

Smart Convergence for Smart City Mission towards Sustainable Development

A study with Special Reference to Karnataka State

Amulya R H. ¹, Raju J K ²

^{1,2} Institute of Management Studies, Davangere University, Davangere, Davangere Dist. India.

Corresponding author: amulya.rh@gmail.com

© Amulya & Raju

OIDA International Journal of Sustainable Development, Ontario International Development Agency, Canada.

ISSN 1923-6654 (print) ISSN 1923-6662 (online) www.oidaijsd.com

Also available at <http://www.ssrn.com/link/OIDA-Intl-Journal-Sustainable-Dev.html>

Abstract: Academic attention to smart cities and their governance is growing rapidly. Under the leadership of Prime Minister Narendra Modi, the government of India launched its flagship program, 'Smart Cities' on 25th June 2015. As part of the program, the government has decided to develop 100 Smart Cities by 2024. It aims to address challenges associated with India's rapid growth and massive urbanization in coming years. The objective of smart city initiative is to promote sustainable and inclusive 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 with Smart Collaborations/Convergence. The Smart Cities Mission is an innovative and recent initiative by the Government of India to develop smart cities pan-India to enable economic growth and improve the quality of life of people by enabling local development and using smart technologies to make its citizens life better.

This paper aims at identifying the role of Smart cities towards sustainable Development. The paper also highlights the profile of the selected cities in Karnataka state, India along with the profile suited for being selected amongst various other cities in the race for selection in the mission . There is an attempt to understand the SWOT and analyse them for achieving the mission's goal. Understanding about the organisation structure helps to measure the key positions and their roles towards the mission. The paper also identifies the smart collaborations by the Mission for achieving the goal of sustainable Development. The ultimate objective of the study in this article is all about the effectiveness of smart city mission towards sustainable Development of the Nation.

Keywords: Convergence, Core Infrastructure, Smart City Mission, Sustainable Development, Sustainable Goals, Special Purpose Vehicles.

Introduction

There are multiple definitions of "Smart City" available, and various "smart" approaches have been understood by different people and sectors differently. Some definitions define smart cities as cities with "smart (intelligent) physical, social, institutional and economic infrastructure while ensuring centrality of citizens in a sustainable environment. A smart city would have a different connotation in India than, say, Europe. Even in India, there is no one way of defining a smart city. This can be a long term goal and cities can work towards developing such comprehensive infrastructure incrementally, adding on layers of 'smartness'.

The Main Characteristics Role, SMART CITY is perceived to play as

1. Smart Economy
2. Smart Environment
3. Smart Governance
4. Smart Living
5. Smart Urban Mobility

The Smart Cities Mission (SCM) is a centrally-sponsored scheme, where state governments and urban local bodies (ULBs) will have to contribute funds for implementation of projects specified in the Smart City Proposal, on a matching basis with the funds provided by the central government. The entire budget for the Mission over five years is estimated to be Rs 480 billion (6 billion euro). The Government of India allocated around Rs 2 lakh crore (25 billion euro).

Developing 100 cities under the Smart Cities Mission

States are expected to seek funds for projects outlined in the Smart City Proposal from multiple sources, including:

- States'/ULBs' own resources from collection of user fees, beneficiary charges and impact fees, land monetization, debt, loans etc.
- Additional resources transferred as a result of acceptance of the recommendations of the Fourteenth Finance Commission (FFC).
- Innovative finance mechanisms, such as municipal bonds with credit rating of ULBs, Pooled Finance Development Fund Scheme, and Tax Increment Financing (TIF).
- Leverage borrowing from financial institutions, including bilateral and multilateral institutions, both domestic and external sources.
- The National Investment and Infrastructure Fund (NIIF).
- Other Central Government schemes like Swachh Bharat Mission, AMRUT, National Heritage City Development and Augmentation Yojana (HRIDAY).
- Public-private partnerships (PPP) etc.

Each Smart City Proposal is required to include a 'Financial Plan' that provides extensive details of itemized costs, resource plans, revenue and payback mechanisms, plans for recovery of Operation and Maintenance costs, financial timelines, and plans for mitigating financial risk. The competence of this Financial Plan is an important criterion in judging the prospective of a potential 'smart city'.

In Karnataka, the following 6 cities will be SMART Cities

SL No	Name of SMART Cities
1	Belagavi
2	Davanagere
3	Hubballi-Dharwad
4	Mangalore
5	Shivamogga
6	Tumakuru

The 20 were selected for the first phase from among 97 cities, which the Centre has identified for being made into smart cities. Tumakuru, Hubballi-Dharwad, Mangalore and Shivamogga are the other towns, which was covered under this project in the next phases. During the evaluation under the 'Smart City Competition Challenge', Davanagere was ranked 10th and garnered 59.93 per cent, while Belagavi came 15th, with 57.99 per cent. For the implementation of the rest of the project, the state must rely on joint ventures, subsidiaries, public-private partnerships, and turnkey contracts. A special purpose vehicle (SPV) will be set up for each city and will comprise members from the state and central governments and also from the urban local bodies. The SPV will plan, appraise, approve, release funds, implement, manage, operate, monitor and evaluate the smart city development projects.

Research Methodology: Design

The paper is an attempt to understand the smart city mission objectives, implementing authority, collaborations with other State, Central Govt. Agencies, Non-Government agencies, PPP, and NGO to build smart cities for sustainable development. The sample includes 3 cities viz. Davanagere, Hubballi Dharwad, Tumakuru for the study.

- ❖ **Research Design:** Descriptive study
- ❖ **Method of Data Collection:** Primary (Interaction /Unstructured interview with the officials and authorities of Smart city limited of the selected cities) and Secondary data is used for the study.
- ❖ **Sources of Data:** The data is collected from various sources like websites, books, newspapers, Blogs. Published Government Reports
- ❖ **Tools Used for the Study:** Charts, Tables and Figures.
- ❖ **Period of Analysis:** The study was done During the month of August –September 2020

City Profile

Davangere

Davangere is a city in the centre of the southern Indian state of Karnataka. Davangere was selected as one of the hundred Indian cities to be developed as a smart city under Narendra Modi's Smart Cities Mission. It was among the first 20 cities to be developed under the mission by Ministry of Urban Development.

Economy & Industrial Profile of Davangere City

Davangere has a few active cotton industries. It was known as "Manchester of Karnataka". There are a couple of rice mills, a distillery, a sugar mill and a tool factory to represent industries. An industrial area had been established to encourage small-scale industries.

Focus Sectors

- Textiles, Sugar
- Information technology and Biotechnology
- General Engineering
- Agro- based Industries
- Food Processing Industries Automobiles
- Steel and Research and Development Centre.

There are 8,700 Small scale industries with an investment of Rs. 19,597 Lakh and providing employment to 39,511 persons. There are 4 industrial areas and 2 industrial estates in the district at most Total 401. One industrial area, one industrial park and one industrial estate are proposed. Suvarna Karnataka Development Corridor proposes setting up Food Processing Zone covering the District.

Hubballi Dharwad

Hubballi-Dharwad Municipal Corporation, in Karnataka State has been selected by the Ministry of Urban Development as one of the 100 smart cities to participate in the "Smart City" Challenge Stage-2 by the Ministry of Urban Development, Government of India. Hubballi-Dharwad Municipal Corporation was constituted in the year 1962 by combining two cities separated by a distance of 20 kilometres. This was a unique experiment in urban development history. The area of this Corporation is 202.3sq.kms, spread over 45 revenue villages. The population of the city as per the 1991 Census was 7 lakhs. The present population is nearly more than 9.43 lakhs. Under the Government of India Act of 1850, the Hubballi-Dharwad Municipal council was established on August 15, 1855.

Tumakuru

Tumakuru is ranked 20 amongst the 100 smart cities under the Smart Cities Mission. Tumakuru, officially renamed as Tumakuru, is one of the industrial cities located in the state of Karnataka, also known as Shaikshanika Nagari (city of education) and Kalpatharu Nadu (land of coconut trees). It is the headquarters of the Tumakuru district. Tumakuru hosts India's first mega food park, a project of the ministry of food processing. The India Food Park was inaugurated by Prime Minister Narendra Modi in September 2014. Tumakuru is a knowledge hub in the south interior of Karnataka. It has Tumakuru University, two medical colleges, five engineering colleges, 38 degree and postgraduate colleges, one dental college and many polytechnics, high schools and primary schools. The Indian budget for the year 2014-2015 held on 10 July 2014 announced that Tumakuru was one of the cities in south India to be developed as an "Industrial Smart" city. The city was also selected as one among the 100 in the country shortlisted for the Smart City project. Tumakuru is competing now to be one among the 20 to be taken up for development this year. The government of India has promised 100 crores each as a matching grant for five years and the local body with assistance from the state government has to match another 100 crores. Thus, in five years, development in the amount of 1000 crores will happen in Smart City. The Tumakuru District Chamber of Commerce and Industry under the leadership of Surendra Shah, President - 2014-16 is striving to make the City of Tumakuru the most aspired city in India.

SWOT Analysis

SWOT analysis is an analytical frame work to monitor or evaluate a specific programme/performance of the group/ service/product/industry and to explore improvement measures. Under present study, the terms strengths and weaknesses refer to attributes that measure internal capabilities whereas opportunities and threats are the external environmental factors affecting the performance/ functioning of smart city mission. Internal attributes are controllable to some extent but external attributes are largely beyond the control. However, the strengths are be pushed and weaknesses should be strategically eliminated or reduced. In total strengths and opportunities

represents positive aspects of development where as weaknesses and threats represents the problems to be resolved.

Davangere

It has always had a fantastic municipal corporation from way back in 1890's! It is an industrialized city for trade as it is surrounded by Shivamogga, Ballari, Chikkamagaluru, Chitradurga, and Haveri. Majority of JNNURM projects in Karnataka have gone into the development of KSRTC, the state transport corporation. Davangere is well-connected by road to Mumbai, Pune, Goa, Bangalore, Mangalore and Chennai through National Highway 4 (India) (previously Pune-Bangalore Highway and now Mumbai-Pune-Bengaluru-Chennai Highway). Karnataka State Road Transport Corporation has a divisional office situated in Davangere City.



Figure 1. SWOT of Davangere City

Hubballi Dharwad: Following an extensive consultations with stakeholders and city profiling activity, a SWOT analysis for HDMC is presented below:

Strengths

Strategic Location

Second largest city in Karnataka with strategic location on Golden Quadrilateral NH-4 (Mumbai Bangalore Industrial Corridor) Gateway to Northern Karnataka, is well connected through road, air, rail & port (Karwar). District HQ and Administrative HQ of many regional organizations - High Court Bench, South Western Railway HQ, North Western Karnataka Road Transport Corporation, HESCOM, KSHDC, and many Government banks. On-going 22 kms of 4-lane BRTS connecting twin cities.

Regional Hub for Education

HQ of Karnataka University, Agriculture University, SDM Medical, Dental, Engineering colleges, BVB deemed University, Law University, Karnataka Medical College, and IIT & IIIT. Home to Deshpande Foundation – India's largest skill development centre being built in 2.5 lakh sq.ft. area to be ready by 2018, globally recognized for social, innovation and entrepreneurship.

Business & Commercial hub of North Karnataka

The city acts as a centre of business for surrounding districts of North Karnataka with India's largest APMC (capacity for agriculture produce – 50,000 tons).

Logistics Hub

The State & Central Warehouse in Hubballi has a capacity of 1.56 lakh Tons freight business worth Rs. 4,200 crores annually and road freight business is Rs. 700 crores annually; with state capacity of 1.36 lakhs tons, and Center 20,000 tons storage.

Industrial Hub

Manufacturing base with 21 MLME and 23,336 MSME employing 1,24,620 persons, in 7 Industrial areas and 4 industrial estates constituting to 3.8% of LPA. Various Industrial areas Tarihal, Rayapura, Belur etc. developed by KIADB. New acquisition of 3661 acres with strong demand for industrial plots. Known for automobile (Tata motors, TELCON, Tata), auto ancillary, engineering, valves (4% market share) and metal industry in 7 Industrial areas and 4 industrial estates constituting 3.8% of LPA. Railway workshop, loco shed housing storage facilities for HP, BP & IOC, Milk Dairy and NGEF factory.

- Software Tech Park (STPI) with 'Incubation Centre' designed for start-up companies. Accounting for 1/3rd of country's software exports from Karnataka. Aryabhata Tech Park on 23 acres with confirmation from 11 firms. Infosys is developing IT park on 50 acres.
- Green Initiatives: One among the 3 cities in India with a green growth city tag from World Bank. Part of Solar City Mission including Street lighting Piped gas supply by GAIL, BRTS Corridor, 24x7 water supply.
- Cultural Hub: City has highest number of Gnanapeeth awardees and is well known for national and international reputed Hindustani classical musicians. Various performances are housed in Kala Bhavan, Kannada Bhavan, Town hall, with a total of 11 auditoriums and 8 stadiums in HDMC.

Weakness

- Traffic & Transport : Large floating population of around four lakh per day from surrounding region visits city. Unscientific traffic designs – junctions, sidewalks, bus shelters and internal transportation network is experiencing heavy congestion, which leads to an increase in level of air pollution.
- Haphazard spatial growth: Core city area of Hubballi getting over-crowded and lacks basic infrastructure for business growth, High volume of street Hawkers, Deteriorating Street network and lack of open spaces.
- City lacks scientific integrated Solid waste Management system, No segregation of waste at source, presently no scientific treatment and disposal system exists and hence taken up now under state approved DPR for INR 60.14 Crores.

Opportunities

- The Creation of six lane road from Pune to Bangalore shall promote intra and interstate business and helps in flourishing of private warehouse facilities. Due to its strategic location, the opportunities for business and commercial activities are expected to grow further in Hubballi Dharwad.
- Capitalizing on the existing industrial infrastructure, the twin cities will attract lot of investment to become a top Industrial destination in the North Karnataka region. Being a home for many prestigious educational institutes and skill development centres, it can provide necessary human resources for high end jobs like IT, R&D, innovation centres and can also able to produce the skilled manpower to various manufacturing ,Logistics, Agro Industries, and commercial businesses. The creation of RTS ,multi modal transit systems, NMT networks etc. will ease the mobility.
- Revitalising the area by providing community level public spaces – Squares at prominent intersections, Plazas near Markets, Transit Nodes, creating green corridors will encourage the mixed land use and thereby healthy living conditions.
- Hubballi Dharwad is also recognized as a tourism node by Heritage tourism development in the neighbouring towns (Bijapur, Badami, Hampi, etc.) The city is famous for Hindustani Classical Music and literature with highest number of Gnanapeeth awardees. Established Gangubhai Haangal Gurukul -Hindustani Musical Foundation by GOK at INR 5.7 crores at Nrupathunga Hill, Established HDMC Culture & Heritage Museum at Dharwad.
- By considering all the above growth potential, Hubballi Dharwad grows into an economical, educational and a cultural hub in this region, which prompts the significant increase in urbanization.

Threats

- Land parcels with multiple ownership
- Increase in private vehicle ownership can negate improvement in public transport and create traffic congestion. 71% of the total vehicles are Two wheeler. Average ROW is 9.5 m.

Tumakuru

Tumakuru was one of those districts of Mysore State which are subject to periodical scarcity conditions. Keeping this in view, its economic growth has been well-planned in recent years, having regard to its potentialities in the fields of agriculture, irrigation, industries, communications and other spheres.

Strengths

Strategic Location and Connectivity, A Draw For Businesses

- Tumakuru is located only 70kms (1.5 hr drive) from BENGALURU City. It is a passage for at least 15 DISTRICTS accessing Bengaluru through a high-speed elevated corridor (NH-4). It is well connected by Rail and Road, including two National Highways and one State Highway passing through the city. It lays enroute the Bengaluru-Mumbai Economic Corridor (BMEC) and CHENNAI - Bengaluru - Chitradurga industrial corridor (CBIC). The nearest Airport, BENGALURU INTERNATIONAL AIRPORT is only 75 Km from Tumakuru. There are three helipads located in the city. This strategic location of the city within the region is an opportunity for large scale economic development and employment.

Growing Number of Industries

The Government of India, through the Department of Industrial Policy & Promotion has proposed Tumakuru as a major MANUFACTURING Corridor with a proposed investment of Rs. 22,000 Cr. It is already an Industrial city with over Rs 1,800 Cr. investment in large, medium, small and micro industries that provides employment to 1.4+ lakh people. The city is a regional hub that serves as an important centre of trade for nearby villages and towns. HAL has acquired 610 acres for setting up a Helicopter manufacturing plant. 90% of the total working population is employed in these industries in the city.

Thriving Education and University Hub

The City has a university and is famous for its technical educational institutes - 5 degree colleges, 6 engineering colleges, 15 ITI colleges, 6 Polytechnic Colleges and 2 Medical Colleges. This brings in a large number of youth that are potentially skilled. It has a Literacy rate of 80.66% well above the district average of 74.32%.

Trending Shift Towards Clean Energy Options, Proposed 2000mw Solar Power Plant

The city is shifting towards clean energy options at a massive scale. The Solar Power Plant, proposed on a 10,000 acre land at Pavagada taluka, will strengthen future economic activities along with generating clean energy. There is over 3000 acres of rooftops (Industries and Institutions) available within the city for Solar. Additionally, the Dabhol gas pipeline passes through Tumakuru, providing an eco-friendly and dependable source of fuel for industrial, and transportation sectors, in terms of city wide gas distribution system as well as filling stations

Availability of Land for Development and Expansion

The city has around 24% of land that is vacant for development. The roads are wide enough and form a strong network with good capacity for future growth; it requires no land acquisition/ or demolition of buildings for road widening. The city has already proposed to invest Rs. 1550 Cr. for the development of a 32 km Peripheral Ring Road (through acquiring 652 acres) and a 2.5 km Ring Road extension (Rs. 26 Cr.). Additionally a Satellite Bus Stand has been proposed in the city.

Increased Interest from Private Investors

Tumakuru has already received EOIs from over 17 private players including companies like CISCO, RUBENIUS, WIPRO, etc looking to invest in the city. The interest shown by industry players, global entities, technology providers and young entrepreneurs promises a tremendous future for the economic development and growth of Tumakuru.

Location Of The Siddaganga Mutt

Established during the 15th Century is an extremely popular religious, cultural and educational hub of the country. Their Education Society runs more than 125 Educational Institutes in the region, most of which are located in Tumakuru.

Historical and Religious Attractions

Tumakuru is a place for renowned temples like Siddhaganga Mutt, Gangadhareshwara temple, Siddhalingeswara temple, temple of Narasimha, Channarayana Durga, Devarayana Durga, Namadha Chilume and Chennakeshava temple

High Floating Population

The city remains a pass-through and temporary area for several types of people; these include tourists, students, working professionals, vendors and rural populations. It has a floating population of about 5000-6000 per day, mainly concentrated in the CBD. Leveraging this large number in an attempt to boost the city's economy will result in increasing the per capita income

Weaknesses

Inadequate Infrastructure for Utility Services

The city lacks in coverage with respect to water supply, underground drainage system and power supply (shortage of 25 MW in summer season). Additionally systems like underground drainage (40% coverage) solid waste management (no segregation, 63% door to door coverage and only 63% is scientifically disposed) and sanitation are currently in-efficient.

Poor Quality of Public Transport Infrastructure

The city has good connectivity but the infrastructure has not been upgraded since 2014. These not only include the Bus Stand but also the network of Bus Stands and feeder systems that lack a clear system of organisation.

Lack of Mobility Choices

Building on the existing inter-city Mobility network and actively enabling multimodal transport options, especially zero-emission modes like Electric Vehicles and Non-motorised Transport (NMT).

Congested and Unorganised City Centre

The CBD area is the landing area for all who pass-through, visit, work/study and live in Tumakuru. The area is highly unorganised with an incomplete pedestrian network, footpaths and roads encroached by hawkers, lack of legibility and signage, haphazard on street parking, no proper turning radius for buses or bays in front of Bus Stands leading to heavy congestion and high floating population. Universal accessibility for handicapped persons is missing completely in the area. The absence of pedestrian facilities and accessibility to the transport nodes like the Private Bus Stand, Government Bus Stand and Railway station is leading the pedestrians to always risk their lives to cross the road to reach them.

Loss of Traditional Water Systems

Rapid urbanisation and unorganised sprawl has led to encroachment of existing water bodies and their feeder channels. The biggest lake in the city (460 acres) Tumakuru Amanikere Lake is dead/ dry; so is the case with 14 other lakes in the city. The growth of industries as well has taken a heavy toll on the ground water resources in the city. This has resulted in the drying up of fresh water tanks, ground water recharge zones and reservoirs. The current levels are 600 feet below ground level and in the periphery of the city is 900 ft.

Absence of Defined Public Spaces

Though City Centre is the hub, there are missing public spaces that cater to all economic sections and age groups of people. A total of 1.25% of the city area is under parks and open spaces and the per capita green space is 1.99 sq. km.

High Accident Rate

Due to the Highways passing through the city centre, the accident rate is high, approximately 350 per year.

Lack Of Basic Affordable Health Services

Approximately 130 Cases of basic medical emergencies are shifted to hospitals in Bengaluru, which involves a travel of approximately 173kms. These include emergencies like Acute Abdomen, Epilepsy, Fevers/Infections, Strokes, Fire Burns, Pregnancy related, Trauma, etc. among the most relevant cases.

Opportunities

Emerge As an Alternative Urban Centre to Bengaluru

The proximity to Bengaluru and the pattern of industrial growth in Tumakuru can be potentially channelled for direct benefit to the city. Consider the degrading quality of life in Bengaluru, being in such close proximity, Tumakuru can offer a much higher quality of living that is more affordable, thereby developing a pattern of Work in Bengaluru and Stay in Tumakuru.

Talent Attraction and Retention

The city has a potential to become an Education and Innovation based economy as it is creating the skilled resource pool in the multiple government and private Institutions.

Economy Boost and Job Creation

The establishment of an NIMZ will spur development which will provide a boost of economic activity in the vicinity of the NIMZ and will also translate into an array of employment opportunity of over 5-6 lakhs. The helicopter manufacturing plant alone will create 5000 jobs and an investment of around 3000 Crores. → PROVISION OF SKILLED HUMAN RESOURCE FOR THE EXISTING ECONOMY: There are 5 Engineering colleges, 5 polytechnics, 38 Degree colleges, 2 Medical colleges 5 degree colleges, and a Dental College in Tumakuru. It is anticipated there will be more in the near future. These government and private colleges offer opportunity for skill development; Incubation centres, Technology Park, technology transfer, to cater to proposed industrial development.

Reviving a Dead Lake

Tumakuru Amanikere lake can be used as a reservoir to store, recharge ground water, feed into the city's larger water system and in turn determine the density of the settlement pattern. This in-turn can have a huge impact on the revival of the 13 other lakes. Additionally developing the lakefront can lead the way in creating the green network of the city and in turn alter the city's micro-climate

Tapping 3000 Acres of Roof Top for Harnessing Solar Energy

The 3000 acres of roof top area available with the city's Industries and Institutions offers a huge opportunity for tapping of solar energy and in harvesting rainwater.

Threats

Increase In Informality

The city has seen an increase in migrant population, which has resulted in several squatter settlements. There also exist a large number of street vendors who encroach on footpaths and carriageways within the city.

Environmental Degradation of Natural Resources

With increase in urban in-flow the impacts on the environment if not revived and protected can lead to its pollution and consequent depletion.

Regional Competition for Talent

Since the city is in close proximity to Bengaluru, a city currently offering diverse opportunities and supports urban lifestyles, it has led to the out-flow of people from Tumakuru to the Metro.

Increase in Private Vehicle Population

Over the past 5 years, the city has seen drastic increase in two-wheelers and cars, this is leading to multiple issues regarding congestion, pollution, etc. in the city.

Organisation Structure for Smart City Project

The implementation of the Mission at the City level will be done by a **Special Purpose Vehicle (SPV)** created for the purpose. The SPV will plan, appraise, approve, release funds, implement, manage, operate, monitor and evaluate the Smart City development projects. The SPV would be a limited company incorporated under the

Companies Act, 2013, at the city level and would be formulated through equity contributions from the state and Central governments. The private sector or financial institutions can be considered for an equity stake in the SPV; however, the shareholding pattern of 50:50 of the state/union territory and the ULB has to be maintained and they together should have a majority shareholding and control of the SPV. The SPV would be headed by a full-time CEO and would be appointed with the approval of the MoUD. The board of directors shall be constituted by representatives of the Central Government, state government, ULB, independent directors as well as the CEO and functional directors. The Divisional Commissioner/ Collector/Municipal Commissioner/Chief Executive of the Urban Development Authority shall be the Chairperson of the SPV. The SPV may appoint Project Management Consultants (PMC) for designing, developing, managing and implementing area-based projects. SPVs may take assistance from any of the empanelled consulting firms in the list prepared by MoUD and the handholding agencies. For procurement of goods and services, transparent and fair procedures as prescribed under the State/ULB financial rules may be followed. Model frameworks as developed by MoUD may also be used for Smart City projects.

City level: Monitoring

- A Smart City Advisory Forum will be established at the city level for all 100 Smart Cities to advise and enable collaboration among various stakeholders and will include the District Collector, MP, MLA, Mayor, CEO of SPV, local youths, technical experts, and at least one member from the area who is a:
 - President / secretary representing registered Residents Welfare Association.
 - Member of registered Tax Payers Association / Rate Payers Association,
 - President / Secretary of slum level federation.
 - Members of a Non-Governmental Organization (NGO) or Mahila Mandala/ Chamber of Commerce / Youth Associations.
- The CEO of the SPV will be the convener of the Smart City Advisory Forum.

Davanagere Smart City Limited

Davanagere Smart City Limited is an Indian Non-Government Company. It's a public company and is classified as company limited by shares'.

Company's authorized capital stands at Rs 50000.0 lakhs and has 40.0% paid-up capital which is Rs 20000.0 lakhs. Davanagere Smart City Limited is majorly in Business Services business and currently, company operations are active. Company is registered in Bangalore (Karnataka) Registrar Office.

Davanagere Smart City Limited registered address is

DAVANAGERE SMART CITY LIMITED, Opposite Railway Station PB Road,577006
DAVANAGERE-Davanagere.

CIN	U74999KA2016PLC093411
Company Category	Company Limited by Shares
Company Sub-category	Indian Non-Government Company
Authorized Capital	50000.0 lakhs
Paid-up Capital	20000.0 lakhs
Paid-up Capital %	40.0
Registrar Office City	Bangalore
Registered State	Karnataka
Registration Date	19 May, 2016

Name of the in-charge Personnel	Designation
Sri Ravindra B Mallapur	MD And CEO

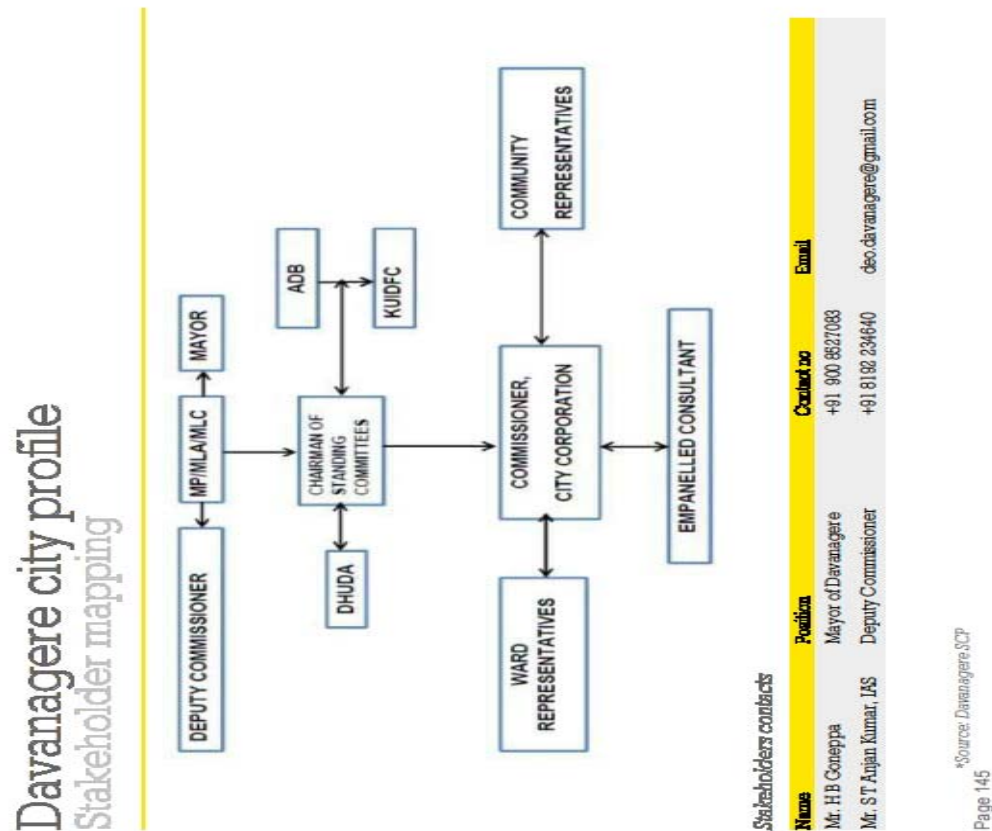


Figure: Davanagere City Profile

Source: *Smart Cities Mission – India, Opportunities for UK Businesses, Analysis of Lighthouse cities, June 2016*

Hubballi Dharwad Smart City Limited

Name of the IN charge Personnel	Designation
Shri. Gaurav Gupta, IAS	Chairman, HDSCL
Shri. C.W. Shakeel Ahamed KMAS	Managing Director of HDSCL
Shri. Suresh Itnal KAS	DIRECTOR OF HDSCL, Commissioner, Hubballi Dharwad Municipal Corporation, Hubballi
Smt. Charulata Somali IAS	DIRECTOR OF HDSCL, Managing Director, Karnataka Urban Infrastructure Development and Finance Corporation Limited.
Shri B S Shekharappa IAS	DIRECTOR OF HDSCL, Director, Directorate of Municipal Corporation, Bengaluru.

Dr. Ravishakar. J IAS	DIRECTOR OF HDSCL, Managing Director, Karnataka Urban Water Supply and Drainage Board, Bengaluru.
Smt. Deepa M Cholan IAS	DIRECTOR OF HDSCL, Deputy Commissioner, Dharwad District
Shri. Rajkumar Goutam ISS	DIRECTOR OF HDSCL, Director HFA-5, MoUD, Ministry of Urban Housing Development, New Delhi.
Shri S B Shetty	INDEPENDENT DIRECTOR, Senior Chartered Accountant with Financial Background
Dr. Vimala Swamy	INDEPENDENT DIRECTOR, Senior Urban Planner, Working as a principal in Reva Engineering College Bengaluru

Tumakuru Smart City Limited

Name of the in-charge personnel	Designation
	Managing Director and CEO, Commissioner
Mr.Ajay V	Joint Managing Director
Dr.Shantarajanna	Chief Engineer and General Manager - Technical
Mr P N Swamy	General Manager Admin
Mr K A Srinivas	Chief Finance Officer
Mr.Ramesh M	Executive Engineer

Smart Convergence

Comprehensive development occurs in areas by integrating the physical, institutional, social and economic infrastructure. Similarly, great benefit can be derived by seeking convergence of other Central and State Government Programs/Schemes with the Smart Cities Mission. At the planning stage itself, cities must seek convergence in the SCP with AMRUT, Swachh Bharat Mission (SBM), National Heritage City Development and Augmentation Yojana (HRIDAY), Digital India, Skill development, Housing for All, construction of Museums funded by the Culture Department and other programs connected to social infrastructure such as Health, Education and Culture.

Davangere: Key associations

The Consultant for the Davanagere SCP are CRP Risk Management with Infrastructure Management and Advisory services Pvt Ltd ,other Sector Prevalent associations/ main operating companies in Davanagere ,Electricity Bangalore Electricity Supply Company (BESCOM),Waste and sanitation Davanagere Municipal Corporation, Water Davanagere Municipal Corporation ,Telecom Karnataka Telecom, District Health & Family Welfare officer, Davangere, DHUDA, Davangere, Karnataka Slum Development Board, Davangere Sub Division, KSRTC Davangere, KUIDFC-KIUWMIP, City Corporation, KUWS & D board, Davangere Sub Division, PWD Davangere, BESCL, BSNL Davangere, DDPI Davangere, KPIT Technologies Bangalore.(Smart city Buses) , Sharan Sales Corporations, Davangere, Accenture Bangalore (IT solutions).

Hubballi Dharwad SPV in coordination with HDMC, KUWSDB, KUIDFC, and HESCOM, HDMC, KUWS&DB for Priority Investment Works (PI works),KUIDFC for Sector Development & Technical Assistance, Hubli-Dharwad BRTS Company Limited (HDBRTSCO) is implementing the Bus Rapid Transit System (BRTS), MNRE & Solar Cities Programme-KREDEL, Financing Schemes for Sustainable Development including Energy Efficiency and Cleaner Production in MSMEs by SIDBI., Central Schemes: National Skills Development Agency, NITI AYOG, Skill India, Make in India, Pradhan Mantri Kaushal Vikaas Yojana.CEDOCK Dharwad,Deshpande Foundation, RUDSED Dharwad, Department of Industries and Commerce, Zonal Railways, Indian Railway Stations Development Corporation Limited (IRSDC) and Rail Land Development Authority (RLDA),

Fund sharing by the City Corporation and Govt. of Karnataka., HDMC/ISO/NATHAN &NATHAN CONSULTANTS PRIVATE LIMITED.,HDMC/DANLAW TECHNOLOGIES, HDMC/SOFTTECH

ENGINEERS PRIVATE LIMITED, HDMC/MAP MY INDIA, Contractors include DIMTS, Trimax, Schneider, Arya Omnitec, Continental, Siemens, and vendors include ROLTA, HCL, L&T, Siemens, Bosch, Technology provider are selected to design the systems and execute them. System Integrator include TCS, HCL, Wipro, Infosys, Mind tree.

Tumakuru

Physical Convergence

Utilities and hard infrastructure is being developed or improved for various civic services under schemes such as AMRUT, SBM, and ongoing projects under various central and state level schemes. Planning and DPRs are completed for most of the projects/sectors and implementation is yet to be started.

Technology Convergence (ICT Layer)

Technology layer would be adopted over the hard infrastructure assets for the existing and proposed projects for the entire city including the assets created in the ABD area.

Financial Convergence

For only ICT Layer

Sector/Component	Hard Infrastructure	ICT Layer
Smart Metering	UIDSMT & AMRUT	Smart City
Traffic & Transport	Smart City	Smart City
Emergency Response	TCC & Smart City	Smart City
Surveillance	Nirbhaya & Smart City	
Solid Waste	Swachh Bharat	Smart City
Street Light with Monitor		Smart City
Environment Monitor		Smart City
Control Room	Deity	Digital India & Smart City

Human Resource Convergence

- ▶ Capacity building: Line Department Officers and IEC campaigns for citizens
- ▶ Technical Assistance

Findings

India's Smart City Programme hopes to revolutionize city life and improve the quality of life for India's urban population. Smart city would require smart economy, bright people, smart organization, smart communication, smart engineering, smart transit, fresh environment and bright living. Nevertheless, with mass migration leading to basic publications, like water shortages and overcrowding, the rate at which these cities will be developed will be the key. Several initiatives are being led by the Government of India to convert 100 cities into smart cities. The government is concentrating on encouraging Public Private Partnership (PPP) for successful implementation of the smart city project in India. Financial and IT services sectors are on the priority list of the government to garner investments from leading companies such as Cisco, Synoate, Knight Frank, AECOM India etc. Leading economies around the world have shown interest in India's smart city mission and are looking forward to participate in the development of smart cities. Major funding partners include Spain, the United States of America, Germany, Japan, France, Singapore and Sweden.

Conclusion

In the above paper, we took an insight about smart city initiative. Various aspects of the mission such as the focus area, smart inclusions, organisation structure, smart city profiles and various convergence agencies are discussed for the successful implementation of the project towards sustainable development. The Smart cities mission is good initiative and if implemented properly and effectively will lead to a better life for its citizens and thereby leading India to a better sustainable future.

Webliography

Government Report: Hubballi Dharwad Smart City Mission Proposal.pdf

Government reports: Tumakuru Smart City Mission Proposal

<https://economictimes.indiatimes.com/company/davanagere-smart-city-limited-/U74999KA2016PLC093411>

<https://www.facebook.com/Davanagere-Smart-City-Limited-58626484643213/>

<https://government.economictimes.indiatimes.com/news/smart-infra/karnataka-our-smart-cities-are-on-track>

<https://timesofindia.indiatimes.com/topic/Hubballi-Dharwad-Smart-City-Limited>

<https://timesofindia.indiatimes.com/topic/Hubballi-Dharwad-Smart-City-imited>

<http://www.smartcitytumakuru.in/>

<https://tscl.indiancst.com/India/Citizen/login/index.php>

https://indiansmartcities.in/downloads/CONCEPT_NOTE_-3.12.20

