A STUDY ON SELF SUSTAINABLE DEVELOPMENT WITH REVENUE GENERATION MODELLING IN SMART CITIES

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ABSTRACT

Government of India plans to implement Smart City Program for next 5 years (FY 2015-16 to FY 2019-20) to transform 100 Indian Cities to Smart Cities. "100 Smart Cities Mission" was launched by Prime Minister Narendra Modi on 25 June 2015. Cities are engines of growth for the economy of every nation, including India. With increasing urbanization, by 2030, it is anticipated that 40% of Indians would live in urban regions, which will also account for 75% of the country's Economy. Smart Cities Mission is an effort by the Government of India to drive India into the age of advancement through economic growth. Smart City has been envisioned as 24/7 activity based, thriving and energetic place where people will live work and play. An innovative city that ideally involve the urban planners to develop and transform the entire urban ecosystem with integration of information and communication technologies to improve quality of life.

Introduction

Infrastructure is the backbone of any successful place for living and working. A properly functioning Smart City is a direct consequence of meticulously planned and arduously maintained infrastructural system. Planning principles and design guidelines are devised to develop overarching framework for preparation of layout plan based on which design brief including land use breakup, proposed density, FAR, etc is developed. The landscape design aims to maintain the biodiversity by using Native trees and plant species. The strategic components of Smart Cities Mission are city improvement (retrofitting), city renewal (redevelopment) and city extension (greenfield development) plus a Pan-city initiative in which Smart Solutions are applied covering larger parts of the city.

The financial analysis for proposed component gives the potential revenue to the Authority from land monetization. However, realization of the revenue will depend upon the overall project structuring in terms of Public Private Partnership (PPP) strategy, marketing of the project, and its phasing. Revenue Generation
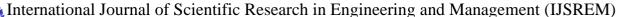
is the key component of an organisation's Business Model and framework for generating financial income. It Plays an important role for long term projections like future potential to earn profits, Operation & Maintenance of completed projects, etc.

Methodology

In this paper, ABD proposal combines retrofitting with redevelopment to improve the core of the city. The components of ABD proposal which include all essential features among other additional features, which are Transport and walkability, Redevelopment of public land, Water-supply, wastewater management & sanitation, Solid waste management, Power supply, IT connectivity, Safety and security. 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.

This study introduces spatial data issues involving data collection strategies, the use of cartographic and remote sensing products as sources of digital data, digital characteristics of spatial databases, and archival sources. Different sets of teams engaged at site to carryout field reconnaissance survey and to collect firsthad information about project area, from various government and other agencies. Topographic survey team and market survey team was deployed for on ground situation mapping.

The most crucial pre-requisite for preparing a Master Plan is an accurate and updated Base Map of the planning area consisting of physical features, topography, drainage pattern, water bodies, road network, rail, forest area, settlement areas spatial extent of development. Base map was prepared from survey and digitized data including all the generated layers. The Base Map along with a report on various gaps identified were consolidated and prepared. Urban Design Guidelines provide detailed guidance on the design and organization of the built environment. It includes specific recommendations on site planning, building massing and design, and public realm. Sustainable development addresses itself in various parameters forming a complex structure with many interrelationships. The proposed Master Plan for ABD Project area intends to create a scheme which embodies the following aims towards sustainable growth. The Spatial Master Plan of ABD project area is designed based on smart city guidelines and transit-oriented development.

Result

The demand for the project area can be affected both positively as well as negatively for the project. Therefore, the pull and push factors in context of the subject property demand. A financial viability analysis will be carried out by developing a financial model and running the scenario analysis. This module has an aim to develop a financially feasible structure for private sector participation for the project. This would include components of financial assessment, break-even analysis and sensitivity analysis. The financial assessment would cover key data points such as project cost, debt equity ratio, capex, total revenues, O&M expenditure, cash flows, project IRR, equity IRR etc. We would conduct a detailed financial feasibility including Key Assumptions, Project cost or capital expenditure, Revenue, Operational expenses, Debt & Equity structure, Preparation of P&L and Cash Flow Statement, PPP attractiveness (FIRR / ROI / NPV etc.).

Discussion

The financial viability of a project to an entity is indicated by its Financial Internal Rate of Return (FIRR) on total investment and on equity investment or Net present Value (NPV). This however has to seen in light of other financial ratios such as debt-service coverage ratio (DSCR), Profit margins, cash reserve ratio, break-even analysis to realistically assess the bankability of the project for investors. Financial analysis for the project could be done through several ways such as Land valuation method which analyses circle rates and value of land. Another method comprises of analysing projects of comparable size and nature. Another method comprises of valuing the project based on time value of money. After assessing the market demand, business plan is prepared after consultation with potential investors/ bidders/ client's and other stake holder and based on the inputs received. The prospective bidders for the project for all of its various components, collecting their feedback, inputs to capture in the business plan, master plan and bid document. This process would continue till the conclusion of the bid process.

Conclusion

The concepts for Master Plan will be developed around a program/ product mix, based on the existing situation analysis, market demand assessment and vision. Consideration will be given to land use interface, integration of networks, transportation/ access, sustainability, infrastructure, hazard mitigation, environment conservation, smart city technologies, new urbanism planning strategies towards transit-oriented development, human scale, pedestrian orientation, safety of public spaces, flexibility and phasing strategy etc. Rapid urbanization in India has led to increased demands for providing state of-art infrastructure in Urban Local Bodies (ULBs) and the ULBs are continually looking for new sources of funds in order to meet the requirements of creating and upgrading infrastructure. Similarly, the Ministries and Departments of the

Government of India have to make lumpy investments for infrastructure development at the national and regional levels.

To make the Smart City project Self Sustainable and Self-funded as well. An ecosystem between Social, Economical, Financial & Environmental aspects will be created. Liveability Index of the city will increase and city will be more liveable for citizens. The all-designed projects will be run for a long term and employment will be generated. The proposed development will substantially increase the demand on resources the planned development aiming at improving quality of life addressing environmental and social issues will provide a boost to the city. Appropriate planning and phasing of the development would aid the timely execution and completion of the project with no or minimum effect on the habitants. Revenue Generation modelling will support the authority for long term business aspects and earn profit.