

CASE STUDY ON SMART CITY

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Abstract -The topic of smart city is increasingly discussed in the public debate but there is no sharp definition from a scientific point of view. A smart city (Also smarter city) uses digital technologies or information and communication technologies (ICT) to the enhance quality and performance of urban services, to reduce cost and resources and consumption and engage more effectively and actively with its citizens. Major technological, economic and environmental changes have been generated interest in smart cities including climate change, economic restricting, and the move to online retail and entertainment, ageing the population and pressure on public finances. Be sides the proclaimed potential making a city more efficient, there will a critical consideration of the problem of having a city, where all urban data is connected. The art of science of ordering the use of land and sitting of building and communication routes so as to secure the maximum practicable degree of economy, convenience, beauty is known as town planning.

2. INTRODUCTION

The first question is what is meant by a 'smart city'. The answer is, there is no universally accepted definition of a Smart City. It means different things to different people. 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. A Smart City would have a different connotation in India than Europe. Even in India, there is no one way of defining a Smart City. On 10 July 2012, the European Commission launched the Smart Cities and Communities European Innovation Partnership. The partnership proposes to pool resources to support the demonstration of energy, transport and information and communication technologies (ICT) in urban areas. The energy, transport and ICT industries are invited to work together with cities to combine their technologies to address cities' needs. This will enable innovative, integrated and efficient technologies to roll out and enter the market more easily, while placing cities at the centre of innovation. **Five steps to smart-**

1. Set the vision: an efficient + livable + sustainable city.
2. Bring in integration to improve overall city efficiency (operation & information).
3. Combine hardware + software solutions to improve the efficiency of urban operating systems
4. Add innovation to make a holistic sustainable future a reality.
5. Drive collaboration between best-in-class global and local players

3. Literature and review-The IEEE Smart Cities Conference Subcommittee is delighted to announce the first IEEE International Smart Cities Conference, ISC2-2015. This inaugural event of the IEEE Smart Cities Initiative's flagship conference series will be held 25th-28th of October in Guadalajara, Mexico, one of the IEEE Core Smart Cities. The main theme of the conference is *Smarter Cities for Sustainability*.

Smart Cities are innovative, conceptual, city-wide technology-human-infrastructure integration platforms promoting information and sensing technology utilization, citizen engagement, quality of life, manufacturing efficiency, economic development, and environmental sustainability.

Author Parker - points out in his book *Cities, Power and Politics* - that cities have always been seats of power and status. They have, he says, been a battle-field for power, often run by a self-serving oligarchy, but also the source of ideologies and opposition. Historian Leif Jerram suggests that power has always been in the hands of the wealthy in cities, suggesting that to change **Author Strezer** suggests, from a historical perspective that "the exact relationship between central and local government may well be a crucial one. Imbalances of power in either direction may be counter-productive. Too much power and talent at the centre, as in Britain in the 1830s and 1840s, may result in a counter-productive, one-size-fits-all dictatorial style, undermining the vigour of provincial governments and only eliciting evasion or even rejection in the provinces of initiatives from the centre. Local representative and elected governments which are endowed with genuinethis is a herculean and radical task.

Author Kern states that international city networks are not a new phenomenon; they have a history dating back to (at least) the 13th century Climate. Ewen talks of a European “golden age of municipal internationalism” during the interwar years in the 20th century. Networks are seen as a means to increase capacity through knowledge sharing, accessing finance, providing political support, etc.

Kern and Bulkeley looked at three European networks (alliance, Cities for climate protection, and Energie-cities) which together cover more than 1400 cities. They note that these networks offer opportunities for the European Commission to bypass national government in order to influence outcomes. They conclude that these networks are actively populated by pioneers and network leaders are in effect “pioneers for pioneers” with many other cities retaining membership but not particularly active within the networks.

Author Bulkeley sees networks as critical to establish scope and possibilities. She also notes that the new networks go beyond sharing good practice and are overtly political in terms of increasing involvement (C40 cities network), gaining pledges for action (Covenant of mayors) and seeking to engage the global south. These networks also do not work in isolation, she says, but they create a new “web of climate governance” which “in many ways ... could be more important than the global climate talks.”

4. List of Projects as per Smart City Proposal: Aurangabad

Sr. No	PROJECT IN SCP	COST IN RS (CRORE)
	AREA BASED DEVELOPMENT	
	INFRASTRUCTURE	
1	Water supply system	58.60
2	Sewerage System	53.70
3	Road network incl. Cycle track	136.30
4	Solid waste management	21.50
5	Power	99.50
6	Telecom and ICT infrastructure	45.30
7	Open space and garden	30.80
8	Cctv surveillance	6.30
9	Solar power	11.20
	Affordable housing development	
10	EWS housing	90.20
11	LIG housing	72.20
12	MIG housing	198.50
	Social infrastructure development	
13	Fire and disaster management	4.70
14	Police station	3.90
15	Government health facilities	31.30
16	Government school	99.00
	Land monetisation asset (details below pan cities)	
17	Smart and safe integrated urban mobility	
18	Smart street lighting and surveillance	168.90
19	Smart mobility	110.20
20	Smart solution for solid waste management	26.30
21	Command center and ICT infrastructure	25.00

OBJECTIVE OF SMART CITY

As per the study of smart cities government of india has announced the 100 smart cities and DMRC are include following objective.

1. Adequate water supply.
2. Assured electricity supply.
3. Sanitation including solid waste management.
4. Efficient and urban mobility and public transport.
5. Good governance, especially E-governance and citizen participation.
6. Safety and security of citizen particularly women, children and elders.
7. Health and Education.

On the completion of the above objects we get the cities which are having the following features.

1. The promoting the mixed land use in the area based development, it means planning for unplanned areas it contains various activities and land uses.
2. Housing and inclusiveness- expand housing opportunities for all.
3. Creating the workable localities- reducing congestion, air pollution and resource depletion, boost local economy promote interaction and ensure security.
4. Preserving and developing open spaces, parks, and play ground recreational spaces are developed in order to maintain eco-balance.
5. Promoting the variety of transport options – Transit oriented development (TOD), public transport connectivity.

Rain Water Harvesting

Introduction-Rain water harvesting is a way to capture the rain water when it rains store that water above ground or change the underground and use it later. As per the report of rain water harvesting conservation manual we have assume the annual rainfall of Aurangabad cities is 688.05mm/hour and each pipe cover area is 16.66sqm Design of rainwater harvesting as per the drawing total area cover of roof 166.64sqm

As per NBC clause No.8.6.3.8 of India 1983 providing each pipe at 6m interval for

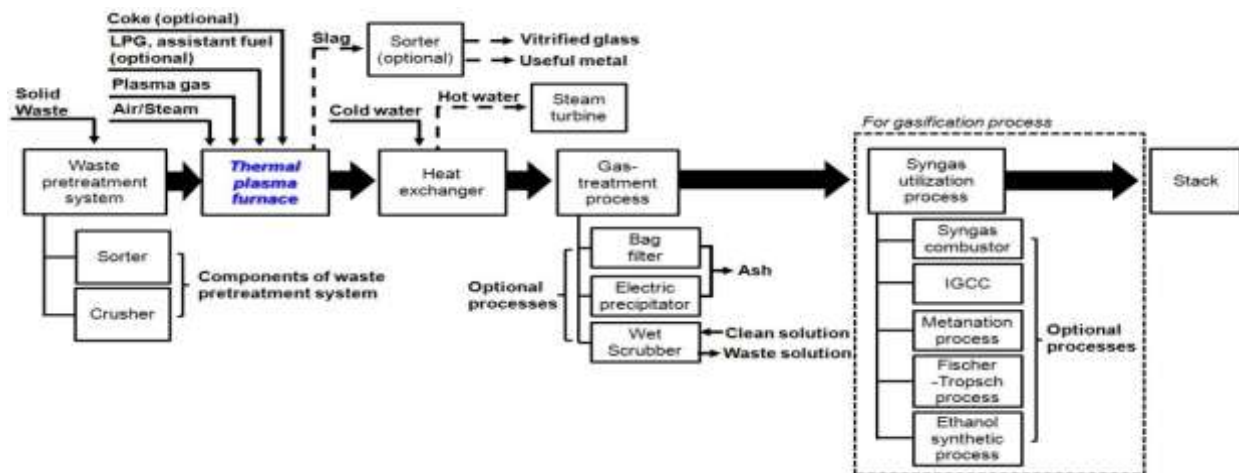
Design of rainwater harvesting	Design of Soak pit	Design of Rainwater pipe
Calculate total quantity of water = roof area * annual RF*	Total water collection from Roofs=Area of roof * Avg of rainfall	Consider total area of roof is 106.38
Length =18.35/6=3 ,3+3=6	=166.64*688.05/1000=114.66sqm	Total Area of roof=106.38 sqm
Width=9.14/6=2 ,2+2=4	=114.66*1000=114660lit	As per clause no.8.6.3.8 of NBC india1983provided each pipe 6m
Total no. of pipes =10	Size of Soak pit=7*5.46*3 (Assume free board =0.2)	There for length =21.6/6=3.6=4 pipes
T.C.Area by each pipe =166.64/10=16.66sqm	Actual size of soak pit=7*5.46*3.2m	For Breadth =19.7/6=3.28=4pipes total NO. pipes=2*4=8

Solid waste management

- Solid waste is the unwanted or useless solid material generated from combine residential, industrial and commercial activities in given area .some are the stages for management reduce, reuse ,recycle waste, collection And also for solid waste management following methods are used .treatment and disposal thermal treatment, incineration paralysis and gasification open burning
- **Gasification of municipal solid waste used in Aurangabad Munciple Corp. (AMC)**

Introduction

The enormous increase in the quantum and diversity of waste materials and their potentially harmful effects on the general environment and public health, have The enormous led to an increasing awareness about an urgent need to adopt scientific methods for safe disposal of wastes. While there is an obvious need to minimize the generation of wastes and to reuse and recycle them, the technologies for recovery of energy from wastes can play a vital role in mitigating the problems.



high temperature corrosion.

WATER SUPPLY SYSTEM

Aurangabad Municipal Corporations cornered on water supply project

AURANGABAD: The Aurangabad municipal administration on Tuesday faced a volley of questions over the ambitious water distribution project at a special general body meeting here. The Bharatiya Jananta Party (BJP) and opposition comparators raised serious doubts over the project’s viability and its economic feasibility and demanded that the municipal authorities scrap the project.

The Aurangabad Municipal Corporation (AMC) apprised the general body on the details of the Rs 792-crore water supply project for the first time, which came into force four months back. The project was introduced in the city on a PPP basis. Those who pressed for the project failed to answer many questions raised by the opposition members, as well as the BJP, a Shiv Sena ally in the civic body. Highlighting a slew of loopholes in the project, some corporators suggested drastic changes. The corporators also levelled serious allegations against the authorities. NCP corporator Kashinath Kokate said that the company executing the project in Aurangabad – the Aurangabad City Water Utility Company Limited (ACWUCL) – was blacklisted by the Latur municipal body.

To pacify the corporators, Aurangabad mayor Kala Oza directed the municipal administration to stop recovering water charges through the ACWUCL, besides asking the authorities to provide translated copies of the concessioner agreement to all corporators. The agreement signed between the company and the civic body is in English; the corporators were demanding its Marathi version. Apart from this, city engineer Sakhram Panzade tried to convince the corporators by stating that changes in the concessioner agreement is possible.



Water Supply in Aurangabad City

Water is basic need for the growth of a settlement. The water requirement to industries in a city is much more essential. Drinking water supply is one of the major responsibilities of a civic body. Aurangabad city is situated on the bank of Kham river, which is not a perennial river. In fact there is no perennial river in the nearby area of Aurangabad city. Water requirement of Aurangabad Municipal Corporation is expected to reach 300 MLD at the end of 2031. As per the statistics of

2009-2010, the water requirement is about 135 MLD. About 128 MLD water is supplied to Aurangabad Municipal Corporation area every day. Out of this 113 MLD water is received from Jaikwadi dam, 10 MLD from Harsool dam and 5 MLD from Neher-e-ambari.

AMC supplies water to slums through public stand posts. The coverage of water supply is 90%. Even though, water distribution system in AMC area is satisfactory and AMC is obliged to augment and improve the same. Another major step of AMC to improve the performance and quality of water supply system as a whole is award of Comprehensive Operation and Maintenance of Water supply system based on performance. AMC has also started 'Abhay Scheme' for avoiding misuse of water by the consumers.



SR NO	DESCRTIPTION	VALUES
1.	Gross Water Supply- Jayakwadi and other source	135MLD
2.	Number of GLSR & ESR	67MLD
3.	Length of Distribution System	967.65KM
4.	Residential Connections	98365
5.	Commercial Connection	1080
6.	Institutional Connection	345
7.	Public Stand post	150
8.	Open Wells	125
9.	Bore wells (MC)	1194
10.	Bore Wells (Private)	36453

Study of sewage tretement plant

A case study was conducted on sewage treatment plant at Salim ali lake which lies on kham river basin. This study consisted of multiple plant visits and discussion with the managing employees at the plant. During this period working of plant was studied along with the management tasks and difficulties. The plant is small 5 MLD sewage treatment plant that discharges treated water in Salim Ali Lake on daily basis. The aim of this study is to evaluate the quality of effluent discharged from 5MLD STP at Salim Ali Lake in Aurangabad city. This STP takes domestic sewage and discharges treated effluent into the lake. Salim Ali Lake comprised a rare and rich biodiversity spot within the city that hosts almost 16 tree species, 11 shrub types, 8 climbers, 32 terrestrial herbaceous plants, 10 genera of algae, 12 species of aquatic herbs. It is also an bird conservation sanctuary, hence it is important to preserve and monitor the water quality of effluent being discharged in the sewage. The study showed that the water treatment facility is of required standard and plays an important role in



conserving the ecological biodiversity of the sewage.

The production of waste from human activities is unavoidable. A significant part of this waste will end up as wastewater. An understanding of the nature of waste-water is fundamental for the design of appropriate wastewater treatment plants and the selection of effective treatment technologies. The aim of wastewater treatment is to enable wastewater to be disposed safely, without being damage to public health and without polluting water bodies. Sewage is 99 % water carrying domestic wastes originating in kitchen, bathing, laundry, urine and night soil. The objective of sewage treatment is to meet the relevant discharge standards laid down by the CPCB. Salim Ali Sarovar (lake) is located near Delhi Gate, opposite Himayat Bagh, Aurangabad. It is located in the northern part of the city. During the Mughal period it was known as Khiziri Talab. It has been renamed after the great ornithologist, naturalist Salim Ali and also known as birdman of India.[1] The office of Divisional Commissioner Aurangabad division is located near it, so is the collector's office of Aurangabad District.

ROAD NETWORK AND ITS INFORMATION

With Mr. Nitin Gadkariji assuming the charge of Transport Ministry in 2014, the hopes of fast paced development in roads and highway sectors were raised considerably. On 25th December 2015 at a public meeting in Aurangabad, Gadkariji announced a road works package for the Marathwada region worth several thousand crores. It was a dream come true for most, people celebrated, expectations were raised and people waited with bated breath, in anticipation.

The projects announced included, widening and relaying of crucial highways which pass through Aurangabad city namely Jalna road and Beed Bypass. These may be part of national highway network but over the years have become arterial roads of Aurangabad city. The need for investment in these city roads were felt for long, but were ignored by previous dispensation.

It was thanks to Gadkariji, who took the initiative and announced a package for road development. The package was way above the expectations of common citizens of Aurangabad. It was beyond anyone's imagination that Government of India could shower the backward region of Marathwada with infra projects worth thousands of crores. At last, the road infrastructure of Aurangabad was being done in a manner that was befitting its status as the Tourism Capital of Maharashtra. We all felt grateful to Gadkariji for announcing the package.

The crucial road works included

- 1 Relaying and renovation of Jalna road with provision for bus transport system and service lanes.
- 2 Relaying and renovation of Beed Bypass with service lanes.
- 3 Construction of flyovers, underpass and pedestrian bridges at suitable places on the above mentioned highways.
- 4 Converting Paithan road into National Highway and 4/6 laning it.
- 5 A New highway connecting Shendra with Bidkin and Waluj (Bharatmala scheme).
- 6 Other highway works announced included Aurangabad – Ajanta – Jalgaon, Aurangabad – Nashik, Aurangabad – Shirdi etc. Gadkariji, at a later date, has hinted about Aurangabad – Pune Expressway as well.

The above list is indicative and not exhaustive; many more road projects were announced by the National Highway Authority of India concurrently.

The present status: One and half years have passed since the announcement, and most of the projects have not moved beyond DPR stage. Contracts for new works are yet to be awarded and projects yet to take off. The wait has been agonizing to say the least. Like with any other project announced for Marathwada, things are moving at snail's pace. It seems, the projects have fallen victim to red tapism and bureaucratic squabbling.

Conclusions

According to this topic we have studied the various aspects of smart city and conclude that

1. We observe the new construction technique of city.
2. The construction of smart city is profitable and it is also used for development in India.
3. Transportation will be faster after developing the smart city.
4. To provide continuous and portable water supply to the city.
5. Development of education.
6. Efficient urban mobility and public transport.
7. Disadvantage of smart city is its initial cost is high.
8. The standard of living will increase

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