GEOSPATIAL APPROACH ON SUSTAINABLE SMART CITY PLANNING - A CASE OF BHUBANESWAR, ODISHA

Abstract

The Smart city is a developing conception which based on pioneering information and communication technologies (ICT). The objective of the smart city is to proper planning of the urbanization of 21st century with effective and sustainable management of the urban environments. The smart management and planning means the approaches to decrease the urban problems and strengthen the opportunities which caused by population pressure. The study area is the Bhubaneswar City, capital of Odisha which was declared as No. 1 smart city by Government of India. Still the city has many infrastructural problems which should be solved with modern technology. The geographical location of the city is 20^{0}13'5.81"N to 20^0 22'7.232"N latitude and 85^0 45'37.16" E to 85^{0}54'41.60" E longitude. The main objective of the study is to prepare a sustainable smart city plan with application of geospatial technology. The updated, relevant and time series geospatial data is required for a successful smart city plan which can be user friendly for the managers and decision makers of the city.

Keywords: Pioneering, Urbanization, Infrastructural, Relevant, Time series.

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I. INTRODUCTION

A city can be demarcated as 'smart' when funds in human, social capital, traditional and lCT communication infrastructure of sustainable economic growth and a high value of life, with a intelligent management of natural resources through participatory control. A "smart city" would designate the integrated management of information that generates value by applying advanced technologies to search, access, transfer and practice information. Cost and profit optimization takes place when evidence sources are associated and information is public in real time. The cities are planned and managed for improving the quality of life for Citizens, preparing proper water supply, transportation, entertainment, safety and security, delivery of government services etc. At the creation of urban studies and economic exploration of urban areas, capitals were mostly appreciated as a 'by-product' of industrialization. They are relatively preserved as a catalyst of economic change with concentrated correlation of urbanization and profitable growth as well as growing reputation of high value added industries. Increasing economic importance of cities is replicated in urban studies which transfers emphasis from social science (social relations in urban areas, segregation, social inclusion) progressively towards economics (management, entrepreneurship, competitiveness). In context of economic research, cities are preserved not only as a location for entrepreneurial action, with institutional environment analysist but also as an economic entity itself, accomplished of competing with other beings. Urban development inquiry points to two supports of urban development, i.e. innovative environment and value of life. Those two features (signified by enterprises and people) are important and essential for a reasonable city to develop [Szczcch-Pietkiewicz, 2013].

Present capitals are difficult structures for the quickening of human civilization growth. At the same time, capitals are overriding resources from nature and generating litters to environs at a developed rate than other existing styles (Bettencourt, L. and West, G. A., 2010). Urban areas have been helpful more and more populations who are further funding to high concentrations of structures and capitals with thick influences on global climate and environmental fluctuations. By 2050, urban persons will be probable to account for 67% of the world population. The climate variations and social difficulties are producing great threats of disaster and unmanageable growth to towns. Quicker urbanization practices and increasing inhabitants strengthen people’s fears on better accepting, formation and handling infrastructure, economy and society in towns to attain live capacity and sustainability. Policy-makers joined with urban planners, geographers and economists have long been creating every attempt to speak the contests at metropolitan, country and international levels. A smart way is usually demanded for building long-term sustainable towns. Due to the great degree of complexity of urban matters, information and communication technologies (ICTs) have long been used to assist scientists and experts to succeed the urban structures which increase the competence of many working processes in government supports (Akiba, 1982), (Klosterman,1990). Geographical information systems need increased its approval at very initial time in urban design, transportation displaying, risk management and geo-demographics (Batty, 2012 & Walters, 2012). As a vital portion in a much broader possibility of ICTs in urban controlling, geographic information systems (GISs) have responsibility innovative modifications in the last half century and became a simple tool for the action of urban problems and finding related clarifications. Urban modeling and urban information scheme have significant research of GIS applications in towns (Batty, 2012). With the extensive formation of smart towns, it is believed to remain an essential method to switch

experiments of global development (Walters, 2012). It is essential to receive a appraisal of GIS regarding its uses to smart city expansions, technical variations at various measures, potential concerts and future research directions. The leveling down of social constructions convinced by ICTs established in three GIS used fields are transport and flexibility, risk controlling and urban development. Singapore has implement geospatial data and GIS as a case for analysis of the smart city.

Transportation methods have significant effect on the outline and size of urban forms. Diverse purposes of a city are really associated by street systems which ranked in a network topology (Jiang, 2009). Urban zones have sprawling with fast growing car ownerships and low value of fossil fuel, which deliver human beings much living freedom and occupied proficiency. At the similar period, the transport system has the major sector of drive feeding and the second largest of energy destruction (OECD: Paris, 2002). GIS can show significant parts to decrease energy depletion and expand elegance of urban transportation throughout the procedures of delivering urban residents with effective transport clarifications. Attaining sustainable managing of transport systems and construction sustainable transportation development.

II. ROLE OF GIS IN DIFFERENT SECTOR OF SMART CITY MANAGEMENT

1. Navigation is the principal category of purpose in which GIS benefits urban citizens and guests to catch the accurate guidelines. It is important that location-wise Facilities and Smart Transportation Systems (ITS), both of which engaged in geospatial data as investigation source and maps as depiction. Smart combination of GIS could be curiously save customers' time on the road and decrease carbon emission by smart navigation to escape any overcrowding.

2. The second character of GIS is that to achieve a stage in transport and land use development in urban zones. It is accepted that transport planning is connected with the purposes of land and manipulation concentration of land in urban zones. The appliance smart formation and assess urban method and quality based on transportation displays, Remote-Sensing imageries, street linkages and other covers can be combined into GIS.

3. In planning for possible disasters, places for measurable organization and establishment is critical to operative release the work. An additional composite and accurate model including natural obstacles such as structure is used to increase straight ability with concentric round scrutiny.

III. EVOLUTION SMART CITIES OF INDIA

Beginning of 1990's through Evidence via towns' websites, in 2000, Urban portals for On-line evidence services as Good Governance. In 2005, the E-Governance initiated through Intel-cities virtual web-based e-Learning system assimilated with platforms. In 2010, the smart control introduced as consuming e-learning, involved governance, maintenance digitally attachment, smart structures, Vitality & atmosphere effective, Carbon emission & pollution measured city development. Now, the objective of Indian cities that progressive communal and ecological development, though keeping financial development reached by combined method, an essential for comprising all features of workable growth is existence appreciated.

IV. OBJECTIVE OF INDIAN SMART CITY DEVELOPMENT

1. The population explosion has carried a crucial necessity to change the urban interiors into ICT empowered smart towns for organized service distribution systems.
2. The twelfth Five Year Plan usual available a method for scheduled, comprehensive, maintainable urban growth and it is an essential to reflect the financial nourishment of the urban centers.
3. There are numerous organizations, Ministries and Government agencies overlapping duties, but it is not clear who has the main concern.
4. The idea of investigation on supportable towns is achieved attraction but desires to grow investigation on procedures for practice involving - policy design, programs and plans to address quick development.
5. The large scale casual growth will remain in India and it was significant to appreciate and grow another paths and concepts to attaining sustainability and flexibility.
6. The economic reformation, joint with the economic decline which upraised levels of idleness, mostly among early mass and commercial progress and constructing flexibility to add modification is a crucial significance for town experts.
7. The urban infrastructure has grown-up disconnected and increasing urban populations which placing stress on housing and transport.
8. 80% of the countries' population lives in towns, unavoidably that city have an important role in cultivating drive effectiveness and dropping carbon emissions, while encouraging energy resilience.

V. THE COMPONENTS OF A SMART CITY

Policy Development needs accepting of the matters and challenges for the specific city which essential to grow a extensive plan for the city, arrange on the projects, Participate vigorously, improve the facilities and processes complete the operative ICT and be organized to learn new chances for development and optimization. The following components are the holistic method to smart city growth.

1. **Smart Authority:** community involvement in policymaking strengthens communal and social facilities to a positive level of clearness in supremacy and assesses governmental strategies & outlooks.

2. **Smart People:** The level of condition, attraction to life-long education, Social and cultural multiplicity, suppleness, creativeness, open-mindedness and contribution in public life should require.

3. **Smart Budget:** The innovative, Entrepreneurship, Financial image & symbols, Output, Elasticity of labour marketplace, capability to convert or react to change are the fundamentals.

4. **Smart Movement:** Indigenous convenience, accessibility of arrangement (lCT), Sustainable, advanced and safe, transport systems.

5. **Smart Atmosphere:** Attractive natural environments, Contamination free, protected environment, Sustainable administration are crucial for sustainable circumstances.

6. **Smart Living:** The accessibility of Cultural services, Health circumstances, Individual well-being, Housing excellence, Education services, Tourist attractions and Social interrelation can donate really towards the objective.

VI. STUDY AREA

The study area is with mixing of amusing culture, tradition, recent planning and economic immoral. Bhubaneswar is the capital of Odisha state, the depth of unbelievable India. The Figure 1 is showing the study area which the researcher has taken as case study. The current town was planned in the year 1946 by German architect 'Otto Konigsberger'.The history shows the establishment of the town can outlined a long back in second century B.C during the period of Chedi dynasty. The town is known as 'Temple city' as all most 500 temples establish including the Lingaraj, Rajarani and Mukteswar temple. Bhubaneswar is the key tourism purpose and it is the local entrance for tourism in Odisha. The architecture style is Kalinga style in temples with numerous Buddhist and Jain beliefs purposes improves beauty of the town. Santistupa at Dhauligiri views as peace of the great king Ashoka as the vital Buddhist terminus and archaeological rests at Khandagiri and Udayagiri expresses about the Jain religion from the second century. The town is one of the part of Golden Triangle circuit in the eastern India with Puri and Konark. It is the last one which is the UNESCO world heritage site. Bhubaneswar is a developing center for education, health and information technology. The town embraces the celebrity of one of the four strategic "Information Technology Investment Regions" in India and crowds the top five Indian concerns in its region. World Bank also confirms as third best residence to 'do business in India' Bhubaneswar smart city", 2015). The total 81 nos. of wards in Bhubaneswar Municipal Corporation (BMC).The total population of BMC is 843402 as per 2011 census. The Researchers have taken one ward (ward no 4) of the Bhubaneswar city for showing the capacity of GIS in smart city management by using high resolution satellite image which is the outskirt of the city and there is no infrastructure development have made after declaration of Bhubaneswar is the no. one Smart city in India. The study ward has population 16185 according to census 2011, literacy rate is 79.6% which is lower than average literacy rate of Bhubaneswar as 91.7% and the sex ratio is 978 which is greater than the total BMC sex ratio is 892. The negligence is being taken in this ward because of literacy rate and lack of awareness of the people.

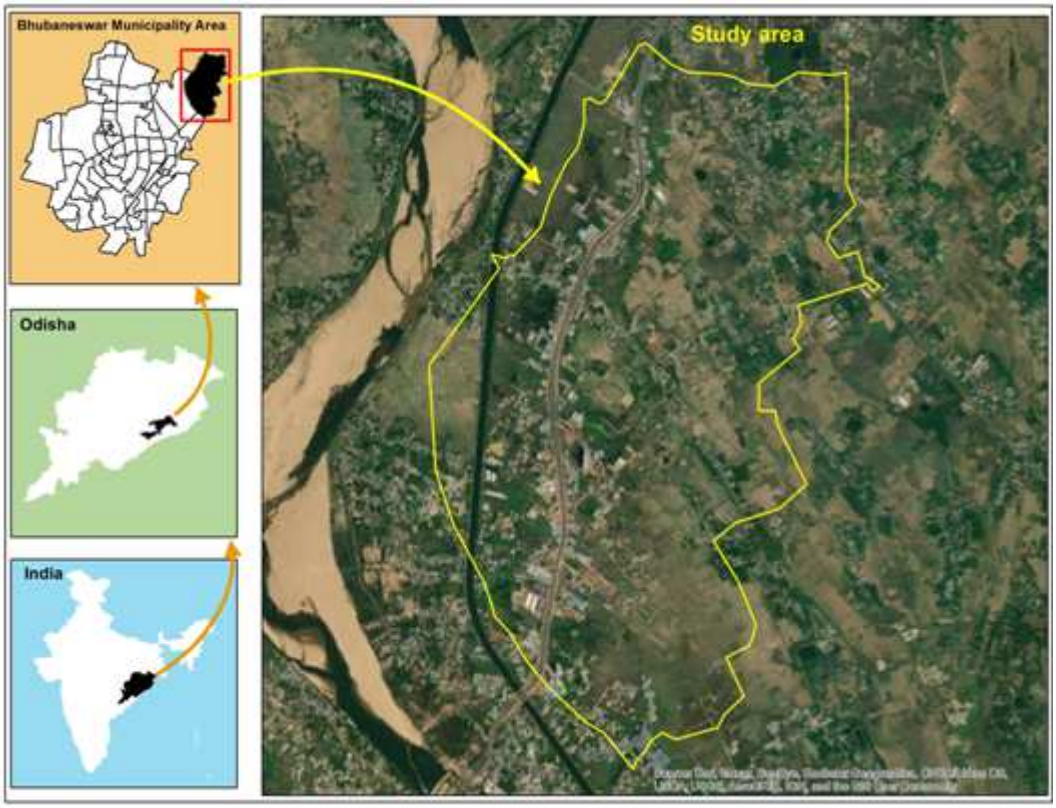

Figure 1: Location MAP of Study Area

Materials and methods

- Survey of India Toposheet (1:50,000 scale)
- High resolution satellite image for interpretation (Google Earth)
- Population data as per census 2011

After identification of the study area, the ward boundary geo-reference with the satellite imageries and also with the Survey of India Toposheet. The interpretation of the satellite imageries and geo-reference has made in the ARC GIS 10.0 software. After interpretation, the planning map as site suitability map has prepared by superimposing different layers like road, river, settlement etc. The basic site suitability map has prepared through Analytic Hierarchy Process (AHP) technique of ARC GIS software by taking on priority the smart city parameters.

VII. RESULTS AND DISCUSSION

The temple town is the maximum advanced town in the state. Growth in structure, services excellence development and innovative beginnings from investors gets of not only tourists but various incident executives to the town. Arrangement supplies in place area successful to have huge reserves in current upcoming which will open service opening for many and number of imported tourist will growth in the state. The outstanding achievement of the mega event Hockey league and Asian Athletics Championships 2017 setting the

efficiency of the town to establish international occasions. Smart activities were providing by the state government and other investors in small period of time, as the presenting stadium as well as the town was completed to prepare and ready for the occasion in an inspiring for the period of 90days. The challenge not simply prepared a excellent mark on effectiveness of the state but also it showcased the rich culture, impressive culture and attractive tourism to the world.

Facility distribution or Town structure can be divided into five sectors. The table 1 has explaining the smart facility transfer areas concluded ICT for urban administration. Smart towns are preserved as a new urban growth standard, where we can emphasis on marvels such as human and social assets, education and natural environment. These simulations of urban growth to smart towns as areas which are a helpful factor for intelligent investment growth and safety progress by official scheme. Capital for these schemes are being propagandized in numerous Central and State growth procedures. It has been recognized that reserves in human and social wealth and traditional conveyance and modem (lCT) message structure fuel supportable profitable development and a high excellence of life with a sensible regulatory of natural resources concluded participatory authority.

1. **Water Supply:** Spreading and checking scheme through GIS, Hydraulic modeling, online water quality monitoring, online billing etc. is the effective schemes applied in Indian cities which below smart water distributor services. A lot of 24/7 water distribution databases in urban and rural sectors remained applied through India. GIS based mapping incorporated with the integrated real time web created observing of water distribution facilities established water convenience due to observing of input and output points and proving of water distribution damages. In Bhubaneswar water scarcity is a major problem, every corner the water supply not reached perfectly and it was not monitored by Government for the lack of technological support. Slum people face maximum problem due to the lack of proper water supply, many places it has seen that they depend on the damaged pipeline for managing the requirement which caused various water related diseases.

2. **Waste water:** Combination and mechanization of water handling plant and sewerage schemes, Initiative source preparation (Oracle) scheme and criticism controlling sponsored under state projects and many local bodies. Creation of the database for sewerage facilities and complaint managing facilities to development in service distribution, bill assemblage and gaining important to competence and transparency in waste water area. The total Bhubaneswar waste water disposed into the Gangua river which was the most important life line of Bhubaneswar. Now that river used as the smart city drainage line which drain into the river Daya.

Table 1

Smart facility distribution locations through ICT for Urban Management				
Water Distribution	**Waste water**	**Solid Waste Administration**	**Municipal Facilities**	**Revenue and Supervision**
Water Supply Management	Plant Administration	Attendance Observing	Birth & Death documents	Property Tax
Distribution Executive	Collection & Circulation	Bin Tracking scheme	Building Plan Agreement	E-Procurement
Interior Business Procedure	Billing & Collection	Vehicle following scheme	Grievances Managing	Accounting Scheme
Water Quality Executive	Interior Business Procedure	Waste collection & Relocation	Usefulness Bills	Personal Supervision
Billing & Collection	Grievances Supervision	Treatment and Removal	Permits	
Grievances Supervision		Interior Business Procedure	Traffic	
			Street Light	
			Flooding	

There is no waste water treatment plant in Bhubaneswar, it was planned but till date it has not implemented due to various socio-political reasons. The Daya water linked with the Chilika lake, which is one of the Ramsar site of India and also first in Odisha. It means all Bhubaneswar wastes are going to Chilika lake which hampers the lake biodiversity which already ruined the Gangua and Daya River biodiversity.

3. **Solid Waste Administration (SWA):** Off-site actual period watching scheme, GIS and GPS allowed facilities, biometric presence methods for hygienic labors, and sensor created uses for solid waste executive facilities. GPS and GPRS skills concluded cell phone imageries which occupied and impressed with time, location and placed in community province for inspection on actual period basis which refining the SWA facility distribution. Maximum solid wastes are in Gangua river, there is no proper soild waste management plan, recycling plant in Bhubaneswar which caused a disaster in near future. Though much developmental creativeness has accepted for grow the smart town, but still some humiliating circumstances attitude as clusters on the way. In rainy season, the water obstruction marks to water logging and flash flood condition producing traffic jamming in the smart town.

4. **Municipal Facilities:** Combination of all processes of municipal concern concluded with GIS (land based services), computerized construction plan inspection and sanctions, Regular online citizen management (GIS based), Traffic information scheme creativity and as smart control in Urban groups. Land is the base of all processes for municipal facilities and GIS mapping, combination of numerous catalogs was started in JnNURM for refining the facilities. Building Proposal inspection and Sanctions mechanization on a broad close and its combination with GIS database enhanced the step of growth. Recently, Odisha space application center has linked with geographic location with each house of Bhubaneswar by collecting the each house GPS point. It will help to find out the locations which reduce time waste and also fuel waste. Prepaid taxi facility, shared charge and crisis reply scheme etc are creativities occupied in the town. The smart town research suggestion elaborate sensor-based traffic lights and transport schemes, connection of GPS, CCTVs and on-board statements in buses, creating a central controller room and video investigation for traffic controlling. Transport facilities contribution for an observable revolution with accumulation of ICT. The greatest condition which describes the elegance of the town is demonetization. In a complicated historical availability of money, management between inhabitants and revision of digital payment by street dealers completed the fame of the town through the nation. To balance the consistency and proper supervision, constant planned for the recorded path hawkers to afford them a chance to contribute in the smart town growth procedure. The published uniforms will extent material about dissimilar tourist destinations of Odisha and variety the town colourful. The Bhubaneswar Municipality Corporation (BMC) has been started mobile solicitation to resolution undeveloped necessities of its citizen like sanitation, lightning and waste controlling etc. The road facility in progress to manage the traffic congestion in the city, many places over bridges are constructed for avoiding the traffic congestion. Example- Cuttack road, Sahidnagr, Rajmahal, Plaspali, sisubhaban,VSS Nagar and Pokhariput square are in township and also many are in National Highway from Cuttack to Khandagiri (Nakhara, Pahala, Hanspal, Rasulgarh, Vanibihar, Acharya vihar, Jaydev Vihar, CRP, Fire Station, Barmunda and Khandagiri Squares) which reduce the accidents, traffic congestion, time duration, air pollution. Major long route buses are using the over bridges. In town area every road has designed with footpath for facility to morning and evening walk of public and also have cycle track for smooth facilitate to students and public. There are many parks for public amusement where the fitness equipment and children enjoyment facilities are available for providing fit and healthy environment. Example- Indira Gandhi Park, Biju Pattnaik Park, Gopabandhu Park etc are the major parks and many small park are available in each ward. The All India Institute of Medical Science (AIIMS), Capital Hospital, Apollo, Amri, Aditya Care, Care, IMS SUM, KIMS etc. are the major Medical facilities available in Bhubaneswar for which the neighboring states also depend on these medical institutions. The old University of Odisha, Utkal University is situated in Bhubaneswar and some other reputed institutes are also in Bhubaneswar like Institute of Physics, Institute of Mathematics, Regional Medical and research center, Institute mineral and material technology, Institute of life science, Odisha university of Agriculture and technology are in general course but also have developed engineering sector many institutes are available in Bhubaneswar for which many outside state students depends on these institutes. In engineering sector the institutes are Odisha Engineering College, CIPET, KIIT, SOA are the major in Bhubaneswar.

5. **Revenue and Administration:** Urban e-revenue schemes using GIS connected property record, online submission for service level benchmarking, e-tendering, energetic mixing of property registration and land records management scheme, widespread community works managing indication and managing scheme for PWD's and numerous advanced tenders, providing to the smart facility transport in this range. Growth of municipal profits for supportive and management of urban services and infrastructure with importance on improvements in property tax by the GIS integration with property database systems developed tax administration critically. Suggestion of tenders, documents, tenders incorporated with the accounting and ICT allowable facilities achieved to speed-up in facility distribution of infrastructure through e-tendering and connected smart facilities. GIS will be a perfect policy for urban developers, policy-makers and broad community to appreciate, contribute and affect the complete urban procedures which have been partially applied in severe computer model games with pre-set provisional models and interesting planners' benefits. In Bhubaneswar it was initiated as trial basis in some wards but after the result it will implement in the whole city.

Here the researcher has taken the ward no 4 of Bhubaneswar Municipal Corporation as the case study which the still require planning as getting smart. The ward 4 is the outskirt of the city and still it is ignored though it is the side of the national highway but the Kuakhai river is flowing between the main city and this ward. Kuakhai river is the distributary of Kathjodi river which is the distributary of the Mahanadi river. The river is the main groundwater source of BMC. The researcher has given some proposals with applying Geospatial technology; it may apply each ward of the city. The figure 2 and 3 are explaining the smart safety system which should be in a smart city with the Geospatial technology application.

A smart city must improve presentation on welfare and safety for citizens to succeed as a town. A 'Safe' town is a pre-requisite to generate a pretty economic and community situation for the citizens and to appeal the reserves for the development of smart town. Integration of smart citizen-centric facilities with the welfare and confidence infrastructure, the town would be capable to confirm sustainability and socio- economic development. Safe town facilities comprise policing facilities, traffic administration and mass transportation system, incident reaction, community controlling, crisis and disaster controlling, surveillance and monitoring, safety and security of critical structure and security of community places. The figure 4 and 5 are illustrating the smart solid waste management techniques and how it will be managed through Geospatial technology.

- **CCTV surveillance:** Location of IP-based outside security cameras through the town with video observation data existence and observed at command control insides.

- **Cyber security tools:** Cyber security tools beside with a cyber-security command centre to monitor cyber security risks and take reactive/preventive actions.

- **Online database:** Online database of NGOs and CSOs can benefit victims, especially women and children to access these services for physical and mental recovery and rehabilitation.

- **Intelligence management solution:** Influence the aptitude managing explanation to display and highest intelligence after strategies and systems which are related and tolerate unified movement of information.

- **Advanced IT systems:** Allows predications, analysis and intelligence.

- **Community volunteer systems policy:** Community media and mobile allowed podium for community/community groups to cooperate with police for local safety and security.

- **Panic controls in public spaces:** To generate attentive to forces in case of crisis situation.

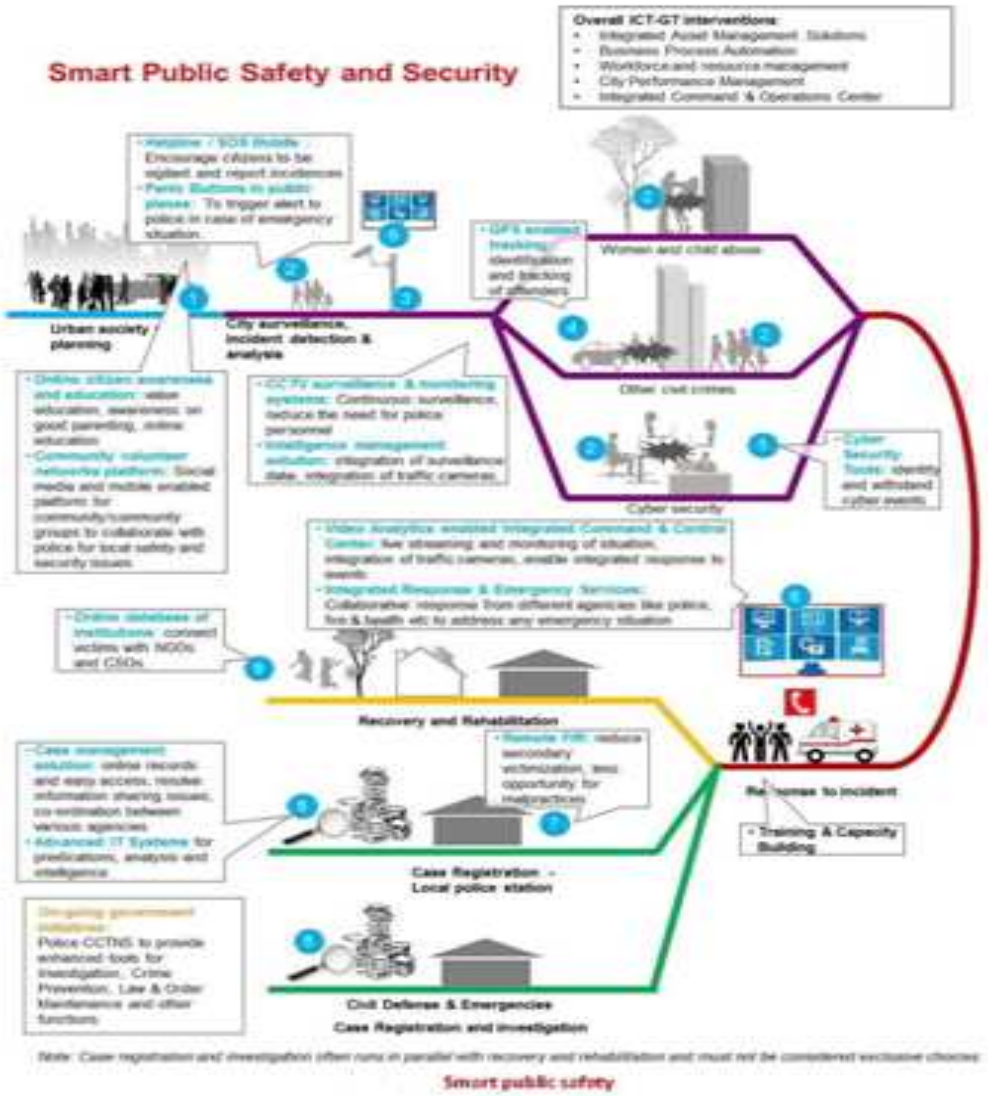

Figure 2: Explaining the Smart Safety System

Figure 3: Map Explaining the Smart Safety System Management by Geospatial Technology

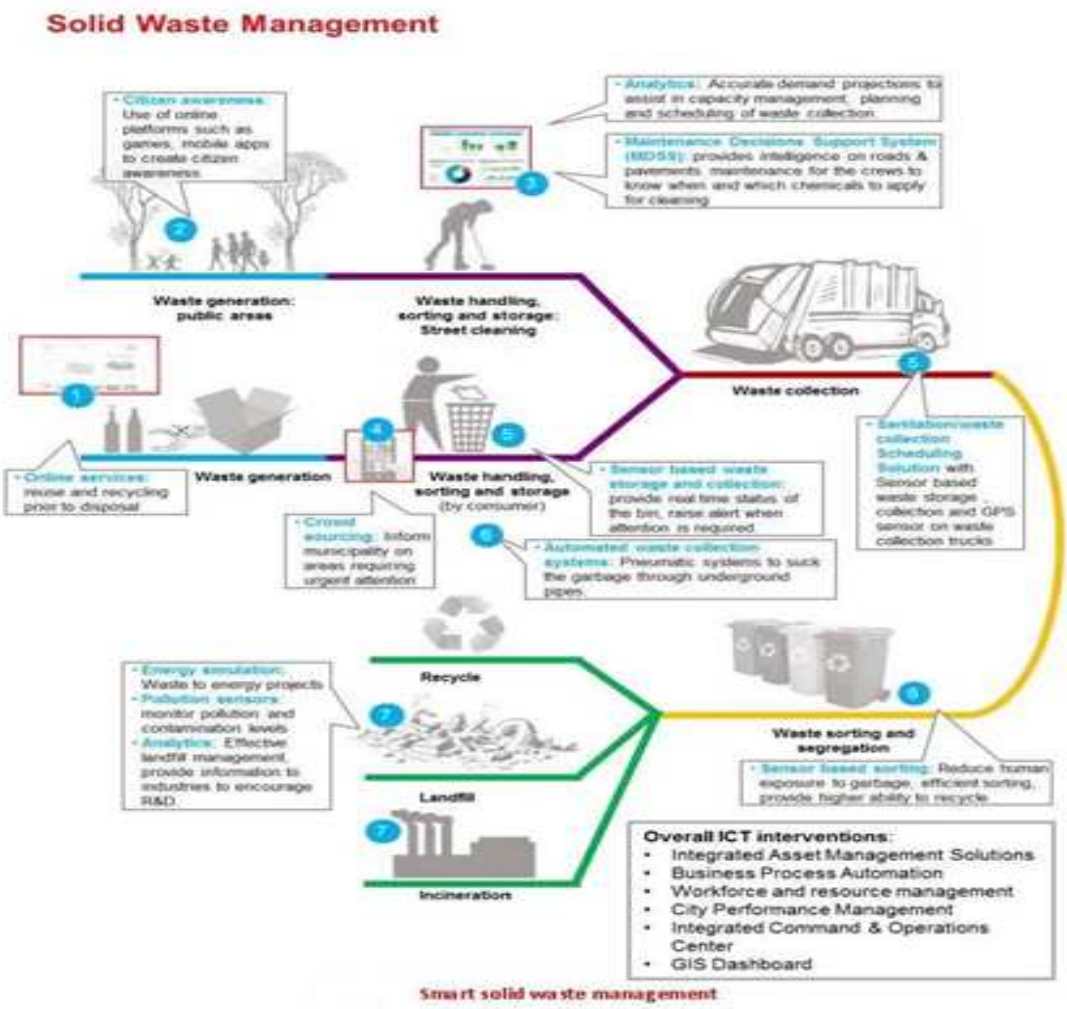

Figure 4: Illustrating the Smart Solid Waste Management Techniques

Figure 5: Smart Solid Waste Management Techniques with Geospatial Technology

- **Remote FIR centres:** Kiosks/systems to support citizens file a First Information Report

- (FIR) remotely, regardless of the position of the authority where the fault has happened in the town. The appellant can sign, print and scan papers essentially as part of the knowledge.

- **Video analytics-enabled incorporated command and regulator centre:** Video analytics generated by street cameras. Live video is flowed to the command centre and field manager is informed to a possible danger. Video analytics increases video investigation systems by execution the responsibilities of real-time occasion discovery, post occasion investigation and removal of statistical data while valid manpower costs and growing the efficiency of the investigation method.

- **Integrated response and emergency services:** Collaborative response from diverse agencies to address any emergency condition.

- **Workforce and resource administration:** Influence the workforce and resource administration results to expand workforce appointment and task management. Improve the workforce with the help of workforce management solutions like planning, forecasting and scheduling, shift managing, mobile requests to achieve tasks and operative act managing implements.

- **Integrated facility and procedures centre:** Integrated town knowledge and processes centre to display crises and disasters to afford effective response when desirable.

- **SoS mobile application:** SoS mobile claim to produce warnings and occasion reporting with geo location to give energetic reply during an emergency condition. The warnings could not just be directed to the Police Control Room but definite certain numbers from the phone book.

- **Helpline:** 24x7 emergency information number to promotion any proceedings/matters/distresses to a integrated/localized call centre which is included with police stations, hospitals etc. Training and capability building to consistently progress forces.

Technology plays an important role by providing prominence on town hygiene, direction preparation for garbage assemblage, resource optimization, effective benefit administration, effective protection, prominence of waste bins, air quality quantities etc. Town needs to redefine the waste management events created to decrease influence on situation and influence waste to create value. Technologies can also assistance involving citizens in town hygiene using portable and web channels.

- **Online platforms:** Online platforms deliver selections and replacements to the operator to appearance into recycling old stuff. The existing user is also encouraged to look for decisions to sell and recover worth from the produce before removal the produce as discarded.

- **Analytics:** Correct estimates on total waste produced, waste type and identification of heavy waste generation spaces permit operative planning and handling of solid waste managing facilities. Use of analytics through actions with great citizen participation as festivals and midways can confirm even collection and transport of excess.

- **Crowd-sourcing:** People can be cheered to crash waste-related actions which essential kindness from the experts.

- **Sensor-based waste gathering:** Sensor-based waste boxes to categorize position of waste boxes if it is blank or full for modify the waste gathering program therefore and save charges.

- **GPS plans and sensors on waste truck:** GPS method for route the waste gathering trucks to improve the assemblage capability and approve workers dump waste in selected places. It will also provide a strong image of excess produced per ward.

- **Sensor-based sorting:** Sorting waste material with the use of sensor expertise benefits in smart arrangement. The sensor technology can identify materials created on their noticeable spectrum or colour with infrared/ultraviolet ranges or based on their exact and exclusive spectral assets of reflected light or atomic concentration or conductivity/absorptivity or nuclear features.

- **Pollution sensors:** Influence the pollution sensors to gauge pollution levels at landfills.

- **Energy recreation:** Use of energy recreation software and analytics can afford correct forecasts of waste generation and energy manufacture from waste.

- **Analytics-based landfill management:** Correct waste generation and congregation forecasts along-with break-up of type of waste can permit smart landfill management.

Also, technology plays a significant role by providing visibility in demand/supply to confirm reasonable water supplies and optimize drive use to push water in huge water delivery network, decreasing the nonrevenue water through identifying seepages quicker and decreasing stealing by noticing ghost pipes. Smart meter expertise shapes behaviour of people and trades by providing prominence in depletion and decreases under rescue by correct metering. Water asset managing, water management processes and customer facilities can be unplanned considerably by expertise. The figure 6 and 7 are explaining the smart water management in a smart city and how the waste water managed and well treated for disposal into river which should not be harmful for the river water. It has shown with use of geospatial technology.

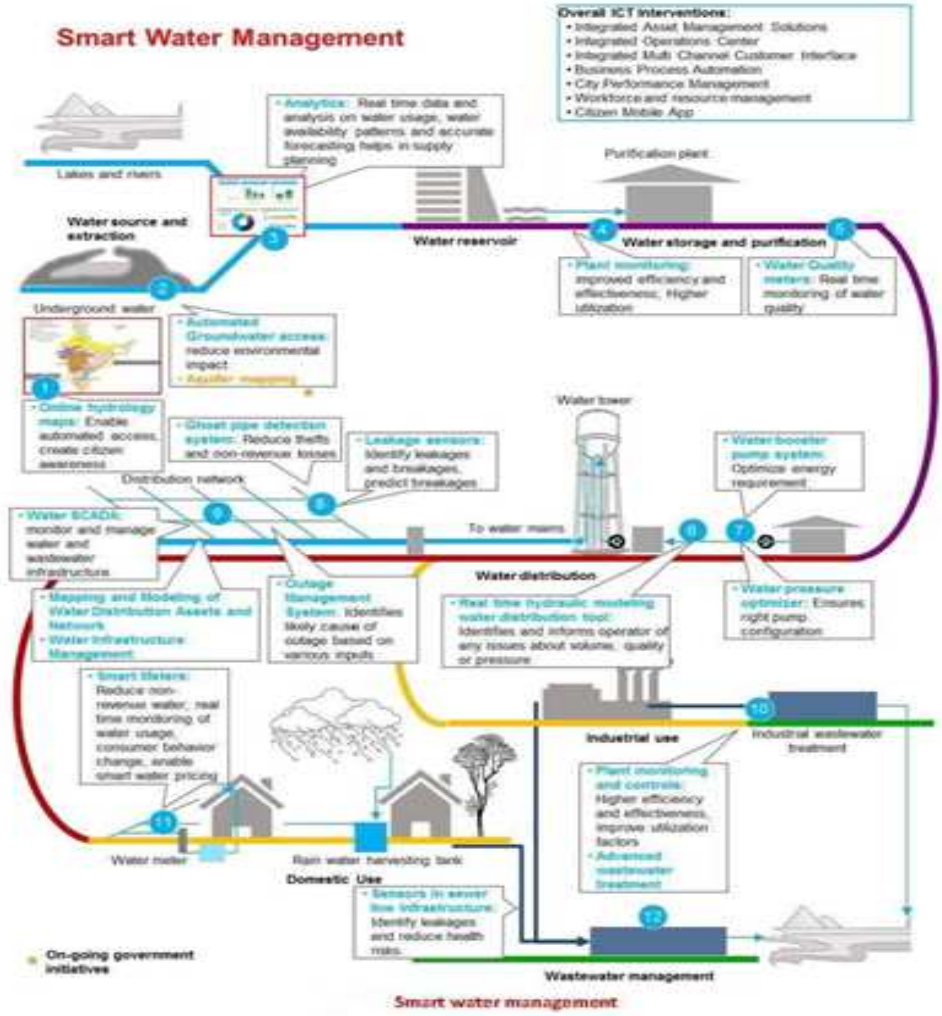

Figure 6: The Smart Water Management in a Smart City

Figure 7: Waste Water Managed and Well Treated for Disposal into River by Geospatial Technology.

VIII. CONCLUSION

Smooth management system has better possible in the fast emerging country like India. It can be projected that technical developments in approaching centuries will place a new growing situation India that could approval in development of smart cities. Different established nations smart towns in India are in the promising phase and essential combined energies from the government for growth. All smart towns accepted under smart town mission have tourism abilities and necessity towards to encourage through smart methods. Smart town stand-up groups should come up with requiring policies, proper preparation and observing would be monitored to complete those. Smart town desires long term growth, guidelines should be outlined which comprises growth of whole infrastructure for developed availability, realistic space and restaurants, accessibility to airports, nonstop contact to basic facilities like water and electricity and tourism information centre. Civilian opinions are significant in judgment making procedure and though application communal contribution must be cheered. Smart city schemes requisite to be promoted concluded smart methods like publicity in TV and Social Medias for extensive spread and improved replies. The number one smart town of India needs to importance on the infrastructure growths in space, water and waste managing. The temple town improves chosen town for many nationwide and worldwide occasions which supplies vital to be recognized time to time. It is not important toward be confirmed as first but the important mechanism is to preserve that. For being as a no 1 smart city of India, the big Bus stand of Bhubaneswar is under construction as Global Bus stand and also the Railway station became smart with advanced facility.

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