

An Ecological Perspective to Redevelopment of Cities: Mapping the Energy footprint of Thane City against its Bio-capacity

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Abstract

The statistics of migration of rural population to urban areas indicates that, by 2030, about 60% of the world population would be living in cities. Whereas new developments may generally be based on sustainable guidelines, the existing habitations in India continue to grow into unintended urban sprawls. As a practice, the projected carrying capacity of a city is calculated merely on the basis of a single parameter of the available buildable land as against a holistic perspective critically considering the requisite natural resource consumption patterns. As a consequence, natural resource consumption patterns of urban environments end up being excessively large. The purpose of this study is to highlight the need to formulate sustainable redevelopment guidelines for the growth of a city seriously taking into account its existing ecological assets. This research paper is an outcome of a study of direct energy consumption footprint of Thane city mapped against the bio-capacity of the city surrounds to arrive at its related ecological deficit.

Keywords: *Energy, Sustainability indicators, Ecological surrounds, Thane city, India.*

1.0 An Overview

Our cities tend to have an excessively indulgent consumption pattern of natural resources. Whereas development of new settlements may usually be based on sustainable guidelines, hitherto existing cities continue to grow into nearly unending unplanned swathes of urban sprawls with scant regard for requisite balance of natural surrounds toward a befitting quality of life of the inhabitants succinctly depicted by Ian McHarg, (Ian McHarg, 1967). Though apparently planned, such a growth very often happens in form of high rise structures with high population density and low development footprint. This translates into a high consumption & waste footprint per unit area of built land. Consequently the issue of intra-city travel in terms of distance as well as the time, enormous amount of energies may be consumed at the individual level, transportation fuel as well as in form of supporting infrastructure.

Whereas growth is inevitable, redevelopment of both Mumbai and Thane City has very obviously been through a trade-off of the natural heritage - mangroves for encroachments; hillocks for housing; trees for roads etc. There is a huge loss to the quality of life with residents having to deal with roads & infrastructural construction activities and related traffic delays amidst polluting emissions. Scant concern and growing apathy to natural resources, with short term convenience becoming the overriding concerns of the decision-makers.

In addition, several stake holders for redevelopment hold an independently relevant but sometimes divergent view to growth. Hence, the author also senses a pressing need for a tangible unifying principle for a balanced redevelopment module. All of this has prompted the Author to undertake this study and this paper is an exploration towards that.

2.0 Developing the research approach

The research approach is keeping in alignment with the Missions laid out in the National Action Plan on Climate Change (NAPCC) for India- the Prime Minister's Council on Climate Change 2007. In specific, the 2nd Mission of working towards Enhanced Energy Efficiency and the 6th Mission of Green India laying emphasis on preservation of ecological balance and maintenance of bio-diversity, laying a goal of forestation of 6 million hectares of degraded lands.