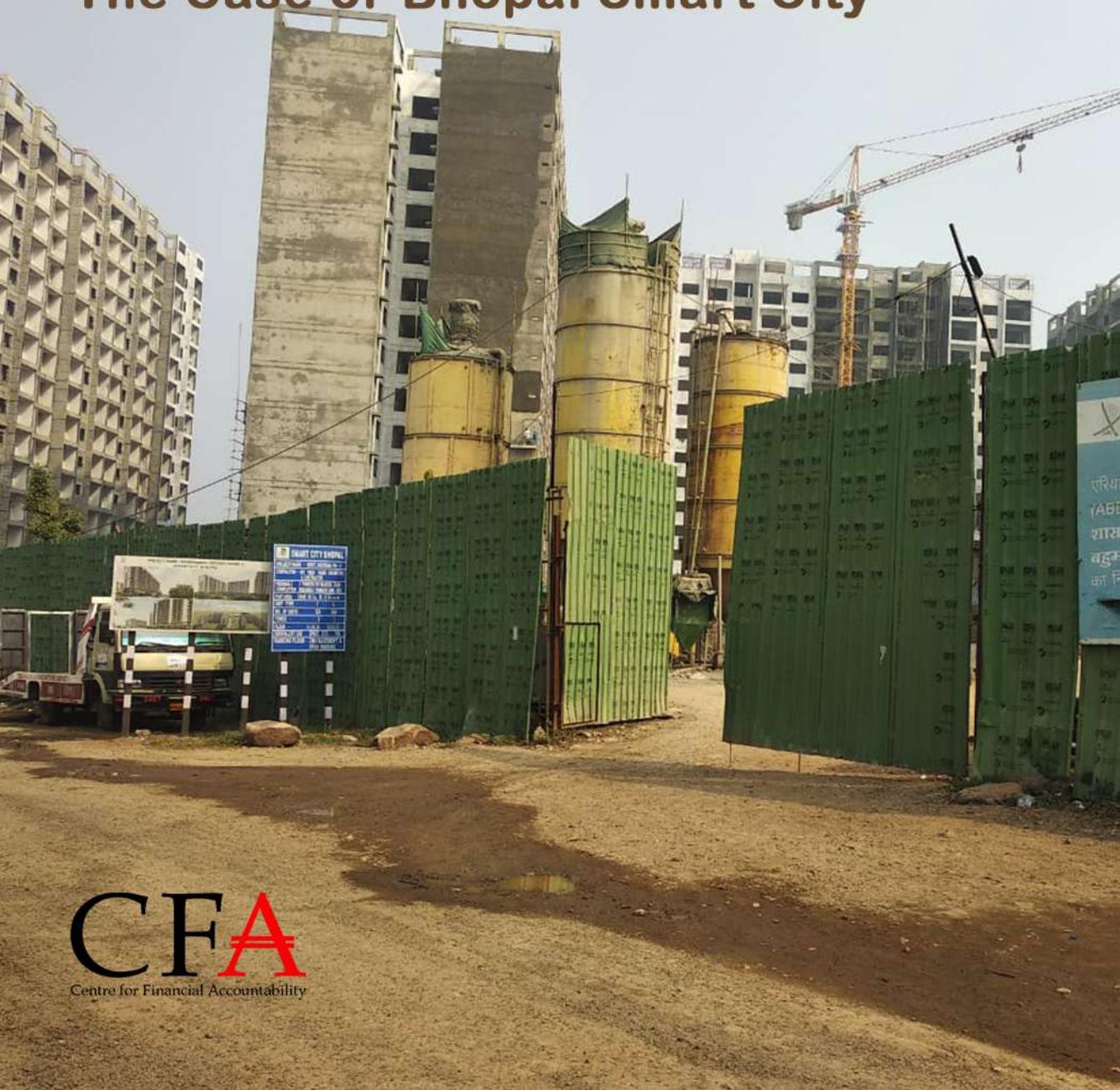


SMART & SUSTAINABLE?

The Case of Bhopal Smart City



Smart & Sustainable? The Case of Bhopal Smart City

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Foreword

My city Bhopal: Smart or wise?

I was born, brought up and had schooling in the capital town of the princely state of Sarangarh. In fact, it was not a town. It is better to call it a village where the small princely state with jurisdiction over only 80 villages had chosen it as its capital. I am therefore a migrant in Bhopal. Yet I call it my city because while I spent only 16, but very crucial formative years of my life in that town, I have been living in Bhopal since 1970 with very brief interregnums and has been my epicentre of 'karmbhoomi'.

The adjective 'my' in the title is not to indicate ownership but belongingness. It could have been 'our', probably more appropriately. However, I feel that it would have diluted the strong bond or the emotional relationship that I wish to convey. While I continue to have very strong, unique and irreplaceable emotional relationship with the birthplace, yet my bonding with Bhopal has its own place. That is why it is now my address whenever any prescribed form requires entry of permanent home/address.

In view of this it was natural for me to try to understand the project of 'smart city' for which the city was selected by the government of India, which many newspapers and media declared as a proud achievement. As soon as I understood the basic outline in some details, I found serious conceptual issues, let alone arising during implementation. Let me hasten to add that I have a worldview, an ideological lens – some may call baggage – to understand and examine all social and human issues. I call it post-liberal ---somewhat Gandhian---lens. I grant that this is somewhat unfamiliar terrain and may not be very communicative to many. In an attempt to clear some of the fog and make somewhat meaningful to a large number of persons, a pragmatic requirement, I would state that it includes the constitutional values of equality, liberty, justice and fraternity embedded in liberalism, approved and adopted by 'we the people of India'.

I was hesitant to write this piece on account of the aforesaid bias. However, having seen the very good report, I felt that I must go ahead and look at the problems that are inbuilt in the conceptualisation, process and design of the project.

The first conceptual issue is the adjective 'smart' as distinct from, intelligent which used to be the usual expression for the building or place equipped with such technologies. Smart and clever are expressions which to me appear to have a pejorative sense where indigenious and competence are used for achieving one's objectives irrespective of the morality of the means. I would really like my city Bhopal to be wise or intelligent smart or clever.

The second issue is trying to keep technology in the focus. As Gandhiji clearly understood that technology can be either helpful or kind of controlling agent. The implications can be fully understood only after its implementation and use.

Thirdly, whatever smart city may mean, it has made lots of people happy and proud, but the city is not going to be made smart but only a very small part of it. The implication is that the other part will remain un-smart, again an omnibus grey expression but, in any case creating inequality. As a person with strong belief in equality and already deeply disturbed by the characteristics of all cities, Bhopal included, where posh colonies, the habitation of the rich and the privileged merrily enjoy the benefits of urban living, exist with slums for largely migrants from villages where they usually have comfortable living conditions but no means of livelihood, live in the most unhygienic and totally unacceptable conditions, I was hoping that any project of urban development with a fancy name, initiated with great fanfare would probably address this issue that glares at, and makes fun of, the ideal of equality highlighted in the preamble of the Constitution of India.

Fourthly, the process of competition for selecting the projects itself is the root cause of and runs through multiple problems embedded in the project. The concept of competition itself is based on principles of market and corporate. Incidentally, I'm quite sad to find that many donor organisations also expect civil society organisations to compete for their projects. It is interesting to notice that competition is also linked to the nature of the project where private-people – very faulty and deceptive expression which really means private and government – partnership is the mode of implementation.

Competition also implies that it is not based on the need of a city but based on skill and competence of preparing and producing a report without necessarily following the wide consultation with the people, expected of the design of the project. Competition also meant that being selected is a matter of pride for everybody in the city, particularly for the politicians and bureaucrats who can show this as a feather in their cap, apart from opportunity for rent-seeking for in such a big financial outlay, for a few unscrupulous elements. In view of this it is not unexpected that the lengthy process of consultation with stakeholders will be ignored.

This report clearly brings out how bogus voting was resorted to, in order to prove that large number of persons have supported the proposed project, which became obvious in the face of people's strong opposition to some of its elements. The financial irregularities pointing towards possible rent seeking also finds a place in the report.

I believe that the selection of the cities for the project ought to have been based on some relevant parameters to prioritise and rank cities appropriate for such a project.

Fifthly, the project is expert-government-corporate driven not people, although that is the mask that has been tried to put on various parts of the project. The report again clearly brings out that not only people were not consulted but it was against their own wish, requiring major changes during the implementation.

Sixthly, the process of competition and the design of the project also completely ignore the concept and procedure of preparation of master plan for cities. Implementation of the project requires patchwork on the existing master plan. This again comes quite clearly in this report. The wise course would have been to select those cities where the new master plan has to be prepared or the existing master plan is almost in the last stages. This report also shows how the existing master plan was a big challenge and the implementation of the project has adversely impacted on the master plan.

In the seventh place, the so-called old innovative method of creating a special purpose vehicle for implementation of the project also has both short-term and long-term serious implications. In the short run, it has

already given rise to multiple authorities to govern or serve the people of the society leading to turf war or passing on the buck by trying to transfer work and responsibility to the other as clearly brought out in this report, for example trying to pass on the responsibility of construction of some projects for which they had financial constraints. The wiser course would have been to get it implemented by the organisation which is responsible for the development of the city. I suspect this has not been done deliberately in order to serve the interests of the private players. The long-term implications are more bothersome. It seems to be the beginning of governance of the city being outsourced as a part of the larger design of outsourcing even the governance activities to market players. There is no dearth of pro-capital economists and specialists that passionately argue for outsourcing many more functions of governance. They don't seem to be satisfied with the strong almost predominant control or influence of the corporate on government in almost all democracies. Such projects are small, gentle and covert steps towards privatisation of what we essentially consider to be the powers and functions of the government.

There are multiple issues that one can find in this very good report which I commend for reading not only to understand what is happening or has happened but also to draw lessons for better implementation of the project.

Those who are willing to read between the lines and look beyond the project can also discern many of the other larger issues and worrisome trends of the kind I have flagged in my own observations above. Admittedly, those who have a different perspective on life, society, polity and economy—eco-system of human existence will have an entirely different take.

Sharad Behar

Former Chief Secretary, Government of Madhya Pradesh



Construction of Smart Road project in Bhopal

Introduction

The case study of Smart Cities Mission in Bhopal provides an overview of the projects being implemented under the mission in the city. The case of Bhopal Smart City is quite distinctive in the sense that due to immense public pressure the state government was enforced to change the location of the Area Based Development (ABD) component of the smart city project to a different location than that was proposed in the original smart city challenge proposal by Bhopal Municipal Corporation (BMC). It briefly tracks the process of urban development in Bhopal over a period of more than 100 years and how from being a princely state the city has acquired its current status of a smart city now.

BMC submitted a proposal to Ministry of Housing and Urban Affairs (MoHUA) under the smart city challenge and Bhopal was selected as the 20th city in the first round. However the submission of proposal faced a lot of questions and controversies due to lack of wider consultation and allegations of bogus voting on social media platforms in favour the proposal submitted by BMC. The proposal however went through and Bhopal remained on track to becoming a 'smart city'.

The report gives the details of the plan and projects under the ABD component like Smart Road, Boulevard Street, Urban Village, Haat Bazaar, Government Housing, etc and Pan City components like Chartered Bike System, Smart Parking, Smart Poles, Solar City, Control and Command Center, etc. along with their costs, design and ideas behind these projects. It also discusses in details the 'Land Monetisation Policy' brought out by the smart city company to monetise the land leased to it by the state government to create revenue streams and profits for a number of years.

It shares the details of the 'Green and Blue Master Plan' created to develop projects for energy, buildings, waste and water, green and blue cover, and transport sectors with an understanding for energy and water conservation, housekeeping and water management from 2020 to 2033. The report also gives the total cost and revenue estimates for both the ABD projects and Pan City projects along with land use pattern, water and energy consumption based on the Smart City Plan developed by the consultants Tata Consulting Engineers.

The report also demonstrates in details based on personal interviews and ground reporting the impacts of the large urban infrastructure projects on the local communities, women, informal workers, shop keepers, etc. Infrastructure projects like smart cities have aggravated issues closely linked with urban poor, migrant and informal workers like displacement, loss of livelihoods, increased insecurity for women and children, poor access to educational and medical facilities, without providing concrete solutions for better access to public services. It also shows that such projects continue to face serious questions regarding tree felling and causing wide loss of green cover even in cities like Bhopal which is known for its lakes and extensive greenery.

This report on Bhopal is in a series of reports on smart cities in India brought out by Centre for Financial Accountability (CFA). The earlier reports include – ‘Smart Cities Mission in India Footprints of International Financial Institutions’ and ‘Smart City in Indore A Case Study’. We plan to continue monitoring and research on projects under smart cities mission and bringing out detailed reports on smart cities in different parts of the country in near future.

Bhopal – City of Lakes

Bhopal is the capital of the central Indian state of Madhya Pradesh and is also called the City of Lakes. Apart from the multiple lakes around the city, it boasts of a rich history of rule by the Begums, preceded by Dost Mohammed Khan who established it as a princely state in the 17th century and was found by Raja Bhoj in the 11th century. It has a number of historical monuments along with modern institutions such as those of education and training as well as industry. Medical and engineering institutes such as All India Institute of Medical Sciences (AIIMS) and Maulana Azad National Institute of Technology (MANIT) and a number of other schools and colleges constitute educational infrastructure. The city also has a large Bus Rapid Transport System (BRTS) network. The infamous Union Carbide disaster of 1984 put Bhopal on the global map and the gas tragedy continues to affect communities living close to the factory in Bhopal. The residual waste that remains in the underground tanks within the factory premises continues to be a major threat that needs to be addressed. Though several unsuccessful attempts have been made to dispose it in recent past. Bhopal is a tier 2 city and in the last three decades has seen

exponential growth in sectors across: real estate, industries, public sector, commercial activities and trade, etc. The city is well connected by rail, road and recent times have seen expansion of air services.

The surrounding areas around Bhopal have ancient caves with wall paintings reminders of the pre-historic era. It is understood that Bhopal region was part of the huge empire of the Emperor Ashok. It is believed that Ashok built the famous Buddha Stupa in Sanchi, 50 kms north of present Bhopal. During the mid-centuries the Parmar rulers made Malawa region part of their domain and Raja Bhoj left an indelible print on the history of Bhopal. He planned and built a dam on the rivers flowing through this region to create a large reservoir of water, now called as 'Upper Lake' which is still being used to supply water to a large population of the city even after hundreds of years.¹

Around 1719 AD Dost Mohammad Khan selected Bhopal to be the capital of his territory. The nawabs ruled this region for 250 years. They built several palaces, mosques, parks, lakes, educational institutes and hospitals. This includes importantly the rule of the four begums who ably governed this region for around 100 years, during that time they made critical efforts to improve the access of education for women.

In 1818 when Nazar Mohammad Khan was the nawab of Bhopal, then under the Anglo-Bhopal agreement Bhopal state became the princely state of the British Empire in India. In 1926 Hamidullah Khan became the nawab of the Bhopal state. In March 1948 nawab Hamidullah Khan decided not to join the Indian Union and formed Government in Bhopal to remain as an independent state. This decision lead to protests and demonstrations favouring merger with the Indian Union. The protests created enough pressure for signing of the merger documents in April 1949. Eventually in June 1949 Bhopal state formally joined the Indian Union. During the reorganization of the states, the state of Madhya Pradesh was created in 1956 and Bhopal became the capital of the state.²

¹ Bhopal City Development Plan – 2031 Smart City and AMRUT published by Bhopal Citizen Forum

² <https://www.patrika.com/bhopal-news/bhopal-princely-state-acceded-to-india-in-1st-june-1949-last-princely-state-where-indian-national-flag-was-hoisted-1311195/>

Urban Development in Bhopal

The first urban body to come in existence in 1907, in Bhopal state was Majlis-e-Intejamiya. As of 1956 the area under Bhopal's urban body was quite small. However, in the coming years it continued to expand to include the nearby villages within the urban boundaries. By 1975 the area of Bhopal's urban body had increased to 71.23 sq. kms. In the earlier years the operations of the urban body were run by a 20 member committee. Later, the status of Bhopal Municipal Board was revised to a municipal council and an Indian Administrative Services' officer was appointed the chief administrator. In 1983 the status of Bhopal Municipal Council was upgraded to a municipal corporation with a total number of 6 wards.³ At present the total number of wards under Bhopal Municipal Corporation (BMC) is 85 and the total area covered is 463 sq. kms.⁴

The increasing area and population under BMC has also led to unplanned development of several areas, lacking basic civic amenities. This has also increased the pressure on important public services like water supply, electricity, sanitation, transport, solid waste management, etc. In several areas the sewerage system is non-existent or choked and lack sewage treatment plants. The lakes in and around the city are being polluted and the green cover in the city is reducing at a fast pace due to urban infrastructure projects or housing schemes.

It needs to be mentioned here that late Shri MN Buch, former Indian Administrative Service (IAS) officer and an urban development expert, considered to be an architect of new Bhopal in a true sense. In September 2014 in an article titled "Jargon or Reality" he explained about earlier planned townships and now smart cities noting that – "Ultimately, these new towns become oases of planned prosperity in the midst of a desert of poverty, so it is but natural that the poor drift towards the new cities in search of employment. We thus have a planned city surrounded by a mass of unplanned settlements, resulting in a situation where a planned city and an unplanned city are in close juxtaposition. Can this be avoided in the one hundred new smart cities? I can state with a great deal of conviction that till India achieves a level of equity and equality in income, job opportunities and lifestyles, the smart city will be the magnet, the people will be the iron

³ <http://www.bhopalmunicipal.com/hi/corporation/history.html>

⁴ <http://www.bhopalmunicipal.com/hi/city-information/about-bhopal.html>

filings attracted to the magnet and soon the magnet will wear an untidy beard of iron filings. Has anyone thought about this?”⁵

Selection of Bhopal Smart City

The selection process for smart cities was done through a “Smart City Challenge Competition”. For selection process of the cities in smart city program a state level “city competition” was organized in which the cities were asked to present their bids for the same. In the bidding process the cities were asked to present the works that have been done by them on e-governance, Swachh Bharat, toilet construction, basic infrastructure, service delivery systems, digitalization of records, etc. Hence when the cities presented their works those that have already done something on the above aspects and were able to undertake a hyped PR exercise, only those were selected in the process. The challenge competition and the selection process has raised a few questions. It appears that in the selection process the principle of “the weakest cities to get the benefits of the schemes on priority basis” has been turned upside down.

For instance, the first list of proposed 20 selected cities under the smart city program included Bhopal. Bhopal was the last on the list on #20.⁶ As per the guidelines of the Government of India (GoI) – the application for the smart city and the selection of the location of the smart city in a city was to be based on the suggestions of the local residents. In Bhopal the proposal presented to the GoI was not based on large-scale consultations with the local people including the people’s representatives, municipal councillors, eminent citizens, community leaders, etc. Questions have been raised on this issue by various people as well as on the transparency of the whole process and neglecting such voices. The discussions and the invitation of the suggestions for this process was done through a web portal and social media platforms. In which a large majority of the non-internet using citizens were not able to participate and post their opinions. It was also reported that to increase the number of people saying “yes” to the smart city proposal, a lot of bogus voting was done through the social media and web portals. Local representatives have alleged that out of total 1.74 lac suggestions around 1 lac were not valid. They said that the government has decided to build smart city on 350 acres of land where

⁵ Jargon or Reality by MN Buch, Source URL - <https://lilainteractions.in/smart-city/>

⁶ <http://mohua.gov.in/cms/smart-cities.php>

residential colonies like Shivaji Nagar and Tulsi Nagar exist without discussions.⁷

The BMC proposal to build a smart city in Bhopal and redevelopment of Shivaji Nagar and Tulsi Nagar was accepted by the Ministry of Housing and Urban Affairs (MoHUA). However, the proposal presented by BMC to MoHUA faced opposition and protests due to lack of public participation, environmental and social impacts from the residents of selected locations in Tulsi Nagar and Shivaji Nagar in Bhopal. Resulting into a change of location for redevelopment project from Tulsi Nagar and Shivaji Nagar to a new location in North TT Nagar on 342 acres of land that includes existing



Trees uprooted and cut for smart city projects in Bhopal

⁷ <http://duniyaindinon.blogspot.in/2016/05/15-31-2016.html>

government housing structures on state government land, a few slums and informal settlements.⁸

Smart Cities Mission

The Smart Cities Mission, a Government of India program for urban development, is projected as a high profile initiative which will transform the urban landscape in India. In the first phase of the Smart Cities Mission, as many as 100 cities of the country are targeted to be Smart. Similarly, 500 cities have been targeted to be developed under AMRUT. The mission was launched on 25 June, 2015 by Prime Minister Narendra Modi. The provision of budget for the Smart City project by the Central Government is Rs 48,000 crore and Rs 50,000 crore for AMRUT.⁹

For the first phase under the Smart City program, 20 cities were selected through the 'Smart City Challenge Competition' in January 2016. In the later phases, 79 cities were further selected to be part of the mission, one city slot remained empty. To make these cities smart approximately Rs 96,000 crore are to be spent by the government in the next 5 years. Out of this Rs 48,000 would come from the central kitty and as per the conditions of the program a similar amount is to be borne by the state governments.

In the selected cities the central government would invest Rs 100 crore and the matching amount would be spent by the state government in the form of a grant. The projects at the municipal level under the mission would be implemented through a Special Purpose Vehicle (SPV) which would be a limited company to keep it uncoupled from the larger municipal governance and democratic processes. The SPV would be formed based on a tripartite agreement between the central government, state government and the municipal body. For monitoring, a national council is being formed which would be part of the US-based Smart Cities Council.¹⁰

Under the mission, four modes have been proposed to undertake the development of a smart city--retrofitting, redevelopment, greenfield development and pan city development. These modes would be used to develop around 500 acres of the selected city where infrastructure already exists with the help of smart internet based applications. The Smart Cities

⁸ <https://smartbhopal.city/area-based-development-tt-nagar>

⁹ www.smartcities.gov.in

¹⁰ <https://smartcitiescouncil.com/>

Mission strategy¹¹ gives the following definition of retrofitting, redevelopment, greenfield development and pan city development:

Retrofitting -- will introduce planning in an existing built-up area to achieve smart city objectives, along with other objectives, to make the existing area more efficient and liveable. In retrofitting, an area consisting of more than 500 acres will be identified by the city in consultation with citizens. Depending on the existing level of infrastructure services in the identified area and the vision of the residents, the cities will prepare a strategy to become smart. Since existing structures are largely to remain intact in this model, it is expected that more intensive infrastructure service levels and a large number of smart applications will be packed into the retrofitted smart city.

Redevelopment -- will effect a replacement of the existing built-up environment and enable co-creation of a new layout with enhanced infrastructure using mixed land use and increased density. Redevelopment envisages an area of more than 50 acres, identified by Urban Local Bodies (ULBs) in consultation with citizens.

Greenfield development -- will introduce most of the Smart Solutions in a previously vacant area (more than 250 acres) using innovative planning, plan financing and plan implementation tools (e.g. land pooling/land reconstitution) with provision for affordable housing, especially for the poor. Greenfield developments are required around cities in order to address the needs of the expanding population.

Pan-city development -- envisages application of selected Smart Solutions to the existing city-wide infrastructure. Application of Smart Solutions will involve the use of technology, information and data to make infrastructure and services better.

The mission strategy further states that "the smart city proposal of each shortlisted city is expected to encapsulate either a retrofitting or redevelopment or greenfield development model, or a mix thereof and a pan-city feature with Smart Solution(s). It is important to note that pan-city is an additional feature to be provided. Since smart city is taking a compact

¹¹ <http://www.smartcities.gov.in/content/innerpage/strategy.php>

area approach, it is necessary that all the city residents feel there is something in it for them also. Therefore, the additional requirement of some (at least one) city-wide smart solution has been put in the scheme to make it inclusive"¹². (Emphasis added)

The mission also seeks convergence with other Central and State Government schemes. It states: "...there is a strong complementarity between the Atal Mission for Rejuvenation and Urban Transformation (AMRUT) and Smart Cities Mission in achieving urban transformation. While AMRUT follows a project-based approach, the Smart Cities Mission follows an area-based strategy. Similarly, great benefit can be derived by seeking convergence of other Central and State Government Programs/Schemes with the Smart Cities Mission. At the planning stage itself, cities must seek convergence in the SCP with AMRUT, Swachh Bharat Mission (SBM), National Heritage City Development and Augmentation Yojana (HRIDAY), Digital India, Skill Development, Housing for All, construction of museums funded by the Culture Department and other programs connected to social infrastructure such as Health, Education and Culture"¹³.

For the selection of smart cities under 'smart city challenge round 1', 20 cities across the country were selected for the smart cities mission, under the fast track round. Another 13 cities were selected; under round 2, 27 cities were selected, under round 3, 30 cities were selected and under round 4, 9 cities were selected for the mission. This brought the total number to 99 and the last city to be selected for the mission at 100 was Shillong.

According to the document, the core infrastructure elements in a smart city would include:

- i. adequate water supply,
- ii. assured electricity supply,
- iii. sanitation, including solid waste management,
- iv. efficient urban mobility and public transport,
- v. affordable housing, especially for the poor,
- vi. robust IT connectivity and digitalization,
- vii. good governance, especially e-Governance and citizen participation,

¹² <http://www.smartcities.gov.in/content/innerpage/strategy.php>

¹³ <http://www.smartcities.gov.in/content/innerpage/convergence-sp.php>

- viii. sustainable environment,
- ix. safety and security of citizens, particularly women, children and the elderly, and
- x. health and education.

To achieve these targets, work on Smart Cities will happen under the Public Private Partnership (PPP) model with the Central Government investing Rs. 100 crores each and the State Government investing an equal amount in the form of a grant.

Smart City Projects in India



Source - https://i.ndtvimg.com/i/2015-08/smart-cities-map_650x400_61440671104.jpg

Smart City Bhopal

Bhopal was chosen as one of the first 20 cities under Smart Cities Mission in 2015. Bhopal's Smart City will consist of Area Based Development (ABD) and Pan City Development. The total development and Operation and Maintenance (O&M) cost of the ABD project is Rs 3440.9 crores and revenue expected is Rs 5578.2 crores. The cost of development, O&M of Pan City Solutions is Rs 875.7 crores and the Revenue from Pan City Solutions is Rs 928 crores. The total revenue from smart city projects including other services and taxes is estimated to be Rs 6644.2 crores. Under ABD, 360 acres in the city's centre will be redeveloped in both North and South TT Nagar with Gammon project and New Market across from it.¹⁴

The proposed residential density is 482 Person per Hectare (PPH) with a household (HH) size of 5. The overall density of the ABD area is expected to be around 2,07,500 people over a 20 year period. These estimates are taken from current models that predict the growth of Bhopal up until 2036. In the ABD area, the current population of 26,000 is expected to grow to 60,000 in the next 10 years at a rate of 8.75% annually due to increased infrastructure and smart city development. After the initial ten year growth at 8.75%, the natural rate of growth will fall to 1.5% annually over another 10 year period. By 2036 the population of the ABD area is expected to be 70,000.¹⁵

According to Smart Cities Mission, 'Each smart city will have an SPV which will be headed by a full time CEO and have nominees of Central Government, State Government and ULB on its Board. The States/ULBs shall ensure that, (a) a dedicated and substantial revenue stream is made available to the SPV so as to make it self-sustainable and could evolve its own credit worthiness for raising additional resources from the market and (b) Government contribution for Smart City is used only to create infrastructure that has public benefit outcomes. The execution of projects may be done through joint ventures, subsidiaries, public-private

¹⁴ Concept Plan for Bhopal Smart City Development Corporation Limited, prepared by Tata Consulting Engineers Ltd., Project Development And Management Consultant for Area Based Development Project for Bhopal Smart City, April 2017

¹⁵ Ibid

partnership (PPP), turnkey contracts, etc. suitably dovetailed with revenue streams.¹⁶

Under the purview of this mission, Bhopal has incorporated a Special Purpose Vehicle (SPV) – Bhopal Smart City Development Corporation Limited (BSCDCL) to plan, design, implement, coordinate and monitor the smart city projects in Bhopal. BSCDCL is a company incorporated under Indian Companies Act 2013 with equal shareholding from Madhya Pradesh Urban Development Company Limited (MPUDCL) on behalf of Government of Madhya Pradesh (GoMP) and Bhopal Municipal Corporation (BMC). BSCDCL has received funds from GoI and GoMP for the development of smart city in Bhopal.¹⁷ The board members of the corporation includes chairman, executive director, CEO, nominee director, additional director and independent directors. Independent directors might be associated with other private companies having interest in urban projects.

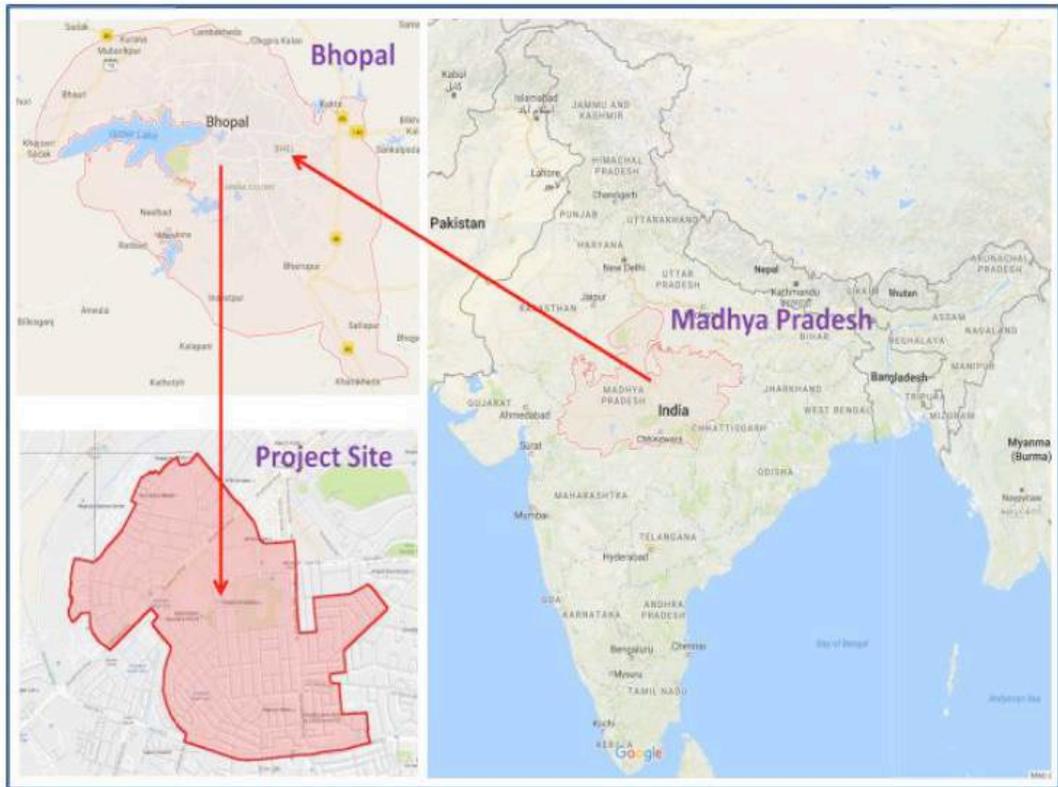
Smart City documents state several methods of generating revenue from projects which include increase in user charges, land based financing such as vacant land tax, conversion charges, betterment tax, impact fees, FSI charges, tax increment financing. Other recommendations include advertisement, entertainment and professional taxes. Issuance of municipal bonds is another method which is being highlighted as a method of financing across smart cities.

As per the guidelines of the Smart Cities Mission an advisory forum has to be formed to ensure the participation of local people in the planning and development of the smart city. The advisory forum would include Mayor, MLA, MP and representatives of the resident welfare associations. The guidelines state that the SPV needs to consult the advisory forum while planning and executing smart city related projects. However, in Madhya Pradesh none of the municipal corporations selected for the mission including BMC have formed the advisory forum as yet.

¹⁶ Smart Cities Mission, URL - <http://smartcities.gov.in/content/innerpage/spvs.php>

¹⁷ Policy for Land Monetisation of Area Based Development Project, Bhopal Smart City Development Corporation Limited, Source URL - https://smarthbopal.city/uploads/download/abd_land_disposal_policy.pdf

Figure 1-1: Location Map of Bhopal Smart City



Source - Environment Impact Assessment for Bhopal Smart City, prepared by Tata Consulting Engineers Ltd

Organisational structure of Bhopal Smart City Development Corporation Limited (BSCDCL)¹⁸

SNo.	Name	Designation	Email Address
1	Mr. Tarun Pithode	Director & Chairman	dmbhopal[at]nic[dot]in
2	Mr. Vijay Datta	Executive Director	commbhopal[at]mpurban[dot]gov[dot]in
3	Mr. Deepak Singh	CEO	ceo[at]smartbhopal[dot]city

¹⁸ <https://smartbhopal.city/board-of-directors>

4	Mr. Janardan Prasad	Nominee Director	janardan[dot]p[at]gov[dot]in
5	Mr. Swatantra Kumar	Director	acms[at]mpurban[dot]gov[dot]in
6	Mr. Abhilash Dubey	Director	abhilashdby[at]gmail[dot]com
7	Mrs Anju Pawan Bhadoria	Director	ceo[at]bda[dot]org[dot]in
8	Mrs. Sunita Singh	Director	sunita.singh[at]mptownplan[dot]gov[dot]in
9	Mr Krishna Mohan Soni	Nominee Director	kmmunan[at]gmail[dot]com
10	Mr. Purushottam C. Kaushik	Independent Director	pkaushik0[at]gmail[dot]com
11	Mr. Nayan Parikh	Independent Director	npcinfra[at]nayanparikh[dot]com
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Area Based Development Project

The earlier Smart City Plan for Bhopal named Tulsi Nagar and Shivaji Nagar for ABD projects. It was chosen with the idea to transform it into a central business district. However, sustained protests by local resident groups, including Bhopal Citizens Forum, a group of residents from Shivaji Nagar arguing that it would lead to immense ecological loss because of massive amount of tree felling proposed to redevelop these areas. This led to authorities dropping Shivaji Nagar and Tulsi Nagar as locations for ABD. Later, ABD was shifted from Shivaji Nagar, Tulsi Nagar to TT Nagar (North and South).

It was noted that while shifting the ABD to TT Nagar more that 90% of the land is owned by the government. The project being designed to 'unlock the value of underutilized government land in the heart of the city, radically

transforming the area into an eco-friendly and financially sustainable model, while incorporating all smart city features and strategically located between two primary transport axes (BRTS and proposed Metro), embodying Transit Oriented Development (ToD) principles. North and South TT Nagar was then chosen for redevelopment under ABD projects.¹⁹

In fact, Bhopal is the only smart city to have a redevelopment and rehabilitation project across 100 smart cities. According to reports, Smart City Bhopal stands at high valuation because of the allotment of 342 acres of Central Business District Area by the state government to the SPV which, can monetise around Rs 60 to 70 billion. However, it also needs be noted that such monetising may not be possible in all cities, only those cities in advance stages of commercialisation would succeed in monetising projects, rather than in tier 2 or 3 cities or rural areas, because it will be difficult to find buyers in those places.²⁰

Redevelopment of North and South TT Nagar will include a total proposed built-up area of 19.32 lakh sq mtrs and the total project cost is Rs. 1778 crores. It is being developed as a High-Density Mixed-Use along the three transit zones. Layout of the area has been designed on the principles of TOD. There have been proposed changes in FAR (Floor Area Ratio) and building heights to achieve higher density. With populations 60,000 residential and 56,000 commercial gives a high density of around 864 pph for the ABD area.²¹

It will also be well connected with BRTS, Railway Station and Airport, while also falling along the upcoming MRT axes, with three metro stations within the ABD area. According to the Smart City Bhopal website, with an approximate investment of 2,500 crores the ABD area has been envisaged to develop with state of the art infrastructure with all the smart features and green technology as per the smart city guidelines. These infrastructures will include 24X7 water supply and power, underground utility corridor, ICT infrastructure, smart street lighting, automated solid waste system, to name a few. 80% of the buildings in the area will be green rated. MoU has been signed with IGBC (Green Rating Agency) for ABD area. The proposal lists

¹⁹ Policy for Land Monetisation of Area Based Development Project, Bhopal Smart City Development Corporation Limited, Source URL -

https://smartbhopal.city/uploads/download/abd_land_disposal_policy.pdf

²⁰ <https://india.smartcitiescouncil.com/article/monetize-assets-and-fund-smart-cities-project-bhopal-did-it>

²¹ [https://smartbhopal.city/uploads/download/ABD_Brochure.\[1\].pdf](https://smartbhopal.city/uploads/download/ABD_Brochure.[1].pdf)

mandatory open and green spaces in individual plots. An Integrated Command and Control Centre (ICCC) will monitor and manage the ABD area as well as entire city. A development cell has been formed by BSCDCL to facilitate 'single window clearance' of permits.²²

The concept plan for ABD has been prepared by Tata Consulting Engineers (TCE). Under the proposed plan total 12025 houses would be built. In addition just behind the Gammon India project on the other side of road 3000 units are being constructed for government employees. Besides Kamla Nehru School its first commercial building is being built, in front of the TT Nagar Stadium a Smart Haat Bazaar is being developed and around the existing Dusshera Maidan, a centre for cultural activities is proposed. Existing Model School and Kamla Nehru School would be developed as educational hubs. The first phase has three ongoing construction projects – Boulevard Street, government housing and a multi-story building.²³

The total cost of ongoing projects under ABD component is Rs 977.11 crore and includes:

Boulevard Street – which will be 45 m wide and 1.9 km in length and will connect two proposed commercial nodes at two metro stations falling in the ABD area. This will have a higher FAR. The cost of Boulevard Street will be Rs. 39.46 crore.

Signature Tower – A commercial complex, an eight story building with basement parking with estimated 430 shops on the first two floors and the remaining floors for offices. It will have green walls, lawns and surveillance room for monitoring security and utilities. Estimated cost of the commercial complex is Rs. 34.93 crores.

Urban Village – HAAT which will have space for 400 shops, futuristic shopping arcade with art and music spaces, roadside arcades with trees, shops and kiosks and safety and security through CCTV. The cost of this project will be Rs. 34.34 crores.

²² <https://smartbhopal.city/area-based-development-tt-nagar>

²³ Environment Impact Assessment for Bhopal Smart City, prepared for Bhopal Smart City Development Corporation Limited, Bhopal, prepared by Tata Consulting Engineers Limited, January 2018
http://environmentclearance.nic.in/writereaddata/Online/TOR/06_Jun_2017_1759173333Y5X9BZ9ConceptPlan_ABD6THJUNE2017.pdf

Redevelopment of Dussehra Ground - into multipurpose green area with basement parking. It will be used for mela and festive activities, will have rainwater harvesting and ground water rejuvenation. It will also include basketball courts, free library, smart dustbin, solar lighting, jogging tracks, etc. The cost of this redevelopment will be Rs. 26.40 crore.

Government housing in three phases costing a total of Rs. 682.7 crores.

Smart Road construction in the ABD area with the total cost of Rs. 152.31 crores on a total length of 14.5 km.²⁴



Figure 6-2 Proposed Land Use

Source - Concept Plan for Bhopal Smart City Development Corporation Limited, prepared by Tata Consulting Engineers Ltd

²⁴ [https://smartbhopal.city/uploads/download/ABD_Brochure.\[1\].pdf](https://smartbhopal.city/uploads/download/ABD_Brochure.[1].pdf)

Redevelopment of ABD area points to widespread tree felling and displacement of people in the area with government quarters, informal settlements and commercial establishments being demolished. With already a huge number of trees being felled, there are now attempts at salvaging the remaining by translocating them which is an expensive and risky method.²⁵ Along with environmental concerns, there are health issues emerging in the local areas around ABD work because of neglect of guidelines which has caused rise in dust pollution in the immediate localities.²⁶

Construction of Boulevard Street began in June 2017, the construction was projected to be completed in 11 months, however till February 2020 work remained incomplete. The total cost has also increased from original estimated of Rs 40 crore to Rs 44 crore. This 45 m wide street connects Platinum Plaza to Jawahar Chowk. BSCDCL, has selected Shapers Construction to work on this project.

Smart Road is being built from Polytechnic Square to Depot square around 2.21 kms. The construction contract has been awarded to Rewa based Shivshakti Construction Company at a cost of Rs 27.4 crore. The ground breaking for this road was done in December 2016 and the construction was estimated to complete in September 2017. However, this has been delayed and till February 2020 it has not been completed.

Recent developments suggest that ABD land which was granted to BSCDCL is being sold to private developers, where they can plan their own projects and reap profits.

Land Monetisation Policy in ABD

BSCDCL has released a land monetisation policy for the ABD component under the smart city projects in Bhopal. The 'Policy for Land Monetization of Area Based Development Project'²⁷ looks to address the main aspects that would be required for using the land transferred to the smart city

²⁵ <https://timesofindia.indiatimes.com/city/bhopal/1800-trees-to-be-translocated-from-smart-city-ground-zero/articleshow/71678550.cms>

²⁶ <https://www.freepressjournal.in/bhopal/bhopal-dust-pollution-due-to-smart-city-work-pose-health-hazard-complain-ci-home-residents>

²⁷ Policy for Land Monetisation of Area Based Development Project, Bhopal Smart City Development Corporation Limited, Source URL - https://smarthbhopal.city/uploads/download/abd_land_disposal_policy.pdf

company by the state government for residential and commercial purposes and subsequently earning revenues and profits from it.

It states that the project redevelops the area as high-quality, high-density mixed-use district of residential, commercial and open space facilities that optimise land and real estate values. Adding that with enormous investment of state government in the project, the market will gain confidence and will see supply rise and price escalation in the near future.

The policy states that BSCDCL intends to develop and implement the Project with private sector participation to leverage upon private infrastructure financing and implementing the latest ICT based smart solutions for social and physical urban infrastructure. To kick-in the investment cycle, the SPV has taken-up government housing along with the augmentation of trunk infrastructure in the project area on suitable implementable model. It is also envisaged to be developed on a self-financing model. The land monetisation policy for ABD can suggest provisions for land monetisation, which are in line with market expectations and ensure maximum value capture through asset monetisation.

It notes that Bhopal's ABD proposal includes redevelopment of North and South TT Nagar. The Land Monetization Policy shall apply to matters pertaining to sale/ lease/ license of all the land/immovable properties within 342 acres of ABD Area.

The project involves the densification of government quarters, displacement of approximately 1000 informal commercial establishments, approximately 400 slum units, few religious structures and private residential housing. ABD area is predominantly occupied by approximately 3100 government houses. Hence Land Monetisation Policy also includes the rehabilitation and resettlement (R&R) strategy for the project displaced people.

It notes that ABD land was transferred to BSCDCL by State Government with the condition that similar number of government houses shall be constructed. BSCDCL has awarded projects for construction of 2828 type government houses in three phases within ABD project area. Remaining 551 houses have been purchased from BDA. A total of 3359 units shall be

made available to help cope with shortage of houses for state government employees.

Haat Bazar project was designed to accommodate some of these informal commercial establishments. It would accommodate total of around 586 shops. These include a separate vegetable market. The existing informal shops can be categorised into three type - shops which already have 'Patta'/ lease Document, shops established by BMC and paying rent and shops only paying 'Tahbazaari'/ rent to BMC. Based on the documents they can be prioritized accordingly. The allotment of shops to Patta/ lease category establishments be given on lease by lottery system and the remaining shops shall be relocated outside ABD area to a designated hawker's zone.

The price of each retail unit at Haat Bazar shall be considered by summing up the following: Land Cost as per the Collector Guideline + Project Cost + Development Charge as decided by BSCDCL+ Supervision Charges. An annual lease rent of minimum 1% of allotment rate plus an escalation, shall be charged on such leases as ground rent towards maintenance charges.

There are approximately 400 slum units scattered in clusters within the project area. Apart from these, there are transit houses existing within ABD area. These transit houses were constructed to relocate the slum dwellers from the already laid BRTS corridor. BSCDCL to construct transit houses at locations designated by Collector-Bhopal or Commissioner-BMC. Subsequently, these dwellers shall be rehabilitated by BMC under PMAY(U)/ HFA²⁸. The resettlement and rehabilitation of private residential units shall be as per the State Government guidelines.

It specifies that BSCDCL may monetise the available land within the ABD area or any other area by the following methods – by holding public auction or e-auction; inviting open tenders by public advertisement in prominent daily newspapers or inviting limited tenders from specific group of companies as decided by board; making or accepting offers from State Government, Government of India, Semi-Government, Local Authority, Statutory body, Public sector Undertaking and any other Public Institution as per the decision of BSCDCL; it can also be offered through direct

²⁸ PMAY(U) – Pradhan Mantri Awas Yojana (Urban), HFA – Housing For All

allotment for the development of an IT park under the guidelines of Madhya Pradesh IT, ITes & ESDM Investment Promotion Policy, 2016; allotment of constructed premises such as apartments/ shops by way of “drawal of lots” or e-lottery at specified rates for project displaced people or by publishing a scheme through advertisement in newspapers; Joint development.

The Land Monetisation Policy notes that project feasibility to be conducted for the projects to be taken up. Feasibility would be determined by establishing key assumptions on revenue, operational expenditure and capital expenditure. Assumptions will be based on the prevailing market rates and also include: the cost of land (valuation) and use an investor return rate between 15% - 18% depending on asset class.



Figure 2-2: Project Location from Major Landmarks within Bhopal

Source - Environment Impact Assessment for Bhopal Smart City, prepared by Tata Consulting Engineers Ltd

Pan-city Projects

Being termed 'lighthouse city with a difference', pan-city development in Bhopal will be at the cost of Rs 875 crores in total. Outside of the ABD

area, pan-city development is spread across the city and includes projects such as the following:

Chartered Bike system – which includes setting up of 50 stations with 500 smart bicycles with onboard computer and GPS, construction of a bicycle track (of 5 m width, 12 km long, integrated with BRTS). It has been reported that each bike costs around Rs 80,000 and have been imported from Germany. There are stations set up across the city where users can unlock cycles using the Chartered Bike app and deposit their cycles at any other station. The bike system is being run by Chartered Speed Company. However, there are several pitfalls of this project which was aimed at fostering sustainability. The unsuitability of Bhopal’s undulating terrain, necessity of smart phones and cashless nature of it makes it unavailable to a large part of the population, along with its unaffordability with regard to security deposits, etc. It was also reported that while participating in a smart city event in July 2017, Pavan Munjal, Chairman, Hero Group said that these bikes are expensive and his company could have supplied bikes at 60% cost of the existing ones.

Smart Parking – which is being seen by BSCDCL as a solution to rising traffic congestion in the city. According to Smart City Bhopal website, parking space will be allotted in the places where there is a lot of rush, these places include New Market, City market, Bittan Market, etc. These parking spaces would involve many features like parking violation detection, availability of parking space through booking on web portal, smart meters, etc. It will have ‘integrated smart parking solutions’ with quick, faster accessibility with single space detection, parking guidance on real-time and allow guests to reserve the parking slot. The aim is to reduce the travel time, carbon emission, search time, traffic congestion in the city.

According to reports however, multilevel smart parking structures are already ill kept and in need of maintenance less than a year after construction.²⁹ It has been reported that the parking was outsourced to a joint venture company of Civic Smart and Mind Tech. However the company further outsourced the parking contract to local petty contractors.

²⁹ <https://www.freepressjournal.in/bhopal/bhopal-smart-city-corporation-ceo-gives-dressing-down-to-officials-for-ill-kept-multi-level-parking>

Once this was disclosed the smart city company decided to cancel the parking contract awarded to Mind Tech.

Smart Road – is a project which aims to provide road connectivity with ‘smart’ features like lighting, internet connectivity, CCTV surveillance, weather reporting and pollution level detector. It will also serve as a cycle track, have underground electrification ducts on both sides of the road, smooth surface crust for run off rainwater from road surface, lights at intervals of 30 m, footpath and service duct to rectify problems in electrical lines. In implementing this project, there have been critiques about the way in which trees have been cut resulting in a fall in green cover, demolition of property and displacement of communities living in the area, inadequate alternative housing being provided to them, etc.³⁰

Smart Street – which is also called a project of tactical urbanism in regard to transportation infrastructure will stretch from Jyoti Talkies Square to Board Office Square. Having been chosen as important because of the absolute number of people boarding and alighting at Board Office bus stop, it will have features such as pop up cafes/ parks, open streets, food carts/kiosks, bus interchange terminal, de-fencing and pop up retail.

Bhopal Plus – is a smart city app, which went live on 7th November ‘16, according to Smart City website offers online payments for various public services, live city feeds, bus routes, Mayor Express service etc. The project implementation agency is PricewaterhouseCoopers Pvt Ltd (PwC) and the total cost was Rs 3.98 crores. Digital Payment, which is intended to create ‘faceless, paperless and cashless’ processes in Indian cities to profess the role of Digital India. There are various critiques of increasing digitalisation and access of services to the larger population through digital mediums.

Bhopal smart map – is a 90 layered GIS cutting across departments which will provide a complete visualisation of Bhopal City area with various point of interest (POI) layers that will help city administrators and citizens to locate POI’s and get information associated with it. This is an attempt at BSCDCL to ‘make government data more accessible for the citizens’; it comprises of different map data representations and also ‘provides citizens with avenues to truly participate by providing feedbacks & report their

³⁰ <https://timesofindia.indiatimes.com/city/bhopal/bhopal-no-dignity-in-death-at-this-colony-of-5000/articleshow/72931334.cms>

grievances'. According to Smart City website, 100 layers have been created covering wide point of interests and Heritage sites. Citizens can access boundaries of plots, zones, wards, BMC and city master plan. Also information regarding ward officers, male-female and SC/ST population ratio. There will also be access to live camera feed via smart poles among other features.³¹

Mayor Express – is a 'dynamic workplace' has been 'launched for the domestic work of Bhopal city's citizenry to be made available conveniently and on the telephone, under which 12 domestic services such as carpenter, electrician, plumber, driver, painter etc. All services to be provided under the Mayor Express are given by the Kushal workers in their area, which are equipped with modern kits and verification of these workers is done by the police.'³²

Intelligent Transport Management System – is a project for Smart traffic management – Integrated Traffic Management System (ITMS) which will 'provide information to the authorities to proactively manage the ongoing traffic situation, enhance traffic discipline through effective enforcements and increase road safety by preventing accidents and allow citizens to make informed travel choices.'³³

Solar city – Under Smart Cities Mission, cities selected have to generate 10% of their energy from renewable sources. To attain this, push is being given to installation of rooftop solar power plants. Bhopal Municipal Corporation has signed MOU with Solar Energy Corporation of India, New Delhi for installation of 3 MW and 1 MW with MP Urja Vikas Nigam limited. These will be planned under categories of both government and residential buildings. 35 kW RTS is installed at Nagar Nigam Head Office and a 1 MW solar power plant is being installed at VIP Road which will power Karbala pump house. To encourage rooftop solar power plants in residential areas, BMC plans to offer rebate in property taxes and a mandate that if 50% of common use areas in residential areas be reserved for solar power plants which will be integrated for monitoring with city control and command centre. BSCDCL is also planning to provide an incentive on cost of new

³¹ <https://smartbhopal.city/bhopal-city-gis>

³² <https://smartbhopal.city/mayor-express>

³³ <https://smartbhopal.city/intelligent-transport-management-system>

meters.³⁴ This along with Bio Methanation Plant is being claimed as award winning green project.³⁵

Integrated Control and Command Centre (ICCC) – through which, BSCDCL intends to design, develop, implement, operate and maintain a Common Cloud based: Control and Command Application, Data Centre for all 7 smart cities of the state, Disaster Recovery Centre for all 7 smart cities of the state, ICCC at each of the 7 cities with city based Controls and Analytics.³⁶ Intended aims are efficient delivery of public services, effective management of traffic, disaster management, records management and archiving, pollution control, etc. But issues with privacy violation, data surveillance and digitalisation have come to the fore with systems such as the ICCC.

BSCDCL courted controversy during the tendering process of ICCC costing around Rs 300 crore wherein the state telecom operator Bharat Sanchar Nigam Limited (BSNL) alleged that there is a conflict of interest between Hewlett Packard Enterprise (HPE) and PricewaterhouseCoopers (PwC). In its letter addressed to several government officials including the chief secretary of Madhya Pradesh, assistant secretary of department of IT, additional secretary, additional secretary of urban development ministry, mission director of Smart Cities, Government of India, principal secretary of MP's Urban Administration and Environment Department and chief general manager BSNL, New Delhi, it stated that "PwC is consultant for this bid and HPE has bid directly in the RFP (request for proposal) This is known and published news that HPE and PwC are partnered to develop the smart city application and subjected RFP is on smart city application and the IoT (Internet of things) platform, which will be used at ICCC for Smart Cities. PwC will do development, testing and support for the same. Hence, there is a major conflict of interest and should be addressed accordingly. BSNL had also claimed violations of the RFP conditions".³⁷ However, on the recommendations of the selection committee the tender has been awarded to HPE.

³⁴ <https://smartbhupal.city/solar-city-bhopal>

³⁵ <https://timesofindia.indiatimes.com/city/bhopal/two-green-projects-in-race-for-smart-cities-india-awards-2019/articleshow/73022779.cms>

³⁶ <https://smartbhupal.city/integrated-control-and-command-centre-iccc>

³⁷ <https://timesofindia.indiatimes.com/city/bhopal/bsnl-cries-foul-over-rs-300-cr-smart-city-tender/articleshow/61158154.cms>

Automatic fare collection and surveillance system – for bus transport with electronic ticket issuance, video surveillance and issuance of smart pass. Intended goals such as visibility of revenue generation, enforcement of discipline in staff, no route violation etc. are enlisted on the website. Critique of this include absence of space for technological errors and the fact that transport workers will have to unduly bear the brunt of enforced rules

Bio Gas Plant – which works on bio-methanation of organic waste procured from the vegetable market at Bittan Market ground generates energy which is used to power 50 street lights in that area. Waste is collected from 50 hotels and 500 vegetable vendors. Byproduct of the process is being used as organic fertilizer. Bhopal Smart City Development Corporation Ltd. awarded the work of construction and operation to Mailhem Engineers Pvt. Ltd.

B-nest – an incubation centre for start-ups which was formerly called Bhopal Living Labs, has been developed with the help of Deloitte. Once the start-begin to generate revenues, Smart City hopes to claim some stake in them. Its main aim will be identify viable business plans, provide technical assistance, connect researchers and entrepreneurs, and ‘increase social and economic growth of the region and country’.

Smart Poles and Street Lighting – The project is under Public Private Partnership (PPP) with Bharti-Infratel, Ericsson, SmartX and HPL (500 LED lights, 25 poles). With a total investment of Rs. 640 crores, expected revenue from the project is estimated to be Rs. 47 crores. According to a report, ‘substantial revenues are expected from “smart streetlights” and “smart poles” being installed by Bharti Infratel and Ericsson at a combined cost of Rs 640 crore. So far, 18,500 of the 20,500 halogen streetlights have been replaced with LED ones. The rights to advertise on them belong to the private installer that must share its profits with the Smart City. Similarly, revenues generated from the 400 smart poles and the 180-km of optical fibre laid underground will be shared by the private firms and the Smart City.’³⁸ Smart Cities Council labels this project as an example of successful monetisation done by Bhopal which can be replicated in other Smart Cities.

³⁸ <https://scroll.in/article/910434/as-bhopal-is-recast-as-a-smart-city-poor-residents-worry-if-they-will-have-a-place-in-it>

Using projects such as these are seen as helpful in leveraging for more financing for smart cities in the future.³⁹

Heritage conservation – which includes renovation and restoration work in Old Chowk Bazaar, Jama Masjid Complex and Sadar Manzil.



Temporary tin-roof houses for people displaced by smart city projects in Bhopal

Green and Blue Master Plan

BSCDCL has come up with a Green and Blue Master Plan⁴⁰ under the smart city projects in Bhopal. It looks to provide specific intervention projects in

³⁹ <https://india.smartcitiescouncil.com/article/monetize-assets-and-fund-smart-cities-project-bhopal-did-it>

⁴⁰ Green and Blue Master Plan, Source URL - <https://smartbhopal.city/en/green-and-blue-master-plan>

five sectors namely - energy, buildings, waste and water, green and blue cover, and transport.

Energy sector includes - Building Energy Management System (BEMS) to monitor and control a building's energy needs, Pumping Efficiency Improvements to increase water supply pumping efficiency in 33 selected low efficiency pumps in Bhopal Municipal Corporation area, Pole Top Solar Lighting for pole mounted street lights in public parks to be fitted with solar panels in parks and gardens of BMC and Mysolar App an app will be developed to promote Solar Rooftop Systems.

Building Sector plan envisages phase-wise transition of existing building stock into green buildings by 2036:

Phase 1: Energy Conservation (2020-2031)

Phase 2: Water Conservation (2021- 2032)

Phase 3: Housekeeping and Water Management (2022-2033)

In addition it would also develop carbon neutral building for Smart City Office, capacity building and awareness of Energy Conservation and Building Code (ECBC) guidelines and Urban Green Lab.

Green and Blue Cover would include urban forest creation and management. This would create multi-functional spaces under urban forestry in strategic locations and includes natural solutions in the wider water catchment, such as targeted tree and woodland planting to improve water quality, to hold back water and reduce flooding in downstream urban areas. The identified sites are Kaliasot, Jahangirabad, Laharpur, LaharpurNala, Hataikheda, Upper Lake and Patra Nala, in total covers 10.6 km².

Transportation Sector would focus on development of pedestrian, cyclist and transport infrastructure in Bhopal, operating 50 buses on biogas from 7 STPs and electric buses in Bhopal.

Water and Waste sector would focus on Decentralized Waste Water Treatments Systems (DEWATS) in 4 localities - Aakriti Eco City (Misrod Ward), Chinar Fortune City (Misrod Ward), Meenakshi Planet City (Bagmugaliya Ward), Pebble Bay (Bagmugaliya Ward) and Rooftop Rainwater Harvesting (RRWH) App.

However, it has been reported that the Green and Blue Master Plan part of the overall Smart City Plan prepared by private consultants Tata Consulting Engineers Ltd. at a cost of Rs 1.5 crores has been found lacking by the Town and Country Planning Department according to its provisions. It's been observed that unless the City Master Plan is ready some of the project interventions of the Green and Blue Master Plan can't be implemented on the ground. There are objections to proposed projects like redevelopment of parks, green buildings, water inflows, green corridor and sewage network. Green and Blue Master Plan will be modified according to the provisions of the New City Master Plan 2031.

Reports state that the specific projects that need approval under rules of the City Master Plan include – 100% green buildings by 2036; pedestrian and bicycle infrastructure for 153.02 km of Green Corridors/ Green Ways Bhopal Smart City; solutions to hold back water and reduce flooding in downstream urban areas, in sites like Kaliasot, Jahangirabad, Laharpur, LaharpurNala, Hataikheda, Upper Lake and Patra Nala covering 10.6 km²; Sustainable drainage systems (SuDS) components to manage volume and flow rates of run-off to reduce the downstream flow and reduce the risk of flooding.⁴¹

The smart city plan in Bhopal has bypassed the processes for developing the city wide master plan and zonal plans. Generally, once the master plan and the zonal plan is finalised the town development scheme is planned. However, while developing the smart city plan the municipal officials as well as the private consultants TCE did not undertake wider consultations for incorporating it into the other city wide plans. The draft master plan is approved after a public hearing is organised by a committee presided by the local Member of Parliament (MP) to resolve the objections and claims by the citizens.

Cost and Revenue Estimates

The cost and revenue estimates are derived from the Concept Plan⁴² for BSCDCL by Tata Consulting Engineers Ltd. Project Development and Management Consultant for Area Based Development Project for Bhopal

⁴¹ <https://www.patrika.com/bhopal-news/smartcity-green-blue-master-plan-4532867/>

⁴² Concept Plan for Bhopal Smart City Development Corporation Limited, prepared by Tata Consulting Engineers Ltd., Project Development And Management Consultant for Area Based Development Project for Bhopal Smart City, April 2017

Smart City for providing consultancy services for preparation of smart city plan for TT Nagar redevelopment and provide project development and management consultancy support.

The report outlines the concept plan for various infrastructure components, viz. Water supply, Sewerage system, Storm water drainage, Solid waste management, Power, Information and communication technology, Gas utility for the Smart City.

Infrastructure explored for the ABD area are given below:

1. Multiple Utility Duct
2. Water Supply Network
3. Power Supply
4. ICT
5. Water Treatment Plant with Pumping Station
6. Recycled Water Supply Network with Pumping Station
7. Sewerage Collection and Disposal Network
8. Sewage Treatment Plant
9. Road including road furniture and visual improvement
10. Cycle Track and Footpath
11. Storm Water Drain
12. Automated Solid Waste Collection
13. Landscaping
14. District Cooling System

Infrastructure Cost Summary (in Rs Crore)

Infrastructure	Capital Cost over 3 years	O&M Cost for 17 years	Revenue Cost for 17 years
Tunnel	48.4	12.36	-
Power	189.2	68.22	2196
Transportation	110	79.18	-
Water Supply	11	1.3	26.18

Water Treatment Plant	8.23	30.14	-
Drainage	51.7	16.1	-
Sewer	6.6	0.78	-
Sewage Treatment Plant	23.1	68.81	-
Recycled Water	6.6	0.78	13.77
Solid Waste Management	70.95	34.04	32.98
ICT	95.7	112.41	-
Fire Fighting	9.05	6.86	-
Landscaping & Road Furniture	6.6	1.55	-
TOTAL	637.13	432.53	2268.93

Total Estimated Cost and Revenue from ABD Project

Cost/Revenue Head	Total Project Cost (Rs Cr)	Total Revenue (Rs Cr)
Infrastructure including O&M	1070	-
Government Housing including O&M	1364	-
Revenue from Infrastructure	-	2269
Revenue from Land Sale/Lease	-	3169
TOTAL	2434	5438

Potable Water Supply System

Water Demand in ABD area:

Category	Total Water Demand (MLD)	Potable Water Demand (MLD)	Non-Potable Water Demand (MLD)	Waste Water Generation (MLD)
Net Demand	20.35	9.4	10.95	13.28
Gross Total including 15% distribution losses	23.40	10.81	12.59	-
Infiltration @ 10%	-	-	-	1.33
Total Sewage Generation	-	-	-	14.61
Recycled Water available @ 95%	-	-	-	13.88

TCE recommends water distribution through a gravity system by providing new elevated storage reservoirs (ESR) to provide water to the ABD area.

The advantages of this system are:

- Good water reliability within the site. Water availability can reach 4.5 million liters per day (MLD) which is approximately 10 hours of demand.
- Pumping machineries required are for lesser capacities compared to pumping distribution system.
- Lesser O&M cost compared to pumping distribution system.
- Criticality on the pumping machines is lowered since much of the water will be stored in ESR.

The water source for the ABD area will come from the Kolar Reservoir. The

proposed water demand for the ABD area is 11 MLD. The water treatment plant (WTP) at Kolar Reservoir will continue to serve as the main WTP for the ABD area.

Land Use Distribution

Land Use Categories	Proposed Land Use for the Project Area (%)
Residential	9
Residential Mixed Use	23
Commercial	6
Commercial Mixed Use	14
PSP	4
Multipurpose Open Spaces	21
Utilities	2
Roads	21
TOTAL	100

Storm Water Drainage System

Management of storm water will be done through the use of already existing catchment areas. Essential changes to the existing drainage system are proposed.

	Zone 1	Zone 2
Catchment Area	55.12 Ha	93.5 Ha
Outfall Location	Banganga Nala	Panchsheel Nala

To deal with flooding TATA consulting recommends implementing recharge bore holes that will absorb the runoff stormwater. The boreholes

would be constructed up to a depth of 20 m below ground level. TATA also recommends greater implementation of overhead water tanks to deal with the excess stormwater.

Zero Discharge System:

TATA consulting has proposed a zero discharge system where:

- Treated wastewater will be used for non-potable water demand
- Reuse of treated wastewater will ensure efficient utilization of available water based on the water quality requirements

Sewage Treatment and water treatment in Smart City Bhopal plans on using various different methods of waste reuse to produce energy as well as improving water quality. The proposed processes are considered more energy efficient and better suited for a closed loop system, thus making the ABD area more sustainable by limiting the amount of added water necessary for sewage and water supply. The proposed methods are listed below:

- Extended Aeration (EA)
- Moving Bed BioReactor (MBBR)
- Sequential Batch Reactor (SBR)
- Membrane Bioreactor (MBR)

The above listed processes remove sludge from sewage water while also reusing the contaminants to create other forms of energy such as methane. The downside to these proposals are the high costs of O&M that are required to operate them. Although they would provide much benefit by using closed-loop energy principles, they will also require constant financial support as well as immense energy production.

Cost and Revenue Summary

Cost

Development Sections	Cost (Rs Crore)
Land & Public Utilities	607.3

Trunk Infrastructure	541.2
Government, Affordable, EWS, & LIG housing	922.4
Operation & Maintenance (O&M)	111.4
Administration Costs, Marketing Expenses, Approval Cost, and PMC Fee	382.5
Development, O&M, and Maintenance of Pan City Solutions	875.7
Total Development and O&M costs of ABD	3440.9

Revenue

Revenue Projections	Rs Crore
Sale of Land	5,445.7
Maintenance Charges	122.5
Total Revenue from ABD	5,578.2
Revenue from Pan City Solutions	928
Revenue from Smart City Advisory Services	65
Revenue from Smart City Knowledge Partner Services	32
Property Tax	41
TOTAL REVENUE	6,644.2
Project IRR	0.9%
Equity IRR	13.8%

Emergent Critical Social Environmental and Governance Issues

City-level Governance

As has been discussed in an earlier report on smart city projects in Indore (Madhya Pradesh)⁴³, the Smart City Mission guidelines allow the private companies as well as other financial institutions to buy equity stake in the city-level SPV. It lays out the road map for delegation of powers to the SPV. It states that the creation of an SPV is to ensure operational independence and autonomy in decision-making and mission implementation. In addition to the above, the majority of urban development schemes and funds allocated to them are supposed to converge into Smart Cities Mission. This appears contrary to the provisions of the 74th Constitution Amendment Act, 1992 which empowers the local governments and municipal bodies to create a decentralised governance structure.

The official guidelines state that for city level monitoring a Smart City Advisory Forum will be established for all smart Cities, though few cities level SPVs have taken steps to form such forums. The mission lacks complaint redressal and broad based citizen's engagement mechanisms on various city-level aspects.

In case of Bhopal, several reported events which created controversies and conflicts between the local municipal body, people's representatives and the SPV show where the fault lines lie. Right at the beginning controversy erupted between the local ward level representatives and the smart city company due to the construction of the smart road which needed survey and demolition of houses and other structures. Local representatives were against the evictions and demolition of houses and other property. In Bhopal, several smart cities mission related projects faced such controversies for the smart road project in the city is a case in point. During the implementation of the smart road project there was an uproar created by the local councilors about the project planning and implementation. It

⁴³ Indore Smart City – A Case Study <https://www.cenfa.org/publications/smart-city-in-indore-a-case-study/>

was reported that they opposed the construction of the road as well as eviction of the people from the project locations.

On the other hand the municipal corporation is also handing over its various projects to smart city corporation due to lack of resources including financial and human resources. Urban development projects in the city like the Arch Bridge project across the Lower lake, Mahalaxmi Housing project and an overbridge project from Jawahar Chowk to Polytechnique Square are being reported to be handed over to the smart city company citing lack of resources by the municipal body. In case of the Arch bridge project the municipal body wanted to hand over the project to smart city company earlier, but the company declined to take over any projects planned by the municipal corporation, showing that the municipal body does not exercise



ABD projects under construction in Bhopal

control over the company. However, later the company took over the project execution, but after some serious discussions between the officials of both the agencies.

Some of these incidences demonstrate and manifest the transformation in city level governance structures under SCM, though these are still the early stages of these transformations. But they are probably indicating towards the directions in which the governance mechanisms are moving and the shift in power at the municipal level.

Privatisation of Urban Services

As part of the Smart city mission in the city several projects meant for various public services have been contracted out to private companies for operation and maintenance. Some of these projects were part of the works undertaken by the municipal agencies are now being implemented and operated by private operators. In Bhopal the mission, continues with the broad trajectory of policy trends in last couple of decades of attracting private companies and privatisation of public services through PPPs in sectors like water supply, sanitation, transportation, solid waste management, etc.

As part of ABD works in Bhopal several projects are being implemented by city level SPV BSCDCL. Several projects such as 24X7 water supply and power supply, underground utility corridor, ICT infrastructure, smart street lighting, automated solid waste system and others have been contracted out to private companies for construction and operation. As part of pan city projects across the city projects such as the public bicycle system, smart poles and street lighting smart parking, Integrated Control and Command Centre, Intelligent Transport Management System, construction of smart street, etc have been handed over to private operators.

Not learning from the failures of PPPs in delivering these services efficiently and effectively, the mission now looks to large-scale privatisation of city governance structures, decision-making powers and project operations by creating the city-level SPVs. This is in continuation with the vision of the earlier urban reforms programs like JNNURM and UIDSSMT roping in private players for project implementation and service delivery through PPPs.

However, under the current mission this seems to have been taken to another level with increased focus on digitisation of services without enough clarity on who stores, controls and owns the personal data from the citizens and how it would be used with questions related to privacy and surveillance not being responded adequately, along with privatisation of other project implementation and delivery component. For example in Bhopal it has not been debated publically that data stored by the ICCC is controlled and owned by whom and is stored where, this data that would probably be generated through projects like smart poles and transport management system. Though digitisation being promoted to help citizens to access services in smaller towns but fundamental questions about data and privacy remain largely unanswered.

Displacement and Loss of Livelihoods

It has been reported that the construction around the Boulevard Street has led to demolition of shops. The shop owners around the construction site who would be displaced are protesting against the demolition of their existing shops and commercial establishments. Although the 200 shops that have been demolished, their owners have been given temporary spaces close to P&T petrol pump. The smart city company has also given them assurances that they would be allotted shops in the commercial building constructed in front of TT Nagar stadium.

For construction and widening of Smart Road around 200 houses and 60 shops have been demolished. Boundary walls of Arabian Garden and Gandhi Bhavan were also demolished to widen this road. It has been reported that the local residents along this road have been protesting against the widening of this road for some time. Around 32 residents around the smart road filed a petition in Jabalpur bench of the Madhya Pradesh High Court stating that the Smart City plan violates the Bhopal Master Plan 2005 and the Town and Country Planning Act. During the hearing the High Court stayed the construction activity under the project. However, later the court removed the stay on construction and dismissed the petition challenging the smart city plan.⁴⁴

⁴⁴ <https://www.naidunia.com/madhya-pradesh/jabalpur-bhopal-smart-city-project-does-not-violate-master-plan-high-court-1399953>

It has been reported that displaced families have been shifted to Mahalaxmi Parisar, which Bhopal Development Authority (BDA) is building in Jinsi. BSCDCL bought the building from BDA. Residential buildings are being constructed in front of Palash Residency to house government employees. On the other hand, ABD land which was granted to BSCDCL by the state government is proposed to be sold to private entities, where they can plan their own projects.

Displaced families from bastis previously settled on the stretch from Bharat Mata Square to Polytechnic Square along the under construction Smart Road, comprising of Muslim and Dalit communities were given temporary housing which appear inadequate. Some were shifted to houses near Dussehra Maidan, and Gandhinagar near Bhopal Airport which is far away from their original bastis and workplaces which were close to bastis. Housing is being provided to these families at a cost of Rs 1.80 lac under PMAY. The 9 month deadline for Smart Road construction was later extended along with an increase in cost of construction.

Shops in Jawahar Chowk which are being demolished will be given alternate arrangements in Haat Bazaar but for a price. Estimated cost of owning a shop is not clear but is expected to be expensive compared to what the small traders and shopkeepers can afford. The usual customers at these shops were also the government employees whose houses have been demolished to make space for ABD area construction. In more ways than one, the small shop owners' livelihood has been taken away from them. A group of traders and residents have been regularly protesting against the project demanding compensation and rehabilitation in the face of demolition of their houses and shops.⁴⁵

Under public pressure from the local residents, merchants and shopkeepers the previous government had formed a panel to review ongoing work under Bhopal Smart City. The panel included former Urban Development minister Jaivardhan Singh, MP Real Estate Regulatory Authority Anthony

⁴⁵ Bhopal: Jawahar Chowk traders protest against smart city development corporation, The FreePress Journal, 1st March 2020, Source URL - <https://www.freepressjournal.in/bhopal/bhopal-jawahar-chowk-traders-protest-against-smart-city-development-corporation>

De Sa, Urban Development Principal Secretary Sanjay Dubey and School of Planning and Architecture (SPA Bhopal) director N Sridharan.⁴⁶

People's Protests and Demonstrations

The earliest protest seen in Bhopal in regard to the Smart City Mission was in regard to the selected area for Area Based Development. Groups such as Bhopal Citizens Forum have been instrumental in pushing to have ABD area shifted from Shivaji Nagar to TT Nagar. Citing environmental damage and risk to 30,000 trees in the area among other issues⁴⁷, residents of Shivaji and Tulsi Nagar areas rose in protest against the smart city proposal of redevelopment of these areas. A number of issues came to the fore such as a lack of adequate dialogue with the state representatives, not being given opportunity to participate in Smart City conclave and refusal of the government to ask for civil society and citizens' groups to weigh in on smart city development plans – selection of site, manner of selection and unaddressed issues in the smart city proposal. The hurry with which the selection of the site was done is also highlighted by media reports⁴⁸.

Shifting of the site from Shivaji and Tulsi Nagar to TT Nagar gave respite to 50,000 residents of the formers but ended up in demolition of government quarters even when the government at that point of time announced that ABD work will be now done on vacant land. Residents had called meetings, held public protests, wrote inland letters under 'Modi se Mann ki Baat' to lodge resentment against the project.⁴⁹ Representatives of Bhopal Citizens Forum welcomed the decision of the CM stating that this would help save the green lung of the city and also help TT Nagar develop. However, anxieties and fears related to losing homes were transferred to residents of north and south TT Nagar. Around the same time, under the redensification project by the BDA, approximately 1,400 houses were issued notices to relocate.⁵⁰ There was also contention in regard to regulations under the Bhopal Master Plan being at odds with plans under

⁴⁶ Government forms panel to review smart city projects, Time of India, Bhopal, 18th February 2020

⁴⁷ <https://reality.economicstimes.indiatimes.com/news/industry/bhopal-citizen-groups-red-flag-smart-city-proposal/51569182>

⁴⁸ <https://www.hindustantimes.com/bhopal/bhopal-officials-kept-cm-in-dark-to-get-seal-for-smart-city-site/story-JVXurKqRyBTP05KNLBCNtM.html>

⁴⁹ <https://timesofindia.indiatimes.com/city/bhopal/Madhya-Pradesh-changes-venue-of-Smart-City-in-Bhopal/articleshow/52299259.cms>

⁵⁰ <https://www.hindustantimes.com/bhopal/bhopal-smart-city-project-authorities-confused-residents-worried/story-sobcoKE5W9nVKLIJEXo000.html>

the redensification project.⁵¹ Since plans for ABD shifted to the same site, residents had been left torn and clueless in this confusion. The city Master Plan has been due since 2005. The Bhopal development plan 2005 was introduced in 1995 and is currently in force. It governs the land use and Floor Area Ratio (FAR) of the particular area.

Lately, the residents and shopkeepers around Smart Road, Boulevard Street and Jawahar Chowk have been protesting against the demolition of their residential and commercial establishments. They have been demanding adequate compensation and resettlement plans in the place of their original properties.

Loss of Green Cover

Smart City is being seen as one of the many projects – including BRTS project, road widening, construction of MLA quarters and Bhopal Metro project - under which there has been an exponential increase in tree felling and loss of green cover in the city.⁵² The proposal for Smart City Bhopal includes a Green and Blue Master Plan which includes several measures of conservation including green buildings, etc. According to BSCDCL Smart City Plan, there was pledge to keep 80% of the green cover in TT Nagar and take further measures to increase it. There are around 5,700 trees of over 70 species in the smart city development area out of which a large number have already been cut.⁵³ Pollution levels in the vicinity are already the highest and with these developments resulting in the decrease in green cover and forthcoming increase in construction activity, air pollution is expected to increase.

It has also been observed that the development projects are leading to fast reduction in the green cover across the city. The BRTS corridor, the Narmada water supply project, Gammon India project and now smart city projects have led to cutting of thousands of trees. A study by Indian Institute of Science (IISc) has demonstrated that in the past two decades city's green cover has shrunk by 44%, in 2018 it has reduced to 11% and it is estimated that by 2030 it will be around 4%. The depleting green cover

⁵¹ <https://www.hindustantimes.com/bhopal/delay-in-bhopal-master-plan-may-affect-redensification-work/story-r4gQZvkBff0QAcNoqDbc9l.html>

⁵² <https://timesofindia.indiatimes.com/city/bhopal/madhya-pradesh-alarming-decline-in-sehore-bhopal-vidisha-forest-cover/articleshow/73049921.cms>

⁵³ <https://smartcity.eletsonline.com/bhopal-smart-city-1800-trees-to-be-translocated/>

has been strongly protested by experts and eminent citizens like former Chief Secretary, Government of MP, Mrs Nirmala Buch, environmentalist Shri Subhash Pandey and others.⁵⁴

In February, the National Green Tribunal (NGT) ordered status quo on the construction work related to smart city project in Bhopal which involves cutting of more than 6,000 trees in TT Nagar. The petition filed in the court stated that the map attached to the Environmental Impact Assessment (EIA) report shows that places such as TT Nagar stadium and Dussehra Maidan have been included as areas for development of green belt area where plantation is not possible and without looking at the availability of land for plantation BMC has simply granted permission for cutting down trees. The plea stated that there have been numerous violations of environmental obligations by the project proponent in respect of smart city project in Bhopal.⁵⁵

It has also been reported that groundwater is being pumped extensively to supply water for ABD project under smart city. Despite the State Environment Impact Assessment Authority clearly prohibiting the use of groundwater for these projects and had stated in its approval that the project proponent would supply water for construction projects from other sources. The groundwater availability in TT Nagar is at around 700 feet. Hence the administration had prohibited the use of groundwater.⁵⁶

Allegations of Financial Irregularities

Projects under smart city plans have been facing allegations of financial irregularities. These were revealed by Meeta Aathvale, Chief Financial Officer, BSCDCL. It was reported that she had claimed that former CEO of BSCDCL Chandramouli Shukla handed over fake bills to her to be booked and when she rejected such instructions, her services were terminated without any prior notice. She stated that there are several irregularities that are ongoing in the company like they are asked to pass the bills without

⁵⁴ Bhopal turning into heat chamber due to loss of trees, *The Asian Age*, July 2019, Source URL - <https://www.asianage.com/india/all-india/190719/mp-bhopal-turning-into-heat-chamber-due-to-loss-of-trees.html>

⁵⁵ Bhopal Smart City project: NGT orders status quo on construction work, *The Hindu*, February 2020, Source URL - <https://www.thehindu.com/news/national/other-states/bhopal-smart-city-project-ngt-orders-status-quo-on-construction-work/article30914360.ece>

⁵⁶ <https://www.patrika.com/bhopal-news/smart-city-1-5849534/>

measurement book and completion certificate. She said that all the projects under smart city should be investigated.⁵⁷

In November 2019 a team of Economic Offences Wing (EOW) raided the offices of BSCDCL and seized some documents from it. This was in connection with the alleged scam in the tendering of ICCC. The tendering of ICCC was marred with controversy and allegations of financial irregularities. The tender for ICCC was awarded to HPE at the cost of Rs 300 crores, although BSNL had submitted a tender costing Rs 275 crores. It has been alleged that in 2017 when the tendering process was ongoing, son of a former senior official of the urban administration department was employed in the company which was awarded the contract subsequently. It was alleged that the company was awarded the contract so that the employers of his son are benefited. A committee has been formed to investigate these allegations. The report of the committee is awaited.⁵⁸

Impacts on informal communities especially women

Interviews with some of the families from the displaced communities brought to light varied ways in which these communities and especially the women have been impacted by the large urban infrastructure projects like smart cities. Some families have been displaced twice in the past decade. These have not received compensation, though some assurances that they will be given houses in multi-story buildings as and when the construction is completed.

Around 150 families have been shifted on the 250 feet slope close to the Regional Science Centre in temporary shelters. Every house has two rooms and a hall that includes a toilet and a kitchen. The walls are made of ply board and roofs are of tin sheets. They informed that these temporary shelters having tin roofs makes it tough to be inside during hot months. Though rains bring temperatures down but increases problems with water entering the houses bringing along snakes and other insects. There is also a fear of tin sheets blowing away during high winds. They said that they

⁵⁷ <https://www.bhaskar.com/mp/bhopal/news/mp-news-where-you-are-standing-there-was-a-house-not-compensation-only-the-ropes-were-found-022222-3652824.html>

⁵⁸ EOW registers PE against IAS officer Vivek Agrawal for manipulating smart city tender, The Economic Times, October 2019, Source URL - <https://government.economictimes.indiatimes.com/news/smart-infra/madhya-pradesh-eow-registers-pe-against-ias-officer-vivek-agrawal-for-manipulating-smart-city-tender/71624489>

have been informed by the municipal corporation staff that they have been shifted here for 3 years on temporary basis. Later they would be shifted to multi story buildings, but not clear in which part of the city.

Several women shared that they have been shifted temporarily close to the Regional Science Centre since their houses were demolished for the construction of Smart Road. They say that it is difficult to manage a household in this location, there are no grocery stores close by and buying fresh vegetables is also difficult. If they go to Polytechnic Square which is around 1.5 kms, while coming back with the purchases would mean spending Rs 40 for the auto rickshaw trip.

Water supply and sanitation facilities in these temporary shelters makes it further difficult for the families living here. The group of women interviewed who live here tell that for around 150 – 200 temporary shelters there is only one tap to supply water. The families take turn to fill up water from this tap. There have a few water tanks that have been placed by the municipal corporation these are being filled by tankers and the families living here use this water for drinking and other purposes. Some families said that water supply is every 3 – 4 days. There is one 1000 litres tank between 24 households and empties in 2 hours when the families line up to fill water.

Drainage and waste water is also a big problem because no sewage system exists in these temporary shelters. They inform that there are only 2 toilets between 20 – 25 houses. There is no proper arrangement to clean them and these have to be cleaned by the residents. Men do not use these toilets and defecate outside.

The residents interviewed said that electricity supply is also a problem because of regular tripping of supply and the fluctuation of voltage leading to damage to electrical appliances like refrigerators, air coolers, fans, bulbs, etc.

The residents also informed that though smart city should increase the security of the local residents however, in these temporary shelters this does not seem to be the case. They say that there are regular fights among the people living here. When the members of the families leave for work during the day there have been cases of theft in some of the houses.

They also inform that there are no hospitals around this area, earlier for medical emergencies they used to visit Katju Hospital which was close but now they have to go to either Hamidia or JP Hospital for checkups and treatment which is afar. It gets very difficult women especially pregnant women.

The women also finding it difficult to get decent work here, the main occupation of many of them is domestic work. Some women stitch and sew to earn a living. They are paid low for this work since a lot many people are looking for it and also around this location there are not too many houses which would employ women for domestic work. In some cases they have to walk long distances to reach their work places. They say that there are lack of other opportunities in this area and the city in general.

Concluding Remarks

The case of smart city projects in Bhopal demonstrates that the active involvement and participation of the local residents in smart city mission related projects must have been ensured from the very beginning so that those voices could have been incorporated into the plans as per the visions of the larger populace. The shifting of selected area for ABD projects in Bhopal is a manifestation of that at the city level. Despite this it appears lessons have not been learnt in later project designs and implementation.

The active participation of the citizens and local representatives has also diminished under the mission with conflicts between the smart city company and the local people being regularly reported. The City Level Advisory Forum that is to be formed under the mission guidelines has not been formed as per the information available on the smart city website. Also contrary to the disclosure on information principles and digitalisation objectives much of the tendering, budgeting, utilisation and project status information is also not available on the smart city website.

As observed in other smart city projects the disproportionate allocation of budget towards ABD projects in comparison to Pan city projects is also visible in Bhopal. The total development and Operation and Maintenance (O&M) cost of the ABD project is Rs 3440.9 crores. On the other hand the cost of development, O&M of Pan City Solutions is just Rs 875.7 crores. The investments into ABD projects is almost four times that of the Pan city

projects. Though the costs of building a smart city would be borne by the residents of the whole city.

Among the various methods to generate revenue include increase in user charges for water and sewage management, increase in property tax, vacant land tax, conversion charges, betterment tax, impact fees, FSI charges, as well as advertisement, entertainment and professional taxes from the city residents. In addition, it has been targeted to raise resources for ABD projects through mechanisms like land monetisation for private sector projects. Though concerns about private investments, financial viability and sustainability of projects continue to remain.

As part of the mission, in Bhopal as well there is a lot of focus on private sector and private investments to implement urban infrastructure projects. However, the experiences of private sector participation in different sectors including urban has been at best mixed and with no surety of investments, efficiency, timely implementation, universal access and service delivery.

There are also other issues that are reported regularly in popular discussion related to conflicts between smart city company and municipal body on governance issues, displacement of families and businesses for smart city projects, increasing privatisation of public services, loss of green cover and impacts of smart city projects on poor and marginalised sections as well as women that need to be discussed and addressed for better implementation of such programs on the ground.

Annexures

Land revenue generation plan

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Total
Residential - Commercial	153.70	161.39	169.45	71.17	0.00	196.16	205.97	216.27	68.13	0.00	250.36	262.89	358.83	0.00	0.00	2114.31
Office Space	0.00	13.91	0.00	15.34	0.00	0.00	0.00	18.64	0.00	0.00	0.00	22.66	0.00	0.00	0.00	70.56
Hospitality	2.50	0.00	0.00	0.00	0.00	3.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.69
Retail	177.00	0.00	0.00	81.96	0.00	0.00	237.20	0.00	0.00	164.75	0.00	0.00	317.87	0.00	0.00	978.77
Total	333.20	175.30	169.45	168.47	0.00	199.36	443.17	234.92	68.13	164.75	250.36	285.54	676.70	0.00	0.00	3189.34

Ongoing Projects ABD area

Sr. No.	Projects	Amount (In Cr.)	F (3BHK)	G (2BHK)	H (2BHK)	I (1BHK)	No. of Towers	No. of Floors	Plot Area (sqm)	Built Up Area (sqm)	Probable end date of the project
			105 sqm	78 sqm	70 sqm	48 sqm					
1	Govt. Housing Phase I	186.86	328	352	-	-	6	14	25,643	63,600	Dec-19
2	Government Housing Phase II	314.41	-	448	224	672	12	14	67,066	1,28,200	Oct-20
3	Government Housing Phase III	181.43	-	336	224	224	7	14	33,478	82,700	Oct-20
4	Commercial Complex	34.93	No. of Shops - 418; Parking - 245				1	9	6,254	6,250	Apr-20
5	Haat Baazar	34.34	No. of Shops - 501; Parking - 373				1	2	6,500	6,499	Apr-20
6	Dushera Ground	26.40	-						66,916	1,910	Apr-20
7	Boulevard Street	39.46	1.6 km								Mar-19
8	45 m & 12 m Smart Road	18.52	1.5 km								Oct-19
9	30 m Smart Road	22.73	1.6 km								Oct-19
10	Smart Road- Phase III	32.12	3 km								Oct-19
11	Smart Road- Phase IV	44.34	3.8 km								Oct-19
12	Smart Road Phase V	34.60	3 km								Oct-19
13	Site grading	6.99									Oct-19
	Total Amount in Cr.	977.11									

Centre for Financial Accountability (CFA) engages and supports efforts to advance transparency and accountability in financial institutions. We use research, campaigns and trainings to help movements, organisations, activists, students and youth to engage in this fight, and we partake in campaigns that can shift policies and change public discourse on banking and economy.

We monitor the investments of national and international financial institutions, engages on policies that impact the banking sector and economy of the country, demystify the world of finance through workshops and short-term courses and help citizens make banks and government more transparent and accountable, for they use public money.