate how much total income in Tsh household earned** 2018/19 **year from each Source concerned.**	**C1.3**. 2008/9 1=yes 0=no OR *tick*	**C1.4. Estimate how much total income in Tsh household earned** 2008/9 **year from each Source concerned.**
1. Selling food crops				
2. Selling livestock				
3. Selling livestock-products(by-products)				
4. Selling cash crops				
5. Non agro-business income				
6. Employment-salary/wage/allowance				
7. Money accessed from relatives or friends				
8. Savings				
9. Loan				
10. Money given as gift				
999=.Other (mention)				
TOTAL in Tsh				

D. INFORMATION ON HOUSEHOLD PHYSICAL CAPITALS.

House

D1.1 Is the main house, owned by this household NOW year 2018/19? [*Main house is the one the head of household spend most of the time in*]	Code 1=yes, 0=no	**D1.2**. if yes, what type of house ownership model used? Code: 1= Bought it; 2= Built it; 3= Inherited it; 4=Got it for free.	**D1.3. who, specifically own the main house NOW**? [cycle appropriate number] 1= head of household-male ; 2= head of household-female; 3= all; 4= another member of household; 99=unknown owner

D1.4 Is the main house, owned by this household year 2007/2008?	1=yes, 0=no	**D1.5**. if yes, what type of house ownership model used? 1= Bought it; 2= Built it; 3= Inherited it; 4=Got it for free.	**D1.6. who, specifically own the main house in year 2008/9**? 1= head of household-male ; 2= head of household-female; 3= all; 4= another member of household; 99=unknown owner

Physical condition of the main house NOW (2018/19) and then 2008/9.
D1.7 Main material of the outside wall of main house **NOW (2018/19)**? [*Observe the house and cycle the appropriate number for answer. Don't ask what you observe*] Code:1=poles and grass; 2= poles, mud and stones;3=poles and mud; 4=sun dried bricks; 5=baked bricks; 6= cement bricks; 999= other (mention).
D1.8 Main material of the outside wall of main house **in (2008/09)**? Code:1=poles and grass; 2= poles, mud and stones;3=poles and dung; 4=sun dried bricks; 5=baked bricks; 6= cement bricks; 999= other (mention).
D2.1 Main material of the roof of main house **NOW (2018/19)**? Code:1= grass, leaves; 2= mud and grass; 3= concrete, cement; 4=metal sheet; 5=asbestos sheet, 6=tiles; 7=galvanized sheet; 999= other (mention).
D2.2 Main material of the roof of main house **in (2008/09)**? Code:1= grass, leaves; 2= mud and grass; 3= concrete, cement; 4=metal sheet; 5=asbestos sheet, 6=tiles; 7=galvanized sheet; 999= other (mention).
D2.3. Main material of the floor of main house **NOW (2018/19)**? Code:1= earth; 2= concrete, cement, 3=tiles; 4= parquet; 999= other (mention).
D2.4. Main material of the floor of main house **in (2008/09)**? Code:1= earth; 2= concrete, cement, 3=tiles; 4= parquet; 999= other (mention).
D2.5 What kind of toilet facility does the household use **NOW (2018/19)**? Code:1= No facility/bush/field; 2= pit latrine without cover; 3= pit latrine with cover; 4= ventilated improved pit (VIP);5= flush toilet , 999= other (mention).
D2.6 What kind of toilet facility did the household use **in (2008/09)**? Code:1= No facility/bush/field; 2= pit latrine without cover; 3= pit latrine with cover; 4= ventilated improved pit (VIP);5= flush toilet , 999= other (mention).

D3. HOUSEHOLD ASSETS

Ownership of Assets **Electricity-based assets**	1=yes 0=no In 2018/19	D3.2 [repeat quest. D3.1] 1=yes 0=no In 2008/09
D3.1. Does/Did the household have the following assets that uses electricity in 2018 and 2008? [*mention each asset owned for each year and emphasize that asset owned have to be functioning*]		
1. Mobile phone		
2. Radio		
3. Refrigerator		
4. Television		
999= other (mention).		
D3.3.Transport assets	1=yes 0=no	**D3.4** 1=yes 0=no
1. Bicycle		
2. Motor cycle		
3. Motor vehicle		
4. Tricycle		
999= other (mention).		
D3.5 Production assets	**D3.5** 1=yes 0=no	**D3.6** 1=yes 0=no
1.Plough		
2.Spraying machine		
3.Wheelbarrow		

4.Water pump		
5.Vetinary facilities		
6.Hoe		
999= other (mention).		
D 3.7 Furniture-assets	**D3.7** 1=yes 0=no	**D3.8** 1=yes 0=no
1.Chairs		
2.coach		
3.table		

D 4. Is this household own livestock like…? *(mention each livestock from the list)*	1=yes 0=no	**D5. Number of livestock at the end of last dry season** 2018/19?	**D6**. in 2008. 1=yes 0=no	**D7. Number of livestock at the end of last dry season** 2008/2009
1. Chicken				
2. Sheep				
3.lambs				
4. Goats				
5.Young goats				
6. Adult cows/heifers				
7.Adult bulls/steers				
8.Calves				
9.Pigs				
10.Piglets				
11.Donkey/mules				
12.Beehives				

E. INFORMATION ON SOCIAL CAPITAL-RESOURCES.

E1. Social relationships

E1.1 Are you or any member of your household a member of any groups, organisations or associations in 2018/19?	1=yes 0=no	**E1.2**. if yes, what are the TWO MAIN social groups/organizations do you or any of your household member belong in 2018/19? (*read from the list]*	**E1.2.1andE1.2.2** (right the appropriate numbers of the TWO MAIN groups/Organizations) # and #
E1.3 Are you or any member of your household a member of any groups, organisations or associations in 2008/2009?	1=yes 0=no	**E1.4**. if yes, what are the TWO MAIN social groups/organizations did you or any of your household member belong in 2008/9?	**E1.4.1andE1.4.2** (right the appropriate numbers of the TWO MAIN groups/Organizations) # and #
E 1.5 Did you get support from relatives and friends when you were in need in 2018?	1=yes 0=no	**E 1.6** Did you get support from relatives and friends when you were in need in 2008?	1=yes 0=no
E 1.7 Number of relatives and friends supporting you when you were in need in 2018. No=0; 1, =1; 2=2 and >2=3	#	**E 1.8** Number of relatives and friends supporting you when you were in need in 2008. No=0; 1, =1; 2=2 and >2=3	#
Codes for types of organizations: 1=VICOBA; 2= social welfare; 3= farmers ; 4=livestock keepers; 5= religious; 6= women empowerment; 7= Co-operative; 8=political party; 9= sports club; 999= other (mention).			

THE SECOND SECTION: VULNERABILITY CONTEXT (Exposure)

A. Referring back in years 2008-2013, what were the 5 significant severe problems/shocks your household faced? (as far as negative impacts to your household, household members' livelihoods and/or the household's agriculture/livestock/fish breeding)? [*Interviewer to list up to five events, from 'most significant' (1st) to 'less significant'. Interviewer can provide examples of specific events only if respondent does not understand the question once it is read twice*.]

A1. For each of these events, how severe was it for your household? ['Severity']

A2. For each of these events, how much damage [in local currency] did it cause your household? ['Damage']

[Where damage is not quantified in monetary terms, use: Very low (1), Low (2), Medium (3), High (4), Very high (5)

Severity=	Very low (1)	Low (2)	Medium (3)	High (4)	Very high (5)	*Recover
1st	Event # =		Severity=		Damage=	
2nd	Event # =		Severity=		Damage=	
3rd	Event # =		Severity=		Damage=	
4th	Event # =		Severity=		Damage=	
5th	Event # =		Severity=		Damage=	

1.Drought	2. Dry spell	3. Flood	4. Livestock diseases	5. Death of HH member
6. Theft	7. Lack of fertilizer and/or too Expensive	8. Soil problems	9. Predation	10.Erthquake /volcano.
11. Fire	12. Family Sickness	13. High temperatures	14. Debt	15. Irrigation problems
16. Dust storm	17. Personal Violence	18. Imprisonment	19. Unemployment	20. Poor market access
21. Labor Shortage	22. Crop riding	23. Corruption	24. Local conflict	25. Insect attack
26. Electricity Shortage	27. Low market prices for crops /livestock	28. Divorce/separation	29. Loss of house	30. Failure of HH business

A3. What of the following things did your household do to deal (**cope**) with the events you just mentioned [in Question A]? [More than one option possible.]

Relied on less preferred/less expensive food		Bought food on credit	
Borrowed money from bank		Borrowed money from other financial	
Borrowed money from relatives		Borrowed money from friends	
Borrowed money from cooperative/village fund		Begged for money or food	
Spent savings on food		Collected wild food	
Collected and sold fuelwood		Reduced portions/number of meals	
Restricted consumption of adults		Skipped day without eating	
Consumed seed stocks held for next season		Took children out of school to work	

Moved children to a less expensive school		Sent children to school to benefit from	
Sent children to work outside the HH		Non-working HH member started to work	
HH member sought work in same community		HH member sought work elsewhere	
Reduced spending on education		Reduced spending on health	
Reduced spending on clothes		Leased out farmland	
Sold farmland		Sold HH assets (including small animals, jewelry)	
Sold agricultural assets (tools, seeds, livestock)		Done (1)	Not done (2)

A4. Following the events, you just mentioned [in Question A]: How many months did it take your household to return to a satisfactory situation? [Record answer in months (for example, 1 year = 12 months).]

Months=		Less than one month (0)	Our household has not recovered yet (1)

B. Referring back in years 2014-2018, what were the 5 significant severe problems/shocks your household faced? (as far as negative impacts to your household, household members' livelihoods and/or the household's agriculture/livestock/fish breeding)? [*Interviewer to list up to five events, from 'most significant' (1st) to 'less significant'. Interviewer can provide examples of specific events only if respondent does not understand the question once it is read twice.*]

B1. For each of these events, how severe was it for your household? ['Severity']

B2. For each of these events, how much damage [in local currency] did it cause your household? ['Damage']

[Where damage is not quantified in monetary terms, use: Very low (1), Low (2), Medium (3), High (4), Very high (5)

Severity=	Very low (1)	Low (2)	Medium (3)	High (4)	Very high (5)	*Recover
1st	Event # =		Severity=		Damage=	
2nd	Event # =		Severity=		Damage=	
3rd	Event # =		Severity=		Damage=	
4th	Event # =		Severity=		Damage=	
5th	Event # =		Severity=		Damage=	

B3. What of the following things did your household do to deal (**cope**) with the events you just mentioned [in Question B]? [More than one option possible.]

Relied on less preferred/less expensive food		Bought food on credit	
Borrowed money from bank		Borrowed money from other financial	

Borrowed money from relatives		Borrowed money from friends	
Borrowed money from cooperative/village fund		Begged for money or food	
Spent savings on food		Collected wild food	
Collected and sold fuelwood		Reduced portions/number of meals	
Restricted consumption of adults		Skipped day without eating	
Consumed seed stocks held for next season		Took children out of school to work	
Moved children to a less expensive school		Sent children to school to benefit from	
Sent children to work outside the HH		Non-working HH member started to work	
HH member sought work in same community		HH member sought work elsewhere	
Reduced spending on education		Reduced spending on health	
Reduced spending on clothes		Leased out farmland	
Sold farmland		Sold HH assets (including small animals, jewelry)	
Sold agricultural assets (tools, seeds, livestock)		Done (1)	Not done (2)

B4. Following the events, you just mentioned [in Question B]: How many months did it take your household to return to a satisfactory situation? [Record answer in months (for example, 1 year = 12 months).]

Months=		Less than one month (0)	Our household has not recovered yet (1)

THE THIRD SECTION. TOURISM LIVELIHOOD IMPACTS AND LOCAL RESIDENTS SUPPORT FOR TOURISM DEVELOPMENT

NOTE: This part should be skipped if respondent is in control village

A1**. Tourism-livelihood impacts perceptions**

How do you agree with the following statements? Please answer it by circling an appropriate number from 1-5, where: 1= strongly disagree, 2= disagree, 3= neither disagree, nor agree, 4= agree, 5= strongly agree.

For satisfaction: 1=very unsatisfied, 2=unsatisfied, 3=neutral, 4=satisfied, 5= very satisfied.

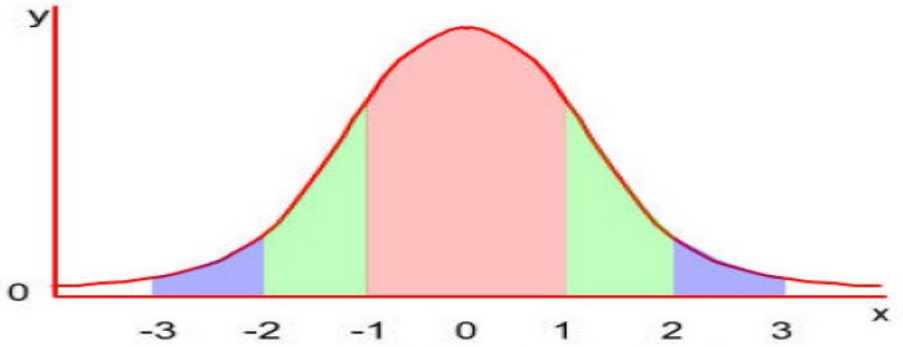
Do you agree that… [Interviewer change "I" to "You" when asking]	Strongly disagree				Strongly agree
Tourism maintain natural environment and biodiversity	1	2	3	4	5
Tourism facilitate development of formal education	1	2	3	4	5

I want to see more visitors coming	1	2	3	4	5
This village should remain a tourist destination	1	2	3	4	5
I am satisfied with my life as a whole	1	2	3	4	5
I have the important things I want in life	1	2	3	4	5
Tourism promotes cooperation among people	1	2	3	4	5
I believe well-being is improved with more tourism activities.	1	2	3	4	5
Tourism ensures adequate access of revenue to village	1	2	3	4	5
Tourism empower residents to challenge accountability of political structures	1	2	3	4	5
Tourism sustain variety of local cultural activities	1	2	3	4	5
My community should attract more tourists	1	2	3	4	5
Tourism enable Purchasing of local produces	1	2	3	4	5
In general I am very happy person	1	2	3	4	5
The conditions of my life are excellent	1	2	3	4	5
Tourism enable investment in physical infrastructures	1	2	3	4	5

Are you…	Very unsatisfied				Very satisfied
Satisfied that Tourism maintain natural environment and biodiversity?	1	2	3	4	5
Satisfied that Tourism facilitate development of formal education	1	2	3	4	5
Satisfied that Tourism enable investment in physical infrastructures	1	2	3	4	5
Satisfied that Tourism promotes cooperation among people	1	2	3	4	5
Satisfied that Tourism enable Purchasing of local produces	1	2	3	4	5
Satisfied that Tourism sustain variety of local cultural activities	1	2	3	4	5
Satisfied that Tourism ensures adequate access of revenue to village	1	2	3	4	5
Satisfied that Tourism empower residents to challenge accountability of political structure	1	2	3	4	5

Appendix 4: Tourism Material Benefits

Appendix 5: Note on the formula used to determine household sample size



In a normal distribution, about 68% of the values lie within one standard deviation away from the mean; about 95% of the values are within two standard deviations and about 99% lie within three standard deviations.

Using the logic of normal distribution, it follows that, the socio-economic characteristics of tourism beneficiaries and non-beneficiary households adhere to normal distribution, when are considered separately or when pooled together. Let α represent the significance level, the probability of rejecting the hypothesis when it is in fact should stand. The critical points of accepting or rejecting the hypothesis lie on either side of the mean at $-Z\alpha/2$ and $+Z\alpha/2$. If p is a probability that a certain socio-economic characteristic is present in the population N, then $q=(1-p)$ will be the probability that the characteristic is not present in the population .The standard error for a sample size n from within the population is given by:

Standard error= V{[pq/n]*[(N-n)/N-1)]}……..……(1)

Since data are collected using a sample of households from the population of interest (i.e. gateway community), a certain amount of error is always present. This entail precession. A higher precession is obtained when the sample size increases. Thus, precision =Z x Standard error or:

C=Z* V{[pq/n]*[(N-n)/N-1)]} ……..(2)

When this is solved for n, the sample size becomes:

$$n=\frac{Z^2pqN}{e^2(N-1)+Z^2pq} \quad \text{……..…… (3)}$$

Where: n= sample size; p= dichotomous probability and a conservative value of 0.5 taken to allow maximum variation and q=1-p: N=size of the population; z=standard normal variate=1.96 for 95% confidence level and 2.58 for 99% confidence level. C=precision level. In this study 9% is used, commonly for social science research.