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Sustainable Urban Development Strategies

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Abstract: ***Before writing this paper the idea was that the most important feature of making any city sustainable is to adopt the thought of conservation of natural resources and ecology. Both can work together than a city can only be a sustainable city. These two, the conservation of natural resources and ecology makes the base of the planning of a sustainable city and the development of any city in terms of sustainability depends upon the conservation and ecology of the city only. There should be a balance among the demand of the citizen of the city which we are going to make sustainable, commercial opportunities and with that the environment sustainability and public services and all the mandatory procedures. The most important factor is to achieve the sustainability within the city is to achieve it by the urban planning basis. All the ideas and the vision should be on the basis of urban planning of the city.***

Keywords: Sustainable planning, Sustainability, Natural system, Ecology, Energy access, Urban sprawl

1. Introduction

Today, among 6 billion people, half of the people lives in urban areas(town & cities). This scenario does not ends here it is increasing day by day with almost 180,000 people everyday, and it is assumed that by 2030 there will be 2 billion new urban dwellers.Today more than 900 million people live in slums worldwide. They account for about half of all city dwellers in developing countries. This unpredictable growth shows that there is a need to re-establish the relationship between nature and man, between human consumption and production. The ecological cycle which we have disrupted by indiscriminate economic and physical demand of development need to energize, by looking up the damage our cities has given to the environment, The prime agenda should be creating a living environment with self sufficient, ecologically balanced and culturally stimulating. The thought of sustainable development started from numerous movements related to this environment and it was defined by the World commission of environment and development. Sustainable development is a common agenda for all of us and it is a global concern.What is Sustainability? The first question that needs to be asked is what is meant by sustainability? Why sustainability? What are the attributes of sustainable human settlements?A report 'our common future' states that the basic of sustainable development of the cities, town or urban areas is to promote harmony among the human beings and between humanity and nature.The pursuit of sustainable development requires striving for a balance between economic goals, human and environment needs.Sustainability is the need of the hour and the only hope for healthier and liveable cities. Sustainability, just like, liability is a broad term with no universal definition, especially in the context of cities. Although sustainability is seen as a universal imperative, people understand that and define it in a very different way through the world.Sustainability draws on politics, economics and, philosophy and other social sciences as well as the hard sciences.

The definition of "sustainability" is the study of how natural systems function, remain diverse and produce everything it needs for the ecology to remain in balance. It also acknowledges that human civilization takes resources to sustain our modern way of life.

To include sustainability in terms of town or city planning there are some critical areas that needs to be identified-

a) Commercial sectors- To attain sustainability in city planning, commercial areas should be located within communities to reduce the travel time.

b) Connectivity- This is the second area that should be consider in the city planning, the street system should be linked with the residential area and the services that are needed for the residents of the city.

c) Green spaces- Green spaces are mandatory to achieve the sustainability it provides recreational opportunities, interaction opportunities and connect the human with nature around them.

d) Infrastructure- Involving natural system in the infrastructure of the city reduces the cost of the development and the impact of the environment.

e) Housing- A range of housing types like HIG, MIG, LIG and EWS allows residents of different economic group to live in the same neighbourhood and have access to the same services. Integrated township is the best example for this situation.

There are three main components of sustainability that intrude the development of human settlement-

- Economic Sustainability
- Social Sustainability
- Environmental Sustainability

a) **Economic Sustainability-** It puts all the natural resources, local as well as regional together for the productive use and long term benefit for the community without damaging the natural resources and without increasing the foot print of the city.

b) **Social sustainability-** It refers to the fair and equitable rights on the physical, natural and economic resources. This focuses on the poor and the traditionally marginalized groups.

c) **Environmental Sustainability-** This shows the impact of production and the consumption of the city or the urban areas and health of the city and the region.

Urban and city planning plays the role as a binder for all these aspects of the sustainability for the development of the city and the town. The city planning has to include advocacy planning, as well as budget and the community design in their work for the better development of the nation. To reduce poverty and provide the social equality, these initiatives have to share common ethical commitment.

2. History of Sustainable Cities

Humans have, since the Neolithic Agricultural Revolution and maybe even before then, been a consumer rather than a refilled of environmental resources. From hunter-gatherer societies that moved into an area to use up its resources in a season before setting up camp or moving on, only to return the following year to do the same, the development of a surplus economy saw permanent settlements. Slash and burn farming replaced natural wilderness often with uniform crop plantation and camps gave way to settlements, then eventually villages, towns and cities which would put pressure on the environment.

3. Sustainable Cities

Day by day we are facing the problem in terms of our natural resources. These natural resources are the basis of city planning and the development of the city. This needs for sustainable development. Mixed built environment includes the environmental infrastructure- solid waste disposal, transportation, sewerage and water supply. Planning should strike a balance between demand of the conflicts. Growth of the city has often gone hand in hand with increased use of natural resources and ecological systems, driven by economic growth and changes in the economic structure. While wealthier cities and people may have well managed resources system, they also have a greater ecological impact through drawing resources from larger areas and whose use generates significant levels of pollution and greenhouse gas emission at the national and global level. Thus, urbanization can be an important contributor to high resources use and waste generation, both with ecological effects at the local, regional and global levels. Most important is to develop a idea on the basis of urban planning. The idea for the future of the city and the town requires a transformation in the infrastructure of the city for the development. Future growth pattern should be the water, energy, sanitation, sewerage, transportation, and the connectivity. For the planning the starting point should be the saving of the natural resources in each and every aspects of the planning.

4. Challenges for Sustainable cities

To build or to plan a sustainable cities there are so many complexities in that. Some of the most significant challenges associated with the building sustainable cities are –

a) Socioeconomic inequalities
b) Urban sprawl
c) Energy access

Socioeconomic inequalities- An integrated approach to the urbanization ned to be based on a view of its social and economic development. Without giving the city social economic equality you cannot develop a sustainable city.In economic terms, the integrated approach tries to improve synergies and efficiencies among activities such as public transport, energy consumption, biodiversity and human health.

Urban sprawl – This creates problems to develop the sustainable city. Continued urbanization in its current form could threaten global food supplies. Most of the extra 2.5 billion people who will be living in urban areas by 2050 will be in the cities of the global south, in particular in Africa and Asia: 37% of all future growth is expected to take place in only three countries: **China, India and Nigeria.**

Energy access- Energy access is one of the major challenges we are facing for the cities. An ideal city provides 100% electricity supply, water supply and drainage. Cities in India are not even providing it at the rate of 80%. Whereas countries like China, Brazil is at the rate of 91% and 86%.

An integrated approach to urbanization need to be based on a view of its social and economic development. Environmental management and governance components are also one of the factors of that urbanization. In economic terms, the integrated approach tries to improve synergies and efficiencies among activities such as public transport, energy consumption, biodiversity and human health. To build a sustainable city we need to invest in-

- Invest in Infrastructure
- Invest in urban resilience

The vision for the future requires a radical transformation of infrastructure system. Energy, water, waste management, sanitation should be the basis of future growth patterns. Smart growth land use practices aim to create more accessible land use patterns, which reduce the amount of travel needed to reach goods and services.

- There is an urgent need for the sustainable city to focus upon the improvement on the **energy services and the environment** of the surroundings.The concept of energy efficiency begins with Zero-fossil Energy Development, which should be incorporated in city planning.
- In cities of India **water** is one of the major crisis in today scenario. The technical and the institutions should work together on the rain water harvesting, recycling with the water management system. A vision plan for water supply focusing upon local, unexploited opportunities should be the basic component of any city plan.
- **Transportation** plays a role of major component to make a city sustainable and ideal. Integrated public

transportation should be the basis of design of the future city plan. Transport systems are intimately linked to pollution control, including noise, which should be a major determinant of urban planning. Exactly like the integration within sectors such as transportation would include the development of linkages between various transportation modes. It is important to underscore the significance of ambitious housing plan and successful integration of public transportation infrastructure in some cities. Transportation saves travel time and energy to reduce congestion and carbon emission the success of these measures has been reported in cities like Paris, Bangkok and Singapore are also working on integration. The motive of this integration is to reduce time among home, city and work- place and to reduce energy consumption so that people can enjoy urban life and do other things. Public transport plays a major role in reducing congestion and carbon emission. Reduction in green house emissions involves shift towards more environmentally efficient modes.Smart growth land- use practices aim to create more accessible land use patterns, which reduce the amount of travel needed to reach goods and services. It is time to think of Public Private Rapid Transport or PPRT, which enables us to travel in automated, electricity propelled personal cabin. This will reduce the demand for ground space and avoid gridlocks, exhausts, accidents and noise. This would change the whole concept of present transportation and traffic system.

- The plan of the city should be according to the **nature** and the demand of the city. Sustainable development refers to design according to the nature and with the nature. The development should be done in a way that the human intervention and the activities can sustain for the given length of time without harming the nature. Among young people there is a widespread perception that the future holds nothing for them, as a result, a large number of the unemployed are forced to take on informal, illegal or uncertain jobs.
- The extensive use **of IT and biotechnology** would enable the city to evolve and adapt with its metabolism networked to the surrounding ecosystem. Natural resource saving is the starting point for environmentally responsive planning.

As a result, investment in adaption to climate change may take a back seat to investment in infrastructure such as roads, water, sewers, electricity and services such as schools, public health and public transportation. Building sustainable cities entails integration and coordination among sectors. For examples, a land plan would need to include space for industry, residential and housing and green areas to be integrated with adequate space for access to public transportation.

For sustainable human settlements, the following ten key elements have been identified by the building and social housing foundations:

- Resource budgeting;
- Energy conservation and efficiency;
- Renewable energy technology;
- Long lasting built structures;
- Efficient public transport systems;
- Waste reduction and recycling;
- Organic waste composting;
- Supply of staple foods from local sources

For environmental and micro-climate focus, the concepts of site planning, building design technology and materials have to be re-examined. It is at the design stage, that the environmental efficiency and compatibility of a building are largely determined, which is popularly called ‘green architecture’. The building should incorporate flexible systems which respond to the changing micro-climatic needs and varying conditions of natural ventilation and light. The design should obviate outdoor and indoor pollution. It should provide for rooftop rainwater harvesting and recycling of wastewater and exploitation of non-conventional sources of energy (such as photo-voltaic system). The design of openings and glazing should allow flexibility. In large public buildings, the use of intelligent systems can be employed.

Management and maintenance aspects need to be given serious attention at the design stage. Not only the buildings, but the cities need to be intelligent and should be visualized to cater to the needs of the next generation.It is important to note the level of awareness that some cities have attained with respect to waste reduction and recycling for urban sustainability. A model can be seen in the city of Surat in Gujrat, where biogas is generated from solid waste under PPP model.

Building sustainable cities poses significant financial challenges to nation and the municipal authorities. It entails commanding enough resource to finance the cost of infrastructure and the provision of a wide range of public services, within the context of major challenges such as ageing population and climate threat changes. So, there is need to create a policy framework for responding effectively to the challenges of financing the sustainability of cities and require multi layered cooperation among local national and global communities, including the development of partnership to harness public and private resources for the purposes described above

The idea of sustainable development means dreaming design with nature. It is an art of striking a balance between economic goals, human (social, cultural liveability and health) and environmental needs. This can be achieved only by a comprehensive understanding of the complex issues involved and creative design as Mark Twain once said ‘… do not part with your dreams, you may exist but cease to live’.

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