

# Self Sustainable Township

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**Abstract - Building sustainable homes and creating sustainable settlements through township planning , compact city patterns ,and urban consolidation have attracted considerable focus in recent years. Too often the townships are planned today has been neglected in Sustainable planning point of view for next coming generations and throught its own life. The location of the township, the way in which the townships are planned, the amenities they provide , the quality of the living experience and attachment of the people have with their neighborhood and the people that are live in it are important if our homes and our cities are to be sustainable. In this paper we consider that what makes a township sustainable . We explore the opportunities that townships provide to create more sustainable behaviors within homes in that particular township.**

## I. INTRODUCTION

Due to rapid urbanization ,people are getting attracted towards the city and urban areas where they are hoped to get more and more facilities and amenities to survive in better living conditions . as a result of this trend , the limits of the city increases day by day.

Due to this , more development happens and need to fulfill their demand for every sectors and planning like housing , commercial and employment facilities as well as institutions and the health facilities . Increase in demand and development are dispersing and sprawling everywhere and which are not seen to be properly managed. So have thesis for proper planning and proper management in urban areas . based on this concept neighborhood planning is coming as a new trend now a days. As well as satellite towns , special townships communities living are upcoming need of present and future generations . this concept is originally American concept based on the principle that one is planning for a society and not for an aggregate of house .

Maharashtra is one of the most urbanized states in India , whereas nationally 27 percent of the population was in census1991 , the urban areas in Maharashtra , the figure was 42 percent a census 2001. in view of the rapid urbanization process the growing population in the urban areas of Maharashtra and Mumbai in particular , Govt. has decided to give importance in providing the connectivity and better means of communication to the new townships. When the comprehensive planning of the land uses is designated and densities distributed, thus the carrying capacity of a land in a city is measured. Development is generally accepted to be a process that attempts to improve the living conditions of people

Although whispered awareness of the issues dates like environmental damage , climate change , global warming , sustainable development etc, Only from Rio summit, the need for an environment friendly planning and designing has been appreciated for several decades . So in the new development its integration with surrounding must be done in eco friendly manner for that purpose some mandates should be provided which are help to create environment friendly construction. Considering the hypothesis that the guideline prescribed by the govt. of Maharashtra for special township or neighborhood are insufficient to develop an eco friendly and self sustained township in urban areas.

Hence the goal is to evaluate the guidelines for eco friendly special township analyze it and do some changes or certain additions to develop a self sustainable township. Second stage will be the introduction of the parameters which are applicable for making an eco friendly development in urban areas and third stage will be implementation in the form of design demonstration through designing an Eco friendly special township up to master planning stage. Final conclusion is in for of suggested modified additional guideline for sustainable special township in accordance with suggested guidelines

### *1.1 CONCEPT OF TOWNSHIP PLANNING*

Any township made up of one or more neighborhood sector. And this neighborhood concept was originally comes from America. ( source- Town planning book by Hiraskar. Township is the place where not only residential facilities

are provided but also recreational facilities, commercial educational and health facilities are accommodated within a walking distance in a single campus. In urban cities like Pune , over population is increasing , its side effects are increasing like geography of city boundary line depending on requirement of land. And hence surrounding infrastructure also increased like road networking , amenities etc. A concept of a special township was developed by urban developers which includes consultation with planners , architects , and developers were held and the Govt. of Maharashtra finally approved this concept in 2004 as special township scheme 2004. The main objective of this scheme is to promote private investment in housing sector to facilitate affordable housing and create a hassle free atmosphere for owner

### 1.2 OBJECTIVE OF SPETIAL TOWNSHIP

Convenience is the main objective in the form of economic , social ,and living amenities to be given to the people within Special township. To provide all infrastructure and residential amenities to the people which they required for living purpose .

### 1.3 CONCEPT OF SUSTAINIBILITY

The basic definition of sustainability is taken from the World Commission on Environment and Development (WCED) document often called the Brundtland report after the name of its chair, Gro Harlem Brundtland.1 This 1987 report essentially began the global discussion of sustainable development. Recognizing there are limits to the earth's ability to absorb the impacts of human activities, and addressing world poverty as one of the most significant problems in today's world, the Brundtland commission pointed out that *equity* is an essential ingredient of sustainability. The Brundtland definition states that "sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs."

Also central to most definitions of sustainability is the concept that in a sustainable world, our lives will be more integrated. Sustainable Seattle's working definition shows this linkage of three important spheres of life: "The long-term social, economic, and environmental health of our community."

Six defining characteristics of sustainability:

- *Asset-based*: Begins by considering existing assets, then addresses deficiencies;
- *Engages diverse stakeholders* in respectful, mutual, flexible and open decision making processes;
- *Express values* that have been formally adopted by neighborhood residents;
- *Integrating*: illuminates linkages among multiple issues;
- *Forward-looking*: focuses on long-term future change, not evaluation of the past; and
- *Distributional*: works toward equitable distribution of resources and wealth, not only for the current generation but also for future generations

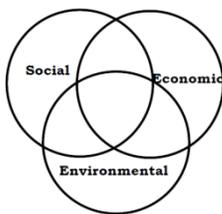


fig 1

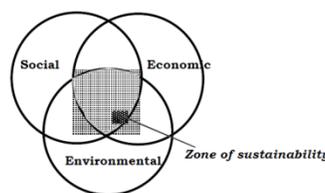


fig 2

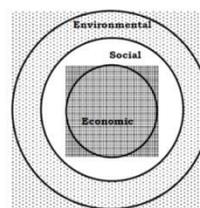


fig 3

- As three interlocking circles, representing the social, economic and environmental domains: are (a) human creations and (b) dependent upon the natural environment:
- As the three circles below, showing "sustainable space" as the area where the three domains overlap. In this view, the further communities advance toward sustainability (i.e., bring the three domains into harmony with each other), the larger the "zone of sustainability" becomes.
- As three concentric circles, showing that both the social and economic domains.

### 1.4 UDPFI PLANNING GUIDELINES

These are the guidelines are reference guidelines generally used in India for planning it consists of following things

#### 1.4.1 Area requirement

- Site should having area access of minimum road width 18 m wide
- Site should be continuous , unbroken and uninterrupted in any case having area minimum 100 acres or 40 hectares.
- Site area shall not include any natural feature like river , forest , dams etc within a 500 M range
- Site area should be min 200 M away from the historic places , national parks , eco sensitive zones , catchment areas etc.
- Site should not include defense area , ports , notified Area of SEZ, quarry sites.

#### 1.4.2 Infrastructure Facilities

The entire onsite infrastructure i.e. roads , approach road, street lights , water supply, drainage systems and amenities .

#### 1.4.3 Water supply

Storage capacity shall be 1.5 times of actual requirement . the daily water requirement of minimum 140 litres per capita per exclusive of requirement of water for fire fighting and gardening . The developer must develop the rain water harvesting , round water recharge and waste water recycling project on site.

#### 1.4.4 Drainage and garbage disposal

The developer shall make arrangement for disposal of sewage and solid waste as per requirement of M.P.C.B.

#### 1.4.5 Power supply

Developer may draw existing power source or may go for alternative arrangement of power supply but it should be continuous and good quality.

#### 1.4.6 Norms for landuse plan

##### 1.4.6.1 Residential :

- Should be cluster, neighborhood or plotted in proper grid pattern .60% area out of total built up area of special township is pure for residential sector. 10 % built for residential tenements having area up to 40 sq.m
- Commercial
- It should be convenient for shopping and community center.

##### 1.4.6.2 Education:

- Comprehensive education system from primary and secondary education, should not provided at one place only and should provided according to planning standards . Area for playground must be provided.

##### 1.4.6.3 Amenity spaces:

- Area of amenities like market, recreational centres , town halls should not be less than 5 of gross area and should be evenly placed .

##### 1.5.6.4 Health facilities

- Minimum primary health facilities should be provided in required place according to planning standards.

##### 1.4.6.5 Parks , gardens and play grounds

- These areas should excluding statutory open spaces and should be distributed in all residential clusters . Minimum 20% area should provide as open space and allow general public also.

##### 1.4.6.6 Public utilities

- Appropriate area should provide for public utilities.
- Transport and communication
- Main 18 to 24 m wide road. Internal road=9m
- Service industries
- Area provided within township be predominated land use would be residential use.

## 1.5 SUSTAINIBILITY INDICATORS

Indicators provide evidence of conditions or problems. Indicators may be *qualitative* (a canary suffocating in a mine shaft offers good evidence that toxic gases are near) or *quantitative*. There are also limits to how useful indicators may be. Indicators offer a snapshot or a glimpse of a larger situation, but don't offer absolute understanding.

In a neighborhood context, indicators help evaluate whether local actions are having the effects desired. A neighborhood can use indicators to help determine what conditions exist and whether the direction the neighborhood is headed is consistent with community goals. Indicators can allow a group to hold itself, its public officials, its funders and supporting institutions accountable to neighborhood goals. Finally, indicators can also be used as a reporting tool that can help build consensus for an action strategy.

The indicators here considered for general analysis of case study are

- a] Environmental indicators.
- b] Social indicators.

## c] Economical indicators

1.5.a] *Environmental indicators*

Environmental indicators includes the factors which are responsible to define the environmental conditions of that township. The environmental indicators includes

- Rain water harvesting
- Waste management
- Use of Passive technologies for energy generation.
- Use of ecofriendly materials in building constructions .
- Gardens and open spaces
- Provision of local farm lands
- Reduction in pollution/ No pollution of Air/water/soil/Noise etc.
- Reduction in building footprints .

1.5.b] *Social indicators*

Social indicators includes the factors which are responsible to define the social conditions of township. The social indicators includes.

- Social interaction space provisions in township
- Provision of temple , worship areas
- Provision of a community gathering area
- Community hall , community centers
- Provision of a recreational areas like malls , multiplex, shopping centers in the same premises for peoples of different income groups .
- Organization of Common activities like tree plantation, seminars, workshop in day to day life.
- Senior citizen meeting places
- Exhibition areas for cultural development etc.
- Safety measures for the residents inside the township like Safety from accidents ,safety from fire, provision of hospitals within a short distance , schools etc

1.5.c] *Social indicators*

Social indicators include the factors which are responsible to define the economic conditions of township. The economic indicators includes

- Provision of housing for different income group
- Affordable housing for each income group.
- Cost reducing construction technologies for LIG and MIG people.
- Use of passive technologies in planning to reduce the overall energy consumption and ultimately the cost.
- Local market places and local farming for generating the economy within a township itself. Etc. and other factors which are related to the environmental and social indicators.

These three indicators can not be analyzed or define the township separately. The indicators are mostly co related with each other and to make easy to analyze them in accordance with the township , the reference is taken as IGBC LEED GREEN TOWNSHIP MANNUAL ,Best design practices like GRIHA, ECO HOUSING and NBC . Magarpatta city is analyzed through these reference documents. The analysis of all the parameters are given in [Chart 1](#), [Chart 2](#), The modification in the current guidelines is suggested in [Chart 3](#) and [chart 4](#).

## II. CONCLUSION

The data has analyzed and the modifications in the current guidelines are suggested as per the references , Though the analysis concludes that the current guidelines as per the policy of special township are not sufficient for planning the self sustainable township . Even the modified guidelines will also require some detailed information about the environmental sustainability factor as per the guidelines suggested by MOEF. It is possible to design a self sustainable township with due consideration of current guidelines with in detailed provisions for each and every requirement with the reference of guidelines given by best building practices, MOEF guidelines, NBC etc.

## REFERENCES

- [1] Moef[Ministry of environment and forest ]Planning guidelines..
- [2] Special township policy, 2004 ,Govt.Of India
- [3] N.B.C[National Building Code of India].
- [4] LEED [IGBC] Green Township Manual.