Links between nature-based tourism, protected areas, poverty alleviation and crises—The example of Wasini Island (Kenya)

Hubert Job*, Ferdinand Paesler

Institute for Geography and Geology, Julius-Maximilians-Universität Würzburg, Am Hubland, 97074 Würzburg, Germany

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A B S T R A C T
Nature-based tourism in protected areas of low-income countries can contribute to regional economies, reduce poverty, and help to develop rural areas. This study analyses the situation on Wasini Island, a peripheral island neighboring the Ki Sites Marine National Park on the southern coast of Kenya. An economic impact analysis was undertaken for the two island settlements of Mkwiro and Wasini village. Firstly, the difference in the participation in nature-based tourism is striking. For Wasini village, the results show an increased income from tourism, which has led to population growth and improved standards of living. Secondly, the comparison of two main tourism enterprises operating in Wasini village shows that tourism per se does not necessarily contribute to poverty-reduction; it is the tourist businesses’ ties with the local economy that matter. Thirdly, the study finds that tourism has made other livelihoods, such as small-scale fishery and subsistence agriculture, nearly redundant. This paper also considers the impact of crises emanating from outside the island. In such a situation local economies can be more resilient if the local population can revert to earlier subsistence based modes of production.

M A N A G E M E N T   I M P L I C A T I O N S

Focus on a close relationship with the local population and participatory development of management options.
Install fair institutional arrangements.
Facilitate the opportunities of nature-based tourism with essential training in business skills, guiding and production of local goods and handicraft.
Encourage community members to avoid a total dependence on nature-based tourism by maintaining a subsistence economy for times of crises.
Communicate that locally embedded tourism development takes time and is unlikely to improve local economy immediately.

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1. Introduction

Nature-based tourism and visitation of protected areas can generate positive impacts to the local, regional, and national economies. However, these economic advantages may also introduce ecological or social downsides. In this paper, we argue that tourism may be highly relevant to slowing down the loss of biodiversity through improved planning and management of protected areas while fostering local participation (McCool, 2006; Brenner & Job, 2012). The Aichi Biodiversity Target 11, which aims to stop the degradation of the world’s biological heritage, sets an objective of 17% of Earth’s terrestrial surface being formally protected by the year 2020 (Convention on Biological Diversity, 2011). This achievement would require an increase of about six million km² from the 12.7% figure of 2010. Woodley et al. (2012, p. 7) explain that “much of this increase will likely come from places that are already inhabited by people, and thus require new strategies, innovative programmes, and creative approaches to integrating people and protected areas in order to achieve the necessary social acceptability and political support needed for designation”. Nature-based tourism, together with non-consumptive outdoor recreation uses, should play a key role in realising these
policies. International travel figures for 2012 exceeded one billion tourist arrivals on a global scale, showing now a growth rate of 4% per annum (United Nations World Tourism Organization, 2012). In many low income countries, tourism is one of the most crucial sources of revenue (United Nations World Tourism Organization, 2001). For example, in Kenya, international tourism receipts were reported at 18% of total exports in 2010 (World Bank, 2012). Nature-based tourism played the significant role (Job & Metzler, 2003).

However, foreign currency receipts do not necessarily lead to regional development. Following Buckley (2012), we consider nature-based tourism as an unavoidable component of modern conservation strategies. Conservation efforts need to care for a regional sustainable development to be successful in the long run, which is why Aichi Biodiversity Target 16 asks for a fair and equitable sharing of benefits (Convention on Biological Diversity, 2011).

Our case study region is Wasini Island, Kenya, a small island located south of Mombasa on the coast of the Indian Ocean, which is the gateway community to nearby Kisite Marine National Park. We posed the following research questions:

- What is the economic impact of nature-based tourism on Wasini Island?
- Does the money spent by park visitors reach the local population and contribute to an alleviation of poverty?
- How is the tourism business affecting other forms of traditional land use practices and what if crises occurring outside of the destination and its communities affect visitation?

In this paper, we report on the interrelation of protected areas, tourism, and local participation. First we describe the regional setting and present the research design. By means of an economic impact analysis of Wasini Island, we examine the consequences of different intensities of local participation in nature-based tourism. Then we focus on the economic dimension of poverty and its reduction by income generated from nature-based tourism. Taking the example of two villages and two enterprises, we highlight the role of varying extents of participation in tourism. We also analyze the significant land-use change on the island. Finally, we consider the impacts of the 2007–08 Kenyan crisis, showing the problems that may emerge in communities with a strong dependence on tourism during times of external crisis.

2. Conservation, tourism, and participation

The worldwide assessment of the first “Protected Planet Report” relating to the effectiveness of the management of over 3000 protected areas found that 22% of these areas were adequately managed and 13% were not adequately managed. 65% of all protected areas were considered essentially unmanaged, mainly due to a lack of employees, resources, and involvement of local communities (Bertzky et al., 2012). Ideally, protected areas are managed for multiple well-matched uses that include biodiversity conservation, watershed protection, sustainable forestry, outdoor recreation, possibly hunting, fishing, and tourism. From a development point of view, the protection of designated areas can be seen as insurance for poor communities, through supporting livelihoods and enhancing economic output (United Nations Development Programme, 2012). With the establishment of Integrated Conservation Development Projects in the 1980s and the Rio Declaration on Environment and Development of 1992, conservation management has emerged as a global concern. Since then, a paradigm shift towards regional development and, specifically in developing countries, poverty alleviation through conservation measures is receiving increased attention (Job & Schmid, 2011). In addition to the major protected areas around the world, there are also several thousand community conservation areas, such as state-run parks and community-based conservancies. In these conservation areas, tourism is the most commonly mentioned economic activity for having a positive socio-economic impact on the communities in or adjacent to protected areas (Mearns, 2012).

Nature-based tourism is considered an important component of sustainable tourism development, particularly in remote areas. However, “nature-based tourism” is a controversial term with no coherent definition (Goodwin, 1996). An early explication of Ceballos-Lascuarain (1996) describes nature-based tourism’s direct dependency on natural resources in a relatively undeveloped state, including scenery, water features, vegetation, and wildlife. Since the late 1980s, nature-based tourism and ecotourism, which requires an explicit contribution to nature conservation (Boo, 1990), have experienced dynamic development including recent mainstreaming tendencies, such as an increasing number of standardized offers of tour operators. Although nature-based tourism was initially developed in relatively homogenous niche markets, many scholars now report that protected areas are not only visited by environmentally conscious individuals but by a wide range of different types of tourists. Hence, the nature-based tourism segment is a complex and ever changing component of the tourism industry (Arnegger, Woltering, & Job, 2010). Goodwin (2011) has coined the term “responsible tourism”, which applies to a broader concept of the tourism industry relating to an overall sustainable business being no longer a niche market. Meanwhile, even more sophisticated terminology on conservation-related tourism forms, aiming for specific development goals, has emerged.

Pro-poor tourism, defined by Ashley and Roe (2002, p. 62) as “tourism that generates net benefits for the poor”, must involve local stakeholders, and must be adaptable to the local needs (Chok, Macbeth, & Warren, 2007). One of the most important features of sustainable and poverty-reducing tourism is local participation. Local participation means “empowering people to mobilize their own capacities and control the activities that affect their lives” (Cernea, 1985, p. 10). Ideally, an extensive participation in nature-based tourism fosters rural development and sets incentives for the preservation of natural resources. Moreover, it contributes to minimizing the negative socio-cultural and possible ecological consequences of tourism in the local area. Participation intensity may differ greatly, ranging from passive forms, such as information, to active cooperation, to complete own initiative (Drake, 1991).

“Community-based tourism” is a closely related concept that includes local participation in tourism. Community-based tourism aims to generate income and to minimize poverty on a small-scale by incorporating the local population and using endogenous resources. In terms of sustainable tourism development, community-based tourism combines human and natural assets in community-controlled enterprises as a long-term improvement of the locals’ living standards (Palm & Pye, 2001). Such local communities are “groups of people with a common identity and who may be involved in an array of related aspects of livelihoods. They often have customary rights related to the area and its natural resources and a strong relationship with the area in one or many dimensions” (Scherl, 2005, p. 101).

Some research has been conducted on regional economic and poverty-reducing effects of tourism on the Kenyan coast. In this context, tourism is identified as a suitable instrument for regional development; decisive points are sustainability and the participation of the local population (Reid, Sindiga, Evans, & Ongaro, 1999; Sindiga, 1999). However, the regional economic impacts have so far only been estimated (Akama & Kieti, 2007), derived from macro-economic statistics (Akama, 2000), or calculated with extremely small samples (Kamau, 1999). As Kenya is working toward a new tourism master plan more reliable information about the economic benefits would be essential. A proper master plan would also help to deliver benefits in terms of socio-economic development, in particular through business and employment opportunities of rural communities (Nabukewa, 2012). Not only could communities benefit through direct
employment in tourism ventures (as rangers, guides, porters, service personnel in restaurants, etc.), they could also expect to gain profit from the multiplier effects of a whole tourism value chain (e.g., by outsourcing the laundry of lodges or producing crafts (Job & Lutzenberger, 2009)). The question is whether tourism is a realistic and resilient approach to ameliorating the livelihood of local residents in Kenya’s rural periphery when considering the drivers of poverty dynamics (Kristjanson, Mango, Krishna, Radeny, & Johnson, 2010). Aspects of nature conservation should also be included in those considerations.

3. Methodology

Wasini Island was chosen as a case study because of its favorable spatial and social prerequisites. We have been studying the area for more than 25 years and the island functions as a kind of field laboratory. Wasini Island serves as gateway and as staging area for Kisite Marine National Park and its nature-based tourism. It is situated along the Kenyan coast south of Mombasa, nearby the Tanzanian border. The island accommodates two historically and spatially intertwined villages, which are well suited for a comparison because of their very different involvement in the tourism business. The research took place during several stays on the island beginning in 1985 and ending in 2009. Most findings presented in this paper are based on the latest empirical work, a survey conducted for three months during the year 2007.

To measure the economic impacts of tourism, one may apply different methods, such as, cost-benefit-analysis (Dwyer & Forsyth, 1993), input–output models (Fletcher, 1989; Frechtling & Horváth, 1999), and computable general equilibrium analysis (Gillham, 2005). On the local and regional levels, however, value-added analysis has proven to be a convincing method and is relatively easy to conduct (Job, 2008). The economic impacts that may be generated by tourism in and around protected areas, can easily be quantified using this analysis. “Value added” corresponds to the sum of the wages, salaries, and profits earned by all persons actively involved in the tourism business. Value-added analysis is based on the well-established Keynesian multiplier approach (Archer, 1977; Archer & Fletcher, 1996; Armstrong & Taylor, 2000). The most common type of Keynesian multiplier is the income multiplier, where income is defined as value added (Wanhill, 1994). The income multiplier is a measurement of the net changes in new economic activity as an initial unit of expenditure cycles through the economy. The significantly reduced empirical costs to calculate this multiplier from secondary sources have contributed to its widespread use in studies on the economic impact of tourism at the local and regional level (Mayer, Müller, Woltering, Arnegger, & Job, 2010).

We decided to undertake a value-added analysis of the supply side on Wasini Island for the following reasons:

- The relatively small size of the research area allowed a complete survey of the whole economic supply side.
- A complete survey of the island economy encompasses the multi-sector character of tourism.
- All business activities on the island are either completely related to nature-based tourism or not related at all. The tourist share of the turnover can easily be calculated through extensive interviews.
- The willingness of the islanders to take part in interviews and to give insight in financial matters was very high because of their personal acquaintance with the researcher.

The value-added analysis distinguishes between direct, indirect, and induced effects (Fig. 1). The direct effects arise from the value added by the tourist enterprises operating on the island (turnover minus input). For the indirect effects, the input necessary for the tourist supply plays an important role. Inputs, which are locally produced and not imported from outside are part of the calculation. In the case of Wasini Island, the identification and

![Fig. 1. Procedure of a value-added analysis (adapted from Job, Woltering, & Harrer, 2009, p. 40).](image-url)
The delimitation of the local economic area is simple because of its relatively closed economic system as an island. The induced effects are based on the positive direct and indirect effects on the income of the people of Wasini village. This additional income generates further consumption, leading to further positive effects during additional spending cycles (Armstrong & Taylor, 2000).

We calculated the annual economic impact, denoted as $I$, of nature-based tourism to Kisite Marine National Park in the following steps:

$$I = I_D + I_I + I_{Ind}$$

(1)

$$I_{Ind} = I_{Ind}^1 + I_{Ind}^2 + \ldots + I_{Ind}^n = \sum_{n=1}^{\infty} I_{Ind}^n$$

(2)

$$I_{Ind}^n = (I_D + I_I) \cdot m_{Ind}^n$$

(3)

$$m_{Ind} = c \cdot m$$

(4)

Applying (2), (3) and (4) in (1):

$$I = \sum_{n=0}^{\infty} [(I_D + I_I) \cdot (c \cdot m)^n] = (I_D + I_I) \cdot \frac{1}{(1-c \cdot m)}$$

(5)

$I$=Total income; $I_D$=Direct income; $I_I$=Indirect income; $I_{Ind}^1$=Induced income, 1st round; $m_{Ind}$=Induced income multiplier; $c$=Local consumption rate; $m$=Direct income multiplier.

During our 2007 field season, we undertook investigations of the supply- and the demand-sides of tourism. On the demand side, we conducted on-site interviews with tourists to obtain information about their trip-expenditures. We selected a 25% random sample of all national park visitors who arrived during two four-week periods (in high and low season). Daily visitor numbers were obtained from the park headquarters in Shimoni. This small town with its tiny harbor is located opposite of Wasini Island on the mainland where the gravel road from Mombasa ends. On the supply side, we conducted interviews with all local households (total population survey of the households in both villages of Wasini Island) regarding their employment, their income, and their expenditures. For both of these surveys, we used standardized, quantitative questionnaires (Paesler, 2010).

In addition qualitative interviews with all tourism enterprises on the island delivered data on turnover, costs, and returns and also provided facts about supply chains, input, and vertical integration of the tourism industry. Based on all these data, the regional-economic system of the island was reproduced, local consumption and capture rates were calculated, and multiplier effects were considered (Paesler, 2010; Paesler & Job, 2011). Emphasizing the role of participation, we compared the data of the two villages, which each depend on tourism to a differing extent, as well as the data of two nature-based tourism enterprises with different local interrelations.

4. Setting

Kisite Marine National Park is situated along the southern Kenyan coast close to the Tanzanian border (Fig. 2). The park encompasses an area of 2800 ha. Bordering to the east is Mpunguti Marine National Reserve with a size of 1100 ha. In Kenya National Reserves allow traditional land use practices. Therefore fishing by locals is still allowed in this reserve, whereas in the National Park only scientific research and nature-based tourism activities (dhow sailing, snorkeling, scuba diving, and dolphin spotting) take place. As noted by the International Union for Conservation of Nature and Natural Resources (IUCN), these areas were protected to preserve the rich marine fauna, and especially to curtail the continuous exploitation of the broods of sea swallow colonies by local fishers on the rocky outcrops of ancient reefs within the national park (International Union for Conservation of Nature and Natural Resources (IUCN), 1988)). Also the regional underwater life was threatened by widespread illegal fishing methods and the gathering of seashells, which were sold to tourists in Mombasa (Job, 1994; Pertet, 1982). Further information about negative

![Fig. 2. Wasini Island (Kenya)—study area location.](image-url)
5. Results

5.1. Relevance of nature-based tourism

The advent of the tourism development in the Wasini Island region is marked by the designation of Kisite Marine National Park in 1973. Until 1979, only a few hundred tourists visited the park each year, most of whom were domestic day-trippers who did not stop on Wasini Island. As noted by the Kenya Wildlife Service (KWS), at that time the journey from the mass tourism base of Mombasa to the remote area of the park was challenging in the absence of any infrastructure on the islands (Job, 1994). Since the opening of the first restaurant on the island in 1979, the locals have established a lunch stop in Wasini village as part of the visit to Kisite Marine National Park. With better road conditions on the mainland (a paved road from Mombasa to the border of Tanzania was built during the 1980s), later a second restaurant was opened on the island. Seven restaurants and overnight accommodation now exist on Wasini Island. In 2006, the number of park visitors peaked at 68,000 (Fig. 3). Now the park receives about 55,000 visitors a year (Kenya Wildlife Service (KWS), 2012), predominantly day-trippers coming from all along the Kenyan coast as far as Malindi (a well-known mass tourism centre for beach holidays about 1 h drive north of Mombasa). Only 2% of the tourists stay overnight on Wasini Island (Paesler, 2010). Typical for Kenyan tourism, there is a distinctive seasonality with peaks in August and during the winter, when the weather is hot and dry with lots of sunshine. Of the two island villages, only Wasini village participates in nature-based tourism. Tourism has been slow to develop in Mkwiro due to the lack of infrastructure as well as historical circumstances (Job, 1994).

The crucial factor in poverty-reduction is reflected in the economic figures in Table 1 (for social indicators of poverty-reduction by tourism refer to Drake, 1991). Following the calculations presented in Section 3, the total income from tourism amounts to US$24,793 per month for Wasini village (this is a monthly average). This amount represents 77.5% of the total monthly value-added income of US$31,991 of the village; 62% of the tourism generated income is due to direct effects, 6.5% due to indirect effects, and 9% induced effects. By using the average national income per capita per month for Kenya of nearly US$39.40, we converted these figures into employment equivalents (Job, 2008), with a result of 630 persons out of a total population of 813 inhabitants of Wasini village living directly or indirectly from nature-based tourism. Obviously, in Wasini village, tourism plays a key role in poverty reduction.

5.2. Importance of local participation

The following comparison for Wasini village and Mkwiro shows the importance of an intensive local participation in nature-based tourism (Table 2).

Most tourism enterprises and initiatives (e.g., the Boat Owners Association) are located in Wasini village, leading to the different employment structures between the two communities. In Wasini village, 113 people directly work in tourism, and only five derive their income from subsistence farming or fishing. In Mkwiro, only 30 people are employed in tourism, while 162 people work in subsistence farming and fishing. Altogether, 29.7% of all inhabitants are fully employed at Wasini village, whereas only 17.6% of Mkwiro inhabitants are fully employed. The significantly higher population increase at Wasini village and the nearly three times higher income per capita per month of US$37.4 compared to US$13.1 in Mkwiro are related to the different levels of involvement in nature-based tourism in each village (Paesler & Job, 2011).

Different levels of local participation are also evident in local businesses. Table 3 compares the tourist receipts for two similarly sized restaurants in Wasini village. One restaurant is owned and operated by a local community member, while the international restaurant is owned and operated by a foreigner.

In the case of local enterprise, nearly half of the tourist receipts remain on Wasini Island (46%), whereas the internationally owned business reports a leakage rate of 92%, the greater part of which flows outside the country (70%). The reason is that the internationally managed enterprise relies to a much smaller extent on local services and local resources (Table 3, right). The crucial sector integrating tourism with the local economy are the touristic salesmen, also known as “touts” (young islanders who promote the various businesses to the tourists), the villagers’ dhows (Swahili style wooden sailing boats), and the local restaurant itself (Table 3). The owner of the local restaurant pays his 34 workers, all from Wasini village, an average salary of US$54.5. The 64 workers of the international business, 18 of them Wasini village residents, earn an average of US...
$44.4 per month only, which is about 82% of the salary earned by the employees of the locally owned restaurant.

In order to understand the significance of nature-based tourism to Wasini village, it is also important to consider local initiatives such as the Wasini Village Development Fund (VDF) and the Wasini Women's Group (WWG). Initially, locals viewed park visitors on their island with suspicion. In order for the first restaurant to be approved by the council of elders in 1979, the owner had to commit to paying five shillings per restaurant guest.

Table 1
(Source: Paesler & Job (2011)).

<table>
<thead>
<tr>
<th>Economic effects</th>
<th>In US $</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct</td>
<td>19,993</td>
</tr>
<tr>
<td>Indirect</td>
<td>1878</td>
</tr>
<tr>
<td><strong>Sub-total (Direct+Indirect)</strong></td>
<td><strong>21,822</strong></td>
</tr>
<tr>
<td>Induced, 1. Round</td>
<td>2614</td>
</tr>
<tr>
<td>Induced, 2. Round +</td>
<td>357</td>
</tr>
<tr>
<td><strong>Sub-total (Induced, all rounds)</strong></td>
<td><strong>2971</strong></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>24,793</strong></td>
</tr>
</tbody>
</table>

Table 2
Economic and demographic variables of Wasini and Mkwiro villages (2007).
(Source: Paesler & Job (2011)).

<table>
<thead>
<tr>
<th>Structural attribute of village</th>
<th>Wasini</th>
<th>Mkwiro</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inhabitants</td>
<td>855</td>
<td>1061</td>
</tr>
<tr>
<td>Households</td>
<td>116</td>
<td>1691</td>
</tr>
<tr>
<td>Local tourism initiatives</td>
<td>7</td>
<td>1</td>
</tr>
<tr>
<td>Tourism ventures</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>Employment rate</td>
<td>29.7%</td>
<td>17.6%</td>
</tr>
<tr>
<td>Subsistent farmers/fishermen</td>
<td>5</td>
<td>162</td>
</tr>
<tr>
<td>Employees in tourism</td>
<td>113</td>
<td>30</td>
</tr>
<tr>
<td>Population growth p.a. (1994–2007)</td>
<td>4.4%</td>
<td>0.5%</td>
</tr>
<tr>
<td>Income per capita and month</td>
<td>US$37.40</td>
<td>US$13.10</td>
</tr>
</tbody>
</table>
to the VDF to assist the village community. The idea was to resolve the concerns of the elders about the impending acculturation of their traditional Islamic Swahili culture. Over the years, the funds accumulated in the VDF have been used for various projects such as co-financing the primary school and the infirmary, and the remodeling of an old building to be used as a community meeting place. In 1979, five shillings was equivalent to US$0.67. In 1991, a total of KSh110,000, (equivalent to US$3904) was paid to the VDF, while in 2007, KSh160,200, (equivalent to US$2301) was paid (Job, 1994; Paesler, 2010). In view of Kenya's staggering inflation and development of prices since then, the total amount of money transferred to the community has decreased significantly, as in 2013 five shillings is equivalent to only US$0.06. The contributed share of the sales volume of the restaurant continues to decline, as the foreign restaurant owner refuses to increase the amount of contributions despite the face value of the Kisee Marine National Park tours offered ranging between US$110 and US$125 per person per day (including transport but not including the entrance fee for the park). In this case, a capacity building program on negotiating skills in business agreements through the administrative body of the park would have been very helpful for the community, balancing competitive goals (Fish & Walton, 2012).

Sixty-five women from Wasini village comprise the WWG. Founded in 1985, this initiative started with activities such as collecting seaweed to sell to the restaurants as salad and braiding palm leaf fibers into mats and baskets to sell as souvenirs (Job, 1994). In 1997, the Netherlands Development Organisation donated funds to build a boutique where these local handicrafts are sold. Since the year 2000, the WWG has a unique tourist attraction, a 1.5 km boardwalk leading through the “coral garden” (giant fossil coral rocks reminiscent of the higher sea water level in former times). The German Agency for Technical Cooperation and the Netherlands Development Organisation supplied the funds for this important infrastructure. The money from the entrance fees and sales amounts to an average of about US$600 monthly (Paesler, 2010), which supports the salaries for the women on duty, a kindergarten for girls, and the teacher of the Koran school. In addition, the WWG distributes microcredits to women opening small enterprises. This success story is an outcome of foreign development aid but also of the KWS Service Camp, a professional training course for local participants held in 2001 in Shimoni (International Union for Conservation of Nature and Natural Resources (IUCN), 2001).

### Table 3
Tourism income of two different restaurants in Wasini village (2007). (Source: Paesler & Job (2011)).

<table>
<thead>
<tr>
<th>Leakage rate in % of tourism income</th>
<th>Locally owned restaurant</th>
<th>Internationally owned restaurant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scale</td>
<td>Local</td>
<td>National</td>
</tr>
<tr>
<td>Beach operators</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Tour agencies</td>
<td>0</td>
<td>25</td>
</tr>
<tr>
<td>Touristic salesmen</td>
<td>13</td>
<td>0</td>
</tr>
<tr>
<td>Dhows</td>
<td>16</td>
<td>0</td>
</tr>
<tr>
<td>Restaurant</td>
<td>17</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>46</td>
<td>33</td>
</tr>
</tbody>
</table>
5.3. Land use change

Fig. 4 documents changes in land use on Wasini Island. The three thematic maps show the ground cover in 1967, 1989, and 2007. We undertook the comparison based on a 1967 map reconstructed from an orthophoto of the same year, two aerial photographs from 1989 and 2007, and our own field surveys in 1993 and 2007.

Extensive mangrove forests in the salty tidal area cover Wasini Island’s southwestern side. The interior of the island appears largely unutilized and, due to the centuries-old settlement history, is covered with a secondary dry forest (Job, 1994). Mangrove woodlands have not changed much during the time of our study, whereas the primarily coverage in mixed woody has grown immensely. A first glance shows that with the advent of tourism the intensity of land use has greatly decreased. Self-sufficient crop rotation farming, still practised on a large scale at the end of the 1960s, is now practised only on a subsistence level in the surroundings of Mkwiro, located far away from the tourist activities. On the island’s lee side, a strip of land formerly used for permanent rain-fed farming is increasingly planted with coconut palm groves. This permanent culture requires much less care, leaving more time for activities in the tourism industry. The coconuts provide flesh and oil, the main ingredients of the typical, traditional Swahili cuisine (together with fish comprising the island’s main diet). Cattle stock (approximately 400 animals about 50 years ago (Job, 1994)) no longer exists on the island. However, the number of goats has increased. They are easier to take care of and usually roam unattended over the island.

Despite the growing human population, the intensification of tourism has led to a less intensive use of land for agricultural purposes. Fig. 4 shows the expansion of the two settlements, reflecting the higher number of inhabitants: for Wasini village: 1979—298, 2007—855; for Mkwiro: 1979—680, 2007—1061 (Paesler 2010). It may be that Wasini village has experienced a faster growth due to the development of nature-based tourism facilities (e. g. the coral garden boardwalk). Interestingly, in 2006, the percentage of young men (being often involved in tourism-related activities) among the general population was also higher in Wasini village (23%) compared to Mkwiro (just under 10%), with the Kenyan average being 13.6% (Paesler, 2010). The population growth until 2008, which was above the Kenyan average, was mainly a result of the migration of workers from the nearby coastal region and the Shimba Hills from the mainland (Paesler & Job, 2011). The recent growth of tourism also reduced the emigration of young people, which is typical for many peripheral rural areas in Kenya because they see an economic and social future in their home village.

6. Impact of crises

Recently Kenya’s tourism suffered a minor decline. Tourist arrivals dropped suddenly after September 2011 when the Somali militant group, the Al-Shabaab, kidnapped tourists in the Lamu archipelago (about a 1 h flight north of Mombasa). A serious disruption occurred in December 2007, when presidential elections took place in Kenya. Electoral fraud escalated into brute force and a fight for political power. Riots broke out between the supporters of the two political leaders, Kibaki and Odinga. The riots rapidly escalated to a civil war between different ethnic groups before coming to an end in March 2008. Nearly 1500 victims were counted (Harneit-Sievers, 2008; Landau & Misago, 2009).

The tourist industry was unprepared for the events following the riots. The subsequent travel warnings from most European governments caused severe declines in tourist arrivals. From 2007 to 2008, the volume of international arrivals declined by nearly 34% from over 1.8 million to 1.2 million (Fig. 5). The tourism receipts decreased by 19.2% to US$63.2 million (Kenyan National Bureau of Statistics, 2009). In the first three months of 2008, the tourist overnight stays diminished to less than 15% of the previous
year. As the coastal region was not directly affected by the riots, these losses, although considerable, were not as huge as in the safari tourism on the mainland. The number of visitors to Kisite Marine National Park decreased from 68,000 (2006) to 59,500 (2007) and 28,750 for 2008 (Fig. 3; Kenya Wildlife Service (KWS), 2012, 2009)). In 2009, the average monthly tourism income effect at Wasini village decreased by 26.6% as compared to 2007 to only US $18.2. At the same time, the number of people directly employed in tourism dropped from 113 to 78, while the number of subsistence farmers grew from 5 to 47 (Paesler & Job, 2011).

Fig. 5 documents Kenya’s tourism development since the time of independence in 1963. The overall national trend reflects quite a success story with increasing numbers of tourist arrivals on average. However, international tourist arrivals declined during 2008, 1998, 1992 and 1983 at times of crises due to concerns for safety.

Fluctuations of national parks visitor numbers are even more distinctive, probably because business travelers and conference participants as tourists to Kenya are mostly missing here. Besides it is obvious, that the numbers of visitors to Kenya’s parks are in general higher than the international tourist arrivals. The reason for this is that tourists are usually visiting more than one park during their stay. Relating to park visitation, significant decreases also occurred in 2008, 1998 and 1992; furthermore, in 2003 the Israeli market failed. In 1983 in contrast, an increase in visitor numbers to Kenya took place when Serengeti National Park in Tanzania was unavailable because of internal strife in that country and a closed border. At that time, international Safari tourists visited the Kenyan parks of Tsavo and Amboseli instead. It is apparent that building development opportunities solely based on tourism prospects implies high risk (Job & Metzler, 2003).

7. Discussion and conclusion

In Wasini village, the participation in nature-based tourism has led to increased income and an improved standard of living. In the village, a large proportion of both direct and indirect jobs now depend on tourism. Our study confirms several earlier surveys, which identified the economic importance of tourism and the tourism potential of Kisite Marine National Park. Manyara and Jones (2007) concluded that the capability of the park to reduce the local poverty is very high, as there are effective beginnings of local participation. Ten years ago, a feasibility study for the improvement of the tourist supply on Wasini Island also identified the high tourism potential of the region (Muhamba & Johnson, 2003). Another analysis in 1999 examined the possible direct gains of Kisite Marine National Park from admission fees and the potential contributions of the park to the economic livelihood of residents (International Union for Conservation of Nature and Natural Resources (IUCN), 1999). This study identified the possible effects correctly but highly overestimated the possible profits as it did not consider leakages. The combined indirect and induced effects of tourism to Wasini village in 2007 accounted for 15.5% of the community’s value-added income (Paesler & Job, 2011).

When estimating the economic impact of tourism, especially of nature-based tourism in remote settings, leakage effects must be taken into consideration, as our comparative analysis of two nature-based tourism in remote settings, leakage effects must be correctly but highly overestimated the possible profits. Consequently, extremely different leakage rates can be observed. The local multiplier effect is at least 30% higher for the locally run business (Paesler, 2010). A similar multiplier effect can be expected for the WWG, the privately operated handicraft shops in Wasini village, and the guided walks through the village to the old mosques and ancient graves with china covered tombstones. The villagers offer themselves as tour guides on an informal basis.

Nature-based tourism is not only of great economic importance in Wasini village but it also made other branches of the local economy, mainly fishery and rain-fed agriculture, nearly redundant. The employment opportunities in tourism lead to a growing population, and also to a gradual disappearance of the traditional subsistence economy. The population growth above national average until 2008 was mainly a result of the migration of workers from the nearby coastal region and the Shimba Hills from the mainland. In addition, local tourism opportunities also reduce the emigration of young people who perceive tourism as their economic and social future in their home village. The differences observed between the two villages are to a large extent the result of participation in nature-based tourism. All the positive social and economic effects observed in Wasini are missing in Mkwiro, where tourism employment is marginal, and residents work for much lower income in the small-scale agriculture or fishery sectors.

Mkwiro has not directly been affected by tourism businesses at all for different reasons. Firstly, the time for a boat ride from Shimoni harbor to the National Park is considerably longer for tourists arriving from the mainland of the Kenyan coast. Because most excursion trips to Kisite Marine National Park are highly standardized and take 4–5 h only, it is much easier to choose Wasini village for a culinary lunch break. Secondly, the two villages differ culturally. The inhabitants of Mkwiro speak a different dialect because they belong to a different sub-clan of the Swaheli population. Furthermore, Mkwiro residents remain more attached to their traditional culture and appear to be less progressive than the inhabitants of Wasini village. Thirdly, but most importantly, the entire initiative of developing a nature-based tourism enterprise with the just established national park in the early 1970s with the aim to foster the development of his hometown was the idea of just one man, Mazoud A. Muhamba. He was the one who actually convinced his villagers to embrace tourism. It took him years to convince his fellow villagers because of a strict Islamic environment in those days.

Interestingly, Kisite Marine National Park earns more revenue than most other parks in the KWS park system (Emerton, Bishop, & Thomas, 2006). In 2007, its revenue was seven times higher than its average operating budget of about US$80,000. As entrance fee, KWS charges US$25.00 per person per day (in 2012), five dollars more than for the other marine national parks of Kinunga, Malindi, Mombasa, and Watamu. The policy of KWS is to retain most of these earnings centrally in its Nairobi headquarters. Therefore the park “suffers a severe shortage of funds, resulting in low levels of staffing, poor state of equipment and infrastructure, and inadequate routine park maintenance and patrolling” (Emerton et al., 2006; p.19). The number of staff has not increased since 1991: 27 people employed in management, including 13 rangers who originate from all over Kenya (Paesler, 2010; Job 1994), and all park employees live on the mainland. Therefore park employment has no economic impact on Wasini Island at all.

Not even a small fraction of the park receipts is transferred back to the islanders to assist them with infrastructure projects (e.g. a landing stage is still missing, resulting in tourists wading through water-filled erosion basins with sea urchins during low tides). Indeed, the locals are still allowed to do spin fish and to use fish traps on a subsistence level within Mpunguti Marine National Reserve and they are allowed to fish commercially outside the park and the reserve. From their perspective, the entrance fee of
US$25 is an immense sum of money (in average more than a half monthly income in Kenya) and therefore they would like to receive at least a share of this regionally accrued income.

As highlighted earlier, the regional economy is likely to encounter problems if the tourism sector is weakened by external influences, such as the decline of visitors after the 2007–08 Kenyan crisis. When tourism related income suddenly declines and a number of jobs actually disappear, the local population is currently still able to return to the traditional ways of life in a subsistence economy. This temporary return to traditional lifestyle is only possible for the indigenous island inhabitants who still possess fishing equipment and plots of land. Male workers from outside the island, mostly coming from the Shamba Hills region in the hinterland of Kenya's southern coastline must leave and go back to their Shambas (small farms where usually the parents or the wife continue a subsistence agriculture) or find employment elsewhere outside the tourism sector (Paesler & Job, 2011).

On the one side, nature-based tourism obviously improves the livelihood of the local population. On the other side, other basic economic activities like rain-fed small-scale agriculture get abandoned, because it is much easier to earn money from tourism. From the resilience point of view this development may be of great risk for the community in the long run (Peterson, 2000). For the next generation the reversal into agriculture or fisheries may not be so easy any more.

What about the future prospects for these communities? Mkwiro is slowly on its way to follow into tourism development, with one basic accommodation and a small restaurant opened in 2011. The idea to integrate the local with one basic accommodation and a small restaurant opened in Mkwiro is slowly on its way to follow into tourism development, reduction (Bushell, Staiff, & Eagles, 2007; Job & Weizenegger, 2006). A far-reaching collaboration between conservationists and local communities and other involved actors within and around protected areas is required. Furthermore “the creation of adapted local financial systems [...] as well as professional environmental education have proven to be effective means to enhance manipulative and enduring participation” (Brenner & Job, 2012; p. 16). To be effective, local participants involved in tourism businesses need appropriate knowledge, skill training and assistance in reaching fair institutional arrangements (McCool et al. 2012). Relating to that it seems appropriate to consider the Global Environment Facility (2011) assessment typology when park management agencies are working with communities located inside of or adjacent to protected areas. The framework suggests to measure the capacities for implementing management issues, for using information and generating knowledge, for legislative development, for implementation and for monitoring and evaluation of the outcome.

Nevertheless, all these efforts do not necessarily guarantee poverty-alleviation, a fact that is especially difficult to accept for people in impoverished communities who desire to see changes quickly. Especially nature-based tourism is a long-term solution. Moreover, stable political and social frameworks are of crucial importance for a sustainable tourism development. Relying solely on tourism as an economic base for local or regional growth is clearly to accept for people in impoverished communities who desire to see changes quickly. Especially nature-based tourism is a long-term solution. Moreover, stable political and social frameworks are of crucial importance for a sustainable tourism development. Relying solely on tourism as an economic base for local or regional growth is dangerous if external crises are likely to occur repeatedly. Park management bodies should therefore encourage locals living adjacent to protected areas to not depend only on income from tourism, but to continue to sustain their livelihoods at least partially by traditional ways of life. This recommendation is much easier to implement in the context of a marine national park then in a terrestrial environment of sub-Saharan Africa because in terrestrial parks frictions between wildlife and human land use practices are usually more severe.

As mentioned before, in 2010 the Aichi Convention has been developed with the aim of stopping the ongoing biodiversity degradation and to promote the sustainable use of our world’s natural heritage. Scholars know that the potential contribution of nature-based tourism and outdoor recreation in the context of protected areas can generate both positive and negative environmental impacts. The particular Aichi Target 11 sets the objective of reaching a share of 17% of formally designated terrestrial protected areas. Nature-based tourism may be a significant component of this strategy. But, it should not be fostered merely for the statistical goal of reaching a certain number in the World Database on Protected Areas, if that would result in less efficient parks management or paper parks in the end (cf. Bertzky et al., 2012; p. 28). The tourism and economic development potential of having more parks must be studied in advance to avoid possible negative impacts (e.g. when visitation to Kisite Marine National Park began to increase in the 1980s, the amount of visitors to the already existing, much more famous Kenyan Malindi and Watamu Marine National Parks dropped).

Finally, with Aichi Target 16 aiming for a “fair and equitable sharing of benefits”, the question “what financial benefits flow from tourism to protected areas and how those benefits are distributed to local, regional and national constituencies” must be raised (Hvenegaard, Halpenny, & McCool, 2012; p. 7). In Wasini village inhabitants are now depending heavily on nature-based tourism. Employment in tourism is preferred over the traditional way of life. But in the long term, if local interests should assist in the protection of the natural resources of the marine park continually, traditional ways of life should also be taken into account when planning for a truly sustainable local development.

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