An Assessment of the Level of Awareness of the Influence of Tourism on the Health Conditions of Locals in and around the Maasai Mara National Reserve, Kenya

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Abstract
This paper examines the level of awareness on diseases that occur among local communities that can be linked to tourism activities based on a study conducted in and around the Maasai Mara National Reserve (MMNR). The study population constituted of local communities in the area. In this regard, purposive and simple random sampling procedures were employed. The study design was a cross-sectional survey utilizing observation, key informant interviews, analysis of secondary data and semi-structure interviews as main methods of data collection. An interview schedule was used as the main instrument of data collection during the study. Both qualitative and quantitative techniques of data analysis were employed. From the study findings, awareness of disease prevalence as a function of tourism was high. As such, it was recommended that the host community should be encouraged to take initiatives to ensure that they enjoy good health by being proactive rather than reactive to their health issues.

Keywords: Level, Awareness, Influence, Tourism, Health Conditions, Maasai Mara National Reserve, Kenya

1. Introduction
Kenya is divided into eight provinces. The country is multi-ethnic, with 43 ethnolinguistic groups, and Christianity and Islam are the major religions. Kenya has diverse cultural and religious communities, and each of these communities has certain rules and norms, which are their regulating mechanisms. Each ethnic community has its own traditions and customs. Some have common cultural practices, while others are so diverse. These religious and cultural practices have relevance to social behaviour, and therefore, the health of the communities. The study sought to find the current health status of Kenyans with specific reference to the local communities in and around MMNR.

1.1 HIV/AIDS Prevalence in Kenya
The joint United Nations Programme on HIV/AIDS (UNAIDS, 2008) estimates the number of people infected with HIV in the world to be 33.3 million. Out of these, 23.3 million live in sub-Saharan Africa; representing three-quarters of the total population infected.

From a single reported AIDS case in Kenya in 1984, the Kenyan National AIDS Control Programme (2008) report estimates the daily infections of AIDS cases to be close to 700, while over 2 million people are reportedly living with HIV. The report estimates the number of HIV/AIDS orphans to be 850,000. NASCOP collects its data from public hospitals or clinics using two methods of sampling.

HIV/AIDS has brought about a very special chapter in the health aspects of travelling and tourism. Sexually transmitted diseases, on the rise in the world, require an urgent change in behaviour vis-a-vis occasional contacts which are greatly responsible for the spread of HIV and the continuous growth of AIDS cases (Harries, 2000). The AIDS pandemic emerged at the Kenyan Coast in the 1980s and was associated with the presence of thousands of commercial sex workers who were attracted to the Coast by tourism (Migot-Adholla et al., 1982).
The Kenyan Coast which was a popular tourist destination also had the highest concentration of AIDS cases then. The convergence of sex tourism and female prostitution resulted into many sexually transmitted diseases (Ryan & Kinder, 1996). Because of the association between tourists and HIV/AIDS, the study sought to find out the effects of tourism on the health of local community.

1.2 Tuberculosis

Tuberculosis (TB) is a disease caused by mycobacterium that mainly affects the lungs spreading to other organs such as brain, skin and other viscera. The causative organisms as outlined by Nathan et al. (2003) are Mycobacterium tuberculosis and Mycobacterium bovis. According to WHO (2007), infection with the human M. tuberculosis almost invariably comes from inhalation of the exhaled breath of a patient with pulmonary tuberculosis. The great majority of infected persons do not develop the overt disease, but either kill the invading bacilli by their protective immunity, or prevent the bacilli from multiplying but leave a few of them still alive in their tissues. This last scenario can be thought of as "latent tuberculosis", in which the bacilli survive as "persisters", ready to cause clinically manifest disease when immunity is relaxed. This may happen when the person becomes old, is debilitated by some other disease, is malnourished, or is severely stressed in some other way. Infection with the human immunodeficiency virus (HIV) is a major predisposing cause making latent tuberculosis become active.

TB has been on the rise since the 1980s, with its spread concentrated in Southeast Asia and sub-Saharan Africa. Much of TB's resurgence is directly connected to the HIV/AIDS pandemic especially in Africa where HIV is the most important factor determining the increased incidence of TB. Worldwide, an estimated one-third of the near 40 million people living with HIV/AIDS are co-infected with TB (WHO, 2007). The emergence of drug-resistant TB, particularly in settings where many TB patients are also infected with HIV, poses a serious threat to TB control, and confirms the need to strengthen prevention and treatment efforts as well as research into the problem at hand.

The World Health Organization, WHO (2003) statistics estimate that more than eight million people develop active TB annually, and approximately two million die from the disease each year. Further, WHO estimates that more than 14 million people are living with TB. In 2005, out of an estimated 8.8 million new TB cases worldwide, 3.9 million were diagnosed by laboratory testing and 629,000 were HIV positive. An estimated 1.6 million people died of TB in 2005, 12% of whom were co-infected with HIV. Global access to TB treatment is improving but remains low (ibid.).

Those with active TB who receive no treatment can infect an average of 10 to 15 people annually (Traube, 2006). TB and HIV/AIDS form a lethal combination, each speeding the other's progress. Because HIV weakens the immune system, someone who is HIV/TB co-infected is many times more likely to become sick with TB than someone infected with TB who is HIV-negative. While HIV/AIDS is effectively preventable through behaviour change and protective measures, a person with TB is likely to unwittingly infect several others whether they have HIV or not. A study in Nairobi’s Kenyatta National Hospital shows that the number of TB cases among all people admitted in the hospital doubled from 8% to 16% over the eight-year period between 1989 and 1997. Due to this prevalence of TB the proportion in HIV-infected patients with active TB infection rose from 18% to 27% over the same period (Manyala, 2006).

1.3 Malaria

This is a disease caused by Plasmodium that remains to be a major problem in many parts of the world. Significant increase in malaria mortality occurred in the 1980s and the early 1990s. By early 1990s, the World Bank had sounded a warning that an estimated 300 million people would be at risk of malaria attacks annually (World Bank, 1993).

Africa remains a region that has the greatest burden of malaria cases and deaths in the world. Malaria epidemics result in an estimated up to 12 million malaria episodes and up to 310,000 deaths per year in Africa (Mwaniki, 2006). Considering that in Africa, the case rates reported through national programmes often represent only a minor fraction of the actual burden of malaria. The malaria problem could therefore be much larger than currently envisaged. In the year 2004 alone, malaria was the principal cause of around 2 million deaths of people residing in Africa south of the Sahara (Chakaya et al., 2005).
According to a Kenyan Ministry of Health report (National Malaria Strategy, 2001-2010), 70% of the populations are at a risk of malaria. The report further states that malaria kills about 72 Kenyans every day and an average of 26,280 per year. Hence, the burden of malaria has a draining effect upon the country’s resources, since 30% of all outpatient attendance and 19% of inpatient admissions (National Malaria Strategy, 2001-2010) are due to malaria. Further, at least 34,000 Kenyan children (approximately 93 children per day) below five years of age die each year from malaria. The general infant mortality rate from malaria in Kenya in 2004 was 78 per 1000 deaths, while the mortality rate of children under five years was 112 per 1000 deaths. Higher prevalence rates have been reported in parts of western Kenya known to be holoendemic to malaria, such as Suba district (Chakaya et al., 2005) with about 48%. The districts that are critically affected by malaria include: Uasin Gishu, Nandi, Trans-Mara, Trans-Nzoia, Kericho and Bureti in Central Rift Valley and Nyamira, Kisii and Gucha in the South-Western part of Kenya, according to the same report.

Nyanya, part of the Rift Valley and some parts of Coast province have high incidences of endemic malaria. District hospitals and health centres play a critical role in the fight against malaria that can reduce malaria related mortalities. However, a study by English et al. (2004) on thirteen Kenyan district hospitals found that there was inadequate provision of healthcare in such district hospitals. This is an alarming situation considering that an earlier study by Ayaya and Esamai (2001) found that many Kenyans are much safer or have lower risk factors to malaria in many district hospitals.

It is worth noting that spatial population movement in human history for whatever reason has been associated with disease expansion. Migrant labours to areas of plantation agriculture and/or urban places in the tropical Africa have been singled out for spreading malaria and STIs from their places of origin to destinations and vice versa (Kilbride & Kilbride, 2003; Walter, 1995).

1.4 The Maasai Mara National Reserve
The study was conducted in the area within and around the MMNR, which is located in Trans Mara District in the South Western part of the rift Valley province of Kenya (Figure 1). The district lies between latitude 0° 50’ South and longitude 30° 35’ and 35° 14’ East. It borders the Republic of Tanzania to the South, Kuria and Migori Districts to the West, Gucha and Bomet Districts to the North and Narok District to the East. The District covers an area of about 2,932 km², of which the famous Maasai Mara Game Reserve occupies 31 km² (GOK, 2008). The Trans Mara District is divided into 5 divisions namely Kilgoris, Lolgorian, Ppirar, Keiyian and Kirindon. The District is further divided into 32 locations and 58 sub-locations. Lolgorian occupies the largest area followed by Kirindon, Keiyian, Kilgoris and Ppirar in that order. The District has one constituency namely, Kilgoris with 29 wards that constitute the Trans Mara County Council.

1.5 The People and Population in the Area
According to the Trans Mara District Development Plan of 2002-2008 (GOK, 2008), the pastoral Maasai communities predominantly inhabit the rangelands surrounding the MMNR. However, other dominant communities include the Kalenjin, Kisii, Luo, Luhya and also smaller communities of other Kenyan tribes. According to the Trans Mara District Poverty Reduction Strategy Paper of 2001-2004, the 1999 population census indicates that the district has a population of 170,591 persons from 32,457 households. The largest population is found in Kirindon with a population of 56,197 people. The population of females exceeds that of males by 3,045 people.

The population density in 1989 was 47 persons per sq. km. rising to 60 persons per square kilometer in the 1999 population census. Lolgorian had the lowest population density in the district while Kirindon recorded the highest population density. The second highest density was recorded in Pirrar followed by Kilgoris and Keyian in that order (GOK, 2008).

Maasai Mara is a traditional homeland for the Maasai. Maasai is derived from the word ‘Maa’, which means ‘togetherness’. The origins of this ancient warrior tribe are shrouded in mystery. It is thought that their ancestors came from North Africa and migrated along the Nile Valley and finally into Kenya. By conquering other tribes, they were able to spread from Northern Kenya through the Great Rift Valley into Tanzania. The il-Maasai is composed of loose associations of sub-tribes (il-Oshon) but united in one language, Maa. The Mara region is shared by three sectors of the Maasai. These are the il-Siria, il-Purko and the il-Loita (Sindiga, 1996).
The Maasai believe in supreme God, Engai, who lives in heaven and on earth, and to whom they pray. They are traditionally cattle keeping people. Cattle provide most of their daily needs, milk and blood for drinking, hides for leather and meat for ceremonial occasions. Sheep and goats are also kept but are of less importance.

Today though, most Maasai eat agricultural foods. The Maasai live in settlements known as Enkang-iti. These are built of a strong thorn enclosure to protect livestock from predators. In the enkang-iti, women build low oval huts of branches and grass, plastered with a thick layer of cow dung (ibid.).

Approximately after every ten years, a new generation of morans passes into junior adult-hood in a colorful ceremony (eunoto) this marks a period of great responsibilities that starts with marriage, acquisition of wealth and security in form of cattle and children. A Maasai elder may be monogamous or polygamous (GOK, 2008).

Though the Maasai practice most of their culture up to date to a great extent, changes are inexorably happening; more children are going to schools, women earning money through the sale of colourful beadworks and young men seeking employments in towns and tour lodges (Sindiga, 1999).

1.6 Statement of the Problem

Globally, international tourist arrivals has been increasing steadily from 69 million people in 1960 (Omondi, 2003) to 842 million in 2006 (World Trade Organization, 2001). This global tourism expansion, boosted by the interplay of global investment, values, tastes and travels alongside the eagerness of tropical low-income countries to attract new revenues, has led to the dramatic restructuring of an increasing number of previously isolated tourists’ destinations.

Despite the promise of prosperity that is the allure of tourism expansion, there is growing evidence of a risk of negative impacts on the health and wellbeing of local populations (Frechtling, 2002; Cater & Goodall, 1998; Burtler, 2000; Gossling, 2000). As the effects of tourism are felt at a local level, it is valuable to study how communities are responding to such changes, which was one of the concerns of the study.

Previous studies (Sindiga, 1996; Holden, 2001) on communities in the tourist attraction sites have noted the negative impact of tourism on the local economy, but in abstract and with no clear focus on health impacts (Pearce et al., 2003). Therefore, the study sought to understand the effects of tourism on health of the local communities in and around Maasai Mara National Reserve. This was not just important for knowledge creation but also for those interested in improving the lives of the people living in areas with tourist activities.

1.7 Limitations of the Study

This study was carried out in Trans Mara District, which hosts the MMNR. However, in terms of knowledge, the author was mainly concerned with issues to do with the types of diseases prevalent in and around MMNR; the level of awareness of the diseases among local communities due to tourism in the study area; the coping strategies employed by local communities towards the prevailing disease conditions; the effects of tourist related diseases and policy recommendations on how to remedy the health situation in and around MMNR.

The main limitation of the study was the fact that being a pastoralist community, and due to the fact that the research was mainly done during the dry season, it took a long time to locate most of the households. In addition, it was more common to find women at home than men, and yet, their culture does not allow them to speak to strangers about themselves. The author therefore had to visit the households late in the evening when the men were likely to be around. Secondly, the majority of the local community members were illiterate and could not converse in the English language. This posed a language barrier. The author had to interview the respondents using a Maasai speaking research assistant who was not always available, given that he was engaged elsewhere. This prolonged the data collection period.

2. Materials and Methods

This study used the mixed methods research design (Creswell, 2003; White, 2002). This design utilizes both quantitative and qualitative approaches. Cross-sectional survey was used to systematically gather information necessary for decision-making (Kothari, 2004). The target population for the study was the local communities in and around the MMNR. These communities were chosen because they are the hosts to all visiting groups to the area and they also are the ones that bear the immediate positive and negative effects of tourism in the study area. The study also targeted the lodges outside the protected area (namely Fig Tree, Mara River, Mara Simba, Sopa Lodge, Siena Spring, Buffalo, Voyager, Mara Safari Club) because they were easily accessible even to the local
communities. Also targeted were the conventional practitioners, alternative medicine practitioners, the district administration and active conservancies.

The sample size selection was done using simple random sampling procedure (Kothari, 2004). This involved choosing of the local community members residing in and around MMNR by a random sampling logic, where each and every member of the study population was given an equal chance to participate in the study and thus, the sample size selected was representative. The population for the local communities staying in and around the MMNR was close to 100,000 (GOK, 2004). The sample size of the local communities was determined as recommended by Fisher (1993).

The area of study, the MMNR was selected because it is a renowned tourist destination in Kenya. Having determined the sample population, the author in line with the objectives of the study went ahead and selected the most desirable elements in the study area for inclusion in the sample. These included 3 selected officials from MMNR tourist facilities. Also included in the sample were those in charge of the Trans Mara Municipality, the district administration officer, an official from Mara Conservancy, which is one of the prominent development agencies in the area, a prominent herbalist and the medical officer of health (MOH). These were the key informants for the study, under the assumption that they had crucial in-depth information on issues of tourism and health impacts in the study area. Purposive sampling, therefore, allowed for selection of sample elements that gave in-depth understanding on most of the issues of concern to the study using an interview schedule.

Simple random sampling was used to select of 46 households from each of the five divisions, that is Kilgoris (47), Kirindon (47), Keyian (47), Lolgorian (46) and Pirrar (46) as units of analysis giving a total of 233 households which when added to the 7 key informants give a total of 240 respondents according to the Fisher formula. Data triangulation was used in the study. This involved a combination of interviewing, observation and document analysis to provide cross-data validity checks. It also involved using several data sources. The research instruments used in the study were detailed questionnaires for the local communities, interview guides for the focus group discussions and observation schedules.

This study employed both qualitative and quantitative methods of data analysis. Qualitative analysis involved the derivation of explanations and making of interpretations of the findings based on descriptions. The concern was on the narrative descriptions of the types of diseases prevalent in and around the MMNR whose occurrence would be attributed to tourist activities, the level of awareness of the diseases, the effects of the diseases and the coping mechanisms employed by the local communities. In qualitative analysis, the use of inferences was important. Quantitative analysis involved the derivation of statistical descriptions and interpretation of data by use of descriptive statistics that rely purely on numerical values. Quantitative data was presented in the form of frequency tables, percentages and means.

After data collection, responses from all questions were cross-checked to facilitate coding and processing for analysis using Statistical Programme for Social Sciences (SPSS Version 12.0) computer package. Statistical analyses of data were done using descriptive statistics (means, percentages and frequencies).

3. **Results and Discussion**

The study sought to establish the level of awareness of the available diseases among the local residents due to tourism in the study area. This was aimed at establishing whether the locals know that the health problems they are facing are due to tourist activities that they host in the name of the Maasai Mara National Reserve. Having identified the various types of human diseases and even showing how tourism has influenced their levels of prevalence, this was a conclusive kind of approach on the extent to which tourism could have influenced each of the stated disease. Table 1 summarizes the descriptive statistics that were scored on the same.

It is clear from Table 1 that the respondents said that they are aware that most of the stated human diseases have been precipitated by tourist activities in the area. With a minimum of 1 and a maximum of 5, a score close to 1 indicates lack of awareness or disagreement while that close to 5 shows agreement or awareness. Therefore, with the scores of Means between 3.1 and 3.4 as it is the case with Pneumonia, Cholera and Amoeba, indicates lack of decision from the respondents. Meaning that they were not sure whether tourism had influenced these particular types of human diseases. However, all scores with a mean of 3.5 to 4.1 shows agreement by the respondents that the diseases had been precipitated by tourist activities in the area. In fact, the higher the value, for instance the mean of 4.1875 as it is the case with HIV/AIDS, the higher the influence.
It was also found that some of the diseases were common to the residents than others, and so the variation in the level of their familiarity with the residents. In terms of ranking of the level of awareness, Table 2 summarizes the scores that were recorded.

HIV/AIDS, Malaria and Gonorrhoea were the three most known human diseases, while Pneumonia, Cholera and Amoeba were the least known. The least known diseases like Amoeba is a water borne diseases which is less likely to be found in the area being a semi-arid environment, through it can still be transmitted through taking contaminated water.

Cholera is a hygienic and waterborne disease but it is least known because much of the water in the area is clean due to the piped water projects that support the tourist-related activities. However, in discussion with the health workers, it was also found that Amoeba and Cholera are on increase but the locals do not know their symptoms. One of the health workers for instance said “…these are conditions that the locals downplay as stomach upsets and take traditional remedies. But they truly exist.”

4. Conclusion and Recommendations

The local community members are aware of the various human diseases affecting them. However, they were not well equipped with the relevant knowledge on how to handle them.

Local communities should be educated on their role in ensuring their health. The local community members were aware of the diseases that were prevalent in the region, and were able to attribute them to tourism, but they were ignorant of their role in ensuring their own health.

### Tables and Figures

#### Table 1: Effects of Tourism on Specific Human Diseases in and around MMNR

<table>
<thead>
<tr>
<th>Disease</th>
<th>N</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pneumonia In The Locality Has Been influenced By Tourism</td>
<td>240</td>
<td>1.00</td>
<td>5.00</td>
<td>3.4375</td>
<td>.957</td>
</tr>
<tr>
<td>Malaria In The Locality Has Been influenced By Tourism</td>
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<td>1.00</td>
<td>5.00</td>
<td>3.7292</td>
<td>.996</td>
</tr>
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<td>HIV/AIDS In The Locality Has Been influenced By Tourism</td>
<td>240</td>
<td>1.00</td>
<td>5.00</td>
<td>4.1875</td>
<td>1.204</td>
</tr>
<tr>
<td>Amoeba In The Locality Has Been influenced By Tourism</td>
<td>240</td>
<td>1.00</td>
<td>5.00</td>
<td>3.3875</td>
<td>1.108</td>
</tr>
<tr>
<td>Tuberculosis In The Locality Has Been influenced By Tourism</td>
<td>240</td>
<td>1.00</td>
<td>5.00</td>
<td>3.6125</td>
<td>1.404</td>
</tr>
<tr>
<td>Gonorrhoea In The Locality Has Been influenced By Tourism</td>
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<td>1.00</td>
<td>5.00</td>
<td>3.6042</td>
<td>1.077</td>
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<td>1.00</td>
<td>5.00</td>
<td>3.1667</td>
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<td>Environmental Pollution In The Locality Has Been influenced By Tourism</td>
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<td>1.00</td>
<td>5.00</td>
<td>3.8750</td>
<td>1.168</td>
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#### Table 2: Ranking the Level of Awareness

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<tr>
<th>Disease</th>
<th>n</th>
<th>(SDA)</th>
<th>(DA)</th>
<th>(U)</th>
<th>(A)</th>
<th>(SA)</th>
<th>Total</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIV/AIDS</td>
<td>10</td>
<td>4.2</td>
<td>6.3</td>
<td>1.3</td>
<td>27.9</td>
<td>60.4</td>
<td>145</td>
<td>1</td>
</tr>
<tr>
<td>Malaria</td>
<td>10</td>
<td>4.2</td>
<td>10.4</td>
<td>0.4</td>
<td>68.3</td>
<td>16.7</td>
<td>40</td>
<td>2</td>
</tr>
<tr>
<td>Gonorrhoea</td>
<td>10</td>
<td>4.2</td>
<td>8.8</td>
<td>2.1</td>
<td>51.7</td>
<td>33.3</td>
<td>80</td>
<td>3</td>
</tr>
<tr>
<td>Typhoid</td>
<td>9</td>
<td>3.8</td>
<td>6.7</td>
<td>5</td>
<td>55.4</td>
<td>29.2</td>
<td>70</td>
<td>4</td>
</tr>
<tr>
<td>Tuberculosis</td>
<td>15</td>
<td>6.3</td>
<td>7.1</td>
<td>3.3</td>
<td>2.5</td>
<td>20.8</td>
<td>50</td>
<td>5</td>
</tr>
<tr>
<td>Environmental pollution</td>
<td>20</td>
<td>8.3</td>
<td>4.2</td>
<td>12.5</td>
<td>41.7</td>
<td>33.3</td>
<td>100</td>
<td>6</td>
</tr>
<tr>
<td>Amoeba</td>
<td>15</td>
<td>6.3</td>
<td>8.3</td>
<td>18.8</td>
<td>25</td>
<td>41.7</td>
<td>100</td>
<td>7</td>
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<tr>
<td>Cholera</td>
<td>50</td>
<td>20.8</td>
<td>8.3</td>
<td>8.3</td>
<td>58.3</td>
<td>4.2</td>
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<td>8</td>
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<td>Pneumonia</td>
<td>140</td>
<td>58.3</td>
<td>6.3</td>
<td>5</td>
<td>30</td>
<td>50</td>
<td>240</td>
<td>9</td>
</tr>
</tbody>
</table>

SA- Strongly Agree; A- Agree;U-Undecided; D-Disagree; SD- Strongly Disagree.
Figure 1: The map of Maasai Mara National Park


