THE ESSENTIAL ELEMENTS OF GREEN TOWN PLANNING

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ABSTRACT

The concept of green and sustainable design is not new to us. The traditional settlements, the way we live, and the way we eat, and cultural behavior aims at practicing architects with sufficient skills to suggest and create good characteristics in sustainability. Town Planning System of Indus Valley Civilization clearly emphasis the principles of modern concepts and essentials of sustainable city planning. Old Temples are found deliberately at a place where the positive energy - magnetic and electric wave conveyances of north/south post push. Through years of practice, their specific judgment and ability can help to develop, visualize, evaluate, and identify appropriate activities. We can clearly identify the cities have been carefully planned based on Concentric, Occupation & social order. The influence of Vasthu – based on Cosmic grid has direct influence over the site & climate responsive as well as the Dualities – cosmic & topography has been influential in the modern city design of Jaipur.

The major benefits of the green cities stem from their very qualities and include, among others, the following: oxygenation and purification of urban air; mitigation of the heat island phenomenon; the keeping and even the increasing of biodiversity by creating semi-natural habitats; the use of bio-architecture to connect man and nature through the medium of landscape improvements inspired from the living organisms; and last, but not least, the psychological and sanogenic impact on people. If managed properly, green infrastructures may become local tourist assets, thus enhancing the communities' economic benefits.

Keyword: - *Green cities, Optimisation of Resources, Sustainable city design, Vernacular Design.*

1. INTRODUCTION

"A city should be built to give its inhabitants security and happiness" – Aristotle. The concept of "Sustainability" or sustainable practice is not a new terminology to us. Its our culture, the way our living is basically inter dependent and the concept of zero waste or the completion of material cycle is being practiced right from the three essential components of human life. Ie. The way we eat, the way we built our settlements and the way we wear our cloths.

In a traditional thali of indian food gives an idea of ranges from un cooked food to cooked food with a choice and optimisation of resouces. It also gives the user to choose from the variety according to his personal choices. He can mix the way he wants and decides to change the taste for every bite. All the variety of food in a perticular thali will be the same, however its left to the individual to make his own choice on how he / she wanted it. This is a best way to explain on sustainability and optimisation of resources. traditionally man has expanded the same knowledge from the micro level of his settlement construction to the macro level of settlement planning.

2. Ancient System of Town Planning in India

Indus valley civilizationdevelopment of cities grew out of earlier villages that existed in the same locality for mor than 100 yrs and grew in size & density and surrounded by numerous towns & villages. The cities interlinked by trade & economic activities, relegious beliefs, social relations,etc. vast agricultural lands, rivers & forests by pastoral

communities , fisher folk and hunters surrounded each city. The life in the Indus cities gives the impression of "a democratic bourgeois economy" like that of ancient Crete.

In Mohenjodaro there is no fortification for the city shows the expectaction of city to grow. Following a grid iron pattern like major streets in North- South direction, intersection at right angles, streets within built up areas were narrow due to resonse to climatic condition, distinct zoning for different groups for having settlement divisions based on relegious, institutional & cultural areas. land use based on directions, Principal buildings such as monastry & bath - indicating religious culture in the western part, agriculture & industries in the north directions, and administration, trade & commerce in the southern part of the town. More focused planning with infrstucture such as underground sewerage & drainage from houses, helical pumps for pumping water in great bath.

2.1 Settlements Based on Historical Significance of Man and Nature

Temples are found deliberately at a place where the positive energy - magnetic and electric wave conveyances of north/south post push. The idol of God is set in the core center of the temple, known as "Garbhagriha" or "Moolasthanam"- place where earth's magnetic waves are discovered to be most extreme. When we look at Madurai city we can see the following aspects are mainly focused in the city planning such as:

- Concentric.
- Hierarchy of Heights
- Height Control
- Change in Visual level
- Occupation and social order.

When we look at the city planning of Srirangam its a evolution of city in a Temple, the complex is composed of 7 concentric walled sections and 21 magnificent towers or gopuram and the settlements are based on Occupation & social order.

Temple as an institution: the temple in srirangam acted as an institutional apart from a religious place. It's a place of income generation for the people. It is influenced all aspects of life of people and their main economy was built around this core of the city. The offering to the temple becomes feeding for the Brahmins and offered employment for many associated with the temple like teachers, musicians and dancers etc. There is always a sense of Humane connectivity, with any temples where it focus on activation of Five Senses Sight, Hearing, Touch, Taste, And Smell in side the temple complex.

2.2 Settlements Based on Nature

Traditionally the settlements have been classified and grouped. Traditionally Urban Cities divided into two parts: the city was divided into two main parts. The ruling class of the towns perhaps lived in the protected area. The other part of the towns was lower in height than the former and common men lived in this area. Today indian cities are designed either following foreign principles or models of planning ignoring the holistic view of the city.

The Tamils and The Cultural Transformation of Nature:

Nature is essentially spatial as it extends over every point on this earth. In the process of transforming Nature, human societies themselves get transformed. A cultural system and tradition evolves in the process and societies are identified by their particular cultural system.

In South India, five types of ecological regions are found where five specific cultures evolved, namel kurinji, mullai, marutham, neithal and paalai. Each possessing a different tribal society, the nature of each tribal society, their economic activities, religious beliefs, and representation of nature in their belief system.

Table -1 : Ecological Regions of South India

Features	Kurinji	Mullai	Marutham	Neythal	Palai
Landscape	Mountain	Forest / pasture	Agriculture, Plain / vally	Seashore	Desert
Climate	Winter / cold and moist	Late summer / cloudy	Late spring	Early summer	summer
Soil	Red and Black soil with stones and pebbles	Red soil	Alluvial	Sandy saline soil	Salt affected soil.
Occupation	Hill tribes, Honey gathering.	Pastoral / Agriculture	Farmers	Selling fish/ salt	Travellers, Bandits.

3. TOWN PLANNING

An attempt to formulate the principles that should guide us in creating a civilized physical background for human life whose main impetus is thus … foreseeing and guiding change.

Town planning should focus physical, social and economic planning of an urban environment. It encompasses many different disciplines and brings them all under a single umbrella. The simplest definition of urban planning is that it is the organization of all elements of a town or other urban environment. It must consider – "human communities are always in the process of changing" Recognize – "the complexity of communities Concern – about the future.

3.1 New Concepts in Urban Planning

As towns and cities are growing at an alarming rate, with an increasing trend of urbanization, which in turn increases greater demand for urban infrastructure and urban land for accommodating the future urban growth and development.

Need to ask the follwing aspects: how do you define "meaning" of proper planning? How to provide urban services without damaging the natural environment? How to establish harmony by providing healthy life and healthy environment? How do we take forward the past experience and incorporate it as per the new demand and supply?

There is much type of concepts used by the town planners:

- **New urbanism**: The concept of emerged from the increasing need of implementing sustainability in the field of urban planning.
- **Green urbanism**: This is a form of creating beneficial urban communities, both for the people and for the environment, by minimizing matter and energy consumption.
- **Biourbanism** or organic urbanism introduces the idea that city and nature should meet, in order to create a friendly urban environment. Thus, this concept aims at restoring the lost values and the balance of urban ecosystem and also at strengthening the design principle "for the people".
- **Biophilia** is a term popularized by E. O. Wilson to describe the relationship of man with nature and other life forms. The biophilic cities contain large amounts of natural elements and are oriented towards the protection, preservation and restoration of nature.
- **Sustainable cities or Eco-cities** are designed by taking into account their impact on the environment, in the sense of minimizing waste production and pollution, as well as the inputs of energy, water and food.
- **Smart city**: A city may be defined as smart when the investments in socio-human capital, urban infrastructure, and rational management of natural resources encourage a sustainable economic development and a high quality of life through participatory actions and commitment from community members.

Le Corbusier conceived the master plan of Chandigarh as analogous to human body, with a clearly defined Head (the Capitol Complex, Sector 1), Heart (the City Centre Sector-17), Lungs (the leisure valley, innumerable open spaces and sector greens), Intellect (the cultural and educational institutions), Circulatory system (the network of roads, the 7Vs) and Viscera (the Industrial Area).
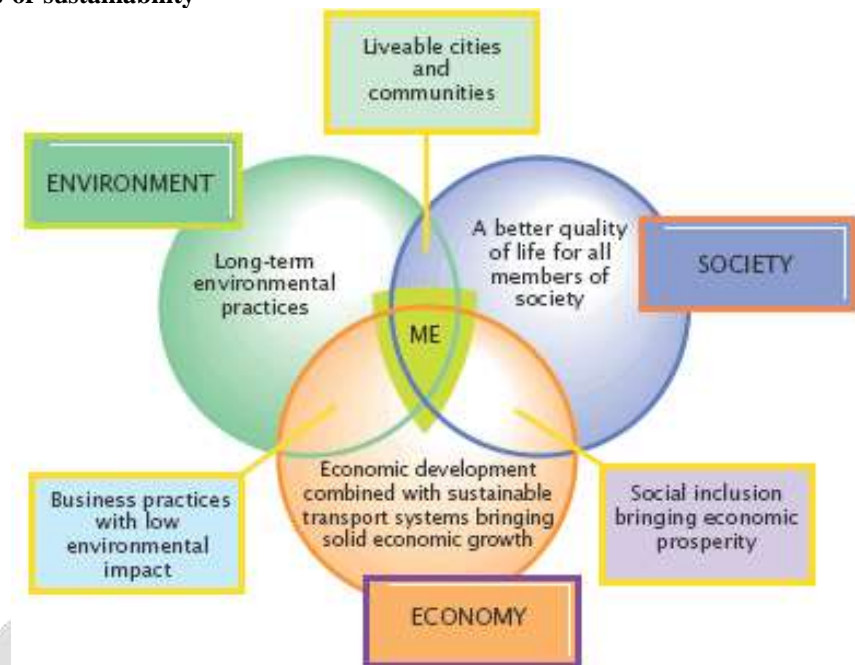
3.2 Three pillars-of-sustainability

Fig- 1: Three Pillars of sustainability

4. THE ESSENTIAL ELEMENTS OF GREEN CITIES
4.1 Low-Carbon Transport

- Using it to its full potential requires four steps,
- link planning and implementation.
- Arterial and secondary road network development should be those areas in which development is desired.
- Design and construction guidelines that needs and means of future occupants, including low-income groups.
- Public transport infrastructure that is both efficient and environmentally sound should be provided.
- Use of zero-emission vehicles and bicycles should be encouraged and private cars excluded from the urban core from the outset.

4.2 Green Industry
- Cities with efficient recycling systems can reuse up to 75% of household waste, manufacturing and construction generate four times as much waste as do households.
- Turn the by-products of one industry into the inputs of another. This approach is used by "circle economy" (CE) cities in the PRC, and by Japan's "eco-towns."
- Japan's Kitakyushu Eco-Town has implemented the CE approach to waste management and environmental industries, as well as industries that process construction waste including solvents.

4.3 Energy-Efficient Buildings
- Energy-efficient buildings consider both the embodied energy required as well as the operating energy.
- The design and construction of energy-efficient buildings are supported by passive solar design and active solar design.
- Verification and rating systems such as the Leadership in Energy and Environmental Design (LEED), Green Rating for Integrated Habitat Assessment (GRIHA) and the Building Research Establishment Environmental Assessment Method (BREEAM).
- The Vertical Farm: Reducing the Impact of Agriculture on Ecosystem Functions and Services. Columbia University, New York.

- The headquarters of the International Renewable Energy Agency (IRENA), to be located in Masdar City. It will be the first building in history to produce more energy than it consumes.
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4.4 Urban Infrastructure Sectors

- Covers five urban infrastructure sectors:
- water,
- solid waste,
- transport,
- energy, and
- buildings and built environment.

5. CASE STUDY

Masdar City is being designed and operated to provide the highest quality of life with the lowest environmental footprint - all in manner that is commercially viable.

Traditional Arabic city: narrow streets, natural shading, high density low rise, public spaces, mixed use and walkable spaces. Transportation: LRT: Light Rail Transit / Light Rapid Transit. PRT: Personal Rapid Transit.

Fig – 2: Masdar City, near Abu Dhabi

6. Conclusion

The major benefits of the green cities stem from their very qualities and include, among others, like oxygenation and purification of urban air; mitigation of the heat island phenomenon; the keeping and even the increasing of biodiversity by creating semi-natural habitats; the use of bio-architecture to connect man and nature through the medium of landscape improvements inspired from the living organisms; and last, but not least, the psychological and sanogenic impact on people.

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