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**Impacts of Tourism on the Environment of Pokhara**  
**A Study of Pokhara Metropolis Ward No: 06**

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**Abstract**

*There is a complex and interdependent relationship between tourism and the environment. The quality of both the physical and cultural environment is indispensable to tourism. The activities of tourism can have adverse as well as favourable environmental effects. Most of the impacts are associated with the infrastructural development like roads and airports, and of tourism facilities, such as resorts, hotels, restaurants, shops, and so on. The awareness of environmental values can be boosted by protecting and conserving the natural as well as cultural areas. Attempts have been made in this paper to interpret the impacts of tourism on natural as well as cultural resources. The increasing popularity of tourism in Pokhara has made the people aware and responsible these days. Some prerequisites, for instance, co-ordination of policies, pro-active planning, the education and long-term viewpoint of stakeholders can lead to the successful as well as sustainable tourism. As a good viewpoint, tourism is also the environmental quality of a place, which is responsible for the successful tourism industry. This paper also aims at illuminating the perception of tourists about the pollution and protection of the environment.*

**Key words** tourism, environment, carrying capacity, pollution, waste generation, perception

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**Issue Background**

Tourism is the Nepal's third-largest retail industry, behind only agriculture and manufacture. Although tourism was once defined as a “smokeless” industry with few, if any, environmental impacts, recognition of its potential for adverse impacts is growing. Tourism consists of the activities undertaken during travel from home or work for the pleasure and enjoyment of certain destinations, and the facilities that cater to the needs of the tourist (Mathieson & Wall, 1982). In the present world, tourism is the major service industry in Nepal, with a contribution of 7.9 % to the national GDP and providing 6.7 % of the total employment. Nepal observed more than eleven million annual foreign tourist arrivals and 1.2 million

domestic tourism visits (NTB, 2018). The word environment has been taken from the French word 'environer' which means surroundings. First of all, for better understanding of what physical or environmental impacts of tourism are, it is inevitable to know what the word "tourism" means. According to World Tourism Organization (1989), "tourism is the temporary movement of people to destinations outside their normal place of work and residence, the activities undertaken during their stay in these destinations and the facilities created to cater for their needs" (Ratz & Puczko 2002). This definition reveals at least three areas, which have impact on the environment: transportation, activities, and facilities. These areas are subjects to examine when analyzing the different kinds of impact of tourism on environment in the Phewa lake area, as tourism is an expanding industry throughout the world. The impact of Covid-19 and a continuous lock down in the country has reduced the number of foreign tourist arrival in the country from March 2019 as tourism is the main source of foreign exchange and an important factor in the development of tourism industry in Nepal. When there is discussion about tourism there arises questions of environment too. Natural and artificial agents affect tourism and environment. The former includes both living and non-living things, whereas the latter implies with physical infrastructure like roads, towns, cities and the things generated by human beings.

Tourism is helpful not only for the restoration and preservation of historic sites of any places but also for the conservation of natural resources in the tourism sites of Nepal. Likewise, the water resources such as rivers, lakes, seas and oceans are affected owing to the throw of garbage and the untreated sewage. If such a process goes for a long time, many diseases can be transmitted and even eutrophication will take place due to the everyday increase of the nutrients in the lake. Eventually, all the aquatic life will be affected badly. The animals' natural habitat is also disturbed owing to the increasing number of tourists along the wildlife zones. Tourism as an industry without chimneys creates employment opportunities and generates economic growth of the country. Moreover, 'proper cultivation of tourism is expressed to contribute in forging links of mutual understanding and appreciation for a better world of tomorrow' (Anand and Bajracharya 1985). Tourism and the environment benefit and depend on each other. Although tourism is the main source of exchange earning, the contribution of this industry cannot be evaluated in terms of economic benefit only. Tourism has an investment in the preservation of climate, vegetation, wildlife and geology, which catch the attention of tourists. In other words, tourism is not related only with economy but it is also related with the environment, culture and national as well as international understanding. In the developing country like Nepal, tourism brings in a lot of foreign exchange and provides employment opportunities. It also increases a demand for local products.

There is the interrelationship between tourism and the environment. Nature has actually a great attraction for the enhancement of tourism. The impact made by tourism depends upon the volume and profile characteristic of the tourists. (Zulfikar, 1998). Tourism and environment are correlated with each other, the environment benefits from tourism and tourism is benefited from the environment (Davidson, 1989). The environmentally sensitive areas should be looked

carefully so that it will be easy to prevent from the negative impacts of environment (Zurick, 1992; Stevens, 1993; Karan et al, 1994). Due to natural attractions tourists visit the places. A phytogeographical variation is another phenomenon for the attraction of tourists (Robinson, 1976). For the sustainable tourism conservation of water sources and wildlife is very important (Matheson and Wall, 1982). The interaction of tourism is with the physical as well as the cultural environment (Cater, 1995). Tourism development is linked with settlement too. Rapid growth of urbanisation leads to serious environmental problems (Lamichhane, 2000). Rural settlement around the Phewa lake has a linkage with the urban environment; it has its own complex entity of the distribution of buildings by which people attach themselves to the land for the purpose of primary production (Stone, 1965). Groupings and arrangements of houses and highways are in consideration within the both environments (Brunches, 1925). The rapid development of the tourism has led the urban sprawl as giving the pressure on the limited infrastructure facilities in Pokhara. The condition of the road all along the lake is poor. There is neither footpath nor good management of traffic or vehicular pollution (Banskota and Sharma, 1998).

Therefore, the conservation of nature and the natural resources is inevitable for the sustainable development of tourism. The impact made by tourism on the environment depends upon the volume and profile characteristic of the tourists, their length of stay, activity, mode of transport, travel arrangements, etc. (Upadhyay, 2004). The carrying capacity of the tourist areas is essential for the long-term tourism development, in that the use of natural resources is limited. If the environment is overused, its limits of the carrying capacity will exceed due to which the ecosystem will be imbalanced (Rogers, Jalal et al, 2008). In due course, the environment maybe spoiled. Therefore, focus should be given on the human-environment relationship. In some cases tourism has helped to protect the environment while in others, tourism has destroyed local ecosystems and local resources (Coccosis, 1996). The carrying capacities of the environment are not prioritized in the countries of the preliminary tourism development, as there is no appropriate planning for tourism. Such a case is found in the developing country like Nepal in the present time. In such a context, even an incompatible relationship is found between tourism and the environment instead of a symbiotic association. In the modern world, tourism and the environment cannot be separated from each other (Bhatia 1942). The recent time resort development can produce architectural pollution. It means the native environs and architecture will decline due to the encroachment of the imported architecture. Similarly, unplanned and unmonitored resorts in the mountain areas can affect the natural environment, in that such a haphazard establishment of the tourist sites will be incapable to endure the intensity of tourist flow. At that time, there will be failure in the supply of goods needed to tourists. Ultimately, the environment will be polluted and hazardous to the health of tourists and the local people.

Tourism is considered as a growing industry in Pokhara. There is no doubt that tourism has contributed much to the economic progress of the Pokhara region and to the general welfare of its inhabitants. Therefore, the conservation of nature and its resources is necessary to develop

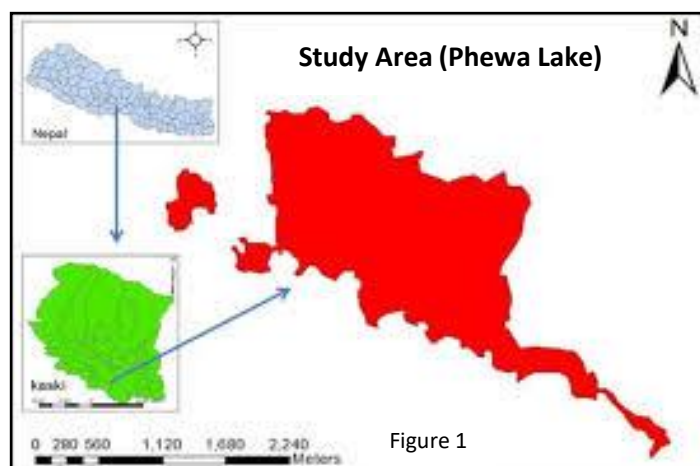
tourism in a sustainable manner in Pokhara. If the negative aspect of tourism is considered, it should be focused on the elements of the ecosystem of the tourist surroundings. For example, vegetation is affected by tourism in such a way that some tourists collect plants, destroy plant life, use fire haphazardly and spread rubbish, which changes soil nutrients. Similarly, trekkers and vehicular traffic influence the nature of soil, the growth rates of plants and their species as well as habitat diversity. The haphazardly developed tourism sector of Lakeside has affected the physical environment of this area. The development of unpleasant hotels in an unfamiliar design has disturbed the scenic environment. The effects, moreover, are not solely scenic, the waste and sewage from such development are discharged in an unprocessed manner, which pollute the lake and the watershed area. This paper aims at explaining the impacts of tourism by showing the perception of tourists about the pollution and protection of the environment with reference to Phewa lakeside of the Pokhara Metropolitan City (Fig. 1).

### Methodological Reflections

The impact of tourism on the environment is often qualitative and subjective in nature. Nevertheless, such impacts of tourism in Pokhara have been attributed to quantitative judgment. Much of the article is derived from a survey carried out by the authors. Nevertheless, secondary information is also used to embody the paper. The primary data were collected by using 96 tourists, 50 local people and 34 hoteliers and restaurateurs on the random basis.

### Environmental Assessment

In 1981 only 33536 tourists excluding Indians visited Pokhara but in 2019 the number increased up to 372522 (Tourism Office, Pokhara 2020). The increasing number of tourists each year in Pokhara leads to many environmental problems as well as challenges to tourism development. In fact, this increasing number of tourists in Pokhara has several impacts. The main impacts of tourism in Pokhara are degradation of vegetation, landscape change, land pollution, air pollution, pollution in Phewa Lake, etc. It is known that tourism is a sensitive international movement. If too much pressure is put on increasing tourists' number without caring about pollution and without improving quality, its development may suffer. Consequently, tourists will move to other regions. Realizing this fact, Pokhara is not only ready to increase tourists' number but it also seeks to secure tourism development for the future generations by giving much emphasis on the control of pollution.



### Tourists' Attitude towards Pollution

A survey among 96 tourists was done about the pollution in the study area. Respondents were asked about different types of pollution like land pollution, water pollution, air pollution, air and land pollution, etc. 41.67 per cent respondents have expressed their views about land pollution. After land pollution, air and land pollution as well as water and land pollution are ranked second (14.58%) in the view of tourists. 12.50 per cent respondents have pointed out about water pollution (Table 1).

Table 1: Attitude of Tourists about Pollution

Types of Pollution	Respondents	Percentage
Air pollution	4	4.17
Water Pollution	12	12.50
Land Pollution	40	41.67
Air and water Pollution	2	2.08
Air and land Pollution	14	14.58
Water and land Pollution	14	14.58
Land, Air and water Pollution	10	10.42
Total	96	100.00

Source: Field survey, 2019

### Sources of Waste Generation

The main sources of waste generation in the study area are hotels and restaurants. They produce different types of wastes like food waste, paper waste, vegetable waste, etc. Along with hotels and restaurants, tourists as well as local people are also more or less responsible to produce the waste in the study area. The local people as well as tourists throw cigarette packets, fruit barks, bottles, papers, plastics, etc. on the streets. Table 2 shows the waste generation from hotels and restaurants in the study area.

Table 2: Waste Generation from Hotels and Restaurants

Amount in (kg) per day	Hotels and Restaurants	Percentage
1-2	8	23.53
2-3	5	14.70
3-4	5	14.70
4-5	6	17.65
5-6	8	23.53
>6	2	5.88
Total	34	100.00

Source: Field survey, 2019

According to Table 2, the generation of waste from hotels and restaurants is different in amount. For example, there are 23.53 per cent hotels and restaurants, which produce only one or two kg waste. Similarly, eight hotels and restaurants produce 5-6 kg waste. There are

five such waste producing hotels or restaurants whose waste production is 2-3 kg per day. Similar case is found for five items that produce 3-4 kg waste. Likewise, six hotels and restaurants produce 4-5 kg waste per day.

Table 3: Types of Waste Generation from Hotels and Restaurants

Types of Waste	Respondents	Percentage
Food wastes	2	5.88
Paper wastes	2	5.88
Vegetable, Food and plastics	8	23.53
Vegetable, Food and paper	4	11.76
Vegetable and food.	4	11.76
Food and paper	6	17.65
Paper and plastic	6	17.65
Food and plastic	2	5.88
Total	34	100.00

Source: Field survey, 2019

According to the hoteliers and restaurateurs, there are different types of wastes production in the study area. For example, food waste, paper waste, vegetable waste, plastic waste, etc. Among them, the production of vegetable, food and plastic (23.53%) is more than the other wastes. The second position (17.65%) is of food and paper and paper and plastic (Table 3).

Table 4: Local People's Responses of Waste Generation

Waste Types	Respondents	Percent
Plastic	13	26.00
Scraps	11	22.00
Scrap Paper	11	22.00
Scrap metal	07	17.00
Others	08	16.00
Total	50	100.00

Source: Field survey, 2019

Table 4 shows that there are several types of waste matters, which are generated from the Lakeside and Dam side areas. For instance, plastic (26.00%), scraps (22.00%), scrap paper (22.00%), scrap metal (14.00%) and others (16%).

Table 5 below indicates that out of 34 hotels 79.42 per cent have been made of the Pukka septic tanks in comparison to 20.58 per cent Kutcha septic tanks in the toilets. Even the Pukka septic tanks are not properly made. The old septic tanks do not have concrete bottoms although they are made of pukka walls. Some people have even directly joined their sewage to the streams such as Phirke stream. Likewise, the seepage of the toilet can also flow slowly to the lake.

Table 5: Types of the Septic Tanks of Hotels

Septic Tank	Respondents	Percent
Kutchra (Non-Permanent)	7	20.58
Pukka (Permanent)	27	79.42
Total	34	100.00

Source: Field survey, 2019

**Waste Management**

The construction of a large number of hotels and restaurants is the main factor in producing more wastes in the study area but the garbage collection is not regular. Table 6 shows the system of garbage collection in the study area.

Table 6: Views of the Local People about the Garbage Collection

Area	Garbage Collection						Total	Percent
	Daily	Weekly	Bi-weekly	Irregular	No			
Lakeside	3	8	2	3	0	18	52.94	
Dam side	3	4	3	8	0	16	47.06	
Total	6	12	5	11	0	34	100.00	
Percent	17.64	35.30	14.70	32.35	0	100		

Source: Field survey, 2019

Table 6 reveals the fact that out of 34 respondents 17.64 per cent have said that there is daily waste collection, 35.30 per cent have expressed their views about weekly garbage collection, 14.70 per cent have said that there is bi-weekly garbage collection whereas 32.35 per cent people have said that there is irregularity in the garbage collection. The main problems of the solid waste dumping are due to lack of space and generation of strewed wastes in a large amount. To check the environmental degradation, the reduction of wastes at the source, reusing and recycling of the major dry wastes such as paper, plastic, glass, metal, etc. are necessary.

**Tourists' Perception towards the Protection of the Environment and Tourism**

The natural environment needs protection for the enhancement of tourism in a sustainable manner. Nature-related vegetation, soil, water and air are necessary to save for the betterment of the environment. If it is to talk about Pokhara's tourism development, its fundamental necessities to preserve the lakes, rivers, forests, land, etc. Table 7 shows that there should be the legal work of the government as well as of the people for the maintenance of the environment. Similarly, public awareness is also important for the protection of the environment. Thus, the environment can be saved for the betterment of tourism development.

Table 7: Tourists' Perception towards the Protection of the Environment and Tourism

Views	Respondents	Per cent
Conservation of Environment	31	32.29
Public Awareness	25	26.04
Legality	22	22.91

Planning	18	18.75
Total	96	100.00

Source: Field survey, 2019

### Concluding Remarks

It is necessary to make a reciprocal interaction between tourists and hosts together with the collective interactions within the touristic region as a whole, in that it can provide the reciprocal advantage and establish a symbiotic relationship. In recent years, the environmental degradation has become an important issue of investigation. Many unplanned and unmonitored developmental activities in the tourist destinations have several kinds of effects on the environment. If tourism has no appropriate plan for its development, it will be detrimental to nature, even though it is advantageous for the economy of the country. Some tourists who come to Pokhara and consume the natural beauty generally drop litter in the places without thinking about the negative impact on the environment. As some of the hoteliers, restaurateurs and the local people have ignored the lake for their benefit only, 'Pokhara has turned its back on the lake, ignoring its greatest chance of becoming a renowned destination for tourists because planning is not given priority, neither by the political set-up nor the legal system' (Weise 1997). The lake has reduced in size because its carrying capacity has not been able to cope with the pollution caused by sedimentation and tourist flood.

In the tourism industry many hotels, lodges and restaurants are constructed near and / or on the banks of lakes or rivers. The sewage pours into the lake and the rivers and pollutes their biological, chemical and physical features. Such levels of environmental pollution may cause the aesthetic degradation of the touristic landscape, in that it has the negative impact on the natural resources. The crude system of waste disposal is also a severe problem in most of the tourist destination in Pokhara. The development of tourism in Pokhara has both positive and negative impacts on the environment. The positive influences are related to the improvement of many services like entertainment, health, telecommunications, banking and local government administration, infrastructure development like roads, airports, hotels, lodges and restaurants and so on. Glasson et al. (1995) has stated that without visitors, local culture and traditions may have been lost completely as might the market for traditional products. Thus, tourism development in Pokhara helps the citizens to preserve their culture and the environment.

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