

PLANNING OF SMART CITY

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ABSTRACT

As the India's population shifts to urban territories, policymakers are pressed for answers to overcrowding, pollution, budget limitations, aging infrastructure, resource constraints and the requirement for continuing growth. India has recently committed to the development and construction of 100 Smart Cities to meet the demands of its rapidly growing and urbanizing population. This effort will include construction of new municipalities and renovation of existing cities as the rural population shifts into urban areas. Smart city concept can be used for transforming any city into a smart city. Smart cities have various overwhelming advantages & it a win – win situation for both, government & the citizens. Smart solutions can be helpful in controlling the ever increasing population in the cities. This paper focuses on the concept of smart city as the Government of India launched the smart city project for developing 100 smart cities (now 98 smart cities) in the country and also concentrates on the challenges as well as the key areas for development of smart cities in India along with the case study of Chandigarh.

Keywords: *smart city, smart economy, smart solutions, urbanization.*

I. INTRODUCTION

A smart city is defined as the ability to integrate multiple technological solutions in a secure fashion to manage the city's assets – the city's assets include, but not limited to, local departments information systems, schools, libraries, transportation systems, hospitals, power plants, law enforcement, and other community services. The goal of building a smart city is to improve the quality of life by using technology to improve the efficiency of services and meet residents' needs. Business drives technology and large-scale urbanization drives innovation and new technologies. Technology is driving the way city officials interact with the community and the city infrastructure. Through the use of real-time systems and sensors, data are collected from citizens and objects - then processed in real-time. The information and knowledge gathered are keys to tackling inefficiency. Technology can be used as an enabler to tell what is happening in the city, how the city is evolving, and how to enable a better quality of life.

A smart city uses information and communication technologies (ICT) to enhance quality, performance and interactivity of urban services, to reduce costs and resource consumption and to improve contact between citizens and government. Sectors that have been developing smart city technology include government services, transport and traffic management, energy, health care, water, innovative urban agriculture and waste management. Smart city applications are developed with the goal of improving the management of urban flows and allowing for real time responses to challenges.

In the approach of the Smart Cities Mission, the objective is to promote cities that provide core infrastructure and give a decent quality of life to its citizens, a clean and sustainable environment and application of 'Smart' Solutions. The focus is on sustainable and inclusive development and the idea is to look at compact areas, create a replicable model which will act like a light house to other aspiring cities. The Smart Cities Mission of the Government is a bold, new initiative. It is meant to set examples that can be replicated both within and outside the Smart City, catalyzing the creation of similar Smart Cities in various regions and parts of the country.

The core infrastructure elements in a smart city would include:

- i. Adequate water supply,
- ii. Assured electricity supply,
- iii. Sanitation, including solid waste management.
- iv. Efficient urban mobility and public transport,
- v. Affordable housing, especially for the poor,
- vi. Robust IT connectivity and digitalization,
- vii. Good governance, especially e-Governance and citizen participation,
- viii. Sustainable environment,
- ix. Safety and security of citizens, particularly women, children and the elderly, and
- x. Health and education.

II. LITERATURE REVIEW

Keeping in view all the congenial factors necessary for setting up corporate infrastructure, the investing companies ranging from pharmaceuticals to financial institutions, automobiles to the IT & ITES (IT-Enabled Services) sectors; to the retail and real estate sector are opting for the smaller cities transforming them into India's fastest growing cities in a matter of few years.

2.1. Lavasa

The dream of India's first smart city is now inching closer to reality in Lavasa. It is a private, planned city being built near Pune. Touted as India's first smart city, My City Technology – a joint venture set-up by Lavasa Corporation and Wipro – signed a definitive agreement for Cisco who is the giant of networking technology to participate in its development. According to The Wall Street Journal, among the digital experiences, Lavasa homes will offer are touch panel automation, occupancy-based lighting, door sensors, motion sensors, beam detectors and on-call transport services. The city is boasting of City by assets tracking automatically through RFID tags, all residential & buildings are connecting by secure IP, networking technologies to help centralize management operations, logistic supply centers boasting of roads, airport, rail, dry dock and operation centre and smart transportation and JIT delivery.

2.2. GIFT (Gujarat International Finance Tec-City)

Designed as modern recreation of India's architectural past, mirrored twins of the Gateway. It will house over a million people with millions more commuting there daily. Well placed between the political and commercial capitals of Gujarat. GIFT is a public-private partnership, it will India's first major super tall Central Business District project that is designed to be the focal point of both the world's and India's booming financial services

market by providing companies with all those things Mumbai is still developing: comprehensive infrastructure, power, virtualized office space, a well designed, planned & expandable urban form.

2.3. Kochi

Smart City Kochi is an IT Special Economic Zone under construction in Kochi, Kerala (Framework Agreement. kerala.gov.in, 2007), (Agreement reached on Smart City project. Smart City (Kochi) Infrastructure Pvt. Ltd. is a joint venture company formed to develop the Kochi Smart City project. Government of Kerala (16% share), TECOM Investments (84% share), a subsidiary of Dubai Holding are the main investors of the company. "The four-storied building project of 22 lakh sq. ft. spread over 50 acres will be located on the banks of Kadambraya at Edachira near Kakkanad. The project will be ready in two years timeframe". From this the NASSCOM forecast that the Indian Information Technology (IT) industry will exceed \$300 billion by 2020.

2.4. Bangalore

Prof. Dr. JörgSchönharting said that Bangalore is going to be a Smarter City through an Indo-German-Research Project mainly via Smart Mobility including (Noise, Pollutants); (E-Mobility, Car Sharing); (Information, Traffic Management); (Workability, Distances, Modal Split); (High Occupation Rate); (Smart PT, Linkage with Private); (Safety, Accessibility, Costs); (Energy Efficiency).The Government of Karnataka has inked an agreement with networking solution provider Cisco for a pilot program to develop the road map for an intelligent, smart and sustainable Bangalore city. The pilot program would aim at developing replicable ICT solutions to help promote sustainable, intelligent urban development practices in the city. The company also unveiled its blueprint for "Intelligent Urbanization," a global initiative to help cities around the world use the network as the next utility for integrated city management, better quality of life for citizens and economic development. Bangalore's traffic police departments that are beginning to employ smart technologies. They have 180 cameras around the city managed from a control room.

III. METHODOLOGY

Accordingly, the purpose of the Smart Cities Mission is to drive economic growth and improve the quality of life of people by enabling local area development and harnessing technology, especially technology that leads to Smart outcomes. Area-based development will transform existing areas (retrofit and redevelop), including slums, into better planned ones, thereby improving liveability of the whole City. New areas (Greenfield) will be developed around cities in order to accommodate the expanding population in urban areas. Application of Smart Solutions will enable cities to use technology, information and data to improve infrastructure and services. Comprehensive development in this way will improve quality of life, create employment and enhance incomes for all, especially the poor and the disadvantaged, leading to inclusive Cities.

As far as Smart Solutions are concerned, an illustrative list is given below. This is not, however, an exhaustive list, and cities are free to add more applications.

Smart Solutions

E-Governance and Citizen Services

- 1 Public Information, Grievance Redressal
- 2 Electronic Service Delivery
- 3 Citizen Engagement
- 4 Citizens - City's Eyes and Ears
- 5 Video Crime Monitoring

Waste Management

- 6 Waste to Energy & fuel
- 7 Waste to Compost
- 8 Waste Water to be Treated
- 9 Recycling and Reduction of C&D Waste

Water Management

- 10 Smart Meters & Management
- 11 Leakage Identification, Preventive Maint.
- 12 Water Quality Monitoring

Energy Management

- 13 Smart Meters & Management
- 14 Renewable Sources of Energy
- 15 Energy Efficient & Green Buildings

Urban Mobility

- 16 Smart Parking
- 17 Intelligent Traffic Management
- 18 Integrated Multi-Modal Transport

Others

- 19 Tele-Medicine & Tele Education
- 20 Incubation/Trade Facilitation Centers
- 21 Skill Development Centers

1.1 Smart Solutions

IV. RESULTS

- i. 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;
- ii. Housing and inclusiveness — expand housing opportunities for all;
- iii. 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;
- iv. 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;
- v. Promoting a variety of transport options — Transit Oriented Development (TOD), public transport and last mile para-transport connectivity;
- vi. 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;
- vii. 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;

viii. 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.

V. CONCLUSION

In India, administration in the cities are often confronted with a multitude of key problems, like unplanned development, informal real estate markets, inevitable population growth, lack of infrastructure, inadequate transport facilities, traffic congestion, poor power supply, in competent health services, and lack of basic services both within the city and in the suburban areas, poor natural hazards management in overpopulated areas, crime, water, soil and air pollution leading to environmental degradation, climate change and poor governance arrangements are leading the urban citizen life in unhappy. So it is the need of the hour to plan and build the smart cities in view of resolving these problems.

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