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REVIEW ARTICLE

"SMART CITY DEVELOPMENT" AND PROGRESS INDIAN SCENARIO

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ABSTRACT

Initiatives to set up 100 smart cities in the country by 2022 are underway and being implemented at a very faster pace. With the aim to strengthen and revitalize the urban local bodies the government has introduces a city challenge system for selecting smart cities on the basis of urban amenities, demographic profile and financial situation. India is the third largest Economy in the world in terms of purchasing power parity (PPP) with a 6.4% share of worldwide gross domestic product (GDP) on a PPP basis. The country also ranks second in terms of population, with more than 1.2 billion people, out of which, nearly one-third are urban dwellers. The urban population in the country has increased from 17.3 % in 1951 to 31.2% in 2011.Over the last decade Indian cities have witnessed a high rate of Urbanization with Delhi leading the race, registering a growth rate of 4.1%, followed by Mumbai and Kolkata with growth rates of 3.1 % and 2.1 % respectively. The new Indian government has taken cognizance of this accelerating expansion. Investments required to stabilize, augment as well as build a robust infrastructure are at the forefront of the governments agenda. The objective of this Knowledge paper is to provide an overview of the opportunity landscape for smart cities in India as well as facilitate Global solution providers to take stock of the current situation and support the Indian government's Smart city initiative. A strong and stable democratic government coupled with the relatively free play of market forces today makes India the most Attractive Investment destination. It would also be imperative to have smart leadership not only at the national level but also at the local municipal level who can take bold decisions in every urban area and more importantly, smart people who are willing to support smart leaders for bringing the necessary change and to implement the plans.

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INTRODUCTION

Smart city, digital city, wireless city and future city are sometimes terms that are used synonymously. From this starting point, it also is evident that interpreting smart city projects as technology projects alone would be a mistake. It is projected that in the next 15 years, urban India will contribute nearly 75% of the national GDP. There is an immediate need for cities in the country to get smarter so as to deal with large-scale urbanization and find new ways to manage complex processes, increase efficiency and improve the quality of life for citizens. With various announcements and budgetary allocations, the Indian government is increasingly focusing on the creation of various smart cities, Industrial corridors and several rejuvenation projects in order to address rapid urbanization. This opens up several avenues in planning, execution and management of each of the components. Rapid urbanization brings major implications for business as they refocus their offerings, marketing and distribution models towards an increasingly urban consumer base with distinct needs and consumer habits. Each project under the new government will create opportunities for foreign capital to enter into new territories. In order to ease the entry of large foreign investments into projects, the government provides with the single window system. Also, many of the proposed smart cities are either designated as special economic zones (SEZs) or will house SEZs in them, and thus, will be geographical enclaves who will have many exemptions from the regular tax laws, customs and excise duties and labour laws. Therefore, the promotion of the new initiatives such as smart cities can be seen as an effort by the Indian government to promote international corporations to invest and operate within sanitized spaces, bypassing the multiple complexities that otherwise characteristics urban India. Existing cities with historically grown infrastructure and administration system

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will require a more moderate step – by – step approach to modernization. While the potential contribution and benefits of information and communication technology to modernization can be considerable, smart city projects should never be seen in Isolation, but as one element in a city's continuous effort to find the next best way of operations.

For the city administration it will be a challenge to add new services without too much interference with the regular city management procedures, for the government it will be challenge to upgrade a vital part of the infrastructure to next generation technology.

Methodology

The Indian government's mission to roll out 100 smart cities across the country is a national priority. These 100 smart cities will leverage innovation and technology for e-governance and digital India initiative. Also they will focus on employment generation, Involve citizens in decision-making and policy execution, as well as improve the quality of life. Moreover with renewed efforts for clean and green India, these upcoming smart cities on the Swatch Bharat initiative and zero emission. With an aim to strengthen and revitalize urban local bodies (ULBs), the government has introduced a city-challenge system for selecting smart cities on the basis of urban amenities, demographic profile and financial situation especially the portion spent on municipal salaries

Shortlisting of Cities

- Economic criteria
  - 69 - Cities accounting for 54% of incremental GDP till 2015
- Geographical Inclusivity
  - 12 – All state capitals (not included above)
  - 8 – Tourist or religious heritage cities (not included above)
  - 4 - Hilly and coastal areas
  - 7 – Mid sized cities

- Precedent conditions

  - Municipal Reforms
  - E- Governance
  - Zero Emission. Solid and Liquid waste
  - Master plan based on Spatial mapping or GIS
  - Exemplary development through city challenge
  - Pan city two-three main infrastructural projects.

- Strategy and Approach
  - Pan city development
- Citizens engagement and reference framework
- Capacity building
- Zero emission
- E-governance
- City development plan based on GIS, spatial mapping, information and communication technology (ICT) and environment sustainability.
- Retrofitting – more than 500 acres.
- Redevelopment – over 50 acres
- Green field development – more than 250 acres.

Retrofitting Development

Where?

- Existing developed area
- Minimum 500 acres in size

What?

- Zero emissions solid and liquid discharge
- Quality electricity and water supply smart metering
- High – speed, high – bandwidth connectivity.
- CCTV surveillance at all public places.
- LED lighting, intelligent traffic and parking management.
- Pavements , cycle tracks and roads

How?

- Implementation in three years
- SPV (ULD, state, Centre)

Redevelopment

Where?

- Existing urban sprawl (Including railway, bus stations, etc.)
- Minimum 50 acres in size

What?

- In addition to all retrofitting components
- Higher floor area ratio (FAR) and lower ground coverage.
- Green and energy – efficient buildings.
- Wide roads, recreational facilities and open spaces.

Conditionality

- Mixed land use and higher FAR
- Maximum 50% ground coverage
- Maximum 40% commercial, minimum 10% institutional and minimum 10% for parking.
- MOU with state, ULB, developers.

How?

- Implementation in five years
- SPV (Public or private developer)
- Selection through competition – "City challenge"

Greenfield Townships

Where?

- Vacant land
- Minimum 250 acres for each township.

What?

- In addition to all redevelopment components
- Quality infrastructure for education, health and recreation
- Multimodal transport
- Trade facilitation, incubation, skill development.

Conditionality

- In addition to all redevelopment components
- High speed rail and road connectivity
- MoU: states , ULBs and developers

How?

- Implementation in five years
- SPV (Public or private developer)
- Selection through competition – "City challenge"
- Equity participation by the central and state governments and ULBs

69 Cities: 54% of GDP

Andhra Pradesh, Vishakhapatnam, Vijayawada, Bihar Patna, Chhattisgarh Raipur,Durg,Gujarat Ahmedabad, Surat, Vadodara, Rajkot, Haryana Gurgaon, Faridabad, Jharkhand Jamshedpur, Dhanbad, Ranchi, Karnataka Bengaluru, Mysore, Hubli-Dharwar, KeralaKochi, Kannur, Thrissur, Kozhikode, Thiruvananthapuram, Koliam, Mallappuram, Madhya Pradesh Indore, Bhopal, Jabalpur, Gwalior, Maharashtra Mumbai, Pune, Nagpur, Nasik, Vasai, Aurangabad, Solapur, Bhiwandi, OrissaBhubaneswar, PunjabLudhiana, Amritsar, Jalandhar, RajasthanJaipur, Kotah, Bikaner, Jodhpur, Tamil Nadu Chennai, Coimbatore, Madurai, Tiruchirapalli, Salem, Telangana Hyderabad, Uttar Pradesh Lucknow, Varanasi, Ghaziabad, Kanpur, Agra, Meerut, Allahabad, Moradabad, Bareilly, Aligarh, Noida, Gorakhpur, Saharanpur, West Bengal Kolkata, Asansol, OthersDelhi, Goa, Chandigarh, Pondicherry.

12 State Capitals

- Agartala
- Aizawl
- Dehradun
- Dispur
- Gangtok
- Imphal
- Itanagar
- Jammu, Srinagar
- Kohima
- Shimla
- Shilong

8 Tourist or Religious heritage cities

- Amravati
- Ajmer
- Badami
- Dwarka
- Gaya
- Mathura
- Puri
- Warangal

National Heritage City Development and Augmentation Yojana (HRIDAY)

MoUD has launched the National Heritage City development and Augmentation Yojana (HRIDAY) in January 2015. This scheme aims to preserve and revive the rich cultural heritage of some Indian cities. Towards this 12 major cities have been planned to be covered in the first phase of the project Provision of nearly 5000 Crore INR for the initial phase of this project is made. This budget is allocated to the 12 heritage cities which are targeted to be improved.

Smart city Projects at the Implementation stage

Gift city

Gujarat International Finance Tec-City or GIFT is a central business district in the Indian state of Gujarat. Its main purpose is to provide high quality physical infrastructure (electricity, water, gas, district cooling, roads, telecoms and broadband), so that finance and tech firms can relocate their operations there from Mumbai, Bangalore, Gurgaon etc. where infrastructure is either inadequate or very expensive. It will have special economic zone, international education zone, integrated townships, an entertainment zone, hotels, convention centre, an international techno park, Software Technology Parks of India units, shopping malls, stock exchanges and service units. The city is under construction. It will be built on 986 acres (3.99 km2) of land. This project is located on the bank of the river and is around 12 km from Ahmadabad International Airport External Transport.

City: Gujarat International Finance Tec-City or GIFT
Coordinate: 23.159626°N 72.684512°E
Altitude: 640 m (2,100 ft.)
Area: 3.99 square Km (1.54 square mile)
District: Gandhinagar State: Gujarat Country: India
Employment base: approximately 600000.
Captive water body: Sabarmati River
Target completion date: 2020.

Wave city

Wave City, based on the IBM smart City concept, is a leading smart city of India with an area of 4,500 acres. The city, located in the NCR region, has wide roads, green cover, fiber optic connectivity, round-the-clock security and mechanized garbage Control systems. In addition, the city has congestion-free transportation network so as to ensure seamless traffic flow, educational institutions, medical university and hospitals, Multiplexes and malls among other facilities.

Core components of Wave City include the following:

- Smart water for optimal water usage
- Green parks for clean and healthy environment

- Command and control centre for city functions as well as maintenance and security
- BRT for smooth traffic flow and smart traffic system

The city focuses on different systems as well as sub-systems such as emergency services, transport, energy, water, and healthcare. These systems will operate in an Integrated environment in order to improve city planning as well as operational efficiency. Wave City will be considered as a 'system of systems' by realizing the benefits of coherence and integration among systems

Lavasa city

Lavasa hill city, planned as well as implemented by Lavasa Corporation Limited in collaboration with Cisco Systems and Wipro Limited, is being developed near Pune. With an investment of nearly 4,000 crore INR, Lavasa intends to raise an additional 750 crores INR through initial public offering. The city will leverage ICT for effectively delivering municipal as well as other basic services to its citizens. Core components of Lavasa city include the following:

- E-governance (integrated service systems)
- E-learning
- E-healthcare
- E-commerce
- E-homes
- E-utilities

Lavasa will have five towns, including Mugaon, Gadle, Dasve, Dhamanhol as well as twin towns of Sakhari-Wadavali. Dasve. The first town, is The first town is nearly complete and has 476 villas and 376 apartments. The city's master plan has been developed by HOK International, based in the US. Lavasa is expected to accommodate a population of approximately 2.4 lakh with an employment base for nearly 80,000 as well as facilities to host around two million tourists every year.

Palava city

Palava city, developed by the Lodha Group, is spread across 4,000 acres in the Mumbai Metropolitan Region. The city will leverage the best worldwide practices as well as intelligent technologies in urban planning. It will have an inclusive ecosystem with facilities for leisure, healthcare, sports, education, business, security and transportation.

- Major features of Palava city include the following: Comprehensive city planning with Spaces for businesses, universities, cultural zones as well as other citizen facilities.
- The city is designed to be pedestrian friendly and self-sufficient. In addition, the city has an Olympic sports complex as well as multiple schools and centre for arts and culture among other facilities. The city has round-the-clock security as well as water and power supply. It has panic alarm systems, trained security forces, video Surveillance, fire alarm systems as well as electronic access control systems for safety.
- Advanced transport hub, eco-drive buses, fleet management system for efficient functioning of public vehicles, parking management system as well as system enablers to prevent traffic congestion.
- Focus on the use of renewable energy sources as well as water.

Cities covered under bilateral technical collaboration

Delhi Development Authority (DDA) smart city project with Barcelona

Delhi Development Authority (DDA) has planned to develop a smart sub city in east Delhi — Karkardooma. For the same, DDA has engaged with National Buildings Construction Corporation (NBCC) and has recently awarded 75 acres of land in Karkardooma to NBCC for a joint development. This project is to be completed within a budget of 4,500 crore INR in various phases. Initial phase is to be completed within 36 months.The corporation is now in the process of laying down its plan for this smart city which is familiarised with the name 'East Delhi Hub' project. NBCC is also in the process of finalizing the disposal methodology, phasing of disposal, period of disposal, rates thereof and other terms and conditions for disposal of the builtup space. The corporation shall be entitled to disposal fee at 1% of disposal price of such properties. However, DDA would retain authority for pricing and disposal of the property. Karkardooma will be based on the Transit Oriented Development (TOD) norms and smart city principles. Transit Oriented Development (TOD) means mixed-use development, designed in a manner that there is access to public transportation such as metro rail in the locality and has walkable neighborhoods.

Key features of Karkardooma project:

- Energy conservation
- Water harvesting
- Residential facilities
- Green cover
- IT-enabled services
- Housing to 3,000-4,000 families
- Commercial and recreational areas

USTDA adopted three cities: Ajmer, Allahabad, Visakhapatnam

The United States Trade and Development Agency (USTDA) has tied up with the Indian state government and has extended assistance to develop smart cities in three states—Uttar Pradesh, Rajasthan and Andhra Pradesh. The organisation has signed three memorandums of understanding (MoU) on 25 January, 2015 with the state governments of the above mentioned states to develop smart cities.

Cities targeted in these states are:

- Allahabad in Uttar Pradesh
- Ajmer in Rajasthan
- Vishakhapatnam in Andhra Pradesh

Ministry of Urban Development has planned to set a dedicated task force for the three cities. These task forces have representatives of the Ministries of Urban Development and External Affairs, respective state governments and cities and the United States Trade Development Agency (USTDA). These representatives will be creating a concrete action plan for the transformation of these cities into smart cities. USTDA will also collaborate with other US government agencies like the Department of Commerce, the Export-Import Bank of the United States and other trade and economic agencies to promote greater US India infrastructure development cooperation and to support the enlargement of smart cities in an efficient manner

Varanasi-Kyoto agreement

Kyoto, Japan, has signed an agreement with the Varanasi city government to maintain and preserve the city's heritage. Kyoto, a heritage city itself, is recognized as a centre of Buddhist traditions and has successfully maintained its cultural heritage with technological interventions. The Japanese team will lend their expertise to improve five core areas to help rejuvenate the holy city.

- Solid-liquid waste management
- Transport management
- Developing the Buddhist tourist circuit in and around Varanasi
- Industry-university interface
- Setting up of a convention centre on public-private partnership basis to boost cultural activities in the city

A budget of 80 crore INR has been sanctioned for Varanasi by the Ministry of Urban Development under the Heritage City Development and Augmentation Yojana (HRIDAY). Urban Development Ministry has set up a 11-member steering committee to operationalize the 'Partner City Affiliation Agreement' between the cities of Varanasi and Kyoto. The steering committee is headed by senior officials from the Ministry of Urban Development and other senior officials from various departments. The steering committee will facilitate the action plan pertaining to the following:

- Modernisation of Varanasi, including upgrading water
- management and sewage facilities, waste management, urban
- transportation, etc., drawing upon Japan's expertise and technologies
- Application of Japanese practices, techniques and management for conservation of the rich heritage of Varanasi
- Exchange programmes between Kyoto University and Banaras Hindu University as well as religious organizations

Conclusion

The smart city projects by the new Indian Government throws considerable challenge to the cities and its staff. Capacity building is crucial for success of such projects. Proper assessment of technology alternatives, public private partnership, and the utilization of modern management systems and technology is of vital importance. Policy makers, industry and the city itself should themselves establish knowledge - exchange Platforms dedicated to specific systems, applications or other challenges. City administration should actively involve the industry in the earliest stages of smart city planning in order to follow a development path that is poised and determined to provide the right impetus and policy environment to take its smart city agenda forward. The link between cities and Enterprises needs to be strengthened so that there is a win situation to both the parties. Initiatives to set up 100 smart cities across the country by 2022 are underway and being implemented at a fast pace. Enterprises offering smart city related solutions should develop products and solutions that match the need of the city government for economizing on scarce resources while also following a wider range of policy goals. Smart city Assessment Framework tool should be developed for cities interested in following a comprehensive and realistic development process.

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