# The Impact of Tourism in Developing Countries on the Health of the Local Host Communities:

## The need for more research

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***Abstract***

***Tourism is the fastest growing industry internationally. Popular areas of study are the economic, environmental and sociocultural impacts of tourism in developing countries. Very few studies have been conducted on the impact of tourism on the hosts' health status. Nowadays, the emergence of new infectious diseases or the re-emergence of diseases are causing concern and travel is a major contributor to their spread. The objectives of this study were: to review literature related to the topic as a background for future research; to explore if findings from a field trip to Easter Island/Chile and Peru support the hypotheses derived from the analysis of publications; to recommend a range of research topics based on the outcome of this study; and to propose elements of a framework for the assessment of health impacts of tourism. The findings suggest that there are considerable gaps in the current knowledge on tourism's health impacts. Potential indirect and direct health impacts have been identified. Workplace health and safety concerns in relation to local tourism employees have been raised. A wide range of research topics has been suggested based on these findings. Finally, elements of a possible framework for understanding tourism's health impacts and their interrelationships have been identified.***

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**Introduction**

Tourism is the fastest growing industry internationally (World Tourism Organization, 1996) with destinations not only in industrialised countries, but also in less developed countries in East Africa, Central America and South East Asia. Developing countries which were previously seen as less likely destinations or were closed to tourism altogether are now considering the marketing of their natural and/or cultural attractions to receive a share of this global industry. Adventure tourism, and cultural tourism take advantage of this development. Each year more exotic places are offered on the tourism market for those who have seen everything else, or prefer destinations 'off the beaten track'. The close contact with locals in isolated areas and their customs seems to be one of the main attractions of developing countries, and this is used extensively in marketing strategies.

At the same time, the scientific study of tourism has developed such that tertiary education institutions worldwide offer degree

courses in tourism studies. The perspectives and approaches one can adopt to study the topic are as diverse as tourism itself. Jafari (1990) presented an overview of disciplines and approaches in the study of tourism. The disciplines offered are of considerable diversity but 'health' does not rate a mention in this model of approaches.

### *Tourism and health*

Literature dealing with the combination of tourism and health abundantly covers health aspects of travellers to particular locations, health education, medical aspects of travel preparation, health problems in travellers or in returning tourists, and economic or administrative consequences of tourists' ill health. In short, 'Tourism and Health' usually focuses on the travellers' wellbeing.

However, despite this necessary and applaudable development in protecting travellers from health problems, one needs to consider that there are people on the other end of the journey who may be subjected to a change in their health status as well, due to visiting fellow humans. 'Tourism and Health' rarely includes the hosts in its consideration.

Tourism's potential impact on the health of the local host communities can be direct or indirect. One example of direct impact is the possible transmission of diseases from travellers to locals. Nowadays, the emergence of new infectious diseases or the reemergence of diseases thought to be eradicated are causing great concern, and travel is a major contributor to their spread (White, 1977; World Health Organization (WHO), 1996; Wilson, 1994, 1995a). Lea (1988) rightly pointed out that

> *tourism has the dual effect of promoting the provision of improved health care in Third World destinations but, in addition, acts as a vehicle to spread some forms of disease* (p.70).

Other possible direct health impacts are chronic diseases or disabilities, and accidents causing injuries or deaths of local tourist guides in the course of their employment in tourism. Indirect impacts can be attributed to the social, cultural, environmental and economic impacts which are the usual focus of accounts on tourism impact.

## Methodology

### *Aim of the study*

The aim of this study was to ascertain the current knowledge on health impacts of tourism in developing countries, to provide information on gaps in this knowledge as a baseline for future research, to identify research topics which could be investigated by researchers from health, tourism and other disciplines, and to propose elements of a framework for the assessment of health impacts of tourism.

### *Design of the study*

First, a literature review was conducted. Publications related to the topic were identified in the fields of health and tourism. A few sources were located through networking with people working in disciplines pertinent to the subject. The key areas for the search were: travellers' health; tourism and health; tourism in developing countries; economic, environmental, sociocultural impacts of tourism; public health; and tropical medicine. The literature was reviewed to identify any references made in relation to the topic under study to recognise unresearched issues and, if possible, to obtain ideas for an innovative approach of investigation. Only publications in English, German and Spanish were sought and utilised.

Second, a field trip was undertaken to test the findings from the literature analysis against fieldwork in Easter Island/Chile and Peru. First, a range of tourism destinations (including some very popular and others only visited by few individual travellers) were examined with the aim of detecting evidence of positive or negative impacts of tourism on the health of the local population. The emphasis here was on potential environmental impacts; potential health hazards due to running a tourism destination, e.g., construction, equipment, transport; and possible transmission of diseases. Second, semi-structured interviews were conducted with health practitioners, tour operators and conservationists to elicit their assessment of tourism's health impacts. Discussions centred around medical aspects, such as changes in disease patterns, introduction of previously non-endemic infectious diseases, and workplace health and safety aspects; tour operators' recollection of possible anecdotal evidence of health impacts; and conservationists' views on tourism in environmentally fragile destinations.

## Tourism's health impact - A review of the literature

### *The impact of travel on the health of the hosts: An historical overview*

Travel is inseparably linked with human existence. Historical accounts of travel and migrations as the main source of epidemics are numerous (Cossar, 1994; Wilson, 1995a). The Roman Empire was struck by the bubonic plague, spread along the trade routes of the time, leading eventually to the dramatic and largest epidemic of the 'Black Death' in the 14th century. It had started in the Gobi desert in 1320 and reached Europe 30 years later, where it is estimated to have killed one-third to half of the population in some European countries (Wilson, 1995b). Venetian authorities who

observed outbreaks after the arrival of ships from the East assumed that travel may have to do with the spread of the plague. The first regulations governing the arrival of ships were introduced in Venice and Rhodos in 1377, detaining ship, passengers, crew and cargo at a distance for 40 days ('quaranta giorni' became quarantine) before being allowed into the harbour (Bruce Chwatt, 1973, cited in Cossar, 1996).

The conquest of the 'New World' is probably the best known event in history which has been linked to the spread of fatal diseases to non-immune peoples. It was clear from the first written accounts of the Spanish invasion of the Americas in the 15th century that the native peoples were not only killed in battle and through hard labour or physical punishment but also succumbed to a great extent to introduced infectious diseases to which they lacked immunity. In some parts of the New World, infections such as smallpox and influenza reduced the native population dramatically. When this lead to an acute shortage in the work force, the ensuing slave trade from West Africa lead to an even greater range of diseases. The arriving ships, for example, not only brought the yellow fever virus but also its vector *Aedes aegypti* (Cossar, 1994).

Similar transmissions occurred in the Pacific region some hundred years later. It is not clear from historic travel logs if early explorers were aware of their potential role in the transmission of diseases. Beaglehole (1934) in his account of the exploration of the Pacific clearly focused on the exploratory aspect of journeys into the area with only one mention of "the visits of European ships destroyed utterly and horribly its primitive freedom from pestilence" (p. 246).

Captain James Cook seems to have been the first to actively attempt the prevention of a transmission of infectious diseases from crew to native populations by confining any person found to be diseased to the ship while the rest of the crew was permitted to go ashore (Carruthers, 1930). Apart from syphilis, other often deadly diseases such as measles and dysentery were transmitted from Europeans to native people.

Uncertainty about the transmission of diseases did not seem to exist 100 years later when it was purposefully employed as the following excerpt illustrates. In 1860, three captains arrived at Port Resolution on Tanna (Vanuatu) to occupy the island. Alexander (1895) cited Rev. John Paton reporting:

> *Our watchword is, "Sweep these creatures away and let white men occupy the soil". They then invited a chief by the name of Kapuku on board one of their vessels, promising him a present, and confined him for twenty-four hours without food in the hold among natives ill with measles, and finally sent him ashore without a present to spread the disease. The measles thus introduced spread fearfully, and decimated the population of the island* (p. 33).

Epidemics occurring in isolated 'virgin' populations, i.e., populations without immunity to a certain disease, are not confined to the Middle Ages. Forty years ago on Easter Island, Heyerdahl (1958) observed the influenza epidemic which accompanied the arrival of the yearly supply ship from the Chilean mainland:

> *The* conongo *was the natives' great terror - the annual influenza epidemic which always accompanied contact with the mainland. It came and went with the regularity of clockwork. After the ship's visit it always raged through the village for a month or two. It got into chests, heads, and stomachs: everyone was ill, and there was always a toll of human lives before the* conongo *passed and left the people in peace for the rest of the year* (p.124).

A mumps epidemic in 1957 on St. Lawrence Island (Alaska) was started by a boy returning from the mainland after undergoing surgery (Philip, Reinhard & Lackman, 1959). Similar outbreaks on other 'virgin' island populations in Alaska occurred in 1965 and 1967-68 (Nelson, 1995). Although it is generally argued that it is unlikely that there are any 'virgin' populations left due to the contacts of people around the world, partial or selective immunity still allows the transmission of diseases by people on the move. Today, business and leisure travel is claimed to be the driving force in the spread of disease and the (re)emergence of infectious diseases (Wilson, 1995a).

### *Potential indirect impacts of tourism on the health of the host community*

The impacts of tourism are a popular topic in the literature, usually covering the economic, environmental and social aspects. However, few discourses are based on research evidence. Cater (1987) attributed this to the difficulty of studying impacts due to their complexity. An additional problem is that social and cultural dimensions are difficult to quantify and, therefore, out of reach of most researchers employing conventional methods. Using the tourism literature as a baseline, one can develop the arguments further and identify ways in which these impacts can affect health in positive or negative ways.

<u>Economic impacts affecting health</u>

Economic benefits are certainly the primary cause for the promotion of tourism in developing countries. The benefits are mainly seen in the gain of (often desperately needed)

foreign exchange and the creation of employment. Archer (1986) claimed that "tourism generates a considerable secondary economic activity in a destination country" (p.57) with income percolating to the public sector, business and private households. Consequently, locals' possession of foreign or local currency earned in the tourism industry enables them to purchase more or better food leading to a better health status (although more money may also mean more junk food). It also allows them access to better health facilities if earnings from tourism have been used to improve the services. Hundt (1996) presented Jamaica as an example where tourism development has lead to prosperity and improved health of the population.

**a potential problem . . . tourism can attract trained health professionals away from the health sector**

However, the same author admitted that "more important is the realisation that the profits of tourism generally are not used to improve the health status of the poor, marginalised natives in host countries" (p. 111). The following example from Peru may illustrate this statement. In 1995, the country received almost half a million tourists (Yunis, 1996). The area around Cusco is certainly one of the main attractions of the country and the majority of foreign tourists include a visit in their itinerary. Tourism generated income, however, does not seem to percolate to everybody in the general population in the area if the nutritional status of children in the Cusco Health District (as investigated by Wolff, Pérez, Gibson, Lopez, Peniston and Wolff, 1985) is taken as one outcome criterion. Tourism development may eventually lead to increasing living costs. In two tourist areas in Argentina, 96.3% of respondents to a survey claimed that tourism was to blame for increasing costs (Schlüter & Var, 1988), but the results have to be treated cautiously as the study had only a return rate of 23%. There seems to be a paucity of research supporting anecdotal accounts of economic impacts of tourism. Research needs to be conducted into changes of living costs and their effect on locals. For example, D'Sousa (1985) reported from Goa that, in addition to a lack of improved health, local tax payers paid for tourists' free medical care.

A different type of negative economic impact on health was reported by Loval and Feuerstein (1992): "There is said to be a drain of trained nurses away from the health sector in some Pacific areas as they seek jobs in tourism" (p. 342). No other reference could be found supporting this claim. Considering the expenses of training health personnel, it is important to know if this is a common trend in developing countries where salaries of health professionals are known to be very low. The problem of locals leaving their traditional activities of fishing or farming for seemingly more lucrative work in the tourism industry has been presented in the literature (Mathieson & Wall, 1982).

*Environmental impacts affecting health*

Unfortunately, tourism seems to be the culprit for a number of environmental problems that pose health hazards to local communities. A serious long-term problem is water pollution. The following examples are taken from a compilation by Maurer (1992). Frequently, tourism developments in developing countries do not have an appropriate system for sewage and waste management and they use rivers and the sea for disposal. This can pose two problems. First, fish and molluscs eaten by the local population as a source of protein may be unsuitable for consumption due to pollutants deposited in these animals. Second, swimming in polluted water can lead to ear, eye, skin and gastrointestinal infections in even epidemic proportions. Herbicides used on golf courses have been shown to pollute the freshwater supply and impact on health directly or through food obtained from the water. The pollution of waterholes in deserts through the tourists' use of soap and shampoo poses another problem (Maurer, 1992). Redirection and overuse of freshwater for hotels, swimming pools and landscaping purposes in tourism facilities can lead to the local population having less or no clean drinking water which in turn puts them at risk of contracting diseases. Lack of water also impacts on the local agriculture leading to poor crops and a scarcity of food (Maurer, 1992).

There is a need to substantiate examples such as those mentioned above. Very little research evidence supports numerous anecdotal accounts of environmental problems caused, at least partially, by tourism. More specific investigations into pollution and redirection of drinking water need to be carried out. Also, resulting health problems need to be documented carefully to support strategies for improvement.

Garbage generated by tourists poses another public health hazard for host communities as, apart from its unaesthetic appearance, it creates breeding

sites for disease-carrying arthropods and rodents. Harrington (1993) reports the pollution of the Amazon through tourists. In 1980, the South American Explorers Club collected approximately 400 kg of unburnable garbage on the Inka trail in Peru (Rachowiecki, 1996). An aspect not yet located in the literature is the possible danger of injuries (cuts, lacerations) caused by garbage. This may be of particular concern if people contract infections but are unable to access or pay for the treatment required.

Clearing for tourism developments or sports facilities (e.g., skiing) causes serious ecological changes and can lead to flooding or landslides destroying crops, homes and lives. Apart from that, mosquitos which are potential vectors for diseases tend to move into cleared areas. When people (locals and tourists) move in to utilise the cleared land, they are at risk of contracting serious diseases such as malaria or yellow fever if the mosquitos are infected. The cutting of firewood along the world's trekking routes adds to the deterioration of forest already damaged due to cutting of wood for domestic purposes as can easily be seen in Nepal (Jefferies, 1984) or Peru. At present, no statistics could be found indicating the exact extent of destruction of forest or bush-land for tourism purposes.

On the other hand, tourism can have positive environmental effects, when generated income is used for environmental planning and education, or for the construction of appropriate sewage systems. Investing in the conservation of natural areas and safe tourist facilities in these areas ultimately benefits the physical and mental well-being of locals and visitors alike. Hellen (1995) argued that research into tourism in the developing world "opens up the prospect that global tourism may itself become a vehicle for investment in environmental health programs and securing improved health for all" (p. 154). So far, there is a striking paucity of examples supporting this vision.

Socio-cultural impacts affecting health

This third major category of impacts is similarly widely discussed in the literature (Cater, 1987; King, Pizam & Milman, 1993; Mathieson & Wall, 1982; Pearce, 1982, 1994; Rajotte, 1987; Swinglehurst, 1994). Generally, it is stated that tourist-host encounters may lead to better understanding between cultures, remove prejudices and promote cultural pride eventually leading to the preservation or a renaissance of the local art/craft. Despite these positive arguments, it seems that tourism's impact on society and culture in developing countries is mainly perceived as negative.

It is acknowledged that social and cultural change is a phenomenon attributed to modernisation in general but it seems that the frequent and fast exchange of encounters of people from different backgrounds accelerates this change at a rate not always favourable for the host communities. Obvious health problems accompanying these changes originate in the appearance or increase of prostitution, alcoholism, drug use and violence (Ruiz-de Chávez, Jiménez-Aguado, Márquez-Laposse and Alleyne, 1993). Also, lifestyle and food preferences of visitors seem to be imitated often leading to higher body weight, greater percentage of body fat, and high blood pressure, conditions previously unknown in these communities. Farrell (1982) named Hawaii and other areas in the Pacific as an example of areas where these changes occurred. Little additional research evidence on unhealthy lifestyles due to the influence of tourism could be located.

Mental health problems are less frequently discussed. Changes in the traditional lifestyle or loss of identity through changes in social and cultural values can put a considerable mental strain on people. Negative implications through changes in social and cultural values (Mathieson & Wall, 1982) include potential mental health problems. Currently, it is unclear how many confirmed diagnoses of mental alterations could be attributed to long-term impacts of tourism.

**The absence of clear research findings relating tourism to changing lifestyles calls attention to an array of research possibilities.**

Physical and mental health problems caused by the forceful removal of peoples to make way for tourism are equally neglected in the literature. Examples of this practice can be found around the globe. A more recent case was reported from Botswana where Kalahari Bushmen appealed to the UN to save them from being evicted from their ancestral lands which were to be used for tourism purposes (Linton, 1996). Forced re-locations of indigenous people in the Peruvian Amazon area are a common method to make space for tourist lodges (Seiler-Baldinger, 1988).

Research into changes of locals' health status is very scarce. Numerous questions arise when evaluating anecdotal evidence on sociocultural impacts. An

important issue that needs investigation is if changes to lifestyle, the adoption of unhealthy food preferences, increase in prostitution, alcohol and drug use, and violence can clearly be attributed to tourism, or if they are symptoms of 'development' and modernisation. It is also of interest to ascertain if tourists engage in activities contradicting local rules and taboos, and of what type and frequency these actions are. Additionally, there has to be a closer investigation into the occurrence of people's forceful removal from their home and land for tourism purposes.

### *Potential direct impacts of tourism on the health of the host community*

Health conditions which can affect local people directly and not as secondary implications of other impacts of tourism, are diseases, accidents, and conditions related to employment in tourism.

The potential direct health impacts of tourism are mainly those occurring through the spread of infections by travelling individuals. These infections can be imported from the tourists' country of origin, or they could be contracted while travelling. Table 1 presents the main infection risks for travellers in developing countries as compiled by Warren and Mahmoud (1990, cited in Hellen, 1995). All of those can be transmitted to local individuals.

There are diseases that are easily spread and are common, others require a range of factors and circumstances to be transmitted and are less common. Some diseases may have a minor impact on the individual and/or can be treated easily, others are difficult to treat and/or have serious impacts on the individual. Table 2 presents the ease of spread of a range of diseases which can be transmitted from travellers to hosts and their level of impact on the host individual. The mode of transmission of some conditions is common knowledge and well researched, the spread of others has not been discussed in the light of tourist-host transmission, possibly because some diseases are less common. Nevertheless, sometimes only one case of infection may be enough to introduce a virulent agent to people without the necessary immunity and lead to a major epidemic. This potential risk warrants the consideration of all possibilities of disease transmission. An additional factor needs to be addressed when discussing the potential spread to people in developing countries, and here particularly indigenous communities. Poor hygiene, unfavourable economic conditions, inadequate housing and nutrition predispose people already to a range of diseases such as tuberculosis, parasitic infections or hepatitis, with individuals often having several acute and chronic conditions at the same time. It is obvious that an additional load of pathogenic agents, especially when the immune system is compromised, can only aggravate health problems.

### Field studies on tourism's health impact

One objective of this study was to test if the findings of the analysis of published material applied to real situations in developing countries.

### *Health problems linked to tourism in Easter Island and Peru*

On Easter Island it was found that the (only) campground on the island at Anakena Beach had no fresh water supply, and the sanitary facilities provided, according to the locals, had been locked for a long time. On weekends, hundreds of locals and tourists gather at the beach usually staying the whole day. This was discussed with staff at the hospital who reported a relatively high prevalence of diarrhoea on the island but had attributed this to vegetables imported from the Chilean mainland. After discussing the lack of sanitary facilities which becomes even more obvious with the added tourists, they agreed that it was worthwhile to investigate this potential health hazard. Staff, however, saw the main problem regarding tourism and health as the transmission of Sexually Transmitted Infections (STIs) from tourists to locals. This anecdotal evidence has not yet been systematically investigated. The issue of the availability of health facilities came up during conversations with locals in the market. It could be concluded that tourism on Easter Island has not improved the locals' health facilities. This may have to do with the fact that tourists generally stay only a short time, either because of the limited facilities on the island or because they are only having a brief stopover on the connection Tahiti - Santiago de Chile. If seriously ill, the people joked, they had "only two options, Santiago [some 3700 km away] or the cemetery".

Health professionals in Peru also maintained that cases of STIs were increasing and tourism was seen as a major contributing factor to this development, but they were unable to substantiate these claims. Toonen *et al.* (1996) conducted a health baseline study in the Camisea area in the Amazonian jungle where the Shell Company is prospecting. The potential risk of the native population to contract STIs was seen as very high because of people coming from outside (here mainly oil workers). The study does not clarify if locals also spoke of tourists, the term 'visitadores' in the study refers to prostitutes.

Other diseases repeatedly named as being spread by people moving around were malaria and leishmaniasis. The important aspect of tourist-host encounters

*Table 1: Main Infection Risks for Travellers in Developing Countries.*

| Risk to Travellers | Disease |
|---|---|
| high | Diarrhoea |
| > 1 case per 10 travellers | Upper respiratory infections |
| medium | Dengue fever |
| < 1 case per 10 travellers | Enteroviral infections |
| | Giardiasis |
| | Hepatitis A |
| | Malaria (without prophylaxis) |
| | Salmonellosis |
| | STIs |

Excerpt from Warren and Mahmoud (1990, cited in Hellen, 1995).

in tribal areas in the jungle could not be examined during this field trip but needs urgent attention. This is so because some villages now seem to contact tour operators suggesting cooperation, and operators sensitive to potential problems need to be provided with information to facilitate their decision making.

Environmental impacts of tourism in trekking areas with problems due to unregulated garbage disposal and the lack of sanitary facilities were suggested in the literature and could be observed in reality. The problem applies to areas with opportunities for short hikes as well as to trails representing major tourist attractions such as routes in the Cordillera Blanca/Huaraz or the Inka Trail near Cusco. The need for urgent action has been recognised in both areas and plans are already under way to implement solutions to the problems. A program is currently being designed to install sanitary facilities along well-used trails. This is of particular importance when the areas represent the main water supply for a large region.

### *Implications for local tourism employees' health*

The neglect of local tourism workers' health in the literature is obvious. The importance of the consideration of this topic became apparent during the field trip. It seems that many tourism workers in Peru (and other developing countries) earn their living as tourist guides, often in destinations with little tourism infrastructure such as nature based adventure tours. Tourists are given advice about the dangers they may encounter on these trips. But tourists are only exposed to those hazards for a very short time compared to the guides. Their health risks increase through the frequency of exposure due to their job as well as the terrain they are working in.

Adventure tours to the Amazonian jungle are very popular. Like tourists, guides are exposed to health hazards such as snake and other animals' bites, diseases such as malaria or leishmaniasis, and car or boat accidents. Several cases of snake bites and accidents with boats and trucks were named by a tour operator in Cusco.

Probably the highest health risk exists for mountain guides who risk altitude sickness, injury or death in their attempt to lead tourists to spectacular summits. Peak season means a higher income but also a higher health risk. Shlim (1996) reported that in just one storm in the Nepal Himalayas on 10-11 November 1995, 22 foreigners and more than 45 Nepalese guides and porters died in different regions due to heavy snowfall, avalanches and mudslides. It was claimed that up to 30 people die each year in the Andes including mountain guides (Jake Cosak, personal communication, January 1997). The health of tourism workers, however, can also be in danger in the developed world. More than 50 climbers and guides died within a few weeks in the European Alps in the summer of 1997. Another form of 'occupational health hazard' has been observed on the Argentinian side of the Iguazu Falls where, at a certain point, locals drive tourists in an open boat equipped with a small engine close to the edge of the falls. The engine barely is able to get the boat out of the current and back to shore. A thin rope along the edge clearly is not sufficient to withstand a boat should the engine fail.

Increasingly, developing countries with access to spectacular reefs market their underwater attractions to encourage diving holidays. When the income of a diving guide depends on the number of dives, the minimum surface interval that is required for health reasons may not always be observed, putting them under considerable health risks. A lack of decompression chambers in developing countries, partly due to the failure of enforcing their installation, as Rudkin and Hall (1996) reported from Pacific islands, is of concern not only to the visiting diver but also to the local guide.

In many areas in the developing world, customs prevent people's exposure to physical danger by placing a taboo over a certain area. If such an area happens to become of interest to tourism, the reluctance of locals to go to such places may be overcome by the need to earn money. Two guides together with one tourist died in January 1995 at Mt. Yasur on Tanna/Vanuatu, killed by falling rocks ejected from the volcano. This author has witnessed local guides refusing to accompany visitors to the summit of this volcano.

Health hazards for whitewater rafting guides have been described in the literature. Sisson, Nichols and Hopkins (1983) reported schistosomiasis (blood flukes) infections among US rafting guides on the Omo River/Ethiopia. A year later, Istre, Fontaine, Tarr, and Hopkins (1984) described an outbreak of acute schistosomiasis among rafters on the same river, pointing out that commercial organisations were about to start business. This means that local guides, although partially immune, are exposed to repeated infections. A different potential health problem was identified in porters. For example, on the Inka Trail (with the highest altitude above 4000m.) one can find children carrying backpacks considered too heavy for well nourished healthy adult tourists. This may cause problems in later life such as bone deformation and chronic backpain which can prevent the individual from pursuing regular work.

The examples mentioned give a little insight into this complex area. Unfortunately, no research on this topic could be found. This may be because accidents or other health problems affect individual people, not groups or whole communities, cases are dealt with individually but not linked with other similar events. Because of the absence of data on frequency/occurrence, it is also difficult to make a risk assessment based on assumptions alone. Considering the fact that in developing countries there is rarely any organised support for such workers, health insurance or compensation for themselves or their families, this matter needs urgent attention if tourism is not to be seen as yet another type of exploitation. On the other hand, however, it is to be expected that some local guides can indeed make a living without putting themselves at risk and, subsequently, even lead a much healthier life than before.

The findings of the field work underline the need for further research. Diseases which had been reported as transmittable through people's movement, were found again in the field. Also, the health problems of local tourism workers proved to be a reality, and research into this area appears to be overdue. Although their numbers may be small compared to the entire population who may be at risk of infectious diseases, the concern over their work safety warrants further investigations. A retrospective and ongoing documentation of illness/death of local tour guides classified into areas of expertise, such as mountain, scuba diving, jungle and so on, should be established and a data bank created with links to neighbouring countries which have similar problems. Also, the health status of guides and porters should be assessed and monitored. The identification of potential occupational health problems and a documentation of the spread of diseases contracted during employment in tourism to family and community, would assist in strategies to minimise health hazards.

## Towards a framework for understanding tourism's health impacts

### *Anecdotal versus research evidence*

This study suggests that, at the moment, there is very little research based evidence on the impact of tourism on locals' health in developing countries. Sources that can be found related to the topic are mainly anecdotal,

*Table 2: Ease of Spread of a Range of Diseases Which can be Transmitted from Travellers to Hosts and Their Level of Impact on the Host Individual.*

| Ease of spread | Impact on host individual* | Diseases |
|---|---|---|
| high | minor to serious | STIs,<br>gastro-intestinal infections,<br>upper respiratory infections,<br>other viral infections |
| medium | minor to serious | worm infections<br>(roundworms, tapeworms) |
| | medium to serious | cholera, malaria,<br>dengue fever, yellow fever,<br>filariasis, leishmaniasis,<br>onchocerciasis,<br>Oropouche fever |
| | serious | AIDS,<br>other viral infections |
| low | medium | myiasis |
| | medium to serious | worm infections (flukes) |

* minor: acute illness with usually no complications, no or little temporary incapacitation, complete recovery

medium: acute or chronic illness affecting an individual's ability to pursue the usual activities, complete recovery, no permanent incapacitation

serious: acute or chronic illness with high possibility of serious or fatal complications, permanent incapacitation or disfiguration.

e.g., Pryor's (1980) account of residents' attitudes in Rarotonga, Cook Islands, or the many accusations about the role of (Western) tourists as transmitters of STIs and AIDS (Cohen, 1988; Wanjau, 1987). Although there is no doubt that tourism contributes to the spread of diseases, facts are hard to obtain.

Using Doxey's (1975) index of tourist irritation as a framework, one has to assume that anecdotal negative evidence on health impacts may have a lot to do with locals' antagonism toward tourists for whatever reason. Comments, therefore, should be (or should have been) examined from this perspective to allow for a more realistic interpretation. Antagonism may even lead to the perception of transmission of diseases with entirely different aetiology. In this connection, one also needs to consider the well known conflict between national park management and the needs of the locals living within a park or in close proximity. For example, the conservation of flagship species such as the tiger or rhinoceros has to be weighed against the loss of lives of locals caused by those animals (Mishra, 1984). Likewise, loss of livestock and crop destruction have impacts on the population's health status. In the context of this report, it is necessary to identify what events occur within the framework of conservation and which ones can clearly be attributed to tourism.

Numerous gaps have been identified in the current body of knowledge on the impact of tourism on the health of the local population in developing countries and topics for research have been suggested. It has been established that research into potential indirect health impacts has to go beyond the economic, environmental and sociocultural impacts already widely discussed in the literature, and focus specifically on their health implications. Research into potential direct health impacts should concentrate on epidemiological studies into the transmission of diseases through travellers and on investigations into the workplace health and safety aspects in relation to local tourism employees.

In addition, a wide range of general issues is the focus for basic and applied research providing additional information to achieve a more complete picture of health impacts. Examples are offered here to illustrate the variety of study topics available to researchers from different disciplines. Historians could explore how visitors in the past (invaders, explorers, missionaries) changed the local health status. At present, it seems information on this topic can only be found by chance when studying old documents or travel diaries. Addressing present day concerns, social scientists should establish if there is indeed an association between locals' negative attitudes towards tourism and anecdotal evidence of negative impacts (and then test those claims through epidemiological research). Another focus of interest is an examination of national and regional tourism strategies in developing countries with respect to the consideration of the local public health and specific strategic activities to prevent a deterioration of the health status. Public health interests could lie in: the comparison of the impact of different levels of low, moderate, and high degrees of tourism in small/isolated communities; the investigation of advice given to tourists in their home country or at the destination regarding their impact on local health; an assessment of tourists' knowledge of their potential role as transmitters of diseases; the identification of services offered for tourists' health care and the examination of their utilisation and availability for locals; the documentation of tourists using local health care facilities; or a comparison of the distribution of health care professionals and health services in touristic and non-touristic areas within one country. Finally, tourism education should be included in research on the topic and curricula in tourism degree courses examined regarding their inclusion of health aspects. These study topics can be researched not only in individual projects focusing on a particular geographic area but allow for comparison between areas with the aim of collaborative efforts in dealing with identified health problems linked to tourism. The addition and consideration of country specific research needs which may be proposed by local health authorities will be of particular importance when deciding on a specific topic for research. An overview of categories of research issues is presented in Figure 1.

### *The need for research as a basis for tourism planning*

The goal of tourism planning is usually said to be economic, sociological, biological and cultural sustainability. Ethical concerns have been raised in connection with tourism development in the 'Third World' (Lea, 1993). The four goals in tourism development:

(1) enhanced visitor satisfaction,

(2) improved economy and business success,

(3) protected resource assets, and

(4) community and area integration

(Gunn, 1994)

clearly include participation of and approval by the local population. Any development that does not protect local people and environment could be classified as unethical.

It becomes clear when examining available tourism strategies and plans that tourism planning is an immensely complex activity.

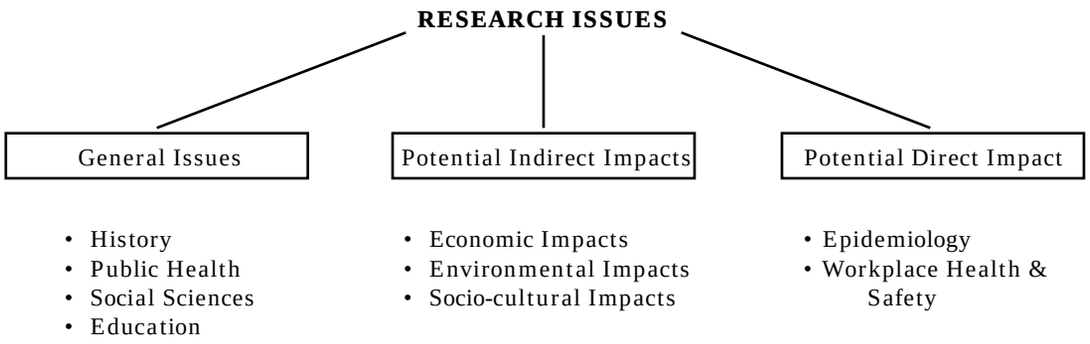


*Figure 1: Categories of research issues into the impacts of tourism in developing countries on the health of the local host communities*

Publications on two areas visited during the field trip have been reviewed with respect to their coverage of issues which may directly or indirectly affect the health of local populations. Aguilar, Hinojosa and Milla (1992) suggested a wide range of strategies and actions to develop tourism in the 'Inka Region', an area extending over the Departments of Cusco, Madre de Dios and Apurímac, but no reference relating to health could be found. The 'Plan for Touristic and Recreation Use of the Huascarán National Park' (Instituto de Montana, 1996) applies to the national park in the Cordillera Blanca/Huaraz which predicted 104,000 conventional tourists and 4,000 adventure tourists (mountain climbers) for the year 1996, and 320,000 conventional tourists and 12,000 adventure tourists for the year 2005 (p. 44). As this plan relates to a national park, it comes as no surprise that considerable emphasis is placed on the environmental impact of tourism (garbage, lack of toilets, water and sewage system). It also recommends that conditions are to be established "for the rural population to participate in tourism in a manner which permits sustainable development" (p.18). Both aspects influence the local health status but health as such is not mentioned explicitly. The plan also suggests that local guides be registered in order to monitor uncontrolled activities in the park. Such a register, if implemented, could be an excellent opportunity to monitor their health status.

Research is the basis to appropriate tourism planning. It is obvious that the lack of research into health issues has prevented their inclusion in tourism strategic plans.

### *Methodological considerations*

The benefit of studying a little investigated area is that there are few conceptual restrictions for the researcher but a great opportunity for creativity and innovative approaches when defining research topics.

Research in some of the areas suggested, clearly poses enormous methodological challenges for the investigator, not least because of the transient character of tourism. Here again creativity is needed in employing a range of different research approaches, going beyond the conventional. Two will be mentioned here. For example, for some of these topics an action research approach based on Critical Social Theory could be adopted. The philosophy behind Critical Social Theory is that empowering people helps them to change their situation, to help themselves. A classic text is Paolo Freire's (1972) *Pedagogy of the Oppressed* on the empowerment through education. In a similar way, communities affected by negative health impacts from tourism could work at overcoming these by adopting the problem solving approach based on empowerment. The core of action research is the employment of a problem solving approach whereby the researcher guides the representatives of a group/community (who also become part of the research team) through the process of change until a satisfactory outcome is achieved.

The usefulness of a Geographical Information System (GIS) for epidemiological purposes is now widely accepted. The inherent geographical element of tourism and the aspect of movement represent factors very suitable for the employment of GIS for research purposes on this topic. Furthermore, its use would allow the combination of epidemiological and tourism variables. At this stage, it could not be established if GIS has ever been used in this form. However, the combination of medicine and geography is not new. Hellen (1995) discussed the use of applied medical geography in, for example, disease hazard mapping, and emphasised the need for a "multidisciplinary approach to safeguarding the health of individuals and ensuring the sustainability of tourism to potentially hazardous areas" (p. 171), albeit from the perspective of travellers' health.

It is quite clear that the range of research questions suggested in

this paper indicates that a lot of these need to be approached in a multidisciplinary fashion. This would also provide a unique opportunity to cooperate with local professionals and to train locals as research assistants to enable them to continue research and monitoring on a long-term basis.

### *Towards a framework for understanding tourism's health impacts*

The purpose of research is to generate and test theories. Applied research emphasises its practical applicability to the field of study. Consequently, research undertaken on this hitherto under-investigated topic will contribute to a body of knowledge which may eventually be expressed in a more abstract form as theories and represented as models for easier understanding. The theories, in turn, will have to be tested and refined.

Bushell and Lea (1996) quite rightly pointed out that there is more to 'tourism and health' than traveller illness and suggest a reorientation towards 'traveller and host wellness'. They then continue to present a tourism health model linked to the concept of ecological public health as a framework for research. It defines 'tourism and health' as the interface between (1) tourists, (2) hosts and (3) the natural environment. The model takes into account arguments by Brown (1985) supporting an epidemiology of health in contrast to the traditional epidemiology of diseases. Based on these arguments, the authors also propose a forced field approach considering the perspectives of promoting/preventing wellness/ illness as a guideline for investigations, and request that a new public health framework be integrated in the existing field of 'tourism and health'. Without doubt, this is one possible avenue. However, it can be argued that this model is rather one-sided as it focuses on health with little evidence of including tourism aspects (apart from the tourists). The model may represent the broad field of tourism and health but it does not depict enough detail to accommodate attributing factors which are mentioned by Bushell and Lea, such as typology of tourists or destination categories. It does not seem refined enough to offer directions for further research incorporating both fields (tourism and health) sufficiently.

A framework can be seen as a system where all components are interdependent and interlinked in a way that variations in one component affect the rest of the system. Based on the results of this study, a framework for understanding tourism's health impacts in developing countries will most likely consist at least of the following major components: tourists, type of tourism, operators/developers, local population, local authorities, the environment, the level of tourism, and the country's current economic status.

### *Tourists (as individuals/as groups)*

Tourists are probably the most active part in this framework as they are the ones actually moving around and coming into contact with places and people. A range of factors need to be considered as attributes of this constant visitor-host encounter: tourist typology; tourists' health status and educational status; knowledge required for a particular trip; advice given; activities sought and their implications; speed of travel; size and numbers of groups; mode of transport chosen; accommodation (e.g., enclave vs homestay); travel patterns; travel corridors; travel seasons; and the degree of contact with the local population. Some of these factors are deliberately chosen by the individual, others occur unintentionally or have been decided for the tourist.

Type of tourism

A further component is the type of tourism occurring in a particular location, from individual adventure travel to mass tourism. This has an effect on the degree of contact tourists have with locals as well as the potential of introducing diseases or causing other negative impacts, for example, on the environment. Although mass travel implies that large numbers of people travel, the accumulation of large numbers usually only occurs at very popular destinations, and these visitors may not come in contact with locals at all or rarely. The impact of mass tourism on health is likely to be indirect, i.e. through economic, environmental or sociocultural affects discussed in earlier chapters. Adventure tourism is pursued by travelling individuals, alone or in very small groups, but their destinations are usually in more remote and isolated areas where they are also much more likely to come in closer contact with local communities. These interactions most likely prepare the ground for potential direct impacts such as the transmission of diseases.

Tourist activities are another dimension impacting on local destinations. Pearce and Moscardo (1989) developed a tool to investigate the Structure of Tourism Activities for Regions (STAR). A list of attributes allows the classification of activities. Some of those attributes are based on inter-actions between tourists and the environment (and hence important in relation to possible impacts), but no attribute is allocated to a possible interaction with the local population. As this interaction obviously does occur, on a continuum from very little to very close, not only should this dimension be added to the STAR (Structure of Tourism Activities for Regions) instrument, but it is an important factor in the assessment of health impacts of tourism. It may be useful to

design a modified STAR tool that allows the creation of profiles of activities and their impact on host communities' health. The dimensions of such a tool would be factors such as impact on the environment, degree of contact with locals, or potential risks to local employees.

Operators/developers

A further important component are those individuals or companies/organisations who develop tourism destinations and provide services and facilities from travel agencies to transport companies and the accommodation industry. Clearly, the primary purpose of those businesses is to make a profit out of the tourism they promote. Ideally, operators should be mediators between tourists and hosts, if only to ensure sustainability of the operations. In reality, however, it seems that the links with the tourists are much closer, tourists and operators are involved in a business transaction with one supplying what the other demands. Operators have a great responsibility when it comes to planning, developing and running tourism products as these rarely occur without impacts on the local populations. Very often, operators decide on activities offered, destinations visited, accommodation constructed and mode of transport provided. They, therefore, do represent a very important element in the health impact framework due to their intermediate position between visitors and hosts.

Local population

Here, we are looking at the more passive, receiving end of the activity 'travel'. The following aspects are of importance: the geographical location; immunity and health status; level of education; previous contact with visitors; dependence on tourism; degree of contact with tourists; attitudes towards tourism; the difference between the cultural and social values of visitor and host; locals' involvement in tourism planning.

Brown (1985) strongly emphasised that a suitable approach to an epidemiology of health "must take account of complexity, open-endedness, multiple interactions, value choices, social rules and types of personality..." (p. 336). Nothing less should be applied to the local host population.

Local authorities (health/tourism)

So far, little attention has been paid to the role of local health and tourism authorities in the protection of the health of the local population. It is important to recognise the role of these authorities. Although the aims of both authorities may not seem to have much common ground, with one developing and promoting tourism and the principles of business in mind, and the other in charge of the public health status, if they are to achieve sustainable tourism which benefits all parties involved, a close cooperation between both is necessary. This applies particularly to activities such as monitoring the local health status in tourism destinations and implementing strategies of improvement if necessary; investigating health impacts (in cooperation with other agencies, such as conservation groups); approving of tourism destinations only after a positive outcome of a health impact assessment; or terminating an operation when its impact is detrimental. In this respect, local authorities play a central role in the monitoring of tourists, locals, and operators as well as environmental issues.

Environment

The environment represents an essential resource for tourism. Budowski (1976) proposed three possible relationships between tourism and nature, *conflict*, *coexistence* and *symbiosis*, claiming that the majority of relationships are those of coexistence moving toward conflict. It seems not much has changed 20 years later. Changes in the environment affect humans' health as a short- or long-term consequence. It is, therefore, important that every effort is made to closely observe the environment for changes attributable to tourism to allow for timely action in order to reduce the health risks to locals and tourists.

Economic status

In order to achieve the required monitoring discussed above, not only is a substantial budget

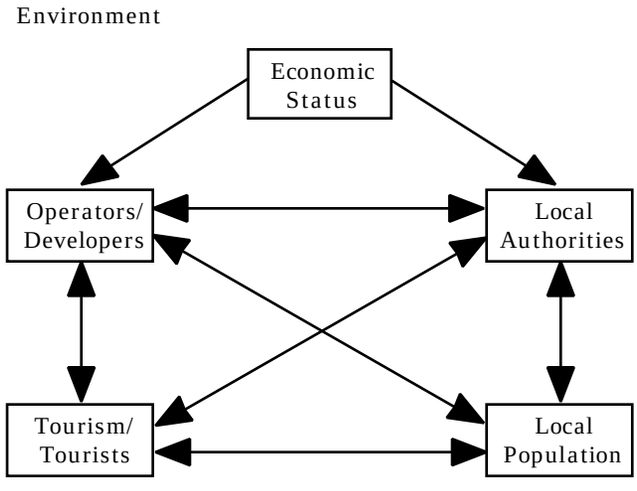


*Figure 2: The elements of a tentative framework for understanding the impacts of tourism in developing countries on the health of the local host communities*

necessary but also professional expertise in fields such as health, tourism, and conservation. The same requirements apply if research is to be conducted into topics suggested throughout this paper. A lesser developed country may well recognise negative impacts of tourism on the health of its people but may be in no position to do anything about it, not least because it is desperately dependent on tourism and foreign currency. Therefore, ways will have to be designed that allow countries with little expertise and economic abilities to still have strategies at hand to minimise a decrease in the local health status attributable to tourism.

These components and their relationships with each other (Figure 2) can be seen as starting points for investigations

A growth of research based knowledge on tourism's health impacts (as well as putting this area on priority lists of funding bodies) will allow the generation of theoretical frameworks in a reasonably near future. Such frameworks are necessary for applying this knowledge to practice, particularly for assessing health impacts. The ultimate goal will be to conduct such an assessment for prospective or current tourism developments in the same way as is already done for economic, environmental or, to a lesser extent, sociocultural impacts as, literally, prevention is better than cure.

Lacking such an assessment framework at the moment, other solutions have to be employed. Short-term solutions may centre around creating an awareness in tourists, locals and operators. In the longer term, other interventions may be necessary. Simmons' (1996) advice was meant for the protection of the environment but is equally applicable to health when he suggests the provision of 'honey-pots' to draw people away from vulnerable spots. In practice, this could mean, rather than searching for isolated tribes in a rainforest, providing tourists with high quality interpretation centres.

The increase in tourism worldwide is likely to continue and the positive aspects of tourism in developing countries are acknowledged. However, it seems that health is being ignored in the process of tourism development, both "in terms of the local people and in the potential impact of travellers on the already scarce health resources" as Rudkin and Hall (1996, p.101) reported from the South Pacific. If visitor-host encounters lead to a decreasing health status of the hosts, action needs to be taken in order to promote people's well-being and, consequently, the sustainability of tourism destinations for the benefit of the visitor *and* the host. Otherwise, the World Tourism Organization's objective"'to accelerate and enlarge the contribution of tourism (international and domestic) to peace, understanding, *health* [my italics], and prosperity throughout the world" (McIntosh, Goeldner & Ritchie, 1995) cannot be met.

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