

Costs and Benefits of Nature-Based Tourism to Conservation and Communities in the
Serengeti Ecosystem

by

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BSc. Sokoine University of Agriculture, 1993
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of the Requirements for the Degree of

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in the Department of Geography

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Abstract

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People visit protected areas (PAs) for enjoyment and appreciation of nature. However, tourism that is not well planned and managed can significantly degrade the environment, and impact negatively on nearby communities. Of further concern is the distribution of the costs and benefits of nature-based tourism (NBT) in PAs, with some communities experiencing proportionally more benefits, while other communities experience more of the cost. This distribution is complex and differs considerably amongst PAs. This thesis examines the flow and distribution of the costs and benefits of the NBT supply system to conservation and communities in the Serengeti ecosystem, Tanzania. The Serengeti ecosystem, a World Heritage site and a leading global wildlife tourism destination, was selected for this study because of high biodiversity, high poverty, and a high level of NBT activity.

The research was guided by four main questions: (1) what is the nature of the supply system of NBT in the Serengeti ecosystem; (2) how do the management plans allow for and guide tourism in the Serengeti ecosystem; (3) what are the impacts of the

NBT supply system on conservation; and, (4) what are the impacts of the NBT supply system on communities?

A qualitative approach was used, combining document analysis, key informant interviews, and focus group discussions. This involved collecting data from a number of participants: PA agencies; the tourism industry; nearby communities; and non-governmental organizations. Participants were recruited through purposive and snowball sampling techniques.

The findings offer an ecosystem-scale perspective rather than the common focus on a single PA. The study uses complex systems theory to help frame the NBT supply system in the Serengeti ecosystem, which is comprised of numerous agents that can be grouped in four major components – PAs, communities, tourism operations, and elements of the wider environment. The agents, such as tour operators, park management, and communities, vary across the ecosystem, and have multiple roles in NBT, including management of attractions, tourism planning and management, and provision of accommodation, transportation, accessibility, information, security, and utilities. There are complex interactions and relationships among these components across the ecosystem, and at local, regional, national, and international scales. PAs interact with tourism operators, PAs interact with communities, tourism operators interact with communities, and the three components are linked to the wider environment. These components of the NBT supply system interact dynamically in a non-linear manner, resulting in mixed outcomes for conservation and communities. The findings indicate the need for an integrated management approach to NBT in the Serengeti ecosystem that is more adaptive and ecosystem-based than currently exists.

The wildlife legislation requires all PAs in the Serengeti ecosystem to have management plans, but some do not. The management plans in the ecosystem vary among PAs, with a number of flaws, including inadequate participation of stakeholders, poor use of zoning (design and implementation), and ineffective application of the “Limits of Acceptable Use” (LAU) as a main framework for controlling use.

Management can be improved by several measures, including more effective inclusion of stakeholders, and application of the “Limits of Acceptable Change” (LAC) rather than “LAU,” amongst other measures that are outlined in more detail below.

NBT in the Serengeti ecosystem is growing, and delivers a range of conservation benefits and costs that vary across the ecosystem. These conservation benefits include: financial support for conservation, improved biodiversity conservation and PA management, raised conservation awareness, and public support for conservation. These benefits can be improved by enhancing the quality of services and tourism experience, charging appropriate fees, PA agencies retaining a portion of tourism revenue, and improving collaboration and participation of stakeholders in NBT and conservation. Conservation costs include financial costs, wildlife disturbance, shifting priorities from conservation to tourism, habitat destruction, and pollution. These costs can be reduced by undertaking thorough investigation of the potential costs and benefits of tourism development, effective management planning, improving provision of information to tourists, and improving NBT management.

NBT delivers many benefits to communities, such as income, employment, social services and infrastructure, scholarships, and school fees. These benefits can be improved by participation of local communities in conservation, promoting capacity building in

local communities, improving legislation and mechanisms governing delivery of benefits, and encouraging communities to establish Wildlife Management Areas (WMAs). NBT results in many costs to local communities, such as loss of grazing land and farmland, conflict (tourism stakeholders, and human-wildlife conflicts), stress to local residents due to increase of human populations, and unintended consequences such as cultural degradation. These costs can be reduced by involving local communities in tourism development and management and developing codes of conduct for tourism operators and PA agencies. Specific examples of suggested actions include: developing and implementing effective management plans; promoting stakeholder awareness of conservation, NBT, and communities; and establishing a forum for discussing interests and issues of stakeholders in the ecosystem.

The flow and distribution of these costs and benefits to conservation and communities also varies across the Serengeti ecosystem. Overall, NBT generates substantial benefits to PAs, although considerably less revenue is allocated to conservation activities than is accrued from NBT. On the other hand, local communities experience considerable costs and receive inadequate benefits that are not sufficient to address poverty. Inadequate mechanisms that govern the flow of the costs and benefits, poor governance, and persistent poverty are some of the main factors contributing to the imbalance of the flow and distribution of the costs and benefits of NBT.

Finally, a complex systems perspective was shown to be a useful tool in understanding the NBT system as a whole, the dynamic interaction within the system and beyond, and associated costs and benefits delivered by that system. Overall, this study recommends adaptive management, ecosystem-based management, and an integrated

approach that recognizes and accommodates the interests of various NBT stakeholders in the Serengeti ecosystem. Specific actions of high priority include developing and implementing effective management plans, adopting LAC in PA planning, capacity building for communities to participate in the tourism industry, and participation and collaboration of NBT stakeholders in the ecosystem.

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Dedication

This work is dedicated to my parents, for you nurtured development and nature conservation. Omukwekulu Eliada Nyafuru Nyamasota and the late Omukaruka Blasitus Masuruli Manyama Etanga.

CHAPTER 1

INTRODUCTION

1.1 Overview and rationale of the study

This thesis focuses on the relationship between Protected Areas (PAs), tourism, and communities. The research focuses on how tourism impacts conservation and communities found within or near to PAs. These relationships are examined through a number of conceptual frameworks, including systems theory, carrying capacity, Limits of Acceptable Change (LAC), and ecosystem-based management. This first chapter provides an overview and rationale for the study and describes tourism in Tanzania, the study area, and the objectives of the dissertation.

1.1.1 Tourism

Over the past few decades, tourism has evolved into one of the most significant sectors of the global economy (UNWTO, 2013). Tourism accounts for 9% of the Gross Domestic Product and 9% of employment worldwide and 6% of the world's exports (UNWTO, 2013). The tourism industry is one of the main sources of income and employment for many countries, a principle foreign exchange earner for 83% of developing countries, and the number one export for one third of the poorest countries (TIES, 2006; UNWTO, 2013). Given its economic and social significance, tourism is regarded as a strategy for economic and social development in many countries, including Tanzania (Awang et al., 2009; Hall & Page, 2006; Newsome et al., 2013; Sharpley, 2009; Telfer & Sharpley, 2008; URT, 2010).

The number of international arrivals has grown steeply from 25 million in 1950, to 278 million in 1980, 528 million in 1995, and 1,035 million in 2012 (UNWTO, 2013).

In the future, 1.8 billion international arrivals are forecasted by the year 2030, with a growing focus in developing countries (UNWTO, 2013). Over the past six decades, tourism has experienced expansion and diversification, and new destinations (e.g., Asia and Africa) have emerged apart from the traditional markets of Europe and North America (Newsome et al., 2013; UNWTO, 2013). In 2012, the Asia and Pacific regions recorded the highest international tourism growth rate of 7% (e.g., Japan 34.6% and Taiwan 20.1%), followed by Africa 6% (e.g., Cameroon 35.3% and Tanzania 23.7%), while the traditional markets of North America and Europe indicated 5% and 3% growth rates respectively (UNWTO, 2013). The market share of the emerging economies has increased from 30% in 1990 to 47% in 2012, and is expected to reach 57% by 2030 (UNWTO, 2013). Newsome et al. (2013) note that key tourist attractions for many emerging economies are “natural areas”.

The general growth trend of tourism for the past decades has been attributed to improved economies, social change (e.g., population increase, improved social welfare and mobility), technological advancement in communications and transportation (e.g., air transport), and political stability after the Second World War in many parts of the world (Goeldner & Ritchie, 2006; Weaver, 1998). However, tourism has also been subjected to disruptions and fluctuations as a result of events such as the global financial crisis and economic recession in the 1980s and 2008-2009, terrorism (e.g., September 11, 2001), climate change, natural disasters (e.g., earthquakes and tsunamis) and wars (e.g., the Gulf War in 1991). However, the tourism industry is also characterized by quick recovery and high resilience (Newsome et al., 2002; Newsome et al., 2013; UNWTO, 2013).

The largest and fastest growing segment of the global tourism market is nature-based tourism (NBT), especially in developing countries, with a focus on PAs (Balmford et al., 2009; Eagles et al., 2002; Karanth & Defries, 2010; Newsome et al., 2013).

NBT can be broadly defined as all forms of tourism that rely primarily on the natural environment for its attractions or settings, including wildlife tourism, geotourism, adventure tourism, and ecotourism (Eagles et al., 2002; Newsome et al., 2013; Rollins, 2009). As opposed to other forms of tourism, NBT depends directly on the use of natural resources in a relatively undeveloped state, including wildlife, water features, topography, vegetation, and scenery. The growth of NBT in PAs is due to the high concentration of biodiversity and relatively pristine environment in these areas (Christ et al., 2003; Eagles et al., 2002; Karanth & Defries, 2010; Newsome et al., 2013).

Overall, it is estimated that NBT has increased from about 2% of all tourism in the 1980s to about 20% in 2013 (Buckley, 2009; Newsome et al., 2013). In some countries, NBT accounts for between 40% and 60% of all international tourists (TIES, 2006). However, recent trends in some developed countries, particularly the United States and Japan, indicate a decline (Balmford et al., 2009). As a result of the growth and development of NBT, PAs in developing countries have become prominent tourist destinations (Christ et al., 2003; Walpole & Goodwin, 2001).

NBT depends on natural areas like national parks (Eagles et al., 2002; Newsome et al., 2013). Although many people think of PAs as a tourism resource, the overarching objective of PAs is protection of biodiversity (Dudley, 2008). PAs form a significant refuge for biodiversity which has been degraded in areas outside PAs in most parts of the world, and tourism can provide essential revenue streams needed to protect and manage

biodiversity (Newsome et al., 2013). However, poorly managed tourism can undermine conservation as well as the sustainability of the tourism industry.

1.1.2 NBT impacts to PAs and communities

NBT can have both negative and positive impacts on PAs and adjacent communities (Eagles et al., 2002; Goodwin et al., 1998; Karanth & Defries, 2010; Mbaiwa, 2003; Newsome et al., 2012; Rollins et al., 2009). It can result in loss and degradation of natural resources through development and use of facilities and infrastructures in PAs. Also, tourism can cause wildlife disturbance through activities like hunting and uncontrolled game viewing, pollution, and contamination of the environment (Green & Giese, 2004; Mbaiwa, 2003; Newsome et al., 2012; Rollins et al., 2009).

On the other hand, NBT can provide benefits to conservation of biodiversity in PAs (Brockelman & Dearden 1990; Christ et al., 2003; Eagles et al., 2002; Higginbottom & Tribe, 2004; Newsome et al., 2013; Rollins et al., 2009). It can generate funding for conservation and PA management through various fees charged by PA agencies (e.g., entry fees, accommodation fees, user fees, and conservation fees) (Eagles et al., 2002; Higginbottom & Tribe, 2004; Rollins et al., 2009). It can raise environmental awareness of tourists and the general public in numerous ways, such as interpretation programs, documentaries, visitor information centres, and guide books. In addition, it can build public support for conservation and existence of PAs when local people participate in and realize benefits from NBT (Christ et al., 2003; Higginbottom & Tribe, 2004; Newsome et al., 2002; Newsome et al., 2013).

NBT can have positive impacts on nearby communities (Goodwin et al., 1998; Homewood et al., 2012; Karanth & Defries, 2010) as it provides local people with

employment opportunities through accommodation facilities, tourism companies, and tourism-related businesses. It can also help provide and improve social services to nearby communities, including schools, roads, and water supply. Local people may also use facilities and services developed for tourism (Goodwin et al., 1998; Karanth & Defries, 2010). NBT generates income to individuals and the community and stimulates the local economy by providing opportunities for the establishment of tourism-related small businesses such as horticultural and poultry projects. It also creates social interaction between local people and tourists.

However, NBT can have negative impacts on the communities adjacent to PAs. These negative impacts include human-wildlife conflict (e.g., when wildlife from PAs move into surrounding landscapes and create crop damage or livestock depredation), loss of land for the traditional economy through the creation of PAs, and tourism development in the areas formerly occupied by communities (Goodwin et al., 1998; Homewood et al., 2012; Mbaiwa, 2003; Walpole & Goodwin, 2001). NBT can accelerate poverty if tourism is not integrated into the local economy to allow local people to participate and benefit from tourism (Goodwin et al., 1998; Homewood et al., 2012; Mbaiwa, 2003; Walpole & Goodwin, 2001). This can result in local resentment and negative attitudes to NBT and PAs (Homewood et al., 2012; Mbaiwa, 2003).

Further concerns have been raised about the flow and distribution of the costs and benefits of NBT to local communities in and around PAs (Goodwin et al., 1998; He et al., 2008; Homewood et al., 2012; Mbaiwa, 2003; Ross & Wall, 1999). These costs and benefits are not always evenly distributed among stakeholders, communities, and individuals such that inequalities exist in the costs and benefits experienced by

stakeholders (Goodwin et al., 1998; He et al., 2008; Homewood et al., 2012; Mbaiwa, 2003). Many scholars argue that there is a mismatch in the flow and distribution of costs and benefits of tourism to local communities, in that PAs and local communities experience much of the costs and receive limited benefits (He et al., 2008; Homewood et al., 2012; Hvenegaard & Dearden, 1998b; Mbaiwa, 2003; Novelli & Scarth, 2007; Sekhar, 2003). This thesis investigated the occurrence of this situation in Tanzania.

1.1.3 Sustainable tourism in PAs

Realization of the concerns outlined above coupled with social changes have contributed to the emergence of “sustainable tourism” (Fennell, 2008; Wearing & Neil, 2003). Liu (2010) and Eagles et al. (2002) argue that tourism is not sustainable if it has negative impacts on the natural resources it relies upon and the adjacent communities without providing benefits.

Sustainable tourism has received considerable attention in the tourism literature (Fennell, 2008). The WTO (1993, p. 11) defines sustainable tourism as “tourism which improves the quality of life of host communities, provides a high quality experience for the visitor, and maintains the quality of the environment on which both the host community and the visitor depend.” Sustainable tourism must operate within the ecological and social goals of an area, work towards improving the quality of life of various actors involved (e.g., tourism operators, local communities, and PA agencies), and take into account the relationships between many actors and their roles (Liu, 2013; Nepal, 1997). Sustainable tourism development seeks to address and enhance economic, social, and aesthetic needs at the destination by promoting the kind of economic development that maintains ecological processes, biological diversity, and life support

systems (Rollins et al., 2009; Nepal, 1997). The concept of sustainability has been widely viewed to hold significant potential in addressing the negative impacts of tourism on the environment, communities, and actors while maintaining long-term viability of the tourism industry (Liu, 2010; Nepal, 1997).

Some scholars (e.g., Buckley, 2009; Dearden, 1992; Newsome et al., 2013) suggest that all forms of tourism must be sustainable, however “ecotourism” is thought to hold more potential to contribute to sustainability than other forms of tourism in PAs (Buckley, 2012; Hvenegaard & Dearden, 1998a; Newsome et al., 2013; Rollins et al., 2009). The term “ecotourism” has varying meanings and applications (Fennell, 2008). For instance, ecotourism is used by some tourism operators as a marketing strategy to label their product even if they do not meet the requirements of ecotourism in order to attract more customers, charge higher prices, and accrue more profit (Newsome et al., 2013; Rollins et al., 2009). Similarly, ecotourism has been perceived as any form of tourism which is not mass tourism (Dearden, 1992; Fennell, 2008). Newsome et al. (2013) argue that ecotourism has six components: (1) based on the natural environment; (2) enhances biodiversity by respecting and protecting the environment; (3) supports the culture of the host community; (4) raises environmental awareness of tourists; (5) involves and benefits local communities; and (6) satisfies tourists by improving the quality of the tourist experience (Newsome et al., 2013; Rollins et al., 2009; Weaver, 2008).

Sustainable tourism, especially ecotourism as outlined above, is relevant to PAs in developing countries which possess high biodiversity (e.g., Costa Rica, Kenya, and Tanzania) while experiencing high tourism growth (He et al., 2008; Nepal, 1997).

Developing countries with high biodiversity are among the poorest countries in the world and their economies often depend on NBT (Christ et al., 2003). Such countries are faced with challenges of limiting the negative impacts of tourism, generating sufficient revenue for the governments, satisfying the interests of various user groups (e.g., tourists and tourism operators), and beyond that, supporting local livelihood and poverty alleviation (Adams & Infield, 2003; Liu et al., 2012; Nepal, 1997; Sandbrook, 2010). Similarly, biodiversity in PAs is threatened by local communities through illegal activities (e.g., poaching, uncontrolled burning, and encroachment) if communities do not participate in, and realize benefits from, PAs (Christ et al., 2003; Liu et al., 2012; Nepal, 1997).

The distribution of the costs and benefits and managing NBT in PA settings in a sustainable manner are challenging and complex issues. Thus, there is a need to understand the flows of the costs and benefits of NBT and to search for conceptual structures that will facilitate this understanding and possible contribution to policies and management of tourism (Farrell & Twinning-Ward, 2004; Hall & Lew, 2009; Strickland-Munro et al., 2010). This study investigates the NBT supply system in the Serengeti ecosystem, a leading tourism region in Tanzania.

1.2 Tourism in Tanzania

1.2.1 Overview of tourism in Tanzania

Tanzania is one of the poorest countries in the world, with about 36% of the population estimated to be living below the United Nations poverty line of US \$1 a day, and 46% of its national budget is donor supported (UNDP, 2008). Tanzania is endowed with spectacular and diverse natural resources and has devoted approximately 38% of

its total land surface to PAs (URT, 2007). These PAs are surrounded by millions of poor people, who to a large extent depend on natural resources for their livelihoods (Mwakaje et al., 2012; URT, 2007). In Tanzania, poverty is a rural phenomenon, in that over 70% of the people affected live in rural areas (Schmitt, 2010; World Bank, 2008).

As a result, Tanzania promotes the use of its wealth of natural resources to address economic development and poverty alleviation by encouraging sustainable tourism development (URT, 1999; URT, 2007). The National Tourism Policy for Tanzania (URT, 1999) stipulates that Tanzania will pursue a low volume, high quality, high priced NBT experience that is culturally and socially acceptable, environmentally friendly, and economically viable (Eagles & Wade, 2006; Sinclair et al., 2008; URT, 1999). However, the national tourism policy of Tanzania is contested by some (e.g., Eagles & Wade, 2006; Wade et al., 2001) in that it does not provide a blue print of what is happening on the ground due to several deficiencies existing in its product, including lack of tourism professionals, infrastructure, and legislation and regulatory framework.

The tourism sector is one of the leading and fastest growing sectors of the economy in Tanzania (MNRT, 2008; URT, 1999). For instance, in 2008 the tourism sector was the number one industry, providing 40% foreign exchange for Tanzania, and contributing about 17.5% of the total Gross Domestic Product (GDP) (URT, 2010; Tanzania Tourist Board, 2008). Tourist earning increased from US \$570 million in 1998 to US \$823.05 million in 2005 and reached US \$1.293 billion in 2010 (World Bank, 2010; MNRT, 2008). The tourism industry employed 132,000 people in 1998, 199,000 people in 2005, and 300,000 people in 2010 (URT, 2010; Tanzania Tourist Board, 2008). Tanzania relies primarily on the international tourist market that grew from 482,331

tourists in 1998 to 612,754 tourists in 2005 and reached 783,000 tourists in 2010 (MNRT, 2008; URT, 2010; World Bank, 2011).

The growth and development of tourism in Tanzania is attributed partly to the abundant and diverse wildlife, the spectacular landscape and scenery, and relatively unspoiled environment. These outstanding natural attributes are coupled with economic reform policies that established a private sector driven economy that was adopted by the government in the 1990s (Luvanga & Shitundu, 2003; MNRT, 2010; URT, 1999).

1.2.2 Tourism development in Tanzania

Tourism in Tanzania can be traced back to the colonial era when the country was under German and British administration in the 19th century. Some literature (e.g., Curry, 1990; Honey, 1999; Kahama, 1995; Kweka et al., 2003; Ranja, 2003; Salazar, 2009; Sindiga, 1999) discusses tourism development and the socio-economic significance of the tourism sector in Tanzania. Since the colonial period, tourism in Tanzania has been associated with biodiversity, particularly charismatic wildlife such as elephant, lion, buffalo, zebra, giraffe, and wildebeest (Honey, 1999; Sinclair et al., 2008). Early tourists to Tanzania were interested in tourist hunting and photographic tourism activities (Sinclair et al., 2008). Honey (1999) points out that during colonial times, tourism was organized and coordinated under the colonial administration in East Africa (Kenya, Tanzania, and Uganda).

Shortly after independence in 1961, the Tanzanian government declared biodiversity conservation as a national priority through the “Arusha Manifesto” that emphasized biodiversity conservation, on which tourism in Tanzania depends (Honey, 1999; Thirgood et al., 2008; URT, 1998; URT, 2007). In the early 1960s,

tourism was not considered an important sector of the economy in the country (Kweka et al., 2003), but at the end of the 1960s, Tanzania was influenced by the rapid growth of international tourism (Curry, 1990; Honey, 1999; Salazar, 2009). The volume of tourism in Tanzania indicated an increasing trend, with some fluctuations as a result of economic and social influences within and outside the country (e.g., global economic crisis, terrorism events in Tanzania, Kenya, and USA, war between Tanzania and Uganda, and changes in economic and social policies) (see Appendix K) (Curry, 1990; Honey, 1999; Kahama, 1995; Salazar, 2009).

From the 1990s, the tourism sector has become significant to economic and social development in Tanzania (Kweka et al., 2003; Luvanga & Shitundu, 2003; URT, 1999). It provides employment, income to the government and private sector, as well as cash to households, and support to community livelihoods (Table 1.1). In 1998, tourism accounted for US \$570 million and 132,000 people employed compared to US \$1,037.30 billion and 250,000 people employed in 2007. It also generates funding for biodiversity conservation and supports PA management (Emerton & Mfunda, 1999; URT, 1999).

Table 1.1: Trends of tourism in Tanzania between 1998 and 2012

Year	Number of tourists	Foreign exchange earnings (US\$)	Number of employees in the tourism sector
2012	1,077,058	1,712.15	
2011	867,994	1,353.29	
2010	782,699	1,254.50	
2009	714,367	1,159.82	
2008	770,376	1,288.70	
2007	719,031	1,198.76	250,000
2006	644,124	950.20	199,300
2005	612,754	823.05	199,000
2004	582,000	746.08	198,050
2003	576,000	731.00	160,500
2002	575,000	730.00	160,200
2001	525,122	725.00	156,500
2000	501,669	739.10	156,050
1999	627,325	733.30	148,000
1998	482,331	570.00	132,000

Source: Ministry of Natural Resources and Tourism (2012); National Bureau of Statistics, 2008.

The tourism industry in Tanzania is mainly guided by the National Tourism Policy (1999), the Tourism Act (2008), and other related sectoral policies (e.g., Wildlife Policy, National Environmental Policy, and National Strategy for Growth and Poverty Reduction-MKUKUTA). The National Tourism Policy (1999, p. 5) seeks to “assist in effort(s) to promote the economy and livelihood of the people, essentially poverty alleviation, through encouraging the development of sustainable and quality tourism that is culturally and socially acceptable, ecologically friendly, environmentally sustainable, and economically viable.” Eagles & Wade (2006) underscore that Tanzania aspires to offer a low volume, high quality, and high priced tourism experience based on nature. The policy outlines four national tourism objectives: economic, social, environmental, and cultural. It also describes the roles of various institutions involved in tourism, including the government, private sector, conservation agencies, business associations, and communities (URT, 1999).

Since the government of Tanzania adopted economic reform policies in the 1990s, it has provided more opportunity for participation of the private sector in tourism (Kweka et al., 2003; Mwandosya, 2007; URT, 1999). Currently, the role of the government in the tourism sector is to develop and implement policies, policy strategies, and plans of action, promote and regulate tourism, create and facilitate an enabling environment for tourism business, and provide tourism services (URT, 1999; URT, 2002). The role of the private sector is to take the lead in development, promotion, and marketing of tourism products, develop and provide tourism services (e.g., accommodation and transportation) and attractive tour packages, as well as other tourism services (URT, 1999; URT, 2002). Table 1.2 indicates the roles of different institutions in the tourism sector.

Table 1.2: The role of different institutions in the tourism sector in Tanzania

Institution	Roles in the tourism sector
Central Government	<ul style="list-style-type: none"> • Development and implementation of tourism and tourism related policies and plans • Promotion and marketing of tourism product and Tanzania as a tourism destination • Developing mechanism and ensuring adherence to the environmental protection standards • Creating and facilitating enabling environment for tourism business and development • Providing and ensuring safety and security of tourists and the public in general • Coordinating and consulting with different institutions engaged in tourism sector at national and international levels
Ministry of Natural Resources and Tourism (Tourism Division)	<ul style="list-style-type: none"> • Formulation of tourism policy and overseeing its implementation • Formulating, reviewing and enforcement of legislation • Monitoring and evaluation of the sector performance • Research, training and curriculum development • Licensing and control of tourist agency business • Undertaking quality control of tourism facilities and services • Developing and promoting domestic tourism • Identification of tourism attractions and diversification of tourism activities • Undertaking impact assessment on cultural and socio-economic activities • International cooperation and collaboration
Ministry of Natural Resources and Tourism Tanzania Tourist Board (TTB)	<ul style="list-style-type: none"> • Provision guidance for tourism promotion and development in Tanzania • Undertaking promotion of Tanzania's tourism potentials abroad and within the country • Preparation and publication of destination promotion materials • Provision of tourist information • Undertaking market research to establish up-to-date tourism data base
Conservation institutions (WD, TANAPA, NCAA, WMAs and TAWIRI) public and private institutions	<ul style="list-style-type: none"> • To ensure high quality tourism product development • To enhance marketing and promotion of tourism products • To enhance conservation and awareness activities • To ensure proper management of the natural resources
Local government / Local authorities (District Councils - e.g., Serengeti District Council)	<ul style="list-style-type: none"> • Responsible for land-use planning, urban and rural development • Control over land-use and allocation • Provision and maintenance of tourism services, sites and attractions, and public services • Marketing and promoting specific local attractions • Facilitate the participation of local communities in the tourism industry • License establishments in accordance with the national framework
Private Sector (e.g., tour companies, hunting companies, and accommodation operators)	<ul style="list-style-type: none"> • Taking a leading role in the development and provision of tourism facilities and services (e.g., accommodation and transportation) • Promotion and marketing of tourism products and services • Satisfying customer needs by providing quality tourism products • Contributing to capacity building for employees (providing training opportunities) • Ensuring the safety, security and health of tourists
Non-Governmental Organizations (NGOs) (e.g., Frankfurt Zoological Society - FZS)	<ul style="list-style-type: none"> • Contributing to the implementation of tourism policy strategies and action plans • Participating in community based projects that are tourism related • Providing educational and training services to the public and communities • Carrying out research on matters pertaining to tourism
Business Associations (e.g., Tanzania Association of Tour Operators – TATO)	<ul style="list-style-type: none"> • Establishing and strengthening a national coordinating body for tourism development • Liaising with other bodies in presenting trade-related views and interests to the government and providing appropriate advice • Encouraging their members to develop and adhere to codes of conduct

Source: URT, 1999.

Despite the achievements that Tanzania has attained in tourism, it faces a number of challenges (Acorn Consulting Partnership Ltd., 2008; URT, 1999, 2002). These include inadequate legal and regulatory frameworks (e.g., regulations, guidelines, and standards), inadequate accommodation facilities (hotels and lodges), poor transportation infrastructure (e.g., roads and airports), and a shortage of finances to improve tourism infrastructures and facilities (Acorn Consulting Partnership Ltd., 2008; URT, 1999, 2002; Wade et al., 2001). Similarly, there are inadequate tourism professionals and insufficient institutional and technical capabilities and coordination among stakeholders in the tourism sector (Acorn Consulting Partnership Ltd., 2008; URT, 1999). Tourism is also experiencing inadequate information management and promotion strategies (Acorn Consulting Partnership Ltd., 2008; URT, 2012), as well as limited indigenous community participation in tourism (Charnley, 2005; URT, 1999). These challenges are particularly important in the Serengeti ecosystem which is the focus of this study (Acorn Consulting Partnership Ltd., 2008; Eagles & Wade, 2006; NCAA, 2010; TANAPA, 2013).

1.3 Description of the study area

This section describes the study area. It starts with general information related to NBT in Tanzania and then focuses on the Serengeti ecosystem.

1.3.1 Serengeti ecosystem location and protection status

The Serengeti ecosystem ($1^{\circ} - 3^{\circ}30' S$ and $34^{\circ}00' - 36^{\circ} E$) covers approximately 25,000 km² straddling the border of northern Tanzania and southern Kenya (Sinclair et al., 2008; TANAPA, 2005). The ecosystem comprises a number of PAs, namely: Serengeti National Park (14,763 km²), which is the core of the ecosystem; Ngorongoro Conservation Area (8,288 km²) to the south-east of Serengeti National Park;

Ikorongo-Grumeti game reserves (3,767 km²); Maswa Game Reserve and Kijereshi Game Reserve (2,200 km²) to the south-west of the park; and Loliondo Game Controlled Area (4,000 km²) to the north-east of the park (Figure 1.1) (Sinclair et al., 2008; Songorwa, 1999; TANAPA, 2005). Serengeti ecosystem also includes Ikona Wildlife Management Area (242 km²) to the west of the park and Makao Wildlife Management Area (176 km²) to the south-west of the park. The ecosystem harbours some 1.7 million wildebeest (*Connochaetes taurinus*), 250,000 zebra (*Equus burchellii*), and a vast number of ungulates and carnivores with varieties of vegetation types and habitats (Sinclair et al., 2008; TANAPA, 1994; TANAPA, 2005).

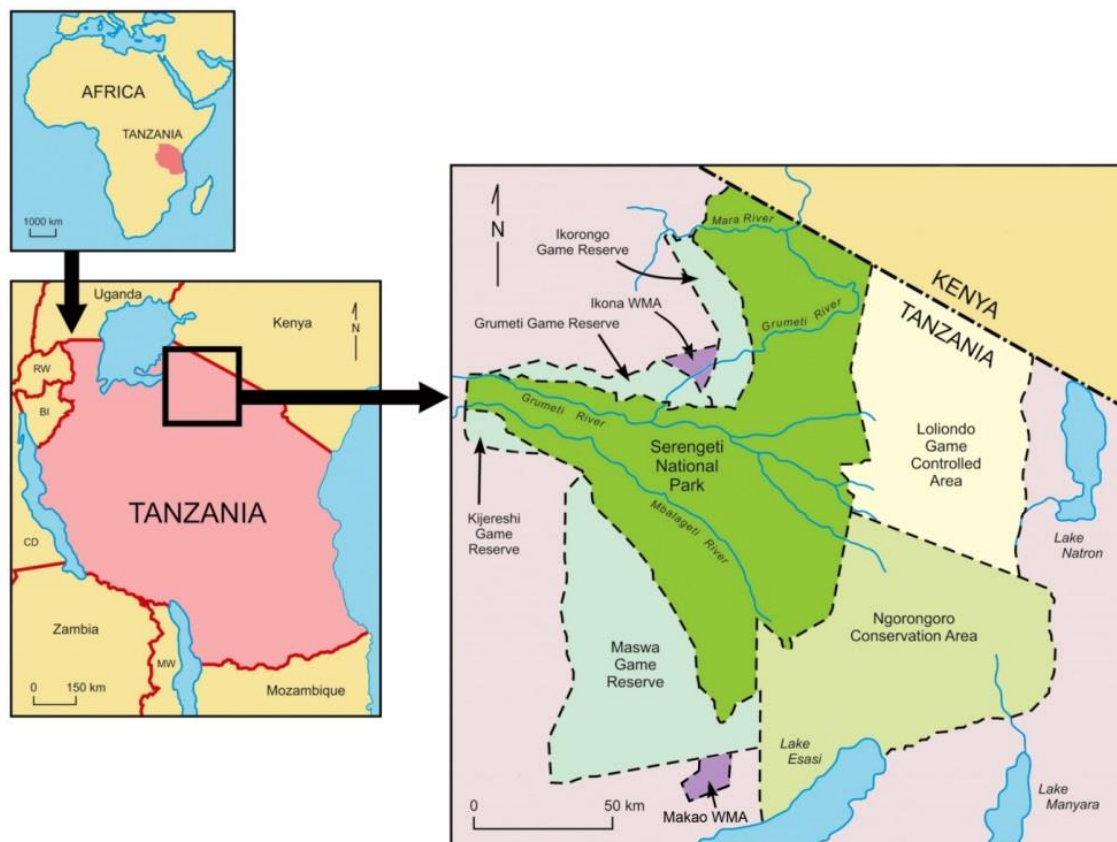


Figure 1.1: Map of the Serengeti ecosystem in Tanzania

Sinclair et al. (2008) argue that the Serengeti ecosystem is defined by the annual movements of the migratory wildebeest, which calve in the southern parts of SENAPA and then move to the north of the park through western Serengeti as indicated in Figure 1.2. In the north, the migration crosses the Tanzania–Kenya border and Mara River to Maasai Mara National Reserve in Kenya, and then crosses the same international border moving towards southern SENAPA through the eastern parts of SENAPA in Loliondo Game Controlled Area and NCA. It is during the north migration that the herds often transgress the PA boundaries and enter areas of low protection with comparatively high human population densities of the western corridor (Sinclair et al., 2008).



Figure 1.2: Map showing wildebeest migration in the Serengeti ecosystem (Source: TANAPA, 2012)

1.3.2 NBT in the Serengeti ecosystem

Most international tourists (75%) come to Tanzania to visit PAs and enjoy the beautiful and exceptional wildlife (URT, 2010). The Serengeti ecosystem, for example, has a remarkably high concentration of biodiversity that attracts significant NBT growth and development (Figure 1.1) (CHL, 2010; Gereta et al., 2003; NCAA, 2010; TANAPA, 2013). The area is notable for its famous wildlife attractions, which include spectacular wildlife, large wildebeest migration, beautiful scenery, landforms, historical sites, and rich indigenous culture (MNRT, 2009). However, communities around this PA are confronted with poverty. For instance, 51.3% of the communities in the Serengeti ecosystem live under the national average basic needs poverty line, and have a low level of school enrolment of only 41.3% (Schmitt, 2010; World Bank, 2008).

The surrounding poverty is thought to be a main driver behind deterioration of the ecosystem, including habitat degradation, escalating elephant poaching, and decline of population of some wildlife species (CHL, 2010; Homewood et al., 2012; NCAA, 2010; Sinclair et al., 2008). NCAA (2010) indicates that some of the affected wildlife species include elephants, African wild dog, oryx, greater kudu, and lion due to illegal killing and diseases. Furthermore, some areas, especially Ngorongoro Crater and Seronera, experience high tourist use leading to habitat degradation (CHL, 2010; Kalteborn et al., 2011; NCAA, 2010; TANAPA, 2005). Basically, human activities are the major threats to the Serengeti ecosystem (Sinclair et al., 2008).

The Serengeti ecosystem is the leading NBT destination in Tanzania, especially Serengeti National Park (SENAPA) and Ngorongoro Conservation Area (NCA). The Serengeti ecosystem is a relatively developed tourism destination in the country, with

high investment in tourism infrastructure and facilities. For example, SENAPA has 5 airstrips, a permanent road network, 8 permanent lodges, 12 permanent tented camps, and more than 20 campsites, and more tourism infrastructure is found close to the park. As a result, it receives high tourist numbers and revenue generation. The Serengeti ecosystem accounts for more than 50% of the total international tourists in the country (URT, 2010).

Many studies have been carried out in the Serengeti ecosystem with a focus on wildlife species and ecology, the interactions between PAs and local communities, and costs and benefits of PAs to communities, but few studies have focused on tourism (NCAA, 2010; Sinclair et al., 2008; TANAPA, 2005). A number of studies indicate that the Serengeti is a unique ecosystem with international ecological significance as a last and vast intact plain ecosystem supporting the Earth's largest population of terrestrial mammals and endangered species (Sinclair et al., 2008). The ecosystem consists of important World Heritage Sites and Biosphere Reserves (SENAPA and NCA), and other PAs with the potential to ensure the ecological integrity and viability of the ecosystem.

Wildlife resources attract many international and local tourists to visit the park, influencing tourism development in the Serengeti ecosystem (e.g., accommodation facilities and road networks) (Eagles & Wade, 2006; Homewood et al., 2012; Kalteborn et al., 2011; NCAA, 2010; Okello & Yerian, 2009; TANAPA, 2005; Wade, Mwasaga & Eagles et al., 2001). Kalteborn et al. (2011) and Okello & Yerian (2009) found that more than 80% of tourist respondents in the Serengeti identified wildlife, including large mammals and carnivores, as their primary attraction to the area. Furthermore, Eagles & Wade (2006), Kalteborn et al. (2011), and Okello & Yerian (2009) report that SENAPA is a key nature-based tourism destination, and tourists are satisfied with the natural

resources attractions (e.g., wildlife, wildebeest migration, and the savannah landscape). Kaltenborn et al. (2011) found that more than 90% of the tourist respondents rated the Serengeti as one of the best places to experience wildlife, and as different from any other NBT destinations in the world. As a result of these attributes, NBT in the Serengeti ecosystem generates substantial benefits (e.g., revenue and employment) (Charney, 2005; Homewood et al., 2012; Melita & Mendlinger, 2013; NCAA, 2010; Nelson, 2011; TANAPA, 2013). In 2010/11, the two PAs, SENAPA and NCA, generated about TZS 36.17 billion, and TZS 52.14 billion from tourism, respectively.

However, some scholars (e.g., Kideghesho et al., 2005; Sinclair et al., 2008; NCAA, 2010; TANAPA, 2013) have reported that the wildlife resources are threatened by human activities, including farming, poaching, and encroachment, as well as increases in human population from local communities. For instance, in 2011/2012 about 1,054 poachers were arrested in SENAPA and 1,271 wildebeest and 548 zebra were killed by poachers (TANAPA, 2013). The human population in the Serengeti ecosystem has increased from 2,318,903 in 2002 to 2,903,484 in 2012, an increase of 25% in 10 years (URT, 2002, 2012), resulting in encroachment and resources and boundary conflicts (Ngoitiko et al., 2010; Sinclair et al., 2008). On the other hand, local communities experience costs from biodiversity conservation in PAs in the ecosystem, such as loss of farmland and grazing land, crop damage, and livestock predation (Emerton & Mfunda, 1999; Gardner, 2012; Homewood et al., 2012; Kideghesho et al., 2005, 2008; Mwakaje et al., 2013; Nelson, 2011; Sinclair et al., 2008). Mwakaje et al. (2013) found that loss of grazing land to PAs was a high cost (57.5% majority of the respondents) to local communities in Loliondo and Western Serengeti. Similarly, Emerton & Mfunda (1999)

found that up to one third of households in the case study area in the Western Serengeti lose crops worth US \$155 per household to wildlife annually. The costs of PAs to communities and anthropogenic threats to biodiversity vary among communities and PAs in the ecosystem. For instance, in 2010/11 a high incidence of poachers in SENAPA were reported from Serengeti District (335 poachers) as compared to Bariadi District (209 poachers) and Ngorongoro District (4 poachers) (TANAPA, 2013).

While NBT provides benefits (e.g., revenue, employment, and social services) to key actors, including PAs agencies, tour operators, government, and local communities, the distribution of benefits is contentious, according to many scholars. Charnley (2005) and Melita & Mendlinger (2013) found that local communities accrue benefit from tourism including income, employment, and social services. For instance, in 2005 NCAA allocated about 10% (equivalent to US \$550,000 million) of the total tourism revenue to the Ngorongoro Pastoral Council which is used for community projects, yet the council perceives that this amount of revenue is not sufficient and that they deserve more funding from NCAA. Some scholars (e.g., Emerton & Mfunda, 1999; Homewood et al., 2012; Kideghesho et al., 2005, 2008) have indicated that local communities experience minimal benefits and a substantial proportion is accrued by PA agencies, government, District Councils, and tour operators. Emerton & Mfunda (1999) found that SENAPA generated more than US \$1.3 million from tourism, but less than US \$0.5 million was committed for management of the parks, and the remaining income was remitted to Tanzania National Parks headquarters and the government. Similarly, revenue from PAs and hunting activities accounted for up to 80% of Bunda and Serengeti District Councils (SRCS, 1992). Mwakaje et al. (2009) found that Ololosokwani and Soitisambu villages

generated US \$133,000 and US \$38,600 from tourism investors, respectively. This was used for public services and administration of village governments in the communities. Local communities bordering SENAPA and Ikorongo and Grumeti game reserves in the Western Serengeti experience limited benefits (social services and income) but high livelihood costs from PAs (Emerton & Mfunda, 1999; Kideghesho et al., 2005).

Some studies indicate that if local communities experience costs without benefits from PAs, they may develop negative attitudes towards biodiversity conservation, likely resulting in illegal activities in PAs and conflict between PA agencies and communities (Emerton & Mfunda, 1999; Kideghesho et al., 2005, 2008; Nepal, 2000; Nyaupane & Poudel, 2011; Sinclair et al., 2008; Tao & Wall, 2009). PAs and tour operators in the Serengeti ecosystem use different strategies to provide benefits to local communities. These include: provision of social services through Support for Community Initiated Projects – SCIP (SENAPA), Community Service Development and Pastoral Council (NCAA), and tour operators; allocation of income to villages/communities that is used for community development (WMAs and game reserves); and employment (NCAA and tour operators) (Charnley, 2005; Kideghesho et al., 2008; NCAA, 2010; SENAPA, 2013). Biodiversity conservation and sustainable tourism development in the Serengeti ecosystem will be enhanced if local communities and other key actors are actively involved in PA planning and management, including tourism, and receive benefits that offset the costs they incur from PAs and NBT (Charnley, 2005; Emerton et al., 1999; Kideghesho et al., 2005, 2008; Mwakaje et al., 2013; NCAA, 2010; Sinclair et al., 2008; TANAPA, 2013; URT, 1999, 2007).

1.3.3 Communities in and around the Serengeti ecosystem

The Serengeti ecosystem is surrounded and inhabited by more than 120 densely populated communities, including about 43 communities in western Serengeti, 36 communities in south-west, and 10 communities in eastern Serengeti (Figure 1.3) (TANAPA, 1994). There are also about 20 communities in NCA and 20 communities in the south and south-east of the ecosystem. These communities are characterized by high diversity in terms of social, economic, environmental, level of development, opportunities, and constraints. For instance, more than 20 diverse ethnic tribes, including the Maasai, Wandorobo, Hadzabe, Wairaqwi, Ikoma, Ikizu, Kurya, Natta, Jita, and Sukuma, are found in the ecosystem. Livestock-keeping and crop cultivation are the main socio-economic activities practiced by the local people in the Serengeti area (Homewood et al., 2012; Sinclair et al., 2008).

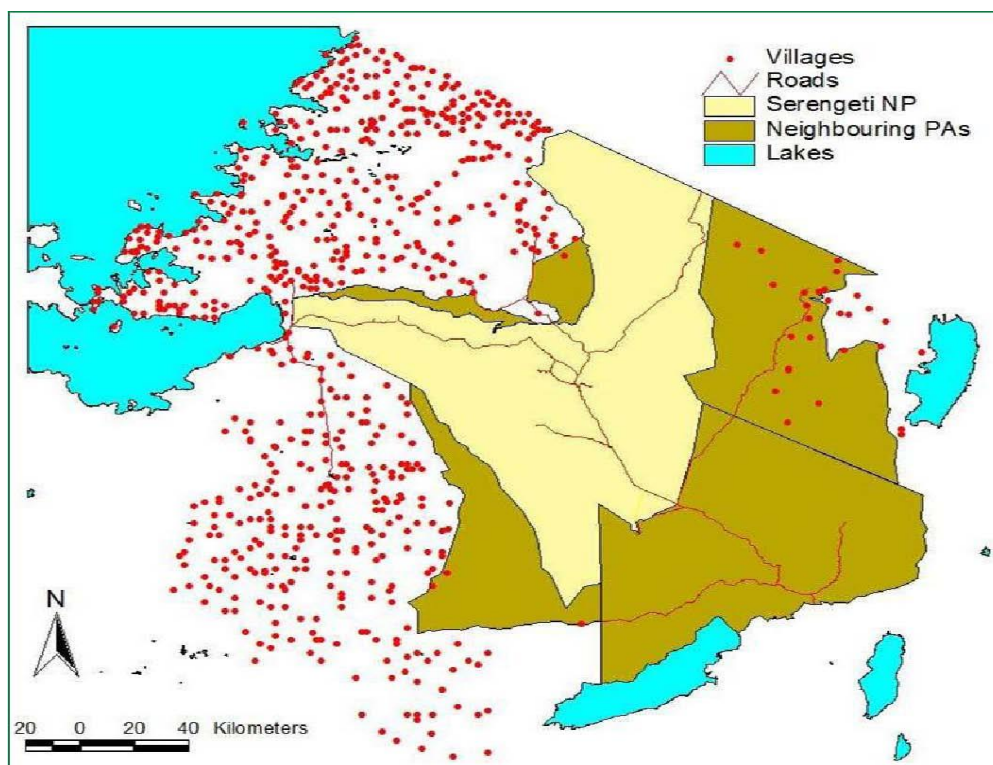


Figure 1.3: Map of communities in and around the Serengeti ecosystem (Source: TANAPA, 2011)

In summary, the ecosystem is a social-ecological system with rich biodiversity, relatively high tourism development, high human-wildlife interactions, and a large human population living in poverty.

1.4 The purpose and main research questions of the study

The purpose of this study is to investigate the flow of costs and benefits of the NBT supply system to conservation and communities. The following main research questions guided the study:

1. What is the **supply system** for NBT in the Serengeti ecosystem?
2. How do the **management plans** allow for and guide tourism in the Serengeti ecosystem?
3. How does the NBT supply system function to distribute the flow of costs and benefits to **conservation**?
4. How does the NBT supply system function to distribute the flow of costs and benefits to **communities**?

The following chapter will provide a literature review on these topics and introduce the conceptual framework used to guide the study.

1.5 Structure of the dissertation

The thesis is organized into eight chapters.

Chapter 1: Introduction – an overview of the thesis, especially NBT, tourism in Tanzania including the Serengeti ecosystem, rationale for the study, purpose and main questions of the research, and dissertation structure.

Chapter 2: Literature review – reviews the literature on tourism and NBT, the costs and benefits of tourism, approaches that have been used to understand tourism,

complex systems theory as a novel approach for investigating NBT supply systems, and the distribution of the costs and benefits of NBT to conservation and communities.

Chapter 3: Methodology – explains the research process and the qualitative method that was adopted in this study. It also introduces the case study and explains the methods used to collect and analyse data, along with the limitations of the research methodology.

Chapter 4: Results and discussion – Chapters 4, 5, 6, and 7 present the results from document analysis and interviews related to NBT using complex systems analysis. Chapter 4 describes the NBT supply system.

Chapter 5: Results and discussion – describes management plans for PAs, including tourism planning in PAs in the Serengeti ecosystem.

Chapter 6: Results and discussion – discusses the distribution of the costs and benefits of NBT to conservation.

Chapter 7: Results and discussion – describes the costs and benefits of NBT to communities.

Chapter 8: Conclusions – draws together conclusions and implications of the findings of this research on the development of NBT in the Serengeti ecosystem.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter reviews the literature related to nature-based tourism (NBT) supply systems in protected areas (PAs) and conceptual frameworks applied in this study. First, the chapter describes the conceptual framework and major components of the NBT supply system. Second, it covers the literature addressing the costs and benefits of NBT to conservation and communities. Third, the chapter describes the concepts and frameworks of tourism planning related to this study. These concepts and frameworks are used in this study to explore and understand the interactions among the components of the supply system of NBT and associated impacts to conservation and communities. This chapter provides a platform used to frame this research, identify gaps in the literature, and describe the concepts applied in this study.

2.2 Conceptual framework

In order to demonstrate systematically the costs and benefits of the NBT supply system to conservation and communities in the Serengeti ecosystem it is important to show the relationship between the major components of NBT in PAs. The conceptual framework of NBT describes the major components and helps to conceptualize the linkages between the components, issues, and implications, and the complexity of the NBT supply system in the Serengeti ecosystem (e.g., Dearden, 2000; Higginbottom, 2004; Reynolds & Braithwaite, 2001; Ross & Wall, 1999).

In a PA setting, NBT occurs as a complex system comprised of four major components: (1) PAs in which biodiversity conservation takes place;

(2) tourism operations; (3) communities; and (4) the wider environment, referring to the context in which the former three components takes place (Figure 2.1) (Farrell & Twinning-Ward, 2004; Ross & Wall, 1999; Strickland-Munro et al., 2010). These major components of NBT in PAs are interlinked (Figure 2.1). PAs are linked to communities, PAs are linked to tourism operations, and tourism operations are linked to communities. Each of the three components is linked to wider environmental concerns from local ecosystems through to planetary concerns. The nature of these linkages and the consequence of these relationships have impacts on the sustainability of the tourism industry, conservation of biodiversity, and community well-being. The major components of the complex NBT system are dynamic because they are constantly interacting and changing over time. For example, the objectives of PAs have expanded from protection of biodiversity to include tourism and participation of local communities. The components are interlinked because their elements form numerous contacts to each other. The components are interdependent due to the fact that the function of one element or component depends on the other elements or components such that a change to one of the components will trigger changes to other parts of the system in various ways (Farrell & Twinning-Ward, 2004; McDonald, 2009; McKercher, 1999; Ross & Wall, 1999; Strickland-Munro et al., 2010). For instance, if there is a park fee increase, it may affect the tourists and tourism operators who have to pay more money to the park, reduce the number of tourists, or generate a high-end tourism market and increase income for the park. The major components of NBT are described in the next section.

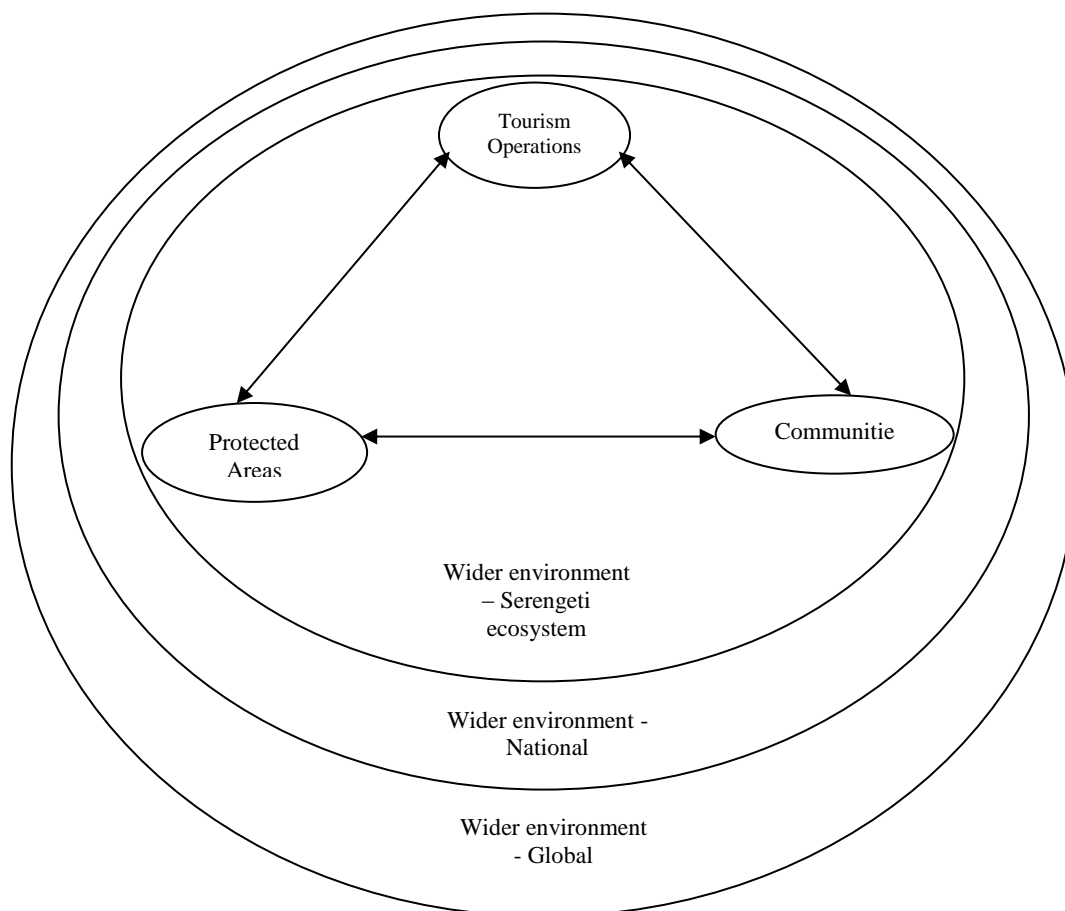


Figure 2.1: Conceptual framework of NBT

2.2.1 Protected areas (PAs)

The first component of this model is PAs. PAs are the cornerstone for biodiversity conservation in that they contain and protect significant biodiversity, including many species that are under threat (e.g., elephant and rhinoceros) (Christ et al., 2003; Dearden & Rollins, 2009; Eagles & Wade, 2006; Sinclair et al., 2008). PAs are “areas of land and/or sea especially dedicated to the protection and maintenance of biological biodiversity, and of natural and associated cultural resources, and managed through legal or other effective means” (Dudley, 2008). Similarly, the Convention on Biological Diversity (1992) defines biodiversity as “the variability among living organisms from all

sources including, *inter alia*, terrestrial, marine, and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems” (Dudley, 2008). Biodiversity is essential to the world society because it provides significant ecological, economic, social, and cultural values and services (Christ et al., 2003; Dearden & Rollins, 2009; Dudley, 2008).

The roots of biodiversity conservation date back to traditional societies of hunters and gatherers (Gurung, 2010; Kideghesho, 2008, 2009; Murombedzi, 2003). In those traditional societies, conservation was part of existing beliefs, customs, taboos, and traditional rules. Early history documents societies with areas of special value set aside for protection (Dearden & Rollins, 2009; Gurung, 2010). For example, in Ashanti culture in Ghana, sacred groves supporting wild animal species were established and protected based on their spiritual, religious, historical, and cultural beliefs and values (Acquah, 2013; Biodiversity Support Program, 1993; Kideghesho, 2009; Ntiama-Baidu et al., 2001). The protection of sacred groves is ensured through traditional taboos and beliefs, which are observed by the entire community. In many parts of Africa, wild animal species (e.g., leopard and lion) were regarded as the symbol of some clans due to cultural and historical value. Usually, such totem or taboo species of animals and the forest in which they occurred were strictly preserved and protected, such that hunting or killing them was forbidden (Acquah, 2013; Biodiversity Support Program, 1993; Kideghesho, 2008). To some extent, those traditional means of conservation maintained biodiversity; however, the means were not adequate since biodiversity declined as a result of human activities, such as hunting, wildfires, and expansion of agriculture (Dearden, 2002; Kideghesho, 2009; Munthali, 1993; Sinclair et al., 2008).

2.2.1.1 PAs and biodiversity conservation

As a response to these biodiversity declines, colonial regimes in Africa established PAs in order to control resources, especially wildlife (Kideghesho, 2008; Munthali, 1993; Roe et al., 2000). For example, the German colonial administration enacted a wildlife law to regulate hunting in 1891 in then Tanganyika (URT, 2007), and the British colonial government established Serengeti National Park (SENAPA), which restricted all human activities except non-consumptive wildlife tourism and research (Kideghesho et al., 2008; Sinclair et al., 2008; TANAPA, 2013; URT, 2003).

Yellowstone National Park in the United States, established in 1872, introduced the modern concept of PA management (Dudley, 2008; Gurung, 2010). Since then, the establishment of new PAs has gained momentum worldwide, such that today there are nearly 160,000 (UNEP-WCMC, 2012). Some of the famous PAs in Africa include SENAPA and Selous Game Reserve (Tanzania), Kruger National Park (South Africa), and Maasai Mara Game Reserve (Kenya).

PAs are regarded as a core strategy for biodiversity conservation (Bennett & Dearden, 2014; Cantu-Salazar & Gaston, 2010; Dearden & Mitchell, 2009; Dudley, 2008; Hatchwell, 2014; Liu et al., 2012; Rands et al., 2010). There is a general consensus among scholars that PAs play a significant role of ecological, social, and economic value to global societies, as indicated in Table 2.1 (Bennett & Dearden, 2014; Christ et al., 2003; Dearden & Rollins, 2009; Dudley, 2008; Gurung, 2010; IUCN, 2010; Newsome et al., 2013; Rees et al., 2014; UNEP-WCMC, 2008).

Table 2.1: Key values of PAs

Key values
<ul style="list-style-type: none"> • Visitation to PAs to experience and appreciate natural scenery • Watching wildlife in relatively natural setting • Provision of places for outdoor recreation pursuits and recreational opportunities • Income generation that facilitates their operations and other objectives • Keeping and maintaining of natural history of nature and baseline information • Maintaining and regulating the ecological components and ecological processes • Provision of opportunities for research in relatively natural environment • Provision of relatively natural opportunities to learn about nature • Can influence people's environmental behaviour in the environment • Protection and preservation of genetic biodiversity including those of threatened and endangered species • Provision of spiritual fulfillment and appreciation of natural forces more powerful than people and reminder that humility is a virtue

Source: Dearden & Rollins, 2009; Dudley, 2008; Newsome et al., 2013.

Despite the increase in the total coverage of global PAs, there has been a continual loss of biodiversity worldwide (Butchart et al., 2010; Homewood et al., 2012; Liu et al., 2012; UNEP-WCMC, 2012). In particular, there has been a decline in habitat and wildlife in the Semiarid African Savannah, as evidenced by longitudinal wildlife datasets that show that the number of many wildlife species (e.g., hartebeest, roan antelope, reedbuck, zebra, and sable antelope) have declined by 50-80% in some PAs in Kenya and Tanzania (Homewood et al., 2001; Ogutu et al., 2011; Sinclair et al., 2008; Stoner et al., 2007; Western et al., 2009). Biodiversity is still threatened at local, regional, national, and global scales as a result of anthropogenic factors, including high human population, conversion of natural ecosystems to other land uses (e.g., agriculture), over-harvesting, pollution, climate change (e.g., changing rainfall patterns and drought), diseases, and introduction of new species (Butchart et al., 2010; Christ et al., 2003; Homewood et al., 2012; Rands et al., 2010; Rockstrom, 2009; Sinclair et al., 2008).

PAs cover a wide range of management objectives and goals, management approaches, and governance authorities (Dudley, 2008; Locke & Dearden, 2005). The most common expression of this diversity is found in the IUCN system of PA management categories, as indicated in Table 2.2 (Dudley, 2008). PAs range from

areas strictly controlled, with limited human use allowed due to their significance and fragility, to those in which traditional uses and human activities are allowed (Dearden & Rollins, 2009; Dudley, 2008; Locke & Dearden, 2005). However, to qualify as a PA, an area must have biodiversity conservation as its prime objective (Dudley, 2008).

Table 2.2: The IUCN PA categories

Category	Description
I (a): Strict Nature Reserves	Areas strictly set aside to protect biodiversity and geological/geomorphological features, where human visitation, use, and impacts are strictly controlled and limited.
I (b): Wilderness Areas	Large unmodified or slightly modified areas protected and managed to preserve their natural condition.
II: National Parks	Large natural or near-natural areas set aside to protect large-scale ecological processes, species, and ecosystems which provide a foundation for environmentally and culturally compatible spiritual, scientific, educational, recreational, and visitor opportunities.
III: Natural Monuments	Areas set aside to protect a specific natural feature. They are generally quite small PAs and often have high visitor value.
IV: Habitat/Species Management Areas	Areas set aside to protect particular species or habitats. Usually, it involves regular active intervention.
V: Protected Landscape/Seascape	Areas where the interaction between people and nature over time has produced significant ecological, biological, cultural, and scenic value.
VI: Managed Resource PAs	Areas set aside to conserve ecosystems, habitats together with associated cultural values and traditional natural resource management systems. They are generally large with natural condition and a proportion under sustainable natural resources management.

Source: Adopted from (Dudley, 2008)

2.2.1.2 PA management paradigm shift

In recent years, there has been a shift in PA governance from an “old traditional paradigm” to a “new social paradigm” (Table 2.3). Historically, many PAs were established with little regard for local community needs and their relationships with local environment and resources (Dearden et al., 1996; Phillips, 2003; Sinclair et al., 2008). Management decisions and the process of establishing PAs were top-down and often excluded local residents (Phillips, 2003). In some areas, especially in developing countries, local residents were evicted from their native land and denied access to natural resources, thus creating conflict with and resentment by local people (Coad et al., 2008; Dearden, 2002; Kideghesho, 2005; Sinclair et al., 2008). In 1951, many local communities were removed when SENAPA was established (Sinclair et al., 2008).

As a result, local people in PAs often incurred costs (e.g., loss of grazing and farmland, crop damage, and wild animals attacking livestock), with few, if any, gains (Coad et al., 2008; Kideghesho, 2008; Novelli & Scarth, 2007). Over time, it became apparent that many local communities were marginalized, suffering, and impoverished by the conventional approach to PA management (Coad et al., 2008; Kideghesho, 2008). This has led to a call for a new perspective of conservation and management of PAs with a greater emphasis on social dimensions in decision-making (Dearden et al., 1996; Phillips, 2003). Table 2.3 outlines the characteristics of the old and new paradigms in PA management.

Table 2.3: Key characteristics of old and new practices in management of PAs

Old paradigm	New paradigm
Establishes as separate areas of scenic value. Separation of humans and nature, ‘island’ mentality	More holistic view, awareness of context. Managed for a greater range of purposes (including to benefit local communities)
High value placed on ‘wilderness’ qualities	Recognition as cultural landscapes
Run and financed by central government, paid for by taxpayers	Run by many partners (both government and non-government, including local communities). Financed by a variety of sources, including tourism
Based on notions of equilibrium and stability	Open systems. Non equilibrium conditions, importance of disturbance and change
Managed with little regard for local communities, exclusionist in nature	Park–people relations/issues of community empowerment important. Socio-economic objectives integrated with existing conservation objectives
Viewed as national assets	Viewed as community assets. Management responsive to both international and local/national contexts
Managed reactively, short-term outlook	Managed adaptively, long-term outlook

Source: (Borrini-Feyerabend et al., 2004; Phillips, 2003)

Efforts to promote involvement and participation of local communities in PA management can be traced back to the 1970s, when UNESCO established the Man and Biosphere (MAB) program (IIED, 1980; UNESCO, 2012b). The program included “biosphere reserves” that created buffer zones between PAs and community settlements as a way of addressing community concerns and aspirations with regard to PAs. Biosphere reserves are areas of terrestrial or coastal ecosystems established by countries

and recognized under UNESCO's MAB program to accomplish three basic functions: contributing to biodiversity conservation, promoting economic and human development (sustainable development), and providing support for research, monitoring, education, and exchange of information related to issues of conservation and development from local to international scales (UNESCO, 2012b). Thus, Biosphere Reserves seek to reconcile the conservation of biodiversity with its sustainable use by creating buffer zones between strict PAs (e.g., national parks) and human settlements (transition area) for activities that complement ecological practices, thereby cushioning the core conservation area, while sustainable development is the focus of the transition area (IIED, 1980; UNESCO, 2012b).

The World Conservation Strategy (IUCN/WWF/UNEP, 1980), as well as the World Parks Congress in Bali in 1982, emphasized the link between support for PAs and local communities (IUCN-WPC, 2003; Naughton-Treves et al., 2005; Sinclair, 2008). In line with this progress was the realization that biodiversity conservation and socio-economic development are interlinked and need to be integrated, as articulated by the Brundtland Report "Our Common Future" published in 1987 (Naughton-Treves et al., 2005). The Convention of Biological Diversity (CBD) in 1992 further underscored the relationship between PAs and socio-economic development and participation of local communities in PA management (Borrini-Feyerabend et al., 2004; Chape et al., 2008; IUCN-WPC, 2003; Naughton-Treves et al., 2005). New categories of PAs (V and VI) that allow extractive utilization of resources were introduced (Locke & Dearden, 2005).

Such efforts at the global level to involve local communities in PA management resulted in concepts and programs such as Integrated Conservation and Development

Programs (ICDP) and Community Based Natural Resource Management (CBNRM), accompanied by changing policies related to biodiversity conservation and community development in various countries (IIED, 1980; Kiss, 2004; Murphree, 2009). In Tanzania, initiatives to involve local communities in PA management started in the Serengeti ecosystem in the early 1980s. Then in 1998, the Tanzanian government institutionalized the Wildlife Policy, which was revised in 2007 recognizing participation of local communities and their roles in PA management and benefiting from wildlife by establishing wildlife management areas (WMAs) (URT, 1998, 2007). WMAs seek to promote sustainable conservation and development by safeguarding and utilizing wildlife resources in the area (URT, 2007). In 2002, the government issued the Wildlife Management Areas Regulations and Guidelines, aimed at guiding the establishment and management of WMAs. Since then, there has been a proliferation of WMAs, and by 2012 there were 17 in the country, including Ikona and Makao WMAs in the Serengeti ecosystem. WMAs are managed by local communities through authorized community-based organizations (URT, 2012). Although the number of WMAs is growing, little attention has been given to understanding the effectiveness of WMAs in delivering their legal mandate of biodiversity conservation and community livelihoods.

Many scholars now argue that, for economic, social, and political reasons, it is no longer appropriate to exclude and marginalize local communities in conservation of natural resources occurring in PAs (Coad et al., 2008; Dearden, 2002; Phillips, 2003; Sinclair, 2008). Local communities are regarded as conservation partners who participate in PA planning and accrue benefits from adjacent PAs (Nyaupane & Poudel, 2011; Phillips, 2003; Strickland-Munro & Moore, 2013). Many studies have suggested that

local community support for conservation is important for the success and sustainability of PAs (e.g., Berg et al., 1993; Boudreaux & Nelson, 2011; Mariki, 2014; Mbaiwa & Stronza, 2012; Mfunda & Røskaft, 2011; Songorwa, 1999). Conversely, it has been shown that a lack of community support for PAs can lead to compromising biodiversity. For example, crops or livestock damage by wildlife roaming outside of PA boundaries has at times led to poaching (e.g., elephant). The justification behind community participation in PA management is to engender community support for conservation while providing benefits to communities as a way to offset opportunity costs from PAs and improve livelihoods (Nyaupane & Poudel, 2011; Borrini-Feyerabend et al., 2004; Walpole & Goodwin, 2001).

Some scholars and practitioners, however, have urged caution in the adoption of a socially dominated agenda for PAs. They point out that the vast majority of the landscape is dominated by a social agenda – the 90% of the landscape that is not in PAs. Submitting PAs to the same agenda will do little to solve the biodiversity crisis they were established to address (Locke & Dearden, 2005; Miller et al., 2011). In some circumstances, particularly in developed countries, conservation is possible even without local participation and a development agenda (Miller et al., 2011). Some scholars (e.g., Locke & Dearden, 2005; Mchane et al., 2011; Scholte & de Groot, 2010) argue that participation of local communities in PA management is relevant in achieving broad conservation objectives. Dearden et al. (1996) emphasize the need for developing appropriate mechanisms to involve local communities in PA management in order to achieve the objectives of biodiversity conservation and improved community livelihoods.

The IUCN agreed with and clarified the need for PAs to have biodiversity conservation as their primary goal (Dudley, 2008).

Recent empirical literature (e.g., Sandbrook, 2010; Wittermyer et al., 2008) has shown that communities surrounding PAs are often more wealthy than those further away, as they benefit from PA investments, as well as tourism (Nyaupane & Poudel, 2011). There is a consensus that both paradigms (strict conservation and social conservation approaches) are justifiable depending on the context of a PA coupled with appropriate management strategies (Baird & Dearden, 2003; Sinclair, 2008). Some scholars (e.g., Emerton & Mfunda, 1999; Homewood et al., 2012; Kalteborn et al., 2011; Mfunda & Røskaft, 2010; Sinclair et al., 2008; TANAPA, 2005) argue that the success of biodiversity conservation in the Serengeti ecosystem requires integration of the needs of humans and biodiversity.

2.2.2 Tourism operations

The second component in this study is tourism operations, which refers to all goods, services, activities, and businesses associated with tourism, including attractions, transportation, accommodation, information, and promotion (Candela & Figini, 2012; Eagles et al., 2002; Goeldner & Ritchie, 2006; Newsome et al., 2013; Priskin, 2000; Theobald, 2005). These are supplied by a number of individuals, organizations, companies, and institutions from both public and private sectors (Candela & Figini, 2012; Goeldner & Ritchie, 2006; Newsome et al., 2013). The suppliers vary in terms of size, capital investment, market segment, ownership, management, quality, and quantity of services and business turnover (Goeldner & Ritchie, 2006; Theobald, 2005).

Most of the suppliers play multiple roles in tourism operations and NBT (Goeldner & Ritchie, 2006; Newsome et al., 2013). For instance, a tourism company may engage in provision of accommodation, transportation, and information services to tourists. The suppliers of services to tourists at a destination are interrelated, interdependent, and interlinked, making a tourism operation a sub-system (Goeldner & Ritchie, 2006; Theobald, 2005). There are many tourism firms providing similar services (e.g., accommodation and transportation) to tourists. Tourism companies depend on each other, such that tourists are taken to the destination by tourism companies dealing with transportation (e.g., airlines and tour companies), and tourists at the destination require accommodation provided by accommodation operators (Hall & Lew, 2009; Newsome et al., 2013). In addition, tourism-related activities and information are provided by accommodation operators, transport operators, and other firms engaged in tourism.

First, attractions and accompanying activities are key elements of any form of NBT which draw tourists to a destination (Eagles et al., 2002; Goeldner & Ritchie, 2006; Mbaiwa, 2011; Nelson, 2012; Senevirathna & Perera, 2013). Clearly, there is a relationship between the “attractions” of a PA and the tourism industry that caters to people drawn to this form of attraction (Gorcheva, 2011; Nelson, 2012; Senevirathna & Perera, 2013). Attractions are categorized as natural resources and man-made resources (Newsome et al., 2013; Swarbrooke, 1995). Natural resources include mountains, forest, wild animals, and scenery (Priskin, 2001; Senevirathna & Perera, 2013; Swarbrooke, 1995). Man-made attractions include museums, monuments, hotels, and historical and cultural features (e.g., the Pyramids of Egypt and Great Wall of China) (Goeldner & Ritchie, 2006; Swarbrooke, 1995).

Second, transportation is a critical element not only because it links the tourist from the source regions to the destination, but also facilitates tourist movement within the destination (Candela & Figini, 2012; Goeldner & Ritchie, 2006; Gorcheva, 2011).

Transportation also enables tourists to access and experience the tourist attractions and activities as well as tourism services at the destination. Transportation services include all modes of transport, such as planes, trains, buses, all-terrain vehicles, and bicycles (Newsome et al., 2013).

Third, accommodation plays the important role of providing basic infrastructure to accommodate tourists and provide them with lodging, food, and other services at the destination (Eagles et al., 2002; Gorcheva, 2011; Mbaiwa, 2011). There are different types of accommodation, ranging from hotels to lodges, rest houses, and campsites. Each of these can vary in terms of quality, capacity, and price (Mbaiwa, 2011).

Fourth, information is very important to tourists because without it tourists cannot comprehend properly what they see and experience at the destination (Anderson, 2011; Orams, 1996; Salazar, 2006). In tourism, information can be categorized as interpretive (e.g., signposts and tour guides) and general information (e.g., websites and brochures). Such information includes geographical, social, and economic information on the destination, and information about wildlife species and behaviour, vegetation, and PAs. Another aspect of information is promotion of the attractions and tourism product of the destination through advertising, publicity, and public relations (Goeldner et al., 2006). Tourists require information before they travel, during travel and the experience, and after the experience of a particular tourism destination.

Some literature classifies tourism into two broad categories – mass tourism and alternative tourism. Mass tourism depicts a category of classic tourism where a large number of people travel to a popular destination, as a result of marketing, easy access, and wide demand for the destination (Dearden & Harron, 1994a; Newsome et al., 2013; Wearing & Neil, 2003; Weaver, 1998). Alternative tourism (Dearden & Harron, 1994a; Newsome et al., 2013; Wearing & Neil, 2003; Weaver, 1998) is characterized by:

- Small scale tourism development (e.g., accommodation facilities)
- Low density and impact
- Small numbers of people
- Target special interest groups
- Sometimes difficult to access the destination

Alternative tourism is a generic category embracing various forms of tourism, such as ecotourism, wildlife tourism, adventure tourism, and geotourism, which are all alternatives to classical mass tourism (see Table 2.4) (Christ et al., 2003; Newsome et al., 2013; Rollins et al., 2009; TIES, 2006; Wearing & Neil, 2003). Although mass tourism and NBT occur on opposite ends of a long spectrum, there is some overlap between the two broad categories (Newsome et al., 2013; Wearing & Neil, 2003). For instance, Maasai Mara National Reserve and its surrounding area is a leading NBT destination in Kenya due to its wildlife attractions, and has more than 140 facilities with a total bed capacity over 4,000 (RAI, 2012). As a result of high visitation and tourism development, signs of environmental and tourism experience deterioration have begun to be manifested (RAI, 2012). Thus, some elements of mass tourism still occur in NBT (Newsome et al., 2013).

Table 2.4: Forms of NBT

- Adventure tourism is a form of NBT focusing on personal accomplishment through an activity with a degree of risk-taking and physical endurance, such as rock climbing, mountaineering, mountain biking, or white-water rafting (Christ et al., 2003; Goeldner & Ritchie, 2006; Rollins et al., 2009). Goeldner & Ritchie (2006) argue that adventure tourism is rapidly growing as a result of changes in demographics, values, and lifestyles.
- Geotourism is another form of NBT focusing on geology and landscapes of an area, including landforms, types of rocks and soil, as well as processes such as volcanism, glaciation, and erosion (Dowling, 2011).
- Wildlife tourism is defined as tourism based on wildlife in either the animals' natural environment or in captivity. It includes activities historically classified as non-consumptive (wildlife watching) and as consumptive (hunting and fishing) (Higginbottom, 2004).
- Ecotourism is another form of natural tourism, which is referred to as environmentally responsible travel and visitation to relatively undisturbed natural areas in order to enjoy and appreciate nature (and any accompanying cultural features - both past and present), that promotes conservation (low impact), environmental education, and provides active socio-economic benefits to the host community (Ceballos-Lascurain, 1996; Newsome et al., 2013; Rollins et al., 2009). Ecotourism is a strict and desired form of NBT with a focus on minimizing the negative impact and enhancing the positive impact of tourism. In this view, ecotourism promotes conservation, development, and tourism goals.

NBT in PAs creates the need for accommodation, transportation, utilities, facilities, and human resources to provide services that meet the demands. Sustaining the demand requires the provision of high quality services that meet tourist expectations (Butler, 2004; Eagles et al., 2002; Needham & Rollins, 2008; Newsome et al., 2013; Poon, 1994). However, many destinations, including PAs in developing countries, are lagging behind in providing tourism services and might not be equipped to handle the volume of international tourism (Eagles & Wade, 2006; Eagles et al., 2002; Buckley, 2009; Poon, 1994). Eagles & Wade (2006) indicate that, although SENAPA has outstanding wildlife attractions, the tourist facilities and infrastructures managed by the park authority are ranked low, whereas privately operated facilities are ranked high. Demands by the tourism industry to increase facilities and services in or near PAs can challenge PA managers faced with the need to protect biodiversity while also accommodating tourism and the benefits that can flow from tourism. This topic is taken up later in the chapter through discussion of the Limits of Acceptable Change approach.

2.2.3 Communities

Community is another component of NBT in PAs. The term community is perceived in various ways. For instance, community can be considered a grouping of people living and earning their living in the same geographical location along with other shared relational characteristics (e.g., culture, ethnicity, kinship, and marriage); and people who share similar interests and control over particular resources (Agrawal & Gibson, 1999; Eagles et al., 2002; IIED, 1994; Peredo & Chrisman, 2006). Communities are also seen as part of larger communities differentiated by a shared sublocation and common relational characteristics (Peredo & Chrisman, 2006).

For the purpose of this study, residents living within, or in close proximity to, a PA are referred to as communities or local communities. However, living in the same place does not mean shared interests, perceptions, attitudes, and behaviour towards PAs and NBT. Perceptions, attitudes, involvement, and dependency of locals on PAs and NBT are diverse and context-dependent (Agrawal & Gibson, 1999; Byrd et al., 2009; Eagles et al., 2002). Attitudes to PAs, and PA tourism in particular, are often influenced by length of residence, employment, degree of economic dependence, socio-cultural and economic impacts, distance between tourists and the community, and distance of the community from the tourism area (Andereck & Vogt, 2000; Aref et al., 2009; Byrd et al., 2009; Dearden, 2000, Teye & Sirakaya, 2002; Van Winkle & MacKay, 2008; Teye & Sirakaya, 2002). Direct economic dependence on tourism is often the single-most important factor affecting perceptions (Aref et al., 2009; Byrd et al., 2009; Sharma & Dyer, 2009; Stronza & Gordillo, 2008).

PAs and NBT cause impacts on local communities. In many cases, the relationships between local communities and PAs in developing countries have been conflicting as a result of negative interactions, attitudes, and perceptions of local people towards PAs (Kideghesho et al., 2007; Moore & Polley, 2007; Tessema et al., 2010), as discussed later in this chapter.

Apart from local communities, a wide range of stakeholders associated with NBT in PAs exist at local, national, and global scales (Eagles, 2002). These include visitors (international and domestic), central government, local government authorities, and public institutions (conservation and tourism agencies and associations), non-governmental organizations (NGOs), and other individuals. These stakeholders represent communities typified by shared interests rather than a defined spatial location (Eagles et al., 2002; IIED, 1994; Newsome et al., 2013; Rollins et al., 2009).

2.2.4 Wider environment

The fourth component of NBT in PAs is the wider environment. This involves various factors, such as the social, economic, environmental, political, technological, and institutional aspects at local, national, and global levels (Goeldner & Ritchie, 2006; Hall & Lew, 2009). For instance, a wider social factor is improved social welfare in developed countries, such as paid holidays, resulting in more opportunities to travel. A wider economic factor is economic development in the tourist source regions, particularly in developed countries (e.g., USA, Canada, United Kingdom, and Germany). Similarly, a wider environmental factor could be natural disasters (e.g., Iceland volcanic eruption in 2004) that result in cancellation of flights to Tanzania from some European countries (e.g., Netherlands and United Kingdom), thus affecting the flow of tourists to

Tanzania. A wider political factor is the outbreak of war, for example, the Gulf War in the early 1990s, which affected the economy and the tourism industry in Tanzania. Wider institutional factors include changes to tourism-related policies (e.g., investment policy and free economy market policy), as will be discussed in later chapters. Finally, advancement in information and communication technology has significantly improved the flow of information to different parts of the world, usually making it easier for people to plan their travels, particularly to lesser known regions of the world. The interplay among tourism operations, PAs, and communities takes place in a wider environment (Hall & Lew, 2009).

2.3 Costs and benefits of tourism

Many studies (e.g., Banerjee, 2012; Homewood et al., 2012; Mbaiwa, 2003; Newsome & Hassell, 2014; Sandbrook, 2010; Strickland-Munro & Moore, 2010) have explored the economic, social, and ecological costs and benefits of tourism, and suggest that these outcomes are mixed, site specific, and dynamic, and thus cannot be generalized. This section describes costs and benefits of tourism to biodiversity conservation, local community livelihoods, and the local and national economy. These costs and benefits are the main focus of this study and provide a background to this research.

2.3.1 Economic costs and benefits of tourism

Tourism can provide economic benefits to tourism destinations (Archer et al., 2005; Banerjee, 2012; Hall & Lew, 2009; Homewood et al., 2012; Karanth & DeFries, 2010; Newsome & Hassell, 2014; Sandbrook, 2010). At a macro-economic level, tourism is a source of income to the government (e.g., taxes, duties, and fees), and also helps

diversify the economy (open up and contribute to other economic sectors) and provide foreign exchange, especially in developing countries, where there are limited sources (Homewood et al., 2012; Mbaiwa, 2003; Mbaiwa, 2008; Telfer & Sharpley, 2008).

Tourism is one of the top priority economic sectors in Kenya and Tanzania, contributing to the GDP and foreign exchange earnings. For example, in 2009, tourism contributed US \$884 million in Kenya and US \$1.16 billion in Tanzania (Homewood et al., 2012; Ministry of Tourism, 2010).

At the micro-economic level, tourism can generate income to PA agencies, communities, and individuals through tourists' expenditures on various services and local supplies for the tourism industry (e.g., employment, entry fees, and user fees in PAs, accommodation, cultural entertainment, souvenirs, and selling of local produce) in the destination (Banerjee, 2012; Karanth & DeFries, 2010; Homewood et al., 2012; Mbaiwa, 2003; Mbaiwa, 2011; Newsome & Hassell, 2014; Ogutu, 2002). For instance, Tanzania National Parks accrued a total of TZS 74,028,400,447 in the financial year 2009/2010 with a projection of TZS 124,117,661,281 in the financial year 2012/2013 from 16 national parks (exchange rate US \$1: TZS 1565) (TANAPA, 2010). In the same period, Kilimanjaro National Park generated TZS 33,693,789,959 and forecast TZS 63,728,080,496 (TANAPA, 2010).

Similarly, benefit sharing mechanisms have become a popular means through which local communities gain benefits in developing countries including Tanzania, Kenya, Botswana, Uganda, Zambia, and Nepal. For instance, in Ngorongoro Conservation Area (NCA), Tanzania communities earn at least US \$1 million through the pastoral council (NCAA, 2010); in Masai Mara National Reserve, Kenya, communities

earn 19% of the gate fees (Homewood et al., 2012); in Kibale National Park, Uganda, they earn 20% (Mackenzie, 2012), and in Andasibe National Park, Madagascar, communities earn 50% of park fees (Newsome & Hassell, 2014). Ogutu (2002) reports that in 2001, Eselenkei communities adjacent to Amboseli National Park in Kenya received a fee of US \$5,300 annually with a 10% increment for the lease of the land to Porini Ecotourism Company, and in addition received between US \$500 and \$1,200 per year as gate fees and bed charges paid by tourists visiting the area.

Tourism also has the potential to stimulate the local economy, as it influences new investments, businesses, and demand for various services and supplies (Archer et al., 2005; Banerjee, 2012; Hall & Lew, 2009; Mbaiwa, 2003; Mbaiwa, 2011; Newsome & Hassell, 2014). For instance, tourism in Okavango Delta in Botswana has resulted in a proliferation of tourism businesses in the area, especially in Maun, including 8 privately owned airstrips, 60 accommodation facilities, a number of tourist offices, and a centre for tourist supplies (Mbaiwa, 2003). In Andasibe National Park, Madagascar, tourist accommodation has increased to 10 hotels in 2011 from 1 hotel in 1995 (Newsome & Hassell, 2014). Tourism generates employment opportunities to the tourism industry and tourism-related sectors of the economy, such as agriculture, construction, and transportation (Banerjee, 2011; Mbaiwa, 2011; Newsome & Hassell, 2014; Sharpley, 2014). Mbaiwa (2003) indicates that about 1,658 people were employed in 50 tourist camps and lodges in the Okavango Delta, and 727 people were employed in 35 tourism-related businesses in Maun in 2001.

Tourism can also result in economic costs to the government, PA agencies, tour operators, communities, and individuals. In many cases, the costs are investments that are

associated with provision of services to tourists, and tourism development, especially establishing, expansion, and improvement of infrastructure, facilities, and services, such as airstrips, roads, accommodation, water supply, and electricity (Archer et al., 2005; Banerjee, 2012; Hall & Lew, 2009; Mbaiwa, 2003). Such expansion is particularly important in developing countries, and may require change of land use as well as adding to tourism development costs (Boonchote & Dearden, 1994). Likewise, in some cases the increase of demand for goods and services caused by the tourism industry results in the general increase in price of commodities (inflation). This situation can negatively impact communities whose purchasing income is very low and does not match price increases (Archer et al., 2005).

Tourism can create opportunity costs which are potential benefits forgone by not investing in alternative sectors (e.g., crop cultivation and livestock keeping) (Archer et al., 2005; Homewood et al., 2012). Charnley (2005) and Homewood et al. (2012) argue that in some cases the establishment of PAs for conservation and tourism (e.g., NCA and SENAPA) have resulted in loss of socio-economic capital, especially land for grazing, cultivation, and settlement, access to natural resources, and also sometimes crop damage, livestock attack, and loss of property caused by wildlife, with inadequate or no compensation from the government. In another example, Maasai pastoralists were evicted during the establishment of SENAPA in 1951 and moved to the peripheral PAs, including NCA. While some grazing is allowed, crop cultivation is prohibited in the conservation area (Charnley, 2005; NCAA 2010).

2.3.2 Social impacts of tourism

Some scholars (e.g., Lu et al., 2009; Newsome & Hassell, 2014; Telfer & Sharpley, 2008) argue that social services are common benefits accrued by communities within and adjacent to PAs. Such benefits include education (e.g., classrooms, dormitories, and bursaries for education), health services (dispensaries and medicine), water supply, roads, means of communication, and community offices (Mbaiwa, 2011; Sharpley, 2014; Strickland-Munro & Moore, 2012). In some cases, local communities can access tourism services, such as transportation, health services, and water supply. For instance, Charnley (2005) and NCAA (2010) indicate that Ngorongoro Conservation Area Authority (NCAA) in Tanzania provides money to Ngorongoro Pastoral Council, a NGO that represents communities which decide how to spend the money, but also the authority provides social services support directly to the communities (e.g., classrooms and health centres). This kind of arrangements strengthens local communities.

Local communities also generate income from tourism by selling local products and working in the tourism industry, and use that income to improve their livelihood (Charnley, 2005; Sharpley, 2014). This includes education for children, construction of houses, access to medical services, improved diet, and clothing for family members (Mbaiwa, 2011; Strickland-Munro & Moore, 2010). In some cases, local communities learn a number of things (e.g., educating children and improving livelihood) from tourists and tour guides when they interact and become familiar with each other, and others develop friendships and cooperation (Charnley, 2005; Strickland-Munro & Moore, 2012). In some areas, tourism has created a market for local products (e.g., vegetables, poultry, and meat) (Charney, 2005; Mbaiwa, 2008). In addition, tourism can provide opportunities

for capacity building that allow local communities to acquire skills, including entrepreneurship, tour guiding, and natural resources management (Mbaiwa, 2011; Nyaupane & Poudel, 2011).

Tourism can bring people with different culture and backgrounds together and promote cultural exchange and understanding among tourists and local communities (Sharpley, 2009; Sharpley, 2014; Telfer & Sharpley, 2008). This can develop mutual understanding and sympathy and reduce prejudice (Dearden, 1988). Henkes et al. (2007) argue that tourism can promote preservation and transmission of cultural and historical resources.

Besides the social benefits of tourism to the destination, tourism can also cause unintended social consequences (Hall & Lew, 2009; Henkes et al., 2007; Sharpley, 2014; Tovar & Lockwood, 2008). Tourism can result in changes of culture, traditions, and behaviour of local communities in a tourism destination, resulting in increased prostitution, begging, and changes of roles and responsibilities within the family unit and community. For instance, Charnley (2005) argues (but does not provide data) that tourism in NCA has resulted in increased prostitution between tour guides and girls and women. Likewise, young Maasai appear in traditional attire idle along the main roads waiting for tourists to take photos in exchange for a small amount of money or cheap goods, though there is no data available. Tourism can also lead to economic and social disparity among community members and social conflict as community members compete to take advantage of economic benefits from tourism (Fagence, 2003; Simpson, 2008; Strickland-Munro & Moore, 2010, 2012). In some areas like NCA, the conservation

authority restricts undesirable behaviour from tourists, tour guides, and local people, but such behaviour persists due to inadequate enforcement (NCAA, 2010).

Similarly, tourism can negatively impact the culture of local communities by turning local culture into commodities for business in exchange for money from tourists (cultural commodification) (Archer et al., 2005; Charney, 2005; Fagence, 2003; Hall & Lew, 2009; Simpson, 2008). Parallel to that, tourism can result in imitating and adapting cultural expressions and manifestations to the taste of tourists, or even performing shows as if they were real life (Archer et al., 2005). Finally, it can lead to altering of goods, such as cultural manifestations, arts, crafts, and souvenirs, to meet the demand and taste of tourists (Dearden, 1992).

2.3.3 Environmental impacts of tourism

Tourism is a major source of funding for biodiversity conservation and PA management. A number of PA agencies depend on the revenue generated in PAs, of which they retain a portion to cover conservation and PA operations, including law enforcement, administration, tourism management, acquiring equipment, and development of facilities and infrastructure (Eagles et al., 2002; Eagles, 2014; Liu et al., 2012; Whitelaw et al., 2014). Tourism funding for PAs is important since funding from governments is often declining and PAs are increasingly required to be financially self-sustain, especially in developing countries where governments experience limited budgets while facing a number of public priorities.

However, in some cases the revenue generated from tourism in PAs goes to the government treasury, and only a small portion, insufficient to cover PA management, is allocated to PAs (Eagles et al., 2002; Novelli & Scarth, 2007). For instance, Banerjee

(2012) points out that Indian tiger reserves retain only 5% (at most) of revenue accrued from entry fees, whereas in Liwonde National Park in Malawi, the park is allocated about one third of the revenue it generates from tourism (Novelli & Scarth, 2007).

Local communities accrue economic and social benefits from tourism.

Many scholars argue that such benefits influence community attitudes and engender their support for conservation (Lepp, 2008; Li et al., 2006; Liu et al., 2012; Nyaupane & Poudel, 2011; Sekhar, 2003; Strickland-Munro et al., 2010; Sharpley, 2014; Walpole & Goodwin, 2001). In addition, tourism benefits accrued by local communities, the government, and other players (e.g., tour operators) in the tourism industry can result in public support for biodiversity conservation in PAs (Liu et al., 2012; Nyaupane & Poudel, 2011; Sekhar, 2003; Sharpley, 2014).

Based on tourism, many PA agencies have developed environmental awareness and resource interpretation mechanisms that provide biodiversity and conservation information to tourists. Such mechanisms include visitor information centres, brochures, leaflets, and tour guides and interpreters. These mechanisms focus on satisfying tourists and imparting and enhancing an understanding of conservation values (Eagles et al., 2002; Hall & Lew, 2009; Higginbottom, 2004; Newsome et al., 2013). In addition, these mechanisms give guidance and encourage preferred environmental conservation behaviour to tourists visiting PAs, thus reducing negative impacts to the environment. Nevertheless, some PAs, especially in developing countries, do not have effective environmental awareness and resource interpretation programs, partly due to inadequate financial resources (Acquah, 2013; Eagles et al., 2002).

On the other hand, tourism can cause unintended consequences for the environment, such as loss of habitat, land degradation, wildlife disturbances, and pollution and contamination (Higginbottom, 2004; Newsome et al., 2013). The development and maintenance of tourism infrastructure and facilities in PAs (e.g., roads, airstrips, lodges, and campsites) can result in land degradation, such as changes to land vegetation cover, habitat destruction, and damage or destruction to wildlife (Higginbottom, 2004; Sharpley, 2009). Development and usage of infrastructure and facilities for tourism purposes can create pollution, including waste and littering, sewage, water contamination, air pollution, noise pollution, and aesthetic pollution (Hall & Lew, 2009; Higginbottom, 2004).

In some cases, tourism causes wildlife disturbance that interferes with normal behaviour, particularly when there is overcrowding and activities like hunting (Higginbottom, 2004). Many tourists are attracted to visit some areas due to the presence of wildlife species with unique characteristics, such as rare or endangered species (e.g., lion and rhinoceros), and in doing so, overcrowding occurs causing disturbance and interference of wildlife (Higginbottom, 2004). Tourism can lead to wildlife disturbance that can cause stress to animals and change their natural behaviour. For instance, Mbaiwa (2003) reports that noise from boat engines, vehicles, and tourists have caused disturbance and decline of hippo populations, nesting birds, and other wildlife species in some areas of the Okavango Delta in Botswana.

Tourism also causes trampling, soil compaction, soil erosion, and removal of vegetation cover, particularly in areas that experience high tourist usage, including trails, campsites, and picnic sites, and areas around tourist facilities (Newsome et al., 2013).

This can result in land degradation and loss of biodiversity, especially micro-organisms and plants (Newsome et al., 2013). In some cases, tourism can cause depletion of natural resources when there is pressure from tourism development that increases consumption of natural resources such as water, energy, and raw materials (Dearden & Rollins, 2009; Sharpley, 2009). A number of PA agencies have taken measures to mitigate the negative impact of tourism on the environment, including management plans, zoning schemes to control use in PAs, codes of conduct (e.g., limit speed of vehicles in PAs), penalties to offenders, and Environment Impact Assessment (NCAA, 2010, TANAPA, 2005).

2.4 Tourism planning and management in PAs

NBT in PAs is very complex and involves numerous stakeholders, including PA agencies, local communities, tour operators, tourists, government, and NGOs, with various interests (e.g., biodiversity conservation, poverty reduction, income generation, experience nature, and socio-economic development) that must be integrated in a systematic way in order to strike a balance between competing objectives (Catlin et al., 2011; Liu et al., 2012; Nyaupane & Poudel, 2011; Pfueller, 2011; Sharpley, 2014; Sinclair, 2008). Many scholars (e.g., Dearden & Rollins, 2009; Eagles et al., 2002; Goodwin et al., 1998; Haider & Payne, 2008; McCool, 2009; Newsome et al., 2013) argue that tourism planning and management is required to address sustainable NBT development in PAs. Central to the concept and practice of tourism planning are the notion of carrying capacity, and related concepts around mitigating the costs and enhancing benefits of NBT, discussed in the following section.

2.4.1 Carrying capacity

PA agencies are required to provide a quality tourism experience that satisfies tourists and generates revenues for PAs, while maintaining conservation priorities (Eagles et al., 2002; Goodwin et al., 1998; Needham et al., 2013). At times, the number or behaviour of tourists has compromised the experience of other tourists and/or compromised the ecological integrity of a PA (Kim et al., 2014; McCool, 2008). This concern has led to a stream of research exploring the “carrying capacity concept” (Manning, 2011; Needham & Rollins, 2009). Carrying capacity has been defined in different ways. The Carrying Capacity Network (2009) defines carrying capacity as the number of individuals who can be supported in a given area within natural resource limits, and without degrading the natural, social, cultural, and economic environment for present and future generations. Carrying capacity implies limiting the levels of use in a PA to optimize visitor enjoyment and reduction of impacts (Haider & Payne, 2008; Mashayekhan et al., 2014; McCool, 2009; Needham & Rollins, 2009).

The concept of carrying capacity was originally applied in the fields of range and wildlife management, identifying the number of animals of any one species that can be maintained in a given habitat (Dasmann, 1964), and adopted in the PA recreation setting in the 1930s (Sharpley, 2009; Mashayekhan et al., 2014). Initially, the application of this concept in PAs pertained to biophysical factors, focusing on visitor impacts on the ecology of an area. In the 1960s, Wagar amplified the concept of carrying capacity from ecological concerns to a dual focus that added social or experiential aspects (Haider & Payne, 2008; Manning, 2007). There are three primary forms of carrying

capacity: managerial, ecological, and social (Haider & Payne, 2008; Manning, 2007; Mashayekhan et al., 2014; Needham et al., 2013), as follows:

- **Managerial carrying capacity** focuses on architectural/engineering adaptations that specify particular levels of use for facilities and design. For example, if roads were constructed for light vehicles usage and traffic, but instead were used by heavy vehicles and traffic in a PA, then the carrying capacity for the roads has been exceeded, causing problems of maintenance and public safety.
- **Ecological carrying capacity** implies the capability of the natural environment to withstand human use, for instance, the effects of tourists on the ecology of the visited area or impact of new development of tourist facilities in the PA.
- **Social carrying capacity** focuses on the quality of experiences of visitors in PAs and relates to various relationships among tourists in PAs. It is argued that the number or the behaviour of some tourists could negatively influence the quality of experience of other visitors.

Early research focused on attempts to quantify the number of tourists a PA can accommodate. This line of research was frustrated by the challenge of identifying how much change is acceptable (Boyd & Butler, 1996; Haider & Payne, 2008; Manning, 2007; Needham et al., 2013). Therefore, the challenge in the execution of the concept of carrying capacity has been to determine the limits of impact or change that should be allowed within the three dimensions of carrying capacity.

The central concern remains “how much change or impact should be allowed?” This has led to the “Limits of Acceptable Change” and related concepts (Stankey, 1973; Manning, 2007; Needham & Rollins, 2009; Needham et al., 2013).

Eagles et al. (2002, p. 78 – 79) point out that “Even small levels of visitor use can lead to negative impacts, and all recreational use causes some impact ... Therefore, a certain level of impact may be acceptable. The principal question confronting park tourism planning is to determine what degree of impact is acceptable.”

In response to this, a number of recreation and visitor management planning frameworks have been developed and applied in parks and PA systems (Boyd & Butler, 1996; Haider & Payne, 2008; Manning, 2007; Manning, 2011; Needham et al., 2013), including: Recreation Opportunity Spectrum (ROS), Limit of Acceptable Change (LAC), Visitor Impact Management (VIM), and Visitor Experience and Resource Protection (VERP). ROS focuses on providing for zoning within a PA, to provide for a diversity of visitor experience, and address social carrying capacity issues but not ecological carrying capacity (Needham & Rollins (2009). ROS is based on the idea that visitors have different recreation preferences and thus a PA, or system of PAs, should provide a variety of recreation settings to match visitors interests (De Lacy & Whitmore, 2006; Needham & Rollins, 2009). The other frameworks, like LAC, VIM, and VERP, consider resource sensitivities as well as visitor experience, and incorporate the notion of zoning (De Lacy & Whitmore, 2006). Some PAs in the Serengeti ecosystem (e.g., SENAPA and NCA) apply zoning and the Limits of Acceptable Use (LAU), a variant of LAC described in Chapter 5 (NCAA, 2010; TANAPA, 2005).

LAC, VIM, and VERP are linked to carrying capacity and seek to provide different recreation opportunities while limiting ecological impacts to resources and social impacts to visitors. These frameworks have been applied widely, especially LAC.

However, full implementation has seldom been undertaken due to lack of resources or expertise (Needham & Rollins, 2009; Newsome et al., 2013).

The strength of LAC is the ability to determine a point of limit where “enough changes have occurred” and beyond that is not acceptable. A number of scholars (e.g., De Lacy & Whitmore, 2006; Needham & Rollins, 2008; Newsome et al., 2013) point out that, apart from the strengths, LAC has two weaknesses: (1) selection of the appropriate standards, partly due to inadequate social and ecological information; (2) gaining stakeholder support, as it is difficult to bring together key stakeholders and get consensus concerning standards, indicators, and zoning. However, regardless of the difficulty, it is an important aspect. This issue draws attention to the significance of participatory approaches in NBT planning and management in PAs. An important component in NBT planning is participation of stakeholders in that this creates awareness and clarity of multiple goals of PAs, better decisions, sharing knowledge and experience, accountability, empowerment, consensus building, and stakeholders support among stakeholders (Bramwell & Lane, 2000; Lew, 2007; McCool, 2009; Newsome et al., 2013; Wray, 2011). Participation of stakeholders in tourism planning is congruent with the shift away from top-down towards participatory approaches, as well as the PA management paradigm shift discussed in the preceding sections. Participatory approaches, however, are often seen as time consuming and demanding in terms of staff and resources.

2.4.2 Ecosystem-based management (EBM)

This study describes the tourism system contained within the entire Serengeti ecosystem, and considers the interaction of PAs, surrounding communities, and the surrounding landscape. Therefore, a useful conceptual framework to consider is

“ecosystem-based management”. Over the past few decades, EBM has emerged as one of the significant approaches for PA management, especially in developed countries, but is also gradually growing in developing countries (Unalan, 2013). The concept of EBM means different things to different scholars. Grumbine (1994) defines it as integrating scientific knowledge of ecological relationships within a complex sociopolitical and values framework toward the general goal of protecting native ecosystem integrity over the long term. EBM entails the management of a particular ecosystem’s structure and function to sustain and foster ecosystem services for human society (Aswan et al., 2012; Slocombe & Dearden, 2008). As opposed to traditional resource management, the ecosystem-based approach goes beyond the management of single species, habitats, or sectors to include the ecosystem as a whole (Unalan, 2013). EBM is place-based and considers interrelationships within and among ecosystems, including linkage within and among social and natural components (deReynier, et al., 2010). Slocombe (1993) suggested nine characteristics of EBM as indicated in Table 2.5.

Table 2.5: Characteristics of EBM

<ul style="list-style-type: none"> • Describe parts, systems, environments, and their interactions. • Be holistic, comprehensive, and trans-disciplinary. • Include people and their activities in the ecosystem. • Describe system dynamics – e.g., with concept of homeostasis, feedbacks, cause – and – effect relationship, self-organization, etc. • Define the ecosystem naturally, i.e., bioregional instead of arbitrary. • Consider different levels/scales of system structure, process, and function. • Recognize goals and take an active management orientation, including actor-system dynamics and institutional factors in the analysis. Use an anticipatory, flexible research and planning process. Enact implicit or explicit ethics of quality, well-being, and integrity. • Recognize systemic limits to action. • Define and seek sustainability.
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Source: Slocombe, (1993a, 1993b); Slocombe & Dearden, (2008); Unalan, (2013).

Slocombe & Dearden (2008) urge that EBM should involve the use of various concepts and techniques, including a systems approach, conservation biology, land

ecology, reserve design, adaptive management, Geographical Information System (GIS), and participatory and collaborative approaches.

Within the context of PA management, EBM is important because (1) most PAs are too small or poorly configured to adequately protect biodiversity, and (2) PAs are always impacted by surrounding areas, and themselves impact on surrounding areas, no matter how large the PA. This scenario is particularly important in the Serengeti ecosystem, which includes PAs with different sizes ranging from 15 km² to 14,768 km². These PAs share several factors, including wildlife resources, climatic condition, and policies. However, most of these PAs cannot sustain themselves, are very small, and are threatened by anthropogenic factors from adjacent areas. In addition, some attractions migrate across PAs (e.g., wildebeest), and often tourists visit more than one PA in the ecosystem. This calls for the need to advance the EBM approach on NBT in the Serengeti ecosystem. Biosphere reserves, described previously, are one approach to applying EBM into PA planning and management.

NBT in PAs involves the interaction between the social system (human) and the ecological system (environment), which requires a management approach that integrates and manages the two systems simultaneously (Eagles et al., 2002; Newsome et al., 2013; Rollins & Dearden, 2009). Tourism management in PAs should focus on addressing the interests of different NBT stakeholders, including PA agencies, tourists, government, tourism companies, and local communities adjacent to PAs, while maintaining the ecological integrity of PAs (Eagles et al., 2002; Newsome et al., 2013). EBM is an approach useful in the management of social-ecological systems such as NBT supply system in the Serengeti ecosystem. EBM recognizes the interests, interactions, and

relationships among stakeholders within ecosystems, including linkages within and among social and natural components (deReynier et al., 2010; Slocombe & Dearden, 2008; Unalan, 2013). NBT management should focus on how to promote the objectives of PAs, tourists, and stakeholders by undertaking effective tourism planning and management in order to mitigate the impacts of tourism and enhance tourist experience, ecological integrity, and public support for conservation (Eagles et al., 2002).

2.5 Tourism development models

The mix of tourism-related costs and benefits are shaped by how tourism is planned or developed in a region. This goes beyond visitor planning models described earlier that are specific to PAs.

2.5.1 Systems approaches

As outlined above, there has been much attention given to the positive and negative impacts of tourism, and considerable thinking about the role of NBT in developing countries. Likewise, many models have been generated in an attempt to understand the development of tourism, especially in tourism destinations (Farrell & Twining-Ward, 2004; McKercher, 1999; Rahra & Ryan, 2007).

2.5.2 Tourism systems approaches

Leiper's tourism system model (1979) is centered on a geographical perspective that indicates that tourism has four main components: the tourism generating region, which is the source of tourists; the tourism destination region where tourists are going to visit and experience; the transit region or routes tourists travel through to and from the source and destination; and the wider environment in which the source, routes, and

destination are located and interaction takes place. This includes social, economic, institutional, political, technological, and environmental aspects. For instance, Tanzania receives many tourists from the USA and Europe who are travelling to Kenya and Arusha as transit route destinations, then to other various local tourism destinations in Tanzania.

Similarly, Murphy (1985) discussed the relationship between tourists and host communities in the tourism destination using a systems approach which considers community and ecosystem together. According to Murphy (1985), the ecosystem approach enables assessment of tourism and its impacts on the destination and involves the interests of various stakeholders that should be maintained and integrated in the planning. In addition, the approach emphasizes that natural resources and the community are key aspects of tourism in a particular destination. However, Murphy's community approach does not provide an explanation of how tourism functions.

Mill & Morrison's tourism model (1985) suggests that tourism consists of four main interdependent components: (1) the destination which encompasses tourism product to the destination; (2) marketing strategies used to persuade potential tourists to visit the destination; (3) market or demand (potential tourists who can buy the tour packages and visit the destination); and (4) travelling from place of residence of the potential tourists to the destination. This model does not pay attention to the influence of internal and external interactions on tourism systems. For example, Tanzania is a tourism destination possessing tourism products (e.g., wildlife related attractions) which the country promotes through various strategies, such as tourism trade fairs and websites, to potential tourists in developed countries (e.g., USA, Canada, and Germany). Each year, many tourists travel from developed countries (the external environment) to Tanzania, usually

by airline, to experience wildlife attractions. However, Tanzania's tourism is influenced by several factors, including the quality of tourism services, accessibility, and other global factors (e.g., the global financial crisis and terrorism).

Pearce (1989) argues that tourism can be understood by breaking it down to its individual components which form units of analysis, and then reassembling it. For instance, NBT can be reduced to elements that form units of analysis (e.g., PAs, tourism operations, and communities). Understanding the characteristics and function of these individual elements is thought to provide an understanding of the structure and functioning of the whole NBT system, but others (e.g., Farrell & Twining-Ward, 2004; McDonald, 2009; McKercher, 1999) suggest that this approach ignores the dynamic complexity of interactions among the components.

Gunn (1994) presents a "product model" which shows that tourism consists of two major components, the demand or market side (e.g., diverse segments of consumers or tourists with different characteristics) and the supply side, which includes attractions, transportation, accommodation, promotion, information, and other services. The two components are interdependent and influence each other. For instance, the Iceland volcano eruption in May 2011 nearly closed airspace in Europe, which is a big tourism market for Tanzania and caused low tourism volume. The reduction of tourists and revenue affected the government, tourism firms, and communities dependent on tourism.

Goeldner & Ritchie (2006) discuss a number of disciplinary approaches used in tourism studies. These include the institutional approach, which considers various intermediaries and institutions that perform tourism activities (e.g., travel agents and tourism operators) focusing on their operations, performance, and challenges.

Secondly, the product approach involves the production, marketing, and consumption of various tourism products. Third, the economic approach focuses on supply and demand, and analyzes tourism and its role in the economy and economic development (e.g., employment and foreign exchange) of any particular tourism destination.

Fourth, there is the geographical approach which focuses on the location of tourist areas, movement of tourists, tourism impacts and planning, and the wider environment.

Fifth is the interdisciplinary approach, which involves various disciplines because tourism is so vast, complex, and multidimensional, embracing almost all aspects of the society. Finally, they describe the systems approach, which combines the five disciplinary approaches into a comprehensive method dealing with a variety of issues at various levels (e.g., tourism organization's market, linkages with other institutions, consumers, supply and demand, and impacts at local, regional, and global scales).

Goeldner & Ritchie (2006) emphasize that the systems approach is appropriate and significant to tourism studies, but they provide less description about how systems theory can be applied to tourism.

The models discussed above suggest that tourism is a system that contains a number of interrelated and interdependent elements, but not much attention has been given to how they interact in a non-linear and dynamic manner resulting in unpredictable outcomes, which are salient features of complex systems, as outlined later in this chapter (see section 2.5.3.1) (McKercher, 1999). Some scholars (e.g., Baggio, 2008; Farrell & Twining-Ward, 2004; McDonald, 2009) argue that models for tourism development described in this section maintain a reductionism approach that ignores the complexity inherent in tourism, but also retain their validity as long as the limitations of the methods

are fully understood. The reductionist approach claims that one can understand the system of tourism by analyzing and characterizing its constituent elements. However, the elements of tourism are thought to interact in a dynamic non-linear manner, creating new relationships and characteristics different from the elements, thus displaying features of complex systems (McDonald, 2009; McKercher, 1999).

2.5.3 Complex systems

Some scholars (e.g., Carlsen, 1999; Farrell & Twining-Ward, 2004; McKercher, 1999; Strickland-Munro et al., 2010) argue that in order to give a clear understanding of tourism, it should be examined as a “complex phenomenon.” The world in which we live is a complex and evolving system involving increasingly complex and dynamic social and ecological systems interaction, resulting in unpredictable changes and outcomes, such as natural resources degradation, climate change, and systems relationships (Heylighen et al., 2007). As the social, economic, technological, and political components advance, the global systems become ever more complex and interdependent, such that a change in any of the components may trigger changes to the systems in an unpredictable manner. For instance, the global financial crisis in 2008 was not limited to developed countries (which are the major source of tourists), but also impacted negatively on tourism destinations in East Africa because its major tourism market is Europe and the USA. Today, most scholars recognize that tourism is not only an industry, but is an open, dynamic, and complex system with many interrelated, interdependent, and interacting elements and processes (Farrell & Twining-Ward, 2004).

Systems theory has its origins in the work of biologist Ludwig von Bertalanffy in the 1940s, who proposed that living systems interact with their environment and are

influenced by internal and external interactions, thus making them open systems (McDonald, 2009). The central idea behind the systems approach is that the system consists of elements that continually interact with other elements to form a set of relationships and acquire new (emergent) properties (Hall & Lew, 2009; McDonald, 2009). A system is a group of interrelated, interdependent, and interacting elements that together form a single functional structure (Carlsen, 1999; Russell & Faulker, 1999). Systems theory is used to investigate and explain patterns of behaviour that emerge from external influences. It has provided the foundation for new exploration resulting in a theory of complex and adaptive systems (Baggio, 2007; McDonald, 2009).

In recent years, a complex systems approach has emerged that provides a better understanding of tourism and the issues involved (Baggio, 2007; Farrell & Twining-Ward, 2004; Strickland-Munro et al., 2010). Complex systems consist of a set of elements that are interrelated and interdependent, interacting in a dynamic and non-linear manner (McDonald, 2009; McKercher, 1999). Complex systems theory seeks to identify and explain patterns of behaviour through the study of interrelationships (Sophocleous, 2003). It is a framework for viewing interrelationships and is best summed up in the statement “the whole is more than the sum of its parts” (Cilliers, 1998, p. 19). Similarly, complex systems theory attempts to “explain patterns of behaviour, taking into account individual freedom, through viewing the connections between diversity, conflict, and creativity from within the system” (Stacey et al., 2000, p. 83). Thus, complex systems thinking emphasizes that complex systems are inherently complex, are open and dynamic, unpredictable, and fluctuate between stability and turbulence, and equilibrium is never permanent, as outlined in the next section.

2.5.3.1 Characteristics of complex systems

While complex systems are difficult to define and there is no consensus definition, they are characterized by features concerning the structure and order of systems, as indicated in Table 2.6.

Table 2.6: Characteristics of complex systems

• Large number of elements or agents
• Large number of elements or agents interact in a dynamic manner
• Dynamic interactions are characterized by self-organization and emergent behavior
• Ability to influence and be influenced by other elements
• Non-linear relationships - small inputs into the system have the ability to produce non-linear changes
• Operate under conditions far from equilibrium
• Are open systems
• Have a history - they evolve through time series with their past contributing to present behavior

(Adapted, from McDonald, 2009)

Generally, a complex system is comprised of many interacting elements or agents (McDonald, 2009; Senge, 1990). For instance, a tourism destination consists of tourists, tour companies, tour guides and interpreters, accommodation operators, tourism associations, government tourism organizations, and local people. Likewise, within these elements there are numerous actors (individuals and firms). Accordingly, the detail complexity of the system is associated with the large number of elements.

The large number of elements of the system interacts in a dynamic manner (Hall & Lew, 2009; McDonald, 2009; McKercher, 1999; Senge, 1990). The interactions are constantly changing over time and interconnected. The links between the agents is an inherent characteristic of system theory and is also a common feature in tourism (Hall & Lew, 2009; McKercher, 1999). For example, tourists interact with different supply service agents (e.g., tour company, accommodation operator, and protected area staff) in the destination, and tourism operators interact among them, exchanging

business. The complexity of the system can be attributed to the dynamic interaction of the system elements.

The dynamic interactions are characterized by self-organization and emergent behaviour such that the interactions among the elements of the system provide feedback between agents within the system and between the system elements and the external environment (external system). The feedback mechanism can either be positive or negative. These terms are not used in the sense of everyday language of positive and negative reinforcement, but in terms of destabilizing reinforcement (McDonald, 2006, p. 95). Thus, positive feedback may not result in a better system or desired situation, such that positive feedback can influence growth-oriented tourism development to a destination that may result in negative outcomes (McDonald, 2009; Senge, 1990). For instance, Gossling (2002, p. 553) found that international tourism growth to experience culture and natural attractions in Zanzibar, Tanzania, has resulted in a transformation of culture that Gossling describes as a “decontextualization of the relationships individuals have with the local society and nature.” Negative feedback mechanisms can be explained by slow economic conditions that may cause decline of tourism growth and consequently low tourism-related investments (McDonald, 2009). The feedback in a system leads to self-organization such that the system structures itself, learns and adapts to changes. Emergent behaviour occurs when the changes to a system result in new structures or patterns of interactions. McDonald (2009) and Senge (1990) argue that if the system is not monitoring the feedback and taking relevant actions, it can result in poor tourism system functioning.

Complex systems have the ability to influence, and be influenced by, other elements and are multi-levelled and hierarchical in nature (Hall & Lew, 2009; McDonald, 2009; McKercher, 1999). Complex systems consist of nested arrangements of smaller complex subsystems in such a way that the patterns of interactions and processes that occur at the core or low level would influence the patterns displayed at the high level of the system. For instance, the guidelines for tourism in PAs are drawn from the national wildlife management policies in Tanzania, and the ground handler tour companies implement the tour packages of particular tourists as agreed on between the travel agent and tourist. This does not imply that one can transpose the explanation of the interaction of one level to another. However, one can learn from the interactions, processes, and patterns of one level and compare it with another level. For example, with the development of accommodation facilities (e.g., lodges) in a PA, their use and impacts can inform relevant agencies at the national level on the kind of policies and regulations required. Likewise, the interactions of elements that occur at the core or low level influences the interaction of elements at the high level across scales and vice versa (McDonald, 2009; McKercher, 1999).

The interactions between complex systems components are non-linear (McDonald, 2009; McKercher, 1999). “Simple cause and effect relationships among the elements rarely exist and instead a very little stimulus may cause unpredictably large effects or no effect at all” (Baggio, 2008, p. 4). In a complex system, a change in component *a* may not effect a proportionate change in component *b*, and the two components can have different magnitude effect on each other (Cilliers, 1998; McDonald, 2009). Similarly, small changes within a system can have dramatic effects on

the overall system, while large changes within the system can have small effects on the overall system. In comparison, linearity would make it certain that large changes in a system would result in large effects and small changes would cause only small effects (Farrell & Twining-Ward, 2004; McDonald, 2009). For example, a relatively small change in a landscape (e.g., a new road in the northern Serengeti) could produce a large change in wildlife movements and tourism activities. “This non-linearity of the interactions among the components is a major originator of a series of properties that are frequently used to characterize the complex behaviour of the system (Baggio, 2008, p. 4).

Complex systems operate under conditions that are dynamic since they are inherently complex, have non-linear interactions taking place in a dynamic changing environment over time, and resulting in emergent behaviour (Baggio et al., 2010; Farrell & Twining-Ward, 2004; McDonald, 2009; McKercher, 1999). Complex systems operate over time and scale, are dynamic in nature, unpredictable, fluctuate through periods of turbulence and stability (Farrell & Twining-Ward, 2005). However, sometimes complex systems may reveal stability, but this condition is never permanent due to unpredictable outcomes of non-linear and dynamic interactions (Farrell & Twining-Ward, 2005; McDonald, 2009). Under stable conditions, prediction of the future conditions of tourism systems based on past information (e.g., number of tourists, revenue, outcome of external factors, and tourism destination evolution) is likely. But when the system is in an unstable condition, the standard techniques used for prediction cannot provide forecasts with certainty (Baggio et al., 2010; McDonald, 2009; McKercher, 1999). For instance, during unforeseen events like war or economic crisis, tourism is disrupted, making it difficult to predict with uncertainty the outcome and future of the tourism industry in a destination.

Complex systems are open systems and their elements are interacting and influenced by elements external to the system (Hall & Lew, 2009). Therefore, elements of the core tourism system interact and influence elements of other subsystems across the large system and the external systems (wider environment) and vice versa. For instance, the core tourism system exchanges information (e.g., promotion of the destination product to tourists) and resources (e.g., investment capital flow and materials needed for tourism from developed to developing countries) across the whole tourism system and other external systems. The information and resources from outside the system influence the operations and interactions of the elements across the system and continually affect each other and the external system (Baggio et al., 2010; Hall & Lew, 2009). Complex systems have to interact with external systems in order to maintain the organization of the system and survive. Hall & Lew (2009) argue that it is difficult to define the boundary of a complex system due to its open characteristic. Nevertheless, the boundary of the complex system can be defined based on the purpose of the study (Hall & Lew, 2009). The researcher is obliged to judge the boundary of the complex system under study based on criteria that correlate with the purpose of the study.

To understand how a complex system operates currently requires some knowledge of what occurred to the system in the past. McDonald (2009) argues that long cumulative effects and unpredictable interactions between the elements of the complex system give rise to the current behaviour and dynamics of the system. For instance, the evolution of a tourism destination is influenced by the past dynamics and the ongoing interactions between different actors of tourism. The history of a complex system provides information about the evolution of a tourism destination (McDonald, 2009).

Complex systems operate within certain limits of change, and when a system changes beyond those limits it enters a chaotic state (Baggio, 2008). In a chaotic state, a system can reach a critical point where it can break down and cease to operate as an organized system, or it can undergo spontaneous reordering (self-organization). Normally, tourism authorities operate to avoid abrupt changes and stabilize the system, which tends to alternate between stable and chaotic state (Dearden, 1978; Baggio, 2008). The complex systems approach can be used to depict the components that influence tourism at organization, local, national, and global levels (McKercher, 1999). Complex systems are learning systems involving many dynamic interacting elements which influence each other (Hall & Lew, 2009; McDonald, 2009). Similarly, complex systems are open and can adapt to changes such that many changes can take place without the system altering its structure (McDonald, 2009; McKercher, 1999). The system can remain stable without dramatic changes for a certain period, but also it can experience perturbations and acquire new characteristics that necessitate structural changes.

The complex systems approach provides a framework for analyzing complex systems such as NBT (Baggio et al., 2010; Farrell & Twining-Ward, 2004; Hall & Lew, 2009; McDonald, 2009; McKercher, 1999; Strickland-Munro, 2010). For instance, it enables one to identify and analyze key components of the system, how the components are linked to each other, the role and influences of the components in the system, different levels of the system, functioning and outcomes of the complex system. The complex systems approach offers opportunities to understand complex systems and propose an appropriate management approach.

2.6 Conclusion

This chapter has explored the concepts and frameworks of tourism planning underpinning this study. The concepts and frameworks guiding this study offer a novel approach to investigating a NBT supply system and associated costs and benefits to conservation and communities. The literature has revealed that NBT relies on natural areas, and embraces ecotourism, wildlife tourism, adventure tourism, and geotourism. NBT fosters sustainability, as opposed to mass tourism in which a large number of tourists travel to a popular destination regardless of impacts. NBT in Africa, particularly Tanzania, occurs in PA settings and has four main components: protected areas, tourism operations, communities, and the wider environment.

The literature emphasises that effective and sustainable tourism development requires an understanding of these components, their dynamics, and how they interact. PAs are critical areas for biodiversity conservation. They do not exist in isolation, but are linked to, and interact with, the surroundings, including local communities. Similarly, there are tourism operations that involve the supply of various services to tourists including attractions, transportation, accommodation, information, and promotion in PAs and surrounding areas. The interactions among PAs, tourism, and local communities occur within the wider environment (economic, social, political, environmental, and technological aspects) and influence each other.

NBT, particularly the interactions among its components, can result in various economic, social, and environmental costs and benefits. Some potential benefits of NBT include income, employment, improvement of social services, improvement of social interactions and cultural exchange and understanding, public support for conservation,

raising environmental awareness, and enhancement of conservation and PA management. Conversely, NBT can result in unintended consequences, such as financial cost, loss of socio-economic capital, inflation, change of culture and traditions, negative attitudes among local communities towards tourism and PAs, habitat degradation, pollution, and wildlife disturbance.

However, the costs and benefits of NBT are not evenly distributed among key stakeholders across scales. Some scholars (e.g., Homewood et al., 2012; Nyaupane & Poudel, 2011) argue that local communities experience great cost with few benefits, while other tourism stakeholders far from PAs (e.g., tour operators and central government) accrue great benefits and fewer costs. Also, the costs and benefits of NBT are not fairly distributed within and among local communities (Mwakaje et al., 2013). The costs of NBT and uneven distribution of the costs and benefits, which can jeopardize sustainable development of NBT, has been a major concern in the tourism literature (Dearden & Rollins, 2009; Homewood et al., 2012; Nyaupane & Poudel, 2011). This study examines these key issues of the NBT supply system and associated costs and benefits to communities and conservation using a case study of the Serengeti ecosystem.

To achieve sustainable tourism development (including NBT), the literature has suggested that attention is required to these benefits and costs, and how they can be managed, giving rise to thinking about “management concepts,” such as carrying capacity (CC), limits of acceptable change (LAC), visitor experience and resource protection (VERP), ecosystem-based management (EBM), and system theory (ST) (Dearden & Rollins, 2009; Newsome et al., 2013). The literature review informs the approach of this dissertation to examining NBT in the Serengeti region of Tanzania.

CHAPTER 3

METHODOLOGY

3.1 Introduction

The second chapter presented a literature review covering key concepts applied in this study, including components of NBT, costs and benefits of NBT and their distribution, tourism planning, and the complex systems approach. This chapter presents selection of the case study, data collection and analysis, and provides a description of the qualitative approach used in this study.

3.2 Case study selection

The Serengeti ecosystem is a leading NBT destination in Tanzania, with diverse spectacular wildlife attractions. It has a high level of tourism development, including accommodation facilities, accessibility, transportation, and other services. The ecosystem covers a number of PAs of different categories and characteristics which harbour diverse and abundant biodiversity, including carnivores, herbivores, birds, threatened and endangered species, and the only remaining terrestrial great large mammal migration on earth. Serengeti National Park (SENAPA) and Ngorongoro Conservation Area (NCA) are world heritage sites and biosphere reserves. The ecosystem is inhabited and surrounded by dense human populations with low standards of living. The components – PAs, tourism, and communities – have a long history of co-existence

Selection of the Serengeti ecosystem case study was designed to establish the NBT supply system and distribution of the flow of costs and benefits of NBT in the Serengeti ecosystem. The selection also considered the framework of this study, a NBT complex system with four main components (PAs, tourism operations, communities, and

wider environment). Although no claim is made that the Serengeti is representative of tropical PAs, a considerable amount may be learned from a study of the Serengeti that is applicable to other tropical PAs. This is due to the high level of tourism development that has been undertaken already in the Serengeti, and the opportunity to learn from this history to improve NBT provision in more recently developing sites of a similar nature.

The study covered all PAs in the Serengeti ecosystem, namely SENAPA, NCA, Ikorongo and Grumeti game reserves, Maswa Game Reserve, Kijereshi Game Reserve, Loliondo Game Controlled Area, Ikona Wildlife Management Area (WMA), and Makao WMA (see Chapter 1, Figure 1.1). These PAs were selected because they are part of the Serengeti ecosystem, they all practice at least one form of NBT with varied tourism operations among them, and they are all linked to local communities. Even though the PAs selected fall in the same ecosystem, they are influenced by the wider environment in various ways and degrees.

The use of an ecosystem in this case study differs from most other nature tourism studies, which tend to focus on a specific activity (e.g., scuba diving) in a specific area (e.g., a specific reef or dive location). As described in the previous chapter, the design and management of nature tourism has impacts, both positive and negative, that extend beyond the specific destination or feature where the activity occurs. This ecosystem framework is particularly useful from a conceptual perspective, but also from the perspective of a developing country where NBT is an important component of sustainable development. As a component of sustainable development, NBT should focus on addressing and promoting social, ecological, and economic objectives. It is inherently a complex system consisting of social and ecological realms that are explicitly

interdependent, connected to one another, and characterized by dynamic and non-linear interactions among system components (Farrell & Twining-Ward, 2004). In the context of a complex system perspective, a case study enables retention of holistic and meaningful characteristics of the setting (Yin, 1994).

The approval and permits for this study were obtained from relevant institutions, including the University of Victoria (UVic), Tanzania Wildlife Research Institute (TAWIRI), Tanzania National Parks (TANAPA), Ngorongoro Conservation Area Authority (NCAA), the Ministry of Natural Resources and Tourism (MNRT), Tanzania Association of Tour Operators (TATO), and Serengeti District Council in Tanzania (see Appendix A).

3.3 Data collection and analysis

In order to answer the specific research questions and achieve the objectives of this study, a qualitative approach was used with a combination of document analysis, key informant interviews, and focus group discussions. These methods provided an opportunity to investigate the phenomena from different viewpoints. Triangulation of methods and data improves understanding of the problem under investigation and the validity of qualitative research, as data obtained from one method or source complement data from other methods and sources (Guion et al., 2011; Olsen, 2004; Robson, 2011). The conceptual framework guided the development of interview ideas and questions, as well as providing the basis for document analysis, key informant interviews, and focus group discussions. Some scholars (e.g., Berkes et al., 2003; Farrell & Twining-Ward, 2004; Miller & Twining-Ward, 2005) maintain that complex social-ecological systems cannot be understood from a single perspective, but require an interdisciplinary, holistic,

and broad perspective. This underscores the geographical perspective that social and ecological systems are integrated and exhibit complex relationships and outcomes.

A summary of the main research questions, information probed, and respective methods used are provided in Table 3.1. The field work for data collection of this study was carried out in two phases. Phase one was implemented between May 2012 and January 2013, and a follow-up phase took place in December 2013 and January 2014.

Table 3.1: Summary of data collection techniques, information required, and respective research questions

Main research questions	Required information	Research technique
What is the supply system for nature-based tourism in the Serengeti ecosystem?	<ul style="list-style-type: none"> • Components of nature-based tourism supply system and their roles • Interactions, influences and process among components of nature-based tourism supply system • Challenges of nature-based tourism supply system 	<ul style="list-style-type: none"> • Document analysis • Key informant interview
How do the management plans allow for and guide tourism in the Serengeti ecosystem?	<ul style="list-style-type: none"> • PAs management plan planning process • Contents of management plan (e.g. management programs, zoning scheme and plan monitoring) • Effectiveness of management plans 	<ul style="list-style-type: none"> • Document analysis • Key informant interview
How does the nature-based tourism supply system function to distribute the flow of costs and benefits to conservation?	<ul style="list-style-type: none"> • Interactions, influences and process among components of nature-based tourism • Economic and environmental outcomes of the interactions and influences of the components of nature-based tourism 	<ul style="list-style-type: none"> • Document analysis • Key informant interview • Focus group discussion
How does the nature-based tourism supply system function to distribute the flow of costs and benefits to communities?	<ul style="list-style-type: none"> • Interactions, influences and process among components of nature-based tourism • Economic and social outcomes of the interactions and influences of the components of nature-based tourism 	<ul style="list-style-type: none"> • Document analysis • Key informant interview • Focus group discussion

3.4 Document analysis

The document analysis technique involved the collection of secondary data and information from published and unpublished documents such as policies, reports, records, papers, websites, and other relevant documents (Creswell, 2009; Newing, 2011; Robson, 2011; Veal, 1997) which were obtained at the College of African Wildlife Management, Mweka Library, the Ministry of Natural Resources and Tourism, PA agencies, and District Councils. Although document analysis focused on secondary data, some of this

data was treated as primary data, since some key informants provided the documents to answer questions they were asked (e.g., explaining how PA agencies undertake tourism planning). However, the information contained in the documents tends to address structured needs not tailored to the needs of the researcher, and ethical principles, in particular confidentiality, apply in using some documents (Robson, 2011). In this research, these issues were addressed by obtaining permits from relevant organizations and using multiple methods, thus triangulating the data.

A checklist of key questions on the main components of NBT, their roles, and challenges in the Serengeti ecosystem was designed to guide the retrieval of information (Appendix B). The checklist also included a question on the linkages and challenges among the main components of NBT. A list of key documents consulted is presented in Appendix C.

3.5 Key informant interviews

Key informants were identified from PA agencies (30), tourism operators (33), communities (11), and others like NGOs (11), and used to gather in-depth qualitative primary data, as indicated in Table 3.2. The key informants were selected through purposive sampling from the main components of NBT and other stakeholders. Key informants were identified by asking people prominent in PA agencies, tourism operators and NGOs to identify the people most knowledgeable about NBT in the Serengeti ecosystem. Parallel to purposive sampling, a snowball technique was used by asking respondents to suggest other individuals thought to be knowledgeable about NBT in the ecosystem (Creswell, 2009; Newing, 2011; Patton, 2002; Robson, 2011). The institutional affiliations of key informants are listed in Table 3.2 below. Key informants

therefore represent the most expert opinion about NBT in the Serengeti ecosystem. Purposive and snowball sampling techniques are useful in circumstances where it is difficult to identify key informants and trust is important (Newing, 2011). Key informants were identified and recruited through mobile phones, physical contact, and written messages to request appointments for the meetings (Appendix D). Mobile phone communication was used to recruit key informants because it is a quick and reliable means of communication in Tanzania, unlike email or postal mail, especially to remote areas like the Serengeti. Some key informants were ready for the interview when I showed up to seek an appointment for the meeting. In such cases I went ahead with the interviews.

Table 3.2: Number of key informants and their corresponding sector

Key informant	Sector	Number of key informants
PAs	Tanzania National Parks	12
	Wildlife Division	7
	Ngorongoro Conservation Area (NCA)	8
	Wildlife Management Areas (WMAs)	3
Tourism operators	Big and medium tour companies	9
	Small tour companies	4
	Big and medium lodges and hotels	11
	Small and medium lodges and hotels	9
Communities	Ngorongoro Conservation Area (NCA)	3
	South-west and Western Serengeti	5
	Eastern Serengeti	3
Others (NGOs, academicians, and researchers)	NGOs	6
	Academicians and researchers	5
Total key informants		85

The interview guide, based on the main research questions and preliminary results of document analysis, was designed to focus on the roles of the major components of NBT, linkages among the main components, and challenges and opportunities concerning the tourism supply system in the Serengeti ecosystem (Appendices E, F, G, and H). The questions were used to guide and keep the discussion focused during the interviews, but the interviews were done in a conversational manner, allowing probing.

The interviews and discussions were done in various locations assumed to be convenient for the respondents so that they were free and relaxed (Creswell, 2009; Newing, 2011). Interviews with key informants progressed until no new substantial information was obtained from the respondents, a point of saturation (Creswell, 2009; Newing, 2011; Patton, 2002). Discussions were conducted in either Kiswahili or English, depending on the language fluency of the respondent. During the interview, note taking was done by the research field assistant, and the discussions were recorded, then transcribed after each interview. Key informant interviews were preferred because this technique is a flexible and adaptive way of generating detailed qualitative data (Newing, 2011). Key informant interviews allow probing to seek clarification and explanation of the participants, and it can extend to other issues not included in the interview guide but useful in addressing the research questions.

A freelance alumnus of Mweka College, based in Arusha with basic knowledge, skills, and experience in research (especially data collection and analysis, and use of a computer), was recruited as a research assistant based on the knowledge and experience of the researcher. Prior to the exercise of data collection, I (the researcher) trained the research assistant for two days about research ethics, research objectives and guiding questions, interview administration, probing techniques, recording responses of interviewees, and analyzing qualitative data. The training was intended to ensure that the research assistant became acquainted with, and agreed on, data collection instruments and research procedures and ethics in order to improve the quality of data. The researcher and research assistant interviewed a total of 85 key informants between May 2012 and January 2013, as well as in December 2013 and January 2014.

3.6 Focus group discussions

The researcher and research assistant conducted seven focus group discussions with rangers from PAs, NGO officials, tour guides, community leaders, Wildlife Division officials, and game scouts, in order to deepen our understanding of the distribution of the costs and benefits of NBT to conservation and communities in the Serengeti ecosystem. The focus group discussions covered four main topics: the distribution of the costs and benefits to conservation; performance of NBT with regard to conservation; challenges and issues; and recommendations for mechanisms governing the distribution of costs and benefits of NBT to conservation in the Serengeti ecosystem (Appendix B). The focus groups were composed of four to six people with similar characteristics in terms of their roles in the ecosystem and age group (e.g., the youth group and park officials group). Focus group participants were identified through consultation between the researcher and key people either from PAs, tour operators, communities, or NGOs. The participants were contacted ahead of the meeting either through mobile phone, physical contact, or a written message (Appendix I). In this communication, I introduced myself, the study, and proposed a date, time, and place for the meeting. The focus group discussions were held in places preferred by group members and convenient for the discussion (Creswell, 2009; Newing, 2011), as indicated in Table 3.3. During the discussions, the researcher facilitated the Kiswahili language, and encouraged free and open participation by all group members while the research assistant took notes. The discussion was also audio-recorded, with permission from the group members, and transcribed after the discussion. Focus group technique is an efficient technique for qualitative data because it allows collection of a broad range and large quantity of data from many people at the same time,

and also analysis of data is done through checks and balances as the discussion takes place (Robson, 2011). Newing et al. (2011, p. 104) noted that, “The focus group brings out contrasting views, encourages reflection and often makes people state the reasoning behind the view they express.” Focus groups tend to focus on the most important topic and the researcher can assess consistency, divergence, and shared view within the group.

Table 3.3: Summary of focus group discussions location, date, and duration

Focus group	Location	Date	Duration
Non-governmental organization officials	Fort Ikoma – Frankfurt Zoological Society office	19 th June, 2012	1.30 hour
Tour guides	Engaresero – Village office	25 th September, 2012	1.20 hour
Community Game Scouts	Soitisambu – Village office	26 th September, 2012	1.00 hour
Village leaders	Arashi – Village office	27 th September, 2012	2.00 hour
SENAPA officials	SENAPA – Kogatende	29 th September, 2012	45 minutes
Maswa Game Reserve officials	Maswa Game Reserve – Head office	9 th October, 2012	1.15 hour
Wildlife Division officials	Wildlife Division – Head office Dar es Salaam	16 th January 2014	1.30 hour

3.7 Data analysis

Descriptive analysis was used to analyze data from both document analysis and key informant interviews. Preliminary analysis of data was processed after the interview sessions by summarizing key ideas into major themes and categories, then annotating and coding them. That was followed by in-depth analysis conducted to fine-tune the summaries into detailed themes, categories, and coding, and linking information from various codes which was all done manually (Newing, 2009; Robson, 2011). The interviews (with respondents from different backgrounds and who possessed varying knowledge, experience, and exposure related to NBT), coupled with information from various documents, provided the opportunity for cross-checking the information and enhancement of reliability and validity of the data.

CHAPTER 4

THE NATURE-BASED TOURISM SUPPLY SYSTEM IN THE SERENGETI ECOSYSTEM

4.1 Introduction

The results and findings of this study are presented in this chapter and the next three chapters. The previous chapters (1, 2, and 3) have provided the background to this study. Its overarching objective is to describe the NBT system in the Serengeti ecosystem, and investigate how this tourism impacts on the flow of costs and benefits to conservation and to communities. Further, the study seeks to explore mechanisms that could enhance the benefits and offset the costs in the Serengeti ecosystem.

Four main research questions guide the study. This chapter focuses on the first main question, “What is the supply system of NBT in the Serengeti ecosystem?” Chapter 5 outlines management plans of PAs in the Serengeti ecosystem; Chapter 6 describes how the NBT supply system functions to distribute the flow of costs and benefits to conservation. Chapter 7 details how the NBT supply system functions to distribute the flow of costs and benefits to communities.

This chapter describes the NBT supply system in the Serengeti ecosystem. This description uses the framework provided by complex systems theory, including: (1) systems have a large number of elements or agents; (2) elements interact in a dynamic manner; (3) dynamic interactions are characterized by self-organization and emergent behaviour; (4) elements have the ability to influence and be influenced by other elements through relationships that are multi-level and hierarchical in nature; (5) relationships and the outcomes of those relationships are non-linear; (6) complex systems operate under

conditions far from equilibrium; (7) complex systems are open; and, (8) they have a history that impacts current functioning, as described below.

4.2 Large number of elements or agents

The NBT supply system in the Serengeti ecosystem is comprised of a large number of elements or agents. These elements are grouped into four major components: (1) protected areas (PAs); (2) tourism operations; (3) communities; and, (4) elements comprising the wider environment as indicated in the conceptual framework (see Chapter 2, Figure 2.1). The major components are discussed in the following sections.

4.2.1 Protected areas (PAs)

The Serengeti ecosystem contains 12 PAs with varying characteristics in terms of size, objectives, status, categories, ownership, and management authorities (Table 4.1). Serengeti National Park (SENAPA) is Tanzania's first national park (established in 1951), followed by a proliferation of other PAs in the ecosystem (Sinclair et al., 2008; TANAPA, 2005). The park is a World Heritage Site and Biosphere Reserve. Table 4.1 presents the 12 PAs, their dates of establishment, size, IUCN management category, and their governing institutions. Note that two PAs (Wildlife Management Areas) are managed for sustainable use.

Table 4.1: PAs in the Serengeti ecosystem

PA, year of establishment and status	Size (Km²)	IUCN PAs management category	Governing institution
SENAPA – year 1951, World Heritage Site – 1972, Biosphere Reserve – 1981	14,763	Category II: managed mainly for ecosystem protection and recreation	Tanzania National Parks (TANAPA)
NCA (multiple land use area) – 1959, World Heritage Site – 1979 and, Biosphere Reserve – 1981	8,292	Category VI: managed mainly for the sustainable use of natural ecosystems	Ngorongoro Conservation Area Authority (NCAA)
Loliondo Game Controlled Area – 1959	4,000	Category VI: managed mainly for the sustainable use of natural ecosystems	Wildlife Division
Maswa Game Reserve – 1962	2,200	Category IV: managed mainly for conservation through management intervention	Wildlife Division
Ikorongo Game Reserve – 1993	602	Category VI: managed mainly for the sustainable use of natural ecosystems	Wildlife Division
Grumeti Game Reserve – 1993	411	Category VI: managed mainly for the sustainable use of natural ecosystems	Wildlife Division
Kijereshi Game Reserve – 1993	67.5	Category VI: managed mainly for the sustainable use of natural ecosystems	Wildlife Division
Ikona WMA – 2005	242	Category VI: managed mainly for the sustainable use of natural ecosystems	Local communities
Makao WMA – 2010	176	Category VI: managed mainly for the sustainable use of natural ecosystems	Local communities
Tanzania Conservation Limited – 2006 (Thomson Safari)	51.06	Category VI: managed mainly for the sustainable use of natural ecosystems	Private company (Thomson Safari)
Mwiba Wildlife Conservation Ranch – 2010	19.3	Category VI: managed mainly for the sustainable use of natural ecosystems	(Private company) Mwiba Holding Co. Ltd
Grumeti Reserves Conservation Area – 2005	15	Category VI: managed mainly for the sustainable use of natural ecosystems	(Private company) Grumeti Reserves

Serengeti National Park (SENAPA) (Figure 4.1) is home to an abundance of diverse wildlife, large mammal migrations (e.g., wildebeest, zebra, impala, and gazelle), high concentrations of carnivores and large predator-prey populations (such as lion, hyena, cheetah, and leopard), endangered and threatened species (e.g., elephant, black rhinoceros, and African wild dog), and over 500 bird species (Sinclair et al., 2008; TANAPA, 2005). The park also has vast open savannah, diverse vegetation and habitats, and relatively pristine wilderness areas.

SENAPA is the core conservation area of the Serengeti ecosystem and is surrounded by other PAs found in the ecosystem (Sinclair et al., 2008). These PAs buffer SENAPA from human threats. Serengeti is one of the 16 national parks which form the national park system of Tanzania under the management of Tanzania National Parks (TANAPA), a parastatal organization (100% owned by the government) based in Arusha (TANAPA, 2013). Figure 4.1 indicates sites of wildlife PAs in the Serengeti ecosystem.

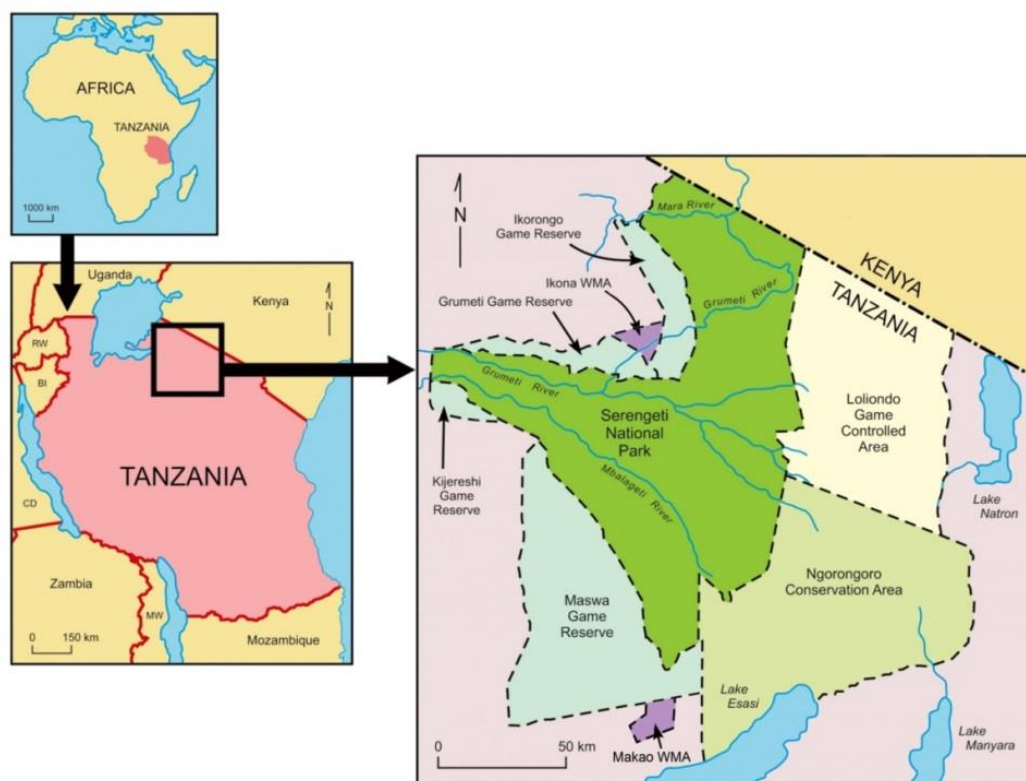


Figure 4.1: Map of the Serengeti ecosystem in Tanzania

Ngorongoro Conservation Area (NCA) was gazetted in 1959 as a multiple land use area where biodiversity conservation, tourism, and human settlement and livestock grazing are permitted as provided by the Ngorongoro Conservation Area Ordinance, CAP 413 of 1959 (NCAA, 2010). This area is also a World Heritage Site and Biosphere

Reserve (Table 4.1). NCA is managed by Ngorongoro Conservation Area Authority (NCAA), a parastatal organization based in Ngorongoro District (NCAA, 2010).

NCA borders Loliondo Game Controlled Area and Natron Game Controlled Area to the north and east, respectively (Figure 4.1). The conservation area also borders Lake Eyasi and agricultural communities to the south and south-east, and Maswa Game Reserve to the west. NCA has diverse wildlife (e.g., buffalo, lion, elephant, and black rhinoceros), and varying vegetation and habitats (NCAA, 2010). Furthermore, NCA has diverse landscape features, including Ngorongoro Crater, short grass plains, and the Northern Highland Forest Reserve, an important water catchment area for Ngorongoro, Karatu, and Mto wa Mbu areas. NCA also contains the rich cultures of the Maasai and Hadzabe, and historical sites, especially the archaeological site of the Oldupai Gorge, and the palaeontological site of Laetoli Footprints (NCAA, 2010).

All game reserves in Tanzania, including Maswa, Ikorongo, Grumeti, and Kijereshi, are managed by the Wildlife Division (Table 4.1). They were established with the objectives of conservation, management, and sustainable utilization of wildlife (URT, 2009). Apart from wildlife conservation and tourism, all other activities are prohibited (URT, 2009). Wildlife utilization in the game reserves is carried out in the form of consumptive (hunting tourist) and non-consumptive (photographic tourism) utilization by licensed tour operators (URT, 2009). Specifically, tourist hunting takes place in hunting blocks, which are allocated to hunting companies within game reserves, game controlled areas, and wildlife management areas (WMAs) (URT, 2009). Hunting block refers to “an area with game animals which has been delineated or set aside by the Director for tourist hunting” (URT, 2009, p. 1). A wildlife officer I interviewed from the

Wildlife Division pointed out that it is the intention of the government to establish as many hunting blocks as possible in PAs since this arrangement contributes to wildlife conservation and also generates revenue for the government, as discussed in Chapter 6.

Maswa Game Reserve borders SENAPA to the north and east, and NCA to the south-east (Figure 4.1). The reserve also borders communities to the south and west, as well as Makao WMA to the south. Maswa Game Reserve has diverse habitats, including woodland, grassland, and wooded grassland, which harbour different species, such as buffalo, elephant, lion, and wildebeest. The reserve is divided into three blocks currently leased for 5 years to Tanzania Game Trackers Safaris Limited and Bushman Hunting Safaris (T) Ltd, private, foreign-owned, hunting companies (URT, 2013).

Kijereshi Game Reserve borders SENAPA to the north and east, and is surrounded by communities to the south and west (Figure 4.1). The reserve adjoins SENAPA to the west of the park near Lake Victoria. The reserve also shares the same biophysical and ecological factors with the western part of SENAPA, short grass plains and wooded grassland. Common wildlife in the reserve includes wildebeest, buffalo, and impala. Kijereshi Game Reserve is not leased to any private hunting company because it is too small, 67.5 km², against the standard minimum area of 200 km² for establishing a hunting block (URT, 2009). In addition, a wildlife officer I interviewed from the Wildlife Division pointed out that apart from its small size there are densely populated communities bordering the reserve, thus hunting will be risking human life.

Ikorongo and Grumeti game reserves are located on the western edge of SENAPA (Figure 4.1). The two reserves adjoin SENAPA to the east and south, and Ikona WMA to the south-east, with communities surrounding the reserves to the north

and west. Ikorongo and Grumeti game reserves have diverse habitats ranging from wooded grassland, riverine forests, and woodland, and are home to a variety of wildlife including wildebeest, buffalo, zebra, elephant, and impala. However, the natural resources are not as significant as those in SENAPA, due to natural and anthropogenic factors, such as human encroachment, hunting, poaching, and uncontrolled fire. The two game reserves are leased to Grumeti Reserves, a private tour company.

Ikona and Makao WMAs were established in 2005 and 2010, respectively (Table 4.1) in the former open areas adjoining village land. They are managed by communities through Community Based Organizations of Ikona and Makao (Ikona WMA, 2005; Makao WMA, 2010; URT, 2012). The WMAs have two objectives: (1) conservation and management of wildlife; and (2) improving community livelihoods (URT, 2012). This conforms to the PA management paradigm shift from the traditional approach that excluded local communities to include them and their interests in PA management and decision making (Dearden et al., 1996; Phillips, 2003; URT, 2007).

Ikona WMA is located on the western boundary of SENAPA, and borders Ikorongo and Grumeti game reserves and is also surrounded by local communities from the WMA village members of Robanda, Makundusi, Natambiso, Nyichoka, and Park Nyigoti (Figure 4.1). Ikona WMA shares the same biophysical and ecological factors of Ikorongo and Grumeti game reserves. The WMA has a consumptive zone leased to Grumeti Reserves, a foreign tour company, and a non-consumptive zone that is leased to eight different tour operators, as indicated in Table 4.2. Five of these tour operators are foreign companies.

Table 4.2: Tour operators with lease agreements in Ikona WMA

Accommodation facility	Ownership	Zone	Capacity (people)
Farufaru	Grumeti Reserves – foreign company	Consumptive (hunting) zone	20
JMT African Heart	JMT African Heart – foreign company	Non-consumptive zone	20
Thomson camp	Thomson Safari Ltd – foreign company	Non-consumptive zone	18
Ikoma Bush Camp	Moivaro Investment Trading Ltd – foreign company	Non-consumptive zone	35
Serengeti Simba Lodge	Serengeti Simba Lodge – foreign company	Non-consumptive zone	30
Mapito Tented Camp Serengeti	Mapito Company Ltd – foreign company	Non-consumptive zone	30
Eco-lodge	Rough Tracks Ltd – local company	Non-consumptive zone	10
Wild camp	Zara International Travel Agency – local company	Non-consumptive zone	40
Task Tours and Safaris Ltd	Task Tours and Safaris Ltd – local company	Non-consumptive zone	20

Makao WMA is located to the south-west of NCA, and borders Maswa Game Reserve to the south, and communities to the south and west (Figure 4.1). It is dominated by grassland plain and wooded grassland vegetation. Common animals are wildebeest, buffalo, and impala. Makao WMA is leased to Mwiba Holding Company Ltd, a local hunting company. At the time of this study, the hunting tenure (5 years) of Mwiba Holding Company Ltd in Makao WMA hunting block was coming to an end, and will be replaced by Fereck Safaris Ltd.

Loliondo Game Controlled Area was established to conserve and protect wildlife and the ecosystem and sustainable use of wildlife resources (Table 4.1). Other land uses and human activities are prohibited in game controlled areas, unless granted a permit from the Director of Wildlife Division as stipulated in the Wildlife Conservation Act of 2009 (URT, 2009). Human settlements, livestock grazing, and crop cultivation activities have been practiced on community land in Loliondo Game Controlled Area since its inception in 1959. This implies that pastoralists and agro-pastoralist communities are permitted to live in the game controlled area. Loliondo Game Controlled Area is managed by the Wildlife Division under the supervision of the District Game Officer. The game controlled area borders SENAPA to the west, the Tanzania-Kenya

international border to the north, NCA to the south, and communities to the east. Loliondo possesses diverse habitats, including short grass plains, forest, wooded grassland, and scrubland. It also has wild animals, such as wildebeest, buffalo, zebra, hartebeest, impala, and African wild dog. Loliondo Game Controlled Area is leased to a private foreign hunting company, Ortello Business Corporation. In addition, two communities, Ololosokwani and Soitisambu, within Loliondo Game Controlled Area have leased part of their village land to &Beyond (Kleins Camp) and Buffalo Luxury Camp tour operators, who have established tourist accommodation facilities.

Three private investors (Tanzania Conservation Ltd, Grumeti Reserves, and Mwiba Holding Company Ltd) have acquired land adjacent to PAs in the Serengeti ecosystem and turned them into private conservation areas (Table 4.1). These can be considered private PAs, even though the legal framework of wildlife conservation in Tanzania does not recognize this category. According to the World Parks Congress (2003), private PA refers to land parcels of any size that are predominantly managed for biodiversity conservation, protected with or without formal government recognition, and owned or otherwise secured by individuals, communities, corporations, or NGOs. One PA key informant indicated, “All wildlife in Tanzania, including those in the private lands, belongs to the state. The three private investors in the Serengeti ecosystem own land, and use wildlife on their land for the purpose of tourism but also conserve them.”

PAs in the ecosystem have different Acts of establishment (see Appendix J) that provide guidance on the way they are managed. For instance, SENAPA was established under the Tanzania National Parks Ordinance CAP. 412 of 1959 and NCA the Ngorongoro Conservation Area Ordinance CAP. 413 of 1959. Parallel to that, wildlife

conservation in Tanzania is governed by the Wildlife Conservation Act of 1974, which was updated in 2009, and the Wildlife Policy of 2007. This implies that even though different categories of PAs in the ecosystem have different Acts of establishment, they all share the same national Wildlife Conservation Act and Wildlife Policy in the country.

Roles of PA agencies in nature-based tourism

PA agencies play multiple tourism roles in the Serengeti ecosystem (Table 4.3). These include management and provision of attractions, accommodation, accessibility, information, promotion, and other services (e.g., security, water, electricity, and medical services). These roles overlap among PAs agencies, but also vary across the Serengeti ecosystem. All PAs are responsible for managing tourist attractions and tourism. SENAPA and NCAA provide nearly all tourism services, except the hunting experience. Game reserves, game controlled area, and WMAs play limited roles in NBT compared to SENAPA and NCA because these PAs are leased to hunting companies (see Table 4.3). Tourism roles (e.g., maintenance of roads and airstrips, and provision of accommodation, information, promotion, and utilities) that are not performed by PA agencies in the game reserves, game controlled area, and WMAs are provided by tourism operators, including hunting companies and accommodation operators (see section 4.2.3).

Table 4.3: The roles of PA agencies* in NBT in the Serengeti ecosystem

PA	Role of PA agencies									
	Managing tourism	Tourism planning	Managing attractions	Provision of photo tourism	Provision of hunting tourism	Maintenance of roads and airstrips	Provision of accommodation facilities	Provision of info	Promotion	Provision of utilities
SENAPA	✓	✓	✓	✓		✓	✓	✓	✓	✓
NCA	✓	✓	✓	✓		✓	✓	✓	✓	✓
MGR	✓		✓	✓	✓			✓		
IGR	✓		✓	✓	✓					
GGR	✓		✓	✓	✓					
KGR	✓		✓							
LGCA	✓		✓	✓	✓					
Ikona	✓	✓	✓	✓	✓			✓		
Makao		✓	✓		✓					

Where: SENAPA = Serengeti National Park, NCA = Ngorongoro Conservation Area, LGCA = Loliondo Game Controlled Area, MGR = Maswa Game Reserve, IGR = Ikorongo Game Reserve, GGR = Grumeti Game Reserve, KGR = Kijereshi Game Reserve, Ikona = Ikona WMA, and Makao = Makao WMA

*This table refers only to functions carried out by the PA agencies. These functions may be carried out by private contractors or government departments.

The roles of PA agencies in NBT in the ecosystem are indicated in the respective PA legislation, as shown in Table 4.4 (NCAA, 2010; TANAPA, 2003; URT, 2009; URT, 2012). As a key function, the legislation of PAs in the Serengeti ecosystem requires all PAs to prepare a general management plan that embraces a tourism function. The general management plan provides guidelines on actions to be carried out in PAs (URT, 2009). Nevertheless, only two PAs, SENAPA and NCA, have such management plans. Ikona and Makao WMAs have resource zone management plans, and the game reserves and Loliondo Game Controlled Area do not have plans stipulated in their Act of establishment. It is a general consensus of the wildlife officers I interviewed in the Wildlife Division that game reserves and game controlled area do not have general management plans due to lack of financial resources. Management plans are described in greater detail in Chapter 5.

Table 4.4: PA legislation and tourism functions in the Serengeti ecosystem

Type of PA	Act of establishment	Tourism functions	Planning document
Serengeti National Park	The Tanganyika National Parks Ordinance CAP. 412 of 1959.	<ul style="list-style-type: none"> • Conservation of wildlife resources in the national parks • Provision of information and promotion of tourism in the parks • Preparation of the general management plan • Development, operating and managing tourism including facilities, infrastructure and services in the national parks • Licensing and granting concessions to tourism operators to develop, manage and operate tourist accommodation facilities in the parks • Establish and enforce regulations related to tourism and setting fees in the parks 	Has a general management plan
NCA	Ngorongoro Conservation Area Ordinance CAP. 413 of 1959.	<ul style="list-style-type: none"> • Promote conservation of natural resources • Promote tourism • Prepare general management plan 	Has a general management plan
Loliondo Game Controlled Area	The Wildlife Conservation Act, 1974	<ul style="list-style-type: none"> • Protection of wildlife against unlawful utilization relating to tourism • Promote both consumptive and non-consumptive wildlife tourism • Prepare general management plan • Preparation of environmental impact assessment (EIA) • Environmental monitoring and audit of projects or activities including tourism development in the area 	Lack general management plan
Maswa Game Reserve	The Wildlife Conservation Act, 1974	<ul style="list-style-type: none"> • Protection of wildlife against unlawful utilization relating to tourism • Promote both consumptive and non-consumptive wildlife tourism • Prepare general management plan • Preparation of environmental impact assessment (EIA) • Environmental monitoring and audit of projects or activities including tourism development in the reserve 	Lack general management plan
Ikorongo, Grumeti and Kijereshi game reserves	The Wildlife Conservation Act, 1974	<ul style="list-style-type: none"> • Protection of wildlife against unlawful utilization relating to tourism • Promote both consumptive and non-consumptive wildlife tourism • Prepare general management plan • Preparation of environmental impact assessment (EIA) • Environmental monitoring and audit of projects or activities including tourism development in the reserve 	Lack general management plan
Ikona WMA	The Wildlife Conservation (Wildlife Management Areas) Regulations, 2012.	<ul style="list-style-type: none"> • Promotion of sustainable tourism • Preparation of a resource management zone plan, general management plan, and environmental impact assessment (EIA) • Environmental monitoring and audit of projects or activities including tourism development in the WMA • Supervise tourism activities in the WMA • Collection of fees and remittance to relevant authorities 	Has a resource zone management plan
Makao WMA	The Wildlife Conservation (Wildlife Management Areas) Regulations, 2012.	<ul style="list-style-type: none"> • Promotion of sustainable tourism • Preparation of a resource management zone plan, general management plan, and environmental impact assessment (EIA) • Environmental monitoring and audit of projects or activities including tourism development in the WMA • Supervise tourism activities in the WMA • Collection of fees and remittance to relevant authorities 	Has a resource zone management plan

In summary, there are many PAs in the Serengeti ecosystem of different categories (e.g., national park and game reserves) and status (e.g., World Heritage Site, Biosphere Reserve, and conservation area) (Table 4.1). These PAs have different objectives, ranging from strict conservation “biodiversity protection” (e.g., SENAPA) to conservation and sustainable development (e.g., NCA and WMAs). PAs consist of a large number of diverse wildlife species and populations, different objectives, and management authorities and arrangements. PAs in the ecosystem are managed by different institutions.

PAs in the Serengeti ecosystem have different Acts of establishment which stipulate the roles of PAs in NBT. PAs play a number of tourism roles, which also differ among PAs. SENAPA and NCA play many tourism roles compared to game reserves, game controlled area, and WMAs. On the other hand, game reserves and game controlled areas do not fulfill the role of tourism planning, although it is stipulated in the Wildlife Conservation Act as “The Director shall, as soon as practicably possible, after the establishment of a wildlife protected area, prepare or cause to be prepared, a General Management Plan for each wildlife protected area” (URT, 2009, p. 195). Some PA key informants I interviewed from the Wildlife Division pointed out that this is not always the case, and many PAs under the Wildlife Division do not have General Management Plans, partly because of a lack of finances.

PAs in the Serengeti ecosystem are inhabited and surrounded by local communities, discussed in the next section. PAs and local communities in the Serengeti ecosystem are linked to tourism, discussed in section 4.2.3, and the wider environment is considered in section 4.2.4. PAs, communities, tourism, and elements of the wider environment are interlinked and interdependent, as discussed in Chapter 2 (section 2.2).

4.2.2 Communities

The second major component of NBT in the Serengeti ecosystem is communities. There are about 120 communities within the ecosystem (see Chapter 1, Figure 1.3) (TANAPA, 2012). Some of these communities, including those in NCA, Loliondo Game Controlled Area, Western Serengeti, south, and southwest of the park, were evicted from Serengeti area to make way for establishment of the park. The Maasai pastoralists moved to NCA, and some Maasai and Wandorobo moved to Loliondo. As discussed earlier in Chapter 1 and section 4.2.1, some communities live in NCA and Loliondo Game Controlled Area, as well as adjacent to PAs. There are 22 communities dominated by pastoral Maasai and Wandorobo tribes living in Loliondo Game Controlled Area (Sinclair, 2008; TANAPA, 2005). Likewise, 43 agro-pastoral and agriculturist communities border the west and north-west of the ecosystem, and 36 of these communities border the south-west of the ecosystem (NCAA, 2010; TANAPA, 2005). Seventeen pastoral Maasai communities reside in NCA (NCAA, 2010). In addition, small groups of hunters and gathers live on the edge of the ecosystem, the Wandorobo on the east and south, and the Hadzabe to the south around Lake Eyasi (NCAA, 2010).

The western and south-western parts of the ecosystem are occupied by densely populated communities of 80 and 63 people per km² respectively, compared to the eastern and southern parts, which are sparsely populated, with estimated population densities of 45 people per km², (URT, 2013). The human population in the Serengeti region has increased to about 2.9 million in 2012 from 2.3 million in 2002 (URT, 2013; URT, 2002). Some literature (e.g., Homewood et al., 2012; Kideghesho et al., 2008; NCAA, 2010; Schmidt, 2010; TANAPA, 2005) indicates that human population is high

in the Serengeti ecosystem, partly due to immigration of people close to PAs, thus creating a demand for more resources, especially land.

The common livestock kept by pastoralists and agro-pastoralists in the ecosystem are cattle, goats, sheep, and donkeys, while the dominant crops include cassava, maize, sorghum, sweet potatoes, millet, beans, and cotton. Local communities in the Serengeti ecosystem rely on natural resources for their livelihoods (e.g., building poles, thatch grass, and pasture for livestock grazing). Community and PA key informants pointed out that local communities in the Serengeti ecosystem are characterized by widespread poverty in terms of income, education, and social services. Schmitt (2010) pointed out that nearly 50% of the communities in Western Serengeti live under the national average basic needs poverty line, which is 36% of the total population of Tanzania. Likewise, the level of school enrolment is low, possibly 60% compared to other regions. The relationship between community livelihoods and PAs is discussed further in Chapter 7.

There is high diversity of communities within and around the Serengeti ecosystem in terms of socio-cultural, economic, environmental dimensions, level of development, opportunities, and constraints. The ecosystem has over 20 diverse ethnic tribes, including the Maasai, Wandorobo, Hadzabe, Wairaqwi, Ikoma, Ikizu, Kurya, Natta, Jita, and Sukuma. The western part of the ecosystem has more diverse tribes and is becoming multi-ethnic and multi-cultural, unlike the eastern and southern-western parts, which are dominated by Maasai and Sukuma tribes, respectively. There is a high density of community development in the western region of the Serengeti ecosystem, probably because people migrate close to PAs where natural resources are found (e.g., pasture). Local people in the Serengeti ecosystem live in various locations within the ecosystem,

practice different socio-economic activities, and have different cultures, with varied opportunities and constraints. This is congruent with the characteristic of complex systems consisting of large numbers of elements.

The roles of local communities in NBT

Local communities have various roles in NBT in the Serengeti ecosystem (Table 4.5). These roles vary considerably within and among communities according to different types of PAs and locations of communities in the ecosystem. Communities that are actively involved in tourism are those located in NCA, Loliondo Game Controlled Area, Ikona WMA, and Western Serengeti in the Lamadi area. These communities provide some of the labour force for the tourism industry, as discussed in Chapter 7. Some communities in NCA, Loliondo Game Controlled Area, and Makundusi Village display traditional culture to tourists (Table 4.5). Likewise, communities in Loliondo Game Controlled Area and Ikona and Makao WMAs have leased part of their land to tourism investors, while some of these communities and those in NCA participate in tourism planning. On the other hand, communities bordering the game reserves and SENAPA are not engaged in the tourism industry.

PA key informants indicated that many tourists visiting SENAPA and game reserves tend not to visit local communities because there are no activities developed for them to experience, and some communities are on the periphery of these PAs (e.g., communities adjacent to Maswa Game Reserve and north-west Serengeti). One key informant noted, “Once tourists experience Maasai culture which is promoted by many tour companies and visitors are interested to experience there is no point of incurring costs to drive tourists to areas where tourism products are not developed and organized.”

Table 4.5 lists some of the roles of local communities in NBT. The roles are not organized in any particular order as they differ among communities across the ecosystem.

Table 4.5: The roles of local communities in NBT in the Serengeti ecosystem

Communities	Type of tourism engagement							Sell local produce	Provide info to tourists
	Cultural tourism	Sell art crafts	Local guiding	Provide camping services	Lease land to investors	Labour force	Participate in tourism planning		
Communities in NCA									
Ngorongoro ward	✓	✓	✓	✓		✓	✓		✓
Nainokanoka ward	✓	✓	✓	✓		✓	✓		✓
Naiyobi ward	✓	✓				✓	✓		✓
Kakesio ward	✓	✓				✓	✓		✓
Communities in LGCA									
Ololosokwani village	✓	✓			✓	✓	✓		✓
Arashi village		✓		✓	✓	✓			
Soitisambu village	✓	✓			✓	✓			✓
Ikona WMA village members					✓	✓	✓	✓	
Robanda Village				✓	✓	✓	✓	✓	
Makundusi village	✓				✓	✓	✓	✓	✓
Communities in Western Serengeti									
Lamadi Village	✓		✓			✓		✓	✓
Machochwe Village						✓		✓	
Makao WMA village members					✓	✓	✓		
Communities bordering Ikorongo and Grumeti game reserves						✓			
Communities bordering Maswa and Kijereshi game reserves									

Source: Field study (2012).

This section reveals that there are many communities with different social and economic characteristics within or adjacent to PAs in the Serengeti ecosystem. Communities in NCA, Loliondo, Ikona WMA, and Lamadi area play various roles in the tourism industry (e.g., display traditional culture, sell traditional art crafts, and provide labour force and information to tourists). At the same time, some communities, especially those bordering SENAPA and game reserves, are not engaged in the tourism industry. This study reveals that participation of local communities in the tourism industry is influenced by location of the communities in relation to patterns of tourist visitation and

the availability of developed tourism products (e.g., accommodation, attractions, and activities) which are promoted by tour operators. For instance, communities engaged in tourism in NCA, Loliondo, and Ikona are close to tourist accommodation facilities, making it possible for tourists to visit the communities. In addition, the communities in NCA are located in the central tourist circuit near the Ngorongoro Crater and the main road from NCA to Western Serengeti via SENAPA. One PA key informant indicated, “Local communities in NCA are advantaged because NCA is the main tourism gateway to the Serengeti ecosystem used by about 75% of tourists. Tour operators also are not interested to take tourists to the western, south-west, and north-west of Serengeti because it is costly and there are no interesting features including culture.”

In summary, this section has discussed local communities and their roles in NBT in the Serengeti ecosystem. There are many and diverse communities within and adjacent to PAs in the ecosystem. Communities in the ecosystem differ in terms of economic, social, cultural, and environmental aspects and their role in NBT. This study has revealed that some communities in the ecosystem, especially those in NCA, Ikona WMA, Loliondo Game Controlled Area, Makao WMA, and Lamadi area provide different services to tourists. The next section will discuss the tourism industry in the ecosystem, including tourist service delivery and the roles of different tourism actors in the industry.

4.2.3 The tourism industry

This section discusses tourists, tourism services, and tourism service suppliers in the Serengeti ecosystem as another component of NBT, indicating a large number of elements or agents, a characteristic of complex systems. The Serengeti ecosystem receives many international and domestic tourists (Appendix K). In 2011, SENAPA

recorded 161,840 international tourists and 354,024 domestic tourists (TANAPA, 2013). In the same year, NCAA recorded 307,086 international tourists and 281,520 domestic tourists (NCAA, 2010). Tourists visiting the Serengeti ecosystem have varying characteristics, including country of origin, age, and preference for tourism products. For instance, tourists in the Serengeti ecosystem come from various countries, including USA, United Kingdom, Germany, France, South Africa, Canada, Netherlands, Kenya, and Tanzania (NCAA, 2010; TANAPA, 2013). Likewise, tourists to the Serengeti ecosystem have many interests, such as hunting, game viewing, bird watching, cultural visits, and nature walks (NCAA, 2010; TANAPA, 2013).

Tourism service suppliers (tour operators, PA agencies, and local communities) provide a number of services in the Serengeti ecosystem, including attractions, transportation, accommodation, information, promotion, and other services (e.g., security, utility, entertainment, souvenir, and medical services). These services are discussed in this section, starting with tourist attractions.

Tourist attractions are the main aspect that draws tourists to the Serengeti ecosystem. The ecosystem is famous for its spectacular wildlife attractions (Table 4.6). The abundance and visibility of wildlife attractions varies among PAs in the ecosystem, with SENAPA and NCA having high concentrations and good visibility of wildlife. Large mammal migrations are another interesting tourist attraction in the ecosystem and are more pronounced in SENAPA, NCA, Ikorongo and Grumeti game reserves, Loliondo Game Controlled Area, and Ikona WMA (see Chapter 1, Figure 1.2). A PA key informant I interviewed from SENAPA indicated that nowadays the patterns of tourist visitation are influenced by wildlife migration such that visitation shifts according to wildlife

movement in the ecosystem. Therefore, if the migration is in Western Serengeti, many tourists will visit that area, and as the migration moves to the north of the park, many tourists will visit the north (Chapter 1, Figure 1.2). This shows that wildlife migration is an important selling point of tourism in the ecosystem. The Serengeti ecosystem also presents an attractive physical landscape (e.g., Ngorongoro Crater and Serengeti Plain), and cultural and historical site features. SENAPA and NCA present key physical and historical attractions, while NCA, Loliondo Game Controlled Area, and Ikona WMA also have cultural attractions in the ecosystem. Table 4.6 indicates the distribution of these attractions in different PAs in the ecosystem.

Table 4.6: Key tourist attractions in the Serengeti ecosystem

Tourist attractions	PAs								
	SENAPA	NCA	MGR	IGR	GGR	LGCA	KGR	Ikona	Makao
Wildlife species diversity and abundance	✓	✓	✓	✓	✓	✓	✓	✓	✓
Large mammal migration (e.g., wildebeest)	✓	✓	✓	✓	✓	✓		✓	
Endangered and threatened species	✓	✓	✓	✓	✓	✓	✓	✓	✓
Birdlife	✓	✓	✓	✓	✓	✓	✓	✓	✓
Vegetation types	✓	✓	✓	✓	✓	✓	✓	✓	✓
Craters (e.g., Ngorongoro Crater)		✓							
Short grass plains (e.g., Serengeti plain)	✓	✓							
Mountains		✓							
Kopjes	✓								
Rivers	✓								
Indigenous culture (e.g., Maasai & Hadzabe)		✓				✓		✓	
Historical sites (e.g., Oldupai Gorge & Laetolia footprints)	✓	✓							
Sunrise and Sunset	✓	✓	✓	✓	✓	✓	✓	✓	✓

Where: SENAPA = Serengeti National Park, NCA = Ngorongoro Conservation Area, LGCA = Loliondo Game Controlled Area, MGR = Maswa Game Reserve, IGR = Ikorongo Game Reserve, GGR = Grumeti Game Reserve, KGR = Kijereshi Game Reserve, Ikona = Ikona WMA, and Makao = Makao WMA

Tourism service suppliers provide a number of tourist activities that are based on the diverse tourist attractions found in the ecosystem, such as photography, hunting, cultural, and historical activities (Table 4.7). Apart from tourism attractions, the type of

tourism activities carried out in PAs are prescribed in the legislation and management plans of PAs. For instance, game reserves, game controlled area, and WMAs in the ecosystem practice tourist hunting because the legislation (Wildlife Conservation Act of 2009 and 2012) governing these PAs permits that, while the Act of establishment of SENAPA and NCA prohibits consumptive utilization, including hunting. Similarly, in NCA cultural tourism is practiced due to the presence of Maasai residents in the conservation area, while SENAPA does not present cultural tourism because it is not inhabited according to its legislation. Thus, even though there are many different tourist attractions and activities in the Serengeti ecosystem, they are not evenly distributed among PAs. Table 4.7 presents the findings of the key informants interviewed about tourist activities. The activities are not presented in any particular order, but some key informants perceived that game viewing and sport hunting are the leading activities.

Table 4.7: Key tourist activities in the Serengeti ecosystem

Visitor characteristics	PA								
	SENAPA	NCA	MGR	IGR	GGR	LGCA	KGR	Ikona	Makao
Game viewing	✓	✓	✓	✓	✓	✓	✓	✓	✓
Sport hunting			✓	✓	✓	✓		✓	✓
Historical tour		✓							
Cultural tour		✓				✓		✓	
Nature walk (short & long walking safari)	✓	✓				✓			
Balloon safari	✓								
Bird watching	✓	✓	✓	✓	✓	✓	✓	✓	✓
Hiking (Mount Oldonyo Lengai)		✓							
Filming	✓	✓	✓	✓	✓	✓	✓		
Bush meals (breakfast & lunch)	✓	✓							

Where: SENAPA = Serengeti National Park, NCA = Ngorongoro Conservation Area, LGCA = Loliondo Game Controlled Area, MGR = Maswa Game Reserve, IGR = Ikorongo Game Reserve, GGR = Grumeti Game Reserve, KGR = Kijereshi Game Reserve, Ikona = Ikona WMA, and Makao = Makao WMA

Accessibility is an important service that facilitates the movement of tourists to and within the Serengeti ecosystem from other tourism destinations. PAs in the Serengeti ecosystem are accessible by road and air transportation. With the exception

of Ikorongo and Kijereshi game reserves and Makao and Ikona WMAs, all other PAs in the ecosystem have airstrips for the purpose of tourism. SENAPA has five, NCA has three, Maswa Game Reserve has one, and Loliondo Game Controlled Area has two airstrips (Figure 4.2). In SENAPA and NCA, the airstrips are located in high use zones. These airstrips have been located strategically in order to provide reliable access for tourism activities to different parts of PAs throughout the year. For instance, when the main road from NCA to Fort Ikoma gets bad because of the weather, many tourists use air transport from Arusha to the park. The airstrips are also useful for elderly tourists who find it difficult to travel in a vehicle from Arusha to Serengeti and back.

A key informant I interviewed from SENAPA pointed out that the airstrips in SENAPA get very busy during the peak tourism season compared to other airstrips in the ecosystem. There are scheduled and charter planes providing air transport for tourists from other tourism destinations to the ecosystem. At least six private air companies provide flight service to the Serengeti ecosystem, including Precision Air, Regional Air Service, Coastal Aviation, Air Excel, Auric Air, and Flightlink Ltd.

The PAs possess road networks used for tourism and conservation activities (Figure 4.2). There is a gravel public main road that runs through the ecosystem from the south-east at the main entry point of NCA to the Western Serengeti (Fort Ikoma and Ndabaka gates). Many roads in the Serengeti ecosystem are seasonal roads and tracks since these are intensively used during peak tourism season but less used in low season. Figure 4.2 indicates that SENAPA and NCA have many roads, especially in the central (Seronera), western (Kirawira), and northern (Lobo) parts of the park, and also around

Ngorongoro Crater in NCA. These areas have many roads in order to accommodate high tourist visitation occurring due to interesting wildlife resources found in the areas. One PA key informant indicated that, “Nearly every tour guide who brings tourists to the park and NCA would like to take tourists around Seronera area and Ngorongoro Crater since these areas have diverse wildlife attractions which are easily observable.” Thus, the park and NCA have many road networks compared to other PAs in the ecosystem. Similarly, Maswa Game Reserve has many road networks as a result of intensive tourist hunting, which has created seasonal roads and tracks in the course of tracking game animals. The most reliable road transport is by four wheel drive safari vehicles due to rough terrain, remoteness of the area, and the kind of roads and tourist activities in the ecosystem.

There is a range of tourist accommodation facilities within the Serengeti ecosystem, including permanent lodges, permanent tented camps, public campsites (camping grounds with basic facilities where many groups of tourists are allowed at one time), special campsites (camping grounds without facilities where only one group of tourists is allowed at one time), mobile campsites, and a hostel (see Figure 4.2 and Table 4.8). Some permanent lodges, hotels, campsites, and farm houses are located outside PAs, especially Karatu area and Western Serengeti in Lamadi. PA agencies own and operate campsites, a hostel, and rest houses, but special campsites are operated by tour operators in PAs. Some tour operators own and operate permanent lodges and permanent tented camps within and outside PAs. Table 4.8 indicates the findings of the key informants interviewed relating to accommodation facilities in the ecosystem. SENAPA, Karatu area, and NCA have high bed capacity and variety of accommodation

facilities. Makao WMA and game reserves have low bed capacity and campsites only. Hostel accommodation is only found in SENAPA, and this hostel provides free accommodation service to Tanzanian students (secondary and primary schools) touring the park.

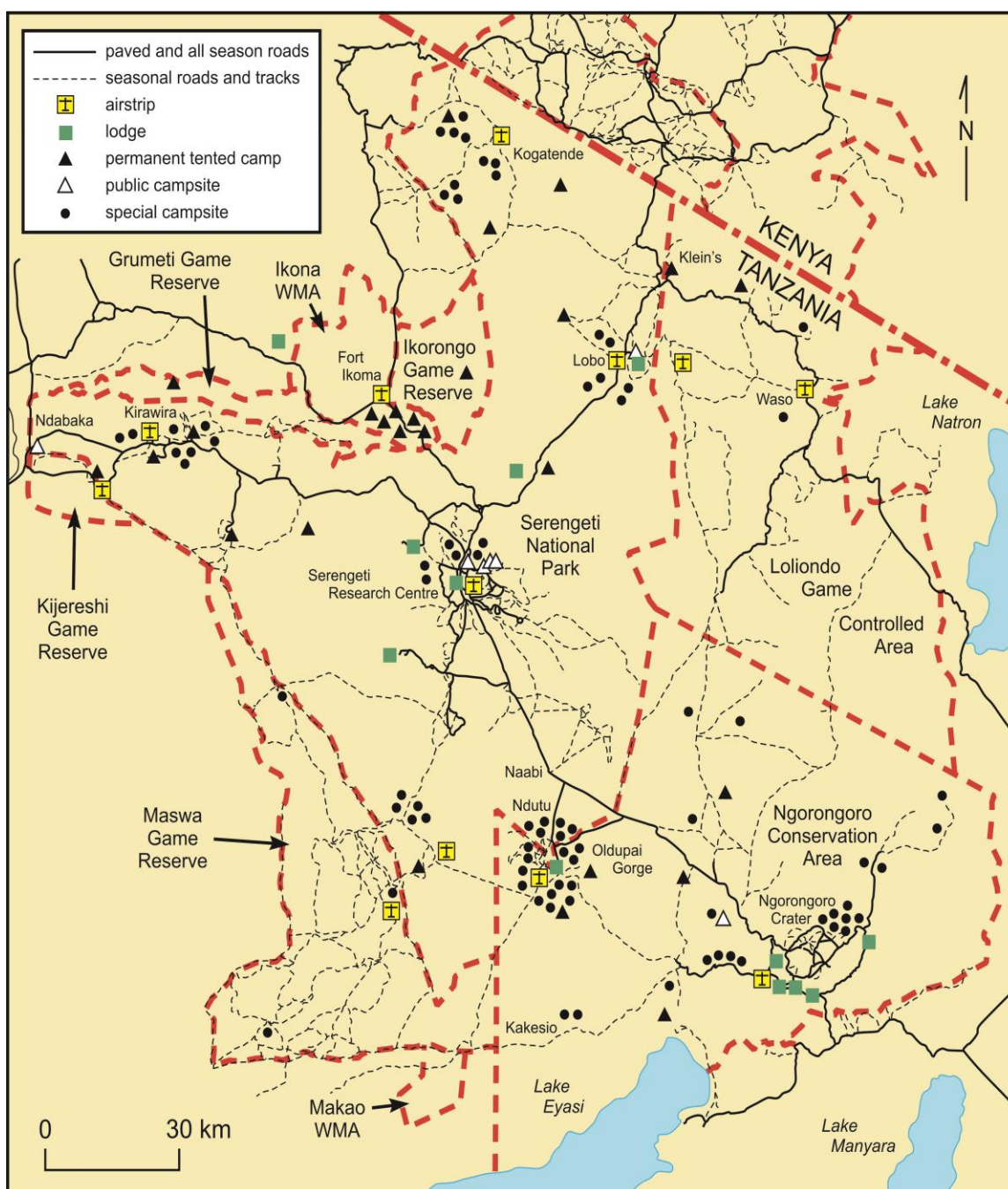


Figure 4.2: Road network in the Serengeti ecosystem

Table 4.8: Categories of tourist accommodation facilities in the Serengeti ecosystem and adjacent areas

PA	Categories of tourist accommodation facilities					
	Permanent lodge	Tented lodge	Special campsite	Public campsite	Hostel	Rest house
Serengeti National Park	5	10	90	8	1	4
Ngorongoro Conservation Area (NCA)	6	2	28	1		
Loliondo Game Controlled Area		5	2			
Maswa Game Reserve			3			
Ikorongo Game Reserve			2			
Grumeti Game Reserve		1				
Kijereshi Game Reserve		1	1			
Ikona WMA	8					
Makao WMA			1			
Karatu area	20	5				
Lamadi area		4	2			

Tourist accommodation services in the Serengeti ecosystem range from upmarket lodges that charge premium prices, to low market campsites with budget prices. Public campsites are a relatively cheap tourist accommodation in the Serengeti ecosystem, costing a minimum of US \$25 for an adult international tourist per day, followed by special campsites, which cost at least twice as much as public campsites, while the lodges charge high fees from US \$200 and above per person for a day.

Tourists visiting the Serengeti ecosystem require information before they travel and as they travel around the destination. The means of communication used for promotion are intended to inform and persuade potential tourists about the Serengeti ecosystem, other destinations linked to the ecosystem (e.g., Lake Manyara, Tarangire, and Kilimanjaro National Parks – Northern Tourist Circuit), and information they need to know before visiting the destination. PA agencies and tour operators are responsible for promotion of PAs in the Serengeti ecosystem as NBT destinations. PA agencies and tour operators also provide information to tourists when visiting the Serengeti ecosystem. This information provides tourists with an understanding

of the area and attractions found therein, and enhance their experience and understanding. Likely, this interpretive information can raise conservation awareness of tourists about biodiversity in the Serengeti ecosystem, as discussed in section 6.4. PA agencies and tourism operators provide information to tourists through a number of means of communication, such as personnel (e.g., tour guides), written material (e.g., guide books), and other media (e.g., visitor information centres and websites) (Table 4.9). Provision of information varies among tourism service providers, including PA agencies, tourism operators, and communities. Tour guides, rangers, and game scouts, guide books, brochures, and websites are used in all PAs by PA agencies and tourism operators. Park guides are used only in SENAPA and NCA, while professional hunters provide information in PAs practicing hunting tourist. The effectiveness of the techniques used to provide information to tourists is discussed in Chapter 6. Table 4.9 lists means of communicating information to tourists in the Serengeti ecosystem as reported by key informants.

Table 4.9: Medium used to convey information about the Serengeti ecosystem

Communication medium	SENAPA	NCA	LGCA	MGR	IGGR	KGR	Ikona WMA	Makao WMA
Tour guides	✓	✓	✓	✓	✓	✓	✓	✓
Park guides	✓	✓						
Rangers / game scouts	✓	✓	✓	✓	✓	✓	✓	✓
Professional hunters			✓	✓	✓		✓	✓
Visitor information centre	✓	✓					✓	
Brochures	✓	✓	✓	✓	✓	✓	✓	✓
Leaflets	✓	✓	✓	✓	✓		✓	✓
Guide books	✓	✓	✓	✓	✓	✓	✓	✓
Maps	✓	✓	✓	✓	✓			
Websites	✓	✓	✓	✓	✓	✓	✓	✓
Documentaries	✓	✓						
Museum		✓						

Where: SENAPA = Serengeti National Park, NCA = Ngorongoro Conservation Area, LGCA = Loliondo Game Controlled Area, MGR = Maswa Game Reserve, IGGR = Ikorongo and Grumeti game reserves, KGR = Kijereshi Game Reserve

PA agencies, tourism operators, and local people also provide other tourism services to tourists in the Serengeti ecosystem. Such services include security, utilities, medical service, souvenirs, and entertainment. PA agencies in the Serengeti ecosystem are responsible for security of tourists, as well as wildlife and all resources found in their jurisdictions. PA agencies supply utilities (e.g., water and electricity) to the public campsites. Tour operators and accommodation operators are responsible for utility supply to the special campsites they operate and their lodges. PA key informants noted that NCAA and SENAPA, as well as large accommodation operators, provide medical services to tourists. Individuals, community groups, and private companies sell souvenirs and provide entertainment at the permanent lodges and camps and community centres.

Tour operators

Tour operators are key actors in NBT in the Serengeti ecosystem because they play many significant roles in tourism, especially provision of services to tourists as discussed in this section and the next chapters. “In 2010, more than 300 tour companies were recorded operating in the Serengeti ecosystem” (NCAA staff, August 2010). Tour companies range from large to medium and small companies based on the volume of business they conduct with PA agencies, number of tourists they receive, and fleet of vehicles (Table 4.10). NCAA (2013) indicated that about 47% of tour operators are Tanzanians, 41% are joint tour operators (Tanzanian and foreign ownership), and 12% are foreign operators. Many Tanzanians own small tour companies, many joint tour operators own medium and large tour companies, and many foreign tour operators own large and very large tour companies. For instance, out of four hunting companies that operate in the Serengeti ecosystem, three are foreign companies and

only one is a local Tanzanian company. In addition, SENAPA and NCA have 11 permanent lodges, of which 2 are owned by local Tanzanian companies and 9 are owned by foreign companies. Normally, PA agencies (e.g., Tanzania National Parks, NCAA, and WMAs) issue a tender notice through public media inviting potential investors to bid to invest in accommodation facilities in PAs (TANAPA, 2013; NCAA, 2010; Ikona WMA, 2012). Table 4.10 shows the number of tourism companies operating in the Serengeti ecosystem. The tourism companies differ in terms of size and business transactions, with many falling below medium size.

Table 4.10: Size of tourism companies operating in the Serengeti ecosystem

Volume of business transactions (TZS)	Size of company	Tour companies	
		Number	Percentage (%)
Above 300,000,000	Very large	10	4
300,000,000 – 100,000,000	Large	67	22
100,000,000 – 50,000,000	Medium	80	27
Below < 50,000,000	Small	140	47

Source: NCAA, 2012
Exchange rate US \$1 = TZS 1560

Roles of tourism operators in NBT

Various tourist services can be obtained in the Serengeti ecosystem.

Likewise, there are many tourism operators supplying services, including tour companies, accommodation operators, and hunting companies. Some tourism operators provide nearly all tourism services, while others provide only a few. Tourism operators play multiple functions of service delivery to tourists in the Serengeti ecosystem.

Table 4.11 presents the findings of the key informants I interviewed. The table indicates that each tour operator deals with promotion and provision of information to tourists, and only hunting companies are involved in conservation and management of attractions directly.

Table 4.11: The roles of tour operators in the Serengeti ecosystem

Nature-based tourism role	Tour operators				
	Tour companies	Hunting companies	Air companies	Accommodation operators	Tour guides & interpreters
Conservation and management of attractions		✓			
Provision of tourism attractions, activities and experience	✓	✓		✓	✓
Provision of transportation	✓	✓	✓	✓	✓
Provision of accommodation	✓	✓		✓	✓
Tourism promotion	✓	✓	✓	✓	✓
Provision of information	✓	✓	✓	✓	✓
Provision of other services (water, power, security, souvenirs, and medical)	✓	✓		✓	
Development and maintenance of infrastructure and facilities		✓		✓	

In summary, this section has discussed tourism services provided to tourists and the role of tour operators in NBT in the Serengeti ecosystem. This study has indicated that wildlife is a key attraction in the Serengeti ecosystem. Many studies argue that most international tourists (about 90%) are attracted by wildlife, particularly the “Big Five” (buffalo, elephant, leopard, lion, and rhino), as well as carnivores, birdlife, wild animal migration, and beautiful scenery found in the ecosystem (Eagles et al., 2001; Eagles & Wade, 2006; Kaltenborn et al., 2011; NCAA, 2010; TANAPA, 2013). Based on these attractions, a number of tourism activities, including photographic and hunting tourism, are conducted in PAs in the ecosystem. The attractions and tourism activities in the Serengeti ecosystem have attracted international and domestic tourists, with the international tourists being a significant market in the ecosystem.

A number of tourism services are provided in PAs in the Serengeti ecosystem, including transportation, accommodation, information, security, and utilities. These services vary among PAs across the ecosystem with many, concentrated in SENAPA, NCA, and Ikona WMA partly because these PAs offer photographic experiences that many tourists participate in, thus calling for many services. There are many tour

operators (300) with various characteristics providing services to tourists in the Serengeti ecosystem. These tourism operators differ in size, operations, ownership, and profile. The activities of tourism operators overlap and also vary in the ecosystem. Many tourism operators play multiple roles in service provision to tourists. Tourism operators therefore exhibit the characteristics of complex systems, a large number of elements or agents.

4.2.4 Wider environment

The fourth component of NBT in the Serengeti ecosystem is the wider environment. This section will discuss elements or agents of the wider environment. The wider environment for the Serengeti ecosystem includes the social, economic, and institutional policies and environment in which NBT operates (Table 4.12). Elements of the wider environment of NBT for the Serengeti ecosystem occur at three levels: (1) regional landscape; (2) national; (3) international / global.

The regional landscape of the Serengeti ecosystem is wide ranging, beyond the boundaries of PAs, and covers areas connected to the ecosystem, including more than 20 wards falling under 11 district local government authorities and 3 administrative regions (Arusha, Mara, and Simiyu regions) with different public and private institutions linked to tourism. The landscape also contains diverse socio-economic activities (e.g., tourism, agriculture, livestock keeping, fisheries, mining, and businesses).

Furthermore, the regional landscape contains other PAs and attractions. These include Lake Manyara, Tarangire, Arusha, and Kilimanjaro national parks which, together with PAs in the Serengeti ecosystem, form the famous northern tourism circuit in Tanzania. The Northern Tourism Circuit is a leading tourism corridor in Tanzania, such that in many cases tourists visiting the Serengeti ecosystem also visit other PAs and

attractions in the circuit and vice versa. Other tourist attractions and sites that are linked to PAs in the Serengeti in terms of tourist visitation and wildlife resources are Lake Natron (a breeding site of flamingo), Natron Game Controlled Area, Mount Oldonyo Lengai, Lake Eyasi, and Lake Victoria. For example, some tourists visiting NCA climb Mount Oldonyo Lengai and continue with their trip in the ecosystem, and others visit Lake Natron and climb the mountain before they visit other PAs in the ecosystem.

Likewise, the regional landscape of the Serengeti ecosystem includes parts of Kenya's Mara River, Maasai Mara National Reserve, and the local tourism actors and adjacent communities in Kenya (Sinclair et al., 2008). Some tourists visiting Maasai Mara National Reserve also visit PAs in the Serengeti ecosystem. A tourism accommodation operator I interviewed in Lamadi area indicated that many international tourists they receive from Kenya come via the Maasai Mara National Reserve and use the Ndabaka Gate entry to SENAPA. These areas and PAs are linked to the Serengeti ecosystem ecologically (e.g., the Mara River flows to the Serengeti ecosystem, and wildlife species, especially wildebeest, migrate to Maasai Mara from the Serengeti and vice versa), but most important for this study is tourism functioning (NCAA, 2010). For instance, Gereta et al. (2003) found that the development of three projects (Amala Hydroelectric Project, degazettement of Mau Forest, and irrigation farming project) in the catchment area and up-stream of Mara River in Kenya could negatively impact the environmental and socio-economic dynamics (e.g., wildlife migration and NBT) in the Serengeti ecosystem. "The development projects will draw and reduce water flowing in the Mara River, the only source of flowing permanent water with sufficient quantities to the Serengeti ecosystem" (Gereta et al., 2003, p. 40).

The wider system at the national level includes national policies, government and private institutions, NGOs, and social, economic, and political environment in Tanzania (Table 4.12) (NCAA, 2010; TANAPA, 2005; URT, 2007; URT, 1999). NBT in the Serengeti ecosystem is guided by a number of national policies, in particular tourism and wildlife policies, and tourism master plans. These policies provide the institutional framework for the tourism and wildlife sectors, the roles of different actors, and objectives (economic, social, and environmental) and strategies of tourism and wildlife sectors in the country (URT, 2007; URT, 1999). The integrated Master Plan for Tanzania sets the strategic guidelines and action programs for tourism development in the country, including the Serengeti ecosystem (URT, 2002b).

PA agencies in the Serengeti ecosystem draw their guidelines from these national policies and guidelines. Some key informants I interviewed pointed out that key decisions about NBT in the ecosystem are made at the national level. For instance, discussion in the focus group in Maswa Game Reserve confirmed that “hunting quota of wildlife species allocated to different PAs are decided by the Director of Wildlife Division based in Dar es Salaam. PA authorities have little influence on setting hunting quotas but supervise implementation of the quota.” A key informant I interviewed from SENAPA pointed out that “key decisions about tourism (e.g., tourism planning, investment, and fees) in SENAPA are decided at Tanzania National Parks headquarters based in Arusha. Even though the park authority is involved in the decision, especially giving information, its main role is implementation of park operations.”

NBT in the Serengeti ecosystem relies on the international market. The international market segment is the main consumer of tourism services provided in the

Serengeti ecosystem and contributes significant economic benefits, as discussed in Chapter 6 (NCAA, 2010; TANAPA, 2005). Tourism in the Serengeti ecosystem is an international business involving foreign companies that play key roles, including airlines, travel agents, tourism operators, and investors (Table 4.12). Tourism in the Serengeti ecosystem is also impacted by the wider global community. This includes terrorism events, such as September 11 in the USA, the global economic crisis in 2008-2009, the global oil crisis, advancement in information and communication technology, improved air transport, and improved social welfare and economy in developing countries.

Furthermore, there are a number of international institutions that are linked and exercise different roles in NBT in the Serengeti ecosystem. Some institutions exercise influence on the tourism industry (e.g., travel agents and airlines), while others (e.g., CITES, WHS, and FZS) influence wildlife attractions and PA environment in which NBT takes place. Tables 4.12 and 4.13 show findings from the key informants I interviewed about the wider environment at regional landscape, national, and international scales, and some examples of their roles in NBT in the Serengeti ecosystem respectively.

Table 4.12: The wider environment NBT actors

Categories of wider environment	Wider environment institutions
Public institutions (national scale)	Central government, Ministry of Natural Resources and Tourism, Wildlife Division, Tourism Division, Tanzania Tourist Board and Tanzania National Parks, Tanzania Wildlife Research (TAWIRI), Colleges and Universities
Private institutions (regional landscape and national scales)	Tour companies, tourism investors, hunting companies, tour guides and interpreters, tourism training institutions
Business associations (national scale)	Tanzania Association of Tour Operators (TATO), the Association of Tanzanian Tour Operators (ATTO), Tanzania Hunting Operators Association (TAHOA), Tanzania Hunters Association (TAHA), Tanzania Association of Travel Agents (TASOTA)
Non-governmental organizations (regional and national scales)	Tanzania Natural Resources Forum (TNRF), Serengeti Ecosystem Community Forum, and Ngorongoro Pastoral Council
Policies (national scale)	The Wildlife Policy of Tanzania, The National Tourism Policy, Tourism Master Plan for Tanzania, and National Environmental Policy.
Legislation (national scale)	The Tourism Acts, The Wildlife Conservation (Tourist Hunting) Regulations, and The Wildlife Conservation (Non-Consumptive Wildlife Utilization) Regulations
International institutions (international scale)	Air companies (e.g. KLM, Ethiopian Airways and Kenya Airways), travel agents, World Tourism Organization (WTO), International Union for Nature Conservation (IUCN), Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), World Heritage Site (WHS), and Frankfurt Zoological Society (FZS)

There are many wider environment institutions linked to NBT in the Serengeti ecosystem, as indicated in Table 4.12. These institutions play various roles which are different, but others overlap. Table 4.13 presents some examples of the role of the wider environment institutions to NBT in the Serengeti ecosystem.

Table 4.13: Examples of the roles of the wider environment in NBT in the Serengeti ecosystem

Wider environment – institution	Role in NBT
Central government	<ul style="list-style-type: none"> • Develop and ensure the implementation of tourism development and management policies, strategies and plans in Tanzania including the Serengeti. • Regulate, promote, and facilitate tourism business and provide services in Tanzania including the Serengeti.
Tour companies	<ul style="list-style-type: none"> • Development, promotion and provision of tourism facilities, services and programs in the Serengeti ecosystem.
Tanzania Association of Tour Operators (TATO)	<ul style="list-style-type: none"> • Coordination and presentation of the interests of tour operators to the government and other tourism organizations, such as PAs in the Serengeti. • Encouraging their members to develop and adhere to codes of conduct
Ngorongoro Pastoral Council	<ul style="list-style-type: none"> • Represent the interests of local communities including participation in tourism (e.g., cultural tourism) in NCA.
National Tourism Policy, 1999	<ul style="list-style-type: none"> • Provides the framework of tourism organization and governance of tourism and the roles of different institutions in Tanzania, including PAs in the Serengeti.
The Wildlife Conservation Act, 2009	<ul style="list-style-type: none"> • Provides the legislation framework of wildlife conservation and management in Tanzania including establishment and management of PAs, tourism activities, and general management plans to all PAs in the Serengeti.
World Heritage Convention (WHS)	<ul style="list-style-type: none"> • Provides guidelines and standards for establishment, conservation and management of World Heritage Sites to SENAPA and NCA.
Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)	<ul style="list-style-type: none"> • Provides support for conservation of wildlife attractions regulating wildlife trades, especially the endangered species that attract tourists (e.g., elephant and rhinoceros)
International Union for Nature Conservation (IUCN)	<ul style="list-style-type: none"> • Provides knowledge and guidance on conservation of wildlife attractions and nature-based tourism planning and management in PAs
Frankfurt Zoological Society (FZS)	<ul style="list-style-type: none"> • Supports tourism planning through the PAs management plans and conservation of wildlife attractions (financial, material, and technical support)

In summary, this section has discussed the wider environment of NBT in the Serengeti ecosystem. The study revealed that the wider environment includes three geographic levels (regional, national, and international), and includes social, economic, political, and institutional aspects. At the regional landscape level, there are local government institutions, other PAs outside the ecosystem, NGOs, different communities, and land uses. At the national level, there is the central government, institutions, policies, legislation, business associations, and NGOs related to NBT in the Serengeti ecosystem.

There are many private international tourism companies, conservation and tourism institutions, conventions and agreements, NGOs, stakeholders (e.g., tourists) linked to NBT in the Serengeti ecosystem. Because the interactions between tourists, PAs, tour operators, and communities take place in a wider environment, the wider environment influences NBT in the Serengeti ecosystem in various ways and vice versa.

Summary

This section (4.2) has discussed the major components of the NBT supply system through the lens of complex systems theory. There are many elements or agents of the NBT supply system which can be categorized into PAs, communities, tourism operations, and the wider environment in the Serengeti ecosystem. These agents vary within their respective categories, but also indicate some similarities across the ecosystem. These components of NBT play various roles across the ecosystem. The next section will discuss how these components interact in a dynamic manner.

4.3 Dynamic interactions among agents and the history of the NBT supply system in the Serengeti ecosystem

The Serengeti is a social-ecological system with many communities interacting with remarkable biodiversity that attracts many tourists globally. As a result of the importance of the Serengeti ecosystem in Tanzania and globally, it attracts the attention of conservation, tourism, and community institutions at local, national, and international scales. In this section, both past and present dynamic interactions between the components of the NBT system, as well as the history of NBT in the Serengeti ecosystem, are described. Figure 4.3 illustrates the NBT supply system in the Serengeti ecosystem. The diagram indicates the following relationships:

- Between PAs (Loliondo, SENAPA, NCA, game reserves, and WMAs)
- Between PAs, local communities, and tourism operations
- Between the wider environment, and all of the above

These relationships will be discussed in the following section.

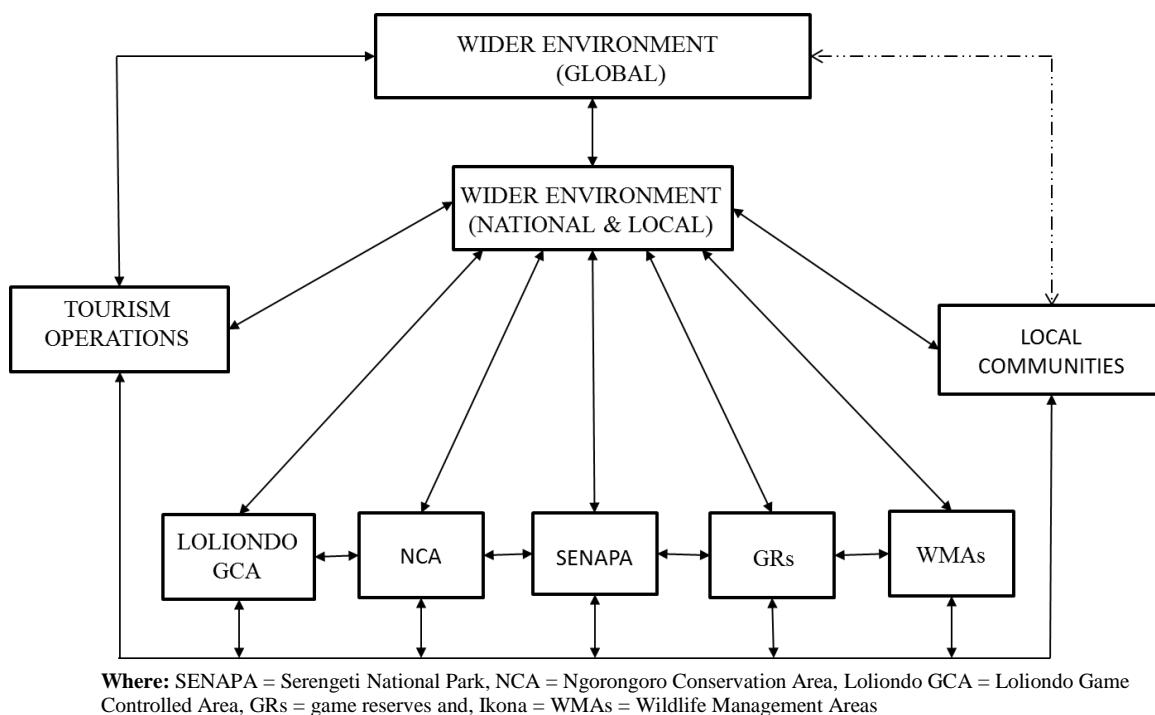


Figure 4.3: NBT supply system in the Serengeti ecosystem

4.3.1 Dynamic interactions before and during the colonial era

Before the colonial era

The information about NBT and the interactions among PAs, tourism, communities, and the wider environment before and during colonial time in the Serengeti ecosystem is flimsy. However, there is rich information about wildlife conservation and PAs, wildlife behaviour, ecology, and local communities attributed to the wildlife research centre and longitudinal wildlife and ecological research on-going in the ecosystem. Information on tourism and the wider environment is not available, partly

because tourism then was still at the infant stage, and tourism research had not been given the same attention as wildlife and ecological studies in the ecosystem.

Nevertheless, the interactions between local people and wildlife in the Serengeti ecosystem date from before the colonial time, which commenced in 1884 when Germany colonized Tanganyika, the “Tanzania Mainland” (Table 4.14).

One community key informant who was born in the Serengeti more than 80 years ago recounted, “Before colonial time, local people inhabited the Serengeti area. People interacted within the local environment and occasionally moved long distance.” By then, local people were practicing pastoralism, subsistence agriculture, and hunting and gathering of wildlife resources. A key informant added, “Wildlife formed a significant part of local livelihood (e.g., food). The interactions between people and wildlife were free, partly because there were plenty of wildlife resources and low human population.” The human population in Tanganyika was about 8 million at independence in 1961, compared with about 44.5 million in 2012 (URT, 2007; URT, 2013).

Before colonialism, wildlife resources were regulated by traditional institutions including rulers (chiefs) and culture (e.g., taboos). For example, a community key informant stated, “Ikoma people respected elephant as the totem wildlife species and it was not killed by tribal members. They believed that if tribal members killed an elephant they would face bad omen. This scared local communities from killing elephant.” Likewise, the chiefs were responsible for guiding, enforcing, and ensuring that tribal members observed and respected traditional rules.

The colonial era

Tanganyika was colonized by Germany between 1884 and 1918, followed by the British between 1919 and 1961 (Table 4.14). During the German administration, the first laws regulating wildlife hunting and trade were enacted in 1891 (URT, 2007). This was followed by the establishment of PAs in the Serengeti area. Ngorongoro Crater Closed Area Game Reserve and Serengeti Game Reserve were established in 1928 and 1929, respectively (URT, 2007). From the beginning of colonial administration in Tanganyika to the 1950s, affluent people from Europe visited Serengeti ecosystem mainly for game hunting (i.e., “Sport hunting”) (Figure 4.3) (URT, 2007). Early tourists to the Serengeti ecosystem were attracted by the diversity of big games species (e.g., elephant, buffalo, lion, and rhino), high populations of wildlife, and a range of landscapes (Ouma, 1971; Sinclair et al., 2008; URT, 2007).

Later, the two PAs (Ngorongoro Crater Closed Area Game Reserve and Serengeti Game Reserve) were expanded and their status promoted to SENAPA and NCA in 1951 and 1959, respectively (Table 4.14) (NCAA, 2010; Sinclair et al., 2008). Likewise, Loliondo Game Controlled Area was established in 1959. One PA key informant noted, “The establishment of SENAPA and NCA in 1951 and 1959, respectively, was a milestone for non-consumptive tourism in the Serengeti ecosystem. It increased sites for game viewing and the number of tourists to the area. Nevertheless, the volume of tourism was still small and concentrated in few areas, especially Seronera, Lobo, Ndotu, and Ngorongoro Crater.” It is likely that during the colonial period, the level of tourism development was low with basic campsite accommodation and few roads and airstrips

(Sinclair et al., 2008). Tourism businesses were also run and controlled by foreigners, and local communities were not included in the tourism industry (Honey, 1999).

Under the British colonial administration, tourism in East Africa (Kenya, Uganda, and Tanganyika) was promoted, coordinated, and controlled on a regional scale as one block, with the headquarters based in Nairobi, Kenya (Ouma, 1970; Sindiga, 1999). The East Africa Tourist Travel Association (EATTA) was formed in 1949 to promote and coordinate tourism in East Africa (Ouma, 1971). During the colonial period, most tourists visited the Serengeti ecosystem from Nairobi where they spent much time and income (Ouma, 1971). This was because Nairobi had more developed tourist accommodation and services than other places in East Africa, and many tour operators were based in Nairobi.” Key informants also indicated that during the colonial period, most tourism activities in Tanzania were concentrated in the northern part, especially the Serengeti ecosystem and Arusha town.

The colonial wildlife laws denied local people access to wildlife and favoured elite foreigners, especially Europeans (Neumann, 2001; Shelter, 2003). Likewise, the establishment of more PAs moved local people from their native land without compensation or their consent, and created hostility amongst local people. In addition, the establishment of SENAPA restricted all human activities except conservation and non-consumptive tourism (e.g., game viewing and filming) (Shelter, 2003).

One community key informant I interviewed from NCA noted, “The establishment of PAs marginalized local people and created antagonism with PA agencies. This was followed by illegal activities (e.g., poaching, encroachment, and uncontrolled fire).”

Wildlife legislation and the establishment of PAs during the colonial period disrupted the traditional relationship between local people and wildlife.

The market for NBT was dominated by tourists from Europe and America organized by tour operators based in Nairobi. During the colonial period, tourists were attracted by large mammals with the interest of hunting, but in time the market for photographic tourism increased, exceeding interest in hunting (Honey, 1999). Tourists accessed and used only a portion of the ecosystem (SENAPA and NCA), and tourism services were basic (e.g., campsites and earth roads). While PAs and NBT were governed by colonial legislation in the ecosystem, local communities were not involved in PA management and the NBT industry (Shelter, 2003; Sindiga, 1999). During the colonial time, only a few people worked in PAs as an unskilled workforce (e.g., security guards and porters), said an old man (about 80 years of age) interviewed in Loliondo area.

In summary, this section has discussed the dynamic historical interaction between PAs, tourism operations, local communities, and the wider environment of NBT in the Serengeti ecosystem (Figure 4.3) for the period before and during colonial era (before independence in 1961). Before colonialism, local people interacted freely with wildlife resources and the interactions were governed by traditional institutions (e.g., chiefs and culture – taboos). Local people utilized wildlife resources as part of their diet and for spiritual purposes. The traditional management of wildlife was changed by colonial administration and replaced by wildlife legislation that regulated wildlife utilization. The wildlife legislation changed the interactions between local people and wildlife by establishing PAs (SENAPA and NCA) and excluding local people

(who became poachers) from accessing and using wildlife resources. The legislation allowed tourists from abroad to hunt wild animals, especially big game. From the beginning, tourism in the Serengeti ecosystem was organized and coordinated from abroad in Kenya.

4.3.2 Dynamic interactions after independence (1961 – 1984)

Tanganyika, or “Mainland Tanzania,” became independent in 1961 from the British colonial government (Table 4.14). In 1961, then President of Tanganyika gave a statement titled “The Arusha Manifesto” that underpinned the significant value of PAs, inspired wildlife conservation, and the formation of more PAs in Tanzania, and was used to guide wildlife conservation in the country until 1998, when the wildlife policy was drawn (URT, 2007). This was followed by the establishment of Maswa Game Reserve in the Serengeti ecosystem in 1962, which provided opportunity for more hunting tourism.

The Arusha Manifesto states that “The survival of our wildlife is a matter of grave concern to all of us in Africa. These wild creatures amid the wild places they inhabit are not only important as a source of wonder and inspiration but are an integral part of our natural resources and of our future livelihood and well-being. In accepting the trusteeship of our wildlife we solemnly declare that we will do everything in our power to make sure that our children’s grand-children will be able to enjoy this rich and precious inheritance. The conservation of wildlife and wild places calls for specialist knowledge, trained manpower, and money, and we look to other nations to co-operate with us in this important task the success or failure of which not only affects the continent of Africa but the rest of the world as well” (URT, 2007, p. 2).

The independent Tanzanian government adopted a similar strategy used by the colonial governments to establish and manage PAs with less concern about local communities, who were excluded from wildlife conservation and PAs management. The government of Tanzania enacted the Wildlife Conservation Act of 1974 in order to improve and strengthen wildlife conservation and management in the country (URT, 2007). However, one PA key informant noted, “The independent government did not have enough capacity in terms of expertise, finance, equipment, and other resources to conserve wildlife and manage PAs properly, thus resulting in illegal activities, especially poaching.” In 1981, the Tanzanian government ratified and became a member of the Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES) aimed to protect wildlife from illegal harvest (e.g., poaching) and trade, which escalated in the 1970s (URT, 2007).

After independence, the tourism industry in Tanzania, like other sectors of the economy, was foreign dependent in terms of institutions, capital flow, tourism professionals, and importation of materials needed in tourism. In 1962, the government of Tanzania established the Tanganyika Tourist Board (TTB), responsible for tourism promotion and development, and disbanded the East Africa Tourist Travel Association (EATTA) in 1965 (Table 4.14) (Ranja, 2003). The Tanganyika Tourist Board was replaced by the Tanzania Tourist Corporation (TTC), and then the Tanzania Tourist Board (TTB) in 1971 and 1993, respectively (Honey, 1999). After independence, tourism development and promotion were done by the state corporation, the Tanganyika Tourist Board (TTB), and private operators, mostly foreign (Honey, 1999).

Table 4.14: Timeline of NBT in the Serengeti ecosystem from 1884 to 1983

Year	Event
NBT in the Serengeti ecosystem after independence (1961 – 1984)	
1983	Formation of Tanzania Association of Tour Operators (TATO)
1979	UNESCO declared Ngorongoro Conservation Area a World Heritage Site
1978 – 1979	The war between Tanzania and Uganda – negatively impacted NBT
1977	Tanzania closed its border with Kenya – negatively impacted NBT
1977	Collapse of the East African Community – negatively impacted NBT
1974	The Wildlife Conservation Act of 1974 was enacted
1972	UNESCO declared SENAPA a World Heritage Site
1970s	Rampant illegal activities to wildlife including poaching
1971	Formation of the Tanzania Tourist Corporation
1968 – 1976	Development of government owned accommodation facilities (Nduvu, Ngorongoro Wildlife, Rhino, Seronera Wildlife and Lobo Wildlife Lodges)
1967	Arusha Declaration - African Socialism and Self-reliance (Nationalization policy)
1965	Tanzania disbanded the East Africa Tourist Travel Association (EATTA)
1964	Tourism acquired a ministerial position (the Ministry of Information and Tourism)
1962	Tanganyika Tourist Board was formed
1962	Establishment of Maswa Game Reserve (MGR)
1961	Arusha manifesto
1961	Tanganyika (Mainland Tanzania) became independent
1961	Establishment of Maasai Mara National Reserve
NBT in the Serengeti ecosystem before independence (1961)	
1959	Establishment of NCA and Lolindo Game Controlled Area
1951	Establishment of SENAPA
1949	Formation of the East African Tourist Travel Association (EATTA)
1949	Tourist hunting industry in Tanzania including the Serengeti was institutionalized
1938	Formation of East African Publicity Association (EAPA) based in Nairobi, Kenya
1930s	Sport hunting in Tanzania including the Serengeti area was suspended
1929	Establishment of Serengeti Game Reserve
1928	Establishment of Ngorongoro Crater Closed Area Game Reserve
1919 – 1961	Tanganyika colonized by the British
1891	The German colonial administration enacted wildlife laws controlling hunting in Tanganyika
1884 – 1918	Tanganyika colonized by the German

Source: Honey, 1999; Ouma, 1971; Ranja, 2003; Shelter, 2003; Sindiga, 1999; URT, 2009

At independence in 1961, tourist accommodation was a problem in the Serengeti ecosystem and Tanzania as a whole (Curry, 1990; Honey, 1999). In the 1960s and 1970s, the government developed tourist accommodation facilities in the Serengeti ecosystem (e.g., Seronera Wildlife Lodge) (Table 4.14) based on the country's 5 year plan, with support of foreign investments (Curry, 1990; Honey, 1999; Ranja, 2003). Kilimanjaro International Airport and other accommodation facilities were also constructed to boost tourism. This increase in tourism infrastructure and tourism promotion increased the number of tourists to the Serengeti ecosystem (Curry, 1990; Honey, 1999; Ranja, 2003). For instance, the number of international tourists recorded in NCA increased from 34,376 in 1969 to 77,986 in 1976 (Appendix K) (NCAA, 2010).

In 1967 the Tanzanian government passed a socialism and self-reliance declaration known as the “Arusha Declaration,” which interrupted the tourism industry in the country, including in the Serengeti ecosystem (Curry, 1990; Honey, 1999). Following the Arusha Declaration, in the early 1970s, all major means of economic production and development, including tourism investments, were nationalized (Curry, 1990; Honey, 1999). In 1973, the government banned tourism (both consumptive and non-consumptive) and confiscated private tourism investments (Carter, 1990). The independent Tanzania government perceived tourism as intensifying foreign economic dependency and inequalities between different societal groups, and likely cultural distortion (Curry, 1990; Honey, 1999; Ranja, 2003). Thus, tourism was viewed as incompatible with socialism ideologies. Accordingly, “enclave tourism” was promoted under one state tourism corporation, Tanzania Tourist Corporation (TTC), as a way to avoid socio-cultural distortion in the country (Honey, 1999). This can help explain why local communities were not involved in tourism development and control in this period.

The tourism industry in the Serengeti ecosystem and Tanzania as a whole declined in 1977 when Tanzania closed its border with Kenya (Table 4.14) (Curry, 1990; Honey, 1999). In the same year, the East African Community, an intergovernmental organization comprising three member countries of Tanzania, Kenya, and Uganda, collapsed (Curry, 1990; Honey, 1999). This Community was formed in 1967 to strengthen the economic growth and the historical cooperation between the member countries through common market, common customs tariff, and a range of public services (e.g., transport and communications) (Curry, 1990; Ouma, 1971). For instance, the Community member countries shared one dominant flight company (East African

Airways) with its headquarters in Kenya, which provided service to tourists in the three countries. After the collapse of the Community, the tourism industry suffered due to inadequate flight services and tourists, since many tourism operators were based in Kenya (Curry, 1990; Honey, 1999). The collapse of this Community was attributed to political misunderstanding and clashes between Tanzania and Uganda, contrasting economic systems of socialism in Tanzania and capitalism in Kenya, and Kenya's demands for more representatives in decision making organs because of its economic dominance (Curry, 1990; Honey, 1999). Thereafter, there was an outbreak of war between Tanzania and Uganda in 1978 and 1979. These events devastated not only tourism in the Serengeti ecosystem, but also the tourism industry and the economy in Tanzania (Curry, 1990; Honey, 1999). The social services, economic infrastructures (e.g., roads), tourism services, wildlife conservation, and PA management and local livelihood deteriorated (Curry, 1990). For instance, the number of tourists to NCA fell to 12,461 in 1977 from 77,986 in 1976 (Appendix K) (NCAA, 2010). This negative trend continued until 1984, when tourism started to improve slowly. In 1985, the number of tourists recorded in NCA was 26,989 (Appendix K) (NCAA, 2010).

This section has discussed the dynamic historical interaction between PAs, tourism operations, local communities, and the wider environment of NBT in the Serengeti ecosystem (Figure 4.3) for the period after independence between 1961 and 1984. This study indicates that after independence the government adopted the colonial administration system of managing wildlife, including creating more PAs, and excluding local people. Poaching in PAs escalated, and the government ratified and became a member of CITES as a way to forge collaboration and gain support to curb poaching.

The independent government changed the institutional framework of managing tourism, and tourism was managed within the country, not from Nairobi as it used to be. But many tourists visiting Tanzania, including the Serengeti ecosystem, continued to come through Kenya. The government invested in tourism, including accommodation facilities (lodges) in the Serengeti ecosystem, but excluded local people from participating in the tourism industry. During this period, tourism development indicates a fluctuating trend as the tourism industry was impacted by wider environment social and economic factors (e.g., socialism policies, energy and economic crisis, war, collapse of East African Community, and closure of the Tanzania–Kenya border).

4.3.3 Dynamic interactions from 1985 to 1999 (Liberalization)

In 1985, the government of Tanzania adopted economic reform and trade liberalization policies, and reopened the international border between Tanzania and Kenya in achieve economic recovery (Curry, 1990; Honey, 1999; Kweka et al., 2003). These measures contributed significantly to recovery and to the tourism industry in the country, including in the Serengeti ecosystem (Table 4.15) (Honey, 1999; Kweka et al., 2003). The economic reforms in Tanzania were supported by the International Monetary Fund (IMF), the World Bank, and donor countries and organizations (Honey, 1999; Kweka et al., 2003). The trade liberalization and economic reform policies changed the institutional framework of the tourism industry in Tanzania (Honey, 1999). The government and its institutions pulled out of the tourism business and maintained the regulatory, coordination, facilitative, and catalytic roles, while the private sector took over the role of tourism development (URT, 1999).

In the 1990s, the government transferred the responsibility of managing its tourism accommodation facilities to the private sector through partnership under the public private partnership policy (PPT) (Honey, 1999; Ranja, 2003). Under the PPT arrangement, private investors in tourism collaborated with the government parastatal organization known as Tanzania Hotels Investments Ltd (TAHI). The public private partnership arrangement on accommodation facilities did not perform well; as a result, the government privatized the state-owned tourism investments, especially accommodation facilities throughout the country (Honey, 1999; Ranja, 2003).

Table 4.15: Time line of nature-based tourism in the Serengeti ecosystem from 1980 to 2013

Year	Event
NBT in the Serengeti ecosystem in the 21st century (2000 – 2013)	
2012	Wildlife Management Areas Regulations
2010	Establishment of Makao WMA
2008 – 2009	Global financial crisis
2005	Establishment of Ikona WMA
2007	Revised Wildlife Management Policy of 1998
2005	Development of Makuyuni – Ngorongoro road
2001	September 11 terrorism attack in USA
2000	Establishment of Ngorongoro Pastoral Council (PC)
2000	Formation of Tourism Confederation of Tanzania
NBT in the Serengeti ecosystem during liberalization period (1985 – 1999)	
1999	Revised National Tourism Policy of 1991
1998	Establishment of the Wildlife Management Policy of 1998
1998	Dar es Salaam and Nairobi USA Embassies terrorism attacks
1993	Establishment of Kijereshi Game Reserve, Ikorongo Game Reserve and Grumeti Game Reserve
1992	Tanzania Tourist Board Act, 1992 was enacted and the formation of Tanzania Tourist Board in 1993
1991	The Gulf War between Iraq and Kuwait – negatively impacted NBT
1990s	Construction of private accommodation facilities (lodges) in the Serengeti ecosystem
1989	Operation Uhai
1985	Structural Adjustment Policy replaced by the Economic and Social Adjustment Policy (ESAP) in 1989
1981	UNESCO declared SENAPA and NCA as Biosphere Reserves
1980s	Establishment of Serengeti Regional Conservation Strategy
1980s	Establishment of Community Conservation Service (CCS) – SENAPA

Source: Honey, 1999; Ranja, 2003; Shelter, 2003; Sindiga, 1999; URT, 2009

Following the economic reform policies in the mid-1990s, private investors and mostly foreign companies started to develop accommodation facilities in the Serengeti ecosystem (Honey, 1999). In the same period, many private tourism companies were established in Tanzania, mostly based in Arusha. The private investors improved tourism services (e.g., accommodation and transportation) and promoted tourism attractions to the

international market (Honey, 1999). Accordingly, a senior official from the Tanzania Association of Tour Operators (TATO) indicated that the number of tourists has been increasing and economic benefits of tourism, such as revenue and employment, began to be realized, and many other tourism businesses have been established due to the private sector taking a lead in the tourism industry.

Tourism in the Serengeti ecosystem, and Tanzania as a whole, is influenced by external factors (Figure 4.3 & Table 4.15) (Curry, 1999; Honey, 1999). In 1991, tourism in the ecosystem was shaken by the Gulf War (the war between Iraq and Kuwait). Tourism was interrupted again by the terrorist bombing of the US Embassy in Nairobi and Dar es Salaam in 1998. Tourism officials I interviewed from SENAPA and NCAA indicated that the number of tourists declined as a result of the terrorism bombing of the US Embassy in Nairobi and Dar es Salaam in 1998 (see Appendix K).

As mentioned earlier (see section 4.2.1), in 1993 the government of Tanzania established Ikorongo, Grumeti, and Kijereshi game reserves in the Serengeti ecosystem (Figure 4.3). This move increased the area for conservation and tourism, and in particular hunting tourism. However, it also excluded the use of the area for traditional economic activities, such as pastoralism and agriculture. This was followed by the approval by the government of the first Wildlife Management Policy of Tanzania in 1998, which provided a framework of wildlife conservation in the country (Table 4.15). Likewise, the government of Tanzania revised the National Tourism Policy of 1991 in 1999. The change in tourism policy accommodated more relevant economic, social, and environmental changes and developments in Tanzania and globally (Figure 4.3) (URT, 1998). Such changes included enabling the private sector to take an active role in tourism

development, and local community participation in the tourism industry. The policy of tourism states that "... the government will regulate, promote, and facilitate and be a service provider ...". "The delivery of quality tourism services and providing the customer with value for money experiences are largely private sector responsibilities. The private sector also has the responsibility of developing tourism as an industry, and as an engine for the country's sustainable economic development" (URT, 1999, pp. 23-24).

It was not until the mid-1980s that initiatives to involve local communities in wildlife conservation and PA management took place in Tanzania, including the Serengeti ecosystem. This led to the formation of the Serengeti Regional Conservation Strategy (SRCS) in 1985, with support of the Norwegian Development Agency (NORAD) (Table 4.15) (Kideghesho et al., 2007). The SRCS was aimed at engaging local communities in wildlife conservation in order to improve their interaction with PAs, reduce illegal activities, and support community livelihoods (Kideghesho et al., 2007).

One senior official I interviewed from Tanzania National Parks confirmed, "SENAPA was the first PA in Tanzania to engage communities in wildlife conservation under the Community Conservation Service (CCS) program piloted with support from African Wildlife Foundation (AWF)." The aim of the CCS was to promote positive human-wildlife interactions and improve relationships between SENAPA staff and local communities (TANAPA, 2005). The CCS was also responsible for raising conservation awareness of communities, supporting community development projects (e.g., schools), and public relations. By the 1990s, the CCS was institutionalized in TANAPA, and all national parks in Tanzania adopted CCS programs.

In the 1980s, illegal wildlife activities, including poaching and encroachment into parks, were accelerating (Honey, 1999). For instance, in 1976 Tanzania had a population of more than 100,000 elephants, but this number declined to approximately 30,000 in 1989 due to poaching (Kideghesho, et al., 2008). As a result of rampant poaching, the government of Tanzania launched an anti-poaching campaign known as Operation Uhai (Life) in 1989 in an attempt to curb wildlife poaching and other illegal activities in protected areas (Honey, 1999). In addition, Tanzania ratified and became a member of the Lusaka Agreement Task Force (1996), an inter-governmental organization responsible for investigations on violations of national laws relating to illegal trade in wild fauna and flora (Figure 4.3) (URT, 2007). Country members in the Task Force include Congo (Brazzaville), Kenya, Lesotho, Liberia, Tanzania, Uganda, and Zambia.

In summary, this section has discussed the dynamic historical interaction between PAs, tourism operations, local communities, and the wider environment of NBT in the Serengeti ecosystem (Figure 4.3) for the liberalization period from 1985 to 1999. This study indicates that poor performance of the economic and social sectors, including the tourism industry, influenced the government to adopt economic reform policies (initiated and supported by international financial institutions and donors), and to reopen the Tanzania-Kenya border. The policies changed the institutional framework of the tourism sector in the country, allowing privatization of the public tourism investment (e.g., lodges in the Serengeti ecosystem), and the private sector actively participated and took a lead in tourism development, and the formation of tourism business associations (e.g., TATO). While the performance of tourism was improving in the country, including

the Serengeti ecosystem, the tourism industry was impacted by the Gulf War and terrorist bombing in Nairobi and Dar es Salaam.

While poaching persisted in PAs, including those in the Serengeti ecosystem, the government established three game reserves in the ecosystem, ratified international conventions related to poaching, and carried out anti-poaching operation. The government also changed the wildlife policy to allow local communities to participate in and gain benefits from wildlife conservation, changes which were influenced by international conservation institutions and donors.

4.3.4 Current dynamic interactions (2000 – 2013)

In 2007, the government revised the Wildlife Policy of 1998 in order to accommodate further social and economic changes in the country (Table 4.14). This accommodated more local community participation and devolution of power to local communities in wildlife conservation (Figure 4.3) (URT, 2007). The wildlife policy states that "... local communities living on village lands with viable populations of wildlife have a role of protecting and benefiting from wildlife and wetlands resources by setting aside wildlife conservation areas on their land" (URT, 2007, p. 18). This was followed by the establishment of Ikona and Makao WMAs in the Serengeti ecosystem in 2005 and 2010, respectively (Figure 4.3). Likewise, in 2012 the government approved the Wildlife Conservation (Wildlife Management Areas) Regulations of 2012 that govern WMAs. In addition, it was during this period that the three private tourism companies, Tanzania Conservation Ltd - Thomson Safari, Grumeti Reserves, and Mwiba Holding Ltd (see section 4.2.1), acquired land in order to promote tourism and conservation activities (private PAs) in the Serengeti ecosystem.

The economic reform policy that started in the 1980s, coupled with policy changes in the tourism and wildlife conservation sectors in Tanzania, led to tourism operators investing in public and private PAs. This not only contributed to tourism growth and development, but also created opportunities for local communities to participate in the tourism industry, including leasing community land in WMAs to tourism investors, employment, and cultural tourism. For instance, as pointed out earlier (see section 4.2.1), there are eight accommodation operators and one hunting company in Ikona WMA (see Table 4.2). A key informant I interviewed from Ikona WMA indicated that the establishment of WMAs in the Serengeti ecosystem has attracted tourism investors in the area. Even though they have nine tourism investors in the WMA, there are more (about six) requests for investing in the area.

Likewise, during this period the changes in the economic, tourism, and wildlife policies provided opportunities for the private sector to take the lead in tourism development in Tanzania, including PAs in the Serengeti ecosystem (Figure 4.3). The government and PA agencies have developed guidelines that facilitate tour operators to invest in PAs, especially in accommodation facilities, carry out tourism and conservation activities, and promote NBT (e.g., NCAA investment policy of 2005, Tanzania National Parks Investment Prospectus of 2013, and the management plans for PAs) (Ikona WMA, 2005; Makao WMA, 2010; NCAA, 2005, 2010; TANAPA, 2005, 2013). For instance, hunting companies working in PAs in the Serengeti ecosystem participate in law enforcement activities (see section 4.2.1).

PA agencies and tourism operators in the Serengeti ecosystem also improved and developed tourism services and facilities (e.g., attractions, accommodation, accessibility,

information, and promotion) within and outside PAs, as discussed in section 4.2.

The number of tourists has also increased. For instance, in 2010/2011 SENAPA and NCAA recorded the highest total number of tourists, 515,864 and 588,606, respectively (Appendix K) (Personal Communication, 2012). Likewise, Singita Grumeti Reserve in the Serengeti ecosystem was named by Travel & Leisure magazine as the Best Hotel in the World in consecutive years, 2011 and 2012. Also, the Declaration Committee of the Seven Natural Wonders declared SENAPA and NCA among the Seven Natural Wonders of Africa in 2013.

While tourist visitation has increased in PAs in the ecosystem (see Appendix K), tourists cannot visit all PAs since game reserves, Loliondo Game Controlled Area, tourist hunting zones for Ikona and Makao WMA, and private PAs are regarded as exclusive to the hunting companies allocated the hunting blocks. But tourists from these PAs and hunting zones are permitted to visit SENAPA, NCA, and non-consumptive tourism zones in WMAs. In addition, Grumeti Reserves, operating in Ikorongo and Grumeti game reserves, as well as in Ikona hunting zone, is mainly practicing photographic tourism, with occasional hunting. Furthermore, during this period the areas visited by tourists have increased, as well as tourism products (e.g., walking safaris, balloon safaris, and cultural tourism), due to improved tourism services and infrastructure (e.g., accommodation and accessibility) compared to the previous periods.

In the 2000s, tourism in the Serengeti ecosystem was vulnerable to the global crisis brought about by September 11 and the global economic crises in 2001 and 2008-2009. These external forces negatively affected the tourism industry in the Serengeti ecosystem, and Tanzania in general. For instance, the number of international

tourists to SENAPA declined to 130,538 in 2008/2009 and 128,234 in 2009/2010 from 145,003 in 2007/2008, as indicated in Appendix K (TANAPA, 2013).

Similarly, at the time of this study, illegal activity, especially elephant poaching, was high in the Serengeti ecosystem, and Tanzania as a whole. Poaching threatens the wildlife resources that are the key attractions to tourists in the Serengeti ecosystem. In 2013, the government launched an anti-poaching operation, “Operation Tokomeza,” in order to curb poaching country-wide, but in the same year the operation was suspended on the grounds that it violated the human rights of the suspects. As a result of rampant elephant poaching, the government of Tanzania in 2014 has requested and obtained support, especially equipment (e.g., vehicles), from the international community to fight poaching.

In summary, this section has discussed the dynamic historical interaction between PAs, tourism operations, local communities, and the wider environment of NBT in the Serengeti ecosystem (Figure 4.3) for the current period between 2000 and 2013. This section describes how the government amended the wildlife policy and legislation to further improve the institutional framework of the wildlife sector and participation of local communities in wildlife conservation. The policy changes allowed the establishment of WMAs owned and controlled by local communities. Participation of the private sector and local communities in tourism in the Serengeti ecosystem improved, and the volume of tourism increased. In this period, the September 11 and global economic crisis impacted the tourism industry in the country. Similarly, poaching surged, especially elephant poaching, and the government carried out an anti-poaching operation (Operation Tokomeza) and requested international support to fight poaching.

Summary

This section has discussed key dynamic interaction patterns of the agents of NBT in different periods of tourism development in the Serengeti ecosystem. The interactions among PAs, tourism operators, communities, and elements of the wider environment have been changing over time as a result of changes or actions of agents within the four major components (Figure 4.3). Many changes in the NBT supply system are influenced by the wider environment at global and national scales. The national policies and legislation of wildlife and tourism, which are influenced by social, economic, and political conditions, decisions and changes at the global and national levels, have been instrumental in changing the interactions of the components of NBT in the Serengeti ecosystem. The international crises (economic, energy, war, and terrorism) often impact tourism in the country, and in the Serengeti ecosystem. Significant changes in the wider environment likely influence NBT in the Serengeti ecosystem since it operates within the wider environment. The dynamic interactions of the NBT supply system in the Serengeti ecosystem are typical of complex systems. The next section will discuss how the NBT supply system in the Serengeti ecosystem responds to dynamic interactions through self-organization and emergent behaviour characteristics of complex systems.

4.4 Dynamic interactions are characterized by self-organization and emergent behaviour

According to systems theory, dynamic interactions among system components are characterized by self-organization and emergent behaviour. This section will discuss these features in the context of NBT in the Serengeti ecosystem.

The growth and development of tourism in East Africa saw the formation of the East Africa Tourist Travel Association (EATTA) in 1949 as part of self-organization to promote tourism. After independence, the government of Tanzania had to manage the country's tourism industry, but the institutional framework for tourism was inadequate, as well as the infrastructure and facilities. The government formed tourism institutions (e.g., the Tanganyika Tourist Board and Ministry of Information and Tourism) in order to develop, promote, and regulate tourism as a way to adapt to the independence environment (self-organization). Likewise, the government of Tanzania developed many tourism accommodation facilities in the Serengeti ecosystem and other parts of the country. Over time, the government confiscated private tourism investments and monopolized the tourism business, which can be characterized as an emergent behaviour.

The outbreak of war between Tanzania and Uganda, the collapse of the East Africa Community, and closure of the Tanzania and Kenya border frustrated the tourism industry and crippled the economy of Tanzania. This led to emergent behaviour where the government of Tanzania collaborated with international financial institutions (International Monetary Fund and World Bank) and donor community to set strategies for recovering the economic and social situation in the country, including tourism. As part of self-organization, the government adopted economic reform policies, including a trade liberalization policy in the tourism sector. Thus, the private sector took a leading role in tourism development in the country, while the government maintained the policy and regulation role. Similarly, tourism associations were formed to promote the interests of stakeholders, including the Tanzania Association of Tour Operators (TATO) and Tanzania Confederation of Tourism (TCT). As a result, the government developed close

ties and collaboration (emergent behaviour) with the private sector, tourism associations, and other tourism stakeholders in tourism planning, development, and management.

This has also been adopted at the local level between PA agencies, tour operators, local communities, and institutions (e.g., local government and NGOs).

Over time, the interests of tourists visiting the Serengeti ecosystem have been changing. Before Tanzania became independent in 1961, tourists accepted the basic services and facilities offered to them in the ecosystem. Today, many tourists demand modern services and facilities. PA agencies and tourism operators have adopted and now provide these services to tourists, including luxury lodges and tented camps (emergent behaviour). As a result of tourism growth and development in the Serengeti ecosystem, PA agencies have adapted forms of self-organization such as the “Limits of Acceptable Use” principles and “Environmental Impact Assessment” for tourism development, as discussed in chapters 5 and 6.

The interactions between local people and wildlife changed when the colonial administration enacted the wildlife regulations and established PAs. These regulations excluded local people from access to wildlife resources, resulting in antagonism and illegal wildlife activities, especially poaching. The establishment of more PAs in the Serengeti ecosystem, and approval and review of wildlife laws (e.g., the Wildlife Conservation Act of 1974 and Wildlife Policy of 1998 and 2007) can be regarded as part of self-organization in the system.

Community participation (collaboration) in wildlife conservation and PA management is an emergent behaviour as a response to rampant poaching. All PA agencies have adopted the concept and practice of community participation in wildlife

conservation. This also included establishment of WMAs managed by Community Based Organizations (CBOs), for example, Ikona WMA, Serengeti Ecosystem Community Forum (SECF), and Ngorongoro Pastoral Council (NPC).

In summary, this section has shown that interaction between components of NBT in the Serengeti ecosystem, including PAs, tour operators, local communities, and the wider environment at the local, national, and international levels, results in self-organization and emergent behaviour. Self-organization and emergent behaviour occur in particular when the interactions among the components changes, resulting in new patterns of interactions, thus the system (components) self-organize in order to create and maintain favourable interactions among them (McDonald, 2009; McKercher, 1999).

4.5 Ability to influence and be influenced by other elements and are multi-levelled and hierarchical in nature

Another characteristic of complex systems is the ability of the elements of the system to influence, and be influenced by, other elements across different scales. In the Serengeti ecosystem, the elements of NBT, including PAs, tourism, communities, and elements of the wider environment, interact with and influence each other across the ecosystem, and at national and international levels. The influence can occur among two or many agents within the components and across the system of NBT in the Serengeti ecosystem. This section will discuss how the components of the NBT supply system of the Serengeti have been influencing each other.

Tourist visitation in the Serengeti ecosystem is influenced by a number of things, including wildlife attractions, tourism promotion, and social and economic changes in developed countries. Wildlife species are the key attractions drawing tourists to visit PAs

in the ecosystem. Promotion of the Serengeti destination carried out by PA agencies, tour operators, and the Ministry of Natural Resources and Tourism to different tourist source countries persuaded potential tourists to visit PAs in the Serengeti ecosystem and other destinations in Tanzania. In addition, improved social welfare and economic prosperity (e.g., income) of people in developed countries triggered the market for potential tourists interested in visiting natural environments, including PAs in the Serengeti ecosystem.

Accordingly, the increase in the number of tourists to PAs in the Serengeti ecosystem influenced improvements of diverse tourism services in terms of quality and quantity. In responding to the market, PA agencies and tour operators have developed a variety of tourist services, including accommodation (special and permanent campsites, luxury tented lodges, and permanent lodges), transportation (road and air), and information (English and French language brochures, visitor information centres, guide books, and websites). In addition, the improvement of tourist services has been influenced by the decision by the government to change economic policies related to tourism that allow the flow of foreign capital in the country, and the private sector to take a leading role in tourism development. These changes have seen foreign tour operators investing in tourist accommodation and transportation in the Serengeti ecosystem.

Changes took place in tourism and economic policies in the 1980s and 1990s in Tanzania, aided by the International Monetary Fund and World Bank and donor community. These changes stimulated economic improvement and tourism development. In turn, this changed the institutional framework and policies for tourism, which attracted tourism investors and stimulated community participation in NBT. In addition, the poor economic situation in Tanzania after the war between Tanzania and Uganda in 1979

influenced the government of Tanzania to adopt trade liberalization and economic reform policies. This also influenced change to institutional arrangement and governance of tourism in Tanzania, including the Serengeti ecosystem (see sections 4.2.3 & 4.4).

NBT in the Serengeti ecosystem has also been influenced by unfavourable economic, social, and political changes at national and international levels. For instance, the decision by the government to close the border between Tanzania and Kenya in 1977, the collapse of the East African Community in 1977, and the war between Tanzania and Uganda in 1978/1979 influenced the decline of NBT in the Serengeti ecosystem (Table 4.15 & Appendix K). Likewise, terrorism attacks at the US embassies in Dar es Salaam and Nairobi, and the September 11 terrorism attack in the US, caused the downturn of tourism in the ecosystem. In addition, the global financial crisis was unfavourable to NBT in the Serengeti ecosystem as it contributed to the decline in the volume of tourism (see Appendix K).

The establishment of PAs (Serengeti Game Reserve and Ngorongoro Closed Area Game Reserve) in the Serengeti ecosystem by the colonial administration in the early 1900s assisted the protection of wildlife resources that have been a key attraction in the ecosystem since then, but also instituted legal tourist hunting and photographic tourism (see section 4.3.1). This also influenced the establishment of more PAs and improved their status. The establishment of more PAs in the ecosystem was partly due to illegal activities (e.g., rampant poaching and encroachment) that were taking place in the ecosystem. The issue of poaching in the Serengeti ecosystem and other PAs in Tanzania may help explain why Tanzania ratified and became a member of international conservation conventions (e.g., CITES, CBD, and Lusaka Agreement Task Force), and

also why Tanzania is seeking international community support to curb elephant poaching at the time of this study. In addition, establishment of more PAs in the ecosystem is attributed to the call for country members of international conservation institutions (e.g., IUCN and CBD) to intensify conservation efforts, including creating more PAs.

However, the establishment of PAs in the Serengeti ecosystem created resentment of local people and loss of land for traditional economies (e.g., hunting, pastoralism, and agriculture). As a result, it created negative relationships between communities and PAs, and also perhaps increased poaching. This negative relationship partly contributed to the PA management paradigm shift away from exclusion of local communities to participate in wildlife management. This influenced changes in the wildlife policy to accommodate community participation and community benefits. As a result, Ikona and Makao WMAs, aimed at wildlife conservation and community livelihoods under the management of local communities, were established in the Serengeti ecosystem (see Table 4.1 & 4.15).

4.6 Non-linear relationships

This section will discuss the non-linear relationships among the components of the NBT supply system. Non-linear relationships imply that the interactions between the components of the system result in different changes and effects to the components and the system (McDonald, 2009). Thus, large changes in the system have the ability to produce small effects. Conversely, small changes in the system have the ability to cause dramatic effects. The components of the NBT supply system in the Serengeti ecosystem interact in a number of ways, resulting in different patterns and economic, social, and environmental outcomes to PAs, local communities, tour operators, and tourists. This can be attributed to a number of factors, including many tourism actors, dynamic interactions,

and the environment (e.g., social, economic, and ecological conditions) in which the interactions occur, as discussed below.

PAs in the Serengeti ecosystem were established by different legislation that dictates the functions of the PAs. Thus, PAs agencies interact with each other, and with the tour operators, local communities, tourists, and wider environment based on their Act of establishment and the prevailing environment, resulting in non-linear interactions and relationships. For instance, the legislation of all PAs in the ecosystem requires PAs to have general management plans, but only SENAPA and NCA have general management plans, and Ikona and Maswa WMAs have resource management zone plans (see section 4.2.1). Even these management plans exhibit some differences between them, especially the content, management programs, and management zone schemes, as discussed in Chapter 5. In addition, SENAPA and NCA have wilderness zones and intensive use zones, unlike other PAs in the ecosystem, thus the way tour operators and tourists interact with wildlife resources in these two PAs differs from other PAs (NCAA, 2010; TANAPA, 2005). In the wilderness zone, only walking safari and mobile camping tourism activities are allowed in SENAPA and NCA, but livestock grazing and watering are also allowed, with restrictions (see Chapter 5). This is likely to result in different outcomes to conservation, tour operators, local communities, and tourists, as discussed in chapters 6 and 7.

There are numerous tour operators (about 300) operating in PAs in the Serengeti ecosystem, many of them in SENAPA and NCA, and only hunting companies work in PAs under the Wildlife Division (see section 4.2.2). Some tour operators provide transportation and information, others transportation, information, and accommodation

(special and public camping, tented lodges, and permanent lodges), and hunting companies provide transportation, information, accommodation, security, water, and participate in conservation activities. Furthermore, there are diverse tourism activities, including photographic, hunting, walking safaris, and cultural tourism. The diversity in tourist services is an indicator that different tour operators receive different tourists seeking different experiences in the ecosystem. In addition, the interaction between PAs, tour operators, and communities in the ecosystem is partly influenced by climatic conditions, which result in different seasons (e.g., rainy and dry seasons). Wildlife resources, especially the migration of wild animals, attract tourists according to seasons, resulting in peak and low tourism season in September to January and March to July, respectively (see Figure 1.2). Thus, the interactions between the components of the NBT supply system in the ecosystem are dynamic, and vary across the ecosystem.

Tour operators, PA agencies, and the Ministry of Natural Resources and Tourism carry out tourism promotion for the Serengeti ecosystem. These actors use different strategies of promotion, including local and international tourism trade fairs (e.g., Indaba in South Africa and Karibu Tourism Fair in Tanzania), websites, brochures, and Tanzania embassies abroad. These promotion strategies influence potential tourists differently.

Some local communities are involved in provision of services to the tourism industry in the Serengeti ecosystem (cultural displays, camping, and leasing land to tour operators), but there are differences among communities in the way these services are delivered. For instance, tourists visit different cultural bomas in NCA and Loliondo area and meet people who display the culture. Thus, by the fact that local communities at the cultural bomas alternate (see section 4.2.2), different tourists, tour companies, and local

communities interact together resulting in different experiences to tourists, tour companies, and communities as well.

The wider environment can have various influences that are non-linear to NBT service suppliers. For instance, the collapse of the East African Community in 1977 caused significant changes and long lasting negative impacts on the Tanzanian economy. The impacts were felt throughout all economic sectors, including the NBT supply system in the Serengeti ecosystem. The Gulf War caused shortages of oil in Tanzania, which resulted in inflation and negative impacts on transportation and accommodation services. However, the effects varied among NBT agents.

In summary, the interactions between the components of NBT result in different outcomes (Hall & Lew, 2009), such that even the impact of the wider environment (e.g., policies, legislation, and economic and energy crisis, and war) has different effects on PAs, tour operators, and local communities. For instance, even though the wildlife conservation legislation requires all PAs in the country to have general management plans, game reserves and the game controlled area do not, while SENAPA and NCA have the management plans. As a result of non-linearity, monitoring and evaluation of the interactions between the components of NBT is recommended, while learning from the past and other agents of NBT (Hall & Lew, 2009; McDonald, 2009; Senge, 1990).

4.7 Operate under conditions far from equilibrium

The NBT supply system in the Serengeti ecosystem is dynamic and active, operating under conditions that fluctuate. Complex systems operate over time and scale, are dynamic in nature, unpredictable, and fluctuate through periods of stability and turbulence, but within the system stability tend to change as a result of unpredictable

outcomes of the interactions (Farrell & Twining-Ward, 2005; McDonald, 2009).

Thus, when a system operates under conditions far from equilibrium, this implies that the interactions between the components of the system and the social, economic, and environmental aspects in which the system operate tend to change over time. While there are many agents of the NBT supply system in the Serengeti ecosystem that interact with and influence each other continuously, the environment (social, economic, and ecological) under which they operate is also fluctuating, as discussed below.

As discussed earlier (see section 4.3), the economic and social conditions in which the NBT supply system in the Serengeti operates fluctuate, causing stress and shocks to the system. Sometimes these changes are beyond the control of the tourism actors, and this creates a state that is not stable for the system, including a decline in the number of tourists and income from tourism. For instance, the closure of the border between Tanzania and Kenya, the collapse of the East African Community, and the war between Tanzania and Uganda created shocks to NBT in the Serengeti ecosystem that lasted from 1977 to 1992 (see Table 4.15 and Appendix K). While the tourism industry in the Serengeti ecosystem was slowly recovering from that shock, another significant change in economic reform policies occurred that changed the country's economic system and tourism industry as well. These reforms focused on trade liberalization that reduced the government monopoly of the economy and gave way to the private sector as an engine of economic development in the country, as well as free open market.

Furthermore, the economy of Tanzania suffered from the oil crisis that was caused by the Gulf War in 1991, disrupting the tourism industry. This was followed by the impact of terrorism attacks at the US embassies in Dar es Salaam and Nairobi

in 1998, and September 11 terrorism attack in the US in 2001 (see Table 4.15 and Appendix K). In addition, tourism in the Serengeti ecosystem was negatively affected by the global financial crisis in 2008/2009. These social, economic, and political wider environments have disrupted the NBT supply system in the Serengeti ecosystem.

On the other hand, the many agents of NBT in the Serengeti ecosystem operate under the free market economy where competition among actors is the rule of the game. The suppliers compete for customers while the market of NBT is dynamic, requiring the suppliers to keep abreast of the changing market in order to satisfy the market, maximize profit, and remain in business. Sometimes competition can result in conflict of interest among tourism actors, which disrupts the patterns of the tourism system. For instance, the conflicts between local communities and Ortello Business Corporation (OBC) in Loliondo Game Controlled Area have caused some tour operators to cancel some of their operations in the area. Following that, local communities lost income and employment opportunities from OBC, and some tour operators who were operating in the area.

In summary, this section has discussed how NBT operates under conditions far from equilibrium. The NBT supply system in the Serengeti ecosystem is prone to the shocks of the wider environment, since it is linked to the economic sector nationally and globally. NBT also experiences a continuously changing market and competition among service suppliers. Competition among suppliers can result in conflict, thus changing the patterns of NBT, like the case in Loliondo area. The situation discussed in this section, coupled with many agents interacting in a dynamic way over time, influences NBT to operate under unstable conditions and cause the NBT supply system in the ecosystem to lose equilibrium.

4.8 Open system

Complex systems are open, in that the agents within the system interact with elements external to the system. As discussed in section 4.1 above, the NBT supply system in the Serengeti ecosystem consists of four major components: PAs, tourism, communities, and the wider environment. The discussion in section 4.2 provided evidence that the agents of NBT interact with each other with variations across the ecosystem, and at national and international levels. At the ecosystem scale, PAs share wildlife that migrates annually across the ecosystem. In some seasons of the year, wildlife migrates and disperses into community areas. For instance, in the Western Serengeti, wildlife (wildebeest and zebra) passes through Robanda and Rwamchanga villages on their annual migration to the north of Serengeti. Between August and November every year, wildebeest migrate from SENAPA to Maasai Mara National Reserve in Kenya and back to SENAPA through Loliondo and Ngorongoro.

Tourists require information about the Serengeti ecosystem destination (e.g., accommodation, attractions, and geography of the ecosystem). This information is provided by tourism operators, PA agencies, tourism associations, and NGOs and local people. There is also communication of information between tour operators in Tanzania and travel agents and other tourism actors in the countries where tourists originate.

PA agencies, tour operators, and local communities are linked to the wider environment at the local and national levels. Tourists are attracted by a number of wildlife resources in different PAs in the northern sector. Thus, tourists visit other PAs in the northern tourist circuit and vice versa. The interaction between PA agencies, tour operators, and local communities is influenced by national policies and legislation.

Many tourism accommodation facilities, especially lodges in the Serengeti ecosystem, are not owned by local people, but by investors from abroad and other parts of Tanzania (e.g., Arusha and Dar es Salaam). Similarly, substantial quantities of material supplies, including food stuff and beverages, are not sourced within the ecosystem, but are obtained from Arusha and abroad. Thus, capital and materials flow to the NBT in Serengeti ecosystem from other parts of Tanzania and abroad. PA agencies, tour companies, and accommodation operators have acquired information and communications technology and electronic payments. In addition, PA agencies have adopted Geographic Information Systems (GIS) and PA planning systems (e.g., Limits of Acceptable Use).

NBT in the Serengeti ecosystem is also linked to the wider environment, including political, social, economic, and environmental trends at national and international levels (Figure 4.3). For instance, the war between Tanzania and Uganda, the terrorist attack on the US Embassy in Nairobi, the global financial crisis, and climate change influenced NBT in the Serengeti ecosystem. In addition, NBT in the Serengeti ecosystem interacts with economic and political systems in Tanzania and globally. This includes trade liberalization policies and globalization, through which the International Monetary Fund and World Bank influenced NBT in the Serengeti ecosystem.

4.9 Conclusion

This chapter has discussed how the NBT supply system functions in the Serengeti ecosystem. NBT in the Serengeti ecosystem consists of numerous elements or agents that are grouped into four major components: PAs, communities, tourism, and elements of the wider environment (Figure 4.3). These agents of NBT interact

in a dynamic manner, giving rise to different changes and outcomes in the NBT supply system (self-organization and emergent behaviour) (Baggio, 2007; Farrell & Twining-Ward, 2004; Hall & Lew, 2009). These agents are interlinked and interdependent such that as they interact they influence each other in various ways, and perhaps it is difficult to predict the outcomes with accuracy, especially during crisis.

The NBT supply system in the Serengeti ecosystem has evolved over time, with the wider environment at the global and national scale having a significant influence in changing the system (Table 4.15). For instance, the wildlife laws enacted by the colonial administration, establishment of PAs, and national wildlife and tourism policies caused changes in the Serengeti ecosystem. Likewise, the collapse of the East African Community, the war between Tanzania and Uganda, the Gulf war, terrorist attacks, and trade liberalization and economic reforms had far-reaching influence on NBT in the Serengeti ecosystem.

Consideration of the NBT supply system through the lens of complex systems theory enables identification of actors, agents, processes, and patterns of behaviour of NBT. Complex systems theory provides an explanation of how and why the NBT supply system behaves in a particular manner, and investigating the history of the system contributes to this understanding. A complex system approach applied to a particular destination can be helpful to explain the interactions between the components and complexity of the tourism industry (McDonald, 2009; McKercher, 1999; Senge, 1990). The approach also can be used to identify and clarify issues related to the industry, and provide potential mechanisms to improve the industry. Similarly, Roe (1998) argues that complex theory is used to describe situations where simple linear models cannot

adequately address the complex relationships found in a system as a result of a large number of interacting elements.

Complex systems theory can be used to explain the development of NBT and outcomes in the Serengeti ecosystem. This informs how NBT in the Serengeti ecosystem has been changing over time, including the participation, roles, and dominance of the public and private sectors, as well as the exclusion and involvement of local communities in the tourism sector.

The NBT supply system in the Serengeti ecosystem calls for a management approach that emphasizes the synergy between a large number of elements and holism. Walker et al. (2005) point out that effective management of NBT requires an integrated management approach that brings together different issues and interests from stakeholders. However, not all NBT destinations share the same characteristics, thus the management approach should take local aspects into consideration (Baggio, 2013). Sustainable tourism development and management of the Serengeti ecosystem requires an adaptive ecosystem-based management approach (Baggio, 2007; Farrell & Twining-Ward, 2004; McDonald, 2009).

This chapter has discussed the NBT supply system in the Serengeti ecosystem using complex systems theory. The next chapter (Chapter 5) will discuss tourism management plans in PAs, and chapters 6 and 7 will discuss how the NBT supply system functions to distribute the costs and benefits of NBT to conservation and communities in the Serengeti ecosystem.

CHAPTER 5

TOURISM MANAGEMENT PLANS IN PROTECTED AREAS

“The simpler the plan the easier it will be to develop and implement. It will take less time to prepare, will cost less, will be more flexible to change, will be easier to read and understand and will require fewer staff with lower levels of training – which is especially important in a developing country. Detail and complexity will evolve naturally as the plan is regularly updated and as increased support becomes available” (MacKinnon et al., 1986).

5.1 Introduction

Tourism in the Serengeti ecosystem is shaped largely by the various Protected Areas (PAs), so the way that these PAs are managed is crucial for tourism development. This chapter examines management plans for PAs in the Serengeti ecosystem and comments on their effectiveness. The management plans will be examined through the lens of Limits of Acceptable Change (LAC), to identify management effectiveness.

5.2 Management plans

Tourism planning and management is required in order to balance biodiversity conservation and resource use for nature-based tourism and community development in PAs (see section 2.9). Eagles et al. (2002, p. 40) state that “A management plan is a tool to indicate how a park is to be protected, used, developed and managed ... It represents the desired future state or condition of protected areas and the most efficient and equitable path to the future.” Similarly, the wildlife conservation legislation in Tanzania requires all PAs to have management plans and to implement them. The Wildlife Conservation Act of 2009 stipulates that “The Director shall, as soon as practicable, after the establishment of wildlife protected area, prepare or cause to be prepared, a General Management Plan for each wildlife protected area. Any authorized association shall, upon establishment of the Wildlife Management Area, prepare a Resource Management

Zone Plan prior to being granted a Resource User Right as an interim measure before the General Management Plan is in place ... all other plans and actions shall be consistent with the directions prescribed in a relevant General Management Plan of the respective area” (URT, 2009, p. 195-196). In attempting to achieve this in the Serengeti ecosystem, Serengeti National Park (SENAPA) and Ngorongoro Conservation Area (NCA) have developed “general management plans,” while Ikona and Makao Wildlife Management Areas (WMAs) have “resource management zone plans” in place. The game reserves and game controlled area in the Serengeti ecosystem have neither general management plans nor resource management zone plans because of financial shortages as discussed earlier (see section 4.2.1).

General management plans for SENAPA and NCA provide guidelines on PA management, including biodiversity conservation and tourism development (NCAA, 2010; TANAPA, 2005). As part of these management plans, the resource management zone plans focus on providing a framework for achieving and reconciling management of natural resources, and regulating and promoting consumptive and non-consumptive utilization of natural resources (URT, 2005; URT, 2010). Tourism plans are part and parcel of PA general management plans and resource management zone plans in the Serengeti ecosystem. PA tourism plans can be integrated with other PA plans (e.g., wildlife management plans) or developed separately depending on the complexity of issues requiring attention in the plan (Eagles et al., 2002). Thus, this analysis of management plans solicited information about the tourism planning system and the associated outcomes through document analysis, key informants, and focus group discussion as discussed in the next sections.

The management plans of PAs in the Serengeti ecosystem have six key common components: (1) management plans planning process; (2) PAs purpose and exceptional resource values; (3) zoning schemes; (4) management programs; (5) 3 year action plans; and (6) plan monitoring (Table 1). These components are discussed with special focus on nature-based tourism below.

5.3 The PA management plan planning process

The management planning process aims at interpreting and integrating policies, legislation, strategies, and business plans in a framework that provides guidance to the management of PAs (Eagles et al., 2002; Thomas et al., 2006). As a result, the management plan will ensure that PAs are managed to achieve their objectives (e.g., conservation and stakeholder interests), involve stakeholders and gain public support, and develop a shared understanding of objectives and vision of PAs, as well as a sense of performance accountability (Eagles et al., 2002). Accordingly, designing and adopting an explicit planning process helps a management plan to address the purpose and issues of PAs, as well as the interests of stakeholders.

All PAs with management plans in the Serengeti ecosystem have adopted a strategic planning process, logical framework approach (LFA), as well as a participatory approach in developing management plans (NCAA, 2010; TANAPA, 2005; URT, 2005; URT, 2010). Key informants from PAs, non-governmental organizations (NGOs), and researchers that I interviewed agreed that the strategic planning process and logical framework approach are useful in preparing management plans in the Serengeti ecosystem. A scholar who has been involved in the development of management plans in the Serengeti ecosystem indicated that the “Strategic planning process provides a

performance-oriented framework that specifies expected performance for each management objective (strategic objective) while the logical framework approach creates a linkage between the components of management plans (e.g., purpose, management objectives, action plans, and monitoring plan).” The management plans for PAs in the Serengeti ecosystem indicate that the participatory approach was used in the management planning process. This involved a number of PA stakeholders with different interests in the Serengeti ecosystem, as discussed in the following sections.

Serengeti National Park (SENAPA)

Preparation of the Serengeti General Management Plan adopted the strategic planning process guidelines of Tanzania National Parks. Key planning steps in the guidelines include: (1) preparation of intent for the general management plan; (2) resource base inventory; (3) stakeholder workshop; (4) general management plan working groups; (5) compilation of the management plan; (6) presentation of the final draft plan to stakeholders; (7) approval by Tanzania National Parks Management and Board of Trustees; and (8) implementation and monitoring of the general management plan.

The General Management Plan of SENAPA indicates that the core planning team included TANAPA (Directorate of Planning from the headquarters) and SENAPA senior staff, officials from Frankfurt Zoological Society in the Serengeti, and a facilitator. The planning team held meetings on the planning process, followed by collection of information and stakeholder consultation (resource base inventory). This was presented to the general management planning stakeholders (representatives from park management, TANAPA, PA agencies, Tanzania Wildlife Research Institute, Tour

Operators, Hotel Operators, District Councils, local communities, and Frankfurt Zoological Society) at a workshop that considered the park's purpose, resource values, issues, and opportunities, and developed management objectives. The technical team (senior officials from the park and TANAPA, selected resource persons, and relevant stakeholders, plus a facilitator) of four working groups based on the management objectives developed details of the general management plan which was presented and reviewed by the general management plan stakeholder team, and finally the park departments worked out on the management plan to fine-tune the management program action plans. The development of a 10-year (2005-2015) general management plan for SENAPA was based on, and replaced, the 1991 and 1996 general management plans, making necessary improvements to those plans (TANAPA, 2005).

The general management plan for SENAPA upholds the legal mandate of Tanzania National Parks which has been adopted by the park based on its exceptional resource values. The park's purpose is "To conserve and protect the Serengeti ecosystem, its habitats, biodiversity, migrations of large mammals and birds, and its endemic and threatened species" (TANAPA, 2005, p. 14). The park has three zoning schemes and four management programs that reflect the purpose of the park. Each management plan has a 3-year action plan outlining the management actions, input requirements, time frame, and responsibility. However, the general management plan of SENAPA does not provide a comprehensive monitoring framework since it does not indicate potential impacts, standards, indicators, and actions when standards are not met.

A key informant from Tanzania National Parks noted, "From the planning process point of view, the general management plan of SENAPA is good as it adopted the

strategic planning process coupled with the logical framework approach, as well as involvement of stakeholders.” He added that the application of a zoning scheme and the limit of acceptable use is the strength of the plan. A logical framework approach in particular creates a coherent linkage and logical flow of information and steps through the planning process (e.g., PA purpose, management objectives, action plans, and monitoring framework).

One concern is the participation of stakeholders in the process of preparing the plan. There are many stakeholders with varied interests. These stakeholders include 87 villages, 300 tour operators, investors, tourists, tour guides, central government, 7 District Councils, NGOs, and at least 7 PA agencies in the Serengeti ecosystem. Stakeholders involved in the planning process of the general management plan for Serengeti National Park include SENAPA management, hotel and tour operators, local communities, NCAA, Wildlife Division, Tanzania National Parks, Tanzania Wildlife Research Institute (TAWIRI), District Councils, and Frankfurt Zoological Society (TANAPA, 2005). In addition, other park stakeholders (e.g., Ministry of Natural Resources and Tourism, research community, NGOs, politicians, donors, Kenya Wildlife Service, and training institutions) were consulted and informed about the review of the general management plan. A researcher who has been involved in preparation of general management plans in the Serengeti ecosystem noted, “Stakeholders were represented in the process of preparing the general management plan by a few individuals who did not necessarily represent the interest and concerns of the majority. After all, in many cases the individuals representing the stakeholders do not consult stakeholders ahead of

the general management planning forums. But it is assumed that representatives understand the interests of stakeholders they represent.”

Another key informant from Tanzania National Parks indicated, “It is not possible to involve all stakeholders in the preparation of the general management plan, because there are many stakeholders and it is an expensive and time-consuming exercise that can cost TZS 100 million or more and take over one year. If you involve all stakeholders, the cost and time will escalate possibly beyond what Tanzania National Parks can accommodate.” A key informant who is a tour operator commented that tour operators hold a wealth of information about tourism in the Serengeti, including feedback from tourists and travel agents globally, but they are only partially involved in the process of preparing the general management plan of SENAPA. He pointed out that they are involved through a few tour operators and Tanzania Association of Tour Operators (TATO), which is not sufficient. Some key informants suggested that alternative ways of collecting views and concerns of stakeholders should include a household survey, interviews, and community meetings.

Ngorongoro Conservation Area (NCA)

The current general management plan of NCA is a 10-year plan (2006-2016) that was reviewed in 2010. This is the sixth general management plan in NCA, following those of 1960, 1962, 1966, 1982, and 1996. The development of the plan adopted a strategic planning process and logical framework approach. The key steps in the planning process included reviewing the objectives of NCA, as follows: (1) involvement of key stakeholders in the process of developing the general management plan; (2) identification of challenges, issues, and concerns in NCA; (3) identification of the outstanding

resources and values, and significance and purposes of NCA; (4) management objectives; (5) management zone schemes; (6) developing action plans; (7) compilation of the general management plan; (8) environmental assessment of the general management plan; and (9) monitoring the framework of the general management plan.

A key informant pointed out that the general management plan of NCA was developed based on the purpose of the conservation area as stipulated in the legislation of NCAA. The initial step of the general management planning process of NCA was formulating the planning process and determining participation of stakeholders, which was done by the facilitators from the Ministry of Natural Resources and Tourism and a planning team including officials from NCAA and the Ngorongoro Pastoral Council, and representatives from Ministry of Natural Resources and Tourism, Tanzania Wildlife Research Institute, Mweka College, universities, Karatu District Council, Tanzania Tourists Board, and journalists (NCAA, 2010). This was followed by identification of challenges, issues, and concerns in NCA. A key informant pointed out that identification of the issues and concerns provided a baseline upon which the planning process could focus. The issues identified were grouped into five categories: natural resources, cultural resources, community development and related spheres, tourism and revenue, and administration and operations. The management programs were developed based on these issues, as well as identification of the outstanding resources and values, and significance and purposes of NCA. The management programs also acknowledged the 1996 NCA general management plan and the 2004 NCAA Corporate Plan. The zoning schemes, action plans, compilation of general management plan, environmental assessment, and

monitoring framework were based on the five management objectives/programs. The implementation plan was drawn from the 3-year annual action plans.

The NCA general management plan planning process involved NCAA management, local communities, Ngorongoro Pastoral Council, Ministry of Natural Resources and Tourism, PA agencies, Tanzania Wildlife Research Institute (TAWIRI), politicians, Frankfurt Zoological Society, District Councils, NGOs, and training institutions (NCAA, 2010). Some key informants from NCA that I interviewed admitted that the general management plan planning process did not involve all key stakeholders adequately, especially tourists and local communities adjacent to the conservation area. The process assumed that tourists were represented by tour operators. Some PA key informants indicated that tourists are key stakeholders, but they are many, varied, and dynamic such that it is not easy to involve them directly. One tour operator key informant noted that some tour operators, especially accommodation operators, request that visitors give comments about their tour experience in the ecosystem, and those comments could be collected and considered in the planning process. Another tour operator key informant commented that the general management plan planning process is lacking the views of tourists with regard to their expectations and what they observed in NCA. A key informant who has worked in the conservation sector and tourism industry noted, “[Little research has] been done in the Serengeti ecosystem, thus there is a need of carrying out a survey in order to get sufficient information useful for planning and management of tourism in the ecosystem.”

Some PA key informants noted that participation of stakeholders focused more on local communities living in NCA and not those bordering the area. This is because the

Authority has legal responsibility with Ngorongoro residents, but not communities outside the area. One local community key informant said that local communities in NCA had formed a Pastoral Council, which is influential in representing the interests of local communities in different forums in Ngorongoro, including planning of the general management plan. In a way, it masks the interests of local communities outside the conservation area causing them to have less impact than the residents within NCA.

Ikona Wildlife Management Area (WMA)

The preparation of the Ikona WMA resource management zone plan adopted the strategic planning process guidelines (template) given by the Wildlife Division. The Wildlife Management Area Regulations (2012) empowers the Director of Wildlife Division to issue guidelines for the preparation of resource management zone plans and general management plans for WMAs in Tanzania to comply with the relevant PA agencies (URT, 2012). The resource management zone plan for Ikona has seven key steps: (1) identification of the outstanding resource values; (2) WMA purpose; (3) identification of challenges, issues, and concerns; (4) management programs; (5) zoning scheme; (6) 3-year action plans for each management program; and (7) Environmental Impact Assessment, monitoring, and evaluation (Ikona WMA, 2005). The resource management plan of Ikona WMA is a 5-year plan (2005-2010).

The resource management zone plan for Ikona WMA indicates that the planning process was participatory, involving key stakeholders in the area (representatives from WMA village members, Serengeti District Council, Ikorongo and Grumeti game reserves, Frankfurt Zoological Society, Grumeti Reserves, and some local NGOs). Some local community key informants I interviewed pointed out that local communities were

neither consulted nor involved in the planning process apart from the few representatives who participated. One community key informant said being a community member does not imply that you know everything about the needs and priorities of local communities. There was a need for community ideas and priorities about the resource management zone plan. If communities who know the area very well are not involved properly, where does information about planning in the area come from, asked a local community key informant. Some key informants noted that District officials had more influence in the planning workshop sessions, using their official status. A former Ikona WMA leader noted, “The problem is self-centredness of our leaders and lack of transparency. Our leaders think that if communities become more aware about WMA matters they will hold them responsible and accountable, something that they do not want.”

Makao Wildlife Management Area (WMA)

Like the Ikona WMA, Makao WMA adopted strategic planning process guidelines given by the Wildlife Division to develop the resource management zone plan, as provided by the Wildlife Management Area Regulations of 2012 (URT, 2012). The process for developing the resource management zone plan for Makao is the same as for Ikona (Makao, 2010). The resource management zone plan of Makao WMA is a 5-year plan (2010-2015).

The resource management zone plan for Makao WMA indicates that the planning process was participatory, involving key stakeholders in the area (representatives from WMA village members, Mwiba Holding Ltd., Meatu District Council, Maswa game reserves, and Frankfurt Zoological Society). A PA key informant I interviewed commented, “The resource management zone plan is somewhat technical and requires a

small team of representatives to accomplish and does not necessarily involve every individual person.” Another key informant from Makao WMA noted, “Local people from Makao WMA village members were involved during the establishment of the WMA. But during the exercise of developing the resource management plan, local people were not involved per se; instead they were represented by a few individuals, especially village leaders.”

Summary

This section has discussed the process of developing management plans in PAs in the Serengeti ecosystem. Serengeti National Park adapted the Tanzania National Park planning process, NCAA has developed its own planning process, and Ikona and Makao WMA followed the planning process provided by the Wildlife Division. The planning processes of these PA agencies exhibit similarities and differences. All PA agencies with management plans in the ecosystem used strategic planning and logical framework approaches. In particular, the strategic planning and logical framework approaches provide systematic linkages between the management objectives, targets, the 3- to 5-year action plans, and annual operations plans. A systematic approach is a characteristic of successful management planning, which helps to ensure that the plan is a result of decisions based on knowledge and analysis of subject and context of PAs, and to provide justification for proposed actions (Thomas & Middleton, 2003).

The discussion in this section reveals that the management plans for PAs in the Serengeti ecosystem adapted a participatory approach by involving various stakeholders and people from different professional backgrounds and work experience. These include PA agencies management staff, local communities, tourism operators, researchers, central

and local governments, and NGOs. However, there is a concern that stakeholders were not adequately involved and their interests and issues perhaps not well covered in the planning process. A number of scholars (e.g., Eagles et al., 2002; Thomas & Middleton, 2003) have indicated that effective participation of stakeholders in PA management planning is challenging, with stakeholders and their issues and interests not well addressed. This is partly attributed to the large number of stakeholders with a wide range of interests, the many complex issues to be considered and integrated in the plan, the over-ambitious targets and deadlines set for planning, and inadequate budget and expertise (Eagles et al., 2002; Thomas & Middleton, 2003).

Whatever the case, PA management staff responsible for implementation of the plan, and local community and stakeholders affected in various ways by nature-based tourism and the management of PAs should participate effectively throughout the process of planning for successful PA management plan planning (Eagles et al., 2002; Thomas & Middleton, 2003). PA agencies in the Serengeti ecosystem can use a number of ways to involve stakeholders in the planning process, including providing information and education, consultation, deciding together, acting together, and getting feedback from stakeholders, and allowing adequate time. Eagles et al. (2002) and Thomas & Middleton (2003) argue that stakeholders, especially local communities, may require appropriate incentives to participate actively in the planning process. Such incentives can be sharing socio-economic benefits generated from PAs, and improvement of their livelihoods.

5.4 Management programs

The management programs or strategies are broad descriptions of what PAs want to achieve in the future. The programs consist of a set of objectives stating the desired

conditions of different aspects of the PA in the lifetime of the management plan.

The programs are also meant to align the current situations with actions to achieve the desired future. These programs are developed based on the legal mandate, purpose, outstanding resources and values, and issues and concerns of a particular PA.

Serengeti National Park (SENAPA)

The management programs of SENAPA have been developed based on the park's purpose, management problems, and opportunities. This general management plan also reflects national policies (e.g., wildlife conservation policy 1998, and tourism policy 1999), Tanzania National Parks policies and guidelines (e.g., Tanzania National Parks Policy of 1994), and acknowledges the previous general management plans of SENAPA of 1991 and 1996. The program also considers contemporary issues in biodiversity conservation, including community participation in conservation and deriving benefits from PAs.

The purpose of SENAPA is “to conserve and protect the Serengeti ecosystem, its habitats, biodiversity, migrations of large mammals and birds, and its endemic and threatened species” (TANAPA, 2005, p. 14). This purpose upholds the legal mandate of Tanzania National Parks “biodiversity conservation,” which has been adapted to SENAPA based on the exceptional resource values of the park. The park purpose is translated into four management programs based on the mandates and functions of Tanzania National Parks. These include: (1) ecosystem management; (2) tourism management; (3) community outreach; and (4) park operations. Each program consists of a long-term strategy, management objectives, targets, and actions. These programs form

the departments and key functions of the park aimed at achieving the park purpose and maintaining the park's exceptional resource values.

A senior warden from SENAPA pointed out, "For Tanzania National Parks all key functions of national parks are regarded as conservation strategies. These strategies aim to achieve biodiversity conservation from different perspectives. For instance, the park cannot only concentrate on ecosystem management function while poaching is a key issue of the park, and tourism needs to be managed well in order to provide income for conservation. Thus, all key functions are equally important to the park." Another senior official from the park agreed that, "the park is facing a number of issues related to biodiversity, tourism, local people, and the wider ecosystem that must be addressed concurrently by the park using a number of approaches in order to achieve the park purpose. A single approach cannot deliver what the park is supposed to achieve at the end." A senior official from Tanzania National Parks headquarters admitted that the park had a long history of conflict with local communities. The outreach program was established to improve relationships between the park and local communities, and implement benefit sharing mechanisms (e.g., support for community initiated projects and income generating projects) in order to win their support for conservation.

The general management plan of SENAPA embraces park, ecosystem, national, and global concerns related to the park. The ecosystem program covers the spatial scales and biological organization of the ecosystem functions, including endemic, endangered, and vulnerable species (e.g., rhinoceros, African hunting dog, elephant, and cheetah), communities (e.g., riverine forest, acacia woodland, terminalia woodland, and kopje habitat), as well as wildlife migration and the Mara River (TANAPA, 2005).

The tourism program seeks to enhance sustainable and appropriate environmental visitor access, and use and improve the park visitor facilities in order to provide an optimal tourism experience with minimal environmental impact. The program also aims to ensure that the park's interpretive centres and materials are of high quality, relevant, informative, and educational, and that they strengthen tourism management in collaboration with tourism industry partners. The details of the tourism program are examined in the next section on zoning.

The outreach program aims at strengthening neighbouring community and local government support for conservation, and reducing threats to SENAPA resource values through improved community natural resource management in buffer areas. The park operations program aims to effectively and efficiently protect natural resource values and human life and property, strengthen efficiency of SENAPA park operations, improve park infrastructure and service standards. The program also aims to strengthen local, national, and international collaboration in the long-term conservation and management of Serengeti National Park and the wider ecosystem.

Ngorongoro Conservation Area (NCA)

The general management plan for NCA has five management objectives for natural resources, cultural resources, community development, tourism, and administration and operations. These management objectives were developed based on the issues and concerns, outstanding resources and values, and significance and purpose of NCA. The management objectives also take cognizance of the NCA corporate plan of 2004 and the general management plan of 1996. NCA (2010) defines management

objectives as a list of broad and conceptual descriptions of desired conditions for the future state of NCA.

The management objectives reflect the legal mandates of NCA, that is, conservation of natural resources, promotion of tourism, and promotion of the interests of local residents of NCA. A key informant working with NCAA pointed out, “The mandate of the conservation authority is mostly confined within the conservation area and has very little to do with areas outside its boundary. For instance, the authority would like to manage Mount Oldonyo Lengai, Lake Eyasi, and Hadzabe areas, which are on the edge of the Authority’s boundaries, but the legal mandate does not provide for that and local communities and authorities in those areas do not want to hear about NCAA managing their area.” This perception was supported by a researcher working in the Serengeti ecosystem who indicated, “The general management plan of NCA identifies a number of national policies which are adapted within the conservation area, but not outside the area because the legal mandate of the authority is inward looking.” In addition, a researcher noted that this is in line with cultural resources management, community service development, and administration and operations functions. For instance, participation of local communities in PA management and tourism activities and benefit sharing is implemented in the NCA as provided by wildlife conservation policy and tourism policy.

The cultural resources management objective is concerned with preservation of paleontological and archaeological sites and respecting culture and traditional values of NCA local residents. The community service development program objectives serve to ensure provision of basic social services (e.g., education and water supply) to local residents and improve their economic well-being. The administration and operations

program objectives address effectiveness and efficiency of administrative and operational issues, including employees' social well-being (e.g., housing and remuneration).

Ikona and Makao Wildlife Management Areas (WMAs)

The resource management zone plan of Ikona and Makao WMAs reflects the national policies and legislation, especially wildlife policy, tourism policy, wildlife conservation act, consumptive and non-consumptive act and land policy. These resource management zone plans have three management programs or strategies that were developed based on the issues and concerns, outstanding resources and values, and significance and purpose of Ikona and Makao WMAs (Ikona, 2005; Makao, 2010). The programs include tourism management, WMA operations, and community-based conservation management.

Summary

This section has discussed the management objectives of the management plans in the Serengeti ecosystem. PAs with management plans in the Serengeti ecosystem have different and overlapping management objectives. These PAs share tourism, PA operations/natural resources protection, and community development management objectives with different contexts among PAs. In addition, SENAPA has an ecosystem management objective, and NCA has a cultural resources management objective. Defining the management objective of the PA is the key step in tourism planning in PAs because it reflects the purpose of the PA and its legal provision, as well as PA ecological and/or social and economic significance (Eagles et al., 2002). The management objectives have been derived from the respective PA legislation (see section 4.2.1) and the purpose, outstanding resource values, and issues and challenges facing PAs.

For instance, although local communities do not live inside SENAPA, the park has an outreach program (management objective) because local communities pose significant threats to the park. Based on the management objectives, a number of strategies and actions for implementation have been developed. Assessment of the strategies and actions of PA management plans in the Serengeti ecosystem is out of the focus of this study, except zoning schemes as discussed below.

As discussed earlier (see section 5.2), the intent of developing or reviewing PA management plans in the Serengeti ecosystem has partly been to review the management objectives with the goal of improving them, because some were very ambitious and not achievable (Eagles et al., 2002; NCAA, 2010; TANAPA, 2005). For instance, the Serengeti General Management Plan states that “The main weaknesses encountered in the implementation of the plan were firstly, that the departmental objectives and activities were not clearly formulated, structured, not linked to the overall Park objectives. The second SENAPA management plan was the Management Zone Plan (1996-2000), which provided comprehensive coverage of the management issues ... However, there was a lack of higher-level objectives to provide an overall framework, with the result that some of the stated management objectives were unachievable or beyond the scope of SENAPA management, whilst others were present at inappropriate levels or missing completely” (TANAPA, 2005, p. 1). Eagles et al. (2002) point out that PA management objectives should be clear, appropriate and achievable, and aligned with PA purpose and context. According to the best practice guidelines on PA management planning, appropriate management objectives need to comply with five key

characteristics, including output-oriented, time-bound, specific, measurable, and attainable (Eagles et al., 2002; Thomas & Middleton, 2003).

5.5 Zoning schemes

Zoning schemes focus on allocating different areas of a PA for specific levels and intensities of human activities and conservation (Eagles et al., 2002). They provide a framework for achieving and reconciling the two management needs of PAs of protecting biodiversity and regulating and promoting human use of natural resources. Zoning can concentrate and confine recreational use and accepted negative impacts with a high level of management in a small area, or disperse them in a wide area (Eagles et al., 2002; Needham et al., 2011). Concentrating the recreational use in a small area can also limit tourists from accessing other parts of the PA, perhaps leading to tourist crowding. In the Serengeti ecosystem, zones are developed based on issues and concerns, outstanding resources and values, biophysical setting, and management programs or objectives. PA agencies in the Serengeti ecosystem have adopted the concept of Limit of Acceptable Use (LAU) in developing zoning schemes. Limit of Acceptable Use refers to limiting use of an area in a PA by setting a maximum level of use in order to reduce negative impacts to the environment (NCAA, 2010; TANAPA, 2005, 2013), and it is more or less the same as the traditional carrying capacity.

Serengeti National Park (SENAPA)

The general management plan of SENAPA prescribes three zoning schemes in the park: (1) High Use Zone, covering an area of 23% of the park where much of the tourism development is located (e.g., accommodation facilities, tourism circuits, road network, and airstrips); (2) Low Use Zone, covering 42% of the park area, in which limited

(compared to the High Use Zone) tourism development takes place, such as camping and tourism circuits; and (3) Wilderness Zone, occupying 35% of the park area (Figure 5.1).

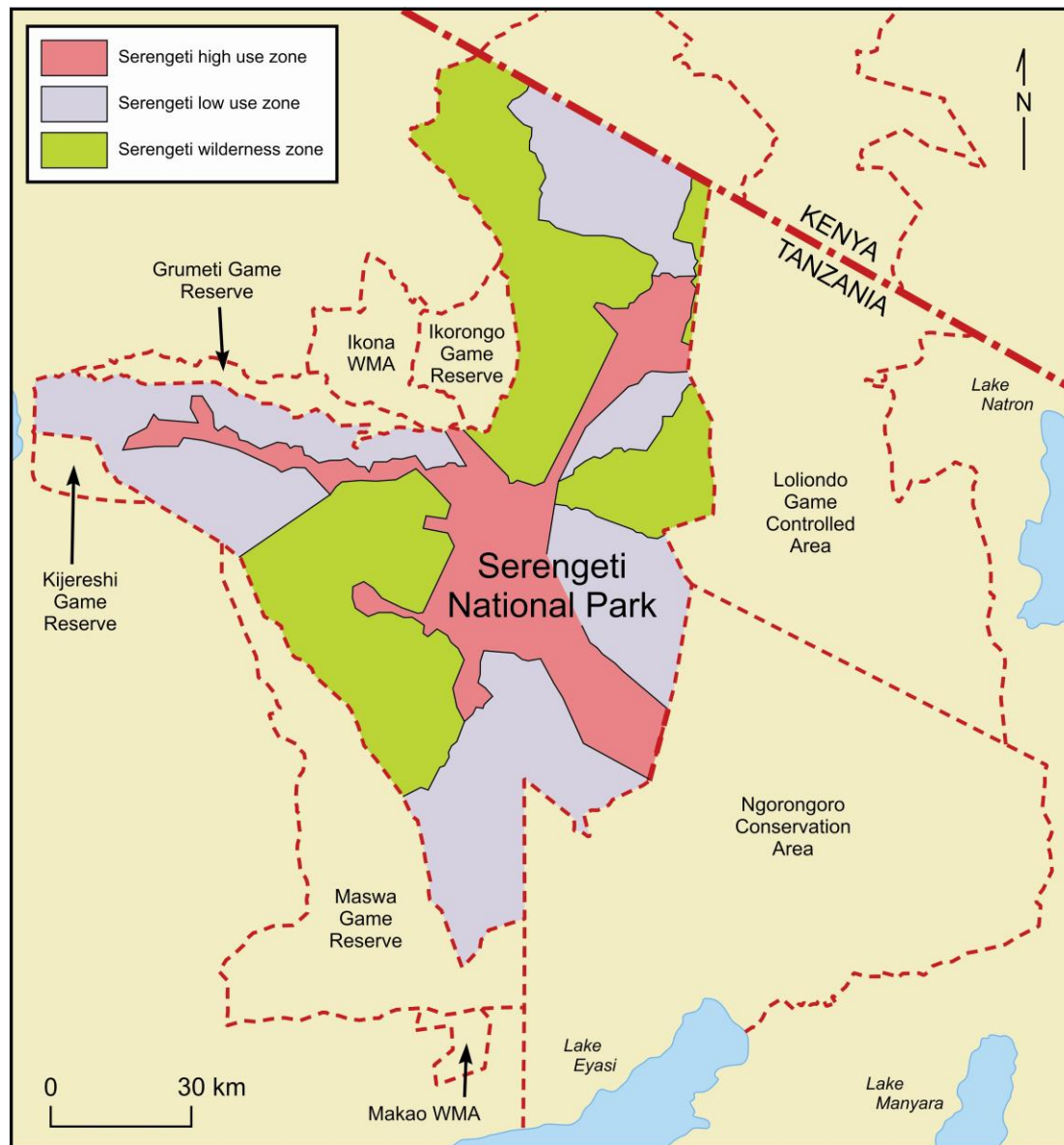


Figure 5.1: A map showing SENAPA Zones

The Wilderness Zone is strictly biodiversity conservation and more limited tourism activities, such as walking safari, and no vehicle use is permitted (Table 5.1). Tourism activities (e.g., game viewing by vehicles and ballooning) are concentrated in the High Use Zone, and decrease with more restrictions towards the Low Use Zone and

Wilderness Zone. A tourism warden from the park noted that the Low Use and Wilderness zones cover an area of about 77% of the total park area, and these two zones have comparatively low levels of tourism activities, infrastructure, facilities, and services. This ensures that quite a significant portion remains in pristine condition by sacrificing less than a quarter of the park area to intensive use.

The zone schemes restrict further infrastructure development in the High Use Zone. A senior official from the park agreed that “it is perceived that there is enough infrastructure and facilities in the High Use Zone, and any addition will go beyond the maximum limit and can lead to more visitor use of the area and possible negative environmental impacts.” Some tourism infrastructure and facilities development (e.g., tented camps and access roads to facilities) are allowed in the Low Use Zone. A senior warden from SENAPA noted that, “Experience from Serengeti National Park indicates that tented camps have minimum impacts unlike the permanent lodges, have low bed occupancy, require less staff and space, and are easily manageable with the owners. This is parallel to the national policy of tourism of high quality-low volume tourism.” In the Wilderness Zone, only walking safaris and a limited number of access roads to be used for park management purposes and support vehicles for walking safari operations are allowed (Table 5.1).

The general management plan of SENAPA prescribes the Limit of Acceptable Use (see more detailed discussion of LAU in Chapter 6) in terms of the number and type of tourism activities, infrastructure, and facilities development including accommodation facilities and occupancy in each zone (Table 5.1 and 5.2). However, the zone schemes fall short of rigorous standards and indicators that can provide significant input in

assessment of the effectiveness of the zoning schemes. A key informant I interviewed from Tanzania National Parks admitted that “the zone schemes do not have good standards and indicators, perhaps because of a lack of expertise to develop them and inadequate information on biophysical characteristics of the area and the impact of tourism use.”

Table 5.1: Tourist activities and prescriptions by zone for SENAPA

Zone	High Use Zone	Low Use Zone	Wilderness Zone
Activities	<ul style="list-style-type: none"> • Game viewing by vehicles • Short guided walks from lodges and special features (accompanied by armed guard if necessary) • Ballooning • “Tourism sinks” for specific visitor activities 	<ul style="list-style-type: none"> • Game viewing by vehicles (max 2 tons) • Short and half-day guided walks (accompanied by armed guard if necessary) • “Tourism sinks” for specific visitor activities 	<ul style="list-style-type: none"> • Walking safaris • Fly-in camping • Vehicle-supported wilderness camping
Use Prescriptions	<ul style="list-style-type: none"> • Only on-road driving is permitted • Vehicles on unmade tracks must weigh 2 tons or less • One balloon operator will be permitted to run two balloons in Seronera area; the feasibility of developing a new ballooning concession at Kirawira will be assessed 	<ul style="list-style-type: none"> • Unmade tracks for game viewing (2 tons vehicle maximum) • Naabi Access Road restrictions (no off-road driving) • Off-road driving is prohibited except in designated areas that have been identified each year by SENAPA management • Off-road driving is not permitted after rains and is restricted to radio-equipped 4x4 vehicles • Specialist driver training in off-road driving techniques and procedures may be required by SENAPA management 	<ul style="list-style-type: none"> • Only light, mobile and self-reliant wilderness campsites permitted, using camouflaged camping techniques • Wilderness camps to be located near zone edges • Park management can relocate camping areas that are overused • Walking fees will apply for all nights spent at wilderness camps whether or not walking takes place • Walking groups will be accompanied by an armed professional walking guide (who has responsibility for the group) and an armed TANAPA Ranger • 2 tons vehicle maximum for access roads • “Leave No Trace” Principles for camping apply • Rubbish must be carried out from campsites • Sewerage to be emptied at designated areas, although biological waste can be disposed on site using agreed low impact techniques
Infrastructure Prescriptions	<ul style="list-style-type: none"> • No further development of permanent lodges • No more bed capacity without equivalent expansion of facilities, roads and tourism sinks 	<ul style="list-style-type: none"> • Only permanent and non-permanent tented camps allowed • Permanent access roads permitted to facilities • No new commercial airstrip development 	<ul style="list-style-type: none"> • No permanent structures permitted, apart from access roads to wilderness campsites

Source: TANAPA, 2005.

Another key informant from the park added that “application of the Limits of Acceptable Use concept is partly the strength of the general management of the park, especially in the midst of complex issues of the park and uncertainties of what is going to happen if some activities are allowed in certain areas, then limiting tourism uses and development is appropriate.” In other words, the zone scheme is not perfect, but still is useful. Another key informant from the park pointed out that “the indicators are not there and even monitoring and evaluation is not done as required. This is due to a lack of sufficient information on tourism and natural resources, and inadequate expertise and resources to carry out the exercise.” Table 5.2 shows the LAU for two zones in which additional accommodation facilities are proposed in the Low Use Zone. There are no proposed additional accommodation facilities in the High Use Zone because accommodation in the zone has reached the LAU as defined by Tanzania National Parks (TANAPA, 2005). However, the park general management plan indicates that additional accommodation facilities (Permanent Tented Camps – 272 bed capacity) have been proposed in the Low Use Zone.

Table 5.2: Limits of Acceptable Use for accommodation facilities in SENAPA

Type of facility	High Use Zone		Low Use Zone		
	Area and number of facilities	Existing beds	Area and number of facilities	Existing beds	Proposed beds
Permanent lodge	4	604	Not permitted	0	0
Permanent tented camps	3	112	38	300	272
Special campsites	32	384			
Semi-permanent special campsites	0	0	0	0	0
Public campsites, Hostels & Rest Houses	11	294	0	0	0
Maximum total Beds		1,394		300	272

Source: TANAPA (2005).

According to the Serengeti Business Review of 2013 about comparison between different types of accommodation and environmental impact, lodges create high impact compared to special and public campsites, which have low impact (TANAPA, 2013). The status (structure, requirements, usage, and environmental impacts) of the proposed Permanent Tented Camps is between the status of lodges and campsites, thus having medium negative environmental impacts. This implies that the proposed Permanent Tented Camps will cause significant impact to the environment, while there is inadequate information on the potential impacts and plan monitoring. This contradicts the need for maintaining the ecological integrity of the ecosystem.

Ngorongoro Conservation Area

The general management plan of NCA identifies four management zones (Crater Zone, Development Zone, Catchment Forest Zone, and External Resources Zone), with three sub zones under the Crater Zone and two sub zones under the Development Zone (Figure 5.2). The zoning scheme of NCA integrates conservation of natural resources, tourism use, and activities of local residents in the conservation area, and adopts the LAU framework (Table 5.3). Livestock grazing and watering are prohibited in the Crater Zone, except after obtaining a permit from NCAA. In Empakai and Olmoti sub zones, vehicles are not permitted, while game viewing and walking safaris are permitted in designated areas and trails for only seven or less tourists at once from one tour company. A number of tourism activities, facilities, and infrastructures are allowed in the Ngorongoro Crater, including game viewing, public and special campsites, picnic sites, lodges, vehicles and number of tourists in a vehicle, with limits attached to all the uses of an area (Table 5.3).



Figure 5.2: A map showing NCA Zones

Table 5.3: Ngorongoro Conservation Area management zones

Zone / Sub Zone	Ngorongoro Crater Sub Zone	Olmoti Crater Sub Zone	Empakai Crater Sub Zone
Zone or Sub Zone descriptions	<ul style="list-style-type: none"> • Area with high diversity and density of wildlife populations including rhino and elephants, resident's spiritual sites and geological values • The area contains different vegetation types, including forest, and is a source of water for wildlife • It is the most visited area in NCA and currently is under extreme pressure from tourism 	<ul style="list-style-type: none"> • A source of water for wildlife, people, and livestock and refuge area for livestock during drought • It has geological value, and the source of Munge River feeding Lake Makat in Ngorongoro Crater 	<ul style="list-style-type: none"> • Area with biodiversity including flamingos and unique forest, water springs, scenery attractions, resident's spiritual and ritual sites and geological values
Use prescriptions Activities allowed Limits of Acceptable Use	<ul style="list-style-type: none"> • Livestock grazing is prohibited except controlled grazing in the buffer area • Livestock watering and salt licking by permit – agreed number of livestock to be established through research and community dialogue • Game viewing through designated roads • 1 public campsite and 6 special campsites • 3 lodges with a total of 375 beds capacity • 8 picnic sites • Only 4x4 and less than 2 tons • Less than 50 vehicles at any given time in a day, operating at 6 hours permit • Minimum of 5 visitors per vehicle will pay one unit of fee rate, 3-4 visitors will pay one and half units the fee rate, and 1-2 visitors will pay two units of the fee rate • Commercial photography – 1 company and not more than 3 vehicles to the sites at any given time • Administration and development – 8 ranger posts, • 1 site for telephone mobile posts 	<ul style="list-style-type: none"> • Livestock grazing prohibited except controlled grazing in the buffer area • Livestock watering and salt licking by permit – agreed number of livestock to be established through research and community dialogue • Game viewing through designated walking trails • A maximum of 7 visitors walking • Commercial photography – 1 company and not more than 3 vehicles to the sites at any given time 	<ul style="list-style-type: none"> • Game viewing through designated walking trails • A maximum of 7 visitors walking • 4 special campsites along the road to Naiyobi • 1 lodge with 100 bed capacity along Sendui road • Commercial photography – 1 company and not more than 3 vehicles to the sites at any given time
Prohibited uses	<ul style="list-style-type: none"> • Off road driving, human settlement, schools, artificial dams and dispensaries 	<ul style="list-style-type: none"> • Public campsites, picnic sites, vehicles and artificial dam 	<ul style="list-style-type: none"> • Livestock grazing • Livestock watering and salting except during drought after obtaining a permit from NCAA
Other applicable conditions	<ul style="list-style-type: none"> • Any other activities will be accepted with permits from NCAA and any development subject to EIA • No more lodges and those available will be subjected to Environmental Audit • Local residents currently settling within 500 metres buffer area to be relocated 	<ul style="list-style-type: none"> • Any other activities will be accepted with permits from NCAA and any development subject to EIA • No more lodges and those available will be subjected to Environmental Audit • Local residents currently settling within 500 metres buffer area to be relocated 	<ul style="list-style-type: none"> • Any other activities will be accepted with permits from NCAA and any development subject to EIA • No more lodges and those available will be subjected to Environmental Audit • Local residents currently settling within 500 metres buffer area to be relocated

Table 5.3: Ngorongoro Conservation Area management zones (continued ...)

Zone	Catchment Forest Zone	Development Zone
Zone descriptions	The Catchment Forest Zone including the Northern Highland Forest Zone about 810 km ² . Important catchment area for the large part of NCA and neighboring agricultural communities. A source of water for wildlife, people and livestock and refuge area for wildlife during drought season.	High diversity of animal species, dispersal area for animals, calving area (wildebeest and zebra), high density of small stocks, potential grazing land on the short grass plains, migration of wildebeest, shifting sand and residential ritual sites
Use prescriptions Activities allowed Limits of Acceptable Use	<ul style="list-style-type: none"> Seasonal grazing July – December each year Two (2) lodges with 246, 1 special campsite, 1 reception centre (visitor information centre), 5 routes of walking safari, 2 stop overs of walking safari, 2 gates, 1 garbage collection point, 1 washroom Commercial photography requires special permit 	<ul style="list-style-type: none"> Livestock grazing throughout the year Twenty five (75) campsites, 8 lodges with 770 bed capacity, 11 tented campsites with 320 bed capacity, 10 cultural bomas, 2 museums, 9 walking safaris routes, 2 stop overs, 1 hot meal centre, 7 air strips Commercial photography requires special permit No limit of research in accordance and permission by TAWIRI and NCAA Thirteen (13) ranger posts, 1 hospital, 9 dispensary, 18 primary school, 3 secondary school, 15 dams, and 5 trade centre Beekeeping
Prohibited uses	Settlements and camping except Nyati Campsite	None
Other applicable conditions	<ul style="list-style-type: none"> No any development for commercial purposes will be allowed and all other uses to be carried out prior to obtaining a permit from the NCAA. 	<ul style="list-style-type: none"> Off road driving allowed under special permit Any other activities under official permission All lodges and permanent tented campsites to be subjected to EIA.
Zone or Sub Zone descriptions	<ul style="list-style-type: none"> The zone covers 5 km on either side of Oldupai and Kiloki rivers. The management focuses on identification and protection of palaeontological and archaeological resources. 	<ul style="list-style-type: none"> Outstanding resource values that lie outside the legal boundaries and jurisdiction of NCA including Lake Eyasi, Yaeda valley, Lake Natron and Oldonyo Lengai. These areas maintain the integrity of NCA.
Management focus and collaborative actions	<ul style="list-style-type: none"> NCAA will collaborate with the Department of Antiquities and stakeholders to develop a technical plan and implement a long-term strategy for optimal and sustainable use and development of this zone (sites). 	NCAA will collaborate with stakeholders to develop land use plans, as well as relevant and profitable uses in these areas (zone).
Use prescriptions Activities allowed Limits of Acceptable Use	<ul style="list-style-type: none"> Many activities are permitted in this zone, but communication among users will help will help to avoid damage to the resources. Management of this zone will adhere to NCA Ordinance of 1959, Government Notice of 1937, and the Antiquities Act of 1964. 	

Source: NCAA, 2010.

There are many restrictions of use in the Crater Zone, which is the most restricted zone compared to other zones in NCA in order to reduce negative environmental impacts to resources in the zone which are sensitive and can be easily degraded. This includes wetland and forest habitats important to common and endangered species (e.g., flamingo, rhinoceros, elephant, and lion) found in the Crater Zone. The Crater Zone also is a refuge

area for wildlife and livestock grazing and watering during severe droughts in the conservation area. Ngorongoro Crater in particular attracts high numbers of tourists and vehicles compared to other parts of the conservation area, thus calling for more restrictions. This was illustrated by a senior tourism official from NCAA who commented, “Every tourist visiting NCA wants to get down the crater and possibly spend the whole day, which results in vehicles and or tourist congestion in the crater. During peak tourism season, Ngorongoro Crater accommodates about 200 tourist vehicles per day.” Another tourism official pointed out, “apart from restrictions of use in the Ngorongoro Crater, the authority increased the crater fee from \$100 to \$200 per vehicle so as to reduce the number of vehicles down the crater which was a lot, but the number of vehicles has remained high and possibly increasing.”

Table 5.3 indicates that in the Catchment Forest Zone, livestock grazing and regulated harvesting of non-commercial bamboo poles is allowed from July to December with a permit from NCAA. Likewise, tourism uses, infrastructure, and facilities, as well as ranger posts are prescribed with limits in this zone. Many social and economic activities of local residents are allowed in the Development Zone, including settlement, livestock grazing and watering, schools, dispensary, and trade centres (Table 5.3). A number of tourism activities, infrastructure, and facilities are permitted in this zone with limits, including special campsites, lodges, permanent tented camps, walking safaris, airstrips, cultural bomas, and a museum (Oldupai and Laetlie). The Oldupai Sub-Zone emphasizes protection of paleontological and archaeological resources, and a number of activities are allowed in this zone, including tourism and livestock grazing (Table 5.3). The External Use Zone focuses on outstanding resource values that lie outside the legal

boundary of NCA, and the conservation authority plans to collaborate with and support local communities in those areas to protect and use the resources sustainably.

A senior official from NCA noted that zoning schemes and LAU are useful in the management of human use in the conservation area, but there are still many challenges from communities, tourism use, and the authority (e.g., congestion of visitors to Ngoitoktok Spring Picnic Site, off-road drives in the Crater, and congestion of many vehicles in Ngorongoro Crater). Another key informant from NCAA added, “Local communities take their livestock and graze in restricted areas (e.g., Northern Highland Forest and Ngorongoro Crater) without permission. Some of the core wildlife areas are being taken by local communities, thus wild animals shift from those areas, for example, Rhino used to stay in Lerai forest but nowadays shifted to Layanai where community use is also increasing.”

However, the zone scheme lacks monitoring and rigorous standards and indicators (Table 5.3). One of the key informants from the Authority pointed out, “The zone scheme framework of the authority is good, only implementation is a problem. There is a lot of politics from the local communities and the central government that limit the implementation of the zone plan.” Another key informant from the authority indicated that the general management plan is not monitored and evaluated regularly, perhaps due to ineffective governance of the NCAA. The zoning scheme is not clear on limiting some tourism use and activities of local communities, especially on the aspect of other applicable conditions. This condition provides room for uses which are restricted on the condition that the uses are allowed with official permits subject to Environmental Impact Assessment (EIA), even in the sensitive Crater Zone. The zoning scheme also prescribes

that any development and infrastructure and facility use must be subjected to EIA and regular Environmental Auditing. However, there is ineffectiveness and inefficiency in EIA and auditing. The impact assessments are carried out by some institutions, especially National Environment Management Council and private companies, but sideline NCAA.

Ikona Wildlife Management Area (WMA)

The resource management zone plan of Ikona WMA prescribes two management zones, Consumptive Zone and Non-Consumptive Zone (Figure 5.3). In the Consumptive Zone, both consumptive and non-consumptive tourism activities are allowed and provide opportunity for additional tourism product development in the zone as the market dictates (Table 5.4). This is probably not optimal as there is no limit in introducing other tourism uses without limits or conditions attached to them. There are a number of restrictions attached to the hunting activity, including only one camping site and one hunting company is allowed to operate in a hunting zone. The plan also includes the LAU by restricting some uses in an area, for instance, grazing is not allowed in the WMA. The plan also provides limits in the Non-Consumptive Zone, especially the type of uses and number of accommodation facilities and bed capacity. However, a key informant from Ikona WMA pointed out that the Non-Consumptive Zone has doubled the number of accommodation facilities to 8 from the 4 indicated in the plan. The plan lacks a framework of LAU, standards, and indicators as well.

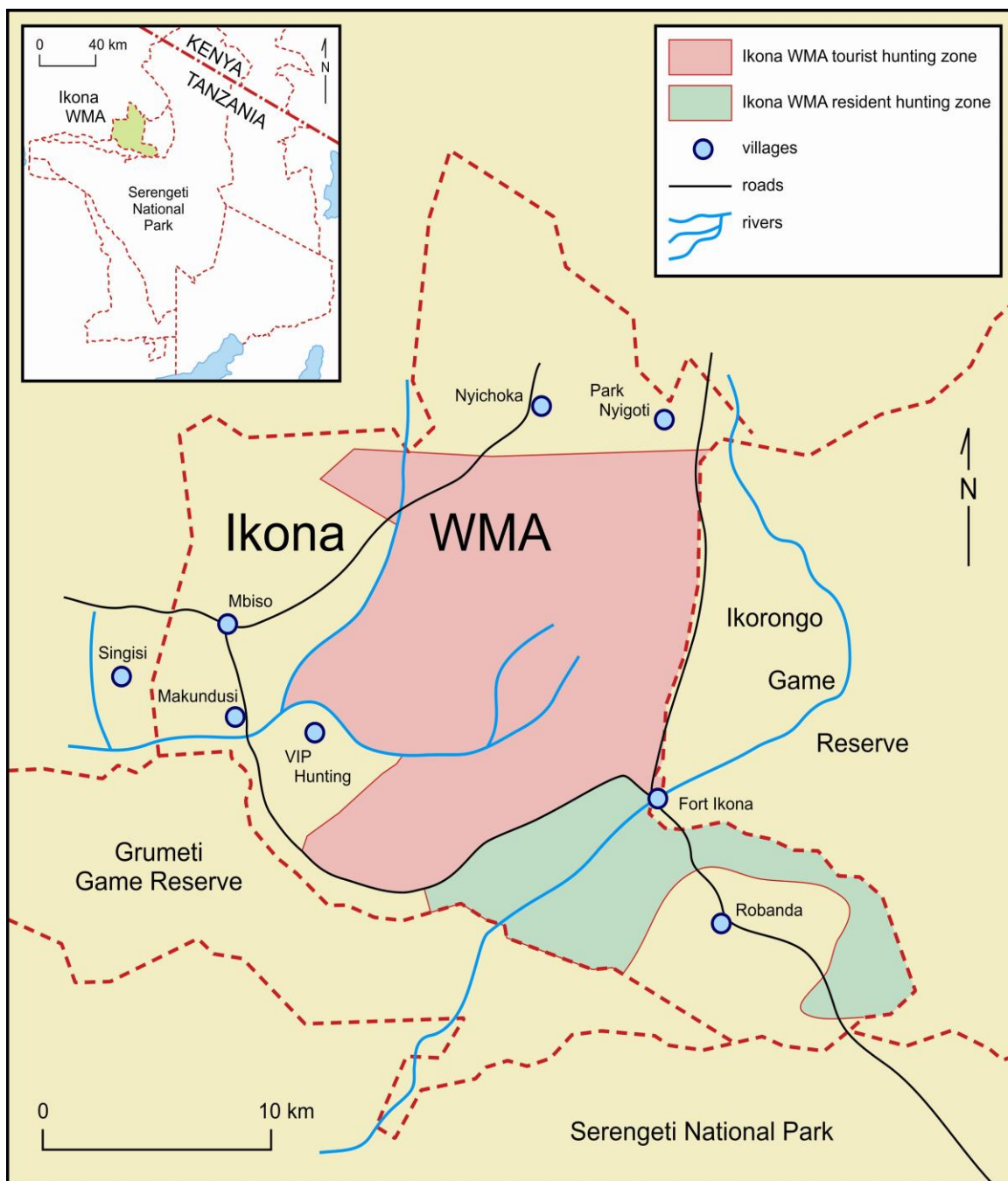


Figure 5.3: A map showing Ikona WMA Zones

Table 5.4: Ikona Wildlife Management Area zones

Zone	Consumptive Zone (376.1 km²)	Non-Consumptive Zone (104 km²)
Zone descriptions	<ul style="list-style-type: none"> Outstanding resource values are the biophysical features (natural, scenic, social and cultural) including diversity of wildlife, western Serengeti wildebeest migration, important rivers and riverine forests, scenic landscapes, and historical and cultural resources The area has been hunted in over the past years 	<ul style="list-style-type: none"> Outstanding resource values are the biophysical features (natural, scenic, social and cultural) including diversity of wildlife, western Serengeti wildebeest migration, important rivers and riverine forests, scenic landscapes, and historical and cultural resources
Use prescriptions Activities allowed Limits of Acceptable Use	<ul style="list-style-type: none"> Tourist hunting from July to December every year Non-consumptive utilization all year round including game viewing, walking safaris, and bird watching Other products will be developed according to demands from the market 	<ul style="list-style-type: none"> Game drives, walking safari, bird watching and other environmentally-friendly activities Tracks will be designated to facilitate game viewing
Limits of Acceptable Use	<ul style="list-style-type: none"> One hunting company at one time (according to tourist hunting regulations) The company will develop 1 hunting camp only Duration for hunting safari will range from 7 to 21 days per trip In each safari the number of vehicles will not exceed 7 During hunting season no other activities will be undertaken simultaneously in the hunting block No new permanent designated road will be developed unless specified in the zone plan. 	<ul style="list-style-type: none"> Two permanent luxury tented camps (30 beds each) Two public campsites (20 beds each)
Prohibited uses	<ul style="list-style-type: none"> Livestock grazing, mining, settlements and farming 	<ul style="list-style-type: none"> Livestock grazing, hunting, mining, settlements and farming
Standards	Not given	Not given
Indicators	Not given	Not given

Source: Ikona, 2005.

Makao Wildlife Management Area

The resource management zone plan of Makao WMA prescribes two management zones, Tourist Hunting Zone and Resident Hunting Zone (Figure 5.4). In the Tourist Hunting Zone, only one hunting company is allowed to operate at any particular time, and non-consumptive tourism uses are permitted all year round (Table 5.5). The limits also include duration of hunting, which ranges from 7 to 21 days and one hunting campsite only, while livestock grazing and watering are prohibited. In the Resident Hunting Zone, hunting is allowed with a permit and other human activities are allowed under local arrangements, including livestock grazing and watering and honey and fruits gathering (Table 5.5). Settlement and farming are not allowed in the Resident Hunting Zone. However, like the resource management zone plan of Ikona WMA, the Makao

zone plan also lacks standards and indicators; thus it can be difficult to monitor and evaluate the effectiveness of the plan.

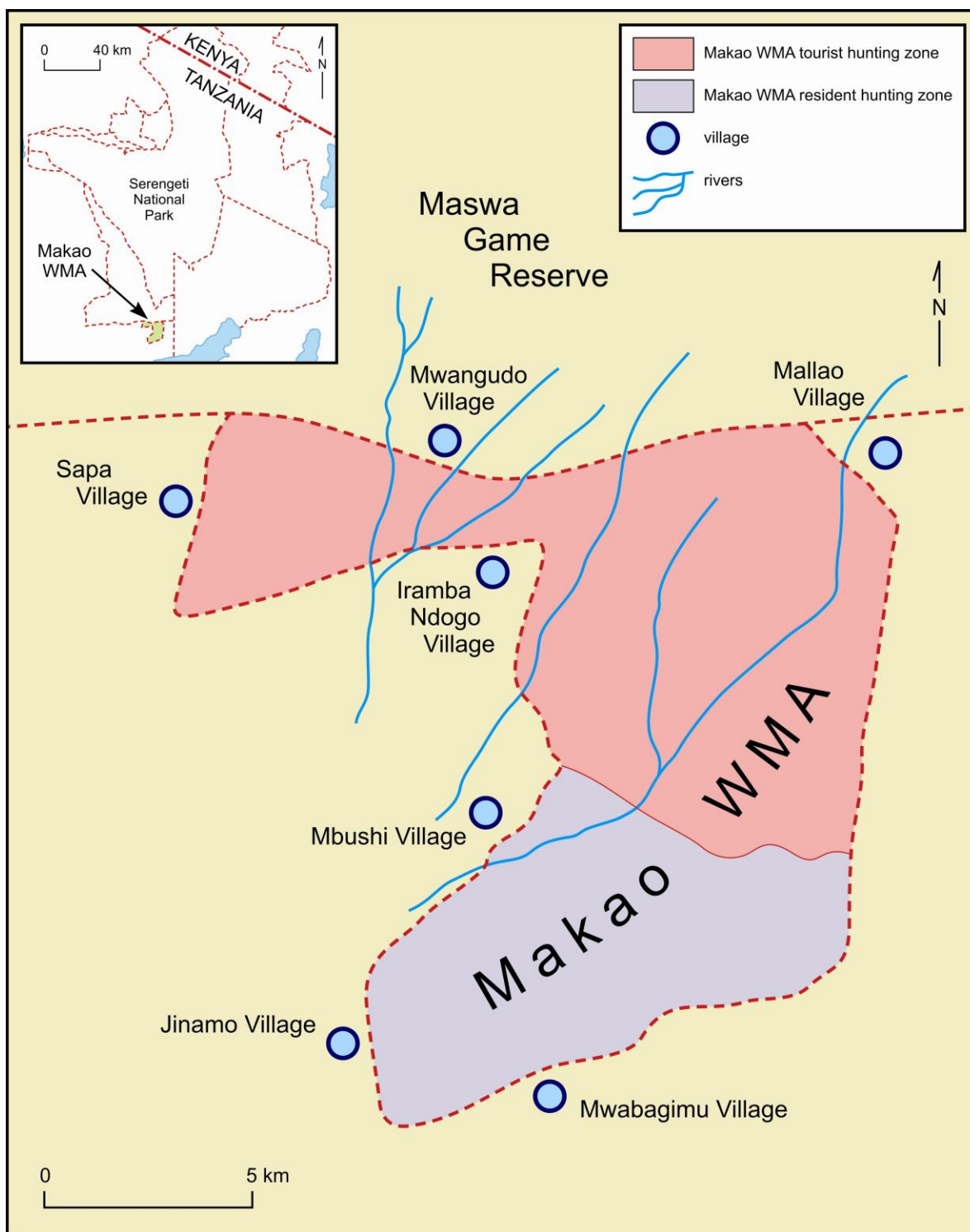


Figure 5.4: A map showing Makao WMA Zones

Table 5.5: Makao Wildlife Management Area Zones

Zone	Tourist Hunting Zone (471.4 km²)	Resident Hunting Zone (297.5 km²)
Zone descriptions	<ul style="list-style-type: none"> Outstanding resource values are the biophysical features (natural, scenic, social and cultural) including diversity of wildlife, Kakesio escarpment, giant baobabs, parrots and love birds, Kopjes and scenic landscapes, cultural resources, hot springs, and catchment area and Lake Eyasi Livestock grazing and hunting have been carried out in the area before 	<ul style="list-style-type: none"> Outstanding resource values are the biophysical features (natural, scenic, social and cultural) including diversity of wildlife, Kakesio escarpment, giant baobabs, parrots and love birds, Kopjes and scenic landscapes, cultural resources, hot springs, and catchment area and Lake Eyasi Livestock grazing and hunting have been carried out in the area before
Use prescriptions Activities allowed Limits of Acceptable Use	<ul style="list-style-type: none"> Tourist hunting from July to December every year Non-consumptive utilization all year round including game viewing, walking safaris, and bird watching Other products will be developed according to demands from the market 	<ul style="list-style-type: none"> Licensed resident hunting Traditional activities e.g. honey gathering, fruits, roots and nuts, especially by Hadzabe ethnic group
Limits of Acceptable Use	<ul style="list-style-type: none"> One hunting company at one time (according to tourist hunting regulations) The company will develop 1 hunting camp Duration for hunting safari will range from 7 to 21 days per trip In each safari the number of vehicles will not exceed 7 During hunting season no other activities will be undertaken simultaneously in the hunting block 	<ul style="list-style-type: none"> Five resident hunting permits per day depending on the availability of game scouts to guide and supervise hunting practices Based on the ration of the need for 1 guide per vehicle, only 5 vehicles can be allowed at one time Cattle grazing and watering will only be allowed during dry season in bad years
Prohibited uses	<ul style="list-style-type: none"> Cattle grazing will not be allowed in the hunting zone, especially during hunting season 	<ul style="list-style-type: none"> No settlements (bomas) and farming will be allowed Cattle from Bariadi and Singida Districts will not be allowed
Standards	Not given	<ul style="list-style-type: none"> Close monitoring of activities to minimize negative impacts and conflicts among different users
Indicators	Not given	Not given

Source: Makao, 2010.

Summary

This section discussed the zoning scheme applied in the management plans for SENAPA, NCA, Ikona WMA, and Makao WMA. The discussion in this section indicated that PA zoning schemes differ in the Serengeti ecosystem (Table 5.1, 5.3, 5.4, & 5.5). SENAPA zones integrate ecosystem management, tourism management, and park operations programs, while NCA zones prescribe natural resources conservation, tourism management, NCA operations, community development, and cultural resources activities. Ikona WMA zones prescribe WMA operations that include natural resources

management, tourism (sport hunting and photographic safaris), and community development programs. Makao WMA zones prescribe WMA operations that include natural resource management, tourism (sport hunting), resident hunting, and community development programs. These PAs limit types and levels of use through the Limits of Acceptable Use (LAU). Serengeti National Park (IUCN category II) is the most restricted PA in the ecosystem. In all these PAs, there is no area that is totally banned from use, but SENAPA has a wilderness zone with low tourism uses compared to other zones. Similarly, in NCA the Crater Zone and Catchment Forest Zone are prescribed for low tourism and livestock grazing and watering uses. The zoning schemes in the PA management plans in the Serengeti ecosystem do not include a comprehensive monitoring framework as they lack clear standards and indicators for assessment. Thus, it is difficult to undertake monitoring and evaluation of the effectiveness of management plans.

The LAU framework applied in tourism planning in PAs in the Serengeti ecosystem does not provide a coherent planning framework. What this framework does is limit the maximum use of an area (carrying capacity) with reference to ecological carrying capacity which cannot integrate different uses of a PA (Manning, 2007; Needham et al., 2013; Needham & Rollins, 2009). Management of PAs involves consultation with many different groups of users and stakeholders that need to be integrated appropriately and accepted by stakeholders (Eagles et al., 2002; Needham & Rollins, 2009). Many researchers argue that the Limits of Acceptable Change (LAC) is an appropriate framework for nature-based tourism planning in PAs because LAC considers and integrates managerial carrying capacity, ecological carrying capacity, and

social carrying capacity while providing optimal limits of change acceptable by stakeholders (Eagles et al., 2002; Haider & Payne, 2008; Manning, 2007; Needham et al., 2013; Stankey, 1973; Thomas & Middleton, 2003). Sustainable tourism development in PAs in the Serengeti ecosystem that is congruent with the policy of tourism development in Tanzania for “low-density tourism, high-turnover, and low-impact” calls for the integration of environmental, economic, and social objectives and undertakings which the LAU framework cannot provide. The integration, however, can be achieved through the LAC framework (Eagles et al., 2002; Needham & Rollins, 2009; URT, 1999). Since LAU does not incorporate all aspects of LAC, there is concern about the effectiveness of management plans across the Serengeti ecosystem.

5.6 Conclusion

This chapter discussed the general management plan of SENAPA and NCA, and the resource management zone plan of Ikona and Makao WMAs. Ikorongo, Grumeti, Maswa, and Kijereshi game reserves, and Loliondo Game Controlled Area have neither general management plans nor resource management zone plans, contrary to the wildlife legislation of Tanzania, which requires all PAs to have general management plans (URT, 2009). This is a serious concern for conservation, tourism, and community benefit sharing in PAs. Thomas & Middleton (2003) point out that many PAs lack management plans. The lack of management plans creates challenges to the management of PAs and makes it difficult to achieve objectives and evaluate performances. They recommend that implementation of management plans should be part of the PA legislative framework. The Wildlife Conservation Act of 2009 directs that all other plans and actions must comply with the general management plan, including conservation, tourism, and

community development (URT, 2009), yet some PAs in the Serengeti ecosystem do not have management plans. This perhaps could be attributed to inadequate governance in the PA system in the country, which is challenging in the wildlife management sector in Tanzania (URT, 2007).

This study considered the management planning process, management objectives, and zoning in the light of the best practices suggested by IUCN and the Limits of Acceptable Change framework. Best practices suggest that the management planning process should adopt a participatory approach by involving PA stakeholders and addressing their interests in the plan (ANZECC, 2002; Eagles et al., 2002; Thomas & Middleton, 2003). This study revealed that although a participatory approach was also used in the planning process of the management plans in the Serengeti ecosystem, some stakeholders were not involved appropriately partly because of a large number of stakeholders, and inadequate resources and time. This finding is parallel to the findings of other scholars (Eagles et al., 2002; Phillips, 2002; Thomas & Middleton, 2003), who argue that inadequate participation of stakeholders is a common issue in the management planning process in PAs that needs to be addressed for successful planning. This limitation can be overcome by consulting key informants through meetings and workshops, surveys and key informant interviews, and reviewing previous studies pertaining to the areas.

Management planning has a number of steps that must be followed sequentially during the process of planning. The IUCN best practices recommend nine steps (Phillips, 2002; Thomas & Middleton, 2003): (1) Decision to prepare a management plan, steering group, brief; (2) data gathering, issues identification, consultation; (3) plan drafting,

internal agency review; (4) public exhibition of draft plan, consultation; (5) revision of final plan, submission analysis and reporting; (6) approval of plan; (7) implementation; (8) monitoring and evaluation; and (9) decision to review management plan. The strategic planning process of Tanzania National Parks applied in the General Management Plan of Serengeti National Park reflects most of these steps, although monitoring and evaluation procedures are not well developed. The planning process to develop the General Management Plan of NCA did not follow the best practice sequential steps, but many of these steps are reflected in the process, including intent to develop, review of the management plan and the planning team, involvement of stakeholders, gathering of information and identification of issues, compilation of the general management plan, and inclusion of a monitoring plan.

The planning framework of the resource management zone plans for Ikona and Makao WMAs differs from the best practice planning system. A standard management planning process in PAs needs to reflect a best practices systematic process which is coherent and holistic and can be used to measure the performance of PA agencies (ANZECC, 2002; Eagles et al., 2002; Phillips, 2002; Thomas & Middleton, 2003).

The management plan planning process of NCA and Ikona and Makao WMA diverge from the recommended process, and as a result may not be able to deliver the expected conservation, economic, and social outcomes, including those of nature-based tourism.

The management plans of PAs in the ecosystem have different zoning schemes based on the management programs, issues and concerns, purpose, and outstanding resources and values of each PA. The LAU has been applied as the zoning framework in SENAPA, NCA, Ikona WMA, and Makao WMA. However, the LAU is not an

appropriate framework to use in PA management planning because it suffers from the same drawbacks as the traditional carrying capacity approach focusing on limiting the use of an area rather than setting an acceptable level of change and integrating environmental, social, and managerial aspects of carrying capacity (Haider & Payne, 2008; Needham et al., 2013; Stankey, 1973; Thomas & Middleton, 2003). The LAU also does not provide clear standards and indicators to allow comprehensive monitoring and evaluation.

The Limits of Acceptable Change (LAC) is a planning framework appropriate for PA management planning because it promotes integration of ecological, social, and economic aspects (Manning, 2007; Needham et al., 2013; Needham & Rollins, 2009). This is appropriate for PA management planning that includes tourism planning in the Serengeti ecosystem. The Serengeti ecosystem has many stakeholders (PA, local communities, and tour operators) with diverse interests and issues regarding PA management which must be considered and addressed in the management plans and PA management (Sinclair et al., 2008). Thus the management plans should be inward and outward looking, integrating interests and issues from different stakeholders within PAs, the ecosystem, and beyond the ecosystem while paying particular attention to the interest of local communities in PAs (Eagles et al., 2002; Thomas & Middleton, 2003; Sinclair et al., 2008). This approach of integrated planning that involves different stakeholders from different levels and considers issues affecting PAs in the ecosystem at a broad scale is significant for ecosystem-based management which is appropriate to PAs in the Serengeti ecosystem (Sinclair et al., 2008) and is discussed in the last chapter. There should be some linkage between agencies (PAs) to have a coherent management regime across the ecosystem, to benefit environment, communities, and tour operators.

A standard management plan should have clear management objectives, action plans, annual operation plans, and a monitoring and evaluation framework. One generic problem with the management plans of PAs in the Serengeti ecosystem is the lack of a clear monitoring and evaluation framework. Systematic planning calls for holistic implementation of the planning process, implying that all steps are crucial for successful planning, and omission of some steps is likely to weaken the plan (Eagles et al., 2002; Thomas & Middleton, 2003). The general management plans of Serengeti National Park and Ngorongoro Conservation Area have monitoring plans that include targets and actions, but not indicators. The resource management zone plans of Ikona and Makao WMAs have targets, actions, and indicators, but some indicators are not appropriate and rigorous. The findings indicate that monitoring is not carried out as required by the management plans. As a result, it becomes difficult to determine the effectiveness and outcomes of the management plans. The outcomes of PA management plans, especially conservation and community outcomes as a result of NBT, are discussed in chapters 6 and 7. This study revealed that PAs without management plans are likely to face many issues and challenges, including conflict between PA agencies and communities and inadequate resources (e.g., finances) (Eagles et al., 2002; Thomas & Middleton, 2003), as discussed in the next chapters.

As described in this chapter, the Serengeti ecosystem contains a variety of types of PAs that differ in terms of approaches to management. This situation has some merits, but also some disadvantages. Some might argue that it would be best if these PAs were all combined to form one large national park, as this approach might provide for a more efficient management system. However, the current diverse system has a number of

advantages. Compared to national parks, WMAs have a much stronger commitment to providing benefits to local communities (see chapter 7), which can partially mitigate the losses that communities experience when national parks are created (the old paradigm). Hunting is not allowed in SENAPA or NCA, but is allowed in some other PAs. Some would argue that by permitting hunting within the Serengeti ecosystem, a larger constituency (hunters) are included as supporters of the conservation of biodiversity – although others would argue that hunting is a threat to biodiversity (Higginbottom, 2004).

CHAPTER 6

COSTS AND BENEFITS OF NATURE-BASED TOURISM TO CONSERVATION

6.1 Introduction

Nature-based tourism (NBT) can provide significant conservation benefits to protected areas (PAs) and nearby regions. However, this is not always the case.

The purpose of this chapter is to examine these relationships within the greater Serengeti ecosystem. The chapter also discusses the challenge of the distribution of these benefits and costs to conservation in the ecosystem.

NBT generates economic and environmental benefits to the conservation of biodiversity in the Serengeti ecosystem. These benefits are described in this chapter under the following headings: (1) financial support for conservation; (2) improved biodiversity conservation and PA management; (3) raised conservation awareness; and (4) public support for conservation.

6.2 Financial support for conservation

PAs in the ecosystem generate income from NBT by charging different types of fees from tourists and tourism operators as indicated in Table 6.1. These fees include non-consumptive and consumptive tourism fees. The types of fee charged by PAs relate to tourism activities and experience, as well as services offered by different categories of PAs. Serengeti National Park (SENAPA) and Ngorongoro Conservation Area (NCA) have many non-consumptive tourism fees, while hunting fees are applicable only to PAs permitting hunting (game reserves, game controlled areas, and WMAs). Tour operator and PA key informants confirmed that the current types of tourism fees were proposed

by PAs agencies and agreed upon by the government and tour operators as a standard procedure of setting tourism fees in PAs in Tanzania.

Table 6.1: Sources of revenue from tourism by PAs in the Serengeti ecosystem

Revenue type	PA							
	SENAPA	NCA	Ikorongo & Grumeti game reserves	Maswa Game Reserve	Kijereshi Game Reserve	Loliondo Game Reserve	Ikona WMA	Makao WMA
Entry fee	✓	✓	✓	✓	✓	✓	✓	✓
Camping fee – public campsite	✓	✓						
Camping fee – special campsite	✓	✓	✓	✓	✓	✓		
Fly-camping fee	✓	✓	✓					
Crater service fee		✓						
Accommodation facility concession fee	✓	✓			✓	✓	✓	
Entry fee for vehicle	✓	✓	✓	✓	✓	✓	✓	✓
Aircraft landing fee	✓	✓		✓		✓		
Air strip fee	✓	✓		✓		✓		
Walking safari fee	✓	✓	✓	✓		✓	✓	✓
Guiding fee	✓	✓	✓	✓		✓	✓	✓
Filming fee	✓	✓	✓	✓	✓	✓	✓	✓
Balloon operations fee	✓		✓	✓		✓	✓	
Block fee (per hunting block)			✓	✓		✓	✓	✓
Permit fees			✓	✓		✓	✓	✓
Conservation fees			✓	✓		✓	✓	✓
Trophy handling fees			✓	✓		✓	✓	✓
Professional hunter fees			✓	✓		✓	✓	✓
Game fees			✓	✓		✓	✓	✓
Game Bird fees			✓	✓		✓	✓	✓

Where: SENAPA = Serengeti National Park, NCA = Ngorongoro Conservation Area, Ikona WMA = Ikona Wildlife Management Area, Makao WMA = Makao Wildlife Management Area

Table 6.2 indicates that SENAPA and Ngorongoro Conservation Area Authority (NCAA) accrue substantial revenue from tourism, with an increasing number of tourists visiting the two PAs. Tourism officials from SENAPA and NCAA indicated that tourist entry fees, camping fees, and concession fees are the leading sources of revenue for the

two PAs. For instance, out of tourism revenues of TZS 43 billion (see Table 6.2) generated in SENAPA in 2011/12, approximately 72.65% was tourist entry fees, 11.55% camping fees, and 7.9% concession fees (TANAPA, 2013). Some key informants I interviewed from SENAPA and NCAA suggested that SENAPA and NCA can generate more revenue from tourism if they are managed as business entities, unlike the current approach through which the two PAs are managed as service organizations. One PA key informant noted, “Managing the two PAs efficiently and effectively as business entities will enable the organizations to operate under the market economy by improving their functions and quality of the products, compete in the regional market and charge the optimum price. Thus generating more revenue and perhaps enhancing biodiversity conservation.”

Table 6.2: Number of tourists and tourism revenue for SENAPA and NCA from 2007/08 to 2011/12

Year	SENAPA		NCA	
	Number of tourists	Revenue (TZS)	Number of tourists	Revenue (TZS)
2011/12	515,864	43,225,000,000	588,814	45,129,267,659
2010/11	348,159	36,174,000,000	588,606	52,143,562,939
2009/10	272,272	24,537,000,000	523,646	37,723,687,282
2008/09	241,712	21,466,000,000	441,966	33,499,824,712
2007/08	258,180	25,197,000,000	477,449	35,875,053,410

Source: NCAA, 2013; TANAPA, 2013.

Exchange rate: US \$1 = TZS 1,575

PAs in the ecosystem are charging different rates for entrance fees, camping fees, concession fees, conservation fees, and vehicle entry fees, as indicated in Table 6.3 (NCAA, 2013; TANAPA, 2013; URT, 2013b). These fees vary in terms of citizenship and age of the visitor, and tourist service or activity among categories of PAs within the Serengeti ecosystem. Fees for tourists originating from outside the East African Community are higher than those for East African Community citizens (Tanzania, Kenya, Uganda, Rwanda, and Burundi), who are regarded as domestic tourists in national

parks and NCA following an agreement among East African Community member countries. East African Community citizens can pay their fees in local currency (TZS), except filming and balloon flight fees, which Tanzanian citizens also pay in foreign currency (US\$) as do foreign tourists (Table 6.3). International tourism is a significant market for PAs in the Serengeti ecosystem, since it generates more revenue than domestic tourism.

Table 6.3: Tourism fees for SENAPA, NCA, and game reserves in the Serengeti ecosystem (per person per day)

Type of fees	SENAPA			NCA			Ikorongo, Grumeti & Maswa game reserves		
	Non East African citizen	East African citizen		Non East African citizen	East African citizen		Foreign citizen	Tanzanian citizen	
	(US\$)	(TZS)	(US\$)	(US\$)	(TZS)	(US\$)	(US\$)	(TZS)	(US\$)
Entry fee - tourists over 16 years of age	60	10,000	6.35	50	1,500	0.95	50	5,000	3.18
Entry fee - tourists aged 5-16 years	20	2,000	1.27	10	500	0.32	30	3,000	1.91
Public campsite camping fee - tourists over 16 years of age	30	5,000	3.18	30	1,500	0.95	30	5,000	3.18
Public campsite camping fee - tourists aged 5-16 years	5	2,500	1.59	10	500	0.32	20	3,000	1.91
Special campsite camping fee - tourists over 16 years of age	50	10,000	6.35	50	4,400	2.79	50	10,000	6.35
Special campsite camping fee - tourists aged 5-16 years	10	5,000	3.18	20	1,000	0.64	30	5,000	3.18
Filming fee	300		300	100		100	100 - 200		30 - 50
Entry and crater fee for vehicle	40 - 300	20,000 - 150,000	12.70 - 95.24	40 - 300	10,000 - 25,000	6.35 - 15.90	5 - 30	5,000 - 20,000	3.18 - 12.70
Walking safari fee - adults	20 - 25	5,000 - 10,000	3.18 - 6.35	20	5,000	3.18	25	25,000	15.90
Night game drive							50 - 1,000	20,000 - 50,000	12.70 - 31.75
Guiding fee	20	5,000	3.18	20	1,000	0.64	40 - 2,000	30,000 - 50,000	19.05 - 31.75
Landing fee - Aircraft - private	70 - 170	10,000 - 50,000	6.35 - 31.75	20 - 150	15,000 - 25,000	9.52 - 15.90	100 - 300	25,000 - 40,000	15.90 - 25.40
Landing fee - Aircraft - business	120 - 320	15,000 - 60,000	9.52 - 38.10	100 - 300	15,000 - 25,000	9.52 - 15.90	100 - 300	25,000 - 40,000	15.90 - 25.40
Airstrip charges							5	5,000	3.18
Fee for balloon flight							30 - 50		30 - 50
Wildlife conservation fee (lodge and tented camp concession fee)	10% of bed rate	10% of bed rate		10% of bed rate	10% of bed rate				

Source: NCAA, 2013, TANAPA, 2013, URT, 2013b.
Exchange rate: US\$ 1 = TZS 1,575

In 2011/12 SENAPA generated about TZS 28.56 billion from international tourists compared to TZS 535 million from East African Citizens (TANAPA, 2013). The revenue generated from tourism and the allocation of the income to conservation functions vary among PAs in the Serengeti ecosystem, as discussed under each PA category below.

Serengeti National Park

The financial policy for Tanzania National Parks requires all revenue collected in national parks, including SENAPA, to be remitted to the central coffers of Tanzania National Parks based in Arusha (TANAPA, 2013). Thereafter, parks are allocated funds based on the annual budget estimate submitted by the park authorities to Tanzania National Parks headquarters, and subsequently approved by the Tanzania National Parks Board. Although SENAPA generates substantial revenue, its budget allocation is less than 40% of the income it generates (Table 6.4).

A senior warden from SENAPA stated that “The income that is not returned to SENAPA from the Tanzania National Parks central coffers is used to subsidize overall functions of Tanzania National Parks and other parks in the country which do not realize sufficient revenue to cover management costs. For instance, such revenue is used to cover taxes and levy paid by Tanzania National Parks to the government.” The taxes and levies include Value Added Tax (VAT) (18%), tourism development levy (3%), and additional special tax (10%) of gross revenue, as well as corporate tax (30%) of any surplus after expenditure (TANAPA, 2013). The budget for biodiversity conservation includes ecological monitoring and park protection costs, which together range between 15% and 26% of the total recurrent budget (Table 6.4). It is a general consensus of key informants

I interviewed from Tanzania National Parks that the budget allocated to SENAPA is inadequate not only for biodiversity conservation, but also tourism operations. For instance, the Department of Ecosystem Management has a deficit of 11 staff lower than the optimum number and the Department of Tourism has a deficit of four patrol vehicles (TANAPA, 2013). As a result of insufficient financial resources, the park fell short of the capacity to effectively maintain the roads, water supply to campsites and entry gates, tourism patrols, and environmental auditing, said a senior warden from the park.

Table 6.4: Revenue, recurrent budget, and costs for some cost centres of SENAPA from 2009/10 to 2011/12

Revenue / Cost centre	Year		
	2009/10	2010/11	2011/12
Total tourism revenue generated (TZS)	24,537,000,000	36,174,000,000	43,225,000,000
Total recurrent budget	9,333,440,438 (38.04%)	10,778,715,147 (29.80%)	12,207,770,361 (28.24%)
Proportional of the cost centre to the recurrent budget in percentage (%)			
Ecological management	2	2	2
Park protection	13	20	24
Tourism management	3	3	3

Source: TANAPA, 2013.
Exchange rate: US \$1 = TZS 1,575

Ngorongoro Conservation Area (NCA)

The NCA retains revenue generated from tourism after all legal deductions. Like Tanzania National Parks, the deductions include Value Added Tax (VAT) (18%), tourism development levy (3%), and an additional special tax (10%) of gross revenue, as well as a corporate tax (30%) of any surplus after expenditure (NCAA, 2013).

A senior official I interviewed from NCAA said, “The income that the authority retains after deductions could cover adequately the cost of conservation and tourism activities of the authority. However, despite retaining substantial revenue, conservation activities are allocated income that is not sufficient. I think the issue is how finance is allocated to various functions of the authority.” Another senior NCAA official remarked,

“Allocation of income to different key functional areas of the authority somewhat depends on the annual plans, but mostly priorities of the authority at the time of budgeting including tourism promotion, infrastructure and facilities development (e.g., roads and utilities), staff welfare, as well as community service development.”

One key informant stated, “In 2011/12 the budget for the Department of Conservation and Management Services was about 7% and in 2013/14 was 5.2% of the total annual budget of NCAA. However, a reasonable budget for this department would be at least 15% of the total budget.” A principal conservator from NCAA argued that budget allocation is influenced by the general management plan, but also by what the management and Board of Trustees of the conservation authority perceive to be a priority in a particular financial year. Another principal conservator added, “For instance, for the past few years the priority of NCAA has been to increase the number of tourists and investing in tourism promotion, not necessarily conservation as a fundamental objective of the authority.” Table 6.5, showing allocation of budget to different activities for NCAA, indicates that tourism has 10.1% of the total budget, which is higher than that of conservation services.

Table 6.5: Financial allocation for conservation and tourism functions of NCAA in 2013/14

Activity	2012/13 (TZS)	Percentage of total expenditure (%)
Total revenue	60,000,000,000	
Total expenditure	53,497,574,113	100
Conservation services	2,768,348,405	5.2
Ecological monitoring	3,650,148,000	6.8
Tourism services	5,395,586,900	10.1
Community development	3,600,000,000	6.7

Source: NCAA, 2013.

Exchange rate: US\$ 1 = TZS 1,575

Game reserves and game controlled area

PAs under the Wildlife Division (Ikorongo, Grumeti, Kijereshi, and Maswa game reserves and Loliondo Game Controlled Area) collect revenue from tourism and submit

those revenues (in full) to the central government in Dar es Salaam. The central government returns funds for conservation functions to these PAs through the Wildlife Division (Table 6.6). A game officer I interviewed from the Wildlife Division noted, “Game reserves and game controlled areas generate significant amount of revenue which could cover their budgets with surplus. For instance, Ikorongo and Grumeti game reserves generated US \$351,000 from tourism in 2009. However, these PAs are allocated inadequate funds to cover conservation operations.” Discussion in the focus group in Maswa Game Reserve suggested, “It is always the case that PAs managed by the Wildlife Division are allocated insufficient income to cover the costs of conservation activities and other operations. Often, expenses for law enforcement including fuel, allowance and meals for staff are paid by hunting companies because returns from the government are very small. Even that little return is not disbursed in time from the government.”

Table 6.6 indicates the revenue allocated to Ikorongo-Grumeti, Maswa, and Kijereshi game reserves and Loliondo Game Controlled Area for the past 3 years. Support for conservation by tourism operators and investors is discussed in the next sections.

Table 6.6: Revenue allocated by PAs for conservation activities in the Serengeti ecosystem

PA	Revenue allocated for conservation (TZS)		
	2010/11	2011/12	2012/13
Ikorongo and Grumeti game reserves	42,100,000	34,800,000	49,500,000
Maswa Game Reserve	84,200,000	82,800,000	67,000,000
Kijereshi Game Reserve	34,600,000	28,000,000	40,900,000
Loliondo Game Controlled Area	15,000,000	15,000,000	15,000,000

Source: URT, 2013.
Exchange rate: US \$1 = TZS 1,575

Some key informants pointed out that collaboration between PA agencies and hunting companies in fulfilling conservation functions in game reserves and game controlled areas is a good arrangement. But in case hunting companies withdraw their support, conservation activities in these PAs can be weakened because the government

depends on conservation support from hunting companies. In addition, a key informant noted that financial support for conservation by hunting companies in PAs is likely to reduce the control of PA officials over hunting companies in the game reserves and game controlled area, which is not a best practice.

Wildlife Management Areas (WMAs)

Revenue collection and distribution for WMAs such as Ikona and Makao WMAs are governed by the Wildlife Conservation (WMA) Regulations of 2012 (URT, 2012). Tourism revenue for WMAs is collected by the Wildlife Division and submitted to the central government (Treasury). The amount of revenue paid back by the government to WMAs depends on the revenue generated by the respective WMAs from different sources of revenue (fees) and based on the benefit sharing scheme indicated in Table 6.7. Tourism revenue generated from different fees in a particular WMA is shared by four institutions, including the Tanzania Wildlife Protection Fund managed by the Wildlife Division, central government, District Council in which the WMA is located, and the respective WMA. The WMA is allocated a higher proportion of the fees than other institutions, except for the permit fee.

Table 6.7: Benefit sharing guideline of tourist hunting revenue in WMAs

Tourism Hunting Fee Category	Tanzania Wildlife Protection fund (TWPF)	Tanzania Government Treasury (TR)	District Council (DC)	WMA
Block fee	25%	0	0	75%
Game fee	25%	15%	15%	45%
Conservation fee	25%	30%	0	45%
Observation fee	25%	30%	0	45%
Permit fee	25%	60%	0	15%

Source: URT, 2012.

WMAs are required by law to ensure that at least 15% of annual gross revenue is reinvested directly for conservation by the WMA agencies (URT, 2012). Ikona and Makao WMAs generate different amounts of revenues from tourism. Thus, the amount of

income reinvested in conservation is not the same. In 2010/11, Ikona WMA allocated about TZS 77,098,000 to conservation activities. Senior officials from Ikona and Makao WMAs indicated that the amount of income allocated to conservation in the WMAs is not enough. However, tourism operators and investors assist in conservation activities as discussed in the next sections (e.g., anti-poaching patrols and ecological monitoring) and road construction and maintenance.

Summary

PA agencies in the Serengeti ecosystem generate substantial revenue from tourism by charging various fees to tour operators and tourists. The types and rates of tourism fees vary among PAs in the ecosystem based on the origin and age of tourists, activities, services, and operations in which tour operators and tourists are engaged. Serengeti and NCAA have many non-consumptive fees, while game reserves and game controlled areas have many consumptive fees. Tourism fees in the Serengeti ecosystem are higher than most competitor tourism destinations in Eastern and Southern Africa. For instance, the entrance fee for international tourists in national parks is US \$8 in Namibia, US \$12 in Botswana, US \$12 - \$25 in South Africa, US \$40 - \$80 in Kenya, and US \$20 - \$60 in Tanzania (TANAPA, 2013). The entry fees and camping fees provide significant revenue for SENAPA and NCA, which provide non-consumptive tourism experiences.

Tourism income is used to finance biodiversity conservation and PA management functions in the Serengeti ecosystem, as discussed in the next section. The allocation of income to conservation varies among PAs in the ecosystem. PAs under the Wildlife Division (game reserves and game controlled area) submit all tourism revenue to the Treasury, which in turn allocates income to these PAs. NCAA retains all revenue from

tourism after legal deductions and SENAPA submits the revenue to Tanzania National Parks, which allocate funds to the park. Tourism income generated by game reserves, game controlled areas, and SENAPA in the ecosystem is also used to finance less financially productive PAs under the Wildlife Division and Tanzania National Parks respectively. It is good for income generated by PAs in the ecosystem to support conservation nationwide in Tanzania (Eagles et al., 2002; Emerton et al., 2006).

However, the amount of revenue allocated by PA agencies for conservation functions is not sufficient across the ecosystem. This finding is supported by many tourism studies (e.g., Eagles et al., 2002; Emerton et al., 2006; Emerton & Mfunda, 1999; Novelli & Scarth, 2007). This situation is acute for PAs under the Wildlife Division (game reserves and game controlled area), which submit all tourism revenue to the Treasury. However, NCAA retains all revenue from tourism after legal deductions, and SENAPA submits the revenue to Tanzania National Parks. These two PAs allocate comparatively more income to conservation than other PAs in the ecosystem. It is important for PAs in the ecosystem to be allocated adequate funding in order to fulfill their plans and objectives (Emerton et al., 2006). Many scholars (e.g., Eagles et al., 2002; Emerton et al., 2006; Phillips, 2000) argue that tourism income generated by PAs is not enough to cover conservation operations and should be supplemented by other sources of funding.

As a result of shortage of financial resources for conservation tour operators, especially hunting companies and Frankfurt Zoological Society support PA agencies in the ecosystem by undertaking conservation activities, providing expertise and equipment, improving infrastructure and facilities, and paying for conservation activities.

For instance, Grumeti Reserves in Ikorongo, Grumeti, and Ikona WMA, Tanzania Game Trackers in Maswa Game Reserve, Ortello Business Corporation in Loliondo Game Controlled Area, and Mwiba Holding Limited in Makao WMA support conservation activities, including anti-poaching patrols and infrastructure development, especially roads, airstrips, and campsites, as discussed in the next section. One key informant noted, “Some of these hunting companies have established firms specifically for wildlife conservation. For instance, Grumeti Reserves has Grumeti Fund, and Tanzania Game Trackers has Friedkin Conservation Fund.” As mentioned earlier (see section 4.3.), tour operators play multiple roles, including conservation functions in the Serengeti ecosystem, as required by the Wildlife Policy and the Wildlife Conservation Act (URT, 2007, 2009).

Tourism operator key informants noted that various fees paid by tour operators to PA agencies (e.g., entry fees, camping fees, and vehicle entry fees earlier indicated in Table 6.3) are significant and adequate for conservation and other PA functions including administration, works, and tourism. One tour operator key informant indicated, “Tour operators pay a lot of money to PA agencies through tourism, but the way PA agencies allocate their budget and use that money is something else. There is no need for tour operators to contribute more money for conservation activities in PAs while already they pay a lot.” Another tour operator key informant emphasized, “The prime role of tour operators is to make tourism business with profit while the fundamental objective of PA agencies is conservation of wildlife, which requires revenue from tourism.”

Some key informants suggested PAs can generate more revenue if they operate like business entities, not just as service providers. This is supported by Eagles et al.

(2002) and Emerton et al. (2006), who argue that often PAs under-perform in generating income from tourism because they are not managed on business principles, including customer orientation, quality facilities and services, and optimum price that tourists are willing to pay. PAs in the ecosystem should be managed effectively and efficiently as business entities, adhering to the principles of business so that they can generate optimum income from NBT.

6.3 Improved conservation of biodiversity and PA management

PA officials, researchers, and non-governmental conservation organization officials indicated that the revenue accrued from tourism in the Serengeti ecosystem has been instrumental in the improvement of biodiversity conservation and PA management. Income from NBT is used to finance, improve, and strengthen conservation and PA management functions, including ecological monitoring, tourism, law enforcement, outreach programs, road networks, and administration. Improved biodiversity conservation and PA management varies among PAs across the ecosystem. Table 6.8 shows tourism revenue allocated and used by PA agencies for conservation activities, especially ecological monitoring and protection activities in the Serengeti ecosystem, for 3 years.

Table 6.8: Revenue allocated by PA agencies for conservation activities in the Serengeti ecosystem from 2010/11 to 2012/13

PA	Revenue allocated for conservation (TZS)		
	2010/11	2011/12	2012/13
Serengeti National Park	4,209,506,273	5,374,109,475	5,864,100,827
Ikorongo and Grumeti game reserves	42,100,000	34,800,000	49,500,000
Maswa Game Reserve	84,200,000	82,800,000	67,000,000
Kijereshi Game Reserve	34,600,000	28,000,000	40,900,000
Ngorongoro Conservation Area			6,418,496,405

Source: TANAPA, 2013; URT, 2013.
Exchange rate: US\$ 1 = TZS 1,575

Serengeti National Park

PA key informants from SENAPA pointed out that the park has acquired and improved facilities, infrastructures, and services needed for conservation and management of the park, such as visitor information centres, vehicles, modern equipment, telecommunications, road networks, water supply, as well as staff welfare. One PA key informant who has worked in Serengeti ecosystem for more than 40 years recounted, “In the past, staff welfare, working environment, infrastructure, facilities and equipment were poor and many people did not like to work in the park.” The park has established the Veterinary Unit responsible for wildlife species’ health and diseases, and an Intelligence Unit responsible for surveillance and provision of information concerning illegal activities in the park as well. In addition, park key informants indicated that the park has strengthened its capacity to protect wildlife and the park in terms of resources needed for law enforcement (e.g., number of rangers, modern weapons – AK 47, vehicles and uniforms, and salary for rangers). For instance, for the past 5 years between 2008 and 2012, on average 1,017 poachers were arrested and 186,761 wire snares used by poachers confiscated every year (TANAPA, 2013).

Nevertheless, document analysis, key informants, and focus groups indicated that despite some improvement, resources allocated to conservation activities are not adequate to meet the requirements, including financial and human resource (e.g., ecologists and rangers), as well as vehicles. Furthermore, illegal activities in the park, especially poaching of wild animals, are still high, including poaching of elephants. Currently, it is estimated that on average the country loses 10,000 elephants to poachers every year, such that the population of elephant in Tanzania has declined to 70,000 in

2012 from 109,000 in 2009 (<http://www.ippmedia.com/frontend/index.php?l=46942>).

As a result, in 2012 the government launched the anti-poaching operation “Operation Tokomeza” involving rangers from the wildlife sector, police force, and militia personnel in order to curb poaching.

Furthermore, the park receives support from Frankfurt Zoological Society and European Union. The Frankfurt Zoological Society supports all aspects of park management in SENAPA, including infrastructure and facilities, wildlife monitoring, preservation of endangered species, park operations, management planning, tourism, and community conservation functions (http://www.serengeti.org/fzs_pj.html). The society has donated vehicles, aircraft, radios, equipment used for patrols and buildings, supported training of staff and aerial censuses of wild animals, and a garage. The park officials I interviewed confirmed that the park, in collaboration with Frankfurt Zoological Society and Tanzania Wildlife Research Institute, are undertaking ecological monitoring projects of some endangered species, especially rhinoceros, elephant, and African hunting dog.

Ngorongoro Conservation Area (NCA)

Revenue from tourism is used to finance and facilitate biodiversity conservation and protection activities in NCA. NCAA has established ranger stations (posts) in all seven administrative zones and two ranger stations outside the conservation area, and provided requirements for operations of the stations including rangers, housing, vehicles, weapons, and radio calls (NCAA, 2010). A senior conservation official from NCAA indicated that the conservation authority has employed a reasonable number of employees (160) in the Departments of Conservation and Protection, which is 40% of the total workforce (400) of NCAA. The conservation authority has also established

the Intelligence Unit that operates underground to investigate and control illegal activities (e.g., poaching) in collaboration with the Department of Conservation Service. This contributes to effective biodiversity conservation in NCA.

A conservation official from the conservation authority noted, “I think the conservation authority is achieving about 90% of its conservation objectives, especially law enforcement. The incidence of wildlife poaching in the conservation area is not highly pronounced like in other PAs in Tanzania partly due to intensive law enforcement including road blocks to the main entrance gates of NCA, patrols in strategic areas, and surveillance of illegal activities. For example, surveillance of the Ngorongoro Crater (which contains endangered species including rhinoceros and elephants) is carried out 24 hours a day from strategic points of the crater.” Another key informant commented, “Wildlife populations in Ngorongoro Crater have remained stable, and if there is any decrease then it is due to natural and ecological factors, such as predation, diseases and drought though most recent data are not available.” On the other hand, a key informant from NCAA noted, “The authority is not doing much in terms of ecological monitoring (e.g., habitat assessment, water quality, and impact of human activities to natural resources) as a result of inadequate professionals and management.” This suggests that law enforcement in NCA is effective, but other conservation activities, including ecological monitoring and raising conservation awareness, require improvement.

One of the senior conservators pointed out that NCAA supports endangered species conservation projects, especially rhinoceros, elephant, and African hunting dog. The conservation projects focus on protecting and monitoring the species, radio collaring rhinoceros and elephants, and releasing African hunting dogs in the ecosystem.

The conservation projects are implemented in collaboration with Tanzania National Park, Tanzania Wildlife Research Institute, and Frankfurt Zoological Society, as indicated earlier.

Games reserves, game controlled area and WMAs

Some senior game officials from the game reserves and game controlled area in the Serengeti ecosystem noted that protection of biodiversity and tourism management (tourist hunting) are the key operations undertaken by the conservation agencies. But because of limited resources to undertake conservation functions, these agencies collaborate with hunting companies (Table 6.9). It is a legal requirement for hunting companies to contribute to conservation activities in the respective hunting blocks allocated to the companies. The Wildlife Conservation Regulations of 2010 stipulate that “The Minister shall, before granting or refusing application for renewal of allocation of a hunting block assess ... the level of the applicant’s contribution to improvement of infrastructure and protection of environment within his hunting block ... the level of applicant’s contribution towards anti-poaching operations or any other bad persons in issues of conservation of wildlife” (URT, 2010, p. 7).

Table 6.9 indicates hunting companies operating and contributing to conservation functions in the Serengeti ecosystem. These companies are involved in law enforcement, ecological monitoring, and infrastructure and facilities development, especially roads, airstrips, and campsites in the respective PAs (Table 6.9). At the time of this study, Fereck Safaris Ltd (which won the bid and allocated Makao WMA hunting block) was replacing Mwiba Holding Ltd. Some of these hunting companies have established firms responsible specifically for supporting conservation and community development.

Grumeti Reserves has established Singita Grumeti Fund, a non-profit conservation development division with an anti-poaching unit (<http://www.eturbonews.com/45886/private-reserve-joins-efforts-wildlife-conservation-tanzania>). Tanzania Game Trackers has created Friedkin Conservation Fund, with an anti-poaching unit of 20 rangers and one microlight, Geographic Information System (GIS), support of law enforcement operations, ecological monitoring, and community development (<http://www.friedkinfund.org/where/maswa>). Often these hunting companies provide direct conservation support to PAs in the ecosystem, but the monetary value of their support was not available to the researcher.

Table 6.9: Hunting companies operating in the Serengeti ecosystem

Name of company	Hunting block	Ownership
Orttelo Business corporation Ltd	Loliondo Game Controlled Area	Foreign company
Grumet Reserves (T) Ltd	Grumeti Game Reserve	Foreign company
Grumeti Reserves (T) Ltd	Ikona WMA	Foreign company
Tanzania Game Trackers Safaris Limited	Maswa Game Reserve ((Kimali)	Foreign company
Tanzania Game Trackers Safaris Limited	Maswa Game Reserve (Mbono)	Foreign company
Bushman Hunting Safaris (T) Ltd	Maswa Game Reserve (N)	Local company
Grumeti Reserves (T) Ltd	Ikorongo Game Reserve	Foreign company
Fereck Safaris Ltd	Makao WMA	Local company

Source: URT, 2013.

Some PA and tour operator key informants noted that collaboration between PA agencies and hunting companies in the ecosystem have intensified and improved conservation operations and activities. The officials noted that improvement of conservation activities has resulted in an increase in wildlife populations. Similarly, some PA key informants working in western Serengeti noted that the population and dispersal of some wildlife species, such as wildebeest and elephant, have increased (although poaching of elephants is rampant elsewhere in the Serengeti, as outlined above) and wildlife habitats have improved. This is echoed by data from the wildlife census carried out by Grumeti Reserves hunting company, which indicates that between 2003 and 2008

buffalo have increased from 600 to 3,815, eland from 250 to 1,996, giraffe from 351 to 890, Thomson gazelles from 3,480 to 22,606 in the same period, and elephant from 355 in 2003 to 900 in 2006 (<http://www.eturbonews.com/45886/private-reserve-joins-efforts-wildlife-conservation-tanzania>). Likewise, the wildlife population estimate trends in the Serengeti ecosystem indicate that between 1996 and 2010, giraffe have increased from 6,166 to 12,078, hartebeest from 11,122 to 15,908, eland from 11,736 to 36,297, and Grant gazelle from 126,419 to 119,707 in the same period (URT, 2013b).

WMAs are required to employ Village Game Scouts responsible for carrying out conservation and protection of natural resources under the supervision of WMA authorities (URT, 2012). In addition, WMA authorities have to acquire necessary equipment for conservation activities, including weapons, uniforms, and vehicles.

Makao WMA has employed 21 Village Game Scouts and acquired weapons and uniforms used in conservation activities. A senior official I interviewed from Makao WMA noted, “Before the establishment of Makao WMA, the open area was invaded by pastoralists from Singida region who degraded the area and wildlife species moved out to Maswa Game Reserve. When the village members agreed to form a WMA, the invaders were evicted. Nowadays, a number of wildlife species (e.g., wildebeest, zebra, impala, and buffalo) are observed in the WMA, although there is no scientific wildlife census that has been conducted in the area.”

Ikona WMA has employed 25 Village Game Scouts, five from each WMA village member. Likewise, the WMA has acquired five vehicles and weapons used for WMA functions, including conservation and law enforcement activities (e.g., patrols) (Ikona WMA, 2012). The WMA agency carried out 657 patrols within Ikona WMA,

70% of which were on foot and 30% by vehicles, in the year 2011. Ikona WMA officials and community key informants I interviewed from western Serengeti pointed out that the incidence of encountering different wildlife species have increased in Ikona WMA since its establishment. This suggests that the dispersal of such wildlife species from Serengeti and Ikorongo and Grumeti game reserves has increased as a result of conservation and protection efforts in Ikona WMA.

Summary

The discussion in this section has revealed that NBT in the Serengeti ecosystem has improved protection of biodiversity and ecological monitoring functions, resulting in improvement in wildlife populations and curbing illegal activities (e.g., poaching). NBT contributes to improving biodiversity conservation in PAs, especially in developing countries where government funding for conservation is declining (Eagles et al., 2002, 2014; Goodwin et al., 1998; Mbaiwa, 2003; Phillip, 2000; Sandbrook, 2010; Whitelaw et al., 2014). Improvements in biodiversity conservation and PA management differ among PAs in the ecosystem. Partly, this is influenced by financial resources allocated to protection and ecological monitoring functions. NCA and SENAPA allocate income to enable the agencies to acquire resources (e.g., vehicles, weapons, employees) used to undertake ecological monitoring, anti-poaching, and tourism operations.

This section has also revealed that private hunting companies play a significant role in protecting biodiversity in game reserves, game controlled areas, and WMAs where the capacity of the government to undertake protection and ecological monitoring functions is low. Many scholars (e.g., Buckley, 2009; Eagles et al., 2002; Sinclair et al., 2008; Philip, 2000) argue that best practice in biodiversity conservation and PA

management requires the collaboration of stakeholders in PA planning and management in order to achieve conservation goals.

6.4 Raising conservation awareness

Provision of conservation information in PAs is a means of stimulating tourist interest and promoting their understanding about PAs, which likely results in making their visit more enjoyable and instills a sense of responsibility for conserving the area and its natural resources (Eagles et al., 2002; Newsome et al., 2013). PA agencies and NBT service suppliers promote conservation awareness in various ways in the Serengeti ecosystem. These include guide books, brochures, leaflets, documentaries, visitor information centres, tour guides and interpreters, and websites. Results from key informants interviewed about the delivery performance of NBT suppliers of conservation awareness in the ecosystem indicated that the performance ranges between good and somewhat good (Table 6.10). One community key informant indicated that the delivery of conservation awareness is very good in that tourists in the Serengeti ecosystem, in particular SENAPA and NCA, are satisfied and that indicates that they get enough information about natural resources and conservation. Assessment of tourist satisfaction was beyond the scope of this study.

Table 6.10: Response of key informants on tourism delivery performance to conservation awareness in the Serengeti ecosystem (N=85)

Key informant category	Response					
	Very good	Good	Somewhat good	Somewhat bad	Bad	Very bad
Pas		13	17			
Tourism operators		22	11			
Communities	1	6	4			
Others (researchers & academicians)		5	6			
Total response	1	46	38			

Serengeti National Park

SENAPA officials and tour operator key informants I interviewed indicated that NBT has contributed to conservation awareness of tourists, although empirical data are not available. The common means of communicating information about SENAPA, biodiversity conservation, and attractions to tourists are: guide books, brochures, leaflets, documentaries, visitor information centres, tour guides and interpreters, and websites. These information media are used by the park authority, accommodation operators, tour companies, and tour guides to convey information to tourists.

Usually tourists visiting SENAPA are accompanied by tour guides who have many roles, including driving the vehicle, handling tourists, and providing information to tourists (interpretation). Some tourists are accompanied by park guides on request from the park authority. The guides provide oral interpretation and always carry and use guide books, brochures, leaflets, and maps to supplement interpretation. A senior official from the park noted that many tour guides have not received professional training, but they have learned guiding skills mainly through practical experience. A tour guide who has been operating in the Serengeti for more than 20 years noted, “Many of us, I can say more than 70%, have not undergone professional training on tour guiding except short courses lasting up to 1 month (e.g., wild animals, plants, birds, and First Aid). But we are very instrumental in the achievement of the tourism industry in the country and tourists commend our job apart from the existing weakness of poor language, inadequate knowledge of resources, and interpretation skills.” There was a general consensus among PA, tour operator, and researcher key informants that the quality of tour guiding service is still low, not only in SENAPA but in Tanzania, and needs improvement.

The park has one visitor information centre located in the central Serengeti (Seronera), where many tourists tend to visit due to its strategic location, numerous tourist facilities (campsites, airstrip, and lodge), and presence of wildlife attractions throughout the year. Key messages found at the centre are: background information about the park, status of the park (World Heritage Site and Biosphere Reserve), surrounding local communities, natural resources and attractions, wildebeest migration, ecology of the park, threats to the park (e.g., poaching, unplanned fire, and wild animal diseases), the role of the park authority, and what can be done to improve biodiversity conservation and management of the park (e.g., request for individuals to have positive attitude towards biodiversity conservation and behave responsibly in the park).

PA and tour operator key informants regarded the centre as the best model and second to none in Tanzania due to its design, the information it contains, and the message delivered to tourists. The centre has a visitor's book in which tourists register comments about their experience in the park. Comments in the book indicated that tourists were positive about the park, wildlife resources, and the role of the park authority.

However, park tourism officials pointed out the number of tourists visiting the interpretive centre is relatively low. TANAPA (2013) indicated that between September and January in 2011/12 (peak tourism season) on average 89 tourists visited the Serengeti visitor information centre daily. A senior tourism official pointed out that the centre is under-utilized due to a number of factors, including tourist limited length of stay in the park (2 days on average), lack of interest of tour guides to use the centre, the centre not being included in the tourist itinerary, and lack of strategies to influence tourists and tour guides to use the centre.

Ngorongoro Conservation Area (NCA)

Ngorongoro Conservation Area Authority (NCAA), accommodation operators, tour companies, and local communities use a number of techniques to provide information to tourists about the conservation area and resources found therein. The techniques include a visitor information centre, museum, tour guides and interpreters, guide books, brochures, leaflets, websites, documentaries, NCAA rangers, and local guides. Local communities in particular perform cultural dances, display traditional handcrafts, and use local guides and interpreters to convey traditional culture, livelihood, and conservation messages to tourists.

There is a museum at Oldupai Gorge in NCA. The museum provides information about the history of human origins, historical resources (old age tools), and paleontological and archaeological resources and work in the area (NCAA, 2010). The key message at the museum is the evolution of human beings and protection of historical resources and sites in the area. There is a weak linkage between the information on historical sites provided at the museum and biodiversity conservation in the area.

NCAA has a visitor information centre that is located at the main entrance gate (Loduare gate) from Karatu. The centre contains information on the background and status (multiple land use, World Heritage Site and Biosphere Reserve) of NCA, natural resources and tourist attractions, ecology and conservation of the area, archaeological sites, local residents, and visitors' rules and regulations. Key messages provided by the centre include the value of biodiversity, the need for conserving biodiversity, and promotion of preferred conservation behaviour for tourists.

A tourism official from NCAA pointed out that many tourists do not visit the interpretive centre because they do not spend much time at the gate, possibly guides do not inform them about the centre, and the centre is too small to accommodate many tourist at once. This is echoed by a statement from the NCA General Management Plan that “The majority of visitors to NCA receive little information and there is little interpretation about the area, its resources, and values ... The visitor contact stations at the entrance gate areas are small and very outdated” (NCAA, 2010, p. 48). Although at the time of this study the visitor information centre has been improved, it is still small with little information.

Tour guides are dependable in providing information in NCA. Tour guides operating in SENAPA also guide and provide information to tourists in NCA. Thus it is possible that issues regarding the quality and effectiveness of tour guides in SENAPA are also experienced in NCA. The General Management Plan of NCA states that, “... the interpretation and guiding provided by private tour drivers is of very low standards and quality” (NCAA, 2010, p. 48). In comparison, the visitor information centre for SENAPA is spacious in a natural setting, well planned, contains a lot of information about the surrounding PAs, and has a number of clear conservation messages. But the two visitor information centres are inadequate and require improvements (NCAA, 2010; TANAPA, 2005, 2013).

Game reserves, game controlled area, and WMAs

Key informants I interviewed from PAs confirmed that Ikorongo, Grumeti, Kijereshi, and Maswa game reserves, Loliondo Game Controlled Area, and Makao WMA do not have visitor information centres, brochures, or leaflets. However, at the time of

this study Ikona WMA, with support from the United States Agency for International Development (USAID) has just completed the construction of a visitor information centre and was working on final touches of display information. The centre is located in the western part of the WMA along the road from SENAPA Ikona Gate to Fort Ikona. The information concerning these PAs is provided by hunting companies and professional hunters who accompany tourists during hunting, and by websites, brochures, leaflets, and guide books.

Summary

PA agencies and tour operators provide information about conservation that result in conservation awareness to tourists in the Serengeti ecosystem. The common techniques used to deliver information include tour guides, guide books, and visitor information centres. Websites, leaflets, documentaries, and museums are used for promotion, and providing administrative and specific information about the PA or resources. Provision of conservation information to tourists varies among PAs across the ecosystem. Tour guides provide information in PAs practicing non-consumptive utilization, especially SENAPA, NCA, and partly Loliondo Game Controlled Area and Ikona WMA. Professional hunters provide conservation information in PAs exercising tourist hunting. SENAPA and NCA have visitor information centres which contain conservation messages. Guide books are used in all PAs in the ecosystem, as well as brochures, leaflets, websites, and documentaries.

Techniques used to deliver conservation information should not only deliver conservation awareness to tourists, but also encourage preferred environmental behaviour and satisfy tourists (Higginbottom, 2004; Newsome et al., 2013; Rollins & Dearden,

2009). This likely reduces negative impacts to biodiversity and improves conservation. Some key informants noted that tourists visiting Serengeti ecosystem leave with high quality experiences, and as a result can be regarded as supporters and envoys of conservation in the Serengeti ecosystem.

However, some key informants confirmed that the means of conveying conservation information to tourists are not adequate in PAs in the ecosystem. This is illustrated by the following comments. A senior park official I interviewed from SENAPA indicated, “Nature-based tourism service providers have not been able to effectively provide interpretation and conservation awareness to tourists as a result of inadequate professionals and financial resources.” A tour operator key informant noted, “One of the major complaints of tourists in Tanzania, including in the Serengeti ecosystem, is inadequate interpretation services. Tour guides are not knowledgeable on tourism attractions, and have limited language skills. This reduces visitors’ conservation knowledge and satisfaction.” PA and tour operator key informants noted that many tour guides operating in the Serengeti ecosystem have inadequate professional training in tour guiding and interpretation, thus provide very low standards and quality. This is supported by Eagles et al. (2002), who argue that many PAs lack effective conservation awareness mechanisms, especially those related to interpretation of resources. NBT service suppliers should improve conservation awareness techniques, including interpretation, in order to impart conservation awareness and preferred conservation attitudes and behaviour to tourists. This will involve training tour guides, improving and increasing the number of visitor information centres, and providing better written materials.

6.5 Public support for conservation

Unless PAs in the ecosystem demonstrate socio-economic benefits to the local people and contribute to their livelihood, it is unlikely conservation will gain public support (He et al., 2008; Kideghesho et al., 2007; Walpole & Goodwin, 2001). Hence, public support is closely tied to the socio-economic benefits brought to the communities by the PAs (as described more fully in Chapter 7). At the local level, SENAPA and NCAA have supported social services and community development projects in several adjacent communities, as will be described below.

Serengeti National Park

Tanzania National Parks has a policy to support local communities adjacent to national parks through its program known as Support for Community Initiated Projects, implemented by the Department of Outreach Program (Community Conservation Service) (TANAPA, 2013). The policy requires every national park in Tanzania to allocate a fund for supporting community development initiatives of up to 7.5% of the park annual recurrent budget. SENAPA spent TZS 637,842,105 in 2010/11 and TZS 739,150,801 in 2011/2012 to support local community social development projects through a community outreach program (community conservation service) (TANAPA, 2013). SENAPA has been supporting a number of community initiated projects, including, education, health, water supply, roads, and administrative offices (Table 6.11). Local communities in Serengeti District Council have been the most common beneficiary, followed by communities in Bariadi District Council, while communities in Magu District Council derive the fewest benefits.

Table 6.11: SENAPA social service support to local communities from 1988 to 2010

District Council	Type, investment (TZS) and number (in bracket) of social project					
	Education	Health	Water	Road	Administration	Total
Serengeti	672,107,956 (28)	41,080,110 (4)	253,635,866 (9)	26,518,000 (2)	250,000 (1)	993,591,932 (44)
Bariadi	546,657,756 (17)	38,627,009 (2)	82,500,000 (4)			667,784,765 (23)
Meatu	366,927,968 (11)					366,927,968 (11)
Bunda	118,589,744 (9)	92,512,000 (4)	19,800,000 (2)			230,901,744 (15)
Tarime	89,897,533 (5)	11,321,000 (1)	52,838,371 (6)			154,056,904 (12)
Ngorongoro	85,989,900 (7)	3,125,600 (1)			2,084,100 (1)	91,198,900 (9)
Magu	87,666,571 (4)					87,666,571 (4)
Grand total (TZS)						2,592,128,784 (128)

Source: TANAPA, (2005, 2013)

Park officials and tour operators I interviewed pointed out that accommodation operators in the park contribute to community development projects in communities adjacent to the park. Such contributions are construction of schools and dispensaries, provision of mosquito nets, and water supply (water boreholes). Interviews with park officials and community key informants suggested that such community benefits and support from private tourism investors have contributed to improved relations of local communities with the park, and perhaps support for conservation. One key informant from SENAPA recounted that, “before the introduction of outreach programs the relationships between park staff and local communities was hostile. Now the relationship has improved, such that park employees and local communities interact freely.”

Ngorongoro Conservation Area (NCA)

As mentioned earlier (section 4.1.2), one objective of NCA is to promote the welfare of local residents in NCA, and the conservation authority has been supporting local communities with social services and development projects (NCAA, 2010).

Such support includes schools, dispensaries, transportation, and education bursaries to communities in Ngorongoro (Table 6.12). Likewise, NCAA finances Ngorongoro Pastoral Council. For example, in 2011/12 the authority financed the Pastoral Council to the tune of TZS 1.2 billion (NCAA, 2013). The conservation authority also supports local community tourism enterprises (e.g., cultural bomas) through which communities generate income. Private tourism investors, especially accommodation operators, also support community development (as discussed in Chapter 7). Table 6.12 indicates community social services support provided by the conservation authority to communities in NCA.

Table 6.12: Social services provided by NCAA to local communities in NCA

Type of social service support	Brief description
Education facilities and scholarships	NCAA in collaboration with Ngorongoro Pastoral Council and Ngorongoro District Council has developed about 18 primary schools in or near all major settlements in NCA.
	Embarway Secondary School built by Ngorongoro Pastoral Council using income allocated to communities by NCAA from tourism.
	NCAA through Ngorongoro Pastoral Council has provided education bursaries to more than 2,000 students (secondary, college, and university levels) from different communities in NCAA.
Social services	Road maintenance used by tourists and local people throughout NCA, and NCAA vehicles provide transport in kind to local communities.
	Support for community health services including one dispensary at NCAA headquarter and mobile clinics in NCA.
	Development and maintenance of water supply systems (e.g., Misigiyo).
	Purchase of bags of food during drought and or famine years.
	Training of beekeeping groups in Olbalbal, Endulen and Irkeepus.
Livestock infrastructure and services	Created six livestock development centres which provide veterinary services (e.g. drugs and and Livestock Health Officers) in Endulen, Ngorongoro, Osinoni, Meshili, Nainokanoka and Naiyobi areas.
	Developed more than 14 livestock dips and troughs in different communities in NCA.
	Developed at least 29 livestock crushes located in different communities in NCA.
	Vaccination service – for instance, in 2003/04 about 75% of cattle were vaccinated against Contagious Bovine Pleuropneumonia, and about 3,500 dogs vaccinated against rabies.

Source: NCAA, (2010).

One key informant said, “Nature-based tourism is the major source of revenue for Ngorongoro District Council, such that more than 90% of its revenue comes from tourism. The District Council collects revenue from NCAA, tour companies,

accommodation operators and tourism investors operating in the area.” For instance, in 2011/12 the conservation authority paid TZS 650 million to Ngorongoro District Council. This income is used for administration functions of the district council and provision of social services (e.g., construction of primary schools) to local communities in Ngorongoro District including communities in NCA. PA, tour operator, and local community key informants I interviewed from NCAA confirmed that communities in NCA benefit from NBT, which likely can influence their support to conservation. This finding is congruent with those of Charnley (2005) and Melita & Mendlinger (2013), who found that communities gain economic and social benefits from tourism, but they would like to be involved in tourism and receive more benefits.

Game reserves, game controlled area, and WMAs

Game reserves and game controlled area: The government through the Wildlife Division allocates to the District Councils 25% of the hunting revenue accrued from hunting blocks situated within the respective districts (Table 6.13). The revenue is distributed equally to local communities bordering a particular hunting block. However, key informants indicated that the revenue received by local communities is small and it is disbursed late. A PA key informant noted, “The 25% from hunting blocks is disbursed to the District Councils from the central government at the end of the financial year when collection of hunting revenue has been made. Some District Councils allocate the revenue to the council activities and the rest of the revenue to the respective communities.” The key informant added that in some cases there are many villages bordering the hunting blocks, thus the allocation becomes small.

Table 6.13: Trophy hunting revenue (25%) disbursed to District Councils within the Serengeti ecosystem

Year	Income distribution (TZS)				
	Bariadi	Bunda	Meatu	Ngorongoro	Serengeti
2011/12	26,179,000	27,807,000	75,244,000	82,896,000	50,979,000
2010/11	21,563,000	22,928,000	62,685,000	69,098,000	42,349,000
2009/10	33,128,000	31,019,000	72,024,000	87,992,000	54,588,000
2008/09	0	0	0	0	0
2007/08	899,000	4,634,000	12,160,000	12,097,000	8,245,000
2006/07	3,250,	7,352,000	27,640,000	12,489,000	8,670,000
2005/06	6,668,000	11,460,000	30,124,000	8,539,000	22,590,000
2004/05	0	0	0	27,527,000	0
2003/04	3,571,000	11,460,000	24,623,000	27,527,000	22,590,000
2002/03	6,951,000	11,234,000	27,797,000	27,197,000	21,293,000
Total	102,209,000	127,894,000	332,297,000	355,362,000	231,304,000

Source: MNRT, 2013.

Exchange rate: US\$ 1 = TZS 1,575

WMAs allocate 25% of their total revenue to communities (see Table 6.7).

For instance, Ikona WMA disbursed TZS 428,946,022 (approximately 59% of the gross revenue) to village members in 2011, while Makao WMA allocated TZS 60,000 to member villages. Similarly, Meatu District Council received TZS 40 million from Makao WMA. Another key informant pointed out, “Serengeti District Council receives about TZS 200,000,000 from Grumeti Reserves, 20% of the total revenue generated by Ikona WMA plus revenue from other accommodation operators.”

The hunting companies are required by law to contribute to community development projects (URT, 2009). Hunting companies operating in the Serengeti ecosystem contribute community development projects to communities adjacent to game reserves and game controlled area (see Chapter 7). The contribution of hunting companies to community development varies among hunting companies. PA, tour operator, and community key informants I interviewed suggested that in many cases tourism benefits from game reserves, game controlled area, and WMAs are regarded as low. Thus, public support for conservation can likely be low.

Summary

This section has discussed public support for conservation and revealed that communities in the Serengeti ecosystem receive socio-economic benefits from tourism. These benefits differ among communities across the ecosystem. Some communities in the ecosystem receive many benefits (e.g., communities in NCA) while others receive few benefits (see Chapter 7). In many cases, local communities adjacent to PAs in developing countries receive low benefits from NBT due to a number of factors, including inadequate participation in tourism, inadequate capacity to tap tourism benefits, and inadequate planning (Benerjee, 2012; Goodwin et al., 1998; Kideghesho et al., 2007; Mbaiwa, 2003; Newsome et al., 2013).

Benefits from NBT have the potential to influence support for conservation. Some scholars (e.g., Liu et al., 2012; Nyaupane & Poudel, 2011; Strickland-Munro et al., 2010) argue that community attitudes towards conservation and their support to PAs is influenced by benefits they receive from NBT. Since public support for conservation is partly influenced by NBT benefits, then perhaps support for conservation also differs along with benefits in the Serengeti ecosystem. Thus, communities in NCA that receive significant benefits likely support biodiversity conservation, compared to other communities. However, there is a lack of empirical evidence about public support for conservation in the Serengeti ecosystem, and this study suggests further investigation.

6.6 Costs of NBT to conservation

Notwithstanding the many conservation-related benefits described above, tourism in the Serengeti ecosystem also results in many economic and environmental costs to conservation. Table 6.14 outlines the nature of these costs in terms of financial costs,

wildlife disturbance, shifting priorities, habitat degradation, and pollution. These costs are described in greater detail in the following sections.

Table 6.14: Costs of NBT to conservation in the Serengeti ecosystem

Costs	PA							
	SENA PA	NCA	IGGR	Maswa Game Reserve	Kijereshi Game Reserve	Loliondo Game Reserve	Ikona WMA	Makao WMA
Financial costs	✓	✓	✓	✓	✓	✓	✓	
Wildlife disturbance	✓	✓	✓	✓		✓	✓	✓
Shifting priorities from conservation to tourism		✓	✓	✓		✓	✓	✓
Habitat destruction	✓	✓		✓			✓	
Pollution	✓	✓					✓	

Where: SENAPA = Serengeti National Park, NCA = Ngorongoro Conservation Area, IGGR = Ikorongo and Grumeti game reserves, Ikona WMA = Ikona Wildlife Management Area, Makao WMA = Makao Wildlife Management Area

6.6.1 Financial costs

Tourism growth to a destination, especially in PAs, triggers the demand for more tourist facilities, infrastructure, and services, which inevitably requires financial resources in order to develop and maintain them. These financial costs include financial resources invested in the provision of tourism services and management. The financial costs are covered by tourism service providers, such as PA agencies and tourism operators. This is the case in the Serengeti ecosystem, as detailed below. It can be argued that these financial costs take away from revenues that could be used for conservation. Potential tourism revenues available for conservation must be assessed against the costs to support the tourism industry.

Serengeti National Park

As pointed out earlier (see section 4.2.1), SENAPA is responsible for provision of accessibility, accommodation, information, and promotion, as well as visitor management, product development, and management functions. For example, SENAPA has a road network of about 1,600 kilometres of gravel roads, which require regular

repair and maintenance. SENAPA spends substantial income (approximately TZS 2.5 billion in the financial year 2012/13) to meet these functions in order to provide good services and experience to tourists (TANAPA, 2013).

One key informant from SENAPA pointed out, “The maintenance of roads costs about 15% of the park’s annual budget. This is a high cost to the park and is due to a long road network of the park, regular road maintenance as a result of big number of tourist vehicles using the roads, and high cost of fuel and spare parts of the machines. Heavy machines for construction and maintenance of roads spend about 70% of their working time to repair the main access road between Fort Ikoma Gate and Serengeti National Park - Ngorongoro Conservation Area Authority boundary while gravel quarry for road construction material is on average about 50 kilometres away.”

Water supply for domestic use is not readily available in many parts of the park, in particular areas where tourist facilities are located, such as Seronera, Ndotu, and Nabi Hill. “Serengeti National Park incurs cost to provide tourist with services (e.g., water, power, and security) to the entry gates, visitor information centres, and accommodation facilities it operates.” One key informant from the park noted that, “Water is fetched from water sources located about 17 kilometres and sometimes 70 kilometres away during the dry season. Since the number of tourists and the demand for water supply has increased, the park authority has hired water tankers to supply water, adding to the cost of the park.”

In addition, the park has incurred costs to improve some services related to tourism, especially security and the revenue collection system. Some key informants pointed out that the park authority through Tanzania National Parks has improved tourism revenue collection by adopting an electronic payment system technology, though

it is costly to install and maintain. The park authority also incurs costs to provide security to tourists by allocating rangers to private accommodation facilities, public campsites, and entry gates, as well as night patrol in the park.

The park also incurs cost to maintain and improve the campsites, hostels, and rest houses, visitor information centres, air strips, and entry gates. One key informant noted, “The fund allocated for tourism related activities to the park is substantial but it is inadequate to cover the activities appropriately based on the general management plan and 3-year action plan. Thus some activities are not implemented, such as adequate brochures, tourism staff, vehicle, water supply, visitor information centres, interpretation, and materials. Another key informant noted, “The operation costs for Serengeti National Park are likely to increase as the park is opening up the northern tourist circuit accompanied by construction roads, tourism facilities, and more employment coupled with escalating price of commodities.”

Ngorongoro Conservation Area (NCA)

NCAA spends financial resources from tourism to cover the costs of biodiversity conservation, tourism management, as well as development and maintenance of campsites, roads, and tourist attractions. The authority also promotes tourism and provides information, security, and water to tourists (see section 4.2.1). One key informant working with NCAA noted, “The authority spends substantial income on development of tourism infrastructure and facilities, provision of tourism services and tourism promotion. For instance, nowadays the main road between Loduare gate and Nabi gate and roads in the Ngorongoro Crater are repaired four times annually plus additional segmented minor repairs annually, due to the large fleet of tourist vehicles.

When tourism was still low, the roads were only repaired twice a year.” There are about 500 kilometres of gravel roads that require regular maintenance and 800 kilometres of tracks in NCA (NCAA, 2010).

Some key informants working for NCAA pointed out that the Authority has invested in improving tourist services. For instance, it has improved the visitor information centre, acquired an electronic payment system technology for revenue collection, improved and equipped the public campsites with water and power, and financed underground connection of electric power from Karatu area to the conservation area. The key informants also added that in the last 5 years the Authority has promoted tourism in the conservation area by attending international tourism trade fairs and through production of quality tourism promotion materials (e.g., brochures, leaflets, and maps). For instance, in 2008 the authority attended 18 international tourism trade fairs in the USA, Europe, China, and South Africa. One of the senior officers from NCAA indicated, “Although the Authority has been incurring costs to develop and improve roads, provision of information to tourists, tourism services are not satisfactory to tourists due to limited budget and ineffective implementation of the general management plan.” For instance, in 2012 there was a strike of tour guides complaining about poor condition of the roads in NCA (causing breakdown of vehicles and accidents). A key informant added that “Roads in Ngorongoro Crater are degraded as a result of heavy traffic, thus calling for regular maintenance and yet the road condition is not satisfactory.” The cost of the Department of Tourism for providing tourism services in NCA is about TZS 5.4 billion (NCAA, 2013)

Game reserves and game controlled areas

Tourism in Ikorongo, Grumeti, Maswa, and Kijereshi game reserves and Loliondo Game Controlled Area is undertaken by hunting companies, while PA agencies are responsible for the regulation function. PA key informants pointed out that these PAs have low budgets for biodiversity conservation and tourism management. For example, in 2012/13 the total annual budget for Maswa Game Reserve was about TZS 67,000,000 and Ikorongo and Grumeti TZS 49,500,000, and out of that more than 70% was allocated to conservation activities. In many cases, the budget for tourism infrastructure and facilities development and maintenance allocated by these PAs agencies is low.

Focus group discussion involving staff from Maswa Game Reserve revealed that hunting companies operating in the reserve undertake development and maintenance of tourism infrastructure and facilities. More than 90% of the roads in the reserve are tracks and seasonal roads, which require less maintenance and consequently less cost. The hunting companies are obliged by law to undertake tourism and conservation functions in order to qualify for allocation of hunting blocks in PAs. The law states that, "... granting or refusing the application for renewal of allocation of a hunting block, consider ... the level of the applicant's contribution to the improvement of infrastructure and protection of the environment within his hunting block ... the level of applicant's contribution towards anti-poaching operations or any other bad intentioned persons in issues of conservation of wildlife ..." (URT, 2010, p. 11).

The focus group discussion also revealed that the ideal number of tourists participating in tourist hunting is low, not exceeding three clients at a camp during hunting in order to avoid accidents and get a high quality hunting experience.

For example, in 2011 Maswa Game Reserve received only 105 clients, thus resulting in a low number of vehicles and low demand for infrastructure and facilities compared to photographic tourism in national parks. This discussion implies that there is less infrastructure, facilities, and service development and maintenance in game reserves and game controlled area, but the costs for such functions are shared by PA agencies and hunting companies.

Ikona and Makao WMAs

Ikona and Makao WMAs in the Serengeti ecosystem have leased the WMAs to hunting companies, and so now have limited roles, especially natural resource conservation, implying less financial costs to the MWA agencies (see section 4.2.1). In addition, the provisions of the Wildlife Conservation Act of 2010 require tourist hunting to contribute to biodiversity conservation and improvement of infrastructures in game reserves and game controlled areas. At the time of this study, one of the senior officials I interviewed from Makao WMA indicated that, “As we are talking, Makao WMA had 1 year in operation, and has not invested much in conservation and tourism apart from development of the resource management zone plan the cost of which was covered by Frankfurt Zoological Society. The hunting company, Mwiba Holding Ltd is undertaking conservation and tourism functions in the WMA.”

As mentioned earlier (see section 6.4), at the time of this study Ikona WMA, with financial support from USAID, had completed construction of the visitor information centre. Ikona was also constructing roads with financial support from the same agency. The Wildlife Conservation Regulations of 2012 require the WMA authority to re-invest 25% of their total revenue to conservation activities.

Summary

This section has indicated that PAs in the ecosystem have been investing financial resources in the development and maintenance of infrastructure, facilities, and provision of services to tourists, as well as tourism management. These are indirect extra costs on top of the revenue re-invested in biodiversity conservation directly (see section 6.2). If PA agencies in the ecosystem do not invest in tourism, the PAs can lose their tourism market leading to a decline in financial resources and capacity to implement conservation activities (Eagles & Wade, 2006). The finding revealed that SENAPA and NCAA incur more financial costs than the game reserves, game controlled area, and WMAs. Some key informants commented that the financial cost incurred by PAs depends on tourism operations, plans, and size of each PA in the ecosystem. In addition, the game reserves, game controlled area, and WMAs in the Serengeti ecosystem incur less financial costs because they collaborate with hunting companies in conservation operations. These areas also receive low numbers of tourists since tourist hunting is a low volume activity and the size of these PAs is relatively small compared to SENAPA and NCA.

6.6.2 Wildlife disturbance

The Serengeti ecosystem experiences wildlife disturbances from tourism activities, such as game drives and hunting. Wildlife disturbances also occur when there are changes in wildlife habitats due to changes in land use, including development of tourism facilities and infrastructure (e.g., lodges campsites, roads, and airstrips). Wildlife disturbance can result in changes in wild animal behaviour, disruption of feeding opportunities, habituation, and change of critical habitats (Higginbottom, 2004). Wildlife disturbance varies among PAs across the ecosystem as the discussion below suggests.

Serengeti National Park

Some key informants from SENAPA indicated that wildlife disturbance happens in the park when wildlife species (e.g., cheetah or lion) are observed in an area displaying behaviour attractive to tourists, including hunting, killing, and eating prey, and occurring in a big herd. Key informants added that “when tour guides come across wildlife species displaying such behaviour they communicate to other tour guides to bring tourists to the scene. After a while, many vehicles get to the scene resulting in off-road driving and congestion to wildlife species.”

A key informant pointed out that in SENAPA that is known as spot congestion, taking place at one point in time and ending within an hour or two. Spot congestions are common in Seronera Valley and Ndotu area, especially during peak tourism season and wildebeest migration (Figure 6.1). To some extent the congestion also occurs along the road from Nabi Hill to Seronera and western migration corridor. Spot congestion not only interferes with wildlife behaviour, but also reduces the tourist experience and satisfaction due to crowdedness. A senior warden I interviewed from SENAPA commented, “Sometimes if the spot congestion is communicated to the park authority in time, park officials go to the scene to disperse tourist vehicles, penalize the offenders (US \$50 for every offence per vehicle) under park regulations and free the wild animal.” However, it is unsure how often park officials are able to respond to the situations. In addition, “Tourist vehicles cause wildlife species road kills as a result of high speed in the park, especially along the main access road between Seronera and Golini,” said a park tourism officer, without giving data. SENAPA has regulations in place applied to all tourists visiting the park. These regulations include “Maximum speed is 50 km/hour” ...

“Off road driving is strictly prohibited” ... “keeping a safe distance of at least 20 metres from wild animals” (http://www.tanzaniaparks.com/regulations_and_park_fees.html).

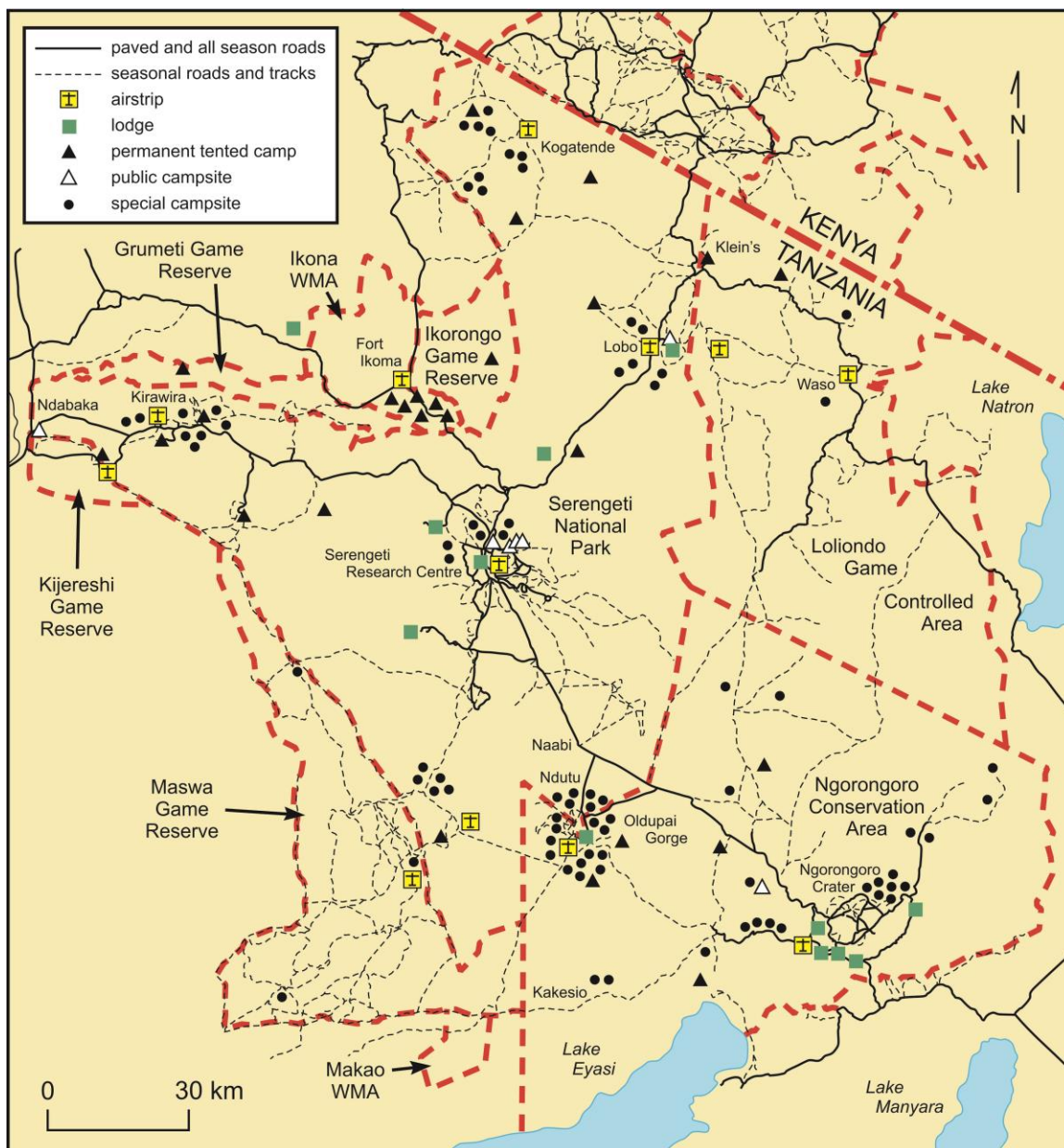


Figure 6.1: Map showing tourism facilities and infrastructure in the Serengeti ecosystem

Ngorongoro Conservation Area (NCA)

In NCA, wildlife disturbance is concentrated in Ngorongoro Crater, Ndutu area, and along the main road from Loduar Gate to Nabi Hill (Figure 6.1). Spot congestion is

experienced in Ngorongoro Crater, where there is notable diversity and concentration of wildlife species (e.g., wildebeest, zebra, and lion). An official from the Ecological Monitoring Department stated, “On one incident the lions were stalking a buffalo close to the road in Ngorongoro Crater. When the lions made an ambush the buffalo ran away on the other side of the road passing across more than 20 vehicles with tourists watching the lions hunt. But the lions could not cross the vehicles, thus retreated exhaustively.” These examples indicate how spot congestion can cause disturbances to wildlife species in the Serengeti ecosystem.

Spot congestion is also experienced in Ndutu area, which shares similar biophysical characteristics with Ndutu, SENAPA. Sometimes spot congestion results in off-road drives and can create disturbance to wildlife, especially during wildebeest migration. A senior tourism official from NCA indicated that, “Spot congestion can involve up to 30 vehicles. For example, in one incident of spot congestion in Ndutu a pride of six lions hunted and killed a prey and in the course of feeding the lions were crowded by more than 27 vehicles. Some vehicles moved very close to the feeding lions almost stepping on the legs of lions.” Thus spot congestion can interrupt and disturb wildlife behaviours and activities like hunting, killing, eating, and mating.

Game reserves, game controlled areas and WMAs

In the Serengeti ecosystem, hunting takes place in Maswa Game Reserve and Makao WMA. A hunting company in Ikorongo and Grumeti Game Reserve and Ikona WMA rarely practices hunting, while the level of hunting by a hunting company in Loliondo Game Controlled area is low (see section 4.3.1). In 2013, there were 61 hunting companies allocated hunting blocks in Tanzania, and at least 39 species of mammals and

7 species of birds were hunted. The Wildlife Division allocated a total hunting quota of about 76,538 and wild animals hunted were 9,903 (representing 12.94% of the hunting quota) between 2006 and 2012.

Tourist hunting can create disturbance to wildlife species. The practice of shooting wild animals with a gun produces a loud noise that scares animals. One key informant working in Maswa Game Reserve observed, "Hunting disturbs wildlife and changes their behaviour such that they become wary and restless, when they see vehicles or people at a far distance of say 100 metres or more they start running away, unlike in national parks where wild animals are calm." Another key informant noted, "Some wild animals are injured and female animals and young ones are killed accidentally in the course of hunting. Thus, apart from disturbing wild animals, if hunting is not done professionally and effectively it can result in loss of animals."

There was a general consensus among members of the focus group discussion that tourist hunting can cause wildlife disturbance. The discussion revealed, "Previously, the hunting season went from July to December every year, but in 2010, the government extended the hunting season up to March. The extension increased the hunting season to 9 months from 6 months. In this case, wild animals have only 3 months to rest before another hunting season begins. The extension of hunting season has increased more time for disturbance to wild animals than before, especially in Maswa Game Reserve."

The focus group also observed that the period for hunting has been extended close to the period of wildebeest calving, which takes place around April and May each year in the Serengeti ecosystem. This is likely going to create disturbances to pregnant wildebeest.

A focus group discussion in Maswa Game Reserve and Loliondo Game

Controlled Area indicated doubt on how harvest levels are determined. In Maswa Game Reserve a focus group discussion revealed that on the ground there are signs that the population of some wildlife species are in decline, yet their level of harvest has remained constant or increasing. One PA key informant noted, “It is expensive and not possible for the Wildlife Division to carry out aerial wildlife census every year. That wildlife census needs to be correlated by what is observed on the ground. Otherwise, the level of harvest (hunting quota) is done through estimation based on the data available.” Another key informant from the Wildlife Division pointed out, “Determination of the level of wildlife harvest is confidential and cannot easily be given to the public.”

Summary

This section has revealed that PAs in the Serengeti ecosystem, in particular SENAPA, NCA, and Maswa game reserves, experience wildlife disturbances that differ according to the type of tourism. Non-consumptive tourism in the park and NCA result in congestion of tourist vehicles while hunting in Maswa Game Reserve scares and changes behaviour of wild animals. However, there is a lack of empirical investigation on such wildlife disturbances in the ecosystem. For SENAPA and NCA, the wildlife disturbance occurs despite the limit of acceptable use adopted in the general management plans.

This discussion revealed that wildlife disturbances in the Serengeti ecosystem are experienced in SENAPA and NCA in the course of game viewing, especially when wildlife species display certain behaviours (e.g., hunting and killing). This is in particular in Seronera Valley, Ndutu area, Ngorongoro Crater, and along the main road crossing the ecosystem from Loduare to Fort Ikoma. This calls for a need to provide conservation

awareness to tourists and tour guides about wildlife disturbance as a result of tourism, as well as improving and enforcing codes of conduct to mitigate this issue. This discussion also revealed that tourist hunting in Maswa Game Reserve results in wildlife disturbance, especially during hunting. Discussion in a focus group in Maswa Game Reserve suggested the need for monitoring wildlife species in hunting areas and improving hunting practices, including adherence to the guidelines of hunting and principles of wildlife management.

6.6.3 Shifting priorities from conservation to tourism

The government of Tanzania planned to receive one million international tourists by 2010 from 627,325 in 1999 (URT, 1999; URT, 2010). However, that target was not attained until 2012, when 1,077,058 international tourists were recorded (URT, 2012). Based on that target and the significant contribution of tourism to the national economy, the government has been placing more emphasis on tourism actors (e.g., private sector and PA agencies) to intensify tourism promotion and expansion of tourist facilities and services in order to increase the number of tourists and contribution to the national economy. Some PA key informants pointed out that government leaders (e.g., the President and Minister of Natural Resources and Tourism) have been emphasizing this initiative in a number of forums, but there is no government notice that has been issued directing PA agencies to increase tourists and facilities to a particular target.

The key informants added that PA agencies in the country, including in the Serengeti ecosystem, have been working on tourism promotion and expansion of tourist facilities based on such directives given by high ranking government officials, which sometimes can contradict the national policy on tourism. The National Tourism Policy

of 1999 focuses on low volume, high quality, and high turnover tourism, which is relevant to NBT in PAs dominating the country's tourism market share (URT, 1999). Sometimes PA agencies can shift priorities from conservation to tourism due to the lucrative benefits it generates.

Ngorongoro Conservation Area (NCA)

NCAA planned to increase its tourism market share of Tanzania from 50% in 2009 to 60% in 2014 based on the general management and corporate plans (NCAA, 2009; NCAA, 2010). One of the strategies was to increase the number of facilities (lodges, tented camps, and campsites) in order to accommodate more tourists. However, in the course of implementation, the number of additional accommodation facilities was more than the number prescribed in the general management plan, and others were located in unplanned sites (Figure 6.1). For example, one PA key informant noted, "The general management plan of NCA prescribes one lodge only in Ndutu area, but there are two lodges and another two tented lodges are underway. In the same area, the general management plan prescribes 10 campsites only, but currently there are more than 20 campsites." Some key informants I interviewed from the NCAA noted that the Authority has not been in a position to implement some tourism management strategies in order to reduce stress to the natural environment. Some key informants said that happens because the government desires to generate more revenue from tourism.

Ikona WMA

In Ikona WMA, the resource management zone plan provides guidance on tourism development and management, including the type of tourism activities and the number of accommodation facilities in the consumptive and non-consumptive zones.

However, one of the challenges in the face of implementing the resource management zone plan is limiting the number of accommodation facilities in the area. A key informant from Ikona WMA indicated, “The general resource management plan for Ikona WMA prescribes 8 campsites in the area, but there are 18 campsites in Ikona WMA and adjacent Robanda Village. This is partly due to ineffective management of Ikona and also the desire to accrue high revenue from tourism”

Game reserves, game controlled areas, and WMAs

Some key informants noted that the decision by the government to extend the hunting season from 6 to 9 months (see section 6.3.2) has biased tourism against conservation. Key informants commented that the decision is focused on getting more revenue to the government and giving opportunities to hunting companies to make more money. The focus group discussion in Maswa Game Reserve revealed that the government made this decision without consulting wildlife officials on the ground about the potential impacts to wildlife (e.g., disturbance to wildlife species and habitat destruction). The focus group pointed out that extension of the hunting season overlooked the situation on the ground, including the rainy season that makes the terrain unpassable for vehicles and activity patterns of wildlife species (e.g., breeding and mating).

Summary

Overall, shifting priorities from conservation to tourism in the Serengeti ecosystem is perceived in NCA, Ikona WMA, and game reserves and game controlled area. In NCA and Ikona WMA, this issue resulted in increasing accommodation facilities, in particular lodges. In the game reserves, game controlled area, and WMAs there was an extension of the hunting season. This section revealed that shifting priorities from

conservation to tourism is influenced by the government desire to generate more revenue from NBT. One PA key informant indicated, “There is growing pressure from the government to Serengeti National Park and NCAA to increase bed occupancy by allowing more lodges in order to increase number of tourists and revenue.”

One NGO key informant indicated, “Some high ranking government officials claim and insist that the two PAs have large area but low bed capacity compared to Masai Mara National Reserve in Kenya which is small with high bed capacity and generate a lot of income.” Another PA key informant commented, “Tanzania policy focuses on high quality–low impact tourism, thus additional lodges can be located outside protected areas. But campsites which are more ecologically friendly than lodges can be encouraged in PAs.” To some extent, the issue of shifting priorities overrides the limit of acceptable use as prescribed in the management plans of PAs.

6.6.4 Habitat degradation

Any tourism will create some changes in the habitat, so the issue is determining how much change is acceptable (Limits of Acceptable Change) before the impacts become unacceptable for conservation (Eagles et al., 2002; Rollins & Dearden, 2008). NBT can cause habitat impacts in PAs. Habitat impacts are noticeable in some parts of the Serengeti ecosystem as a result of tourism development. Habitat impacts in the Serengeti ecosystem include change and loss of land vegetation cover, soil trampling and compaction, habitat degradation, and off-road driving. Habitat impacts differ among PAs in the ecosystem.

Serengeti National Park

In SENAPA, tourism impacts on habitat occur in areas with a concentration of tourism activities, such as accommodation facilities, roads, and tourist visitation. These areas include Seronera, Ndutu, and Kirawira, which fall under High Use Zone earmarked for tourism development in the park (Figure 6.1). Key informants I interviewed from SENAPA indicated that soil trampling and compaction, and loss of land vegetation cover are observable in the campsites, especially public campsites due to heavy usage of the area by tourists. These impacts are common in Seronera and Ndutu and to some extent in Kirawira and Lobo because of accommodation facilities (e.g., campsites and lodges) (Figure 6.1). The key informants also pointed out that Seronera and Ndutu tourism circuits have a number of tracks of vehicles as a result of intensive use of the areas.

Habitat impacts include loss of vegetation cover occurring in the course of developing, maintaining, and using lodges, public campsites, airstrips, tourism offices and entry gates, and accommodation for tourism staff. One key informant noted, “For instance, over the past 4 years the park authority was opening up the northern tourism circuit in Kogatende area by constructing a number of roads. The construction of roads involved removal of top soil and vegetation cover and replacing it with gravel materials. To some extent it has changed the natural beauty of the area” Another key informant from the park noted, “The habitat in areas where some lodges (e.g., Bilila Lodge) have been constructed are different from the areas adjacent, in terms of vegetation cover and availability of wildlife species. Just by looking there are less vegetation covers and wild animals in areas around the lodges compared to adjacent areas.” Thus, habitat degradation in SENAPA is experienced in areas with a concentration of tourism facilities

and infrastructures and those highly visited and used by tourists (e.g., Seronera, Ndutu, and Kirawira) as indicated in Figure 6.1.

Ngorongoro Conservation Area (NCA)

Likewise, in NCA habitat impact due to tourism is concentrated in areas with high visitation, tourism activities, and accommodation facilities (Figure 6.1). Most tourists (90%) in NCA visit Ngorongoro Crater and the crater rim (NCAA, 2010). Similarly, many lodges, road networks, airstrips, tourism facilities (e.g., offices, fuel stations, and accommodation for staff working in lodges and NCAA), and social services are located on the rim of Ngorongoro Crater. These tourism facilities, coupled with high tourist visitation in Ngorongoro Crater area cause habitat degradation in the area. Ndutu area also has many accommodation facilities and experiences high visitation, especially during wildebeest migration in the south (Ndutu area), thus resulting in habitat degradation.

A key informant indicated, “Ngorongoro Crater and Ndutu area experience high tourist visitation resulting in off-road drives and several tracks of vehicles especially during peak tourism season. Roads in the crater deteriorate within a short period, say 4 months, and the authority has to maintain them at least twice a year by adding gravel obtained outside the crater. In the rainy season tour guides make several off road drives in the crater because the roads are not easily passable due to flooding and mud.” Another key informant from NCA pointed out that, as a result of heavy use of vehicles, the main access road from Loduare Gate to Golini (Ngorongoro and Serengeti boundary) is repaired at least four times a year. The maintenance involves adding gravel on the road, leveling, and compacting. The vehicles involved in road maintenance and tourist vehicles

make several off-road drives to areas adjacent to the road in the course of maintaining the road. The lodges and public campsite on the rim of Ngorongoro Crater have changed the habitat of the area by opening up and reducing the vegetation cover. Habitat degradation in NCA is partly attributed to inadequate planning and control of tourism development that took place in the past (NCAA, 2010).

Game reserves, game controlled areas, and WMAs

In Maswa Game Reserve, a number of tracks are observable as a result of tourist hunting in which it is not possible to keep vehicles on the main access road during hunting (Figure 6.1). Thus, hunters establish several tracks which can help them in locating wild animals. In Ikorongo, Grumeti, and Kijereshi game reserves, Loliondo Game Controlled Area, and Ikona and Makao WMAs, habitat degradation is less pronounced partly due to fewer tourism activities.

Summary

This section has revealed that habitat degradation is concentrated in areas with high visitation and tourism activities, facilities and infrastructure. Such areas include Seronera Valley, Ndutu area, Ngorongoro Crater, along the main road from Loduaré Gate – NCA to Fort Ikoma, Kirawira, and Lobo areas (Figure 6.1). If such impacts are allowed to continue in the long run, they can accumulate and compromise the integrity of PAs. Habitat degradation is experienced less in the game reserves, game controlled area, and WMAs in the Serengeti ecosystem. There are signs of habitat degradation in Maswa Game Reserve, Loliondo Game Controlled Area, and Ikona WMA, especially areas with airstrips, accommodation facilities, and those areas with a concentration of tourism activities (e.g., hunting), as indicated in Figure 6.1.

According to the general management plans of SENAPA and NCA, habitat degradation is not allowed, although it is concentrated in high use zones and also occurs in sensitive areas like Ngorongoro Crater, which is home to some endangered species (e.g., rhino and flamingo) and Seronera Valley (NCAA, 2010; TANAPA, 2005). Many scholars (e.g., Newsome et al., 2013; Higginbotton, 2004; Mbaiwa, 2003) argue that development and usage of tourism infrastructure and facilities results in habitat destruction. Such impacts can be identified and mitigated through a number of measures, including Environmental Impact Assessment, monitoring and evaluation, tourism planning, and effective regulations.

6.6.5 Pollution

NBT has resulted in some air, visual, and noise pollution of the natural habitat in the Serengeti ecosystem. In the ecosystem, air pollution is attributed to fumes discharged from engines of vehicles, generators used for accommodation facilities, and dust caused by moving vehicles and aircraft. Likewise, noise pollution is caused by moving vehicles, running generators, and aircraft in the course of landing and taking off. Visual pollution is a result of tourist facilities (e.g., vehicles, lodges, and camping materials) which do not blend with the environment in the ecosystem. Dust, fumes, and leakage of oil and fuel from vehicle engines and generators contaminate habitat. Pollution and contamination of habitat varies among PAs in the Serengeti ecosystem.

Serengeti National Park

In SENAPA, air, noise, and visual pollution and habitat contamination are concentrated in Seronera and Ndutu areas, and along the main access roads (e.g., the road from Golini near Nabi Hill stretching to Fort Ikoma Gate, Ndabaka Gate, and Lobo area)

due to heavy vehicle traffic (Figure 6.1). Furthermore, Seronera and Ndutu areas experience more pollution due to the concentration of tourist facilities and infrastructure (e.g., campsites, road network, and airstrip) as indicated in Figure 6.1. In addition, Seronera is the busiest airstrip in the park receiving up to 30 aircraft a day in peak tourism season. However, there is lack of data on water and air pollution caused by tourism activities in SENAPA.

Ngorongoro Conservation Area (NCA)

Air, noise, and visual pollution of habitats in NCA is noticeable along the rim of Ngorongoro Crater, where there is a concentration of accommodation facilities (e.g., lodges and campsites), roads, and a tourism office for the authority, as well as accommodation for employees of lodges and the NCAA (Figure 6.1). Pollution is also common along the roads, especially the main access road from Lodua Gate to Golini (boundary between Ngorongoro and Serengeti), Ndutu and Oldupai Gorge, due to many vehicles on the roads. Likewise, Ndutu area experiences pollution due to concentration of campsites and tourist circuits, as well as many vehicles during the wildlife migration. Furthermore, pollution and contamination is pronounced in Ngorongoro Crater since it has many tourist circuits and receives a high number of vehicles and tourists. For example, Ngoitoktok Spring Picnic Site receives more than 100 vehicles per day during peak tourism season and has few washrooms that sometimes drain sewage to the spring.

Ikona WMA

Air, noise, and visual pollution is experienced in Ikona WMA, especially in the non-consumptive zone where there is a concentration of lodges and tented campsites, and high movement of tourist vehicles. Pollution is also common along the road from

SENAPA - Fort Ikoma Gate to Fort Ikoma due to many vehicles using the road. Pollution is less pronounced in Ikorongo, Grumeti, Kijereshi, and Maswa game reserves, Loliondo Game Controlled Area, and Makao WMA as well. This may be attributed to the low number of tourist vehicles, tourist facilities, and infrastructure.

Summary

This section has revealed that pollution is concentrated in areas that are heavily utilized (High Use Zone, Ngorongoro Crater Zone, Development Zone) in the ecosystem, especially in SENAPA and NCA (Figure 6.1). A researcher I interviewed in NCA pointed out, “Air pollution from dust as vehicles move at a high speed and noise pollution from vehicles are common in the two PAs. Pollution is not a good thing in PAs, but also its impacts are not clearly known in the ecosystem as a result of inadequate empirical studies on the impact of pollution on biodiversity.” He added that even mechanisms to reduce pollution are not specifically indicated in the general management plans (e.g., minimizing speed reduces air and noise pollution). A study conducted in SENAPA on air pollution indicates that in the windward direction (north) of the main road between Nabi Hill and Seronera, wildebeest tend to graze 50 metres away from the road due to dust pollution on vegetation (Ndibalema, 2007).

6.7 Conclusion

This chapter has discussed the costs and benefits of NBT to conservation in the Serengeti ecosystem. This study has revealed a number of findings, as follows:

- NBT results in environmental benefits and costs which differ among PAs across the ecosystem. This variation is attributed to a number of factors, in particular sources of income, type of tourism (consumptive and non-consumptive), tourism

development in terms of the level of visitation and facilities, planning and management of tourism in PAs, and type of PA agency.

- PAs in the Serengeti ecosystem generate revenue from NBT by charging fees to tourists and tour operators. Financial benefits accrued from tourism influence other NBT benefits and costs occurring in PAs in the Serengeti ecosystem. Financial benefits are used in improving biodiversity conservation and PA management, raising conservation awareness, and influencing public support for conservation (when communities realize benefits), as well as financing provision of tourism services and management.
- PA agencies in the ecosystem allocate inadequate revenue for conservation functions, thus PA agencies cannot undertake their roles and realize their objectives effectively. The revenue accrued by PA agencies in the Serengeti ecosystem is used to support the budget of other PAs that do not realize adequate revenue, and some revenue is retained and used by the central government.
- PA agencies and tour operators, especially hunting companies and non-governmental conservation organizations, collaborate in carrying out conservation functions. These organizations are involved in law enforcement (patrol), wildlife monitoring, development of infrastructure and facilities for conservation (e.g., roads), provision of resources required to undertake conservation activities (e.g., vehicles and game scouts), and PA planning.
- PA agencies and tour operators provide information to tourists aimed at promoting their understanding of resources in the area and satisfaction, as well as raising conservation awareness. The common techniques used by these agencies

to deliver information to tourists include tour guides, guide books, visitor information centres, brochures, and websites. However, provision of information in the Serengeti ecosystem is not adequate, and likely the techniques used are not effective and require improvement.

- Development of tourism infrastructure, facilities, and usage result in wildlife disturbance, habitat degradation, and pollution to the environment. This is noticeable, especially in areas with concentration of facilities and high tourist visitation, including Ngorongoro Crater, the crater rim area, Ndutu, Seronera, and Kirawira. This situation can be attributed partly to inadequate tourism and impact management mechanisms. PA agencies, in particular SENAPA and NCAA, have proposed to increase capacity of tourist accommodation by allowing the development of additional permanent tented campsites. TANAPA (2013) indicates that the negative impacts created by permanent tented campsites and lodges range from medium to high. Thus the development of these additional accommodation facilities likely can result in significant impact to the environment and disturb ecosystem integrity. PA agencies in the ecosystem should refrain from tourism development without adequate information and planning.

PAs agencies in the Serengeti ecosystem should focus on enhancing the benefits and minimizing the costs of NBT to conservation in order to achieve sustainable tourism development and maintaining the ecological integrity in the ecosystem (Eagles et al., 2002; Rollins et al., 2009). Since financial benefit is key, and influences other tourism benefits, PAs in the ecosystem should ensure that they realize optimum benefits from NBT. It is recommended that PAs in the ecosystem should be managed effectively and

efficiently as business entities, adhering to the principles of business (e.g., improve quality of service, effective and efficient delivery of services, pricing, and maintaining the purpose of PAs) so that they can generate optimum income from NBT. Parallel to this, PAs should allocate adequate income for conservation functions. Many PA agencies do not perform well and do not realize their objectives, due to a lack of resources. PA agencies in the Serengeti can overcome this challenge by adopting a retention scheme policy (Eagles et al., 2002; Emerton et al., 2006).

Successful and sustainable tourism development should involve and address the interests of stakeholders and ensure that they realize benefits from tourism (Buckley, 2009; Eagles et al., 2002; Goodwin et al., 1998; Newsome et al., 2013; Nyaupane & Poudel, 2011). Collaborative arrangements between stakeholders in PAs are the best practice (Eagles et al., 2002; Emerton et al., 2006; Phillip, 2000; Sinclair et al., 2008). Nature-based tourism actors in the Serengeti ecosystem should enhance their collaboration in undertaking NBT functions by instituting legal mechanisms that will govern their collaboration.

Many challenges that involve tourists in NCA are linked to inadequate provision of information to tourists (NCAA, 2010). PAs in the ecosystem should improve provision of information to tourists, especially through effective interpretation facilities and techniques that stimulate their interest in PAs, enhance their understanding, and possibly foster preferred conservation behaviour (Buckley, 2009; Eagles et al., 2002; Goodwin et al., 1998; Newsome et al., 2013). Parallel to this, PAs should institute effective regulations and mechanisms that minimize negative impacts of tourism and enhance visitor satisfaction.

PAs in the Serengeti ecosystem lack effective general management plans, contributing to negative environmental impacts. A general management plan is a significant conservation tool in PAs as it provides guidelines and directs different uses and functions (Eagles et al., 2002). PAs should adapt effective planning tools, especially the “Limits of Acceptable Change” (LAC), in developing general management plans, instead of the “Limits of Acceptable Use” which is not an effective coherent framework as it resembles the traditional concept of carrying capacity (Manning, 2011; Needham & Rollins, 2009; Newsome et al., 2013; Stankey, 1973). Development of general management plans for PAs in the ecosystem should be participatory, involving key stakeholders and integrating different functions and issues in the ecosystem that will reflect on conservation management at the ecosystem level (ecosystem-based management) (Eagles et al., 2002; Slocombe & Dearden, 2009; Unalan, 2013).

Finally, NBT provides mixed outcomes to conservation that differ among PAs, not only in the Serengeti ecosystem but globally (Eagles et al., 2002; Goodwin et al., 1998; Phillips, 2000; Mbaiwa, 2003). Similarly, the balance between the costs and benefits of NBT to conservation in PAs is contentious. The costs and benefits of NBT vary among PAs across the Serengeti ecosystem. However, this study argues that financial benefits outweigh financial costs, and environmental benefits (awareness and improved conservation) outweigh environmental costs (although there is a lack of empirical data). Generally, this study suggests that the benefits of NBT outweigh the costs, and recommends further empirical study on the costs and benefits of NBT.

CHAPTER 7

COSTS AND BENEFITS OF NATURE-BASED TOURISM TO COMMUNITIES

7.1 Introduction

Tourism can have positive and negative impacts on conservation. Similarly, tourism can impact the livelihoods and culture of nearby communities. If these social and economic impacts are generally negative, support for conservation may decline, perhaps leading to further problems, such as poaching. These issues have contributed to the development of a “social paradigm” that argues for the need for PAs to contribute to local livelihoods, as well as conservation and tourism objectives (McNeely & Miller, 1982; Phillips, 2003). In this chapter, the impact of nature-based tourism (NBT) on communities in the Serengeti ecosystem is examined.

7.2 Benefits of NBT to communities

Results from document analysis, key informant interviews, and focus group discussions indicate that NBT provides economic and social benefits to communities in the Serengeti ecosystem (Table 7.1). Local people generate economic benefits from tourism by selling handicrafts and displaying traditional culture to tourists, working in the tourism industry, leasing land to tourism investors, providing camping services, selling local produce, and deriving direct income from PA agencies (NCAA, WMAs, and game reserves). In addition, PAs can generate social benefits, including social services and infrastructure, scholarships, and school fees. These benefits are discussed in detail in the following sections.

The benefits of NBT to communities vary in PAs across the ecosystem (Table 7.1). There are differences between (1) SENAPA and NCA, (2) Ikona and Makao WMAs, and (3) Ikorongo, Grumeti, Maswa, and Kijereshi game reserves and Loliondo Game Controlled Area. Generally, NBT in all PAs provides financial benefits, employment, and social services to local communities in the Serengeti ecosystem, as indicated in Table 7.1. NBT in NCA provides many benefits to communities compared to SENAPA as local communities are involved in provision of tourism services, and NCA supports community development in fulfilling its mandate. Similarly, local communities adjacent to Ikorongo and Grumeti game reserves experience many NBT benefits compared to communities adjacent to Maswa and Kijereshi game reserves and some communities within Loliondo Game Controlled Area due to private tourism investments and community involvement in tourism activities. Local communities around Ikona WMA accrue many benefits from NBT compared to communities around Makao WMA for the same reasons as communities around Ikorongo and Grumeti game reserves.

Table 7.1: Benefits of NBT to communities in the Serengeti ecosystem

Benefits of tourism to communities	PA							
	SENAPA	NCA	Maswa Game Reserve	Ikorongo & Grumeti game reserves	Kijereshi Game Reserve	Loliondo Game Controlled Area	Ikona WMA	Makao WMA
Financial benefits (e.g., selling handcrafts, local produce, camping services, cultural displays, and direct income)	✓	✓	✓	✓	✓	✓	✓	✓
Employment and involvement in tourism industry	✓	✓	✓	✓	✓	✓	✓	✓
Social services and infrastructure (e.g., health, education, water, and roads)	✓	✓	✓	✓	✓	✓	✓	✓
Scholarships and school fees		✓		✓			✓	

Where: SENAPA = Serengeti National Park, NCA = Ngorongoro Conservation Area, MGR = Maswa Game Reserve, IGGR = Ikorongo and Grumeti game reserves, KGR = Kijereshi Game Reserve, LGCA = Loliondo Game Controlled Area, Ikona = Ikona Wildlife Management Area, and Makao = Makao Wildlife Management Area

Each of the benefits outlined in Table 7.1 are described in greater detail in the following sections.

7.2.1 Financial benefits

Income accrued from NBT by tourism service providers is a key benefit influencing other economic and social benefits in the Serengeti ecosystem. Tour operators, PA agencies, and local communities involved in tourism deliver financial benefits to communities in various ways, as discussed below.

Serengeti National Park

Local communities in the Serengeti ecosystem accrue income from NBT in SENAPA by selling local produce to accommodation operators and park staff, and selling handicrafts and performing traditional dances to tourist at the lodges and permanent tented campsites. Accommodation operators and PA key informants in the park pointed out that some people from local communities outside the park sell local produce, including poultry (i.e., chicken and eggs), vegetables, and beef to accommodation operators in the park (e.g., Mbuzi Mawe Serena Camp, Sayari Camp, Serena Safari Lodge, and Four Seasons Safari Lodge). A manager of one of the high end market chain lodges and hotels in the ecosystem and East Africa noted, “Ecotourism is part of our company policy, and as part of that we support local communities by encouraging them to produce horticultural and poultry products and sell to our lodges. In SENAPA, local communities from Western Serengeti (e.g., Natta and Robanda villages) supply vegetables, eggs, chicken, beef, and fish to our lodges in the park for our staff, and sometime we use the produce for guests. At first we went in agreement with some groups of local people for them to produce horticultural and poultry products and sell to our firm. We also agreed to

support the groups with agricultural input. The groups are supplying our firm with vegetables, eggs, and chicken but sometimes the qualities are not good and fail to supply enough produce to meet our demand. We also get supplies from local suppliers in Mugumu town in order to supplement our supplies from Arusha.” Another accommodation operator key informant operating in the park indicated, “We tend to buy local produce (e.g., vegetables, poultry, beef, and fish) from local communities in Western Serengeti for our staff, but there are limited supplies, especially during tourism peak season. For example, during the peak season we need about 35 trays of eggs per week but the suppliers will deliver 20 trays only. Thus in most cases we rely on food supplies from Arusha and sometimes Mwanza.”

A manager of one of the lodges in Western Serengeti (Lamadi) noted, “Local communities in Lamadi benefit from tourism taking place in the park by selling local produce (e.g., cabbage, tomatoes, watermelons, fish, and rice) to accommodation operators in the park and Lamadi area. Local produce from Lamadi area has comparatively better quality than that from other parts of the Serengeti ecosystem. Local produce from Lamadi area has attracted many customers to an extent that the produce falls short of the market demand in terms of quantity. Of course there are many retailers of local produce each with small amounts and packaging and reliability in supply is still a problem.”

Some park officials I interviewed pointed out that accommodation operators in the park are keen to support local communities adjacent to the park to raise local produce and sell to them. For example, Sayari Campsite established a good relationship with Machochwe Village, supporting local communities to start poultry and vegetable projects

by offering agricultural inputs, and creating local produce groups. The projects took off, and local communities produced poultry and vegetable products to sell to the campsite. But when the project ended, leaving the community stand on their own feet, the projects performed poorly. It seems that local communities were generating good income from the local produce projects, but they lack skills, motivation, experience, and exposure about the initiatives. A senior warden from the park noted, “The same scenario occurred in the past few years when Serengeti Serena Safari Lodge initiated a small project that supported some local communities in Western Serengeti to produce poultry and vegetables to sell to the lodge. After a few years the lodge gave way for local communities to continue producing and supplying the produce on their own, but sometimes their supplies are not reliable in terms of quality and amount.”

Some local dancing groups earn income from NBT in SENAPA by performing traditional dances for tourists. A warden from SENAPA noted that there are some groups from Serengeti District that have been coming in the park to perform local dances to different lodges, including Four Seasons Safari Lodge, Seronera Lodge, and Serena Safari Lodge. The warden added that there are 6 to 12 members in the performance groups, including young women and men. A manager of the lodge operating in the park pointed out, “A local dance performance costs about US \$100 plus free transport to and from the lodge in the park and residence outside the park. The dancers also get some tips (cash) from tourists.” Another lodge manager I interviewed noted, “The dancing groups perform dancing styles and songs from different tribes in Tanzania, including Makonde, Wayao, Maasai, and Kurya, although they are not professional performers.”

Nowadays, a number of tour companies and accommodation operators in SENAPA and adjacent to the park arrange for tourists to visit local communities and experience the traditional way of life of local people, especially in Western Serengeti (e.g., Lamadi and Machochwe villages). Some tour operators and PA key informants pointed out that cultural or community tours are becoming popular and form part of the itinerary of inclusive packages purchased by tourists.

For some tourists, community tours are organized as an extra activity while in Serengeti, requiring an additional fee. Tour guides who represent tour operators pay an agreed upon sum of money to local people participating in providing experiences for tourists, and also pay a fee to a village government. However, the fee can start from US \$30 for a vehicle with up to six tourists for duration of about 3 hours. The fees charged by local communities may increase if the number of tourists and duration of visit increases, as well as the type of activities experienced in the communities.

A lodge manager in Lamadi area noted, “We tend to arrange for tourists staying at our lodge who wish to visit local communities with local guides for about half a day. Tourists prefer to visit the local market, fishing communities, lake shore, and traditional healers. For such a visit, a tourist will pay the lodge US \$60 and the lodge will pay all those involved to make a tour successful, but in many cases a local guide is paid US \$20 and a traditional healer US \$30 for a group of tourists.” Another lodge manager operating in north-west Serengeti (Kogatende area) indicated, “We have established good relationship with Machochwe and Mukirithi villages in a way that we organize community tours in the villages for our guests. You know nowadays some tourists want to experience a traditional way of life of local communities. Thus we take tourists for

community tours that can last for about 3-4 hours, and we pay the community US \$100.” The lodge also supports the two villages with social services, as will be discussed in the next section.

In addition, some local communities generate income by selling souvenirs to tourists. A senior park warden I interviewed indicated that, “The park authority has made arrangement for women groups from Western Serengeti to sell souvenirs (e.g., curios) locally made at the park visitor information centre. The women take their products to the visitor information centre shop where they are sold by park staff who give the revenue to the women at the end of the month.”

Community economic empowerment initiatives have been established in some areas of the Serengeti ecosystem as part of the efforts to improve livelihoods at the household level. For example, SENAPA in collaboration with Frankfurt Zoological Society (FZS) has initiated Community Conservation Banks (COCOBA) for saving and borrowing in Western Serengeti. Currently, six community groups are operative involving even some previous poachers and their households in Bonchungu and Rwamchanga villages in Serengeti District.

Ngorongoro Conservation Area (NCA)

Local communities in NCA benefit from NBT income and employment opportunities by providing services to tourists, tourism operators, and NCA. Local people in NCA have established cultural centres (cultural bomas) where they display traditional culture, including the Maasai way of life, dancing, dressing, and handcrafts to tourists. Tourists visiting cultural centres pay an agreed fee through tour guides representing tour operators. For example, a 6-seater tourist vehicle is charged

US \$20 per visit to a cultural boma, and a big vehicle (more than 6 seats) pays US \$40 per visit. In addition, local people working at the cultural bomas earn income by selling traditional handcrafts to visiting tourists.

NCAA officials I interviewed indicated that local communities generate substantial income from cultural bomas. For example, in 2011, Seneto and Elerai cultural bomas in NCA generated TZS 35,700,000 and TZS 36,960,000 from entry fees, respectively (Table 7.2). This revenue is distributed such that 25% is allocated to women, 20% youth, 10% to leaders of the cultural boma, 15% to expenditures of the cultural boma, and 30% to the ward. One key informant noted, "... the cultural bomas in Ngorongoro Division generate substantial income compared to other bomas, due to their location on core tourism circuits, their active engagement in tourism, and managerial support from NCAA." Table 7.2 presents tourism income accrued by communities from cultural bomas in NCA as reported by staff of NCAA and Ngorongoro Pastoral Council.

Table 7.2: Tourism income generated by Seneto and Elerai Cultural Bomas, Ngorongoro Ward in 2011

Month	Seneto Cultural Boma		Elerai Cultural Boma	
	Number of vehicles	Income (TZS)	Number of vehicles	Income (TZS)
January – March	431	8,620,000	407	8,140,000
April – June	247	4,940,000	315	6,300,000
July – September	708	14,160,000	616	13,120,000
October – December	399	7,980,000	470	8,400,000
Total	1785	35,700,000	1848	36,960,000

Source: NCAA, (2012)

* Exchange rate US\$ 1 = TZS 1,550.00

Communities and PA key informants in Ngorongoro noted that NCAA and communities (villages) in Ngorongoro Division have jointly established and operate 14 campsites in the respective communities and share the revenue equally (Table 7.3). In addition, each campsite has two local security guards and one local guide working on a rotational basis with other local people. Table 7.3 presents the results of staff from

NCAA and Ngorongoro Pastoral Council. The table shows income generated by local communities from joint-owned campsites (local communities and NCAA) in NCA.

Table 7.3: Tourism income accrued by communities from community campsites (January - March 2012)

Ward	Income generated (US\$)	Dividend per village (US\$)
Ngorongoro	23,856	11,928
Olbalbal	9,083	4541.5
Nainokanoka	14,296	7,148
Naiyobi	13,149	6,574.5
Enduleni	8,143	4,071.5
Kakesio	34,840	17,420
Total	103,358	51,679

Source: NCAA, (2012)

* Exchange rate US\$ 1 = TShs 1,550.00

NCAA also allocates a portion of the revenue accrued from NBT to Ngorongoro Pastoral Council every year. In 2011/12, the conservation authority allocated TZS 1.2 billion to the pastoral council for the council functions, including administration and community development (e.g., education bursaries). Charnley (2005) found that NCAA allocated TZS 550,000 to the pastoral council to support community development projects in NCA. This indicates that from 2005 to 2011/12, the amount of revenue allocated by NCAA to the pastoral council for community development has almost doubled. The pastoral council is made up of 41 members chosen from local residents, including 6 Ward Councilors, 6 traditional leaders (elders), 6 women, 6 youth, 14 community (village) chairpersons, and the Conservator of NCAA. The pastoral council is a legal organization representing local residents on matters pertaining to community development and issues of community concern that require the attention of the conservation authority in NCA (NCAA, 2000). The pastoral council also prepares community development initiatives and budgets and submits them to NCAA for funding, as well as advising the NCAA Board of Directors, but has no decision-making power to the Board of Directors. Some communities and PA key informants indicated that the

pastoral council is not involving local people effectively and promoting their interests, such that the elite members of the communities have more access to NBT benefits compared to the poor. One key informant pointed out that the administration function of the pastoral council accounts for more than 50% of its total budget, instead of directing more funding to community development activities.

Maswa, Ikorongo, and Grumeti game reserves, and

Loliondo Game Controlled Area

In game reserves, game controlled areas, and WMAs where consumptive tourism takes place, hunting companies pay a gross fee to the central government through the Wildlife Division, and in turn the central government pays revenue to the communities through the District Council. The government through the Wildlife Division allocates to the District Councils 25% of the hunting revenue accrued from hunting blocks situated within the respective districts (Table 7.4). The revenue is supposed to be distributed equally to local communities bordering a particular hunting block.

However, key informants indicated that the revenue received by local communities is small and not disbursed in time even after 1 year. A PA key informant noted, “The 25% from hunting blocks is disbursed to the District Councils from the central government at the end of the financial year when collections of hunting revenue have been made. Some District Councils allocate revenue to council activities and the rest of the revenue to the respective communities.” The key informant added that “In some cases there are many villages bordering the hunting blocks, thus the allocation becomes small.”

Table 7.4: Trophy hunting revenue (25%) disbursed to District Councils within the Serengeti ecosystem from 2002/03 to 2011/12

Year	Income distribution (TZS)				
	Bariadi	Bunda	Meatu	Ngorongoro	Serengeti
2011/12	26,179,000	27,807,000	75,244,000	82,896,000	50,979,000
2010/11	21,563,000	22,928,000	62,685,000	69,098,000	42,349,000
2009/10	33,128,000	31,019,000	72,024,000	87,992,000	54,588,000
2008/09	0	0	0	0	0
2007/08	899,000	4,634,000	12,160,000	12,097,000	8,245,000
2006/07	3,250,	7,352,000	27,640,000	12,489,000	8,670,000
2005/06	6,668,000	11,460,000	30,124,000	8,539,000	22,590,000
2004/05	0	0	0	27,527,000	0
2003/04	3,571,000	11,460,000	24,623,000	27,527,000	22,590,000
2002/03	6,951,000	11,234,000	27,797,000	27,197,000	21,293,000
Total	102,209,000	127,894,000	332,297,000	355,362,000	231,304,000

Source: MNRT, 2013.

Exchange rate: US\$ 1 = TZS 1,575

Protected area, tour operator, and community key informants in Loliondo pointed out that some local communities in Loliondo have agreements with accommodation operators and hunting companies by which the tour operators pay revenue directly to the communities. The discussions with community leaders and youth focus groups in Loliondo area revealed that in 2007, a hunting company (Ortello Business Corporation) operating in the game controlled area was disbursing TZS 180 million annually to seven villages (Ololosokwani TZS 30 million and six villages TZS 25 million each) within the area. In 2010, the hunting company suspended its financial support to local communities as a result of the conflict between the company and communities. At the time of this study in 2012, the hunting company and local communities had reached agreement to resume the arrangement for communities to receive financial benefit from the company.

Community leaders from Ololosokwani Ward pointed out that there are three tourism investors operating accommodation facilities and non-consumptive tourism in Ololosokwani Village. The village has a lease agreement with one investor, Kleins Camp (& Beyond), who uses the area and pays an agreed concession fee (US \$30,000 per year)

directly to the community (village council). The other two tourism investors are not paying for using the area due to lack of a lease agreement and a land dispute between the investors and the village. A key informant who is a community leader and has worked in conservation organizations in Serengeti noted, “The way the two investors acquired land in the village were ambiguous with signs of corruption, but it has been resolved and negotiations are under way to draft the lease agreement with the two companies.”

Ikona and Makao WMAs

As discussed earlier (see section 4.4), Ikona and Makao WMAs have leased areas of the WMAs to tour operators at an agreed fee. Ikona and Makao WMAs generate revenue from tourist hunting (block, game, conservation, observation, and permit fees), and part of it is distributed to WMA village members (Table 7.5). The WMAs are entitled to revenue ranging from 15% to 75% of the hunting fees generated by WMAs, and the rest goes to the central and local government (URT, 2012). Some of this revenue remitted to WMAs is allocated to WMA village members for social development activities.

According to the Wildlife Regulations of 2012, Ikona and Makao WMAs are required to allocate at least 50% of their gross revenue to villages forming the WMA (URT, 2012).

In addition to income from tourist hunting, Ikona WMA has lease agreements with seven photographic tourism investors who pay an agreed concession fee direct to Ikona WMA.

Table 7.5: Benefit sharing guideline of tourist hunting revenue in WMAs

Tourism hunting fee category (100%)	WMA	Local communities (50% of the WMA percentage)
Block fee	75%	37.5%
Game fee	45%	22.5%
Conservation fee	45%	22.5%
Observation fee	45%	22.5%
Permit fee	15%	7.5%

Source: URT, 2012.

Ikona and Makao WMAs generate different revenues from tourism, thus the amount of income distributed to communities is different. For instance, in 2011 Ikona WMA generated gross revenue amounting to TZS 729,915,608.00 from tourism. Of this amount, TZS 429,946,022.00 equivalent to 58.9% was equally distributed to five Ikona WMA village members (Ikona, 2012). Likewise, in 2011 Makao WMA accrued TZS 100,000,000.00 from tourism, and allocated TZS 60,000,000.00 to seven Makao WMA village members. “Normally, the income allocated to local communities is used for social services including education, health, water supply, education bursaries, and community administrative activities” said a key informant from Ikona WMA.

A key informant I interviewed from Ikona WMA noted, “The guidelines of benefit sharing are followed. Although there is no transparency, especially on the amount of revenue collected by the government from non-consumptive tourism in Ikona WMA due to lack of checks and balances of the number of tourists to accommodation facilities and payment of tourists to the facilities.”

Summary

In summary, this section has revealed that local communities generate financial benefits from NBT in a number of ways, which vary among local communities across the ecosystem. Local communities in NCA generate substantial income through cultural tourism, community campsites, selling traditional handcrafts, and as direct income from NCAA. Some local communities in Western Serengeti accrue income from NBT by selling local produce to accommodation operators, local dancing performance, and selling souvenirs to tourists, cultural tours, and concession by leasing community land to tour operators. In Loliondo, local communities generate income from tour operators, leasing

community land to tour operators, cultural visits, and selling traditional handcrafts. These findings are related to those of Charnley (2005) and Melita & Mendlinger (2013), who found that local communities in NCA generate income from tourism in different ways, including cultural bomas, campsites, local guiding, selling of traditional handcrafts, and direct income from NCAA.

The study has revealed that a substantial amount of income is accrued at the community level as compared to households and individuals, except where individuals are involved directly in provision of tourism services. This finding conforms with other PA tourism studies (e.g., Bwindi Impenetrable National Park in Uganda, Okavango National Park in Botswana, and Chitwan National Park in Nepal) where local communities generated income from tourism through direct engagement in provision of services, concessions, and directly from the park accrued at the community level (Mbiwa, 2005; Nyaupane & Poudel, 2011; Sandbrook, 2010). Likewise, other scholars (e.g., Acquah, 2013; Charnley, 2005; Emerton & Mfunda, 1999; Homewood et al., 2012; Melita & Mendlinger, 2012; Mwakaje et al., 2013) noted that tourism income is accrued at the community level, and only a few households and individuals gain income from tourism. This study also revealed that financial benefits from NBT vary among local communities in the Serengeti ecosystem, with only a few communities generating income from NBT, especially communities engaged directly in tourism (e.g., NCA) and leasing community land to tourism operators (e.g., Ikona and Makao WMAs and Ololosokwani Village). These findings are also similar to those of Emerton & Mfunda (1999), who noted that few communities generated income from tourism in Loliondo Game Controlled Area and Western Serengeti.

This study revealed that local communities in the Serengeti ecosystem often fail to gain tourism income, partly because tourism in the ecosystem is concentrated in PAs where many tourism attractions and activities, as well as tourism facilities and services, are found. This includes cultural tourism and community tours in NCA and Loliondo Game Controlled Area with the exception of Lamadi Village and communities adjacent to Ikona WMA in Western Serengeti. There are few services and commodities that the tourism industry in the Serengeti obtains from the local area since a substantial amount of food and materials used in tourism are brought from Arusha, while local people supply a low quantity of local produce (e.g., poultry, beef, and vegetables). As key informants noted, the supply of local produce from the local area in the Serengeti ecosystem is often neither adequate nor constant, and falls short of the quality required in the tourism industry. The fact that much of the produce used in the tourism industry in the Serengeti ecosystem is imported from elsewhere implies that the industry has not been able to influence other sectors of the economy (e.g., agriculture and construction) in the local area, and there are weak economic linkages between the tourism industry in the Serengeti ecosystem and the local economy. This finding is related to that of Mbaiwa (2003), who noted that most food stuff, commodities, and materials (e.g., dairy products, poultry, vegetables, furniture, beverages, and petroleum products) consumed in the tourism industry in the Okavango Delta were imported from other parts of Botswana, South Africa, and Zimbabwe. As such, this calls for a need to have mechanisms that can provide opportunities for local people to generate more income from tourism, as discussed in section 7.4.

7.2.2 Employment

Employment is provided by both accommodation operators and PA agencies.

A number of key informants suggested that nearly all accommodation operators within the Serengeti ecosystem employ at least a few local people, mostly in low paying positions, as discussed below. The level of local employment differs among NBT service providers in the Serengeti ecosystem.

Serengeti National Park

Both accommodation operators, especially lodges and campsites, and SENAPA provide employment to local communities. There are about 18 accommodation operators in SENAPA with a total workforce of more than 1,150 people. Out of this number, only about 15% are local people from communities adjacent to the park (TANAPA, 2013).

A senior warden of SENAPA commented that tourism operators provide employment to local communities, but only a small number of local people are employed. The operators consider a number of criteria, such as English language, professionalism, experience, and personal integrity, which many local people do not have. As a result, many people working in the tourism industry in the park come from Arusha, where many tourism operators are based.

A lodge manager I interviewed in the park noted, “Provision of employment to local people is a priority of our company. Currently, the proportion of local employees to our facility (Permanent Tented Lodge) is 35% of the total employees because they are not professionals in the hospitality industry. Many local employees are working in jobs that give them limited contact with tourists including incinerator, machines, cleaning, gardening, and staff quarters. When we engage local people in our company we provide

them with in-house training for 3 months or more, and take some of them for professional courses later on.” Another lodge manager operating in the north-west of the park pointed out that, “We have employed few local people - about 7 of them out of 25 employees as security guards, ground workers, and sanitation attendants. You know people from this area lack professional training and not easy to work with in the service industry like tourism. In order to get entrusted local employees, potential candidates from the communities apply to their respective ward and get appointed by the Ward Committee and approval of the Ward Councilor, before they are vetted by the park authority.”

An assistant manager of the pioneer accommodation facility (Tented Camp) in northern Serengeti indicated that the facility has about 50 employees, and about 50% of these come from local communities (e.g., Mirenga, Nyamakenda, Baribari, and Machochwe villages). The company, with support of community authorities (village councils and ward councilors) recruited local employees (e.g., security guards, sanitation attendants, and ground maintenance) who were trained by the company (in-house training). He added that his company promotes ecotourism by working with and supporting local communities and providing quality natural experiences to tourists with less impact to the environment. Thus, employing local communities is a way to support them and change their attitude towards conservation, as illegal activities (e.g., poaching) are rampant in this area.

Ngorongoro Conservation Area (NCA)

NBT provides employment opportunities to local communities in NCA. There was a general consensus among communities, tourism operators, and NCA officials that local communities have been employed by the lodges, permanent tented camps, and

NCAA. Many local people employed in the tourism industry in NCA are men and occupy low working positions. A senior official of Serena Lodge I interviewed noted, “Our property has about 20% local employees from Ngorongoro. Many local employees do not have professional training in the hospitality industry, thus we engage them in non-professional jobs related to guarding and cleaning. When we started our business during construction we had 60% local employees because the work was manual and local communities qualified for that kind of work. After that many left for job hunting elsewhere and we were left with a small number of local employees.”

Local community key informants said almost all accommodation facilities in NCA have employed local people from Ngorongoro, even though the number is low (about 25% of the labour force). There are no guidelines or regulations for tourism operators in NCAA prescribing the number of local employees. A senior official from NCAA who is a native of NCA indicated that, “The number of local employees in the hospitality industry is low perhaps because many local people lack professional qualifications required by the hoteliers. But many low ranking positions are occupied by local people. For example, nearly every accommodation property in NCA has employed local Maasai as security guards because they are courageous and trustful people.”

Another key informant from the Ngorongoro Pastoral Council affirmed that, “Many locals employed in the tourism industry are men as opposed to women because according to local traditions women remain home taking care of the family while men get out searching for daily bread and also the jobs that locals qualify for are physical jobs matching better with men (e.g., security guard, sanitation attendant and gardener).”

There was a general consensus among key informants I interviewed that people from local communities, especially men, are employed on a temporary basis (14 days) to work in the campsites owned and managed jointly by NCAA and local communities (Ward). There are 14 campsites and each has two security guards and one local guide employed from the respective wards on a rotational basis, so that after every 14 days other local members are recruited to take positions. Recruitment is done by village authorities and endorsed by ward authorities.

Key informants from NCAA indicated that the conservation authority also employed local people in every department, including Department of Tourism, Conservation Service, and Community Service Development. The conservation authority has about 400 employees, 34% being local people. Many of these (about 90) are employed in the Department of Conservation Service Management. A local community key informant from NCA claimed that, “Local communities through the Ngorongoro Pastoral Council have requested the government (Minister of Natural Resources and Tourism) to direct NCAA to give employment priority to local people and increase their number to 50% of the total NCAA workforce. But it seems the minister and NCAA are hesitant on our request for no apparent reasons.” A senior official from NCAA clarified that, “What was agreed on by the government and NCAA was to give priority of employment to local people, which is implemented.” He added that “NCAA is a government institution complying with government policies and legislation governing public service that need to be observed. You cannot just neglect the policies and legislation because of the wish of some few Tanzanians while employment in a public institution is for all Tanzanians without bias.”

Maswa, Ikorongo, Grumeti, and Kijereshi game reserves

As pointed out in Chapter 4, Maswa Game Reserve is a leading tourist hunting PA with three hunting companies in the Serengeti ecosystem. Nevertheless, NBT in the game reserve provides limited employment opportunities for local people. A senior official I interviewed from one of the hunting companies operating in the game reserve noted that, “Local communities are employed as camping crew, skimmers, gambera (local guides in hunting), and casual labour for road maintenance which occurs occasionally in a year. But these jobs require few people, like 2 camping crews, 2 skimmers, and 1 gambera for one hunting campsite.” Discussion in a focus group in Maswa Game Reserve indicated that tourist hunting engages few employees as opposed to non-consumptive tourism in SENAPA or NCA, which is labour intensive. In many cases, employment in tourist hunting requires experienced personnel, thus once someone is employed they will normally keep the job for a number of years. A focus group also indicated that employment in tourist hunting is male dominated (90%) and seasonal since the hunting period is only 6 months.

As indicated in Chapter 4, Grumeti Reserves Tourism Operator is allocated hunting blocks in Ikorongo and Grumeti Reserves, and Ikona WMA Hunting Zone is practicing mainly non-consumptive tourism. A key informant from Grumeti Reserves stated that the company has a workforce of 600 people; 300 are local people and the rest are from other parts of Tanzania and foreign countries. A key informant added that the total number of local employees is high because the company has invested heavily in tourism, conservation, and community development that involves many operations. These include three high-end market lodges, game viewing and hunting, conservation activities

(e.g., patrols and ecological monitoring), support for community development, machines, building and construction, security, administration, finance, and human resources.

Another senior officer from the company indicated, “Grumeti Reserves has a workforce of 90 rangers including previous poachers, and more than 90% of those come from nearby communities. The people who were poachers are identified by community leaders and recommended for employment to Grumeti Reserves. These people are given this opportunity as a way to provide them with alternative livelihoods and to reduce poaching. The previous poachers know how poaching takes place in the Western Serengeti so it is possible for them to fight against poaching.”

On the other hand, a local community key informant from Western Serengeti pointed out that, while the company is committed to improving community livelihood (e.g., employment to local people), there are some signs of favouring people from outside the local area, especially when it comes to employment. One community key informant stated that, “Of recent (at the time of this study) Grumeti Reserves advertised driving positions, and many recruited come from outside the local area (e.g., Arusha) leaving out young men with qualifications.” Another local key informant added that, “When the company started operating in the area it was sending letters to the village authorities on vacant posts at the company and village leaders made the posts public. Nowadays, some jobs like recent driving posts are advertised through mobile phone (sms message).” A senior official commented that apart from preference given to local candidates on recruitment the company focus is to maintain engagement of competent employees.

Key informants and focus group participants noted that Grumeti Reserves Tour Operator provides a good example of local employment in NBT in the Serengeti

ecosystem as opposed to PA agencies, especially game reserves under Wildlife Division reserves which rarely provide employment to local people, and there is no guideline or legislation encouraging that. The PA agencies have to hire suitable national citizen candidates from any part of Tanzania. Employment in the public service is centralized under the Public Service Recruitment Secretariat in the President's Office Public Service and is open for all qualified Tanzanians. The game reserve authorities can only recruit temporary workers for casual labour (e.g., road maintenance and boundary clearance).

Loliondo Game Controlled Area

Tour operators operating in Loliondo Game Controlled Area provide employment opportunities to local communities. Many of these people occupy positions that have limited contact with tourists, and also do not require professional skills (security guards, ground attendants, and cleaners). A lodge manager from one high-end market lodge operating in the ecosystem noted that, "The lodge has a total of 60 employees, and 60% of that number are local employees, especially Maasai. It is our company policy to employ local people. Local employees work in security, sanitation, ground, catering, and guiding sections. For example, the facility has five guides and two of them are local people from Ololosokwani Village. We provide intensive in-house training not only to local employees but also fresh employees from colleges in order to expose them to our operations, standards, and qualities." Another Lodge Manager operating in Loliondo noted, "We have few employees from the local communities working as security guards, ground attendants, and local guides for walking safaris. Many local people do not apply for professional positions (e.g., front office) due to lack of professional training."

Some key informants I interviewed and focus group discussions with Game Scouts from Soitambu community indicated that Ortello Business Corporation (OBC), a hunting company operating in Loliondo Game Controlled Area, provides several casual labour employment opportunities to local people. This happens occasionally when tourists visit the area. One key informant said, “Ortello Business Corporation provides casual employment to more than 100 local people and pays good money, say about US \$400 for 4 days per person. The only challenge is that the work is seasonal and local communities complain that permanent and well-paid positions are occupied by people from outside Loliondo.” A representative of the hunting company that I spoke to about bias on employing local people with the company was reluctant to give a detailed account, but commented that “local communities have their share of employment opportunities according to the agreement between the company and local leaders, and people outside Loliondo area also deserve employment to the company.”

Discussion in the focus group revealed that at the beginning the hunting company employed four young men from each adjacent village. However, since the eruption of the conflict between local communities and the Ortello Business Corporation in 2008 (see detail in section 7.3.2), the company ceased to recruit local people. Instead it employed people from outside Loliondo area, especially Arusha. The discussion revealed that now the situation is calm and the company can recruit local people, but local community leaders negotiate with the hunting company on the matter. Members of the focus group complained that local leaders are moving slowly to negotiate with Ortello Business Corporation while youth are eager to work with the company.

PA key informants I interviewed from Loliondo Game Controlled Area indicated that the government workforce in the controlled area is six people and three of them are natives of Loliondo. Key informants added that there are few government employment opportunities in the conservation sector while the government system of recruitment is centralized, giving opportunity to every Tanzanian qualified for the job to apply.

Wildlife Management Areas (WMAs)

NBT in Ikona and Makao WMAs provides employment to local communities. However, the level of local employment is low and many occupy non-professional positions with low pay. A lodge manager operating in Ikona WMA noted that, “The contract we have with Ikona WMA stipulates that 60% of our workforce will be local people, although in the meantime the proportion of local employees is less than 20%.” A senior official working for Ikona WMA confirmed that, “The agreement between Ikona WMA and accommodation operators in a non-consumptive zone is that local employment will be 60% of their total workforce, but that goal has not been attained. Local employment engaged by accommodation operators ranges from 10% to 30%. There could be a number of attributes to this situation, but most important is local people lack qualifications required for professional jobs in the tourism industry including foreign language (e.g., English), customer care, catering, housing keeping, and tour guiding.” A key informant added that many local people employed in accommodation facilities in the WMA work as security guards, sanitation attendants, and casual labourers. WMA agencies are required by their Act of establishment to employ Game Scouts from among local communities with qualifications prescribed in the Act. To illustrate this, a senior official from Ikona WMA I interviewed noted “Ikona WMA has employed a total

of 20 local people, 5 people from each village member, as Village Game Scouts.

An official I interviewed from Makao WMA pointed out that the WMA has recruited 21 Village Game Scouts, 3 from each WMA village member. In addition, about 6 local people were employed by the hunting company at the time of this study.

Summary

In summary, the NBT supply system components (PA agencies, tour operators, and local communities) provide employment to local people in the Serengeti ecosystem. The level of local employment differs among these tourism service providers across the ecosystem. In the case of PAs, NCA employs many local people compared to other PA agencies in the ecosystem, partly because of its legal mandate to support residents, the localized system of employment, and many operations which require a high number of employees. The systems of employment for other PAs in the ecosystem are centralized at the headquarters away from the ecosystem, except WMAs which also have low numbers of employees (about 30 for each WMA) all occupied by local people. In addition, non-consumptive tourism (e.g., NCA and SENAPA) involves a large labour force because it includes many services compared to consumptive tourism in the game reserves and game controlled area. Likewise, tour operators provide employment to local people, and the numbers vary among operators across the ecosystem. But often the number is low (less than 25% of total employment) except in a few cases, such as Grumeti Reserves, Ortello Business Corporation, and Asilia Tented Camp, which have up to 50% employees from the local area. Likewise, communities engaged in provision of tourism services, especially in cultural bomas in NCA, provide employment to local people.

This study revealed that local employees occupy low quality jobs with low payment (e.g., security guards, sanitation attendants, ground workers, and local guides). This finding relates to that of Charnley (2005), who noted that local people in NCA are employed in tourism accommodation facilities as security guards, while many employees were originating from communities outside NCA. Similarly, this finding is consistent with those of Karanth & DeFries (2010), Mbaiwa (2003), and Walpole & Goodwin (2000), who found that high quality, well-paid jobs in tourism are occupied by foreigners and people from outside the local area, while local people occupy low quality jobs. The low level (quantity and quality) of local employment in the tourism industry in the ecosystem can be attributed to a number of factors, including lack of qualifications required in the industry (e.g., English language, experience, professional training in relevant areas, such as catering, tour guiding, hospitality, and customer care) and centralized systems of employment not favourable to local people. Many local communities employed in the tourism industry have not received any additional training apart from basic education (primary or secondary school) and few speak English (Charnley, 2005; Mbaiwa, 2003; Walpole & Goodwin, 2000). Nevertheless, some local people employed in the tourism industry receive in-house or on-the-job training provided by tour operators in order to equip them with basic knowledge and skills required for their work. The study also indicates that many local employees in the tourism industry in the Serengeti ecosystem are men. This is partly attributed to the traditional culture of the area that women are responsible for domestic chores and men go out in search of income and food and the jobs available related to their qualifications are manual.

7.2.3 Social service and infrastructure

PA agencies, tour operators, and tourists provide support for social services and infrastructure development to local communities in the Serengeti ecosystem. Serengeti National Park and NCAA are the only PA agencies that provide social services to communities and have guidelines that govern local community social support. Key informants pointed out that some tour operators and tourists have given support to communities, including classrooms, school laboratories, dormitories, furniture, educational materials, staff houses, dispensaries, and water boreholes (Table 7.6). These are the common social service supports provided to communities in the ecosystem.

Table 7.6: Some communities that have received social service support from tour operators and tourists in the ecosystem

Beneficiary area and community	Social support	Donor institution
Western Serengeti		
20 villages in Serengeti and Bunda Districts working with Grumeti Reserves	Classrooms, dispensaries, 40 water boreholes, poultry and horticultural projects,	Grumeti Reserves
Ikoma Ward	Headmaster house to Ikoma Secondary School and a classroom at Robanda Secondary School	Serengeti Balloon Safari
Robanda	Porridge to pupils annually and books to Robanda Primary School	Thomson Safari
Park Nyigoti Village	Desks, books, and toilets to primary school	Serena Lodges
Mugumu	Medicine Mugumu Hospital	Serena Lodges
Machochwe Village	US\$ 1,000 every year to Machochwe Secondary School	Sayari Tented Camp
Machochwe Village	Books, pen, and footballs	Tourists
Machochwe Merenga, Balibali, and Nyamakenda Villages	Poultry and horticultural projects	Sayari Permanent Tented Camp
Lamadi Village	5,000 mosquito net	Serena Lodges
Ndabaka Village	1 classroom, village office and police station	&Beyond
NCA		
Oloirobi Village	4 classrooms, 2 teacher's house, and books (TZS 7.5 million)	Serena Lodge
Loliondo Game Controlled Area		
Ololosokwani Village	1 classrooms, dispensary, 18 computers to Soitisambu Secondary School	&Beyond
Ololosokwani Village	1 classroom, water tanks to Ololosokwani Primary School	Nomads
Ololosokwani Village	2 classrooms (TZS 40 million), US\$ 1000, desks, half classroom to Ololosokwani Primary School and medicine to a dispensary	Tourists
Soitisambu Village	2 teachers houses and village office	Thomson Safari
Soitisambu Village	Village office	Ortello Business Corporation
Sukenya Village	Teachers house	Thomson Safari

Maswa Game Reserve		
Butuli Village	Teachers house and dispensary	Tanzania Game Trackers
Malate and Mwamongo Villages	Teachers house	Tanzania Game Trackers
Mwanyaina Village	The whole school classrooms and teachers office	Tanzania Game Trackers
Makao WMA		
Makao Village	Water borehole, community centre, police station, and donated TZS 40 million for building secondary school	Robin Hurt Safari
Makao Village	Classrooms and water borehole	Mwiba Holding Ltd
Sapa Village	Water borehole, 3 classrooms, and rain water harvest project	Robin Hurt Safari
Karatu		
Tloma Tloma Village	Classrooms to Tloma Primary School and solar power to Tloma dispensary	Kibo Tours
Kambi ya Nyoka Village	Classrooms to Kambi ya Nyoka Primary School	Kibo Tours
Banjika Village	Classrooms and books to Banjika Primary School	Kibo Tours
Bashay Bashay Village	Classrooms to Bashay Primary School	Overseas Adventure Travel
Ganako Village	Desks to Ganako Secondary School	Gibbs Farm
Ailade Village	1 classroom and desks to Ailade Primary School	Thomson Safari

The social benefits are provided by tourism service suppliers as a way to contribute to community development and forge links and improve relationships with rural poor communities in the Serengeti ecosystem. Tourists provide social service support when they visit and interact with local communities and realize the need for supporting the community through volunteering their time. Support for social services and infrastructure development differs across the Serengeti ecosystem, as outlined below.

Serengeti National Park

Support for local community development is a policy of Tanzania National Parks that is implemented by all national parks in the country regardless of the revenue they generate. The policy requires every national park to allocate revenue (7.5% of the park's recurrent budget) for supporting local community development under the program known as Support for Community Initiated Projects (SCIP). This program is implemented by the Department of Outreach Program in every national park.

SENAPA has supported at least 72 projects in 50 villages adjacent to the park from 2005 to 2010 (Table 7.7). These projects include education (classrooms, school laboratories, dormitories, furniture, educational materials, and staff houses), health (staff houses and dispensaries), and water (water boreholes and water dam). Table 7.7 shows social services support given to local communities in the ecosystem as reported by staff I interviewed from SENAPA. The table indicates that 46% of the beneficiary villages are found in the Serengeti District and 50% of community development projects were implemented in Serengeti District by the park authority. A warden I interviewed from the park commented that, “Local communities in the Serengeti District are the most beneficiary of Support for Community Initiated Projects (SCIP) because nearly half of the villages bordering the park are in the Serengeti District.”

The guidelines for supporting community development require villages to identify and prioritize community issues, put them in the form of a project, and submit a request for support from the park. According to the guidelines, local communities and SENAPA are supposed to contribute 30% and 70% of the total cost of the project, respectively. However, a warden from the park noted, “Experience indicates that in many cases SENAPA contributes more than 70% and local communities less than 30% of the total costs of the project. This scenario is attributed to income poverty in the communities.”

Table 7.7: SENAPA social services support to adjacent communities from 2005 to 2010

District	Number of villages / communities (%)	Type and number of projects			
		Education	Health	Water	Total (%)
Bariadi	7 (14%)	9	1	2	12 (16.7%)
Bunda	3 (6%)	1	2		3 (4.2%)
Magu	3 (6%)	4			4 (5.6%)
Meatu	7 (14%)	9			9 (12.5%)
Ngorongoro	2 (4%)	3			3 (4.2%)
Serengeti	23 (46%)	25	1	10	36 (50%)
Tarime	5 (10%)	1		4	5 (6.9%)
Total	50	52	4	16	72 (100%)

Source: TANAPA, 2013.

Tour operator key informants pointed out that some tour operators and tourists have contributed social services support to communities as indicated in Table 7.6. Tour operators operating in SENAPA have provided social service support to local communities in the Western Serengeti, especially Serengeti, Bunda, and Lamadi, which are close to areas where the investors are operating. For instance, Serena Lodges operating in SENAPA has contributed desks, books, and toilets to a primary school in Parki Nyigoti Village, Medicine Mugumu Hospital, and 5,000 mosquito nets to Lamadi Village. Serengeti Safari Balloon operating in Seronera and Western Serengeti has built a classroom at Ikoma Secondary School and teacher's house at Robanda Secondary School. Grumeti Reserves Tour Operator has contributed to a school, water, and agricultural projects in communities in Serengeti and Bunda Districts in Western Serengeti.

Ngorongoro Conservation Area (NCA)

According to PA and local community key informants from NCA, the conservation authority has constructed two boarding secondary schools, 37 primary schools, a police station, and road networks as part of community support. NCA also provides medical services, food to destitute families during famine, veterinary services at low cost, and watering points for livestock to local residents. Local communities in NCA also use some services, infrastructure, and facilities developed for tourism and conservation purposes including roads, transportation, medical services, water supply, security, and shops. A senior official I interviewed from NCA pointed out that the conservation authority and Ngorongoro Pastoral Council representing local people work together identifying social service supports needed by local communities and integrate

them in their annual plans and budget. Finally, the authority implements the plans endorsed by the Board of Trustees.

Tour operators, in particular accommodation operators, in NCA provide support for social services to local communities in the conservation area (Table 7.6). For instance, Serena Lodge in NCA has contributed classrooms, a teacher's house, and books to Oloirobi Village. Sopa Lodge in Ngorongoro has built a classroom at Erkipus Village, and Tanzania Wildlife Safari (TAWISA) has supported the purchase of computers and books at Embarway Secondary School in NCA. Kibo Tours, Gibbs Farm, Thomson Safari, and Overseas Adventure Safaris have contributed to school projects in communities adjacent to NCA in Karatu District.

Maswa, Ikorongo, Grumeti and Kijereshi game reserves, Loliondo Game Controlled Area, and Ikona and Makao WMAs

Game reserves, game controlled area, and WMAs in the Serengeti ecosystem do not provide social services to local communities. However, the income allocated to local communities from these PAs is used for provision of social services as decided by the respective communities, in particular the village government.

As explained earlier (see section 7.2.1), for the WMAs at least 50% of the total income generated is distributed to WMA village members for community development projects. A community key informant I interviewed in Ikona WMA indicated that “nature-based tourism has been very supportive to us because before tourism we were contributing for social development projects (e.g., building schools) but nowadays the income from WMA covers that cost and we do not contribute any longer.”

Parallel to this, different tourism operators provide a number of social services to local communities, including education, dispensaries, and water (Table 7.6). Specifically, hunting tour operators are required by law to support community development projects in their areas of operation (URT, 2009). For instance, Nomads, Ortello Business Corporation, Thomson Safari, and tourists have supported school and community offices to communities in Loliondo Game Controlled Area. Tanzania Game Trackers Outfitter has contributed to classrooms, teachers' houses, water boreholes, dispensaries, police stations, and built a primary school in villages around Maswa game reserves. Robin Hurt Safari and Mwiba Holding Ltd have supported school and water projects for Makao WMA village members.

Summary

In summary, some PA agencies and tour operators support social service projects to local communities in the Serengeti ecosystem. Support for social services to local communities is one of the management objectives of SENAPA and NCAA indicated in their general management plans, with an annual budget of 7.5% of recurrent budget and 6.5% of total budget, respectively (NCAA, 2010, 2013; TANAPA, 2005, 2013). This is a key mechanism for many local communities (more than 70 communities) to accrue tourism benefits from the park agency. Local communities through the village councils identify and propose social service projects to the park authority for consideration and approval. Both parties, the park authority and communities concerned, share the cost of the project. In the case of NCAA, local communities through the pastoral council and the conservation authority identify social projects which are financed by the authority in full. The game reserves, game controlled areas, and WMAs do not provide social services, but

allocate funding that can finance social services through District Councils to local communities. Tour operators and tourists provide social services to local communities voluntarily according to their interests. Parallel to this, hunting companies are obliged by wildlife conservation legislation to support development initiatives to communities adjacent to the hunting blocks (URT, 2009). Local communities adjacent to PAs accrue social services from NBT, and this is the form of benefit that can be shared by many people since the services become public (Goodwin et al., 1998; Mackenzie, 2012; Mbiwa, 2003; Strickland-Munro & Moore, 2012).

The distribution of social service benefits from tourism is uneven among local communities across the Serengeti ecosystem. Some communities in NCA, Western Serengeti, and Loliondo have received comparatively more social service benefits from tourism service suppliers than others. Similarly, some communities in Loliondo Game Controlled Area, Western Serengeti, and those bordering Maswa Game Reserve, as well as NCA have received some social service benefits and others not. The flow of social services to communities from NBT is partly governed by guidelines, arrangements, and decisions made by PA agencies and tour operators to support communities, by location of communities in relation to core tourism areas, and by community participation in NBT.

Provision of social service benefits from NBT is viewed as an ideal mechanism for rural poor communities, which lack such services. Tourism service suppliers prefer provision of social services to communities because the services are public and used by almost every individual in need. Even the income generated by many communities from tourism and those allocated by PA agencies to communities are used for community social services development in the ecosystem (Charnley, 2005; Melita & Mendlinger,

2013; Mwakaje et al., 2013; NCAA, 2010). For instance, at least 50% of tourism income generated in Ikona WMAs and allocated to local communities is used for social services development and village administration (Ikona, 2012; Mwakaje et al., 2013).

7.2.4 Scholarships and school fees

Local communities in NCA, Loliondo Game Controlled Area, and Western Serengeti, especially Ikona WMA village members, benefit from scholarships and school fees provided by NBT service suppliers, including NCAA, tour operators, and tourists, as discussed in this section. The level and arrangements for scholarships and school fees support differ among providers and beneficiary communities across the ecosystem, as discussed below. NCAA provides education bursary support only to NCA local residents. According to the Act of establishment of NCAA, support for local community development is one of the three mandates of the conservation authority. SENAPA, Maswa, Ikorongo, Grumeti, and Kijereshi game reserves, Loliondo Game Controlled Area, and Ikona and Makao WMAs do not provide scholarships and school fees to support local students.

Ngorongoro Conservation Area (NCA)

NCAA, tour companies, accommodation operators, and tourists have provided education bursaries to local people in NCA. NCAA provides scholarships and school fees to local people as a strategy to implement its legal mandate of support for community development (NCAA, 2010). Key informants I interviewed from NCAA and Ngorongoro Pastoral Council affirmed that NCAA, through the Ngorongoro Pastoral Council, allocates revenue for education bursaries to local residents as indicated in Table 7.8. The education bursary scheme is governed by the guidelines and procedures of education

improvement for local residents in NCA “Mwongozo na Taratibu za Kuboresha Elimu kwa Wenyeji Wafugaji Waishio Eneo la Hifadhi ya Ngorongoro, 2010” (meaning Guidelines and Procedures for Education Improvement of Pastoral Residents in Ngorongoro Conservation Area). The pastoral council, in collaboration with the Ward Executive Committees, and Village Governments oversee and implement the education bursary scheme. The scheme covers local students pursuing studies at secondary school, college, and university (Bachelor degree) levels.

Table 7.8 shows an increasing trend of the total number of beneficiaries from 276 students in 2004 to 1,048 students in 2009/10, as well as the total amount of bursaries from TZS 145,964,923.16 to TZS 703,746,248.00 in the same years. The number of female students has remained low, less than 30% of the total beneficiary students all years compared to the number of male students that has been recorded above 70%. A key informant working with Ngorongoro Pastoral Council attributed gender imbalance of bursary beneficiary students to local cultural background, whereby men are given more priority than women, and early engagement and marriage of girls in their teens.

Table 7.8: Numbers of students sponsored by Ngorongoro Pastoral Council (1995 to 2009 / 2010)

Financial Year	Number of students					Cost (TZS)
	Male	%	Female	%	Total	
1995 – 2004					276	145,964,923.16
2004 / 2005	187	77	57	23	244	148,145,460.00
2005 / 2006	235	76	74	24	309	241,212,580.00
2006 / 2007	278	76	90	24	368	306,957,765.00
2007 / 2008	428	76	133	24	557	478,331,220.00
2008 / 2009	526	77	155	23	681	649,983,510.00
2009 / 2010	757	72	291	28	1048	703,746,248.00
	2,200	73.3	800	26.6	3,000	2,528,376,783.00

Source: Ngorongoro Pastoral Council (2012)

Some tour operator key informants I interviewed indicated that accommodation operators provide education bursaries to local students from NCA. A lodge official from

Serena Lodge indicated that the lodge has supported five local students with school fees (three students at secondary school and two at college level). The official added that the lodge supports local communities depending on the budget approved by the lodge company for that activity. Another senior official working with Sopa Lodge in NCA pointed out that for the past 2 years the lodge has sponsored four secondary school students from local communities. The lodge provides education support when it receives requests from local communities which must be endorsed by village government.

Ikorongo and Grumeti game reserves, and Ikona WMA

Key informants I interviewed from PAs and local communities in Western Serengeti, in particular Ikorongo and Grumeti game reserves, and Ikona WMA indicated that Grumeti Reserves Tour Operator provides education bursaries to students from local communities. The education bursary can cover secondary education, vocation training, colleges, and university education levels. A key informant working with Grumeti Reserves noted that the tour operator was sponsoring more than 70 local students to various education institutions in Tanzania at the time of this study. The bursary support is administered by Grumeti Reserves Tour Operator through its department responsible for community development.

Loliondo Game Controlled Area

Some PA and local community key informants from Loliondo Game Controlled Area pointed out that Ololosokwani Village has been sponsoring local students to different levels of education, including secondary education, college (e.g., teachers, livestock, and catering professionals), and university. An official from Ololosokwani Village noted that, “The village has been using the income it generates from tourism

to cover costs of local students to various schools, colleges, and universities.

The beneficiaries include 4 graduates from Kenya, Uganda, and Tanzania universities, more than 30 college students, and more than 100 secondary school students.”

The official added that, “The village decided to invest in education because local students were unable to progress to higher levels of education due to lack of financial support. The scholarship program is administered by the village government based on the established criteria.” The criteria include: (1) the candidate must be a native of Ololosokwani Village; (2) the candidate must have passed the examinations and secured admission into respective education levels (secondary school, college, and university); and (3) the candidate and his family are unable to cover the costs of education.

Summary

This section has discussed education bursary benefits received by local people in NCA, Western Serengeti, and Loliondo Game Controlled Area. This form of benefit is provided and governed by community authorities to local students using the revenue accrued by communities directly from tourism and or PA agencies, especially NCAA, as well as from tour operators. Local communities in NCA benefit most, perhaps because it is the legal mandate of NCAA to support community development, but also because the conservation authority and communities generate significant revenue from tourism. This finding is supported by those of Charnley (2005), Melita & Mendlinger (2013), and Mwakaje et al. (2013), who found that NCAA provides scholarships to local students. This study has revealed that PA agencies do not provide scholarships to local students, except NCAA through the pastoral council. Figure 7.1 shows the distribution of NBT benefits to communities in the Serengeti ecosystem. Three levels of benefits (more

benefits, less benefits, and no benefits) have been adopted in this figure to illustrate variation of benefits among local communities in the ecosystem. The three levels of benefits have been used without specific measurement of benefits. These benefits vary among local communities across the ecosystem. Communities in NCA accrued more economic and social benefits compared to the rest of the communities, while communities bordering Maswa Game Reserve experienced few benefits.

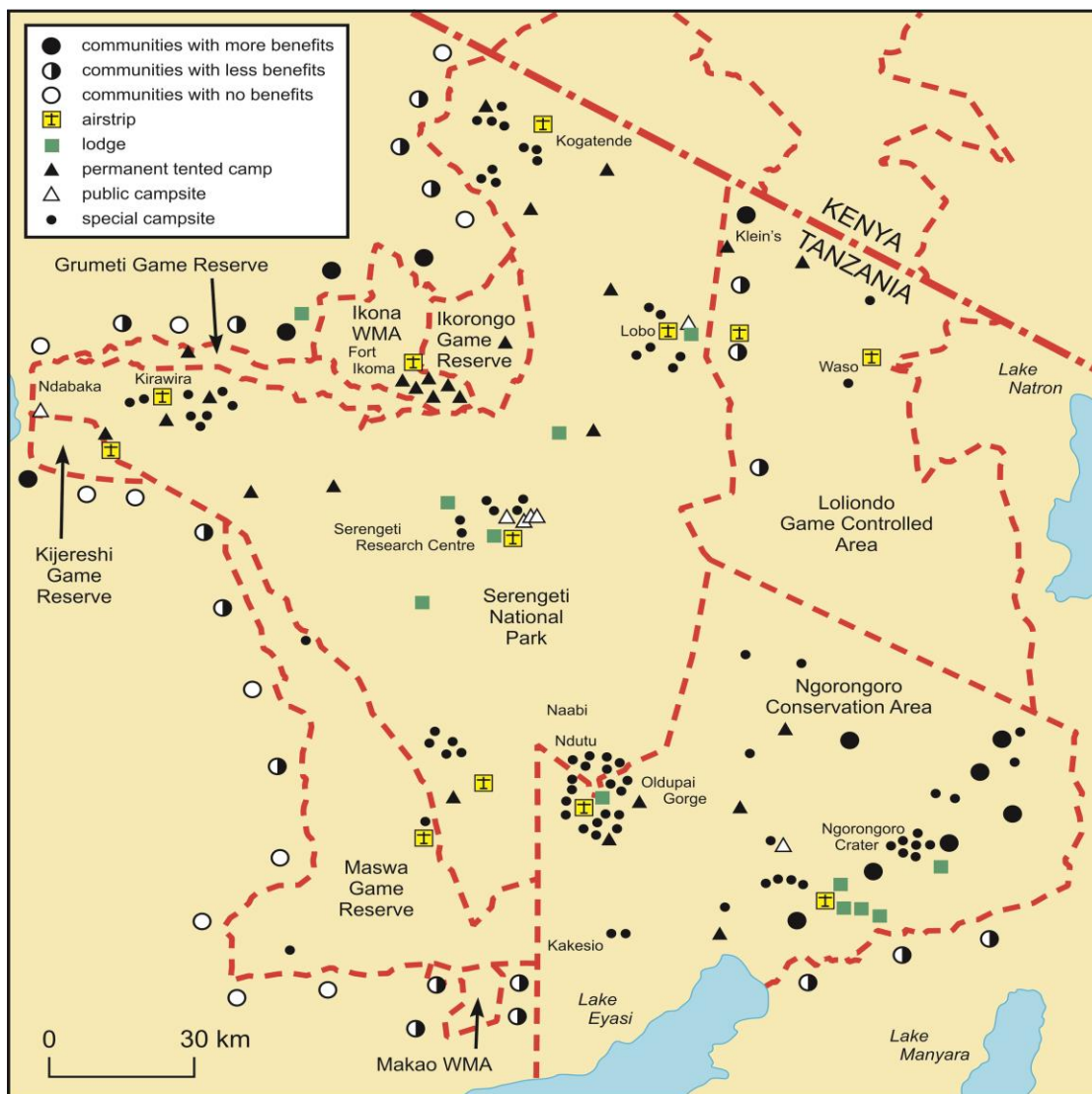


Figure 7.1: The distribution of tourism benefits and costs to communities in Serengeti ecosystem

7.3 Costs of NBT to communities

The preceding section has discussed the flow and distribution of economic and social benefits of NBT to local communities in the Serengeti ecosystem. This section will discuss the flow and distribution of the economic and social costs of NBT in the ecosystem. The costs include loss of grazing land and farmland, conflict (tourism-stakeholder, and human-wildlife conflicts), increase of human population, and unintended consequences, as discussed in detail below. These costs occur directly or indirectly, and some are shared by tourism and conservation, especially loss of grazing land and farmland, since some PAs have a dual purpose (e.g., NCA and Ikona and Makao WMA).

The costs of NBT vary among local communities within or adjacent to PAs across the ecosystem (Table 7.9). It seems that NBT in all PAs has partly contributed to the loss of grazing land and farmland and conflict (human-wildlife conflicts) to local communities, since PAs tend to restrict traditional socio-economic activities. Further, wildlife from PAs tends to disperse to community land causing damage to property, crops, and livestock.

Table 7.9: Costs of NBT to communities in the Serengeti ecosystem

Cost of tourism to communities	PA							
	SENAPA	NCA	Maswa Game Reserve	IGGR	Kijereshi Game Reserve	LGCA	Ikona WMA	Makao WMA
Loss of grazing land and farmland	✓	✓	✓	✓	✓	✓	✓	✓
Conflict (tourism stakeholders)						✓		
Conflict (human wildlife)	✓	✓	✓	✓	✓	✓	✓	✓
Increase of human population		✓		✓	✓		✓	
Unintended consequences		✓		✓			✓	

Where: SENAPA = Serengeti National Park, NCA = Ngorongoro Conservation Area, IGGR = Ikorongo & Grumeti game reserves, LGCA = Loliondo Game Controlled Area

7.3.1 Loss of grazing land and farmland

Key informants noted that local people are strictly prohibited from practicing traditional socio-economic activities in SENAPA, all game reserves, and core areas identified for wildlife conservation and tourism development in NCA, game controlled areas, and WMAs.

The establishment and management of PAs in the Serengeti ecosystem reduced land for livestock grazing and crop cultivation for communities across the ecosystem. PAs are governed by legal instruments which restrict communities from access and use of either whole or partial PAs. Some key informants associated the loss of grazing land and farmland costs (that is attributed to conservation) with tourism since PAs in the ecosystem (e.g., NCA, Ikona and Makao WMAs) have dual mandates of conservation and tourism that are interdependent, thus regarding conservation costs as indirect cost of NBT to local communities.

Serengeti National Park

The legal mandate of Tanzania National Parks, including SENAPA, prohibits human use of the national parks other than for conservation and tourism activities (TANAPA, 2013). Establishment of SENAPA in 1951 not only shifted local people from their native land to the periphery, but also denied them opportunities for traditional socio-economic activities in the park (Homewood et al., 2012; Sinclair et al., 2008). Some of these are pastoralists, agro-pastoralists, and agriculturists found in NCA, Loliondo Game Controlled Area, Western Serengeti, northwest and southwest of SENAPA.

There was a general consensus among key informants I interviewed that the establishment of SENAPA displaced and caused havoc to local communities, but they

expressed different opinions on the existing perception that restrictions of traditional socio-economic use of the park is an issue to communities today. One key informant who is a native of Serengeti noted, “We lived in Seronera when I was young before the area was declared a park. The eviction was a bad experience to local people, but that is historical today when the park is surrounded by a number of PAs which buffer it from communities. Only few communities border the park directly because the park is surrounded by other PAs. After all, the scarcity of land and resources in Western Serengeti is caused by a number of pastoralists and farmers moving to areas adjacent to the park from different areas in Shinyanga, Simiyu, and Mwanza regions. Resources in areas bordering PAs in Western Serengeti will never be adequate if the population will continue to increase in the area.”

A key informant from a PA who has worked in the park for more than 20 years indicated, “I do not think that restricting access and use to local communities is what makes them poor. Does it mean that allowing them to use the park will improve their livelihood? The Western Serengeti has a high human population, and still some more people with big herds of cattle are moving into the area increasing the demand of natural resources and pressure to PAs.” Another key informant noted that the issue is wildlife destroying crops in the community, and lack of land use plans in Western Serengeti, but not park restrictions. “There is high demand of land and resources in the area, such that even if livestock grazing is allowed the area will not be enough.”

Ngorongoro Conservation Area (NCA)

Although NCA is a multiple land use area where conservation, community, and tourism activities are permitted, local communities are restricted to access and use certain

areas (although the size of this area is not provided) for traditional activities including livestock grazing and settlement. According to the general management plan of NCA, local people have limited access to and use of resources in the Northern Highland Forest Reserve and the craters (Ngorongoro, Olmoti, and Empakai), and settlements are not allowed within 500 metres from the edge of the craters while tourism uses are allowed (NCAA, 2010). Similarly, crop cultivation is prohibited in NCA. PAs and community key informants I interviewed indicated that loss of land is acute to pastoralist communities who keep large herds of livestock, except in Oldupai Sub Zone where local uses are permissible with minimum restrictions. As a result of land and natural resource shortages, sometimes local communities violate the restrictions and get penalized when they are caught by personnel from the conservation authority.

*Maswa, Ikorongo, Grumeti and Kijereshi game reserves, and
Loliondo Game Controlled Area*

The Wildlife Conservation Act of 2009 permits conservation and tourism in game reserves and game controlled areas, and restricts all traditional socio-economic activities, including livestock grazing and crop cultivation, although in game controlled areas (e.g., Loliondo Game Controlled Area) traditional socio-economic activities can be allowed with permission from the wildlife authority (URT, 2009). Before the establishment of the game reserves and game controlled areas in the Serengeti ecosystem, the areas were used by local communities (pastoralists, agriculturists, and hunters and gatherers) for traditional socio-economic activities. Thus, in a way, conservation and tourism resulted in loss of grazing land and farmland.

A local key informant I interviewed from Meatu indicated that Wasukuma pastoralists and farmers used the area until 1962, when Maswa Game Reserve was

formed. He noted, “Since the establishment of the reserve the wildlife authority (referring to Wildlife Division) has expanded the boundaries of the reserve three times into community land. As if that is not enough, local communities are denied access to the reserve for livestock grazing and watering even during severe drought when livestock are dying due to lack of water and pasture outside the reserve, as well as comparatively large number of livestock. This situation has resulted in fighting between pastoralists and the reserve rangers twice in the past 2 years, and the loss of life of two rangers and a few pastoralists.” Discussion with members of the focus group from the reserve confirmed the hostility between local communities and the reserve authority and staff as a result of encroachment of the reserve from local people. Members indicated that the reserve boundaries have been altered three times into the reserve, thus reducing the reserve size in order to accommodate the issue of land scarcity facing local communities in the area. The reserve boundaries have been contested by local communities and the reserve authority, each claiming that the other has encroached on their portion of the land. At the time of this study, there was a Commission of Enquiry on Wildlife Protected Areas Land Dispute from the Office of the Prime Minister investigating the disputes in the country, including the boundary conflict between Maswa Game Reserve and local communities.

Ikorongo, Grumeti, and Kijereshi game reserves were established in 1993 to buffer SENAPA, which is the core conservation area in the ecosystem, but also to boost the government market share in tourism by creating more tourist hunting areas. These areas used to be game controlled areas for wildlife conservation, but also permitting traditional socio-economic activities including livestock grazing, crop farming, and resident hunting by local communities. A local community key informant from Western

Serengeti pointed out that the establishment of Ikorongo and Grumeti game reserves deprived local people social and economic opportunities, resulting in poverty.

For example, a key informant said, “Local people in Rwamchanga Village used Ikorongo for livestock grazing and crop farming before it was declared a game reserve, but today they are restricted from using the area, have land scarcity, and are squeezed with the reserve and the park. Every year Rwamchanga people conflict with the park and reserve authority by intruding the PAs for livestock grazing and watering while wildlife invade their farmland and destroy crops during migration.” Another local key informant commented, “Hunting for bush meat was a tradition for local communities in Western Serengeti (e.g., Ikoma, Natta, Kurya, and Ngoreme tribes) in the Ikorongo and Grumeti area before they were uplifted to game reserve. Nowadays, bush meat is not easily accessed unless through poaching. If you ask local people about bush meat they will tell you that local hunting (resident hunting) should be allowed.”

Ikona and Makao WMAs

WMAs are established in areas outside core PAs (e.g., national parks and game reserves) which are used by local communities within the village land (URT, 2009). This implies the establishment of Ikona and Makao WMAs reduced the land of WMAs village members that were used by local communities for traditional economic activities including livestock grazing and crop farming (Ikona, 2005; Makao 2010). The traditional land uses were replaced by both conservation and tourism activities.

Ikona WMA has a total area of 480.1 km² that was contributed by Robanda, Parki Nyigoti, Natta Mbiso, Makundusi, and Nyichoka WMA village members. Some key informants I interviewed admitted that the establishment of Ikona WMA reduced the land

available for local people to practice their traditional economic activities. A local community key informant I interviewed from Ikona WMA stated, “Our village (Robanda) contributed a large portion of the WMA area, but now what remains is an area which is not enough for expansion of crop farming and livestock grazing. Sometimes we are forced to graze livestock in the WMA illegally, in particular during the dry season when pasture is scarce in the village.”

Before the establishment of Makao WMA in 2010, the area was used for livestock grazing, crop farming, and traditional hunting and gathering (Makao, 2010). The establishment of the WMA saw the eviction of 3,500 pastoralists and farmers from Makao, Mwabagimu, Mbushi, Lukale, Jinamo, Irambandogo, and Sapa villages (Makao, 2010). “While the WMA can be beneficial to conservation and local people, its establishment created inconvenience and hardship for local people because they can no longer graze and farm in the area. Makao WMA was a refuge area for pastoralists during the dry season. Now the area is used for conservation and tourist hunting, which cannot equally substitute the value of traditional economic activities,” said a local community member from the Makao area.

Summary

In summary, the establishment and management of PAs in the Serengeti ecosystem reduced land for livestock grazing and crop cultivation for communities across the ecosystem. This finding is supported by many scholars (e.g., Goodwin et al., 1998; Kideghesho et al., 2005; Norvelli & Scarth, 2007; Strickland-Munro & Moore, 2013), who argue that often the establishment of PAs displaces local people and restricts them from accessing natural resources in PAs. Loss of grazing and farmland differ among

communities in the Serengeti ecosystem. PAs are governed by legal instruments which restrict communities from access and use of either the whole PA (e.g., SENAPA and game reserves) or some parts of the PA (e.g., NCA, Ikona and Makao WMAs, and Loliondo Game Controlled Area). The change of the status of then Ikorongo, Grumeti, and Kijereshi Game Controlled Areas to game reserves in 1994, as well as the establishment of Ikona WMA and Makao WMA in the 2000s, continued to reduce grazing land and farmland for communities in the Western Serengeti and south-west of the Serengeti ecosystem (Homewood et al., 2012; Songorwa, 1999). This finding is supported by the findings of Emerson & Mfunda (1999) and Homewood et al. (2012), who found that the monetary benefits from NBT cannot substitute for the benefits of the traditional economy (livestock grazing and farming) in the ecosystem.

7.3.2 Human wildlife conflict

The discussion in the preceding section has discussed the way NBT creates loss of land for livestock grazing and crop cultivation in the Serengeti ecosystem, and sometimes results in stakeholder conflict. This section will discuss how NBT results in conflict between tourism stakeholders, and human-wildlife conflicts. As discussed earlier (see Chapter 4), wildlife diversity and populations are a key feature attracting tourists that PA agencies and tourism investors (e.g., accommodation operators) would like to maintain. However, local communities encroach on PAs to graze livestock while PA agencies protect wildlife. Some PAs, tour operators, and local community key informants I interviewed indicated that tourism investors are against livestock grazing because it displaces wildlife populations from areas where they have invested.

Tourism stakeholders conflict in Loliondo Game Controlled Area

Loliondo Game Controlled Area is a hunting block allocated to Ortello Business Corporation. At the same time, local communities are residing there and practicing traditional activities, especially livestock grazing. Some key informants I interviewed in the area indicated that sometimes local communities graze livestock close to tourist accommodation facilities (Ortello Business Corporation operations and other tourism facilities). Discussion in a focus group with community leaders in Loliondo confirmed that, “In 2008, livestock grazing by local people in the area of operations of Ortello Business Corporation sparked conflict between the investor and local communities that resulted in loss of human lives and properties (e.g., livestock and settlement), as well as poor relationships among the two parties until recently in 2012.”

A PA key informant I interviewed from Loliondo Game Controlled Area indicated, “As a result of the conflict between Ortello Business Corporation and local communities, the investor decided to freeze the company support to local communities, including employment opportunities and more than TZS 200 million financial contributions annually. Since then, the investor hired employees outside Loliondo until 2013, when the situation normalized to a large extent.”

Recently, there have been signs of conflict between local communities and the government whereby the government wanted to split and demarcate the game controlled area into (1) community land (2,500 km²), and (2) core conservation area (1,500 km²). This move aims to protect biodiversity and the wildlife migration corridor in the area, allocate the area for community uses, and settle a long-standing conflict. But local communities perceived the government move as unfair to them and intended to take away

their land (referring to 4,000 km²). A PA key informant indicated, “Local communities want to keep the whole area of Loliondo for their economic and social welfare, especially settlement, livestock grazing, and to run tourism business which seems to be well paying.” Another tour operator key informant pointed out that, “Local communities in Loliondo are not against wildlife conservation, but have realized the potential of nature-based tourism in the area. Local communities have in the past generated revenue and would like to own the whole area to operate a lucrative business of tourism.”

Human wildlife conflicts

This section discusses the cost of human-wildlife conflicts as indirect costs of NBT to communities. Many key informants associated crop damage and livestock attack by wildlife (e.g., elephant, lion, buffalo, and wildebeest) with tourism. The conflict between local communities and wildlife species is a common issue. Local communities create illegal activities to wildlife (e.g., poaching and encroachment) while wildlife causes crop damage and attacks livestock. Some key informants pointed out that PAs in the ecosystem (e.g., NCA, Ikona and Makao WMAs) have dual mandates of conservation and tourism which are interdependent and influence one another, thus implying that crop damage and livestock attack by wildlife is a cost of NBT to communities indirectly. The discussion on tourism benefits to conservation (see Chapter 6) has revealed that NBT is a key source of income to PAs, influences biodiversity conservation significantly, and tourists are attracted by the rich biodiversity in the Serengeti ecosystem.

Crop damage occurs in areas where local communities border with PAs across the ecosystem, except in NCA where the issue is not pronounced because crop cultivation is prohibited. A senior warden I interviewed from SENAPA indicated that crop damage is

experienced in villages bordering the park in the western Serengeti, as well as the areas northwest and southwest of the park (including Serengeti, Tarime, Bunda, Magu, and Bariadi Districts). A local key informant I interviewed from Western Serengeti commented, “Wild animals from the park invade and destroy farm crops causing shortage of food to local people. This problem has persisted for years and park people have nothing to do apart from chasing wild animals when we call them. After some days the wild animals will invade the farms again, especially elephants.”

A PA key informant I interviewed from Ikorongo and Grumeti game reserves noted that the issue of crop damage is more pronounced in the villages bordering the reserves and Ikona WMA during the wildlife migrations in June and July. The common problem animals are elephant, buffalo, wildebeest, and baboon. A local community key informant noted, “Crop damage causes poverty to local communities because wildlife destroys crops and people go with poor crop harvest every year. Bad enough there is no compensation for crop damage apart from the school buildings given by the national park and water boreholes brought by Mzungu (referring to Grumeti Reserves). But local people cannot eat the school, they need food. If they can stop their animals from damaging crops people have no grudges with conservation.” The Wildlife Policy of Tanzania states that, “The government does not intend to introduce a compensation scheme for damage caused by wildlife... The government will devolve progressively the responsibility for problem animals to community-based programs and continue to give assistance where village communities have not developed this capability” (URT, 2007, p. 33). However, the government of Tanzania provides consolation payments for the affected people and their properties. For instance, in 2012 the government paid TZS

116,597,500 (equivalent to US \$74,000) as consolation for 977 people and 2141.3 farm size (hectares) affected by problem animals throughout the country (URT, 2013).

A local community key informant I interviewed in Maswa District complained that local communities in Maswa do not receive benefits from wildlife, yet at the same time wild animals are destroying their farmlands. A key informant added, “PA rangers from Maswa Game Reserve have been beating and chasing local people from grazing livestock and collecting building poles and fuel woods. But when elephant and buffalo attack our crops in the farm no action is taken, so where is the equality or support we are getting from PAs.” A PA key informant from Meatu District admitted that there is a problem of crop damage in the area, but it is not true that actions are not taken when there is invasion of field crops. When PA agencies and the Office of the District Game Officer are informed about invasion of field crops they take the action of going to the area of concern and chasing the wild animals into the reserve.

An old man aged 82 years who is a Chairman of a village in Loliondo Game Controlled Area said, “Problem animals are an issue causing havoc in my community. The wildlife destroys maize crops just after the tasselling stage when they have young cobs. Last year was worse and I wish you were here so I could show you because it was night time when elephant destroyed half of our maize crop. The government ... provides consolation payment for crop damages caused by wildlife. Otherwise ... we will kill them like the way African hunting dogs were killed when they attacked and killed goats.” A PAs key informant confirmed that, “In 2012 African hunting dogs killed 50 goats in Loliondo area and in revenge, angry local communities killed 16 hunting dogs (a highly endangered species) in the Serengeti ecosystem.”

Key informants and focus group participants pointed out that sometimes wild animals (e.g., lion and hyena) get into the community and attack livestock, including goats, cattle, and sheep. A PAs key informant noted that this problem is reported in the NCA and Loliondo Game Controlled Area where wild animals and local communities interact, as well as communities bordering PAs in Maswa Game Reserve and the Western Serengeti. However, the problem is not severe compared to crop damage, perhaps because carnivores have many prey inside PAs, and livestock attack is likely to occur when prey are not easily available and during wildlife dispersal and migration, when carnivores follow prey adjacent to communities as they migrate.

Summary

This section discussed tourism-stakeholder conflict, especially in Loliondo Game Controlled area, and human-wildlife conflict in the Serengeti ecosystem. Tourism stakeholder conflict occurs as a result of a mismatch of interests between stakeholders in that local communities are interested in grazing livestock in the area where the tourism operator has invested. The operator is interested in safeguarding natural resources which attract tourists. This is partly attributed to the lack of management plans and inadequate legislation and governance in the area.

This study has revealed that human wildlife conflict is a common problem in the Serengeti ecosystem where wild animals disperse to community land outside PAs and invade farm crops and cause property damage and loss to local people. This finding is congruent to the findings of a number of studies in the ecosystem (Emerton & Mfunda, 1999; Homewood et al., 2012; Kideghesho et al., 2006, 2008; Songorwa, 1999). Local people are not compensated for the loss of property caused by wild animals, but are given

monetary consolation for the loss they incur. Tanzania is a poor country and wildlife belongs to the state, so it is regarded as public property. Efforts to create compensation arrangements related to loss of properties caused by wildlife have been futile.

7.3.3 Increase of human population

Section 7.3.3 has discussed how NBT creates conflicts between tourism stakeholders, including conflict between tour operators and local communities and human-wildlife conflicts. This section will discuss how NBT influences the increase of human population in the Serengeti ecosystem. Tourism development can attract people in search of livelihood opportunities, including employment and good social services and facilities. In the Serengeti ecosystem, the increase of human population is perceived in NCA, Ikona WMA, Lamadi, and Karatu areas to be due to livelihood potential offered by NBT. This can be considered a cost because it can contribute to cultural change, increase the price of commodities, and create stress to local residents.

Ngorongoro Conservation Area (NCA)

As discussed earlier (see section 7.2), nature-based tourism in NCA provides economic and social opportunities (e.g., employment, education, dispensaries, and veterinary services), which most people think has attracted a number of local people with Maasai origin to the conservation area. However, there were no empirical data to support this. Some PA and local community key informants I interviewed from NCA perceived that human population in NCA has increased, and connected this to high birth rates and an influx of people into the area due to economic and social benefits provided by NCA to local communities. It is estimated that the human population in NCA has increased from 52,000 in 1999 to 63,000 in 2012 (NCAA, 1999; URT, 2013).

One key informant noted that it is perceived that local migration to NCA is on the increase, such that in 2008 the conservation authority identified the migrants and moved them to an area acquired by NCAA outside NCA in Longido. Key informants confirmed that some local people interested in crop cultivation and migrants were moved to Longido Districts, where the authority acquired land and provided basic social services for local people interested in crop cultivation. A senior official from NCAA noted, “There is local migration into NCA from adjacent communities, especially people with Maasai origin, due to better social services offered by the authority to local communities. Only with Maasai people it is difficult to tell who is a migrant because migration is part of their life, and for many of us the Maasai look alike and speak the same language.”

Ikona WMA

Over the past 8 years, tourism development, in particular accommodation facilities (lodges and campsites), in Fort Ikoma and adjacent areas has been substantial (see Chapter 4). This increase has opened a number of economic opportunities (e.g., employment and business) that attracts people to the area from different parts of the region and elsewhere in Tanzania. One PA key informant, a 70-year-old native of the area, indicated, “Tourism activities in Fort Ikoma area have pulled many people of different tribes from all corners of this region. Fifteen years ago this area was different, dominated with native tribes, unlike today where the population of Robanda Village is 50% native and the remaining half migrants.” Another local community key informant said, “With about 15 lodges located within Robanda Village and adjacent areas in Ikona WMA, the area has many outsiders working in lodges and campsites, retail shops, bars,

and local restaurants. There is a mixture of people and perhaps the ratio between native people and migrants is 40% to 60%, and this is my guess the way I see it.”

It is estimated that Grumeti Reserve has about 600 employees and at least half of them come from outside Serengeti District. A local key informant from Western Serengeti pointed out, “Grumeti Reserves Company has a lot of operations including tour guiding, hospitality, garage and workshop, conservation, administration, and community projects that require professional people you may not find here in the local area. Many of them come from different parts of Tanzania and others abroad.” This illustrates that tourism investment in the area has attracted and increased human population in the area. Another key informant working for Ikona WMA noted, “Nata Mbiso Village has now changed with a number of retail business (e.g., guest house, bars, shops, and restaurant) and many unfamiliar faces. These changes have been caused by a *mzungu* who has invested in tourism (referring to Grumeti Reserves Company). He has employed many people from outside Serengeti. Nowadays, you can see buses bring new people here coming for business or working in that company.” Another community key informant indicated that, “Tourism in the area has caused the increase of the price of horticultural commodities and housing rent. For instance, previously the rent of a room was around TZS 1,000 per month, but nowadays it has increased to about TZS 5,000 per month. At the same time local communities perceive that people from other areas (e.g., Arusha) of the country are occupying employment opportunities for the local people.”

Karatu and Lamadi areas

Karatu and Lamadi are small towns adjacent to NCA and SENAPA, respectively, with a close link with tourism in the Serengeti ecosystem (see Chapter 4). Tourism in the

ecosystem has influenced the development of tourism-related business in Karatu and Lamadi, with variation between the two towns. In Karatu, tourism investments include lodges and campsites and a number of tourism-related businesses (e.g., mini-supermarkets, curio shops, restaurant, and retail market). A key informant I interviewed indicated that, “Tourism development in Karatu town has attracted many people from different corners of the country. It is now a tourist town since it has many tourism investments (e.g., accommodation facilities and businesses) which have made a number of people in search of livelihood opportunities move in the area.”

A tourism operator I interviewed in Western Serengeti pointed out that tourism growth and development in SENAPA has influenced the development of tourist accommodation facilities and associated businesses (retail market, and garage and workshops) in Lamadi. Another tourism operator key informant noted, “The people you see in Lamadi many are outsiders from the area who were pulled by business opportunities as a result of tourism development. Those people know that tourism is there and they will make money out of it because people working tourism come to spend money in Lamadi.” A PAs key informant from the park acknowledged that there is population increase in Lamadi, but statistics are not available. He said, “Population increase in Lamadi is attributed by economic opportunities available in the area as a result of nature-based tourism in Serengeti, but also on transit travelers to and from Mwanza to Musoma and elsewhere.” Many transit travelers use buses with a stop of about 5 to 10 minutes for boarding and offloading in Lamadi. But people working in tourism in SENAPA go specifically to Lamadi for shopping. Thus, population increase in Lamadi can partly be attributed to NBT in the Serengeti ecosystem.

Summary

This section has discussed the increase of human population as influenced by NBT development in the Serengeti ecosystem. The areas experiencing population increase include NCA, Ikona WMA, and Karatu and Lamadi areas. These are areas with high tourism development which provides economic and social services opportunities to local people, thus people move to these areas in order to capture tourism potential. Serengeti National Park and the game reserves in the ecosystem prohibit all human activities other than tourism, with permission, and conservation. The increase of human population in rural communities adjacent to PAs can influence change of social traditions, increase price of commodities and services, and cause stress to local people. Charnley (2005) and Melita & Mendlinger (2013) found that there have been increased human populations in NCA partly due to immigrants attracted by availability of low cost social services, unlike in areas outside NCA.

7.3.4 Unintended social consequences

NBT, if not properly managed, can result in unintended consequences to nearby local communities. Unintended consequences can be manifested through change of traditional behaviour and practices (e.g., language, dressing, crimes, and cultural). Some key informants I interviewed indicated that there are signs of unintended consequences as a result of NBT occurring in the Serengeti ecosystem, particularly in NCA and Western Serengeti (Ikoma WMA and adjacent areas).

Ngorongoro Conservation Area (NCA)

Local communities working in the cultural bomas displaying Maasai traditional culture and selling traditional handcrafts to tourists are attracted to continue working on

tourism activities as opposed to pastoralism. A senior official of the Ngorongoro Pastoral Council noted that in many cases there are about 52 local people working in one cultural boma, and there are seven cultural bomas in NCA. The official added that local people working in a cultural boma are paid some income from the total revenue generated at a boma. As a result, these people have gained interest in working in a boma instead of pastoralism. Some key informants from a cultural boma indicated that tourism is paying and they are happy to work in tourism because nowadays the environment and climate do not favour livestock keeping as previously. “Nowadays, livestock are highly vulnerable to diseases and drought and we have lost our cattle. As such it is good to work in tourism which provides income without risk,” said one of the key informants.

Some key informants I interviewed from NCAA showed that nowadays local people have realized the economic potential of tourism, and many of them are eager to work in tourism. Local people see positive economic and social changes (e.g., income, dressing, meals, schooling, improved housing, and properties-livestock) for their colleagues who are working in lodges and tour companies. A senior official from NCAA indicated, “Some local people in NCA have shifted from working on traditional socio-economic activities (pastoralism) to tourism at the cultural bomas - hoping for good money.” As a result, local people in NCA become dependent on tourism, which is seasonal and sometime fluctuates to a decline causing hardship to local people. NBT should supplement traditional socio-economic activities, but should not be a principal source of livelihoods to local people.

Key informants suggest that interaction between local people and people working in tourism has resulted in non-traditional behaviour of youth in NCA. For example,

young local people queue beside the main road crossing through the Serengeti ecosystem begging from tourists (e.g., pose for photographs for a small amount of money or in exchange for small gifts). A key informant from NCAA noted that efforts have been made by the authority and Ngorongoro Pastoral Council to mitigate the problem by issuing a notice to local communities prohibiting the behaviour, but the problem persists.

Western Serengeti (Ikoma WMA and adjacent areas)

Tourism in Fort Ikoma area has increased the interaction among people, including those working in tourism, PAs, and local communities. A local key informant who is a community leader in Fort Ikoma area indicated that, “Tourism has increased the interactions of people, sometime resulting in non-traditional behaviour (e.g., prostitution and taking alcohol from morning to midnight) in Robanda and Makundusi Villages. For example, during tourism peak season you will find a number of young ladies from elsewhere flocking to Robanda and Makundusi Villages intermingling with people working in tourism in the area signaling prostitution behaviour. This behaviour also occurs among people working in tourism and local people.”

Summary

This section has discussed unintended consequences as a result of NBT in the Serengeti ecosystem, in particular NCA and Fort Ikoma area. These include shifts from working on traditional socio-economic activities (e.g., pastoralism) to tourism, and youth begging from tourists in NCA, as well as prostitution and alcoholism in Fort Ikoma area. Charnley (2005) found that tourism resulted in unintended consequences, such that young local people queued along the road begging from tourists, and some local people shifted to tourism activities (cultural bomas) from pastoralism. The discussion has revealed that

unintended consequences in the ecosystem occur in areas with high interaction between local people and people working in the tourism industry. These behaviours have not matured in the area, and can be controlled if appropriate measures are developed and implemented. Such measures can include formulating and implementing guidelines (e.g., codes of conduct and by law) and raising awareness about preferred behaviour among people working in the tourism industry and local people. This study could not verify measures in place to control such behaviour in NCA and Fort Ikoma area.

7.4 Conclusion

This chapter discussed the costs and benefits of the NBT supply system to communities in the Serengeti ecosystem. The results indicate that NBT creates economic and social costs and benefits to communities. Local people generate income by selling handicrafts, displaying traditional culture to tourists, working in the tourism industry, leasing land to tourism investors, providing camping services, selling local produce, and direct income from PA agencies. Likewise, local communities benefit from social services and infrastructure, and scholarships and school fees. Many scholars have indicated that communities adjacent to PAs generate socio-economic benefits from NBT including income, employment, and social services (Goodwin et al., 1998; Mbaiwa, 2003; Rollins et al., 2009; Strickland-Munro & Moore, 2013; Newsome et al., 2013).

These benefits are provided by tourism service suppliers, and are not evenly distributed among local communities across the ecosystem. Some communities in NCA, Loliondo Game Controlled Area, and Ikona WMA accrue comparatively many benefits, while other communities generate few benefits (Figure 7.1). This study revealed that many tourism benefits are accrued at the community level as opposed to household and

individuals levels. This finding is congruent with that of Mwakaje et al. (2012), who found that many tourism benefits in the ecosystem were social services accrued at the community level, and by elites and those employed in tourism businesses.

This study indicated that a significant amount of food stuff and materials consumed in the tourism industry in the Serengeti ecosystem is obtained from Arusha, Dar es Salaam, and other parts of the country and abroad rather than from the local area. Some tour operators have supported local people to establish horticultural and poultry projects to produce local produce and sell to accommodation operators, but they have not performed well, especially when the external support is removed. Likewise, many employees in the tourism industry come from elsewhere in the country, outside of the local area.

This study revealed that the flow and distribution of the benefits of the NBT supply system to communities are influenced by a number of factors, including location of communities in relation to tourism activities, legislation governing tourism service suppliers (e.g., PA agencies), and participation of local communities in the tourism industry. Communities accruing many benefits in NCA, Ikona WMA, and Loliondo are found in areas with concentrations of tourism activities. The legislation governing NCA and Ikona WMAs requires that local communities benefit from NBT. Other factors that limit flow and distribution of tourism benefits to communities are lack of skills and capacity among local people, lack of transparency of local officials, low level of employment in terms of number and quality of jobs, inadequate guidelines for benefits sharing, lack of employment qualifications, illiteracy, lack of professional training among local communities, and gender bias (male dominated). Tourism studies indicate similar

economic, social, and political challenges to the flow of benefits of NBT in PAs, including inadequate participation, lack of capital and capacity, lack of qualifications to engage in tourism, and poor governance (Mbaiwa, 2008; Kideghesho et al., 2008; Mwakaje et al., 2012; Novelli & Scarth, 2007).

This study indicates that local communities experience costs from NBT, including loss of grazing land and farmland, conflict (conflict between tourism stakeholders and human-wildlife conflicts), stress to local residents from human population increase, and other unintended consequences. These costs vary among local communities in the Serengeti ecosystem and are experienced at household and individual levels.

The distribution of costs and benefits of NBT presents mixed outcomes to local communities across the Serengeti ecosystem. The distribution of costs and benefits of tourism to local communities has implications for the tourism industry and biodiversity conservation in the ecosystem. Local communities may have negative attitudes and withdraw their support from NBT and conservation if the benefits of NBT do not translate into community development and contributions to livelihoods at community and household levels, and/or if the benefits do not offset the costs of nature-based tourism to communities (Goodwin et al., 1998; Liu et al., 2012; Newsome et al. 2013; Nyaupane & Poudel, 2011; Strickland-Munro & Moore, 2013).

CHAPTER 8

CONCLUSION

8.1 Introduction

The overarching objective of this study was to describe and understand the nature-based tourism (NBT) supply system in the Serengeti ecosystem, and how this tourism provides a flow of costs and benefits related to both conservation and community livelihoods. To achieve this objective, the study was guided by four main research questions.

1. What is the **supply system** of NBT in the Serengeti ecosystem?
2. How do the **management plans** allow for and guide tourism in the Serengeti ecosystem?
3. How does the NBT supply system function to distribute the flow of costs and benefits to **conservation**?
4. How does the NBT supply system function to distribute the flow of costs and benefits to **communities**?

The research used a case study approach at the ecosystem level to explore different perspectives from diverse groups of people knowledgeable about NBT in the Serengeti ecosystem. For the purpose of this study, the Serengeti ecosystem is defined as the area includes 12 protected areas (PAs) (see section 4.2.1 and Figure 4.1) and adjacent areas. Ecosystem refers to the interactions of living organisms with the environment in an area (Newsome et al., 2013). Ecosystems are characterized by structure (biotic and abiotic components) and functions (interactions and interrelationships among the

components), and occur at different scales. Newsome et al. (2013) point out that, with reference to NBT in the ecosystem, an understanding of an ecosystem needs to include biotic, abiotic, and cultural (human) components of an area since these attributes interact with and influence one another.

A qualitative approach was used for data collection through multiple methods (document analysis, key informant interviews, and focus group discussions). Subjects for key informant interviews and focus groups were drawn from a diversity of interest groups, including people working in PAs, tourism operators, community leaders, and others, including experts and non-governmental organizations. Key informants often expressed similar opinions about NBT within sectors, and where there are divergent opinions I have noted the differences in the text. The information provided by key informants was complemented and corroborated by literature, documents, and focus group discussions.

This chapter presents a summary of key findings based on the main research questions, as well as management implications of the findings and recommendations for potential improvements to NBT in the Serengeti ecosystem. Finally, the chapter outlines the contributions and limitations of the study, and suggestions for future research.

8.2 Summary of key findings

8.2.1 NBT supply system

The study revealed that the NBT supply system in the Serengeti ecosystem is comprised of many agents that can be grouped into four main components: PAs, tourism operators, local communities, and the wider environment. The agents vary among across

the ecosystem. There are 12 PAs in the ecosystem that vary in terms of size, objectives, status, categories, ownership, and management authorities.

The study found that PA agencies in the Serengeti ecosystem have multiple roles in NBT according to their Acts of establishment (see Chapter 4, Table 4.4). In particular, PA agencies manage and provide attractions, accessibility, accommodation, information, security, and utilities. Serengeti National Park (SENAPA) and Ngorongoro Conservation Area (NCA) play many roles, perhaps because they practice non-consumptive tourism and receive many tourists as compared to the game reserves, game controlled area, and wildlife management areas (WMAs), which practice tourist hunting with few tourists and tourism operations. The game reserves and game controlled area in the Serengeti ecosystem lack management plans, partly due to inadequate finance and poor governance, while SENAPA, NCA, and WMAs have management plans embracing tourism plans.

There are many (>120) communities with different economic, social, cultural, and environmental characteristics living within and adjacent to PAs in the Serengeti ecosystem. However, only very few communities, especially those in NCA, Ikona WMA, Loliondo Game Controlled Area, Makao WMA, and Lamadi area, participate in NBT. The roles of these communities in NBT differ across the ecosystem, including providing labour and information, traditional cultural displays and performances, leasing land to tourism investors, selling local produce, and participating in PA management plans.

There are about 300 tour operators in the Serengeti ecosystem, including tour companies, accommodation operators, hunting companies, and airlines. This number does not include tour guides. The tour operators vary in terms of ownership, type of

operations, and size (volume of business transactions). Many tour operators categorized as large and very large are owned by foreigners, while many small companies are owned by Tanzanians. For instance, out of five hunting companies perceived as large and very large operating in the Serengeti, four are owned by foreigners. Tour operators play multiple roles in NBT in the Serengeti ecosystem: providing attractions, accessibility, accommodation, information, security, and utilities.

The wider environment is the fourth component of NBT in the Serengeti ecosystem occurring at regional landscape, national, and international levels. The wider environment includes local government authorities, nearby PAs and attractions, national policies, government and private institutions, non-governmental organizations, and social, economic, and political factors at local, national, and international levels. The wider environment is linked to the three components (PAs, tour operators, and communities) of NBT in the Serengeti ecosystem in that it is a source of international tourists and investment capital and materials consumed in the tourism industry. Tourism-related policies and institutions provide guidelines for biodiversity conservation, tourism organization and management, and community participation in NBT in the ecosystem. On the other hand, the wider environment affects NBT negatively in the case of crisis or perturbation of the elements of the wider environment.

The components of NBT in the Serengeti ecosystem (PAs, tour operators, communities, and wider environments) are interconnected, interdependent, and interact to form a system of service supply in the Serengeti ecosystem tourism destination. PAs are interlinked and interact with one another through shared wildlife, the roles they play, and policies and legislations related to NBT in the ecosystem. Likewise, PAs, tour operators,

and local communities are interrelated, interdependent, and interact with each other. The three components of NBT and the wider environment are interacting and influencing one another to form a NBT supply system in the Serengeti ecosystem. Interactions among key actors can also result in negative outcomes, such as a decline of tourism volume during a crisis (e.g., terrorism).

It is useful to examine tourism in the Serengeti ecosystem using systems theory. This conceptual framework could be used to manage conservation, NBT, and communities holistically by adopting best practice approaches recommended by IUCN, including ecosystem-based management and participatory approaches, collaboration, adaptive management, and Geographical Information System (GIS) applications (Eagles et al., 2002; Newsome et al., 2013; Thomas & Middleton, 2003).

The components of NBT in the Serengeti ecosystem interact dynamically over time and influence each other, resulting in various patterns of interactions and outcomes. The systems perspective (presented in Chapter 4) helps to explain the dynamic relationships that have taken place in NBT in the Serengeti ecosystem since the pre-colonial era to the present time. Such relationships include establishment of PAs in the Serengeti ecosystem, the paradigm shift that occurred from exclusion to participation of local communities in wildlife management and NBT, and changes in the tourism framework and governance from the domination of private companies to a government monopoly, and finally stakeholder participation. Also described are changes in NBT-related policies, privatization of public tourism investments (e.g., lodges), and tourism growth and development.

The components of NBT and their interactions have different influences on the tourism supply system in the Serengeti ecosystem. PAs are the single factor that attracts tourists to spend their time and money visiting the Serengeti ecosystem due to the wildlife attractions found therein. Furthermore, legislation and policies are factors that can be used to improve the relationships between the components of the NBT supply system if they are implemented effectively. Similarly, social and economic factors can influence the interactions of the components of NBT positively or negatively. This study revealed that the wider environment at national and international levels greatly influences the NBT supply system in the Serengeti ecosystem.

Since the elements of the components of NBT are diverse, with different characteristics and influences, and their interactions are dynamic, their relationships are likely non-linear. McDonald (2009) argues that complex systems display non-linear relationships, in that interaction between the components of the system results in different changes and effects to the components and the system. For example, changes and outcomes that occurred when SENAPA was established in 1951 cannot be equated with changes and outcomes of the establishment of Ikorongo, Grumeti, and Kijereshi game reserves in 1994. This indicates that the NBT supply system is dynamic, and situations, issues, and interventions should not be taken for granted or generalized (conditions change over time and each case needs to be treated in context).

8.2.2 Tourism management plans in PAs in the Serengeti ecosystem

There are several types of PAs within the Serengeti ecosystem: national parks, conservation areas with multiple land use, game reserves, game controlled area, and WMAs. Wildlife legislation in Tanzania requires all PAs to have general management

plans. However, only SENAPA and NCA have such plans, while Ikona and Makao WMAs have resource management zone plans. Ikorongo, Grumeti, Maswa, and Kijereshi game reserves, and Loliondo Game Controlled Area have neither general management plans nor resource management zone plans. This is a major concern for effective biodiversity conservation and PA management in the Serengeti ecosystem.

Management plans of PAs in the Serengeti ecosystem show variation in terms of the planning process, management programs, actions plans, and plan monitoring. The General Management Plan of SENAPA has much strength in that the process and structure have been improved to address the weakness identified in the previous general management plans, and to some extent address ecosystem issues, and it has clear objectives, including tourism-related objectives. This conforms to the “best practice recommended management plans” (Eagles et al., 2002; Thomas & Middleton, 2003), including adaptive management and ecosystem-based management.

The General Management Plan of NCA claims to have addressed the flaws identified in the previous general management, but there is no evidence for that in the process and structure of the plan, which does not adequately address ecosystem issues. NCA planning should be improved by addressing these issues. Ikona and Makao WMAs adopted the process and structure of the resource management zone plan provided by the Wildlife Division. However, the two components of the plan are not adequate based on the practices of management planning (Eagles et al., 2002; Thomas & Middleton, 2003). PAs in the ecosystem can learn from each other to improve the process and structure of management plans, and adopt the best practises for management planning.

PA agencies with management plans in the ecosystem adopted the concept of strategic planning, logical framework approach (LFA), and a participatory approach. However, this study reveals a common issue related to the planning process of planning. Some NBT stakeholders (e.g., local communities, tourists, and tour operators) were not involved effectively as a result of limited time and financial resources and inadequate information (e.g., social, economic, and tourism data) and expertise. There is a need to improve participation of stakeholders in the process of preparing management plans for PAs in the ecosystem.

PAs in the ecosystem have applied the “Limits of Acceptable Use” (LAU) planning technique in their zoning scheme. However, the zone scheme lacks clear and rigorous indicators and standards. As a result, the zoning scheme is inadequate, making it difficult to undertake monitoring and evaluation of the performance and achievement of the management programs. The LAU shares the weakness of the traditional carrying capacity concept (limiting the maximum use) and is not capable of integrating the three aspects of carrying capacity (ecological, social, and managerial) as outlined in several publications (Manning, 2007; Needham et al., 2013; Needham & Rollins, 2009; Stankey, 1973; Thomas & Middleton, 2003). Thus, the management plans do not provide effective direction and management strategies for tourism in PAs in the Serengeti ecosystem. This study recommends instead the application of the much more widely used “Limits of Acceptable Change” (LAC) planning framework that can provide effective zoning schemes, standards and indicators, and plan monitoring (Eagles et al., 2002; Needham et al., 2013; Needham & Rollins, 2009).

8.2.3 Costs and benefits of the NBT supply system to conservation

NBT creates environmental benefits and costs in PAs in the Serengeti ecosystem. These benefits and costs vary among PAs across the ecosystem as a result of variations in the level of financial support allocated to conservation, type of tourism (photographic versus hunting tourist), level of visitation, facilities and infrastructures, and management plans. NBT benefits to conservation in the Serengeti ecosystem include financial support for conservation, improved biodiversity conservation and PA management, increased conservation awareness, and public support for conservation.

Financial resources are key benefits accrued from NBT by PAs in the ecosystem. Effectively retaining financial resources for conservation provides many environmental benefits to PAs, including improved biodiversity conservation and PA management, raising conservation awareness, and public support from conservation. Another financial benefit is provision of a revenue stream to cover costs of tourism management (investment) and institute measures that can mitigate environmental costs. These investments include costs for development and provision of roads, airstrips, campsites, information (promotion and interpretation), security, and tourism management.

PA agencies in the ecosystem accrue financial benefits by charging fees to tourists and tour operators. The fees charged to tourists vary among PAs depending on the activities and services offered, as well as on the age and origin of tourists. Although PAs in the ecosystem generate substantial revenue, there are still opportunities to increase the revenue from tourism by improving the quality of services and tourism experience, and charging appropriate fees (that can be determined by using available knowledge and techniques, such as the concept of Willingness To Pay – WTP) (Eagles et al., 2002).

This study revealed that, although PAs in the ecosystem generate substantial revenue, the financial support allocated to conservation functions is not sufficient for effective biodiversity conservation and PA management. The income allocated to conservation varies among PAs in the ecosystem, with NCAA and SENAPA allocating comparatively more resources than game reserves, game controlled area, and WMAs. Successful biodiversity conservation and PA management requires substantial revenue, and PA agencies should increase the budget for conservation (Eagles et al., 2002; Emerton et al., 2006). One way to achieve this is to allow PA agencies to retain at least 50% of their revenue after legal deductions (Eagles, 2007).

PA agencies and tour operators, especially hunting companies and non-governmental conservation organizations, collaborate in carrying out conservation functions. These organizations are often involved in law enforcement (patrols), wildlife monitoring, development of infrastructure and facilities for conservation (e.g., roads), provision of resources required to undertake conservation activities (e.g., vehicles and game scouts), and PA planning. Collaboration among stakeholders likely enhances biodiversity conservation and PA management if undertaken within the legal framework and with appropriate ethical guidelines (e.g., avoiding abuse and corruption). This practice is consistent with the participatory approach recommended for conservation (Eagles et al., 2002; Emerton et al., 2006; Sinclair et al., 2008).

The development of tourism infrastructure, facilities, and usage often results in wildlife disturbance, habitat degradation, and pollution to the environment. This is noticeable especially in areas with a concentration of facilities and high tourist visitation (including Ngorongoro Crater and crater rim area, Ndutu, Seronera, and Kirawira). This

situation can be attributed partly to inadequate tourism planning and impact management mechanisms, including implementation of a planning framework, interpretation, regulations, and general management plans. For instance, SENAPA and NCAA plan to increase tourism facilities, but there is no rational ecological evidence to support such development. This study recommends that PAs in the ecosystem should strive to maintain the ecological integrity of the ecosystem rather than prioritizing tourism development that can degrade the ecosystem (Buckley, 2009; Newsome et al., 2013). Tourism development should only be undertaken after thorough investigation of the potential ecological, economic, social, and managerial costs and benefits of the development.

This study revealed that NBT provides mixed conservation outcomes among PAs in the ecosystem. The trade-offs between the costs and benefits of NBT to conservation in PAs are contentious. However, this study suggests that the financial benefits of NBT should be increased and the costs should be reduced. PA agencies can enhance tourism benefits and reduce the costs to conservation by undertaking effective management planning (including use of LAC), improving provision of information to tourists (interpretation), and adopting adaptive management and ecosystem-based management approaches. Distribution of these benefits, however, is largely inadequate and should be improved. There are increasingly worrying trends of environmental degradation such as habitat degradation and wildlife disturbance (e.g., NCA, Ndutu area, and Seronera area).

8.2.4 Cost and benefits of NBT supply system to communities

NBT generates economic and social benefits and costs to communities in the Serengeti ecosystem. The benefits include generating income for local people who sell handcrafts, display traditional culture to tourists, work in the tourism industry,

lease land to tourism investors, provide camping services, and sell local produce.

Local communities also benefit from social services and infrastructure provided by PA agencies, and scholarships and school fees provided by tour operators, communities, and the Ngorongoro Pastoral Council.

The flow and distribution of benefits to local communities vary across the ecosystem. This is congruent with findings of many scholars (e.g., Goodwin et al., 1998; Mbaiwa, 2003; Strickland-Munro & Moore, 2013; Newsome et al., 2013) who found that the distribution of benefits among communities adjacent to PAs are usually not evenly distributed. Many of the tourism benefits are accrued at the community level as opposed to the household or individual level.

The flow and distribution of benefits of the NBT supply system to communities are influenced by a number of factors, including location of communities in relation to tourism activities, legislation governing tourism service suppliers (e.g., PA agencies), and participation of local communities in the tourism industry in the ecosystem.

Local communities experience costs from NBT, including loss of grazing land and farmland, conflict (conflict between tourism stakeholders and human-wildlife conflicts), human population increase beyond the capacity of the landscape to support population growth, and other unintended consequences (such as shifts from working on traditional socio-economic activities, begging, prostitution, and alcoholism).

These costs vary among local communities in the Serengeti ecosystem and are experienced at both household and individual levels. Unfair distribution of costs and benefits of tourism to local communities has implications for the tourism industry and biodiversity conservation in the ecosystem. Local communities may develop negative

attitudes and withdraw their support from NBT and conservation if the benefits do not contribute to community development and livelihoods at both community and household levels, and if the benefits do not offset the costs of NBT to communities (Goodwin et al., 1998; Liu et al., 2012; Newsome et al., 2013; Nyaupane & Poudel, 2011; Strickland-Munro & Moore, 2013). Ikona and Makao WMAs have been established in the ecosystem in order to improve the flow of benefits to communities, as well as promote biodiversity conservation. This study found that WMA member villages, especially Ikona WMA, generate significant revenue. Therefore, communities with potential land and wildlife populations (e.g., Ololosokwani village in Loliondo area) that currently have no protected status should be encouraged to established WMAs, which serve the dual purpose of biodiversity conservation and community livelihoods.

8.3 Management implications and recommendations

A number of key implications can be drawn from the research findings that focus on improving the tourism system and the management of the flow of costs and benefits to conservation and communities. Implementing these considerations should improve the sustainability of NBT in the Serengeti.

Currently, PA agencies in the Serengeti ecosystem operate as service organizations, implying that public organizations (PAs) responsible for provision of service to the public have no specific requirements to meet commercial criteria (not for profit). On the other hand, these PAs are expected to generate income to cover management costs, share benefits with local communities, pay legal deductions to the government, and submit pre-determined proportion of revenue (such as taxes – VAT and Corporate Taxes) to agency headquarters (TANAPA and Wildlife Division) in the light

of declining government funding. Rather than acting as a service agency, PAs in the ecosystem should operate under best business practices, including production (income generation) effectiveness and efficiency, provision of quality services, competition, and good performance (Eagles, 2009; Emerton et al., 2006; Thomas & Middleton, 2003). For example, Parks Canada became a separate operating agency in 1999 in order to have greater autonomy regarding fiscal management and revenue generation (Wright & Rollins, 2009, pp. 259-260). PAs operating as tourism supply services in the SE require greater freedom and flexibility than is accorded public service departments in Tanzania, and might learn from Parks Canada's experience in this field.

Provision of information services to tourists is significant not only for enhancing tourist understanding of natural resources and visitor satisfaction, but also for raising conservation awareness of tourists and promoting environmental conservation behaviour. Thus, PA agencies, tour operators, and local communities should improve the delivery of information to tourists by improving the means of communication (e.g., tour guides, visitor information centres, brochures, and use of guide books) and the intended message. The government, in collaboration with tourism stakeholders, should develop and implement a coherent system of providing training to tourism personnel such as knowledge about natural resources, as well as guiding and interpretation skills, and registration and certification of tour guides.

Communities living within and adjacent to PAs in the ecosystem experience costs associated with PAs and NBT. Thus, NBT suppliers should improve the delivery of benefits from tourism to communities in order to offset the costs incurred by communities. Many scholars (e.g., Bennett & Dearden, 2013; Brockelman & Dearden,

1990; Novelli & Scarth, 2007; Nyaupane & Poudel, 2011; Strickland-Munro & Moore, 2013) argue that if local communities do not realize benefits from NBT, they may not support conservation and tourism in PAs. Benefits include a share of revenue and appropriate facilities (e.g., health and schools). Equally important is the need to improve the capacity of local communities to function effectively within the tourism industry (e.g., training to access higher paying opportunities).

The National Tourism Policy of Tanzania (1999) highlights the need for local communities to participate in and accrue benefits from wildlife and tourism. These policies are often not implemented at the local level. Therefore, this study suggests that NBT suppliers should engage local communities in NBT as stakeholders. There is a need for capacity building of local people with regard to small projects related to tourism (e.g., poultry and horticulture projects) so that they can participate in the establishment and management of such projects effectively. Furthermore, there is a need to establish forums for discussion on the interests and issues of stakeholders, promote awareness of stakeholders interests, and communities with potential wildlife populations on their land should establish WMAs in the ecosystem.

8.4 Contributions and limitations of the research

NBT has the potential to create both positive and negative impacts on natural settings. However, many studies have focused on the impacts of a specific activity (e.g., scuba diving) on a specific place (e.g., Dearden, 1996; Mbaiwa, 2003; Novelli & Scarth, 2003). This study explores the impacts of a variety of aspects of tourism (e.g., accommodation, wildlife viewing, road systems, etc.) across a spectrum of natural areas contained within a large ecosystem (the Serengeti).

The study generated findings describing many negative impacts on the environment, including opportunity costs of tourism investment, wildlife disturbance, habitat degradation, pollution, and shifting priorities from conservation to tourism. These impacts varied across the ecosystem, where conditions varied in terms of management regime, Act of establishment of the PA, income allocated for conservation, and management plans. The impacts could be reduced by improving PA management plans (application of LAC), adaptive management, and ecosystem-based management. This ecosystem-based approach to impacts differs from many previous studies which have focused on a specific PA and a specific impact.

The study contributes to the literature by documenting a variety of conservation benefits from NBT across the ecosystem, including financial support for conservation, improved biodiversity conservation and PA management, raising conservation awareness, and influencing public support for conservation. However, these benefits could be increased by collaboration between PA agencies and private tour operators (e.g., hunting companies) and non-governmental organizations (e.g., Frankfurt Zoological Society). This study recommends improved collaboration among NBT stakeholders in undertaking conservation functions, especially in the light of declining government funding for conservation.

These findings suggest complex systems perspective is a useful lens in examining tourism across a large and complex social, ecological, and political landscape. Complex systems theory can help scholars identify and describe components, dynamic interactions and patterns, changes and history of NBT supply systems. These aspects reflect on

collaboration, participatory, adaptive management, and ecosystem-based management approaches recommended in sustainable tourism development and PA management.

No single concept can be used to understand NBT in PAs such as those in the Serengeti ecosystem due to the complex nature of the socio-ecological system. Therefore, a number of concepts have been applied to inform this study about NBT in the Serengeti ecosystem, including carrying capacity, tourism development models (e.g., Butlers Model, 1980; Duffus & Dearden Model, 1990), tourism management frameworks, adaptive management, ecosystem-based management, and complex systems.

8.5 Suggestions for future research

- The study was conducted using expert opinion (key informants), local knowledge (focus groups), and document analysis. Validity of findings is based on convergence of data, but more empirical work is needed to fine tune the patterns demonstrated in this study.
- Hunting tourism has been practiced in the Serengeti ecosystem for over a century, but there is a lack of information about the hunting industry and associated costs and benefits. This study suggests the need to undertake further studies on hunting tourism and its impacts in the Serengeti ecosystem.
- This study indicates that only a very few local people participate in NBT; there is a need for more studies about the nature, extent, and potential for community participation in NBT in the Serengeti ecosystem.
- This study is a first attempt to investigate the costs and benefits of NBT in the Serengeti at the ecosystem level; there is a need for more studies about the costs and benefits of NBT at the PA level.

- Given that there is lack of information about NBT and the associated costs and benefits to conservation and communities, there is a need for more long-term studies of the tourism industry and associated outcomes.
- The management plan is a significant tool in biodiversity conservation and PA management, however little attention has been given to their effectiveness. Further studies focusing on the effectiveness of management plans to conservation, tourism management, and community development would be valuable.
- Given that PA management plans are developed without an appropriate planning framework, there is a need to adopt a framework such as the best practice planning framework (e.g., Limits of Acceptable Change) and investigate the effectiveness of such a framework in PA planning and management in the ecosystem.

8.6 Concluding remarks

This case study has made a significant contribution to the understanding of NBT in the Serengeti ecosystem and how it functions to distribute the flow of costs and benefits to conservation and communities. The findings of this study are useful to NBT stakeholders in the ecosystem, policy makers, and scholars.

The research established that, although PAs in the ecosystem are legally bound to have management plans which are instrumental in PA management including NBT, some PAs lack management plans and those with plans require improvements. NBT creates costs and benefits to conservation and communities. The NBT supply system influences the distribution of the flow of costs and benefits of NBT to conservation and communities. The NBT supply system and associated benefits can be enhanced and costs mitigated through effective management plans, participatory approaches and

collaboration among stakeholders, adaptive management, good governance, and ecosystem-based management. NBT in the Serengeti must contribute to the enhancement of ecological integrity while providing a quality tourism experience, and contributing to community livelihoods. This is echoed by a statement advanced by Packer & Polasky (2008, p. 3), “It is abundantly clear that the fate of the Serengeti ecosystem rests largely in human hands. The future of this extraordinary place rests on the ways that people in the greater Serengeti ecosystem use resources to earn a living, the extent to which foreign tourists find the Serengeti an attractive destination and the policy choices by the governments of Kenya and Tanzania.”

Finally, the NBT supply system has grown incrementally complex in terms of PAs, tour operators, communities and the wider environment, and the dynamic interactions among the components and outcomes. The growth of different types of PAs in the ecosystem has added up to improved conservation and benefits to communities. The elevation of the status of Ikorongo, Grumeti, and Kijereshi game reserves and the establishment of private PAs has enhanced conservation of biodiversity in the ecosystem. The establishment of WMAs has also improved the flow of NBT benefits to communities and improved biodiversity conservation. The diversity of PAs in the ecosystem and the multiple roles they play in NBT fill in gaps and address issues that no one PA can fulfil, such as the way hunting companies complement biodiversity conservation in game reserves, game controlled areas, and WMAs and support community development. The distribution of the flow of costs and benefits of NBT in the Serengeti ecosystem can be improved by managing tourism as a system through ecosystem-based management, adaptive management, participation, and collaboration with stakeholders.

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Appendices

Appendix A: Research approval and permits



University
of Victoria

Human Research Ethics Board
Office of Research Services
Administrative Services Building
PO Box 1700 STN CSC
Victoria British Columbia V8W 2Y2 Canada
Tel 250-472-4545, Fax 250-721-8960
ethics@uvic.ca www.research.uvic.ca

June 20, 2013

Mr. Masuruli Masuruli Baker
Department of Geography
University of Victoria

Dear Mr. Masuruli Masuruli Baker,

Re: Research Ethics Audit for the Study "Costs and benefits of nature-based tourism to conservation and communities in the Serengeti Ecosystem, Tanzania"

I am writing to you as the Vice-Chair of the Research Ethics Board. The Chair of the Research Ethics Board, Dr. Roy Graham, who was in communication with you and led the audit process for the above study, has since retired from the University.

As you, your supervisor, Dr. Dearden and the Dean of Graduate Studies, Dr. Capson are aware, an audit was conducted by Dr. Graham because your study involving human participants was carried out in 2012 without having been approved by the University's Human Research Ethics Board.

For the ethics audit, Dr. Graham and Ms. Eugenie Lam, Research Ethics Coordinator reviewed the documents that you provided at their request, including a description of your field work, the recruitment methods and processes for gaining informed consent, and copies of the signed consent forms you used (which you had translated into Swahili) and other supporting documentation (field notes, observations, research permission form etc.). They also met with you to ascertain further information, to seek clarification about your field work, and to understand why you omitted to submit a research ethics application for the study.

Normally, the audit process also requires that the research ethics office re-contact the participants of a study, explain the circumstances for the audit, and ask participants to re-consent to or withdraw the use of their information/data from the project. However, in this instance your participants numbered around 80 with many of them living in not easily accessible regions of the country; consequently, it was determined that this step was impracticable, and coupled with the strength of the consent process used and supporting documents, Dr. Graham waived this audit step.

The audit process allowed Dr. Graham to judge as best he could whether you conducted your research in an ethically acceptable manner, consistent with the national research ethics policy (Tri-Council Policy Statement TCPS 2) and University policies.

Dr. Graham determined on the basis of the documentation submitted to us, and from the meeting with you, that to the best of his knowledge you carried out the research in an ethically acceptable manner. You are permitted to use the data for your dissertation, future publications, presentations, reports to research partners and workshop participants, community meetings, media and internet as agreed to by the participants. The data should be disposed of after five years of completing your Ph.D. As you are aware, the Research Ethics Board cannot issue a Certificate of Ethical Approval for the study; however, please retain this letter for your records. The Research Ethics Office will also retain a copy.

Requirements that Apply to Your Study

Please note that there are three regular requirements that must be met by all University researchers involving human participants in a study. Although your study was audited, the following requirements will also apply to your study:

1. Should you and your supervisor decide to alter the study (e.g., involve new participant groups that were not accounted for in the audit, ask former participants to engage in a new type of data collection format for more data etc.) you are required to submit a "Request for Modification Form" before embarking on these activities. Changes to a study are subject to a review; however, a letter will be issued in lieu of the normal Modification Certification.
2. The Research Ethics Office will send you a reminder email in approximately one year to file an "Annual Renewal." This is a check-in process with the researcher and subject to a review; however, a letter will be issued in lieu of the normal Renewal Certificate.
3. Submit a "Program Completion Form" when you have successfully completed your dissertation/program.

The above forms and information are available on our website.

<http://www.uvic.ca/research/conduct/home/regapproval/humanethics/index.php>

Should you have questions about the above requirements and how they apply to your study, please contact Ms. Eugenie Lam at hrethics@uvic.ca 250-472-5202.

Lastly, I thank you for your cooperation with this process. Please contact me at ethics@uvic.ca if you have questions or concerns.

Sincerely,

Dr. Ulrich Mueller, Vice-Chair, Human Research Ethics Board

c.c.: Dr. Phillip Dearden, Supervisor, Department of Geography
Dr. David Capson, Dean, Faculty of Graduate Studies
Dr. Rachael Scarth, Associate VP Research Operations
Dr. Maycira Costa, Graduate Advisor, Department of Geography
Ms. Eugenie Lam, Coordinator, Human Research Ethics Office



Tanzania Wildlife Research Institute

Head Office P. O. Box 661, Arusha, Tanzania
 Tel.: +255 (0) 27-2549571; Fax: +255 (0) 27-2548240
 E-mail: tawiri@habari.co.tz
 Website: www.tawiri.or.tz

Our Ref: TWRI/MWEKA/14/VOL.II/53

Your Ref:

Date: 17th October 2011

To whom it may concern

**RE: RESEARCH CLEARANCE FOR MASURULI BAKER MASURULI AND
 ENOCK MAKUPA.**

At its 37th Research Programme Committee (RPC) Meeting of TAWIRI Board held on 15th October 2011 in Dodoma, recommended research clearance of the above mentioned research scientistS researching on "Protected Area and Poverty reduction in Serengeti and Saadani National Parks".

With this letter we are kindly requesting you to assist the candidates accordingly.

Yours sincerely,
TANZANIA WILDLIFE RESEARCH INSTITUTE

Dr. Victor Kakengi
 FOR: DIRECTOR GENERAL

TAWIRI is responsible for the co- ordination of all wildlife research in Tanzania.

Njiro W. R. C
 P. O. Box 661
 Arusha

Gombe W. R. C
 P. O. Box 185
 Kigoma

Kingupira W. R. C
 P. O. Box 16
 Uteje, Rufiji

Mahale W. R. C
 P. O. Box 1083
 Kigoma

Tabora R. S
 P. O. Box 62
 Tabora

Serengeti W. R. C
 P. O. Box 661
 Arusha



TANZANIA NATIONAL PARKS

OFFICE OF THE DIRECTOR GENERAL
P.O. BOX 3134, ARUSHA - TANZANIA

Ref. No. TNP/HQ/E.20/08B

Date 13/03/2012

Director General,
Tanzania wildlife Research Institute,
P.O.Box 661, Arusha,
TANZANIA

**RE: REQUEST FOR A FREE ENTRY PERMIT FOR MASURULI BAKER
MASURULI AND ENOCK MAKUPA**

This is in response to your letter Ref. No. TWRI/MWEKA/14/VOL.II/66 dated 08th March 2012 regarding the subject above.

I am pleased to inform you that, permission is hereby granted to the above mentioned Tanzanian research scientists to conduct wildlife research titled: **"Protected Area and Poverty reduction in Serengeti and Saadani National Parks"** from 09th March, 2012 to December 31st, 2012

They researchers are required to abide by all park rules and regulations, and should meet with Chief Park Wardens to introduce themselves before starting the study.

Yours Sincerely,
TANZANIA NATIONAL PARKS

Damari Samwel
For: DIRECTOR GENERAL

Copy: Chief Park Warden, Serengeti and Saadani National Parks



Ngongong Conservation Area Authority

Ref: NCAA/240/VOL.XV/147

Date: March 22, 2012

DIRECTOR GENERAL,
TAWIRI
P. O. Box 661
ANUSHA, TANZANIA

At: Angela Mwakotobe
Fax 027 2543240

RE: ENTRY PERMIT FOR MASUHLI BAKER MASUHLI AND ENOCK MAKUPA

Reference is made your letter dated March 26th 2012 on the above subject.

Permit is granted to MASUHLI BAKER MASUHLI AND ENOCK MAKUPA holding TAWIRI permit number TWR/MWEKA/14/VOL.II/67 issued on 05 March 2010, to enter the Ngongong Conservation Area, also transit to Serengeti during their research period. During the Research data collection within the Ngongong Conservation Area, they will stay at the Research Camp at Lemale.

This permit is valid from 0th March 2012 to 31st December 2012.

All other NCAA regulations should be obeyed during the operations.

We wish you all the best.

NGONGONG CONSERVATION AREA AUTHORITY

A. W. Maita
Secy: CONSERVATOR OF NGONGONG

Nakipia Lodges Gate
Numbi Gate

Head office: P.O. Box 11, Ngongong, Tawiri, Serengeti National Park, 33010, Tanzania. Fax: 255 27 7066
Mobile: 255 748 266 292 Email: secy@ncaa.or.tz
E-mail: conservator@ncaa.or.tz or secy@ncaa.or.tz
E-mail: director@ncaa.or.tz or secy@ncaa.or.tz

All correspondence should be addressed to the Conservator of Ngongong

**THE UNITED REPUBLIC OF TANZANIA
MINISTRY OF NATURAL RESOURCES AND TOURISM**

Address: "MALIASILI" DAR ES SALAAM

Telephone: 255 22 2864230

Fax: 255 22 2864234

In reply please quote:

Ref. No. HA/403/563/01/35



P.O Box 9372,

DAR ES SALAAM.

Date: 25.05.2012

Director General
Tanzania Wildlife Research Institute,
p.o. box 661,
ARUSHA.

**RE: REQUEST FOR A FREE ENTRY PERMIT FOR MASURULI BAKER
MASURULI AND ENOCK MAKUPA**

Your letter TWRI/MWEKA/14/VOL.II/68 dated 13th March 2012 refers.

The above mentioned are Tanzanian research scientists conducting wildlife research titled, *Protected Area and Poverty reduction in Serengeti and Saadani National Parks.*

Permission to enter, stay and work in the Maswa, Ikorongo/Grumeti Game Reserves, Loliondo Game Controlled Area and Ikona Wildlife Management Area, has been granted to the above mentioned research scientists from 09th March to 31st December 2012 as per your request. Either, before entering Ikona Wildlife Management Area (IWMA) it is advised to consult the management of IWMA.

During the research, compliance to the laws and regulations relevant to wildlife conservation are to be highly observed.

Best regards.

Kanyatta, D.G.
For PERMANENT SECRETARY

cc, PM – Maswa Game Reserve
PM - Ikorongo/Grumeti Game Reserive
Ikona Wildlife Management Area - Serengeti

**Tanzania Association of Tour Operators**

CCM District Building, Fire Road
E-mail: tato@cybernet.co.tz <http://www.tatoz.org>

P. O. Box 6162, Arusha, Tanzania

Tel/Fax: 027-2506430
Tel : 027-2504188
Mobile : 0754-535637

To TATO members,

RE: RESEARCH CLEARANCE FOR MR MASURULI BAKER .

Reference is made to the above heading.

Mr. Masuruli Masuruli Baker is Lecturer at the College of African Wildlife Management Mtwaka in Tanzania, he is currently a student of the University of Victoria- Canada at PhD level.

In accomplishing his studies, he is doing a study on '*The Cost and Benefits of the Nature Based Tourism Supply Side to Conservation and Communities in the Serengeti Ecosystem*'. In this view, we request your assistance to him in accomplishing this important study.

Thank you in advance for your co-operation.

Yours sincerely,

Sirili Akko
Executive Officer

ALL OFFICIAL CORRESPONDENCE TO BE ADDRESSED TO THE EXECUTIVE SECRETARY

HALMASHAURI YA WILAYA YA SERENGETI

Mkoa wa Mara:
Tel. No. 2621426
Fax Na. 2621426



Ofisi ya Mkurugenzi Mtendaji(W),
Idara ya Kilimo/Mifugo
S. L. P. 176,
Mugumu – Serengeti

Unapojibu tafadhali taja:
Kumb Na SDC

23/03/2012

AFISA MTENDAJI KIJJI
ROBANDA, MBISSO, PARK NYIGOTI
NYICHOKA, MAKUNDUSI, RWAMCHANGA

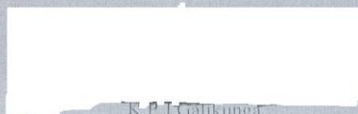
YAH: KUWATAMBULISHA ENOCK MAKUPA NA BAKER MASURULI

Rejea mada tajwa hapo juu.

Nawatambulisha Bw Enoch Makupa (Mhadhiri Chuo Kikuu cha Dodoma) na Bw Baker Masuruli (Mhadhiri Chuo cha Wanyamapori Mweka) ambao wanafanya utafiti katika maeneo yenu kuhusu mahusiano kati ya jamii na maeneo ya uhifadhi.

Wapeni ushirikiano, na msaada ili kufanikisha zoezi lao

Wenu



K. P. J. Galikunga
MKURUGENZI MTENDAJI (W)
SERENGETI

27/3/2012

Kny. MKURUGENZI MTENDAJI
WILAYA YA SERENGETI

Nakala
Afisa Mtendaji Kata
IKOMA
MANCHIRA
NATTA
KYAMBALI

Appendix B: Key questions used in document analysis

1. What is the supply system of nature-based tourism in the Serengeti ecosystem?
2. How do the management plans allow for and guide tourism in the ecosystem?
3. How does the nature-based tourism supply system function to distribute the flow of costs and benefits to conservation?
4. How does the nature-based tourism supply system function to distribute the flow of costs and benefits to communities?
5. What mechanisms are in place to manage the costs and benefits of nature-based tourism supply system to conservation and communities in and around the Serengeti ecosystem?
6. How can the nature-based tourism supply delivery system be improved to increase the flow of benefits and mitigate costs?

Appendix C: Key documents consulted in the document analysis

Table 1: Some key documents consulted in the document analysis

Data source
URT (1999). The National Tourism Policy
URT (2007). The Wildlife Policy of Tanzania
URT (2007). The Wildlife Conservation (Non-Consumptive Wildlife Utilization) Regulations, 2008
URT (2007). The Wildlife Conservation (Tourist Hunting) Regulations, 2000: Revised, 2002
URT (2012). The Wildlife Conservation Act (CAP.283): The Wildlife Conservation (Wildlife Management Areas) Regulations, 2012
TANAPA (2013). Serengeti National Park: Business Review September 2013
TANAPA (2005). Serengeti National Park General Management Plan 2005 – 2015
TANAPA (2004). Tanzania National Parks Guidelines for Income Generating Program for Communities Living adjacent to the Parks
TATO (2004). Tanzania Association of Tour Operators (TATO): Constitution and Rules
NCAA (2010). Ngorongoro Conservation Area Authority General Management Plan 2006 – 2016
NCAA (2007). Ngorongoro Conservation Area Authority Tourism Marketing Strategic Plan, 2006
NCAA (2000). Ngorongoro Conservation Area Ordinance (CAP.413) (Establishment of Ngorongoro Pastoral Council) Rules, 2000
IKONA WMA (2011). Constitution of IKONA Wildlife Management Area, 2011
IKONA WMA (2011). IKONA Wildlife Management Area: Resource Management Plan 2010 – 2015
MNRT (2000). Maswa Game Reserve: Draft General Management Plan
Makao WMA (2005). Draft Resource Management Zone Plan 2008 – 2012 b
Mwiba (2011). Mwiba Wildlife Ranch: General Management Plan 2011 – 2014
Websites, magazines, brochures, and leaflets of various tourism stakeholders of the Serengeti ecosystem

Appendix D: Recruitment – Draft Email/Phone Scripts

Group 1, 2, 3 and 4 – Key informant interviews

Dear _____

I am **Masuruli Masuruli Baker**, a PhD student at the Department of Geography, University of Victoria, Canada. I am in the process of carrying out research on the nature-based tourism in Serengeti Ecosystem.

The study is entitled **Costs and Benefits of Nature-Based Tourism to Conservation and Communities in the Serengeti Ecosystem, Tanzania**. The purpose of the research is to **investigate the flow of the costs and benefits of nature-based tourism supply system to conservation and communities, with a view to explore mechanisms that could enhance the benefits and offset the costs and to improve understanding of the costs and benefits of nature-based tourism supply system. This research is being funded by the Protected Areas and Poverty Reduction Project (PAPR). More information can be found at: <http://www.viu.ca/icura/>, <http://www.papr.org>**

This communication serves to invite you to participate in the research I am conducting on the Costs and Benefits of Nature-Based Tourism to Conservation and Communities in the Serengeti Ecosystem, Tanzania. I have decided to contact you and request your participation in this study as a key informant because you have been identified as among the knowledgeable people about nature-based tourism in the Serengeti Ecosystem. Your participation in this study is voluntary and you are free not to participate depending on your decision.

You have been selected to participate in this study through snowballing techniques where other people have given you my contacts for you to participate. You will be involved in an interview between you and the researcher (Masuruli Masuruli Baker) on various aspects related to nature-based tourism in the Serengeti Ecosystem in Tanzania. This interview will be audio recorded and later transcribed by the researcher. This interview will take a maximum of two hours. Your participation in this study is voluntary and there is no penalty if you do not participate.

More information on the research project, including the research questions and methods can be found in the attached Participant Consent and Data Collection Methods Forms. I would appreciate if you could decide to participate in this study as well as if you could let me know your decision by February 28, 2012. Please, in case you have any questions contact me in personal, by phone or email.

Thank you in advance for your positive consideration.

Sincerely,

Masuruli Masuruli Baker
PhD Student, Department of Geography
University of Victoria, Canada
masuruli@yahoo.com
Phone: +255 754 308630

Appendix E: Key questions for protected area (PA) key informants

Invitation to interview

Dear Participant,

Welcome to the nature-based tourism interview for protected areas. This interview, administered by a researcher from the University of Victoria, Canada, aims to gather information from various stakeholders about the links between nature-based tourism supply system in the Serengeti Ecosystem and the delivery of the costs and benefits in the Serengeti Ecosystem, Tanzania. Therefore this interview will ask about your perceptions on nature-based tourism in the ecosystem. Participation to this study is entirely voluntary and by no means should it put your wellbeing at risk. Personal records are only for my records and will not be published in the final report. Please, be as honest and as open as possible in relation to all questions. Thank you for accepting to participate in this important research by sharing your experiences, knowledge and time. We estimate that it will take more than 60 minutes to complete this interview.

Sincerely,

Masuruli Masuruli Baker – Principal Researcher

1. Can you describe your role in the management of the protected area?
 - (a) How long have you worked in the protected area, and what roles?
 - (b) What was your training and previous related experience?
2. Can you describe the role of your protected area agency in providing tourism experiences in the Serengeti ecosystem?
3. Can you describe the trend of tourism delivery of your protected area agency in the Serengeti ecosystem?
4. Can you describe the impacts (benefits and costs) of tourism delivery of your protected area agency to conservation in the Serengeti ecosystem? (Provide some examples)
5. In your opinion how well is the tourism delivery of your protected area agency performing with regard to conservation? (Provide some examples)

Very good		Good		Somewhat good		Somewhat bad		Bad		Very bad	
-----------	--	------	--	---------------	--	--------------	--	-----	--	----------	--

6. What are the gaps, deficiencies or problems with the performance of the tourism delivery of your protected area agency to conservation?
 - (a) What would an ideal tourism delivery system in the area look like?
 - (b) What barriers or impediments are getting in the way?
7. Can you describe the impacts (benefits and costs) of tourism delivery of your protected area agency to the community (development, livelihoods, culture) in the Serengeti ecosystem? (Provide some examples)

8. In your opinion how well is the tourism delivery of your protected area agency performing with regard to the community (development, livelihoods, culture)? (Provide some examples)

Very good		Good		Somewhat good		Somewhat bad		Bad		Very bad	
-----------	--	------	--	---------------	--	--------------	--	-----	--	----------	--

9. What are the gaps, deficiencies or problems with the performance of the tourism delivery of your protected area agency to the community (development, livelihoods, and culture)?
 (a) What would an ideal tourism delivery system in the area look like?
 (b) What barriers or impediments are getting in the way?

10. In your opinion how well is the tourism delivery of your protected area agency performing with regard to visitors' awareness and understanding of conservation? (Provide some examples)

Very good		Good		Somewhat good		Somewhat bad		Bad		Very bad	
-----------	--	------	--	---------------	--	--------------	--	-----	--	----------	--

11. What are the gaps, deficiencies or problems with the performance of the tourism delivery of your protected area agency to visitors' awareness and understanding of conservation?
 (a) What would an ideal tourism delivery system in the area look like?
 (b) What barriers or impediments are getting in the way?

12. Can you describe the mechanisms used by your protected area agency to govern the impacts (benefits and costs) of tourism delivery to the community and conservation in the Serengeti ecosystem? (Collect copies)

13. How does your protected area agency collaborate with other tourism service providers in the Serengeti ecosystem? (Provide some examples)

14. Can you suggest a person with deep knowledge on tourism in the Serengeti Ecosystem that I should interview as part of this research?

Appendix F: Key questions for nature-based tourism service providers (Tour operators)

Invitation to interview

Dear Participant,

Welcome to the nature-based tourism interview for protected areas. This interview, administered by a researcher from the University of Victoria, Canada, aims to gather information from various stakeholders about the links between nature-based tourism supply system in the Serengeti Ecosystem and the delivery of the costs and benefits in the Serengeti Ecosystem, Tanzania. Therefore this interview will ask about your perceptions on nature-based tourism in the ecosystem. Participation to this study is entirely voluntary and by no means should it put your wellbeing at risk. Personal records are only for my records and will not be published in the final report. Please, be as honest and as open as possible in relation to all questions. Thank you for accepting to participate in this important research by sharing your experiences, knowledge and time. We estimate that it will take more than 60 minutes to complete this interview.

Sincerely,

Masuruli Masuruli Baker – Principal Researcher

1. Can you describe your role in the tourism industry?
 - (a) How long have you worked in the tourism industry, and what roles?
 - (b) What was your training and previous related experience?
2. Can you describe the range of tourism experiences your tour company provides in the Serengeti ecosystem?
3. Can you describe the impacts (benefits and costs) of your tourism operation to conservation in the Serengeti ecosystem?
4. What is the flow (distribution) of the impacts (benefits and costs) of the tourism operation of your company to conservation?
5. In your opinion how well is the tourism operation of your tour company performing with regard to conservation?

Very good		Good		Somewhat good		Somewhat bad		Bad		Very bad	
-----------	--	------	--	---------------	--	--------------	--	-----	--	----------	--

6. What are the gaps, deficiencies or problems with the performance of the tourism operation of your tour company to conservation?
 - (a) What barriers or impediments are getting in the way?
 - (b) What would an ideal tourism delivery system look like?
7. Can you describe the impacts (benefits and costs) of your operation to communities in the Serengeti ecosystem?
8. What is the flow (distribution) of the impacts (benefits and costs) of the tourism operation of your company to communities?

9. In your opinion how well is the tourism operation of your tour company performing with regard to communities?

Very good		Good		Somewhat good		Somewhat bad		Bad		Very bad	
-----------	--	------	--	---------------	--	--------------	--	-----	--	----------	--

10. What are the gaps, deficiencies or problems with the performance of the tourism operation of your tour company to communities?

- (a) What barriers or impediments are getting in the way?
 (b) What would an ideal tourism delivery system look like?

11. In your opinion how well is the tourism industry overall performing in terms of visitor awareness and understanding of conservation (give some examples)

Very good		Good		Somewhat good		Somewhat bad		Bad		Very bad	
-----------	--	------	--	---------------	--	--------------	--	-----	--	----------	--

12. What are the gaps, deficiencies or problems with the performance of the tourism operation overall to visitor awareness and understanding of conservation?

- (a) What barriers or impediments are getting in the way?
 (b) What would an ideal tourism delivery system look like?

13. How do you collaborate with other tourism service providers with regard to tourism delivery?

14. In your opinion how well is the collaboration between your tour company and other tourism service providers with regard to tourism delivery?

Very good		Good		Somewhat good		Somewhat bad		Bad		Very bad	
-----------	--	------	--	---------------	--	--------------	--	-----	--	----------	--

15. What are the gaps, deficiencies or problems with regard to collaboration between your tour company and other tourism service providers with regard to tourism delivery?

- (a) What barriers or impediments are getting in the way?
 (b) What would an ideal collaboration in tourism delivery in the area look like?

16. Can you suggest a person with deep knowledge of tourism in the Serengeti ecosystem that I should interview as part of this research?

Appendix G: Key questions for communities key Informants

Invitation to interview

Dear Participant,

Welcome to the nature-based tourism interview for protected areas. This interview, administered by a researcher from the University of Victoria, Canada, aims to gather information from various stakeholders about the links between nature-based tourism supply system in the Serengeti Ecosystem and the delivery of the costs and benefits in the Serengeti Ecosystem, Tanzania. Therefore this interview will ask about your perceptions on nature-based tourism in the ecosystem. Participation to this study is entirely voluntary and by no means should it put your wellbeing at risk. Personal records are only for my records and will not be published in the final report. Please, be as honest and as open as possible in relation to all questions. Thank you for accepting to participate in this important research by sharing your experiences, knowledge and time. We estimate that it will take more than 60 minutes to complete this interview.

Sincerely,

Masuruli Masuruli Baker – Principal Researcher

1. Can you describe your role in the community and tourism industry?
 - (a) How long have you stayed in the community?
 - (b) What roles have you served in the community?
 - (c) What was your training and previous related experience?
2. Can you describe the role of your community in providing tourism experiences?
 - (a) What kinds of tourism service does your community provide?
 - (b) What is the responsibility of your community in tourism delivery?
3. Can you describe the trend of tourism delivery in your community?
4. Can you describe the impacts (benefits and costs) of tourism delivery overall to conservation?
5. In your opinion how well is the tourism delivery overall performing with regard to conservation?

Very good		Good		Somewhat good		Somewhat bad		Bad		Very bad	
-----------	--	------	--	---------------	--	--------------	--	-----	--	----------	--

6. What are the gaps, deficiencies or problems with the performance of the tourism delivery to conservation?
 - (a) What barriers or impediments are getting in the way?
 - (b) What would an ideal tourism delivery system look like?
7. Can you describe the impacts (benefits and costs) of tourism delivery overall to the community?

8. In your opinion how well is the tourism delivery overall performing with regard to communities?

Very good		Good		Somewhat good		Somewhat bad		Bad		Very bad	
-----------	--	------	--	---------------	--	--------------	--	-----	--	----------	--

9. What are the gaps, deficiencies or problems with the performance of the tourism delivery of your protected area agency to communities?
 (a) What barriers or impediments are getting in the way?
 (b) What would an ideal tourism delivery system look like?

10. How does your community work together with other tourism service providers?

11. In your opinion how well is the collaboration between your community and other tourism service providers with regard to tourism delivery?

Very good		Good		Somewhat good		Somewhat bad		Bad		Very bad	
-----------	--	------	--	---------------	--	--------------	--	-----	--	----------	--

12. What are the gaps, deficiencies or problems with regard to collaboration between your protected area agency and other tourism service providers?
 (a) What barriers or impediments are getting in the way?
 (b) What would an ideal tourism delivery system in the area look like?

13. Can you suggest a person with deep knowledge of tourism in the Serengeti Ecosystem that I should interview as part of this research?

Appendix H: Key questions for nature-based tourism (NGO's, academicians, etc.)

Invitation to interview

Dear Participant,

Welcome to the nature-based tourism interview for protected areas. This interview, administered by a researcher from the University of Victoria, Canada, aims to gather information from various stakeholders about the links between nature-based tourism supply system in the Serengeti Ecosystem and the delivery of the costs and benefits in the Serengeti Ecosystem, Tanzania. Therefore this interview will ask about your perceptions on nature-based tourism in the ecosystem. Participation to this study is entirely voluntary and by no means should it put your wellbeing at risk. Personal records are only for my records and will not be published in the final report. Please, be as honest and as open as possible in relation to all questions. Thank you for accepting to participate in this important research by sharing your experiences, knowledge and time. We estimate that it will take more than 60 minutes to complete this interview.

Sincerely,

Masuruli Masuruli Baker – Principal Researcher

1. Can you describe your role in the tourism industry?
 - (a) How long have you worked in the tourism industry, and what roles?
 - (b) What was your training and previous related experience?
2. Can you describe the role of your organization / group in the Serengeti ecosystem?
3. Can you describe for me the nature-based tourism industry in the Serengeti ecosystem?
4. In your opinion how well is the set-up of the tourism industry in the Serengeti ecosystem?

Very good		Good		Somewhat good		Somewhat bad		Bad		Very bad	
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5. What are the gaps, deficiencies or problems with regard to the set-up of the tourism industry in the Serengeti ecosystem?
 - (a) What would an ideal tourism set-up in the area look like?
 - (b) What barriers or impediments are getting in the way?
6. Can you describe the impacts (benefits and costs) of the tourism industry to conservation in the Serengeti ecosystem? (Provide some examples)
7. In your opinion how well is the tourism industry overall performing in the Serengeti ecosystem with regard to the following?
 - (a) Conservation (Provide some examples)

Very good		Good		Somewhat good		Somewhat bad		Bad		Very bad	
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- (b) Visitor awareness and understanding of conservation (Provide some examples)

Very good		Good		Somewhat good		Somewhat bad		Bad		Very bad	
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8. What are the gaps, deficiencies or problems with the performance of the tourism operation overall to conservation, community, and visitor awareness and understanding of conservation?
 (a) What would an ideal tourism delivery system in the area look like?
 (b) What barriers or impediments are getting in the way?
9. Can you describe the impacts (benefits and costs) of the tourism industry to the community (development, livelihoods, culture) in the Serengeti ecosystem? (Provide some examples)
10. In your opinion how well is the tourism industry overall performing in the Serengeti ecosystem with regard to the community (development, livelihoods, culture)? (Provide some examples)

Very good		Good		Somewhat good		Somewhat bad		Bad		Very bad	
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11. What are the gaps, deficiencies or problems with the performance of the tourism operation overall to conservation, community, and visitor awareness and understanding of conservation?
 (a) What would an ideal tourism delivery system in the area look like?
 (b) What barriers or impediments are getting in the way?
12. Can you describe the mechanisms that govern the impacts of tourism to the community and conservation in the Serengeti ecosystem? (Collect copies)
13. Can you suggest a person with deep knowledge on tourism in the Serengeti ecosystem that I should interview as part of this research?

Appendix I: Recruitment – Draft email/phone scripts

Group 4 – Focused Group Discussion

Dear _____

I am **Masuruli Masuruli Baker**, a PhD student at the Department of Geography, University of Victoria, Canada. I am in the process of carrying out research on the nature-based tourism in Serengeti Ecosystem.

The study is entitled **Costs and Benefits of Nature-Based Tourism to Conservation and Communities in the Serengeti Ecosystem, Tanzania**. The purpose of the research is to **investigate the flow of the costs and benefits of nature-based tourism supply system to conservation and communities, with a view to explore mechanisms that could enhance the benefits and offset the costs and to improve understanding of the costs and benefits of nature-based tourism supply system**.

This research is being funded by the Protected Areas and Poverty Reduction Project (PAPR). More information can be found at: <http://www.viu.ca/icura/>, <http://www.papr.org>

This communication serves to invite you to participate in the research I am conducting on social-ecological governance of protected areas in the Serengeti ecosystem in Tanzania. I have decided to contact you and request your participation in this study as a member of a focus group discussion because you have been identified as among the knowledgeable people about protected areas and the link between protected areas and your village. This is through your experience with both neighboring protected areas and this village. Your participation in this research is totally voluntary and feel free to decide to participate or not by following your inner decision for this case.

Your selection to participate in this study has been done through snowballing techniques where other people have given you my contacts for you to participate. You will participate in a small group of people (4-8) discussing some aspects about nature-based tourism in the Serengeti Ecosystem. The researcher (Masuruli Masuruli Baker) will facilitate the discussion which will be audio recorded and later transcribed by the researcher himself. This interview will take a maximum of two hours. Your participation in this study is voluntary and there is no penalty if you do not participate.

More information on the research project, including the research questions and methods can be found in the attached Participant Consent and Data Collection Methods Forms. I would appreciate if you could decide to participate in this study as well as if you could let me know your decision by February 28, 2012. Please, in case you have any questions contact me in personal, by phone or email.

Thank you in advance for your positive consideration.

Sincerely,

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Appendix J: PAs and Acts of establishment in the Serengeti ecosystem

PA	Act of establishment
Serengeti National Park (SENAPA)	The Tanganyika National Parks Ordinance CAP. 412 of 1959.
Ngorongoro Conservation Area (NCA)	Ngorongoro Conservation Area Ordinance CAP. 413 of 1959.
Loliondo Game Controlled Area	The Wildlife Conservation Act, 1974 - Wildlife Conservation (game reserves) Order - Government Notice 269 of 1974.
Maswa Game Reserve	The Wildlife Conservation Act, 1974 - Wildlife Conservation (game reserves) Order - Government Notice 275 of 1974.
Ikorongo Game Reserve	The Wildlife Conservation Act, 1974 - Wildlife Conservation (Ikorongo & Grumeti game reserves Declaration) Order - Government Notice 214 of 1994.
Grumeti Game Reserve	The Wildlife Conservation Act, 1974 - Wildlife Conservation (Ikorongo & Grumeti game reserves Declaration) Order - Government Notice 214 of 1994.
Kijereshi Game Reserve	The Wildlife Conservation Act, 1974 - Wildlife Conservation (Kijereshi Game Reserve) (Declaration) Order - Government Notice 215 of 1994.
Ikona Wildlife Management Area	The Wildlife Conservation (Wildlife Management Areas) Regulations, 2012.
Makao Wildlife Management Area	The Wildlife Conservation (Wildlife Management Areas) Regulations, 2012.
Tanzania Conservation Limited	Lack legislation of establishment, but wildlife governed by the Wildlife Conservation Act of 1974.
Mwiba Wildlife Conservation Ranch	Lack legislation of establishment, but wildlife governed by the Wildlife Conservation Act of 1974.
Grumeti Reserves Conservation Area	Lack legislation of establishment, but wildlife governed by the Wildlife Conservation Act of 1974.

Appendix K: Tourist trends in the Serengeti ecosystem

Table 1: Number of tourist visited Ngorongoro Conservation Area from 1969 to 2011

Year	Non-Resident	Resident	Total
2011	307,086	281,520	588,606
2010	281,513	242,133	523,646
2009	240,411	201,555	441,966
2008	256,233	221,216	477,449
2007	292,307	169,743	462,050
2006	253,001	106,258	359,259
2005	238,174	98,417	336,591
2004	199,931	74,638	274,569
2003	174,686	80,570	255,256
2002	150,179	100,264	250,443
2001	131,933	88,732	220,665
2000	125,181	85,076	210,257
1999	117,790	61,095	178,885
1998	112,460	56,777	169,237
1997	124,005	61,113	185,118
1996	105,076	72,079	177,155
1995	91,755	76,615	167,501
1994	82,991	73,164	156,155
1993	88,159	89,554	177,713
1992	77,668	67,413	145,081
1991	66,759	56,032	122,791
1990	67,494	61,468	128,962
1989	65,560	47,127	112,687
1988	55,295	55,802	111,096
1987	41,164	36,417	77,581
1986	31,906	31,460	63,366
1985	26,989	30,252	57,241
1984	22,990	31,945	54,935
1983	13,515	16,019	29,534
1982	15,757	19,243	35,000
1981	16,022	17,200	33,222
1980	16,893	17,012	33,905
1979	17,082	14,913	31,995
1978	9,188	10,173	19,361
1977	12,461	10,188	22,649
1976	77,986	11,711	88,697
1975	61,118	11,406	72,524
1974	67,893	11,348	69,241
1973	64,941	13,977	78,918
1972	67,247	11,975	79,222
1971	61,752	10,995	72,747
1970	43,668	18,499	62,167
1969	34,379	20,189	58,518

Source: Ngorongoro Conservation Area Authority (2012)

Table 2: Serengeti National Park Tourist Statistics from 1987 / 1988 to 2010 / 2011

Year	Non Residents	Residents	Total
2010 / 2011	161,840	354,024	515,864
2009 / 2010	128,234	142,673	270,907
2008 / 2009	130,538	132,087	262,625
2007 / 2008	145,003	141,093	286,092
2006 / 2007	139,061	132,385	271,446
2005 / 2006	131,748	141,231	272,979
2004 / 2005	113,790	114,384	228,174
2003 / 2004	80,006	75,964	155,970
2002 / 2003	86,712	68,505	155,217
2001 / 2002	76,790	59,559	136,349
2000 / 2001	78,590	50,152	128,742
1999 / 2000			113,867
1998 / 1999			198,934
1997 / 1998			90,793
1996 / 1997			96,886
1995 / 1996			98,501
1994 / 1995			91,234
1993 / 1994			105,751
1992 / 1993			80,804
1991 / 1992			79,713
1990 / 1991			66,380
1989 / 1990			59,069
1988 / 1989			55,176
1987 / 1988			47,625

Source: Serengeti National Park (2012)

Appendix L: Acronyms

EBM	-	Ecosystem-based Management
LAC	-	Limits of Acceptable Change
LAU	-	Limits of Acceptable Use
NBT	-	Nature-based Tourism
NCA	-	Ngorongoro Conservation Area
NCAA	-	Ngorongoro Conservation Area Authority
PA	-	Protected Area
SENAPA	-	Serengeti National Park
TANAPA	-	Tanzania National Park(s)
URT	-	United Republic of Tanzania
WMA	-	Wildlife Management Area
WTO	-	World Tourism Organization