CHAPTER 4

4. NATURAL AND BUILT FORMS OF SRIRANGAPATNA

Rivers are a cradle of civilization and, as such, are indispensable features of urban history. A unique space in a city, the riverfront is a general term for a land and water interface. Consisting of water regions, water lines and land, it acts as a transitional space from the city to the water, with both the edge of the land and the water, including certain water and the adjacent urban lands (Liu, 2005). It is also an urban public open space with natural and cultural systems, including not only abundant natural landscapes but also material spaces and cultural landscapes. It is also an urban landscape node, an important location for tourism and a niche for city development.

Many famous cities all over the world are generally located at the junctions of rivers and seas. These two features allow for convenient transportation and multi-cultural integration, which imparts its unique charm to these cities. Among seventy-five large scale cities in the United States, sixty-nine cities are located near rivers and lakes, which provide drinking water, convenient transportation, abundant natural landscapes and moderate temperature ambience. Thus riverfronts are those, cities’ most valuable natural resource (Chen Chen, 2011). The city becomes a poem because of its rivers, such as Paris near the Seine, London near the Thames, Berlin near the Spree, and Vienna near the fabled Danube. Some remote, seemingly insignificant cities attain fame because of their legendary waters, like Lijiang and Phoenix of China, and Heidelberg and Lubeck of Germany. However, with technological interventions and industrial transformations, the scale and structure of cities change.

In the center of the planning process lie public spaces, due to their important role as places of gathering and hosting facilitating cultural and commercial daily activities. In view of this, the adage "Streets for people and not for automobile" (Barnett, 1982) has arisen among planners and urban designers in developing future cities; and this provoked action towards achieving green and sustainable city and increasing the social interaction between people themselves. Many of the Asian and European cities are located close to a water body. This relates to the need of using water for drinking, household needs, agriculture and then for industry, trade and transport. These water
bodies which shaped waterfronts of many cities have recently emerged as some of the most important sites of urban design and planning discipline (Butuner, 2006). There is not only a connection between urban fabric and water, but due to a variety of roles and functions that waterfront has all along history as a place for trade, transport, industry and nowadays as public open space for recreation and tourism. Therefore, this adds a new type of significance to public space to the city structure and change the image of the cities.

As Lewis Mumford said, "the first city is home to gods, but at last city transformed itself into the main site for human" (Mumford, 1961). He believed that the city is not only a creation of human society, but, in turn, the city also regulates, shapes people's thinking and behavior. The city can have a transformational influence of the very mind and soul of both its inhabitants and visitors. Urban public space, as part of built form has important functions like providing a comfortable, safe space, with pleasant hydrophilic aspects, which encourage recreation, learning, exercises, and enhance interpersonal communication between citizens. Riverfronts should be planned to provide a wide range of activity, to meet people at different levels, different needs; the environment must be close to people's daily lives, to facilitate contact and make people feel warm; it should attract participants to activities and induce them to their creative potential, and thus a greater range of social interaction, exchange of ideas and cultural sharing. Through the provision of quality public space people can have more exposure to new friends, influence people's habits, shape social trends, enhance a sense of social awareness, and foster the modern, yet traditional, way of life, promote social harmony.

4.1 NATURAL FORMS WITH CASE STUDIES

According to Lewis Mumford ‘the city is not just a place for living, working and shopping, it also reflects the urban context and cradle for a new civilization’ (Mumford, 1961). Protecting the continuity of urban landscapes, the local characteristics of architecture, and people’s memory of individual streets, meets the need of civilization development. Riverfronts are usually the driving force for human civilization in history. In riverfront development short-term interests and material management are not the only focus but the protection and sustenance of urban culture is likewise of profound value.
As a result of the City Beautiful Movement and the transformation of city’s economy from industrial to service during the middle of the 20th century (Carlino & Saiz, 2008), many of the industrial activities and port facilities in city centers moved to farther regions and left vast urban lands vacant especially along waterfronts leading to the decline of old harbour sites (Gospodini, 2001). These lands are suitable urban areas to redevelop and redesign as new public open spaces to reflect a new image of these cities through providing public spaces for recreational and tourism activities (Butuner, 2006). The first attempts of redeveloping waterfronts begun in North America during the 1960s in Baltimore and Boston, then in San Francisco, where, these projects later became models for the revitalization projects developed in Europe and North America (Butuner, 2006). In the 1970s this kind of development gradually spread to the other parts of the world (Gospodini, 2001). In addition, the increasing competition between cities across the world led for improving the urban image as stated by Short “What sells the city is the image of the city” (Short, 1996). Therefore, many cities decided to reform their image of postindustrial city additionally on the basis of waterfronts. Sydney and Bilbao are two good examples of promoting their waterfronts, and became known worldwide, where, around 15 million people visit Sydney’s waterfront every year (Butuner, 2006). Eventually, the waterfront development emerged as one of the most important elements of urban design and planning disciplines, because it provided an opportunity to improve the social, physical and economic condition of cities (Butuner, 2006).

4.1.1 River Front Development: Riverfronts are the typical interacting area of a city. Ecologists deem a space with two different kinds of environment ‘an interacting area’. The energy flow and exchange are very frequent near water, which results in bio-diversity and high production (Zhang et al., 2002).

Riverfront landscape is a good carrier reflecting city's character, conveying local charm to people. A riverfront is not only rich in natural landscape resources, but also maintains abundant cultural landscape resources. Riverfronts provide entertainment venues for swimming, fishing, rowing, water skiing, skating and other water activities in a city. Riverfronts can revitalize the local economy and promote the development of tertiary industry.
Riverfront regions are the depository of the history of city development. Therefore, the protection of historical elements can help supply many concepts for future development, which are also important measures to raise city recognition several fold. So, when planning the urban riverfront, it is better to consider it from the point of view of urban development history and enhancement of urban culture fascination. In recent years, urban transformation, improved technology and the adjustment of industrial structure have provided many opportunities for the redevelopment of riverfront areas. Urban riverfronts have become an important resource for development for many cities.

Urban redevelopment strategies along a riverfront would be sustainable with three measures: ecological river system restoration, historical context protection and the extension of life facilities in urban open space. To restore natural ecological functions, a design layout must be functionally optimized, protect natural forms, foster river biological communities and encourage natural purification capability. To protect historical sites, a design must seek to conserve the city’s cultural heritage, create a spirit of identity and a sense of belonging, and improve the city’s aesthetics. To extend public facility and recreation spaces, a design must create diversified and recognized spaces, generate and improve operations, develop more places near water, for human use, promote more people-friendly spaces and promote harmonious and healthy developments for both society and the environment.

4.1.1.1 Water Front Initiatives: Historically, waterfronts have undergone various stages of development initiatives and become the most challenging tasks for planners and urban designers. Waterfront development initiatives have been undertaken successfully in many places across the world, and are increasingly being attempted in India as well (Ahmed Raad Al-Shams, 2013). Some of these initiatives are briefly described in the following:

1. Hong Kong Riverfront Development, Hong Kong: Hong Kong’s harbour is core to Hong Kong’s heritage, a global icon and the source of Hong Kong's competitive advantage in the Pearl River Delta. The harbour is at the heart of the city and is considered an environmental lung, and is one of the busiest ports in the world. With
an estimated 8.3 million residents and 70 million tourists by 2030, Hong Kong’s harbor (Fig. 4.1) is considered to be a showcase for Hong Kong with a high degree of social, economic and environmental vibrancy. An attractive, activated and accessible harbour will add to the wellbeing and quality of life of Hong Kong and increase Hong Kong’s attractiveness to tourists, and act as a magnet for foreign business and the world class human resources necessary for Hong Kong’s sustained economic growth.

**Fig. 4.1: Hong Kong Riverfront Development**

2. **Stockholm, Sweden:** As a city of islands, the waterfront of Stockholm (Fig. 4.2) is really the heart of the town and has quietly adapted over time as Stockholm evolved, providing many new and different ways for people to use it. With few traffic-heavy roads along the water, walking and bicycling have become great pleasures, enabling people to discover an array of attractions all along the city’s shoreline. Apart from the promenades and esplanades the outstanding City Hall (where the Nobel Prizes are awarded) or the wonderful Kungstradgarden (King's Garden) naturally draw people to public destinations on the water.

**Fig. 4.2: Stockholm, Sweden Riverfront Development**
3. Sydney, Australia: One of the most visually stunning bays in the world, Sydney Harbour is also an amazing place to stroll, take a boat ride or just sit and relax. Locations like Circular Quay, The Rocks, and the Botanical Garden fit well with the harbour itself to create a unique waterfront experience. As in Stockholm, Sydney’s waterfront (Fig. 4.3) destinations are best accessed by ferry. When people can get around via the water, they are apt to stay around much longer and do more things on the waterfront.

![Fig. 4.3: Sydney Riverfront Development, Australia](image)

4. Copenhagen, Denmark: The two spaces have a symbiotic relationship, with the large, oval-shaped Kongens and Nytorv Square serving as the gateway to Nyhavn, Copenhagen's top waterfront district. Nyhavn makes a compelling promenade, packed with restaurants overlooking a small canal that harbor classic old ships, that naturally leads one right into the heart of the city (Pre-feasibility Study for Waterfront Development in Karnataka, 2009).

![Fig. 4.4: Copenhagen Riverfront Development, Denmark](image)
The square has recently been improved with more active management; and now hosts public events and programs that draw people to the area. Both places also exemplify the octopus effect, with many streets emanating out toward other destinations in the city (Fig. 4.4).

5. Canary Wharf, London: Canary Wharf is one of the most highly bespoke and besought urban areas in the world. It is a large business and shopping development in East London, located in the London Borough of Tower Hamlets, centered on the old West India Docks in the London Docklands.

![Canary Wharf Riverfront Development, London](image)

Canary Wharf (Fig. 4.5) is a thriving space and vibrant business district with a wide range of shops, restaurants, pubs and wine bars, as well as healthcare and leisure facilities and an extensive arts and events program. It has approximately 20 acres of landscaped open space. The estate extends over 97 acres in the financial hub of London. Currently the development comprises over 30 completed buildings and over 200 shops, bars and restaurants within four retail malls. Increasingly Canary Wharf is becoming a shopping destination, particularly with the opening of the Jubilee Place shopping centre in 2004, taking the total number of shops to more than 200 and increasing employment in retail to around 4,500. About 500,000 people each week shop at Canary Wharf (Pre-feasibility Study for Waterfront Development in Karnataka, 2009).
6. **Husain Sagar Lake Development, Hyderabad**: Husain Sagar lake in the city of Hyderabad is now a major tourist attraction in the city. It is spread across an area of 5.7 Sq km and is fed by river Musi. A large monolithic statue of the Gautama Buddha, erected in 1992 stands in an island in the middle of the lake. The maximum depth of the lake is 32 feet. The lake was a source of water for the twin cities of Hyderabad and Secunderabad but the condition of lake deteriorated and got polluted due to industrialization and immersion of Ganesh idol during Ganesh Chaturthi. It was the Hyderabad Urban Development Authority (HUDA) which came forward for the conservation of the lake and turning it to a tourist attraction. Over a period of time, Husain Sagar Lake (Fig. 4.6) has a lot of attractions driving locals and tourists to visit the place. The lake is surrounded by the buildings such as Andhra Pradesh Secretariat buildings, NTR Memorial, Lumbini Park, Prasads IMAX, Hyderabad Boat Club, Sri Venkateshwara temple, Birla Mandir, Secunderabad Sailing Club, Sanjeevaiah park and Hotel Marriott. Lumbini Park features a musical fountain and well landscaped garden, NTR Gardens on the Necklace road is a good place to hang out in the evenings for the young as well as the old. "Eat Street", a place with several eatery outlets, has been built on the banks of the lake (Pre-feasibility Study for Water front Development in Karnataka, 2009).

![Husain Sagar Lake, Hyderabad](image)

**Fig. 4.6**: Husain Sagar Lake, Hyderabad

7. **Kolkata Riverfront Development, Kolkata**: An ambitious riverfront development project has been drawing many visitors in Kolkata (Fig. 4.7). The Millennium Park runs along Strand Road, for a kilometer on the eastern bank of the Hooghly River and has been a successful attempt to bring it to the forefront of the city's landscape. Two sections of the park, stretching over 750 m, were opened to the
public on January 1, 2000, while the final section, 300 m in length, was made accessible to public on January 1, 2006. Attractions on the riverfront are: Lily pools, herbal and cosmetic gardens, food kiosks, an Amphitheatre, a promenade, amusement rides and a children's park. An added attraction is the access to the Silver Jet Jetty and Fairlie Jetty for those who fancy a boat ride. In addition, Kolkata Municipal Development Authority organizes festivals, with musicians and actors performing at the amphitheater.

![Image of Kolkata Riverfront Development](image)

**Fig. 4.7:** Kolkata Riverfront Development

To understand the waterfront evolution practically, a case study of waterfront development in India and Singapore is provided.

### 4.1.1.2 Case Studies

1. **Waterfront Development in Singapore:** From the early 19th century, under the British colonial rule, Singapore emerged as one of the main ports in south-east Asia due to its location, for trade and transport, where the oldest and most important port of Singapore was located in Singapore River. Later, it became an excellent centre of trade, commerce and finance, shaping the heart of Singapore city which initially grew around it. Since the end of the 19th century till the 1970s, most of the shipping businesses in Singapore were done through the river (Goh, 2007), making it a hub of trade and prosperity, where many heavy industrial activities were located along the riverfront (NEA, 2011). These activities in course of time turned the river into an environmental hazard due to high pollution caused by the myriad activities and the associated squatters (Fig. 4.8a).
In 1977, Mr. Lee Kuan Yew, the Prime minister of Singapore at that time, set the stage for cleaning up the river and later develop it to be a focal point of tourism in Singapore. The first stage was to clean the river by removing all sources of pollution and all the rubbish debris from the water (NEA, 2011), by the involvement of many government agencies (Goh, 2007). The second stage was to provide alternative places for people who were using the river and its banks as place for living or work and trade. Therefore, Housing and Development Board (HDB), Urban Redevelopment Authority (URA) and Ministry of Environment in Singapore for ten years from 1977 till 1987, resettled about 26,000 families in flats, over 2,800 industrial enterprises in industrial estates built, and a total of 4,926 street hawkers were shifted to food centers (NEA, 2011). By 1985, URA set its vision for the future of Singapore river to turn it into a lively activity corridor of the city (Fig. 4.8. b).

According to a Master Plan three main strategies are (Goh, 2007):

- Develop an active corridor for recreation and leisure by adopting the concept of mixed land uses including Commercial, Residential, Hotel and Institutional uses. These different activities work to bring people to the area at different times of the day.

- Mixing old and new developments through keeping the old buildings as legacy for future generations, and allowing changing uses of these buildings to increase their viability, where, new buildings will be developing in the adjacent areas for commercial and residential purposes.
• Provide planning framework and guidelines for the private sector to carry out the redevelopment along the river in the future using private resources.

2 - Sabarmati River Front Development: In its 600 years of existence the city of Ahmedabad in Gujarat (Western India) has faced many sorts of challenges and changed its role in India and at the international level, but some elements have remained unchanging and stable through time. One of the main features is represented by the strategic position that the city has always had through history: as a matter of fact it has represented the crossing point between the Silk Route and the Spice Route, as well as one of the gateways of India (Yagnik and Shet, 2011). The geographical location has been playing a significant role also in promoting a sort of “mercantile ethos” within large part of the population, not only of Ahmedabad, but of Gujarat in general. It should not surprise then the dynamism of the economy in that part of India, which has always been considered one of the richest: still today Ahmedabad is the seventh Indian city in terms of GDP. A further element that has proved to be constantly relevant throughout history is the relation between the city of Ahmedabad and its river, the Sabarmati. As it is described by the fifteen-century poet Hulvi Shazi, the myth of the foundation of the city by Sultan Ahmed Shah is strongly bound to the river: “The Shah, while on a gracious walk, stopped at the bank of the river Sabarmati. The ground was clean and charming, the water pleasant, the air pure. On seeing these attractions, by the grace of Allah, he dreamt of a wondrous city” (Yagnik, Shet, 2011). Along the river several institutional as well as educational and religious buildings and open spaces rose, the most famous of which is probably the ashram created by Gandhi in 1915 or the Mill Owners’ Association building realized by Le Corbusier in 1955. It is therefore not surprising that also nowadays the future of the city is both reflected in and promoted by the developments occurring within and along the river Sabarmati. The Sabarmati River Front Development Project initiated in 1997 by the Ahmedabad Municipal Corporation (AMC) through the newly created Sabarmati River Front Development Corporation Limited (SRFDCL), is actually listed among the main projects to achieve the municipal vision of a “Vibrant Ahmedabad – Vibrant Gujarat” or of a “Greater Ahmedabad” (Fig. 4.9).
The developed structures on the natural banks of the river inside the city of Ahmedabad have a longer history. The first proposal was formulated in 1961 by the French architect Bernard Kohn which suggested reclaiming 30 ha of land on both the banks of the river in order to develop a mix of commercial, recreational and residential activities in some regions of the river bank, mainly close to the major bridges.

![Image](http://sabarmatiriverfront.com/)

**Fig. 4.9: Sabarmati River Front - Lower Promenade – Shahibaug**
(Source: http://sabarmatiriverfront.com/, accessed on 12-06-2014)

The feasibility of such proposal was studied and confirmed in 1966 by a commission appointed by the government of Gujarat and a further proposal was done in 1976 by a group of local professionals including Ahmedabad Study Action Group, the architects Hasmukh C Patel and K B Mehta Builders (Gloria Pessina, 2012). The group agreed on the reclamation of land and proposed the up gradation of the Pirana Sewage Treatment Plant in the south of Ahmedabad and the construction of retaining walls to protect the city from floods and to provide space for development. The need to improve the sewerage system was reiterated also in the National River Conservation Plan of 1992 for the interception and diversion works, the construction of trunk sewers, the de silting of storm water drains and the provision of sanitation infrastructure in the river bank slums. A last proposal was formulated by the Centre for Environmental Planning and Technology (CEPT) University of Ahmedabad just one year before the currently implemented project was submitted: it envisaged to add
to the 30 ha to be reclaimed, 20 more meters along the west bank and 10 along the east bank to develop publicly accessible open spaces and recreational areas connected by walkways and promenades.

Although several projects have already been proposed since the 1960s only in 1997 the Ahmedabad Municipal Corporation decided to finally implement a plan and therefore created a specific public body, the Sabarmati River Front Development Corporation Limited (SRFDCL Ltd.), for the execution of the project. The proposal was commissioned to the Environmental Planning Collaborative (EPC), which in 2002 merged with the HCP Design and Project Management Pvt. Ltd., responsible for the urban design of the project. The works started in 2005 and are still ongoing. The project regards a stretch of 9 km of the river comprised between the Subhash Bridge and the Vasna Barrage within the city of Ahmedabad and its main features are the following:

- the reduction of the riverbed from a variable width of 600-300 m to a fix width of 275 m, thus reclaiming 185 ha of land (Fig.4.10 and Fig.4.11);
- the construction of Reinforced Cement Concrete (RCC) diaphragm walls (10-20 m depth) and anchor slabs (10 m) to prevent the riverbanks from erosion. After the finishing the anchor slab is turned in the so-called lower promenade;
- the construction of interceptor sewers on both the riverbanks able to prevent the waste water to flow directly into the river and diverting it to the two sewage treatment plants of Vasna and Pirana;
- the construction of RCC retaining walls (2.5 - 9 m) to protect the city from flooding. The height of the walls is determined by the 100-year flood level. An upper promenade is created on top of the retaining walls;
- the dredging of the river bed in order to provide soil for the filling of the space behind the RCC retaining walls. At least 67,500 cubic meters are required for the filling;
- the relocation of slum dwellers and the provision of better living conditions to them. The number of families initially considered was 8000 but was increased to 15000 after further surveys in 2002. The first proposal was to relocate them in three sites along the riverbanks, but the plan has changed afterwards and the relocation sites are now far away from the river;
the use of the reclaimed land for private residential and commercial developments highlighting a water view to be sold to finance the project (the percentage has decreased from 20 to 15% because of the high increase of the land value), two major roads, one on each riverbank (30%), gardens (26%), promenades (6%), informal market (3, 6%) and the rest for other public facilities.

- The main declared goals for the implementation of such actions are:
- the elimination of the danger of floods in the current context of climate change;
- the establishment of better hygienic conditions through a new sewerage system;
- the ground water recharge through the storage of water within the river bed;
- the improvement of the living conditions of the slum dwellers.

Fig. 4.10: The riverbanks of the Sabarmati before the project

Fig. 4.11: The riverbanks of the Sabarmati after the project.
The estimated cost of the project is 15 billion Indian rupees and it will be covered by the sale of parts of the riverfront (15%) to private investors, as well as by funding from the JNNURM program. Looking at different descriptions of the project, one issue is quite recurrent, that is to say the importance of the environmental concerns. In an article published in 2009 on the TOPOS journal (https://www.toposmagazine.com) the project was described in this way: “though implementation will be challenging, the city hopes that this integrated environmental project will be a model for the nation” (Fenk and Schaffer, 2009), particularly stressing the capacity of the urban designers to deal with flood protection, sanitation as well as development. Interestingly, the project is also mentioned several times in official speeches by the Chief Minister of Gujarat as an example on the ground of the current state policy of “climate justice”, meant as a “convenient action” against the inconvenient truth of climate change (Pessina, 2011). Moving from a definition of sustainability as a challenge to standard growth models (Scoones et al., 2010) to “the ability of systems to bounce back from shocks and stresses and adopt stable states” (Scoones et al., 2010), more recent debates focus on issues of risk management, as emerged in the United Nations Conference on Climate Change held in Copenhagen in 2009. In the water domain, the issue of risk is often identified with floods due to climate change, as it is in the case of the descriptions of the Sabarmati River Front Development Project given. As a matter of fact, none of the official studies nor the wide spread articles seem to stress the dynamic nature of the Sabarmati, a non-perennial river, fed by the uneven and infrequent rain occurring during the monsoon between July and October and is therefore dry for large part of the year.

The Sabarmati basin has traditionally been known as a good agricultural production area where cultivation was carried out being very careful towards water. A pattern of villages were developed along the course of the river with respect to the floodplain and paying attention to leave the silting areas for agriculture. After the heavy floods that occurred in 1973, the Dharoi Dam was created in 1974 at the feet of the Aravalli chain in northern Gujarat in order to regulate the Sabarmati and to provide water to the city of Ahmedabad. Downstream of Ahmedabad the water started to be retained through the Vasna Barrage. Since large amount of the water is diverted for agriculture directly from the Dharoi dam itself, the dry condition of the Sabarmati for most of the
months became even more pronounced and the floods decreased in their intensity and frequency. The legitimacy of the project, aiming officially at reducing the flood risk, is thus significantly reduced, as pointed out by an hydrologist based in Ahmedabad, “Floods are unlikely to happen but in case they take place, the covering of the riverbanks with concrete will affect the capacity of large part of the city to absorb water and let it percolate in the soil. Moreover the channelizing of the river for such a long stretch will affect negatively the areas both upstream and downstream of Ahmedabad where the flood will be more intense. Ultimately such sort of canal will act as a funnel” (Pessina, 2011). The idea of sustainability in the case of the Sabarmati seems to be highly contested not only in terms of narratives around flood control and protection from risks as a declared aim, but also on a large number of other issues raised by several actors.

One of the main features of the project, its high level of engineering technicalities (Pessina, 2011), is also one of the main concerns of academics, practitioners and local residents: the use of concrete for the embankments along a long stretch of the river, in fact, strongly affects the environment and seems to have adverse effects to the regarding protection from floods, especially downstream. Hydrologists and environmentalists point out that the dredging of the riverbed to get sand for the earth filling on one hand represents an attempt to reduce distances to bring materials for the construction works on site, but on the other hand is highly damaging the nature of the river course, thus increasing the speed of the water, promoting the erosion and endangering the stability of bridges. Slum dwellers organisations, NGOs as well as some academics active in the fields of sociology and urban planning are skeptical regarding the declared “economic sustainability” of the project, meant as sale of part of the land. Many of them are actually afraid that the effective public use of most of the project area could then be restricted just to part of the population through the introduction of fences and of entry fees as it happened in other cases in the city of Ahmedabad as Kankaria Lake (Pessina, 2011). Economists and academics point out that as a result of the start of the Sabarmati River Front Development works, the prices of the land have already increased dramatically, thus endangering the affordability of the city. Slum dwellers organisations, human right protection organisations, advocates and activists have also pointed out that one of the most controversial points is represented by the relocation of slum dwellers. While the need
for better housing conditions cannot be questioned, both the relocation sites and the housing typologies seem to the slum dwellers and their lives and usual activities. Looking at the earlier uses of the river, it is evident that many of the seasonal activities that used to take place within the dry river bed and that are still present upstream and downstream of Ahmedabad have disappeared now within the city, thus depriving many people of their source of livelihood including food and the possibility to sustain themselves. The riverbanks of the Sabarmati before and after the project are illustrated in Fig. 4.9 and 4.10 respectively.

One of the core issues of the Sabarmati River Front Development Project, ‘the origin of water’, a whole range of new issues come into the picture. The nature of the Sabarmati river is that of a non-perennial one, dry for most of the year. Quite surprisingly after the creation of the embankments in 2006, water became a constant feature of the river. Such interesting and apparently strange phenomenon becomes clearer when looking at aerial views of the city the water is actually present only in the stretch of the river within the city of Ahmedabad, appearing just a few hundred meters south. In the relation between the river and the canal the relevance of the scale issue becomes evident: as a matter of fact, a connection has been created between the Narmada Canal, stretching from the eastern to the western border of Gujarat, that is to say, between the Sardar Sarovar Dam (or Narmada Dam) to the arid region of Kutch, at the border with Pakistan.

Referring mainly to Western Europe and to the United Kingdom, Brenner acknowledges the rise of new actors operating at different scales mostly after the 1970s crisis: on the one side global corporations, international organisations and cross-border institutions play a decisive role, while on the other side more powers are decentralized and vested at the local level. Nevertheless he stresses the re-scaling of the state as “a key accumulation strategy” (Jessop in: Brenner, 1998) through which “cities throughout the world are being promoted by their host states as locational nodes for transnational capital investment” (Brenner, 1998). It is evident that the role of the state, and its space of action, has significantly changed from the time in which it represented the main producer of welfare and the main mediator of spatial inequalities, nevertheless, the production of a “spatial fix” (Harvey
in: Brenner, 2004) seems to be still needed, or maybe even more, in the age of globalization.

Among the “new state spaces” Brenner lists “science parks, conference centers, waterfront development schemes and enterprise zones” that differ from the infrastructure that Keynesian states used to build after World War II in terms of aims and shapes: while in the past the State was mainly aiming at promoting an equal spatial development of national territories, but nowadays such infrastructures are usually initiated by private investors but still requested by state authorities that are often uncoordinated, generally aiming at enhancing the global competitiveness of just some areas within national territories. A clear example of this trend is represented by the Thatcher policies to promote the primacy of London (and the South East of England) as a main financial centre through the (re)development of areas such as King’s Cross, the Isle of Dogs, Canary Warf and Thames Gateway, while other parts of the country were neglected or becoming poorer. The case of the Sabarmati River Front Development Project seems to clearly support the theories that show the centrality of the state even in a context of globalisation. As a matter of fact, the State of Gujarat represents one of the main promoters of the Sabarmati project and considers it one of the strategic actions with regard water resources in Gujarat, alongside the construction of canals and dams. Moreover, the river front represents an “exceptional space” (Brenner, 2004) within the city in terms of design, well determined uses and scale and as it happened mainly in the context of UK an “exceptional agency”. The Sabarmati River Front Development Corporation Limited (SRFDCL) has been created by the AMC under the directive of the State of Gujarat and is therefore strongly bound to the state. Looking at the state at a broader level, the National Government of India is contributing to the project through the JNURM program, while multinational companies are attracted by the real estate opportunities on the riverbanks, thus creating a not clearly accountable “governance-beyond-the-state” (Swyngedouw, 2005).

The case of the Sabarmati River Front Development Project in Ahmedabad shows the power of narratives around sustainability and ecology (Mehta, 2005; Scoones et al., 2007; Swyngedouw, 2010) in development and globalisation. Exceptional spaces such as the Sabarmati River Front Development Project, mainly managed by newly
formed institutions, seem to represent the new necessary “spatial fix” (Harvey, 1985) for the production of capital and power, not excluding the State, often neglected in the literature about globalisation (Brenner, 2004). Such instances show also the contested nature of sustainability (Scoones et. al., 2010), through some of the fears of dwellers, practitioners, academics and in general persons affected in different ways by the project. “Whatever the outcome, the project is a leitmotif in the context of river and waterfront redevelopment projects now popping up in Indian cities like Mumbai, Delhi, Calcutta and Lucknow. Ahmedabad is breaking new grounds, both literally and figuratively, in the redevelopment of Indian cities” (Fenk, Scheffer, 2009).

**Remarks:** Adopting a well-designed process for waterfront development is an important step to achieve project's success. The development process should include 3 stages as in Singapore case. Firstly, provide plan to relocate existed people or activities that are already on the waterfront area. Secondly, solve all the issues and problems that may affect the development of the waterfront such as pollution, access and so on. Thirdly, plan and develop the vision of the project.

**4.1.1.3 River Front Development in Srirangapatna:** Srirangapatna with its long river front area, rich built and natural environment and diversity of cultures, ethnicity and history, offers a great opportunity for waterfront development as a strategy to enhance investment for social, commercial and recreational projects. These investments will let the town augment its ability to attract more tourists, and provide new job opportunities for local people. Nevertheless, the development has to focus on environmental issues and local architecture and culture, to be able to reflect the image of the town in a sustainable way. Initially two options were proposed for the river front development (Fig. 4.12a). After having several rounds of discussion with the authorities concerned and also, considering the advantages and feasibility of the proposals, option-1 is finalized (Fig. 4.12b).
a. Spatial Location of River Front Development showing 2 options.

b. Proposed River front Development (Option -1)

**Fig. 4.12:** Proposed location of river front development in Srirangapatna

The proposed length of the river front is 2.3 km and is visible from Bengaluru-Mysuru highway. Both the ends of the river are accessible and the stretch is between two bridges. (New Bengaluru-Mysuru Bridge and Srirangapatna-Karigatta Bridge). Also, the river front is accessible from the rear end of the monument, Daria Daulat Bagh and the Nimishamba temple. The riverfronts at both these places have series of steps that leads to the water. The proposed river front in Srirangapatna will have the following advantages;
- Makes the riverfront accessible to public.
- Keeps the river clean and pollution free
- Creates riverfront parks, promenades and Ghats to enjoy the water.
- Provides new cultural, trade and social amenities.
- Revitalizes riverfront neighbourhoods.
- Generate resources.
- Creates identity to Srirangapatna

Thus the river front development in Srirangapatna town results in multidimensional environmental improvement, social upliftment and urban rejuvenation.

The significant value of waterfront makes it imperative to be very careful in design, development and management of waterfront projects, because it shapes and reflects the image of the city and provides a linkage to the outside world for social and economic interaction. The development of the waterfronts in Srirangapatna is to be carried out which improves the social, economic and physical conditions of the town and initiates different activities including recreation, commercial, housing and also provides scope for various kinds of abilities of people in different times for economic and aesthetic purposes. Moreover, it reflects the culture, identity and characteristics of the society on waterfront and upgrades the town’s image as an attractive link to outside world and promoting the town for national and international tourism. The local government should be more focussed on implementation of development in waterfront projects, to protect the environment and reduce pollution as well as develop waterfront as a part of the city by linking it to the other aspects or parts of the city. The process for planning waterfront developments would need to integrate with the overall development of the town while ensuring a balance between the needs of the town with those of the local community.

In a town, the public space is a stimulated environment for interaction, due to its ability to contain and sustain different activities, different people and different cultures at the same time within the same place. These public spaces can be the cauldron of interface among local people, and between local people and tourists for exchanging ideas and cultures. This will increase the familiarity and linkages between
the city and its people whether they are local or tourists. Waterfront as a type of public space should have many facets, which means, it has to be the space that is open, owned and used by all members of the public. The importance of waterfront is not only as a public space for recreation and entertainment but also as an open gate for social and economic activities and exchange between the city and outside world. On the other hand, waterfront had been for long the most active place within the city structure till it faced abandonment, mainly as a result of pollution, shifting of industrial activities, changing of transportation ways and methods, relocating of ports and increase of slum areas around water bodies and river banks. The abandonment of waterfronts led to change them from places for trade, transport and industry to be places for recreation and entertainment towards opening a new area of waterfronts’ success. Generally, the limitation of access and activities, ability to reflect the city in terms of identity, culture and image, attractiveness for local and tourists and eventually environmental issues such as pollution which are one of the main reasons for success or decline of any waterfront project.

4.2 BUILT FORMS WITH CASE STUDIES
Planning of built forms should manifest high quality urban design and architecture that contributes positively to local urban character and a sense of place. Creating quality built environments supports the social, cultural, economic and environmental wellbeing of the communities, cities and towns. Planning should ensure all new land use and development appropriately responds to its landscape, valued built form and cultural context, and protect places and sites with significant heritage, architectural, aesthetic, scientific and cultural value. This enhances livability, diversity, amenity and safety of the public realm and also promotes attractiveness of towns and cities within broader strategic contexts.

Planning or designing cities is not a simple process of making pictures showing how the city should look twenty years from now (Barnett, 1982), but it is an attempt to make the future better than the present (Roberts & Greed, 2001) in terms of social, economic and environmental needs and criteria. Since the beginning of the 20th century, the movement of modernism influenced the role of public spaces under the impact of new technologies and materials used in designing functional buildings that work as "machines for living in" according to Le Corbusier (Pouliot, 2011). However,
this philosophy of modernism has been changed since early 1980s due to the emergence of new spirit of urbanism, with the aim of bringing back the characteristics of the traditional city (Ercan, 2007). This trend can be recognized in Britain for example through a number of flagship projects pioneered in order to revitalize and regenerate the derelict lands of industrial estates, declining waterfronts and city centers (Ercan, 2007). Practically, public spaces are seen as a social conduit for residents and a link with the past through showcasing personal memories and historical monuments (Carr, Francis, Rivlin, & Stone, 1992), and helps in creating a sense of community identity and urban well-being (Goodsell, 2003). Therefore, it can be defined as “the space that is open to all, owned by all and used by all members of the public” (Varna, 2009). In this regard, the interest of architects, urban designers and planners about public spaces mainly is the result of the following:

- To create urban areas with their own identities, and physical manifestation that drives to have an attractive environment (Tibbalds, 1992), and to increase the interest in outdoor activities such as street vending, outdoor eating, walking and cycling (Ercan, 2007).
- To match the demand for services, tourists and conventioneers for employees and new markets (Loukaitou-Sideris, 1993), and to provide opportunities for shopping, enjoying, socializing with friends, and meeting with colleagues (Burgers, 2000).
- The emphasis on city’s public spaces is an important strategy to change the city image and put it on the international map as destination eagerly visited. Barcelona for example is one of the most successful re-imaging experiences in Europe, through its public spaces (Madanipour, 2005).

4.2.1 Importance of public Space: A public space refers to an area or place that is open and accessible to all citizens, regardless of gender, race, ethnicity, age or socioeconomic status (www.en.wikipedia.org). It is a place where anyone can come, and further, where most events are spontaneous rather than pre-planned, where people mix with others or simply move about or sit and watch others. Public spaces include parks, squares, outdoor plazas, traditional markets, and public gardens, as well as streets and sidewalks, while streets and sidewalks are of course primarily for pedestrians-the movement of people throughout the city. As the well-known architect
Jan Gehl reminds, the traditional role of streets and sidewalks is not just for movement, but as marketplace and meeting place. Lively and livable cities not only allow but encourage all the three roles. If people can buy much of what they need and enjoy social interactions close to their homes and workplaces, they will have less need to travel to meet those needs. It is pleasant to live not amidst a constant roar of traffic and horns, of busy people pushing their way through the crowds, but among people conversing as they buy and sell, stroll and rest, and partake in the friendly sociable patterns of a livable city. Public spaces in cities serve to enhance human happiness and to promote a sense of concern without which it is impossible to ensure civility in cities. The people are to be mobilized to save and expand them, and that there is always hope for the future, especially when people learn to cherish and work to preserve the rich variety of public spaces in their own often rapidly-changing, modernizing, noisy, tumultuous and colourful city.

“Wherever there are people — in buildings, in neighbourhoods, in city centers, in recreational areas, and so on — it is generally true that people and human activities attract other people. People are attracted to other people.” (Gehl, 2001)

One indication of quality public spaces, used by many kinds of people and at different times of day and night, is that they are “flexible spaces that can accommodate different activities, whether programmed or spontaneous, and have the capacity to transform over time to encourage new uses, energizing the site at all times” (Ryan, 2006). A wide range of activities occurring in many public spaces indicate that a city still has much to offer in terms of spontaneity, energy, creativity and livability. People moving through those spaces play a dual role; “as opposed to being a passive observer of other people’s experiences on television or video or film, in public places the individual himself is present, participating in a modest way, but most definitely participating” (Gehl, 2001). Public spaces work best when they do not lay out a script of intended uses, but rather allow different people to make use of them in the way that suits them including bringing out their spontaneity. The mix of people that thereby results is one of the keys to understanding the importance and vitality of public spaces: “the best and most sustainable public spaces (can be used) by people from diverse communities, for encouraging multiple experiences, and for fostering social and cultural exchange. They prompt discovery, help promote understanding
and tolerance, and enhance the quality of our everyday lives” (Ryan, 2006). “One way to judge quality in a city is not to look at how many people are walking, but to observe whether they are spending time in the city, standing about, looking at something, or sitting just enjoying the city, the scenery and the other people” (Gehl and Gemzøe, 2004).

4.2.2 Ways to transform Cities through Place Making and Public spaces: The Placemaking process is a process that results in a place where the community feels a sense of participation and engagement, and where design is functional. Here, human needs will be met and fulfilled, to include all. Placemaking is a skill that is transferred either formally or informally. It identifies and actuates local leadership, funding, and other resources. Placemaking is a bottom-up approach that empowers and engages people in ways that traditional planning processes do not. It draws on the assets and skills of a community, rather than on relying solely on professionals. The Placemaking approach is defined by the recognition that when it comes to public spaces, “the community is the expert.” It follows that strong local partnerships are essential to the process of creating dynamic, healthy public spaces that truly serve a city’s people. Public spaces are also a common goal that local governments, diverse existing groups and NGOs can work on collaboratively in a democratic process. Each place, each culture, is unique and thus societal norms, climate, and tradition, all get into consideration. What works for a European city might be completely inappropriate for one in Southeast Asia. Therefore, every culture needs to find the priorities, tools and approaches that work for them.

There are many ways or specific elements to transform cities through Placemaking and public spaces. In the present study, some of them are discussed along with reference to scholarly case studies.

4.2.2.1 Improve Streets as Public Spaces: Streets are the basic public space in every city, but many are choked by traffic. So Placemaking encourages the planning of cities for people and places and not just cars. The ideal street will be able to sustain different modes of transportation, whether it is car, truck, bicycle or pedestrian, and all will work parallel with each other. Planning out a hierarchy of corridors ranging from major boulevards to quiet neighborhood streets will also affect what develops on that street and create more appropriate street facilitating interactions. Creating more
pedestrian-friendly streets in general will provide spaces for interpersonal interaction and foster a sense of community that is impossible in a primarily vehicular road.

**Case study: Medellin, Colombia:** The Colombian city of Medellin has built a transportation system that brings together the formal and informal cities, enhances street life, and contributes to social cohesion. The Medellin Metro cable (Fig. 4.13), an aerial tram system, serves the neighborhoods on the city’s hillsides, formerly some of Medellin’s most crime-ridden and gangster-infested areas. Even poor from the traditionally marginalized settlements now have quick access to the city’s main subway system - a connection that used to entail a daunting walk up and down hundreds of steps or a lengthy minibus ride. When constructing the Metro cable, the city took the measure to invest in improving the long neglected hillside barrios. The Metro cable is more than a transportation facility; it is a vital integrative link between formal and informal areas of the city; it provides access to the city center and employment centers for neighborhood residents. The plazas along the length of the Metro cable have become lively public spaces that are designed and managed by the users themselves. Plazas at the bases of the pylons supporting the tram have become lively neighborhood centers, with food vendors, seating, and landscaping (Fig. 4.14). Parks, sporting fields, and libraries have been constructed nearby. New schools were built, and older ones were improved. Pedestrian walkways link parts of the city that used to be controlled by rival gangs, and murder rates have declined. Not only that, people from the formal city in the valley now feels safe visiting the hillside barrios.

![Fig. 4.13: The Metro cable - a vital integrative link between formal and informal areas of the city](image1)

![Fig. 4.14: The plazas along the length of the Metro cable in Medellin city](image2)
4.2.2.2 Create Squares and Parks as Multi-Use Destinations: If public squares and parks are planned around major public destinations, they build local economies, civic pride, social connection and human happiness. These spaces serve as “safety valves” for a city, where people can find either breathing room or relaxation in a well-planned park space or fear and danger in a badly-planned one. The most successful public spaces are “multi-use destinations” with many attractions and activities, where citizens can find common ground and where ethnicity and economic tensions can go unnoticed.

Case study: Santiago, Chile: Despite being in one of the most important neighborhoods in Santiago, Chile, served by one of the busiest train and bus stations in the city, the Las Condes plazas and commercial galleries had become a place to pass through as quickly as possible. After the galleries were built in the 1980s, they steadily lost customers to the city’s shopping malls and became desolate and almost haunted. Compounding the problem was an unfortunate design flaw, a surfeit of entrances that made the square especially in its increasingly empty state, appealing only to criminals who targeted people passing through.

![Fig. 4.15: Sub-Centro after the redesign based on a collaborative Placemaking process](Fig. 4.15)

Later, the ministry of Urban Development saw this well-located space as a major opportunity for both the city and their company. Their vision was to invest in the public spaces and, through that, make the retail feasible. Over the following five years, Urban Development forged alliances with the city government, Metro, the
Ministry of Transportation and the community to make those changes and realize Sub-Centro’s potential (Fig.4.15 and Fig 4.16). The project became an exceptional success as a collaborative enterprise: the municipality of Las Condes created new plazas and taxi stops; the Ministry of Transportation modified the street design and created new bus stops; the Metro leased the galleries to Urban Development; and Urban Development found the vendors, rented out the stalls, reduced and improved access points, and created a private team to manage the site.

4.2.2.3 Build Local Economies through Markets: Historically, the essential function of any urban center has been a veritable cauldron of transactions where people come together to exchange goods, proposals and ideas. Public markets have been at the heart of most cities since ancient times. Markets are traditionally the most intense and dynamic places in cities and towns, where the exchange of news, politics and gossip takes place and where people tend to firm up the social ties that are essential to a healthy society. Markets do many things for cities, including encouraging entrepreneurship, sustaining farmland around cities, strengthening ties between urban and rural areas, consumers and producers and improving access to fresh food. Replacing the traditional market with a supermarket has proven to have no social value and has only deteriorated existing community ties.

Case study: Durban, South Africa: Durban is the third largest city in South Africa, and is famous for its natural endowments including beaches as well as its great ethnic diversity. This manifests itself in the many informal markets around the city that provide economic and social opportunities for the poor. These markets also create opportunities for people to socialize and for entrepreneurs to become increasingly creative and productive. The Traditional medicine and Herb market in the Warwick Junction neighborhood of Durban was once a ramshackle and a dangerous place. Vendors had to sell their goods in the open air from the pavement, and sleep on the sidewalk beside a highway with their wares to protect them from thieves. Wastewater from the preparation of the local delicacy of bovine heads was drained into the municipal storm water system, attracting vermin and clogging pipes.
But a redesign has changed all that. The local municipality has developed a comprehensive approach to improving local infrastructure, and the market is one of its premier projects. Government workers went to the traders and found out what they needed and wanted, then refashioned empty space in the market’s neighbourhood to create enclosed stalls for vendors and locked storage spaces (Fig.4.17). Pedestrian routes have been widened, allowing easier movement for shoppers. The vendors preparing bovine heads are now equipped with more hygienic cooking facilities. The result of all these improvements fathomed and proposed by the very people who were to use them, has been an economic advance, a safer market, and a dramatic increase in opportunities for employment and entrepreneurship (Fig.4.18). Thus the markets create opportunities for people to socialize and for entrepreneurs to develop their creativity.

4.2.2.4 Designer Buildings to Support Places: Buildings with interesting interiors may be architecturally successful to some but it is the architecture that permeates outwards beyond the facade and becomes visible to the street where it constitutes the city fabric that is the most successful because it is built with the human dimension and needs in mind. It is especially important to invest in public institutions like museums, government buildings and libraries so that they engage their surrounding urban environment and foster more opportunities for interpersonal interaction.

Case study:  Melbourne, Australia: Melbourne, Australia, is a city that is reaching for the best in urbanism on many fronts. It has an impressive municipal
office building, Council House 2, which richly enhances the looks of the surrounding neighbourhood. This bold, beautiful architectural accomplishment earned Australia’s six-star, Green Star rating in 2005 for using innovative “bio mimicry” technologies that mirror natural systems to save energy and water (Fig.4.19).

![Fig. 4.19: The Council House2 building with Bio mimicry technology with Six star Green star rating](image1)

![Fig. 4.20: People gathered in front of The Council House2 building](image2)

It is much more than just a showcase “green” building. At the ground level, it is dynamically connected to the surrounding neighborhood, fostering street life and creating a unique and dominant sense of place. The area around the building is enhanced by shade structures and other amenities, making this a comfortable place and an integral part of the community and creating a friendly, healthy microclimate in the vicinity. It shows that “iconic” architecture need not be divorced from the urban fabric. The best architecture exists in constant dialogue with the people and places around it (Fig.4.20).

**4.2.2.5 Linking a Public Health Agenda with a Public Space Agenda:** A healthy city offers its citizens the basic infrastructure like clean water, ablution facilities, sewage treatment, access to healthy food and safety in public areas. Healthcare facilities should serve as community centers, libraries should provide health education and services, public markets should be a source of fresh, affordable and nutritious food and transportation systems should encourage walking and reduce car traffic and air pollution. Where people feel a sense of belonging in their cities, they are more likely to take better care of the common environment and of themselves, resulting in a relatively stress free and crime free neighborhood.
Case Study: Detroit, United States: The city of Detroit is working on a new vision for its future that will address long-term challenges while improving the quality of life for its residents in the short term. “Rebuilding Detroit’s Neighbourhoods through Placemaking and the Power of 10” is an initiative that offers concrete solutions on a neighborhood scale resulting in significant quality of life improvements. The project leverages the gathering power of food and markets as catalysts for bringing people together, while building public spaces by improving vacant lots, existing parks, or too-wide streets. These public spaces will build a new sense of community and create opportunities for people to come together.

It has been widely recognized that Detroit’s inner city is home to one of the worst “food deserts” in the country. Detroit’s neighborhoods are also often “place deserts”: they lack public spaces where people can gather, they lack lively shopping streets where street life binds residents together, and many have limited numbers of neighborhood destinations. Existing neighborhood facilities such as schools, clinics, or community centers tend to be internalized, and offer specific, sometimes single track experiences. That is also often the case with neighborhood parks or community gardens, which could have much stronger impact as community destinations.

Project for Public Spaces, with support from the Kresge Foundation, is addressing the lack of place in communities by building on the growth of neighborhood farmers’ markets in Detroit. Farmers’ markets offer an opportunity for short term, immediate steps to enhance access to fresh, local food and to use the gathering power of markets as catalysts for retail development while building a stronger sense of community. While the city is developing its works plan for the future, small scale, focused interventions in specific neighborhoods can send a strong message to residents about the power of community in neighborhood revitalization.

Central Detroit is a neighborhood with a lot of basic needs. Despite its location in the United States, its problems are similar to those of the global south. Many residents are out of work. Many don’t own cars, and the public transit system is utterly inadequate. Safety and security are a major concern — the city can’t even keep up with repairing broken streetlights. A lot of houses are abandoned and occupied by squatters. The agency, project for Public Spaces was thrilled to be part of a very
successful harvest festival that occurs in fall season outside the wonderful Central Detroit produce market for Peaches and Greens (with key support from the Kresge Foundation and working with the Central Detroit Christian Community Development Corporation). Although flanked by vacant lots, Peaches and Greens proved to be the right spot for the festival and the event showed how this could evolve into an even better place for the neighbourhood to come together (Fig. 4.21). The tough conditions faced by local people made the response to the festival even more attractive and enthuising. People were ready to jump right in and become part of something more meaningful. They provided a lot of practical ideas for activities could be taking place around Peaches & Greens on a more regular basis. One thing heard from a lot of local residents was that they are eager to see more community-building events in the neighbourhood (Fig. 4.22).

![Fig. 4.21: A harvest festival and community celebration in Detroit neighborhood](image1)
![Fig. 4.22: Street and public lot are used as public space as there was no formal public space](image2)

4.2.2.6. Reinvent Community Planning: When planning projects within an established community, it is very important to identify talents and resources in that community – people who can provide historical perspective, insights into how the area functions and an understanding of what is truly meaningful to local people. Planners should always partner with local institutions and involve them from start to finish because communities have a more holistic vision for their public space than the more limited outside professionals and can act as valuable facilitators and resources. Good public spaces are adoptable and respond to evolution of the urban environment,
so that keeping the community in long-term control ensures that the space will adapt to their changing needs.

**Case Study: Nairobi, Kenya:** Kounkuey Design Initiative (KDI) transforms impoverished community areas by collaborating with residents to create low-cost, high-impact built environments (Productive Public Spaces) that improve their daily lives. Begun in 2006, KDI is an innovative international partnership specializing in the practices of architecture, landscape architecture, engineering, and urban planning. KDI is distinguished in the practice of participatory planning and design, the key to sustainable development. By working collaboratively with communities from the stage of conception through implementation, they build on the ideas of local residents, widen them with technical knowledge and design innovation, and connect them to relatively readily available resources. In doing so, KDI empowers communities to advocate for themselves and address the major physical, social, and economic challenges they face.

In early 2011, KDI identified a space in Nairobi’s largest informal settlement, Kibera, for a third Public Space Project – a site adjacent to the river that runs through the settlement. The two large riverbanks here flood during the rainy season, and the site is used for waste disposal throughout the year. Poor drainage along the access roads greatly decreases residents’ pedestrian access to and from their houses, although the two banks are connected by a bridge. Despite pollution, the river is currently used as a play area for children, a laundry area for families, and gathering area for nearby residents. During the summer of 2011 the KDI Kenya team conducted numerous community workshops with residents and community partners to prioritize needs, create design solutions, and explore micro-enterprise opportunities at the site. The resulting project design includes: a poultry farm; an improved drainage channel; flood control; a community center to house a school and health clinic; kiosks; and a playground constructed from locally sourced lumber and recycled metal. Kounkuey Design Initiative (KDI) transforms impoverished localities by collaborating with residents to create low-cost, high-impact built environments (Productive Public Spaces) that improve their daily lives (Fig. 4.23).
4.2.7 Power of 10: The principle of the Power of 10 or offering a variety of things to do in one location is making a place more than the sum of its parts. For example, a park should not only be a park, but a park with a fountain, playground, food vendor, nearby library, etc. If a neighborhood has 10 places that each have 10 different things to do, then that neighborhood is on the right track; but if that city then has 10 neighborhoods of this nature, all citizens will be guaranteed excellent public spaces within walking distance of their homes.

Case study: Nairobi, Kenya: The informal settlement of Kibera, in Nairobi, Kenya, is home to roughly 200,000 people. It is a place where public spaces are completely ignored, with infrastructure that is shockingly deficient to meet the needs of residents. But there are exceptions, and the Silanga Sports Field is one of them. This soccer field was formerly run down, polluted, and had become a centre for crime. But a local group called the Kilimanjaro Initiative has been working steadily over the last few years to upgrade it. They have levelled the field so that it is fit to play on, improved the drainage system, and started programming the space with concerts and other events. As a result, the field has been transformed from a barren, unsafe waste space and is now a center of attraction and activity for the community.
In order to make the space even more attractive and safe for Kibera’s residents, Project for Public Spaces recently met on site with local residents and city council staff to brainstorm about how to create synergy and connections among the facilities already located here, including a primary school, a public toilet, a community garden, a playground, a river, a pottery studio, a meeting hall, and a resource center. The focus became less on the sports field and more on how to maximize the use and potential of all of the resources at Silanga Sports Field, to make it a true destination for the neighborhood, creating a ripple of positive effects (Fig. 4.24). This is the Power of 10 at work.

4.2.2.8 Create a Comprehensive Public Space Agenda: Both top-down and bottom-up strategies are needed to develop, enhance and manage public space—leadership at the top is essential but grassroots organizing strategies are also integral to its success. A city must objectively assess public spaces and their performance and make firm decisions based on this analysis and implement them. For example, New York City decided to carve a public plaza. Out of all of its 59 community board districts, Chicago decided to levy a small tax on new development to fund improvements of surrounding public areas and internationally, Brazil launched an ambitious initiative to build 800 “public squares” in socioeconomically disadvantaged communities across the country over the next 3 years.
**Case study: Bogota, Colombia:** The Colombian city of Bogota is one where the divide between rich and poor had long been ingrained in the city’s fabric, with many parts of the city suffering from economic and geographic segregation. Over the last 20 years, the city’s leaders, have embarked on a citywide campaign to use public space and transportation systems to bridge the social divide and create opportunity for all of Bogota’s citizens.

Central to the campaign has been the development of the TransMilenio bus rapid transit system, which provides fast, efficient, and reasonably priced public transportation to large areas of the city. Some 1.4 million people ride the system daily, and when it is completed there will be 388 kilometers of route, achieved at a fraction of the cost that an underground metro system would have cost. Another key aspect of the holistic approach that Bogota has taken to its transformation is the Ciclovía (Fig. 4.25). Each Sunday and on holidays, for several hours, most streets of the city are closed to cars so that people can enjoy biking, walking, and various recreational activities in the streets. This has helped to raise awareness of the negative impact of traffic on people’s lives, and have been a key part of the city’s ongoing effort to regain street space for pedestrians and bicycles. Ciclovía has reinvigorated Bogota’s city centre, increased safety, supported active living, and exercise, and created a stronger sense of community for Bogota’s citizens. Ciclovía spurred the pedestrianization of streets and the transformation of vacant lots into parks (Fig.4.26). This has increased the area and quality of public space in the city.

The Mayor of Bogota also led an effort to increase green space and playing fields in neighborhoods around Bogota resulting in decrease in crime and gangster activity. Many citizens who were formerly without recreational opportunities are now enjoying safe and healthy outdoor activities.
4.2.2.9 Lighter, Quicker, Cheaper (LQC): Start Small, Experiment: Experience says, big is not always better or the only strategy. Small moves like creating places to sit, a sidewalk, a cafe, planning a community event, organizing a container garden or painting crosswalks all have positive effects on a community and its public space. Informal settlements in particular are already accustomed to small time innovative strategies that can rethink their environment, so implementing small changes here and there can really add up and be constructive.

Case study: Gyrumi, Armenia: Gyrumi, Armenia is a city hard struck by a 1988 earthquake that left 25,000 people dead and 100,000 or more without homes. In 2001, Project for Public Spaces Chief Operating Officer, joined the Urban Institute to help build thousands of housing units for the displaced families, who were still living in temporary shelters in public spaces all over the city (Fig. 4.27). With the success of this re-housing program, the central square has again been made available to the public, opening the way to plan its revitalization.

In July 2003, a grant from the Academy for Educational Development brought PPS to Gyrumi to facilitate the first effort since the earthquake to recapture some of the civic life that had characterized this cultural center. Local project partners included the Urban Institute and a local steering committee of architects, planners, NGOs, and city officials. Despite fears that this public involvement effort would fail because, in Armenia’s 6000-year history, such participation has been virtually unknown, more than 70 people attended a daylong Place-making workshop. The enthusiasm
immediately sparked cross-sector collaboration in the city on an unprecedented scale. The result was the “New Gyrumi Festival and Placemaking EXPO,” which occurred just two months later. The people of Gyrumi saw their square full of people (some 35,000) for the first time in anyone’s memory (Fig.4.28).

The events and improvements incorporated were a flower market, which has since become a regular bi-weekly event, a roller-skating rink with new asphalt surfacing, installation of new street furniture, an art fair, performances, wrestling matches, gymnastics, and children’s programs and daily TV news broadcasts. This catalytic event has been followed by more events on the square, and is part of a larger civic resurgence. Today, Gyrumi continues its recovery, with many officials well aware of the power of LQC interventions.

**Fig. 4.27:** The site that housed refugee after the Armenian earthquake  
**Fig. 4.28:** The site used for a three-day festival turned this long neglected site into a vibrant central square

### 4.2.2.10 Restructure Government to Support Public Spaces

Restructure Government to Support Public Spaces: To create a successful public space, local leaders, funding and other resources are crucial. There is hardly ever an official power structure in a community that focuses on creating successful public areas. Each governmental department usually has a specific, narrow approach like transportation deals with traffic, parks with green space, etc., but if the ultimate goal of governance, urban institutions and development, is to make places, communities and regions more prosperous, civilized and attractive for all people, then government processes need to change and increasingly reflect that goal. Cities need consensus building, city consultation processes and institutional reform that enhance citizenship and inclusion and work for the public good, removing bureaucratic obstacles to quickly add value to a place and demonstrate future potential.
**Case study: Mexico:** In Mexico, Secretaria de Desarrollo Social (SEDESOL), the Mexican Ministry of Social Development, has “rescued” 42,000 public spaces across the country in the past five years. Rescue of Public Spaces is a program that promotes the realization of social actions and the execution of physical works to restore community meeting places, social interaction, and everyday recreation in insecure and marginal and fringe urban areas. The goals are to help improve the quality of life and safety through the revitalization of public spaces in cities and metropolitan areas across Mexico, thereby promoting healthy living. Furthermore, the initiative is intended to link urban development to social development; promote community organization and participation; increase community safety and prevent antisocial activity; and help strengthen the sense of community belonging, social cohesion, and equitable relationships among genders and the generality of people. In Mexico, SEDESOL program is using an integrated approach toward creating safe, inclusive, and healthy public spaces by connecting all branches of government and improving communication with citizens.

**4.2.3 Public Space in Srirangapatna:** Srirangapatna has a good potential to develop a unique public space environment based on its rich diversity of cultures, ethnicities and history. The public spaces can be the vessel of interface among local people, and with tourists for exchanging ideas and cultures. This will increase the familiarity and linkages between the city and its people whether they are local residents or tourists. Public spaces are open, owned and used by all members of the public through providing accessibility and activities that can match the needs of wide range of people. In this study, the space near the Obelisk is recommended for the development as public space.

**4.2.3.1 War Memorial – Obelisk:** A memorial is an object which serves as a focus for memory of something, usually a person (who has died) or an event (Pooja Sharma, 2014). Memorials always hold a special place in the hearts of the people. A memorial can be for an individual or for a community. The main thought behind having a memorial is to value the sacrifice behind it. A war memorial is a building, monument, statue or other edifice to celebrate a war or victory, or (predominating in modern times) to commemorate those who died or were injured in a war. For most of human history, war memorials were erected to commemorate great victories. Remembering the dead has been a secondary concern. Many war memorials often take the form of a
traditional monument or statue, while others consist of entire buildings, often containing a museum, while yet others are simple plaques. War memorials can take a variety of other forms, including, but not limited to, commemorative gardens, eternal flames, urban plazas, fountains and/or pools of water, military equipment, and parks. They often serve as a meeting place for commemorative services. As such, they are often found near the centre of town, or contained in a park or plaza to allow easy public access. Many war memorials bear plaques listing the names of those died in battle. Some war memorials are dedicated to a specific battle, while others are more general in nature and bear inscriptions listing various theatres of war.

Across the globe, every country does not have a national memorial, but some countries like United States of America have memorials which are dedicated specially for wars like Korea and Afghanistan and many more. India has many memorials dedicated to wars and martyred soldiers. Amar Jawan Jyothi at the India Gate in New Delhi, the War Memorial, Chennai, the National Military Memorial, Bangalore, the Tawang War Memorial, Arunachal Pradesh are a few of them which have been erected across the country as a salute to the war heroes. But all these memorials are not national ones. Amar Jawan Jyothi, as is very well known, was built by the British in memory of Indian soldiers who died fighting for the Raj in World War I. Even more importantly, there is no single monument dedicated to soldiers who died fighting for independent India. (Kirti Shirsat-Sagaonkar, 2014). Yet what perturbs one greatly and is a point to be pondered about seriously is that small and less significant memorials and monuments abroad are very well preserved while in our country unfortunately, even those of great significance remain in a state of neglect and decay. The government, civic authorities and the citizens have to take collective interest in preserving them for the posterity of history, culture and heritage.

An obelisk (nail, pointed pillar) is a tall, four-sided, narrow tapering monument which ends in a pyramid-like shape at the top. These were originally called tekhenu by the builders, the Ancient Egyptians. The Greeks who saw them used the Greek obeliskos to describe them, and this word passed into Latin and then English. Ancient obelisks were often monolithic, whereas most modern obelisks are made of several stones and can have interior spaces.

Obelisk in Srirangapatna (Fig. 4.29) is a monument recognised and protected by the Archaeological Survey of India and a memorial erected by the then government of

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Mysore in memory of the English soldiers died during the siege of Srirangapatna. No less important is this Obelisk War Memorial though built on a lesser scale relatively, by the British to commemorate the soldiers who fell in the Fourth Anglo-Mysore war in which Tipu Sultan met his end on May 4th 1799. This battle ensured the supremacy of the British in South India as the last king standing against the imperial rule was slain. It was thought fit to build a memorial for the soldiers who died in this historic war in 1907.

The Obelisk stands at the centre of an expansive and concentric series of steps, on a high point close to the fort walls. The structure is of polished stone and is a square-planned pier surmounted by a tapering obelisk with the names of officers who died and the units which fought at the siege of Srirangapatna in 1799 inscribed on it. On the top and around are cannon balls. The four plaques fixed on the square base with chamfered edges are inscribed with various details. Above the base structure is a conical projection supported by four cannon balls. Another cannon ball is fixed at the top too. The inscription on one side of the plaque reads “This monument is erected by the Government of Mysore in 1907 in order to commemorate the siege of Srirangapatna by the British forces under lieutenant general G. Harris and its final capture by assault on the 4th May 1799”. Also, the names of those gallant officers who fell during the operations. The next side is a corps wise table that lists the number of soldiers and officers wounded, killed or missing during the siege (4th April to 4th May 1799). The final tally reads as Killed-192, Wounded -657 and Missing -25. So, that is the official version of the damage the British corps suffered at Srirangapatna. The other two sides list the rank, name and the regiment of the European officers killed.

The Obelisk is at the north-west corner of the fort and is located close to the railway station in Srirangapatna. Historically this monument sits on an eventful place in the siege of Srirangapatna. Unlike many other attractions around, this part of the fort is relatively isolated and also often covered with bushes. Though the Obelisk is located amidst natural setting, it is not a popular destination of tourists compared to other monuments in the town. Fig. 4.30 shows the natural landscape near Obelisk monument. This space with natural mounds and valleys, scenic beauty of river Cauvery with the back drop of Delhi Bridge has a good potential to develop as a public space. Fig. 4.31 shows proposed location for development of public space near the Obelisk monument.
Fig. 4.29: Obelisk monument built in memory of the English soldiers died during the siege of Srirangapatna

Fig. 4.30: Natural landscape near Obelisk monument in Srirangapatna
The available area and the perimeter for the development of proposed public space is 20,150 sq. m. and 650 m respectively. This space if planned as a public space, acts as multi use destination with many attractions and activities. Public spaces in towns and cities help to build social connection and civic pride and enhance human happiness. They serve as safety valves where people find relaxation and also promote a sense of concern without which it is impossible to ensure civility in them. The proposed development near the Obelisk is shown in Fig.4.32. The people are to be mobilized to save and expand public spaces by creating opportunity, and there is always a hope for
the future, especially when people learn to cherish and work to preserve the rich variety of public spaces in their own often rapidly-changing, modernizing, noisy, tumultuous and colourful town.

4.3 TOURISM

Tourism industry is one of the major segments of the Indian economy. It is a major contributor to foreign exchange earnings, provides employment to millions directly and indirectly and acts as a vehicle for infrastructure development. Recognising the importance of the tourism industry, the Government of India has initiated many policy measures such as Tourism Policy 1982, Tourism Plan of Action 1992 and Tourism Policy 1997. Through these policies, the Government has intended effective coordination of public and private participation to achieve synergy in the development of tourism. These plans identified new forms of tourism products for taking advantage of the emerging market trends. Business tourism, health tourism, rural tourism, pilgrim tourism, adventure tourism, and sustainable tourism are some of the new products being devised for changing demand.

4.3.1 Emerging Types of Tourism: Tourism will expand greatly in future mainly due to the revolution that is taking place on both the demand and supply side. The changing population structure, improvement in living standards and conditions, more disposable income, fewer working hours and longer leisure time, better educated people, ageing population and more curious youth in developing countries, all will fuel the growth of tourism industry. The arrival of a large number of customers, better educated and more sophisticated, will compel the tourist industry to launch new products and brands and reinvent and transform traditional markets. The established traditional destinations founded on sun-sea-sand products will have to reengineer their products. They must diversify and improve the criteria for destinations and qualities of their traditional offers and new products based on natural rural business, leisure and art and culture. Thus the study of new emerging markets and necessity of diversified products is significant which can enhance and sustain existing markets and capture new ones. In this context emerging tourism is noted in the following (www.du.ac.in/.../Academics/course_material/Lesson21-23.pdf).
4.3.1.1 Health Tourism: India is promoting the high-tech healing provided by its private health care sector as a tourist attraction. This budding facility in medical tourism, selling foreigners the idea of travelling to India for world-class medical treatment at lower costs, has really attracted in the overseas market. The Indian system of medicine, which incorporates Ayurveda, yoga, siddha, unani, naturopathy and other traditional healing treatments, is very unique and has often become awe inspiring to foreigners. This medical expertise coupled with allopathic and other modern methods become new focus segment to project India as a Global Healing Destination. Indian medical tourism provides less expensive treatment and one will wonder to know that the cost of same treatment in the United States is very expensive in comparison to that in India. Many State Governments like Kerala, Andhra Pradesh, Uttarakhandal, and Karnataka have been showcasing their medical tourism facilities in certain focussed market like the Gulf and African regions.

4.3.1.2 Ayurveda: India has a rich heritage in the areas of traditional and natural medicines. The earliest mention of Indian medical practices can be found in the Vedas and Samhitas of Charaka, Bhela and Shusruta. A systematic and scientific approach was adopted by the sages of the time leading to the development of a system that is relevant even today. India is the land of Ayurveda. It believes in removing the cause of illness and not just curing the disease itself. It is based on herbals and herbal components without having side effects. Kerala is a world tourist destination and part of the reasons lies with the well-known stress-releasing therapies of famed Ayurvedic research centres. The climate along with the blessing of nature has turned Kerala into the ideal place for ayurvedic, curative and rejuvenating treatments.

The tourism department has devised websites in order to provide information. Many Ayurveda health resorts that are owned and run by traditional Ayurveda Institutes have come up. Ayurgram is a novel concept that not only offers heritage accommodation but also offers a whole range of ayurvedic treatments and rejuvenating packages. Similarly hotels have also included these types of packages in their holidays. Some of the tour operators have worked out all-inclusive medical treatment package that include treatment, accommodation, food, airport transfers, post operation recuperative holidays, along with a host of other facilities. This in fact
shows Indian products offer true value for money for service. Many world-class state-of-the-art furnishing and equipment are being added to Ayurveda Resorts to welcome international guests. Along with these hospitals there are many centres which offer not just physical but emotional and spiritual healing to patients. With all these India is going to be one of the leading medical health care destinations in the near future.

4.3.1.3 Yoga: If Ayurveda is the science of body, yoga is the science of the mind. Practiced together as a holistic package, they can go a long way in making an individual more healthy and fit. The word yoga means to join together. The ultimate aim of yoga is to unite the human soul with the universal spirit. Yoga was developed 5000 years ago and the base of yoga is described in the Yoga Sutra of Patanjali. Pranayama helps to release tensions, develop relaxed state of mind and Yoganidra is a form of meditation that relaxes both physiological and psychological systems. Today, yoga has become popular in India and abroad and in a number of places including urban and rural areas yoga is taught and practiced. It is proud to state that Mysore is known as the world yoga capital where nearly 3000 foreign nationals visit Mysore as trainees every year.

4.3.1.4 Spas: Most of the other parts of the world have their own therapies and treatment that are no doubt effective in restoring wellness and beauty. New kinds of health tours that are gaining popularity in India are Spa tours. Spas offer the unique advantages of taking the best from the west and the east combining them with the indigenous system and offering best of the two worlds. In hydropathy, Swedish massages work with the Japanese Mandy, aromatherapy, reflexology and traditional Ayurveda procedures to help keep the tourist healthy and enhance beauty. Combining these therapies with meditation, yoga and pranayama make the spa experience in India a new destination for medical tourism. The spas are very useful for controlling blood pressure, insomnia, providing freedom from tension, depression, paralysis and number of other chronic ailments.
4.3.1.5 **Allopathy**: India has made rapid strides in advanced health care systems, which provides world-class allopathic treatment. This has become possible because of the emergence of the private sector in a big way in this field. More and more foreign tourists are realizing that India is an ideal place for stopover treatment. Indian multi-specialty hospitals are providing world-class treatment at a relatively low cost as compared to the west. Quality services and lower level of expense primarily go in favour of India. The cardio care, bone marrow transplantation, dialysis, kidney transplant, neuron–surgery, joint replacement surgery, urology, osteoporosis and numerous diseases are treated at Indian hospitals with professional expertise. Apollo hospital group, Escorts in Delhi, Jason Hospital, Global Hospital, and Max Health Care are catering to medical care for international patients in the areas of diagnostic, disease management, preventive health care and incisive surgeries.

4.3.1.6 **Spiritual Tourism**: Globally people are increasingly disturbed as a result of social and professional circumstances and looking for solace in spiritual reading, meditation and moments of divine association. India has been known as the seat of spiritualism and its cosmopolitan nature is best reflected in its pilgrim centres. Religion is the life-blood for followers of major religion and sects. Hinduism, Islam, Buddhism, Jainism, Zoroastrianism and Christianity have lived here for centuries. The visible outpour of religious fervour is witnessed in the architecturally lavish temples, mosques, monasteries and Churches spread across the length and breadth of the country. India is not only known as a place rich in its culture with varied attractions but also for many places of worship as embodiments of compassion where one gets peace of mind. Thus India has been respected as a destination for spiritual tourism for domestic and international tourists. Spiritual tourism is also termed as religious heritage tourism. It includes all the religions mentioned above; religious places associated with, emotional attachment to these centres and infrastructure facilities for the tourists. This can also be referred to as pilgrimage tourism, as clients are not looking for luxury but arduous journeys to seek divine fulfilment or simple life. The essence of spiritual tourism is inner feeling through love. Love should not be rationed on the basis of caste, creed and economic status or intellectual attainment of the recipient. Religions come into existence for the purpose of regulating human life; what are common to all of them are the principles of love and kindness. Thus through religious tourism there is a sincere effort to bring better
understanding among various communities, nations and thus foster global unity.

4.3.1.7 Meetings, Incentives, Conferences and Exhibitions (MICE) Tourism: The meetings, incentives, conferences and exhibitions (MICE) industry is extensively and rapidly growing and is largely associated with travel for business purpose. MICE related events include meetings, conferences, conventions, exhibitions and incentive travels. Each of these different subsections of MICE has quite different characteristics although the industry is often referred to as MICE. Increasingly convention bureaus serve the needs of meetings, incentives and exhibitions organizers and service providers supply each of the sectors.

With the Indian economy opening up and the relaxation of government restrictions, Mumbai, Bangalore, Hyderabad, Chennai, Delhi and Kolkata are assuming importance as major centres of business activity in the country. The days of red tape always associated with Indian business activity is a thing of the past and corporate India has moved towards more western standards of professionalism. Since the liberalization of the Indian economy, MICE tourism is becoming a growing segment in India. Incentive travel has emerged as a popular means of rewarding the employees’ achievements and contributions, by several business houses especially multinational companies, Insurance Companies, Banks, Pharmaceuticals Firms, etc. Employees are given free tickets or holidays packages to select destinations all paid by company. These are given as added perks to keep up the interest of the executives who are the high performers of the company. Incentive tours market has become fast growing sector within the tourism industry.

4.3.1.8 Adventure Tourism: Youth tourism has been identified as one of the largest segments of global and domestic tourism. The young travellers are primarily experience seekers, collecting, enquiring unique experiences. Adventure and risk have a special role to play in the behaviour and attitudes of young travellers. The growth in the number of young travellers is being fuelled by a number of factors such as increased participation in higher education, falling level of youth unemployment, increased travel budget through parental contribution, search for an even more exciting and unique experience and cheaper long distance travel. Youth and adventure
tourism appears to have considerable growth potential. The rising income in some major countries such as those in Central and Eastern Europe, Asia and Latin America, combined with the lower travel cost, growing student populations around the world particularly in developing countries, has fuelled the demand.

India has been an attraction for travellers from all over the world, though in the field of international tourism, the segment of adventure tourism in India is getting only a fraction of such traffic. The trend has been showing an increased movement year after year with the development of facilities and greater awareness about adventure tourism options. Indian tourism offers both international and domestic adventurers a wide choice of adventures. Water sports, elephant safari, skiing, yachting, hail-skiing, gliding, sailing, tribal tours, orchid tours, scaling the high peaks of Himalayas, trekking to the valley of flowers, riding the waves in rapids, and camel safari in the deserts are breath taking opportunities for nature enthusiasts. This in turn helps in inculcating a spirit of adventure encountering the unexpected and respect for nature among the youth.

4.3.1.9 Nature Tourism: In search of new tourism products, travellers and suppliers are today seeking to reshape the meaning of nature as a tourism attraction. Modern nature based tourism focuses on experiencing flora and fauna in natural settings. Eco-tourism takes into account unspoiled natural and socio-cultural attraction. Today the term nature tourism is often used synonymously with eco-tourism and nature tourism is the fastest growing segment of the tourism sector. It comprises around 40-60% of all international tourism. Diversity of India is to be seen not only in its people, culture, religion, language and life style, but also in the diversity of land itself. The snowbound peaks of the Himalayas, tropical rain forests, and hot deserts and breathtaking beautiful coasts, each diverse geographical region generates a different picture and exploring them provides a unique experience. Now all these are packaged for tourists to provide eco-friendly holidays in India. The whole objective of nature tourism is to have planned travel in natural areas. While utilising the economic opportunities one should ensure conservation of natural resources. People travel to those areas, which enlightens, educates and entertains them. The new changed concept of nature tourism revives the tired source of the eco-tourism. It also provides basic economic upliftment to local people and other stakeholders who are directly
dependent on this natural heritage. This strong relationship is abiding throughout eco-
tourism.

4.3.1.10 Rural Tourism: Rural tourism has been identified as one of the
priority areas for development of Indian tourism. Rural tourism experience should
be attractive to the tourists and sustainable for the host community. The Ninth Plan
identified basic objectives of rural tourism as: -

- Improve the quality of life of rural people
- Provide good experience to the tourist
- Maintain the quality of environment.

Indian villages have the potential for tourism development. With attractive and unique
traditional way of life, rich culture, nature, crafts, folk-lore and livelihood of Indian
villages are a promising destination for the tourist. It also provides tourism facilities in
terms of accessibility, accommodation, sanitation and security. To tap the immense
opportunities, coordinated actives of all agencies involved in the development are
required. A carefully planned and properly implemented development will definitely
benefit the community economically and improve the quality of life in villages. The
success of such development depends upon people’s participation at grass root levels
for the development of tourist facilities and for creating a tourist friendly atmosphere.
Development of rural tourism is fast and trade in hotels and restaurants is growing
rapidly. Increase in the share of earnings through rural tourism will no doubt; provide
an attractive means of livelihood to the poor rural community. It increases the
purchasing power at all levels of community and strengthens the rural economy.
Development of infrastructure facilities such as rail, electricity, water, health and
sanitation will definitely improve the quality of life. Central Government and State
Governments have been encouraging rural handicrafts and fairs and festivals that have
direct impact on preservation of heritage and culture of rural India. Regional fairs,
festivals help the growth of tourism, provide a ready market for the handicrafts,
 supplementary income to the community, and facilitate regional interaction within the
country.

4.3.1.11 Sustainable Tourism: The concept of sustainability means that mankind
must live within the capacity of the environment that supports. Sustainable
development has been defined briefly as “that which meets the needs of the present without compromising the ability of future generations to meet their own needs”.

The concept of sustainable development is all about conservation and stewardship of resources for the future. The support for ecologically sustainable development emerging strongly in the tourism sector, as it is the only reasonable way of balancing environmental concerns with growth and development of the industry. Since the earth summit, the concept of sustainable development has been placed firmly on the global agenda. This issue is assuming great significance in the development of tourism in India also. 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 hence the development should ensure that social and cultural sustainable tourism development compatible with the culture and values of the local people.

Tourism can be one of the effective tools for building a prosperous community economically, socially and culturally. It must be environmentally sustainable and based on the sustenance of the natural and cultural base. Each destination should examine whether it has adequate attractions and facilities for tourism and there is a potential for tourism generating markets to be open to exploitation. The carrying capacity is the central principle in environmental protection and sustainable tourism development. It determines the maximum use of any place without causing negative effects on resources on community, economy and culture. Thus tourism has to be environmentally sustainable in both natural and cultural environment.

4.3.3 Destination Development: An Emerging Theme: The new trends in tourism markets compel all the destinations to develop new products and strengthen or re-engineer the existing products for retaining, enhancing and capturing new markets. The effective tourism development is highly necessary for the success of tourism industry. The success of future tourism is intrinsically connected with the way in which the industry and the tourism system understand and incorporate the emerging critical infrastructure needs that support its expansion. Tourism is undergoing major changes; aging world population in western countries, active life style of older
traveller, the emerging markets, growing disposable income of the youth and awareness about the impact of tourism on environment will decisively influence the number of tourists and destination choices. These trends will bring profound changes in the management and planning of tourism business and destination development.

Destinations face increasing challenges in the international market where numerous stakeholders (tourists, local people, tour operators, hotels and restaurants owners etc.) with diverse values and often diverse needs compete for scarce resources. The growing number of travellers and inhabitants increasingly make impact on natural and social environment. The success of tourism depends on the ability of the firms and destination to engage in sustainable use and conservation of vital resources. The destination development is the key to sustaining the natural and cultural resources on which tourism depends. Therefore steps have to be taken up as key initiative in development of tourism destinations. The close interaction between the public sector, the destinations tourism marketing organisations, private sector and local residents in planning is the key principle of sustainable tourism. Thus the stakeholders can work most effectively together to manage local and global influences on their natural and cultural resources.

The destination is one of the most important elements of tourism because destinations and their image attract tourists, motivates the visitor and energize the whole tourism system. Without the richness and variety of tourism appurtenances one would not have the same quality of tourist experience. It is important for the destination to deliver quality experience and product, and in this regard, careful planning and management is essential to ensure a tourism industry based on sustainable development. The destination brings together all aspects of tourism like demand, transportation, supply and marketing. As the demand for tourism has increased, pressure from the growing number of visitors has degraded some destinations. In response to this, planning and management strategies have to be implemented in the busier destinations. Planning and management is the key to making existing tourist destination and resources more effective in meeting current as well as future demand. Thus the destination as the focus of facilities and services are designed to meet the needs of tourists. In this context the most essential facilities to be considered in the destination development are stated below:
4.3.2.1 Infrastructure and Super Structure: Infrastructure represents all forms of construction above or below the ground, with extensive communication with the outside world as a basis for tourism activity in the area. Adequate infrastructure is essential for tourism development mainly in the form of roads, airports, transportation, utilities and other services. Generally infrastructure does not generate any direct income and is treated as a public investment in most of the tourist developments, whereas a super structure is normally private sector activity, as it is the profit-generating element of the destination. It includes accommodation, built attractions, retailing and other services. In many countries public sector is actively providing financial incentives like grants, loans, and holidays for private sector tourism investment. Thus the destination development is a combined effort of public and private sectors.

4.3.2.2 Carrying Capacity: The carrying capacity of a site, resort, town or even a region refers to the ability to take tourism. Carrying capacity is the maximum number of people who can use a site without an unacceptable alteration of the physical environment and without an unacceptable decline in the quality of experience gained by visitors. It is no longer acceptable for the industry to exploit and use-up destinations. A sustainable tourism development attempts to keep tourism in a particular place within the limits of capacity of the place. The modern forms of tourism are based more on specialization, niche areas and highly competitive than on earning money from volume tourism.

4.3.2.3 Technology: Tourist destination of the future will be influenced by a variety of factors, but technology and the demands of the modern tourists will be a dominant. Technology permeates destination development in many ways such as, hotel communication system, computer reservation system which allows matching of demand with supply and computer generated imagery and use of virtual reality. Thus the stage is set for a range of new tourist destinations to be developed and for the more effective management of existing destinations. There is no doubt that these new and existing destinations need to be better planned and managed and show more concern for their environment and host community.
4.3.2.4 Human Resource Development: The success of any industry depends to a great extent upon the quality of human resource and tourism is not an exception. It is a known fact that tourism is a labour intensive industry which provides employment to skilled, semi-skilled and unskilled workers directly and indirectly. A trained labour force with dynamic management and responsive government and responsible society are the pillars of tourism industry.

Traditionally, employment has been seen as an area that is reactive to changes in a wide business environment. There is a widely accepted view that the role of people within organisations is required to change and grow in response to developments in markets, products and technology. Most of the large tourism companies recognized this and has even started organising work and support human resource functions such as training and development. This is possible only when the ambient labour market permits employers to adapt these changing dimensions.

A major issue in tourism industry is the problem of matching employee’s skills with changing industry requirements. The traditional practice of employee’s learning all or most of the skills on the job and gradually progressing to senior position is threatened by the rapid technological changes and the need to respond to the changing service requirements and specialisms in them. Employees at the operational and managerial levels are now required to be more flexible and adaptive to constant change. Hence necessity of trained manpower has become top priority in the agenda of tourism plans over the years.

4.3.3 Tourism Profile of Karnataka State: Karnataka, one of the most progressive and well developed industrial states in the country, has been ranked as the 4th preferred destination among domestic tourists and is the 3rd preferred destination for attracting investments in the tourism sector. It is home to several forts, architectural marvels and is blessed with a rich cultural heritage of over 1500 years. Other diverse visitor attractions include pilgrim sites, coastal landscape, wildlife / national parks, Eco Tourism, Wellness Tourism-Alternate Lifestyle/ Yoga, Voluntary Tourism and Adventure Tourism. Over the years, Karnataka has also emerged as a strong contender in the global market for Business Tourism. It is estimated that
approximately 62 million and 7 million domestic & foreign tourists respectively will visit Karnataka in the year 2015.

The “Karnataka Tourism Policy 2014-2019” focuses on accelerating and facilitating private investments in the tourism sector, and strives to be an outcome based initiative. The policy follows a non-discriminatory approach to incentivise and promote the local community as well as private sector for contributing towards the development of tourism sector. This policy strives towards creating an enabling environment for tourism in Karnataka by addressing and providing guiding framework pertaining to governance structures, tourist infrastructure, manpower requirements, service standards and, safety and security of tourists. The Policy lays emphasis on creating “quality experiences, appealing to different visitor segments”, by promoting development of various tourism appurtenances which will encourage repeat visits and longer stay and higher spends by tourists. The Policy encourages shift in attitudes - from regulation and control to empowerment, from patronage to partnership, and from linear government-lead structures to alliances with diverse stakeholders in the sector.

The “Karnataka Tourism Policy 2014-2019” in its strategic framework has taken initiative to identify New and Innovative Tourism products and Services under which efforts are being made to include more heritage sites into UNESCO’s World Heritage Sites list for bringing in significant international recognition and tourist traffic through preparation of integrated Site Management Plans and proposals to Government of India. The Government will pursue the process of recognition for other heritage sites like the Hoysala region, Srirangapatna and the Deccan Sultanate architecture (Proposed Karnataka Tourism Policy, 2014-2019, Draft copy).

The domestic tourists in Karnataka represent 8.6% of the total domestic tourist visits (4th position) in the country and 3.2% of the total foreign tourist visits (9th position) in the country. This is represented in Fig. 4.33 and Fig. 4.34 respectively (India tourism Statistics, 2013).
**Fig. 4.33:** Share of Top 10 States/UTs of India in number of Domestic Tourists visits in 2013  
(Source: India tourism Statistics, 2013)

**Fig. 4.34:** Share of Top 10 States/UTs of India in number of Foreign Tourists visits in 2013  
(Source: India tourism Statistics, 2013)

Fig. 4.35 shows the percentage of International tourists and Fig. 4.36 shows the percentage of Domestic tourists visiting the major tourism destinations in Karnataka respectively.
It is observed that the southern districts of Karnataka namely Bangalore, Mysuru, Hassan, Mandya and Kodagu accounts for more than 60% of total International tourism inflow as shown in Fig. 4.37. Mysuru accounts for the largest inflow of tourist for both the domestic and International categories. The maximum inflow of
tourists in both the domestic and International categories is in the months of December to February. However, the seasonal trends for International tourist are around 74% concentrated during October to March. In case of domestic tourism, it is around 63% in the same period (Interim Report- Priority circuit, Karnataka, July-2012).

4.3.4 Tourism Profile of Mandya District: Mandya is an administrative district of Karnataka, India. Mandya District borders on the south by Mysore District, on the west by Hassan District, on the north by Tumkur District and on the east by Ramanagar district. The district was formed in the year 1939. Now the District comprises of 7 Talukas. The main town in Mandya District is Mandya. As of 2011, the district population is 1,808,680 of which 16.03% is urban. The district covers an area of about 4850.8 square kilometers, about 1/40th of the area of the whole state. Mandya’s greatest assets are its four rivers, the Cauvery, Hemavathi, Lokapavani and Shimsha that give the district both religious importance and scenic beauty.

Table 4.1 shows the Taluka wise destinations identified for tourism. The tourist arrival at Taluka-level is grouped into High, Medium and Low depending on the number of tourist arrival annually. The tourist destinations are categorised based on "Report of the High Power Committee for Redressal of Regional Imbalances in Karnataka", Dr. Nanjundappa Committee Report, 2002 (Proposed Karnataka Tourism Policy, 2014-2019, Draft copy).
### Table 4.1: Mandya district Tourist Destinations and tourists Arrival

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Taluk</th>
<th>Destinations Identified For Tourism</th>
<th>Category</th>
<th>Tourist Arrival</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Krishnarajpet</td>
<td>Daria Daulat, Hosaholalu, Kikkeri, Hemagiri Falls, Basaralu</td>
<td>A</td>
<td>High</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>B</td>
<td>Medium</td>
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<td></td>
<td>C</td>
<td>Low</td>
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<tr>
<td>2</td>
<td>Maddur</td>
<td>Kokkare Bellur</td>
<td>D</td>
<td>High</td>
</tr>
<tr>
<td>3</td>
<td>Malavalli</td>
<td>Shivanasamudra</td>
<td>E</td>
<td>Medium</td>
</tr>
<tr>
<td>4</td>
<td>Mandya</td>
<td>Hanumanthanagara Eco Park, Gaanadalu, Hosabudanur</td>
<td>A</td>
<td>High</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>B</td>
<td>Medium</td>
</tr>
<tr>
<td>5</td>
<td>Nagamangala</td>
<td>Adhichunchanagiri</td>
<td>C</td>
<td>Low</td>
</tr>
<tr>
<td>6</td>
<td>Pandavapura</td>
<td>Melkote, Thonnurkere</td>
<td>D</td>
<td>Not Backward</td>
</tr>
<tr>
<td>7</td>
<td>Srirangapatna</td>
<td>Srirangapatna, Nimishamba Temple, Brindavan Gardens, Ranganathittu, Hulikere, Krishnarajasagara dam</td>
<td>E</td>
<td>Well Developed</td>
</tr>
</tbody>
</table>

Source: Proposed Karnataka Tourism Policy 2014-2019 (Draft Copy), Department of Tourism, Government of Karnataka.(2014)

A- Most Backward  
B- More Backward  
C- Backward  
D- Not Backward  
E- Well Developed  

High: greater than or equal to 5 lakh tourists annually  
Medium: between 50,000 and 5 lakh tourists annually  
Low: lower than 50,000 tourist annually  

Among the Taluks in Mandya District, Srirangapatna has maximum number of tourist destinations identified for tourism and the tourist arrival is also high. However, it falls in the category C, which indicates backward class. Thus the town requires immediate measures for overall development.
4.3.5 Tourism in Srirangapatna: The heritage character of Srirangapatna is greatly attracting tourist arrival. The traffic and transportation increase between Bangalore and Mysore have not made any impact on the deterioration of heritage elements of the town. In fact it has led to the emergence of many tourism based business like Resorts, restaurants, private road transportation etc., but the town has failed to attract the tourists who opt for night stay, the reason once again the closeness of the city Mysore.

The Table 4.2 reveals that the flow of foreign tourists to the town has witnessed a slow rise since 2006 but again is in the decreasing trend since 2013. The Domestic tourists in flow have increased from 2011onwards but it is not so considerable. The total income generation is not on the growing trend. Hence, the tourism related infrastructure facilities have to be improved in the town.

Table 4.2: Number of Domestic and Foreign Tourist Arrival

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Year</th>
<th>Domestic Tourist</th>
<th>Foreign Tourist</th>
<th>Revenue (Lakhs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2004</td>
<td>598951</td>
<td>17577</td>
<td>47.25</td>
</tr>
<tr>
<td>2</td>
<td>2005</td>
<td>600319</td>
<td>18473</td>
<td>48.29</td>
</tr>
<tr>
<td>3</td>
<td>2006</td>
<td>701087</td>
<td>21725</td>
<td>56.57</td>
</tr>
<tr>
<td>4</td>
<td>2007</td>
<td>675237</td>
<td>23996</td>
<td>57.00</td>
</tr>
<tr>
<td>5</td>
<td>2008</td>
<td>725400</td>
<td>23100</td>
<td>59.25</td>
</tr>
<tr>
<td>6</td>
<td>2009</td>
<td>791645</td>
<td>25797</td>
<td>65.37</td>
</tr>
<tr>
<td>7</td>
<td>2010</td>
<td>877816</td>
<td>26791</td>
<td>70.68</td>
</tr>
<tr>
<td>8</td>
<td>2011</td>
<td>933252</td>
<td>27063</td>
<td>73.72</td>
</tr>
<tr>
<td>9</td>
<td>2012</td>
<td>925875</td>
<td>26297</td>
<td>72.58</td>
</tr>
<tr>
<td>10</td>
<td>2013</td>
<td>919705</td>
<td>25295</td>
<td>71.28</td>
</tr>
<tr>
<td>11</td>
<td>2014</td>
<td>962237</td>
<td>23286</td>
<td>71.39</td>
</tr>
</tbody>
</table>

Source : Archaeological Survey of India, Srirangapatna

4.3.5.1 Carrying Capacity Analysis: Tourism Carrying Capacity (TCC) is defined as “the maximum number of people that may visit the tourist destination without causing destruction of the physical, economic and socio cultural environment and an unacceptable decrease in the quality of visitors’ satisfaction” (Interim Report- Priority circuit, Karnataka, July-2012). The assessment of TCC is based on three major indicators:

- Physical-Ecological
- Socio-Demographic
- Political- Economic.

1. Physical and Ecological Indicators are based on fixed components (ecological capacity, assimilative capacity) and flexible components (infrastructure systems like water supply, electricity, transportation, etc.).

2. Socio-demographic Indicators refer to social and demographic issues and importance to local communities, as they relate to the presence and growth of tourism. Some of these can be expressed in quantitative terms but most require suitable socio- psychological research.

3. Political-economic Indicators refer to the impacts of tourism on local economic structures, activities, etc. including competition with other sectors.

The objective of the interventions intended by the Ministry of Tourism, Government of India is to improve the quality and adequacy of tourism infrastructure at tourist destinations/circuits in a sustainable manner. Hence, for the purposes of this report the primary focus would be on the Physical and Ecological Indicators. It is expected that improvement in physical infrastructure at destinations/circuits would translate into improvements in the socio-demographic and political-economic conditions of these places.

![Fig. 4.37: Methodology for Carrying Capacity Analysis](image-url)
The methodology for evaluating the available carrying capacity for the tourist destinations is illustrated in Fig. 4.37 and the procedure is described below.

**I. Calculation of Existing Load (L\textsubscript{EXISTING})**

This is obtained by calculating the following:

a. **Resident Population Density (β\textsubscript{RP})**: This was derived by dividing the existing resident population of the tourist town by its area in hectares (ha.)

b. **Domestic Tourist Density (β\textsubscript{DT})**: This was derived as follows:

   Step 1 Domestic Tourist Arrival (T\textsubscript{D}): Domestic tourist arrivals during peak season (days) was determined.

   Step 2 Tourist stay days in peak seasons (T\textsubscript{DSP}): Domestic tourist arrival was multiplied by average number of days of tourist stay at that tourist town.

   \[ T_{DSP} = T_D \times \text{Stay Average Days} \]

   Step 3 Average number of tourist staying per day during peak season (α\textsubscript{DSP}): This was evaluated by dividing the number of tourist stay days per season by the number of days comprising the peak season

   \[ \alpha_{DSP} = \frac{\text{Stay Average Days}}{\text{Days Peak Season}} \]

   Step 4 Domestic Tourist Density (β\textsubscript{DT}): This was evaluated by diving Average number of tourist staying per day during peak season by area of tourist town in hectares.

   \[ \beta_{DT} = \frac{\alpha_{PS}}{\text{Area}} \]

c. **Foreign Tourist Density (β\textsubscript{FT})**: This was obtained as follows:

   Step 1 Foreign Tourist Arrival (T\textsubscript{F}): Foreign tourist arrivals during peak season (days) was determined.

   Step 2 Tourist stay days in peak seasons (T\textsubscript{FSP}): Foreign tourist arrival was multiplied by average number of day of stay for tourist at that tourist town.

   \[ T_{FSP} = T_F \times \text{Stay Average Days} \]

   Step 3 Average number of tourist staying per day during peak season (α\textsubscript{FSP}): This was evaluated by dividing the number of tourist stay days per season by the number of days comprising the peak season

   \[ \alpha_{FSP} = \frac{\text{Stay Average Days}}{\text{Days Peak Season}} \]
Step 4 Foreign Tourist Density: This was evaluated by diving Average number of tourist staying per day during peak season by area of tourist town in hectares.

\[ B_{FT} = \frac{\alpha_{PS}}{\text{Area}} \]

**Aggregate Peak Density** \( (A_{PD}) = \text{Resident Population Density} + \text{Domestic Tourist Density} + \text{Foreign Tourist Density} \)

\[ A_{PD} = \beta_{RP} + \beta_{DT} + \beta_{FT} \]

**Existing Load** \( (L_{EXISTING}) = \text{Aggregate Peak Density} \times \text{Area of the town} \)

\[ L_{EXISTING} = A_{PD} \times \text{Area} \]

II. Estimation of Carrying Capacity (CC)

a. **UDPFI Density** \( (D_{UDPFI}) \): The Urban Development Plan Formulation and Implementation Guidelines (UDPFI, 1996) guidelines classifies the towns on the basis of population as follows:

<table>
<thead>
<tr>
<th>Towns</th>
<th>Population</th>
<th>Upper Limit Density (PPH)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small Town</td>
<td>Less than 50000</td>
<td>125</td>
</tr>
<tr>
<td>Medium Town</td>
<td>50000 - 500000</td>
<td>150</td>
</tr>
<tr>
<td>Large City</td>
<td>More than 500000</td>
<td>150</td>
</tr>
<tr>
<td>Metro Cities</td>
<td>-</td>
<td>175</td>
</tr>
<tr>
<td>Small Hill town</td>
<td>20000</td>
<td>75</td>
</tr>
<tr>
<td>Medium Hill Town</td>
<td>20000-80000</td>
<td>90</td>
</tr>
<tr>
<td>Large Hill Town</td>
<td>More than 80000</td>
<td>90</td>
</tr>
</tbody>
</table>

Source: UDPFI Guidelines, 1996

The densities suggested by the UDPFI guidelines as shown in the Table 4.3 are for the standard cases. Tourist towns which vary from highly eco-sensitive sanctuaries to highly dense pilgrimage places have specific characteristics and carrying capacities. Thus, UDPFI densities need to be adjusted to account for these factors, which are done with the help of Normalizing Density (ND).
Normalizing Density (ND)

Normalizing density is evaluated as follows:

1. Sites were evaluated on a normalizing index (Ni) of range -10 to +10

<table>
<thead>
<tr>
<th>Decreasing Density</th>
<th>Increasing Density</th>
</tr>
</thead>
<tbody>
<tr>
<td>-10 -9 -8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
</tbody>
</table>

Negative Indices were adopted for sites where densities were to be allowed on a conservative scale (i.e. for example places which are ecologically sensitive). Positive Indices were adopted for sites where densities were to be allowed at higher values than prevailing such as pilgrimage towns etc.

2. The values of the indices were evaluated based on a qualitative assessment with respect to the Physical – Ecological indicators. The indicators which were assessed for the category wise tourist places are summarized in Table 4.4.

Table 4.4: Physical and Ecological Indicators

<table>
<thead>
<tr>
<th>Physical – Ecological Indicators</th>
<th>Coastal Area</th>
<th>Islands</th>
<th>Protected Areas</th>
<th>Rural Areas</th>
<th>Mountain Resorts</th>
<th>Urban, Historic Pilgrimage Place</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biodiversity</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>●</td>
<td></td>
<td>1.</td>
</tr>
<tr>
<td>Air Quality</td>
<td></td>
<td>√</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Noise Pollution</td>
<td></td>
<td>√</td>
<td></td>
<td></td>
<td></td>
<td>2.</td>
</tr>
<tr>
<td>Availability of Power</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td></td>
<td></td>
<td>3.</td>
</tr>
<tr>
<td>Waste Management</td>
<td>√</td>
<td>√</td>
<td></td>
<td>●</td>
<td></td>
<td>4.</td>
</tr>
<tr>
<td>Cultural heritage</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>●</td>
<td></td>
<td>5.</td>
</tr>
<tr>
<td>Tourist infrastructure</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>●</td>
<td></td>
<td>6.</td>
</tr>
<tr>
<td>Land Availability</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td></td>
<td></td>
<td>7.</td>
</tr>
<tr>
<td>Quality of Transport Infrastructure</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>8.</td>
</tr>
</tbody>
</table>

(Source: Interim Report-Priority circuit, Karnataka, 2012)
**Normalizing Density (ND)** was calculated by multiplying a factor of 10pph by the Normalizing index.

Normalizing Density (ND) = 10* Ni

(The value of 10 pph was derived by establishing the boundary conditions of lower and upper sustainable densities for tourist towns of the relevant categories. To establish the lower limit, reference was made to the capacity norms cited by World Tourism Organization WTO. The upper limit was established by determining the densities for saturated tourist towns).

The Normalizing index (Ni) was evaluated as follows: Each of the applicable indicators for the corresponding thematic area (to which the tourist destination/circuits belong) was ranked on a scale of 0-10. The average of the indicators would give the value of the Normalizing index (Ni).

**Carrying Capacity Density (C_CD)** was calculated by summing up the Upper Limit of the relevant UDPFI density with the Normalizing Density

Carrying Capacity Density (C_CD) = D_{UDPFI} + ND

**Carrying Capacity (CC)** was calculated by multiplying the carrying capacity density with the Area of the respective town in hectares.

Carrying Capacity (CC) = C_CD * Area of Town

Available Capacity was finally evaluated by finding the difference between the Carrying Capacity of the tourist town and the Existing Load in the town.

Available Capacity = Carrying Capacity (CC) - Existing Load (L_{EXISTING})

**Carrying Capacity of Srirangapatna Town**

I. Calculation of Existing Load (L_{EXISTING})

a. ** Resident Population Density (β_{RP}):** Existing resident population of the tourist town / area in hectares (ha.)

   25061 / 1093 =22.93
b. **Domestic Tourist Density** ($\beta_{DT}$): This was derived as follows:

Step 1 Domestic Tourist Arrival ($T_D$): Domestic tourist arrivals during peak season is 180 days (October to March).

Step 2 Tourist stay days in peak seasons ($T_{DSP}$):

$$T_{DSP} = T_D \times \text{Stay Average Days}$$

$$T_{DSP} = 180 \times 0 = 0 \text{ (No tourist stay in Srirangapatna)}$$

Step 3 $\alpha_{DSP} = \text{Stay Average Days} / \text{Days Peak Season} = 0$

Step 4 Domestic Tourist Density ($\beta_{DT}$)

$$\beta_{DT} = \alpha_{PS} / \text{Area} = 0$$

c. **Foreign Tourist Density** ($\beta_{FT}$):

Step 1 Foreign Tourist Arrival ($T_F$): Foreign tourist arrivals during peak season is 180 days (October to March).

Step 2 $T_{FSP} = T_F \times \text{Stay Average Days}$

$$T_{FSP} = 180 \times 0 = 0$$

Step 3 $\alpha_{FSP} = \text{Stay Average Days} / \text{Days Peak Season} = 0$

Step 4 $\beta_{FT} = \alpha_{PS} / \text{Area} = 0$

**Aggregate Peak Density** ($A_{PD}$) = Resident Population Density + Domestic Tourist Density + Foreign Tourist Density

$$A_{PD} = \beta_{RP} + \beta_{DT} + \beta_{FT} = 22.93$$

**Existing Load** ($L_{EXISTING}$) = Aggregate Peak Density * Area of the town

$$L_{EXISTING} = A_{PD} \times \text{Area}$$

$$L_{EXISTING} = 22.93 \times 1093 = 25062$$

II. **Estimation of Carrying Capacity (CC)**

Carrying Capacity Density ($C_{CD}$) = $D_{UDPFI} + ND$

$$C_{CD} = 125 + (10 \times 10) = 225$$

Carrying Capacity (CC) = $C_{CD} \times \text{Area of Town}$

$$CC = 225 \times 1093 = 245925$$

Available Capacity = Carrying Capacity (CC) - Existing Load ($L_{EXISTING}$)

$$\text{Available Capacity} = 245925 - 25062 = 220863$$

The carrying capacity of Srirangapatna = 245925

The available carrying capacity of Srirangapatna = 220863
4.3.5.2 E-Survey: Following are some of the reviews posted on the Trip advisor by the visitors who have visited Srirangapatna, which showcases the merits and demerits of attractions in Srirangapatna. It is a matter of concern not only to the authorities concerned but also to the public in general who respect the heritage and valuable resources of the nation.

**Triveni sangama**

“Beautiful but filthy” by Vidya P M, Bangalore, Visited March 2014.

A confluence of three rivers (triveni sangama) so revered by Hindus and that is why religious activities are performed here. When we visited, most people were paying respects to departed souls and all the rituals were going on in open. Reaching the sangama was not easy as road does not exist and you have to climb mounds of soil which are quite filthy. Water was not clean as flowers, leaves and cooked rice were floating in it and people were washing clothes and bathing right there. Not advisable to old people and people with arthritis as road (if you can call it one) are very rough. Wish people had not ruined the place.

“Visit to Triveni Sangama” by Ms. Roopa Benaras, Bangalore, Visited February 2015. Very dirty, no maintenance, is it a sangama really or just named so?? Cannot take a dip, in the filthy waters. Temple good and clean. Path is very rough. Not feasible for elders to walk barefooted.

“Horrible place avoid it” by Amit S Bangalore, Visited 27 January 2015. Unfortunately humans have done it again. Sangama was once a very beautiful place however not anymore. I visited this place on 26th Jan 2015 with my wife and we didn't stay there for more than 2 minutes. The place was so beautiful but was much polluted. Thanks to humans for such good deed. Many eateries were there around however you won't feel like staying there. The crowd was not good too. Avoid this place.

“Dirty Place’ by N S krish, Chennai, Tamil Nadu, Visited December 2014. What a shame - it is dirty only because of visitors like us. When will we ever change? A very important place and can be wonderful but not for people ruining it in the name of religious rituals.
Nitesh, Mumbai. Visited October 2014
Only significance is the confluence of the 3 holy rivers. The rest, I missed to understand. Kids can enjoy dirt bike around.

Vishnu M E, Vishakapatna, Visited January 2014
Sangama is not a great place to visit. Not much scenic as well. River side and river is very dirty. People doing Pooja and darpan in this area makes the river much pathetic.

Temple situated in very nice location, just next to the Cauvery river. I heard temple also has a lot of religious significance. But it has not been managed properly. Temple surroundings are not clean; shopkeepers will irritate you to purchase puja items

Sri Ranganathaswamy Temple
Sri Ranganathaswamy temple is very beautiful and the deity is so lively, looks as if he will get up any time and come out. The temple has a very pleasing ambiance. The staffs need some improvement in interacting with the tourists.

“Temple that I couldn't get into” By Praveen, Bangalore. Visited November 2013,
The temple closes from 12 noon to 4pm. I went around 2pm & hence couldn't get inside. However, the temple premises looked huge & there were quite a few shops on the entrance road. That gave me the feel that it is an important & popular temple in the vicinity. I would visit this temple during my next visit. Avoid buying anything from the shops outside the temple unless you know how to bargain.

Sri Ranganathaswamy temple at Srirangapatna is a very old historical temple of the Mysore Maharaja Kingdom. The temple is huge and an architectural marvel. The pillars in the temple have unique carvings on it. The darshan of the deity in the temple relieves you from the worries of this world. You can have a darshan of the deity from very close quarters.
River Cauvery flows nearby and you can sit and relax on the banks of the river. You can also have a dip in the river as it is not very deep there. There is ample parking space in front of the temple. This temple is worth a visit and is located just 15 km from Mysore on Mysore - Bangalore highway.

During your Mysore visits don't forget to go to this attraction. The temples architecture is very brilliant and a historical place to visit.

“Great Architectural Marvellous!” by Prem K, Blackpool, United Kingdom. Visited September 2014.
Recently I visited this great temple complex. From other side of the Cauvery river anybody can see the majestic Rajagopuram. We have to enter the temple complex passing this massive structure with colourful sculptures. Main inner temple always crowded. Really I can't understand on my tour I visited lots of temples in India, even weekdays thousands of people waiting in the queue for several hours to worship, how many working hours this people loosing. By the way this is the largest temple complex with 156 acres of land area.

The whole complex in Srirangapatna is worth a visit. Museums, temples, amazing architecture, we loved visiting each part. Wasn't crowded on the day we went there. I loved the carvings on this temple.

**Daria Daulat**
Will, NorthLeeds, UK, Visited February 2015
The old maharajas of Mysore must have had a very busy summer moving between their various palaces. The only way that you are going to see this though is to go there as once again cameras are banned and the building is covered by a dark mess to protect the artwork (which is stunning) from fading under the strong sunlight. If you are in the vicinity do stop and view.
One of the most well maintained places in Srirangapatna. It was Tippu’s summer
palace where you can see the balconies from where he used to conduct "darbar". Outer walls have battlefield frescoes and inner ones have floral patterns though everything is fading or chipping off. They have tried to protect it from harsh sun but it is too late. Tippu’s weapons, armour, clothes etc. are on display. A good collection of war paintings is on display and you can re-visit the history through these. The gardens and lawns are well maintained but not many big trees so not much shade to sit and enjoy. Photography is not allowed inside the palace.

Small but wonderful palace is a museum now. The entry ticket is only Rs. 5. The park is well maintained. Somewhat looks like the garden of the Taj Mahal. The trees are unique owing to Tippu sultan's taste for nature. The museum show case pictures of Tippu, his Darbar, his sons, his defeat at Srirangapatna and his generals and legal advisor. The wall contains the paintings of the Darbar of Hyder Ali and Tippu sultan and the procession of Nizam of Hyderabad. The museum also contains a table and a few chairs of Tippu’s time. One of the most wonderful artefacts is the portrait of Tippu sultan painted by Thomas hickey in 1780 approximately depicting Tippu sultan in 3 D. The face and the shoes turn towards you from whichever direction you look at it. Photography is not allowed inside the museum. You are allowed to take the photographs of the canons, the cannon balls and the trees outside the museum.

Gumbaz

“Superb Place To Visit’, by Ankush, Bangalore, Visited December 2014.
It is hardly 1.5 km from the Tippu Summer Palace/Dariya Daulat Bagh. It is better attraction as compared to summer palace but both have their own charm. Please take guide along, they will charge you Rs. 100, but you will learn a lot through them. Very nicely maintained & with wonderful structure & garden. First visit summer palace & then come to this place, you will understand more of history & will be able to relate better.

“Worth a visit”, by F R Nike, Mumbai, Visited December 2014.
As there are several sites in this township this is one worth the trip. Indians will
probably find it more significant than most foreigners as this is the resting place of the local Sultan with wife and daughter who made the last stand against the British. It is a well maintained mosque and has nice gardens and costs nothing except some small amount for the annoying shoe watcher and guard/guide inside with the graves.

**Col. Bailey Dungeon**

Steve, Beaverton, Oregon, Visited October 2014.

Not really much to see. Maybe worth a quick trip down and get a photo and read some history, but don't expect much.

“Nothing exiting”, by A R Kumar, Bangalore, visited January 2015.

This dungeon is not that great. There are concrete structures to which the captured British soldiers were tied to. There is also an entry for the river water to enter. An underground tunnel through which Tippu used to visit this dungeon was almost in rubbles.


Tippu used the place to confine British officers and the place still bears the signs of torturing device. It is in basement and there is a flight of stairs. Strong bat smell pervades the area. It is creepy and sad. If there are children in your group be prepared to answer some difficult questions. In short, skip it!


This is nothing. Waste of time. It is just like our basement parking in apartments. This used to be an underground prison during the British rule but nothing to see there now.

**Fort**


Anjali Nandedkar shared her views as: Sir, I was among eight visitors from USA (average age 60 years), who were on a visit to lovely Mysore and surrounding areas. The only place where we faced a bit of a problem was the crumbling walls of Srirangapatna Fort which had a sparse presence of visitors. Some young men in their thirties, loitering around at the spot, pressed us aggressively to give them money
claiming to be guides of the place where there were replicas of temple gopuram with hollow fibre glass or metal veneer and some fibre glass cannons. As we were leaving, two men who approached us said that we need to buy entrance tickets which left us wondering as there were no ticket windows or checking for entrance tickets. After feeling insecure and scared, we were able to leave the place without any untoward incidents but lost couple of hundred rupees. I wish to alert other tourists to only go to places where there are a lot of visitors.

(http://www.tripadvisor.in/Attraction_Review-g1776497-d3533294-Reviews-Sangam-Srirangapatna_Karnataka.html.)

4.4 REMARKS

Srirangapatna with its long river front area, rich built and natural environment and diversity of cultures, ethnics and history, presents a great opportunity for waterfront development as a strategy to enhance investment for social, commercial and recreational projects. These investments will enable the town to increase its ability to attract more tourists, and provide new job opportunities for local people. Creating quality built environments supports the social, cultural, economic and environmental wellbeing of the communities, cities and towns. Planning should ensure all new land use and development appropriately responds to its landscape, valued built form and cultural context, and protect places and sites with significant heritage, architectural, aesthetic, scientific and cultural value. This enhances livability, diversity, amenity and safety of the public realm in towns and cities.

The new prospects in tourism markets compel all the destinations to develop new products and strengthen or re-engineer the existing products for retaining, enhancing and capturing new markets. These will bring profound changes in the management and planning of tourism business and destination development. The destination development is the key to sustaining the natural and cultural resources on which tourism depends. It is important for the destination to deliver quality experience and product, and in this regard, careful planning and management is essential.

Mandya district attracts 8.4% of the tourist inflow in domestic category and is in the 4th position for domestic tourism inflows (Fig. 4.35). The maximum number of
destinations identified for tourism among all the seven taluks in Mandya district is in Srirangapatna Taluk (Table 4.1). Also, the tourist arrival at taluk level is grouped into high category which accounts for the tourists’ arrival greater than or equal to 5 lakh annually. However, the taluk is categorised as ‘C’ which means backward as per Nanjundappa Committee Report 2002.

The major factors that are governing the magnitude of domestic tourist traffic in the state are the religious and cultural importance of the destinations while for foreign tourists it is largely because of historical, cultural and IT and BT sectors. Hence, considering the popularity of the town and the available carrying capacity of the Srirangapatna town, the tourism related infrastructure facilities such as accessibility, accommodation, transportation and other activities has to be improved as the town has potential to hold more number of tourists. The reviews posted on the Trip advisor by the visitors who have visited Srirangapatna are also presented and may be useful in formulating an action plan.