POSSIBILITIES OF DEVELOPING TOURISM IN KOLKATA WITHOUT HARMING ENVIRONMENT

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Tourism has been recognized as a separate and important economic activity for the growth of the Indian economy. Presidential speeches, committee resolutions and political agendas – all recognize tourism as an important engine of economic growth. In view of the worldwide recession when the focus has shifted somewhat to soft skills and non-traditional activities, tourism is expected to perform a leading role in boosting the entire eastern region. However, Kolkata lags far behind the major tourist circuits of our country. Since it is not possible for a developing country to allocate its meager financial resources to every aspect, India has chosen few internationally attractive tourist circuits to develop and market. [While Kolkata is not among the chosen few it does remain the leading cultural center and the only metro city of entire eastern and north-eastern India. It serves as the gateway for the unique Bengali and the tribal cultural of the North-east. Hence it has a huge potential to attract tourists. Even if the primary destinations of the tourists are the majestic mangroves of the Sunderbans, or Darjeeling - the Queen of the Hills or the beaches, they have to have the first stopover in Kolkata Tourists traveling to Sikkim or the North-eastern states can also be enticed to make a brief stop in Kolkata, thus increasing the total tourist traffic.

In order to accommodate this tourist influx and to attract more, Kolkata needs to deal with certain problems which the current tourists face. My survey at the chosen spots reveals that these problems can be categorized into few broad subtypes.

**INTRODUCTION:**

Kolkata, a major metropolis of India and the Capital of the state of West Bengal is located on the Gangetic delta on the bank of the river Bhagirathi Hoogly. It was founded by Job Charnok, a trader of the East India Company. Since then it has witnessed vast and varied diversity of events. It was the seat from which the British secured their stronghold over India. It served as the capital of their vast colony. It is also that city which witnessed the Bengal renaissance and the birth of the Indian struggle for independence. The decades of the city with the problems of partition, huge pressure of population and economic depression. A fight against the economic depression ensued, yet the city remained lively and culturally active. Today it suffers from obsolete and overburdened infrastructure, huge pressure of population and competition from the other growing metros of the Country. Yet it remains the prime city of eastern India - the commercial capital of the whole of eastern and northeastern region. It is the most important trading center and its hinterland includes the neighboring land locked countries of Nepal and Bhutan. As in other developing countries, West Bengal has recently realized the huge potential of tourism. Kolkata has thus been made ready to greet domestic and international guests.

**Problem of the study of tourism:**

The current study aims at attaining a thorough understanding of the problems and prospects of tourism in Kolkata. The phenomenon of tourism is as old as life itself. Man has traveled far and near in search of food, shelter, economic upliftment, trade, spiritual solace, war and adventure. With the advancement of technology, the means of transport evolved and faster, more economic bulk carriers came into existence, thus widening the scope of travel. Today, tourism have been defined as the totality of relationship and phenomena arising from the travel and stay of strangers provided the stay does not imply the establishment of a permanent residence and is not connected with a remunerated activity. Tourism has been recognized as an industry which is capable of spurring economic growth like any others.

The supply side of tourism rests on two solid pillars - tourist resources and tourism infrastructure. The tourist resources are any attraction which causes people to journey to see, feel or experience it. It is of various types.

i) **Natural beauty** - Fragments of nature are today preserved in sanctuaries, national parks and biosphere reserves. All of them attract tourists. In a metropolis like Kolkata, the urban tourists find pseudo-natural spots like the Zoological garden or the Nalbon Boating complex hugely attractive.

ii) **Historical and cultural monuments/events** - Man has long been fascinated with his own past. Monuments, palaces and architectural mementoes are significant tourist land marks. Kolkata is the witness to the bloom of the colonial empire of the British in India as well as the Bengal renaissance. Hence it is dotted with features of historical importance like the Raj Bhavan, Shahid Minar etc. The city’s rich cultural heritage finds expression in functions, film festivals, theatres, music conferences etc.. Each has the potential to become major crowd pullers.

iii) **Religious shrines** - Temples, mosques, churches and synagogues are house of worship and are visited by a huge number of people for spiritual reasons. They are also the treasure trove of architectural marvels. In Kolkata the Kalighat, Chitteswari and Dakshineswar temples, the St. Paul’s Cathedral, Armenian Church and St. John’s Church, Nakhoda mosque, Jewish synagogues, Parsi fire temples – all attract a huge number of people.

iv) **Museum** - These are the storehouse of art, sculpture, coins, relicts etc. and are a catalogue of human history. The Indian National Museum, the Asutosh Museum, Rabindra Bharati, Birla Industrial and Technological Museum, Postal Museum etc. are highlights of a tour of the Kolkata city.

v) **Educational Institution** - Some seats of education attain huge fame and may even attract tourist. The Calcutta University and the Rabindra Bharati University of Kolkata serve just such a purpose.

vi)**Business' facilities** - The modem business minds prefer to combine work with pleasure. As a result huge national and international companies often hold conferences and seminars in a particular city. The delegates and participants can be described as business tourists. Along with the conferences, they tour the city and its surrounding and, on an average, spend more than the pleasure tourists. To attractconferences, cities like Kolkata have planned such expansion and addition as to make it a convention center of international standard.

The above tourist resources require the help of actual infrastructure to realize their potential. The tourism infrastructure rests on two pillars.

i) **Transport** - Travel is the basic component of any tourism system. In ancient times, this travel occurred on foot, on backs of animals or by boat. With the invention of the wheel came travel by a variety of animal — drawn carriages. They gradually gave way to motorized transport. The twenty first century has seen phenomenal growth of transport with railways, automobiles and aero planes. They have hugely facilitated the movement of tourists across the world.

ii) **Accommodation** - While traveling to a new destination tourists require suitable accommodation at a reasonable price. The demand may vary from camping grounds, house boats and desert tents to five star hotels. Whatever the demand, it needs to be fulfilled to encourage the activity of tourism.The tourist spot feels the effect of the inflow of outsider in every aspect of life.

These include the following:

i) The economic significance is huge. Provided one can check the leakages, tourism generates income, employment and revenue for the government through direct and indirect taxation.

ii) Tourism contributes towards socio-cultural exchange of ideals and values, bridging the gap among various communities. However cultural contamination and loss of cultural identity remains major threats.

iii) For the interest of the tourists, many governments have opted for conservation of the environment in the form of sanctuaries, protected area and reserves. Without careful monitoring, tourism may open the door to large scale environmental degradation. The above requirements of tourism are all present in Kolkata. The city abounds in a variety of tourist resources. There are religious tourist spots like the Kalighat temple, the St. Pauls Cathedral, museums, bazaars, pseudo-natural spots like Nicco Park and Zoological Garden, educational spots like Science City etc. Tourism infrastructure is also well developed, though somewhat ill-organized and overburdened. Added to these are the ambitious plans of the tourism department to convert Kolkata into a Convention Centre of international standard.

The traditional economy is just recovering from a worldwide depression. Kolkata too have not been able to escape the onslaught of this global trend. In the face of such decline vital issues of employment loom large. Like all other regions Kolkata is also looking for economic alternatives. The situation has become more dire with the decline of the Kolkata Port. Among the various alternatives, tourism should be checked for its viability at the earliest opportunity. As has been pointed out, Kolkata is rich in tourist resources and quite well equipped in infrastructure.This study aims to discuss in detail and identify the potential areas of tourism. In its course, the study also seeks to discover the problems of developing the tourism industry here.

**Hypothesis of the study:**

The main Hypotheses of the study are -

i) Tourism is gradually expanding in Kolkata.

ii) The natural and the pseudo-natural tourist spots are the most successful ones in the city.

iii) Most visitors to the tourist spots of Kolkata are local residents followed by the residents of other states and other districts and only few are foreigners.

iv) The tourist spots are generally frequented by specific tourist groups like young mothers and children at the Zoological garden, college-going youths at Science City middle aged group at the religious spots etc.

v) The tourist resources of the city are sufficient in number while infrastructure needs to be upgraded.

vi) Tourism has the potential to contribute significantly to the economic revival of the city. Study Area. The city of Kolkata (22° 44' N, 88° 22' E) has been chosen as my study area. It is located in the Southern part of West Bengal on Gangetic delta on the eastern bank of river Bhagirathi Hooghly. Mention of the city is found in such old documents as ‘ManasamangaT by Bipradas ‘Chandi Mangal by Mukunda Ram and Ain-e-Akbari by Abul Fazal (end of sixteenth century). This region has a long tradition of economic activity. In spite of the marshy land and unhealthy climate, prosperous ports grew up here. Throughout the Sultanate and the Mughal periods, foreign traders brought their merchandise here which entered North India through the waterways which drained into the Bay of Bengal. At the same time, goods were collected from throughout North India by boat and were brought here from where they traveled all over the world. The strong tradition of trade remains a key factor behind the decision of the British to set up a stronghold here. On 24th August, 1690, Job Chamok landed in the village of Sutanuti. He was under instruction of the English East India Company to set up a British trading center in Bengal. In 1698 British bought the Zamindari rights of Kolkata, Sutanuti and Govindapur. The British colonial city of Calcutta has made its debut with the construction of the Fort William between 1699 and 1707 the British hold strengthened. Calcutta (now Kolkata) remained a major scene of conflict between the English East India Company and the Nawabs of Bengal. It finally ended with the treaty of Allahabad (1764) after the battle of Buxar whereupon, among other privileges, the British gained a strong legal foothold in India - Meanwhile the economic.

**Significance of Kolkata improvement:**

Significance of Kolkata improved as demand for Indian goods like cotton, tea, spices and indigo reached phenomenally high levels in Europe. As trade increased, Kolkata began to serve as the supply base from which the British gradually build up their empire. In 1858, it officially became the capital of British India. Kolkata also saw the Bengal renaissance. Stalwarts like Raja Ram Mohan Roy, Iswarchandra Vidyasagar, Swami Vivekananda, Rabindranath Tagore and Sir Surendranath Banerjee brought waves of consciousness and new knowledge to not only Bengal but India. The Indian freedom struggle also began to take its shape here. Even after the capital was shifted to Delhi in 1911, the social and cultural role of Kolkata continued to be of great importance. The city suffered from the backlash of the partition of the country in 1947. It was plagued by the problems of refugees, labour unrest, strikes, political instability and economic recession. In spite of all these, the City is rich in history, heritage and tradition. To-day it covers on area of 185 sq. km and has a population of 4580544 in 2001. A hospitable population, rich cultural heritage, a burgeoning labour force and the cosmopolitan character of the city makes it ideal for the development of the tourism industry.

In order to study tourism in Kolkata, I have chosen nine diverse tourist spots spread throughout the city. Among them is the Dakshineswar Kali Temple - situated in extreme North, build by Rani Rashmoni in 1855. As it is intimately linked with the life of Sri Ramkrishna Paramhansa, it has gained worldwide renown. Next is the St. Paul’s Cathedral. This nineteenth century catholic cathedral has limited general appeal but draws a large proportion of catholic tourists. From theeducational tourist spots I have chosen Indian National Museum and Science City. The museum was built in 1814 and shifted to its current address in 1878. It has a vast and diverse collection. The Science City is a huge park which aims at imparting scientific education through interactive.

**PROBLEMS OF TOURISM DEVELOPMENT IN KOLKAT:**

Tourism has been recognized as a separate and important economic activity for the growth of the Indian economy. Presidential speeches, committee resolutions and political agendas - all recognize tourism as an important engine of economic growth. In view of the worldwide recession when the focus has shifted somewhat to soft skills and non-traditional activities, tourism is expected to perform a leading role in boosting the entire eastern region. However, Kolkata lags far behind the major tourist circuits of our country. Since it is not possible for a developing country to allocate its meager financial resources to every aspect, India has chosen few internationally attractive tourist circuits to develop and market. [While Kolkata is not among the chosen few it does remain the leading cultural center and the only metro city of entire eastern and north-eastern India. It serves as the gateway for the unique Bengali and the tribal cultural of the North-east. Hence it has a huge potential to attract tourists. Even if the primary destinations of the tourists are the majestic mangroves of the Sunderbans, or Darjeeling - the Queen of the Hills or the beaches, they have to have the first stopover in Kolkata Tourists traveling to Sikkim or the North-eastern states can also be enticed to make a brief stop in Kolkata, thus increasing the total tourist traffic. In order to accommodate this tourist influx and to attract more, Kolkata needs to deal with certain problems which the current tourists face. My survey at the chosen spots reveals that these problems can be categorized into few broad subtypes

**I.** **Infrastructure**

The unprecedented growth of the metro cities of India since the seventies had put an enormous strain on the civic amenities. When tourists begin to compete for these facilities with the local residents, the urban fabric is almost stretched to the breaking point. It fails to provide satisfaction. The tourists have to deal with an inadequate infrastructure as well as the ire of residents whoA begin to view the tourists as ‘outsiders’ and competition for the amenities. In such a situation an active role of the Government is necessary to accommodate the increasing population - both resident and transient .Transport is the basic infrastructure necessary to promote tourism and my survey revealed numerous problems related to transport.The pitiable condition of the roads of Kolkata were remarked upon by tourists, both domestic and foreign. Traffic jams and potholes in the road completely disrupt the timing and the schedule of the tourists. Even the major Avenues and eastern Metropolitan Bypass are not free of traffic jams. The tourists have to spend more time in going from place to place than in the spot itself. As a result, they have to curtail the list of places they want to see. Unnecessaty delays spoil the mood creating frustration and satisfaction levels of the tourist fall.Added to the poor maintenance is the confusing question of road direction. While signs proclaiming road names and major landmarks have been put in recently they are few and ill distributed. Foreign tourists faced this problem particularly. Road names are often not written in English. Moreover, in the absence of clear written board, it becomes impossible to note the one­way roads, no-entries etc. Hence the tourists cannot possibly plot the shortest route which wouldenable them to visit maximum spots. Foreign tourists especially have to rely on taxi drivers or other local directions and are often misguided.

While the public transport system of Kolkata carries thousands of passengers each day, its working is bound to be a mystery to an outsider. Bus stoppages are often difficult to make out as it is encroached upon by vendors and other street dwellers. Even if the bus-stand is clearly marked there is nothing to indicate which buses of which route make a stop there. For a person who does not know the city it therefore becomes impossible to utilize this cheapest and most widespread form of public transport. The foreign tourists pointed out that on most buses, the destinations are not written in English and so they cannot use them.Even the same-day visitors complained about the condition of the buses. Added to the problem of lack of comfort and dangerous overloading, buses are often inadequate in number. The absence of fixed timing of the buses again renders tour schedules useless. A person may have to wait five minutes for a particular bus, or he may have to wait for thirty minutes or even an hour. Since timing is neither fixed, nor written anywhere, the tourist has no idea how much time he will have to wait to reach his destination.

The above reasons often force the tourists to choose taxis as their means of travel. Quite a few tourists complained of harassment and cheating at the hands of their taxi driver. The Government has failed to standardize the maintenance of the taxis, hence they are often uncomfortable. Moreover, the system of calculating the taxi fare is that the meter registers a minimum fare. Then the reading is doubled. It is not expected that a newcomer to the city would know the aboveprocedure and is likely to be fleeced. Again, the unclear road directions often enable a taxi driver to choose a circuitous route and the passenger is left at his mercy. The pre-paid taxis often pick up unscheduled passengers. Finally taxi drivers at the airport generally charge exorbitant fares at late evenings or night. In fact, the commute from the city to the airport leaves much to be desired.The oldest and most prestigious transport of Kolkata is the tram. However, these slow vehicles are often liable to stop because of the obsolete machinery. So they become a major cause of traffic jams and the slow movement of traffic. While alee surely tram ride certainly invokes nostalgia, it obstructs traffic and create congestion. Hence to-day trams run only on limited routes.

The most time-effective means of transport in Kolkata is definitely the metro railway. It is well planned, clearly marked with a high frequency of trains. It is, without doubt the best means of transport for the tourists. Since it runs on a predetermined schedule, it is possible to organize cays sightseeing efficiently. The only problem is that it runs in one single route and is therefore not very extensive. However, with the new East-West Corridor Project linking Howrah Maidan with Sector V in Salt Lake, expected to be completed by 2014, the metro will become more extensive and probably the most preferred means of transport by the tourists. At the same time the quality of service of the metro railway is in dire need of improvement. Frequent interruptions and delays which are becoming common need to be controlled. An important step in this direction has already been taken by making the metro railway a separate zone under the ministry of Railways of India.The ingress and egress from a tourist spot plays a major role in its accessibility. Being the Headquarters of both Eastern and South-Eastern Railways, Kolkata has plenty of trains plying to various destinations. But the conditions of the railway stations at Howrah and Sealdah needs a lot of improvement. First, both these stations require a face lift. The dirty and congested stations with the extremely crowded taxi stands do not appear welcoming to the tourists. Prominently placed tourist information centers are immediate necessities at both the stations. The approach roads to the stations need to be broadened, cleaned up and unwanted stalls and vendors should be removed. In order to lessen the traffic at these two junctions, the two other stations of Kolkata and Shalimar should be made more popular. These are underutilized. Finally foreign tourists complained about the complexity of making railway reservations. The list of reservation offices with their addresses should be displayed in the stations. The system of railway reservations should be simplified to allow the tourists as much flexibility of the schedule as possible.

The Netaji Subhas Chandra Bose International Airport serves the city of Kolkata. The maintenance of the airport leaves much to be desired. In our current political scenario, the issue of security is a major concern at every entry point. So strict checking is carried out at the airport. This means the incoming tourists have to wait for a considerable time to obtain necessary clearance. The tourists should be offered all physical comforts as they wait for their clearance. Thus an adequately air conditioned lounge with plenty of seating arrangements, toilet and drinking water facilities should be present. Sadly the basic maintenance of the airport leaves much to be desired.

Tourism cannot flourish without an efficient transport system. It is not enough to increase the number, it is necessary to maintain them also. This is a basic task of the government for the benefit of both the tourists and the local people.Clean, inexpensive and adequate accommodation facilities are another vital necessity for the growth of tourism. There are quite a few large luxury and Five-Star Hotels in the city which provide all comfort. But tourists complained of a lack of clean cheap accommodation. The number of hotels offering clear rooms with adequate facilities at a moderate rate are very few in Kolkata.

This implies that there is a need for two-star and three-star hotels and.guest houses in Kolkata. Similarly, there is a genuine lack of clean bed and breakfasts or economy hotels. The domestic tourists on their small budgets faced major problem regarding accommodation. Perhaps the greatest difficulty is that there is no one - stop tourist information center. What is necessary are tourist information offices at the railway stations, airports and bus terminals who will offer the tourists a complete list of all categories of hotels with their rates and their location maps of Kolkata so that the tourists can make an informed decision. In absence of such offices, tourists have to rely on touts or taxi drivers or the internet and often fail to get the best deals. A centralization of all information is necessary. With that is needed an increase in clean moderately priced accommodation facilities.

**II. Environment**

Being an expanding metropolis of a developing country, the physical environment of Kolkata leaves much to be desired. The need for control of all types of pollution was strongly felt by tourists. 6.91% of the tourists visiting the St. Paul’s Cathedral, 19.4% visiting New Market and 13.5% visiting the Jorasanko Thakurbari emphasized the need to control pollution Whenever the proportion of foreign visitors are high like the St. Paul’s Cathedral, the percentage of tourists emphasizing the need for pollution control is also high. Surprisingly local visitors revealed little sensitivity to pollution. None of these visitors at the Science City, New Market and Dakshineswar Temple expressed any need for pollution control. 11.7% of same-day visitors at the Museum and 8.4% at the Zoological Garden did feel the need for pollution control but the figure everywhere else was very small. Perhaps the residents of Kolkata are becoming inured to the polluted atmosphere in which they five. But it is definitely not conducive to generating a lot of tourist traffic. The issue of noise pollution is gaining significance in some of the spots. The serenity of the Dakshneswar Temple is seriously threatened by this problem. It acquire a completely new dimension in New Market. Here the cooling tower for the air-conditioned market generates huge noise and vibrations which is not only polluting but also hazardous.y/hile the intervention of the Government is definitely required, a few basic steps would vastly improve the look of the city. Placing dustbins at every street comer with prominently displayed signs and covering the Municipal vehicles carrying solid wastes to the dumping stations are a fewsuch steps. But pollution cannot be controlled without an increase in civic awareness. Active co­operation of every citizen is necessary. But all efforts of the Government to remove the most polluting public vehicles from the roads have been met with strong protests, some of which have ruined violent. As a result, Kolkata has begun to typify the squalor and grime of a third world city. The first impression it offers the tourists is not favorable.Some of the tourists, mostly foreign and even a few of the visitors pointed out the lack of greenery in the city. 3.6% of the tourists at Jorasanko Thakurbari, 3% at Dakshineswar and 1.3% at the Victoria Memorial Hall pointed out that some amount of greenery would help to reduce pollution as well as vastly improve the look of the city. Urban eco-parks and green belts would probably add a breath of fresh air to the city.Finally, the general cleanliness at the various tourist spots is often below standard. The exhibits of the Indian National Museum are obscured by a thick layer of dust. The walkways inside the Zoological garden are choked with rubbish. The approach roads to all temples, railway stations and bus terminals are almost never cleaned. The bottom of the bridges and flyovers are often a living testament to squalor and poverty. Strict action by the Government and active co-operation by the citizens is essential to clean up our city and make it appear inviting.

**III**. **Maintenance**

In answer to my question as to what new spots of attraction can be introduced in Kolkata, a common answer was that no new attraction to needed rather what is there should be maintainedproperly. In fact poor management of the spots was a common complain of the tourists. At the Zoological garden, the dirty pathways, empty and neglected cages and the abysmal condition of die civic amenities justify their complain. The New Market, Nicco Park, Science City, St. Paul’s cathedral and the Dakshineswar temple is comparatively well maintained. Again the grounds of the Victoria Memorial Hall, the exhibits at the Indian National Museum needs thorough and regular cleaning. As most tourists pointed out, it is the management of the spot rather than the tourists spot itself which left much to be desired. This opinion was put forward by 10.6% of the tourists visiting the Victoria Memorial Hall, 7.9% of the tourists visiting the Science City, 4.1% visiting Nicco Park. Even at the well-kept Jorasanko Thakurbari, 4.5% of the tourists are of the same opinion on the other hand, the local people of Kolkata have probably become resigned to the neglect and a lesser proportion of the visitors felt a need for better maintenance. Even so, 7.9% of the same-day visitors at the Zoological garden, 11.9% at the Victoria Memorial Hall and 6.5% at the Indian National Museum did express an urgent need for better maintenance and management of the tourist spots. Maintenance here implies cleanliness and proper working of all the facilities. It often remains a mystery in Kolkata, how, inspite of employing a large number of people, the basic standard of cleanliness keeps falling.

**IV.** **Facilities**

For a city to serve effectively as a tourist spot, it needs to be hospitable and welcoming. It should be able to fulfill the basic necessities of the tourists in order to ensure return visits. Hence there is a need for civic facilities at the various spots.The toilet facilities are the basic requirement of human beings. Separate toilets for men and women should be provided for in all the tourist spots, public parks and throughout the city. They should be clean, well-maintained, having the basic equipments, water etc. Inside the tourist spots covering a large area, they should be frquent and well marked. There should be toilet facilities for babies and handicapped persons. A vending machine stocking such necessities as soaps, paper- napkins, sanitary products can be put in such toilets. Where the tourist spot covers a large area like the Zoological garden, the Nicco Park or the Science City, sufficient number of toilets should be provided. At the Zoo, there are only two toilet complexes serving an area of 45 acres. This is completely insufficient. Similarly the vast park of the Victoria Memorial Hall has no toilet facilities at all. There is also a need for toilet complexes all across the city. This would free the tourists and will enable them to wander around the city without any time restrain. Petrol Pumps are obvious choices for putting in such rest stops. A scheme like this was floated by Club H P, but there the emphasis has been on Highway traffic. A similar network can easily be set up in the city. However, one fact must be remembered before all else, - toilets must be clean and well-kept. Otherwise they become the breeding grounds of various diseases.Closely following is the need for the provision of safe drinking water. Tourist spots such as the Nicco Park and the Science City which charge a high entry fee should offer water coolers to thetourists. In fact, all the spots should have well marked water paints. They are completely missingin places like the New Market or the Dakshineswar Kali Temple, and where they are present, they are inadequate in number. Thus, people out for a days enjoyment often have to lug around big water bottles. The water of Kolkata is so notorious for its impurity that even if the water points are present, the tourists do not trust them to provide safe drinking water. It is obvious thattourist infrastructure is not separate from civic infrastructure. So, the general water quality and supply needs to be improved. However, within the tourist spots, it is the responsibility of the management to provide free and safe drinking water. In this connection, it needs to be mentioned that food courts in certain tourist spots do not allow outside drinks, nor provide free water. Yet safe drinking water is one of the fundamental rights of human being and no management authorities should endeavor to make a profit out of the city’s failure to provide drinking water points. Offering water is the first sign of hospitability in our country and such a tradition should never be sacrificed in lieu of profit.

Keeping in mind the sweltering heat of the city the managing authorities should provide places to rest for the elderly tourists and visitors. The respondent also pointed out the need for better lighting at some of the tourist spots, beautification of the ghats and provision of food shops in some tourist spots. Science city, Victoria Memorial Hall etc. may consider small refreshment stops. Above all, there is a strongly felt need of such basic amenities like dustbins, washbasins, toilets etc.

**V.** **Information**

Perhaps the greatest obstacle in developing Kolkata as a national - or even international tourist spot is the huge information gap. Such a gap is obvious between the Government and the public, between the management authorities and the tourists and visitors and between the various departments of the Government. This is the age of information explosion. Hence people expect an easy availability of information - the greatest portal of which is the internet. There are several commercial sites which, offer background information on Kolkata and the tourist attractions of the city. Travel agencies and the hotel chains have also opened their websites. However, the official website of the West Bengal Department of Tourism offers only a brief overview of the city. It does not offer very extensive information. Perhaps the greatest lacuna is that it does not provide an accurate and detailed route map of the city showing the location of major tourist attraction. It should also enlist the number and timings of various public transport to enable the tourists to devise their own tour itinery. There is an urgent need for a central booking site for all accommodation of Kolkata The official site can best perform this function. It may list the different hotels of Kolkata, sorted in categories - each listing its price, facilities and special offers. The consumer can make a comparative bargain hunting and obtain the best deals. This will offer greater freedom of choice to the tourists. A few suggested itineries may also be postedin this site. It must be mentioned here that the official site if the tourism department remains woefully underutilized. Finally, there is no way of obtaining answers to questions and such a facility should be included where response should be accurate and prompt.There is a real apathy towards giving information to the visitors andtourists over telephone. In fact, anybody who has contacted the Public Relation Office of any of the tourist attractions under Public ownership will acknowledge that almost no information, however trivial is given out quickly or at all. Furthermore, there is a yawning gap and lack of co-operation between the various departments of the Government. The Indian National Museum may organize a cultural event, like ‘Sculptures of ancient India’ and a week later, a series of documentary films on the same subject may be screened at Nandan - the Public film theatre. As a result the interested public often gets divided - some opting for the exhibition and some for the films. In fact those institutions often organize their own programs with so little publicity that the event passes with little notice. While it may look impressive in the Annual Report it hardly reaps any interest or profit.Similar lack of co-ordination is seen among' the various departments of the Government.

Tourism cannot develop in the city without the co-operation of the Municipal Corporation which has almost no link to the tourism office. Such red-tapism leads to hindrance of development of the city.It is well acknowledged that to achieve a free flow of information among the beaurocracy is next to an impossible task. However it remains vital to develop the tourism potential of the city.

**VI.** **Cost**

Most inhabitants of Kolkata think that living cost in the city is quite reasonable. However the same is not true when looked through the eyes of the tourists. In fact tourists and visitors at several of the surveyed spots complained of the high cost. Their proportion range from 6.5% of the same-day visitors at the Indian National Museum, 9% of the tourists at the Science City, 5.1% of the tourists at the Nicco Park and 4.5% of the tourists at the Jorasanko Thakurbari. The tourists and visitors pointed out the high costof entry at some of the tourist spots - specially Nicco Park and the Science City. At the Nicco Park when we add the cost of entry, the price of individual rides and the cost of refreshments - since outside food and drinks are not allowed inside the JPark - the total cost of spending time at the Nicco Park climbs above the reach of the ordinary people. Surprisingly, even at the Zoological garden, where cost is minimal, or at the Dakshineswar temple where there is no entry fee, 5.9% of the visitors at the former and 4% of the tourists at the latter still complained of the general high cost of all the amenities. The situation is likely to worsen as the entry fee and the parking charges at the Zoological Garden is hiked repeatedly.Even the extensive public transport system of the city was deemed to be too expensive. Except far the bus fare which is still maintained at a reasonable level, all other public means of transport, especially taxis are quite expensive. Even foreign tourists sometimes complained that the transport cost is too high. Perhaps they had received dishonest treatment from unscrupulous taxi drivers - sadly a common enough event in the city. While Kolkata is definitely less expensivethan other metro cities of the country like New Delhi or Mumbai, still certain aspects of it is deemed to be too expensive.

The people of Kolkata are proud of the gastronomic delights their city can offer at a reasonable price. However some tourists even found the food of the city to be quite expensive and this complaint was not very infrequent. Both tourists and visitors pointed out that wholesome meals ata clean family eatery does not come very cheap. This is really a novel problem in a city of foodies like Kolkata

**VII.** **Miscellaneous**

Apart from the aforesaid categories of problems of tourism development in Kolkata, the respondents identified several other scattered smaller problems. Perhaps the most pressing of these problems is the complaint of the foreign tourists at the hands of dishonest touts who frequent the airport, the railway stations, and the internet. In the absence of such facilities as official information counters at all transport termini, the lack of a centralized information portal the foreign tourists with their little information regarding local language, currency and customs fell easy prey to touts. Since word-of-the-mouth is the greatest advertisement of tourism, negative experience of foreigners would deplete the already poor foreign tourist traffic in the city. Even people coming from other states and other districts are not safe. The government may consider a system of licensing and identity cards to weed out the unwanted elements.

The question of security was raised by many of the visitors. It is an indisputable fact that nightlife and movement of the tourists after dark is almost negligible in Kolkata. There is a niche market of developing nightclubs in Kolkata but it requires a high level of general security. Added to this :s the very real need for security in transport and hotels.Kolkata being a metropolis of the third world, vociferous vendors selling colorfull wares add local color to the city. But in many tourist spots, encroachment and aggressive behaviour of the vendors destroy the charm of the city. Complaints about vendors were plentiful at the New Market, the Dakshineswar temple and the Jorasanko Thakurbari. The government should immediately control the hawkers and restrict them to prescribed spots. There needs to be a clearly defined limit so that the tourists can enjoy the attractions without being continuously pestered to lighten their pockets.A number of tourist and same day visitors pointed out the lack of small flexible conducted packaged tours. As many as 7.5% of the tourists at the Victoria Memorial hall and 10.9% of the tourist at the Dakshineswar Kali Temple voiced this opinion along with several others. This is again a negligence on the part of the tourism department of the West Bengal Government. Where most multinational travel agencies have developed the 'holiday supermarket concept offering a series of tailor made packages from which the customers can make their choice, the West Bengal Tourism department stops after printing a few brochures. This indifference should be overcome. Apart from guided city tours, other specialized tours like the Art galleries of Kolkata, a bargain hunting in the city, the religious tour of the city and similar other packages need to be designed and effectively marketed Some respondents pointed out the lack of any first aid facilities at the tourist spots. In fact most spots do have first aid facilities but they are poorly displayed. Every tourist spot of the city should make arrangements for first aid and information about the same should be prominently displayed. There is no reliable method of collecting information on the actual number of tourists arriving in the city during the peak and the lean period. The above problems were brought out by the tourists and visitors during the course of my survey. There are several others, but these problems demand prompt and immediate action to improve total tour experience and increase the traffic of return tourists.

**Air Pollution in Kolkata:**

Kolkata, one of the fastest growing metropolises in India has been suffering from air pollution for many decades. The rapid urbanization coupled with ineffective government control has been fuelling this problem. The study aims to portray the current air pollution situation in this megacity as it analyses the present level of different air pollutants like Suspended Particulate Matter (SPM), NO2 and SO2. The result of the analysis shows the critical level of air pollutants specially the SPM and NO2 in different parts of city. By zoning the city into residential, commercial and industrial areas, the result shows the difference between the levels of pollution in each area. The second part of the study explored the seasonal variation of air pollution and it has been found all of the pollutants reach its highest concentration during winter. Extending the study, the paper also tries to establish the relationship between the air pollutants and metrological factors by using the Spearman’s Rank Correlation. The results show an inverse relation between the concentration of pollutants and the metrological factors such as precipitation, wind, temperature and relative humidity. Finally, a calculation of the change in pollution level during the two festive seasons is carried out and an increase in SPM concentration has been found during the celebrations of Kali Puja and Diwali.

**Factor of transportation:**

Several factors results the air pollution level in Kolkata. One of the main factors is transportation. Abundance of poorly maintained vehicles, use of petrol fuel (although government is in a process to phase out these vehicles) and poor controlling is making transportation the major air-polluting sector. Besides, there are three thermal power plants in and around Kolkata, which also affects the air quality. Along with these two major factors, some small industries operating in the city contribute to the air pollution. The study also identifies the contribution of generators used during power cuts to pollute the air of the city to some extent.

In this study, we tried to analyze the air pollution level of Kolkata from different viewpoints. The study starts with some general aspects about the geography and climate of Kolkata, which influences the pollution levels immensely as discussed later in the study, followed by some startling reports about the effects of air pollution in Kolkata. After that the air pollution situation in Kolkata is analyzed from different perspectives. We have tried to maintain a fine balance between our mathematical and graphical analysis, backing it up with established reports wherever possible, and even stumbling upon a contradiction with some previous studies on air pollution in the city. It is to mention here that in some cases the analysis is being limited due to the availability of relevant data, which stopped us from making a more comprehensive study. Finally, we discuss some of the policies, actions and the inactions of the government in the last few years and the visible effects, if any.

**Effects of Air Pollution:**

The impact of atmospheric particles has been known since 1980 and they range from mild respiratory infections, through asthma, pneumonia and cardiovascular conditions to death . The effects can be long-term or short-term. Not all individuals experience polluted air the same way. However, the end result depends on the duration of the exposure, as well as on the dose received. Short-term cases may include, but are not limited to nose and eye itching, nose and throat irritation, headaches, allergic reactions, nausea and some milder upper respiratory infections. The long-term ones are the more serious ones such as lung cancer, heart disease, also brain damage, especially in children, kidney and liver damage, especially in elderly people and the air pollution may further complicate an already existing medical condition

Air pollution is a major problem in urban areas. In many densely populated areas in India the annual concentration of NOx is almost double the maximum allowed concentration of 60 micrograms per cubic meter, with special emphasis during the winter months when elderly people are more severely affected and officials admit this. NO2 is created from automobile exhaust and industrial activity which causes allergic asthmatics by augmenting allergic responses. Similarly SO2 affects Pulmonary function and cause inflammation of bronchial mucous. Kolkata is placed among the most air polluted cities in the world with respect to SPM. In the analysis of the air pollution data of city, we also found that the concentration of SPM is much higher than the other pollutants. Much of the pollution, which was discussed in the earlier sections, is due to the economic and industrial development of the city and the appearance of versatile industries, such as the paper and pulp, organic and inorganic chemical industry, plastic, rubber, iron and textile industries, power plants.

The basic reason for such bad air conditions is the high level of SPM of which around 50% originates from transport and about 48% from industries. The main source of industry - originated air pollution is the cluster of industries that use coal combustion to operate. A study during November 2008 to 2009 in two different locations in Kolkata also shows the high concentration of SPM like Lead, Cadmium, Manganese and Iron especially in winter season. These particles can result on severe health threat for the local people

**Level of pollution in different areas:**

Kolkata is a large city and its sheer size makes it an interesting study to analyze the air pollution levels at the various parts of the city. In this section, we will show the difference in pollution level at three different parts, namely, the residential, commercial and the partly industrial part of the city. Out of the 17 stations available to us, we have limited our study to only one station for each of the three mentioned areas. This is because only these three stations can be the best representative of the three areas in concern. We choose the relatively newly developed residential area –Salt Lake, an old and vibrant commercial area –Gariahat and a partly industrial area on the outskirts of the city –Dunlop Bridge. Dunlop Bridge was particularly selected because of its close proximity to one of the three thermal power plants of the city, located at Cossipore.

**Seasonal Variation of Pollutants:**

The seasonal variation in the climate has a significant relation with the level of pollutants in a city. In this section, we will do a detailed analysis of the cyclic pattern of the levels of the gaseous pollutants, which we observed in the previous section. Kolkata has three distinct seasons –winter, summer and monsoons. Winter is from Nov to Feb, summer from March to June and finally monsoons from July till October. Studies conducted on the meteorological conditions of Kolkata suggest that during winter the air mass is more stagnant compared to other seasons, as there is less atmospheric circulation and an increase in atmospheric stability. On the other hand, during summer, there is an increased circulation of air in the troposphere. Also, shows that the season before the monsoon, as well as the monsoon season are dominated by strong winds with greatest potential for air ventilation.

**Geography and Climate Characteristics of Kolkata:**

Kolkata is located in India’s eastern part at 22°82'N latitude and 88°20'E longitude. It stretches along the Hooghly River and at points is elevated between 1.5 and 9 meters. Originally, Kolkata was a vast lowland while now is one of the most populated and most polluted cities of the world with high level of Particulate Matters in the atmosphere, creating a major health hazard. According to the 2001 census report, Kolkata has a population density of 24,760 persons/km2 and is the second most populous city after Mumbai. It covers an area of 1480 sq.km. The Sundarbans delta located 154 km south of Kolkata separates the city from the Bay of Bengal. Kolkata is divided in different topographical regions. There are five geographical units: east, west, north, south and central Kolkata. The joined regions include Howrah, Hooghly, North 24 Parganas, South 24 Parganas and Nadia. Not many cities in the world are located near forests. Kolkata is an exception because there is a dense forest which covers Sundarbans and which is a world heritage site. The Sunderbans is home to large numbers of flora and fauna, as well as a place for touristic visits. It offers a source of income to the rural population, as well to the government for its importance in tourism.

In terms of climate, Kolkata is in the tropic zone i.e. the climate is tropical. During the summer season the climate is very hot and humid. The annual mean temperature during this period is 26.8 °C and the monthly mean temperature ranges from 19 °C to 30 °C. The maximum temperature in Kolkata during the summer (from April to June) exceeds 40°C and the minimum during winter (from December to January) is 12°C. The highest recorded temperature is 43°C and the lowest is 5°C.

**Policy and Actions for Air Pollution Control:**

Kolkata is making serious efforts to improve air quality. Some of the challenges that face on the road towards successful policy-making are human migration, coal burning industries, diesel driven vehicles, legislation harmonization and harmonization of databases, standards, researches and methodologies. The management is done on two levels, central (the Ministry of Environment, the WBPCB, the Ministry of Transport and Highways, etc.) and local (Department of Environment and local bodies and authorities). In recent years a number of legal interventions have taken place regarding vehicle emissions, fuel quality, and introduction of cleaner fuels and reducing old vehicles which has greatly influenced the overall efforts to improve the air quality in Kolkata. There were various awareness campaigns raised, among which was the one when the West Bengal Pollution Control Board (WBPCB) gave publicity to the Supreme Court’s decision regarding the use of fireworks only between 6 a.m. and 10 p.m. through a request made to mobile phone network companies to send messages to their users with specific text on raising awareness. Also, in 2004 the WBPCB carried out a large number of inspections at firework manufacturing facilities during October and November (just before the festival season) and seized a large number of prohibited ones. The same happened during the actual festival season. The WBPCB also established a monitoring network for ambient air quality measures of main air pollutants such as SPM, SO2, NOx and Pb Another action to improve the air quality in Kolkata was the conversion of coal-fired boilers to oil fired under the India Canada Environment Facility (ICEF) project where the industries, WBPCB and ICEF were partners. It was introduced as a strict regulation, but the industries were reimbursed 50% of the total costs involved in the needed conversion. The situation in 2004 showed that more than 70% of the industries had undergone this conversion. The overall success of this action has been estimated to about 90% reduction in total PM emitted from all boilers used in industries. In 2008 a major decision was taken to improve the air quality in Kolkata. In July 2008 high court ordered to phase out the 2-stroke autos and old commercial vehicles from the street of Kolkata by December 2008. Due to lot of political pressure, the government was forced to push the deadline to July 2009. In another policy, the decision was taken to replace the old vehicles with new CNG (Concentrated Natural Gas) vehicles. So, the implementation took place or started to take place from the beginning of August 2009. To get a picture of the change in the pollution level we decided to take a snapshot of NO2 concentration (NO2 is taken because it is one of the main pollutant from these 2-stroke vehicles) of November 2009 and compare it to that of 2008.

**NOISE POLUTION EFFECTS IN KOLKATA:**

A study has been conducted to observe the level of noise pollution in different parts of Central Kolkata and South Kolkata residential areas. The survey was conducted during January to December 2019 and 2020. The results indicates that the noise pollution levels exceeds the recommended permissible limits at Central Kolkata, (studied area: Baubazar market, Chittaranjan Avenue Junction, Ganesh Chandra Avenew, Chandni Chawk, and Hare Street) compared to South Kolkata (studied area: Tollygunge, Taratalla and NewAlipur). The increasing rate of noise pollution causes adverse impacts on human health such as insomnia, hearing loss, reducing efficiency, sexual impotency, cardio vascular, respiratory and neurological damages and shortening the period of human life. To combat this rising problem, implementation of noise pollution control strategy has been suggested by adopting appropriate measures on affected noise pollution sites.

The environmental pollution deals with unfavorable alteration of our surroundings or any change in our surrounding environment, which contributes to its deterioration. The problems are universal, both in the developed as well as developing countries. It is definite that at present, the air over urban and industrial centers is no longer breathable, the rivers and streams flowing past cities and towns have been fouled by the sewage and toxicants, the agricultural soils have been poisoned and the landscape has marred by heaps of ugly garbage and unwanted sound (noise) can damage psychological and physiological health. As a matter of fact, Noise pollution is a growing problem, and all human activities contribute to noise pollution to varying extent and has become a hazard to quality of life. Definition given in the ILO Convention No. 148 is the term noise covers all the sound, which can result in hearing impairment or be harmful to health or otherwise dangerous. To find the sources of noise pollution, in true sense, all indoor or outdoor activities like, crowded cities, mechanized means of transport road traffic, jet planes, garbage trucks, construction equipment, manufacturing processes, lawn mowers, loud speakers, industries and festivals are the major sources of this unwanted sound that are routinely broadcasted in to the air act as noise pollution. In addition to these the environmental disasters also causes major noise pollution. In the present scenario noise is becoming an increasingly widespread and serious source of discomfort and danger which increasingly prejudicing social life and in some instances hearing capacity. Though noise pollution is a slow and subtle killer, yet very little efforts have been made to ameliorate the same indicates the adverse effects of noise pollution. Kiernan finds that even relatively low levels of noise affect human health adversely; it may cause hypertension, disrupt sleep or hinder cognitive development in children. The effects of excessive noise could be so severe, may cause, permanent loss of memory or a psychiatric disorder. Sudden and unexpected noise has been observed to produce marked changes in the body, such as increased blood pressure, increased heart rate, and muscular contractions. Moreover, digestion, stomach contractions, and the flow of saliva and gastric juices all stop. In India, the problem of noise pollution is wide spread. As a result it is responsible for rising incidence of deafness among the inhabitants. Several studies report that noise level in metropolitan cities exceeds specified standard limits. A study by Singh and Mahajan conducted in Delhi and Kolkata; found that the noise level is 95dB as against the ambient limit of 45dB. Even at the “calm” places, it does not fall below 60dB. Murli and Murthy (1983) also found that traffic noise in Vishakhapatanam exceeds 90dB even in morning hours that acts as a source of nuisance. The seriousness lies in the fact that, repeated exposure to unexpected noise creates changes, which ultimately becomes induced in him and the person gets accustomed to that level. This calls for correct assessment of the noise problem and application of various administrative, engineering and medical control measures. To measure the intensity of the noise pollution accurate measurement during daytime and night time is most important. The noise is commonly measured as sound intensity that is determined in terms of the pressure of sound waves on the eardrums, and the scale is logarithmic. Loudness of sound corresponds to the degree of sensation depending on the intensity of sound and the sensitivity of the ear.

**Noise Pollution Analysis**:

Noise comprises those sounds occurring around us that are not part of the environment under consideration. It is also a type of pollution and keeps bad impacts on our health and wellness and the ability to do productive work. To combat noise pollution and identify the effect of the pollution, noise should be measured properly, by studying the intensity of the pollution and make people aware about it. Noise is commonly measured as sound intensity that is determined in terms of the pressure of sound waves on the eardrums, and the scale is logarithmic and loudness of sound corresponds to the degree of sensation depending on the intensity of sound and the sensitivity of the ear. The unit of sound intensity measurement is decibel (dB) and each decibel rise depicts ten-fold increase in sound intensity. The present study was conducted at different sites of Central Kolkata, (studied area: 1.BauBazar market, 2.Chittaranjan Avenue, 3.Baithakkhana Bazar, 4.Ganesh Chandra Avenue, 5. Central Avenue, 6.S. T. Road, 7. Hare Street, 8. B.B. Ganguli St, 9. Mahatma Gandhi Road, 10. N.S. Road) and in South Kolkata (studied area: 11.NewAlipur 12.Taratalla and 13.Tollygunge) during January to December 2014 and 2015. The sound level meter (which is a basic tool in measuring sound) was used to measure noise level within 24 minutes in a location for taking 1 reading, when noise level was consistent for 5 seconds. Reading was instantaneously tabulated. At a time twenty four sample reading was taken per month and prepared the average value chart. The sound level meter was used in high, medium and slow response setting and the instrument was used to record readings in dB mode.

**Control of Noise Pollution:**

According to Dinesh., the noise pollution is decreasing considerably for the last few years and it is recorded minimum in 2009 as compared to 2008 and 2007 in Meerut City. The fact behind this achievement is definitely the strong steady control measures adopted by the responsible citizens as well as administration of Meerut City. So it is definite that the situation may change favorably in Kolkata also if there is an earnest self-interest of growing environmental awareness in the people of Kolkata.

**In Kolkata the noise pollution can be best controlled by implementation of the following suggestions:** 1.Monitoring total noise emissions from all the noise sources below the prescribed limits in the work area. 2. Maintaining the spacing between noise sources and operators. 3. Regulating the noise sources by a sound reducing structure that resents air- borne transmission. 4. Dropping the structure – borne transmission by isolation of the source. 5. Damping of the vibrating metal structures or by replacement with material such as the wood. 6. Reducing reflected noise by use of the absorbent materials on surfaces such as floors, roofs, and walls. 7. Inserting the attenuating screen between source and operator. 8. Controlling the inconsistency and vibration by the preventive protection. 9. Implementation a scheme for plantation of trees in big cities. 10. Provision of taxation on the undue use of sound amplifiers. 11. People can be educated through radio, TV, newsreels in cinema halls about noise pollution. 12. Vegetation buffer zones must be created in different parts of the city. Efforts should be made for roadside plantations. 13. Traffic noise can be reduced by using proper fuel, good tires, and good roads and by discouraging pressure horns. 14. Auditoria noise can be reduced by using sound absorbing materials like acoustical tiles, fiber glass carpet etc. Rapid industrialization, urbanization, use of modern means of transport, population growth, and increasing scale of human activities are some of the human factors responsible for noise pollution. 14,035,959 is the Total population strength of Kolkata City According to data released by Govt. of India for Census 2011. So the pollution load is accordingly very high affecting worse

**WATER POLUTION IN KOLKATA:**

Water pollution is one of the most serious environmental problems facing the Kolkata city. Water pollution exacerbates the problem of water scarcity at local and regional level by reducing the amount of water available for productive purposes. Water pollution in Kolkata comes from many sources, including untreated sewage, chemical discharges, and spillage of toxic materials, harmful materials leached from land disposal sites, agricultural chemicals, silt from irrigation schemes, and atmospheric pollutants dissolved in rainwater. The direct disposal of domestic and industrial wastewater into watercourses is the major source of pollutants in developing countries.

In Asia Pacific countries there is severity of water quality problem. Pathogenic bacteria and virus are found in water ways. The median fecal coliform count in the rivers is 50 times higher than the WHO guidelines. Water bodies are polluted by organic matter from sewage and industrial processes and groundwater is also polluted. Fertilizer, pesticides, insecticides and animal waste from agriculture areas another source of organic pollution. There is increased contamination of heavy metals and toxic chemicals such as arsenic, cadmium, mercury and lead, it exceeds basic water quality standards. Sedimentation especially in downstream areas due to deforestation and land conversion, and soil erosion is exacerbating the natural process of siltation of water bodies. There is also increasing salinity. Use of water is responsible for a large percentage of waterborne diseases like cholera, typhoid and hepatitis, it is reported that 15 out of 1000 children born in the developing countries die before the age of five from diarrhea caused by drinking polluted water .

Water pollution increases the scarcity of fresh water and on the other hand water scarcity has negative effect on sustainable development. The UN Agenda 21 advocated Integrated Water Resource Development and Management, protection of water resources, water quality and aquatic ecosystems, etc. and this is possible only in a large area – water basin, river basin or regional area. An example of such a regional area is the Bengal delta of the river Ganges, located partly in India and partly in Bangladesh, which is the largest delta in the world with rivers, canals, estuaries, lagoons, etc. A sustainable development of the region depends on abatement of pollution which in turn must involve community and youth participation.

**THE PRESENT PICTURE IN A REGIONAL CONTEXT**

A regional area is influenced by a large number of factors, physical, socio-economic and environmental. For example, the Bengal delta includes a megacity (Kolkata) of 14 million people, Sunder bans biosphere with wild life and mangrove forests, and in between these are villages, small towns, fisheries, forests, agricultural land and water bodies. There is declining water quality due to upstream pollution, there is flooding, and in the coast there is intrusion of salt water, sedimentation, pollution and widespread contamination of chemicals. Some specific areas have been identified for assessment of pollution so that suitable counter-measures can be adopted.

**Metropolitan Area – the Purification of the Ganges:**

The Hooghly, a tributary of the Ganges, flows through the Kolkata Metropolitan Area. The river was highly polluted. Since the Hooghly is a tidal river, and in view of reduced upstream flow, the salinity of the river increases at water intake points. After construction of barrage at Farakka upstream, it has been possible to reduce tidal effects and salinity. For navigation purposes, however, dredging has to be done by the Port Authorities, which improves flow in river. But the industrial and domestic wastewater discharged into the river remained a cause for concern. To address this problem, the Government of India formulated the Ganga Action Plan in 1984 with the objective of arresting the pollution load to the Ganges by preventing discharge of sewage and drainage to the river. The project has helped reduce pollution to the river and water quality has improved. There are industries, large agricultural fields and big cities like Kanpur, Allahabad, Mirzapur, Varanasi, Patna and Kolkata situated along the river. About one-third of the population of India lives in the fertile Gangetic plain. Water supply too many cities are from the river and people bathe in the sacred river, especially on certain religious days, to purify their souls. It was estimated that 1400 million litres of sewage and 200 million litres of industrial effluents were discharged everyday into the river. The Kolkata Metropolitan Area, located in lower Gangetic plain, was most affected. The main objective of the program was to arrest the pollution load to the Ganges river and to create a people friendly environment locally. Kolkata Metropolitan Area includes three municipal corporations, 38 municipalities and a large number of non-municipal urban areas and village councils. It has 365 drainage outfalls in the river. Fortunately, because of eastward slope, Kolkata city sewage and drainage are discharged towards the east to another river.

The program had been taken up in two phases. Initially only large towns were included as 80% of urban population in such towns on the river bank contributed 75% of the total volume of sewage load to the river. It is estimated that about 151 km of gravity sewerage and force mains of various diameters have been laid, 10 new sewage treatment plants using different treatment techniques have been completed along with construction of 56 new pumping stations. In the first phase, trunk sewers have been laid and diversions were made. Existing surface drains have been utilized in some areas and low-cost sanitation system has been introduced. In Phase II more towns were included. Abatement of pollution measures were proposed when the pollution load exceeded the permissible limit of BOD as 30g/liters, suspended solids 50mg/liters. In the second phase, as experience was gathered, public participation and participation of local bodies was included. Canals were also included. National Environmental Engineering Research Institute (NEERI) conducted water quality survey of the Ganges in 1997 on behalf of Metropolitan Authority. The water quality survey near the intake points showed that most physiochemical qualities were suitable for domestic water supply after conventional water treatment. However, the bacteriological quality observations indicated a high degree of contamination from wastes of domestic and animal origin. One of the important recommendations in the NEERI study is the identification scheme for the wastewater drains and estimation of flow and characteristics of the wastewater and development of a unique flow simulation model for the drains influenced by the tides and its use to provide spread in wastewater flow and BOD loads for the major drains. The study emphasized monitoring the quality. GAP is meant for preventing discharge of sewage and drainage into the river, but it is not for storm or rainwater. Though pollution in the river has been reduced, actual assessment could not be made because many upstream towns have not completed the projects. There were litigations, because of notice of closure to a large number of industries discharging effluents in to the river. The Supreme Court of India came in favor of purification of the Ganges. People’s participation was desired, but the mechanism is yet to be developed.

**Sunder bans Biosphere:**

The Sunder bans in the South 24 Parganas district of West Bengal State in India is the western part of the largest active delta in the world – the Ganges-Brahmaputra river delta at the mouth of the Bay of Bengal. The eco-geography of this area is totally dependent on the tidal effect. The tidal action of the sea inundates the whole of the Sunder bans in varying depths. Mud flats are found in the estuaries and on the deltaic islands, where low velocity of river and tidal current occurs. The interior parts of the mud flats are home of the luxuriant mangrove forests. The Sunder ban mud flats control the food chain in the estuarine ecosystem. The mangrove habitat checks the tidal thrust of surges from the funnel-shaped bay and protects the coastal region from erosion by trapping sediments. Mangrove forests function as natural sewage treatment plants. Land reclamation by people for agriculture and human settlement destroying forest area pose as serious threats to the flora and fauna of the region. As a result, greater part of the inner estuarine zone has become more saline due to lack of required quantity of fresh water. Several important fish and prawn species have been declining in the region due to deterioration of the mangrove vegetation and disturbance in the natural ecosystem. The development of the Sunder bans should be planned primarily to retain the natural ecosystem of the mangrove forest, which has enormous potential for combating pollution problems. A plan has been prepared.

**Coastal Zone:**

In coastal areas, oil discharged from mechanized boats and ships is a major cause of pollution. Discharge of effluents from tourist towns like Digha or industrial towns like Haldia is a threat to water quality. Intrusion of saline water is also a cause for concern. Coastal towns and villages generally discharge sewage and wastewater into the sea through natural or cut drainage outlets. If such discharge is done without treatment, a veritable environmental degradation takes place. Towns having wide sea beaches are adversely affected by the accumulation of waste products. This is more predominant where shallow continental bench extends into the sea. Prevention lies in discharging of sewage deep into the sea, beyond wave zone, after treatment, through submarine pipelines.

**Agriculture and Rural Areas:**

Out of total water used by community, 90% is for irrigation. Cultivation also consumes chemical fertilizers on a large scale often including some banned chemicals. With large scale use of chemical fertilizers and insecticides in agriculture, polluted effluent is drained into the rivers and water bodies with surface runoff. Irrigation water, mixed with chemicals, also seeps into the subsoil. Thus groundwater and surface water are contaminated with harmful chemicals like arsenic, fluorides, etc., which pose as serious health hazards, and can only be removed by expensive purification methods.

**GROUNDWATER CONTAMINATION:**

In India, Bangladesh and China alone, millions are exposed to arsenic and fluoride. Though the actual cause of contamination has not been exactly pinpointed, over- exploitation of groundwater for agriculture is one reason. With receding water tables due to high exploitation of aquifers in many Asian cities, the piezometric surface has been broken down. In Kolkata, Beijing, Jakarta, Manila and Bangkok, water levels have dropped causing land subsidence in many areas.

The arsenic contamination problem in West Bengal has been reported from time to time since 1978. A systematic study undertaken by the School of Environmental Studies and School of Water Resources Engineering, Jadavpur University, Kolkata has shown the presence of arsenic above the maximum permissible limit of 0.05mg/litre in groundwater and clinical manifestations of arsenic contamination in six districts of West Bengal and the affected area has a total population of 30 million. The study also reveals that at least 125000 people are showing clinical manifestation of arsenic poisoning. There are also instances where groundwater in the metros is polluted by presence of factories, manufacturing pesticides, in residential wards. In developing countries the use of arsenical pesticides has not been seriously restricted and smelting operations are flourishing. The waste from these factories, containing dangerous proportions of arsenic, is often discharged without treatment, which contaminates the groundwater. Urbanization has effect on groundwater, which is linked with, land use, effluent and waste disposal system. Figure 2 shows the net effect of urbanization on groundwater recharge. It indicates the normal rainfall infiltration relationship with natural conditions and the potential recharge resulting from main leakage, wastewater percolation and urban drainage recognizing that main leakage and wastewater percolation vary with population density and level of development.

**RECYCLING OF WASTEWATER:**

Recycling of wastewater for aquaculture is being practiced is Asia for a longtime. A large number of wetland fisheries have been developed in lagoon type pond where sunlight develops photosynthetic process and phytoplankton, which cleans water, provides fish food and emits oxygen also. It controls the environmental pollution. But if wastewater can be reused for different purposes, under water management plan some advocate a combination of source control, advanced treatment process flow, and other engineering control will provide sound basis for reuse and pollution control.

**PARTICIPATION OF COMMUNITY AND YOUTH:**

By a constitutional amendment in India, power has been delegated to municipal bodies in towns and village councils, to plan and implement infrastructure improvement work in respect of water supply and sewerage, within the geographical boundaries of their respective municipal areas. The local bodies are elected by people on adult franchise, where one third are women. Asian Development Bank in its water policies has stressed to improve environmental health through improved water supply and sanitation programmes with community participation, as the effects of poor sanitation upon the local environment and the poor can be severe. ADB advocates specific objectives and activities related to soil conservation, ecosystem protection, and the reduction of pollution through integrated water resource management. In Kolkata metropolitan area, various local governments are eager to take up the various programmes.

Interaction with general public to make them aware of hazards of pollution and preventive measures to be taken by the elected bodies is encouraged. Religious Trusts, clubs, etc. of the riverbank towns, villages are often involved in development – a new concept for recreation and user-charge-based maintenance is being developed with widespread adoption of ‘polluter pays’ principle. The Supreme Court of India has directed that environment will be compulsory in all education. Involvement of youth from primary to university level and also by informal education system is necessary in developing awareness, cleaning, conservation and development. In the 3rd World Water Forum held in Kyoto, Japan in March 2003, the youth came together at a platform called the Youth Forum to voice their concerns about water and how to protect this precious natural resource. Education and training and public awareness through the youth will make a breakthrough in the abatement of water pollution.

**ENVIRONMENT MANAGEMENT AND SUSTAINABILITY:**

There are several causes and effects of water pollution and several management options, which include regulations, taxes, technological applications, investment, community participation etc. One major drawback in environmental management is compartmentalization of activities. One of the main obstacles of environmental management in large cities of Asia is that governance and management of cities are not defined with fragmentation of responsibilities, water is considered a sector and pollution comes under environmental sector. But there is no connection between physical planning and current development practice. Environmental parameters are absent. Sustainability includes environmental, ecological, socioeconomic, physical, technical aspects and this requires new education and training awareness and political will. Urban governance with participatory development process is emphasized in management.

As for example, with financial and technical support of the British Government, Calcutta Environmental Management Strategy and Action Plan has been prepared for Department of Environment, Govt. of West Bengal, India. The plan suggested capacity building, effective monitoring and regulatory measures, use of environmental guidelines, partnership with community and others, etc.

Environment associated with water is quite broad and its management requires will of stakeholders. Abatement of pollution is one of the key factors in sustainable development. Broader framework is necessary and a regional plan where pollution is dealt with by environmental impact assessment. Local governments (both municipalities and village councils) have now given power to plan and implement projects including water projects besides operation and maintenance. But a metropolitan area consists of a large number of such local governments with different sizes in area and population with elected representatives from different political parties. Conflicts are likely to surface especially due to pollution. Effective water governance is required and hydro-geographic boundaries are to be delineated.

**TREES PRUNING IN KOLKATA:**

Plants are allied with people’s physical and mental health. Urban plantation is concerned chiefly with environmental improvement, removal of atmospheric pollutants, controlling noise pollution and microclimatic modification. Trees in urban areas provide a variety of services which include biodiversity conservation, carbon sequestration, oxygen generation, mitigation of the effect of urban heat, microclimate regulation, soil stabilization, prevention of soil erosion and groundwater recharge. Nowadays, urban plantation is considered as the basic prerequisite for improving quality of life in highly dense metropolis and developing suburban areas. The green canopy coverage which is usually provided by the roadside trees of urban or suburban areas is decreasing gradually and hence these areas become more vulnerable when they face ever rising anthropogenic pressures. Often the roadside trees are enforced to go through various threats due to lack of public awareness and sometimes for public interest also. All these threats are ultimately degrading the conditions of street trees and that in turn depict some obvious negative effects on the nearby environment. The beneficial roles of street trees are extended manifolds like protection of local watershed, providing shade on asphalt, concrete and surrounding structures thereby improving energy efficiency for local buildings, reduction of air pollution, absorption of greenhouse gases, improving the aesthetic beauty and reduction of ambient air temperature. The present study area, Prince Anwar Shah Road has some historical background and it is an important road of South section of Kolkata from past days and recently the road becomes more popular for traffic as it is functioning as one of the important connector for Eastern Metropolitan Bypass. But instead of its positional popularity no research work has so far been done on the roadside trees of this particular area which is quite needed for basic environmental health of the entire road. The chief objective of the current communication was to assess and analyze the status of avenue trees irrespective of plant species present at footpaths of Prince Anwar Shah Road, Kolkata, to make a base line data for further research.

**MATERIALS AND METHODS**

**Selection of study area:**

Field study was done at Prince Anwar Shah Road which is almost 2 km in stretch and it was approximately sectioned into four equidistant zones, i.e., Zone I, Zone II, Zone III and Zone IV. Zone I starts from Tipu Sultan Mosque (Desapran Sasmal Road connector) and ends in Lake gardens Flyover Crossing. Zone II starts from Lake Gardens Flyover Crossing and ends in Lords More. Zone III starts from Lords More and ends in South City Crossing. Zone IV starts from South City Crossing and ends in Jadavpur Police Station Crossing.

**RESULT AND DISCUSSION:**

It has been observed that pavement concretization surrounding tree base hampers the plant’s growth and affects the recharge of ground. Differential picture of green shade and distance between two adjacent trees in different zones of Prince Anwar Shah Road have also been noticed. In all the four zones, tall roadside trees were found to be less prevalent. And, in some part there is an inclination for growing ornamental plants rather than the native tree species. Comparative data on road side residential and commercial buildings are presented and it depicts that the roadside land use was maximized at Zone III. In Zone III, number of tall residential buildings was also more in comparison to the other zones. It was observed that the factor ‘foot path’ was negatively correlated (though in non- significant level) with factor ‘number of trees’ (r = -0.163). It indicates that the right sided foot paths of all observed zones have fewer numbers of trees than left sided foot paths of the same. Pearson correlation statistics also indicate that the factor ‘height of the trees’ has shown its non- significant negative correlation ship with factor ‘number of trees’ (r = -0.311). It means that tall heighted trees were less frequent in number than the number of short and medium heighted trees during the observation period in all four zones.

**FUTURE PROSPECT:**

Kolkata even West Bengal aims to become a preferred tourism and tourism-related investment destination by leveraging its unique geographical setting along with its various tourism-related assets. It will develop necessary infrastructure and promote tourism in an integrated manner which will not only bring in more investment and further the socio-economic goals of the Government, but also ensure that all these are in conformity with the relevant acts, rules and regulations relating to environmental protection. The overall aim of the Tourism Department is to see that the tourism sector contributes towards improving the quality of life of people in general. The West Bengal tourism development presently follows the Tourism Policy of 2008, which aims:

* To develop a portfolio of tourism products by utilizing its unique ecological, historical, cultural, religious, wildlife, sports, shopping, health care, educational and human assets.
* To facilitate tourism by all segments, particularly the middle and lower income tourists, by making the tourist spots in the State more easily accessible through single-window facility at the State capital and at the district headquarters and on the internet.

The West Bengal government is currently preparing to unveil a comprehensive 'Tourism Policy', “with a major thrust on creating a separate brand for West Bengal”. The state has begun its Beautiful Bengal campaign to sensitize tourists about the many attractions of the state, namely Hill Tourism in Darjeeling and Dooars, Ecotourism in Sunderbans, River Tourism, Kolkata Heritage Tourism, Beach Tourism along the coastline, etc. The state tourism department also hosts Tagore Literary Festival, Kolkata; Urban Heritage Conservation Festival, Kolkata; Tea Tourism Festival, Darjeeling; Hazarduall Utsav, Murshidabad; Digha Festival; Bishnupur Festival; and Music Festival, Darjeeling.

The State has taken the Kolkata/Hooghly Riverfront Development as a priority for development as a major tourist attraction, which is being readied for implementation. In addition to existing tourist destinations, the state is taking special care to develop tourism in North Bengal, Digha and Sundarbans in a customised way. The State government is also finalizing plans to further develop a 'Buddhist Trail' so as to attract more foreign tourists in the state; among other things the proposal included a 10-day trip to cover this circuit by a state-of-the-art train like 'Palace on Wheels' twice a month. The Central and State Government must come up with more inclusive tourism policies and programmes to take the momentum forward and derive better synergy of tourism and development. There is no dearth of attractions, resources or manpower; rather the State has all of that in plenty and in huge diversity. Leveraging these vast resource bases of the state for building a qualitatively better and stronger tourism industry should provide a winning proposition for all stakeholders, especially the common man.

**Suggestions:**

* Proper planning of master plans needs to be prepared with specific objectives be integrated with Assam’s overall economic and social development objective.
* Proper development of infrastructure, tourist facilities, enhancement of communication networks etc.
* All the information, instructions, suggestions should be made available in Braille and large print. Large print material should be placed at eye level.
* All travel and tourism organizations should be advised to document the Factsheets on access enabling facilities in their premises and publicize them.
* Tourism communication strategy should be such that accessible tourism information would be integral to all campaigns.
* Realize and respect the value of environment, flora and fauna, monuments and cultural heritage.
* Practice conservation of nature and culture as a way of life.
* Research should be undertaken throughout all stages of tourism development and operation to monitor impacts, to solve problems and to allow local people and others to respond to changes and to take advantages of opportunities.
* Zonal manpower resource center should be formed to recognize tourism as a factor for regional development. These manpower resource development centers should conduct studies on the availability of skilled and semi-skilled human resources in their respective regions.
* The quality of services given by hotels, tourist resorts and facilities en route must be supervised by experienced and knowledgeable managers.

**CONCLUTION:**

The success of an organization depends on its ability to affect continuous improvement and provide quality products and services to its customer. This will require every personnel in the organization to possess the requisite knowledge, skill and attitude. Proper identification of tourist segments and focused marketing efforts, with the help of professionals, should be undertaken. Only overall growth can help in improving revenue generation, which needs to grow in line with the additional capacity being set up by the hospitality industry. Tourism activities depend upon nature and natural heritage, it is essential to ensure that tourism development is ecologically sustainable –ecological process must not be neglected. Similarly tourism offers real experience of unique culture of the country and the State. Hence the development should ensure that social and cultural sustainable tourism development compatible with the culture and values of the local people.

The agenda for action should concentrate around community participation in tourism development and planning, training of the personnel associated with tourism development so that they can provide quality services without devaluing the same. In the framework of action it is necessary to ensure that the benefits to the community are so spread out that the people perceive the benefits flowing to them. Similarly, there is need for a legal and procedural frame work that deals adequately with social evils like exploitation, child use, sex tourism, interference with heritage products etc. In conclusion, the path for department of accessible tourism is tough and one has to negotiate with many culpable challenges and bottlenecks. Perhaps, some of those are not difficult to deal with or manage. What would be needed is certain degree of commitment, earnest efforts and coordination on the part of direct stakeholders. When it comes to more complex problems involving considerable financial commitment and coordination, it would be necessary to institute suitable policy mechanisms and higher level of inter-department coordination mechanisms.