



Sanitation and its impact on tourism in Karnataka

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Abstract

The importance of development of tourism for the overall development of the country has been well recognised. Many efforts, in terms of higher allocation, development of infrastructure, etc have been made to attract tourists. But it seems that the policy makers and implementing agencies have not recognised the importance of provision of sanitation facility at tourist places. Sanitation at tourist places has been remained as a major constraint in development of tourism in India. In this context, the paper aims at analyzing the status of sanitation and its impact on tourism sector, based on 600 sample tourists spread across 12 selected tourist places in Karnataka. It is found that the selected tourist places (except Dharmasthala) have inadequate sanitation facilities, such as toilet, dust bins, drainages, etc. Dumping of plastic waste, including water bottles, food packages, and cups, etc have further deteriorated the sanitation status in tourist places. Inadequate sanitation resulted in illness of tourists and revenue loss to tourism sector. It is estimated that total cost of inadequate sanitation, including cost of illness of tourists and revenue loss to tourism sector, was Rs. 3063 crores i.e. 0.30 per cent of the total gross state domestic product (GSDP) of the state (2015-16). It is expected that the findings of the paper would help in raising the level of awareness about the importance of sanitation among policy makers and implementing agencies and help in reaping full benefits of tourism in the state.

Keywords: GSDP, sanitation, tourism

1. Introduction

Sanitation ^[1] ensures good health, human dignity and has many other benefits to people. It is a basic need and is one of the prerequisite for human resource development. It also helps to maintain clean environment and has influence on economic development, and many other sectors, like health, education, tourism, etc. Thus, sanitation impacts individuals, households, communities and countries. Recognising the importance of sanitation in the overall development of the mankind United Nations General Assembly declared sanitation as a human right in the year 2010. In contrast, inadequate sanitation ^[2] adversely affects not only health but have harmful on education, welfare and tourism, etc (World Bank 2010) ^[28]. It is known that lack of adequate sanitation is a major cause of deaths and diseases in developing countries (WHO). Recognizing the importance of sanitation in human development, greater public investments have been made to provide sanitation. In India, sanitation continues to be inadequate (especially at public places) despite many efforts by government and communities. The studies have found that inadequate sanitation is the major hurdle in the development of tourism in India. Tourism is an important source of income, employment and foreign currency and it is regarded as one of the world's largest and fastest growing industries (Hutton *et al.*, 2008) ^[15]. In India, tourism is the largest service industry. According to World Travel & Tourism Council (WTTC-2017) ^[29], the total contribution of travel and tourism sector in India was Rs.14018.5 billion i.e. 9.6 per cent of GDP. It supported 40.3 million jobs, 9.3 per cent of total employment generated in 2016. India witnessed more than 8 million annual foreign tourist arrivals and 145 crore domestic tourism visits during 2015 (WTTC 2017) ^[29]. Thus, tourism is an important source of national income and employment,

offering high returns on investment. With greater recognition of the importance of tourism, resources have been allocated to develop and improve infrastructure, in the hope of attracting tourists. Central government as well as the state governments have been allocating large proportion of funds to tourism policy, planning and promotion. Governments have put more emphasis on construction of essential tourist facilities, such as hotels, highways, airports, access roads, communications and visitor attractions (Ministry of Tourism 2007 & 2010). Significant efforts are also devoted to conserving areas of natural beauty and cultural communities. Special events, entertainment and cultural activities are often supported by local, state and central governments in India. But it seems that the policy makers and implementing agencies tend to overlook the importance of provision of sanitation facility, especially in tourism sector. Inadequate sanitation affects the attractiveness of tourist destinations and tourist arrivals; can lead to holiday sickness. It can lead to revenue loss from low occupancy rates and failure to exploit long-term potential tourist capacity. The importance of a clean India is increasingly felt for boosting tourism, which is a key factor in economic development and employment generation. Despite widespread recognition of the human and social handicaps that inadequate sanitation places on developing countries, the considerable economic losses arising from inadequate sanitation are not well recognized, since they are not counted properly. Very few studies have examined the link between tourism and sanitation conditions, although the popularity of tourist destinations is particularly related to a country's sanitary conditions. In India, WSP led study (supported by Asian Development Bank, AusAID, and DFID) is the only study which has been conducted at all India level to document the implications inadequate

sanitation on tourism using secondary data. The implications of inadequate sanitation need to be studied not only at the all India level but also at the state and levels through the empirical studies. In this context, the paper makes an effort to analyse the status of sanitation and to estimate the cost of inadequate sanitation on tourism at the state level (Karnataka) using primary data.

2. Review of Literature

Status of Sanitation at Tourist Places

Ministry of Tourism, government of India along with state governments has been making concerted efforts for the sustainable development of tourism. In spite of many efforts to provide the basic infrastructures, including sanitation, the problems related to sanitation have been increasing. Many news paper reports and research studies reveal inadequate sanitation condition at the tourist places.

Ministry of tourism, government of India (2010) tried to find infrastructure gaps in Badami, Pattadakal and Aihole tourist destinations in Karnataka. It is found that the foreign tourists had problems with monuments / tourist sites, general cleanliness, public utilities at the sites. They also complained about sewerage and drainage system. Satisfaction gap was reported on cleanliness in and around the tourist site. It was feared that the poor conditions around the site would leave a bad impression about the site and the country.

Ministry of Tourism, government of India has (2015) developed cleanliness index for 36 cities in the country. The cleanliness index has been developed through a composite score developed from a large number of indicators identified under 8 broad parameters. The parameters in this index are 1) cleanliness of sewer and drainage, 2) effectiveness of garbage collection and disposal 3) cleanliness of public conveniences 4) cleanliness around drinking water facility 5) cleanliness around eateries 6) cleanliness on ambience related aspects. The study found that out of the 36 cities, 17 cities got scores between 31 to 61 and 19 cities got 61 to 80 scores. Gangtok, Hyderabad, Ahmedabad, Panaji and Silvassa received high scores ranging between 76 and 68 on Cleanliness Index. Five cities receiving low scores on cleanliness index are Raipur, Deoghar, Haridwar, Shillong and Puducherry. The study reveals that lack of hygiene and sanitation is a major irritant for foreign and domestic tourists. It was suggested that the ministry of tourism to take the advantage of the opportunity of converging the various schemes and funds available for cleanliness to improve the cleanliness of tourist cities and can give more focus on pay and use toilets.

Indian Institute of Tourism and Travel Management (IITTM, 2010) reports the major problems encountered by tourists with reduced mobility. The major problems at places of stay are; lack of necessary facilities in the rooms, lack of understanding about their special needs and inappropriate location of such rooms. Absence of lift and inaccessible lobby also call for attention. At tourist places these groups face certain set of specific problems viz. absence of toilets or its unhygienic condition, non-availability of public utilities and the like. Their easy movement inside the site is also a major constraint, especially scarcity of ramps or their unsuitable arrangements.

Dissatisfaction of visitors with the sanitation facility in the tourist destinations in Andhra Pradesh and Chennai were

reported by Pujari (2012) and Chockalingam and Ganesh (2010) ^[5]. Chockalingam and Ganesh studied the problems faced by tourists in Chennai based on interview of 150 sample respondents. They found that poor sanitation was one of the major problems faced by the tourists in the city. The other problems faced by the tourists were; corruption, pollution, heavy rush, beggars and health care. Murugadoss and Others (2016) found that in Munnar, one of the important tourist spot in Kerala which attracts tourists from all over the world, toilet and sanitation were not adequately available. The available facilities were located in only some places like bus stand. They suggested that sanitation facilities need to be provided to promote and develop tourism in Munnar region.

Chaudhary (2000) conducted a study to determine pre- and post-trip perceptions of foreign tourists about India as a tourist destination. A gap analysis between expectations and satisfaction levels was used to identify strengths and weaknesses of India's tourism-related image dimensions so that necessary efforts can be made to ensure that tourists' expectations are met. The study revealed that India is rated highly for its rich art forms and cultural heritage. However, irritants like cheating, begging, unhygienic conditions, lack of safety dampen the spirits of tourists. It was suggested that India can be positioned on the world map only after these hygiene factors are improved along with other motivators.

In the tourism industry quality issues are of prime importance in an increasingly competitive and saturated market. A high standard of tourism services has become an important parameter for those choosing a holiday destination. Bindu and Kanagaraj (2013) ^[4] analysed the gap between expectation and experience, effect of demographics and certain tourism service parameters (namely, Accommodation, Cleanliness and hygiene, Information, Safety, Local people and food, Convenience) on overall satisfaction with a destination based on perspective of 513 International tourists in Kerala. They found that there are significant gaps between expectation and experience regarding information, conveniences and cleanliness. The service providers and destination managers have not been able to meet the expectations of tourists on these parameters. Age and gender seem to affect overall satisfaction. The study has taken the above mentioned 6 parameters together to analyse the satisfaction level and has not considered sanitation aspects separately to understand the expectations and satisfaction level.

Implications of Inadequate Sanitation on Tourism

The study conducted by the WSP (Water and Sanitation Programme (2011) has analyzed the economic impacts of inadequate sanitation in India. The study has quantified the economic loss of lack of toilets and sanitation facilities in the country at \$53.8 billion (Rs. 24,000 crore), equivalent to 6.4 per cent of India's GDP in 2006. The loss includes costs associated with death and disease, accessing and treating water, and losses in education, productivity, time, and tourism. The study was based on the data from National Family Health Survey, WHO Demographic and Health Surveys, and other Govt. of India sources. Economic valuation was carried out using costs/prices based on secondary studies. The study indicates that premature mortality and other health-related impacts accounted for 71.7 per cent of the total impacts, followed by productive time lost to access sanitation facilities or sites for defecation

at 20 per cent, drinking water-related impacts 7.8 per cent and tourism impacts 0.5 per cent. Tourism-related economic losses from inadequate sanitation are estimated to be Rs. 12 billion (\$266 million). Out of total tourism losses, 45 per cent are from loss of tourism earnings, and 55 per cent are from losses due to gastrointestinal illnesses among international tourists. About 9.85 million tourism days are estimated to be lost due to inadequate sanitation and hygiene. To estimate the tourism impacts, the study considers only foreign tourists visiting India to avoid double counting domestic tourists (as these are included in estimation of health related impacts) and for lack of tourist illness data (secondary data) for domestic tourists. Therefore, the study considers only gastrointestinal illnesses among foreign tourists.

Hutton and others (2008) ^[15] examined the major health, water, environmental, tourism and other welfare impacts associated with inadequate sanitation in Cambodia, Indonesia, the Philippines and Vietnam. The study was based on evidence from other investigations, surveys and databases. The impact measurement reported in the study focuses mainly on a narrow definition of sanitation – human excreta management and related hygiene practices. The measurement of water resource impact also includes grey water, and the measurement of environmental impact includes solid waste management. The study found that Cambodia, Indonesia, the Philippines and Vietnam lost an estimated US\$9 billion a year because of inadequate sanitation (based on 2005 prices). That was approximately 2 per cent of their combined Gross Domestic Product, varying from 1.3 per cent in Vietnam, 1.5 per cent in the Philippines, 2.3 per cent in Indonesia and 7.2 per cent in Cambodia. The annual economic impact was approximately US\$6.3 billion in Indonesia, US\$1.4 billion in the Philippines, US\$780 million in Vietnam and US\$450 million in Cambodia. Thus, the study provides vital evidence to support further investment in sanitation in these countries by examining the economic impacts of inadequate sanitation, and the potential gains from improved sanitation.

The study conducted by Hoang and Hung (2011) estimates economic impacts of unimproved sanitation and the costs and economic benefits of some common improved sanitation options in developing countries. The study was based on international and national journal articles and reports, web-based statistics, and fact sheets. Scientific evidence has demonstrated that the economic cost associated with inadequate sanitation is substantial. At the global level, failure to meet the MDG water and sanitation target has resulted in the loss of US\$38 billion and sanitation accounts for 92 per cent of this amount. The study estimated that in developing countries, the spending required to provide new coverage to meet the MDG sanitation target (not including program costs) is US\$142 billion (US\$ year 2005). The study demonstrates that investing in sanitation is socially and economically worthwhile and achieving the MDG sanitation target not only saves lives but also provides a foundation for economic growth.

Frone Simona (2013) found that Romania in Europe is lagging behind in the sector of water supply and sanitation affecting not only tourism but also local economic growth and business prospects. Hence, it is suggested that every local, regional and the national strategy of sustainable economic development should integrate the policies for

tourism development with those for water and sanitation infrastructure development.

WHO (2004) estimated the economic costs and benefits of a range of selected interventions to improve water and sanitation services across sub-regions and at the global level and it found that all these interventions found to be cost-beneficial. The study conducted by World Bank's Water and Sanitation Program (2011) in Indonesia tried to address major gaps in evidence among developing countries on the economic aspects of sanitation i.e. to provide economic evidence to increase the volume and efficiency of public and private spending on sanitation. For measuring the economic returns, the broader welfare benefits of products and services on populations, such as value of life, time use, environmental and social benefits are considered. The study found that investment on improved sanitation was socially profitable and access to information on costs and benefits of sanitation options is key to rapidly increasing uptake in Indonesia. Hence, it is felt that both households and government need to be further sensitized to the health, economic and social benefits associated with improved sanitation, and the available choice of latrine designs, models, and sanitary options. It further found that sanitation options that protect the environment are more costly to provide, but while the environmental benefits are difficult to quantify in economic terms, they are essential to national economic development, and the benefits are highly valued by households, tourists, and businesses. In Indonesia, general sanitation conditions are perceived to be very poor. The tourists responded that food hygiene, availability of drinking water, and use of sanitary toilets are the most serious concerns. About one-third of the respondents reported that they had gastro-intestinal problems during their stay, incapacitating the tourist for an average of two days. The amount they could have spent during those days of illness represents foregone earnings for the tourism industry. Despite many negative comments about environmental sanitation in Indonesia, 85 per cent of visitors expressed an intention to return to the country and 74 per cent said they would recommend the country as a tourist destination to friends. Of those reluctant to return, 40 per cent of respondents listed sanitation as the main reason.

The above studies reveal that most of the tourist places in India are not having adequate sanitation facilities. Inadequate sanitation is one of the major problems faced by the tourists. Very few studies, mainly by World Bank, Asian development bank, Aus AID, UK aid and DFID, have been conducted to highlight the impact of inadequate sanitation on tourism at the global / regional level or at national levels.

3. Methodology

Karnataka has been selected for the study as it is the eighth largest and fourth most popular state in the country for tourism. The state is home to 507 of the 3600 centrally protected monuments in India, the largest number after Uttar Pradesh. In Karnataka, tourism centres are located around the ancient sculptured temples, modern cities, the hill ranges, forests and beaches. Karnataka is one of the well-off states in India and having rich culture (Wikipedia).

The tourism places are classified under the tourism themes as; heritage and culture, wild life and forests, beaches, adventure sports and city tourism and MICE (Meetings, incentives, conferences and exhibitions/Events) tourism. But the state is mainly known for heritage and religious tourism,

especially with reference to domestic tourists (Ministry of Tourism 2006) [20]. Further, tourism has been divided into 4 division based on geographical regions, namely North Karnataka, Hill Stations, Coastal Karnataka and South Karnataka. Therefore, the study has taken 3 heritage and culture tourist places from each division for collection of the primary data. Thus, totally 12 tourist spots have been selected for the study in Karnataka. The selected tourist places are; Badami, Belue, Dharmastal, Gokarna, Hami, Madikeri, Muradeshwar, Nandihills, Shravanbelagol, Shrirangapattan, Yallammangudda and Yana

The primary data collected from the sample tourists through the structured questionnaires. From each selected tourist place, 50 sample tourists, including 10 foreign tourists, have been interviewed based on their convenience at 'exit points' of tourist places. Thus, from 12 selected tourist places, 600 sample tourists have been interviewed. The required secondary data have been collected from budget documents of state government and reports of Ministry of tourism of Government of Karnataka.

4. Findings

Brief Profile of sample tourists

The primary data collected from the sample tourists reveals that majority of domestic tourists were from Karnataka itself (80.7 per cent), followed by those who came from the neighbouring state of Maharashtra (10.2 per cent) and Andhra Pradesh (4.4 per cent). Remaining tourists were (4.6 per cent) from Tamil Nadu, Kerala, Haryana, Madhya Pradesh, Rajasthan, Orissa, Punjab and Chandigarh. Foreign tourists had come from France, Itali, China, Holand, England and Hongkong. Majority of foreign tourists were from France (40.0 per cent among the foreign tourists) and Itali (23.3 per cent). Among the sample tourists, 56 per cent of tourists were day tourists [3] and remaining 44 per cent were overnight [4] tourists. These tourists visited the tourist places along with family and friends. The average size of the tourist group is 6 and it varies across the tourist place from 4 to 13 persons. For religious place like Yellammanagudda, tourists arrive in large groups mainly consisting of all the family members to perform *Poojas*. Where as in case of hill stations, historical places and religious places in Coastal areas, the size of tourist groups is

small compared to Yellammanagudda. Around 48 per cent of tourists visited the selected places as a part of pilgrimage and about 45 per cent for having leisure, recreation & spending holidays. Remaining 7 per cent of persons visited these places while searching/doing service/employment, visiting friends and relatives, attending social and religious functions, getting health treatment, business and profession, education and participating/witnessing sports. Type of Visit Arrangement reveals that only one per cent of the tourists availed packaged tour and remaining 99 per cent visited the tourist places independently. The occupation status of these sample tourists reveal that 34.2 per cent are salaried employed, 27.0 per cent are engaged in trade and business, 15.3 per cent are agriculturists, agricultural and non-agricultural labours and remaining are professionals, students and housewives. The annual incomes of these tourists indicate that 68.0 per cent of tourists have income of rupees less than 2.5 lakh, 21.5 per cent have income between Rs.2.5 lakh to Rs.5.0 lakh. Only 10.5 per cent of tourists have more than Rs.10.0 lakh annual income. Thus, the majority of the tourists are domestic tourists belonging to poor and middle income earners who mostly dependent on public sanitation facilities as they cannot spend money for private lodge, hotels, etc for getting sanitation facilities.

Status of Sanitation at Selected Tourist Places

Sanitation status at the tourist places have been examined considering basic sanitation facility (i.e. Public toilet facility) and overall status of sanitation in and around the tourist spots. Discussion with the concerned officials and sanitation workers reveals that provision of sanitation facilities is inadequate in all the selected tourist places (except Dharmastala). Swatch Bharat Mission (SBM) provides for a minimum norm of one seat each for 100 to 400 men and 100 to 200 women, including an incremental increase in seats based on footfall. But the existing numbers of toilets are far less than the minimum required. Thus, not much attention has been paid to provide public toilets by the local governments/tourism and other departments which are useful for almost all the tourists. It has also been observed that much effort has also not been made to maintain these public toilets. Chart 1 shows overall status of sanitation in selected tourist places.

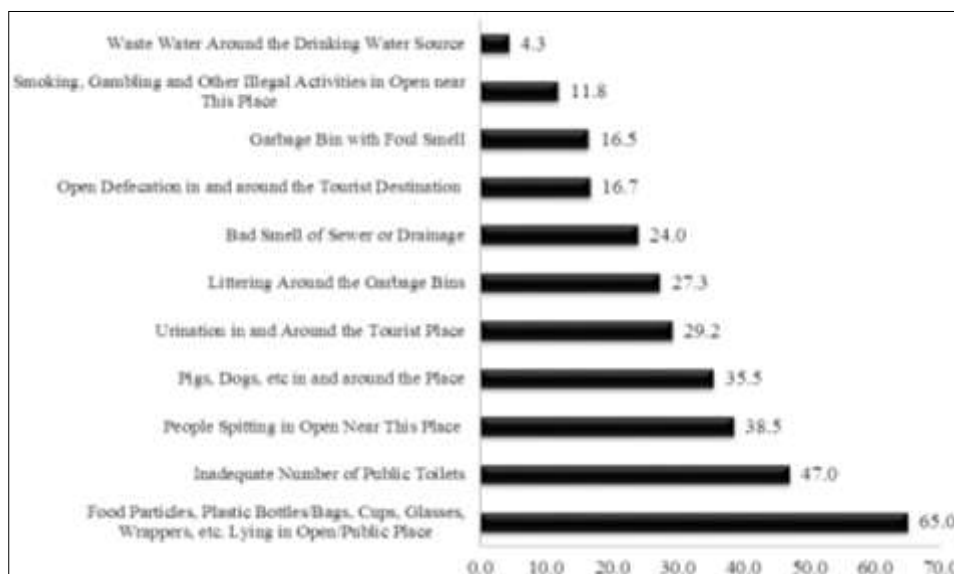


Chart 1: Overall Status of Sanitation in Selected Tourist Places in Karnataka

The above chart reveals that wastes such as food particles, plastic bottles/bags, cups, glasses, wrappers, etc which are used by the tourists at the tourist places are the major cause of unhygienic condition. It has been observed that most of the tourists do not use dust bins for dumping their wastes. This is bad habit observed in all the tourist selected places. Around 65 per cent tourists report presence of these materials in and around the tourist place of attraction in the selected tourist places. In Dharmasthala, because of better maintenance by the temple authorities, these materials can be seen rarely. It is found that that local governments, temple authorities, and Muzarai authorities have not taken much attention to provide sanitation facilities at the tourist places. It is found that around 50 per cent tourists felt inadequate number of public toilets. Proportionate of tourists reporting inadequate public toilets are more in Yellammanagudda, Badami, Hampi, Gokarna and Murudeswar. The main reason for open defecation is lack of toilets. Open defecation has been practiced in Yellammanagudda, Badami and Hampi. On an average 16.7 per cent of the tourists felt presence of open defecation in selected tourist places.

Because of presence of waste food, drainage water, etc the stray animals, like pigs, dogs, etc, can be found in and around the tourist place. Garbage bins are also not being cleaned regularly and hence they omit foul smell in and around the tourist place of attraction. The waste water can be seen around the source of water and these could be one of the major sources of spread of diseases. Around 35.5 per cent tourists reported that presence to stray animals, 16.5 per cent of tourists reported foul smell of garbage bins and 4.3 per cent tourists reported waste water around the source of drinking water. Urination in and around the tourist place of attraction can also be observed especially in Yellammanagudda, Hampi and Badami. On an average, 29.2 per cent tourists reported urination in and around the tourist place of attraction in Karnataka. Spitting in and around the tourist place of attraction is another bad habit of tourists in Karnataka. Around 38.5 per cent of tourists have reported the same. The illegal activities like smoking, gambling, drinking, etc are also reported by 11.8 per cent of tourists.

Chart 2 shows experience of public toilet users in selected tourist places in Karnataka.

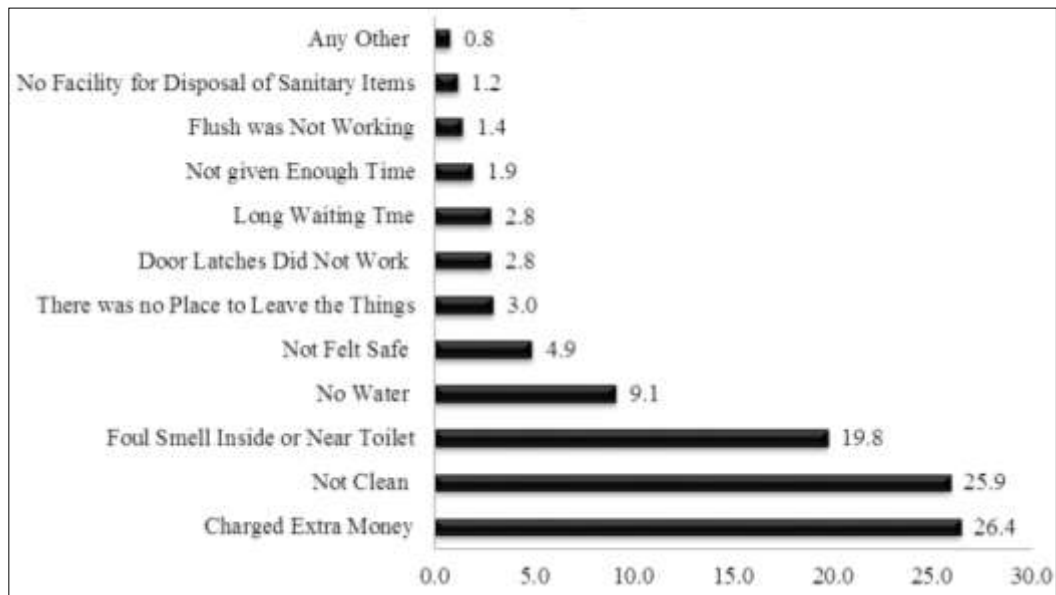


Chart 2: Experience of Public Toilet Users in Selected Tourist Spots

The above chart reveals that tourists are not happy with the cleanliness of public toilets as these toilets are not clean (25.9 per cent) and having foul smell (19.8 per cent). These toilets were also not having water (9.1 per cent), place to leave the things (3.0 per cent), door latches (2.8 per cent), flush (1.4 per cent) and no facility for disposal of sanitary items (1.2 per cent). Apart from all these problems, the tourists were charged extra money (26.4 per cent) for toilet use.

Problems in Provision of Sanitation

The study identifies the following major problems/hindrances in provision of sanitation in tourist places. They are; negligence of Local Governments (PRIs and ULBs), scarcity of funds and prioritization of other public services (like roads, beautification, etc), lack of knowledge about the benefits of tourism among implementing agencies and local political leaders, Lack of

co-operation among different government departments, and scarcity of land for providing sanitation facilities. Thus, because of all these factors all the sample tourist places (except Dharmasthala) in Karnataka lack sanitation. Dharmasthala is managed by Dharmadhikari (hereditary administrator) Shir. Veerendra Heggade who gives utmost importance to cleanliness. Therefore, Dharmasthala has been considered as one of the cleanest tourist place in India. Apart from shortage of sanitation facilities, the tourist places also suffer from lack of maintenance of these facilities as mentioned above. Hence, efforts should be made to impart knowledge about the sanitation among the implementers and to provide these facilities by ensuring their proper maintenance to make tourist places attractive. Involvement of tourists and local people in maintenance of cleanliness is very important.

Cost of Inadequate Sanitation

For estimating the cost of inadequate sanitation on tourism, cost of illness of tourists (including precautionary costs) and revenue loss to tourism sector have been considered.

Cost of Ill Health

The prevalence inadequate sanitation at tourist places adversely affects the health of tourists. Apart from this, scarcity of public toilets creates many health problems, embarrassment and affect social and psychological wellbeing, especially for women. As most of the sample tourists are regular tourists, i.e. often visit the tourist place, and hence they take precautionary measures to protect themselves from the ill consequences of inadequate sanitation. These include; purchasing medicines for possible ill health during travel, purchasing mineral water bottles and having food outside the tourist place. Many tourists had completed their nature calls before entering the tourist place and spent money outside the tourist place. The study finds that on an average a tourist spent Rs. 118.6 during the tour to protect their health. The tourists found drinking water and food are not usually hygienic at the tourist spots and hence they bring it or have it out of the tourist spot. They also stay outside the tourist place to have good living condition (clean and hygienic). Tourists spent Rs.5.1 for medicine, Rs.48.8 for drinking water, Rs. 64.1 for food and stay arrangements outside the tourist place and Rs. 0.6 for meeting nature call needs.

The study found that even after taking many precautionary measures, tourists suffered (0.4%) from headache, fever, vomit, cough and loose motion, for which inadequate sanitation is the main cause. The proportion of tourists

falling ill is high where the sanitation conditions are poor. As per the discussion with the medical practitioner, it requires at least 2 days for ill person to recover and costs at least Rs.750 per patient for meeting consultation charges of doctors and getting medicines (excluding precautionary costs). The opportunity cost of patient and attendant is considered equal to MGNREGA wage rate i.e. Rs.174/day. Thus, the opportunity cost of patient and attendant for two day is Rs.696. Thus, the total cost of treatment of illness due to inadequate sanitation at tourist places is Rs. 1564.6/ tourist which include precautionary cost (Rs.118.6), treatment cost (Rs.750) and opportunity cost of patient and attendant (Rs.696).

Revenue Loss to Tourism Sector

The loss to tourism sector due to inadequate sanitation has been calculated as the difference between actual revenue earned by the tourism sector and the potential revenue that would have been earned if sanitation had been adequate. For calculating revenue loss to tourism sector, the expected hours of stay if the sanitation had been adequate (collected from sample tourists) was multiplied by average spending per tourist per hour to get revenue loss to tourism sector. On an average, a tourist spends Rs.34.5/hour and would have stayed 3.9 hours more if sanitation had been adequate. Thus, on an average, revenue loss to tourism sector per tourist would be Rs. 134.6/ tourist during the year 2015-16.

Table 1 shows total cost of inadequate sanitation in Karnataka, including, precautionary costs, cost of treatment, and opportunity of cost of attendant and ill person and revenue loss to tourism sector.

Table 1: Cost of Inadequate Sanitation on Tourism in Karnataka (2015-16)

Particulars	Details	Total Cost (Rs. Crores)
Total Tourists Visiting Karnataka	No of Tourists	11,82,83,220
Persons Falling Sick due to inadequate sanitation	4 Persons for 1000 tourists	473133
Precautionary Costs	Rs.118.6/Tourist	1402.84
Cost of Treatment of Illness	Rs.750/Ill Tourist	35.48
Opportunity Cost / Welfare Loss (Rs.174 X 2 Days X 2 Persons)	Rs.696/Ill Tourist	32.93
Total Cost of Ill Health		1471.25
Revenue Loss to Tourism Sector	Rs.134.6/ Tourist	1592.09
Total Cost of Inadequate Sanitation (incl; precautionary costs, cost of treatment & opportunity cost)		3063.35
State Domestic Product (SDP) of Karnataka at 2015-16 (Crore)		1022729.00
Cost of Inadequate Sanitation on Tourism as % of GSDP of Karnataka		0.30

The above table shows that the total cost of inadequate sanitation during the year 2015-16 is Rs. 3063 crores which

is equal to 0.30 per cent of GSDP of Karnataka. This indicates the need to have adequate sanitation at the tourist

places to reap the full benefits of tourism potential of the state. It seems that the present estimates are on the lower side, as the study considers only short term illness, and it doesn't envisage illness for the long term i.e. serious cases of illness. Further, for estimating the revenue loss it doesn't consider income from potential tourists. The other costs such as, cost of reduced happiness of tourists due to inadequate sanitation, mental stress, etc have also not been considered.

5. Concluding Observations

The study finds that provision of sanitation facilities is inadequate in all the selected tourist places, except Dharmastala, in Karnataka. Negligence about the sanitation, scarcity of funds and prioritization of other public services are the main reasons for inadequate sanitation. Maintenance of sanitation facilities is also equally important apart from its provision. In this context co-operation and local people are very crucial in maintaining cleanliness in and around the tourist place. It is estimated that the inadequate sanitation at tourist places has led to loss of Rs. 3063 crores to tourism sector in Karnataka during 2015-16 which equals to 0.30 per cent of GSDP. It is suggested that to get the full benefits of tourism, government (state and local bodies) should give priority in maintaining the place clean and tidy by providing adequate sanitation facilities. The tourists should also co-operate in maintaining the cleanliness the places.

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