

RESEARCH PLAN PROPOSAL

~~ASSESSMENT OF ECOTOURISM POTENTIAL AND ITS CARRYING CAPACITY - CASE STUDY FROM JHARKHAND~~

IDENTIFICATION OF POTENTIAL SITES FOR ASSESSMENT OF ECOTOURISM URBAN RECREATION AND ASSESSMENT OF AND ITS ECONOMIC VALUATION FOR RECREATIONAL BENEFITS: A CASE STUDY OF RANCHI

CARRYING CAPACITY AND THE ECONOMIC POTENTIAL OF ECOTOURISM IN DALMASARANDA WILDLIFE SANCTUARY, JHARKHAND

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Introduction

1. Introduction

Presently, urbanization is rapid worldwide and is –expected to continue in the coming decades, especially in the developing world where the United Nations Population Fund (UNPF-2007) anticipates 80% of the world’s urban communities will be found by 2030 (Beardsley et al., 2009 cited in Gairola, and Noresah, 2010). Thus, in order to respond to the idea of sustainability, urban areas have to maintain an internal equilibrium balance between socio-economic and environmental conditions in such a way that the urban system and its dynamics evolve in- harmony, internally limiting, and as much as possible low impacts on the natural environment. These changes in the environment leads to “land transformation”. Land transformation is defined as changes in the physical, chemical and biological characteristics of land, whether permanent or semi-permanent, due to impact of natural and anthropogenic factors. (Sharma 2011).

Gairola and Noresah, (2010,) cited study -by many scholarsauthors and pointed out that the multiple functions of urban green spaces are reasonably well developed, but these are not well integrated into the urban planning, design and management process. Furthermore, reliable and robust approaches to the valuation of urban green spaces that effectively support decision making are not-present/ available. Consequently, the resulting losses of urban green space at local to global level are continuously -altering urban ecosystems. Recent research on this aspect has stressed on the- importance of urban green spaces as well as their losses due to rapid urban growth, which is creating environmental -hazards in many cities.

There are many example shows that the city where it is not planned properly are facing many social environmental problems like such as flooding and bad air quality, loss of biodiversity, adverse impact on rainfall, damage or destruction of key areas for wildlife shelter, food and reproduction etc. For example; São Paulo is one of the world's biggest cities in terms of territorial occupation and population, but its unplanned development has led to serious impacts on its green areas. As a result, this has caused many -worsening social and environmental problems, such as flooding and bad air quality (Gomes and Moretto, 2011).

In Curitiba, urban growth and human activities led to profound environmental changes, such as the damage or destruction of key areas for wildlife shelter, food and reproduction. Changes resulting from, for example, habitat loss and fragmentation of natural fields and forests, draining of marshes and pollution of rivers and lakes and the sealing of the soil due to the process of urbanization (i.e. paving of streets), have impeded or halted the reproduction of many species, causing severe reduction and even the disappearance of species that a few decades ago could be considered common in the municipality (UNEP, 2010).

1.1 Role and Importance of Green open space for sustainable urban development

As far as the roles of urban green spaces in urban environment are considered, they are recognized as key ecological service providers to urban dwellers with multiple functions

and also an important pillar of sustainable development. The importance of ecosystem services provided by urban green -spaces for human well-being is gaining recognition and has been highlighted by most of the recent studies (Gairola, and Noresah, 2010). Availability and distribution of recreational areas, presence of green cover and open space are -very important physical parameter for sustainable city development

With increasing urbanization, the provisioning for clean air and healthy living become more crucial/vital step in a city to avoid the city problems of overff -crowding, congestion etc. Among these urban problems the most challengeable job is maintaining human wellbeing by provisioning for clean air and healthy living through conservation and restoration of urban green spaces and urban forests. It can be made possible through provisioning -Urban Open and green spaces in the city pPhysical planning. Urban greens have significant amenity and recreational use value contributing towards quality of urban life. It is observed that politicians/bureaucrats/industrial houses, builders especially in developing countries, try to grab these green open spaces for creation of concrete jungle (Chaudhry, 2008). Provision of adequate amount of open green spaces serves the social and environmental health of the cCity, providing a sustainable environment and offering many benefits like ; provides tangible economic benefits, offers recreation activities and improve resident's physical and mental healthas well as promotes environmental sustainability (SFPD, 2009).

1.2. Relevance of the Study

Thus, we see that due to undergoing urbanization trend worldwide, distance between city inhabitants and nature is increasing. Urban greenery/forestry is one of the ways to bridge this gap between people and nature. In present condition without careful production of knowledge, and large investments to link that knowledge to action, cities will be overwhelmed with environmental challenges. This -necessitate to identify the potential of uUrban rRecreation- sites and -its importanceEconomic valuation, which is the focus of the study.

What is urban recreation and green spaces?

The term “urban green spaces” is used in this article as a comprehensive term, comprising all urban parks, forests and related vegetation that add value to the inhabitants in an urban area. The term “urban trees” includes trees growing both within the built environment as well as road-side avenues and public places in urban systems.

In an era of global climate change and rapid urbanization, innovations on governance of urban systems are critically required as 50% people are now living in less than 3% of the earth’s urbanized terrestrial surface. Without careful production of knowledge, and large investments to link that knowledge to action, cities will be overwhelmed with environmental challenges. Both policy and science now emphasize the critical necessity of green areas within urban social-ecological systems. Here, we review the present status of urban forestry across the world, and draw lessons that can be applied for the governance of urban green spaces during the development of Jaipur as a world-class city in Rajasthan. We find wide variation both in coverage as well as per capita availability of green spaces.

2. Conceptual Background

Thus we see that for sustainable urban development there is need of provisioning of green open spaces in city planning. Now question occurs that, why it is important to maintain sustainable urban development? It can be understood by its definition, its Implications for safeguarding biodiversity, benefits of urban recreational benefits etc.

2.1 Definition of Urban Open Space

Urban open space is open space areas for "parks", "green spaces", and other open areas. The landscape of urban open spaces can range from playing fields to highly maintained environments to relatively natural landscapes. They are commonly open to public access,

however, urban open spaces may be privately owned. Areas outside of city boundaries, such as state and national parks as well as open space in the countryside, are not considered urban open space (Wikipedia, 2013).

According to (Singh et al, 2010) The term “urban green spaces” is a comprehensive term, comprising all urban parks, forests and related vegetation that add value to the inhabitants in an urban area. The term “urban trees” includes trees growing both within the built environment as well as road-side avenues and public places in urban systems. In the town and country planning act (1990) open space is defined as a land, laid out as a public garden for recreational purpose that not only include land but also water.

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2.2 Benefits of -Urban Open spaces

In planning of a city in developed countries immense environmental, ecological and economic benefits from urban forest have been documented. The benefits that urban open space provides to citizens can be understood- into three basic forms; recreation, ecology, and aesthetic value.

2.2.1. Recreational Benefits

Recreation Benefits are Positive outcomes resulting from participation in recreation. Examples include: improved physical and mental health, family cohesion, social integration, child development, economic stimulation, work productivity, resource stewardship, and conservation ethic. Urban open space is often appreciated for the recreational opportunities it provides. Recreation in urban open space may include active recreation (such as organized sports and individual exercise) or passive recreation, which may simply entail being in the open space. Time spent in an urban open space for recreation offers a reprieve from the urban environment.

2.2.2. Ecological Benefits

Some of the many benefits —of urban green spaces are; —air and water purification, mitigation of the impact of environmental pollution, carbon sequestration, regulation of microclimate, habitat for urban wildlife, recreational, spiritual and therapeutic value as

well as social integration (Miller, 1997; Milton, 2002; Hague and Siegel, 2002 cited in Gairola and Noresah 2010). Hence, -green space improves the environmental quality of life, urban tourism, active and passive recreations and many other urban ecological functions.

2.2.3. Aesthetic Benefits

The aesthetic value of urban open spaces is self-evident. People enjoy viewing nature, especially when it is otherwise extensively deprived, as is the case in urban environments. Therefore, open space offers the value of "substituting gray infrastructure."

2.2.4. Other values of urban open space

The value of urban open space can also be considered with regards to the specific functions it provides. For example, the **Carbon Sequestration:** Urban land in USA currently occupies about 28 million hectare (m ha) which stores approximately 704 million tonnes (mt) of carbon in trees with an estimated annual net carbon sequestration of around 22.8 mt. Similar assessment has been done for some cities in Asia, such as those in China and Japan to strengthen urban forestry activities. Carbon sequestration and release of oxygen, important functions of the trees, are related to the tree species, their dimension and age. For example, the large healthy trees remove more air pollution and carbon annually than small trees (Singh, 2013). To Mitigate the effect of the Urban Heat Island Effect.: the As urban green spaces and urban forests increase, evapotranspiration rate increases .Thus, a common measure to mitigate urban heat island effect is to increase urban green spaces.

3. Literature Review

Considering the fact that urbanization is having enormous impact on the environment at local, regional and global scale the trend of studying different aspects of urban green spaces is gaining momentum among urban researchers(Turner et al., 1990 cited in Gairola and Noresah 2010). Land transformation and Conservation of biological diversity and ecosystem services in urban environment necessitate valuable ecological information which could be incorporated into urban green space planning and management. Its importance can be understood by the review of literature under following sub-headings.

3.1 Land transformation

The study of Sharma and Nathawat (1993) is about the land transformation and environmental degradation of the urban complex in Jaipur. Remote sensing and mapping are the methods used in their study. After preliminary scanning and identification of the physical characteristics of the image, 8 main 1st level classes and 10 2nd level sub-classes of land use/land cover were taken for the study. And as the result the urban areas of Jaipur has started outward expansion, that has been increased by three times whereas land under agriculture has shown a decreasing trend. The agriculture has changed into urbanization, sand dunes into agricultural and urbanization and hill areas into quarry areas.

In a case study of Narayanganj city Ahmed and Hussain (2012) studied about the pattern of land use change and agricultural land transformation. The methods used by them was field survey and extensive use of secondary data. And as the result the mismatch between the supply and the demand of land leads to the degradation of environmentally fragile land, occupation of hazard prone areas, and loss of cultural resources, open space and prime agricultural lands of the study area.

Bomans et al (2009) their research is subjected to different transformation processes in the open space. These processes are related to dynamic interactions within an urbanizing society and to competition for space by an increasing number of functions. Qualitative interviews, field observation, land use statistics are the methods used in their study. As the result transformation of “horcification” that is the increase in pasture used for horses and split off of agriculture are seen.

3.24 Implications for safeguarding biodiversity

The biological diversity or biodiversity was introduced at Rio de Janeiro Earth Summit in 1992 as a major objective in world-wide conservation strategies to ensure conservation and sustainable use of biodiversity. The United Nations General Assembly declared 2010 as the International Year of Biodiversity (IYB), to safeguard the biodiversity and to bring

awareness about the significance of biodiversity. Recently Tthe Importance of Urban Open space has been recently identified at global level in 2010 by UNEP. The United Nations General Assembly declared 2010 as the International Year of Biodiversity (IYB), to safeguard the biodiversity and to bring awareness about the significance of biodiversity (UNEP, 2010), where UNEP has taken following steps.

3.3 2-UNEP Vision on CBD and Urban open spaces

In this regard UNEP documented the case studies on the experiences of local authorities with regard to the implementation of the CBD and the 2010 biodiversity target, with a specific focus on following aspects

- Integrating biodiversity into city planning.
- Promoting biodiversity-friendly city development.
- Managing biodiversity though protected areas/urban parks, research centers, conservation corridors in green belts around cities.
- supporting biodiversity facilities such as botanical gardens, zoos, aquaria, theme park, E
- Ensuring that business practices enhance biodiversity, Promoting awareness of biodiversity to local communities (UNEP, 2010).

3.43. Overview of Provisioning of Urban Open space in city planning at _____ Global , National and State level.

3.3.1.

Need of Urban Green Spaces

With increasing urbanization, the provision of — provisioning for clean air and healthy living become more crucial/vital in a city to avoid the — city problems of over crowding, congestion, — pollution caused by industrial and commercial activity, odors, noises, crime, litter, and perceived class/racial/ethnic differences etc.—

—Foremost among these challenges is maintaining human wellbeing by provisioning for clean air and healthy living through conservation and restoration of urban green spaces and urban forests.

Benefits of urban green spaces

Apart from providing recreational benefits it has also ability to solve many urban problems. The Urban Heat Island is a phenomenon whereby temperatures in urban areas are warmer than the surrounding rural countryside, often by several degrees. As urban green spaces and urban forests increase, evapotranspiration rate increases. Thus, a common measure to mitigate urban heat island effect is to increase urban green spaces. Studies on microclimate formation through built-up morphology and urban shade trees have clearly established the importance of urban trees in alleviating the heat island effect in a hot and humid summer (Shashua-Bar et al. 2010).

Wildlife sanctuaries are undeniably important for biodiversity conservation tools, but research findings in Jodhpur city reinforce the idea that with a network of urban green spaces and support from local people cities can serve as de facto sanctuaries for some species (Pandey, 2010).

Trees in urban systems provide a variety of ecosystems services including biodiversity conservation, removal of atmospheric pollutants, oxygen generation, noise reduction, mitigation of urban heat island effects, microclimate regulation, stabilization of soil, ground water recharge, prevention of soil erosion, and carbon sequestration (Bolund and Hunhammar 1999).Urbanization and urban recreation trends in the world

Singh et al. (2010) have discussed about the Urbanization and urban recreation trends in the world. They have cited many studies at global level in following manner. They mentioned that a comprehensive study across 386 European cities suggests that green space coverage in cities varied markedly, averaging 18.6 per cent and ranging from 1.9 in Italy to 46 per cent in Spain.

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Availability of urban green spaces per capita varied from 3 to 4m² per person in different cities of Spain and Italy. Urban tree cover in the United States ranges from 0.4% in Lancaster, California to 55% in Baton Rouge, Louisiana containing approximately 3.8 billion trees with an average tree canopy cover of 27 percent of urban areas (Singh et al, 2010). Curitiba, with a population of 1.7 million, is one of Brazil's large cities. In the 1970s, growing population has reduced urban green space to 1 m²/person.

3.3.1. Urbanization and urban recreation trends in India

Most of the Indian cities are far behind in quality as well as quantity of urban forests than their counterpart in Europe and America. High population density is one of the reasons

for underdevelopment of urban greenery sector (Singh, et al, 2010). Delhi is of the greenest capitals in the world due to the consistent emphasis to grow more trees and strict monitoring of tree cutting permissions. This has been possible despite the infrastructure projects which have come up due to the demands of the Commonwealth Games 2010. At present, about 20 % of Delhi's geographical area is under green cover, making per capita green space availability to around 22 m².

Table 1. Availability Per capita Forest and tree cover in Indian Cities

CITY	POPULATION IN MILLION (CENSUS 2001)	FOREST AND TREE COVER (Km/sq)	PER CAPITA GREEN SPACE (m.sq/inhabitant)
GANDHINAGAR	0.20	32.56	162.80
CHANDIGARH	0.90	49.00	54.45
DELHI	13.80	297.00	21.52
BANGALORE	5.60	97.00	17.32
JAIPUR	2.32	5.43	2.30

Source: <http://www.censusindia.gov.in/>

Gandhinagar and Chandigarh are the cities which have been established after India's independence, with integration of urban greenery in their City Master plans. Total area of the Gandhinagar capital project of Gujarat state is around 57 km². By the year 2005, tree cover of the city was 57.13% of the total geographical area amounting to 32.56 km²

Bangalore city is known as the Garden City of India due to the large number of parks and private gardens, roadside & avenue trees and the magnificent Lalbagh & Cubbon Park. The city has around 705 parks spread across the city in the form of small and medium sized parks as well as large parks. (Cook, 2002). The above table shows that the per capita availability of green space vary from one city to another. This table shows that -in developed state capitals/city (Gandhi agar, Chandigarh) per capita green space is much

more than to the developing state capitals like Jaipur. In Jaipur green space is far less than the minimum standard set by WHO of 9 m² green open space per city dweller Policy level relevance for urban planning (Singh et al, 2010).

3.4.

Urbanization and urban recreation trends in Jharkhand

As far as the development of Urban open spaces and green cover in the Jharkhand is concerned, some scholars have emphasized about it in different form in following manner. Kumar (2012) studied about the status of forest in Jharkhand. He discussed that The state is rich in forest resources because of its diverse topographic and climatic conditions, which is under serious threat because of heavy mining construction of roads, railways, human settlements, dams and other activities. The forest cover is around 29.27%, which should be conserved for future generation.

Krishna and Mitra, (2007) have discussed- the importance of Urban Green space in the physical planning of the city. It also emphasized that availability and distribution of recreational areas, presence of green cover and open space are very important physical parameter for sustainable city development along with the other parameters like; road/street patterns, institutional areas, planned and unplanned residential areas, industrial areas and other utilities (Krishna and Mitra, 2007).

Thus we that urban open spaces are vital for sustainable city development. Now the questions occurs what are the features which can attract urban residents.

Jeyaseelan (2009) in his research mainly describes the geoinformatics applications to tourism and in particular the use of WebGIS developed for resource monitoring in Jharkhand state for promotion of tourism. The information on various resources, facilities and infrastructure available over Jharkhand state in web GIS platform can be used by anyone, anywhere at anytime.

3.5

Urbanisation and urban recreation in trends in India

Rapid urbanization in India is bringing complex changes to ecology, economy and society (DeFries and Pandey 2010). During the last 50 years the population of India has grown two and a half times, but the urban population has grown nearly five times (Taubenböck et al. 2009). About 60% of this urban population growth is attributable to natural growth, and the remaining 40% is due to migration and spatial expansion (Sivaramakrishnan et al. 2005).

Factors that attract visitors: Potentials for urban green open space -

According to Klenosky et al, (2007) discussed that urban and metropolitan areas presents
The mix of natural features and manmade –elements in for recreation. urban and metropolitan areas presents
unique challenges for resource managers and planners. While some elements of the urban landscape (e.g., forested areas, parks, water features, and museums) may attract or encourage visitation,.
others (e.g., industrial and commercial activity, odors, noises, crime, litter, and perceived class/racial/ethnic differences) may negate and even trump the positive elements, thus repelling or deterring visitation 9. (Klenosky, D.B et al, 2007)

The Pplaces for Recreation in urban areas depend upon the geographical features of the pales. In case of Ranchi.

Open space, urban forest, , parks gardens, dams water falls, cultural features , temple, religious sites, historical places. Dams , rivers, zoological parks, hills can be major factor for recreation,.

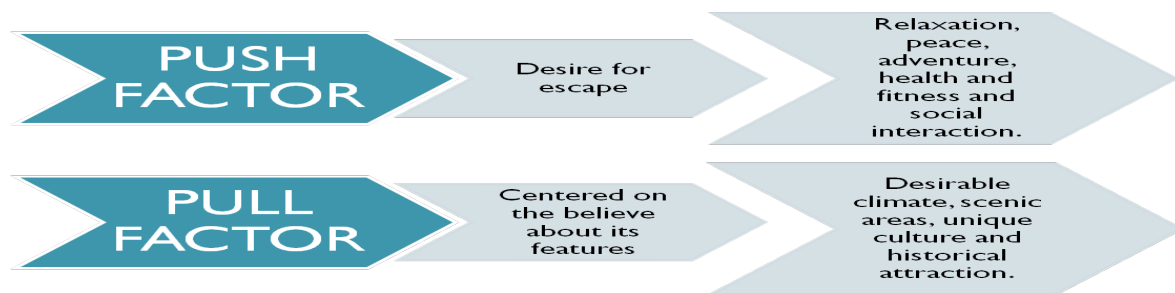
According to Chaudhry, (2010))...there are three main components of urban forest and green spaces are: **Patch**--(urban domestic gardens, public and private parks, gardens, urban forest patches etc.), **Corridor**--(roadside avenues, walkways and urban greenways etc.), and **Network structure**--(layout of all the patches and the corridors connecting the patches).

According to Schrover and Louviere (1999) in city areas recreation usages can be effected by site features.

Type of vegetation- – grass / tress. Sand,

Type of terrain – -plain areas, rolling hills, presence of water.

Other researchers in travel and tourism literature has identified push and pull factors responsible for development of urban recreation space. Crompton (1979).



The places for Recreation in urban areas depend upon the geographical features of the pales. In case of Ranchi urban forest, , parks gardens, dams water falls, cultural features , temple, religious sites, historical places. Dams, rivers, zoological parks, hills can be major factor for recreation,.

Thus we see that, that city areas has immense potential for developing urban recreation space. It can be included while preparing the Master plan of particular city. Generally it is seen that -urban green spaces carry a number of non market or intangible benefits, which

make a city healthy and perfect place to live in. Recreation and aesthetic benefits are among such ecosystem services being generated by these resources.

Unfortunately studies involving quantification and valuing these benefits are lacking in most of the developing countries including India. With the result, these assets are not given as much importance as they deserve in a city development plan. So valuation of unpriced goods and services is s required which can be used to determine compensations in lawsuits involving loss or damage to the environment. Thios has been emphasized by many scholars.

3.6.

Pepeople' perspective of urban recreation

Importance Economic valuation of the recreational benefits

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Horak, S et al (2002) in this study the economic impact of aesthetical/ambient of the forests view value to tourism and local population was estimated oOnly in the coastal (Mediterranean) part of Croatia. Methods used were –Contingent Valuation, Hedonic Price and Expert Assessment. Few results includes:68% of tourists were willing to pay for the preservation of forests view. The willingness to pay on an average was 0.97 US\$ per person per night for preservation of forests view.

Economic valuation of recreational benefits of open green spaces in a City: Choudhry et al (2008) studied the urban forest and green space and Choudhry and Tiwari (2008)

studied the tourism recreational values of “Rock Garden” in Chandigarh. These study estimated the -recreational use value of city’s urban green spaces.

The Chandigarh City of India is known for its urban parks, gardens and well planned landscaping. The case study was undertaken during 2002–2006,the research was related to an assessment about the annual recreational value of this city’s urban greenery. Travel cost method was used in the assessment taking “domestic tourists” as a sample unit. As the result the consumer surplus per visit enjoyed and thus, domestic tourists was estimated (Choudhary and Tewari (2010).

Scientific understanding of how urban trees, parks, gardens benefit people is generally found lacking in majority of developing countries. This happens because non-market benefits of such areas are not correctly valued and incorporated in to cost-benefit analysis of so called development projects.

Chandigarh is one of the planned cities of India, which is known in the world for its magnificent parks/gardens/urban greenery and was selected for quantification of recreational use value of urban forestry. The non-market value of recreational benefits provided by the urban forestry of the city, from the point of view of residents as well as tourists was estimated.

The focus of this study, in the form of Ph.D thesis, was on city’s parks,gardens, tree-avenues, reserved forests and the Sukhana wild life sanctuary. The main objectives were to estimate the recreational use value of above areas from the point of view of residents as well as tourists coming to the city and to assess the predictive abilities of various

functional forms for developing suitable models to estimate willingness to pay (WTP) on the part of residents & tourists for the cause of greenery and better environment. Two economic valuation methods i.e. Contingent valuation method and Travel cost method were applied

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Policy level relevance for urban planning

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The information available globally suggests that the cities in developed countries, in

general, have more trees compared to cities in developing countries, which often fall below the minimum standard set by WHO of 9 m² green open space per city dweller.

Significance of the Study

Cities occupy less than 3% of the global terrestrial surface, but account for 78% of carbon emissions, 60% of residential water use, and 76% of wood used for industrial purposes. In 1800, there was only one city, Beijing, in the entire world that had more than a million people; 326 such cities existed 200 years later (Brown 2001). Indeed, such rapid has been the pace of growth that in 1900 just 10% of the global population was living in urban areas which now exceeds 50% and is expected to further rise to 67% in the next 50 years (Grimm et al. 2008).

DN Pandey

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URBAN GREEN STATUS OF SOME INDIAN CITIES

Delhi is of the greenest capitals in the world due to the consistent emphasis to grow more trees and strict monitoring of tree cutting permissions. This has been possible despite the infrastructure projects which have come up due to the demands of the Commonwealth Games 2010. At present, about 20 % of Delhi's geographical area is under green cover, making per capita green space availability to around 22 m². Besides department of Environment and Forests of National Capital Territory (NCT) Delhi, there are many agencies working for "Green Capital" mission e.g. Municipal Corporation of Delhi (MCD), New Delhi Municipal Council (NDMC) and Delhi Development Authority (DDA). Recently, the Parks & Garden society has been set up to coordinate the greening activities in Delhi. The city has some well maintained parks and gardens like Lodhi Garden, Mughal Garden, Deer Park, Budha Jayanti Samarak Park, Indraprastha Park and The Garden of Five Senses. Department of Environment and Forests of NCT, Delhi has been mainly responsible for increasing the green-

cover of the city from 30 km² to 300 km² during last 10 years, despite of acute biotic pressure.

Gandhinagar and Chandigarh are the cities which have been established after India's independence, with integration of urban greenery in their City Master plans. Total area of the Gandhinagar capital project of Gujarat state is around 57 km². By the year 2005, tree cover of the city was 57.13% of the total geographical area amounting to 32.56 km² [12].

Population of the city was around 0.2 million in 2001, resulting in per capita green space availability to more than 160 m² (Table 1 and Figure 1&2). Population of the city is nearing 0.3 million in 2011. Exact figures of 2011 census are yet to come for different Indian cities, for sake of uniformity, population census figures of 2001 have been adopted in the paper for assessment of per capita availability of urban green space in different cities. Remote sensing satellite imageries were utilized by Gujarat state government for assessing changes in tree cover of the city between 1979 to 2005. However, varieties of tree species in the city are on a lower side in comparison to Bangalore and Chandigarh. Semi arid climatic condition, perhaps, is the major reason for this situation.

Bangalore city is known as the Garden City of India due to the large number of parks and private gardens, roadside & avenue trees and the magnificent Lalbagh & Cubbon Park. The city has around 705 parks spread across the city in the form of small and medium sized parks as well as large parks. Besides these regular parks, there are around 200 open spaces and green areas, which are waiting to be developed as parks and are without any kind of infrastructure and are basically community amenity sites earmarked for development of community infrastructure such as parks and gardens [14].

New Delhi, the capital city of India, has grown to be one

Review of published Research work

SL.NO	REVIEW MATERIAL	REVIEWED
1	JOURNALS	9
2	POPULAR ARTICLES	10
3	BOOKS	4
4	REPORTS	3

3.7 Methodology used to study the provisioning of Urban Green Spaces

Literature Review

The study of Smale (1990) focused upon urban park provision which is provided by the public sector. In -established the order to test out the conceptualisation of the relationship between the recreation supply and dem-and systems. Data was derived from the two streams: (1) a site-by-site inventory of the parks in the town of Oakville, Ontario. That included -facilities sport fields, pools, washrooms and (2) a comprehensive survey of residential households within the town.

The data collected from different sources were physical attributes, playground equipment, facilities and based on 2nd principle were residential factor, recreational participation, recreation use etc. demand and supply are the indicator or method used in the study. Total parks were 114 explored and 1,163 households completed the survey. The potential surface for the recreation demand system showed that the central area of the town around Sixteen Mile Creek and the entire north area possessed above average levels of demand potential. The ratio of the supply and demand potential values resulted in a mean of 1.007 which was expected. And spatial equity was relatively from expected potential value 1.0.

Geoffrey et al (2005) Their research article is related with the concept of origin of leisure studies like, the study of recreation behavior, park use and their potential contribution to

the active living research. The leisure studies –was found on addressing the needs of peoples health and wellness. The article concludes list of recommendations to integrate these and other considerations into transdisciplinary research on active living. Methods like trainings, seminars, were conducted for facilitating such studies of life span, environmental and motivation that influenced, physical activities greatly and that lead to recreation. The result was, provision of incentives for transdisciplinary collaboration, changes in point allocation on grant proposals and special journal issues.

The Chandigarh City of India is known for its urban parks, gardens and well planned landscaping. The case study was undertaken during 2002–2006, the research was related to an assessment about the annual recreational value of this city’s urban greenery. Travel cost method was used in the assessment taking “domestic tourists” as a sample unit. As the result the consumer surplus per visit enjoyed and thus, domestic tourists was estimated. Choudhary and Tewari (2010).

In developing countries govt. is facing resource problem to maintain the existing parks and gardens so it has been discussed for proper utilization to the surplus at the same time revenue will be generated for the local administration. As the result study would be useful for green space and urban land use planning as well as for overall sustainable urban development.

Recreation and leisure research was examined in the study of Gobster(2005) with the context of active living. He highlighted an apparent gap between the current involvement of recreation and leisure researchers and the potential they would offer in this expanding area of inquiry.

He went through the two previous studies that focused on the recreational use of **urban trails** and reanalyzed the data from an active living perspective. In his 1st Study, individual, social and environmental factors helped to differentiate between low, moderate, and high activity level trail uses. Therefore in his 2nd study use patterns

distinguished between health-motivated trail users and individuals using trails for recreation and other purposes.

This paper examines the origins of leisure studies and the study of recreation behavior and park use and their potential contribution to active living research. Over the past 2 decades, leisure studies research has generated a body of literature pertinent to understanding and increasing active living, including studies on time use, motivation for initiating and maintaining activity, influence of user fees, and urban park use. Environmental

transportation, and public recreation policy and management practices also are important considerations in recreation and parks research (Godbey et al, 2005)

Attractive feature for Urban Recreation

Schroeder and Louviere (1999) showed how recreation usage can be affected by a variety of site features including the type of vegetation (i.e., whether grass and/or trees were present at the site), type of terrain (flat versus rolling hills), and the presence of water resources (none, stream/pond, river, lake, etc.).

Other researchers in the travel and tourism literature have used push-pull theory to study the forces that “push” people to travel away from home as well as those that

attract or “pull” individuals to visit particular tourism destinations (Crompton, 1979; Pyo et al., 1989; Yuan & McDonald, 1990; Uysal & Jurowski, 1994; Turnbull & Uysal, 1995; Klenosky, 2002; Kim et al., 2003).

The “push” factors explored in this line of inquiry have included the desire for escape, rest and relaxation, adventure, prestige, health and fitness, and social interaction. The “pull factors” have centered on beliefs about site features such as an area having a desirable climate, scenic areas, natural resources, unique cultural/historical attractions, outdoor recreation areas and facilities, affordable airfares, etc. Although the push-pull framework provides a useful way to think about site/destination choice behavior, the theory considers only the positive aspects of a site that attract visitors; it does not incorporate the impact of factors

Chaudhry et al, (2013) also studied the conservation of Urban Lakes for tourism and recreation in developing countries

Economic Valuation of Urban Recreational Benefits

Chaudhry et al, (2008) did study on the recreational benefits of urban forest and green spaces, Chaudhry and Tewari, (2008) studied in the tourism recreational value of the Rock garden, Chandigarh.

The mean willingness to pay (WTP) for the betterment of existing green landscape features and for creating new parks/gardens on the part of each reasonably earning family residing in the city was found at Rs. 153/-per year for a period of five years, which converts to an annual recreational use value of city's urban forestry assets to Rs. 2.75 crores (Rs. 27.50 millions) at 2002-03 prices. Contingent valuation method (open ended) was used for this purpose and primary data was collected from 2358 residents of the city. Contingent valuation method, open-ended version (CVM) and Zonal travel cost method (TCM) were used to estimate the annual recreational use value of city's urban greenery on the part of tourists coming to the city.

INTRODUCTION

What is Ecotourism?

The word “ecotourism” itself defines tourism that is related with ecological concern. Within the recent growth in tourism research, ecotourism has certainly emerged as one of the important area for research. The term has entered into the language of tourism as one of the key terms now used to denote the interaction of tourism with ecologically sustainable forms of tourism in its purest form. The primary goal of ecotourism are to foster sustainable use through resource conservation, culture revival and economic development and diversification. On an individual level it should add value to people’s lives through their learning about the natural world (Weaver, 2000). The first formal definition of ecotourism is generally credited to Ceballos -Lascurian (1987), who defined it as traveling to relatively undisturbed or uncontaminated natural areas with the specific objective of studying, admiring and enjoying the scenery and its wild plants and animals

as well as any existing cultural manifestation “both past and present” found in these areas.

Likewise, Honey (1999) defined ecotourism as travel to fragile, pristine and usually protected areas that strive to be low impact and usually small scale.

Apart from scholars it has been defined by the International Research Organizations also. The Ecotourism Society (TIES) in 1990, presented the most widely used and recognized definition of ecotourism as: "responsible travel to natural areas that conserves the environment and improves the well-being of local people" (TIES, 1990).

Conceptual Background of Ecotourism

When we discuss about the conceptual background of it, ecotourism exists within the broader classification of tourism types which at an initial level can be divided into ‘mass tourism’ and ‘alternative tourism’ (Fennel, 1999). ‘Mass tourism’ is seen at the most traditional form of tourism development where short term benefits, free market principles dominate and the maximization of income is paramount. While ‘alternative tourism’ is a generic term that encompasses a whole range of tourism strategies like eco, soft, responsible, people to people, controlled, small scale, cottage and green tourism all of which purport to offer a more benign alternative to conventional mass tourism in certain types of destination. Here ecotourism fall under the broad spectrum of Alternative Tourism (Fig 1).

CONCEPTUAL
BACKGROUND OF
ECOTOURISM

Type of
tourism



Fig 1. Types of Tourism

Ecotourism is considered to share three basic characteristics:

The natural (non human) environment or a feature of it is the prime attraction for the tourist.

The basis of that attraction for the tourist is an inherent appreciation/educational interest in the natural environment or natural environment feature.

The management regime effort is directed at the conservation/sustainable use of that natural environment exists. Thus ecotourism is seen as a subset of nature based tourism.

These basic characteristics of ecotourism are based on the its fundamental principles and functions. According to

Ecotourism falls under the broader form of sustainable tourism. When we try to find out its origin, it is not clear Hetzer (1965) ecotourism should be based on its four pillars. Based on its principles or four pillars

:

like:

Minimizing environmental impacts.

Respecting host culture

Maximizing the benefits to local people.
Maximizing tourist satisfaction

Likewise (Weaver, 2000) discussed the three dimensions of ecotourism, which can represent the main essence of the concept are:

Nature based

Environmentally educated

Sustainably managed

~~According to Ross and Wall (1999) there are outline five fundamental functions of ecotourism:~~

~~Protection of natural areas:~~

~~Education~~

~~Generation of money~~

~~Quality tourism~~

~~Local participation~~

~~Likewise (Weaver, 2000) discussed the three dimensions of ecotourism, which can represent the main essence of the concept are:~~

~~Nature based~~

~~Environmentally educated~~

~~Sustainably managed~~

~~Thus on the basis of above discussions it can be mentioned that there are 4 important components of ecotourism, which can help in development of ecotourism in sustainable manner:~~

~~Protection of areas having Natural and cultural attraction~~

~~Socio-economic benefits to local people:~~

~~Enabling environment (generating environmental awareness)~~

~~Optimum satisfaction to the tourist~~

~~Above decisions show that ecotourism is responsible form of tourism. It can be developed in protected areas to achieve the goal of sustainability. Due to this reason the ecotourism have been used as potential strategy to for sustainable development by many research organizations. The significance of ecotourism at global level, national level, state level and its scientific implementation can be understood by going through the literature review as follows:~~

LITERATURE REVIEW

~~The potential of ecotourism as a strategy for sustainable development; was recognized during the Earth Summit in 1992, when *sustainable tourism* was considered an environmental friendly economic activity . (Gray, 2003; Buchsbaum, 2004). Earth Summit was the first United Nations Conference on Environment and Development (UNCED Earth Summit) was held in Rio de Janeiro in 1992. At the Earth Summit, world~~

leaders adopted Agenda 21, a blue print to attain sustainable development in the 21st century.

Since then ecotourism has been adopted many international organization as development tool. According to the International ecotourism society (TIES, 2000) Ecotourism is an important and growing segment of the global tourism industry that is making significant positive contributions to the environmental, social, Each protected area must cultural and economic well-being of destinations and local communities around the world. Works that are being done by different governmental sectors and NNGO'S at different parts of the world are:

The United Nations has designated 2002 as the International Year of Ecotourism, under the aegis of the United Nations Environment Programme (UNEP) and the World Tourism Organization (WTO), over one thousand participants coming from 132 countries, from the public, private and non-governmental sectors met at the World Ecotourism Summit, hosted in Québec City, Canada, by Tourism Québec and the Canadian Tourism Commission, between 19 and 22 May 2002.

Ecotourism Summit (2002) and its follow up RIO+20 in 2012 has given boost for ecotourism areas. This summit ultimately led the development and adoption of Ecotourism Policy at national and state level in many countries of the world.

Ecotourism Development in Protected areas:

A protected area is defined as “ A clearly defined geographical space, recognized, dedicated and managed through legal or other effective means to achieve the long term conservation of nature with associated ecosystem services and cultural values Dudley (2008). IUCN1 (1991) defines a protected area as an area dedicated primarily to the protection and enjoyment of natural or cultural heritage, to maintenance of biodiversity, and/or to maintenance of ecological life-support services. The creation of such an area is now the most universally adopted means of conserving a natural ecosystem and/or relevant cultural heritage for a broad range of human values. Over 130 nations have established some 6,900 major legally protected areas, covering nearly 5% of the planet's land surface (roughly equivalent to twice the area of India) (McNeely, 1992):

Definition of Protected Areas Category Wise by IUCN

Category 1a: Strict nature reserve/wilderness protection area managed mainly for science or wilderness protection:

Category 1b: Wilderness area: Protected area managed mainly for wilderness protection:

Category 2: National park: Protected area managed mainly for ecosystem protection and recreation:

Category 3: Natural monument: protected area managed mainly for conservation of specific natural features:

Category 4: Habitat/species management area: protected area managed mainly for

conservation through management intervention.

Category 5: Protected landscape/seascape: protected area managed mainly for landscape/seascape conservation or recreation.

Category 6: Managed resource protected area: protected area managed mainly for the sustainable use of natural resources.

These cover the most common types of reserves, with category

I (Scientific Reserve: Strict Nature Reserve) being the only one excluding mainly any use. This category covers 9.3% of the overall protected area.

Nature Conservation Reserves: Managed Nature Reserves: Wildlife Sanctuaries (category IV) are the most prevalent type in terms of number of sites, while National Parks (category II) cover more area than any other (40.7%). The majority of the world's protected area is contained in a relatively few large sites, with the Greenland National Park (972 000 km²) and the Great Barrier Reef Marine Park (340 000 km²) accounting for almost 17% of the global total (7 734 900 km²). At present, about 5.2% of the earth's land surface are protected in roughly 8500 sites (WCMC, 1992).

Thus we see that the *Category 2: to Category 6* can be prospective sites for ecotourism development. In other words ecotourism development is possible in these category of protected areas. Policy guidelines have been developed at national and international level. UNWTO has been involved in the field of ecotourism since the early 1990s and has published a "Guidelines for the Sustainable Development and Management of Tourism in National Parks and Protected Areas", jointly with UNEP and IUCN in 1992 and held a series of regional seminars. India has also developed ecotourism policy at national level and make mandatory for all the states for development of ecotourism policy at state level.

The national guideline for ecotourism advocates that as well as state level in India. In protected areas there is need to guide the development of ecotourism in sustainable

manner, for this purpose the Ecotourism Policy have been devised by at national as well as State Level in India (MoEF, 2011). According to the national guideline, Each protected area must develop its own ecotourism plan, as part of its tiger conservation plan, management plan or annual plan of operation and should be duly approved by the Chief Wildlife Warden of the state and National Tiger Conservation Authority, (where relevant). The plan should be consistent with the state ecotourism strategy and must be approved by the LAC and the state Government. An ecotourism plan for each protected area must be notified by December 31,2011 and put in the public domain, in the local language also.

Potential of Ecotourism Development In Protected Areas

Protected areas have played significant roles as tourist attractions in many countries since their establishment ([6]). PAs with their landscapes, flora and fauna as well as their cultural elements form attractions for tourists ([7]). Another thing is that eco-tourism continues to become a management strategy for protected areas. There are numerous opportunities for ecotourism in protected areas. Such opportunities are revenue generation (i.e., user fees, entrance fees and donations), employment creation, justification for protected areas, healthier economies, environmental education, and improved conservation efforts ([4], [10]).

Iqbal et al. (2010) in his research of ecotourism in the Sundarbans and its surrounding areas he tries to find out a possible sustainable option for alternative livelihood development. For this purpose he access the livelihood status of the people and identified on how ecotourism could be established as an alternative livelihood in the surrounding people of the Sundarbans. The methods used by him are Reconnaissance survey, Questionnaire preparation and testing (sampling), Questionnaire survey and data collection. He found tremendous scope for ecotourism and alternative livelihood for the people dependent on forest resources and therefore they can earn around 15% extra money from average annual income.

In recentguideline pg no4-5

In many protected areas, ecotourism is a part of the management strategy. If done correctly, the management plan should be the result of a comprehensive evaluation of the area's natural and cultural resource base. It also requires to take care of following aspect:

- Have minimum impacts on the ecosystem.
- Economically provide for the local communities.

Be respectful of local cultures and customs.
Involve all stakeholders in the planning process.
Monitor in order to detect positive and negative impacts.

Negative impact of Ecotourism

Many scholars have identified the negative socio-cultural impact of Ecotourism impact on local communities. (Mehta 1995) identified that Ecotourism have shown its adverse impact on the local people like; the transformation of traditional cultural symbols into commodities to sell to visitors, the disruption of the pre-existing relationships between local people and higher incidences of crime etc. Likewise, Walpole et al. (2001) emphasized that "The money tourism can generate often ties parks and managements to eco-tourism". But there is a tension in this relationship because ecotourism often causes conflict and changes in land-use rights, fails to deliver promises of community-level benefits, damages environments, and has plenty of other social impacts. Apart from that adverse ecological impact in the form of loss of vegetation cover, soil and root exposure, damage to trees and also the occurrence of landslides have been observed along the Yuksam-Dzongri corridor, Kangehendzonga Biosphere Reserve, Nanda Devei Bisosphere Reserve (Rai and Sundriyal 1997; Kumari, et al 2005; Bosak 2004). Indeed many argue repeatedly that ecotourism is neither ecologically nor socially beneficial, yet it persists as a strategy for conservation and development (West, 2006).

Above literature review says that that as ecotourism fulfills all the preconditions for becoming an important part of the sustainable management of protected areas. Just as PAs present interesting prospects for ecotourism, in turn it can provide important opportunities for the development of protected areas. However, in order to make the most of the opportunities associated with ecotourism and to minimize the risks and threats and adverse impact listed above, ecotourism developments need to be well planned and carefully conducted (*Vashakmadze, 2010*).

There is a need to ensure that our ecotourism activities are undertaken in a sustainable manner. Loss of wildlife and habitat can in turn affect the eco-tourism potential of the region. Ecotourism can be sustainable only if it is well planned and runs on a set of guiding principles. Incorporating environmental knowledge into planning contributes significantly to sustainable tourism planning. This advocates that Ecotourism development can only become sustainable, when it is planned, developed and managed scientifically. The scientific implementation of ecotourism activities requires ecotourism development in several steps like Identifying of the potential ecotourism sites/assessment of ecotourism potential, Site Evaluation and Carrying capacity study of the region, comprehensive design and implementation plan etc.

Need of assessment of Ecotourism potential

Assessment, planning and declaration of Ecotourism potential sites are one of the thrust area where the Park has been actively engaged. Categorizing area, on the basis of their history, geographical location, landscape beauty and indispensable tourist facility and public amenities forms the basis for declaring an area as a tourist potential zone. First and foremost requirement of the is to find out the ecotourism potential parameters, which have been discussed by many scholars and discussed below.

In the report of Patil (2011), ecotourism potential of Shalhar fort of the Nasik district says that the research is about the physical and biological features of the selected area and to find the role of stake holders in sustainable tourism and environment friendly development. The methods and material used during the study are Site selection, Field survey, Data collection, The semi-structural interviews (informal) and the Target group analysis. We can see that it has good biodiversity, pleasing beauty of nature and ruggedness of physical landscape along with rich social and culture heritage that can attract eco tourist as well as unspoiled natural place as the result.

The study of Azima (2012) mainly focuses on the prospects of highland ecotourism of the Fraser hill in Malaysia. Location of study area, data collection and analysis are the methods used in the research. The outcome of the study is that the highland is rich in nature and biodiversity, recognized as an ecotourism destination. Nature and biodiversity like : Nostalgic attraction, Gazing the historical heritage, Highland outdoor adventure and most important : Knowledge ecotourism.

An article by Gannon (2011) say that a country of dramatically diverse environments, New Zealand offers an array of activities for outdoor enthusiasts and adventure seekers alike. New Zealand's remarkably varied landscape includes beaches, mountains, fjords, glaciers and rain forests, making it one of the most biologically diverse places on Earth. The small country consists of two main islands, the North Island and the South Island, each boasting a surprising variety of natural wonders.

Angelica (2010) in her research designed to test whether the Lapa Rios ecolodge of the Osa peninsula of Costa Rica, is a widely acclaimed example of species or not, delivers on these promises and to what degree. In her studies she used nested scale analysis, ground interview, remote sensing, questionnaires methods. And as a result The Lapa Rio fulfills the definitional promise of ecotourism and delivers social, economic and environmental benefits in the region.

The government of Uttarakhand is playing a vital role in the development of ecotourism. The ecotourism is the wing of the forest department as the state is endowed with 64.76% of area under forest. The government has taken steps like. Policy provide funds for various ecotourism projects. Generate awareness on all green issues. Maintain ecotourism destination. Maintain several forest rest houses. The potential in developing ecotourism are the birth place of 4 major river system-Ganga, Yamuna, Ramganga, Sharda.Snow capped mountains. Dense forest and wetland having species of flora and fauna.

The above discussion shows that the potential features for ecotourism are: forest, flora, fauna, beaches, mountains, glaciers, rain forest are the unique ecological feature that are need to be studied from carrying capacity view.

INTRODUCTION

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1.1 Conceptual Background of Ecotourism

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There are 4 important components of ecotourism, which can help in development of ecotourism in sustainable manner.

Protection of areas having Natural and cultural attraction

Socio-economic benefits to local people.

Enabling environment (generating environmental awareness)

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2. REVIEW OF LITERATURE

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2.1 Potential of Ecotourism Development in Protected Areas

Protected areas have played significant roles as tourist attractions in many countries since their establishment (Butler,2000). Protected areas with their landscapes, flora and fauna as well as their cultural elements form attractions for the tourists Another thing is that eco-tourism continues to become a management strategy for protected areas. There are numerous opportunities for ecotourism in protected areas. Such opportunities are revenue generation (*i.e.*, user fees, entranced fees and donations), employment creation, justification for protected areas, healthier economies, environmental education, and improved conservation efforts (Laseurain, 1993).

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2.2 Assessment of Ecotourism Potential.

Assessment, planning and declaration of Ecotourism potential sites are one of the thrust area, where the National Parks have been actively engaged. Categorizing area, on the basis of their history, geographical location, landscape beauty and indispensable tourist facility and public amenities forms the basis for declaring an area as a tourist potential zone. First and foremost requirement is to find out the ecotourism potential parameters, which have been discussed by many scholars are discussed below.

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Thulasimala and Devdass (2010) in the case study of Island ecotourism in Andaman Islands, India found out the potential ecotourism attraction in the form of landscapes attraction, beaches reserved forests etc. . They are ranked as following manner. Like landscapes topped with 93.4% of visitors, beaches with 90.5% and scenery with 88.9%, reserved forests with 86.8% and limestone caves with 68%. Similarly the cultural and historical tourism product scored 82.2% for the natural history, historical sites 81.89% and museum 74.7% and heritage sites 72.4%. This clearly indicates that the Andaman has abundant natural beauty with a rich cultural heritage to become an ecotourist destination

An article by Gannon (2011) say that a country of dramatically diverse environments, New Zealand offers an array of activities for outdoor enthusiasts and adventure seekers alike. New Zealand's remarkably varied landscape includes beaches, mountains, fjords, glaciers and rain forests, making it one of the most biologically diverse places on Earth. The small country consists of two main islands, the North Island and the South Island, each boasting a surprising variety of natural wonders.

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Thus, we see that ecological characteristics of particular destination generate attraction for ecotourists. In general, most of the ecotourism destination are situated in fragile ecological areas so it cannot sustain uncontrolled tourism. It requires scientific study which can identify the maximum number of people that may visit a tourist destination at a particular time. This problem can be solved by carrying capacity study of the destination.

2.3

Need of Ecotourism _ Carrying Capacity,

With the growing environmental awareness, the ecotourism is going to assume very large dimension in the recent future, more widely in the developing countries, and the PAs will be the main destination areas for the majority of ecotourism (Bhattacharya and Banerjee, 2003). The UNWTO defined Tourism Carrying as “The maximum number of people that may visit a tourist destination at the same time, without causing destruction of the physical, economic, socio-cultural environment and an unacceptable decrease in the quality of visitors' satisfaction (UNEP/MAP/PAP, 1997).

Tourism carrying capacity' is an important concept for assessing local environmental impact. Tourism carrying capacity is a specific type of environmental carrying capacity and refers to the carrying capacity of the (biophysical and social) environment with respect to tourist activity and development. It represents the maximum level of visitor use and related infrastructure that an area can accommodate (Wang, 2009).

Balaguer et al. , (2009) advocated that the camping area of MVNP can accommodate a total of 678 campers in its 6,000-m² area but due to the limiting factors mentioned by the respondents, the real capacity of hte MVNP camping area was only 383 campers/day.- These limiting factors, specifically the number of months of volcanic activities can limit MVNP area's CC by as much as 16.43%.

Luo, (2010) assessed the environmental carrying capacity of ecotourism (ECCE) for Maqu, southwest of Gansu province of China with a fuzzy comprehensive evaluation method. The results indicate an integrated value of 0.8453 (value >0.7 indicates overloaded), suggesting the ecotourism environment is seriously overloaded in Maqu Maqu. which limits the ecotourism of Maqu. The study says that ecotourism site should have its carrying apacity for environmental sustainability.

Need of Involvement of local people

The report by Shaji of TNN news on October 25, 2012 reports that COIMBATORE: As the Supreme Court has directed that all tourism activities in tiger reserves be strictly in accordance with the notification on tiger conservation issued by the National Tiger Conservation Authority (NTCA) with the active involvement of traditional forest

dweller, authorities of three tiger reserves in Tamil Nadu have started probing steps to initiate community-based eco-tourism to ensure economic.

The report by TNN news on August 10,(2012) says that Pune's Tadoba Andheri and Pench tiger reserves, Nagzira wildlife sanctuary in Bhandara district and Bor wildlife sanctuary in Wardha district will be ecotourism destinations managed by the Forest Development Corporation of Maharashtra. The tourism will be ecologically sustainable and benefit the local communities while providing a wildlife experience to target groups of high-end tourists, families and student

The report of Patnaik on TNN news on October 22,2012 says that the Chief minister unveils Chilka plan of Bhubaneswar for management and conservation of the lake . The 'Management Planning Framework for Chilika Lake' aims at conserving resources for ecological security and economic improvement of over 2 lakh people dependent on the brackish water lagoon. "Some of the important issues, like controlling the silt flow into the lake through appropriate catchment treatment, are given utmost priority in the management plan.

Thus we have seen that, ecotourism is developed in eco-sensitive area so it requires the planned and scientific development in protected areas. Based on above literature it can be said that for ecologically sensitive planning of ecotourism following three steps are required

Step 1- To find out potential ecotourism attraction,

Step 2- Assessment of carrying capacity

Step 3- Participatory management plan

There are few studies which have been reviewed to know the methodology required for it.

Like , Gultiken and Uzun (2011) in attempted to their research to Determine the ation of Ecotourism potential and landscape management of Duzee Ugursuyu and Aksu basin in.....in their research and landscape management. In the first phase of the study they used GIS and GPS methods. In the second phase SWOT analysis method i.e strengths, weaknesses, opportunities and threats analysis are used. And in the third phase questionnaires, scale and maps are used. The main outline of landscape management is about the management of ecotourism activities. And as the result good planning of natural and cultural element has taken place that creates resources for ecotourism activities on the other hand its management is contributed by the local people.

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destination. The research was done on the basis of primary and secondary data. Altogether 305 samples were taken from the major tourist places through questionnaires and the secondary data have been collected from forest department, statistic department, state library and census office. Nicobar administration have also helped by providing photographs, documents and literature.

2.4

In the case study of ecotourism in Tighra Reservoir, Gwalior by Uchhariya(2012) was based on ecotourism and its impact his study reveals that ecotourism, economic aspects And social aspects have improved but environmental aspect and awareness to conserve environment is still lacking. The methods that he used in his study are field work, personal interview and survey. As a result education, socio-economic condition, literacy, hospital facility and brotherhood have improved.

Potential of Ecotourism Development In India

India is fortunate to have rich ecotourism potential in the form of attractive landscape, rich cultural heritage and floral-faunal diversity and has several well managed protected areas where the potential for ecotourism is high. However constraints like small park area, improperly planned tourist activities and excessive tourist operations have led to considerable damage of the protected areas (Dhanpal, 2011). There is a need to ensure that our ecotourism activities are undertaken in a sustainable manner. For this purpose many states like Sikkim, Kerala, Rajasthan (Ashok, 2012), M.P. etc. have developed Ecotourism Policy for its development in the protected areas. The government of India in its new tourism policy has spelt out some guidelines for the department of tourism and also for the private entrepreneurs particularly in ecotourism and general tourism is seen in the study of Kumar (2007). In a critical review of policies and practices of ecotourism in India. The research was by data collection and analysis, remote sensing, GIS, GPS and survey and now it has been granted as the status of industry. Ministry of Environment and Forest, Govt. of India has proposed "Guidelines For Ecotourism in and Around Protected Areas" (MOEF, 2011). Likewise Jharkhand has immense ecotourism potential in terms diverse flora fauna, avifauna and attractive landscape features, which have been selected for Case Study.

Q:

Thulasimala and Devdass(2010). In the case study of Island ecotourism in Andaman Islands, India. The research was done on the basis of primary and secondary data. Altogether 305 samples were taken from the major tourist places through questionnaires and the secondary data have been collected from forest department, statistic department, state library and census office. Nicobar administration have also helped by providing photographs, documents and literature. And as the result landscapes topped with 93.4% of visitors, beaches with 90.5% and scenery with 88.9%, reserved forests with 86.8% and limestone caves with 68%. Similarly the cultural and historical tourism product scored 82.2% for the natural history, historical sites 81.89% and museum 74.7% and

heritage sites 72.4%. This clearly indicates that the Andaman has abundant natural beauty with a rich cultural heritage to become an ecotouristic destination.

In the case study of ecotourism in Tighra Reservoir, Gwalior by Uchehariya(2012) was based on ecotourism and its impact his study reveals that ecotourism, economic aspects and social aspects have improved but environmental aspect and awareness to conserve environment is still lacking. The methods that he used in his study are field work, personal interview and survey. As a result education, socio-economic condition, literacy, hospital facility and brotherhood have improved.

2.5 Need Ecotourism Development in Jharkhand

As far as the development of Ecotourism in Jharkhand is concern, some scholars have emphasized about the development of ecotourism in the state. Jeyaseelan (2009) in his research mainly describes the geoinformatics applications to tourism and in particular the use of WebGIS developed for resource monitoring in Jharkhand state for promotion of tourism. In recent times, the Tourism, Eco-Tourism and Tourism industries are increasingly use remote sensed satellite imagery, aerial photography, Light Detection and Ranging are being used to collect topographic data and Geographic Information System for new presentation and proposal strategies that will maximize the promotional appeal of tourism and their main assets, which include a unique landscape and scenery, an impressive cultural heritage. Resort, hotel, property owners, tour guides and travel agents use satellite images, GIS mapping and 3D visualization for tourists to acquire any information on their desired location. The information on various resources, facilities and infrastructure available over Jharkhand state in web GIS platform can be used by anyone, anywhere at anytime.

Kumar (2012) studied about the status of forest in Jharkhand. He discussed that “Jharkhand” means land with forest cover. It is one of the important diversity centre having unique floral and faunal heritage. The state is rich in forest resources because of its diverse topographic and climatic conditions. The forest resource of the state is under serious threat because of heavy mining construction of roads, railways, human settlements, dams and other activities. This realization has motivated mankind to study forest at various levels from global to local for forest assessment, conservation and sustainable forest management. The forest cover is around 29.27%. The study is based on secondary data and government records obtained from forest survey of India. The general information from census publication 2001 and 2004. We can see the result as the overall forest cover of Jharkhand is divisible into 3 types: Tropical moist deciduous, Tropical dry deciduous and Sub tropical broad leaved hill forest.

34. GAP AREAS IN RESEARCH

Based on above literature survey it has been found out that till date there is no such study, which has done ~~ecotourism-Urban-Recreation Potential site potential-study and carrying capacity assessments~~ recreational benefit~~economic valuation~~ in the study area. To fulfill this gap following objectives has been formulated.

54. OBJECTIVES

- 1.
2. To analyze the changing land use pattern of the city before and after the formation of the Jharkhand state. ~~GIS Mapping of Natural features for urban recreation (urban forest, water bodies-waterfalls, rivers, lakes, ponds) of the study area which can attract tourists.~~
3. To find out the changes in the urban recreation spaces and its importance on resident's recreational requirement. ~~Identifying man-made features for urban recreation like parks, garden, dam, historical and cultural features (temples, church)~~
4. GIS mapping of the potential of natural features (rivers, waterfall, open space) and manmade features (dam, reservoirs, gardens) which are useful for recreation. ~~Economic valuation of recreational benefit of selected places in and around Ranchi.~~
5. Providing guideline after reviewing the above recreational space for the development of urban and open green space for sustainable development of Ranchi city.

~~GIS Mapping of Ecological Capital or Natural Capital (flora, fauna, water bodies, hill, landscapes, forest, agricultural activities, local inhabitat etc) of the study area which can attract tourists.~~

~~Identifying Natural Capital of the study area from the community perspective of the study area.~~

~~Assess carrying capacity of the Protected Area, at three levels: Physical, Real and Effective/Permissible carrying capacity of visitors and vehicles.~~

~~Development of guideline for sustainable development of ecotourism in the study area.~~

6.

PROPOSED-RESEARCH METHODOLOGY

To fulfill the objective of the study the following study area has been selected:

65.1. The Study Area: Ranchi city: Ranchi got its capital status in 2000, before that it was only a district headquarter. As a result provision of green space is found in its -one of the document, but its implementation plan is not found in the master plan. per the City Development Plan report submitted by the Ranchi Municipal Corporation where it incorporates the requirements of **Heritage Conservation and Tourism Development** specified under the sub heading of Urban Infrastructure Services.

The document -mentions that: Ranchi is well known for its scenic attractions, water falls, barren Rocks, and Hillock s. The places of tourist importance within RMC -limits are: Ranchi Hill, Tagore Hill, Ranchi Lake, Rock Dam & Kanke Dam, Nakshatra Van and Jagannathpur Temple. Developing these as tourism sites is proposed. Need for rejuvenation of water bodies has also been highlighted in the plan. Investment requirement for heritage conservation and tourism development is estimated at Rs 137 crores (Ranchi City development Plan, An Appraisal Report).->

Dalma Wildlife Sanctuary, Jamshedpur.

Based on the pilot survey this area has been selected for the study. Lying in the catchment area of Subarnarekha River and adjoining Purulia District of West Bengal, this wildlife sanctuary with an area of 193.22 Sq. Km. on the National Highway No. 33 near Jamshedpur has undulating terrain with high hillocks (Max. 984 M MSL), plateau, deep valley and open fields between hillocks, providing diverse habitat for flora and fauna. The forests here are mostly Dry Mixed Deciduous with few Dry Peninsular Sal, the main tree species being Terminalias, Jamun, Dhaura, Kendu, Karam etc. The sanctuary is very much favoured by the Elephants due to availability of water even during summer. Leopard, Barking Deer, Mouse Deer, Sloth Bear, Monkey, Giant Squirrel are abundant here.*****

Discussion with the forest officials and reconnaissance survey of the area has encouraged the researcher to pursue research on this topic in this area.

-6.5.2. Field survey and data collection:

Primary Data Collection:

Selection of site has been done by keeping the importance of research in mind. The field survey will be done to acquire the geographical location of knowledge about potential and existing the physical and biological features natural and manmade features for Urban Recreation Potential in the City. In addition, of the area. Primary data will be collected through surveys and interviews to understand the recreational requirements and benefit of the urban residents at household level as well as the institutional level. For this purpose the following sampling units would be selected for data collection.

6.3. Sampling unit for field data collection

The secondary data will be collected from the Ranchi Municipal Corporation , forest department, govt. tourism department offices, gram panchayat. Semi interviews will be taken and the target group will be locals, stake holders, Visitors and the urban Residents. hotels owners etc.

56.3. Data collection: Primary and secondary data would be collected on the following aspects:

<u>RESIDENTS</u>	<u>INSTITUTES</u>	<u>SCHOOLS</u>
<u>Ward wise (no of wards=6)</u>	<u>St. Xavier's college</u>	<u>B.W.G.S</u>
<u>Ashok Nagar, Gandhi Nagar</u>	<u>B.I.T Meshra</u>	<u>Oxford Public School</u>
<u>Bahu bazar, Samlong</u>	<u>Ranchi University</u>	<u>St. Xavier's School</u>
<u>On an average 50 house hold each would be surveyed from the selected 6 wards. In total 300 household would be surveyed.</u>	<u>Institutional level survey would be conducted in three institute to understand the provisioning of recreational requirement at</u>	<u>Three school would be surveyed to get information on provisioning of recreational requirement School level in the city.</u>

While surveying the— three (old, middle age, young) age groups of the people would be surveyed.	campus level	
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Resources, population pressure, ratio, identification of area (bad, average, good). Residents (public and administrative), institution(hospitals, PWD,). All these will also be surveyed.

56.4. Sampling unit for field data collection

<u>URBAN RESIDENTS</u>	<u>STAKE HOLDERS</u>	<u>Tourists/TOURISTSVISITORSIsitors</u>
<u>Old age</u>	<u>Govt. dept. (forest, tourism, urban planning dept)</u>	<u>Local</u>
<u>Middle age</u>	<u>NGO</u>	<u>Domestic</u>
<u>Young generation</u>	<u>Visitors</u>	<u>Foreign</u>

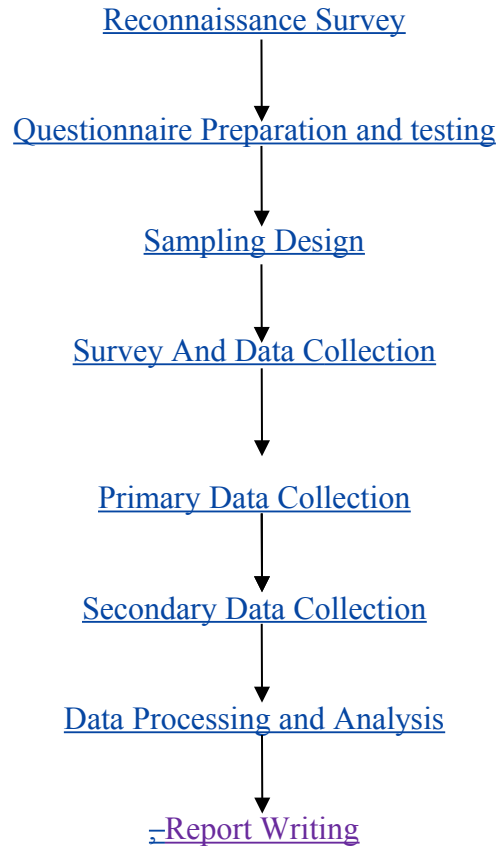
6.4. Secondary Data Collection:

The secondary data will be collected from the Ranchi Municipal Corporation , forest department, govt. tourism department offices, Semi structured interviews will be conducted from the officials of the these department.

65.5. Data processing and analysis: Data will be analyzed using Remote Sensing, GIS techniques and suitable statistical technique.

TENTATIVE RESEARCH PLAN

PLAN OF WORK



TENTATIVE SCHEDULE

<u>WORK PLAN</u>	<u>SCHEDULE</u>
<u>1.Reconnaissance Survey</u>	<u>2 months</u>
<u>2.Questionnaire preparing and testing</u>	<u>1 months</u>
<u>3.Sampling Design for field survey</u>	<u>2 months</u>
<u>4.SURVEY AND DATA COLLECTION</u>	<u>7 months</u>
<ul style="list-style-type: none"> • <u>Primary data collection</u> • <u>Secondary data collection</u> 	<u>4 months</u>
	<u>3 months</u>
<u>5.Data processing and analysis</u>	<u>4 months</u>
<u>6.Report Writing</u>	<u>3 months</u>

-7. TENTATIVE Dalma Wildlife Sanctuary, Jamshedpur

Lying in the catchment area of Subarnarekha River and adjoining Purulia District of West Bengal, this wildlife sanctuary with an area of 193.22 Sq. Km. on the National Highway No. 33 near Jamshedpur has undulating terrain with high hillocks (Max. 984 M MSL), plateau, deep valley and open fields between hillocks, providing diverse habitat for flora and fauna. The forests here are mostly Dry Mixed Deciduous with few Dry Peninsular Sal, the main tree species being Terminalias, Jamun, Dhaura, Kendu, Karam etc. The sanctuary is very much favoured by the Elephants due to availability of water even during summer. Leopard, Barking Deer, Mouse Deer, Sloth Bear, Monkey, Giant Squirrel are abundant here.

Conclusion: Based on the above literature survey it can be said that ecotourism has immense potential for making sustainable development of any region through protection of natural and cultural resources by imparting environmental education, generating socio-economic benefit to the local community. But it is only possible with the proper planning. The present study aims at that and want to assess the ecotourism potential of Dalma Wildlife Sanctuary, Jamshedpur, Jharkhand state and suggest the policy guidelines for the same. CHAPTERISATION

1. Introduction

The introductory chapter attempts to conceptualize the needs and relevance of the present study such as statement of the problem, review of literature, objectives, selection of the study area, hypothesis, data-base and methodology adopted in the study and review of literature. present study.

2. Description of the study area

The second chapter would include ~~offered a~~ a general description of the physical setting of the study _____ area. The physiographic, climate, drainages, soil types of the state will be _____ discussed in order to understand the role of the physical conditions of the study area on the people.

Attempt would also be made to analyze the social and demographic composition of the study area and also the relationship between the geographical setting and process of migration and distribution of population in the study area. History of the area.

3. Land transformation in Ranchi

This chapter highlights the changes, impact of land use pattern, transformation. Land use pattern will be discussed from the British time till the present time. Changes in Land use pattern before ~~capital, land use~~ and after the formation of ~~capital~~.

4. Identifying potential of urban recreation in the area

GIS mapping will be done for the identification of the existing as well as potential : Natural features (like- rivers, falls, open space, lakes, ponds etc); and man-made features (-like- gardens, dams, parks, stadium, etc). ~~will be identified.~~

5. ~~Identification~~The of recreational benefits for -Urban Residents in Ranchi Study Area: Peoples' Perspective

Primary study would be conducted at household level as well as institutional level to understand the recreational requirement and its availability in the city. The results obtained from the primary survey ~~data~~ will be discussed here.

6. Strategy for protection of urban recreational space for sustainable urban development

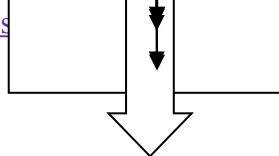
This chapter would develop ~~is the~~ guideline for the development, protection and improvement of urban greens paces within the urban area. The policy guideline should ensure that the amenities urban green spaces provide to local people are

maintained of urban and open green space. And for sustainable development of Ranchi.

7. Summary and conclusion

summary of all the six chapters and conclusion of the thesis.

8. SIGNIFICANCE OF THE STUDY

- 
- By carrying out a proper study and analysis to identify the potential sites for urban recreation.
 - Among those potential sites some representative sites will be selected and their economic valuation will be done with reference to recreational benefits.
 - Above finding would help in proper planning and management of the site. Thus it can be developed as a good urban recreation site in Jharkhand.
 - There are developed cities in India where we can see proper urban recreation centers like in Chandigarh, Delhi, Jaipur so this equally important for the developing cities for a good future.

By carrying out a proper survey we will be able to identify the potential of the area for ecotourism.

In addition the carrying capacity study would identify the maximum number of tourist can be allowed to visit the destination without disturbing its ecological balance.

Above finding would help in proper planning and management of the site. Thus it can be developed as a good Ecotourism site in Jharkhand.

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9.

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