

1. BACKGROUND

Bhubaneswar, the capital of Orissa is known as "Temple City of India". The city has rich cultural background and represents some of the finest manifestations of Kalingan style of temple architecture. It has the distinction of being called the Cathedral City of Orissa as at one time it had about 7000 temples. Since 3rd century BC, numerous temples and caves propagating faiths of Hinduism, Buddhism, Vaisnavism, Jainism have flourished in this region. Its numerous temples and caves, their magnificence and elegance speak not only of the wealth and prosperity of the people of the past but also of their masterly engineering skill and superb architecture in stone. Bhubaneswar at present stands at the confluence of the past and the present and proudly manifests the soaring spire of Lord Lingraj, the Raja Rani temple, the Pagoda of Dhauli, popularly known as the white dome of peace, the Jain temples and the caves of Khandagiri and Dhulagiri. Bhubaneswar, once a flourishing capital of ancient Kalinga, is today the largest city in Orissa.

Chapter 1 Introduction

Bhubaneswar is located in Khurda District of Orissa. Bhubaneswar is situated to the southwest of the three great rivers of Orissa, the Baitarani, the Brahmani and the Mahanadi. It lies on the western fringe of the mid-coastal plain of Orissa with an average elevation of 45 meters above the sea level. Most part of Bhubaneswar is covered with laterite soil. Bhubaneswar belongs to old Gondwana landmass of India.

Bhubaneswar is about 64 kms from Puri, the abode of Lord Jagannath and forms a "Golden Triangle" with the famous Sun Temple in Konark and Puri with enormous attraction to tourists. The city was built over a plateau located along the corridors of the East Coast Railway and National Highway No-5. The location of the city is almost central in between Kolkata & Chennai and is well connected through rail, air and road. It has air communication with Delhi, Kolkata, Raipur, Chennai, Hyderabad and Vishakhapatnam.

The city has a long history and it dates back to the period of great Mauryan emperor Ashoka. During the days of Mauryan Emperor, it was known as "Tosali", the Capital City of Ancient Kalinga. The serene land has such inherent mysterious power that it could turn the great Mauryan Emperor Ashoka to the compassionate teachings of Lord Buddha after horrendous Kalinga war in the 261 B.C.

Today, because of its magnificent culture and heritage, Bhubaneswar is an important tourist centre not only in India, but also in the whole world. Tourism is the major industry of the city. The Lingaraj Temple, Mukteswar temple and Raja Rani Temple that are 11th century A.D. monuments, Ashok inscriptions at Dhauri, archaeological remains of Sisupalgada (300 B.C.) and Jain monuments of the city. The old city, popularly known as, Ekamrahsetra, featured by conglomeration of temples, monuments, mandapas, heritage ponds etc is under tremendous pressure because of the rapid urbanization and tourist importance.

The present Bhubaneswar is transforming towards a new identity apart from its cultural heritage, as a major centre for information technology, educational and research organization and attracting millions of tourists both from India and abroad.

2. THE NEED

Due to pressure of development, these finest architectural and sculptural elements are slowly being masked by modern development. In many cases, the visibility of temples is lost due to modern construction. Also due to rapid urban growth, there is environmental degradation.

For environmental quality improvement in urban areas, especially those such as Bhubaneswar, where the protection of the magnificent temples such as Lingraj and Raja Rani is involved, there is a need for a scientific study and innovative approach to achieve the desired results.



The spatial planning tool employing systematic environmental assessments and landuse planning & management can be quite useful. The usefulness of the planning approach has been successfully demonstrated through the study on "Environmental Management Plan- Kanpur Urban Area". The study resulted in successful implementation of some of the recommendations of the EMP in a very short span of time, with the intervention of the Kanpur Development Authority. The EMP also was used to develop a "Blue Print" to draw action plans for implementation of measures by all the concerned departments. The conversion of Motijheel to a recreational park and Phoolbagh into a garden with flowers (*phool*), shifting of the bus stand, traffic management including constructions of traffic islands are only a few to name of various successes in Kanpur. As was stated by Shri Satish Mahana, the Hon'ble Minister for Urban Development, Government of Uttar Pradesh, *"The specific recommendations made in the plan (EMP) has been duly accommodated in the final short term and long term development plan of the city by the task force led by Kanpur Development Authority. This has started reflecting in all round development of Kanpur, in a short span of couple of months"*.

Subsequent to the Kanpur study, the EMP study on Agra was taken up by CPCB and priority projects were identified. The Ministry of Environment & Forests has allotted Rs 350 cr for the priority projects identified by the Uttar Pradesh Government in line with the EMP prepared by CPCB.. Also, to protect Taj Mahal and to ensure sustainable development of the area, it is contemplated to develop "Taj Ecocity" in area of about 25 sq. km. around Taj Mahal in Agra. The projects to be implemented in the 1st phase had been identified.

Taking inspiration from the success of Kanpur and Agra studies, the State Pollution Control Board, Bhubaneswar, Orissa in consultation with the Bhubaneswar Development Authority, the Town Planning Authority, the Bhubaneswar Municipal Corporation and the Public Health & Engineering Department, Govt. of Orissa took up the study on "Environmental Management Plan-"Bhubaneswar Urban Area" The technical support for the study is provided by CPCB.

3. THE STUDY

The present study attempts a comprehensive and integrated approach towards environmental improvement addressing to the issues of environment, spatial, economic and land use. The translation of the objectives of either environment or development or social needs requires a plan. Land use planning and management has been internationally recognised as a strategy for sustainable development. As is said in the Agenda 21, as adopted in the UN Conference on Environment & Development, 1992 (UNCED), "By examining



Raia Rani Temple Complex

all uses of land in an integrated manner, it makes it possible to minimize conflicts, to make the most efficient trade-offs and to link social and economic development with environmental protection and enhancement, thus helping to achieve the objectives of sustainable development. The essence of the integrated approach finds expression in the coordination of the sectoral planning and management activities concerned with the various aspects of land use and land resources".

Proper land use planning and sustainable development have a close relation. The study on "Environmental Management Plan – Bhubaneswar Urban Area has been extended to an area of 233 sq. km. Covering the urban area of Bhubaneswar. The study is in line with the sustainable development strategy. The study area includes the Municipal area is 130 sq km.

4. OBJECTIVE OF THE STUDY

The overall objective of the study is to achieve environmental improvement of Bhubaneswar and ensure protection of Lingaraj Temple and other monuments by decreasing the environmental burden/stress, improving the living conditions and allowing for sustainable development through a comprehensive urban improvement system considering planning and management of land and its resources integrating economic, social and environmental aspects.

The strategy for urban improvement system includes:

- i. Land use planning;
- ii. Land use management; and
- iii. Technological solutions.

The specific objectives of the study are:

- To study the land use plan of the city vis-a-vis the real land use, the source of pollution, the status of the environmental quality etc.
- To study the environmental considerations incorporated in the existing land use plan and the maps thereof;
- To identify the sources of pollution, assess their impacts on the environment and identify the environmental hot spots of the area;
- to identify the incompatible land use, the inadequacies of infrastructure facilities for water supply, transport, garbage etc. areas of the overuse, areas needing relocation/ rehabilitation, inadequacies of the green areas etc;
- To propose environmental management plan for incorporation in the land use plan; and
- To evolve an Action Plan based on the environmental management plan to achieve environmental improvement

The implementation of the recommendations of the present study is expected to result in:

- Reduced air, water, noise pollution
- Improved sewerage and storm water drainage, traffic and transportation system and other infrastructure
- Adequate greens, open areas, landscaping
- Improvement of industrial areas, core areas, heritage areas, tourism areas and other such areas
- Improved land use planning and management through incorporation of environmental concerns in sectoral plans and Master Plan, relocation of activities, development

5. THE STUDY AREA

The present study has been taken up for Bhubaneswar City covering an area of about 233 sq. km. It is situated on the South Eastern Railway line joining Howrah and Chennai at a distance of 435 Km South of Kolkatta. Bhubaneswar is well connected with the main cities of Kolkatta, Chennai, Hyderabad and Visakhapatnam by Highways, Railways and Airway. NH-5, NH-203 traverses the city. Map 1 depicts Base Structure of Bhubaneswar City. A brief overview of the city is given below.



Aerial view of Bhubaneswar

LOCATION:

Latitude – 20°12' N to 20°25' N
Longitude – 85° 44' E to 85° 55' E

LIES AT THE JUNCTION OF:

NH-5 Kolkata - Chennai (GT Road)
NH-203 Bhubaneswar–Puri

CLIMATE:

Max. temperature 32.93°C
Min. temperature 22.13°C
Total Rainfall 1260.4 mm (in the months of July, August, September)
Wind direction From SouthWest (prevailing wind)
 From South and SouthWest (monsoon wind)

Details on Climate at Annexure 1

POPULATION:

YEAR	POPULATION
1951	16,512
1961	38,211
1971	1,05,91
1981	2,19,211
1991	4,11,542
2001	6,57,477

Work force ratio : 32.57%
Tourist inflow : 4000 to 6000 per day
Roads : Network of 900 km length
Traffic : 2,09,693 vehicles (2001)
Industries : 88 (registered)
Municipal area : 135 sq km
Development Area : 233 sq km