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The Citizen - a fictional character in India's urban makeovers: the effete participation in Tumakuru Smart City

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Summary

Strategic rationality of a planning module, defined by Albrechts, places citizens as protagonists of decision making. This empowerment of social and intellectual capital facilitates transparent processes and encourages participatory democracy. A Smart City through its interlayered definitions and components stresses upon the importance of citizen engagement in all its undertakings. The concept dating back to the '70s has seen its maturity in the developed world. In recent times, implementation of infrastructure needs and governance tools through smart solutions, places the concept of smart cities as the most sought urban reform, particularly in the developing world.

India, one of the biggest agglomerations of the world and with a doubling character in urbanization, has proposed an ambitious proposal of 98 smart cities across the country. Determination of the newly elected Prime Minister Mr. Narendra Modi saw this model develop as one of the biggest urban reforms with his Ministry of Urban Development penning down guidelines for the federal states to execute. The model proposes installation of smart infrastructure with citizen engagement and feedbacks, through all the stages of decision making i.e., from framing the vision statement to the prioritization of development schemes and proposition of smart solutions. The Smart Cities Mission also aims to foster smart citizenry through consultations, citizen based solutions and calls for active engagements of representative groups.

This research juxtaposes itself between the set guidelines of the Mission and ground reality. The country is marked by dominance of public authorities on one hand and poverty on the other hand, playing the main curmudgeons that can render urban projects hapless. Moreover, overcoming problems related to access to information, prevailing inequalities and administrative inefficiencies are critical elements that determine the success of this initiative.

With citizen participation framing the crux of the concept, the guidelines outline participatory means and the stages to be adopted in the cities. The city of Tumakuru was one of the first nominated smart cities amongst the 98 cities and forms the context to the findings of this research focusing on the citizen engagement initiative. With an inquiry on the concepts and impacts of urban reforms, contextual parameters that surface the injustices, are observed calling for a case study typology.

The premise of this research is concentrated on the vulnerable class of the informal settlements who are excluded in voicing out their opinions. Specific to citizen engagement framework of smart cities, the performance of this particular social class is evaluated and comparatives are drawn with other social classes through semi-structured interviews. Furthermore, adherence to the mission guidelines and the execution at the city's context are chalked out to analyse the effectiveness in participation. On-ground explorations revealed participation absent in all social classes exposing missing links in networks. These networks were identified as a commendation to strengthen the nexus and foster enhanced participation.

Keywords

Smart Cities Mission, citizen engagement, access to information, contextual sensitivities, Tumakuru.

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"Gurur Brahma Gurur Vishnuhu Gururddevo Maheswaraha Gururssakshat Param Brahma Tasmaishree Guraver Namaha"

The traditions of India teach every child to treat the world as their Guru or teacher. Every person irrespective of age, gender, nationality, caste or creed has wisdom to impart. The quote reads " I bow down to Guru – the ultimate reality, who is considered as Brahma-the creator, Vishnu-the saviour, Shiva-the destroyer and Parabrahma-the supreme God. Founded on this Sanskrit verse, I bow down to all my Gurus who have guided me in this endeavour.

To begin with, I thank my family and friends who have been a strong support system to all my personal and professional decisions. With a motivational letter speaking of an intent to create a change in my country through this Masters course, the team at IHS recognized the passion to place me along with aspiring students who shared similar dreams and provided a platform to interact with world class professionals.

I am deeply indebted to Mrs. Anne Doose for her incessant mentorship and guidance to help gather a balanced approach throughout my research. I graciously thank Mr. Alexander Jachnow for accepting mentorship despite his busy schedules and providing the best a student could yearn for – a focused deliberation of knowledge; and the team of Urban Strategies and Planning for steering the design and intent of this research. I express my gratitude to my fellow classmates at Urban Strategies and Planning who have made learning fun. I also extend a heartfelt gratitude to my second reader Ms. Paola Alfaro d'Alencon for sharing her judgments and help me refine the research for the better.

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Abbreviations

IHS	Institute for Housing and Urban Development
SC	Smart City
ICT	Information and Communication Technology
GDP	Gross Domestic Product
HDI	Human Development Index
MoUD	Ministry of Urban Development
KPI	Key Performance Indicator
R&D	Research and Development
GIS	Geographic Information systems
ANPR	Automatic Number Plate Recognition
ITS	Intelligent Transport Systems
AMR	Automatic Meter Reading
JNNURM	Jawaharlal Nehru National Urban Renewal Mission
TNC	Trans-National Corporations
MNC	Multi-National Corporations
NGO	Non-Governmental Organization
SPV	Special Purpose Vehicle
TOD	Transit Oriented Development
UT	Union Territories
ULB	Urban Local Body
RFP	Request For Proposal
SCP	Smart City Proposal
ABD	Area Based Development
ADB	Asian Development Bank
INR	Indian Rupee
AMRUT	Atal Mission for Rejuvenation and Urban Transformation
SCT	Smart City Tumakuru
TCC	Tumakuru City Corporation
MP	Member of Parliament
MLA	Member of Legislative Assembly
IAS	Indian Administrative Services
JCI	Joint Commission International
TUDA	Tumakuru Urban Development Authority
CITU	Centre of Indian Trade Unions
CBD	Central Business District
iDeCK	Infrastructure Development Corporation (Karnataka) Limited
SC, ST, OBC	Scheduled Caste, Scheduled Tribes, Other Backward Classes
RTIA	Right To Information Act
KUIDFC	Karnataka Urban Infrastructure Development and Finance Corporation
RAY, PMAY	Rajiv Awas Yojana, Pradhan Mantri Awas Yojana
GoI, GoK	Government of India, Government of Karnataka
SDA	Slum Development Association

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Chapter 1: Introduction

1.1 Background

'Smart city' catchphrase has diverse dimensions to its definition. Innovation, efficiency, Information and Communications Technology (ICT) enabled design, citizen engagement through smart citizens, smart governance, sustainable and inclusive development for improved quality of life (Ministry of Urban development, Government of India, 15-12-15) are some of the facets that are employed to describe a Smart City. The concept divulges in a strategic, multi-sector planning methodology in analysing and designing for uncertain futures of a rapidly urbanizing world (Albrechts, 2004a) where 54% of its inhabitants live in urban extents (2014) with a projected 66% by the year 2050 (United Nations, Department of Economic and Social Affairs, Population Division (2015), 2014). Sensitivity to city's changes also include the vicissitudes in the demands of its citizens. Therefore, the aforementioned criteria can help define a smart city as either -

a. A virtual city shaped on digital and web networks – a nomenclature dating back to 1970s as part of a market research where cluster analysis, computer databases were used to collect data and present reports on housing quality and demographics to form an indicative tool in tackling poverty and urban blights (Brasuell, J., June 22, 2015, 2pm PDT).
b. An urban planner's expression of infrastructural and strategic innovation.
c. A socio-economic; politically led project guided by the changing demands of the community through active participation (Gigliarelli, Cessari, et al.,).
d. As a metaphorical battle between hi-tech utopian ideas and the insightful urban explorers who observe society.

An integrated spatial and sectoral planning delineates a guiding path to realize clear goals through cognitive initiatives, resource management, risk assessments and citizen engagement, thereby outlining a base for any Smart city (Albrechts, 2004b, Broek, 2004).

In the article *Strategic (spatial) planning re-examined*, Louis Albrechts (Albrechts, 2004a) formulates a four track approach for strategic planning –

- *Value Rationality* to devise visions considering intricacies of social values and commitments.
- *Communicative Rationality* with multiple stakeholder involvement for co-production and collective decision making.
- *Instrumental Rationality* to provide legitimacy to the roles and potentials of actors, and integrate processes with corresponding departments.
- *Strategic rationality* through citizen participation and empowerment - to strengthen the social and intellectual capital (Albrechts, 2004a, Broek, 2004).

The aforementioned *strategic rationality* emphasizes the *role of citizens* in decision making through every step of the project right from envisioning to developmental schemes. This form of public involvement and accountability checks form the core concepts of democracy, instil trust, facilitating transparent governmental transactions, and eliminates bureaucracy or power struggles between classes (Albrechts, 2004a, Stoker, 1998).

However, citizen participation under varied contexts reveal a few weaknesses –
Firstly, it entails the danger of involvement being restricted only to the educated class leading to alienation and futility, causing political and socioeconomic inequalities (Albrechts, 2004a, Arnstein, 1969).

Secondly, the decision making may appear to lie solely in the power-holders' hands and the views of the citizens may simply 'be heard' or 'heeded to' leading to tokenism - specifically placation; overruling a co-productive facade with apportioned citizen control (Arnstein, 1969).

Lastly, the vulnerable class consisting of the poor, the informal sectors, homeless and land-less, those categorized based on gender, caste, race, religion etc., suffer largely because of the aftermaths of the new urban society (Marcuse, 2014). These have-nots as described by Sherry R. Arnstein (1969) are the class that, due to their position i.e., social, economic or intellectual, feel abstained from being part of the functioning of a city, despite their large concentrations in the world of democracy.

1.1.1 The Context:

The Republic of India, a peninsula known for its culture and diversity is the seventh largest in its area (3,287,263 sq. km) and the second most populous with a population of 1.22 billion which places it as one of the *biggest democracies* in the world. The country also boasts of its rich and vibrant heritage. [1] India, along with China and Nigeria, will contribute 37% of projected urban population growth; with India alone contributing to 404 million urban dwellers between 2014 and 2050 (China 292 million and Nigeria 212 million). Indian economy, at present outlines 3.33% of the world economy and ranks 7th in terms of nominal GDP [2] and falls under a medium HDI (Human Development Index) category with a value of 0.609 (United Nations Development Programme, Human development reports, 2014).

The formation of a new government in the year 2014 exposed an ambitious scheme of the Indian Prime Minister –head of the Council, Mr. Narendra Modi to launch 98 smart cities across the nation. Along with the use of clean technologies, Smart City Mission calls for public-private partnerships and smart governance.

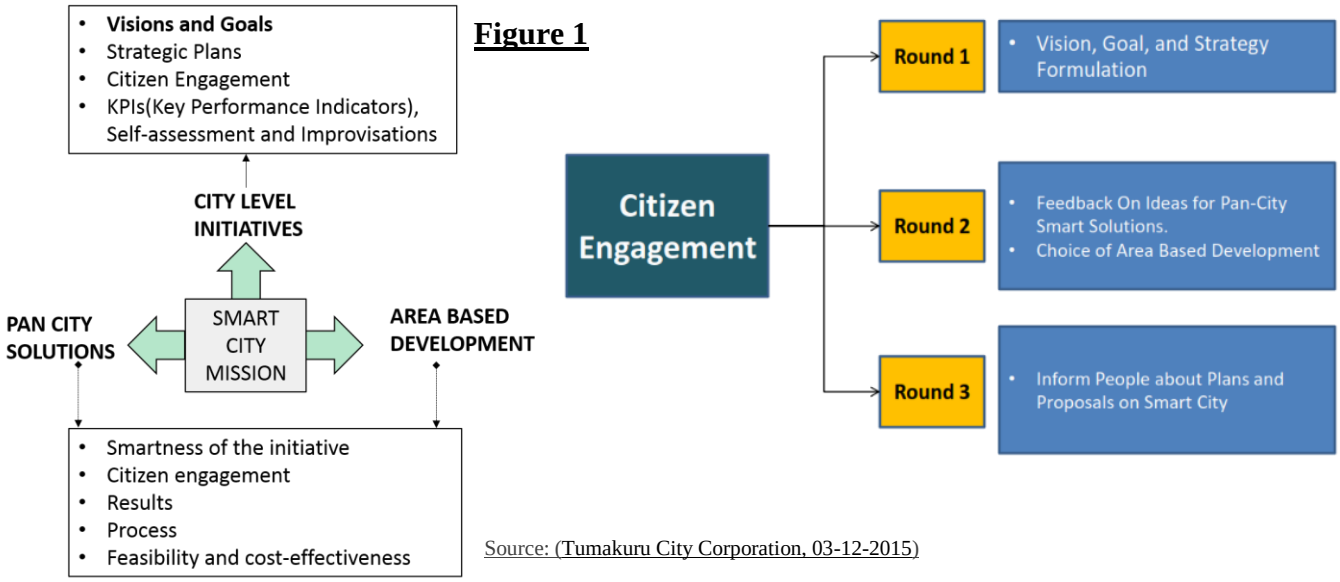
The Ministry of Urban Development (MoUD) in India responsible for providing guidelines to the Mission, has set its course in identifying potential cities for the renewal by soliciting the state governments to provide detailed reports and outline the city visions (Vikram, K., 29 August 2014).

[1] http://india.gov.in/india-glance/profile, http://www.knowindia.gov.in/ [Accessed on 29 January 2016]

[2] http://www.tradingeconomics.com/india/gdp [Accessed on 11th March 2016]

The figure below unfolds the processes under the Mission and the stages in citizen engagement.

Figure 1



Source: (Tumakuru City Corporation, 03-12-2015)

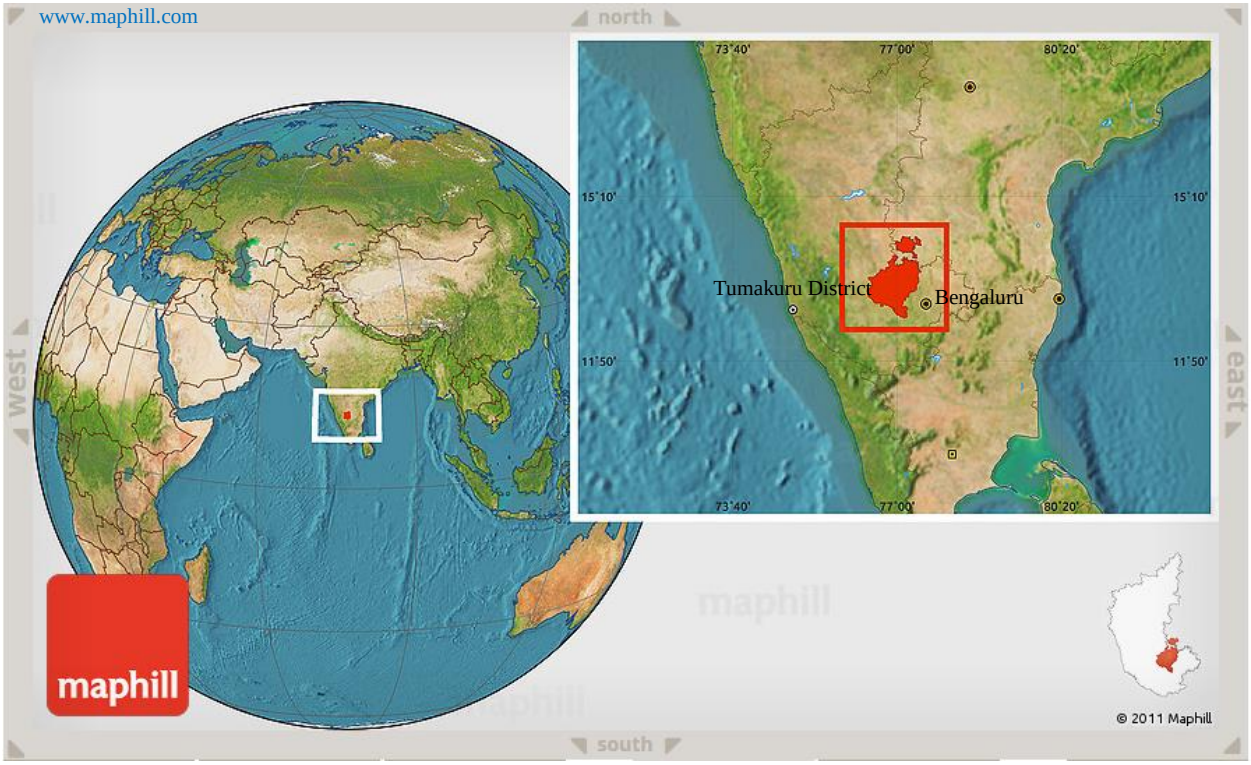
Citizen participation is vastly encouraged through these processes and most of the proposed smart cities have established citizen forums to facilitate as nexuses. To explore the dimensions of citizen participation, one of the first proposed smart cities – *Tumakuru* (commonly known as Tumkur), a city known for its fascinating folklores and ethnic diversity spanning across an area of 48.6 sq.m with a population of 302,143(Census 2011), forms the context to this research. Furthermore, such medium-sized cities i.e., with less than 1 million citizens, are expected to grow rapidly, specifically in Asia and Africa (United Nations, Department of Economic and Social Affairs, Population Division (2015), 2014). Tumakuru is located along the eastern belt of the southern half of the state of Karnataka, situated approximately 70km North-West of the metropolitan city of Bengaluru. It is presently one of the leading industrial and education cities in the state [3].

The state of Karnataka ranks 6th in its state domestic product per capita and 5th in terms of its percentage share of urban population (at 34% of total population). Among the projected (2030) megacities of India, Bengaluru - the state capital, has the highest urbanisation rate at 4% i.e., average annual rate of change; when compared to Ahmedabad (3.4%), Chennai (3%) and Hyderabad (3.3%).

[3] http://www.karnataka.com/profile/about-profile/ [Accessed on 29 January 2016]

Smart city of Tumakuru is proposed to de-congest the growing trends of Bengaluru, address the grouse of being identified as Bengaluru's poor cousin and safeguard against resource crises (Francis, M., 11th July 2014).

Figure 2:



Tumakuru city is envisioned to grow as a **KNOWLEDGE AND INDUSTRIAL NEW DESTINATION - KIND City** (Tumakuru City Corporation, 03-12-2015) as specified under its preliminary proposal**.** The city profile portrays Tumakuru as a well-established industrial center with high investments by the State to develop Industrial estates catering micro scale to large scale set-ups. The National transport corridors - Chennai-Bengaluru Industrial Corridor (CBIC) and the Bengaluru-Mumbai Economic Corridor (BMEC) connects and influences Tumakuru's development . Furthermore, the large presence of educational institutions that provide opportunity for skill development form a vital resource for this initiative. Thus, for a city marked by growing industries and a strong knowledge base, the aforementioned vision was formulated.

In India, with a doubling character seen in the percentage of urban population - a predicted rise from 31% to 65% over the next decade, smart cities will be developed from scratch with more than $1.8 billion committed by the government for the cause (Assink, S., 27 May, 2015). The Mission aims to foster smart citizenry through consultations, citizen based solutions and calls for active engagement of representative groups such as the Residents Welfare Associations, Tax Payers Associations, Senior Citizens and Slum Dwellers Associations (Ministry of Urban development, Government of India, 15-12-15). In these strategic processes, it is crucial to ensure legitimacy of roles that encourage a give-and take principle. The context of Tumakuru will guide the research in explaining the role of its citizens in the Mission, analyzing the clarity in its model and assessing the dominant political and economic forces that render its citizens powerless (Arnstein, 1969).

1.2 Problem statement

With accolades that places India on the global map, there exist social stigmas that can hinder development. Firstly, the decentralised powers of a developing country like India, have indicated low performance rates due to local capacity constraints, corruption and inadequate resources. Such indistinct facets can lead to unclear assignment of functions(Ruijsink and Olivotto, 2015).

Secondly, citizen engagements generally take place through traditional community meetings, town meetings, radio call-in shows, or through online platforms. Collaborative participation calls for small representative groups for negotiations on the hard content (Ruijsink and Olivotto, 2015). With the danger of replacing offline participation platforms to exclusively online ones, the vulnerable majority who do not have basic access to internet or smart phones may face exclusion. At present, 22.8% [4] of the population of India owns a smart phone and 34.8% [5] of the total population have access to internet. However, it is important to note that –

1. The cost of such digital connections – the electricity cost and the installation costs are high considering, in India, one out of every five citizens live below poverty line.
2. Usage depends largely on the supply of electricity.
3. Competence is affected by the lack of information, awareness and ability to use the device to its potential; triggered by linguistic barriers, considering the mode of communication on these devices is mostly in english; and technological barriers [6].

Furthermore, research (Gibson, R., Cantijoch, M., et al., 2014) has found that digital tools connect only the affluent and educated with city governments triggering the risk of vulnerable class facing social exclusion and inequality (Ravindran, S., 7 May, 2015). Interestingly and vitally it is the vulnerable who indicate ways in which the facets of planning *behave or fail to behave* but are neglected because they are considered statistically inconsequential(Jacobs, 1961). It is thus imperative to encourage their involvement in reshaping cities and communities (Engasser, F., et al., 30 October 2015). Moreover, with a culture outlined by caste system and its heirarchies, Indian cities face social inequality concerns as major hurdles in such urban reforms (Assink, S., 27 May, 2015).

Lastly, due to the high rate at which the city is transforming, the have-nots may find their potentials and aspirations unexplored, ethics questioned and devoid of any forms of social support. In this competitive game they find themselves working for goals that they were forced to pursue against their desires (Marcuse, 2014).

[4] http://www.statista.com/topics/2157/internet-usage-in-india/ [Accessed on 28 April 2016]

[5] http://www.internetlivestats.com/internet-users/india/ [Accessed on 28 April 2016]

[6] http://netpehchaan.in/digital-divides/digital-inclusion-definitions-and-status-in-india.html [Accessed on 28 April 2016]

1.3 Research objective

This research primarily aims to describe the concept of citizen engagement adopted in the case of Smart City Tumakuru by highlighting the initiatives and programs developed to support its cause; with vulnerable class forming the target group; to decipher equities or injustices that may occur and consequently propose feasible refinements.

Likewise,

- To study citizen engagement in Smart City initiative and the participatory means adopted that foster the 'social and intellectual capital' (Albrechts, 2004a).
- To analyse vulnerability as a measure of exposure, sensitivity and adaptive capacities.
- A vulnerability assessment and analytical tool to –
  a. Identify the stakeholders' advisory group representing the vulnerable class – a connecting link between the technical experts and the broader community; the technical expertise involved in designing a comprehensive framework. Furthermore explore transparency in the system and accountability checks.
  b. A sensitivity analysis outlining the poverty context and situation, exclusions based on caste, gender, socio-economic or intellectual status.
  c. Exploring the adaptive capacity determinants, namely access to technology, data or any forms of information, social realms and capacity of human resource.

1.4 Preliminary Research Question

What explains the participation of the vulnerable class towards the citizen engagement initiative of Smart City Tumakuru?

- How does the concept of a smart city foster citizen engagement?
- In what ways do the vulnerable strata of the society contribute to the initiative in comparison to the other social spheres?

1.5 Significance of study

The concept of a smart city is not new to the developed world. A lot of studies and researches have shaped the indices of a smart city through time. Nevertheless, the adoption of such novel concepts in a developing world bring to light challenges that have now become the focus of many researches.

The components of "urban learning" (Coe .N. M, Roy Ananya, et al., 2013, 11 April, Pg. No. 131), dealing with the impact of political and practical domains that shape a city and define its constitution obliges a critical view on the progressions of urbanism. Colin McFarlane's book on *Learning the city: Knowledge and trans-local assemblage* (2013), discusses the approach of urban learning assemblages that play protagonists in assimilating the experiences and contestations of learning under different contexts. Based on this, the research aims at interpreting the model of smart cities under new urbanism with the urban learning assemblages as an instrumental tool of inquiry. It is well known that the implementation of urban concepts vary contextually and a study on trans-local urban planning across the global North-South is imperative.

With most of the urban reforms in India having failed to observe the trans-local shifts, there is a rise in criticism with the smart city project being just another prototypical model adopted from the global North. This research aims at understanding the role of context as a fine-tuner to the success of such urban projects. With the inception of smart city concept across India's 98 cities, a deep-rooted analysis on the Mission guidelines became crucial. Furthermore, a

country defined by representative democracy is now aiming at promoting participatory democracy. This will of the policy makers is expected to be translated on ground, however, a scrutiny on the political and practical domains that inflect on its success is equally crucial and forms the basis of this research.

1.6 Scope and Limitations

The scope of this research is directed towards the Smart City Mission guidelines proposed by the Ministry of Urban Development (MoUD) of India. As a central government initiative, this Mission dictates a stage-wise execution to be undertaken by the federal states. With Tumakuru city forming the context for this research, the scope of study remains at the city level with thorough assimilation of the guidelines stipulated. The analytical studies are limited under the purview of Tumakuru city with factual implementation measures and comparatives drawn, again, limited at the city level.

Although this research focuses on citizen engagement initiative of smart cities, the scope of study is widened to grasp the ancillary components of the model, that indirectly bear an influence on participation. However, this still remains restricted to the smart city model of Tumakuru.

In India, a country known for its diversity, it is tricky to generalize the findings of one city with another. However, keeping the size of the city as an equivalent measure, recommendations can be applicable to other cities. Furthermore, the contextual realities and the target population that define the objective of this research are issues that are evident in all parts of India. Nevertheless, the justifications to a generalized conclusion can appear to be fragmentary.

Chapter 2: Literature Review / Theory

State of the art theories/concepts of the study

This chapter will explore the concepts of a Smart city founded on strategic urban planning tools to buckle down on the problems of a complex city. The landscape of India's Smart city Mission introduced in 98 of its urban areas is based on propositions of the National scheme of the Ministry of Urban development (MoUD). The following sections explore the pre-requisites that define a smart city's relevance supported by investigations in its hard and soft domains; the result of which, will frame the focus of the study on the missing links in the soft domain. Governance that outlines soft domain is explored as linking literature to emphasize the pivotal role of stakeholder participation and facets. Furthermore, a contextual study of the global south, specifically India, helps understand the sensitivities of the human capital that need to be elicited to increase and reinforce the competences of the Smart city concept.

2.1 Complex cities and complex urban agents

Cities are natural complex systems defined as an organized multiplicity of fractals shaped by the synergies of urban agents i.e., citizens or even urban experts, through multi-layered interactions. Portugali (2012) defines cities as dual complex systems (Portugali, 2012) along four dimensions:

1. As an interplay between material components and urban agents - these interactions give rise to complexities, whereas the material component on its own would formulate a simple system.
2. As a complex artificial environment where interactions with the environment influences the behaviour of its agents.
3. The external infrastructure as a platform for exchange of human intentions and ideas.
4. Complex urban agents sketched out by their cognitive thinking abilities giving rise to complexities in a city.

Cognitive thinking, under the sphere of *chronesthesia* is the time travel of human brain to analyse the past, present and plan for future. This ability forms a basis to cognitive planning where actions are built on future reflections using past experiences; with human's prospective memory to support such actions and cognitive processes to define a framework for the actions. The dynamic urban agents that establish complexities in a city, also display their acumen as natural planners to organize and bring order to the chaotic intermesh of networks. The orderliness is brought about through planning and design tools, as a consequence of which, the strategies or schemes that define and shape the actions of urban drivers are not just external interventions but a part of the dynamic processes (Portugali, 2012).
Furthermore, these dynamic processes interrelate at different levels and scales to understand urbanism as –

- An interplay of capitalist processes and local capacities.
- A response with an overview of the existing social struggles that shape or break the project's intent.
- An inclusive process with the role of citizens and civic norms moulding the planning module.
- A global process (Watson, 2012).

Also, global cities of today are characterized by complexities from the growing trends of urbanization with a projected 66% of world's population being urban by 2050 (United Nations, Department of Economic and Social Affairs, Population Division (2015), 2014), marked by colossal populations with their compound interactions; complex networks of services and institutions. The enhanced cognitive thinking of urban agents have proposed new technology-based support tools to contest the growing problems of pollution, congestion and social inequalities.

2.2 Smart city and its concepts

In response to the aforementioned intermesh of urban processes and rapid upward trends of global cities, the former fictional characteristics of a Smart City that painted dreams in the last century is becoming a reality and gaining the interests of many cities, as a paradigm of smart growth, a sustainable socio economic growth through intelligent and sentient development. The extensive use of Information and Communication Technologies (ICT) is a common element that seems to explicate a smart city amid varied contexts of its application. The smart systems through the interventions of ICT interpose as a structuring tool for diverse organizations and institutions. These intelligent and sentient surroundings enable its citizens to plan, understand and monitor their environment to achieve equity, efficiency, competitiveness for an increased standard of living (Batty, Axhausen, et al., 2012).

Nevertheless, this alone does not make a city smart. The political, economic, social, geographic and cultural contexts affect the concept's relevance. Furthermore, Batty et al. (2012) stress the significance of time scales and socio-physical networks that delineate the profile of a smart surrounding.

With these renditions, it is yet an arduous task to encompass the Smart city concept under one connotation. As discussed in the earlier part of this chapter, a city manifests as a combination of material components and human components. Centred on this theory, it is important to design the empirical investigations of a smart city branching into –

a. Hard domains wherein ICT plays a significant role as a *catalyst* in achieving optimal and efficient use of resources in diverse arenas such as water management, environment and energy solutions, logistics, transport modes and systems, waste water treatment and built form technologies.
b. Soft domains which are by and large reliant on human interactions and public interventions that shape the city's liveability. They are bottom-up approaches that facilitate participation of citizens and empower them as decision makers. With limited role of ICT in this domain, the main facets explored here include the social welfare, culture, education, citizen interactions, public administration through governance tools, entrepreneurship and social inclusion policies (Neirotti, Marco, et al., 2014).

It is important to note that there exists an interplay between the aforementioned domains, however, categorization is only for the ease of delineating its features. The table below explains the typology of smart city functions:

Table 2.1:

	Typology	Features	Functions
	SMART MOBILITY	Transport and ICT	Local Accessibility Global / national accessibility ICT availability Sustainable transport systems Safety and Innovation
	SMART ECONOMY	Competitiveness	Innovative spirit Entrepreneurship Adaptive capacities Productivity Economic stability & image Flexibility in market
	SMART CITIZENS	Social and Human Capital	Qualification level Social and ethnic parameters Creativity Flexibility Willingness to participate
	SMART GOVERNANCE	Participation	Transparency Accountability checks Legitimacy Boundary spanners Citizen engagement
	SMART ENVIRONMENT	Natural Resources	Subsisting green spaces Pollution Environmental protection Resource management
	SMART LIVING	Quality of Life	Culture Health Safety Education Housing Social integration Tourism

Adopted from (Batty, Axhausen, et al., 2012), images from www.thenounproject.com

2.2.1 The pre-requisites

A further ramification to the concept includes a reconnaissance into contextual formulations that form the fulcrum of urban concepts. The facets or conditions that reinforce its cause are as follows –

1. Physical size and population density of a city

The urban agglomerations of any metropolis boast of their high technological acumen that create access points for economical and effective ICT. These opportunities may create voids with its advents restricted only to bigger cities owing to prevailing limitations of digital literacy i.e., knowledge on the use of internet and smart phones to their potential, evident in the smaller urban areas. Contrarily, the entrepreneurial countenance of a smaller town fosters pilot projects to optimize on the existing technologies. In addition to this factor, the dense agglomerations encourage ideas and knowledge to flow through its networks and adduce innovations. The shortfall to this, however, relates to the formation of diseconomies which increase the initial and operational cost of the project and can render the concept less smart.

2. The economic development of a city

High Gross Domestic Product (GDP) per capita rolls up a stronger base for economic expansion facilitated through steady financial resources and investments that bolster the cause with a willingness to improved quality of life and greater human capital involvement – a crucial determinant for the success of a Smart City.

3. Technological development

The aptitude to adopt and adapt to emerging forms of technology governs a template to the scheme. However, access to such technologies, knowledge on its utility and/or lack of both can sculpt an efficient model or disrupt it. The investments in Research and Development (R&D) develop the Key Performance Indicators (KPI) to navigate through the processes of technological and human interventions to ascertain risks, assess them and thereby assist to overcome hurdles.

4. The existing environment and the policies of sustainability

The extent of and the access to the city's subsisting green spaces and public spaces is a factor that impels the liveability and the socioeconomic dimensions of the city. The political agendas in conjunction with public opinion enable to craft sustainable developmental schemes.

5. Supplementary facets that specifically define the context of a city include –

The culture and political regime i.e., the level of political influence and risks like corruption if any. There is a need for centralized governance that shapes a policy through effective decision making tools with high developmental rates and low political risks (Neirotti, Marco, et al., 2014).

The empirical studies (Neirotti, Marco, et al., 2014) of the aforesaid parameters included two main steps-

Firstly, to decipher arenas with the highest explorations into this concept and design a cumulative framework that highlights the commonalities and differences in its theory and execution across contexts.

Secondly, to analyse context based alterations that influenced the design of the Smart city concept and consolidate the best practices across its domains.

This meticulous inquiry led to a few findings based on the five aforementioned facets –

1. One fundamental result portrayed a predominant existence of one domain over the other i.e., the hard and the soft domains were negatively related. The evidence of this relation has been ascertained in many countries with hard domains i.e., infrastructure investments overpowering the soft domain i.e., human capital, society etc.
2. The countries with high GDP per capita concentrated on the hard domains and were less responsive towards the capabilities of human capital when compared to the countries with low GDP per capita. Along parallel lines, cities in countries with good access to information and high levels of digital literacy fared well in governance systems and tools, which outlaid the importance of high quality information and appropriate communication tools to foster enhanced citizen role and transparency in the system.
3. Geographical context is another influential feature whose variables play a crucial role in making the model an all-encompassing one. It has been observed that Asian cities are inclined towards the hard domain specifically in the transport sector (Neirotti, Marco, et al., 2014). Infrastructure investments on pollution mitigation, economic development schemes and regulations on environmental standards are given more relevance and importance. Contrarily, the European cities emphasize more on soft domains like the human capital investments, social aspects and R&D (Neirotti, Marco, et al., 2014).

2.2.2 The role of ICT and its facets

The outset of data computing was evidenced in census data recording as early as 1890, with enhanced appliance in the navigation systems of 1990s through GIS (Geographic Information systems). These formed a base for prospective digital designs such as satellite remote sensors, scanning technologies and crowd sourcing techniques to favor efficient and innovative data sets.
Data mining techniques and the analytics of *Big Data,* work as a lens to understand the patterns of daily human activities. The issue of privacy plays a daunting role, however, it is negated with the databases maintaining anonymity. In addition to this, *reality mining* (Batty, Axhausen, et al., 2012) exemplifies the omnipresence of technology to determine the strength and diversity of citizen interactions. With interventions of ICT, the spectrum of participation is widened to engage larger citizen groups through new and improved participatory tools. The extensive applications of smart phones along with blogging platforms and online social network hubs help articulating mobility and behaviour patterns, socio-spatial networks and technology driven city functions. However, these include high mobilization costs (Batty, Axhausen, et al., 2012).

Conversely, the investigations into such interventions pose the lack of logical context and its annotation where the long term schemes are thrust into compressed time scales making it more complex. Also, the human actions become a puppet to automation technologies. Essentially, it becomes crucial to frame real time information and stress the importance to analyse precociously, technology's grip that may also steer social divides and vulnerabilities. New technologies create divides at various levels ranging from planning strategies to community development. A check on resilience, vulnerabilities, inclusion and financial sustainability can guide towards a good quality of life and democracy. Cities with slow economic growth should facilitate and work through bottom up schemes to foster creativity and intelligent innovations with deft use of ICT (Neirotti, Marco, et al., 2014). Furthermore, network-based technologies that create platform for multi-layered and multidimensional interactions should consider the issues or lack of access to information and tools (Batty, Axhausen, et al., 2012).

The gap created by formal interventions of ICT on a democratic ground is bridged by new improved service delivery systems, socio-economic forms and enriched human relations through democratic governance tools assisted by transparent socio-political systems that promote citizen aspirations and work towards universal justice of society (Swyngedouw and Moulaert, 2010).

2.3 Governance

2.3.1 Self-governing networks and boundary spanners

Urban governance provides legitimacy to the democratic intentions of public participation and facilitates smooth interactions between the state and its citizen (Sorensen and Sagaris, 2010). Though most of the projects are based on the triangle of the state, market and the civil society, the role of citizens remained unjust and frozen as a consequence of inter-scalar institutional relations and the bureaucratic clashes of the socio-political regimes with new public management strategies (Swyngedouw and Moulaert, 2010).
The inter-scalar discrepancies are noticeable along three dimensions –

1. The processes within the governance system with an aim of economic sustainability, managing the flow of funds along different layers of the system.
2. The processes at local and national scales which relate to issues such as restricted autonomy of the local initiatives that curtail innovative operations and potentials

(Swyngedouw and Moulaert, 2010). Policy successes are seen more at the local scales and their translation at the national scales proved a herculean task due to the administrative and managerial layers along its implementation course (Hamdi, 2010).

3. Inter-network fluctuations that may ignore traditional governing forms (Swyngedouw and Moulaert, 2010).

Civil society interventions that were triggered by the dominating private and political networks of the state, formed along the fissures of inter-scalar inconsistencies of governance institutions (Swyngedouw and Moulaert, 2010). On one hand, the onset of such self-governing institutions strengthened social capital and their capacities within the community to facilitate improved relations with the private sectors and the government (Sorensen and Sagaris, 2010) while on the other, meta-governance served as a supporting tool to provide for the missing political resource wherein the political authorities guide and reinforce the self-organized initiatives of communities through organizational skills, tactics and political acumen (Nederhand, Bekkers, et al., 2014).
Nevertheless, these intentions may wander along the hierarchical systems with rules imposed to favour an individual's interest. Besides, the legitimacy of roles can be contested when tensions brew between the two institutions leading to fragmentation and chaos (Sorensen and Sagaris, 2010, Nederhand, Bekkers, et al., 2014). On the contrary, it can also lead to anarchies where the interest of one actor within the community shape the decisions (Nederhand, Bekkers, et al., 2014).

The task differentiation and functional differences between the two institutions necessitated the shrewdness of boundary spanners who devise leadership agendas that foster innovative governance practices to mobilize resources and establish a common language through mutual adaptations in the roles and organizations (Nederhand, Bekkers, et al., 2014, Meerkerk and Edelenbos, 2016). These efficient haulers of information (Meerkerk and Edelenbos, 2016) detect opportunity frames that help translate agendas into common goals and foster adaptations through internal links i.e., within the organization, and external links i.e., between organizations. Their strategies with an aim to encourage sustainable public-private-societal partnership make the actors aware of the benefits of each other. Their expertise makes governance work through strategic and effective civic initiatives (Meerkerk and Edelenbos, 2016).

2.3.2 Smart city and Smart governance

Smart city initiatives are implemented through smart governance tools and active citizen engagement. Founded on the basic principles of good governance, smart governance proposes a participatory approach to realize goals collectively through equitable and inclusive means. It instructs a transparent and responsive system to deliver efficient and effective systems with periodical assessments. The need for good governance tools is justified with its bridging capacities that foster organized frameworks to achieve resonance amongst key role players under the advice of boundary spanners. Furthermore, the self-governing networks through public private partnerships achieve systematic co-ordination amongst the stakeholders, provide legitimacy to their roles to work on shared vision.

Simultaneously, it is crucial to note a few limitations. Firstly, deficit in legitimation can weaken the commitment of the stakeholder groups which makes it difficult to organize resources and partnerships. Secondly, tedious accountability checks in the multi-layered structures can render the objectives of the institutions futile which brings about liability issues both within the organization or externally leading to exclusions (Stoker, 1998).

2.4 Participation

2.4.1 Participatory facets and principles

A historic background revealing rising inequalities as a consequence of authoritative decision making processes led to novel advocacy tools in planning theories (Sorensen and Sagaris, 2010) in the form of civic engagement. Urban strategic planning has a multi-dimensional characteristic with urban agents posing as planners at different scales. The non-linearity in its networks displays the role of a non-professional urban agent i.e., a mere citizen, to dominate over professionals (Portugali, 2012). Also, strategic rationality (Albrechts, 2004b) emphasizes the *inductive* reasoning of the citizens who indicate ways in which planning tools behave or fail to behave, versus the deductive reasoning by the planners (Jacobs, 1961). Improved governance guides participation as a creative tool to cohere the social classes, instil trust with the institutions and foster democratic flows. It is crucial to instigate the integration along its layers and hierarchies in a sensitive, yet selective way in order to operationalize and institutionalize on varied interests (Batty, Axhausen, et al., 2012).

Participation and self-organization go hand in glove to create knowledge banks representing goods and services accessible by all (institutions, individuals and markets). Citizen Science studies the structure of communities, their evolution and sensitivities to define the significance of trust in a public system that influences the degree of participation, consequently, a high level of participation in-turn guarantees an efficient and a reliable information base (Batty, Axhausen, et al., 2012). Also, more the predictability on actions of the power holders, greater the trust and stronger the social capital.

As a capacity building tool, participation enhances unity amongst diverse actors defining networks of varied interests to work on a common goal and boost their energies to make their surroundings more liveable. Although, what is crucial here is the scale and kind of participation that is intended to support the cause (Sorensen and Sagaris, 2010). Also, their lack in political resource and technical expertise is bridged by the role of governance as discussed earlier.

Institutionalized planning, decentralized powers and service delivery favors the traditions of public participation. These promote transparency in information and resource management and work on trust building campaigns (Devas and Grant, 2003). Most smart cities aim to provide a platform to foster communications and interactions with agencies, and representative groups to play an active part in planning and design. The notion of reciprocity is vital to encourage balanced exchange of ideas, maintaining interests of the actors. The networks of civic engagement helps to maintain and establish the norms of reciprocity.

2.4.2 Participatory levels and Participatory means

The modus operandi of participation has been discussed by many theorists and authors founded on Arnstein's (1969) ladder of influence ranging from manipulation, tokenism to citizen control. However, this has been transformed and simplified by Evert Hasselaar (2011), explaining the ladder of influence from *choice to voice* along five dimensions -

a. Ignorance / 'non-participation' - to avoid influence of other stakeholders, a strategy for exclusion.
b. Information - responsive stakeholders but still no influence or power.
c. Consultancy – allows the powerless to give advice, yet, the power-holders decide. This step can be a successful approach in anchoring project proposals with the users involved.

d. Participation - that enables the powerless to negotiate and partake in deliberations with traditional power holders.
e. Decision making where powerless citizens obtain real influence through shared power.

Table 2.2

	Rungs of the ladder	**Voice/Choice**	**Relation of the user with decision maker**
1	Ignorance	Choice	Non-participation
2	Information		Trusted relations
3	Consultation	Voice	
4	Participation		
5	Decision making		Shared powers

Adopted from Market Dominance and Participatory Planning in New Housing Developments, MAKING ROOM FOR PEOPLE, Choice, voice and liveability in residential spaces, edited by Lei Qu and Evert Hasselaar

Besides, participatory means include two types-

1. Traditional offline methods – These are time specific and context specific forms. They constitute audits, case studies, questionnaires, interviews, surveys and focus group discussions. However, they have scale and scope limitations ensuing high costs (Kitchin, 2013).
2. Smart online methods – A technologically founded form of participation which is dependent on time and interests of the participants. A few of its modes include-
    a. Web portals and other forms of access points with information and routine patterns.
    b. Online software for citizen interactions to know and analyse the city profile.
    c. Crowd sourcing systems that cater to issues and queries of the citizens.
    d. Design tools that support citizens to contribute to the planning and design of the city (Batty, Axhausen, et al., 2012). Different forms of automated data in surveillance systems such as Automatic Number Plate Recognition (ANPR), Intelligent Transport Systems (ITS), and Automatic Meter Reading (AMR).

To all the cited facets of participation, exists a main attribute that outlines its success. A cogitation of contextual parameters is instrumental in its fruition.

2.4.3 Shortfalls of Participation

Cities marked by contextual realities expose conflicting rationalities where liberalism is a new concept or is unstable; inter-community conflicts over land exists, causing divides under the name of caste, race, ethnicity etc.; land systems are instable and the disparities between the economic and social realms take a violent turn. Beyond these, contestations in response to political decisions lead to polarized cities (Watson, 2012).

A few crevices that demarcate the flipside to the participatory processes include –

1. The concepts of neoliberalism that favours market driven processes subjugating social democracy (Ballard, 2012).
2. Creation and consultation of the elite market to achieve world class status. Upgrading projects serve the physically and politically sound citizens, the most enterprising, popular sectors to encourage citizen co-operatives and hegemony of elites (Ballard,

2012). Such projects were in sync with the universal planning ideas irrespective of the context of informalities which rendered most of the projects sluggish as their costs rose substantially and unconsciously gave rise to increased informality (Hamdi, 2010).

3. The growing numbers of the middle class, referred as the "watchdogs of good governance and democracy" (Ballard, 2012, Pg. No. 566), increased the need for housing and services. The redevelopment projects designed to take account of these were planned in the historic or the poor areas leading to gentrification processes that displace the weaker sections.
4. Criminal violence in a city can give rise to insecurities and play a spoilsport in the city's development (Watson, 2012).
5. Ethnic and religious conflicts can lead to preferential political representations and uneven service delivery (Watson, 2012).
6. Lopsided planning theories can lead to unplanned informality (Roy, 2005). Informality also exists beyond street trades and squatting settlements in the form of marginalized sectors of society. Urbanism demarcates a grey zone occupied by the marginalized groups within the dilemmas of formalization (tussle between what is legal or illegal) and integration.
7. The fluctuating relationships between citizens and its government can lead to contestations in the form of right based movements. This critique to participation includes the non-extinct dominance of state powers or even anarchical actors who define the community that needs to participate (Sorensen and Sagaris, 2010). The development co-operations that worked towards world hegemony enforced collaborative willingness on the organizations in order to secure the benefits of a good life. This forced participation had a harsh bearing on the poor, women and children (Hamdi, 2010). The blurred stance of what conforms to legal or illegal in the rights of a citizen, give rise to insurgences as bottom up processes to fight the oppressions of the political systems (top down actions).
8. To supplement the above mentioned scenario, the realization of a project is predominantly determined by political bureaucracy and moreover the intentions of such projects are pro-poor in exchange for their votes, undermining the other urban projects. Such activities indirectly shape the exclusion of the poor with their ideas, actions both supporting the project on one hand and contributing to counter hegemonic practices through civic rights movements on the other (Swyngedouw and Moulaert, 2010). This quandary has been a challenge for many theorists to decipher and overrule its existence.
9. Poverty in any context has grown beyond economic terms to the poverty of livelihood and opportunities. Exclusions based on identity and social categorization shape poverty (Mosse, 2010). Granting that participatory tools include the poor for their capacities and resilience, the burden of discrimination still exists (Hamdi, 2010).
10. Although decentralization of powers has encouraged increased participation and accountability checks, it is unresponsive on the empowerment of the poor and vulnerable. Furthermore, in a representative democracy, accountability checks and performance indicators are weak or non-existent (Devas and Grant, 2003).

All these together, prove a barrier to governance, development and social justice.

2.4.4 Social justice and civic rights

To analyse the dilemmas of social justice, the concept of Lefebvre's right to the city will be discussed through the annotations of Alejandro Medicii (2006).

Alejandro Medici (2006), enunciates the voices of the vulnerable denied of full exercise of participation through the concept of human right movements - as a reaction to social and economic disturbances. Although the neoliberal agendas work for the urbanizing world, there exists equal percentages of poor who, according to them, make cities socially inequitable. The rights of the citizens are conceived holistically and are indivisible but interdependent. However the realization of these rights are jeopardized by administrative and legal proceedings. One of the principles of these rights include the democratic management of the city which elucidates control on participation through direct or indirect representative forms in governance and planning systems; to strengthen the autonomy of community organizations and local governments; to generate innovations and legitimacy through consensus with renewed outlooks along with co decision of the citizenry.

As a right, participation dictates *the right of access to information, the right to query, the right to co-decide and the right to co-manage*. The complexities of contemporary societies portray a representative democracy where political delegation is inevitable, as opposed to a participatory democracy which nurtures the perspectives of its citizens by tackling social fragmentations.
Methodologically, right to the city demands a pluralist attitude with its legal parameters complemented by economic, sociological and historical analysis to attempt at a city designed on a human scale through passive scopes delegated along autarchic powers (Medici, 2006).

2.4.5 Insurgency, Informality and Poverty – contextual relevance

Informality, insurgent concepts and poverty are consequences to global capitalism and its practices. Advanced capitalism defined by Saskia Sassen (2010) is promoted as a mode of urbanization, however, she argues that it is a means to separate citizens from opportunities that influence their daily living and sustenance. She describes it as accumulation by dispossession (Sassen, 2010) where the poor and the marginalized are displaced with dearth in traditional economies, overpowered by restructured capitalist models (Sassen, 2010). It can also be noted that such urban changes incline more towards the physical environment and side-line the livelihood factors and the capacities of the poor. Furthermore, formalization as an enhanced solution for the informal settlements have led to displacement of the vulnerable (Roy, 2005).Such neoliberal concepts and their implementation can be developmental through innovative creations and at the same time disruptive through evictions; ensuing violent risings which threaten urban order.

Generalizations of universal pretentions and design modules can lead to interpretation concerns, questioning the capabilities and interests involved for implementation. On these lines, the proposed Smart cities of India can succumb to the nuances of advanced capitalism. Hence, it is important to have a grounded research on the context and its historical background to ascertain processes along the global scale and strategize planning tools accordingly. A comparative research on the framework of smart cities between the global north and the global south can add to the knowledge base, assess the shortfalls in terms of marginalization or exclusions, and provide improved designs rather than prototyping the concepts.

In the context of India, with incompetence in planning i.e., underestimated service and infrastructure needs in response to dramatic urbanization trends (Roy, 2009), a paradigm shift was marked by the neoliberal practices where the private sector managed the infrastructure as opposed to the typical state led management to foster global capital flows for future-proof cities (Roy, 2009).

Firstly, these intentions concentrate less on the poor and the marginalized, leading to insurgences which in-turn lead to contestations of civic rights and their institutionalization.
Secondly, the state of deregulation as calculated informality, termed as the "idiom of urbanization" (Roy, 2009, Pg. No. 80) undermines the rational planning initiatives.
Thirdly, inequality exists within the systems of informality i.e., informality exists as a cleft stick. For example: areas which do not comply with the regulations are formalized on one hand and another set of land with the same clause is demolished or designated illegal.
Fourthly, poverty context is exemplified as a response to neoliberal policies which favoured state-led displacements through land acquisitions and losses in vernacular forms of occupation, specifically agriculture (Mosse, 2010).

2.4.5.1 Contextual relevance with the example of Dholera Smart city, Gujarat, India.

With the illustration of Dholera smart city in India, considered as a model to the emerging 98 smart cities, the contextual relevance of urban strategies can be explained. The author, Ayona Datta (2015) calls this city a "rhetoric of urgency" (Datta, 2015, Pg. No. 5) reflecting on the quick ways of project materialization through quick policy and law making frameworks under the pressures of globalization.
Firstly, state led development projects oversee the vernacular practices and resort to imported practices. The decentralization of powers turn futile given that the power relations are rather chaotic.
Secondly, the city was shaped along neoliberal practices with private partnerships and hi-tech networked services which served a particular class of citizens, excluding those who prove a misfit to these high technology based development schemes. The city lobbied for capital investments to compete in the global market emulating the approaches of the global-north to frame more or less a business model through immense marketing and publicity. Formerly, the urban development project of JNNURM (Jawaharlal Nehru National Urban Renewal Mission) failed in terms of its scalability given that the federal state dictated the policy frameworks and decisions over the decentralized powers of the state (Datta, 2015). It is crucial to observe that for the smart city model aiming at modernization and economic development, scalability of a state policy at the national level includes both technical and legal complexities.
Thirdly, the technology based strategies manifest through speedy policies and reforms. This impacts the land acquisition policies including the agricultural fields and a threat to gentrification persists. Also, legal frameworks in India empowers the state to justify land acquisition by over-ruling the civic and human rights. Contestations in response, renders the project indolent, with its developmental course decelerated, subsequently giving rise to other issues in the form of violence and criminal uprisings.
Finally and most importantly, the threshold of public participation is reduced with the decision making powers only in the hands of regional authorities. This disregard in the final decisions of Dholera smart city project proved how the indigenous populations formed the weakest links in project development.

Indian cities face conflicts in the demands of economic growth and social justice with utopian models faltering in terms of service delivery and policy implementation that largely exclude the marginalized class. Those weakened in such developmental processes need to be acknowledged to understand their significance in shaping the project not just by technological means but through insurgent means practicing their right to the city also as a right to commons(Datta, 2015).

2.4.6 The ineffectual civil society

Along a supplementary domain, the Non-Governmental Organizations (NGO) and civil societies that are established to titivate the volatile state-citizen relationship follow rationalities of a populist kind and their role remains limited to that of a negotiator rather than a problem solving institution (Roy, 2005). The powerlessness of the poor make them resort to informal means to mitigate risks. They create informal ties with the higher classes of the society to achieve political or financial gains. The interplaying role of NGOs to formalize these ties, mobilize justice and accountability is through populist agendas in exchange for political royalties (Mosse, 2010, Roy, 2009).

Stretching out in this concern, the Transnational Corporations (TNCs) are founded mostly to promote pro-poor developments and overcome unequal power relations. These private firms provide the excluded, an access to global markets. However, the intentions are shadowed by the power relations within as well as between organizations. The connections of local communities with global or national contexts provided opportunities to only a few, favoured by the hierarchies in the TNCs or Multinational Corporations (MNCs), NGOs and the poor, leading to vulnerabilities of the other. The ventures of such corporations regularized to a certain extent when encouragement was given to co-production through mutual learning, capacity building and trust relations which instilled a sense of ownership and belonging (Arora and Romijn, 2011).

Nevertheless, they faced hurdles in terms of –

a. Intra community inequalities – the multiple identities, heterogeneity in inter-personal relations afflicted their ability to create common grounds of interaction which eventually affected their actions.
b. Power relations dictated the flow of information through interests of the elite leaving the voices of the poor unheeded. Additionally, communications in the dome of heterogeneity lead to interpretation problems, time consuming processes with translations lost along the barriers of culture and language.
c. Their disconnection from global or national practices can render the local economies susceptible to vulnerabilities. Translation of the national projects at the local scale ignores the context where caste-related inequalities, electoral politics and inter-caste clashes slows the implementation processes (Arora and Romijn, 2011).

In a nutshell, the redevelopment schemes in India are sensitive to changes in labour market. Ironically, such development schemes favour only those influencing and reinforcing the global market rather than the low skilled members who eventually get excluded as they are considered less worthy. It is crucial to understand that these sections of the society are pivotal in shaping and controlling changes to the capital and labour accumulations (Ballard, 2012). The domineering political arenas delineate the existence of social classes, ethnicities or castes through partisan political representations. The electoral votes are not based only on economic interests but also on adoption of identities based on religion, caste, language etc., (Mosse, 2010). These political systems steer power relations leading to inequalities and insurgences. The poverty context limits the aspirational capacities of the marginalized who are denied participation. It can be interpreted that weak links can be created in various ways, specifically in the context of India, the reasons can be many ranging from lack of access to information, limited role in decision making, poverty and informality concerns, political subjugations etc., The concept of vulnerability elaborated below will stipulate a broader spectrum to marginalization as a factor of sensitivity exposure and the ability to cope.

2.5 Vulnerability

The notion of vulnerability has been adopted along various fields to imply fissures or shocks that affect and alter the well-being of citizens of the world. It has been widely adopted to analyse poverty context and its dynamics, spreading out to the most influential topics of climate change and human security. The concept is built on the rights of an individual perceived at the end of global policy interventions and frameworks. Human security issues confront challenges such as deprivation, social exclusions or violence in the context of urbanism, economic conflicts and risks related to the notions of uncertainty. Attempts are being made to tackle vulnerability through strategies, to understand how risks give rise to threats and elucidate its mitigation to work up to human security. Sensitivities are measured along the traits of resilience to fight shocks and stressors, and the capacity to overcome these shocks (Sumner and Mallett, 2011).

The concept of vulnerability can be founded and generalized on three premises with lack/issue of interaction as the common factor that results in risks. This can be between –

i. Citizens and environmental hazards.
ii. Locals and the market changes which is highlighted in this research.
iii. Households and food shortages.

Furthermore, vulnerability does not include only its cause and outcomes, but by the underlying processes of change, the inter-relations of factors evolving during the process and the diversity in context and path.

Vulnerability in developmental studies is seen as a response to poverty, a stressful decline in well-being levels instigating low aspirational capacities, followed by decreased levels of participation in a specific society, at a particular instance. The scale of it can be considered at individual or household levels with multi-dimensional measures along social, economic and political realms.
Additionally, the internal sensitivities such as institutional, political and socio-economic processes, their interactions, the structure of a system and disturbances within the system influence the grade of vulnerability. Developmental studies explore these shocks as a reaction to sudden risk events; and stressors as a reaction to gradual shifts, say, socio-economic marginalization to understand the complex interplay within them.

The scales of vulnerability as a factor of sensitivity exposure and resilience can be measured as in table below:

Table 2.3:

	COPING CAPACITY AND ADVANCE		
SENSITIVITY EXPOSURE		**High**	**Low**
	High	Vulnerable	Highly vulnerable
	Low	Not vulnerable	Vulnerable

Adopted from (Sumner and Mallett, 2011)

2.5.1 Theory of well-being

Comparable studies on the theory of well-being as an amalgamation of people's needs, acts and satisfaction to their actions help formulate indicators and determinants along three

dimensions: Material well-being as a measure of quality of life and welfare; Relational well-being as a measure of existing relational characteristics –both personal and social; Subjective well-being that concentrates on individual perceptions, experiences and ethics.
Vulnerability has been previously associated mostly along the facets of material well-being with relational aspects overlooked primarily because the factors such as caste system's influence on asset management, access to public facilities, social networks and political connection are intangible and unquantifiable. The subjective well-being, as the name suggests is highly relative and dependent on individual's perception of vulnerability (Sumner and Mallett, 2011).

The theory of well-being manifests in three ways –

a. By stressing on the non-material i.e., relational and subjective means, determined by social, cultural norms and values in which people share their experiences. Ex: the projection of participation and not really heeding to the voices of children or other weaker sections.
b. As a positive approach by not emphasizing on the deficits but concentrating on the actions and responses of citizens.
c. As a flexible analytical tool to understand the experiences of different sects of people.

Accordingly, vulnerability analysis and its resilience deals with –

a. Insecurities as a dimension of marginalization, associated mostly with relative and material well-being.
b. Association with the theory of well-being - to help focus on the sources of stressors, causes of vulnerabilities; and to consider the dynamics of vulnerability before, during and after the threat occurs along material, relational or subjective modes.
c. Lastly and more importantly vulnerability and resilience are not considered as contraries. Resilience is a sub-set of vulnerability defining its capacity to cope (Sumner and Mallett, 2011).

2.6 Reflections

This chapter articulates the core concepts of a Smart city and governance tools to overcome the missing links with strong emphases on citizen engagement and participatory tools. The hurdles to participation define confrontations based on local issues and its sensitivities; ignorance to which has led to uprisings and contestations through civic rights movements. The role of TNCs, MNCs and NGOs are briefly discussed as a response to such contestations, however, their role in the society appears inefficient, driven by internal and external power relations as they work in the realm of urban populism (Roy, 2005).
A common barrier to these processes that can play a spoilsport, is the deliberation of context and its interplay in shaping the initiatives. The assiduous problem of prototyping designs of the global north has deeply affected the planning frameworks in the global south missing out on contextual relevance. The importance of context has been discussed with an illustration of India's first Smart city in Dholera city of Gujarat. This provided a platform to analyze sensitivities such as poverty, informality and inequalities that give rise to insecurities and vulnerabilities. Furthermore, challenges such as access to information, accountability issues in social and economic participation are predominant. A discourse on vulnerability as a concept complementary to marginalization and other relational aspects of society strengthen the focus of this research.

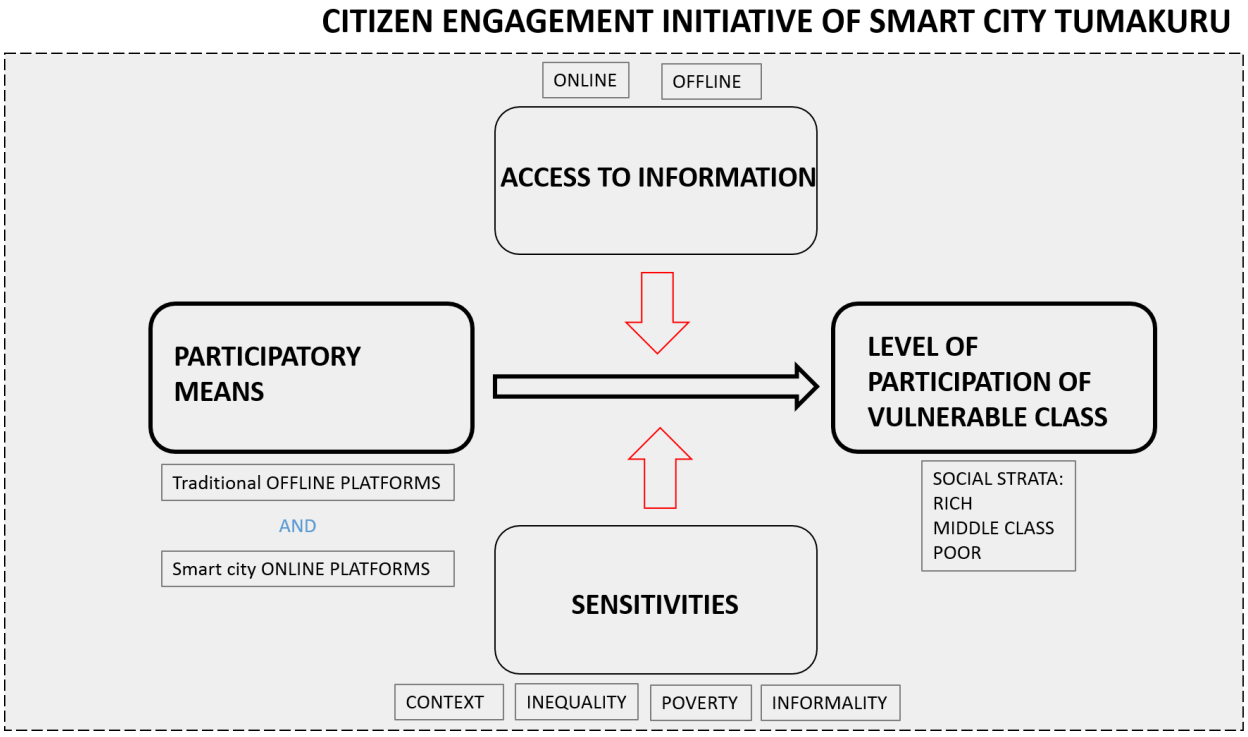
Vulnerabilities can be articulated as a result of:

1. Failure in governance: legitimacy and accountability deficits, skewed power relations and an ineffectual civil society.
2. Neoliberal approaches/advanced capitalism favoring the elite and overlooking the contextual importance.
3. Access to participatory means curtailed due to the existing sensitivities.
4. Lack/ issues in access to information, social and economic participation.

A conceptual framework is prepared considering the highlighted parameters i.e., participatory means such as the traditional offline platforms and the Smart city online platforms that can influence the level of participation of the vulnerable groups of the society in comparison to the other social spheres as a part of this research. The control factors that might lead to vulnerabilities include sensitivities based on the context i.e., poverty, social exclusions and discriminations, informality etc. and the lack or issues of access to information centered on the sensitivities.

2.7 Conceptual framework

Figure 3



The Smart city Initiative in India exercises redevelopment and retrofitting schemes through active citizen engagement. Guidelines of the National Ministry of Urban development (Tumakuru City Corporation, 03-12-2015) provides an outline to the schemes formulated by the independent states for their respective cities. The smart city mission promotes citizen involvement as "much more than a ceremonial participation in governance" (Ministry of Urban development, Government of India, 15-12-15, pg. No. 18). It markets participation through *consultations* of smart citizenry who can deploy smart solutions, implement reforms and achieve more with less through sustainable implementations. A deeper look into the participatory means adopted i.e., the traditional offline platforms of audits, surveys, interviews and focus group discussions, and the smart online platforms with ICT interventions of web

portals, mobile applications, social media etc., help analyze discrepancies, if any, considering sensitivities and adaptive capacities. They represent as significant effectors outlined by their contextual relevance. In the conceptual framework illustrated above, we try to understand the participatory means on comparative levels adopted in the context of the citizen engagement initiative of Smart city Tumakuru. Comprehending on the issues/lack of access to information, digital literacy and sensitivities' impact on the level of participation i.e., if limited or absent, of the social classes, the focus of the research is structured.

Chapter 3: Research Design and Methods

This chapter formulates a revised research question based on the theoretical framework and step-wise analysis of concepts discussed under Chapter 2. Identification of variables and operationalizing them to devise indicators of study, forms the focus of the chapter.

3.1 Revised Research Question

What explains the level of participation of vulnerable class in the participatory means adopted by the citizen engagement initiative of Smart City Tumakuru?

Sub-research questions

- What are the participatory means adopted in Smart City Tumakuru?
- How do contextual sensitivities and access to information influence the level of participation?
- In what ways do the vulnerable strata of the society contribute to the initiative compared to the other social spheres?

3.2 Operationalization – Variables and indicators

Table 3.1:

Independent Variable	Participatory means
Dependent Variable	Level of participation of the vulnerable class
Mediating Variables	Access to information
	Contextual sensitivities

3.2.1 Definitions:

The following concepts have been studied and analyzed to focus down from broader concepts of citizen participation in the context of Smart city Tumakuru and formulate indicators to measure the variables. Varied definitions of the concepts and theories are cited highlighting common vocabularies and relationships, to propose an operationalized definition fitting this research. Furthermore, the defined variables are fragmented into typologies which provide for the units or tools of measurement.

A. Smart city: The context of study

Table 3.2:

Author	Definition
(Kitchin, 2013)	"Smart cities is a term that has gained traction in academia, business and government to describe cities that, on the one hand, are *increasingly composed of and monitored by pervasive and ubiquitous computing* and, on the other, whose economy and governance is being driven by innovation, creativity and entrepreneurship, enacted by smart people"
(Lazaroiu C George and Roscia Mariacristina, 2012)	"The large and small districts are proposing a new city model, called "the smart city", which represents a community of average technology size, interconnected and sustainable, comfortable, attractive and secure."

(Neirotti, Marco, et al., 2014)	"The concept of Smart Cities (SCs) now appears as a **new paradigm** of *intelligent urban development* and sustainable socio-economic growth. *However, the diffusion of SC initiatives in countries with different needs and contextual conditions (e.g. in either developed or developing nations) makes it difficult to identify shared definitions and common current trends at a global scale"*
(Datta, 2015)	"Smart cities are now widely accepted as 'places where information technology is combined with infrastructure, architecture, everyday objects and our own bodies to address social, economic and environmental problems' . In India, the smart city narrative has been synonymous with new 'greenfield' cities, which now arguably form the **new urban utopias** of the 21st century."
(Batty, Axhausen, et al., 2012)	"A smart city which we define as a city in which *ICT is merged with traditional infrastructures, coordinated and integrated using new digital technologies.* We add six research challenges: 1. to relate the infrastructure of smart cities to their operational functioning and planning through management, control and optimization; 2. to explore the notion of the city as a laboratory for innovation; 3. *to provide portfolios of urban simulation which inform future designs*; 4. to develop technologies that ensure equity, fairness and realize a better quality of city life; 5. to develop technologies that ensure informed participation and create shared knowledge for democratic city governance; and 6. to ensure greater and more effective mobility and access to opportunities for urban populations."
(Ministry of Urban development, Government of India, 15-12-15)	*"The conceptualization of Smart City, therefore, varies from city to city and country to country, depending on the level of development, willingness to change and reform, resources and aspirations of the city residents.* In the approach to 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."

Operationalized definition:

Smart cities frame the new urban utopia of an intelligent planning module that on one hand, fosters coordinated and integrated use of Information and Technologies to ensure sustainable, effective, innovative and equitable socio-economic growth; and on the other, promises an enhanced quality of life to its citizens through democratic and inclusive city

governance of informed participation and improved access to information. Application of this concept, however, varies contextually.

B. Citizen Participation: Vastly encouraged in the processes of a Smart city, as a part of Smart Governance.

Table 3.3:

Author	Definition
(Devas and Grant, 2003)	"Citizen participation is about the ways in which citizens ***exercise influence and control over the decisions*** that affect them."
(Nici Nelson and Susan Wright, *Power and Participatory Development*, 1995, p.30)	""***An empowering process***" - local people do their own analysis, ***take command***, gain confidence to make their own decisions."
(James Blackburn and Jeremy Holland, Who Changes? 1998, p.3)	"A way of viewing the world and acting in it…" a commitment to help create the conditions which will lead to a significant ***empowerment*** of those who at present have little control over the forces that condition their lives."
(David Carnevale, Trustworthy Government, 1995, p.76)	"***about who decides and why***."
(The World Bank, Discussion Paper # 183: Participatory Development and the World Bank, 1992, p. 2)	"A process by which people, *especially disadvantaged people*, can ***exercise influence*** over policy formulation, design alternatives, investment choices, management, and monitoring of development interventions in the communities."
(Alan Fowler, Striking a Balance, 1997, p. 16)	"A process through which stakeholders ***influence and share control*** over decisions and resources that affect their lives**."**

Building bridges between citizens and local governments to work more effectively together through Participatory planning, Fred Fisher	"The process of ***decision making*** and problem solving, *involving diverse interests, expertise and points of view* and act for the good of all those affected by the decisions made and the actions that follow."
(Sorensen and Sagaris, 2010)	As a capacity building tool, participation enhances unity amongst the diverse actors defining networks of varied interests to work on a common goal and boost their energies to make their surroundings more livable. Although, what is crucial here is the **scale and kind of participation** that is intended to support the cause.
	Type of Participation or Participatory means: traditional offline platforms and the new online platforms. **Scale or Level of Participation:** The extent to which the social classes– the rich, middle class and the poor participate.
(Medici, 2006)	The **rights of a citizen** include the **democratic management of the city** which elucidates control on participation through direct or indirect representative forms in governance and planning systems; to strengthen the autonomy of community organizations and the local government; to generate innovations and legitimacy through consensus with renewed outlooks along with co decision of the citizenry. "As a right, participation dictates ***the right of access to information, the right to query, the right to co-decide and the right to co-manage***."
	"Right to the city: An uprising for social justice in response to the ignorance of contextual parameters that dampen governance leading to biased participation."

Operationalized definition:

Citizen Participation is part of a decision making process and a capacity building tool that empowers citizens, unites diverse actors to form networks, with a common goal to enact their influence and control over the interventions of urban policies in the course of its formulation, implementation and evaluation. The* scale and type of participation *is crucial in shaping citizen's role in decision making. Beyond this, participation elucidates the right of a citizen - *the right of access to information, the right to query, the right to co-decide and the right to co-manage* ***for the democratic management of a city.***

C. Contextual relevance/Sensitivities: Contextual relevance reveals the shortcomings of participation in a country defined by harsh realities such as Poverty, vicissitudes in the governance systems, and marginalization through social or legal means.

Table 3.4:

Author	Definition
(Sumner and Mallett, 2011)	"Sensitivities are measured along the traits of *resilience to fight shocks and stressors*, and the *capacity to overcome* these shocks."
	"The concept of vulnerability is built on the *rights of an individual* perceived at the end of global policy interventions and frameworks. Human security issues confront challenges such as deprivation, social exclusions or violence in the context of urbanism, economic conflicts and risks related to the notions of uncertainty (political regime changes). Vulnerability in developmental studies is seen as a response to poverty, a stressful decline in well-being levels instigating low aspirational capacities followed by decreased levels of participation in a specific society at a particular instance." Vulnerabilities can be articulated as a result of: • Failure in governance: legitimacy and accountability deficits, skewed power relations and the ineffectual civil society. • Neoliberal approaches/advanced capitalism favoring the elite and overlooking the contextual importance. • Access to participatory means curtailed due to the existing sensitivities. • Lack/ issues to access to information, social and economic participation.

Operationalized definition:

Sensitivities are a measure of contextual realities such as poverty, informality, social exclusions- that challenge human security and citizen rights; giving rise to vulnerabilities in the context of urbanism and its policy interventions.

3.2.2 Operationalization:

Table 3.5:

		Variable	Typology	Indicators	Data collection
CITIZEN ENGAGEMENT INITIATIVE OF SMART CITY TUMAKURU	**CITIZEN PARTICIPATION**	**Participatory means**	**Online platforms** *Facebook, Twitter, Other feedback web portals*	- The number of online forms and responses. - Community groups involved. - Organizations or representatives involved.	Secondary data – database analysis
			Offline platforms *Focus group discussions, interactive forums, surveys, door to door questionnaires conducted*	- The number of citizens who participated - Identification of stakeholder groups and representative groups (NGOs, TNCs etc.,)	Secondary data – database analysis
		Level of participation	**Level of participation** **1. Active participation** **2. Fair participation** **3. No participation**	Analyze database of participants to infer - No. of citizens who participated or represented - Stages of participation - Consistency in participation (participation through all stages) and the numbers - interaction patterns – mono directional or bi directional; voting, co-manage/co-produce	Secondary data - Database analysis, semi-structured interviews
	ACCESS TO DATA	**Right to information, right to query, right to co-decide and right to co-manage**	**Online forms of data**	*Awareness* – information on the availability of online data and the use of it (including mobile applications). A measure on the existing online data sets and the digital literacy.	Secondary data - Database analysis, semi-structured interviews.
				Accessibility – ease of access on the web links and the time invested. Access to internet, electricity availability for desktops. Access to mobile internet.	
				Response to query – efficiency of the support systems to answer queries and links to FAQs.	

				Citizen control – Extent of citizen role in contributing to and managing data/information. Online Membership criterion. Open access to web page links to feed or alter information.	
			Offline forms of data	*Awareness* – information on the availability of data and the use of it. A measure on the existing offline sources of data.	Secondary data - Database analysis, semi-structured interviews.
				Accessibility – ease of access to the data locations or information booths and the time invested (distance and number of booths installed).	
				Response to query – efficiency of the support centers to answer queries and grievances. No. of booths located for smart city queries.	
				Citizen control – Extent of citizen role in contributing to and managing data/information. Offline membership criteria if any, consultation methodologies adopted.	
	CONTEXT RELEVANCE	**Check on contextual sensitivities, ignorance of which can lead to biased participation**	Poverty	Number of people living below poverty line. Access to basic services such as electricity.	Secondary data - Database analysis, semi-structured interviews.
			Inequality and exclusions	Discriminations based on caste, race, religion etc.,	
			Governance system	Legitimacy Power relations Accountability checks Citizen – local authority interactions Executing agencies	
			Political regime and influence	Preferential political representations if any – based on caste, religion etc.,	

3.3 Research strategy

3.3.1 Choice of research strategy

A crucial step in conducting research calls for decision making on the mode of approach that is adopted to guide the research design. This decision making tool (Verschuren and Doorewaard, 2010b) is termed as research strategy. The theoretical concepts of a Smart city model, citizen participation and its contextual relevance discussed in the previous chapters and under operationalization has helped unravel sub-concepts and typologies to make choices in the facets considered apt for this research. This brought about an in-depth analysis on citizen participation through the study on participatory means adopted; access to information as a citizen right; and contextual sensitivities; all these, influencing the level of participation, specific to the context of a Smart city model in Tumakuru. On-site observations, detailed interviews and analysing the related documents in detail will give an overall outlook to the processes under study and the reasons behind them taking place in a particular way (Verschuren and Doorewaard, 2010b). The above mentioned parameters delineate the implementation of a case study strategy with a combination of secondary quantitative data collection and qualitative research methods and analysis.

With the absence of pre-established empirical units, a case study is built on available data and theories (Neuman, 2006). Organizing this data through application of ideas and analysis guides the researcher in supporting the cause.

In this research, the number of units of study is assumed to be large i.e., the population of the city of Tumakuru. However, this can be narrowed down or focused to representative groups for research purposes. The citizen engagement initiative in Tumakuru smart city included mainly face to face deliberations across 35 wards (administrative units) of the city or across 3 zones during its first round of the citizen engagement. Also, focused group discussions with citizens, administrators, representatives and experts accounted for slightly more than 100 in number. Additionally, social media measures included responses on web polls, Facebook, Twitter, WhatsApp feedbacks etc., (Ministry of Urban development, Government of India, 15-12-15). Analysing the recorded database available in the municipal archives can help conduct decisive studies i.e., selecting cases that show minimum or maximum gap in characteristics; to draw conclusions based on a strategic sample (Verschuren and Doorewaard, 2010b).

Semi-structured interviews with the principal stakeholders, whose linking networks can be identified through snowball sampling and detailed interviews with residents of the city can help formulate comparatives with gathered data. This combination of interviews and analysis of available database or content analysis aids in triangulation of data, a critical characteristic of a case study. The research is carried out in one context, in the city of Tumakuru characterizing it as a single case study which eliminates, to large extents, the element of *chance,* with suitable triangulation of data. Furthermore, a *co-variation* type of case study is carried out to understand and compare the level of participation between active participants and non-participants, identifying a trend from the secondary data available. On the contrary, a *causal process tracing* methodology can be argued to be more suitable, by scrutinizing the transparent/open process of citizen participation and analysing its implementation on ground; without the interplay of mediating variables such as access to information and contextual sensitivities. But, the exclusion of these variables, deviates from the research objective and the intent, delineating the research as a co-variation type rather than a process tracing typology.

3.3.2 Scope and Limitations:

The constructs of a research are measured and endorsed in terms of reliability and validity (Neuman, 2006).

Reliability is defined as consistency or dependability of a research that can be repeated or that which can recur under similar circumstances. Reliability in a case study can prove to be a challenge because of its open format in research constructs. It is important to deduce comparable data, document it periodically and maintain the process transparent to justify a mixed method research design.

Internal Validity: Validity is measured in terms of the constructs' close link to reality i.e., how well the theories used by the researcher to measure social reality fits with actual reality (Neuman, 2006). In a case study, it is possible to deduce a general picture of the variables of study by limiting the research units to strategic and manageable proportions. A focused knowledge is ascertained with respect to the context in which the research object resides. This strengthens the internal validity of the research.

The *external validity* for a case study is difficult to achieve since the findings cannot be generalized to larger scales, say, at the global levels. On the other hand, with triangulation of data, the internal validity is increased with strong links between the dependent and independent variables wherein the findings of the research remains true to the intent of study.

Flexibility and Adaptability: A case study is flexible in its format making the selection criteria for research methodologies adopted flexible as well as molded to the context i.e., the choice of analyzing available database, conducting interviews through snowball sampling etc. The results of the study have a strong acceptance from research units i.e., the population, with qualitative sources and approaches of analysis wherein the ideas of the researcher and the existing evidences are mutually interdependent (Neuman, 2006), proving more beneficial and reliable than a quantitative study.

Apart from the probable limitations of time, budget and scale of the research, it is also crucial for the researcher to eliminate interferences that may occur in the form of –

1. The participatory will of the informants – A check on response error (Thiel, 2014) wherein the informants are unaware or unclear on the intent of the researcher affecting their response. Furthermore, their unwillingness to participate in the research can prove a significant disadvantage to this format of study (Thiel, 2014).
2. The application tools of measurement – faltering of the interviewee to gather accurate and valid data, a possibility of human error (Thiel, 2014).
3. Personal biases of the researcher – The questionnaires prepared should be transparent and direct to measure the intended research topics which are comparable; with unambiguous expression of the interviewee (Verschuren and Doorewaard, 2010a).

The representative groups identified in the 35 wards of the city along with other representative heads such as NGOs, technical experts, CAFs (Charities Aid Foundation) will guide in building this research's analysis. Detailed unbiased interview structure will be framed to understand the participation of the wards and particularly the citizens represented by the NGOs and CAFs. At the same time, non-availability of the personnel within the time frame specified for the research might prove to be a bump in the ride. However, different measures of approach have been specified while operationalizing, to achieve triangulation of data and strengthen the case. This mixed method design will help overcome interferences and reinforce the validity and reliability of the research.

3.4 Data Collection methods and sampling

A researcher partakes in an interactive process of data collection with the challenges of an evolving context that compels the use of varied methods of measurement (Neuman, 2006). A case study approach adopted in this research identifies qualitative methods of analysis with diverse measurement methods to validate its construct. The qualitative approaches differ from quantitative ones wherein the ideas are drawn beyond the framework of a research setting i.e., pre-existing knowledge about the research object is molded along with the knowledge gained during data collection. A researcher validates his findings by bringing data and theory together to provide distinctive results (Neuman, 2006).

Qualitative measures adopted for this research include detailed interview structures, specifically semi-structured interviews with the representative groups of organizations and stakeholders. This strategic sample is framed to gain as much knowledge on the citizen engagement initiative. Also, they can steer in identifying existing networks through chain referral system or snowball sampling. Further to this, secondary data analysis with participant enrolment statistics will guide in interpreting a trend in the level of participation. As earlier mentioned, the division of the city into smaller administrative units (35 wards) provides for interactions with the ward corporators or councilors to comprehend the performance indicated in the secondary database. To strengthen the cause, on-site semi- structured interviews can help relate to social reality. The triangulation of methods proposed, work to strengthen the validity of this research.

The scheme of citizen engagement is similar in the proposed smart cities of India since they follow the guidelines of the National Ministry of Urban Development. Although in a case study external validity is weak, the findings of this research may contribute to its generalization at the national scale, considering, the aspects of study remain similar i.e., access to information and sensitivities explored as contextual realities are problems that can be attributed to most cities in India, however, the scale at which these influence the program may vary. The research findings can, on one hand, identify the fault lines to propose refinements specific to this context and on the other hand indicate to the initiative's implementation strategies in other cities of India. This could help in increasing the external validity of the research.

The evident limitation to the ideas and data collection methodologies mentioned above include time and availability constraints i.e., a time frame of one month (June-July, 2016) within which the semi structured interviews through prior appointments with numerous stakeholders should be conducted and transcribed. Availability of the municipal database to study and its strategic use in this research will have a substantive effect on the outcome.

3.5 Data Collection instrument and Analysis

The primary data collection instrument includes semi-structured interviews with the institutions or representative organization and citizens, especially the vulnerable class. This methodology demands formulation of transcripts and interpreting them through cognitive judgments and coding. Additionally, the secondary database available in the municipality archives help strengthen the assessments.

The target groups, as mentioned above, for the semi-structured interviews have been identified at a preliminary analysis stage as -

1. Institutions under the Smart City Advisory Forum

Table 3.6:

Institution	Personnel
Municipality	*District Collector*
	Member of Parliament
	Member of Legislative Assembly
	Mayor
Limited Company	*CEO of SPV*
Representative	*Residents Welfare Association*
	Tax payers Association/ Rate Payers Association
	Slum Development Federation
	NGOs/ Mahila Mandali (Women associations)/ Chamber of Commerce/ Youth Association
Others	*Technical experts, Universities, Skill development institutions*
	Local youths
	Infrastructure development authorities
	ICT related companies for innovative development and citizen grievances, *Private companies for Sustainable solutions*

2. Citizens –
    a. The vulnerable class who constitute the target population of the research.
    b. Citizens who actively participated; as recorded in the municipal database to create a comparative analysis and understand if contextual realities influenced their participation.

A format of the interview has been formulated separately for the two categories mentioned above. The draft of the interview guide has been attached as Annexure 1 at the end of this report. A report on fieldwork carried out will be elaborated in the successive chapter. Specifics on the number of interviews conducted, thereby the number of respondents and their details are correlated with on-ground findings, thus placing it under Chapter 4. For instance, the selection of the informal settlements and thus the citizens were primarily based on the secondary data made available on arrival. The justifications to their selection in the snowball concept of sampling is discussed further below.

Chapter 4: Research Findings: Presentation of Data and Analysis

This chapter provides an overview on the proceedings of fieldwork to analyse the Smart Cities Mission in the city of Tumakuru. As discussed in the previous chapters, the context of this city provides a baseline in deciphering the undertakings of citizen engagement initiative specified under the Ministry of Urban Development (MoUD) guidelines. Moreover, few of the processes in Tumakuru Smart City's course can be related to other cities of India considering the contextual realities are similar in most Indian cities.

The chapter will be framed and structured, firstly, to understand the Smart Cities Mission of India and correlated to the knowledge and opinions of experts and citizens in defining the concept; and learn the stages of citizen engagement by studying the participatory means adopted, specific to the city of Tumakuru. Secondly, representation of the city's population is dissected by understanding the sample size and methods of sampling that strengthen or weaken the success of citizen engagement initiative to explain the levels of participation of different social classes. Thirdly and mainly, the contextual realities are heeded to evaluate their effects in the success of the initiative and overall on the smart city concept. Through the sections of the chapter, the primary findings of the fieldwork will be correlated with the Mission guidelines with evidences from interviews conducted. A brief part of the chapter specifies the proceedings of the fieldwork and analysis methods adopted to evaluate the data collected with sound reasoning.

4.1 Smart Cities Mission, India

The multiplicity in connotations that define a smart city remains to wander along contextual realms that renders it comparatively difficult to construe as a distinct model. The multi-layered contextual parameters that exist in India are however delineated on certain common perspectives in developing a model in the propositioned 98 smart cities. For example, the Smart Cities Mission of India by the MoUD proposes comprehensive development along four verticals of economic, social, institutional and physical infrastructure sketching out the aspirations of the citizens. This is a pre-requisite stipulated in the guidelines, for independent municipalities to adhere to. With - efficient core infrastructure elements such as water supply, power supply, sanitation needs, urban mobility, and public transport that provide for a decent quality of life; sustainable environment; safety and security of all citizens; housing needs for all; E-governance promoting extensive citizen participation, and *smart* solutions that endorse digitalization, the objective of the Mission is to generate a replicable model that "will act like a lighthouse to other aspiring cities" (Ministry of Urban development, Government of India, 15-12-15, Pg. No. 5). An all-inclusive urban eco-system that provides for networked services with scaled up efficiencies of up to 95%, is to be developed by the consultation firms with a panel consisting of urban planners and experts. The selection of these consulting firms will be discussed later in the chapter. The figure below illustrates the *smart solutions* that harness technology, encourage local area development and foster economic growth.

Figure 4

Adopted from (Ministry of Urban development, Government of India, 15-12-15, Pg. No. 6).

Furthermore, the Ministry of Urban Development (MoUD) aims in enlisting typical features of smart cities that characterize comprehensive development through –

- Mixed land use development.
- Housing opportunities for all.
- Refurbishing the road network for pedestrians apart from vehicles and create walkable cities.
- Encouraging public transport and Transit-Oriented Development (TOD).
- Preserving green and public spaces.
- Encouraging local industries and other local economic activities that frame the identity of the city.
- Accountability checks and transparency through governance tools.

4.1.1 Selection of smart cities

The preliminary discussions on the allocation of funds, with international institutions such as World Bank, were nodal in determining the expanse of the project prior to framing of the guidelines. The proposal of Prime Minister Mr. Narendra Modi - elected in the year 2014 by a prodigious majority, witnessed the idea escalate from 5 cities to an ambitious 98 cities with alterations in the funds allotted for each city. The Mission is planned for a period of 5 years (Financial Year 2015 to Financial year 2020) with the Ministry of Urban Development (MoUD) evaluating the stages of selection and development.

The distribution of 98 smart cities between the States/Union Territories (UT) of India is determined by a formula with equal weightage on urban populations and towns of the state. The potential smart cities of a state are allotted funds also based on the distribution formula owing to state level or central level schemes. The performance of the States/UTs or ULBs are periodically reviewed by the MoUD to propose re-allocations if required.

The selection of cities has taken place along two stages. Stage 1 at the intra-state level to determine the potential cities centered on the precedent determinants and the scoring criteria mentioned in the guidelines. This list was approved by the MoUD to declare the 98 smart cities. Stage 2 entails a challenging round where the cities put forth their Smart City Proposals (SCP) entailing a link between Vision statement and Area Based Developments along with Pan-city solutions. The most significant part of this stage is the citizen engagement initiative carried out by independent cities to justify their aspirations' concurrence with the SCP. Citizen involvement, their matched aspirations and feasibility studies in the SCP are the pivotal components that influence the prioritization by the MoUD for further financial allocations.

A panel consisting of national and international experts, and institutions have been appointed to determine winners of the first round i.e., selection of the first 20 smart cities, and given the assent to implement the proposals. The implementation of the project will be through the formation of a Special Purpose Vehicle (SPV). The entailments of this will be dealt later in the chapter. Meanwhile, the other cities are allowed to improve and re-submit in the consecutive rounds.

4.1.2 Timeline and financing

With the launch of the Mission in the year 2015 and selection of cities by the States/UTs under stage 1, the declaration of first 20 smart cities for the financial year 2015-16 took place in the month of January 2016 after assessing the scores secured in the stages of citizen engagement between the months of September and October, 2015. The allotment of funds will be subsequent to the cities' selection with a contribution of 1 billion Indian Rupees (INR) i.e., 13 million EU, per city each year, through its implementation stages, from the national government schemes such as AMRUT (Atal Mission for Rejuvenation and Urban Transformation) and an equal proportion from the schemes of States/UTs or ULBs.

4.1.3 Strategy

The smart city model formulates a strategic layout along 3 primary dimensions –

1. Framing a vision for the city – the city profile is studied and analyzed to frame the strategic objectives of development and steer in framing a vision to the city.
2. Area Based Developments (ABD) – to improve the livability of a city through strategic transformations in its regions. These are further sectioned as areas for –
    a. Redevelopment – to enhance the infrastructure by remodeling a specific existing built area by encouraging mixed land use and high density developments.
    b. Retrofitting – an area of 500 acres selected to increase the efficiency of existing built areas in a city by incorporating smart concepts as discussed in Figure 4.
    c. Greenfield/Brownfield development – to address the needs of growing populations, formerly unused areas of more than 250 acres are selected for planning and execution of affordable housing particularly for the poor.
3. Pan-city solutions – the city strengthens its infrastructure through smart solutions i.e., use of technology and information, as in the aforementioned figure.

The Smart City Proposal (SCP) of a city is inclusive of either one of the components mentioned under ABD or as a combination of them. A selection of either of the components or a mix of them is primarily based on citizen and stakeholder consultations and feedbacks. Pan-city solutions are an additional feature that has to be planned along with ABD. The collaborative approach of synthesizing objectives of stakeholder groups including citizens, with an acumen to efficiently utilize existing resources and state funds, is quite a herculean task for the Urban Local Bodies (ULB). This obliged a provision for experts' role through the appointment of consulting firms or international institutions.

The MoUD qualifies a panel of consulting firms for the ULBs to cherry pick. The firms solicit through a bidding process with the template of Request for Proposal (RFP) as specified in the Mission guidelines. The States/Union Territories(UT) and the ULBs assess the financial proposals of the firms and have the autonomy to select a competent one even outside the panel specified, provided, the scope of work is as per the regulations of the Mission. Additionally, technical assistance can be provided by international bilateral and multilateral agencies such as World Bank, Asian Development Bank (ADB), UN Habitat etc., in shaping the SCP. This association will be endorsed by the MoUD.

Nevertheless, by stating these parameters or strategies as a foundation to smart modules, MoUD stresses the importance of local context and resources that makes the model of one smart city distinct from the other.

4.1.4 The context of Smart City Tumakuru:

The city of Tumakuru is one of the 6 smart cities proposed in the southern state of Karnataka (Mangaluru, Belagavi, Shivamogga, Hubbali-Dharwad, Tumakuru, Davanagere). Interestingly, Smart City Tumakuru was one of the first three cities along with Punderi in the state of Uttarakhand and Krishnapatnam of Andhra Pradesh, which was nominated as an *industrial smart city*, prior to the formulation of Smart City Mission. With the introduction of the Mission, Tumakuru was included by the State of Karnataka as one of the 98 smart cities in stage 1 of smart city selection as discussed under section 4.1.1. Working along the lines of standard components specified by MoUD that compose strategic planning modules, Smart City Tumakuru (SCT) has been ineffective in qualifying in the first 20 smart cities of India under stage 2. The city was ranked 56th and currently (June 2016) it has re-submitted a proposal for its selection in the second round.

Based on the three verticals specified under 4.1.3, Smart City Tumakuru conducted a competition with a cash award attached, in various universities and institutions to devise a vision statement for Tumakuru. The winner of this competition was the Head of a University who coined KIND city (Knowledge and Industrial New Destination) as the vision. This was approved by the advisory board considering Tumakuru's advents in the field of education and industries.

In the second citizen engagement round, the primary objective has been to shortlist a demarcated city area for redevelopment or retrofitting projects. The design for Area Based Development was shaped through mapping of issues persisting in the city to formulate design and infrastructure solutions. Issues pertaining to walkability, condition of pedestrian ways and crossings; unused lands serving as dump-yards; a parched Amanikere lake; traffic congestion and parking issues; land encroachments; open drains and unhealthy conditions and lack of basic public utilities were identified along with plotting existing service lines to highlight shortfalls and suggest rectifications. In a nutshell, the components of ABD mainly included:

1. Revitalization of the City Centre.
2. Solar energy harvesting.

3. Solid Waste Management systems.
4. Integrated Bus terminal with smart infrastructure.
5. Revitalization of Amanikere Lake.
6. Wi-Fi enabled infrastructure, CCTV for safety.
7. Enhanced Health care Centres, multi-specialty hospitals.
8. Mixed land use development.

A feedback on Pan-city solutions received maximum emphasis on integrated resources and city governance to be implemented at the city scale. Annexure 5: Chart 3.6 onwards, attached at the end of the report, outlays the details of ABD and Pan-city solutions. An analysis on these dimensions will be discussed in later parts of this chapter.

4.2 Fieldwork

To comprehend the proposal of Smart City Tumakuru (SCT), the fieldwork aimed firstly in understanding the definition of a smart city both from appointed stakeholders and citizens. As discussed under chapter 3, the main stakeholders are citizens along with those who are part of the Smart City Advisory Board (Table No. 3.6) and other municipality heads. With this research inquiring the level of participation of the vulnerable class - the target group, scrutinizing the participatory methods and contextual parameters that impact participation became pivotal. This dictated an on-field exploration of the stages in citizen engagement initiative of SCT incorporated in the design of the interview guide (Annexure 1) further scouting contextual realities such as access to information, awareness, poverty, inequality, political and administrative systems.

The subsequent sections will highlight the findings of fieldwork conducted in the month of June to understand the on-goings of the project specific to Tumakuru city; co-relating the findings with the guidelines discussed in the aforementioned paragraphs. Founded on pilot studies and first hand analysis of smart city guidelines of MoUD, its implementation in the context of Tumakuru, this section gives an overview of the respondents interviewed and the proceedings of the research on ground. Mapping of the locations covered, the respondent details and analytical tools adopted to support the hypothesis are discussed below.

4.2.1 Sample selection for fieldwork

With an overview of the stakeholder group mentioned in the Mission guidelines under chapter 3, Table 3.6, the list below discusses the main stakeholders interviewed during fieldwork –

Table 4.1:

Sl.No	Stakeholder	Designation	Type of Organization	No. of members
1	Chamber of Commerce	President	Semi-Private	1
2	Joint Commission International (JCI)	President	NGO	1
3	Tumakuru Clean city	President	NGO	1
4	Smart city department	Urban Planner	Public, Government of Karnataka	1
5	Slum Development Board	President	Public	1
6	Consulting firm	Financial head	Semi-Private	1

7	Municipality	Corporator – Ward 32	Public	1
8	Residents of Well-off areas	Citizens	-	12
9	Residents of Slum 1 – NR Colony	Citizens	-	4
10	Residents of Slum 2 – Maraluru Dinne	Citizens	-	5
11	Street Vendors on MG road	Citizens	-	5
			TOTAL	**33 Respondents**

Access to organizations was mainly through snowball sampling with assistance of the smart city department appointed by the Government of Karnataka (GoK). All the officials apart from the consulting firm are part of the smart city advisory forum appointed and headed by an Indian Administrative Service (IAS) officer as the Chief Secretary and a mentor. Also, the city corporation i.e., Tumakuru City Corporation (TCC) headed by the Commissioner; a Member of Legislative Assembly (MLA – elected by voters for the state) and a Member of Parliament (MP – heading 7 to 9 MLAs); the Mayor (head of the municipal corporation) and ward corporators/councillors are a significant part of the smart city advisory forum with the former having a larger jurisdiction.

Above and beyond the primary stakeholders mentioned under Chapter 3, and in the aforementioned table, the SCP of Tumakuru was also involved service departments such as the water supply board (BWSSB – Bangalore Water Supply and Sanitation Board), power supply board (BESCOM – Bangalore Electricity Supply COMpany), irrigation department and Tumakuru Urban Development Authority (TUDA). With citizens as primary stakeholders, followed by direct or indirect representatives such as the Mayor, MLA and MP with the councillors or ward corporators, the above mentioned departments constituted the third level, whose independent proposals were also incorporated under SCT. Beyond this, the railway department, police, bus transport department were also consultants. During the articulation of ABD, technical workshops and exhibitions invited IT companies for their proposals on smart solutions and about 42 companies participated in the smart city fair arranged by the city Commissioner. However, on a contrary note, it was reported that the employment of the Slum Development Association as a representative, under the advisory board, was non-existent. In the light of revisions made to the guidelines set by MoUD, the president of the Slum Development Association mentioned that their membership into the advisory forum was subsequent to an appeal. He said:

"The main stakeholders were the chambers of commerce president, industrialists. Amongst us, slum dwellers were to be included or the street vendors or the human resource department of the city for the city's growth, their inclusion into this project was proposed because in the first form that was released, there was no mention of such things (sic). When we voiced it out in the public meeting, they hired us."

Interviews with the high rank officials such as the MLA, MP, Commissioner and the Chief Secretary were ineffective mainly due to restrictions in time and availability of the personnel.

4.2.2 Area Selection for fieldwork

Amongst 37 declared slums of the city, the slum at NR Colony is one of the biggest and oldest slums located in the core of the city and the slum at Maralur Dinne is the biggest one located in the fringe of the city. The specifics of the slums will be dealt with in the successive

paragraphs. Apart from the residents of these slums, the street vendors on MG road who are expected to be displaced under the redevelopment proposal of the SCP of Tumakuru were identified as the vulnerable class.

As a riposte to one of the sub research questions, a comparative of the participation of other social classes with the vulnerable group would aid in gaging the influence of contextual parameters on the level of participation, discussed in Chapter 2 under conceptual framework. Under chapter 3, the first hand analysis discussed the basis of selection of the citizens who participated, through an analysis of secondary database. However, during fieldwork the only database that was made available were figurative measures of the total number of offline respondents and the details of the respondents who took part in the survey questionnaire. The unavailability of a clear-cut secondary database did not favour in realizing a trend study in participation for successive respondents' interviews. Hence, the affluent areas were selected and validated by the available filled-in survey forms and interviews were conducted in residential areas namely, Jayanagar, Vijayanagar, Ashoknagar and Saraswathipuram. These interviews formed the relative sample. The image below indicates the slum areas and the affluent areas covered during field analysis.

Figure 5

Source: Google Earth

4.2.3 Methodology

The interview guide attached as Annexure 1, has been devised separately for the officials and citizens. The intent of the questions was to gage at the concept of citizen engagement and to understand the perspective of the officials in this concern. With a couple of initial interviews, the necessity of interpreting the perspectives on the concept of a smart city, by the respondents i.e., both the officials and the citizens, became vital. With this, a holistic sketch or even a contrasting picture would be a significant element of the findings. Apart from identifying the stages or methods of participation, the interview guide for the officials was designed to recognize the main stakeholders involved, consistency in their participation and their interactions with counterpart organizations and citizens. With citizens, it was important to devise a cognitive assessment on aspects such as direct, indirect (representation) or absenteeism in participation. Further to this, a rating scale was stipulated to grasp a holistic view on the initiative representing personal opinions of the officials and the participated citizens. A sketch of the logbook providing information on the schedule of the fieldwork is attached as Annexure 2.

The successive stages included translating and transcribing interviews, beyond which a descriptive research analysis tool ATLAS.ti was employed to analyze the qualitative data. The codes designed were founded on the operationalized variables, further to which code families were devised based on the conceptual framework. The codes list has been attached as Annexure 3.

4.3 Citizen Engagement Initiative

The sections below unfold the findings of fieldwork with respect to citizen engagement framework conducted under its first two verticals i.e., formulation of vision statement and Area Based Development (ABD), further to which the impacts of contextual parameters will be discussed. With the vision statement and ABD reviewed at the beginning of the chapter, a narrative voicing the aspirations of the citizens is conveyed below.

4.3.1 An individual's outlook on what constitutes a smart city

The officials and the citizens of Tumakuru expressed their knowledge on the concept by mentioning some of the key features and aspirations such as good infrastructure – water, electricity, roads, sanitation; a decent quality of life through efficient service systems catering to daily activities and needs; a clean environment; security for all and good governance owing to complete democracy. Furthermore, the experts call upon smart citizens to create smart environments and stress the importance of education - not just as a measure of literacy but as a constructive civic responsibility. On the contrary, some of these aspirations remain as dreams for the vulnerable class for various reasons which will be dealt independently along the course of this chapter. The President of the Slum Development Board expresses his concern, safeguarding the interests of his people, as follows- "(….).for a smart city, an 'all-inclusive' motto, as I see, will not work because whoever is eligible to pay tax, only they are qualified to live in the city. The question is, in the future, for the poor, the dalits (untouchables), the communities of the city, not just the dalits, different other communities are included, for them, in this city, I feel it will be difficult to safeguard their *being-ness*."

To dig out the intentions behind the above said words, it is crucial to study the forces that push and shape the cause of the project. Citizens and their aspirations need to be outlaid into the project to encourage and strengthen participatory democracy. Translation of the will and power of citizens are further investigated to place them on a distinct rung in the ladder of participation as a measure ranging from choice to voice, discussed under Table No. 2.2 of Chapter 2.

Looking through the lens of a citizen and keeping in mind the crevices and the shortfalls that affect participation, the dynamics of the participatory methods, access to information and contextual realities, specific to the city of Tumakuru, are explained in the subsequent sections.

4.3.2 Participatory means and stages of citizen engagement

The citizen engagement initiative of SCT till date has taken place, as mentioned formerly, along two stages, firstly for the formulation of Vision statement and secondly for devising ABD. This has progressed at various levels i.e., ward level to zonal level and at various scales i.e., face to face interactions to public meetings. The 3rd stage of citizen engagement comprises of gathering feedbacks on the proposed Pan-city solutions which would take place after the SCT's approval in the 2nd selection round of the Mission. The awareness programs and participatory methods comprised of -

Offline platforms which primarily included –

- Newspapers and pamphlets/flyers.
- Promotional activities through TV and Radio.
- Workshops and technical consultations for personnel conducted in Bangalore as well as in Tumakuru.
- Public Meetings – 3 meetings at zonal level. Tumakuru is divided into 3 administrative zones encompassing 35 wards.
- Rallies, Marathons held by JCI along with students.
- Questionnaires for opinions - feedback forms with collection boxes at railway station, bus stand and commissioner's office.
- Smart city fair – IT companies showcasing their products and ideas.

Online platforms which primarily included –

- Face to face interviews through broadcast media such as television and radio.
- Social networks such as Facebook, WhatsApp, Gmail and Twitter.
- Websites such as www.MyGov.in and www.tumkurcity.mrc.gov.in for voting/polls and feedbacks.

To explore the SCP of Tumakuru, it is imperative to analyse the format of survey questionnaires provided to the citizens in voicing their opinions, the response of public meetings and the online responses. The checklist provided by the MoUD covers all the above mentioned criteria for citizen engagement and lays out the rating system or the scoring criteria, established on the response of the city.

To begin with, the survey was conducted to decipher –

1. The existing city profile through an in-depth inquiry on quality of life measured on the basis of availability of services, access to civic amenities and the overall satisfaction of its citizens. The problems or issues pertaining to the same were thus identified and prioritized firstly with the opinions of the citizens and further by the experts.
2. The vision for the city via a prioritization format was filled in by the citizens. In a similar way, Retrofitting, Redevelopment and Greenfield development projects were ranked as well.

The format of the survey questionnaire is attached under Annexure 4. The results of citizen engagement with charts indicating the statistics has been attached as Annexure 5.

Secondly, public meetings held at the administrative zones called for inputs from the citizens for ABD, combined with workshops for university students and technical personnel to discuss and propose probable smart solutions. Here, it is important to be aware that the Mission by MoUD states the selection of a *specific* [emphasis added] area of the city for Redevelopment, Retrofitting or/and Greenfield development for the proposal. In Tumakru, around 9 areas were demarcated and laid out for prioritization. With the feedbacks and votes from round 1, three areas were prioritized i.e., a suburban ward encompassing several residential areas , Shantinagar slum for redevelopment and the Central Business District (CBD) for retrofitting and these three choices competed in the final selection round. With online voting and polls, the CBD was conclusively opted for ABD (Annexure 5, Chart 3.6).

Social networks such as Facebook, WhatsApp and Twitter show large numbers but in terms of Facebook likes or number of members or even number of responses. They mainly formed the linking tools to spread information and bring citizens together on a single platform. Further to this, broadcast media such as the Television news channels helped in interviewing public for opinions.

In a nutshell, to outline the proceedings, the citizen engagement initiative included, firstly, the public being approached for opinions and raising of issues through surveys or meetings; secondly, the issues were prioritized and framed with the experts and the advisory forum, who consequently proposed solutions to the issues; thirdly, these proposals were presented to the public for feedbacks and finally submitted for approval from the MoUD.

Assimilating the above mentioned programs and participatory means adopted, the following pointers discuss the missing links and the representativeness of data to conclude on rational points of view expressed by the interviewed officials. It is important to highlight here the exclusion of Tumakuru city under the ‘first 20 smart cities’ and the revisions made to the proposals (ABD) were subsequent to the identification of the snags in the first proposal.

1. To begin with, the Vision statement of KIND city shared a blurred link with the redevelopment project at the chosen CBD. As mentioned previously, the competition conducted to pick on the best Vision statement constituted primarily university students and professionals. A panel of experts cherry-picked the vision statement of KIND city staying true to existing strengths that the city portrays. However the design of the ABD was indistinct from its vision which might have been one of the speculated reasons for SCT’s elimination in selection round 1, says the manager at the consulting firm, iDeck (Infrastructure Development Corporation [Karnataka] Limited):

   “(…) and also they have lost because the link that was mentioned from the vision to this thing [ABD], the earlier vision was knowledge and industrial hub. But we are not doing anything to knowledge in India. Agreed that Tumkur is for industries and if you look back to Tumkur, HMT park which was the starting point of the city. Slowly it started, more industries started coming but the theory behind this being an edge city for Bangalore, you’ve to leverage on that. (…) Rather, we are targeting Tumkur to develop as a very better edge. A better hub and a preferred destination for people to stay here and come to Bangalore for working. (…) Better make this as a residential destination with a high quality of life so that people can still depend on Bangalore but staying in Tumkur, spending in Tumkur and living in Tumkur and making that a destination for

public. So that was the idea of making the transformation of Tumkur and that was the revised version of the vision."

Due to this, the SCP submitted in the second selection round has a revised strategy and a revised objective which aims at *"Transforming Tumakuru from a next to Bengaluru industrial hub to an ideal world-class smart metropolis with a focus on economic development along with high quality of life, ecological integration and inclusive development equipped with efficient service delivery."* An excerpt of the revised proposal is attached as Annexure 6.

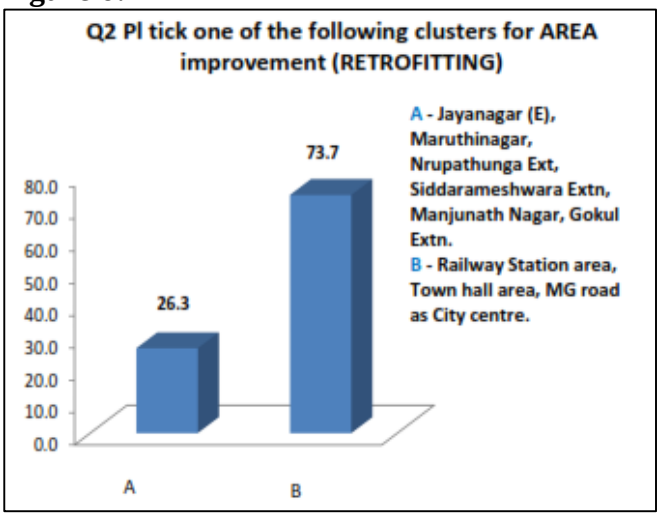
2. In continuation with the above said statement, the design of ABD i.e., specific to the extent of area selected under CBD for retrofitting met changes in the new proposal with an expansion from a prior 460 acres to 760 acres of area. It was recognized that the impact of the prior selected CBD area on its population, especially the residential zone was truncated. With an objective of mixed land use development, the CBD area was extended including more residential zones. The consulting firm revealed,

"(..)So what happened in round 1 and 2, what we have experienced is that the round 1, the area which was taken was very small and this area that was taken had very few government building and couple of markets, so that's where bus stand and railway station and government building and a lake.so direct impact on the residential population is very less, because there are no residences. So what's the big deal in taking that? So that's when we thought why don't we expand the area, stick to the extent that was done, just expand to the extent to the residential area right next to the boundary (…), so that's when we expanded the area by taking LIG, MIG and HIG. (…) direct impact was instead of 3% of the population we made it 11 or 12% of the population. So that was the change that was considered in round 2."

These two pointers highlight the revisions made to the SCP for re-submission in the second selection round. It is important to note here that the revisions were made without citizen consultations, proving the initial rounds of citizen engagement fairly futile.

3. Under the participatory means discussed, the selection of CBD for area based development was mainly through online votes and polling. Round 2 of citizen consultations received only 1,011 votes and the result as depicted under Annexure 5-chart 3.6, shows:

Figure 6:



With a mere thousand polls, the decision on selecting CBD for retrofitting project has been made. This represents only 0.3 percentage of city's population (300,000) and remains restricted to the citizens who have access to internet, failing to represent the opinion of the city. When questioned about the use of online polls, a resident of Jayanagar said, "With regard to that, as far as I know, people who are in the education field have used it more and normal citizens have used it less."

Furthermore, the corporator of a contending residential ward expressed concern in this regard by saying, "The reason why central got more votes is because there are a lot of students and computer centers. So a lot of people replied online. Here nobody has such things, they would just see and give opinion. There many students who were waiting at the bus stops, or on MG road [part of CBD], all of them replied very fast, so they got 70 odd% and we had 38% or something. So the response was very low from our end which was a major drawback for us."

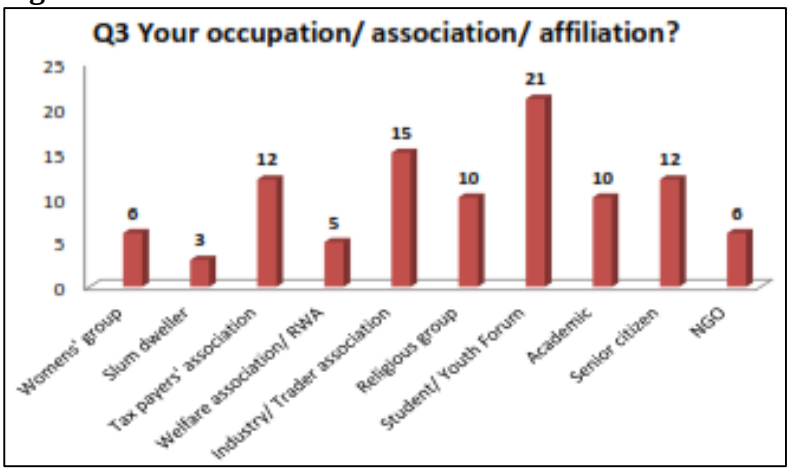
4. The social networks such as Facebook, WhatsApp and Twitter were used as a connecting tool to link citizens and form platforms for discussion, however, the significant figurative measures showcasing their usage (Annexure 5 – chart 3.3) do not completely represent or provide record of participation. The measures were in terms of Facebook likes, WhatsApp members and Twitter followers.

5. The format of survey questionnaires (Annexure 4) mainly addressed the needs and aspirations of the citizens. However, its formulation appeared to conform to the educated class with technical questions asked such as, the citizen's opinions for the need for dual water pipeline to all houses, Eco-tourism etc., Such terms and jargon are unknown to the general public and would be difficult for them to comprehend and prioritize. A resident from NR Colony slum said,

"I feel they haven't been thinking about what these people want. Not many people know Wi-Fi, mobility and these things they don't know but they [municipality and smart city forum] has given preference to this. They have asked "do you want Wi-Fi or not", or "Does BH [Bangalore-Honavar] road require Wi-Fi or not" and "does our municipal circle require Wi-Fi or not" [sic]. If they are giving so much importance to Wi-Fi only, it shows that they are not paying attention to the living people."

Furthermore, the citizen consultations of round 1 reveals that offline feedback forms adding to about 12,560 responses (Annexure 5 – chart 3.6), consisted only a total 3% from the slum populations (Figure 7) with NGOs and the Women group also faring amongst the least.

Figure 7:



A cognitive thinking on the criteria discussed above brings in the forefront, discernments pertaining to the participatory methods adopted outlining the primary variable of the conceptual framework. The significance of understanding these parameters and the effect of contextual parameters discussed in the consecutive sections help evaluate the level of participation and draw conclusions.

4.4 Awareness and Accessibility

Keeping in mind the participatory methods adopted, it is important to analyse the programs and methods that firstly piloted participation. As cited in the previous sub paragraphs, information and awareness about smart cities have been mainly through promotional activities by the print media and social media; technical assistance and knowledge through public meetings, marathons and workshops.

Firstly, the main portal for information was the print media i.e., specifically newspapers. Besides, the ward heads or the corporators were taken aboard to create awareness programs in their respective wards. Hoardings; TV and radio announcements; rallies and marathons constituted other sources of information. Apart from these, website of the Municipal Corporation and MoUD covered the online access to information.

Secondly, the awareness programs were conducted at ward levels with successive rounds at zonal levels. Survey forms were distributed by the local bill collectors or revenue officers in all the wards with intimation to the collection of filled up forms from citizens. With reference to this, the urban planner of the smart city team in Tumkaru said,
"We have our staff, bill collectors, revenue inspectors, water supply team, they would go at house level. We have in every ward, one or two people working on this. We have taken help from them. We have given the formats to them, they have distributed it. After two days, they have taken it back. While giving it, they have informed them to take their time and that they would come back after 1 or 2 days and they have re-collected the forms. We have almost given 25,000-30,000 forms."

Likewise, the schedule for the public meetings were informed through newspapers. Survey forms were also provided at these meetings and to those who they i.e., the smart city team, came across around the venue. The interviews conducted by the local TV channels were held during the early hours of the day to capture, early morning walkers, retired citizens, and school or university students. At this juncture it is crucial to analyse the basis of sample selection and representativeness of the sample for citizen engagement. Considering the results of participation (Annexure 5) which included handing out of survey forms at household level; attendees of the meetings and media coverage discussed above, the basis of sample selection appears to be random. Below, a discussion on the offline, online portals of information and the access to these tools are discussed to check for inequities.

4.4.1 Access to offline information – on-field analysis

To provide an analytical front, on-field results with reference to citizens - both in the slum areas as well as affluent locations portrayed a predominant inclination towards lack of information and awareness. In conjunction with the 26 citizens interviewed, the predominant response remains to be,
"(...) I have heard that Tumakuru would be a smart city, but from that what would happen, I do not know", said a Street vendor on MG Road or "Regarding smart city I do not know much, but civic amenities have to be good, after giving basic amenities, it will become easy to make it a smart city (..)", said a resident from the affluent area of Vijayanagar. Additionally, there appears to be discrepancies with the distribution of survey forms, wherein a resident of the

Jayanagar expresses, "(…) we have watermen or valve-men, one who regulates water around. He was made to pass on the forms. What does he know? Being an officer, they should come and approach each and every individual house, but they dint turn up. Once the waterman gave the forms, they just took it and dint turn up at the meetings, just used these to wipe hands."

A persistent approach along these lines brought about another popular finding that the ward corporators or the smart city team who were on board as direct links to citizens, have not approached the areas either for any awareness programs or held any direct communications. In this context, a shop owner on MG Road said,
"No they haven't done that. Only you have come today, nobody has come here. Zero (sic)."
Furthermore, a member of the CITU (Centre of Indian Trade Unions) who has actively fought for the rights of the street vendors and hawkers, and is equivalent in position as a council member in Tumakuru said,
"No in none (sic), they have not given information also (...) Then, I dug a bit and asked the intention of the meeting [called to discuss on the provision of shops after displacing the vendors on MG Road as a part of ABD]. Only when I asked, they told. Here nobody knows, they look after their daily living. When I asked, they said, we are making this a smart city, for that we have to clean the streets and so on (…)."

An evident void is perceived at the access points of information flow, be it the form distributors or even the ward corporators. The fieldwork results specific to access to information and awareness i.e., the methods that were adopted in Tumakuru, were discussed comparing them to reality at the receiving end - citizens. However, at this juncture, it is also important to consider the other side of the coin i.e., the encounters of the officials in conducting the awareness programs. Thus the interview conducted also explored the organizations' opinions. To quote an instance, the president of JCI, who headed the youth committee expressed apprehension towards the vulnerable, fearing them as a hurdle to their attempt in educating about smart cities. He said:
"So, we faced a lot of challenges in public because people doesn't know what is smart city and all (sic). Even they were blaming a lot of things, when we went to promote smart city in streets and in all the workshops that we did, people started commenting negative on us, because they were pointing out all the drainage work on the smart city, they were complaining things with this, because, even for educating them, lack of education is there among our people (…) I tell you people compare the things with the smart city, like, if they are facing any water problems or any drainage problems in the city, they compare these things with smart city, they link it with that and they think 'why should we bother about smart cities and why should we go to the websites when things are not practical in our area. So this is why they compare. So, we are literally helpless for that."
Along the same lines, the head of the Chamber of Commerce expressed, "In slum areas, people do not have the time to come and talk to you. They have to take care of their food needs every day and its one big irony, that even today, even after 68 years of Indian Independence, we are stuck at ground zero still in terms of slums, it terms of net increase in population, in terms of basic amenities being provided to every citizen."

Nevertheless, drawing the focus back on the vulnerable class, the slum dwellers have not participated in this initiative for a straightforward reason that they were unaware of the concept and its components. Those who have access to the local newspapers are aware that their city is going to be a smart city but they are completely unaware about its undertakings. A resident of Maralur Dinne slum affirms –
"(…) No. Nobody has come here. We have got to know through papers and other ways, but nobody has come to inform us. Nobody asked, we never told."

Moreover, most of the slum dwellers are daily wage workers or self-employed with petty shops within the colony; for whom earning their daily bread holds a higher priority than participating in an initiative that they have not been informed about or made aware of. A resident of NR Colony slum who is also a member of the Slum Dwellers Board said,
"(…) we are the type that work and survive on daily wages. So these people here wouldn't know. So they have to conduct meeting and tell that this thing is there in this way (sic), and ask them what they want. With this, people would have more information is my opinion."

Another dimension would be to analyze the role of organizations or associations that represent the vulnerable. Ironically, local associations within the slum have mainly dealt with problems of slum dwellers with respect to availability of services such as water supply, electricity; matters related to health, safety and security; and other issues except smart city. The President of the Slum Development Board when asked on how they represented the interests of their people, said,
"The format that we received for the offline surveys, we discussed and held meeting about that in our *organization*. In that, how should our slums develop, such suggestions and in our city, how we should live, in such things, we have suggested (…) On this, we have made about 3-4 meetings, at the *city level* and at a *division level* [emphasis added] (….) in Tumkur, we have discussed the impacts of a smart city" It is important to note in the above said words that the discussions were mainly held at the organization level or the city level. Furthermore, another member added,
"We have told them [the slum dwellers] more on what could go wrong with the smart city. So what would happen if the smart city is implemented, then the images shown depicts only the progress of it (…)"

Apart from relational and material well-being that were discussed as the insecurities of the vulnerable under Chapter 2, subjective factors such as levels of interest and availability of time also influence level of participation. Although this research is limited only to the former factors specified, those interviewed at the slums stressed in unison,
"(…) even then [with no time available], there is no one who can take us and help us do it too. That is important. Whether it is for laborers or others, they do not take us and tell it'll help us, there is nobody who can do this, because of this most of us, women, don't go anywhere (…)You are the first one to come and talk about it. Nobody else, only you are telling all this."
Besides newspapers, other offline access points prove to be ineffectual in spreading awareness and thus weaken participation.

4.4.2 Access to online information – on-field analysis

Along with access to offline information discussed above, ease of access to online information is yet another criteria that affects the level of participation, discussed under the conceptual framework in Chapter 2. Although, it is difficult to provide figurative measures on the digital footprint of Tumakuru, a relative comparison can be made with respect to India's 460 million internet users as of July 2016 which is approximately an internet penetration of 35% and 9% of social media penetration when compared to an 80% penetration rates of North America and Western Europe [7].

[7] Internet Live Stats (www.InternetLiveStats.com) Accessed on 1st August 2016

With reference to the results of citizen engagement through online portals such as Facebook, Twitter, websites and others attached under Annexure 5 (chart 3.3), it can be observed that online submissions in the first two rounds accounts to 13,745 submissions with a drop to 4,512 entries in round 3. To stress on a previously mentioned measure, the voting polls accounts for a mere 1,011 entries in comparison to a population of 300,000. Defining the case of vulnerable class with respect to internet usage or other online features, the president of the Slum Development Board states,

"For our people, I think it might be difficult in the beginning. Amongst us, the first generation are those who can just read, we cannot say anything about mobile accessibility or knowledge on usage. Somebody was saying, 'you have two mobiles, can't you type an SMS and send?'. Few of us would keep it just to receive calls and would know just how to operate that much. They think that people have modernized because they have a mobile. In the initial days, for our people, in these things it might be difficult. (…)Within our 32 slums, if there are about 2-5% who own a smartphone or use net-banking, it is a lot I can say. Because, in that lot, someone would have gone for higher education or may be graduates, otherwise most of them are 10th [grade] dropouts or 12th dropouts. They might have kept it to listen to music or watch videos."

This section covered one of the most influential variables that affects the level of participation with an underlying finding being lack of information, access to information and inefficient awareness programs. With on-ground responses stressing on the same, the research will further focus on how contextual parameters impact the resultant variable. The output of awareness and accessibility has been attached as Annexure 7.

4.4.3 Participation - citizens and organizations

With preceding paragraphs mentioning the impact of awareness and accessibility to information on participation, it is also important to analyse the self-initiation from citizens to be a part of the initiative. With 26 citizens interviewed, a total of 3 citizens participated in either of the offline methods. Moreover, these 3 citizens have not been consistent with their participation through the various stages of citizen engagement owing to reasons such as clashes in schedules and subsequent loss of interest. The output of ATLAS.ti with respect to participation is attached as Annexure 8.

What's more, *none* [emphasis added] of the respondents i.e., the marginalized citizens or the residents of well-to do areas have adopted online forms of participation. The stakeholders such as the president of Chamber of Commerce and the President of JCI have used online platforms to showcase their ideas for panel discussions. However, public awareness to this still remains at a substantively, near to the ground plane. On the subject of participation and information amongst the stakeholders, the president of Slum Development Board said:

"No. As I mentioned before, the stakeholders have, as we talked before, participated offline and online to a small extent. Now, there is the council [ward corporators], they are stakeholders too, but, the council doesn't know a few information related to smart city, it is unclear to them."

The lack of complete information with the corporators is one of the weak links that has affected the access to information with citizens, thereby affecting participation.

Along parallel lines, a measure on consistency in the participation of organizations, specifically the advisory board, is another crucial aspect of analysis. A common response of the officials in this regard is that the self-initiation towards creating a change has been ephemeral, suggesting inconsistency. The president of the chamber of commerce explains that the job entitles a voluntary perspective and thus attendance has been constrained to only those who were interested. Moreover, in the board meetings, it was relevant to decipher the scope for discussion

in the presence of organizational or governmental hierarchies, to which the president of Slum Development Board said,

"We were about 5 non-officials, rest being the official members - people such as the DC [commissioner] or in-charge ministry are there, we don't go to express. They talk only when asked. Non-officials did not voice out. In that 3 persons are active - Mr. Surendra Shah from chamber of commerce, one Mr.Ramesh and then me. The rest was Tokenism (….) just as a figurative participation."

The use of the word 'tokenism' immediately places the level of participation at the lower rungs of Arnstein's (1969) ladder of participation. Here, it is important to note that participation is being referred to that of the organizations. The hierarchical dominance alters the scope for discussion at the organization level and ultimately has an effect on the model of the project.

The results of fieldwork also reveal that the self-initiation amongst the citizens to participate or understand the concept has been greatly low, the reason being pointed out primarily towards lack of information or time for commitment. To elaborate more on this concern, the successive paragraphs discuss the contextual parameters that impact participation. These contextual sensitivities, outlining a vital segment in the conceptual framework with its effective role explored in the example of Smart City – Dholera discussed under Chapter 2, will assist to discern if the research findings frame a significant contrast or etch the obstinate reality.

4.5 Contextual Sensitivities

Chapter 2 emphasizes the significance of contextual sensitivities to decipher if the model of smart cities fall under the nets of advanced capitalism, with erstwhile instances outlaying the crevices of several urban reforms proposed for the rising urbanization trends in India. Mrs. Ananya Roy (2009) advises on the intentions of such neoliberal practices causing marginalization that grow to insurgencies and contestations by the citizens. Based on the parameters specified under chapter 2, context based realities of Tumakuru are explored under this section.

4.5.1 Informality and Poverty

The basis of selection of informal settlements or slums during fieldwork, was mainly through the analysis of secondary data of the Central government scheme called Rajiv Awas Yojana (RAY) which is now renamed as Pradhan Mantri Awas Yojana (PMAY). The scheme aims at a slum free city planning through infrastructure and housing provisions. The scheme advises the states to bring together both recognized and undeclared slums under the scanner, provide them with basic amenities and address the discrepancies of a formal system [8].

Data collected for the scheme's implementation in Tumakuru city illustrates 22 slums classified as 'notified slums' and another 15 as 'non-notified slums', making it a total of 37 slums spread across 35 wards. The handbook of the scheme comprises of in-depth socio-economic analysis of these slums covering aspects such as ownership of land, tenability, tenure status; location of the slum with details on condition of the households i.e., kuchcha, pucca and semi-pucca houses; exposure to hazards or natural calamities; density and the households below poverty line; occupational status, income range and so on.

[8] http://ksdb.kar.nic.in/docs/New%20Schemes_RAY.pdf Accessed on 1st August 2016

The informal settlements of NR Colony and Maralur Dinne formed largest in their expanse and population. Annexure 9 attached provides an overview of the 37 slums and their comparatives based on socio-economic conditions. It can be observed that in most of the slums, about 75% of the population live below poverty line (Annexure 9, Table No.1). Furthermore, most of the dwellers are casual laborers, daily wage workers or self-employed (Annexure 9, Table No.2), with a larger bulk having finished just primary or secondary education i.e., 10^{th} or 12^{th} grade. The result of fieldwork was in consensus with these figures as shown below in the output of statistical analysis tool SPSS, wherein 10 residents of the informal settlements, out of the 16 interviewed were self-employed. Also attached is the detail of education levels of the informal settlement dwellers.

Table 4.2

comparison between Affluent areas and informal settlements * work sector Cross-tabulation								
		work sector						Total
		Public	Private	Self-employed	Retired	housewife	others	
Comparison between Affluent areas and informal settlements	Well off areas	1	2	1	4	2	0	10
	Informal settlements	1	3	10	1	0	1	16
Total		2	5	11	5	2	1	26

Table 4.3:

comparison between Affluent areas and informal settlements * education Cross-tabulation							
		education					Total
		Primary	Secondary	Pre-University	Bachelor's	Higher	
Comparison between Affluent areas and informal settlements	Well off areas	2	0	0	7	1	10
	Informal settlements	6	4	3	3	0	16
Total		8	4	3	10	1	26

Another criteria to be noted here is - security in terms of tenability. Referring to Annexure 9, Table No.3, NR Colony slum dwellers have claimed their property rights, whereas Maralur Dinne located along the fringes still portrays insecurities in its tenure status. The contrasting situations in terms of land ownership i.e., if government owned or private owned (Annexure 9, Table No. 5), also shaped the basis of the settlements' selection during fieldwork, to decipher if marginalization based on land insecurities bared any influence on the results of fieldwork. By and large, in India, the slums located in the center of the city with dwellers residing for more than 50 years still do not enjoy property rights and in the name of such urban reforms, they feel threatened. The president of the Slum Development Association says that urban reforms in India are Central Government decisions who send notices or orders for displacement of the vulnerable, however, it is such lands that are a subject of the State where the State Governments should have the autonomy to exercise orders. Voicing out the concerns of the homeless and marginalized in framing the SCP of Tumakuru, he says,

"The concept of smart city proposes bus stand, traffic removal, less congested roads, etc., we need all these, ok (sic), but, in the same city, such people [vulnerable] are also there right? That is not defined. In this city if there are approximately 300,000 people, there are about 90,000-100,000 people belonging to this sector i.e., 35% in informal sector, slums etc. (….)Ok, let us accept it, roads have to be good, traffic has to be free, all these have to be there. But, what percentage of people use this? How many of them use cars in the city? What is the ratio of people that use Wi-Fi? For 20% of the population, for their living comforts, the rest 80% of the population's lives will be destroyed how many times? Just for this 20% to be happy, the tax from the rest 80% is being poured onto them."

Within Tumakuru's slum populations, 70% come under scheduled caste (SC) or the untouchables, 5% fall under nomads or Scheduled tribes (ST), 20 - 23% belong to Other Backward Classes (OBC) and minorities, another 2% other castes - upper castes. The slum populations hold those who are socially discriminated on basis of caste, education and consequently based on employment. Nevertheless, along with such insecurities, provision of amenities in both the slums remained a fundamental concern.

As a footnote to this section, a tangential fact outlining the redevelopment schemes for slums and their implementation under smart cities follows: It has been discussed above that there are both Central Government and State Government schemes such as AMRUT, Housing for All etc., which aid in-situ development of slums with a provision made for housing and infrastructure needs. Additionally, there are schemes from previous governments which are continued under a different label and leadership, yet, their objectives remain intact, for example, Rajiv Awas Yojana, runs with a label of Pradhan mantra Awas Yojana under the presiding new government. The objectives of the scheme remain mostly unchanged and they run parallel to other urban schemes and reforms. In the case of smart cities, most of the retrofitting or redevelopment plans of the slums are categorized under such schemes mentioned above for the ease of financial allotments. Concerning this, the urban planner at SCT says,
"(…) we have taken them under Housing for all [name of the scheme], we have converted into the scheme along with smart city. We are showing it in smart city but we are doing it under Housing for all. This is what government needs. Government wants to include all the schemes into one single platform to show the financial break up in smart city - how much investment are you getting, how much investment you want, how are you going to spend it in the next 5 years. We have taken all of this, our total project cost is 2,227 crores INR [approximately 300 million EU], in this almost 650 crores INR [approximately 88 million EU] is covered for infrastructure like water supply, UGDs. (..)In smart city you will not get any funds but you will need to convert it to other schemes."
The citizens especially the slum dwellers are unaware of such particulars and continue to exclaim lack of services, condition of roads, drains etc., even before dreaming about smart cities.
"Smart city is like a dream. Like how we see heaven, like that people will like to dream such things, only when we get it, people can be happy about it. So till now I feel it is a dream because we have not got it. (…) it feels like an imagination because for them to implement in the coming 5 years it is difficult (…)" said the resident of NR Colony Slum.
It is crucial to gather that, the expectations for a revolution, by the slum dwellers, in the name of smart city, gets tampered if the provisions under the other schemes fail to meet requirements.

4.5.2 The formation of a Special Purpose Vehicle (SPV)

Successive to a city's ABD plans and the allocation of funds by the Centre, a Special Purpose Vehicle (SPV) is appointed to carry out its implementation. The SPV is appointed under the Companies Act of 2013 based at city level with promotions by the States and ULBs who hold equal shares. The SPV is headed by a Chief Executive Officer (CEO) and nominees of central, state governments and the ULBs. The allocation and streamlining of funds; implementation, management and operation; with monitoring and periodic evaluations constitute the primary functions of SPV. The Mission of MoUD strictly specifies a 50:50 ratio of equity shareholding between the State and the ULB, however, it also provides an option of appointing private sectors to hold stakes, bearing in mind that the majority still remains under the State and ULB. Allocation of grants is from the Central Government and has to be utilized for purposes specified under the guidelines in addition to the funds allotted from the States and ULBs. The reason for the formation of SPV and its concept is explained by the manager of the SCT's consulting firm iDeCK as follows:

"The idea of smart city is to create a SPV. Today the ULB is structured in a way that it takes time to make it so progressive and a faster pace. That's why they created the SPV. So that the decisions can be taken at a faster pace and formal CEO will be appointed, so it works in a proper corporate setup and proper board meetings and decisions taken at a faster pace can be reviewed, can set the target which in today's status of ULBs it is difficult to do this structure. It's little challenging basically. So, the very important thing we need to draw about this thing is the creation of SPV which has been possible. It would have been really difficult without SPV. Getting that SPV concept approved for different cities is very good thing that we can look forward to."

The SPV constitutes Board of Directors headed by the CEO along with a Chairperson – the Divisional Commissioner or the Municipal Commissioner or even the head of the Urban Development Authority (TUDA in the case of Tumakuru); followed by a Central government representative as its Director. The board of directors include 14 members, 6 from the ULB and 8 representing the State.

MoUD has brought about this governance tool with an aim to ensure transparency in the flow of funds, independence and autonomy to make decisions, thereby setting up a smooth implementation process. The Mission guidelines also make note on the *delegation of powers* [emphasis added] by the States and the ULBs to the CEO of the SPV; powers of the Urban Development Authority to the Board of Directors of the SPV and delegating the decision making powers of the State government to the steering committees of Smart city. Here, with strong specificities from the Mission, rights of the municipal council will be veered towards the SPV.

Transparency with respect to contractual agreements between the city corporations/state government and foreign governments/private companies recruited for technical assistance as a part of a Public-Private Partnership (PPP), have been claimed to be unclear, especially so in the case of Pune city in Maharashtra. Access to such documents in the municipal corporation websites have been delayed, details of the selection process were absent and the CEO of SPV has been accused of encroaching the standing committee's rights without revealing the contractual agreements. In the lines of resting of powers, with reference to Pune smart city and the opposition by its government, the president of the Slum Development Association mentions,

"Opposing the terms of smart city, they have posed a few questions to the Prime Minister. (…)Which means, the local body should have more power, according to 74th amendment.

What 74th amendment says is that ULBs [Urban Local Bodies] should have decision making powers through decentralization. But these smart cities are completely centralized, is their [the presiding state government] argument."

In this context, a recent exploration into the Tumakuru city corporation website reveal neither any details of the citizen engagement processes nor the selection processes. Information available online is outdated and details of proceedings are absent. Transparency in terms of the extent of data that is made available, specifically online is still a concern.

On a parallel front, the council meeting attended during the first week of fieldwork (Annexure 2), intended for the discussion of SPV and details of Pan city solutions, brought about concerns of the councillors vis-à-vis transparency of information in the citizen engagement initiative i.e., concerns with participatory rounds under stage 1, further to which they revolted saying,

"How do we believe the numbers that you are showing? You have put them on your own! You first tell us why Tumakuru was not selected under Round 1 and then we can discuss about SPV"

The proceedings of the meeting included discussion on the revised ABD proposal for the city's selection in round 2, a discussion on the concept of SPV and Pan-city solutions. However, the meeting did not proceed from the uprisings of the council members/ward corporators expressing their distrust in the citizen consultation results, emphasizing priority on provision of basic amenities before implementation of a smart city.

Considering, firstly, the delegation of decision making rights of municipal corporations to the SPV and secondly, transparency concerns, the ULBs express their fear in formation of a parallel democracy or restrained democracy with reduced autonomy in exercising command or control. Specific to Tumakuru, there have been such issues raised, says Mr. Surendra Shah, the president of Chamber of Commerce who presents another side of political representativeness - widely evident in India. He explains,

"I feel somewhere the elected representatives are averse to the idea of smart city and I do not understand why? That is my gut feeling. Whenever we talk to them, they are not much interested in forming a SPV, and losing their control on spending money and all. They say, 'if the smart city comes here, we will lose our control of spending money', and I do not understand what is their meaning out of this (sic). They say we are here for 5 years, we want to enjoy our term and if the SPV comes, we will end up collecting only taxes and not spending them."

The acceptance to the concept of SPV is surfacing issues in many smart cities of India, specifically challenging the Right To Information Act (RTIA) of 2005 outlined below:

The Right to Information Act (RTI)

In tandem with the discussion on social justice and exercise of civic rights stated under Chapter 2, it is crucial to throw light on the Right to Information Act of India (RTIA). The dominance of corruption in a country like India, necessitated the founding of freedom laws to exercise citizen's authority or right to access information from public authorities. This, leading its way through participatory democracy (Ashraf, 2008) has been passed as the Right To Information Act (RTIA) in the year 2005 subsequent to the struggles of civil society and it is applicable throughout the power holding levels of the federal system i.e., Centre, State and local or municipal levels. The informal sector in India constitute a majority and find themselves more so often oppressed by the bureaucratic or the political powers. Furthermore, most of them are hoodwinked due to their low levels of education. To protect their rights and interests and also favor transparency in the endeavors of the government, the RTIA was introduced. The RTIA at local or state levels address public grievances in terms of availability and quality of services

and amenities with installation of Public Information Offices (PIOs). However, with its slow implementation, RTI faced snags in terms of its management, staff of non-complaint officials, the access to PIOs and also the ultimate decision of biased RTI officials to make available - the required information. The acquaintance on the practice of these rights slowly spread across the nation and presently, a large population is aware of such a law. Presently, a mobile application has also been designed to favor fast track responses for the sought information. However, the utility of these rights i.e., where, when and how to use it, is still unclear (Roberts and Roberts, 2010).

The RTIA framing its purview under governance and democracy is being questioned in terms of accountability and transparency in the case of smart cities. Secrecy in decision making, the movement of documents through the hierarchical administrative levels are not in the view of citizens leading to nepotism, resulting in loss of public trust (Ashraf, 2008). In this context, another member of the SDA and a resident of NR Colony slum expresses his opinion on SPV and RTIA as below,

"And another thing is the formation of SPV with a CEO, in this the corporators will not have power. According to me this is parallel democracy, so I feel that it should be like the way it is mentioned under the constitution where the power is in citizen's hands. With the appointment of CEO, the link with citizens is lost. Whatever CEO decides will be final is what they say and under this RTI act doesn't play a role. Now if there is no scope for RTI, where is the transparency in the system? This is my opinion. Now if RTI is there, it is for everything to be transparent and accessible to all. If you keep RTI aside and form the CEO, we will look at it with suspicion. (…) under SPV also, they will be giving technical advice, so there is a parallel government here. They had called us for two consultations, we had gone...there too they have mentioned about this more. Now both in Nagpur and Pune they have opposed, "if the power is in our hands only give us a smart city" saying so they have rejected."

4.5.3 Political and administrative disquiets

The formation of SPV as discussed above questions the role of councillors in decision making. Possibility of an uprising from the political leaders in this regard can be assessed with other concerns such as opting of a smart area versus a smart city under ABD. Elaborating on the latter, the allocation of funds for ABD of the smart city is restricted to a particular area and smart solutions in terms of efficiency and inclusiveness will be restricted to the area selected subsequent to majority votes. As debated earlier in the chapter, under the section of citizen engagement initiative of SCT, the Central Business District (CBD) has been proposed under ABD subsequent to online polls. With the selection of a specific area instead of an entire city, the corporators expressed their resistance during the council meeting and, the allocation of funds by the Central government only to the selected smart area is predicted to cause inefficiencies in the remaining areas expresses a member of SDA. He says,

"I feel that it [smart city] should be an all-inclusive one. If you develop only one part of Tumakuru and leave the rest, there will be no balance in that. If one develops the other remains backward. If you are doing a smart city, it should include all the areas."

The corporator of Ward No.32, Mr. Ravi, divulged his concern on this regard, foreseeing objections that may lead to insurgencies by other ward corporators and said:

"What will happen is, people will question us a lot then. If you develop everything there, here there will be nothing. Here the basic things are only not there. If you give everything there, will the others be fine? To convince them, it will be difficult for us. Here at least a little has to be done right? At least 50%. If they do it 100% there, here they should do at least 50% [or] even 30% if they do, then we can convince. Smart city project is gradual, but immediately they will

be taking that area [CBD]. (…) so then they will give the funds to them. We won't get anything here. Then it will be difficult, that particular 1 year will be difficult for us. If not they should divert other funds here, that particular fund they can give them and give other funds to develop here in the outskirts. Here in Tumakuru 50% is OK (sic) (…) but in the outskirts there are about 7 wards and there are a lot of problems there. If they do something there [in the outskirts], then there wouldn't be any objections."

Administration

The preceding sections have discussed the organizational format of a smart city advisory board as well as the SPV. With the Government of Karnataka (GoK) appointing an advisory board headed by the city commissioner and Government of India (GoI) nominating the members of SPV, it is crucial to decipher the administrative hierarchies that strengthen the cause or on the flip side create injustices. The Karnataka Urban Infrastructure Development and Finance Corporation (KUIDFC) based in the capital city of Bangalore, acts as a co-ordinator between the Centre and the proposed smart cities i.e., 6 cities in the case of Karnataka. The Centre or GoI commands GoK who reach out to independent cities through KUIDFC. The commissioner heads a city and carries out the orders of the structure. In regard to the allocation and procurement of funds by the city, it has to receive clearance from all the organizational levels mentioned above. The ward coporator explains the inefficiencies of the system and his futile attempt in trying to change the structure. In the context of Tumakuru city, he expresses that for any document to receive approval with financial allotments, the procedure dictates an approval of the state legislature placed in Bangalore and then by the district commissioner of Tumakuru district. This proves to be a tedious process along with atrocities such as corruption which is still widely evident in Indian administrative systems and public departments. On this regard, Mr. Ravi says,

"(…) if we need to receive funds, it doesn't reach us directly. It goes to Vidhana Soudha (seat of state legislature) in Bangalore and to use the allotted funds in Tumkur it takes a minimum of 6 months. How much ever online or RTGS [Real-Time Gross Settlement systems] they have, they still use the same old procedures. All this should end. If you stick to old procedures how will it work? Now there will be one officer here and he gets transferred, what he has done, the next appointed person will not know, so he will take time, and then what they do over there is, just for bribe, think that they would take away just one paper, your file would've gone (sic). You wouldn't have recorded or sent floppy; even now they use registers, so what they do is, simply remove a document from it and put a notice saying that this particular document is not there. So that's it, if they call it as 'missing', no action can be taken, so you will have to do it all over again and that would take another 2 months. (…) Even if you leave that, consider here, the DC [District Commissioner]. He has so many concerns and duties and a lot of headaches, but, each and every file of the corporation has to go to him. Why should it go there? His involvement in our matters is not there, he doesn't attend meetings, and he doesn't have a role. Even then they follow. So here for everything, there is DME [Data Medium Exchange – a payment notice to tax authority or bank], after that it comes here and at least twice it goes to the DC. All of this should stop."

4.5.4 Ancillary contextual parameters

The intent to understand these parameters is to analyse indirect means that affect the on-goings of a project, specific to the participation levels under SCT and the research conducted. Further to the main aspects reviewed, there are ancillary parameters that add to the distrust existing

within the organizations and especially with the citizens towards the organizations. Consequently this distrust between officials and the system affects the level of participation.

Firstly, the ubiquitous complaint in India has been the role of government officials towards execution of civic responsibilities. The all-pervasive response when questioned about the initiatives of the corporators in building awareness, has remained to be,
"(…) nobody is much bothered. All politicians are bothered about taking care of their wife and children, and not about how to improve our state Karnataka and maintain it. Whichever MP [Member of Parliament] comes, they do it for their family, wife and children. If they keep doing this, further how will they do anything?" as expressed by a resident of Vijayanagar. Along these lines, a lecturer at the university and also a resident of Jayanagar reported that the elected representatives look at obtaining grants for their respective wards or administrative zones and pay less attention to maximize its use or the ways to implement projects.

Secondly, an eminent act of such political heads can be steered towards their ephemeral dedicated involvement existent only for the purpose of gaining votes during electoral selections. Supporting this, the slum dwellers of Maralur Dinne also expressed,
"They come for collection or for votes during elections, to do some cleaning here, they do not discuss anything about such things." and
"The councilor comes for a week only when he wins, that's it; MLA comes for a week or month, takes a vote and goes, that's it; there is no one who has come to ask our difficulties."

Thirdly, an uncertainty still exists regarding the continuity of the project in the instance of a new government in 2020. This ambitious proposal of the current Prime Minister Mr. Narendra Modi might see its culmination if the current government is not re-elected for the next term and the newly formed government terminates or modifies the project, as has been the case of many urban reforms in India. For example, JnNURM (Jawaharlal Nehru National Urban Renewal Mission), an infrastructure project introduced by the previous government saw its schemes fall under the novel tag of smart cities. However, the continuity of the smart city project if a new government is formed in 2020, remains a quandary says the corporator, Mr. Ravi,
"Next in 5 years they say they would give 1000 crores INR [13.5 million euros], now already 3 years are done. So when the next government comes in, in 2 years, then the same policy will continue or not, we don't know. As you know, when it is going well only, they stop such works. Such issues are a lot in India. Same when Mr. Vajpayee [ex-prime minister] proposed the road from Kashmir to Kanyakumari, after the government changed, it was shelved."

Fourthly, the factors that affect the role of NGOs as discussed under Chapter 2 can be reiterated here specifically in the case of SC Tumakuru. Clean city Tumakuru Association has been conducting awareness programs under the program of 'Swachch Bharat Andolan' (Clean India Movement) as a first step towards smart city. The importance of Under Ground Drainage (UGD), segregation of wastes and ensuring frequent collection and disposal of waste by the municipality have been the initiatives of this NGO. Steered by Mrs. Jyothi Sudeendra, who initiated the move with her own finances, the NGO now has 2,000 members, mostly self-sufficient residents who voluntarily partake in their programs. With the appointment of this NGO under the smart city advisory forum, the effectiveness of their programs have reduced. With clean city project coming under the purview of smart city, the NGO tied up with the government specifically for financial support. Although awareness programs have been covered by them to a large extent, the implementation of the project has not come to light. This

has affected the trust amongst the residents. Mr. Mohammed Ibrahim, the head of CITU representing the street vendors, says

"They came as Swachcha Bharath and look madam, look at the main road, its dirty and filled with smoke.(…) they have the responsibility, they have to stand and get it done, not just give speeches. It won't happen then. Cleaning a street for two days and leaving it, it won't happen. Without an end, they have to get this done."

Mrs. Jyothi who head the NGO expresses her dilemma, she says,

Initially, I put in my own money. I told my directors, I have some money, let us create a model with this and present to see how public would react. So we, the board of directors did it on our own. (…) Then slowly, people from other neighborhoods started coming to me and extending support to develop their neighborhoods in the same scale. That's when I came to the Commissioner. How else would I get funds? (…) I am satisfied but I am just sad that I haven't yet worked on it, because, every day I receive a call asking when we could start the work. This matter is giving me difficulty because all of them are busy and I feel bad that the public are showing interest but we are unable to start the work. There are a lot of problems, it is not easy. Just creating awareness, putting it in newspapers is not enough. It is important after you start awareness you do the work within a week. (….) Next projects will be told by the DC [District Commissioner] to take about 10 areas. There is a system followed and we have to do it that way.

(…)Only thing is that when the public is so involved, the system has to be fast, but it is very slow. It hurts a lot after doing such big awareness programs."

The fifth indicator can be attributed to the change in consulting firm between the first and second stages of preparing SCP. SCT appointed LEA consultants for the preparation of formats of citizen engagement and ABD during Round 1 of selection. After this round, to continue with the same firm, the contract of the consultants had to be altered according to KTPP act (Karnataka Transparency in Public Procurement). This act was framed to encourage transparency in the procurement of services by the act of inviting tenders, processing them and accepting the best offers. According to this act, there is an exemption of 50% in the consultant's fee under the context of a continued project. With first payment of 28 lakhs INR (37,400 EU) to LEA consultants during the first stage, it was revised to 14 lakhs INR (18,700 EU) in the second stage. This was opposed by the firm and the process of tendering was re-initiated. Explaining this, the urban planner of the SCT team said,

"They [LEA Consultants] negotiated upto 25 lakhs. Fresh tendering was called upon through e-procurement in which LEA also participated but they fell at L2 [rank 2] and iDeCK at L1 [rank 1 i.e., the lowest bid]. So they were selected."

In this midst of consulting firm's change, the new proposal saw alterations by iDeCK consultants. Nevertheless, citizen engagement was not re-done or an attempt to enhance participation did not frame their initiative. Moreover, on-field involvement of this firm was absent. However, improvisation to the ABD in filling the missing links, discussed under citizen engagement initiative section of this chapter, remained their objective. The manager at iDeCK consultants said,

"Actually, we didn't revise the opinion of the public; we have taken output of the same public. (…) Basically the structure changed from what had happened in round 1. (…) Frankly citizen engagement we didn't do much because we were consultants only in round 2. In round 1 we were not directly involved for that. (…) we just know the outcomes of it [citizen engagement of stage 1] to the extent that apart from the paper response we were not directly involved in it. On ground, we did not spend time."

Lastly, certain internal inequalities and differences still exist between the communities, especially in the informal settlements. The reason behind the mention of the term *internal*

inequalities specifies that such factors are not visible or spoken about openly. From matters such as equal distribution of services, for example, stating the words of a resident in Maralur Dinne slum, "For this colony's population there are a lot of difficulties, they cannot do it [smart city], here one person doesn't like the other. (…) They haven't provided facilities properly. A tap for every 10 houses, one person takes or collects more than the other. Why is it so? Why can't they provide it equally? SO they have to come, find to what are problems are in each and every house."; To matters concerning conversions within castes to avail exclusive rights – for example, the untouchables or dalits belong to the Scheduled Caste and they avail reservations or exclusive rights in various sectors under stipulated protection laws of India and to avail such rights, the other castes convert to SCs; this is causing differences amongst the residents.

The injustices discovered during the fieldwork have been deliberated with the intent of answering the research questions and the objective. Specific to the target group of vulnerable, a hypothesis explaining the factors that provoke their exclusion in various ways i.e., direct or indirect, have been identified and categorized. Supported by evidences that verify this hypothesis, the aforementioned sections unfold a rather arduous bearing on the project. Nonetheless, on-field experiences also highlight an optimistic fascia that increases the significance of the project and entrusts scope for amendments.

4.6 Conclusion – A riposte to the research questions

The chapter revealed main findings of fieldwork to untangle various aspects under their respective variables. With an explanation to the smart city project formulated by MoUD and correlating it to on-ground experiences in the city of Tumakuru, this chapter laid out evidences in support of cognitive discussions. Coherence with the concept helped in further evaluating its main atom, citizen participation. The significance of participatory methods adopted and the awareness programs conducted were scrutinized to unfold bumps in the ride. An underlying fact of zero participation in slum areas, as well as affluent areas and inconsistent participation of the three respondents out of 26 in total, necessitated the ploughing of primary and ancillary influences - ranging from lack of information, access to information, prevalent poverty conditions, governance tools – formation of SPV that questions RTI act, political and administrative concerns. The direct and indirect effects of these stimuli are concluded below as a response to the sub-research questions, thus providing an evaluative outlook on the main research question.

4.6.1 Sub-Research Question (SRQ) 1:

Firstly, this research interrogates the participatory methods adopted in Smart City Tumakuru (SCT). The adoption of both offline methods such as surveys, face to face interactions and public gatherings; and online portals such as social network sites, websites and via e-mail were stipulated by MoUD guidelines. However, it is crucial to judge the tenacity of these in strengthening participatory democracy.

The table below explains the offline and online methods adopted along with the agents of awareness.

Table 4.4

OFFLINE	Awareness		ONLINE	Awareness
Surveys through feedback forms	Print media such as newspapers, hoardings and flyers		Facebook, Twitter and WhatsApp	Through mobile application users such as educated class or the elite
Public meetings	Marathons and rallies		Website – for online polls/votes	Links shared on social network applications
Media conducted interviews	Broadcast media - TV and radio		Email for ideas and grievances	www.MyGov.in, www.tumkurcity.mrc.gov.in
Technical Workshops, Exhibitions and Fairs for personnel				Broadcast media - TV and radio regarding the websites.

The offline participatory methods mentioned above were also part of awareness programs that would foster interest amongst citizens and thus impact the scale of participation. However, the outreach to these approaches reveal a contrasting image. The fieldwork sample defining opinions of 26 respondents together from informal settlements and affluent areas, have fundamentally expressed an absolute non-participation in this initiative and more so in online methods that were available. A total of 3 respondents have participated offline, however, they have been inconsistent. This accounts to partial participation. An investigation into the proceedings of offline methods adopted and its outreach, it has firstly been evaluated that selection of the sample has been random and secondly the impact on overall participation seems linked to contextual parameters, dealt with in the subsequent section.

4.6.2 Sub-Research Question (SRQ) 2:

The crevices to participation are several, as discussed under Chapter 2, section 2.4.3. Overlaying these pre-established shortfalls with findings of this research will help postulate a cognitive logic to the contextual reasons behind non participation.

1. Random selection during offline participatory methods has been one of the reasons that portrays a tilting outreach i.e., with educated class forming the majority. To substantiate this statement, an exploration into the distribution of feedback forms shepherded by SCT has been made available by and large in the affluent areas of Tumakuru and in the public meetings which were attended mostly by the educated. Besides, the design of survey questionnaire discussed under Chapter 4 is also a reason to ponder. Table 4.3 that shows the results of feedback forms justifies the involvement of educated class as a majority supporting the disposition of urban reforms as creations of advanced capitalism, catering primarily to the elite and educated.
2. Another primary concern that has swayed the outreach is access to information. The representatives and NGOs embodying the voices of poor and vulnerable are expected

to be the sources of information, however, on-field results portray the contrary. Discussions amongst representatives have taken place at the organization level and direct communications with citizens are completely absent. Online access to information is overruled with the fact that none of the interviewed respondents have participated online and moreover the access to such sources such as computers, internet or smartphones and knowledge on its utility is close to ground amongst the citizens. Furthermore, India as a country fares very low in terms of digital penetration (35%) and mobile data usage when compared to the Western World (90%). Yet again, the outreach appears curbed.

3. Poverty as discussed under chapter 2 is beyond the measures of economic conditions and extend to lack of opportunities, services and social discriminations, the latter being a core concern for dwellers of informal settlements in Tumakuru. Some parts of the city, specifically Maralur Dinne slum still have common water connections which bring about inequalities and differences between the dwellers. Problems with power supply and sanitation persist to a substantive scale. With lack of basic amenities in these settlements, the insurgent dwellers question their rights on the availability, access and equal distribution of utilities. For them, the concept of a smart city appears farfetched and fanciful. Moreover, with infrastructure issues all over the city, citizens call upon the smart city project to address such concerns prior to formulation of smart solutions.
4. Formation of a Special Purpose Vehicle (SPV) subsequent to the approval of the ABD plan have raised the brows of political leaders and ward corporators probing autonomy of power. The design of SPV has been elaborated under Chapter 4. SPV necessitates a PPP arrangement for implementation of smart city project. With this, on one hand, slum dwellers fear displacement under the name of redevelopment, raising issues on RTI act of India and on the other hand, insurgent corporators fear a restricted control on finances. Furthermore, with the selection of a smart area for development, the funds allotted gets restricted to a chosen area, CBD in the case of Tumakuru, which brings about inefficiencies and differences between other areas in the city. The concept of PPP is still new to India and with representative democracy still existing, this concept remains a quandary for many.
5. Administrative bureaucracy that exists in the state of Karnataka has challenged the proceedings of many projects, delaying its course. Although a decentralized format exists that dictates autonomy of powers to favour transparency and accountability, the disquiets of political and administrative systems materialize as hurdles to smooth development.
6. The most blatant purpose for non-participation has been distrust that the citizens express about the prevailing system. Short lived and sporadic dedication of the political leaders on civic responsibilities juxtaposed with their incessant involvement during electoral contestations has demeaned the trust of citizens on urban projects of any scale i.e., projects initiated by the national government or the state or even the local level corporations.

4.6.3 Sub-Research Question (SRQ) 3:

The previous section demonstrated an interplay of contextual realities specific to Tumakuru which influence the level of participation of its citizens. Educing focus on the vulnerable class

of society, an evident lack of information and awareness regarding the project have resulted in their absolute detachment. The reasons for dissuasion in partaking in this initiative have been reasoned out previously. With the hypothesis supposing low levels of participation of vulnerable class, the fieldwork, unpredictably, revealed non-participation of affluent classes as well. Citizen consultation results attached under Annexure 5 reveal data on their participation. Here as well, the main concern remains to be its outreach as specified in the preceding section. During fieldwork, four affluent areas were selected based on the secondary data made available i.e., participants of public meeting and feedback forms of survey. Information on the schedule of public meetings was primarily through newspapers and these meetings were exclusively held at universities and schools. This portrays a delimited outreach. The 12 respondents of affluent areas, interviewed during fieldwork, expressed their lack of knowledge on the concept and issues related to time as their main rivals in participating. Although not a representative sample, those interviewed mentioned about the lack of information on this regard within their communities and residential areas. In conclusion, with the level of participation assumed to be low for vulnerable classes, exclusion in terms of access to information and other contextual parameters seems to extend beyond the boundaries of vulnerable. This has stretched to other social groups airing concerns like peas in a pod. Furthermore, the harsh realities such as poverty, inequality and convoluted power relations speculated to be the primary concerns for biased participation gets outstretched when exclusion is observed in all social classes.

In conclusion, the level of participation in case of the vulnerable class and the affluent remains to be in the lower rungs of Arnstein's ladder of participation modified by Evert Hasselaar (Hasselaar, 2011), discussed under Chapter 2 outlining the attributes of 'choice' versus 'voice'. Specific to the case of Tumakuru, the level of participation remains as a 'choice' that exemplifies two features:

1. **Ignorance or non-participation**
2. **Information**

The vulnerable classes prevail at the lowest rung i.e., of ignorance and to a trifling extent at the rung of information wherein they do not exercise any influence or power. Their representation is threadbare with the absence of direct communications. Stressing on the lack of information and awareness, the affluent citizens also occupy an equivalent predicament as the vulnerable as responsive stakeholders who are consulted for opinions but do not control decisions.

4.7 A positive outlook

Scapegoating is not new in any scheme; critique on any scheme or project underscores a blame-game where citizens accuse the system, the system blames other systems and citizens, and this remains a recurring process. A plethora of concerns voiced in the previous sections dissuades any reader from perceiving the other side of fence. A positive highlight to this study included the enthusiasm expressed by respondents in understanding the basis of smart cities, voicing their interest in knowing more about the topic. At the organization level, the smart city team is promptly learning new concepts considering limitations in time; the advisory team and consulting firm have worked to give the best proposal intended amidst thorough technical analysis on existing strengths and weaknesses; looking out for opportunities with a check on probable threats. A unanimous praise was directed towards Dr. Shalini Rajneesh, an IAS officer and the Chief Secretary to SC Tumakuru. She has been a mentor to the team and an active participant in hearing out public, appointing competent officials for betterment and thereby raising the bars of quality. In spite of the weaknesses elaborated previously, Tumakuru portrays a potential for easy rectifications through its advantages in terms of its medium sized expanse

and populations, and social features such as a pragmatic smart city team and exceptionally enthusiastic citizens. Furthermore, the design of SPV is a significant step to overrule a prevailing representative democracy, with an intent to favour transparency and accountability. Although opposed for challenging the RTIA, a supplementary facet exposes this novel concept of SPV as a platform that encourages rightful use of resources with balanced roles given to private and public officials. This can be viewed as a step forward in governance which ultimately facilitates participatory democracy. With an optimistic attitude, the officials of the smart city advisory board were incited to rate the framework of smart city and the citizen engagement initiative. The responses are attached as Annexure 10 at the end of the research. The ratings expressed on a scale of 1 to 5, depicted by and large an optimistic score expressing a good judgment in terms of innovativeness, the processes and the management of the project's course, interactions and consistency in citizen participation; and an average score in terms of participation of the organizations and their consistencies.

Chapter 5: Conclusions and recommendations

The components of a smart city are evaluated to check if they tot up to the existing disquiets. A foreboding on the extent of use and access to online and offline portals along with contextual realities that can affect the spirit of participation demanded the execution of this research through thorough study into state of the art concepts and their relevancies. This enabled framing a hypothesis that targets the vulnerable class, with an objective to explore citizen engagement initiative and its components, conclude on equity concerns and propose fine-tunings if necessary.

An advanced exploration into theories under Chapter 2 provided a framework that outlines the extent of study and defines the modules of study. Operationalized variables steered in identifying sub-components that influenced the overall framework. Along with this, a first-hand analysis on the premise of Tumakuru and figurative measures of citizen participation stipulated a base for the design of an interview guide and selection of respondents under Chapter 3. Subsequently, under Chapter 4, an on-ground data collection laid out primary findings which were cross referenced with the guidelines of smart cities dictated by MoUD. The chapter further aimed at linking explorations of the fieldwork with a pre-formulated hypothesis in answering the main research question through a riposte to the secondary research questions. The hypothesis addressing enduring bottlenecks such as - issues of online penetration, digital literacy concerns and regional sensitivities; social exclusions and discriminations; an ever-prevalent representative democracy with its multi-layered power struggles in political and administrative systems, that predicted a restrictive participation of vulnerable, seemed to stretch out to other social classes as well.

The following paragraphs outline firstly, refinements to improve and strengthen citizen engagement initiative of smart cities, specific to the case of Tumakuru and secondly, infer on the relevance of smart cities concept in India.

5.1 Recommendations:

Smart cities Mission proposed by the Ministry of Urban Development (MoUD) presents an all-encompassing model in terms of design, implementation and monitoring of the progressions. However, its execution by the States/UTs and the respective ULBs is subject to circumstantial parameters. Their performance through the particulars of guidelines define their score and thereby their prospects on receiving funds from the Central Government. This imposes focus on the components of smart city with city's context as a basis to recommendations.

In this research, specific to SC Tumakuru, centring on citizen engagement initiative and directing at the vulnerable, a clear-cut indictment can be laid on lack of information and ineffectual awareness programs. However, a deep-seated opportunity lies in the societies of Tumakuru which are close-knit, notably in informal settlements. The residents of such settlements face similar issues that have them categorized as marginalized and this has seen the birth of many welfare associations within the settlements that work on internal issues and address bureaucratic oppressions. These associations also constitute Sthree Shakti Sanghas or the Women Empowerment associations. Matters related to health, security and symposiums on constitutional rights frame their schedules of discussion. Surprisingly, it has been observed that such associations are unaware of smart city and its on-goings and as mentioned under Chapter 4 even the discussions of a welfare association such as the Slum Development Board were limited at organizational or city level. As a first commendation to overcome the shortfalls of awareness and access to information, the inclusion of local welfare associations is advised.

The guidelines provide a format to the structure of advisory board headed by representative associations, however, a provision that orders firstly, the state governments and secondly, the municipalities to identify and include local associations can help bridge the missing links. Also, initiatives from the state governments, the local municipality or even the NGOs that help unite the nodes of the network i.e., the heads of such associations; educate and encourage them to work along common goals remains a vital step in inducing a cohesive nexus – a facet to Smart governance. Increased trust levels; rapid information flow and knowledge dispersal through the thicket of networks; and a unified voice, could cater to improved citizen involvement. Strong and cohesive nodes with their networks can together aim at voicing out constructive opinions through improved participation – a key to overrule representative democracy and promote participatory democracy. This recommendation limits as an elucidation to the gaps identified with respect to access and transfer of information for both offline and online methods, observed as a fundamental cause for low levels of participation of all social classes.

The Mission rightly puts forth the importance of Area Based Developments (ABD) that Tier 2 cities are in need of, more so than IT based solutions or Pan-city solutions. Citizen feedbacks form the primary sources for prioritization of aspirations to outlay them on a selected area. The gaps identified through the processes necessitates a quick evaluation and scrutiny on the means of participation. The states and municipalities stick to the guidelines specified by the MoUD, adhere to the check-lists to secure a high rating with a focused aim of being pronounced a smart city along with issuance of funds. Although autonomy in the design of participatory processes is provided to the states, gaps have been identified with the components of design of such methodologies. For example, the design of the questionnaire prepared for offline survey portrayed ambiguity in its suitability. Therefore, it becomes imperative to keep an evaluative check on planning tools such as the design of questionnaires, surveys, schedule of meetings and online portals. This seems to remain absent in the case of Tumakuru and a second commendation, here, would lie along this plane – to appoint a monitoring and evaluation department at city level to dissect the design and implementation of participatory processes, irrespective of MoUD check-list. This department can be appointed unanimously by the hitherto mentioned local associations that form the nodes of a closed network and likewise this appointed body can be devised to strengthen the nexus identified in the preceding paragraph with a simultaneous check on contextual realities. With this, the local associations and the evaluating department become inter-dependent working towards a common goal – improved participation. Their role extends to that of boundary spanners linking local corporations with citizens and counselling for strong outputs.

In conclusion, it is important to note that the validity of this study enhances with relative generalizations in a larger context. In India, most of the issues elaborated in the previous chapters continue to persist. The city of Tumakuru, is a medium sized city which is as yet tussling over the provision of good quality services and this is more or less the scenario in most of the medium sized cities in India. The larger cities and metropolises with better infrastructures can implement smart solutions at ease when compared to the medium sized cities. Cities such as Tumakuru find the necessity to provide basic services to all and more importantly, in equal proportions; further to which realization of smart solutions can be sought. Thus the findings of this research and the recommendations can be espoused at the scale of medium sized cities in India.

5.2 Inferences

The model of Smart cities in India has been the talk of the town ever since its commencement in June 2015. The concept has raised accolades for its innovativeness, specifically because this novel idea is unlike the erstwhile urban reforms that by large have tackled similar issues. To elaborate on this concern, former development projects have essentially dealt with infrastructural needs, specific to transport sectors and supply of services such as electricity, water and sanitation. Wide-ranging welfare schemes have been introduced under diverse political reigns to cater to citizen needs, aiding also to the needs' of slum dwellers and those discriminated. A pattern identified at the outset of new governments, such schemes seemingly modify to fit ideas and aspirations of its leader. To pan the lens through Dholera smart city, construed as the first representative model in the country, introduced in the state of Gujarat by its then chief minister Mr. Narendra Modi saw it burgeon nationwide through the Smart Cities Mission, with the election of Mr. Modi as India's Prime Minister. A relative comparison on the scalability of this utopian model is one facet of enquiry. Ayona Dutta's "rhetoric of urgency" (Datta, 2015, Pg. No. 5), which she describes for Dholera, can be clearly identified even in the case of Tumakuru with stunted design strategies convoluted through existing power relations, neoliberal ideas and hi-tech practices favouring only a few i.e., those educated, and most significantly the threshold of participation shrinks with its speedy reforms disregarding the native populations. A primary aspect for such speedy frameworks remains to be the political reign voicing the aspiration of one person, its leader. Thus, the significance of any project, even to this day, rests in the prevailing government's rule.

The Smart cities Mission has attempted to promote development in Tier 2 cities such as Tumakuru, which is distinct from former developmental projects in India that have constantly favoured metropolises. In such cities, it is imperative to understand the relevance of context and more so, the acceptance towards such quixotic ideas by its citizens. Persisting limitations to knowledge on the concept and therefore the inability to engage bolsters a gap between the rungs of choice and voice. It is observed here that like any other urban reform in India, the problem continues to lie along a railway track of the powerful who continue to be decision makers and citizens running parallel voicing their concerns.

The innovativeness mentioned earlier with respect to smart city lies in its behest for public participation and the use of IT based solutions. The former frames yet another significant facet of enquiry and the main objective of this research. With the core of SC concept revolving around participatory democracy, it positions citizens at a top priority level and with a reasonable perspicacity on the context of study, a hypothesis was laid out reflecting upon probable stumbling blocks that affect the course of the project. These have been elaborated in the previous chapter with incessant issues such as poverty, inequality and informality; digital literacy, that create insecurities and marginalization. The quandary to be glared upon lies in the degree of importance given to this facet, firstly, by the policy makers and secondly by the individual cities. Translation of the idea and significance of a participatory framework as the crux of this project has been disproved with significantly low levels of participation, the reasons being diverse and many. Therefore, citizen engagement as a fundamental component that is expected to influence the course of a smart city remains impeded at various levels.

Overall, the significance and the permanence of Smart Cities Mission seems to lie in the political reign because, the translation of aspirations of one leader or the will of policy makers appears to be lost at city level. Failure in the implementation of a participatory framework has placed this concept at an equivalent level of former urban reforms of India. This is also indicative of smart cities' concept falling under one of the utopian models of global North prototyped in a post-colonial context.

Nevertheless, a cognitive judgment on the prevailing findings of this research seems crucial in deliberating an optimistic outlook. Firstly, it has been observed that, with change in political rule, the developmental schemes or reforms remain unchanged in their core concepts; thus, adapted or modified to suit the present by broadening their scope beyond core objectives. In this way, the participative framework proposed under smart city concept promises to remain a foundation for subsequent projects irrespective of its banner. That is to say, if the tag of smart cities gets nullified with change in political rule, the prevailing guidelines prove to be a baseline for the preparation of other policies. Secondly, with the implementation of speedy strategies, the scale of participation has been observed to be near to ground plane. However, this should not overrule the existing participation records that voice the citizens' need to a certain extent, the efforts put within limited premises and an overview on growing patterns observed in the use of smart tools (smart phones, mobile applications etc.,). Thus, with the promises of a participatory framework and proactive citizens, confidence in participatory democracy being practiced in the near future can be ascertained.

As a protraction to this research, it can be recommended to pursue a detailed analysis on the participatory framework after the implementation of the proposal, be it area based proposals or Pan-city solutions. The findings can help strengthen the significance of smart city concept, and its relevance in India, through an evaluative scrutiny on translation of citizens' voices.

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Annexure 1

Interview Guide:

- ✓ Introduction of self.
- ✓ Introduction to the research and the intent.
- ✓ Indication on the time to conduct interview.
- ✓ Seek permission to conduct the interview if feasible for the time specified.
    - o If not, seek appointment for another day/ at another time.
    - o If yes, seek permission to record the interview
- ✓ Request to use/reveal relevant details (to quote the interviewed, specify figures mentioned etc.,) from the interview, for the research
    - o If not, assure anonymity.
- ✓ Re-assure on the interview being recorded and begin.

A. Interview guide for Institutions:

Name :		
	Description	**Code**
Gender	(1) Male (2) Female	
Organization	(1) Public (2) Private (3) Civil society (4) Others	
Organization name:		
Designation:		

Questions:

1. **What is smart city according to you?**
2. **What is the framework of smart city's citizen engagement initiative?**
3. **What were the stages in this initiative?**
4. **What were the methodologies/processes followed to involve citizens?** *(to understand online and offline methods and implementation strategies – access, information, response to query, citizen control)*
5. **Who are the main stakeholders?**
    - *How were they involved,*
    - *Did they participate through all the stages you mentioned? and*
    - *What was the basis of selection?*
6. **Could you provide an insight on your role in the organization and further in the initiative?**
7. **Smart governance is all about transparency in the processes. How is this carried out in your organization?**
8. **Could you explain the interactions with,**
    - *Firstly, the citizens*
    - *Secondly, the counterpart organizations involved during seminars and workshops?*
9. **Could you explain the response from,**
    - *Firstly, the citizens*
    - *Secondly, the counterpart organizations involved during seminars and workshops?*
10. **What are the future stages to the processes?**
11. **What are your personal experiences during the interactions?**
12. **Would you suggest new ideas apart from the agenda?**

13. To wrap it up, If you had to rate the following from a scale of 1-5, how would you rate…?

Description	***Rating***
The framework of the citizen engagement initiative	
i. *The level of innovativeness in the framework* *(1) Poor (2) Below Average (3) Average (4) Good (5) Excellent*	
ii. *The processes carried out and the management* • *Poor – Haphazard (not as per guidelines and no management)* • *Below Average – poor implementation and poor management* • *Average – Implementation with standard management* • *Good - As per guidelines with good management* • *Excellent - Beyond expectation; transparency in processes*	
The participation of counterpart organizations *(1) Poor* – never attended *(2) Below Average* - attended only in the initial stages with no inputs *(3) Average* - participated in the initial stages *(4) Good* – participated as per guidelines/expectations *(5) Excellent* – contributed beyond expectation	
The response of the citizens *(1) Poor – no interest, poor participation* *(2) Below Average – fair participation in comparison to the entire population* *(3) Average – participation/ representation with poor consistency* *(4) Good - as expected and consistent* *(5) Excellent – beyond expected*	
The satisfaction on the outcome of the consultations/ proposal *(1) Not at all satisfied* *(2) Not satisfied* *(3) Partially satisfied* *(4) Satisfied* *(5) Highly satisfied*	

14. Are there any questions/clarifications that you would like to ask me?

B. Interview guide for Citizens:

Name :		
Age:		
	Description	**Code**
Gender	(1)Male (2) Female	
Education	(1) No education (2)Primary (3) Secondary (4) Pre-university (5) Bachelors' (6) Higher	
Marital status	(1) Single (2) Married (3) Divorced (4) Widowed	
Religion	(1) Hindu (2) Muslim (3) Christian (4) Jain (5) Others	
Caste	(1) Brahmin (2) Vokkaliga (3) Lingayats (4) SC/ST (5) Kurubas (6) Other Backward Classes [OBC]	
Occupation	(1)Public (2) Private (3) Self-employed (4)others	
Company name and Designation:		
Location of stay:		
Location of work:	(1) at residence (2) in the neighborhood (3) other neighborhood	
Distance to work		

1. **What is smart city according to you?**
2. **What do you know of the smart city's citizen engagement initiative?**

Instance 1:

- **Did you take part directly in this initiative? If yes,**

a. Let us first start with – How did you receive the information or get to know about the initiative? (awareness)

b. Could you describe the ways in which you participated?
   a. If online, ease of access, membership criteria, time, support centres, control of data
   b. If offline, ease of access, time, support centres, control of data

c. Did you participate in all the steps and processes till date?
   a. If yes, could you describe the stages of involvement?
   b. If not, what made you stop participating?

d. Could you describe the response systems i.e., explain about the public grievance systems and the access/control of data

If you had to rate the following from a scale of 1-5, how would you rate…?

Description	*Rating*
The framework of the citizen engagement initiative	
1. *The level of innovativeness in the framework* *(1) Poor (2) Below Average (3) Average (4) Good (5) Excellent*	
2. *The processes carried out and the management* *(1) Poor – Haphazard (not as per guidelines and no management)* *(2) Below Average – poor implementation and poor management* *(3) Average – Implementation with standard management* *(4) Good - As per guidelines with good management* *(5) Excellent - Beyond expectation; transparency*	
The response of the organizers to queries *(1) Poor* – no response/ initiatives for citizen grievance *(2) Below Average – active during contest (smart city selections)*for documentation purposes *(3) Average* - active in the initial stages of citizen engagement *(4) Good* – active through all the stages till date *(5) Excellent* – assistance provided beyond expectations	
The response of other citizens *(1) Poor – no interest, poor participation* *(2) Below Average – fair participation in comparison to the entire population* *(3) Average – participation/ representation with poor consistency* *(4) Good - as expected and consistent* *(5) Excellent – beyond expected*	
The extent of your participation in decision making *(1) Poor – no control* *(2) Below Average – 'consulted' only in the initial stages during smart city selection* *(3) Average – 'consulted' through the processes but not for decision making (choice)* *(4) Good - 'consulted' and participated in decision making (Voice)* *(5) Excellent – citizen control*	
The satisfaction on the outcome of the proposal/ How true was it to the promises made? *(1) Not at all satisfied* *(2) Not satisfied* *(3) Partially satisfied* *(4) Satisfied* *(5) Highly satisfied*	

e. Are there any questions/clarifications that you would like to ask me?

Instance 2:

- **If not directly, were you represented by anyone or any organization?**
  a. Could you name the organization and the link with them? (history, if any, for previous projects)
  b. Could you explain your interactions with him/her or them for the smart city initiative? (No. of times they contacted, if informed on the proceedings/stages, bi-lateral or otherwise?)

If you had to rate the following on a scale of 1-5, how would you rate….?

Description	***Rating***
The organization's approach to the citizen engagement initiative	
3. *Information/assistance provided (before and after)* *(1) Poor – no knowledge or no information* *(2) Below Average – heard from others about it, but not personally informed or consulted* *(3) Average – consultations in the initial stages with no information after proposals* *(4) Good – consulted through the stages and informed throughout* *(5) Excellent – involved actively and beyond expectations*	
4. *The deliverance of promises* *(1) Poor (2) Below Average (3) Average (4) Good (5) Excellent*	
The interactions of the representatives and the management *(1) Poor* – no interactions *(2) Below Average – few interactions in the initial stages* *(3) Average – standard management* *(4) Good* – active through all the stages till date *(5) Excellent* – assistance provided beyond the stages stipulated; transparency	
The satisfaction on the outcome of the proposal/ How true was it to the promises made? *(1) Not at all satisfied* *(2) Not satisfied* *(3) Partially satisfied* *(4) Satisfied* *(5) Highly satisfied*	

c. Are there any questions/clarifications that you would like to ask me?

Instance 3:

- **No participation?**

a. What were the reasons for non-participation?

b. Why do you think you were not informed?

c. Are there any questions/clarifications that you would like to ask me?

Annexure 2

Fieldwork logbook June-July 2016

Week	Date	Day	Activit(y)ies	Document type
Week 1	16/6/2016	Thursday	Visit to Smart cities India foundation, Centre for sustainable development	
	17/6/2016	Friday	Visit to Tumakuru city Corporation, Smart city department	
			Introduction with Mr.Abilash, Urban planner, Smart City Tumakuru	Documents related to citizen engagement
			Interview with Mr. Jefin Joy (President of Youth Committee, JCI - NGO)	Recording
	18/6/2016	Saturday	Part of the council meeting - discussion on proposal for Stage 2 of Smart city Tumakuru	
			Interview with Mr.Surendra Shah (Chamber of Commerce)	Recording
			Interview with Mr.Narasimha Murthy (Slum Development Association)	
	19/6/2016	Sunday	Street Vendors of MG Road	Recording
Week 2	20/6/2016	Monday	Union Leader of street vendors	Recording
	22/6/2016	Wednesday	Interview with Mrs.Jyothi Sudeendra (Clean City Tumakuru-NGO)	Recording
	23/6/2016	Thursday	NR Colony Slum Dwellers	Recording
	24/7/2016	Friday	Maralur Dinne Slum Dwellers	Recording
			Residents fo Saraswatipuram	
Week 3	27/6/2016	Monday	Lecturer and resident of Jayanagar Mr. Subbayya	Recording
	28/6/2016	Tuesday	Residents of Vijayanagar	Recording
	29/6/2016	Wednesday	Residents of Ashoknagar	Recording
	30/6/2016	Thursday	Interview with Mr.Abhilash,Urban Planner at Smart city department	Recording
	1/7/2016	Friday	Residents of Jayanagar	Recording
Week 4	4/7/2016	Monday	Interview with iDeCK Consultants	Recording
	7/7/2016	Thursday	Interview with ward No.32 Corporator	Recording

Annexure 3

Code(s) list:

Topic	Code(s)
Smart city definition	Smart city definition
Citizen Engagement Framework [CEF]	CEF - Types –online/offline/others – workshops, marathons, rallies
	CEF - Stages/rounds
	CEF – Consistency
	CEF – Opinions, personal experiences
	CEF - Citizens' interactions
	CEF – Organizations' interactions
	CEF – Citizens' response
	CEF – Organizations' response
Stakeholders [SH]	SH – Participant organizations
	SH - Consistency in attendance
	SH - Selection basis of the stakeholders
	SH - Organizational description (what they do)
Awareness	Awareness- online/offline
Accessibility	Accessibility- online/offline
Participation	Participation – Yes/No
	Participation – Reason
	Participation - Self-initiation to participate
Contextual realities	Administration
	Governance – Feedback systems/transparency
	Political system
	Inequalities/discriminations/informality
	Poverty/slums
Others	Personal opinions/ideas/experiences
	Future prospects
	Questions addressed to me
	Miscellaneous
	Unrelated

Annexure 4

Survey Questionnaire format of SC Tumakuru

TUMKUR SMART CITY
QUESTIONNAIRE FOR CITIZENS OF TUMKUR - 1

1 What are the main problems of Tumkur City ?

- ☐ Water Supply
- ☐ Sewerage Facilities
- ☐ Public Transport
- ☐ Parking Provisions
- ☐ Pedestrian Facilities
- ☐ Solid Waste Collection
- ☐ Drainage
- ☐ Traffic Congestion
- ☐ Power Supply

2 Are you satisfied with water supply in the city?

a. Interval of Supply	☐ Yes	☐ No
b. Water Tariff	☐ High	☐ Ok
c. Access to Water	☐ At house	☐ At Community Level

d. Your opinion on provision of water supply _____

3 Are you satisfied with solid waste collection in the city?

a. Are you satisfied with waste collection ?	☐ Yes	☐ No
b. Door-to-door collection	☐ Yes	☐ No
c. Where do you dispose solid waste	☐ MCT Bin	☐ Nearby Open Space
d. Whom do you pay for waste collection	☐ MCT	☐ Private/ Others

4 Are you satisfied with provision of sewerage facilities?

☐ Sewer Connection ☐ Septic Tank ☐ None of them

5 Are you satisfied with provision of drainage facilities?

a. Drainage in your area?		☐ Yes	☐ No
b. Type of drain	☐ Open drain	☐ Covered drain	☐ No facility

6 Are you satisfied with power suppy?

a. Power supply in your area?		☐ Yes	☐ No
b. Hours of power cuts	☐ No	☐ Less than 2 hrs	☐ More than 2 hrs

7 Are you satisfied with public transport facilities?

a. Public transport in your area?			☐ Yes	☐ No
b. Mode of transport to work/ edu	☐ Bus	☐ Car/ Pvt Vehicle		☐ Walk/ Cycle

8 Are you satisfied with parking facilities in the city?

a. Do you have a Vehicle (if Yes)	☐ Car	☐ Bike	☐ Cycle	☐ None	
b. parking facility in your area?			☐ Yes	☐ No	☐ Not Relavant
c. Parking facility at work place	☐ Planned Area		☐ Road Side		☐ No Provision

9 Are you satisfied with Pedestrian & Walking Facilities?

a. Availability of walking areas/ walkways	☐ Yes	☐ No
b. Is walking safe in the city ?	☐ Yes	☐ No

10 Are you satisfied with Provision of Social Infrastructure in the city?

a. Adequate health facilities available ?	☐ Yes	☐ No
b. Adequate schools available ?	☐ Yes	☐ No
c. Adequate shopping area available ?	☐ Yes	☐ No
d. Adequate recreational area available ?	☐ Yes	☐ No
e. Availability of security facilities ?	☐ Yes	☐ No

11 What change/ improvement would you like to see in Tumkur city?

a. In the next 5 years _____
b. In the next 10 years _____
c. In long term _____

12 What in your opinion, Priority sectors to be tackled immediately in Tumkur city ? (give numbering)

- ☐ Water Supply
- ☐ Sewerage Facilities
- ☐ Public Transport
- ☐ Parking Provisions
- ☐ Pedestrian Facilities
- ☐ Solid Waste Collection
- ☐ Drainage
- ☐ Traffic Congestion
- ☐ Power Supply
- ☐ Others

Name: _____
Mobile Number: _____
Address: _____
_____

Note: Please send your detailed opinion to 'asiddiqui@lasaindia.com' OR 'ashishbatra86@gmail.com' & 'smartcitytumakuru@gmail.com'

TUMKUR SMART CITY
QUESTIONNAIRE FOR CITIZENS OF TUMKUR - 2

Tumkur is on the path of becoming a smart city. Every citizen will be a stakeholder in the bright future of the city. Your first contribution will be in the form of your good advice/ opinion on City's future vision, projects/ development priorities.

1	The Vision for Tumkur city will include the following:				
a	a slum free city with good opportunity to all communities/ people	☐ Yes	☐ No	☐ Can't say	
b	a prospering industrial city free of poverty	☐ Yes	☐ No	☐ Can't say	
c	a city with efficient public transportation	☐ Yes	☐ No	☐ Can't say	
d	a city with effective and usable public parks & amenities	☐ Yes	☐ No	☐ Can't say	
e	a city free of waste on roadside & public spaces	☐ Yes	☐ No	☐ Can't say	
f	a city using its own clean sustainable energy	☐ Yes	☐ No	☐ Can't say	
g	a city free of encroachments	☐ Yes	☐ No	☐ Can't say	
h	safe & secure city for all having smart security	☐ Yes	☐ No	☐ Can't say	
i	a city caring for its future generations in resource conservation incl water	☐ Yes	☐ No	☐ Can't say	

2	Pl choose from the following projects for RETROFITTING [use numbers 1-6 for priority]:	
a	in-situ slum development & resettlement	☐
b	networked sewerage & drainage systems of treatment & reuse	☐
c	dual water pipeline to all houses for reuse of treated water	☐
d	compulsorily instal solar water heaters & rainwater harvesting system/ mechanism at all roof tops	☐
e	compulsorily instal solar panels for solar power in all houses	☐
f	a city using its own clean sustainable energy	☐

3	Pl choose from the following projects for REDEVELOPMENT [use numbers 1-5 for priority]:	
a	mixed use redevelopment of select pockets by land assembly	☐
b	clear encroachments & build kiosks as informal markets	☐
c	recreation/ lake redevelopment project	☐
d	save lake program/ shram dan campaign	☐
e	recreational facilities/ parks around the lake	☐

4	Pl choose from the following list for GREEN FIELD PROJECTS [use numbers 1-3 for priority]:	
a	a new industrial park with mixed use integrated development	☐
b	knowledge city involving various educational institutions/ facilities	☐
c	eco-tourism/ recreational facilities around the forest/ hills	☐

5	Pl choose from the following list for CITY-LEVEL PROJECTS [use numbers 1-7 for priority]:	
a	dual water pipeline at city level for reuse of treated water	☐
b	rainwater harvesting and groundwater recharge pits at city level	☐
c	solar lights on streets across the city	☐
d	solar panels across government and other big buildings	☐
e	pedestrian facilties & cycling lanes throughout the city	☐
f	city wide fibre optic network for high-speed connectivity	☐
g	city level survelience for safety, security & eradication of crime	☐

Name: _____

Mobile Number: _____

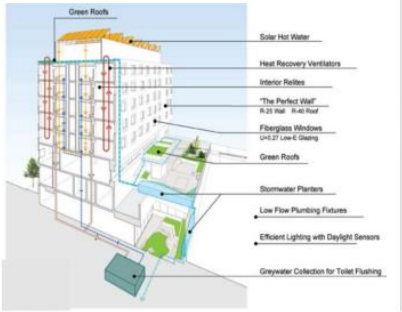
Address: _____

Note: Please send your detailed opinion to 'asiddiqui@lasaindia.com' OR 'ashishbatra86@gmail.com' & 'smartcitytumakuru@gmail.com'

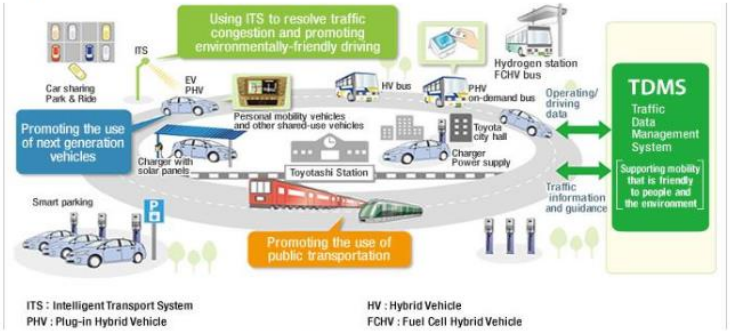
Annexure 5

Citizen Consultation SC Tumakuru

3-1. Citizen Engagement – Smart Applications & Benchmarks

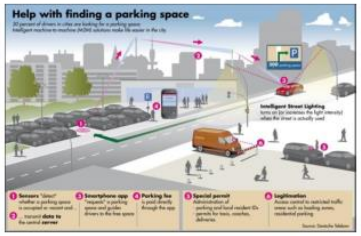


Smart & Intelligent buildings

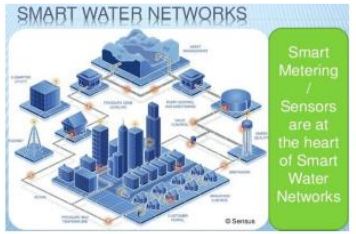


Smart Mobility/Smart Transportation

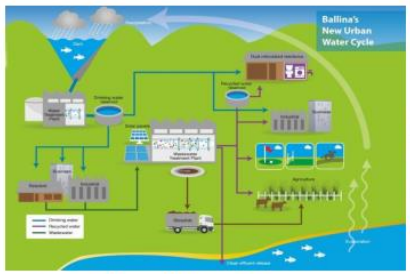
Mixed use and Transit Oriented Development



Smart Parking

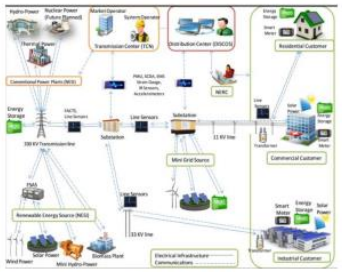


Smart Water Supply Management



Smart Waste Water Management

Smart Solid Waste Management



Smart Energy/Grid Management

Smart & Safe City

3-2. Citizen Engagement – Through Pictures

Citizen Engagement held on 18th Sept 2015

Citizen Engagement held on 22th Sept 2015 with Minister, MP, MLA, PS, DC, Mayor in attendance

Citizen Engagement held on 24th Sept 2015

Citizen Engagement (Architecture students @ SIT) held on 24th Sept 2015

Citizen Engagement held on 27th Sept 2015

Citizen Engagement held on 29th Sept 2015

Citizen Engagement held on 30th Sept 2015

Citizen Engagement held on 7th Oct 2015

Technical Consultations/ Workshop with Personnel – various dates

Engagement with Dr. Shivkumar Swamiji, Elected Representatives & Technology Providers – various dates

3-3. Citizen Connect–Means and Outreach

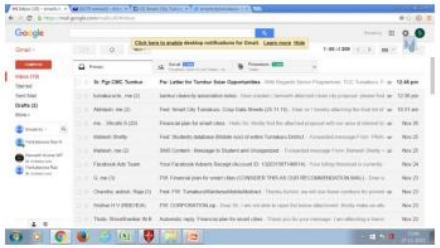
Facebook.com (42192 Likes, Outreach 354432, Engagement 18972)

Radio Siddhartha
(2 lakh listeners X 10 days X 8 Jingles)

Google Forms for Citizen Feedback
(6256 feedbacks in Round One and Two)

Whatspp Mobile Application
(5257 group members in 600 groups)

Twitter.com (28 Followers, Outreach 15744)



Gmail.com (4645 emails for smart city suggestions)

Suggestion Drop Boxes @ 6 Locations
(256 suggestions, 17 vision statement entries)

Mygov.in {13745 Submissions (Round 1 & 2), 34 essay competition entries, 1011 Poling Entries(Round 2), 4512 submissions (Round 3)}

Tumakuru City Corporation Website
(18,953 views for smart city page)

OTHERS

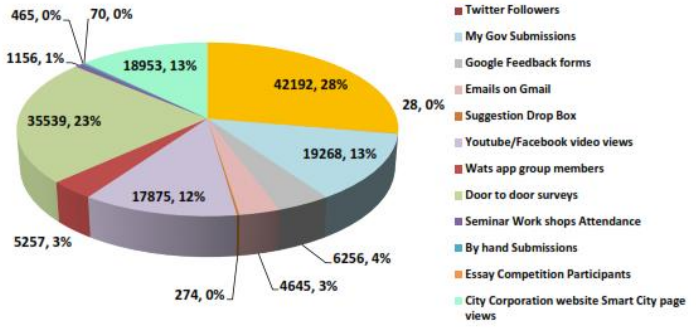
- Door to Door Feedback Survey:- **35539 Door Hits**
- Bulk SMS Services:- **1163120 X 3 SMS Sent for Awareness & Competitions**
- Seminars/Workshops:- **1156 Participants**
- Offline/By hand Suggestions:- **465**
- Speaker Announcements:- **3 Days X 3 times X 8 hrs (8 Awareness messages)**
- Drawings/Sketches:- **Urban Design Competition in SIT Tumakuru (4 groups with total 36 participants)**

DESIGNED LOGO

Youtube.com and Facebook Videos (17875 Views)

Vision Statement and Essay Writing Competition (Banners & Flyers)
(27 participants for visions/tagline statement, 34 participants for essay writing)

Total Citizen Engagement (1,51,978 Numbers)



3-4. Citizen Engagement- Media Coverage

Technology Fair, Praja pragathi, 06/11/2015

Technology Session, Deccan Herald, 06/11/2015

MP on Smart City Tumakuru, Deccan herald, 28/8/2015

Smart City Press Conference, Praja Pragathi, 23/09/2015

Citizen Engagement, interest groups, Deccan Herald, 19/09/2015

Citizen Engagement, Udayavani, 23/09/2015

Meeting of Councilors at TMC; Udayavani ,26/7/2015

Udayavani, 08/10/2015, Interim evaluation

Citizen Engagement City Level, Udayavani, 08/10/2015,

Citizen Engagement City level, Udayavani, 22/09/2015

Swacch Tumakuru Mission, Praja Pragathi, 18.09.15

Technical Workshop, Udayavani, 29/10/2015

Citizen Engagement interest groups, Praja Pragathi, 20/09/2015

Technology Fair Inauguration, Udaya Vani, 06/11/2015

Visit of IAS Mrs. Shalini Rajneesh, Praja pragathi,30/10/2015

Employment Generation from Smart City, Praja pragathi,07/11/2015

3-5. Technology Fair held on 05.11.2015 (Participants and Proceedings)

Sl. NO.	LIST OF COMPANIES PARTCIPATED TECH FAIR	AREA OF INTEREST	LIKELY BENEFITS	ACTUAL STATUS	MODE OF INTEREST
1	CISCO	Wireless Sensor Networks/Internet solutions, M2M IoT Solutions, Equipment vendor solutions, Service Provider Solutions	PPP	Attended tech fair and Interacted through meeting	EoI Received
2	Renlys/Rubenius	Smart Energy, Water, Smart Security and other holistic solutions	PPP	Attended tech fair and Interacted through meeting	EoI Received
3	Wipro	Integrated solutions for smart city	PPP	Attended tech fair and Interacted through meeting	EoI Received
4	Siemens - Bosch - Shapoorji Pallonji -Aecom - Sterling And Wilson	Integrated solutions for the Smart City development ,Urban Mobility, Green Transport, Safety & Security Surviliance, Sensors technology, Intellignet Traffic Management, Roof top solar energy etc	PPP	Attended tech fair and Interacted through meeting	EoI Received
5	ROLTA	Energy sector	PPP	Attended tech fair and Interacted through meeting	EoI Received
6	Indus towers	Integrated solution	PPP	Attended tech fair and Interacted through meeting	EoI Received
7	Selco	Integrated solution	PPP	Attended tech fair	EoI Received
8	ION	Integrated solution	PPP	Attended tech fair	EoI Received
9	Ayyappa Masagi - Ashoka Fellow Water Literacy Foundation	Rain Water Concepts and water conservation techniques	PPP	Attended tech fair	EoI Received
10	RYTANGLE	Mobile wifi services	PPP	Attended tech fair	EoI Received
11	AUM systems	Integrated solution	PPP	Attended tech fair	EoI Received
12	OXALYTICS	Energy sector	Consultancy	Attended tech fair	Proposal Received
13	AGENTTECH	Smart Renewablke Engry Solutions	PPP	Attended tech fair	EoI Received
14	Fi-Mesh Networks	Integrated solution	PPP	Interacted through meeting	EoI Received
15	Eram Scientific Solutions Private Limited	Network of connected e-Toilets	PPP	Interacted through meeting	EoI Received
16	Airtel	Wireless Sensor Networks/Internet solutions, M2M IoT Solutions, Equipment vendor solutions, Service Provider Solutions	PPP	Interacted through meeting	EoI Received
17	Asian Healthcare Alliance	Smart Health Services and development of Multi specialty Hospitals	PPP	Interacted through meeting	EoI Received
18	Sun ray Academy of Renewable Energy Solar system	Innovative solar water heater without overhead tank,solar street lights with the smallest battery	Consultancy	Attended tech fair	-
19	GreenSol Renewable Power Pvt. Ltd	Smart Renewablke Engry Solutions	PPP	Attended tech fair	-
20	Aaryavartha consultants	Waste Management, Mobility Management, Ecology & Sustainability, Safety and Security	Consultancy	Attended tech fair and Interacted through meeting	-
21	Relon limited	Energy efficient gas and advanced printer technologies	PPP	Attended tech fair	-
22	IBM- Schneider	Service provider	PPP	Attended tech fair	-
23	WinglobalTek	Efficient water supply, Smart mobility and smart applications for 2 way citizen interaction	PPP	Attended tech fair and Interacted through meeting	-
24	Techline Green Pvt Ltd	Waste Management, Renewable Engry Solutions, Air Pollution Control, Water treatment and waste water recycling	PPP	Attended tech fair	-
25	Preva Systems Pvt Ltd	Smart Healthcare and Smart Mobility providers	ppp	Attended tech fair	-
26	Sustain tech India pvt ltd	Energy efficient biomass cook stoves (primarily targeting BoP street vendors)	PPP	Attended tech fair	-
27	ANS CONSULTANTS	Smart Materials Provider of Concrete, Asphalt and Soil	PPP	Attended tech fair	-
28	Biogas Green Limited*	Clean Energy Solutions, Modular Biogas Solutions, Biogas Plant Services, Waste Management Services	PPP	Attended tech fair	-
29	Green Brick ECO Solutions*			Attended tech fair	-
30	Green Power Systems Limited*			Attended tech fair	-
31	Power Research Development Consultants	Electric provider	PPP	Attended tech fair	-
32	Shreegluco Biotech Pvt Ltd	Industrial application Products	PPP	Attended tech fair	-
33	Zohocorp's WebNMS	Wireless Sensor Networks/Internet solutions, M2M IoT Solutions, Equipment vendor solutions, Service Provider Solutions	PPP	Attended tech fair	-
34	Langoor	Mobile based apps	PPP	Attended tech fair	-
35	central parking system	Service provider and mobile based apps	PPP	Attended tech fair	-
36	Seminal software private limited	Software solutions	PPP	Attended tech fair	-
37	Karnataka State Road Transport Corporation (KSRTC)	SMART Applications for Urban mobility and Transport	convergence	Attended tech fair and Interacted through meeting	-
38	Directorate of Urban Land Transport (DULT)	Techniques for Urban land Transport	convergence	Attended tech fair and Interacted through meeting	-
39	Karnataka Water Supply and Sewerage Board (KWSSB)	Smart Applications for water supply and sewerage	convergence	Attended tech fair and Interacted through meeting	-
40	HPN solar	solar panel and solar street lighting	PPP	Attended tech fair and Interacted through meeting	-
41	Tumakuru Clean City Association (Ms. Jyothi)	solid waste management	co-ordination	Attended tech fair and Interacted through meeting	-

Technology Fair Inauguration Session

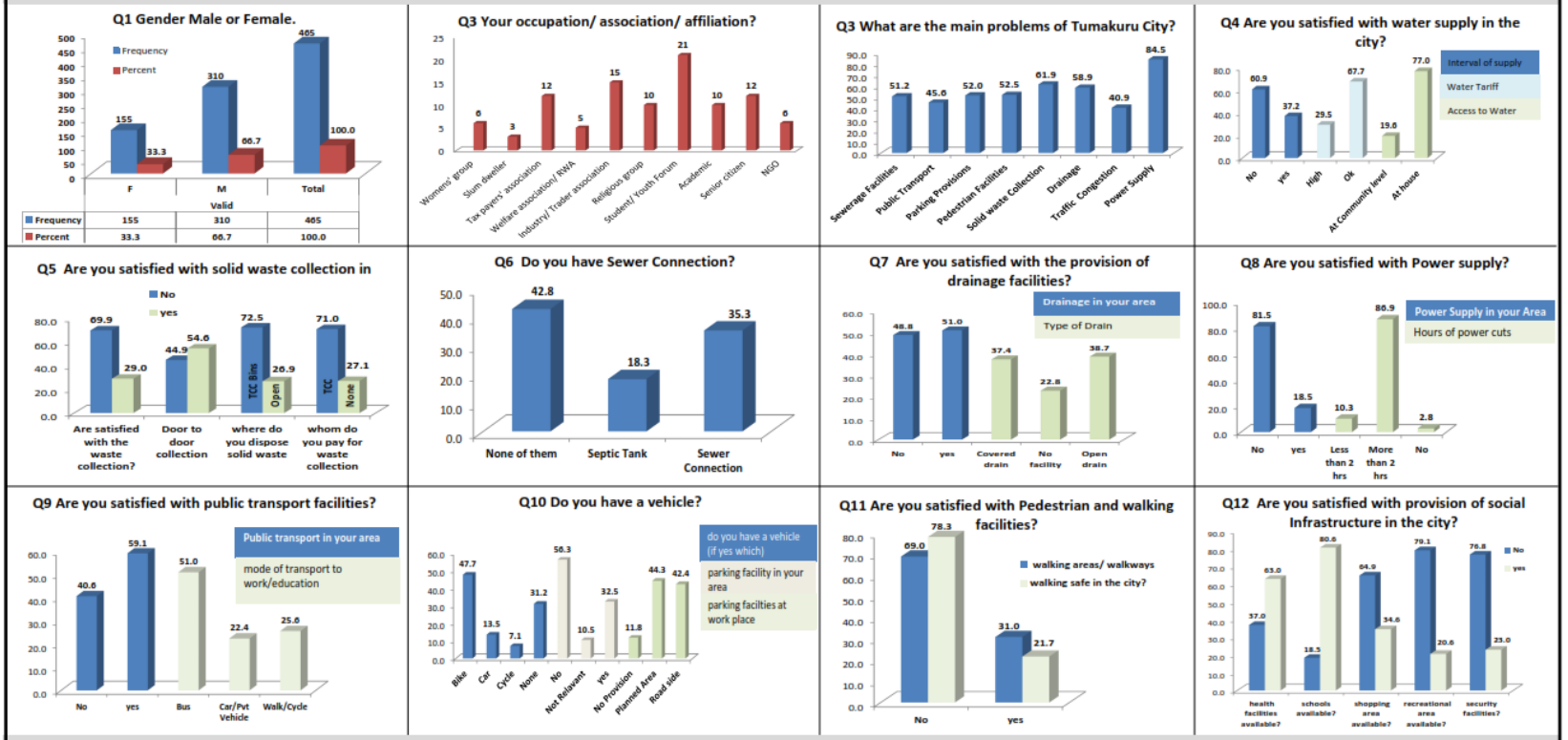
Display Stalls & Information about Latest Smart Technologies

Open Exhibition for Citizens of Tumakuru

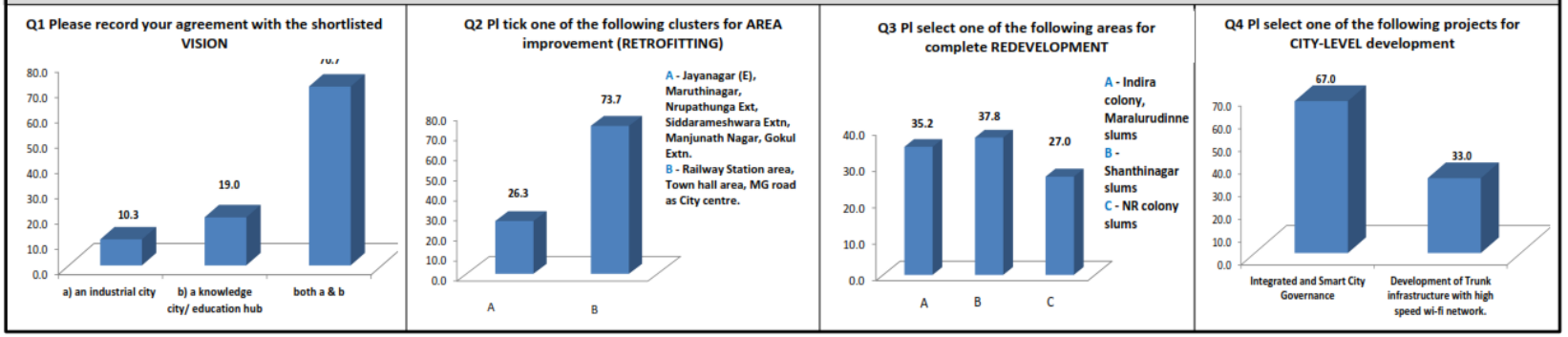
Technical Session- Presentations by Technology Providers and consultants

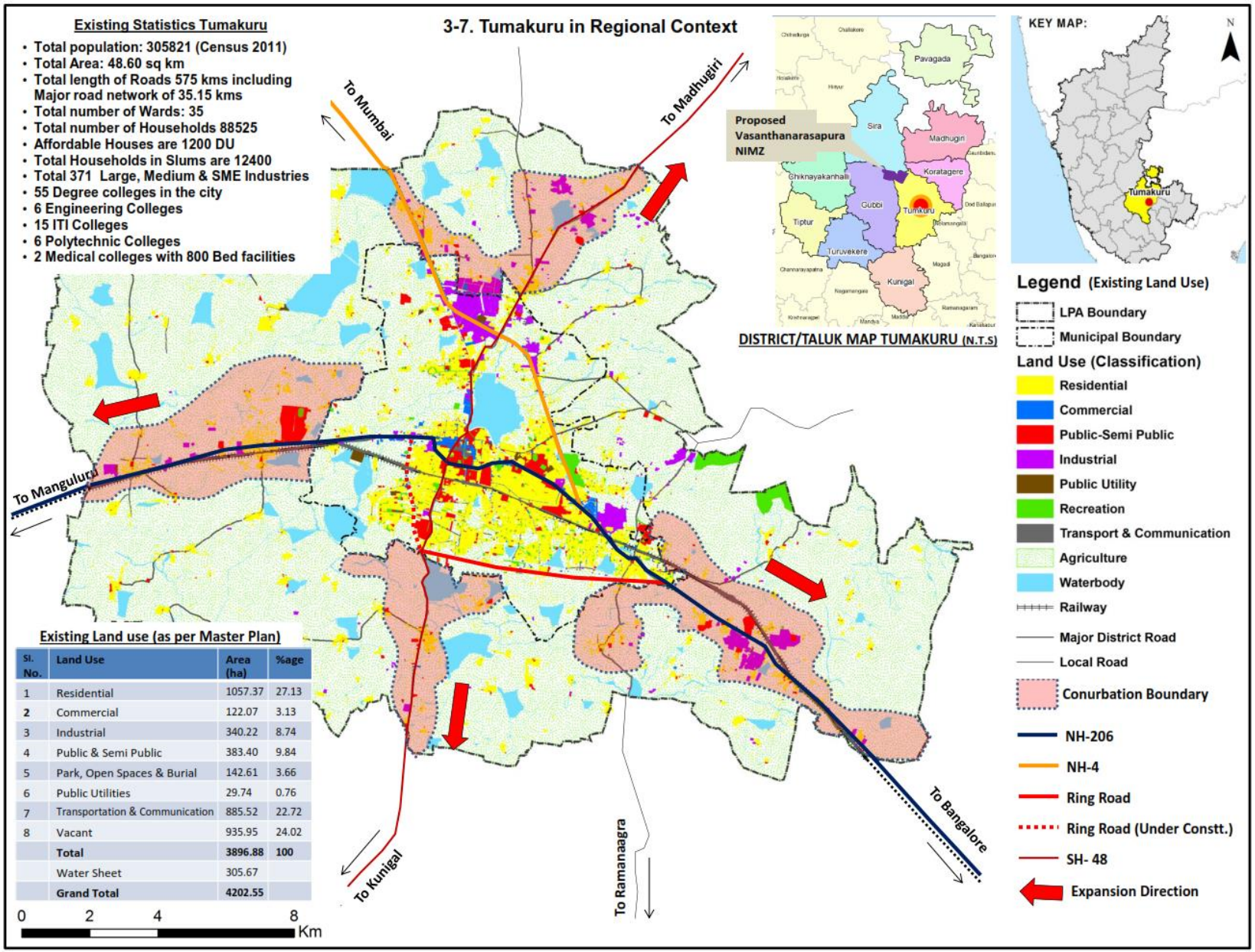
3-6. Citizen Consultation for Project Selection Insights

Round 1 Citizen Consultation Outputs (from total 16,220 feedbacks out of which 12560 feedback forms, 2200 e mails and others)



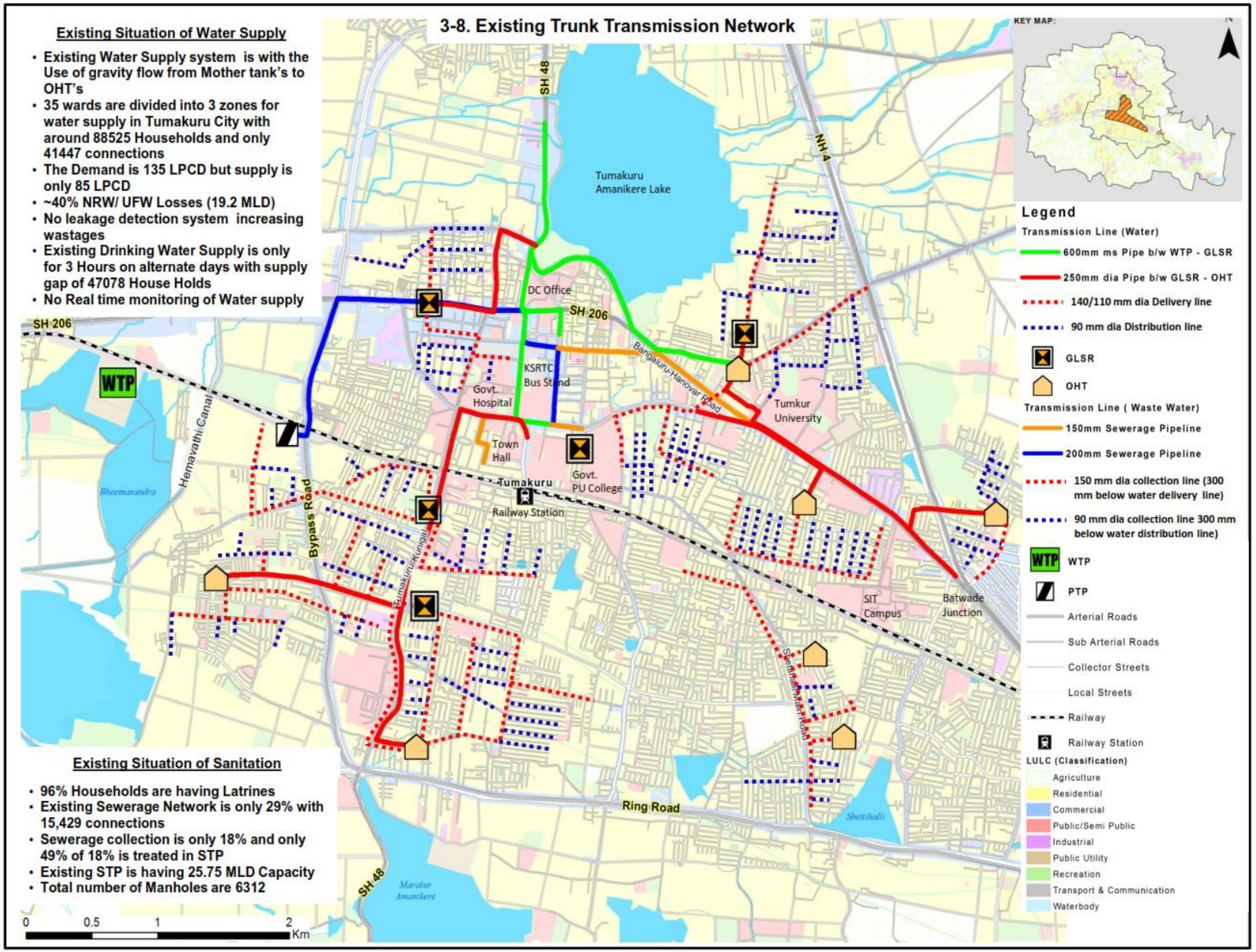
Round 2 Citizen Consultation Outputs (from total 44,440 feedbacks received out of which 33539 door to door survey, 6256 by google forms , 2445 e mails & others)





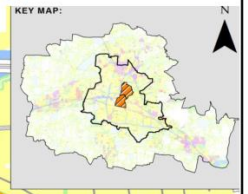
Existing Land use (as per Master Plan)

Sl. No.	Land Use	Area (ha)	%age
1	Residential	1057.37	27.13
2	Commercial	122.07	3.13
3	Industrial	340.22	8.74
4	Public & Semi Public	383.40	9.84
5	Park, Open Spaces & Burial	142.61	3.66
6	Public Utilities	29.74	0.76
7	Transportation & Communication	885.52	22.72
8	Vacant	935.95	24.02
	Total	**3896.88**	**100**
	Water Sheet	305.67	
	Grand Total	**4202.55**	


3-8. Existing Trunk Transmission Network
Existing Situation of Water Supply
• Existing Water Supply system is with the Use of gravity flow from Mother tank's to OHT's
• 35 wards are divided into 3 zones for water supply in Tumakuru City with around 88525 Households and only 41447 connections
• The Demand is 135 LPCD but supply is only 85 LPCD
• ~40% NRW/ UFW Losses (19.2 MLD)
• No leakage detection system increasing wastages
• Existing Drinking Water Supply is only for 3 Hours on alternate days with supply gap of 47078 House Holds
• No Real time monitoring of Water supply
Existing Situation of Sanitation
• 96% Households are having Latrines
• Existing Sewerage Network is only 29% with 15,429 connections
• Sewerage collection is only 18% and only 49% of 18% is treated in STP
• Existing STP is having 25.75 MLD Capacity
• Total number of Manholes are 6312
0 0.5 1 2 Km
KEY MAP:
Legend
Transmission Line (Water)
600mm ms Pipe b/w WTP - GLSR
250mm dia Pipe b/w GLSR - OHT
140/110 mm dia Delivery line
90 mm dia Distribution line
GLSR
OHT
Transmission Line (Waste Water)
150mm Sewerage Pipeline
200mm Sewerage Pipeline
150 mm dia collection line (300 mm below water delivery line)
90 mm dia collection line 300 mm below water distribution line)
WTP
PTP
Arterial Roads
Sub Arterial Roads
Collector Streets
Local Streets
Railway
Railway Station
LULC (Classification)
Agriculture
Residential
Commercial
Public/Semi Public
Industrial
Public Utility
Recreation
Transport & Communication
Waterbody
SH 48
NH 4
SH 206
Tumakuru Amanikere Lake
DC Office
KSRTC Bus Stand
Govt. Hospital
Town Hall
Govt. PU College
Tumakuru Railway Station
Tumkur University
Bangaluru-Hanovar Road
WTP
Hemavathi Canal
Bypass Road
Bheemasandra
Tumakuru Lakkungal
SIT Campus
Batwade Junction
Shettihalli
Ring Road
Maralur Amanikere

3-9. Delineated Boundary for Proposed Area Based Development

The Area is fully developed with only few Land Parcels (2.69 Acres) available for new Development



(Dead Lake with no/less Water)

Musical Fountain Park

Well developed Amanikere Park

Old Vinayaka Market Plot

Plot near Gubbi Verrana

Govt. Vacant Plots in the Area

Tumakuru Amanikere Lake

Well developed Park

Dc Office

District Court

Govt. Vacant Plots

KSRTC Workshop

KSRTC Bus Stand Area

Government Hospital

JC Road

Ashoka Road

MG Road

BH Road

Town Hall

Bishop Sergeant P.U. College

Govt. PU College

Legend
- Retrofitting Boundary
- Ward Boundary
- Roads
- Railway
- Railway Station

Land Use (Classification)
- Residential
- Commercial
- Public / Semi-Public
- Industrial
- Public Utility
- Recreation
- Transport & Communication
- Waterbody

Sl. No.	Proposed Landuse as per Master Plan 2031	Area (Acres)	%age
PART A			
1	Commercial	59.06	14
2	Industrial	0.52	0
3	Public Utility	1.93	0
4	Public Semi Public	152.81	35
5	Parks/Recreation	9.64	2
6	Residential	91.97	21
	Transport & Communication	119.08	27
	Total (A)	**435.01**	**100**
PART B			
1	Parks/Recreation	25.37	5
2	Waterbody	459.4	95
	Total (B)	**484.77**	**100**
	Grand Total (A + B)	**919.78**	

0 0.125 0.25 0.5 0.75 1 Km

3-10. Area Based Development: Issues and Problems

Parking on Footpaths are common causing problems for pedestrians

Unsafe conditions for Pedestrians crossings

Open Solid waste dumping at many locations causing foul smell and unhygienic conditions

Dead Amanikere Lake with No/Less Water

Overground wiring networks unsafe for all

Damaged Footpaths everywhere causing unsafe pedestrian movement

On street Parking on Ashoka Road causing congestion

No space for Pedestrians to Walk due to encroachments

Workers working in unhygienic conditions

Open drains at many locations causing unsafe conditions

Available Govt. Vacant plots used for Solid Waste Dumping causing Unhygienic Conditions

Traffic Congestion near KSRTC Bus stand Area causing delays in time

Parking on Pedestrian footpath in Ashoka Road creating problems

Encroachments by Vendors outside Bus Stand Area (No space for pedestrians)

On Street Parking is common in the area causing problems

Encroachments by Street Vendors on MG Road, Ashoka Road and BH Road forcing pedestrians to walk on road

Traffic Conflicts near KSRTC Bus stand Area

Unorganized and Unsafe Circulation at Town Hall Junction

Public Open Spaces filled with parking due to lack of parking facilitates on MG Road

Lack of Public Utilities in Market Areas Causing Unhygienic Conditions

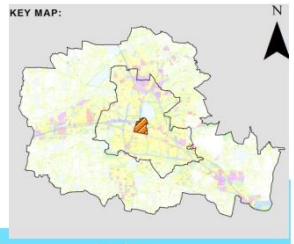
On Street Parking near Town Hall Junction creating obstructions for pedestrians

Tumakuru Amanikere Lake
Well developed Park
Dc Office
District Court
Bus Stand Area
Government Hospital
JC Road
Ashoka Road
MG Road
BH Road
Town Hall
Bishop Sergeant P.U. College
Govt. PU College
0 0.125 0.25 0.5 0.75 1 Km

3-11. Area Based Development: Existing Water & Waste Water Network

Photograph of OHT Near Railway Station Area

- Existing water supply system is with the Use of gravity flow from Mother tank's to OHT's
- 35 wards are divided into 3 zones for water supply in Tumakuru City
- The selected area for development is a combination of 4 wards of Tumakuru City with approx. 29000 Connections
- ~40% NRW/ UFW Losses
- No Real time monitoring of Water supply
- No reuse for 22.6 MLD of waste water



Existing Water Supply for Tumakuru City

Water Supply Scheme to Tumkur city with Hemavathy canal as source is implemented under two stages.

1st stage water supply scheme – 30.00 MLD Capacity

2nd stage water supply scheme – 50.00 MLD Capacity

Total Capacity – 80.00MLD

Legend

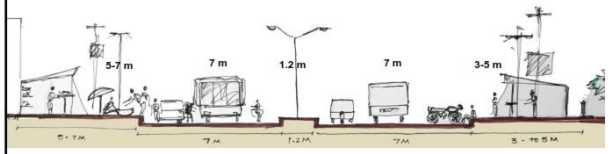
Water & Sewage Network

Transmission Line (Waste Water)
- 200 mm dia
- 150 mm dia
- WTP
- Direction of Flow

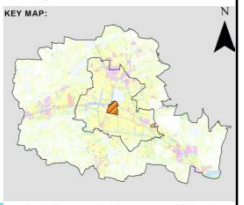
Transmission Line (Water)
- 130mm dia
- Direction of Flow
- Roads
- Railway
- Railway Station
- Retrofitting Boundary

LULC (Classification)
- Agriculture
- Residential
- Commercial
- Public/Semi Public
- Industrial
- Public Utility
- Recreation
- Transport & Communication
- Waterbody

3-12. Area Based Development: Existing Transportation & Mobility



Existing Cross Section JC Road



On street parking along the JC road

Road Side Solid Waste Dumping at many locations

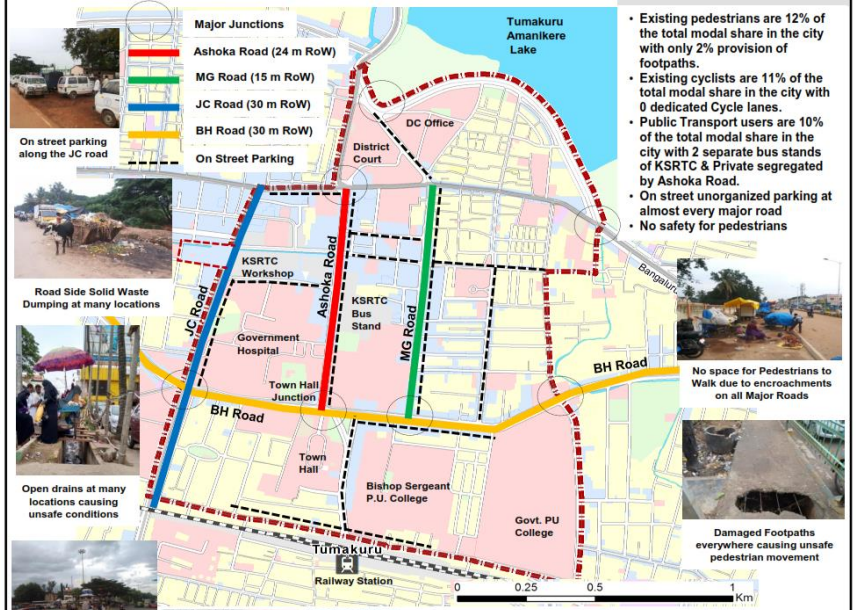
Open drains at many locations causing unsafe conditions

Unsafe conditions for Pedestrians crossings

Heavy Traffic at Town Hall Junction

Open drains causing problems and unhygienic conditions

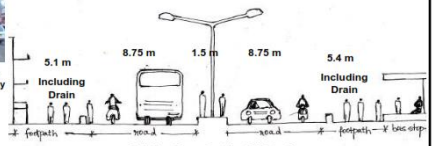
Pedestrians Walking on roads due to unavailability of footpaths



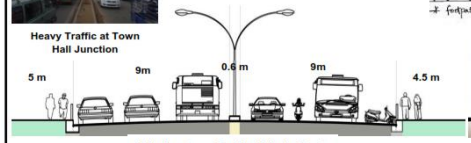
- Existing pedestrians are 12% of the total modal share in the city with only 2% provision of footpaths.
- Existing cyclists are 11% of the total modal share in the city with 0 dedicated Cycle lanes.
- Public Transport users are 10% of the total modal share in the city with 2 separate bus stands of KSRTC & Private segregated by Ashoka Road.
- On street unorganized parking at almost every major road
- No safety for pedestrians

No space for Pedestrians to Walk due to encroachments on all Major Roads

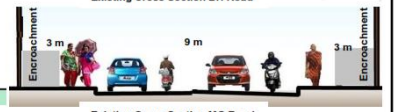
Damaged Footpaths everywhere causing unsafe pedestrian movement



Existing Cross Section BH Road



Existing Cross Section Ashoka Road



Existing Cross Section MG Road

3-13. PAN City: Water for All (Integrated Water and Waste Water Management) & Smart e-Governance

-24X7 Equitable distribution at 135 LPCD of clean drinking water to every household of 35 wards

Existing Situation in the City

- Existing Water Supply system is with the Use of gravity flow from Mother tank's to OHT's
- 35 wards are divided into 3 zones for water supply in Tumakuru City with around 88525 Households and only 41447 connections (46%)
- The Demand is 135 LPCD but supply is only 85 LPCD
- ~40% NRW/ UFW Losses (around 19.2 MLD per day)
- No leakage detection system increasing wastages
- Existing Drinking Water Supply is only for 3 Hours on alternate days with supply gap of 47078 House Holds (54%)
- No Real time monitoring of Water supply

Technology Proposed

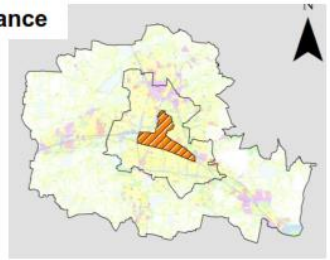
- GIS
- Asset Management
- Work Order Management
- SCADA
- Hydraulic Modelling
- Optimizers
- Finance
- Business Intelligence

Benefits of Proposed System

- Raw Water Management
- Clear Water Management
- Production Management
- Pipeline Management
- Reservoir Management
- Air Management
- Surge Protection
- Energy Management
- Leakage Management
- Water Quality Management
- Communication System

Likely Benefits/Outcomes for PAN City

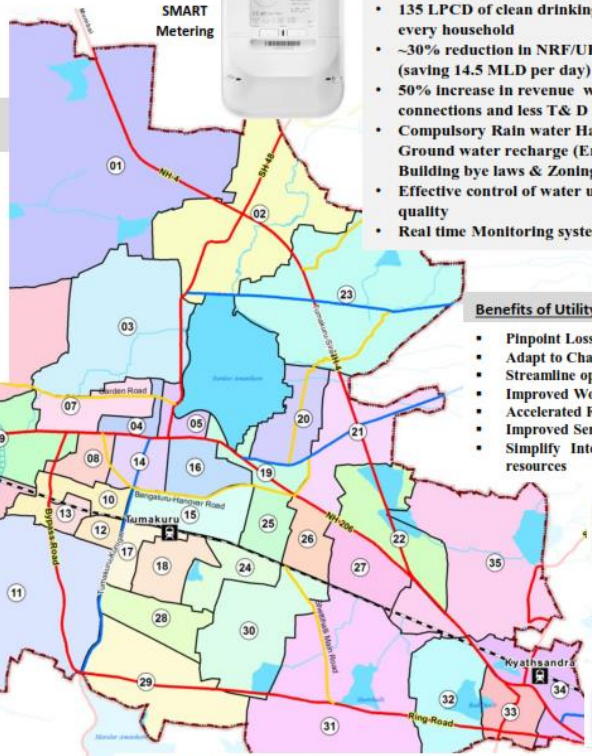
- 100% Connections
- 24X7 uninterrupted water supply
- 135 LPCD of clean drinking water for every household
- ~30% reduction in NRF/UFW Losses (saving 14.5 MLD per day)
- 50% increase in revenue with 100% connections and less T& D Losses
- Compulsory Rain water Harvesting & Ground water recharge (Enhancing Building bye laws & Zoning regulations)
- Effective control of water use & water quality
- Real time Monitoring system



SMART Water & Waste Water Management

Safe Drinking Water

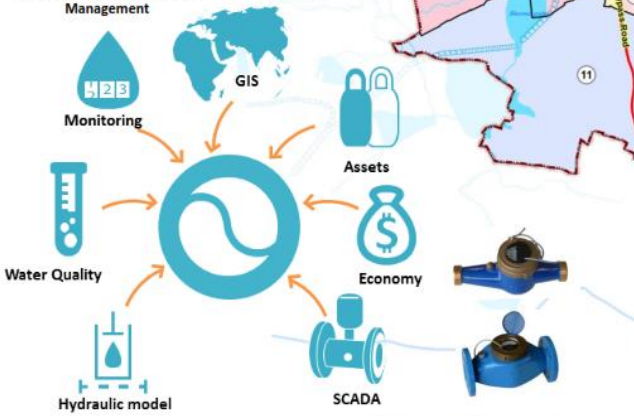
SMART Metering



Benefits of Utility Intelligence System

- Pinpoint Losses
- Adapt to Change
- Streamline operations
- Improved Workforce Management
- Accelerated Repairs
- Improved Service Quality
- Simplify Integration of Alternative resources

Integrated Resource Management & City Governance



Integrated smart water grid solution

PAN City: E-Governance to aid efficient and qualitative municipal services

Existing Situation in the City

- Separate website for Tumakuru City Corporation
- Online Payment Facilities
- Online Khata (Account) Facilities
- Online Water tax, sewerage tax and UGD tax payment facilities
- M-Oasis mobile application with grievance service
- 4 Tumakuru One Centres
- Citizen engagement through ward samithis, community level federations and area level federations

Likely Benefits and Outcomes for PAN City

- ~90% Improved transparency & accuracy
- ~25% increase in use of citizen benefits app every year
- 24X7 access to citizen services
- Electronic service delivery & GIS Mapping
- Citizen Alerts and Announcements in case of disasters
- ~20% reduction in distress accident cases
- ~40% in-house skilled labor availability
- Efficient Grievance redress & public information
- City performance dashboard
- 17.25 ha of Rooftop Solar PV Energy Harvesting & integration with SMART Grid in all college campuses

3-14. PAN City: Security and Safety for All (Lighting and Surveillance)

-Replacement of existing poles with 1 Lakh LED Renewable Energy Smart Poles (Total Road Length: 575 kms including 35.15 kms of Major Road network)

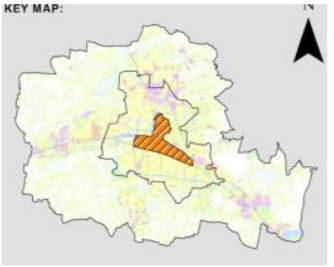
Existing Situation in the City

- Average 350 simple accidents and 45 major accidents per year inside Tumakuru city
- Average 1200 criminal cases per year in Tumakuru City
- Out of 1200 more than 200 Cases regarding women security and crime against women
- Out of 1200 more than 200 cases regarding citizen security
- Total 21000 Street Lights including 5260 Sodium Mist Lights and 72 High mist lights (High energy cost)
- Only 60 Solar Streets lights on a stretch of 2 kms from SS Circle to Amanikere Lake
- 12 CCTV Cameras already installed at major junctions inside the city
- e- raksha services through online from police department and mobile no: 9480802900

Likely Benefits/Outcomes for PAN City

- ~25% reduction in accidents per year (average can reduce to 296 from 395 in 1st year)
- ~35% reduction in crime per year especially for citizen security and crime against women (average criminal cases can reduce to 780 from 1200 in 1st year and 260 from 400 in 1st year for citizen security & crime against women)
- ~ 30% reduction in traffic violations per year
- 5-10% Air Pollution Control per year
- ~15% reduced energy & Operating cost from existing
- Improved reliability & longer life of lights
- Lower green house & Gas emission

KEY MAP:



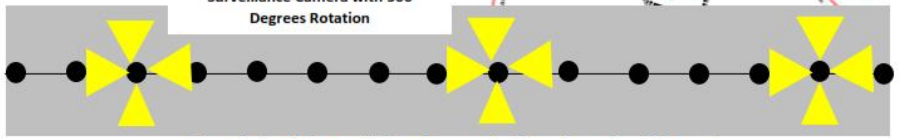
Lighting Features of SMART Poles

- LED Luminaries
- Energy storage (No Black outs)
- Renewable Energy Powered
- Remote programming to control
- Individual programming
- Main power failure detection
- Real time Dimming Solutions
- Burn-out bulb alarm
- Automatic Light on / off
- Theft detection
- Integrated Surveillance Technologies

Surveillance Features of SMART Poles

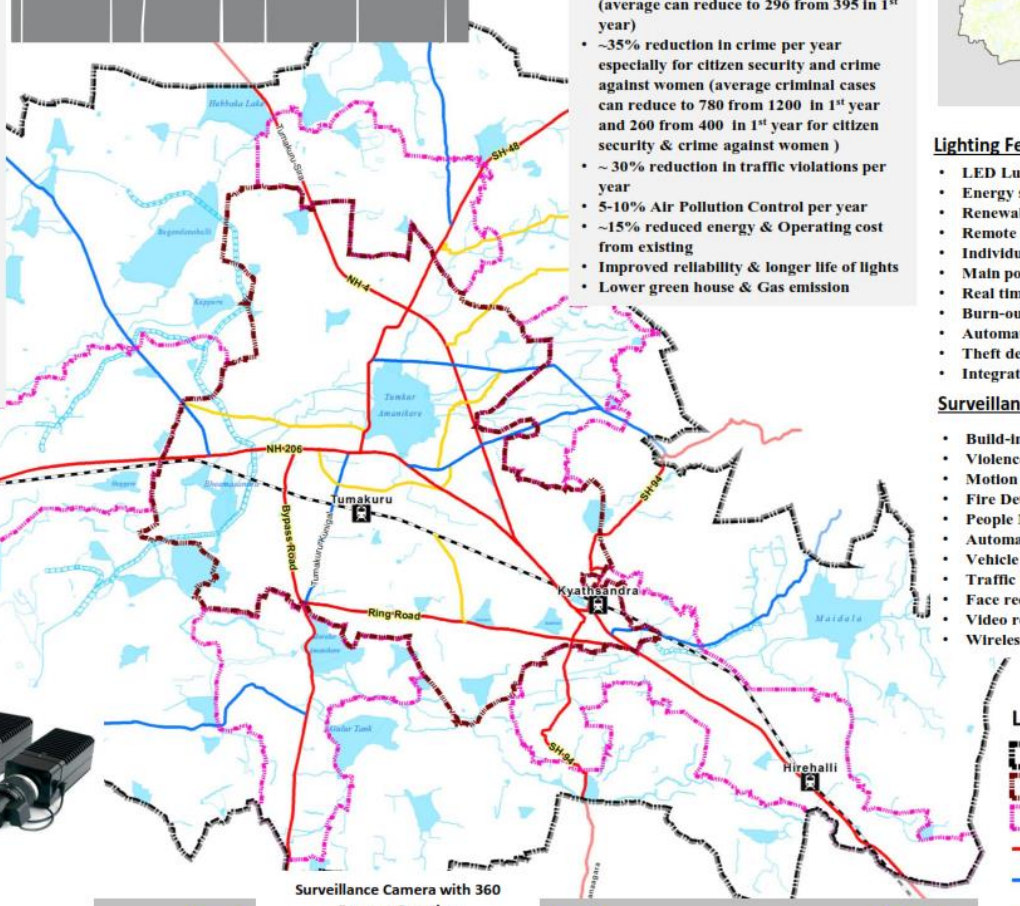
- Build-in light - Day & Night Vision
- Violence Detection
- Motion Detection
- Fire Detection
- People Movement Detection
- Automated License Plates Recognition
- Vehicle speed recognition and control
- Traffic Optimization
- Face recognitions
- Video recording up to 180 days
- Wireless connectivity

LED Smart poles for Security, Safety, Convenience & Development



Surveillance Camera with 360 Degrees Rotation

Schematic Sketch for Installation of Smart Poles (30 poles per km with 30 Lux)



Legend

- LPA Boundary
- Municipal Boundary
- Conurbation Boundary
- Arterial Roads
- Sub Arterial Roads
- Collector Streets
- Railway
- Railway Station
- Canal
- Waterbody

0 1 2 4 6 8 Km

3-15. PAN City Development in Nutshell: Issues, Solutions & Likely Benefits

Total CAPEX (INR Crores): 439.93

Existing Situation in the City	40% NRW/ UFW & 30% AT&C/ T&D losses, only 47% existing connections	Limited availability of e- governance, lack of security and safety	Lack of Skilled workers for local industry & unscheduled power cuts
Identified Projects	Water For All (Integrated Water & Waste Water Management, SMART Metering)	Safety, Security & Energy for All (Smart Governance and Quality Service Delivery)	Integration of Educational Institutions as partners in Development
Smart Solutions	• Automatic meter reading (AMR) system • Water Quality monitoring • Smart Water and leakage detection • Recycling and reuse of water • GIS & Asset Management • Work Order Management, SCADA • Hydraulic Modelling & Optimizers • Finance & Business Intelligence	• Renewable energy Street Lighting SMART Poles for surveillance and Lighting • Grievance redress & public information • Electronic service delivery & GIS Mapping • Citizen alerts & announcements • City performance dashboard • Distress Helpline number	• 353 Skill development programs to support current/ future industry • Automation & Digitalization of electrical network • Effective Network Planning • Integration of renewable Energy & Storage • Automation & Digitalization of electrical network • Rooftop Solar energy Harvesting
Likely City Benefits	• 100% Connections (88525) • 24X7 uninterrupted water supply • 135 LPCD of clean drinking water for every household • ~30% reduction in NRF/UFW Losses (saving 14.5 MLD per day) • 50% increase in revenue with 100% connections • Gain in 30% water availability • Compulsory Rain water Harvesting & Ground water recharge (Enhancing Building bye laws & Zoning regulations) • Effective control of water use & water quality • Real time Monitoring system • Lower greenhouse gas emissions	• ~25% reduction in accidents per year (average can reduce to 296 from 395 in 1st year) • ~35% reduction in crime per year (average criminal cases can reduce to 780 from 1200 in 1st year) • ~ 30% reduction in traffic violations per year • ~15% reduced energy & Operating cost from existing • 5-10% Air Pollution Control per year • Improved reliability & longer life of lights • ~90% Improved transparency & accuracy in governance • ~ 25% increase in use of citizen benefits app every year • 24X7 access to citizen services • ~20% reduction in distress accident cases • Citizen Alerts & Announcements	• Science and Technology Entrepreneurship Park (STEP) in 11 acre land of SIT • 17 MW Solar energy generation from 17.25 ha of roof top area (Institutional campuses) • ~40% in-house skilled labor availability • Reliable & Quality power • Lower green house & Gas emission • Demand Management • Improved economic efficiency • 353 Skill development training programs help in availability of in-house skilled workers • 1600 Schools can be utilized in the evening for Skill development programs
CAPEX (INR Crores)	**153**	**180.68**	**106.25**
Source/Fund	**PPP & AMRUT**	**PPP**	**PPP**
Interested Technology Partners	**Renlys Rubenius**	**Renlys Rubenius, CIS, Rytangle**	**Bosch, Siddhaganga Institute of Technology**

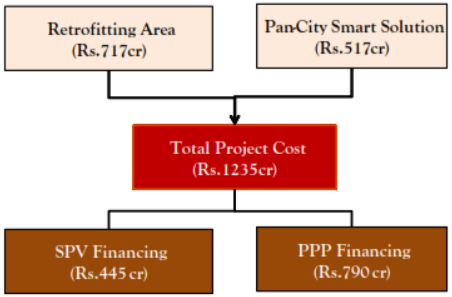
3-16. Area Based Development in Nutshell: Issues, Solutions & Likely Benefits

Total CAPEX (INR Crores): 612.80

Existing Situation in the City	Average 31% Scheduled outages & 27% Unscheduled Outages in a month	Kuccha houses, incomplete Road Network, lack of services in the area	Segregated KSRTC, Private Bus Stand & Workshop with total area 4.37 ha	Only 77 TPD Solid Waste collection out of 121 TPD from city, No recycling	Lack of healthcare facilities, ~ 15-18 min. of response time for emergency services	334 ha Dead Amanikere Lake in city core	Decentralized facilities	Depleting rate of Ground Water every year
Identified Projects	Energy for All (Rooftop Solar PV Energy Harvesting & integration with SMART Grid)	Housing for All & Modal Development (Revitalization of the City Centre/ Neighborhood)	Transport for All (Integrated BUS Terminal with SMART Infrastructure)	Swachh and Swasth (Citizen Driven Integrated Waste Management)	Health for All	Recreation for All (Rejuvenation of Dead Amanikere Lake and Water reservoir for Industrial purposes)	Integrated Facilities (Mixed Use Development)	Water for All (Rain Water harvesting in all government complexes)
Smart Solutions	• Automation & Digitalization of electrical network • Effective Network Planning • Integration of renewable Energy & Storage • Automation & Digitalization of electrical network • Rooftop Solar energy Harvesting	• Renewable energy Street Lighting SMART Poles for surveillance and Lighting • GIS & Asset Management • Smart water metering & leakage detection • Recycling & reuse of water • SMART Buildings & homes	• Integration of renewable energy & Source • Passenger Alert & announcements • Building Integration System • Intelligent Traffic Management System (ITMS) • SMART Application for City Bus Service	• Smart card for every HH in area • Power generation • Plasma gasification • Co-generation for power heating and/or cooling • Citizen awareness program	• Coordinated emergency response • Electronic service delivery • GIS Mapping • Video management system • Public information • SMART Healthcare mobile application	• STP with TTP Wastewater treatment plant & network • Smart water metering & leakage detection • Recycling & reuse of water	• SMART Building • Green building • Number of facilities at single location • Dedicated basement parking	• Smart Rain Water harvesting • Storage of water for captive use and ground water recharge
Likely City Benefits	• 19 MW Solar energy generation from 18.77 ha of rooftop govt. buildings • Reliable & Quality power • Demand Management • Lower green house & Gas emission • Increased consumer engagement & transparency • Improved economic efficiency	• 100% Pucca Houses in the area by providing 888 pucca houses • ~ 15% increase in use of NMT • ~20% increase in use of Public Transport • ~ 30% reduction in traffic violations per year • ~35% reduction in crime per year ~25% reduction in accidents per year Gain of ~20% of water resource • ~10% of energy saving with LED Light powered by Solar PV	• ~ 20% reduction in passenger waiting time • Organized SMART parking for 1000 ECS • Integrated Services • 4,95,000 sq ft of Commercial space • 100 Bed Budget Hotel • 1.52 MW Solar energy generation • Organized informal market/shops	• 95% recycling for the solid waste • 100% House to House Solid Waste collection • 1380 cubic meter Methane gas generation per day • 4550 liters of Diesel generation per day • 100% composting of left out waste • Recovery of energy & material from municipal waste • Reduction in Green House Gases	• Up gradation of existing Govt. Hospital towards multi specialty/ super specialty • High end ambulances with integrated mobile app • ~15% reduction in death per year • 24X7 access to 20 bed facility maternity home • Improved service quality • ~25% Increased reach • Improved response time for emergency services	• Lake revival & Beautification • Lake as reservoir for 12.74 MLD of recycled water per day for industrial use • Supply of 5.39 MLD water to households for flushing • Gain of ~20% of water resource • ~20% Increase in city tourism • ~20% increase in commercial activity along lake • ~10% increase in economic activities	• 2,93,310 sq ft of commercial space • Reduced energy & operating cost • Improved reliability & longer life of buildings • Walk to work concept • Sustainable buildings • Lower greenhouse gas emissions • ~15% Increase in employment • Dedicated floors for parking	• ~40% increase in collection of water • Improved Ground Water availability • Gain of ~20% of water resource • Compulsory Rain water Harvesting & Ground water recharge (Enhancing Building bye laws & Zoning regulations)
CAPEX (INR Crores)	**93.87**	**113.22**	**164.89**	**6.12**	**157.6**	**52**	**19.62**	**5.48**
Source/Fund	**PPP**	**AMRUT, UDISMT, Housing for All, SMART City**	**PPP**	**PPP**	**PPP**	**SMART City**	**PPP**	**SMART City**
Interested Technology Partners	**Bosch**	-	**Bosch, Indus Towers, CISCO**	**Oxalytics & Tumakuru Clean City Association**	**Asian Hospital Health Alliance**	-	-	-

3-17. Brief of Financial Analysis & PPP Projects (PAN City & Area Development)

Summary of Project Cost



Financing Plan (INR Crores)

OVERALL CAPITAL EXP.	**1,235**
TOTAL SPV CAPITAL EXP.	445
FINANCING	
TOTAL SPV FINANCING	
GOVERNMENT OF INDIA	222.5
GOVERNMENT OF KARNATAKA	142.25
Tumakuru City Corporation (TCC)	22.25
INTERNAL RESOURCE GENERATION	
FOURTEENTH FINANCE COMMISSION	
LOAN FROM KSIIDC	
GOI -AMRUT SCHEME	24
GOI - Housing for All and GOK - Vajpayee Housing Scheme	24
GOI UDSSIMT	10
BORROWINGS BY SPV FROM BANKS	-
TOTAL SPV FINANCING	445
TOTAL PPP FINANCING	790
TOTAL FINANCING	**1,235**

SPV Project Cost & Financing (INR Crores)

TOTAL SPV CAPITAL EXP.	**445**
FINANCING	
GOVERNMENT OF INDIA	222.5
GOVERNMENT OF KARNATAKA	142.25
Tumakuru City Corporation (TCC)	22.25
INTERNAL RESOURCE GENERATION	
FOURTEENTH FINANCE COMMISSION	
LOAN FROM KSIIDC	
GOI-AMRUT SCHEME	24
GOI- Housing for All and GOK - Vajpayee Housing Scheme	24
GOI UDSSIMT	10
BORROWINGS BY SPV FROM BANKS	-
TOTAL SPV FINANCING	**445**

SPV Operation (Assumptions)

- SPV Investment required to execute projects – Rs 445 cr
- Operating Expenditure: Starting at Rs 7 cr in 2021 increasing to Rs 88 cr in 2046. Total expense is Rs 1135 cr (escalated) over 30 year period.
- Revenue generation (Options):
  - Transfer of Funds from 14 th finance Commission allocation -15 cr @ 2015 prices and thereafter escalated to current prices.
  - Possibility to generate other revenue like advertisement charges, etc. these have not been quantified at this stage
- Escalation every year : 5%

SPV Financing (Assumptions)

- SPV share capital – Rs 200 cr
  - GOK – Rs 100 cr
- TCC– Rs 100 cr using part grant from GOI
- GOK:TCC – proportion assumed to be 90:10 (However considering TCC ability to borrow is limited, GOK may contribute more funds)
- TCC generates revenue surplus (before depreciation) every year – hence internal resources can be used to contribute its share of resources (Amount to be estimated)
- Any balance fund requirement can be borrowed – However, TCC already has borrowing – amount which can be borrowed could be limited (To be estimated)

SPV Cash flow Analysis (INR Crores)

SPV - PARTICULARS	2021	2026	2031	2036	2046	Total
REVENUES (RS IN CRORES)						
• 14th Finance Commission – 10 crores each year escalated	20	26	33	42	68	1,082
O&M COSTS	7	25	32	40	88	1,083
SURPLUS	13	1	1	2	- 19	

PPP Projects (PAN City)

Water for All (Integrated Water and Waste Water Management , Smart Metering)

- Concession Period : 30 years
- Project Cost - Rs 126 crs
- Debt Equity Ratio : 70 : 30
- Interest Rate : 12% pa
- **Equity IRR of 25%+ pa over 30 year concession period**
- First year Revenue : Rs 31 crores (in 2015 prices) (Revenue from residential - Rs 175 per household per month and Commercial - Rs 350 per shop per month)
- Escalation every year : 5%

Safety, Security & Energy for All (Smart Governance and Quality Service Delivery)

- Concession Period : 30 years
- Project Cost - Rs 209 crs
- Debt Equity Ratio : 70 : 30
- Interest Rate : 12% pa
- **VIABLE ON PPP subject to clubbing with other profitable PPP project**
- First year Revenue : Rs 4 crores (in 2015 prices) (Revenue from call charges paid and electricity charges paid by TCC to private operator)
- Escalation every year : 5%

Integration of Educational Institutions as partners in Development

- Concession Period : 30 years
- Project Cost - Rs 126 crs
- Debt Equity Ratio : 70 : 30
- Interest Rate : 12% pa
- **VIABLE ON PPP subject to clubbing with other profitable PPP project**
- First year Revenue : Rs 2 crores (in 2015 prices) (Revenue from Incubation Centre- Rs 25000/month and Power generated by solar project sold to grid at price fixed by Electricity Board (assumed @ Rs 6 per KWHr at 2015 prices)
- Escalation every year : 5%

PPP Projects (Area Development)

Transport for All (Integrated BUS Terminal with SMART Infrastructure)

- Concession Period : 30 years
- Project Cost - Rs 196 crs
- Debt Equity Ratio : 70 : 30
- Interest Rate : 12% pa
- **Equity IRR of 15%+ pa over 30 year concession period**
- First year Revenue : Rs 30 crores (in 2015 prices) (Revenue from car parking charges(Rs 5 per hour) and rental income from commercial/retail space/Hotels (Rs 900 per sq m and Rs 750 for per day Hotel room rental)
- Escalation every year : 5%

Energy for All (Rooftop Solar PV Energy Harvesting & integration with SMART Grid)

- Concession Period : 30 years
- Project Cost - Rs 103 crs
- Debt Equity Ratio : 70 : 30
- Interest Rate : 12% pa
- **VIABLE ON PPP subject to clubbing with other profitable PPP project**
- Escalation every year : 5%

Swachh and Swasth (Citizen Driven Integrated Waste Management)

- Concession Period : 30 years
- Project Cost - Rs 7 crs
- Debt Equity Ratio : 70 : 30
- Interest Rate : 12% pa
- **Equity IRR of 25%+ pa over 30 year concession period**
- First year Revenue : Rs 1 crores (in 2015 prices) (Revenue from sale of Methane gas and Diesel)
- Escalation every year : 5% ;

Integrated Facilities (Mixed Use Development)

- Concession Period : 30 years
- Project Cost - Rs 23 crs
- Debt Equity Ratio : 70 : 30
- Interest Rate : 12% pa
- **Equity IRR of 23%+ pa over 30 year concession period**
- First year Revenue : Rs 7 crores (in 2015 prices) (Revenue from rental income from commercial@ Rs600 per sq mt per month)
- Escalation every year : 5%

3-18. Critical Milestones, optimistic-, realistic, pessimistic timelines, activity flow diagram, and PERT/ CPM Charts

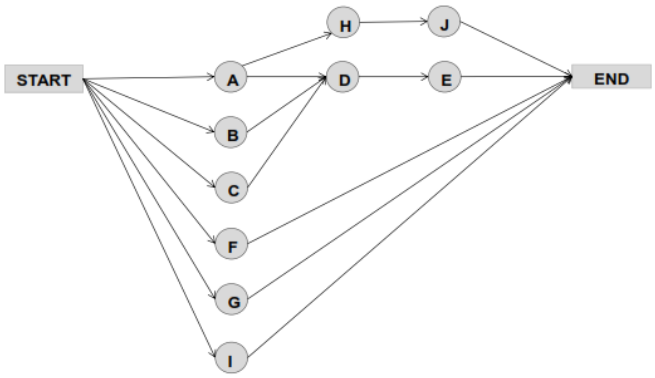
1. DEFINING THE PROJECT ACTIVITIES & THEIR DURATION

Sl No.	Activity	year of completion	3 scenarios			expected time
			optimistic	realistic/ probable	pessimistic	
			a	m	b	
1	AREA BASED DEVELOPMENT [P1]		months	months	months	
A	Revitalization of City centre/ neighborhood	2020	10	12	18	12.67
B	Mixed use development	2019	9	12	18	12.50
C	Redevelopment of existing bus stand area as an integrated bus terminal (KSRTC bus stand, private bus stand & KSRTC workshop) – 3 plot of total area 4.37 ha (10.82 acres)	2020	10	12	18	12.67
D	Rainwater harvesting	2018	6	9	12	9.00
E	Rejuvenation of dead (Tumkur) Amanikere lake as water reservoir for industrial purposes	2019	9	10	12	10.17
F	Citizen driven integrated waste management	2018	6	9	12	9.00
G	Smart healthcare	2019	9	12	18	12.50
2	PAN-CITY DEVELOPMENT [P2]					
H	Integrated water and wastewater management (water supply, sewerage system, smart water metering)	2019	9	12	18	12.50
I	Smart governance and quality service delivery (smart poles, LED lights, integrated distress helpline, TumkurOne centres, citizen feedback and grievance system)	2019	9	12	18	12.50
J	Integration of educational institutions as partners in development (rooftop solar harvesting, incubation centre, skill development)	2019	9	12	18	12.50

2. CALCULATION OF ESTIMATED TIME

$$\text{Expected time (t)} = \frac{a + 4m + b}{6}$$

3. CRITICAL PATH METHOD (CPM)

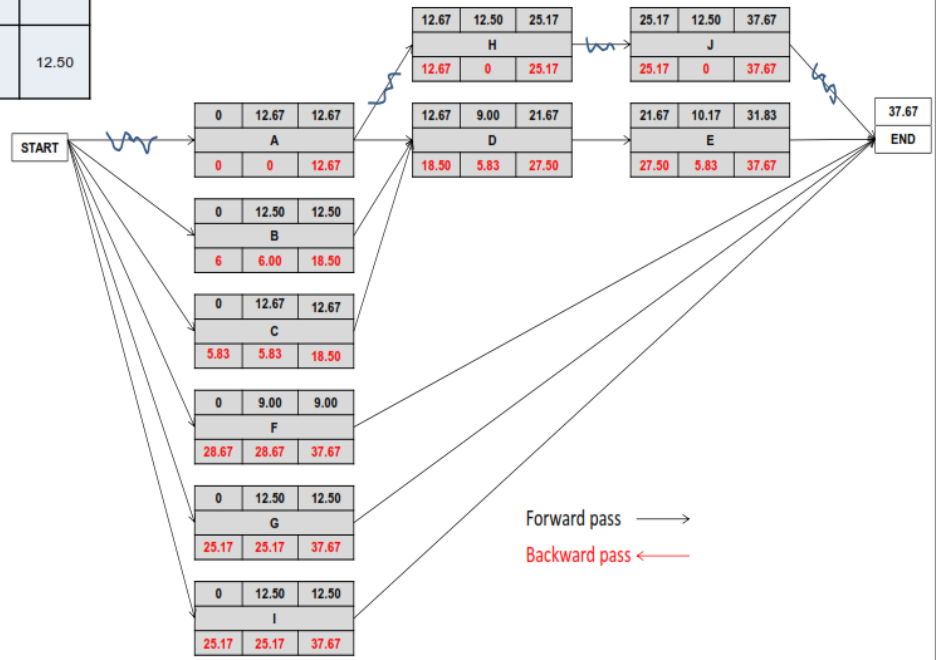


4. KEY

ES	ET	EF
	A	
LS	D	LF

ES	EARLIEST START
EF	EARLIEST FINISH
LS	LATEST START
LF	LATEST FINISH
ET	EXPECTED TIME
D	DELAY

5. PERT DIAGRAM



3-19. Critical Milestones, optimistic-, realistic, pessimistic timelines, activity flow diagram, and PERT/ CPM Charts

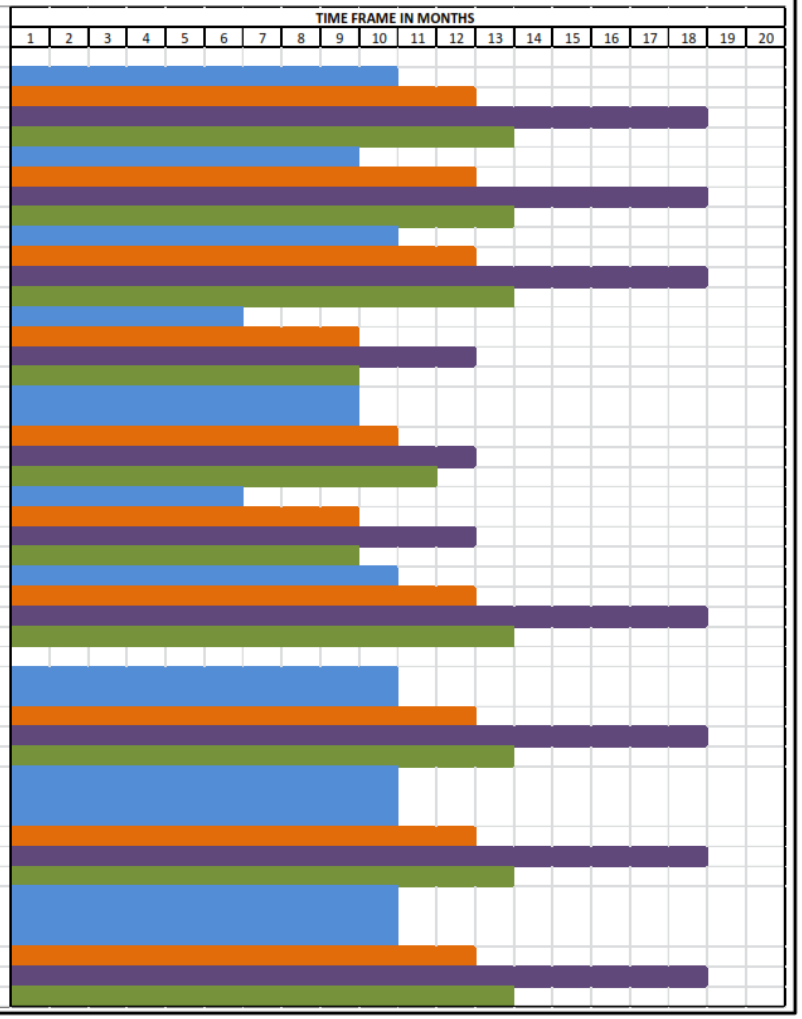
6. CRITICAL PATH

A — H — J

(EXPECTED TIME TO COMPLETE THE PROJECT: 37.67 MONTHS)

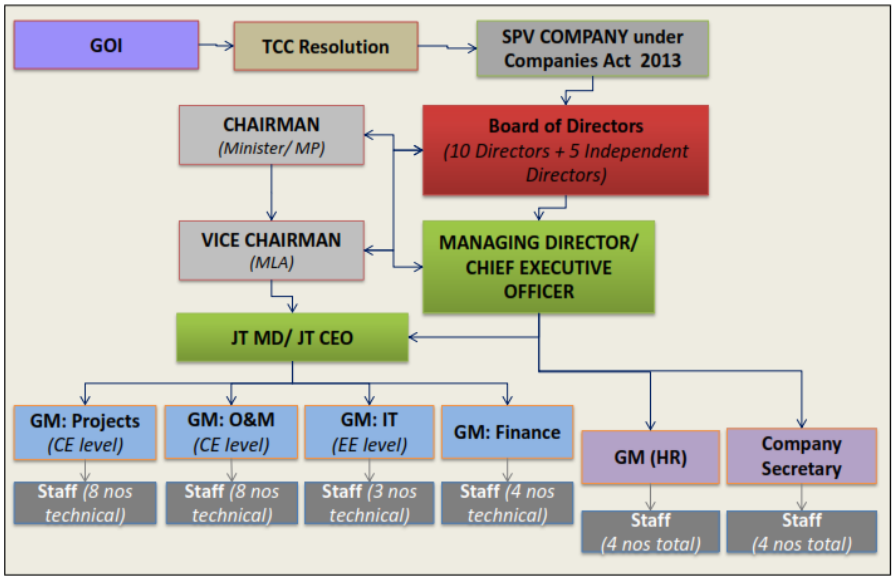
7. FLOW DIAGRAM (INDICATIVE)

SL. NO.	PROJECT ACTIVITIES		3 scenarios			
			a	m	b	t
1	AREA BASED DEVELOPMENT [P1]	completion	months	months	months	
A	Revitalization of City centre/ neighbourhood	2020	10			
				12		
					18	12.67
B	Mixed use development	2019	9			
				12		
					18	
						12.50
C	Redevelopment of existing bus stand area as an integrated bus terminal (KSRTC bus stand, private bus stand & KSRTC workshop) – 3 plot of total area 4.37 ha (10.82 acres)	2020	10			
				12		
					18	
						12.67
D	Rainwater harvesting	2018	6			
				9		
					12	
						9.00
E	Rejuvenation of dead (Tumkur) Amanikere lake as water reservoir for industrial purposes	2019	9			
				10		
					12	
						10.17
F	Citizen driven integrated waste management	2018	6			
				9		
					12	
						9.00
G	Smart healthcare	2019	9			
				12		
					18	
						12.50
2	PAN-CITY DEVELOPMENT [P2]					
H	Integrated water and wastewater management (water supply, sewerage system, smart water metering)	2019	9			
				12		
					18	
						12.50
I	Smart governance and quality service delivery (smart poles, LED lights, integrated distress helpline, TumkurOne centres, citizen feedback and grievance system)	2019	9			
				12		
					18	
						12.50
J	Integration of educational institutions as partners in development (rooftop solar harvesting, incubation centre, skill development)	2019	9			
				12		
					18	
						12.50



3-20. Flowchart of Network/Relationships of SPV with Government/NGO's and Nature of Connections and Organogram-Relationships

SPV Structure



BOARD OF DIRECTORS

1. CHAIRMAN (DISTRICT MINISTER/ MP)
2. VICE CHAIRMAN (MLA)
3. MANAGING DIRECTOR/ CHIEF EXECUTIVE OFFICER (SECRETARY LEVEL IAS OFFICER)
4. JOINT MANAGING DIRECTOR (TECHNICAL PERSON)

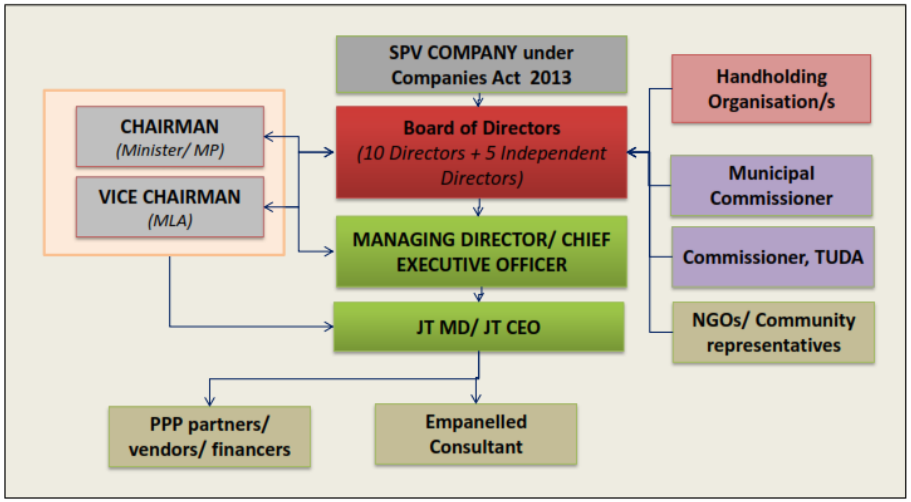
INDEPENDENT DIRECTORS

1. Non-Government Organisation (NGO)
2. Women NGO
3. Trade and Industry body
4. Accountants' body
5. Individual woman professional (recognised)

DIRECTORS

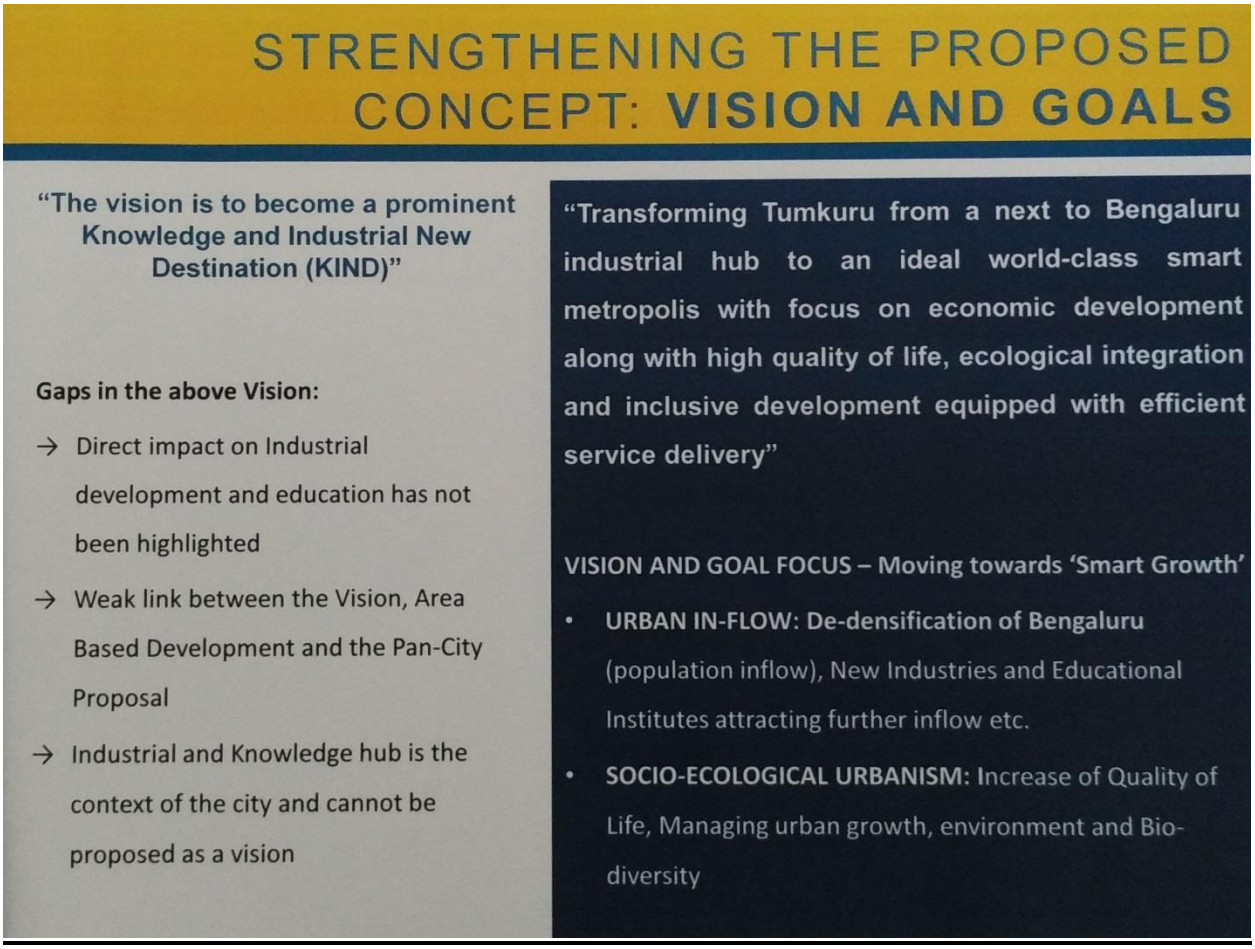
1. Mayor
2. Deputy Commissioner and District Magistrate
3. CEO, Zilla Parishad
4. Superintendent of Police
5. TCC Commissioner
6. Vice Chancellor, Tumkur University
7. Deputy Director of Public Instruction (DDPI)
8. CEO, NIMZ
9. Divisional Railway Manager, Railways
10. TUDA Commissioner

Organogram- Relationships



Annexure 6

Excerpt of the Revised Vision (round 2 selection)



Annexure 7

Atlas.ti output on accessibility and awareness

Report: 94 quotation(s) for 2 codes

HU: NaMo Tumkur
File: [E:\fieldwork\transcripts\NaMo Tumkur.hpr7]
Edited by: Super
Date/Time: 2016-08-18 18:46:39

Mode: quotation content, memos and hyperlinks

Quotation-Filter: All

Awareness

Accessibility

P 1: O_01_Jefin Joy.docx - 1:40 [But, how clearly is it accessi..] (48:49) (Super)
Codes: [Awareness - Family: Accessibility and Awareness] [Governance - Family: Political, administration and governance]
No memos

But, how clearly is it accessible to people, I know that there are websites which are showing the results of round 1 and all those things

…but, people…they don't see know…..

P 1: O_01_Jefin Joy.docx - 1:41 [they don't know how to use? Or..] (50:51) (Super)
Codes: [Accessibility - Family: Accessibility and Awareness]
No memos

they don't know how to use? Or?

They don't know how to use or even, I can tell you, lack of interest

P 2: O_02_ Surender Shah.docx - 2:4 [So, I understand that surveys ..] (13:18) (Super)
Codes: [Accessibility - Family: Accessibility and Awareness]
No memos

So, I understand that surveys were offline based and facebook, twitter were online based, but how was the access?

I heard that there were booths, yes...smart city booths placed, how was the accessibility to this? It was good!, the accessibility was good.

And all the wards were covered in this…..?

Yes, all the wards were covered…..

Accessibility and even there were any queries put forward?

ya...

P 2: O_02_ Surender Shah.docx - 2:23 [This is a well informed city, ..] (76:76) (Super)
Codes: [Awareness - Family: Accessibility and Awareness]
No memos

This is a well informed city, this is..out of 35 wards atleast 30 wards are well informed.

P 3: O_03_ Narasimha Murthy.docx - 3:4 [People have voted on this on t..] (10:10) (Super)
Codes: [Accessibility - Family: Accessibility and Awareness]
No memos

People have voted on this on their own, but, in citizens engagement, they are highlighting only the opportunities that a smart city provides. They say that accessibility will be provided, but they are not showing the responsibilities/ terms and conditions of a smart city. This is a blank space seen largely in citizen engagement or participation.

P 3: O_03_ Narasimha Murthy.docx - 3:12 [Only a few people, that is onl..] (22:22) (Super)
Codes: [Accessibility - Family: Accessibility and Awareness]
No memos

Only a few people, that is only the well known educated people could access it and the percentage of this is also very small I feel.

P 3: O_03_ Narasimha Murthy.docx - 3:13 [Online ways were not that succ..] (22:22) (Super)
Codes: [Awareness - Family: Accessibility and Awareness]
No memos

Online ways were not that successful I feel. The existence of online ways was not known to few, like, when the questions were posed on the website by the secretary, they had just then launched it, so I feel it wasn't a big success.

P 3: O_03_ Narasimha Murthy.docx - 3:15 [How about offline ways? Was it..] (23:24) (Super)
Codes: [Accessibility - Family: Accessibility and Awareness] [CEF - Types -online/offline/others -workshops, marathons, rallies - Family: participation stages and types]
No memos

How about offline ways? Was it a success?

offline... they couldn't reach the prospective number. What is there in these administrative system is that, there are a few projects, for the betterment of urban poor, under that there are beneficiaries of sub castes, they have asked them to participate and a few other associations...I mean that they have openly given notices in the newspapers.

P 3: O_03_ Narasimha Murthy.docx - 3:29 [Now, there is the council, the..] (30:30) (Super)
Codes: [Awareness - Family: Accessibility and Awareness]

No memos

Now, there is the council, they are stakeholders too, but, the council doesn't know a few information related to smart city, it is unclear to them. With respect to smart city, we have spoken with a few corporators, even 'we do not know about it, but, overall for our city since we are receiving some money we have not opposed. But, for a smart city what all terms are there, MoUs or detailed project reports that have been submitted, we do not know about these,' is what they say.

P 3: O_03_ Narasimha Murthy.docx - 3:44 [Remaining, in this pan city or..] (44:44) (Super)
Codes: [Awareness - Family: Accessibility and Awareness]
No memos

Remaining, in this pan city or greenfield development, we haven't understood this, we are not able to grasp the concept in pan city or greenfield, we are not able to understand. Because it is so, most of smart cities' initiatives have to be put forth to the people more, is what we say.

P 3: O_03_ Narasimha Murthy.docx - 3:49 [Ok, let us accept it, roads ha..] (50:50) (Super)
Codes: [Accessibility - Family: Accessibility and Awareness]
No memos

Ok, let us accept it, roads have to be good, traffic has to be free, all these have to be there. But, what percentage of people use this? How many of them use cars in the city?what is the ratio of people that use WiFi? For 20% of the population, for their living comforts, the rest 80% of the population's lives will be destroyed how many times? Just for this 20% to be happy, the tax from the rest 80% is being poured onto them. This is the problem with metro in Bangalore. This might go in the same way

P 3: O_03_ Narasimha Murthy.docx - 3:54 [For our people, I think it mig..] (60:60) (Super)
Codes: [Accessibility - Family: Accessibility and Awareness] [Awareness - Family: Accessibility and Awareness]
No memos

For our people, I think it might be difficult in the beginning. AMongst us, the first generation are those who can just read, we cannot say anything about mobile accessibility or knowledge on usage. Somebody was saying, ' you have two mobiles, can't you type an SMS and send?'. Few of us would keep it just to receive calls and would know just how to operate that much. They think that people have modernized because they have a mobile. In the initial days, for our people, in these things it might be difficult.

P 3: O_03_ Narasimha Murthy.docx - 3:55 [Approximately how many of them..] (63:64) (Super)
Codes: [Accessibility - Family: Accessibility and Awareness] [Awareness - Family: Accessibility and Awareness]
No memos

Approximately how many of them own smartphones or internet?

Amongst our people? Within our 32 slums, if there are about 2-5% who own a smartphone or

use netbanking, it is a lot I can say. Because, in that lot, someone would have gone for higher education or may be graduates, otherwise most of them are 10th dropouts or 12th dropouts. They might have kept it to listen to music or watch videos.

P 4: O_04_ Mrs.Jyothi.docx - 4:1 [We need to mainly create aware..] (3:3) (Super)
Codes: [Awareness - Family: Accessibility and Awareness]
Memos: [awareness - Jyothi]

We need to mainly create awareness

Memos:

MEMO: awareness - Jyothi (Super, 2016-07-21 11:33:52)
Type: Commentary

here she speaks about clean city Tumkur and not specifically on smart city.

P 4: O_04_ Mrs.Jyothi.docx - 4:3 [So you went together to spread..] (8:9) (Super)
Codes: [Awareness - Family: Accessibility and Awareness]
No memos

So you went together to spread awareness?

Yes, everyday in the evenings around 6pm, for 1 hour only because each of them have other activities, we used to spend just an hour everyday. For one hour, we could cover just two streets, otherwise, we would inform about our arrival on a prior notice and made it compulsory for one member from each house to be a part of it. They did come and support, a few of them denied giving reasons such as, they have work to do, we won't be able to do it etc.,

P 4: O_04_ Mrs.Jyothi.docx - 4:5 [Another thing is, during the m..] (19:19) (Super)
Codes: [Accessibility - Family: Accessibility and Awareness]
Memos: [accessibility-jyothi]

Another thing is, during the membership I have not taken any money. Every person who has registered, there is a registration form and it is for free because nobody comes forward that easily to involve in such activities. For any other activity they might, but for this, to clean, they wouldn't come if there were a fee attached to it. So I told them it is free and that the directors are strong, would put in about 10,000 rupees...free membership form...

Memos:

MEMO: accessibility-jyothi (Super, 2016-07-21 11:37:10)
Type: Commentary

again speaks wrt clean city and its membership criteria and not about smart cities

P 4: O_04_ Mrs.Jyothi.docx - 4:9 [My feeling is, just creating a..] (23:23) (Super)
Codes: [Awareness - Family: Accessibility and Awareness] [Personal opinions/ideas/experiences - Family: opinions]
No memos

My feeling is, just creating awareness is not the solution, as soon as awareness is created, one must work there. If you keep on creating awareness how will it solve anything? It is easy to say - ' keep your area clean', but what is done beyond is important. All areas are bad here, you would go and tell them to keep it clean, but what will you do about the existing garbage there?

P 4: O_04_ Mrs.Jyothi.docx - 4:12 [So the awareness of smart city..] (24:27) (Super)
Codes: [Awareness - Family: Accessibility and Awareness]
No memos

So the awareness of smart city was through clean city?

Yes...

Beyond that, have you informed them about smart city? What is a smart city?

Yes, we involved the staff of smart city Tumkur and given programs along with them, because they know about the topic better to say what advantages smart city provides, so they explained. We involved Ms. Vanitha in the public meetings, we provided the feedback forms in the areas, created awareness through facebook and twitter.

P 4: O_04_ Mrs.Jyothi.docx - 4:17 [Even now we have received a lo..] (33:33) (Super)
Codes: [Awareness - Family: Accessibility and Awareness]
Memos: [awareness - Jyothi]

Even now we have received a lot of letters from other areas like Maruthinagar and Vijayanagar for public awareness.

Memos:
MEMO: awareness - Jyothi (Super, 2016-07-21 11:33:52)
Type: Commentary

here she speaks about clean city Tumkur and not specifically on smart city.

P 4: O_04_ Mrs.Jyothi.docx - 4:26 [Have you also created awarenes..] (44:45) (Super)
Codes: [Awareness - Family: Accessibility and Awareness]
Memos: [awareness - Jyothi]

Have you also created awareness in waste segregation?

Yes we have told them, but this system is not yet practiced here in Tumkur. They take it all together. But mainly we have to do this, otherwise, it will become difficult. What we are doing wrong is that we are collecting all the waste and dumping it on one site, a dumpyard gets created there...you have to go see there, Oh God! Your eyes will be filled with tears, it is so difficult for the workers there. We do not want all this, we should ensure that the waste gets segregated from your neighborhood itself. We could make use of the government lands, put a shed and segregate. It doesn't smell much. Only wet waste smells, but it all goes as manure. There will be a small machine right there and we can use this to all the trees here. The growth of

trees will improve, you will get better oxygen. Clean and green is very important.

Memos:

MEMO: awareness - Jyothi (Super, 2016-07-21 11:33:52)
Type: Commentary

here she speaks about clean city Tumkur and not specifically on smart city.

P 4: O_04_ Mrs.Jyothi.docx - 4:28 [There are other ways in which ..] (48:49) (Super)
Codes: [Awareness - Family: Accessibility and Awareness]
Memos: [awareness - Jyothi]

There are other ways in which a city can get dirty, like spitting, smoking, have you created an awareness in this regard?

No, we haven't.

Memos:

MEMO: awareness - Jyothi (Super, 2016-07-21 11:33:52)
Type: Commentary

here she speaks about clean city Tumkur and not specifically on smart city.

P 5: O_05_Mr.Abhilash.docx - 5:11 [So apart from offline and onli..] (53:54) (Super)
Codes: [Accessibility - Family: Accessibility and Awareness]
No memos

So apart from offline and online methods that you have used, how did you deal with access? How would people reach these tools?

We have our staff, bill collectors, revenue inspectors, water supply team, they would go at house level. We have in every ward, one or two people working on this..we have taken help from them. We have given the formats to them, they have distributed it. After two days, they have taken it back. While giving it, they have informed them to take their time and that they would come back after 1 or 2 days and they have re-collected the forms. We have almost given 25,000-30,000 forms.

P 5: O_05_Mr.Abhilash.docx - 5:23 [But what about people who do n..] (117:118) (Super)
Codes: [Accessibility - Family: Accessibility and Awareness]
No memos

But what about people who do not have access to internet?

We have made a separate department here for tax payment, people will come here, most of them come here and there is a separate section for that. We do not want them to go around here as in tax at one place, water supply at one place and for UGD again another place...we made a single window which would make it easy for people and we have a separate section for senior citizens also. We provide information to people also, why people should pay taxes to the

government, they have long pending taxes, we give any data that is required and we encourage them to pay their taxes... last year and this year we have taken initiatives such as ' you pay by 31st of this month, you will get 30% discount..' Like this we are trying to encourage people.

P 5: O_05_Mr.Abhilash.docx - 5:24 [But, how are you creating this..] (119:120) (Super)
Codes: [Awareness - Family: Accessibility and Awareness]
Memos: [awareness- abilash]

But, how are you creating this awareness?

Through public channels, newspapers...whatever sources we have, we utilize them. I think it is best here with the word of mouth...ya, that is there. Also, here we have less manpower, it is difficult to reach house to house, we have to look into other tools, media or something.

Memos:

MEMO: awareness- abilash (Super, 2016-07-21 14:50:50)
Type: Commentary

here he talks about awareness in a general sense..about bill payments etc., and not specific to smart cities

P 5: O_05_Mr.Abhilash.docx - 5:26 [How many, for internet or mobi..] (123:126) (Super)
Codes: [Accessibility - Family: Accessibility and Awareness]
No memos

How many, for internet or mobile applications, how many users are there?

We have 2000+ users in the mobile applications, but with website, people are accessing frequently, we have 2.5 lacs visitors. People are frequently accessing the website, with mobile applications they are getting used to it. And you know, everybody will not go for online payment, they know about hacking, people won't do..but we are encouraging them, providing security.

There is a separate department?

Ya, a separate department, our computer section is handling it.

P 5: O_05_Mr.Abhilash.docx - 5:29 [How do you think you can make ..] (131:134) (Super)
Codes: [Awareness - Family: Accessibility and Awareness]
No memos

How do you think you can make people smart?

through awareness..you have to do it! Public awareness is the only thing that can change. If you provide them hi-tech facilities and if you do not know how to use it, how to access it, then its of no use. Providing infrastructure, creating awareness and getting people used to that service is a task.

What solutions have you thought for awareness?

Awareness..ya, in slum development we have a separate program, we are doing it at slum level, then the NGOs - they have their own way of doing it, we tried to involve more NGOs to involve in social activities, then the corporations and media.

P 6: O_06_iDeCK consultants.docx - 6:26 [How about the people who do no..] (71:72) (Super)
Codes: [Accessibility - Family: Accessibility and Awareness] [Poverty/slums - Family: poverty, inequalities]
No memos

How about the people who do not have access to such tools, whose professions are much more time consuming than these? How have you treated this angle in citizen engagement?

Citizen engagement, see for Below Poverty Line and Economic Weaker Section, one from the area angle because little you can do with IT solution. SO we can do something in their area, Housing was one project for inclusiveness, affordable housing. This 'Housing for All' scheme was there from Pradhan Mantri Awas Yojana under which there are two categories, one is slum. There are slum pockets that are available, we have proposed slum rehabilitation, which Tumkur is already doing in that, the white buildings that are coming up. So, we have proposed for few more from the slum pockets that are available in that area. When it comes to PWF(people's Welfare Foundation), we have considered in-situ development where we will re-build the house, work on the structure and then give them back their house. This will again come through this…Funds will again be limited for us when compared to slum rehab, so we are looking at Private impact link systems we have composed, so that they give interest, low interest loan, they get it at about 4% or 5%. So that will be through a subsidy from the government. This again, corporation has to call for a notice and we have to apply for that and then ??? happens.

P 7: O_07_ravi corporator.docx - 7:31 [So you mentioned that the resp..] (45:46) (Super)
Codes: [Accessibility - Family: Accessibility and Awareness] [Awareness - Family: Accessibility and Awareness]
No memos

So you mentioned that the response was low, what might be the reasons?

I told you right, there were computer centres, they made it online...here where do we have such things..

P 8: R_01_well off areas.docx - 8:3 [Did they come here and give fe..] (5:6) (Super)
Codes: [Awareness - Family: Accessibility and Awareness]
No memos

Did they come here and give feedback forms and ask for opinion?

No, they did not. They haven't done anything as such.

P 8: R_01_well off areas.docx - 8:6 [How did you get to know about ..] (11:14) (Super)
Codes: [Awareness - Family: Accessibility and Awareness]
No memos

How did you get to know about this?

I keep moving around entire Tumkur. I am a businessman, so I keep travelling and observing, people also ask for my opinion.

So, did the corporation come here and inform about smart cities?

No, nobody has come here. Nobody has done anything. They do not inform..only when we are building something, they come to ask about licenses and take money,if not they stop our work. They come and attack the weak people here. They demand documents...bring in goons...they do such things. If our area has to improve, see...now to reach here, the roads are not good...if you see where the MLA or ministers stay, their roads are good, facilities are good...here nothing is good. A lot of mosquitoes here...different types of diseases attack,

P 8: R_01_well off areas.docx - 8:9 [Did the local corporator come?..] (17:18) (Super)
Codes: [Awareness - Family: Accessibility and Awareness]
No memos

Did the local corporator come?

No, nobody came here. Many of them complain to the corporators, but they do not pay heed, they say they are in meetings.

P 9: R_02_well off areas.docx - 9:2 [How did you get to know about ..] (6:7) (Super)
Codes: [Awareness - Family: Accessibility and Awareness]
No memos

How did you get to know about smart city?

The municipal corporation had arranged for a meeting. In that meeting, they gave information about it, they had thought it would be a part of the budget, but it didn't. Maybe this time they would try

P 9: R_02_well off areas.docx - 9:7 [But, how did you get to know a..] (16:19) (Super)
Codes: [Awareness - Family: Accessibility and Awareness]
No memos

But, how did you get to know about the meeting?

From the newspapers.

So you went on your own. Did the municipality come and hand out feedback forms?

No no such thing. Not in this area.

P 9: R_02_well off areas.docx - 9:9 [This is all that I know about ..] (28:28) (Super)
Codes: [Awareness - Family: Accessibility and Awareness]

No memos

This is all that I know about smart city...whatever I have learnt from the newspapers..that they will improve the drains, roads...and also online...using internet they will improve...all this through newspapers I know and I have told. That's it.

P10: R_03_well off areas.docx - 10:1 [What do you know about smart c..] (7:14) (Super)
Codes: [Awareness - Family: Accessibility and Awareness] [Participation - Reason - Family: participation] [Participation - Yes/No - Family: participation]
No memos

What do you know about smart city?

I do not know about it. If it has to be a smart city, it should be clean here.

How did you get to know about smart city?

I do not know about it.

Did you read somewhere or did anyone come and inform you?

No..I do not know.

Did they give any form?

No..not here

P11: R_04_well off areas.docx - 11:1 [What do you know about smart c..] (7:8) (Super)
Codes: [Awareness - Family: Accessibility and Awareness]
No memos

What do you know about smart city?

Regarding smart city I do not know much..but civic amenities have to be good, after giving basic amenities, it will become easy to make it a smart city...maintaining parks well

P11: R_04_well off areas.docx - 11:3 [But do you know the processes ..] (11:19) (Super)
Codes: [Awareness - Family: Accessibility and Awareness]
No memos

But do you know the processes involved?

No...there is no symptom of its start only…

Have they come and given feedback forms and ,..?

No that has not happened.

Not in this area?

no...I do not know if they have or have not done in this area but it has not come to my notice.

……maybe people have attended but individually they have not called for citizens.

There is no idea about it amongst people here?

Not that much I guess because somebody would've spoken about it if they had attended...they would've told...my walking friends..but there is no such thing.

P12: R_05_well off areas.docx - 12:3 [In citizen engagement they pro..] (8:11) (Super)
Codes: [Awareness - Family: Accessibility and Awareness]
No memos

In citizen engagement they provided feedback forms..did you..?

Yes they gave

Did you fill it up?

yes...No...we were out of town

P13: R_06_well off areas.docx - 13:2 [The concept of a smart city…..] (6:9) (Super)
Codes: [Awareness - Family: Accessibility and Awareness] [Participation - Self-initiation to participate - Family: participation]
No memos

The concept of a smart city...have you tried to understand that or have they tried to build an awareness on that?

No. I know it is becoming a smart city, but not knowing what type of smart city...what they are doing

And what about them coming and building awareness or giving forms..

No I haven't received any forms

P14: R_07_well off areas.docx - 14:3 [What do you know about a smart..] (8:11) (Super)
Codes: [Awareness - Family: Accessibility and Awareness]
No memos

What do you know about a smart city?

Not that much that I can give you a correct answer. There are many things…

How did you get to know about it?

TV, newspaper. They said it would be a smart city and then there was some doubt, again they said it would come. I do not know exactly.

P14: R_07_well off areas.docx - 14:4 [Did they come and give any for..] (14:15) (Super)
Codes: [Awareness - Family: Accessibility and Awareness]
No memos

Did they come and give any forms?

No...i do not have knowledge on it...No

P15: R_08_well off areas.docx - 15:3 [So there has anyone come and g..] (12:15) (Super)
Codes: [Awareness - Family: Accessibility and Awareness]
No memos

So there has anyone come and given feedback forms?

No...hitherto no such information. I haven't asked or seen anyone, You are the only first lady asking like this

Nobody is giving an awareness on what a smart city is?

Nothing is given to me. I know nothing about it

P16: R_09_well off areas.docx - 16:1 [Can you tell me what you know ..] (4:5) (Super)
Codes: [Awareness - Family: Accessibility and Awareness]
No memos

Can you tell me what you know about a smart city or how you got the information?

We do not know anything...we do not know the fundamentals only...we heard things that it had to be done but central government selected another city...from the newspapers...we do not know anything else. It is better if you talk to officials about it.

P17: R_10_well off areas.docx - 17:1 [What do you know about smart c..] (5:10) (Super)
Codes: [Awareness - Family: Accessibility and Awareness]
No memos

What do you know about smart cities?

Nothing much...that city will be clean, all facilities will be there, there will be development, it will be helpful for children's education and in a smart city almost all facilities will be covered is my idea...parks, education, to go far to work will be avoided, it will be a planned city, then there will be water arrangements

They did citizen engagement/participation under smart city...do you know anything about it?

No, in that regard I do not know that much

How did you learn about smart city?

Actually it was spoken in the newspapers, then this would become a smart city is what I felt, I was happy...

P18: R_11_well off areas.docx - 18:4 [Did they come and give you the..] (16:17) (Super)
Codes: [Awareness - Family: Accessibility and Awareness]
No memos

Did they come and give you the form or did you do it by yourself at the corporation?

No, I knew a student who was doing this work. When he came and gave the form, then in that 'this is what my view ' - like that I have written and given.

P18: R_11_well off areas.docx - 18:6 [Did anyone from the corporatio..] (30:31) (Super)
Codes: [Awareness - Family: Accessibility and Awareness]
No memos

Did anyone from the corporation approach you?

No

P18: R_11_well off areas.docx - 18:7 [So just the student who gave y..] (32:33) (Super)
Codes: [Awareness - Family: Accessibility and Awareness]
No memos

So just the student who gave you the form

Yes and in the college what we do during student assembly, in the mornings, everyday a teacher talks for 5 minutes regarding different issues...In that context, i along with a few teachers have addressed about this..Now for everything showing our fingers towards the government, or saying that the government didn't do it, everyone blaming the other..apart from this we need to think what we could do together..in this regard, in our college we educate our students as much as we can.

P18: R_11_well off areas.docx - 18:9 [With regard to awareness have ..] (36:37) (Super)
Codes: [Awareness - Family: Accessibility and Awareness]
No memos

With regard to awareness have they approached all areas?

No no...they might have some limitations also for this because it might be difficult for them to touch all areas. And what i have also heard is that even if they have gone to the areas and educated them, the residents haven't maintained it in the same way.

P18: R_11_well off areas.docx - 18:10 [They had mentioned that they h..] (42:43) (Super)
Codes: [Awareness - Family: Accessibility and Awareness]
No memos

They had mentioned that they had installed booths for public grievances, problems or even to inform about smart cities. Have you seen such ?

Whatever had come in the newspapers about smart city, its programs, and its developments, about these we learn...and then here in about 3-4 channels, my students are there...TV channels..they came and spoke the way you are speaking. They had done 2-3 relays also. Its there on praja TV, Suvarna and Public TV...Mr. Ranganath also came to my house to speak, public TV reporter. Then whatever views I had, i have told directly. "It is like this, we are doing it like this with our own hands"

P18: R_11_well off areas.docx - 18:12 [How did you get to know about ..] (48:51) (Super)
Codes: [Awareness - Family: Accessibility and Awareness]
No memos

How did you get to know about smart city in the first place?

Through news and newspapers

So did they tell what a smart city is? Or show a model?

They showed a picture and in a smart what should come where, what all should be done, what changes have to be done to the existing, regarding these they used to put. In that I felt a few were fine, and a few needed modifications and these things I have told when my student came.

P18: R_11_well off areas.docx - 18:14 [There are online methods too,,..] (54:55) (Super)
Codes: [Accessibility - Family: Accessibility and Awareness]
No memos

There are online methods too,,,with polling or voting..how many of them have participated using this?

With regard to that, as far as I know, people who are in the education field have used it more and normal citizens have used it less

P19: R_12_well off areas.docx - 19:34 [Madam told to speak in kannada..] (76:78) (Super)
Codes: [Awareness - Family: Accessibility and Awareness]
No memos

Madam told to speak in kannada, they had invited a lot of companies .. the suggestions were discussed about the smart city..Even the industrialists too..Even they suggested a few things that they wanted to do..After that there were many meetings..Even we did .. we did the awareness programs.People are supportive of the awareness program.

Was the awareness prorgam about Smart city?

yes Smart city and Clean city .. I've been with Madam to conduct about 9 awareness programs. People participated well. They are even ready to give donations, they also feel we can keep our city clean. But our administrative department is not supporting us as much.

P19: R_12_well off areas.docx - 19:45 [How? was it only at the meetin..] (86:87) (Super)
Codes: [Awareness - Family: Accessibility and Awareness] [Personal opinions/ideas/experiences - Family: opinions]
No memos

How? was it only at the meetings?

Yes it was at the meetings..Mr Ramdas.. put a lot of efforts..But its not gone to a level.. we have given the applications and forms but have not reached..This is not a job to be done once.. it has to be repeated many times..Should involve others.. should be held on sundays..There is a lot of funds which has come for the smart city isnt it? There is another _____ city now..show the expenditure of funds from there in conducting meetings..spend about rupees 10,000/- to 25,000/-. spend on the place and food for the people . collect the people.. the people come by hearing to these things!!

P19: R_12_well off areas.docx - 19:48 [What was the activity about pu..] (92:94) (Super)
Codes: [Awareness - Family: Accessibility and Awareness]
No memos

What was the activity about public grievance? Apart from the meetings and asking there, did they come to each area and give the forms? or spread awareness?

We have watermen..or valvemen..the one who regulates water around.. he was made to pass on the forms.. what does he know? Being an officer, they should come and approach each and every individual house, but they dint turn up. Once the waterman gave the forms, they just took it and dint turn up at the meetings, just used these to wipe hands..

P20: V1_01_Maralur dinne.docx - 20:4 [How did you get the informatio..] (6:9) (Super)
Codes: [Awareness - Family: Accessibility and Awareness]
No memos

How did you get the information?

Through newspapers and announcements on TV. People also alk right?from that we get to know

Did anyone come to give you the feedback forms or any such sort?

No, nobody came.

P21: V1_02_Maralur dinne.docx - 21:2 [Has the municipality approache..] (6:9) (Super)
Codes: [Awareness - Family: Accessibility and Awareness]
No memos

Has the municipality approached you on this?

No, there is no discussion on it

How did you get to know about it?

Through people...people talk around here, like that I got to know.

P21: V1_02_Maralur dinne.docx - 21:6 [Have they informed you on what..] (20:21) (Super)
Codes: [Awareness - Family: Accessibility and Awareness]
No memos

Have they informed you on what a smart city is?

No..You tell us, we want to know.

P22: V1_03_Maralur dinne.docx - 22:4 [Have they told you what a smar..] (7:8) (Super)
Codes: [Awareness - Family: Accessibility and Awareness]
No memos

Have they told you what a smart city is?

They should teach us, give it in the newspapers about it, call for meetings and bring interest amongst the population. The colony's population is about 40,000-50,000, all 14 roads. All the 14 roads are like this only. It has been 25 years that we came, it is still the same.

P22: V1_03_Maralur dinne.docx - 22:6 [We do not know about smart cit..] (12:12) (Super)
Codes: [Awareness - Family: Accessibility and Awareness]
No memos

We do not know about smart city. What is a smart city? We do not know! What will you give in a smart city? will you give loan? No...they have to make roads, UGD, they have to give facilities for schools and colleges. Till smart city comes and people tell that these things are done, we cannot say anything. For this colony's population there are a lot of difficulties, they cannot do it..here one person doesn't like the other. You will also write something and go just like the councillors...what will you learn from this and tell? What is the point if the doctor or nurse comes and asks if I am alright? There is no use in what you are doing. It has to come from them. As a demand, they should come and ask each and every household about their difficulties.

P23: V1_04_Maralur dinne.docx - 23:3 [How did you get to know about ..] (8:9) (Super)

How did you get to know about it?

Newspapers, Tv news, i keep watching

P23: V1_04_Maralur dinne.docx - 23:8 [Have they come and informed yo..] (16:19) (Super)
Codes: [Awareness - Family: Accessibility and Awareness]
No memos

Have they come and informed you about smart cities?

No ,,,nobody has come here. We have got to know through papers and other ways, but nobody has come to inform us. Nobody asked, we never told.

What might be the reason for not informing?

Nobody knows here. There are citizen issues here, but they haven't asked

P23: V1_04_Maralur dinne.docx - 23:11 [How did you get to know about ..] (22:27) (Super)
Codes: [Awareness - Family: Accessibility and Awareness]
No memos

How did you get to know about this?

In the news...local newspapers..nowadays these things are more in the city newspapers. They keep on coming...what happens where is sown more in these papers..that is how I know, otherwise I wouldn't

When they put in the newspapers about the meetings and that you could participate, did you go and participate?

No, i Didn't

Did you know about the meetings?

No i do not have much idea on that

P24: V1_05_Maralur dinne.docx - 24:4 [Has anyone come to talk about ..] (13:14) (Super)
Codes: [Awareness - Family: Accessibility and Awareness]
No memos

Has anyone come to talk about smart city?

No nobody has come

P24: V1_05_Maralur dinne.docx - 24:5 [How did you get to know about ..] (17:18) (Super)

How did you get to know about smart city?

When Narendra Modi announced I got to know that Tumkur was selected as a smart city. In the first round it wasn't selected. If it has to get selected in the second round, these improvements have to be made. Otherwise even this time it will not happen.

P25: V2_01_NR Colony.docx - 25:3 [Where did you learn about this..] (7:22) (Super)
Codes: [Awareness - Family: Accessibility and Awareness]
No memos

Where did you learn about this?

Media…

What the municipality did?

No..in general..through friends, newspapers,..in general if somebody has written an article...through articles I've learnt..through municipality/corporation I've learnt nothing…

They did citizen engagement under smart cities...what do you know about it?

About that, I feel they have not given enough awareness because being localites here if we do not have enough information, then it means they have not done a good job in that.

Have they given feedback forms here?

I know that they have given but people do not have any information about it right..there are not many educated people here, in that sense if you give a form, what can they do?

So, they haven't given the information?

No..what to do with it...here, people do not know what WiFi is.. Then if you just give suggestions and go? Now they have distributed but from that i feel they have not given it to get correct feedback from people.

So did they come to each and every household and give the form?

Mom, how did they give the forms?? I think people from the municipality distributed, but they have not come and asked in each household.

So have they told you about what a smart city is?

Not to my knowledge, such an awareness has not taken place in my neighborhood.

P25: V2_01_NR Colony.docx - 25:6 [They have approached both thro..] (31:40) (Super)
Codes: [Awareness - Family: Accessibility and Awareness]
No memos

They have approached both through online and offline means for participation...what is your say on that?

As in? I don't understand…

Did you happen to see the website?

No…

do you know there is a website?

No

What about others here? Do you think they know?

No...as far as I know not even 1% of awareness is there. They don't even know how to imagine a smart city because they haven't received awareness...on what a smart city is..what do we get from that...regarding this there is no information at all to people. So, how is it possible to respond to this? For anything, without having the knowledge it is difficult to respond.

Apart from forms, they conducted seminars, workshops, did they attend?

That I don't know, if people attended, but I haven't. If they had attended, we would know, but we don't. If they had, there would've been a revolution...information would've travelled by the word of mouth that "such a thing is happening"..because this is a neighborhood, some sort of communication would've been there. Since we haven't heard any such thing, I am guessing it has not been done.

P25: V2_01_NR Colony.docx - 25:9 [What do you think about the ty..] (45:46) (Super)
Codes: [Accessibility - Family: Accessibility and Awareness] [Awareness - Family: Accessibility and Awareness] [Personal opinions/ideas/experiences - Family: opinions]
No memos

What do you think about the type of questions asked?

I feel they haven't been thinking about what these people want..not many people know...WiFi, mobility and these things they don't know but they(municipality) has given preference to this...they have asked " do you want WiFi or not", or " Does BH road require WiFi or not" and "does our municipal circle require WiFi or not". If they are giving so much importance to WiFi only, it shows that they are not paying attention to the living people.

P25: V2_01_NR Colony.docx - 25:11 [not at all satisfied….not spok..] (51:51) (Super)
Codes: [Awareness - Family: Accessibility and Awareness] [Political system - Families (2): Political, administration and governance, poverty, inequalities] [Poverty/slums - Family: poverty, inequalities]
No memos

not at all satisfied….not spoken about it in the neighborhood, so doesn't seem like anything has happened...including feedback forms...advises me to think about the feasibility of

project...and mentions that there is no awareness in slums especially...he hasn't seen anyone who can do something selfless for slums...there are many talented children here but no money to even buy a pen. So attention is not given to such things but they - municipality go on to make smart city on their own. People there have no idea about smart cities..they cannot even imagine. Awareness is very important according to him and advises me to build that.

P26: V2_02_NR Colony.docx - 26:7 [What have they done in this ar..] (17:18) (Super)
Codes: [Awareness - Family: Accessibility and Awareness]
No memos

What have they done in this area?

Here, they haven't done anything. They had left it open to either do it on the website or write and submit. In this way, the people here are not...we are the type that work and survive on daily wages...so these people here wouldn't know..so they have to conduct meeting and tell that this thing is there in this way, and ask them what they want..with this people would have more information is my opinion.

P26: V2_02_NR Colony.docx - 26:12 [How did you first get to know ..] (33:34) (Super)
Codes: [Awareness - Family: Accessibility and Awareness] [representations - Family: stakeholders]
No memos

How did you first get to know about smart city? WHen they called for the meeting?

No, first i read it in the newspaper. Then for consultation, since we have a committee, we participated on behalf of that.

P26: V2_02_NR Colony.docx - 26:17 [So what do you say about the p..] (47:48) (Super)
Codes: [Accessibility - Family: Accessibility and Awareness]
No memos

So what do you say about the public grievance systems? OI had also read that they had installed booths to convey information to public.

They haven't kept any booths as such. They left it open to public..you could go to corporation and participate offline or online. This was not area-wise btu zonal-wise.

P26: V2_02_NR Colony.docx - 26:18 [So people received information..] (49:50) (Super)
Codes: [Awareness - Family: Accessibility and Awareness]
No memos

So people received information through you?

Even we couldn't inform everyone. As much as possible we have told.

P27: V2_03_NR Colony.docx - 27:1 [What do you know about smart c..] (4:5) (Super)
Codes: [Awareness - Family: Accessibility and Awareness]
No memos

What do you know about smart city?

Nothing.

P27: V2_03_NR Colony.docx - 27:3 [How did you get information ab..] (10:11) (Super)
Codes: [Awareness - Family: Accessibility and Awareness]
No memos

How did you get information about this?

From the municipality

P27: V2_03_NR Colony.docx - 27:9 [How did you get to know about ..] (26:27) (Super)
Codes: [Awareness - Family: Accessibility and Awareness]
No memos

How did you get to know about the meeting?

I got to know through newspaper.. They had written that there would be a discussion on it.

P28: V2_04_NR Colony.docx - 28:2 [How did you learn about smart ..] (6:7) (Super)
Codes: [Awareness - Family: Accessibility and Awareness]
No memos

How did you learn about smart city?

Now...they are putting it in newspapers ...that is how we are getting to know...under smart city what improvements have to be made, what kind of works the municipality has to do, how clean a city has to be for it to become a smart city.

P28: V2_04_NR Colony.docx - 28:3 [Did you attend the meetings? N..] (10:13) (Super)
Codes: [Awareness - Family: Accessibility and Awareness]
No memos

Did you attend the meetings?

No, I got to know through newspaper.

What do you know about citizen engagement under smart cities?

I do not know correctly about it.

P28: V2_04_NR Colony.docx - 28:8 [So they do not go because of t..] (26:31) (Super)

Codes: [Awareness - Family: Accessibility and Awareness]
No memos

So they do not go because of time? Do they know about it atleast?

(lady speaks) Even then, there is no one who can take us and help us do it too. That is important. Whether it is for laborers or others, they do not take us and tell it'll help us, there is nobody who can do this, because of this most of us, women, don't go anywhere.

Have they given no such information?

No there is nobody to tell us

Association head?

No...we do not know what it is

P28: V2_04_NR Colony.docx - 28:11 [.you are the first one to come..] (33:33) (Super)
Codes: [Awareness - Family: Accessibility and Awareness]
No memos

.you are the first one to come and talk about it..nobody else, only you are telling all this. (man) Correct, you are the first one to come, nobody has come to ask and make people aware

P28: V2_04_NR Colony.docx - 28:12 [Talking about awareness, to gi..] (33:33) (Super)
Codes: [Awareness - Family: Accessibility and Awareness]
No memos

Talking about awareness, to give knowledge to people, there are no leaders. Nobody has come, you the first one.

P28: V2_04_NR Colony.docx - 28:14 [Have they told the ways in whi..] (36:38) (Super)
Codes: [Awareness - Family: Accessibility and Awareness]
No memos

Have they told the ways in which you can participate?

No, nothing.

(man) More than saying we do not know, there is nobody to tell us - that is one problem and they have other works, so they go there...so there is no such thing that they should read the newspaper, participate, that we are getting a good city...we have to participate, only when we talk we can get something..this kind of information, they do not have. (lady) We do not have the courage to be a part of this also. (man) I had read in newspapers about the meetings, but because of time, I couldn't go...otherwise they had given pamphlets, put hoardings and all. Whatever I know in general, i am telling you.

P29: V3_01_Street Vendors.docx - 29:2 [But what have they informed yo..] (6:13) (Super)
Codes: [Awareness - Family: Accessibility and Awareness]
No memos

But what have they informed you?

They said they would put on poles, improve the road, but they have not done it.

What do you know about a smart city?

I do not know that much about it.

They had put it on newspapers, radio etc.,...

yes...even if they had, we will be here, we do not know anything.

They talk about citizen engagement, to come and take interviews or do surveys….

they haven't done any such thing.

P29: V3_01_Street Vendors.docx - 29:5 [So have you filled in any form..] (18:21) (Super)
Codes: [Awareness - Family: Accessibility and Awareness]
No memos

So have you filled in any forms?

No, no such thing...

How about online?do you know about it?

No.

P30: V3_02_Street Vendors.docx - 30:2 [Now they had given you forms, ..] (8:9) (Super)
Codes: [Awareness - Family: Accessibility and Awareness]
No memos

Now they had given you forms, done surveys, announced on TV, radio….so how did you get the information?

In that way, I haven't received any information. They have told that they would do this a smart city, but..they haven't done anything. And for the footpath dwellers they said they would do something, and here they would put some grills...that is what they have said, but they haven't done anything about it.

P31: V3_03_Street Vendors.docx - 31:2 [What do you know about smart c..] (4:9) (Super)
Codes: [Awareness - Family: Accessibility and Awareness]
No memos

What do you know about smart city?

I do not know anything about it.

So you have no information about it?

No...I have heard that tumkur would be a smart city, but from that what would happen, I do not know.

How did you hear about it? Through media? Radio? Tv?

No, here people were talking about it.

P32: V3_04,05_Street Vendors.docx - 32:1 [What do we tell about smart ci..] (4:4) (Super)
Codes: [Awareness - Family: Accessibility and Awareness]
No memos

What do we tell about smart city...we do not know anything, we do not have any message. ***You can tell me as much as you know.*** *They do it on their own, whatever they want they do . Today in the newspaper they have asked what have you taken from the public….they haven't taken anything, they do it on their own and write what they want...what arrangements they need, they do that…*

P32: V3_04,05_Street Vendors.docx - 32:3 [hey announced in TV, radio etc..] (7:10) (Super)
Codes: [Awareness - Family: Accessibility and Awareness]
No memos

hey announced in TV, radio etc.,

No No, we have no such information. Zero knowledge.

Handouts? Pamphlets?

No...nothing..they haven't done anything.

P32: V3_04,05_Street Vendors.docx - 32:5 [I asked about citizen engageme..] (15:16) (Super)
Codes: [Awareness - Family: Accessibility and Awareness]
No memos

I asked about citizen engagement, they would have given you forms, done surveys...

No they haven't done that. Only you have come today, nobody has come here...zero.

P32: V3_04,05_Street Vendors.docx - 32:7 [Is this the reason why you did..] (21:24) (Super)
Codes: [Awareness - Family: Accessibility and Awareness]
No memos

Is this the reason why you did not participate?

We do not know anything about it...have you come from an NGO?

No, I am a student, doing my research to understand how much the citizens know about smart cities...

No madam, we do not know...nobody knows anything here...we read newspapers or hear things on TV, but they (municipality) do it on their own. They haven't approached us for anything..for any public meetings, they haven't approached the public.

P33: V3_06_Street Vendors.docx - 33:7 [But from smart city did anyone..] (15:16) (Super)
Codes: [Awareness - Family: Accessibility and Awareness]
No memos

But from smart city did anyone come?

From smart city nobody is coming...from smart city, those who do the road show, they come introduce the representative, the DC says he would uplift the area...they cleared the area but not to be seen now.

P33: V3_06_Street Vendors.docx - 33:10 [Did they tell what a smart cit..] (21:22) (Super)
Codes: [Awareness - Family: Accessibility and Awareness]
No memos

Did they tell what a smart city is?

In that sense, they haven't given us the details, what is happening and what will happen, they have not told us. They came as Swachcha Bharath and look madam, look at the main road, its dirty and filled with smoke. How should the vendors sit and do business? With whatever they do, the residents along with councillors are obstructing

P33: V3_06_Street Vendors.docx - 33:12 [So did you participate in the ..] (23:24) (Super)
Codes: [Awareness - Family: Accessibility and Awareness]
No memos

So did you participate in the public meetings conducted?

No in none, they have not given information also. Only once they came, one lady, as Swachchata Andolan Samiti. In Bal Bhavan, we only went but not about smart city. They called us by saying that they would provide us shops, with media also involved...Then, I dug a bit and asked the intention of the meeting. Only when I asked, they told. Here nobody knows, they look after their daily living. When I asked, they said, we are making this a smart city, for that we have to clean the streets and so on...A few of them agreed… I told then, that nothing will happen, they have come to do just for the sake of it...my claim is that there are many people who are weak, for some hope they went behind them(the municipality/smart city) to support.

P33: V3_06_Street Vendors.docx - 33:15 [Have they asked your opinion? ..] (27:28) (Super)
Codes: [Awareness - Family: Accessibility and Awareness]
No memos

Have they asked your opinion?

I have told you ten times, probably it has recorded, they haven't asked us anything!

P33: V3_06_Street Vendors.docx - 33:17 [You say you are registered und..] (28:28) (Super)
Codes: [Awareness - Family: Accessibility and Awareness]
No memos

You say you are registered under the government..*yes*..***then why do you think you were not informed?*** *See, I'll tell you...they are giving information once in awhile...just for the sake of it. They have to gobble up money right, we ask for details , for which they show some details and tell something and take our signature. They arrange for meetings, call us...do nothing and take our signatures...we have opposed so many times.*

Annexure 8
Atlas.ti output on Participation

Report: 38 quotation(s) for 3 codes

HU: NaMo Tumkur
File: [E:\fieldwork\transcripts\NaMo Tumkur.hpr7]
Edited by: Super
Date/Time: 2016-08-18 18:50:54

Mode: quotation content, memos and hyperlinks

Quotation-Filter: All

Participation - Yes/No

Participation - Self-initiation to participate

Participation - Reason

P20: V1_01_Maralur dinne.docx - 20:1 [They talk about citizen partic..] (10:13) (Super)
Codes: [Participation - Yes/No - Family: participation]
No memos

They talk about citizen participation in smart cities...to participate, tell your problems etc., have you done any such thing?

No...if they haven't come only, what do we tell?

Have you tried to participate on your own?

No

P20: V1_01_Maralur dinne.docx - 20:2 [Why? What is the reason? Reaso..] (14:15) (Super)
Codes: [Participation - Reason - Family: participation]
No memos

Why? What is the reason?

Reason is what will I do with it...If somebody is going, then I could go...How can I go alone? But they just tell that there will be a smart city here..that is all i know.

P20: V1_01_Maralur dinne.docx - 20:3 [Have you tried to participate ..] (12:13) (Super)
Codes: [Participation - Self-initiation to participate - Family: participation]
No memos

Have you tried to participate on your own?

No

P21: V1_02_Maralur dinne.docx - 21:3 [Have you participate in any of..] (10:15) (Super)
Codes: [Participation - Yes/No - Family: participation]

No memos

Have you participate in any of the meetings?

No, I haven't gone to any. If there are meetings here I go, to understand what has to be done first here...but nothing about this is spoken there.

Is this meeting associated with your locality?

There are some organization meetings that I attend, they talk about other things but not this.

Not about smart city?

No...nobody has come to talk about it either.

P21: V1_02_Maralur dinne.docx - 21:4 [Why do you think they haven't ..] (16:19) (Super)
Codes: [Participation - Reason - Family: participation]
No memos

Why do you think they haven't come?

I don't know why as yet. Only now there is a provision for tap here (water), only last month they gave the connection..it had been long that we got the tap. They collect money for it. They come for collection or for votes during elections, to do some cleaning here, they do not discuss anything about such things.

But do you know the reason?

No.. we want the roads to be clean...children suffer from fever and other things, so even we have the same wish that the roads have to be clean

P21: V1_02_Maralur dinne.docx - 21:8 [Even from the association/orga..] (28:29) (Super)
Codes: [Participation - Yes/No - Family: participation]
No memos

Even from the association/organization nobody went?

No..nobody from the organization went. Nobody has thought about it yet.

P21: V1_02_Maralur dinne.docx - 21:9 [Is there a reason why you have..] (26:27) (Super)
Codes: [Participation - Reason - Family: participation]
No memos

Is there a reason why you have not participated?

If we all go together, then I could go. For one person to go and ask, there is no such occasion/ need..right? That is why I did not go.

P22: V1_03_Maralur dinne.docx - 22:5 [Have you tried to participate ..] (9:10) (Super)
Codes: [Participation - Self-initiation to participate - Family: participation]
No memos

Have you tried to participate on your own?

How madam? You know what they say? They say that they are yet to receive tax of 10 million and they cannot do anything till then. For this we do not go to touch anything, let them do whatever they want. The municipal officers say that these are revenue sites and we should pay tax. Now they tax for water, house etc., even then they haven't provided any facilities. You can go inform them. You can take my name too.

P23: V1_04_Maralur dinne.docx - 23:4 [Have you participated in this?..] (10:11) (Super)
Codes: [Participation - Yes/No - Family: participation]
No memos

Have you participated in this?

No no

P23: V1_04_Maralur dinne.docx - 23:5 [On your own have you tried to ..] (12:13) (Super)
Codes: [Participation - Self-initiation to participate - Family: participation]
No memos

On your own have you tried to participate and express your opinion?

No..they didn't ask, I didn't say anything.

P23: V1_04_Maralur dinne.docx - 23:6 [Can I ask the reason? Reason i..] (14:15) (Super)
Codes: [Participation - Reason - Family: participation]
No memos

Can I ask the reason?

Reason is that I did not feel that it is that necessary. We are carrying on with whatever we have. In that, this should happen or that should happen is not what I would say or it is not my quality/spirit. Whatever is being given to us, we are carrying on with it in a secure way. One thing that would happen with smart city is that all the rates would rise up...taxes, and all. Now the sites that are available for 20 laks(2 million) are rising to 25 laks (2.5 million)...so if we are paying 300 rupees as tax it would rise to 1000 rupees. They will improve the roads, drainage and everything for a smart city, and then the rates will come on whom? Us citizens only. In that way it might affect..But I haven't broken my head on it, I am carrying on with whatever I have. If it happens I am happy, if it doesn't I remain indifferent.

P23: V1_04_Maralur dinne.docx - 23:9 [None of the associations have ..] (20:21) (Super)

Codes: [Participation - Yes/No - Family: participation]
No memos

None of the associations have participated?

No..no. that's it...this is my opinion, i do not know much apart from this. Because of the population, this wasn't selected is what I feel. If the population was at least 6 laks (600,000) then there could have been a possibility I think.

P23: V1_04_Maralur dinne.docx - 23:10 [When they put in the newspaper..] (24:25) (Super)
Codes: [Participation - Yes/No - Family: participation]
No memos

When they put in the newspapers about the meetings and that you could participate, did you go and participate?

No, i Didn't

P24: V1_05_Maralur dinne.docx - 24:2 [Have you participated in thin ..] (9:10) (Super)
Codes: [Participation - Yes/No - Family: participation]
No memos

Have you participated in thin is any way?

No I haven't participated in any way. I do not go out

P24: V1_05_Maralur dinne.docx - 24:3 [What was the reason? No time, ..] (11:12) (Super)
Codes: [Participation - Reason - Family: participation]
No memos

What was the reason?

No time, I do not have the time to participate. I am not free, from morning 6am to 8pm I am busy with home and work. So I haven't gone anywhere.

P25: V2_01_NR Colony.docx - 25:5 [Is there an association for th..] (25:28) (Super)
Codes: [Participation - Yes/No - Family: participation]
No memos

Is there an association for this colony?

No, there is no association as such, but, small organizations are there..to what extent they are running I do not know.

Have they participated in smart cities?

No, they have not.

P25: V2_01_NR Colony.docx - 25:7 [In the feedback forms, had the..] (43:44) (Super)
Codes: [Participation - Yes/No - Family: participation]
No memos

In the feedback forms, had they asked such questions to know about your problems?

No. They asked if we wanted our area to be developed...I think they had given options that way asking if we wanted our area or any other area to develop. In this sense, they had asked us to tick mark..that's it...apart from this, I don't think they asked anything.

P26: V2_02_NR Colony.docx - 26:6 [What about the citizen engagem..] (15:16) (Super)
Codes: [Participation - Yes/No - Family: participation] [Personal opinions/ideas/experiences - Family: opinions]
No memos

What about the citizen engagement of smart city?

They had called for consultations to take everybody's opinion, but not all participated. They have done it zonal-wise and not ward-wise...in that sense if they want to take public opinion, they have to hold a meeting here in NR Colony. Now in zonal level, if it includes 7-8 wards with 250 - 300 people involved, it won't reflect people's opinion is what I feel. So if they have to take public opinion, they have to do it ward-wise.

P26: V2_02_NR Colony.docx - 26:11 [Did you participate directly i..] (29:32) (Super)
Codes: [Participation - Yes/No - Family: participation]
No memos

Did you participate directly in this?

They called for consultations right? I had been to that.

So you filled in the form?

Yes, even in that I have mentioned everything that I told you just now as a part of slum development committee.

P26: V2_02_NR Colony.docx - 26:13 [Have you participated online? ..] (35:36) (Super)
Codes: [Participation - Yes/No - Family: participation]
No memos

Have you participated online?

We have done both, we have mailed the soft copy and submitted the hard copy directly. So whatever recommendations were there from the slum dwellers, we have given...like how we should be included in the city, asking for land rights.

P26: V2_02_NR Colony.docx - 26:15 [So have you participated in al..] (43:44) (Super)
Codes: [Participation - Yes/No - Family: participation]

No memos

So have you participated in all the workshops and meetings conducted?

I have attended about 2..thats it..

P26: V2_02_NR Colony.docx - 26:16 [Is there a reason for not cont..] (45:46) (Super)
Codes: [Participation - Reason - Family: participation]
No memos

Is there a reason for not continuing?

That was because we had other works..so

P27: V2_03_NR Colony.docx - 27:4 [How did they provide the infor..] (12:15) (Super)
Codes: [Participation - Yes/No - Family: participation]
No memos

How did they provide the information?

I attended the meeting on smart city. Madam had come there...shalini madam

Did you go to represent people or?

No, i went there as a citizen to know about it.

P27: V2_03_NR Colony.docx - 27:6 [So did you participate directl..] (28:31) (Super)
Codes: [Participation - Yes/No - Family: participation]
No memos

So did you participate directly in this?

No nothing..everybody had come..we had gone too...madam had come, then they gave us some information...for about 30 minutes- 1 hr..nothing much...none of them agreed, they all asked to not do it.

So you did not participate? By filling forms etc.,

No...I just attended once...they have done about 5-6 meetings.

P27: V2_03_NR Colony.docx - 27:7 [Why did you stop going? I did ..] (32:33) (Super)
Codes: [Participation - Reason - Family: participation]
No memos

Why did you stop going?

I did not like it, so i did not go..

P28: V2_04_NR Colony.docx - 28:5 [Can I ask why you did not part..] (20:21) (Super)
Codes: [Participation - Reason - Family: participation]
No memos

Can I ask why you did not participate in this?

You can ask, you have the freedom. Haha. I had the interest to know more about it, but i could not participate because I did not have the time, I have work..so i could not go..We should go, we need a smart city. Our people need it. It should be a clean city with all amenities to its citizens.

P28: V2_04_NR Colony.docx - 28:6 [Apart from you, has anyone els..] (22:23) (Super)
Codes: [Participation - Yes/No - Family: participation]
No memos

Apart from you, has anyone else participated?

No, here..nobody as such has participated

P28: V2_04_NR Colony.docx - 28:7 [What is the reason? We are mai..] (24:27) (Super)
Codes: [Participation - Reason - Family: participation]
No memos

What is the reason?

We are mainly laborers here, so we go to work and will not be able to participate. And nobody is interested or no such leaders are there. So we cannot go. Most of them who live here work at the APMC(Agricultural Produce Market Committee) ward. That is their life. If it rains, they go to the fields for de-weeding and harvests. They get about 150-250 rupees, so they go..otherwise thousands of them work at the APMC yard.

So they do not go because of time? Do they know about it atleast?

(lady speaks) Even then, there is no one who can take us and help us do it too. That is important. Whether it is for laborers or others, they do not take us and tell it'll help us, there is nobody who can do this, because of this most of us, women, don't go anywhere

P28: V2_04_NR Colony.docx - 28:9 [This is a slum. There are a lo..] (31:33) (Super)
Codes: [Participation - Reason - Family: participation]
No memos

This is a slum. There are a lot of people. And they work for daily income, so they concentrate on that. And there is nobody who can come and give the knowledge. There are many, even tey are there they close their eyes and sit.

Why so?

They feel that we would not go to get the knowledge because we have to earn our daily wage, lead a life. See these people, they have a shop, they can't go. Their children are studying, they would've gone out. At least i get to know because I read the newspaper, but these people do not have much idea. (lady) Now...you are the first one to come and talk about it..nobody else, only you are telling all this. (man) Correct, you are the first one to come, nobody has come to ask and make people aware

Comment:

Now...you are the first one to come and talk about it..nobody else, only you are telling all this. (man) Correct, you are the first one to come, nobody has come to ask and make people aware

P29: V3_01_Street Vendors.docx - 29:3 [So you have not participated? ..] (14:15) (Super)
Codes: [Participation - Yes/No - Family: participation]
No memos

So you have not participated?

No...

P29: V3_01_Street Vendors.docx - 29:4 [can I ask the reason? There is..] (16:17) (Super)
Codes: [Participation - Reason - Family: participation]
No memos

can I ask the reason?

There is no reason...only if somebody comes, we can know about it...only if they come,....now you have come, so i would know about it...so if they come often, we would also know about it...now if they haven't done that, how would we know?

P31: V3_03_Street Vendors.docx - 31:3 [Did you participate in citizen..] (10:11) (Super)
Codes: [Participation - Yes/No - Family: participation]
No memos

Did you participate in citizen engagement?

No.

P31: V3_03_Street Vendors.docx - 31:5 [Could I ask why you did not pa..] (26:27) (Super)
Codes: [Participation - Reason - Family: participation]
No memos

Could I ask why you did not participate in smart city initiative?

I do not know anything about it madam..what they are doing, what will happen..i don't know.

P32: V3_04,05_Street Vendors.docx - 32:4 [Have you tried to understand a..] (11:12) (Super)
Codes: [Participation - Self-initiation to participate - Family: participation]
No memos

Have you tried to understand about smart cities on your own?

No madam, we have no information, zero information. What they would do, we do not know at all.

P33: V3_06_Street Vendors.docx - 33:6 [So did you participate in citi..] (13:14) (Super)
Codes: [Participation - Yes/No - Family: participation]
No memos

So did you participate in citizen engagement of smart city?

No...they haven't given me any intimation. How about TV, radio...they have all come and spoken to people here and gone.

P33: V3_06_Street Vendors.docx - 33:8 [So you haven't participated? N..] (17:18) (Super)
Codes: [Participation - Yes/No - Family: participation]
No memos

So you haven't participated?

No, I have no information at all!

P33: V3_06_Street Vendors.docx - 33:9 [So on your own did you try to ..] (19:20) (Super)
Codes: [Participation - Self-initiation to participate - Family: participation]
No memos

So on your own did you try to participate under smart city?

For smart city, I tried to talk good for the betterment, they had come before it got rejected, they came and told us that under smart city what would happen for the vendors and they gave us assurance. What they needed was mass, to show as a hero.

P33: V3_06_Street Vendors.docx - 33:11 [So did you participate in the ..] (23:24) (Super)
Codes: [Participation - Yes/No - Family: participation]
No memos

So did you participate in the public meetings conducted?

No in none, they have not given information also. Only once they came, one lady, as Swachchata Andolan Samiti. In Bal Bhavan, we only went but not about smart city. They called us by saying that they would provide us shops, with media also involved...Then, I dug a bit and asked the intention of the meeting. Only when I asked, they told.

Annexure 9

Excerpts of Rajiv Awas Yojana: Secondary data on slum populations and socio-economic conditions

RAY : SLUM FREE CITY PLANNING SOCIO ECONOMIC ANALYSIS

TABLE 1

SL.NO	SLUM CODE	SLUM NAME	Total Slum population 2011	BPL Population 2011	No. of HHs 2011	No. of BPL HHs 2011	Density
1	2914194001	Sweepers colony	709	553	144	117	Low density
2	2914194002	N.R.Colony	3659	2712	800	604	Medium Density
3	2914194003	Upparahalli	634	533	151	127	High Density
4	2914194004	Laboury Colony	976	976	193	193	Low density
5	2914194005	Hallashetty Kerepalya	1808	1764	449	439	Medium Density
6	2914194006	Pakirapalya	837	825	177	174	High Density
7	2914194007	G.C.R.Colony	1748	1725	336	330	High Density
8	2914194008	B.M.Thotha	1227	796	312	207	Low density
9	2914194009	Santhe Maydhana	448	448	100	100	Low density
10	2914194010	Hegdde Colony	2051	2038	399	395	Medium Density
11	2914194011	Ambedkar nagar	390	369	130	123	Low density
12	2914194012	Kuripalya	1230	1002	265	224	Medium Density
13	2914194013	Goodsshed Colony	3556	3035	800	678	High Density
14	2914194014	Dibbur Janatha Colony	617	579	167	157	Low density
15	2914194015	Nazarabhadh	4475	4255	943	900	Medium Density
16	2914194016	idgha mohalla	1228	499	248	104	Low density
17	2914194017	Siragate A.K.Colony	239	79	69	25	Low density
18	2914194018	Bhagyamandhira	228	211	60	56	Low density
19	2914194019	Maraluru Janatha Colony	9547	8796	1986	1831	Low density
20	2914194020	Jayanagara	300	292	62	60	Low density
21	2914194021	Devarayapattana Colony	991	967	222	217	Low density
22	2914194022	Dibbur	1069	1056	270	267	Low density
23	2914194023	Ellarabande	779	774	194	192	Medium Density
24	2914194024	Mariyamma Nagara	403	403	84	84	Medium Density
25	2914194025	Maruthi Nagara	598	543	150	136	Low density
26	2914194026	Near R.M.C. Yard	456	347	108	82	Low density
27	2914194027	Tippu Nagara	1281	1109	273	240	High Density
28	2914194028	Melekote A.K.Colony	277	251	62	57	Medium Density
29	2914194029	Gangasandra A.K.Colony	328	316	76	73	Low density
30	2914194030	RajivGandhi Extn.	2624	2213	559	477	Low density
31	2914194031	Antharasana Halli	1469	1453	380	376	High Density
32	2914194032	Satyamangala A.K.Colony	1049	1047	292	291	High Density
33	2914194033	Settihalli A.K.Colony	505	505	115	115	Low density
34	2914194034	Batawadi	484	386	110	90	Medium Density
35	2914194035	Devanuru	903	854	241	228	Medium Density
36	2914194036	Bharathi Nagara	653	608	155	143	Low density
37	2914194037	Kaythsandra A.K.Colony	866	862	187	186	Low density

TABLE 2

SL. NO	SLUM CODE	SLUM NAME	Monthly Income No. of HHs							Occupational Status No.s of HHs					
			Less than Rs.500	Rs.500-Rs.1000	Rs.1000-1500	Rs.1500-Rs.2000	Rs.2000-Rs.3000	More than Rs.3000	Total	Self-Employed	Salaried	Regular Wage	Casual Lobour	Others	Total
1	2914194001	Sweepers colony	3	6	3	13	43	76	144	5	46	51	71	23	196
2	2914194002	N.R.Colony	1	2	17	13	158	609	800	98	52	171	869	18	1208
3	2914194003	Upparahalli	1	3	33	12	27	75	151	37	22	64	27	1	151
4	2914194004	Laboury Colony	0	5	7	3	18	160	193	8	6	20	206	12	252
5	2914194005	Hallashetty Kerepalya	0	3	3	15	55	373	449	52	132	26	280	7	497
6	2914194006	Pakirapalya	0	0	1	0	25	151	177	23	34	51	113	11	232
7	2914194007	G.C.R.Colony	12	6	10	8	51	249	336	56	8	36	340	34	474
8	2914194008	B.M.Thotha	4	4	33	2	60	209	312	101	180	112	71	13	477
9	2914194009	Santhe Maydhana	0	0	2	7	51	40	100	8	9	1	124	6	148
10	2914194010	Hegdde Colony	2	2	7	12	57	319	399	98	11	43	345	16	513
11	2914194011	Ambedkar nagar	0	0	5	5	63	57	130	4	1	4	201	0	210
12	2914194012	Kuripalya	3	6	13	25	66	152	265	63	64	60	120	26	333
13	2914194013	Goodsshed Colony	14	19	30	37	129	571	800	300	279	310	87	17	993
14	2914194014	Dibbur Janatha Colony	17	3	9	16	40	82	167	39	6	26	101	1	173
15	2914194015	Nazarabhadh	0	20	31	26	113	753	943	541	255	91	569	7	1463
16	2914194016	idgha mohalla	0	1	5	4	24	214	248	110	63	45	86	10	314
17	2914194017	Siragate A.K.Colony	0	0	10	2	20	37	69	1	4	19	53	8	85
18	2914194018	Bhagyamandhira	1	1	2	1	24	31	60	6	8	12	44	2	72
19	2914194019	Maraluru Janatha Colony	12	20	76	77	379	1422	1986	556	252	975	1041	39	2863
20	2914194020	Jayanagara	0	0	2	2	11	47	62	18	77	2	17	2	116
21	2914194021	Devarayapattana Colony	0	3	9	5	379	161	557	8	19	88	244	0	359
22	2914194022	Dibbur	1	18	30	45	101	75	270	17	23	131	158	7	336
23	2914194023	Ellarabande	3	1	7	3	13	167	194	13	28	13	142	4	200
24	2914194024	Mariyamma Nagara	1	0	5	8	59	11	84	3	0	3	91	0	97
25	2914194025	Maruthi Nagara	3	4	13	2	47	81	150	38	39	35	46	7	165
26	2914194026	Near R.M.C. Yard	0	1	5	3	12	87	108	18	20	49	86	0	173
27	2914194027	Tippu Nagara	1	11	26	40	76	119	273	75	15	40	131	15	276
28	2914194028	Melekote A.K.Colony	0	1	9	8	16	28	62	20	5	8	37	3	73
29	2914194029	Gangasandra A.K.Colony	0	1	3	10	17	45	76	12	6	7	56	1	82
30	2914194030	RajivGandhi Extn.	1	3	44	34	129	348	559	154	48	14	382	20	618
31	2914194031	Antharasana Halli	1	11	9	28	246	85	380	19	5	63	303	6	396
32	2914194032	Satyamangala A.K.Colony	0	0	13	8	43	228	292	19	122	2	223	2	368
33	2914194033	Settihalli A.K.Colony	5	9	16	17	31	37	115	4	15	13	115	3	150
34	2914194034	Batawadi	0	1	5	3	24	77	110	24	17	25	68	1	135
35	2914194035	Devanuru	3	8	23	10	86	111	241	41	45	12	169	12	279
36	2914194036	Bharathi Nagara	2	0	7	5	22	119	155	26	91	59	87	1	264
37	2914194037	Kaythsandra A.K.Colony	0	0	4	3	3	177	187	5	41	3	139	1	189

TABLE 3

SL.NO	SLUM CODE	SLUM NAME	DEFICIENY CODE	MODE OF DEVELOPMENT	OWNERSHIP OF LAND	LAND VALUE (CORE/FRINGE)	DENSITY	YEAR WISE	FINAL HOUSING SCORE	INFRASTRUCTURE	TENURE STATUS
1	291419400	Sweepers colony	211	In-situ development	Local body	Fringe	Low density	4	Poor	Good	Secure
2	291419400	N.R.Colony	221	In-situ development	Private	Core	Medium Density	2	Poor	Poor	Secure
3	291419400	Upparahalli	212	Up-gradation	Private	Core	High Density	4	Poor	Good	Insecure
4	291419400	Laboury Colony	221	Up-gradation	Local body	Core	Low density	3	Poor	Poor	Secure
5	291419400	Hallashetty Kerepalya	112	Up-gradation	Private	Core	Medium Density	5	Good	Good	Insecure
6	291419400	Pakirapalya	221	In-situ development	Private	Core	High Density	3	Poor	Poor	Secure
7	291419400	G.C.R.Colony	222	In-situ development	Private	Core	High Density	3	Poor	Poor	Insecure
8	291419400	B.M.Thotha	222	Up-gradation	Private(legal issue)	Core	Low density	4	Poor	Poor	Insecure
9	291419400	Santhe Maydhana	221	In-situ development	Local body	Core	Low density	1	Poor	Poor	Secure
10	291419401	Hegdde Colony	211	Up-gradation	Railway lands	Core	Medium Density	4	Poor	Good	Secure
11	291419401	Ambedkar nagar	221	In-situ development	Local body	Fringe	Low density	1	Poor	Poor	Secure
12	291419401	Kuripalya	211	In-situ development	Private	Core	Medium Density	3	Poor	Good	Secure
13	291419401	Goodsshed Colony	222	Up-gradation	Local body	Core	High Density	4	Poor	Poor	Insecure
14	291419401	Dibbur Janatha Colony	211	In-situ development	Local body	Fringe	Low density	3	Poor	Good	Secure
15	291419401	Nazarabhadh	212	Up-gradation	Private	Core	Medium Density	5	Poor	Good	Insecure
16	291419401	idgha mohalla	221	Up-gradation	Railway lands	Core	Low density	5	Poor	Poor	Secure
17	291419401	Siragate A.K.Colony	222	In-situ development	Private	Fringe	Low density	3	Poor	Poor	Insecure
18	291419401	Bhagyamandhira	222	In-situ development	Local body	Core	Low density	2	Poor	Poor	Insecure
19	291419401 9	Maraluru Janatha Colony	212	In-situ development	Local body	Fringe	Low density	4	Poor	Good	Insecure
20	291419402	Jayanagara	211	In-situ development	Local body	Core	Low density	3	Poor	Good	Secure
21	291419402	Devarayapattana	221	In-situ development	Local body	Fringe	Low density	2	Poor	Poor	Secure
22	291419402	Dibbur	211	In-situ development	Private	Fringe	Low density	3	Poor	Good	Secure
23	291419402	Ellarabande	222	In-situ development	Local body	Fringe	Medium Density	2	Poor	Poor	Insecure
24	291419402	Mariyamma Nagara	222	In-situ development	Private(legal issue)	Core	Medium Density	1	Poor	Poor	Insecure
25	291419402	Maruthi Nagara	211	Up-gradation	Local body	Fringe	Low density	5	Poor	Good	Secure
26	291419402	Near R.M.C. Yard	211	Up-gradation	Local body	Core	Low density	5	Poor	Good	Secure
27	291419402	Tippu Nagara	222	Up-gradation	Private	Core	High Density	4	Poor	Good	Insecure
28	291419402	Melekote A.K.Colony	221	In-situ development	Local body	Fringe	Medium Density	2	Poor	Poor	Secure
29	291419402	Gangasandra	211	In-situ development	Local body	Fringe	Low density	2	Poor	Good	Secure
30	291419403	RajivGandhi Extn.	221	Up-gradation	Local body	Fringe	Low density	4	Poor	Poor	Secure
31	291419403	Antharasana Halli	221	In-situ development	Local body	Fringe	High Density	1	Poor	Poor	Secure
32	291419403	Satyamangala	221	In-situ development	Local body	Fringe	High Density	3	Poor	Poor	Secure
33	291419403	Settihalli A.K.Colony	221	In-situ development	Local body	Fringe	Low density	1	Poor	Poor	Secure
34	291419403	Batawadi	221	Up-gradation	Local body	Core	Medium Density	3	Poor	Poor	Secure
35	291419403	Devanuru	222	In-situ development	Private	Core	Medium Density	2	Poor	Poor	Insecure
36	291419403	Bharathi Nagara	221	In-situ development	Local body	Fringe	Low density	3	Poor	Poor	Secure
37	291419403	Kaythsandra	221	In-situ development	Private	Core	Low density	2	Poor	Poor	Secure

TABLE 4

SL.NO	SLUM CODE	SLUM NAME	Dwelling units				Proposed Dwelling units	Housing cost
			Pucca(no)	Semi-Pucca(no)	Katcha(no)	Total		
1	2914194001	Sweepers colony	0	141	3	144	144	483.42
2	2914194002	N.R.Colony	61	715	24	800	800	2436
3	2914194003	Upparahalli	56	46	49	151	95	241.71
4	2914194004	Laboury Colony	82	18	93	193	111	326.12
5	2914194005	Hallashetty Kerepalya	220	155	74	449	229	534.03
6	2914194006	Pakirapalya	42	133	2	177	177	565.91
7	2914194007	G.C.R.Colony	40	42	254	336	336	1074.28
8	2914194008	B.M.Thotha	127	181	4	312	185	317.25
9	2914194009	Santhe Maydhana	7	66	27	100	100	290
10	2914194010	Hegdde Colony	390	1	8	399	9	28.54
11	2914194011	Ambedkar nagar	1	117	12	130	130	377
12	2914194012	Kuripalya	38	210	17	265	265	847.27
13	2914194013	Goodsshed Colony	271	525	4	800	529	894.67
14	2914194014	Dibbur Janatha Colony	12	146	9	167	167	533.94
15	2914194015	Nazarabhadh	250	257	436	943	693	1989.84
16	2914194016	idgha mohalla	112	127	9	248	136	255.56
17	2914194017	Siragate A.K.Colony	0	68	1	69	69	220.61
18	2914194018	Bhagyamandhira	10	29	21	60	60	182.7
19	2914194019	Maraluru Janatha Colony	412	1344	230	1986	1986	6667.23
20	2914194020	Jayanagara	11	8	43	62	62	198.23
21	2914194021	Devarayapattana Colony	6	216	0	222	222	675.99
22	2914194022	Dibbur	23	239	8	270	270	863.26
23	2914194023	Ellarabande	1	170	23	194	194	590.73
24	2914194024	Mariyamma Nagara	0	6	78	84	84	243.6
25	2914194025	Maruthi Nagara	41	107	2	150	109	195.64
26	2914194026	Near R.M.C. Yard	62	24	22	108	46	119.85
27	2914194027	Tippu Nagara	70	150	53	273	203	429.71
28	2914194028	Melekote A.K.Colony	7	27	28	62	62	188.79
29	2914194029	Gangasandra A.K.Colony	12	26	38	76	76	231.42
30	2914194030	RajivGandhi Extn.	169	364	26	559	390	698.28
31	2914194031	Antharasana Halli	30	286	64	380	380	1102
32	2914194032	Satyamangala A.K.Colony	3	289	0	292	292	933.6
33	2914194033	Settihalli A.K.Colony	6	33	76	115	115	333.5
34	2914194034	Batawadi	43	54	13	110	67	127.89
35	2914194035	Devanuru	9	210	22	241	241	733.85
36	2914194036	Bharathi Nagara	23	35	97	155	155	495.57
37	2914194037	Kaythsandra A.K.Colony	5	182	0	187	187	569.42

TABLE 5

SL.NO	SLUM CODE	SLUM NAME	Ward No.	Status	Tenability	Ownership of land	Tenure Status
1	2914194001	Sweepers colony	12	Notified	Tenable	Local body	Secure
2	2914194002	N.R.Colony	19&20	Notified	Tenable	Private	Secure
3	2914194003	Upparahalli	23	Notified	Tenable	Private	Insecure
4	2914194004	Laboury Colony	9	Notified	Tenable	Local body	Secure
5	2914194005	Hallashetty Kerepalya	18	Notified	Tenable	Private	Insecure
6	2914194006	Pakirapalya	27	Notified	Tenable	Private	Secure
7	2914194007	G.C.R.Colony	4	Notified	Tenable	Private	Insecure
8	2914194008	B.M.Thotha	18	Notified	Tenable	Private	Insecure
9	2914194009	Santhe Maydhana	8	Notified	Tenable	Local body	Secure
10	2914194010	Hegdde Colony	9	Notified	Tenable	Railway lands	Secure
11	2914194011	Ambedkar nagar	20	Notified	Semi-Tenable	Local body	Secure
12	2914194012	Kuripalya	11	Notified	Tenable	Private	Secure
13	2914194013	Goodsshed Colony	17	Notified	Tenable	Local body	Insecure
14	2914194014	Dibbur Janatha Colony	6	Notified	Tenable	Local body	Secure
15	2914194015	Nazarabhadh	11	Notified	Tenable	Private	Insecure
16	2914194016	idgha mohalla	13	Notified	Tenable	Railway lands	Secure
17	2914194017	Siragate A.K.Colony	2	Notified	Semi-Tenable	Private	Insecure
18	2914194018	Bhagyamandhira	20	Notified	Tenable	Local body	Insecure
19	2914194019	Maraluru Janatha Colony	29	Notified	Tenable	Local body	Insecure
20	2914194020	Jayanagara	11	Notified	Tenable	Local body	Secure
21	2914194021	Devarayapattana Colony	35	Notified	Tenable	Local body	Secure
22	2914194022	Dibbur	6	Notified	Tenable	Private	Secure
23	2914194023	Ellarabande	34	Non-Notified	Tenable	Local body	Insecure
24	2914194024	Mariyamma Nagara	14	Non-Notified	Tenable	Private(legal issue)	Insecure
25	2914194025	Maruthi Nagara	31	Non-Notified	Tenable	Local body	Secure
26	2914194026	Near R.M.C. Yard	22	Non-Notified	Semi-Tenable	Local body	Secure
27	2914194027	Tippu Nagara	13	Non-Notified	Tenable	Private	Insecure
28	2914194028	Melekote A.K.Colony	11	Non-Notified	Semi-Tenable	Local body	Secure
29	2914194029	Gangasandra A.K.Colony	11	Non-Notified	Semi-Tenable	Local body	Secure
30	2914194030	RajivGandhi Extn.	11	Non-Notified	Tenable	Local body	Secure
31	2914194031	Antharasana Halli	2	Non-Notified	Tenable	Local body	Secure
32	2914194032	Satyamangala A.K.Colony	28	Non-Notified	Semi-Tenable	Local body	Secure
33	2914194033	Settihalli A.K.Colony	31	Non-Notified	Tenable	Local body	Secure
34	2914194034	Batawadi	22	Non-Notified	Tenable	Local body	Secure
35	2914194035	Devanuru	30	Non-Notified	Tenable	Private	Insecure
36	2914194036	Bharathi Nagara	22	Non-Notified	Semi-Tenable	Local body	Secure
37	2914194037	Kaythsandra A.K.Colony	34	Non-Notified	Tenable	Private	Secure

Annexure 10

Responses/Ratings of the Officials on Smart City Tumakuru

Table A

To understand the innovativeness

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Average	2	28.6	28.6	28.6
	Good	5	71.4	71.4	100.0
	Total	7	100.0	100.0	

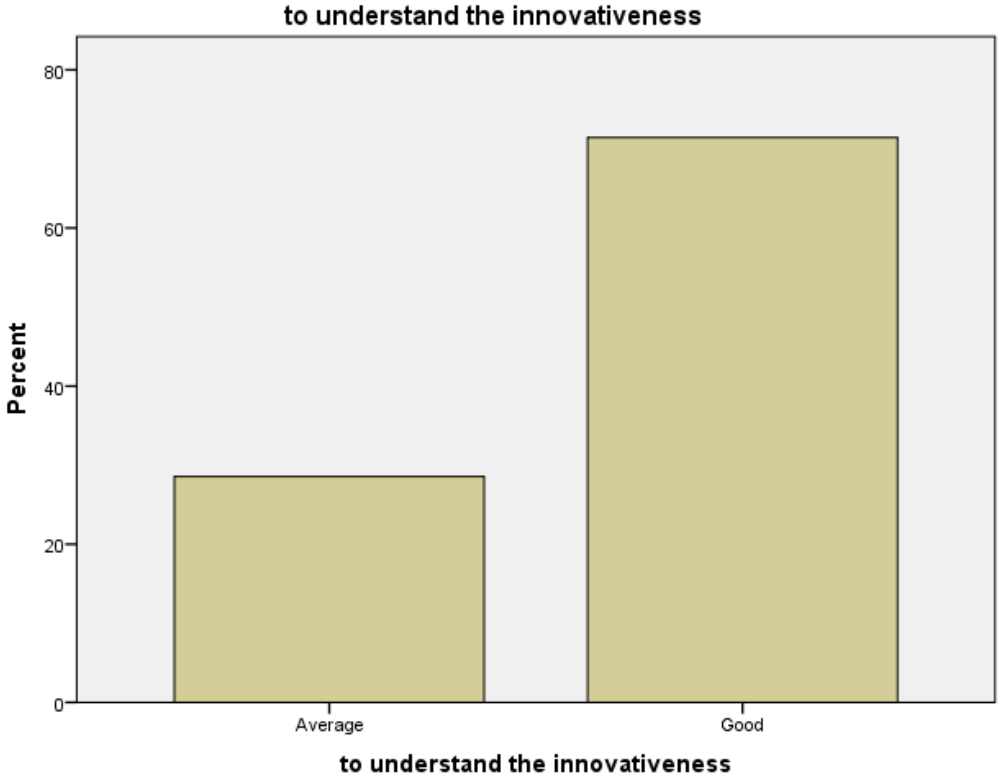


Table B

The processes and management

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Average - Implementation with standard management	3	42.9	42.9	42.9
	Good - As per guidelines with good management	4	57.1	57.1	100.0
	Total	7	100.0	100.0	

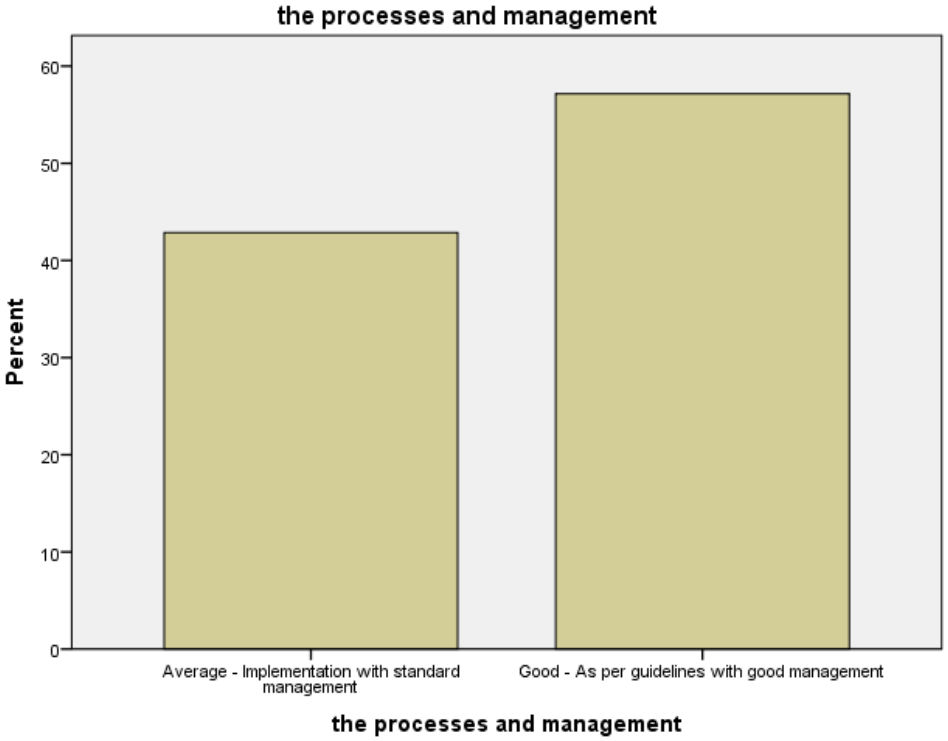


Table C

participation of counterpart organizations and consistency

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Average - participated in the initial stages	5	71.4	71.4	71.4
	Good - participated as per guidelines/expectations	1	14.3	14.3	85.7
	Excellent - contributed beyond expectation	1	14.3	14.3	100.0
	Total	7	100.0	100.0	

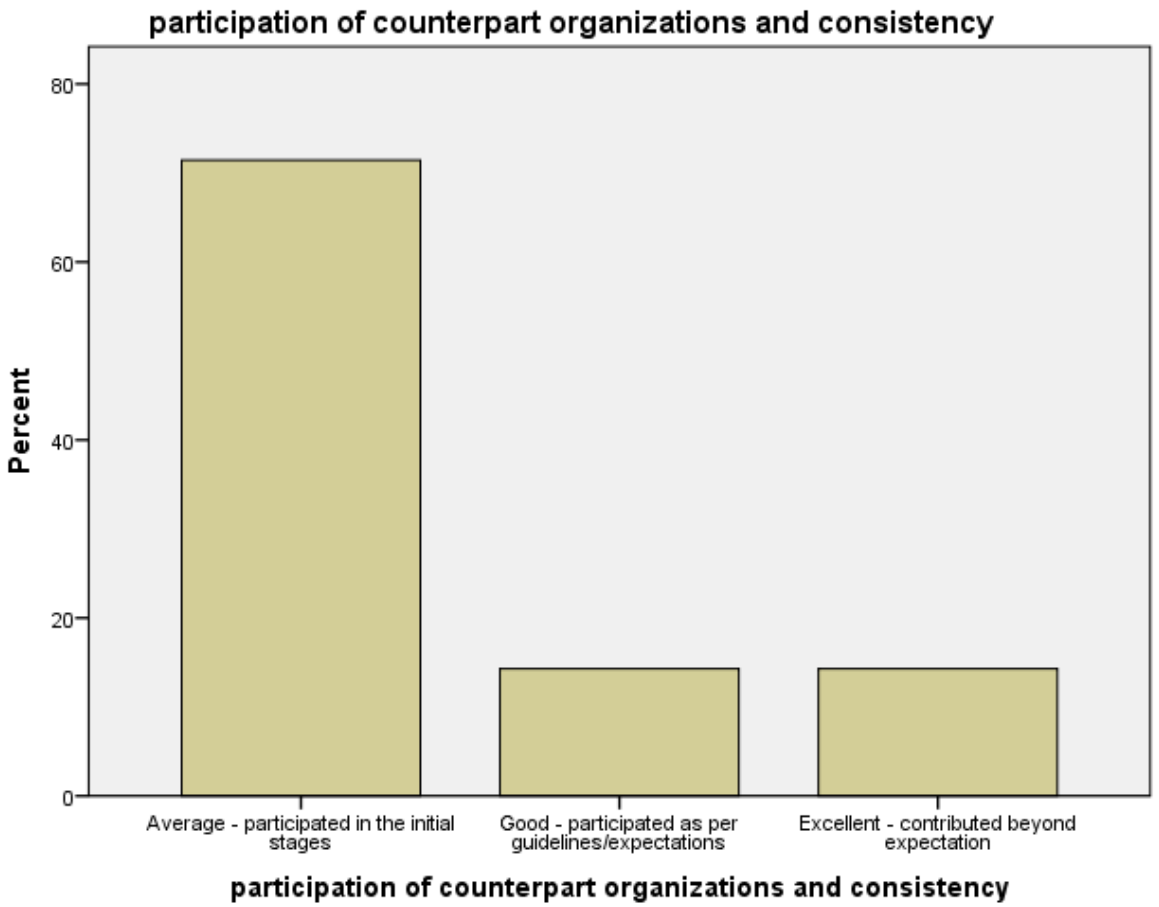


Table D

response of citizens and consistency

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Poor - no interest, poor participation	1	14.3	14.3	14.3
	Average - participation/representation with poor consistency	1	14.3	14.3	28.6
	Good - as expected and consistent	4	57.1	57.1	85.7
	Excellent - beyond expected	1	14.3	14.3	100.0
	Total	7	100.0	100.0	

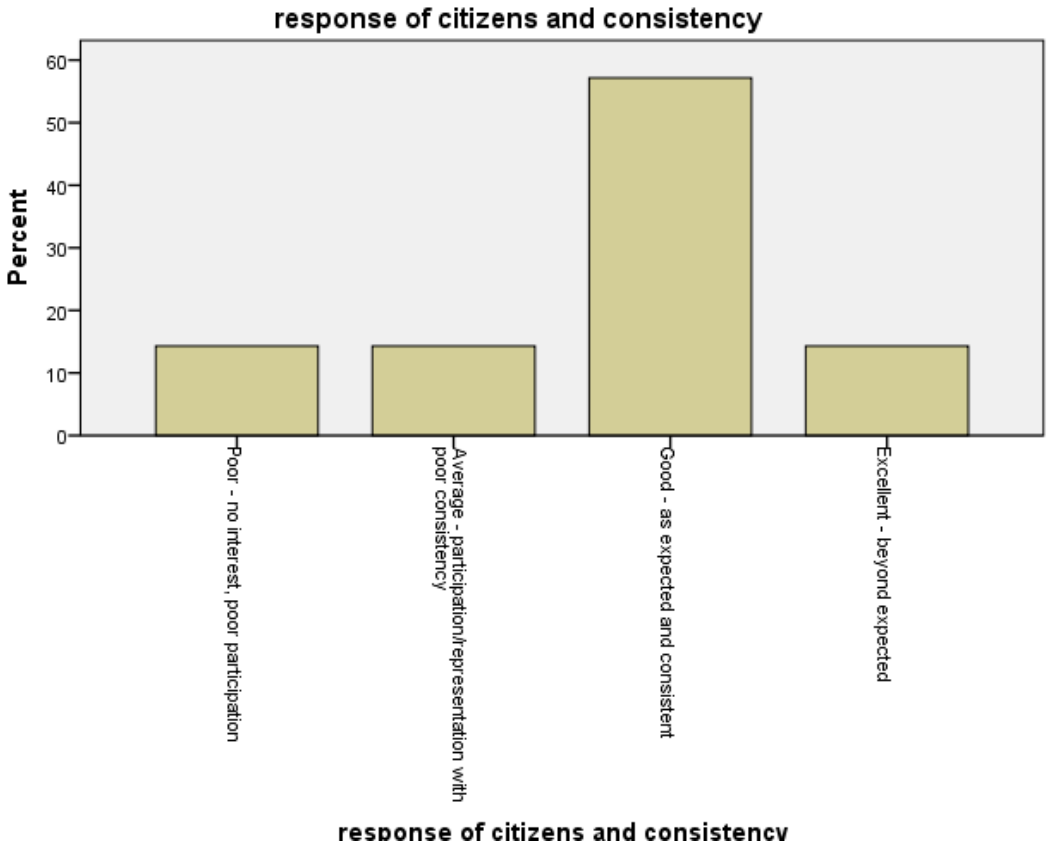
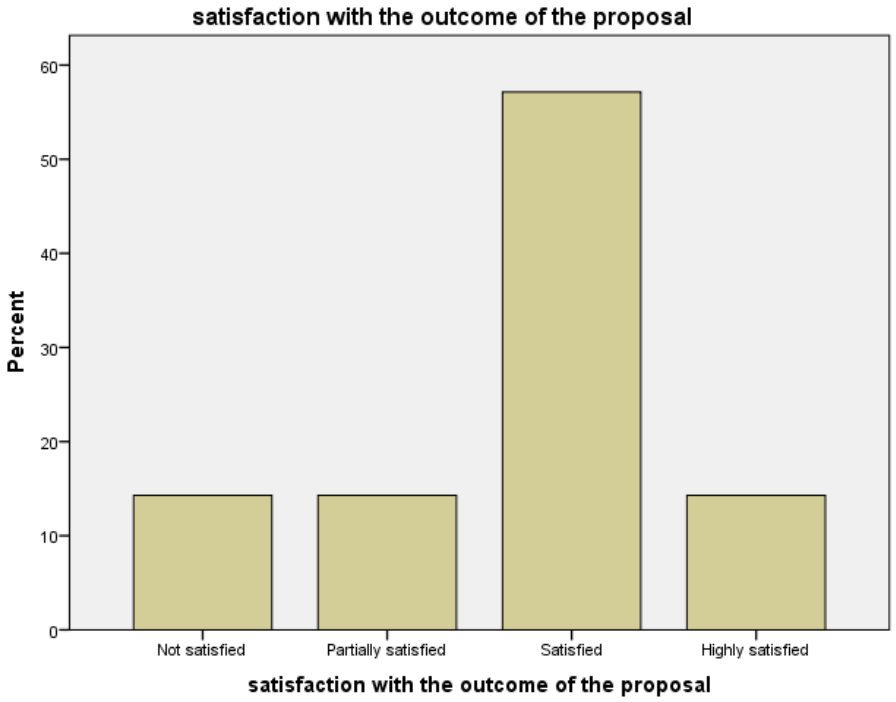


Table E

satisfaction with the outcome of the proposal

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not satisfied	1	14.3	14.3	14.3
	Partially satisfied	1	14.3	14.3	28.6
	Satisfied	4	57.1	57.1	85.7
	Highly satisfied	1	14.3	14.3	100.0
	Total	7	100.0	100.0	



Annexure 11

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