

Self-Sustainable City

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Abstract

Discover new technique to increase the use of pedestrian transportation by focusing on modern evolution. It includes several things like people carrying things in the city and how it helps in making better city in transportation means. Method associates archaeology, observation, and statistics, and rest on systemic coding of photographical data. The environmental factors of public health and social equity present many challenges to a sustainable urbanism climate change, water shortage. Four principles of an environmental public health are conviviality, equity, sustainability and global responsibility which are used to derive imaginary concepts that can inform environmental public health thinking, which, among other things, provides a way of discovering the primary tools that link urban environments to public health and social equity. This surveys local sustainability initiatives through the lens of the “three pillars” of sustainability: economic development, environmental protection, and social equity. Analysis of a series of comparisons provides confirmation that several factors are interrelated with local government arrangement in sustainability initiatives, including population size, central city locations, diversity, political leanings of a community, and region. The global economy makes the achievement of sustainable urban development unreal. Investment in road production and maintenance is overcome by the recent rapid increase in the number and use of automobiles in the city. At the same time, official lack of concern continues in planning for alternative sustainable forms of transportation.

Keyword- Connectivity, Equity, Sustainability, Green Power, Employment

I. INTRODUCTION

It has been estimated by expert that by 2050 total of about 70% of world population roughly about 6.4 billion people are likely to live in the cities. Even at home, the old adages that India resides in its villages is no longer true, already 31% of Indian population lives in cities and this number is likely to go to over 50% in the next decades. Managing urban agglomerations is a global challenge.

A key to this urban transformation is the role of information and communication technology (ICT) that is making cities smarter and enhancing their liveability, workability and sustainability. These smart city systems are not only using the power of big data to provide smarter solutions to the people, but by integrating them, making them more accessible to people and breaking the silos in policy making are ensuing that more and more citizens stay engaged with their city managements.

For towns and cities to be economically competitive, socially progressive and environmentally responsible, they must reduce their inefficient use of finite resources. Understanding and nurturing its unique qualities as the basis of its response to a changing climate.

Each town and city is different, shaped by the geography of the place itself, the passage of time and the people who live there. The best solutions for one place may not suit another. It is therefore essential to understand what physically shapes your town or city – the land, water and wind – and how that can contribute towards resilience, for instance to extremes of weather. Using the planning system to target interventions. It should always be possible to walk, cycle or take public transport to work, to school or college, to shops, to the park or the cinema. Vitaly, we need to use the landscape of towns and cities – trees, parks, rivers and lakes – to mimic natural processes, like water flow and cooling air flow. This green infrastructure should be as much a priority for a successful place as grey infrastructure – like the road network, or the sewage system.

Through civic leadership and collective action creating sustainable places will require the public, private and voluntary sectors to collaborate effectively. New market model which endures over the long term because it delivers sustained value.

II. AIM AND OBJECTIVE

The main aim of the sustainable city is the self-reliability but other objective which complete the goal of sustainable city are listed below

- Peaceful community
- Improve quality of life
- Efficient water conservation system
- Utilize green energy source
- Enhance transportation system

- Build sustainable infrastructure
- Mutate current waste collection system and treatment system
- Apply zero waste policy

III. LITERATURE REVIEW

This document comprises of the planning strategies which should be adopted by the planner or developer who are planning or developing the self-sustainable cities.

The report contains the strategies which can be adopted by any planner planning any city no matter what is the geography and topography of the area. The criteria which to be adopted are listed below for smart city.

- 1) Promoting mixed land use in area-based developments- planning for 'unplanned areas' containing a range of compatible activities and land uses close to one another in order to make land use more efficient. The States will enable some flexibility in land use and building bye-laws to adapt to change.
- 2) Housing and inclusiveness - expand housing opportunities for all.
- 3) Creating walk able localities- reduce congestion, air pollution and resource depletion, boost local economy, promote interactions and ensure security. The road network is created or refurbished not only for vehicles and public transport, but also for pedestrians and cyclists, and necessary administrative services are offered within walking or cycling distance.
- 4) Preserving and developing open spaces- parks, playgrounds, and recreational spaces in order to enhance the quality of life of citizens, reduce the urban heat effects in Areas and generally promote eco-balance.
- 5) Promoting a variety of transport options- Transit Oriented Development (TOD), public transport and last mile Para-transport connectivity.
- 6) Making governance citizen-friendly and cost effective - increasingly rely on online services to bring about accountability and transparency, especially using mobiles to reduce cost of services and providing services without having to go to municipal offices; form e-groups to listen to people and obtain feedback and use online monitoring of programs and activities with the aid of cyber tour of worksites.
- 7) Giving an identity to the city - based on its main economic activity, such as local cuisine, health, education, arts and craft, culture, sports goods, furniture, hosiery, textile, dairy, etc.
- 8) Applying Smart solutions to infrastructure and services in area-based development in order to make them better. For example, making Areas less vulnerable to disasters, using fewer resources, and providing cheaper services.

But this are the criteria which can be used for smart city while in sustainable city we enforce on the criteria like environmental integrity, quality of life, economic security, democratic participation. For the reason that sustainable city are based on four pillars which are sustainable development (like education and health, food and nutrition green house, green energy etc.) economic development (green productive growth, production and distribution of renewable energy.) environmental management (forest and soil management, waste and recycling management, energy efficiency, air quality conservation, adaption to and mitigation of climate change.) urban governance (planning and decentralization, reduction of inequities etc.)

IV. PROBLEM IDENTIFICATION

The main problem with the cities now days are haphazard development of city and air pollution problem, but still we have tones of different problem with the cities going on listed below which create an unhealthy and unsafe condition to life.

- Most of our city has social and economic inequality including our main metropolitan due to which the slum and other nuance to the city are created.
- Another problem is that people are unaware or they ignore the social responsibility toward the city and the community.
- The most of our metropolitan lacks in the proper waste collection and treatment system and simultaneously we also lack in providing the water demand to the population with clean water in further the current system which are used also pollutes the environment.
- The transportation system used currently in the city produces lots of carbon which is dumped into air every day polluting the air and making the city environment unhealthy.
- Food which is supplied to the city are mostly grown with the pesticides and fertilizer even egg and meat industry also uses the chemical injection to increase the production, while some outlet which provide the organic food are too costly to be used by common people.
- The power we are using now is mostly generated with the combustion fossil fuel which create the pollution, although we have much greater opportunity in the field of clean green energy with latest technology we can efficiently use the solar, wind, geothermal, hydraulic oceanic like tidal etc.

V. PLANNING PROPOSAL

As we are planning for the general geographical condition we have select a random area for the planning proposal, the criteria used in the city can be adopted in any city in India. We have considered the land use pattern which can be used in any condition

Master plans set out objectives and strategies to manage development and change in a particular area over time. They work within the context of what is important about a place and how to enhance its character and quality.

The following parameters are often used to define the area of a master plan:

- creating a precinct that provides an easy 10 to 15-minute walk along the streets and paths to a Centre or rapid transit corridor
- the natural and recognizable boundaries set by the landscape character and topographical features
- cultural and natural heritage
- the gazette suburb and district boundaries
- land use policy areas.

Transport planning and provision will:

- 1) Reserve a route for the development of a public transport service to link major employment nodes. As far as practicable the service will be segregated from other transport systems and will operate with priority of right-of-way.
- 2) Incorporate nationally recognized practices and standards consistent with the role and function of each road, or additional standards set out for the Designated Areas of its plan.

The government directorates (agencies) sometimes prepare plans, but they are typically development plans for specific sites or confined locations.

The community, business owners and lessees are engaged throughout the process of preparing a master plan. This is to ensure local issues and community values are incorporated at the beginning of the process. Community views can sometimes conflict with each other or sometimes raise issues that are not appropriately dealt with by a master plan, such as the maintenance of a Centre. Master plans aim to achieve a balance between all the views expressed during the consultation process.

Consultation with other government agencies is also undertaken, to ensure an integrated approach to development. Advice is sought from specialist consultants on matters such as traffic, parking, transport, economic viability, urban design, social planning and heritage, and this information is included during consultation and used to assist in working through options and recommendations.

A. Land Use

1) Residential Zones

Provides areas of residential development at various specified building and population densities. The residential zones are intended to accommodate a variety of housing types and to encourage the provision of housing for all citizens with clean energy keeping in mind by generating solar energy on roof top and water conservation program.

2) Commercial Zones

Provides for the employment, shopping, services, recreation and lodging needs of the residents and visitors to the city. In the later half of the 20th century, the delivery of these services has been designed to accommodate the automobile as the primary form of transportation by consumers. But now they will be provided at walkable distance for most of the citizen.

3) Civic Zones

Reserved for institutions of a community: city hall, temple, schools, libraries and public spaces such as plazas, amphitheatres and town squares. In recent decades these buildings and spaces have grown in size and tended to be placed on highways in a manner similar to commercial uses. Traditionally, these institutions held the most prominent locations: hilltops, street termini and town centres.

4) Industrial Zones

Accommodates a range of industrial and manufacturing activities in designated areas to promote a balanced land use and economy and to encourage employment growth. The industrial zones are intended to provide flexibility in the design of new and redeveloped industrial projects while limiting incompatible uses. The trend toward larger industrial facilities have led to projects with high impacts on local water and habitat resources.

5) Open Space Zones

Protects lands for outdoor recreation, education, and scenic and visual enjoyment; Controls urban form and design; and facilitates the preservation of environmentally sensitive lands. These zones are applied to lands where the primary uses are parks or open space or to private land where development must be limited to protect the public health, safety, and welfare. The impacts of our choice of development patterns on environmentally sensitive lands have only recently become evident.

6) Agricultural Land Zones

Provides for areas that are rural in character or areas where agricultural uses are currently desirable. The agricultural zones are intended to accommodate a wide range of agriculture and agriculture-related uses. Often residential development is allowed in

agricultural areas at densities as high as one unit per acre. Densities higher than one unit per 20 acres have proven incompatible with agriculture and with rural character.

VI. CONCLUSION

With this report we can conclude that developing the self-sustainable city is the demand of hour so rather than building concrete jungle we should be developing a truly modern city with all the facilities and amenities which would enhance the quality of life while conserving the environment so our future generation can see what we have experienced in our childhood with greater safety and efficiency.

REFERENCES

- [1] The Madison Sustainability Plan: Fostering Environmental, Economic and Social Resilience
<https://www.cityofmadison.com/sustainability/documents/SustainPlan2011.pdf>
- [2] Ecological Footprints of Canadian Municipalities and Regions, by Jeffrey Wilson, Mark Angelskin, 2005
- [3] The ecological footprint of berlin (Germany) for the year 2000, by Jens Pacholsky
- [4] Census of India <http://www.censusindia.com/>
- [5] Making our cities attractive and sustainable
<http://ec.europa.eu/environment/europeangreencapital/wp-content/uploads/2011/04/Making-our-cities-attractive-and-sustainable.pdf>
- [6] Sustainability guidelines
<https://www.globalreporting.org/resourcelibrary/G3.1-Guidelines-Incl-Technical-Protocol.pdf>
- [7] Solid waste management department
https://www.suratmunicipal.gov.in/rtiact/Disc_DepartmentWise/SWM_RTI%20Disclosure.pdf