
F R O S T & S U L L I V A N

“CITIZEN-CENTRIC MODEL DEVELOPMENT BASED ON IDENTIFICATION OF URBAN ISSUES”

- Report Prepared -

For

Bhopal Municipal Corporation

Government of India

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1.0 ENGAGEMENT BACKGROUND

Cities are engines of growth for the economy of every nation, including India. Nearly 31% of India's current population lives in urban areas and contributes 63% of the country's GDP (Census 2011). With increasing urbanization, urban areas are expected to house 40% of India's population and contribute 75% of India's GDP by 2030. This requires comprehensive development of physical, institutional, social, and economic infrastructure. All are important in improving the quality of life and attracting people and investments to the city, setting in motion a virtuous cycle of growth and development. Development of Smart Cities is a step in that direction.

As per Frost & Sullivan, a smart city is an enabling platform built by the Government, for the people to understand and manage the interactions between people and the infrastructure in a city and to guide informed policy making through the intelligent usage of technology.

Although technology is an enabling platform to achieve the goals and vision of a smart city, technology should not be equated with smart city itself.

The Government of India, under Prime Minister Narendra Modi, have a vision of developing 100 smart cities as satellite towns of larger cities and by modernizing the existing mid-sized cities.

The PM, in his speech, has mentioned, "Cities in the past were built on riverbanks. They are now built along highways. But in the future, they will be built based on availability of optical fiber networks and next-generation infrastructure."

The Government has identified 98 cities to participate in the Smart City Challenge (Stage 2), under which each city is required to submit a Smart City Proposal. This Proposal is required to contain city vision, aspirations and challenges faced by citizens, smart solutions to overcome these challenges, pan-city solutions, type of development model to use, that is, whether to use retrofitting, redevelopment, Greenfield development or a mix approach, area for development and type of developments using smart solutions, implementation framework, financial planning, Benefits, and Impacts.

Based on the proposals submitted by various cities, MOUD will identify 20 cities for smart city development for the current year.

Bhopal has been shortlisted as an aspirant in the smart cities challenge by the Ministry of Urban Development and, like other cities, it is required to submit a Smart City Proposal. Citizen consultation is the key part in preparing Smart City Proposal for which Bhopal has identified Frost & Sullivan as the consulting partner.

Frost & Sullivan has conducted a detailed citizen consultation program and a finding of the same is documented in this report.

2.0 BACKGROUND AND RESEARCH METHODOLOGY

2.1 Bhopal City – A Brief Background

Bhopal is the capital of the Indian state of Madhya Pradesh and is the administrative headquarters of Bhopal district and Bhopal division. Bhopal is known as the City of Lakes for its various natural as well as artificial lakes and is also one of the greenest cities in India. Located centrally, Bhopal is well connected to all the corners of the country. With an expanded planning area of 463 square kilometer, Bhopal stands among 15 largest cities of India.

In the past few decades, Bhopal has witnessed major transformation in the subject of urban development. The city is known to have one of the most successful BRT Systems in the country. Confident and aggressive in adaptation of technology, Bhopal is now in a position to implement many of the things, which may otherwise be difficult to. Learning from past experiences, the city's budget for this year consists of many initiatives and policies, which project a vision in making Bhopal a lively, liveable, and sustainable city.

Compulsory utility duct provisions in all construction, she-lounge facilities for ladies as part of public amenities, innovative advertisement policy keeping in mind city's aesthetics, culture and road safety, heritage policy to conserve and use the city's rich heritage, a lake conservation cell, a smart city cell to encourage thought process for betterment of city. With well-planned public transport, infrastructure, institutes, academic hubs, IT hubs, etc., Bhopal continues to maintain its title of "Green City", City of Heritage, City of Museums, and City of Lakes.

About Bhopal Municipal Corporation

Bhopal Municipal Corporation has been working upon various duties including, basic services to citizens, Implementation and Monitoring of various Development Projects (Social and Physical Infrastructure), Increase Municipal Revenue Income as well as Generate Innovative ways to Increase the Municipal Revenue. Other than the above mentioned tasks; the Mayor and the Commissioner of the Municipal Corporation also have key role in following:

- Coordination between all line departments and agencies involved in development.
- Coordination between various department / sections of the Bhopal Municipal Corporation.
- Ensuring efficient delivery of basic services like drinking water, sanitation, roads, street lights, fire mitigation including disaster management, etc. using Clean Technologies, Cost-efficient Methods, and other Smart Initiatives.
- Conservation and Beautification of lakes and structural heritage.
- Planning, Construction, Upgrade and maintenance of the urban transport system, which includes Public Transport, Parking, New Corridors (BRTS), etc.

- Work as Ex-officio Board of Directors, Bhopal City Link Limited (City Transport SPV), which ensures commercial operation of public transport (Inter City Bus Service, Intra City Bus System, Intra City Public Taxi Service, etc.)
- Implementation of projects sanctioned under JNNURM, ADB assisted Project Uday, Housing for all, and Implementation of DFID assisted MPUIP, Rajiv Awas Yojna, Chief Minister Urban Infrastructure Development Scheme, Various PPP Projects (Multilevel Parking, etc.)
- Regulatory works like building permission, development permission, and encroachment removals
- Computerized Municipal Processes through SAP-ERP-based Municipal Administration System.
- Implementation of various social sector schemes, survey of Samagra Samajik Suraksha Mission (SSSM)
- Support to District Administration in Municipal Area Expansion Mapping
- Demography-based Regularization of Ward Boundaries
- Support to District administration for Municipal and Local elections

Organize and Support various agencies in Government events like State-level Panchayats, Ceremonies, and National Workshops.

Initiatives in terms of Heritage Structures of Bhopal

- Initiation of the Jama Masjid Chowk Bazar heritage project.
- Evacuation done of Sadar Manzil, (formerly Palace of Nawab Begum rulers of Bhopal) keeping in mind the conservation of the heritage structures
- Various Painting Competitions and awareness campaigns organized to educate people about Islamic heritage and other heritage structures of Bhopal.

2.2 A Macroeconomic and PESTEL (Political, Economic, Social, Legislative, and Environmental) Analysis of Bhopal City

Political

- The Bhopal Municipal Corporation is the main administrative body in Bhopal and is governed by the Bhartiya Janta Party.
- The implementation responsibility of the development plan proposals vests with the BMC and the Bhopal Development Authority within their respective jurisdictions.
- According to JNNURM report, there is no holistic frame in which the activities of all the functional bodies are converged for a common ultimate goal. The activities of the local bodies and the various associate and special bodies overlap, which results in dissipation of scarce resources and contradiction of action.

Economic

- Bhopal is the main economic district of Madhya Pradesh after Indore and is one of prominent contributors to the state's GDP (6.7%).
- The growth in the district weakened in 2012-13, falling to 7.8% from 9.7% in 2011-12.
- The per capita income of the state was INR 49,979 in 2012-13, growing by 5.4% year-on-year.
- The service sector is becoming increasingly important in Bhopal providing majority of the employment.
- Housing, banking and insurance, and education are the fastest growing sectors in Bhopal.
- The state economic development policy proposes Bhopal to be developed as a center for education. There is a concentration of educational establishments at all levels and a large number of schools, training institutions and colleges have been established in the last few years.
- Bhopal in recent years has seen the decline of traditional industries, especially the engineering support and component manufactures that originally grew up around the Bharat Heavy Electricals Limited (BHEL).
- The traditional industries cotton, electrical good, jewellery and chemicals.
- The industrial suburb of Bhopal is Mandideep, which accommodates many plants belonging to some of the esteemed companies including Eicher, Crompton Greaves, Procter and Gamble, Larsen and Turbo, Fujitsu and HEG.
- After two years of announcement, proposed economic corridor between Indore and Bhopal has picked up steam.
- Also, the state government has announced the development of industrial corridors Bhopal-Bina, Bhopal-Indore.

Technology

- BMC has implemented ERP-based Municipal Administration System to cover all citizens facing civic service issues as well as to facilitate better back-office operations.
- BMC plans to further enhance the Municipal Administration System outreach and improving lifestyle of Bhopal citizens making BMC services also available through MP Online Kiosks. For this, the Corporation has identified several initiatives, such as call centers with an integrated application-enabled one, the promoting Wi-fi city concept, introducing intelligent systems enabled city buses, etc.
- Integrated database (say ERP), analytical team, payment gateway, hardware, etc. are in place with the Bhopal Municipal Corporation.

Social

- Bhopal city's total population is around 1,795,648 with 939,560 males and 856,088 females, according to census 2011.
- It is the most urbanized districts of the state with 80.5% people living in urban areas and the remaining residing in rural areas.
- The district population is expected to reach 25.54 lac by 2021.
- However, Bhopal lacks behind Indore in terms of total literacy despite the higher education and specialized education scenario being much better in the city with a large number of academic and research institution of national repute present in Bhopal.
- According to census 2011, about 12% of the population is below the age of six years.
- According to JNNURM city development plan, the main income earners of all households were engaged in clerical / sales / services (nearly 78.7%), non-classified activities (10.2%), and professional / managerial positional category (10%).
- The highest proportion of all groups is in the clerical, sales, and service sector, while the next highest proportion is the High Income group (HIG) earner in the professional and managerial sector. Out of the total income earners involved in non-classified activities, the majority (70.2%) belonged to the low income and economically weaker section.

Environment

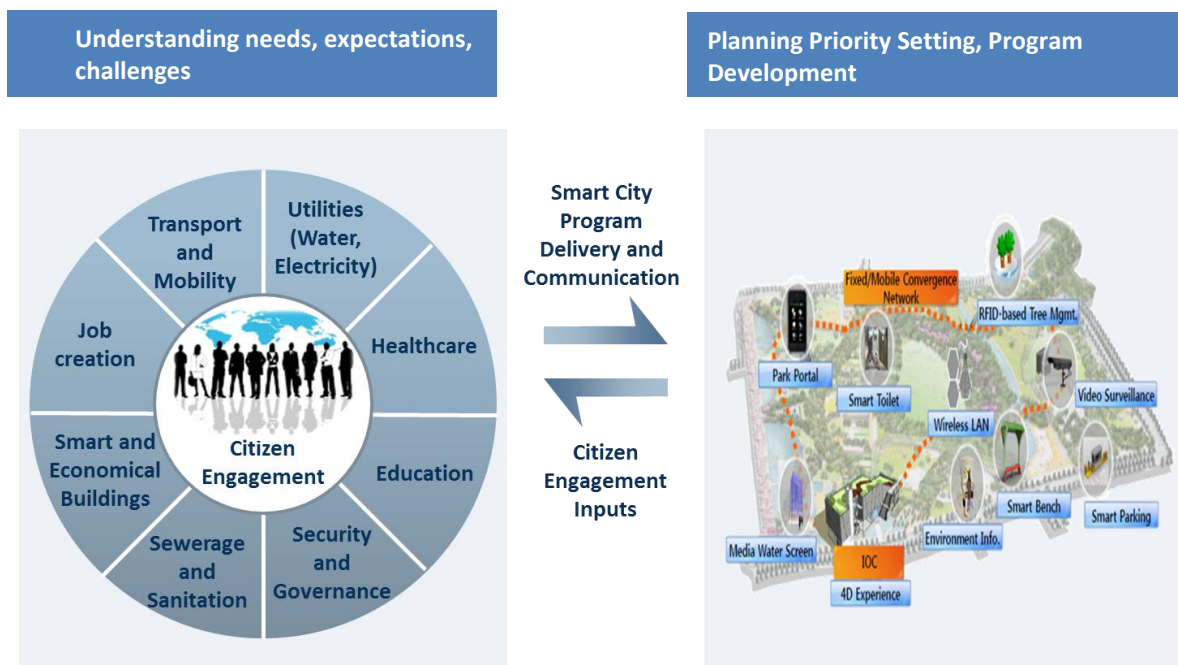
- High-rise buildings, encroachment of lake area, and non-stop felling of trees in the name of development will become biggest menace for Bhopal's environment in future.
- The constant increase of traffic load in the city calls for taking appropriate measures for constant monitoring of emission from vehicles and penal action against polluting vehicles to reduce automobile pollution in the city, which otherwise may rise.
- The development activity and expansion of the city leading to discharge of wastewater in the upper and lower lakes is a serious threat to these water bodies.

2.3 Need for Citizen-Centric Engagement

Smart cities are sustainable cities of the citizens, by the citizens, for the citizens. Citizen centricity is at the heart of making smart cities a reality. Every city has its own priority based on urban issues, demographics, social, and economic challenges. Urban Local Bodies (ULB) should develop their smart city plans through a rigorous analysis of citizens’ concerns and priorities. Projects that solve top issues affecting citizens should be prioritized.

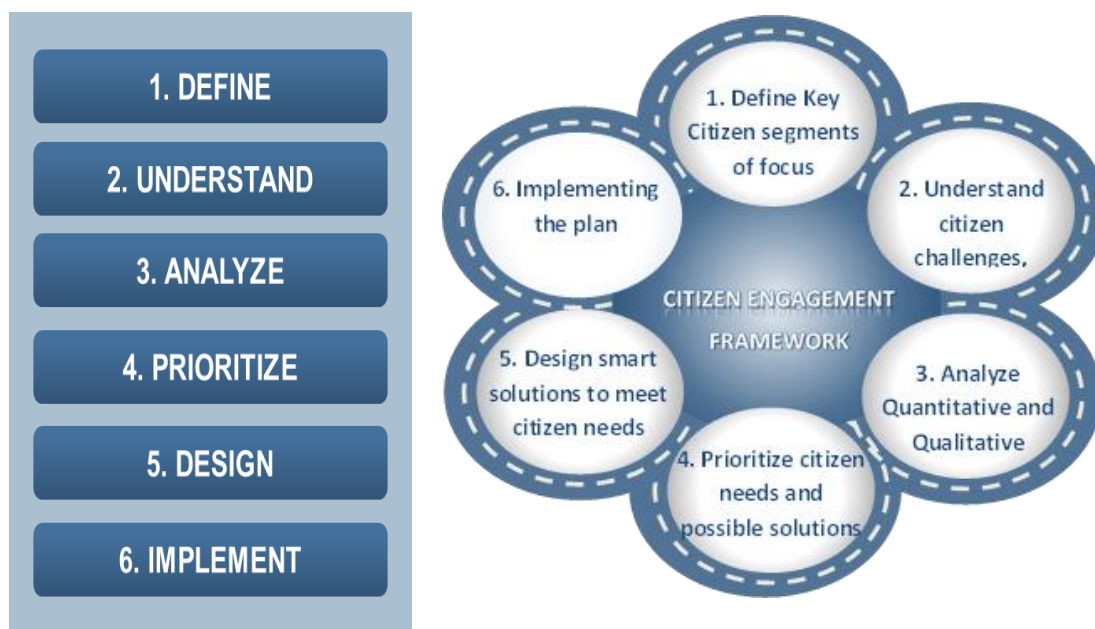
ULBs and state governments should proactively engage with citizens through a two-way communication during the development and implementation of smart city plans. As shown in Exhibit 1, a structured approach is necessary. A Communications system should be established to get feedback on various dimensions including healthcare, affordable housing, education, energy, transportation, safety, security, government service delivery, etc.

Exhibit 1: Citizen Centricity should be at the Core of a Smart City Development Plan



Globally, ‘Smart Solutions’ tend to be technology centric with the emphasis on taking the city’s efficiency to the next level. In India, we have a unique situation with significant shortcomings in basic infrastructure. In addition, we have huge differences in income levels, demographics, and lifestyles within the same city limits. Technology-led Smart City use cases that are imported run the risk of being seen as elitist and not capable of addressing the basic issues on the ground. Smart city development plans should be guided by the philosophy of making our cities inclusive, Citizen-centric, and solving urban issues by using technology as an enabler. As a guide for city administrators, Frost & Sullivan proposes a six-step **“Citizen-centric Smart City Development Model”**.

Exhibit 2: Recommended Approach to Ensure that Smart City Plans Synchronize with the Needs and Aspirations of Citizens



Step 1: Define key citizen segments of focus

Identify crucial citizen segments based on macro analysis and discussion with various stakeholders. Conduct a Geospatial mapping – with resident / commercial / industrial profiles at a zonal overview level.

Step 2: Understand citizens’ needs, challenges, and preferences

Understand urban challenges, irritants faced by key citizen segments, their aspirations, and priorities. Understand the root cause of the issues and build a hypothesis of possible solutions.

Step 3: Analyze qualitative and quantitative insights

Develop insights and meaningful conclusions on key citizen concerns. Analyze the difference in expectations across zones and citizen segments.

Step 4: Prioritize citizen needs and possible solutions

Identify the top priority urban challenges that need to be resolved. Map these issues on short, medium, long-term time scales based on constraints like political priorities, investments, Implementation difficulty, degree of impact, etc.

Step 5: Design smart city plans based on prioritized citizen needs

Design technology solutions for the top challenges. Prepare a holistic plan with a business model, financial, legal structure, and economic benefits of the solutions. Break down the plans into project implementation components including partnership ecosystems and other resources that would be required over the short-medium-long-term time horizons.

Step 6: Implementation and Monitoring

Set up a project management office to implement and monitor progress.

2.4 Research Approach and Methodology for Citizen-centric Engagement

The sole objective of the citizen consultation program was to reach maximum citizens and, hence, using conventional research methodology of pen-and-paper survey was not enough.

Multiple techniques were used to reach citizens and to collect their responses.

The following research techniques were used in the citizen engagement program:

Face-to-Face surveys	<p>A conventional pen-and-paper and face-to-face survey methodology was used to meet citizens and to capture responses.</p> <p>A detailed ward level sampling was done of the entire Bhopal city. Each ward of Bhopal was covered in this.</p> <p>A detailed questionnaire was designed using guidelines set by MOUD, which was administered by trained interviewers. The questionnaire had both structured and unstructured questions.</p>
Self-filled surveys	<p>Objective of this technique was to leverage the advantage of the current infrastructure of BMC and to reach as many citizens as possible; these surveys were filled in all 85 ward offices of Bhopal.</p> <p>A short and crisp questionnaire capturing vision, essence of Bhopal and suggestions for making Bhopal a smart city was used.</p> <p>Citizens visiting ward offices were requested to fill in their responses to this survey form.</p>

Online surveys

Objective of this design was to reach out to those citizens who were Internet savvy and who were not able to participate in pen-and-paper surveys due to absence at home at the time of door-to-door survey or had not visited ward offices.

Questionnaire capturing vision, essence of Bhopal and suggestions for making Bhopal a smart city was used.

Survey was live on BMC website. Citizens were invited to participated in this survey through Facebook, sms, WhatsApp, public meetings, word of mouth, etc.

Online Opinion polls

Online polling design was used, wherein answers to specific questions were captured, for example, type of development model required (retrofit, redevelopment, Greenfield), place for area-based development, pan city solutions, to mention a few.

Online polls were hosted on BMC portal and on MyGov Portal

Citizens were requested to participate in online polling using Facebook, sms, WhatsApp, public meetings, word of mouth, etc.

Online consultation on government portal -MyGov

Government of India has organized an online portal (named MyGov) for citizens of each city to participate and give their feedback for making their city as smart city.

Bhopal was the second city to register itself under MyGov portal after Gurgaon.

A dedicated page was assigned for citizens of Bhopal to give their suggestions for making Bhopal a smart city.

In addition to receiving suggestions, MyGov portal was used to for opinion polling, essay and logo competition.

Public meetings Public meeting was used as a medium to inform citizens on various activities related to smart city and to take their opinion on different aspects related to this.

Public meetings were conducted among various groups to understand their generic and specific needs and solutions in the making of smart city.

Public meetings were hosted by BMC, these were headed by the Honorable Mayor and the Respected Commissioner of BMC along with other important dignitaries.

Events / Idea camps / Road shows the objective of these form of engagements was to generate awareness and collect responses from maximum citizens.

Citizen consultation using mobile / landline phone A simple citizen consultation program was held in the form of receiving suggestions using phones (via sms and WhatsApp messages).

In addition to receiving suggestions on sms and WhatsApp messages, a local telephone number was provided for citizens to call and submit their suggestions.

Citizen consultation using social networking sites Social networking sites like Facebook and twitter were used to receive comments for smart city development.

In addition to receiving suggestions, social networking sites were also used to generate general awareness on smart city and to showcase work or events done during smart city mission by sharing pictures of various events and functions, thereby, motivating citizens to participate and contribute by providing suggestions.

Citizen consultation via Emails and posts	A provision of receiving responses using unstructured way was also part of research design. Pamphlets mentioning email ids and address were distributed and responses were requested.
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Support from TV, Radio, and Newspaper	Media played an important role in creating awareness on smart cities and in motivating citizens to participate in making Bhopal a smart city.
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Exhibit 3: Snap shot of pamphlet mentioning various mediums via which citizens can share their views



2.5 Sampling Methodology

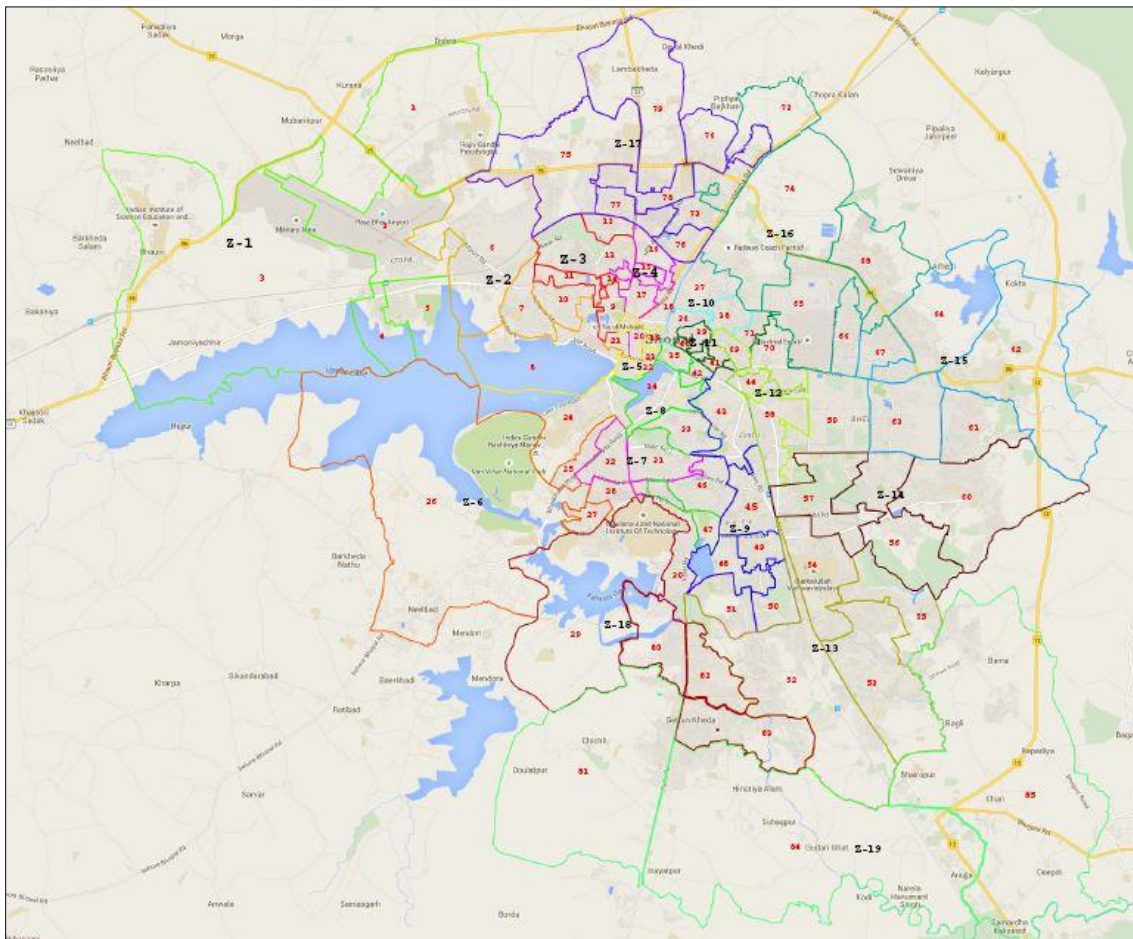
A detailed sampling plan was prepared after understanding the city profile from BMC experts.

A ward level sampling was designed to ensure all wards are covered.

Sampling plan ensured that citizens across following groups were covered:

- Age-wise — 15 years and above
- Gender — Male and Female
- Property type — Broadly classified as people from Slums and Non Slums (Residential, Commercial, and Industrial)
- Occupation-wise — Students, Unemployed, Housewife, Employed (full time and part time), and Retired
- Income-wise — Citizens across income breaks, that is, from less than INR 5,000 per month to more than INR 1 lac per month

Exhibit 4: Zonal Map of Bhopal (Source BMC)



Mentioned below is the detailed split of all zones and wards.

Exhibit 5: Zone and Ward Split for the Bhopal Municipal Corporation

ZONE NO.	WARD NO.
1	1, 2, 3, 4, 5
2	6, 7, 8, 10, 21
3	9, 11, 12, 13, 14
4	15, 16, 17, 18, 20
5	19, 22, 23, 24
6	25, 26, 27, 28
7	30, 31, 32, 46, 51
8	33, 34, 35, 42, 47
9	43, 45, 48, 49, 50
10	36, 37, 38, 71
11	39, 40, 41, 70
12	44, 58, 59, 69
13	52, 53, 54, 55
14	56, 57, 60, 61
15	62, 63, 64, 66, 67
16	65, 68, 72, 73, 74
17	75, 76, 77, 78, 79
18	29, 80, 82, 83
19	81, 84, 85

Sampling was done in a way that each ward will receive equal weightage and, hence, zones with more wards will have relatively high representation than zones with fewer wards.

A sample of 5000 was covered among these 85 wards / 19 zones.

3.0 Citizen Engagement Program

The main objective of the citizen consultation program was to reach out to maximum citizens of Bhopal and take their suggestions in making Bhopal a smart city.

In addition to the above objective, it was required to conduct this citizen consultation program in line to the guidelines set by the Ministry of Urban Development Government of India.

In line with this guideline, the following information areas were required to be captured and analyzed from the perspective of the citizen consultation program:-

- City Vision
- Essence / elements of Bhopal, which can be used in making of a smart city
- Challenges faced in day-to-day lives
- Citizens' view on whether there will be improvement in the challenges faced
- Identifying smart solutions in making Bhopal a smart city (identified at pan city level)
- Assessment of city on smart city features (defined by MOUD)
- Type of development model required (Retrofit, Redevelopment, Greenfield or mixed approach)
- Identification of areas for development
- Identifications of smart solutions in the area shortlisted for development

3.1 Key highlight of citizen consultation program

Over **4 lac citizens** were met in the entire citizen consultation program.

Exhibit 6: Snapshot of citizens met in various consultation programs

5,000	Door to Door surveys	1,65,000	Self filled ward level surveys	100+	Surveys among visitors of Bhopal (include foreigners)
23 events (2,760 + citizens)	Seminars/ Events among various groups of citizens*	11 events (10,000 students)	Events among college students	5	Focus group discussions
More than 1,14,531	Online feedback received on MyGov portal	81	Entries received in Logo competition on MyGov	5,091	Essays received on MyGov
2,000+	Responses received on polling on BMC and MyGov	49,000+	Online feedback received on BMC portal	8,000+	Suggestions received in the form of phone calls/ messages
10,000 Likes and 18,000 comments	Facebook	200 + tweets	Twitter	2,627+ views	YouTube- video viewed of Bhopal smart city
20,000+	Suggestions received in road show (mobile van)	2,818+	Drawing/Poster competition in schools/ colleges	Last 3 months	Support from Newspaper, Radio and TV

4.0 Quantitative Citizen-centric Engagement

Suggestions received through various research designs were analyzed together to arrive at following findings:

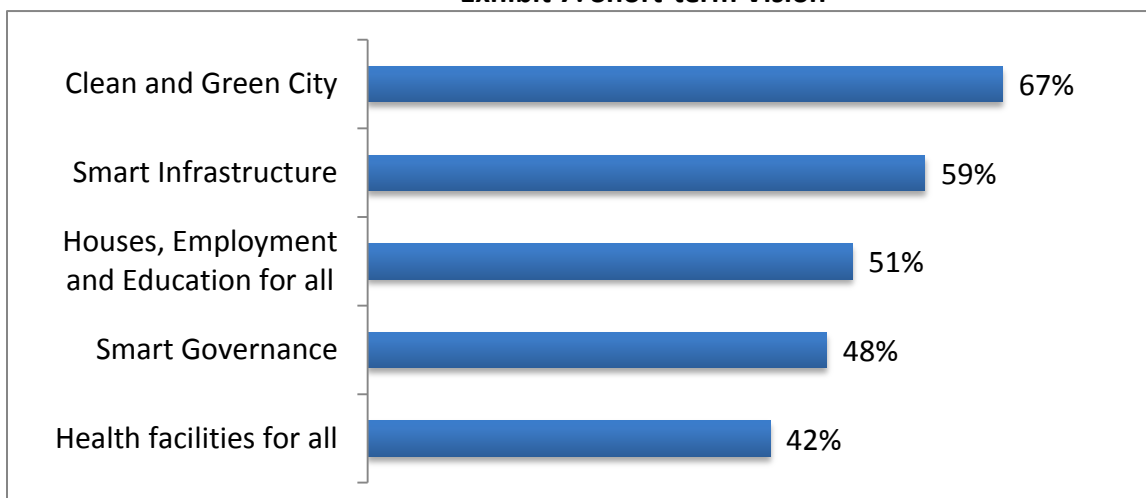
4.1 City vision – Short term (with respect to five years)

With respect to a short-term vision, majority of the citizens want a Clean and Green city with smart infrastructure and houses, employment, and education for all citizens.

Smart governance and health facilities are other things, which citizens visualize to have in the next five years.

Good quality roads, bridges, metro trains, infrastructure to take care of sewerage and waste, etc. are defined under smart infrastructure, which is on second priority in terms of vision.

Exhibit 7: Short-term Vision

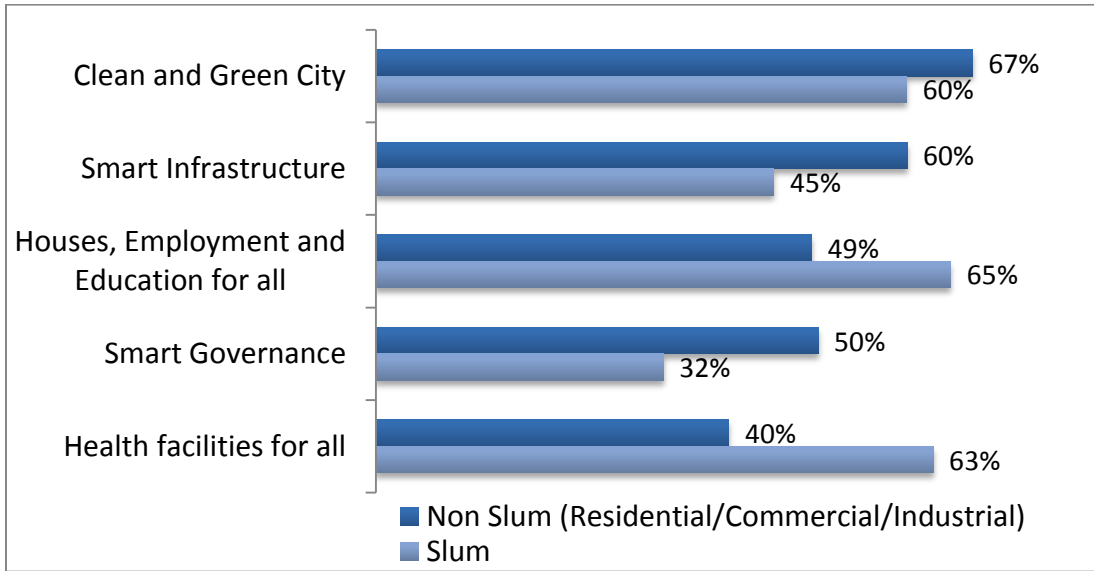


Responses taken from citizens in Residential, Commercial, and Industrial areas are clubbed together and represented as Non-Slum.

Citizens from both Slum and Non-Slum vision Bhopal to be a clean and green city with good and smart infrastructure.

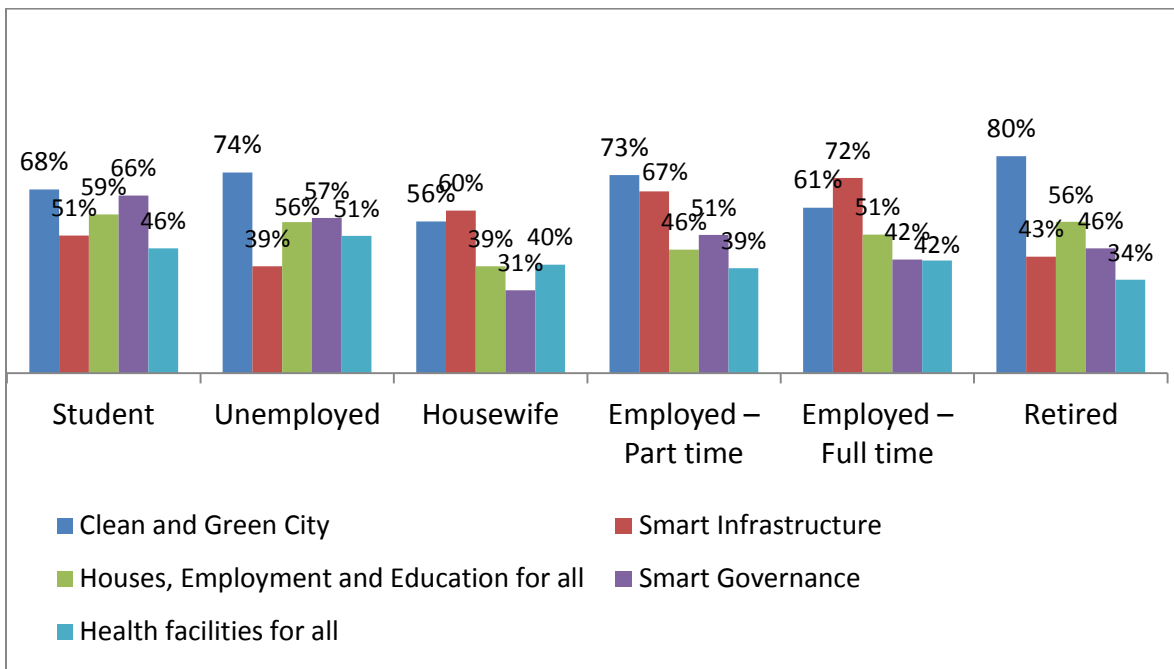
More proportion of citizens from Slum aspires to have house, employment, education, and health facilities than citizens from Non-Slum.

Exhibit 8 Short-term Vision by Slum / Non-Slum



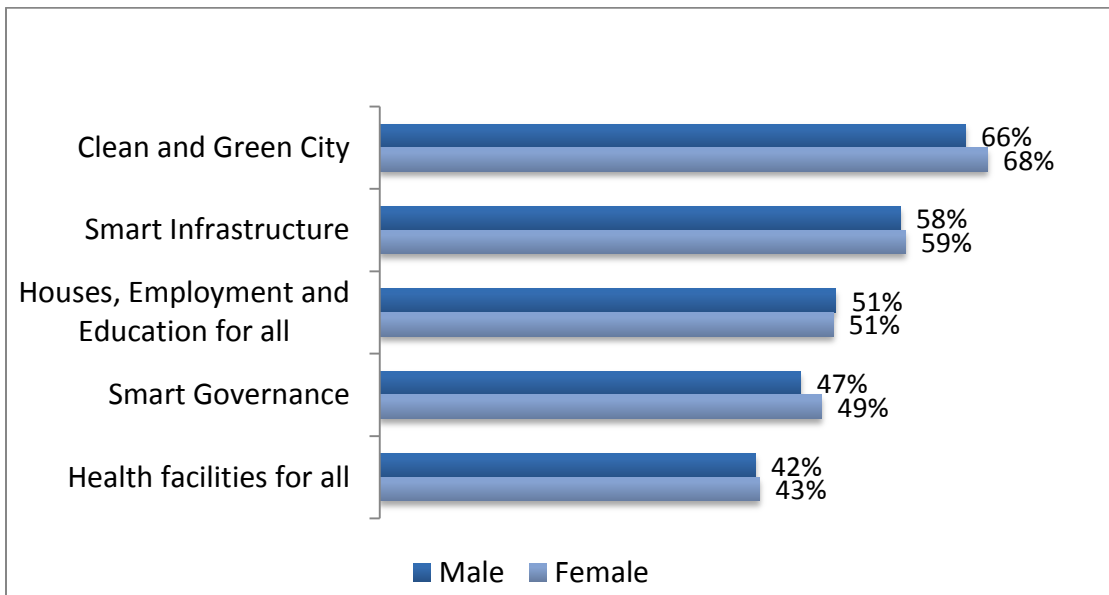
The top most vision for most citizen types except for housewife and part-time employer is to have clean and green Bhopal whereas housewives and part-time employers aspire for good infrastructure the most.

Exhibit 9: Short-term Vision by Occupation



No difference in vision across gender.

Exhibit 10: Short-term Vision by Gender

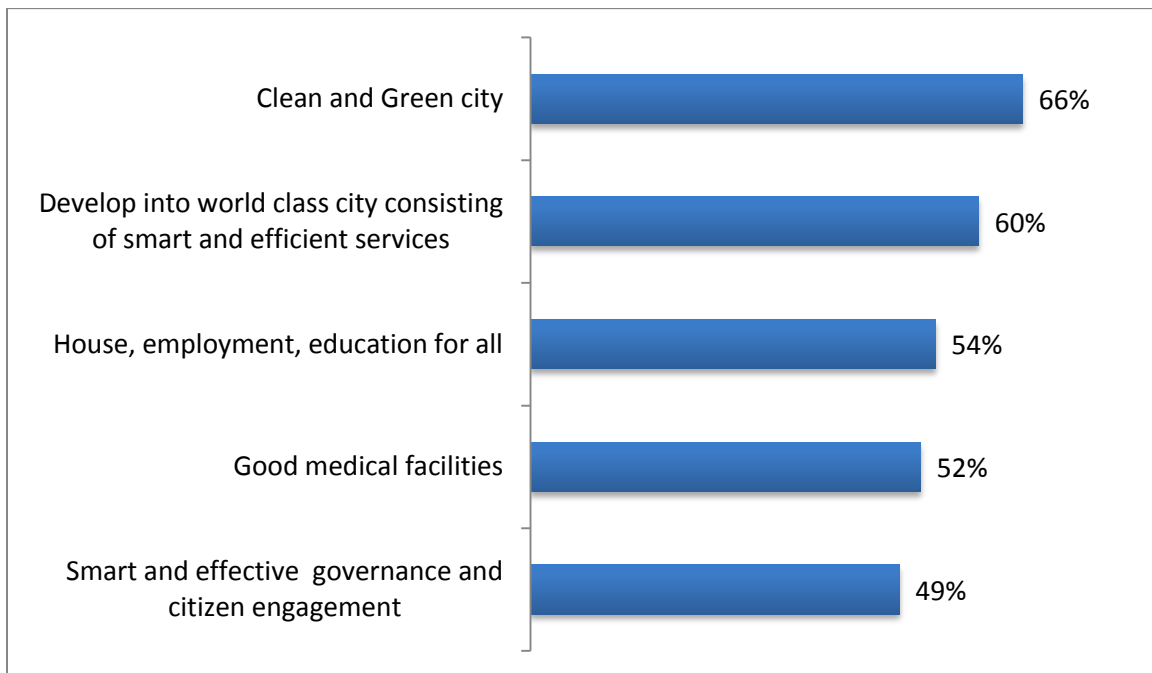


4.2 City Vision — Long Term (with respect to 10-20 years)

Overall, the long-term vision of citizens of Bhopal is in line to their current short-term vision. With respect to 10-20 years, majority of the citizens vision Bhopal to be a clean and green city.

In 10-20 years, the citizens want Bhopal to be a world-class city with smart and efficient services.

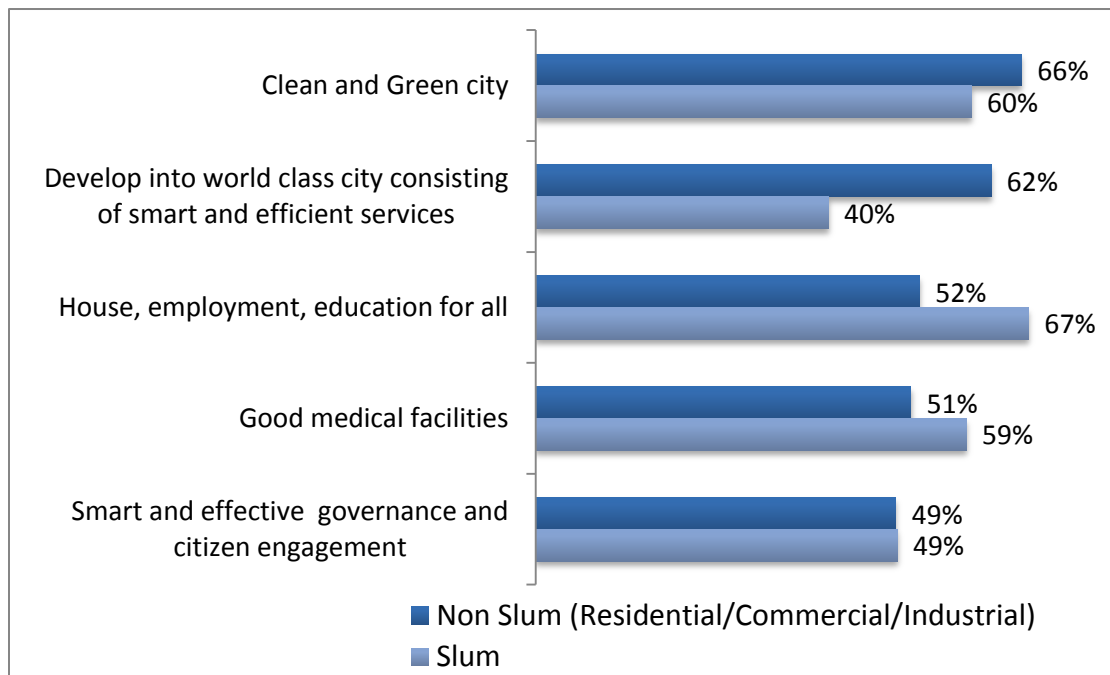
Exhibit 11: Long-term Vision



Overall, long-term vision of both Slum and Non-Slum citizens is same, which is having a clean and green city followed by Bhopal becoming a world-class city with smart and efficient services.

More citizens from Slum vision Bhopal to have house, education, and employment for all in 10-20 years than Non-Slum citizens.

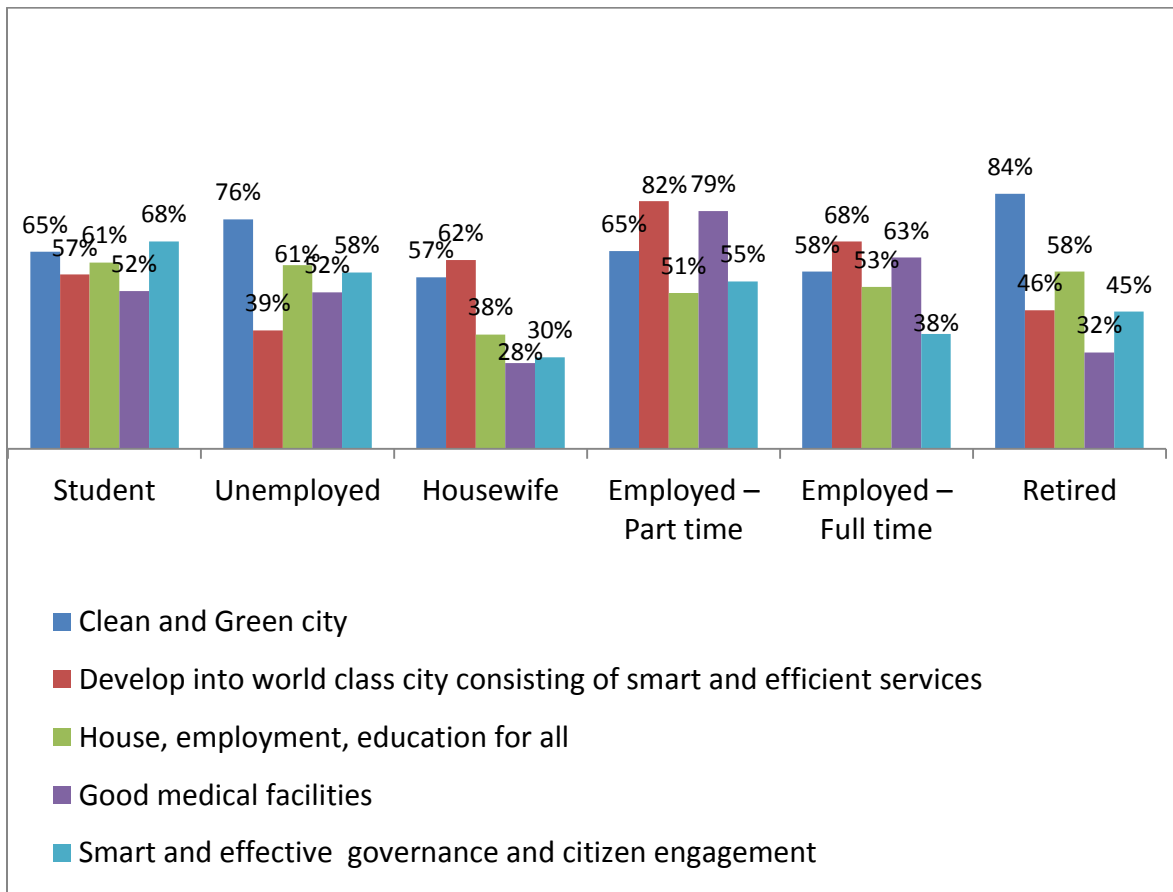
Exhibit 12: Long-term Vision



The long-term vision of most students is to have smart and effective governance, whereas maximum housewives and part time and full time employers vision Bhopal to be a world-class city with smart and efficient services.

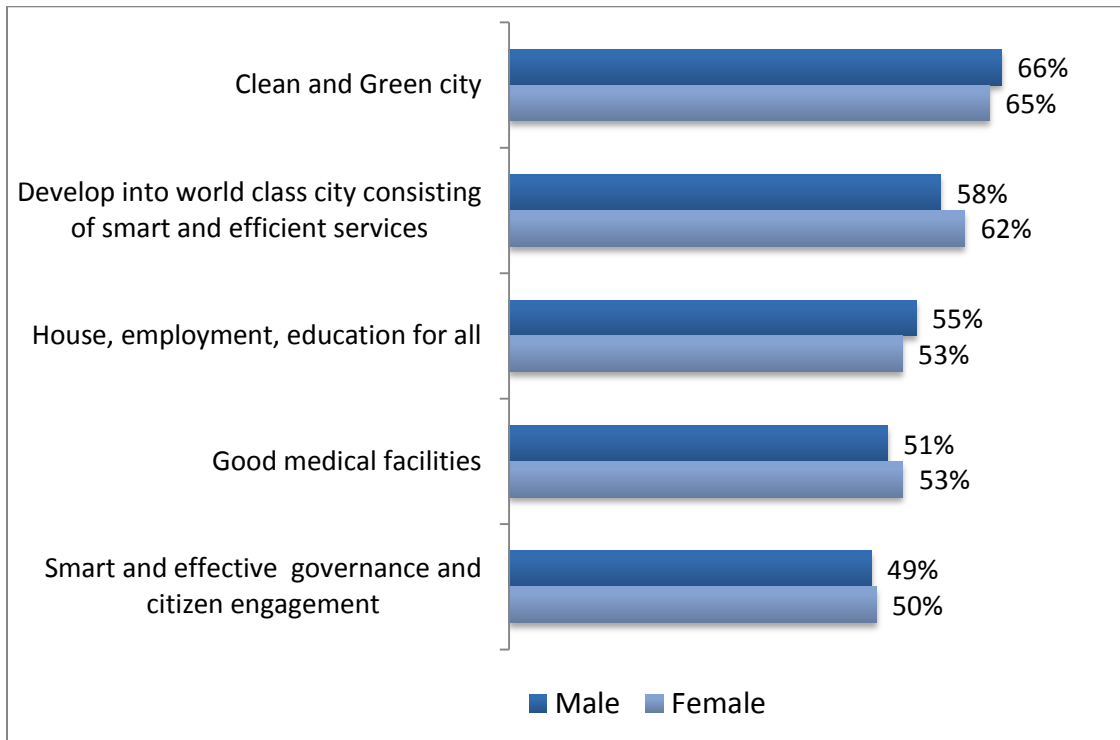
The top most long-term vision of unemployed and retired citizens is to have a clean and green Bhopal.

Exhibit 13: Long-term Vision by Occupation



No significant difference in long-term vision among males and females.

Exhibit 14: Long-term Vision by Gender



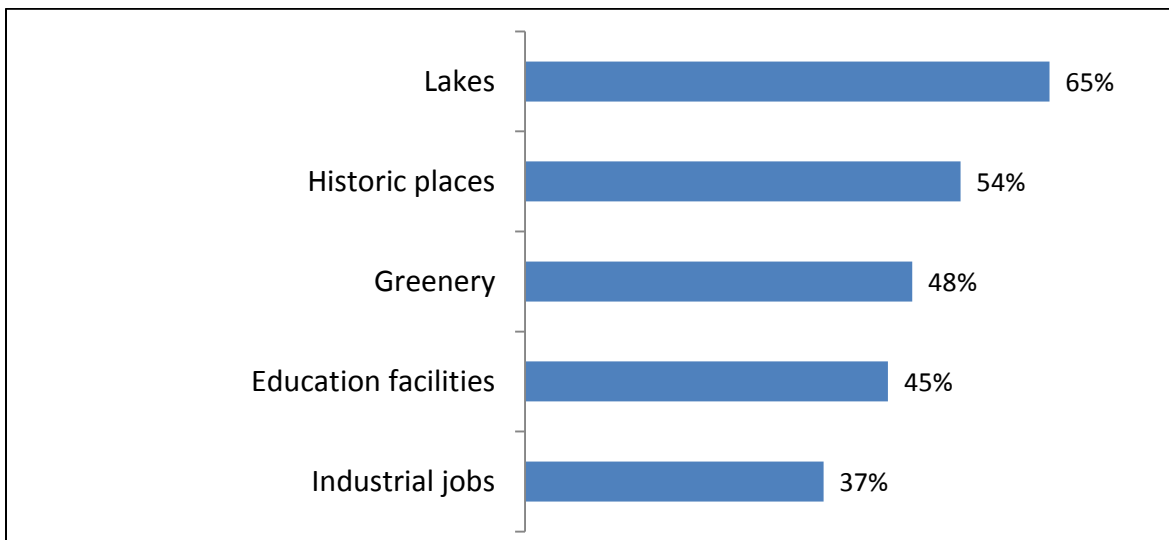
4.3 Essence of Bhopal used in improvement of city

Citizens were asked to identify important element or essence of Bhopal, which can be used in making Bhopal a smart city.

Majority of the citizens consider the lakes to be the most important element or essence of Bhopal followed by the historic places and greenery.

Availability of education facilities and industrial jobs are other elements, which citizens of Bhopal feel proud of.

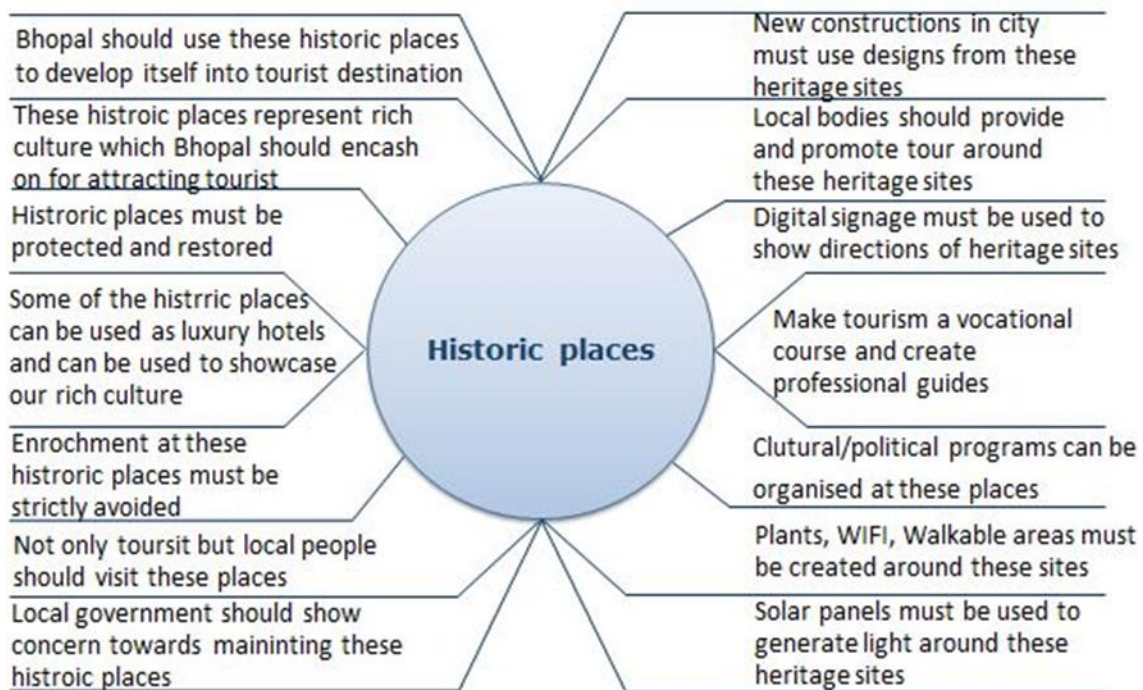
Exhibit 15: Essence of Bhopal that should be used for Making Smart City



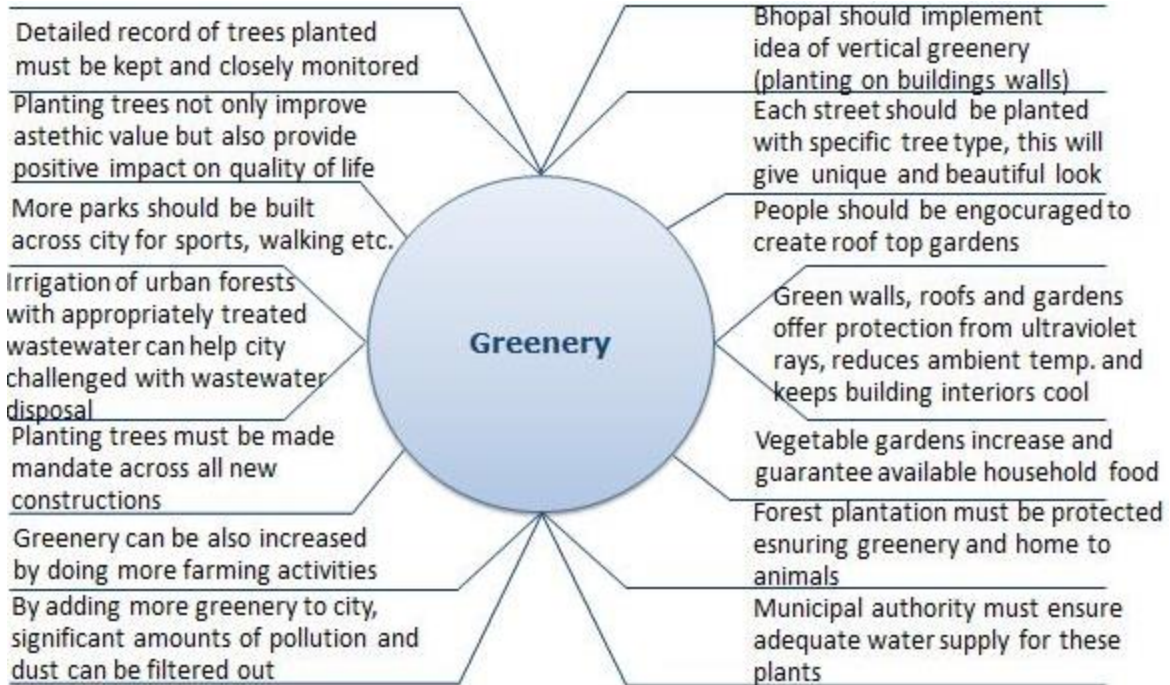
Mentioned below are comments from citizens on using lakes for making Bhopal a smart city. Citizens of Bhopal clearly wish to maintain and improve lakes and services around them and want to create a special image for Bhopal.



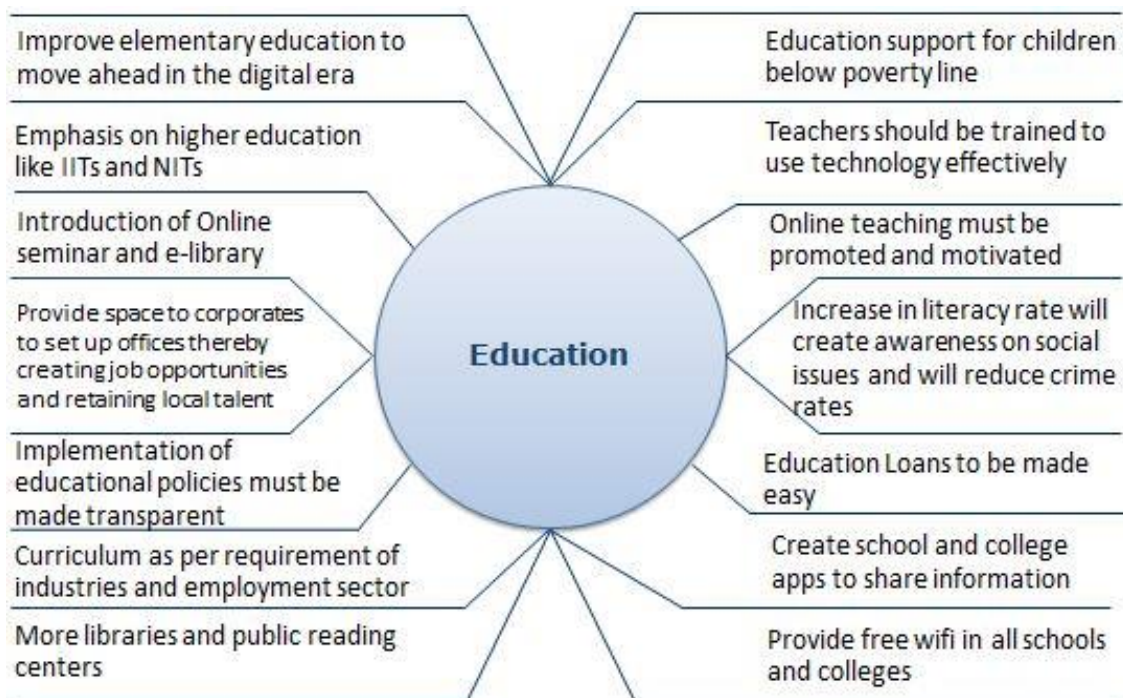
Mentioned below are comments from citizens on using historic places for making Bhopal a smart city.



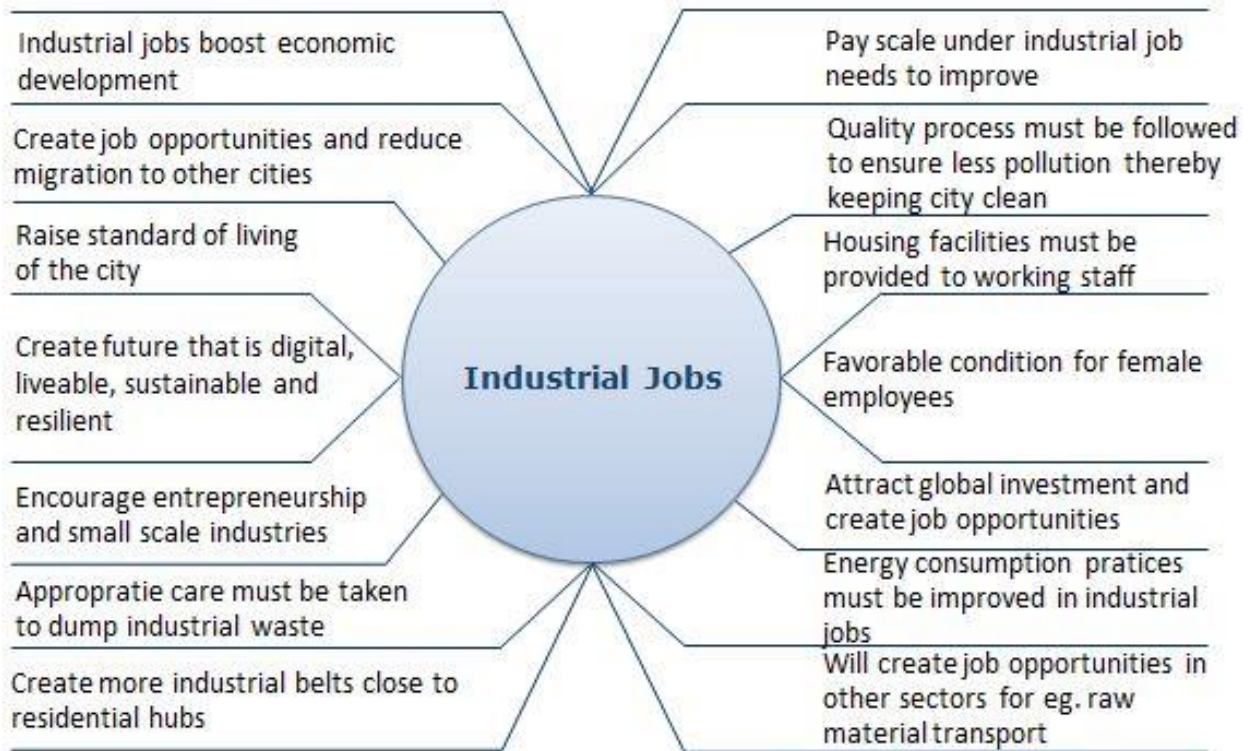
Mentioned below are comments from citizens on how greenery can be used for making Bhopal a smart city.



Mentioned below are comments from citizens on using and improving education facilities for making Bhopal a smart city.



Mentioned below are comments from citizens on industrial jobs and developments in the industrial sector for making Bhopal a smart city.



4.4 Challenges Faced by Citizens

Each citizen was asked to list five challenges that he / she thinks the city is facing, currently, and hence proportion in this exhibit below, if sum will read beyond 100%.

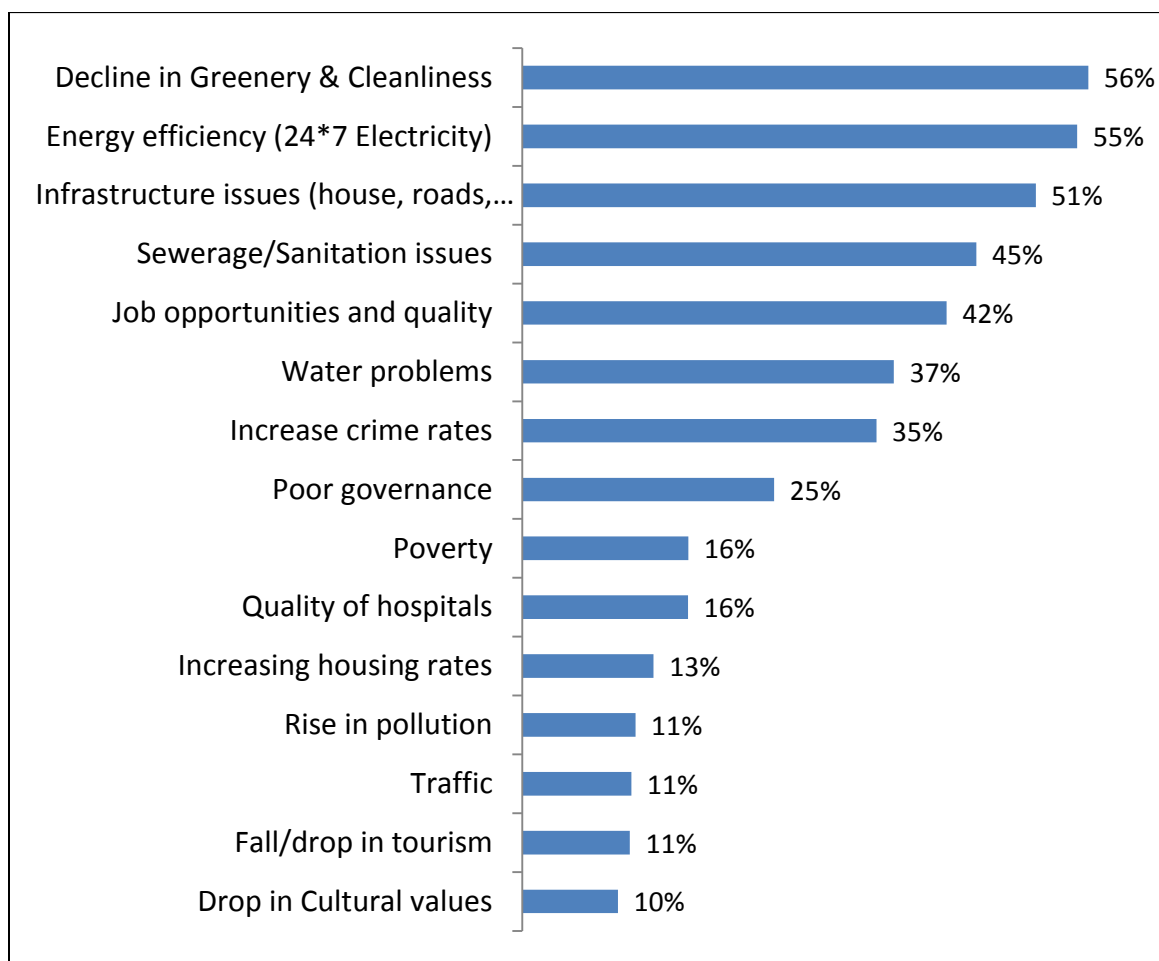
The exhibit below represents the top 15 challenges faced by citizens of Bhopal.

Decline in greenery and cleanliness is the biggest challenge faced by the city closely followed by energy efficiency and infrastructure issues.

Sewerage / Sanitation and job quality and opportunities are other important issues faced by citizens of Bhopal.

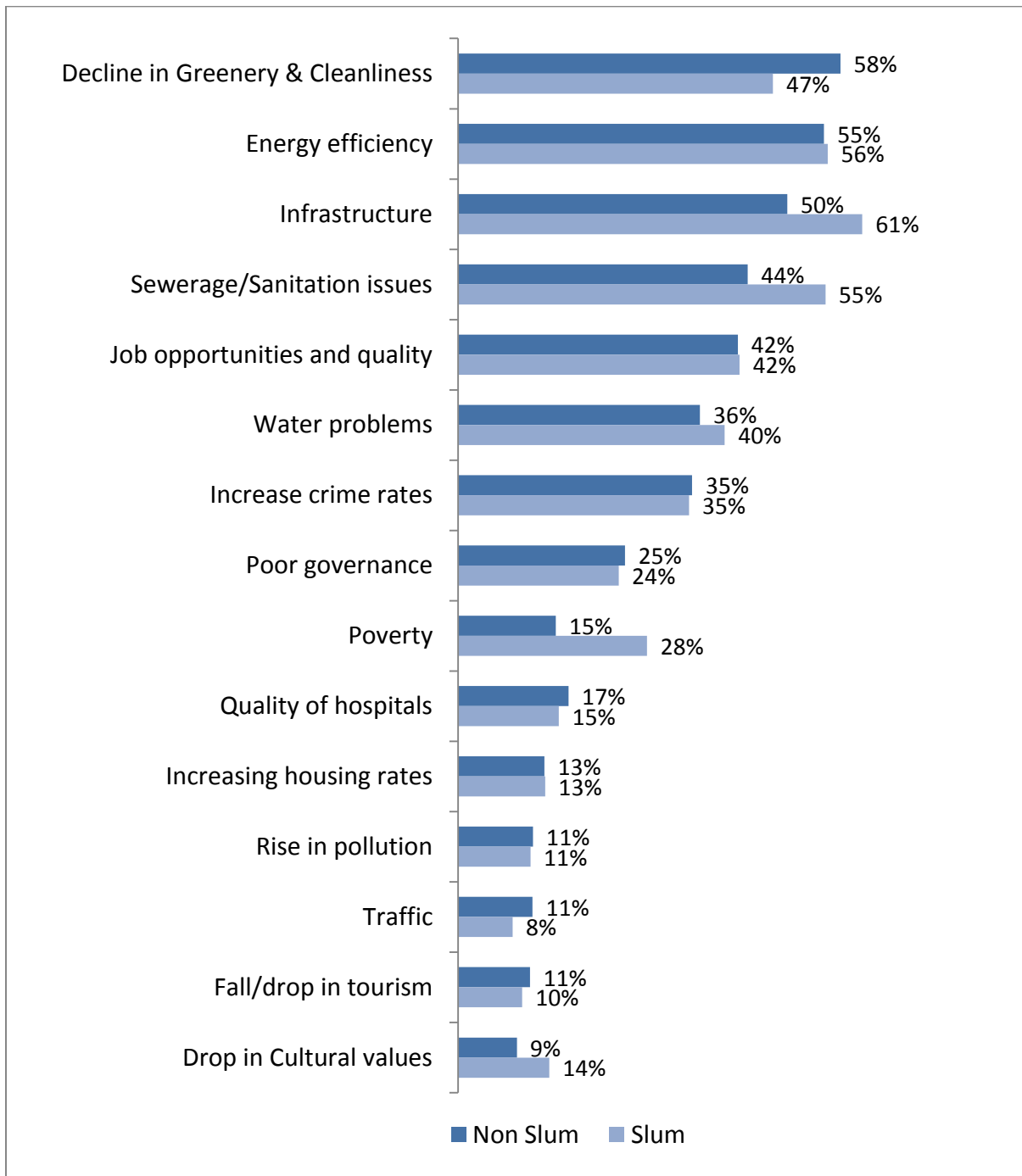
Other key issues faced by citizens of Bhopal are water problems, increase in crime rate, poor governance, poverty, and quality of hospitals.

Exhibit 16: Current Challenges Faced- Top 15



Citizens from slums are more worried on the basic infrastructure issues related to them like proper housing, water supply, electricity, sewerage and sanitation, whereas other citizens are more worried with drop in greenery and cleanliness and electricity and energy issues.

Exhibit 17: Current Challenges Faced by Slum and Non-Slum Citizens-Top 15



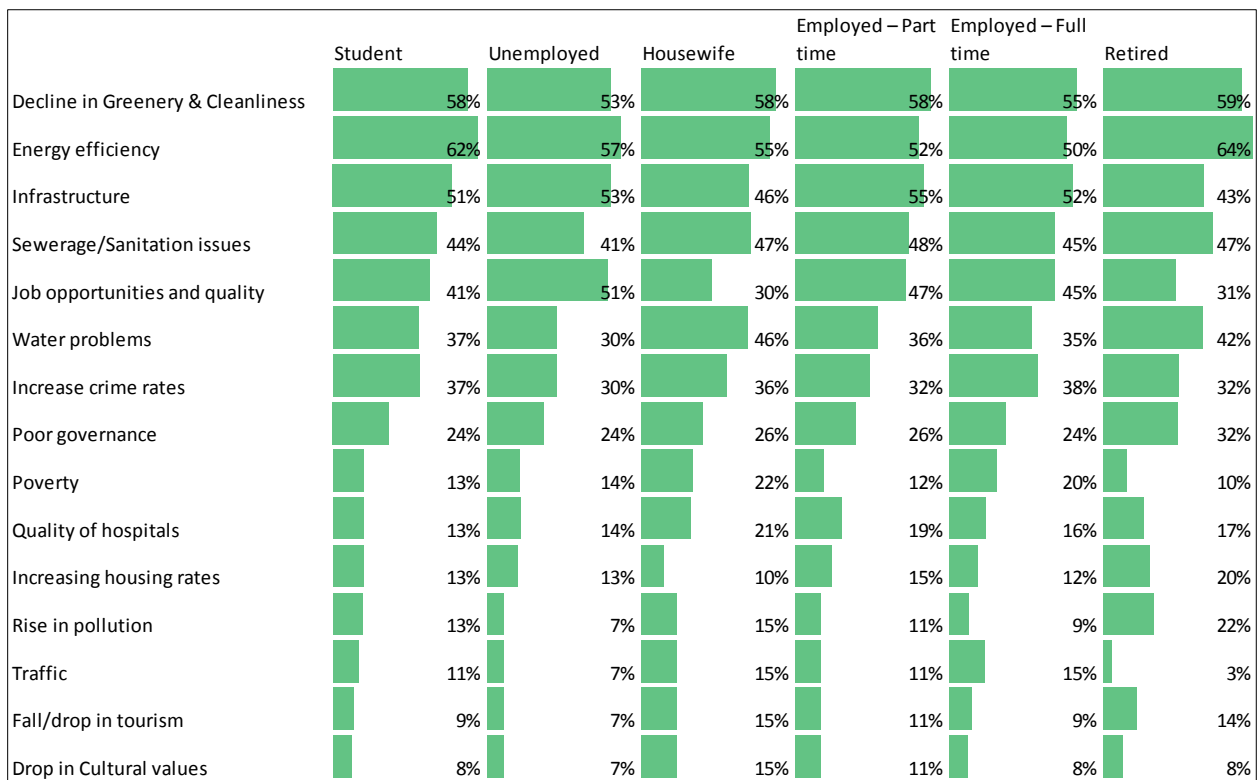
Students and the unemployed respondents have shown more concern on energy issues, decline in greenery and cleanliness, and infrastructure issues. Unemployed citizens are also worried on getting a good job.

In addition to greenery / cleanliness and electricity issues, housewives are more worried on sewerage / sanitation, water, and infrastructure issues.

The employed class of citizens are worried on decline in greenery and cleanliness, energy efficiency, and infrastructure issues.

Retired citizens are more bothered on electricity issue followed by decline in greenery and cleanliness, sewerage / sanitation issues, water problems, increased crime rate, and poor governance.

Exhibit 18: Current Challenges Faced — By Occupation



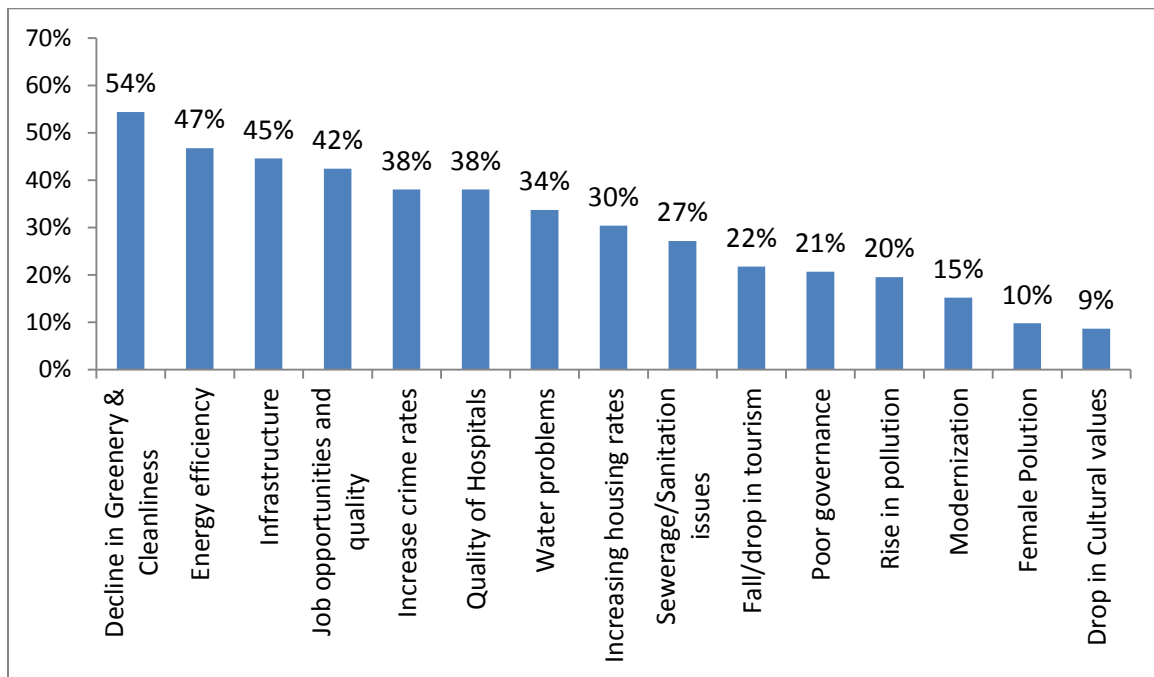
The data collected at ward levels were clubbed to note the challenges faced at zone level.

Mentioned below are the challenges faced at each zone.

Zone 1 comprises the following wards – Ward 1 (Mahatma Gandhi), Ward 2 (Airport), Ward 3 (Bhouri), Ward 4 (Hemu Kalani), and Ward 5 (Sadhu Vaswani).

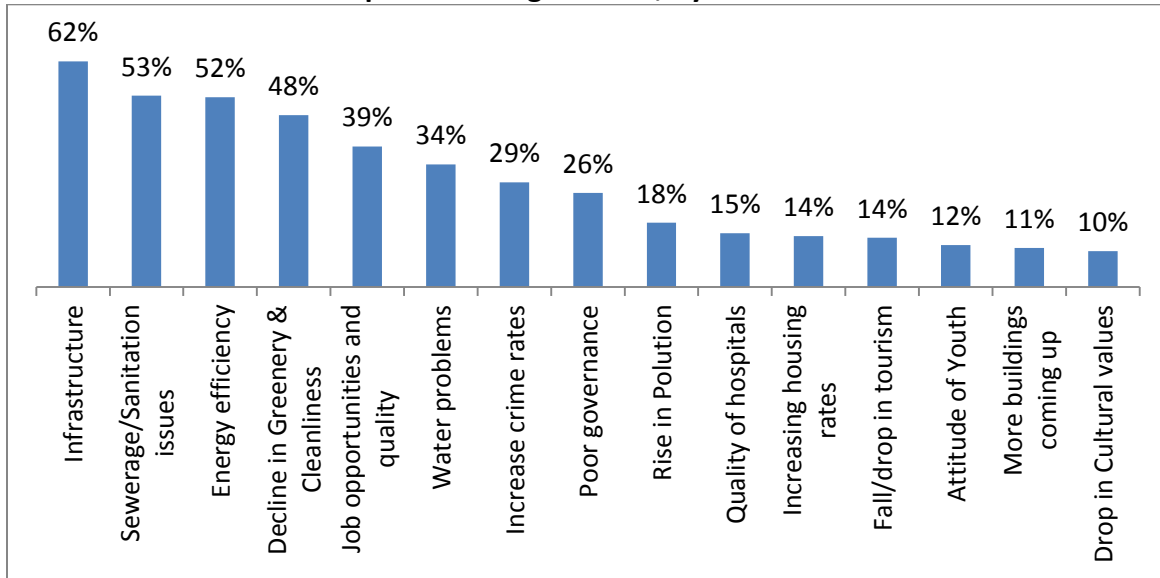
The top three challenges in Zone 1 are decline in greenery / cleanliness, Energy / electricity, and infrastructure issues.

Exhibit 19: Top 15 Challenges Faced, By Zonal level – Zone 1



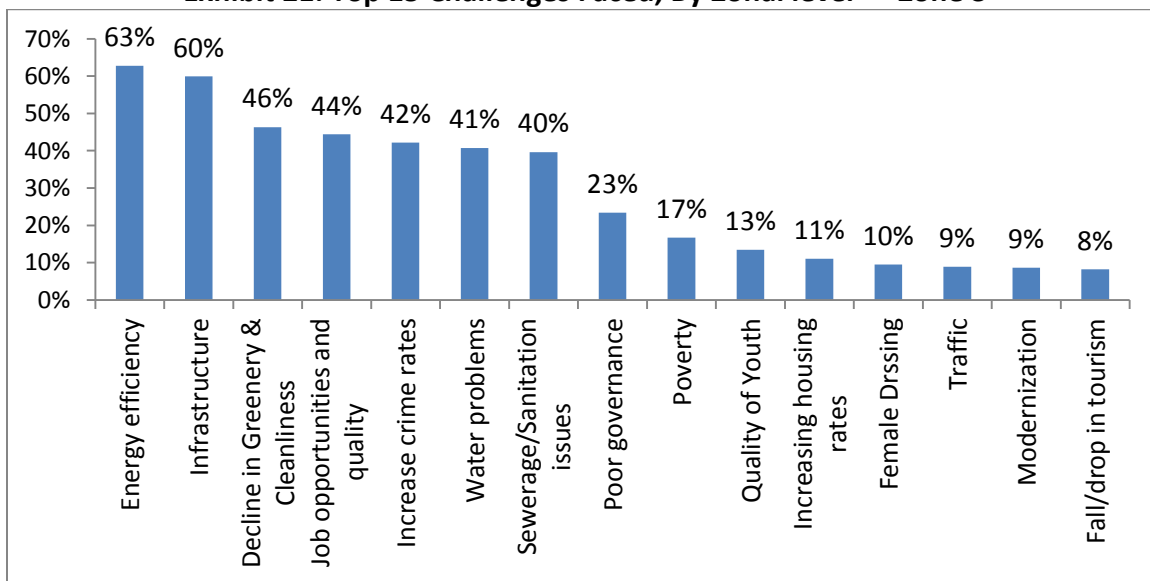
Zone 2 comprises Ward 6 (Maha Virgiri), Ward 7 (Koh -e- Fiza), Ward 8 (Royal Market), and Ward 10 (Idgah Hills) and Ward 21 (Jain Mandir) and the top three challenges faced are Infrastructure, Sewerage / Sanitation, and Energy / Electricity issues.

Exhibit 20: Top 15 Challenges Faced, By Zonal Level — Zone 2



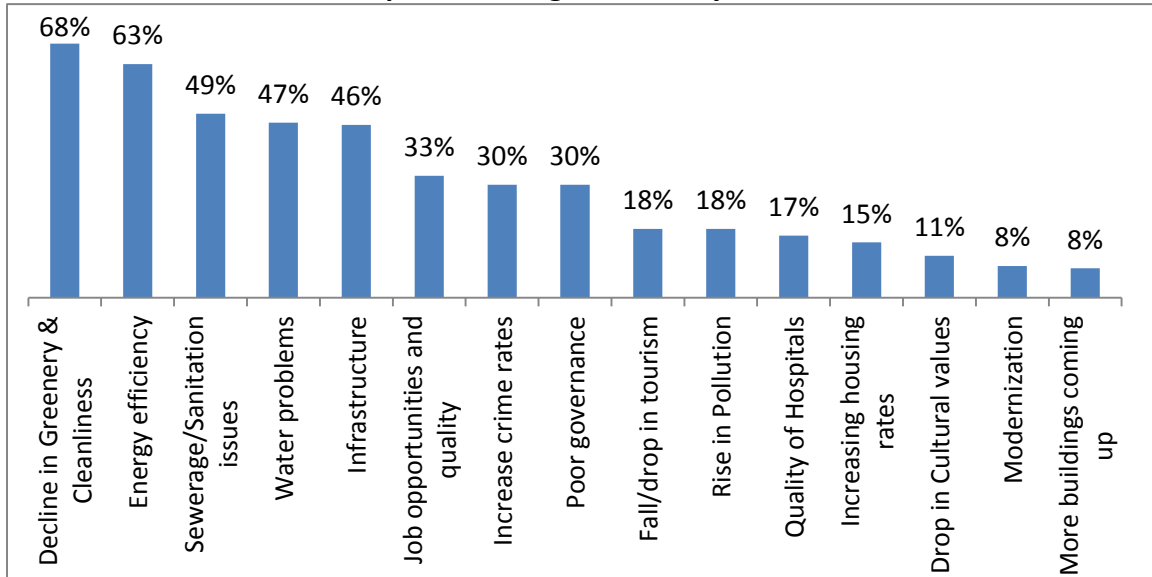
Zone 3 comprises Ward 9 (Bagh Munshi Husain Khan), Ward 11 (Babu Jagjeevan Ram), Ward 12 (Nariyal Kheda), Ward 13 (Geetanjali), and Ward 14 (Shahjahanabad) and the top three challenges faced are Energy / electricity, Infrastructure, and decline in greenery / cleanliness.

Exhibit 21: Top 15 Challenges Faced, By Zonal level — Zone 3



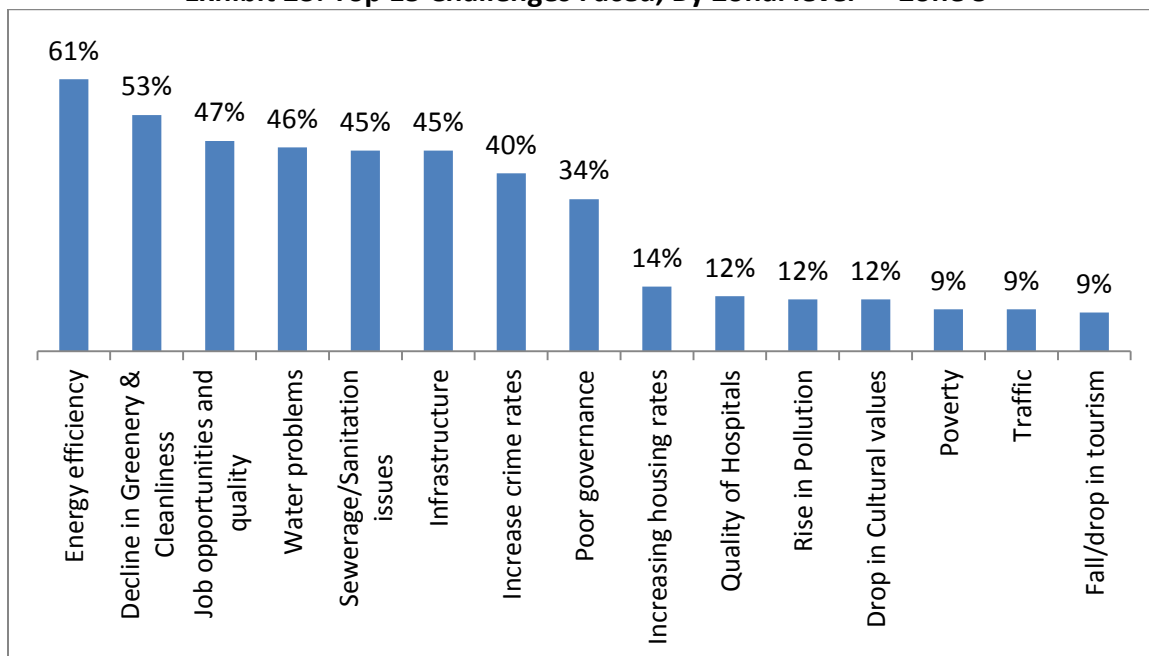
Zone 4 comprises Ward 15 (J.P Nagar), Ward 16 (Motilal Nehru), Ward 17 (Ibrahimganj) and Ward 18 (Ram Mandir), Ward 20 (Mahavir Swami) and top three challenges faced are decline in greenery / cleanliness, Energy / electricity issues, and Sewerage / sanitation issues.

Exhibit 22: Top 15 Challenges Faced, By Zonal level — Zone 4



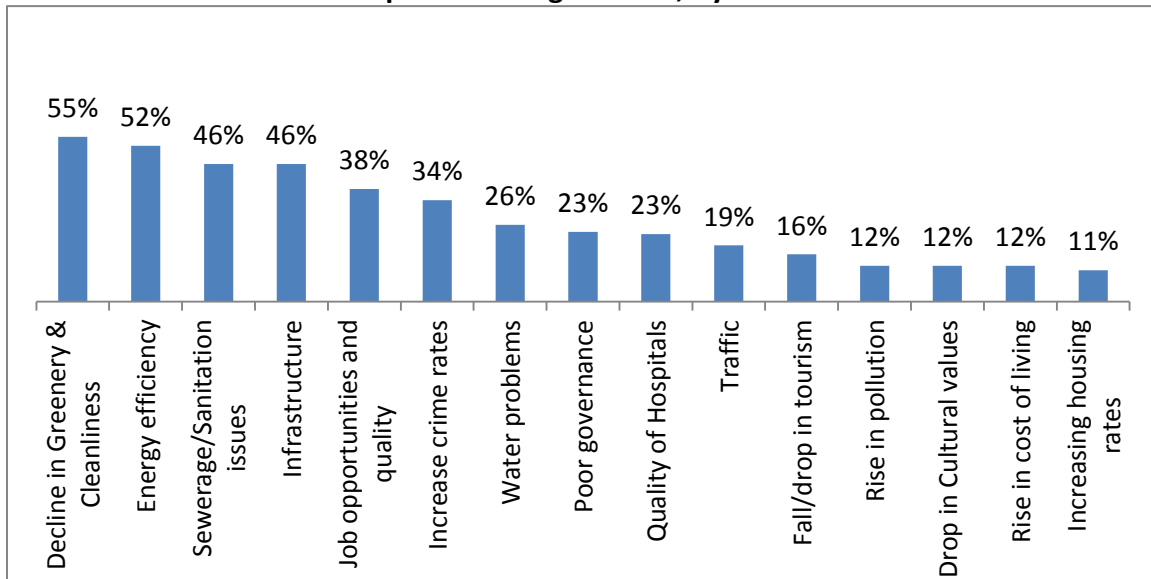
Zone 5 comprises of Ward 19 (Lal Bahadur Shastri), Ward 22 (Moti Masjid), Ward 23 (Islamapura) and Ward 24 (Rani Kamlapati) and top three challenges faced are Energy/electricity issues, decline in greenery/cleanliness and less job opportunities.

Exhibit 23: Top 15 Challenges Faced, By Zonal level — Zone 5



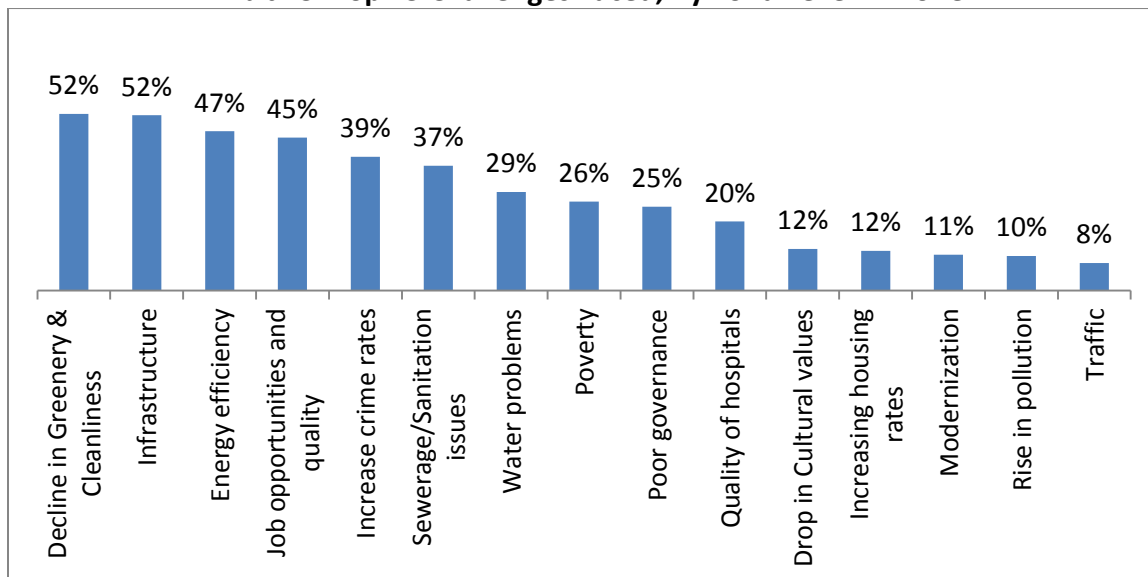
Zone 6 comprises Ward 25 (Swami Vivekanand), Ward 26 (Dr Ambedkar), Ward 27 (Goswami Tulsi Das), and Ward 28 (Rani Awanti Bai) and the top three challenges faced are decline in greenery / cleanliness, Energy / electricity issues, and Sewerage / sanitation issues.

Exhibit 24: Top 15 Challenges Faced, By Zonal level — Zone 6



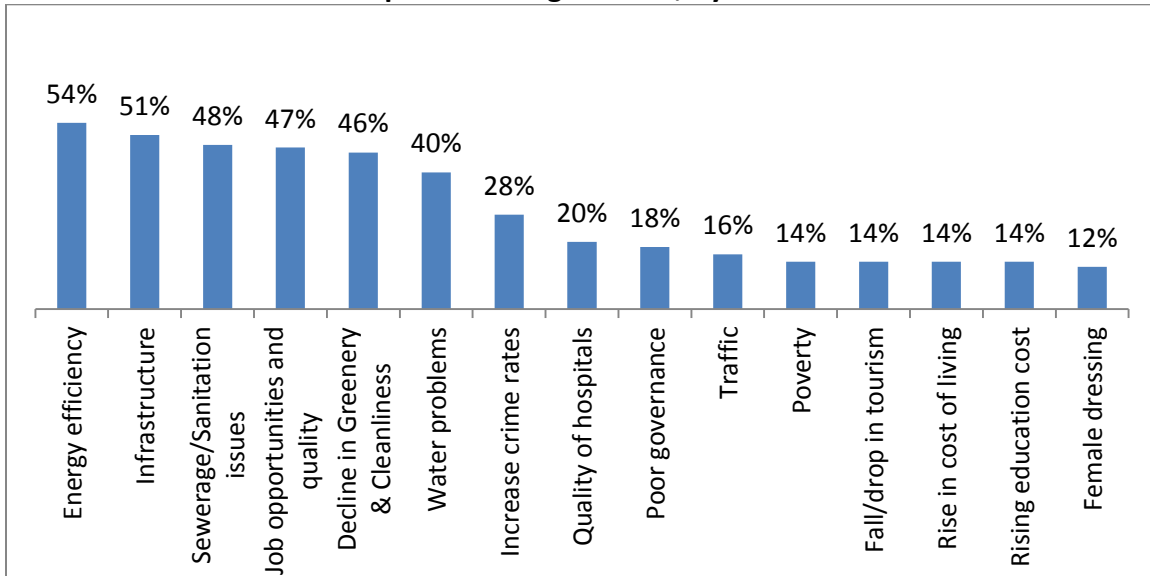
Zone 7 comprises Ward 30 (Kushabhau Thakre), Ward 31 (Chhatrapati Shivaji), Ward 32 (Jawahar Lal Nehru), Ward 46 (Pandit Ravi Shankar Shukl), and Ward 51 (Shahpura) and the top three challenges faced are decline in greenery / cleanliness, Infrastructure, and Energy / electricity issues.

Exhibit 25: Top 15 Challenges Faced, By Zonal level — Zone 7



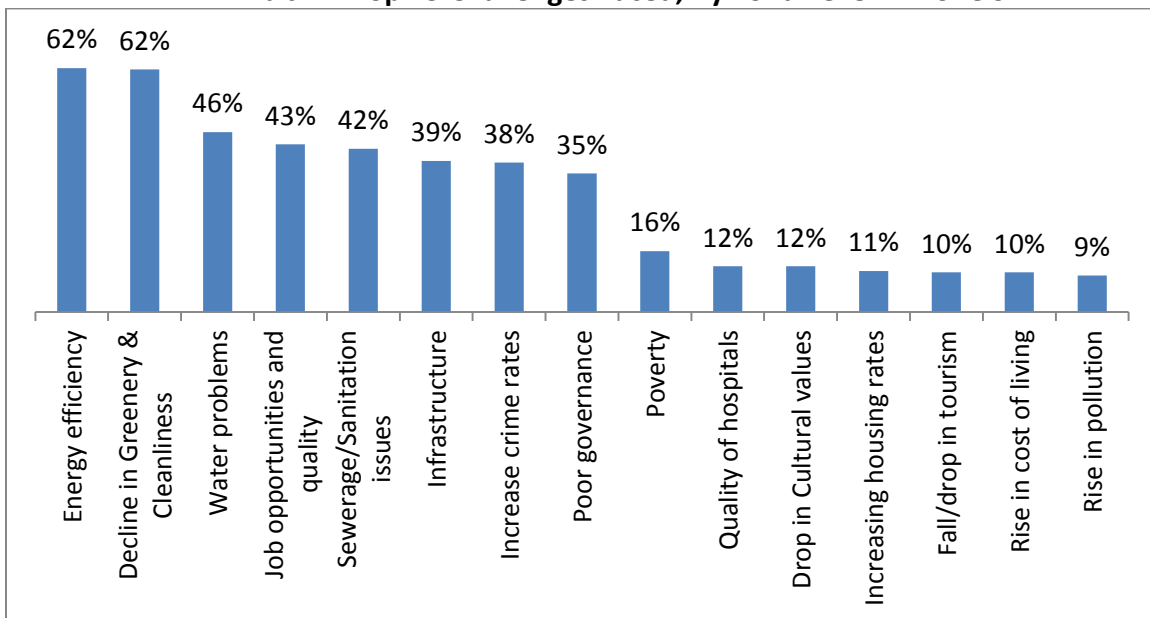
Zone 8 comprises Ward 33 (Pandit Madan Mohan Malviya), Ward 34 (Ravindranath Raigore), Ward 35 (Jahanagirabad), Ward 42 (Maharani Laxmi Bai), and Ward 47 (Dr Rajendra Prasad) and the top three challenges faced are Energy / electricity, Infrastructure and sewerage, and sanitation issues.

Exhibit 26: Top 15 Challenges Faced, By Zonal level — Zone 8



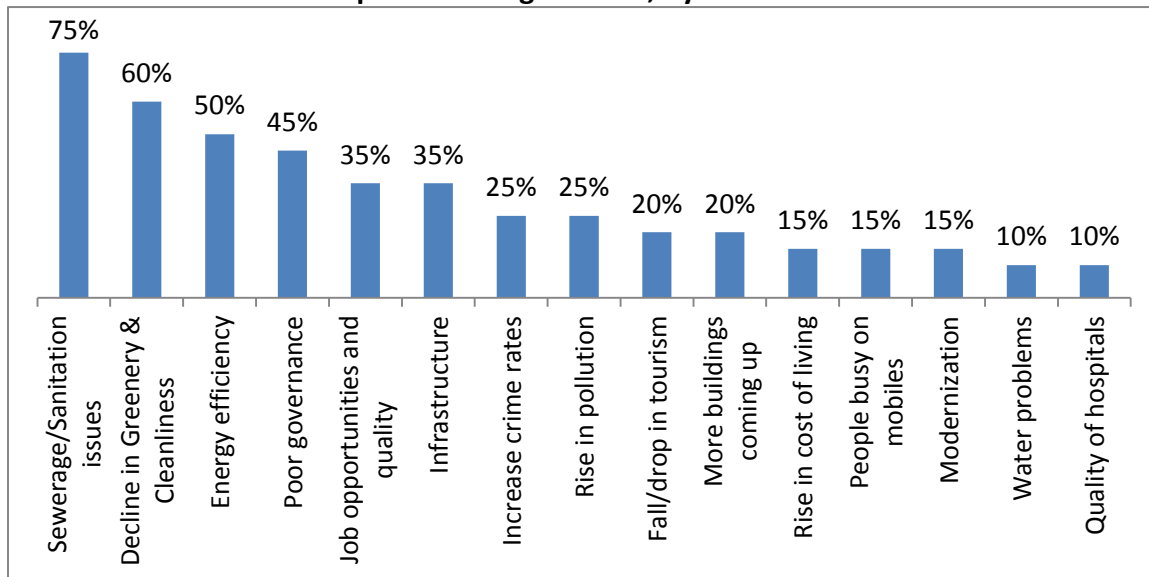
Zone 9 comprises Ward 43 (Maharana Pratab), Ward 45 (Indira Gandhi), Ward 48 (Arera Colony), Ward 49 (Asha Niketan), and Ward 50 (Gulmohar) and the top three challenges faced are energy / electricity, decline in greenery / cleanliness, and water issues.

Exhibit 27: Top 15 Challenges Faced, By Zonal level — Zone 9



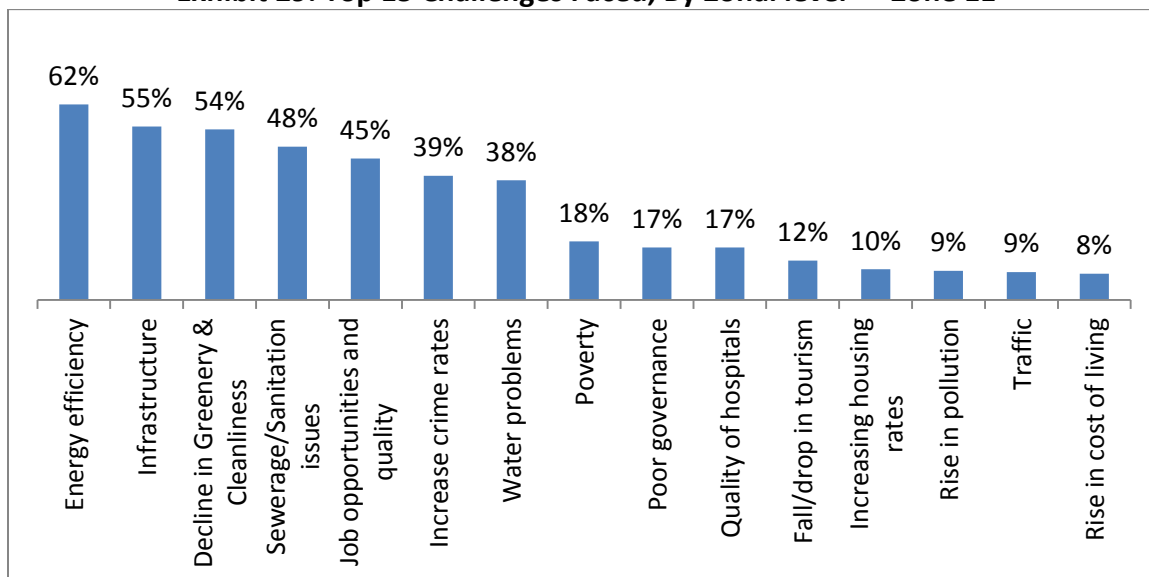
Zone 10 comprises Ward 36 (Chandbad), Ward 37 (Kapda Mill), Ward 38 (Semra), and Ward 71 (Dashera Maidan Ashoka Gardan) and the top three challenges faced are Sewerage / Sanitation issues, decline in greenery / cleanliness, and Energy / Electricity issues.

Exhibit 28: Top 15 Challenges Faced, By Zonal level — Zone 10



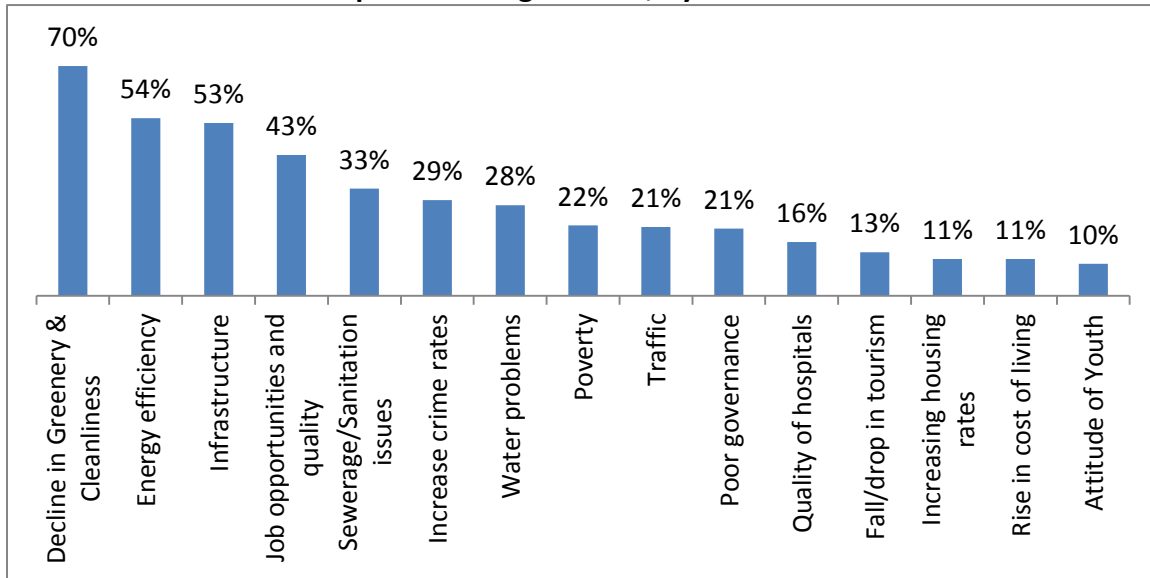
Zone 11 comprises Ward 39 (Naveen Nagar), Ward 40 (Aishbag), Ward 41 (Bag Farhat Afza), and Ward 70 (Panjabi Bagh) and the top three challenges faced are Energy / Electricity issues, Infrastructure, and decline in greenery / cleanliness.

Exhibit 29: Top 15 Challenges Faced, By Zonal level — Zone 11



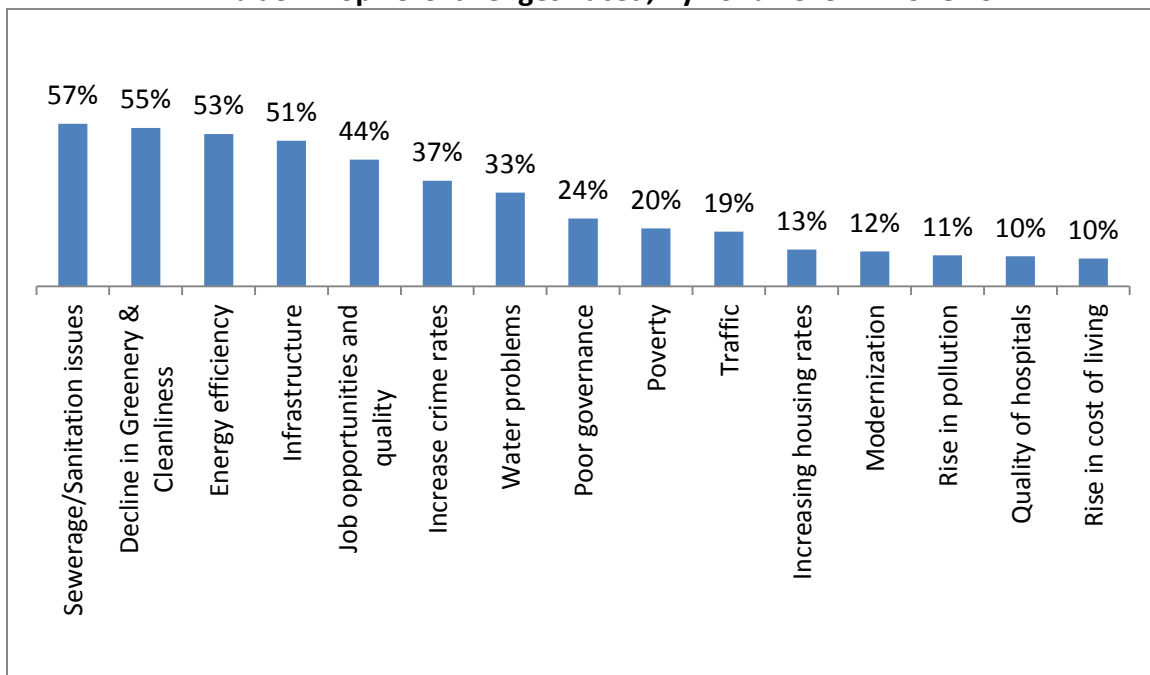
Zone 12 comprises Ward 44 (Subhash Chandra B), Ward 58 (Kasturba), Ward 59 (Barkheda BHEL), and Ward 69 (Gurunanak Dev) and the top three challenges faced are decline in greenery / cleanliness, Energy / Electricity, and Infrastructure issues.

Exhibit 30: Top 15 Challenges Faced, By Zonal level — Zone 12



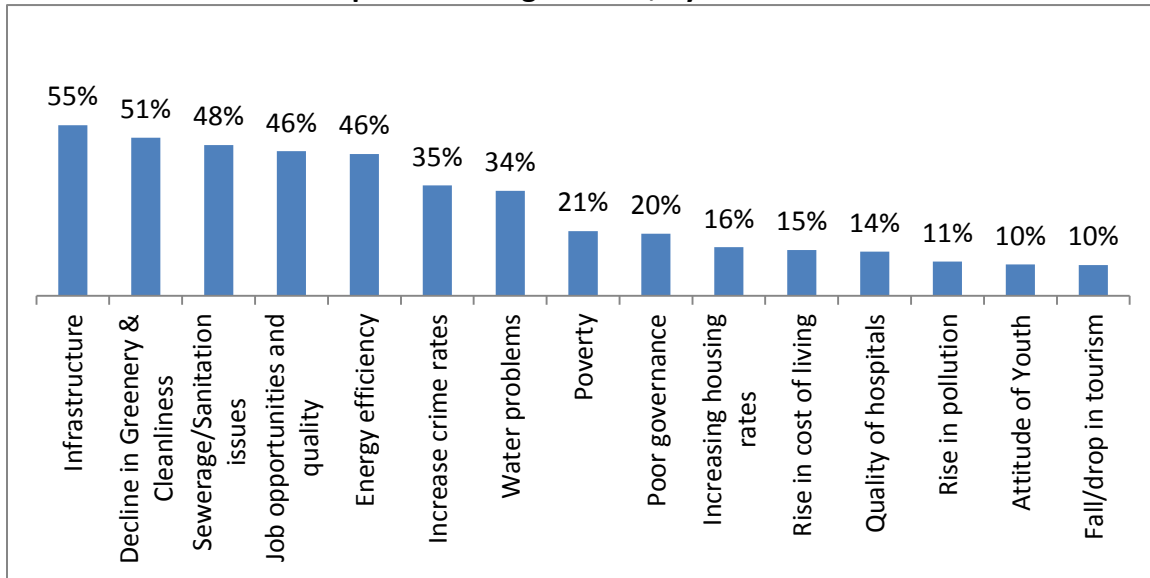
Zone 13 comprises Ward 52 (Misrod), Ward 53 (Jaatkhadi), Ward 54 (Barkatullah), and Ward 55 (Bag Mulagiya) and the top three challenges faced are Sewerage / Sanitation, decline in greenery / cleanliness, and Energy/Electricity issues.

Exhibit 31: Top 15 Challenges Faced, By Zonal level — Zone 13



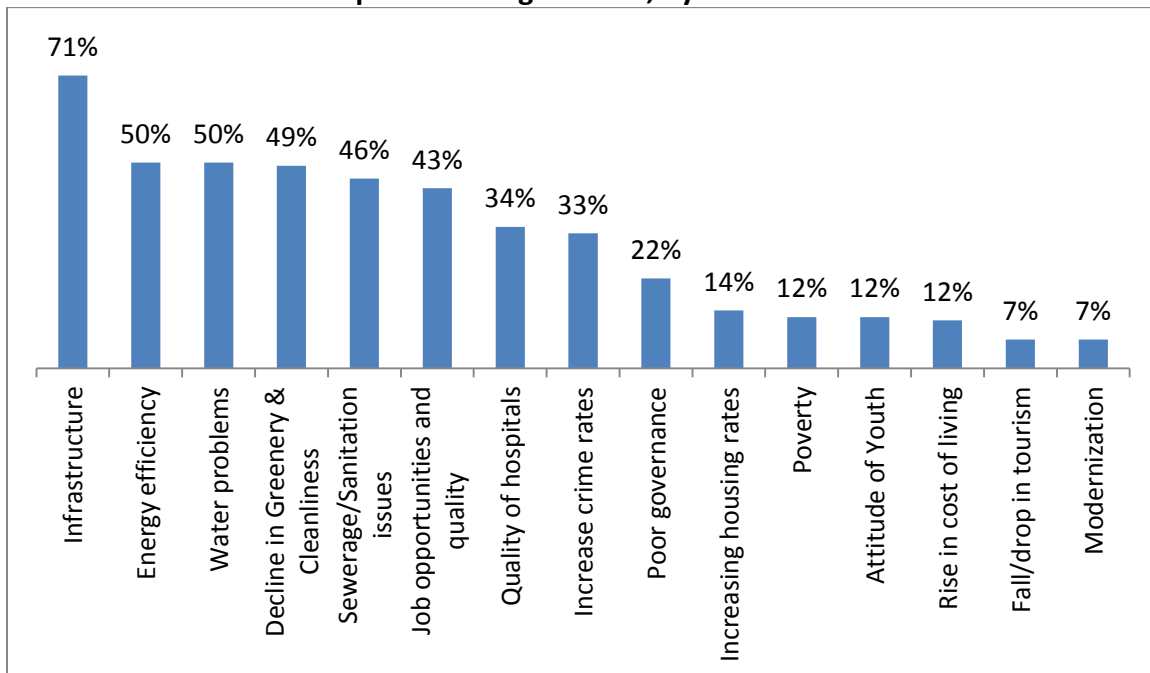
Zone 14 comprises Ward 56 (Brakheda Pathani), Ward 57 (Saket Shakti), Ward 60 (Govindpura), and Ward 61 (Khajurikalan) and the top three challenges faced are Infrastructure issues, decline in greenery / cleanliness, and Sewerage / Sanitation issues.

Exhibit 32: Top 15 Challenges Faced, By Zonal level — Zone 14



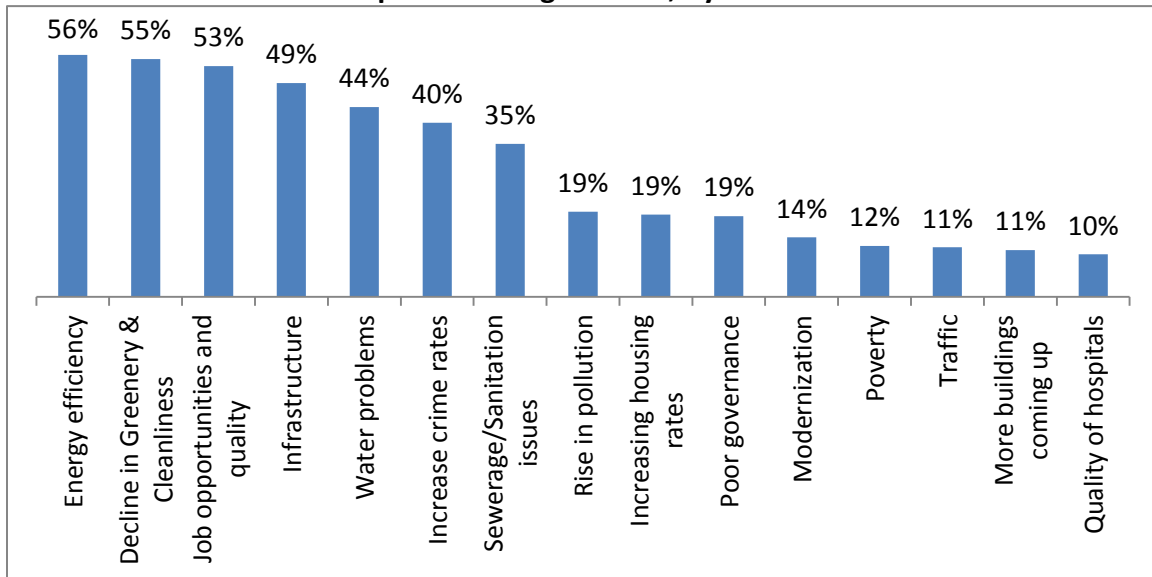
Zone 15 comprises Ward 62 (Hataikheda), Ward 63 (Goutam Bhdhh), Ward 64 (Sonagiri), Ward 66 (Narela Shankari), and Ward 67 (Indrapuri) and the top three challenges faced are Infrastructure issues, Energy / electricity, and water problems.

Exhibit 33: Top 15 Challenges Faced, By Zonal level — Zone 15



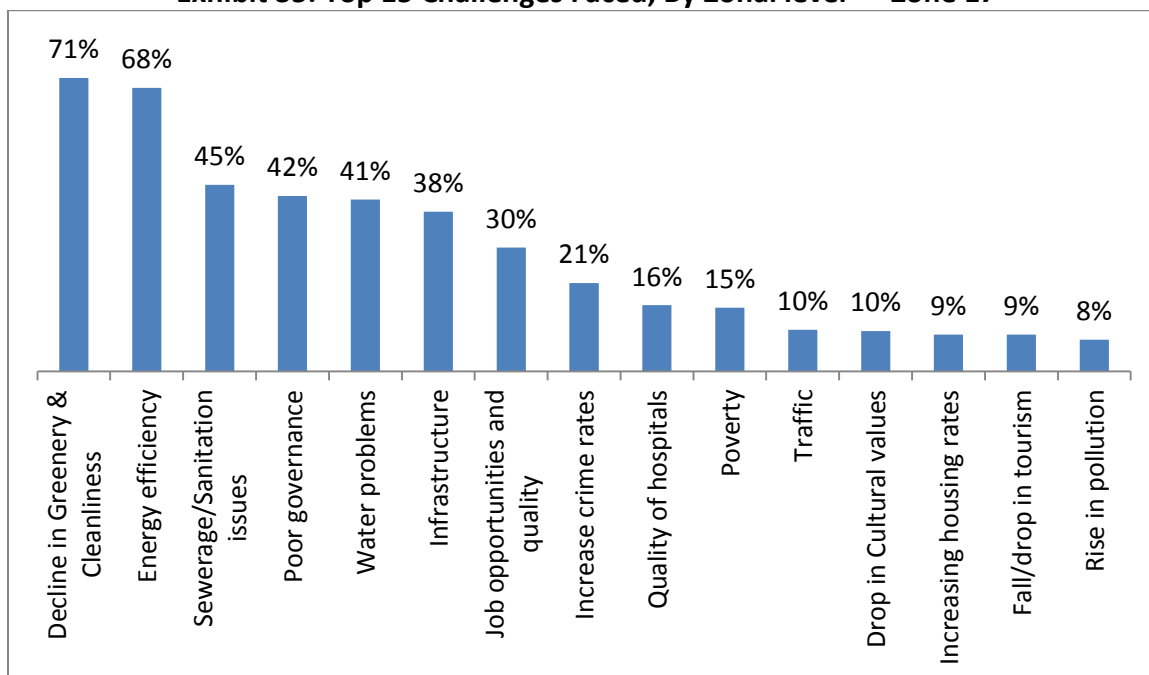
Zone 16 comprises Ward 65 (Govindpura Udhyogiki Kshatra), Ward 68 (Ayodhya Nagar), Ward 72 (Rajiv Gandhi), Ward 73 (Bhopal Memorial Hospital), and Ward 74 (Bhanpur) and the top three challenges faced are Energy / Electricity, decline in greenery / cleanliness, and job opportunity issues.

Exhibit 34: Top 15 Challenges Faced, By Zonal level — Zone 16



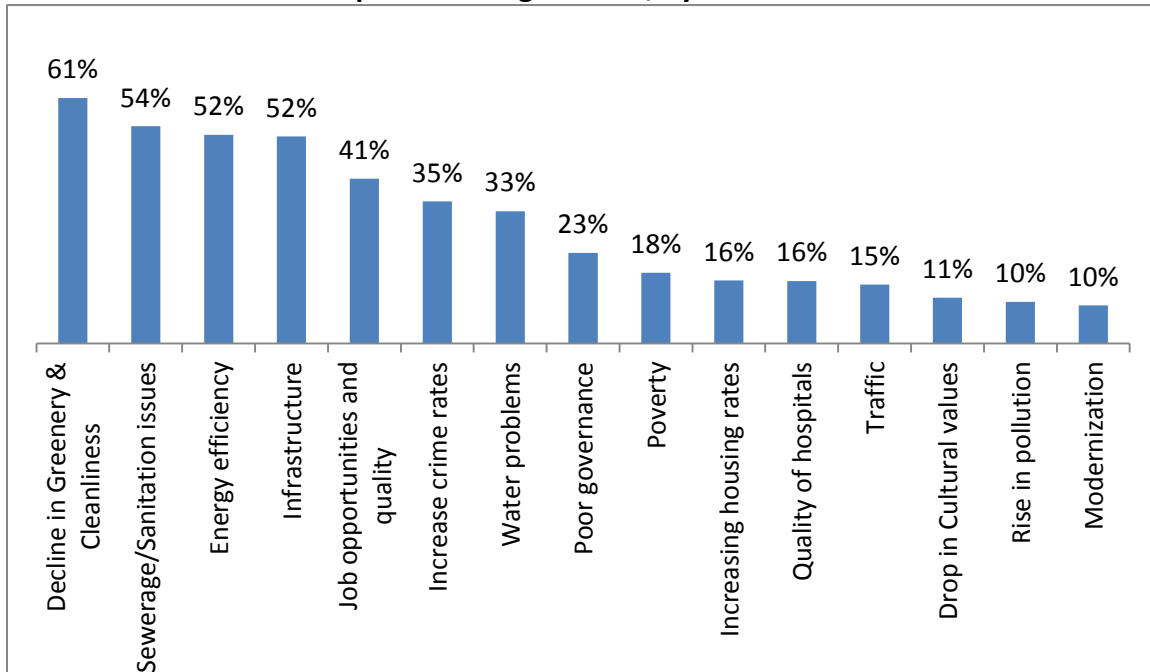
Zone 17 comprises Ward 75 (Bashwai), Ward 76 (Chhola), Ward 77 (Russalli), Ward 78 (Karond), and Ward 79 (Navibagh) and the top three challenges faced are decline in greenery / cleanliness, Energy / Electricity, and Sewerage / Sanitation issues.

Exhibit 35: Top 15 Challenges Faced, By Zonal level — Zone 17



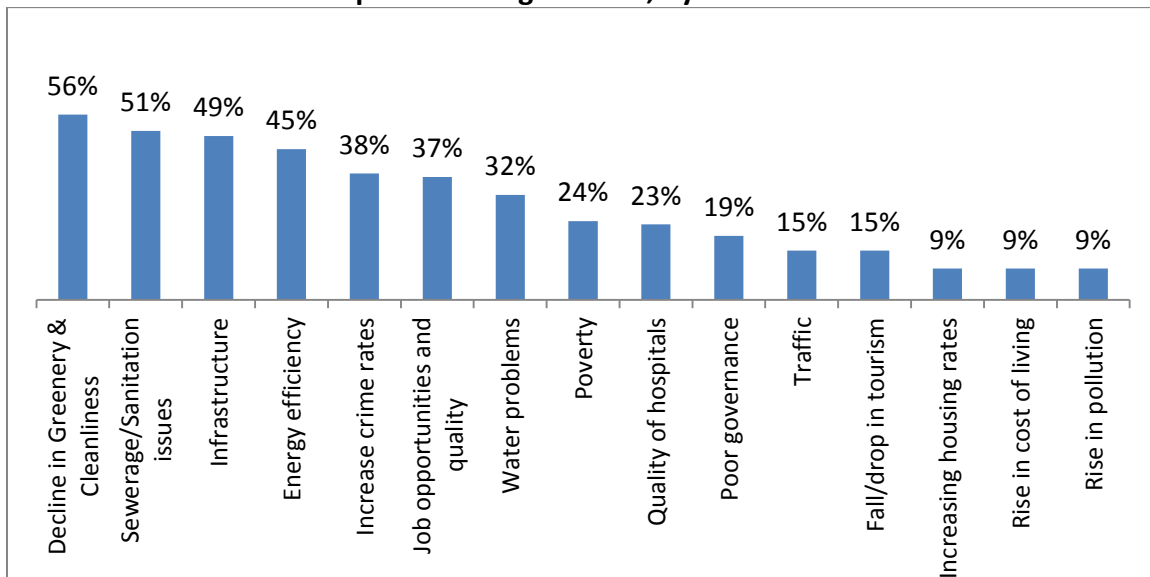
Zone 18 comprises Ward 80 (Sarvdharam Kolar), Ward 82 (Danish Kunj), Ward 83 (Sankhedi), and Ward 29 (Moulana Abul Kalam Azad) and top three challenges faced are decline in greenery / cleanliness, Sewerage / Sanitation, and Energy / Electricity issues.

Exhibit 36: Top 15 Challenges Faced, By Zonal level — Zone 18



Zone 19 comprises Ward 81 (Khanhakunk), Ward 84 (Ratnapur Sadak), and Ward 85 (Katara) and the top three challenges faced are decline in greenery / cleanliness, Sewerage / Sanitation, and Infrastructure issues.

Exhibit 37: Top 15 Challenges Faced, By Zonal level — Zone 19



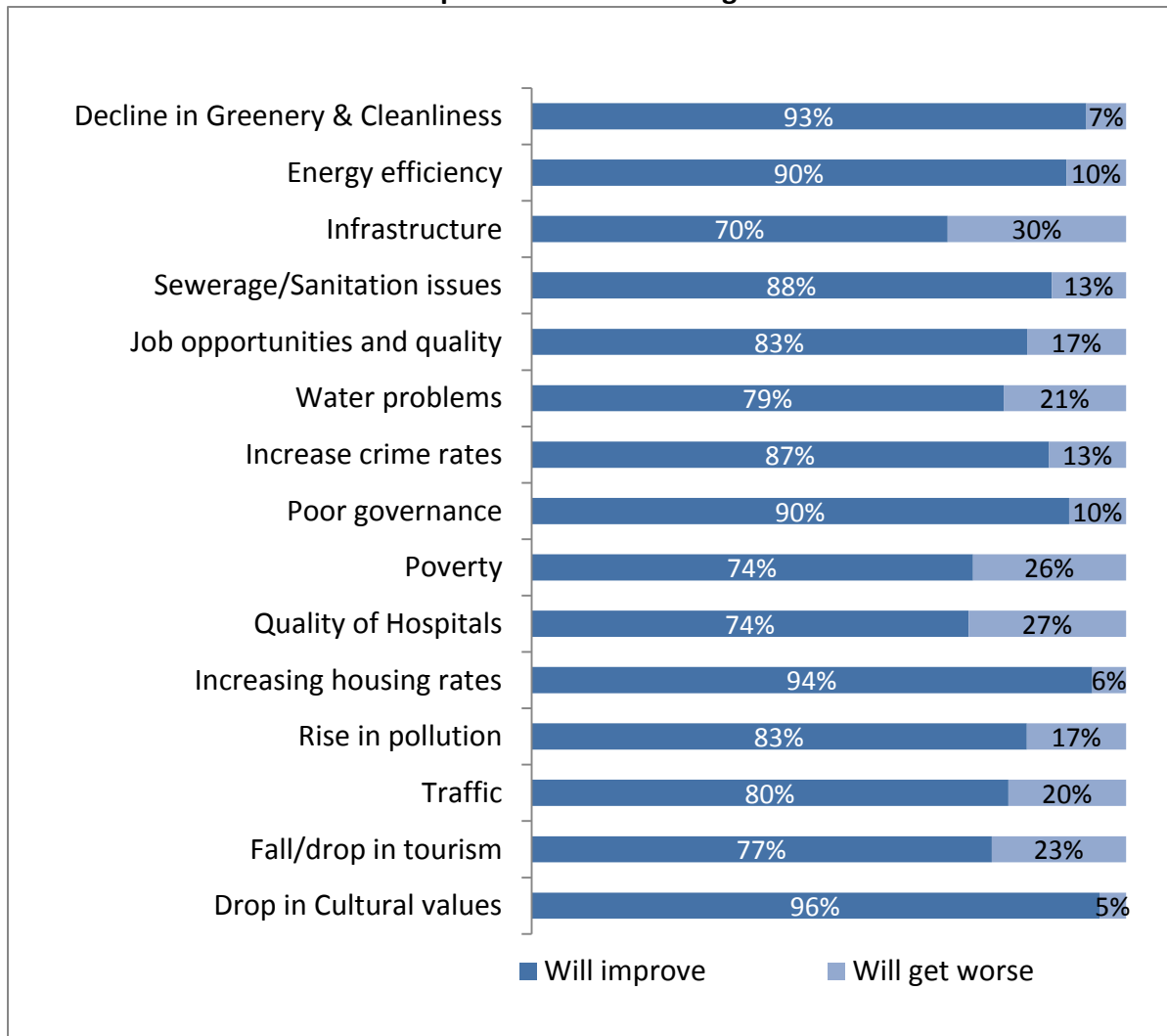
4.5 Perceived Improvement over These Challenges in the Next Five Years

After asking citizens to identify the top five challenges that they face currently, they were asked whether they see any improvement happening over these challenges in the next five years.

The challenges mentioned below are in hierarchal order, identified by the citizens (seen in Exhibit 16).

At an overall level, majority of the citizens turned out to be positive toward improvement of these challenges in the next five years. However, there are some parameters where a considerable proportion of citizens (over 20%) think that the situation will not improve but will get worse. These parameters are infrastructure, water, poverty, quality of hospitals, traffic, and tourism value.

Exhibit 38: Perceived Improvement of Challenges in the Next Five Years

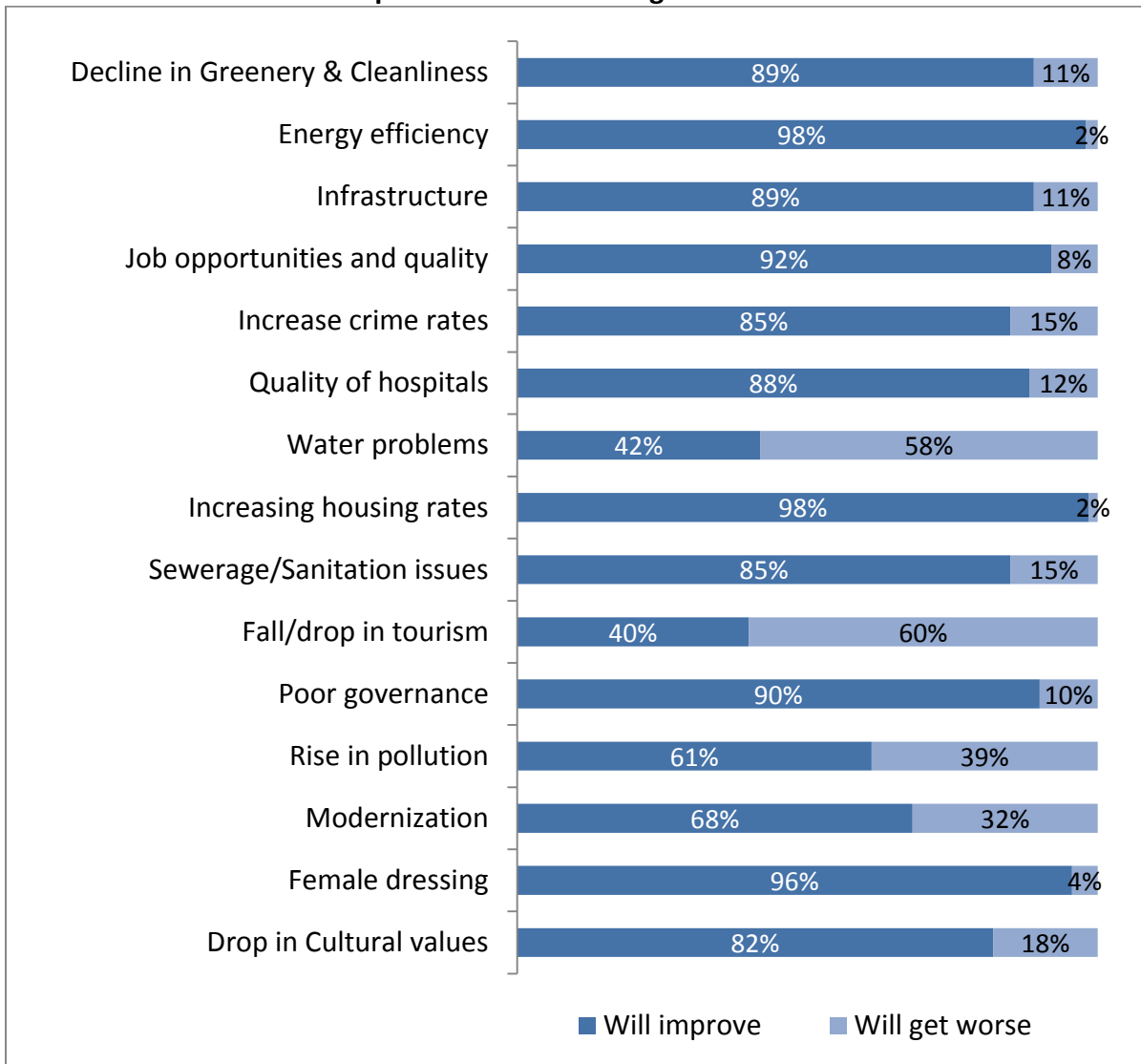


Citizens were positive about the improvement of the top five challenges (identified for zone 1).

However, there are some parameters, which citizens don't think will improve in the next five years; these parameters are:-

- Water problems
- Fall / drop in tourism
- Rise in pollution
- Modernization

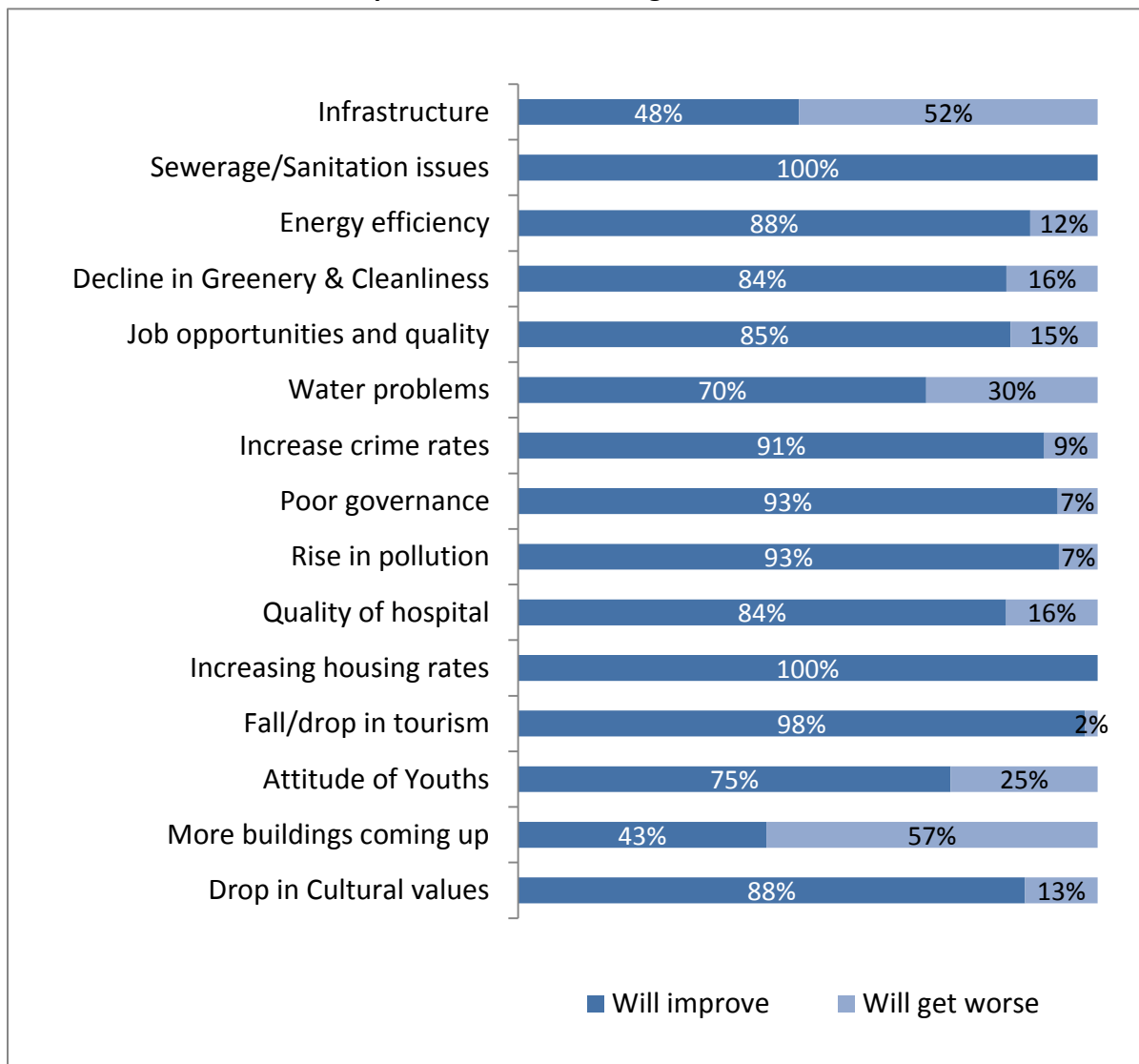
Exhibit 39: Perceived Improvement of Challenges in the Next Five Years – Zone 1



Citizens of Zone 2 are positive about improvement of four out of the top five challenges. Infrastructure, which is the biggest challenge identified by citizens of zone 2, is not perceived to improve in the next five years. In addition to Infrastructure issues, there are a few parameters on which improvement is doubted in Zone 2 by citizens residing there; these parameters are:

- Water problems
- Attitude of youths
- New construction

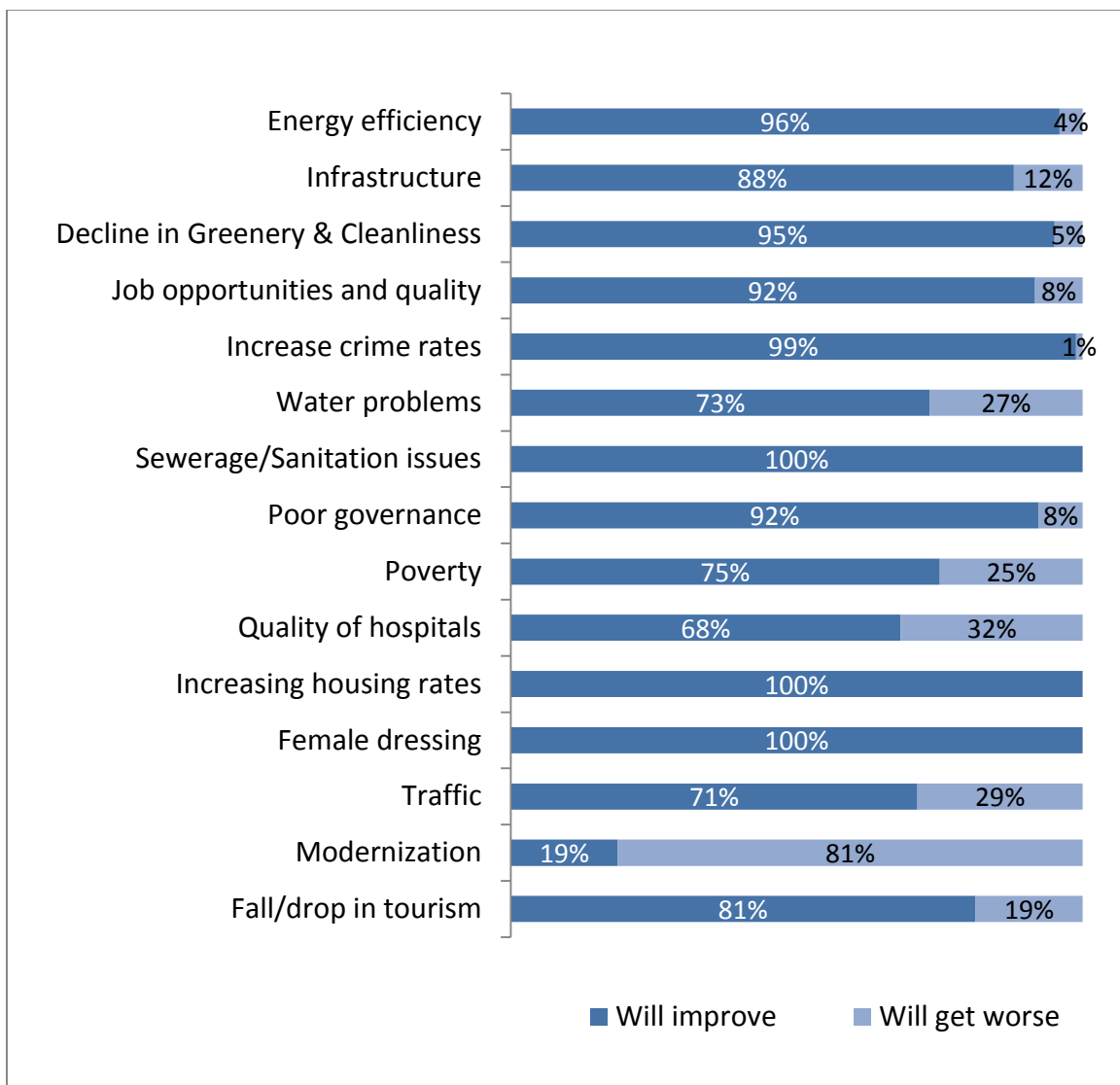
Exhibit 40: Perceived Improvement of Challenges in the Next Five Years – Zone 2



Citizens are positive about improvement of the top five challenges (identified for zone 3). However, there are some parameters, which the citizens don't think will improve in next five years; these parameters are:-

- Water problems
- Poverty
- Quality of Hospitals
- Traffic
- Modernization

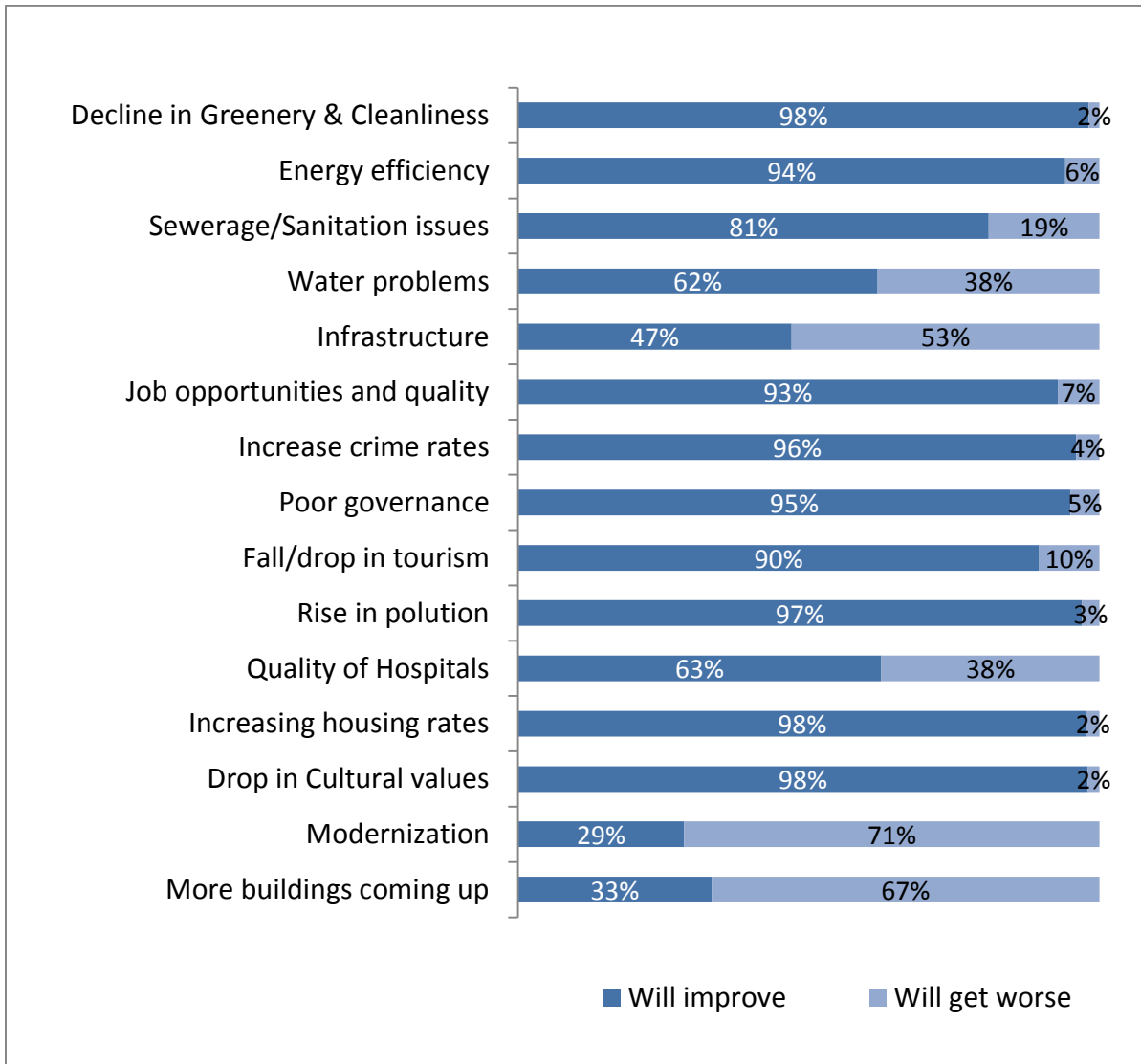
Exhibit 41: Perceived Improvement of Challenges in the Next Five Years – Zone 3



A considerable proportion of citizens of Zone 4 are not positive on improvement in Water problems and Infrastructure issues, which are among the top five challenges identified in their zone. In addition to these two issues, there are some parameters which citizens don't think will improve in next five years; these parameters are:

- Quality of hospitals
- Modernization
- New construction

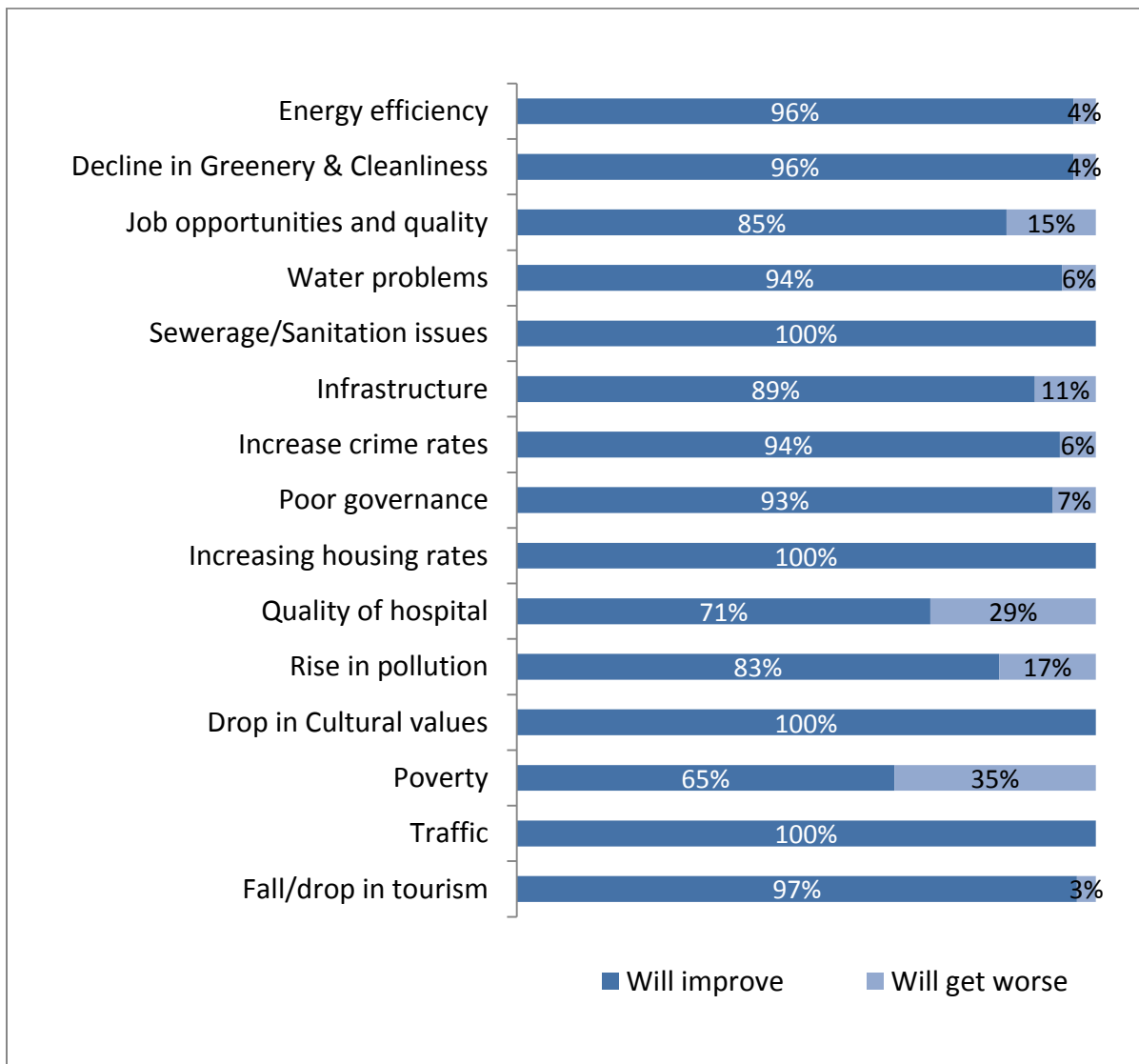
Exhibit 42: Perceived Improvement of Challenges in the Next Five Years – Zone 4



Citizens are positive about improvement of the top five challenges (identified for zone 5). However, there are some parameters, which the citizens don't think will improve in next five years; these parameters are:

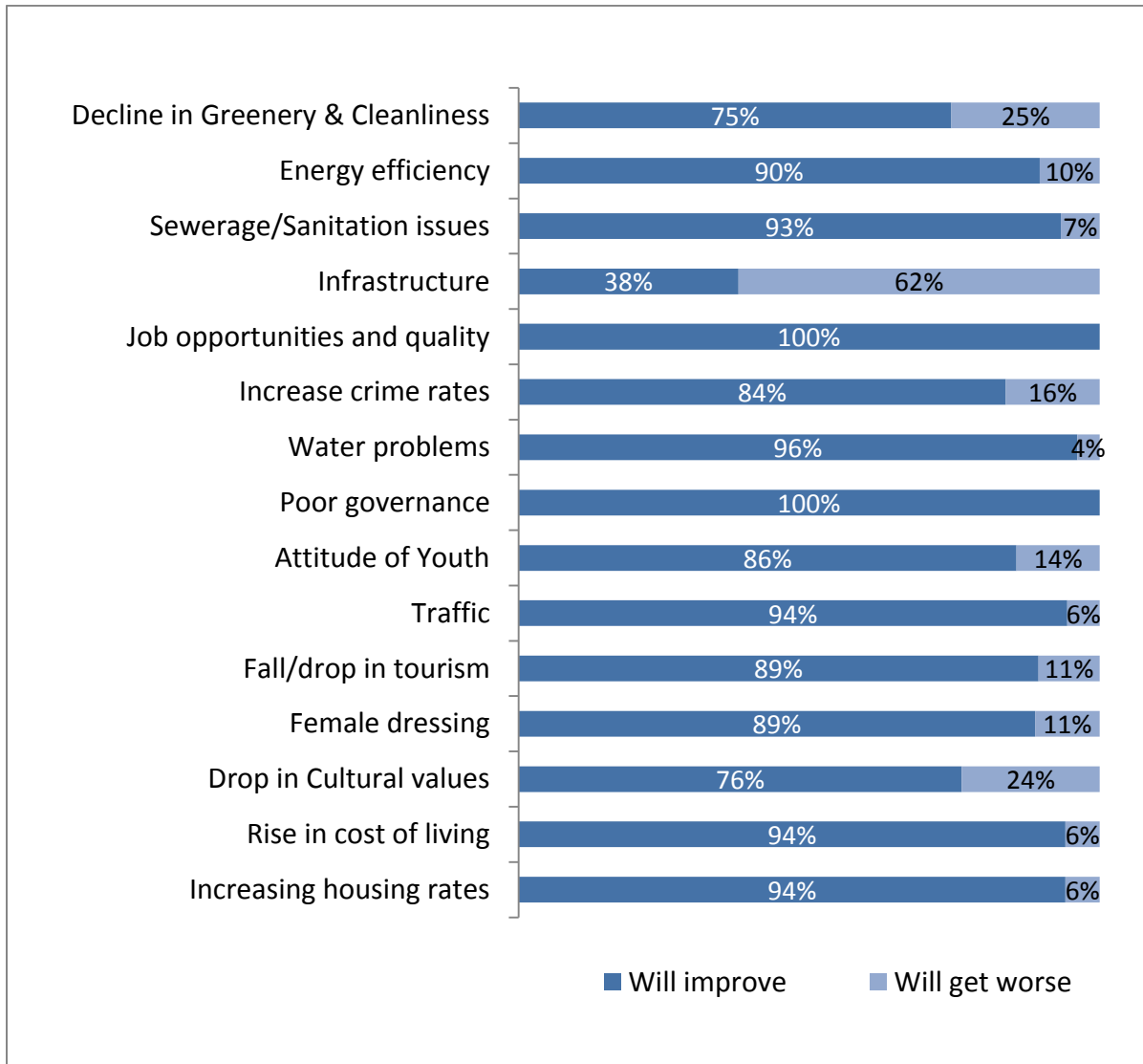
- Quality of Hospitals
- Poverty

Exhibit 43: Perceived Improvement of Challenges in the Next Five Years – Zone 5



Citizens of Zone 6 are positive about improvement on four out of the top five challenges. However, infrastructure, which is one of the key challenges identified by citizens of Zone 6, is not perceived to improve in the next five years. In addition to Infrastructure issues, citizens of Zone 6 doubt improvement in diminishing cultural values.

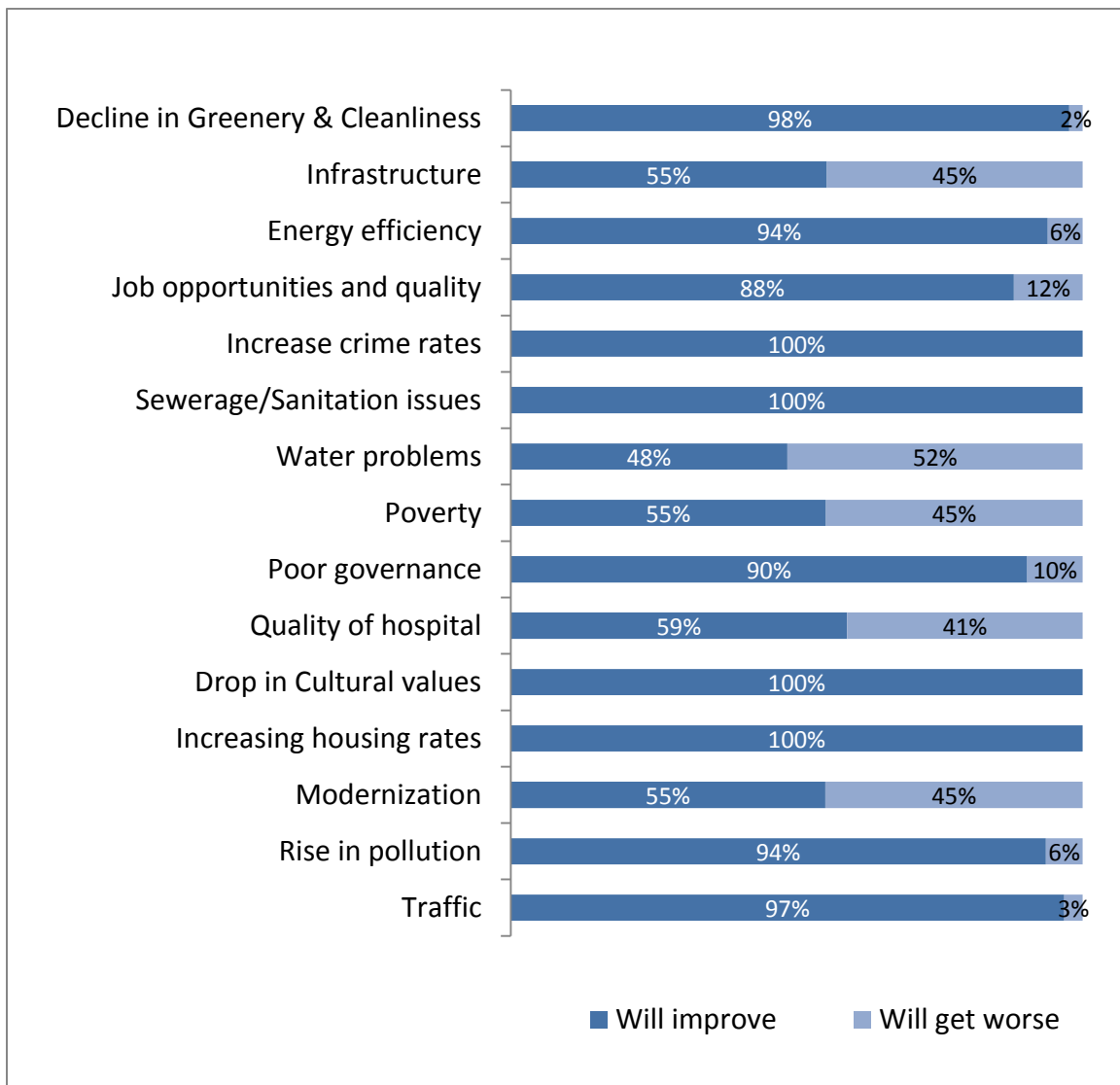
Exhibit44: Perceived Improvement of Challenges in the Next Five Years – Zone 6



Citizens of Zone 7 are positive about improvement on four out of top five challenges. Infrastructure, which is the one of the critical challenges identified by citizens of Zone 7, is not perceived to improve in the next five years. In addition to infrastructure issues, there are some parameters, which citizens don't think will improve in next five years; these parameters are:

- Water problems
- Poverty
- Quality of hospitals
- Modernization

Exhibit 45: Perceived Improvement of Challenges in the Next Five Years – Zone 7

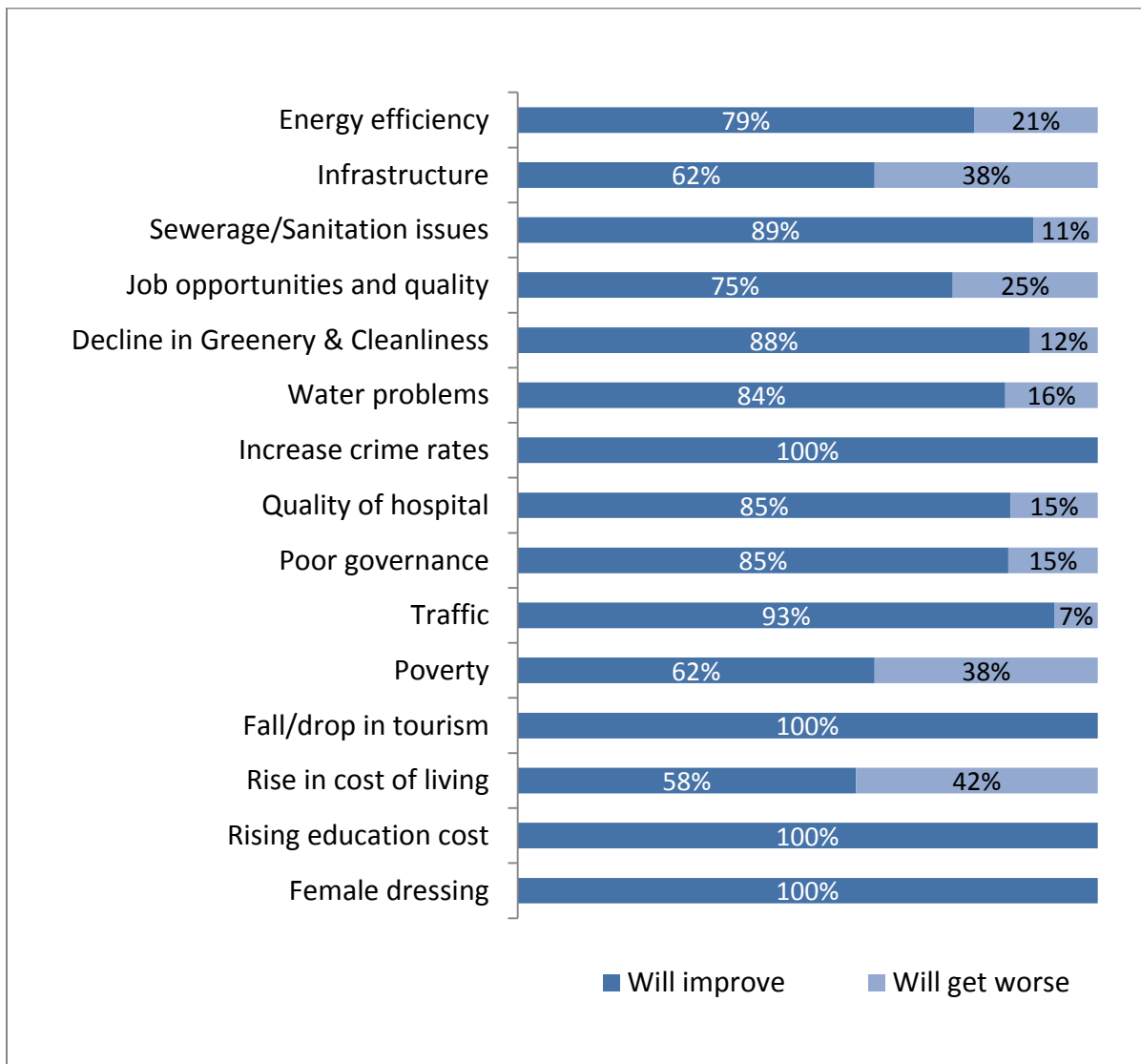


Citizens of Zone 8 provided mixed response on their perception about improvement on key challenges, that is, a considerable proportion of citizens are unsure about improvement on three of the top five challenges identified for their Zone, these parameters are Energy / electricity problems, Infrastructure issues, and job opportunities in this areas.

In addition to these, there are a few parameters on which improvement is doubted in Zone 8 by the citizens residing there; these parameters are:

- Poverty
- Cost of living

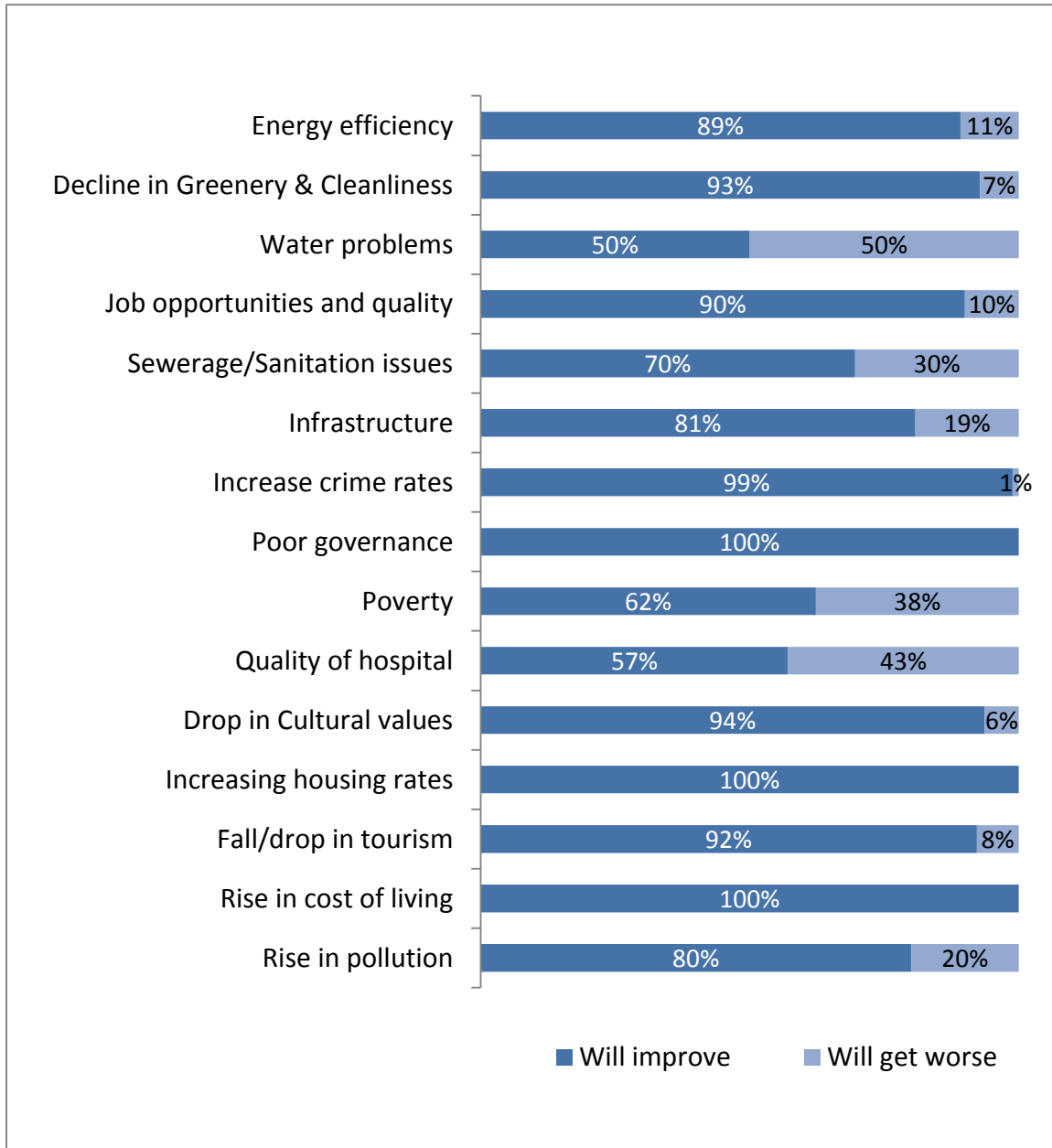
Exhibit 46: Perceived Improvement of Challenges in the Next Five Years – Zone 8



Of the top five challenges identified by the citizens of Zone 9, improvement is doubted on water problems and sewerage and sanitation issues. In addition to these issues, the citizens of Zone 9 are less positive about improvement on the following parameters for their Zone:-

- Poverty
- Quality of hospitals
- Rise in pollution

Exhibit47: Perceived Improvement of Challenges in the Next Five Years – Zone 9

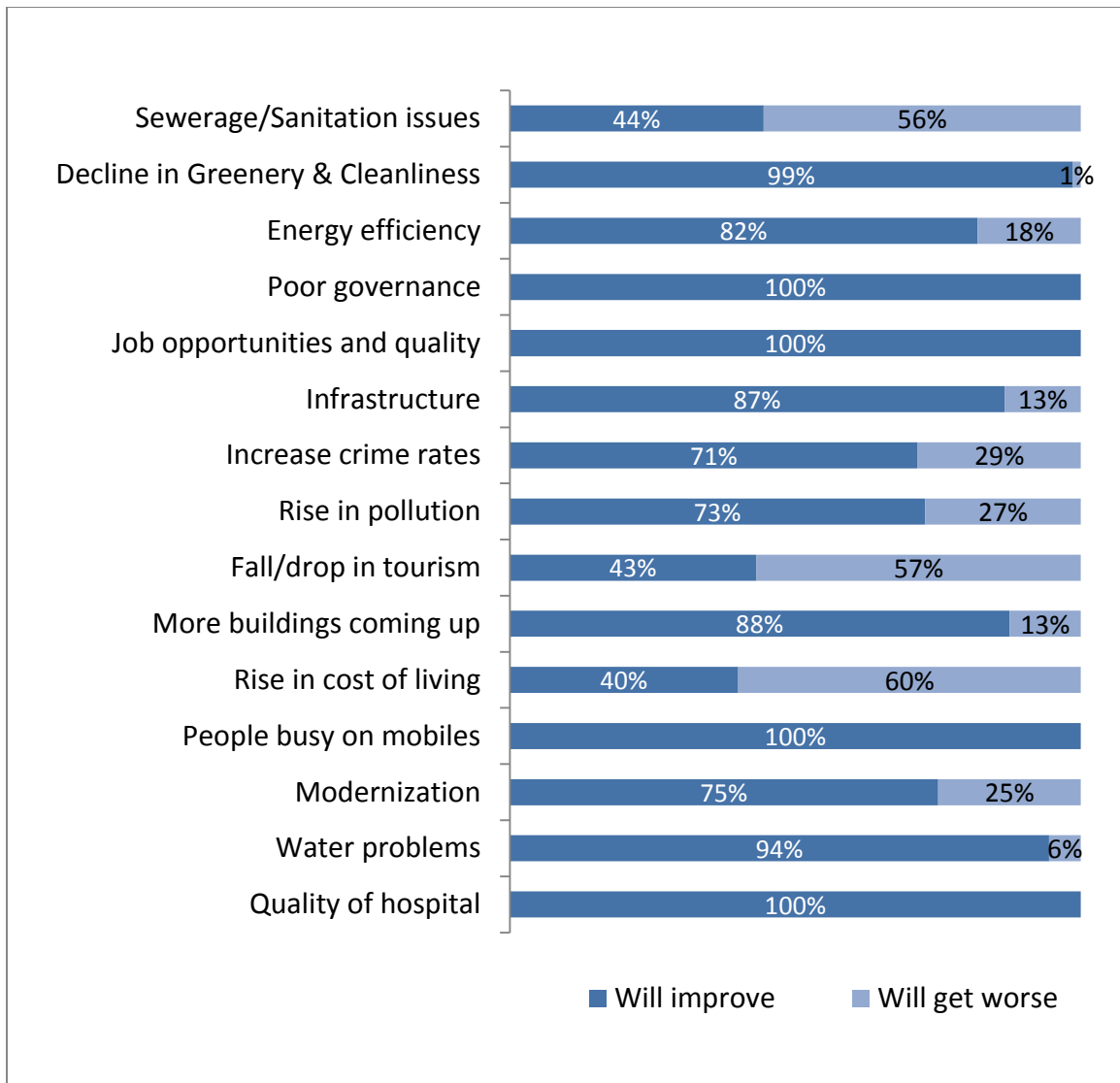


Citizens of Zone 10 are positive about improvement on four out of the top five challenges. Sewerage and Sanitation, which is the biggest challenge identified by citizens of Zone 10, is not perceived to improve in the next five years.

In addition to Sewerage and Sanitation issues, there are a few parameters on which improvement is doubted in Zone 10 by citizens residing there; these parameters are:

- Crime rate
- Pollution
- Tourism
- Cost of living
- Modernization

Exhibit 48: Perceived Improvement of Challenges in the Next Five Years – Zone 10

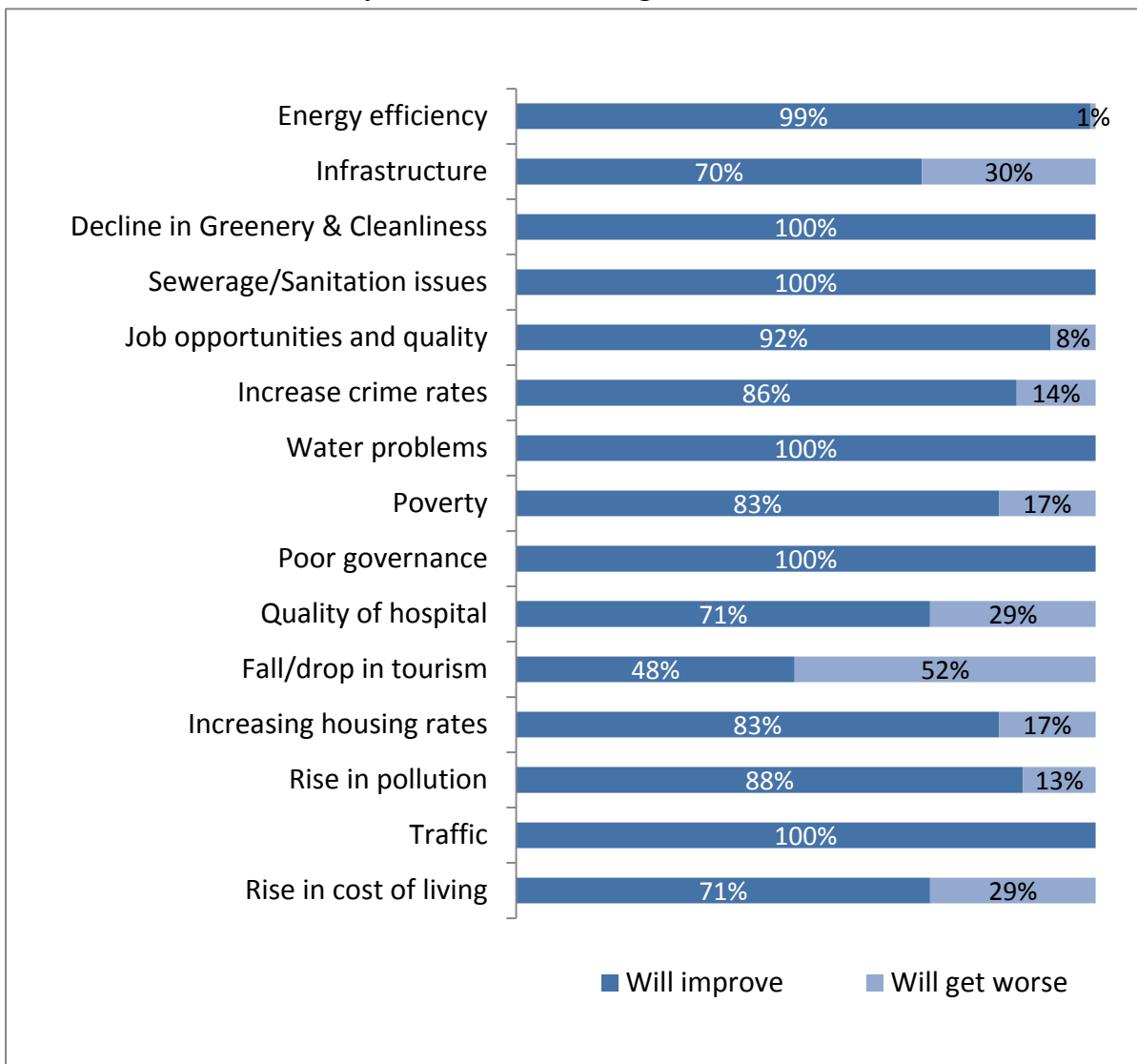


Citizens of Zone 11 are positive about improvement on four out of the top five challenges. Infrastructure, which ranks as second most critical parameter, is not perceived to improve in the next five years.

In addition to Infrastructure issues, there are some parameters, which citizens don't think will improve in next five years; these parameters are:

- Quality of Hospitals
- Tourism
- Cost of living

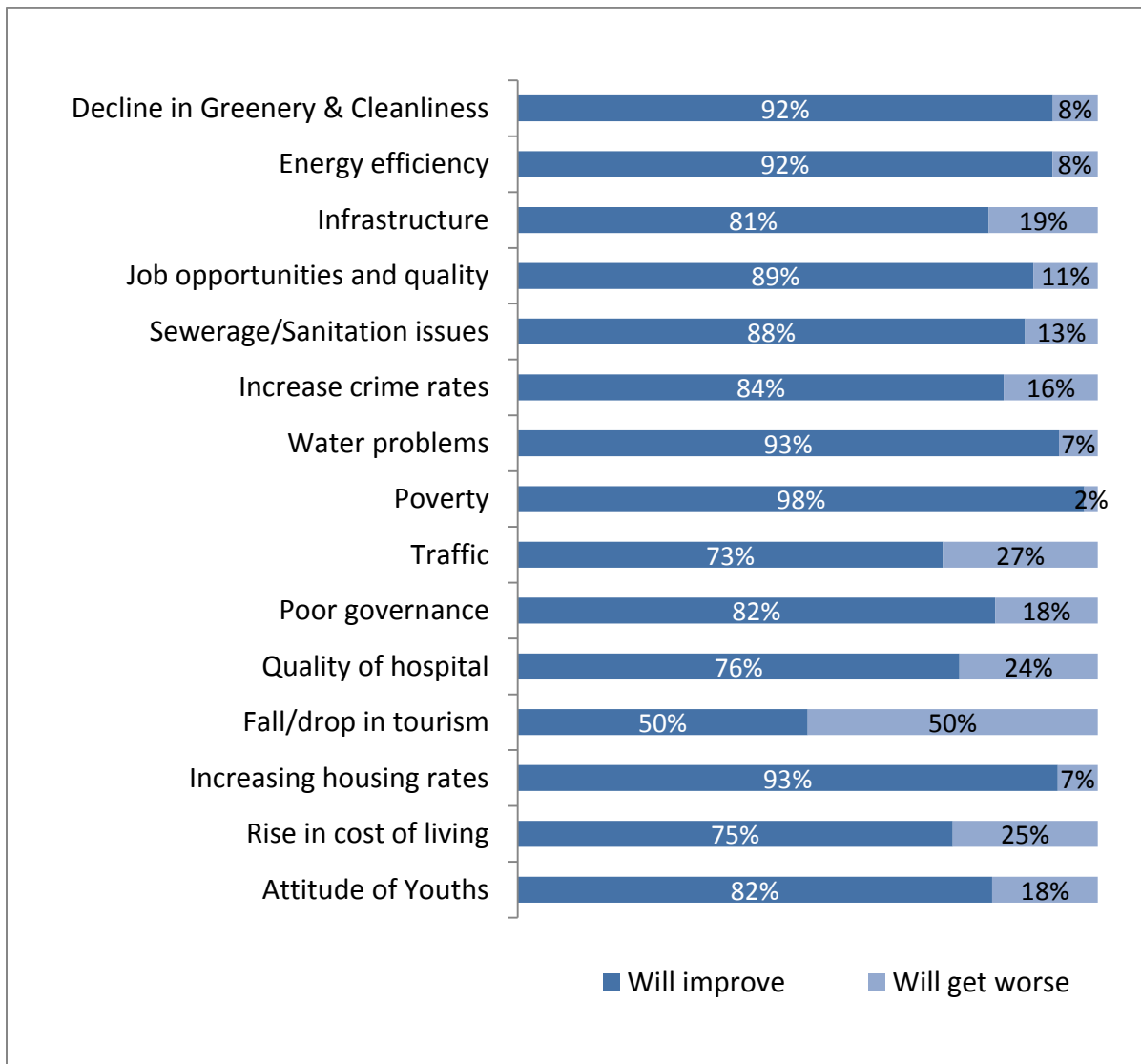
Exhibit 49: Perceived Improvement of Challenges in the Next Five Years – Zone 11



Citizens are positive about improvement on top five challenges (identified for Zone 12). However, there are some parameters, which citizens don't think will improve in the next five years; these parameters are:

- Traffic
- Quality of Hospital
- Tourism
- Rise in cost of living

Exhibit 50: Perceived Improvement of Challenges in the Next Five Years – Zone 12

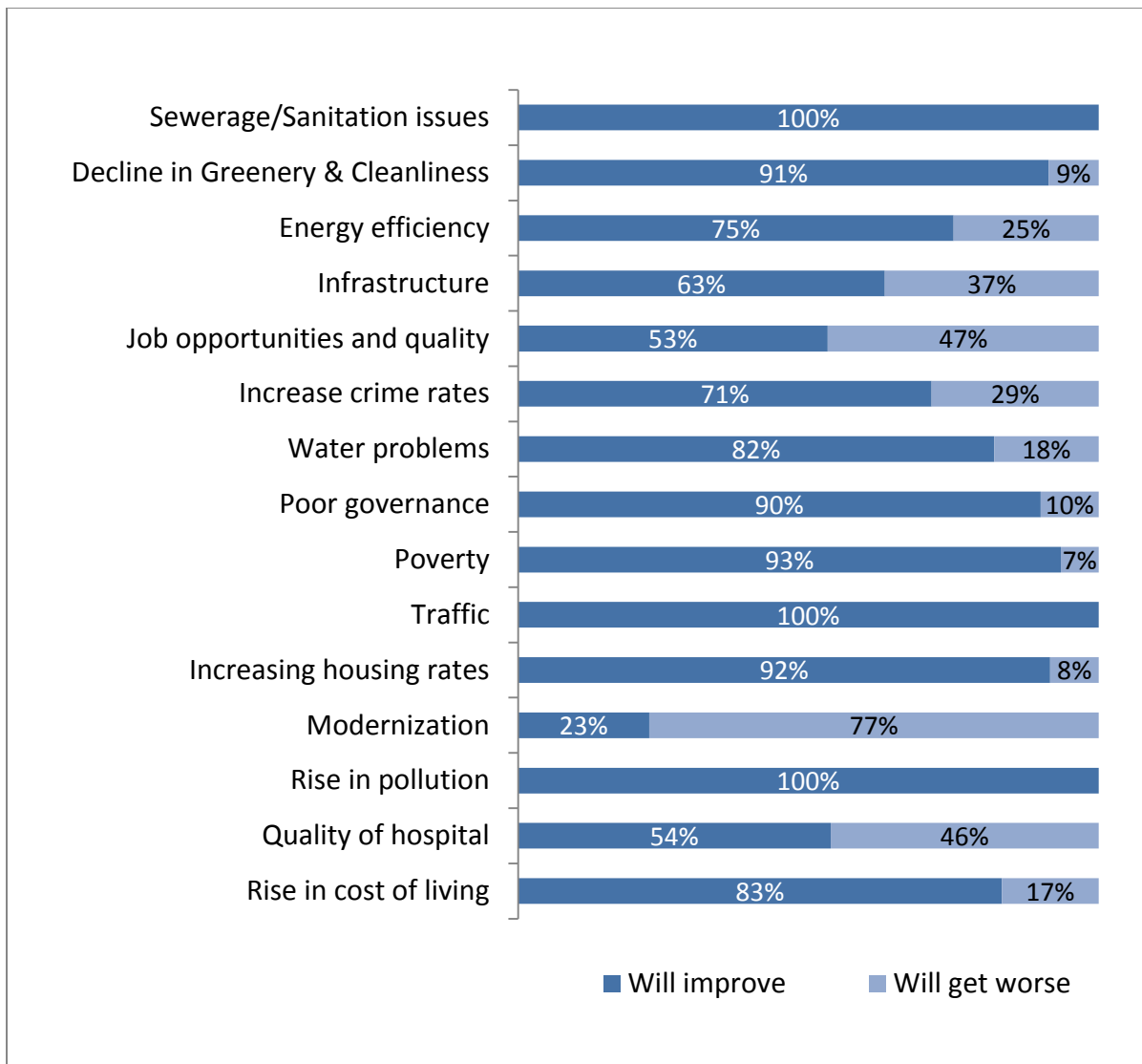


Of the five challenges identified in Zone 13, citizens doubt improvement of the following three things — Energy / electricity, Infrastructure, and job opportunities.

In addition to these, there are a few parameters on which improvement is doubted in Zone 13; these parameters are:

- Crime rate
- Modernization
- Quality of Hospital

Exhibit 51: Perceived Improvement of Challenges in the Next Five Years – Zone 13

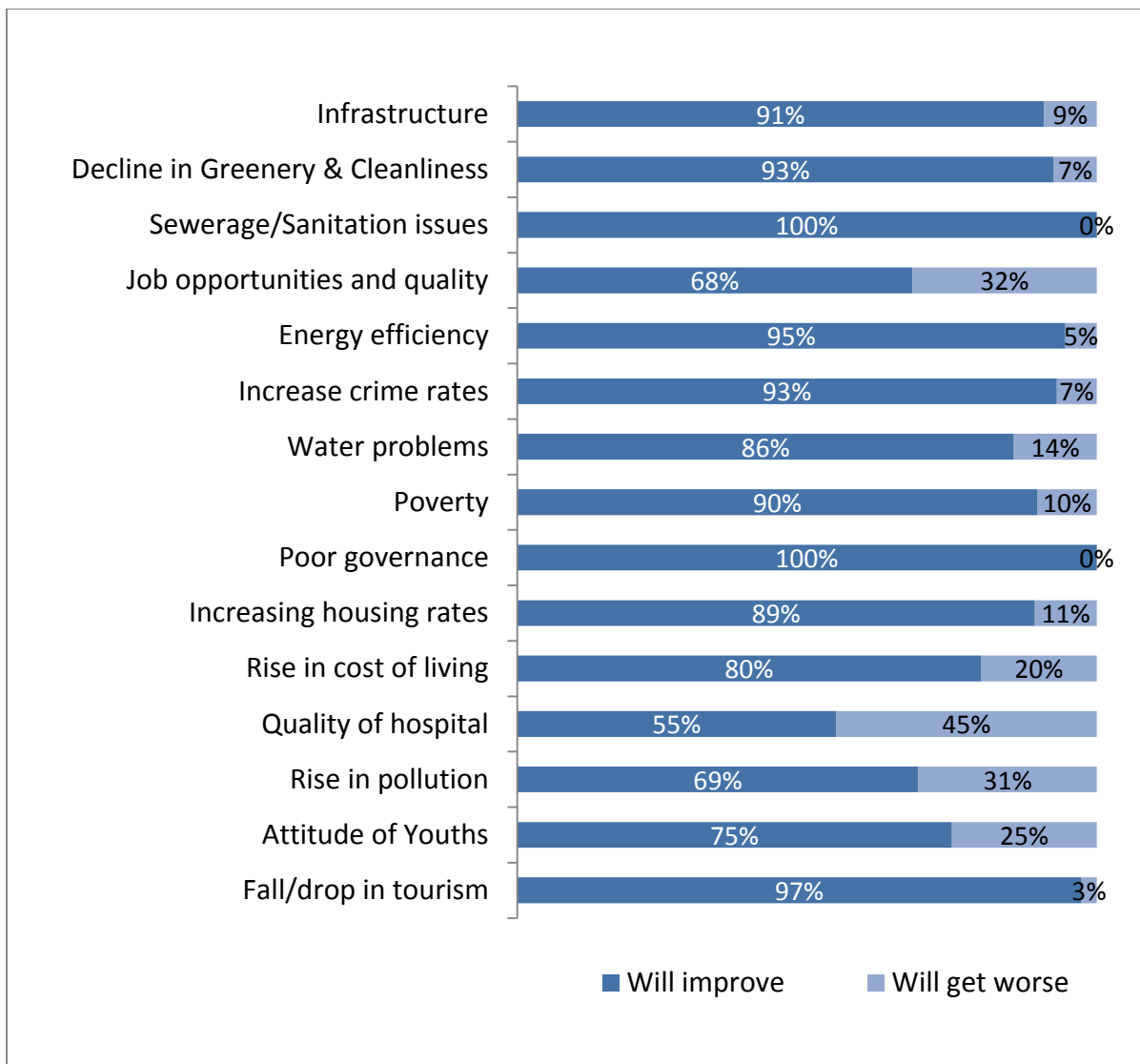


Citizens of Zone 14 are positive about improvement on four out of the top five challenges. Availability of jobs, which is one of the key challenges, is not perceived to improve in the next five years.

In addition, there are a few parameters on which improvement is doubted in Zone 14; these parameters are:

- Cost of living
- Quality of hospital
- Pollution
- Attitude of youth

Exhibit 52: Perceived Improvement of Challenges in the Next Five Years – Zone 14

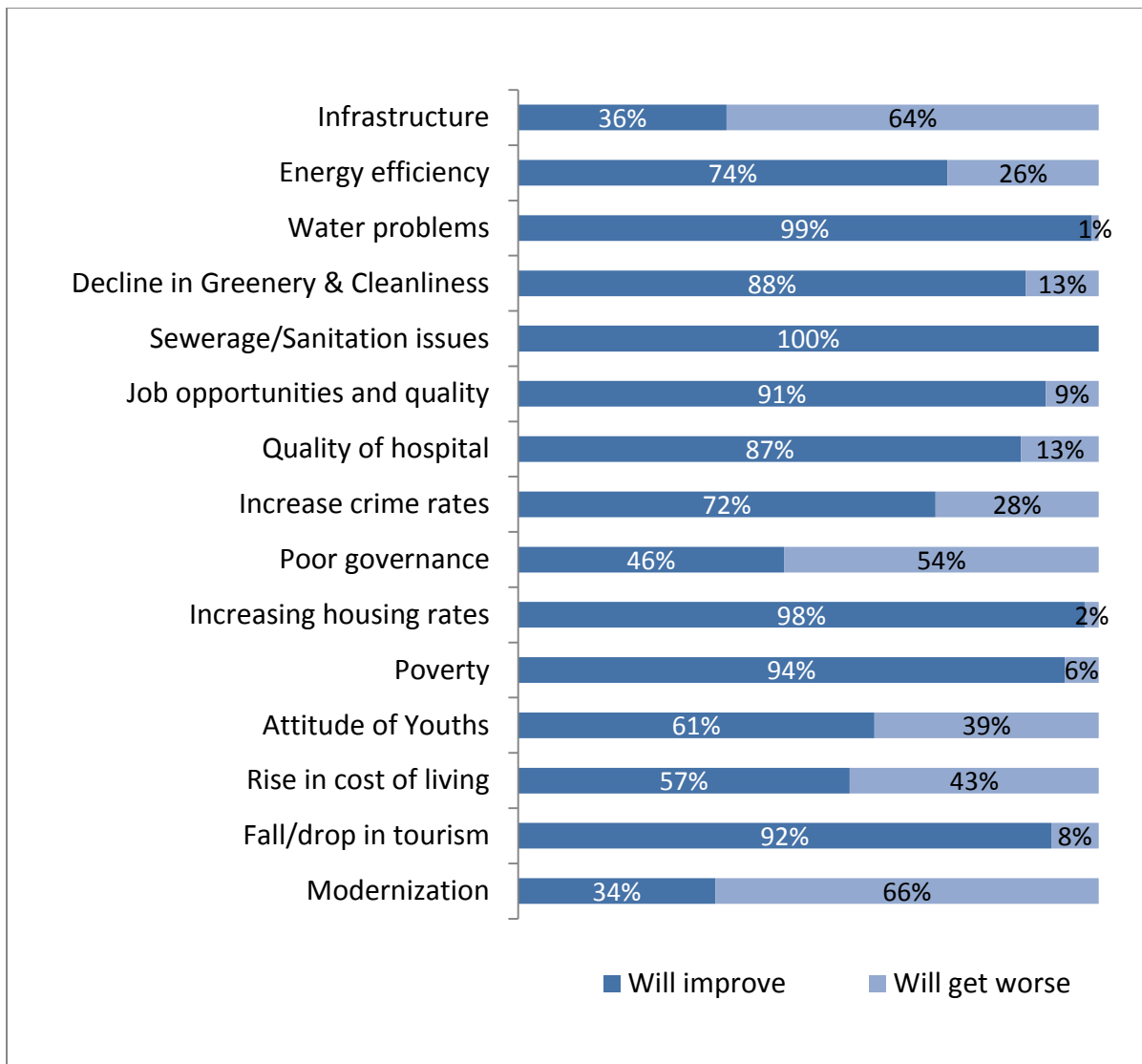


Infrastructure, which is the top most issue for Zone 15, is not perceived by citizens to improve in the next five years along with a considerable proportion doubting improvement in energy / electricity issues.

In addition to these issues, improvement is doubted on the following parameters:

- Poor governance
- Attitude of youth
- Cost of living
- Modernization

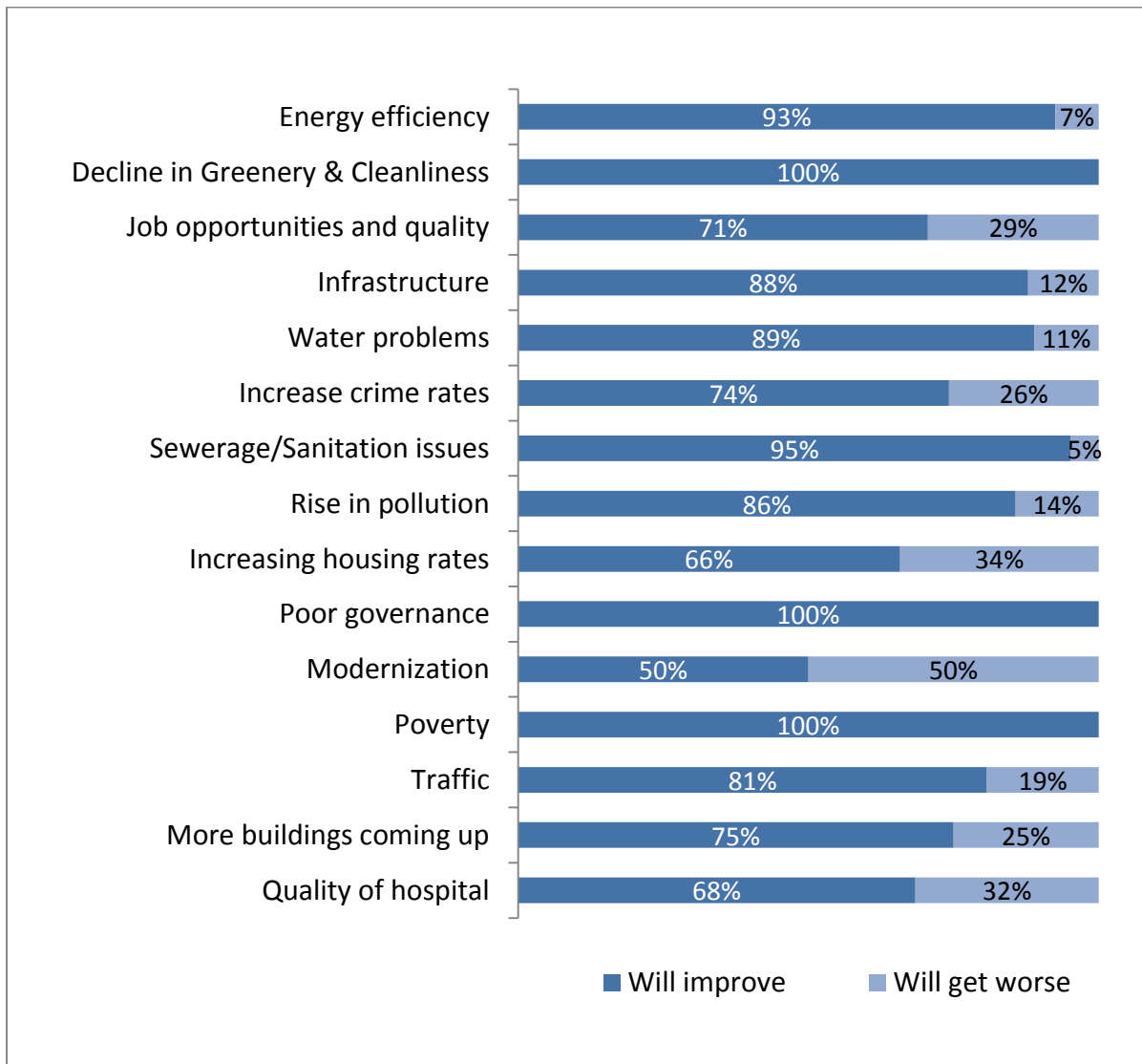
Exhibit 53: Perceived Improvement of Challenges in the Next Five Years – Zone 15



Among the top five challenges, citizens doubt improvement in availability of job opportunities in Zone 16. In addition to these, there are some parameters which the citizens don't think will improve in the next five years; these parameters are:

- Housing rates
- Modernization
- New construction
- Quality of Hospitals

Exhibit 54: Perceived Improvement of Challenges in the Next Five Years – Zone 16

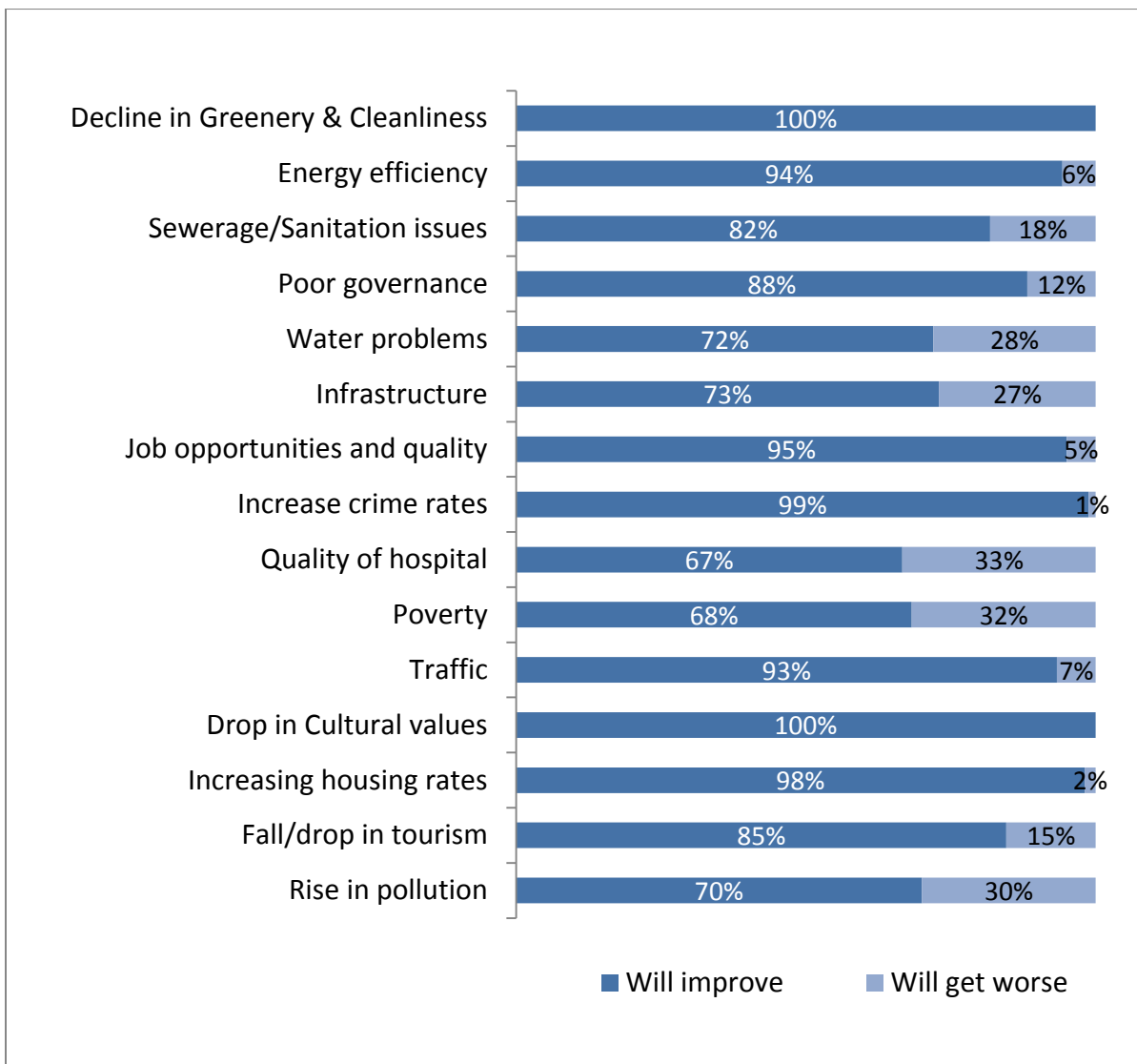


Citizens are positive about improvement on four out of the top five key challenges. Water problems, which is one of the key challenges, is perceived less to improve over the next five years.

In addition to water problem, there are some parameters on which improvement is less believed by citizens of Zone 17, they are:

- Infrastructure
- Quality of Hospitals
- Poverty
- Pollution

Exhibit 55: Perceived Improvement of Challenges in the Next Five Years – Zone 17

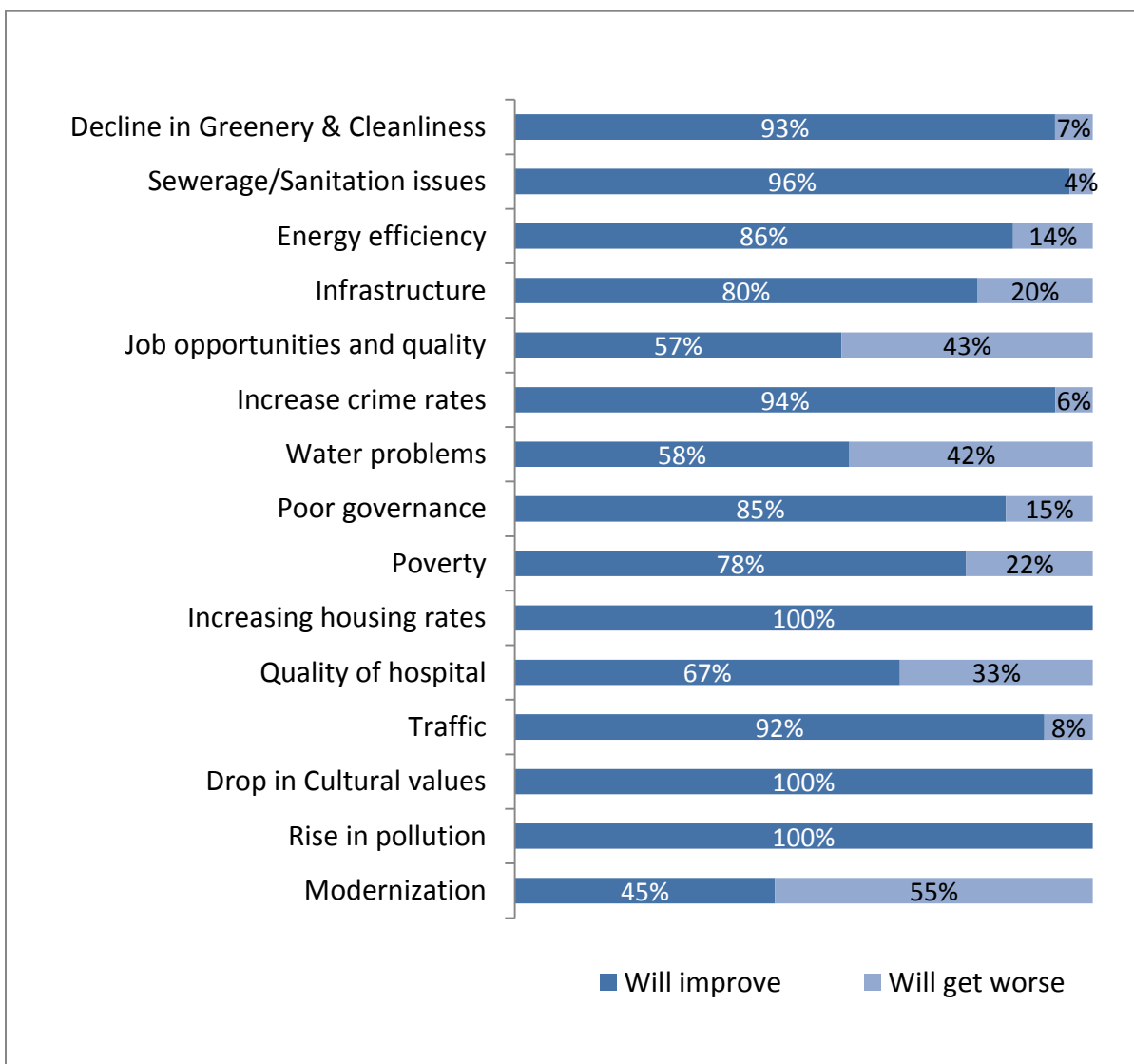


Citizens are positive about improvement on three out of the top five key challenges; infrastructure and job opportunities issues, which are among the top five challenges, are less perceived to change over the next five years.

In addition to these two issues, there are some parameters, which citizens don't think will improve in next five years; these parameters are:

- Water problems
- Quality of hospitals
- Modernization

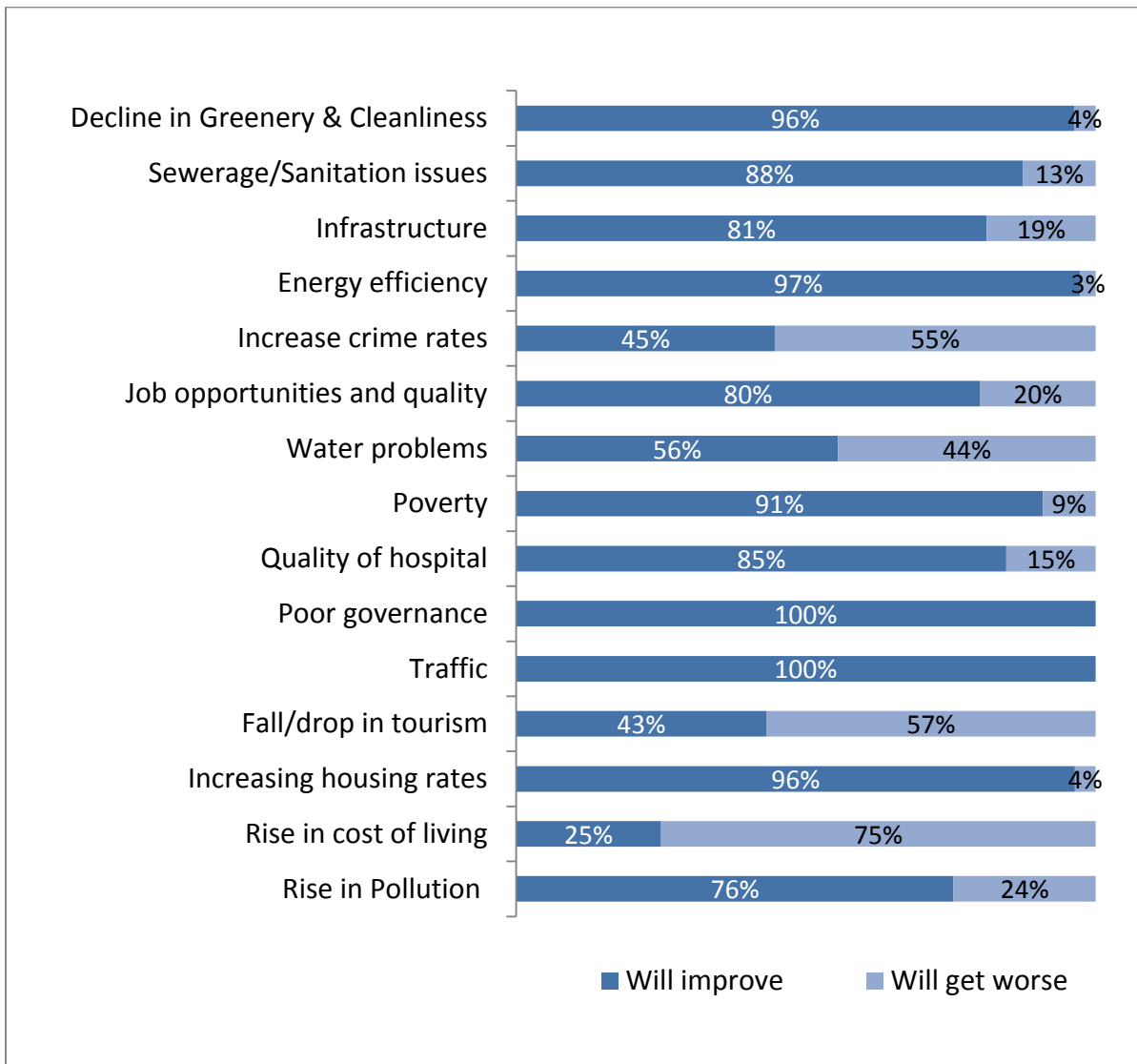
Exhibit 56: Perceived Improvement of Challenges in the Next Five Years – Zone 18



Citizens of Zone 19 are confident about the improvement in four out of the top five challenges. The parameter, which they are less confident of improving, is the rising crime rate. In addition to this, there are some parameters, which citizens don't think will improve in next five years; these parameters are:

- Water problems
- Tourism
- Cost of living
- Rise in pollution

Exhibit 57: Perceived Improvement of Challenges in the Next Five Years – Zone 19



4.6 Prioritization of Features in Making Bhopal a Smart City

The Ministry of Urban Development Government of India has defined 24 features, which can be used in the making of a smart city.

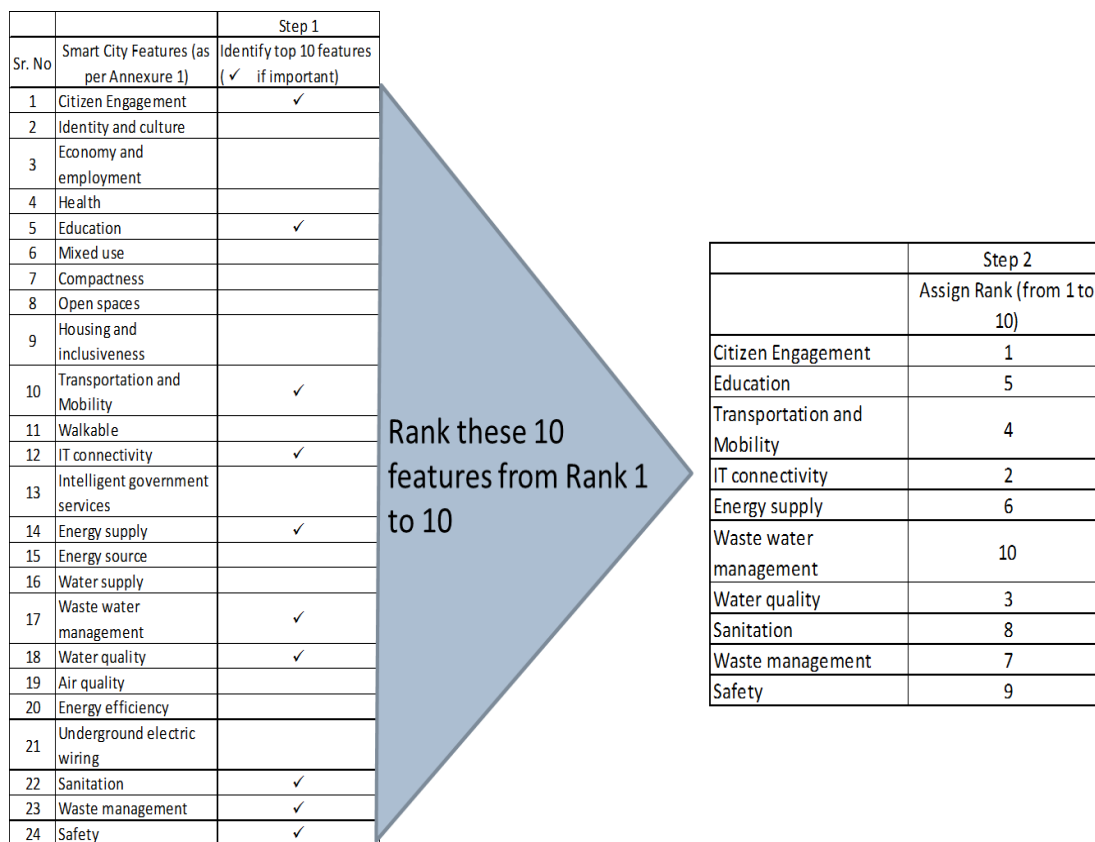
During citizen consultation, these 24 features were shown to each citizen and he/she was first asked to identify 10 parameters (out of these 24 features) that should be implemented in making Bhopal a smart city.

Of these 10 identified features, each citizen was further asked to rank these features on the basis of their importance to Bhopal in being a smart city. The feature, which is the most important for Bhopal in becoming a smart city was asked to assign Rank 1, the next important feature was asked to assign Rank 2, and so on till Rank 10. A mean ranking technique is used to understand prioritization among these 24 features.

The features identified by citizens of Bhopal are city requirement and have to be applied at city or Pan city level.

Please refer to the annexure for detailed explanation of these features.

Exhibit 58: Process of Prioritization of Features in Making Bhopal a Smart City



From citizen consultation, intelligent government service has emerged as the key feature in making Bhopal a smart city and is closely followed by IT connectivity.

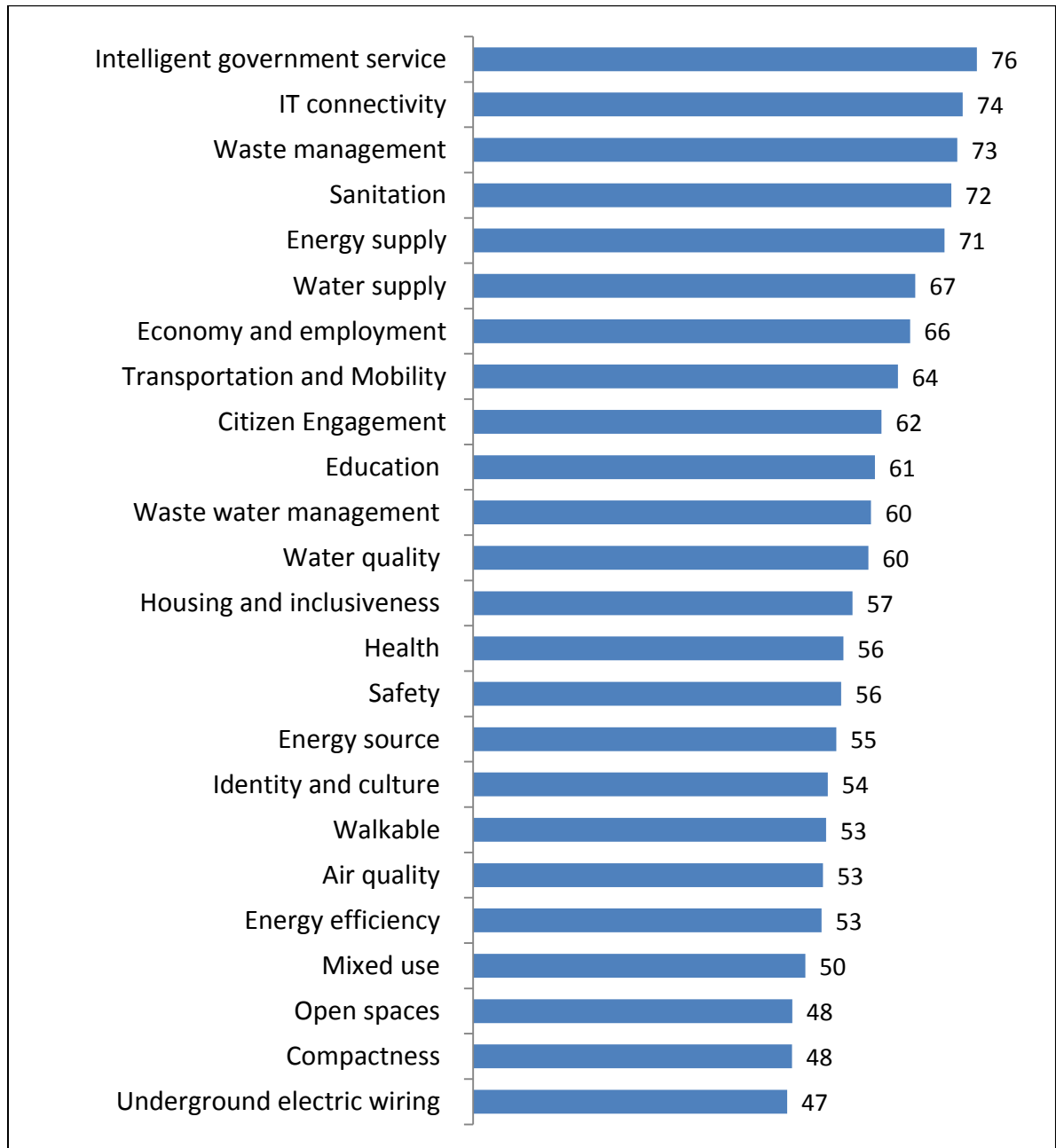
Through intelligent government services, the citizens of Bhopal want easy interaction between citizens and the government via online and telephonic services, and from IT connectivity, the citizens expect robust Internet network allowing high speed connections to all offices and houses.

Waste management, Sanitation, and 24-hour Electricity are other important features that citizens have identified to make Bhopal a smart city.

Under Waste management, the citizens want household and commercial garbage to be removed and disposed environmentally and economically. The citizens have understood importance of sanitation in the development of the city's health and, hence, want toilet facilities for all.

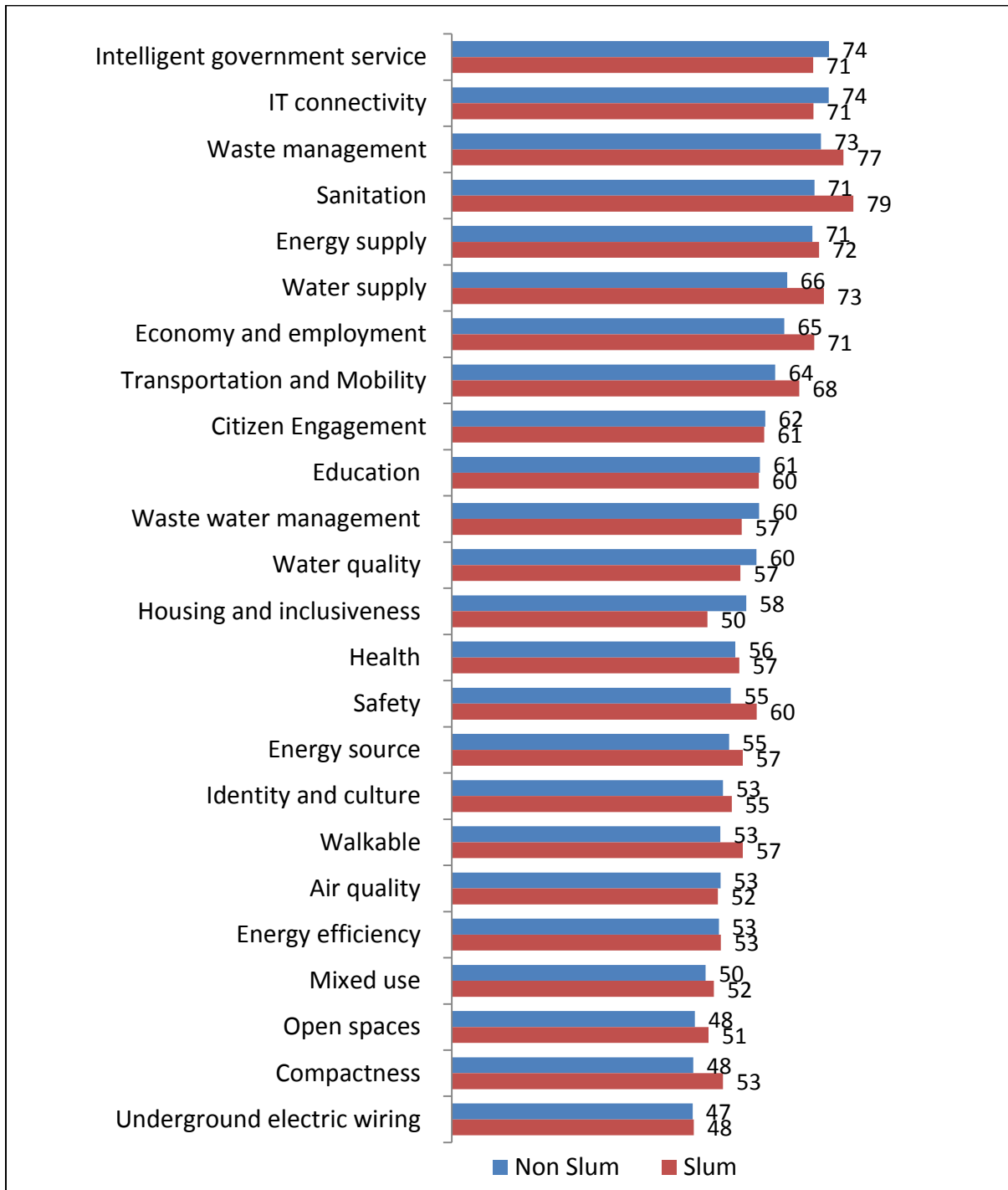
In addition to above features, citizens want 24*7 clean water supply, more job opportunities, good transport facilities, involvement of citizens in making plans for city, and education facilities.

Exhibit 59: Pan City Solutions — Features Important in the Making of Bhopal a Smart City (Mean rank)



Citizens from slum have rated sanitation as the most important feature followed by waste management and water supply, whereas citizens from Non-Slum have rated intelligent government services and IT connectivity as most important.

Exhibit 60: Pan City Solutions — Features important in making Bhopal a Smart City —Slum / Non-Slum-wise (Mean Rank)

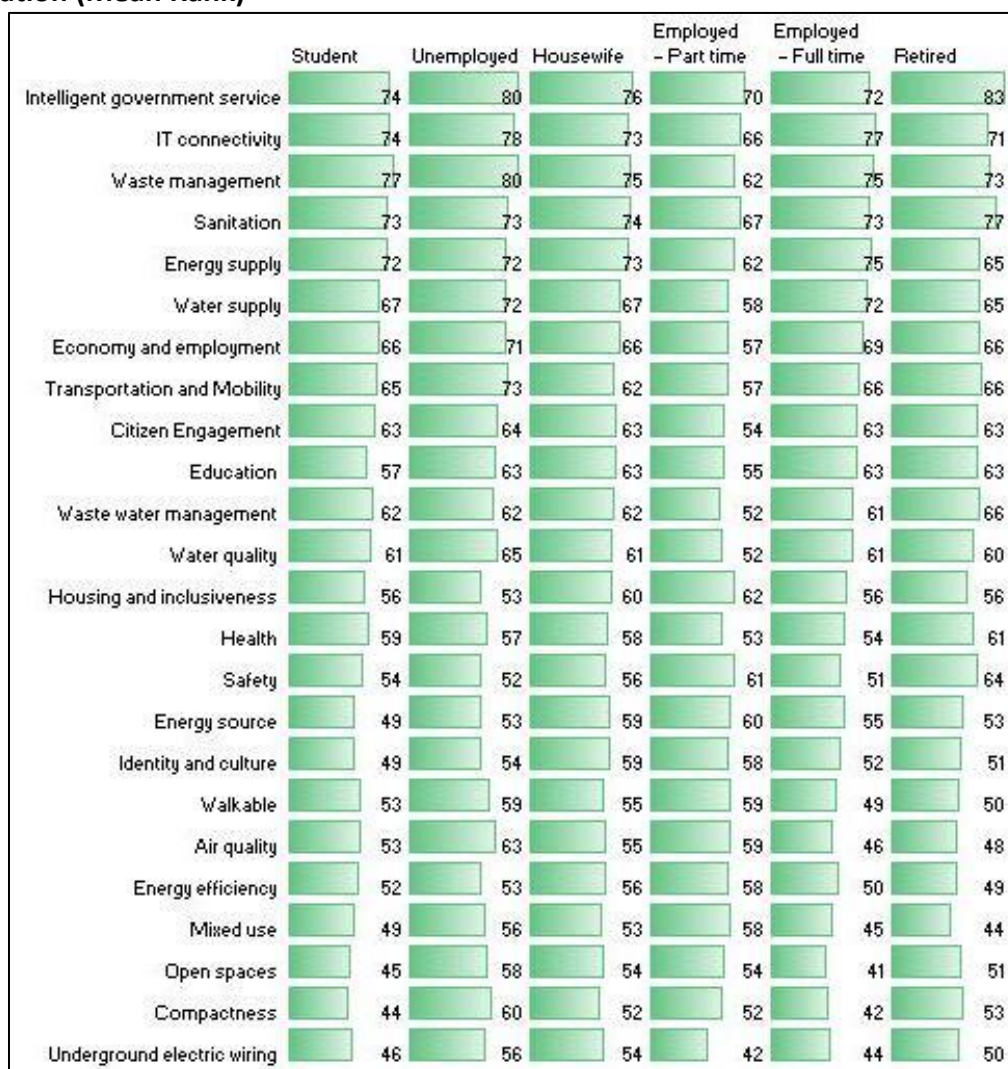


Intelligent government services are most desired by retired citizens followed by those who are unemployed, and IT connectivity, which is the second most important feature, is most required by unemployed citizens.

Students and unemployed citizens understand the need of cleanliness and wants waste management to be a pan city solution. In addition to waste management, unemployed citizens also want intelligent government services.

Housewives want intelligent government services followed by waste management. Part-time employees want sanitation after intelligent government services, whereas full-time employees want IT connectivity and waste management. Retired citizens want Sanitation after intelligent government services.

Exhibit 61: Pan City Solutions — Features Important in making Bhopal a Smart City — by Occupation (Mean Rank)

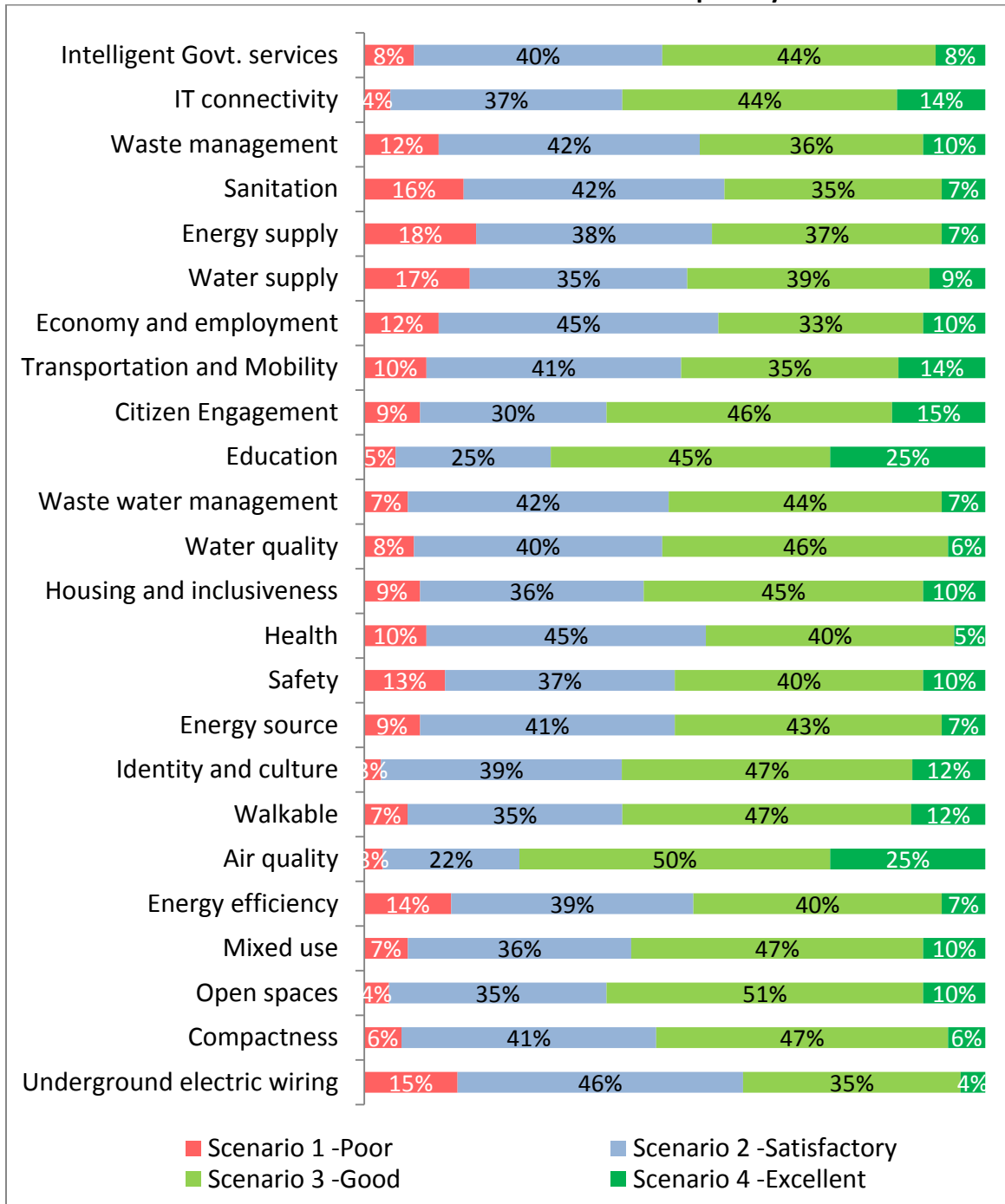


4.7 Current Evaluation of Bhopal on These Important Parameters

It is also worthwhile to understand the satisfaction levels of citizens on these 24 features in the current context of Bhopal. The citizens were asked to rate each feature on a four-point scale from Poor to Excellent.

The parameters in exhibit below are arranged in order of importance identified by the citizens.

Exhibit 62: Current Evaluation of Bhopal City



At an overall level, evaluation of Bhopal on these 24 features is between Satisfactory to Good, and evaluation on some features like Education and Air Quality is very good. However, evaluation on some features need to be worked upon like Energy supply, Water Supply, Sanitation, and condition of electricity wiring in the city.

Intelligent government service, which is the most important feature in the current context, is rated as Good / Excellent by 52% of the citizens and IT connectivity is rated as good / excellent by 58% of the citizens.

Waste management, Sanitation, and Energy supply, which are the other important features from pan-city perspective, needs attention, as they are rated poor by 12%, 16%, and 18% citizens, respectively.

A considerable proportion of citizens have rated all energy related features as poor, i.e., Energy Supply (24*7 electricity) rated poor by 18%, Energy Source (at least 10% of electricity generated by renewables) by 9%, and Energy efficiency (energy efficiency practices in buildings, street lights, etc.) is rated poor by 14%.

Another feature, which is rated positive after Education and Air quality, is Citizen Engagement; 61% of the citizens rated it as Good / Excellent.

4.8 Type of Development Model Required

Through citizen engagement, the type of development model, which they think would be appropriate for Bhopal to implement for becoming a smart city, required was understood.

Citizens were explained the four key types of development model using the exhibit given below and their responses were recorded.

Exhibit 63: Explanation on Development Models

Type of development models

Retrofit

In this model of development, changes are done to the existing infrastructure of an area; these changes could be related to infrastructure and technology / smart features / solutions.

With these changes, the existing area becomes a better place to live than what it was before.

Redevelopment

In this model of development, existing infrastructure is brought down and replaced with new planned and enhanced infrastructure.

The new area prepared will be more planned, will have more smart features and, hence, will be better place to live than before.

Greenfield

In this model of development, a vacant area is selected for the development purpose.

With the help of innovative planning and technological and smart solutions, this vacant area is converted into smart place to live in.

Mixed approach

This is a mix of Retrofit, Redevelopment, and Greenfield approach.

Redevelopment is the most preferred model (preferred by 61%) distantly followed by Retrofit (preferred by 20%).

Redevelopment is the preferred model across Slum / Non-slum and across all occupations.

Exhibit 64: Type of Development Model

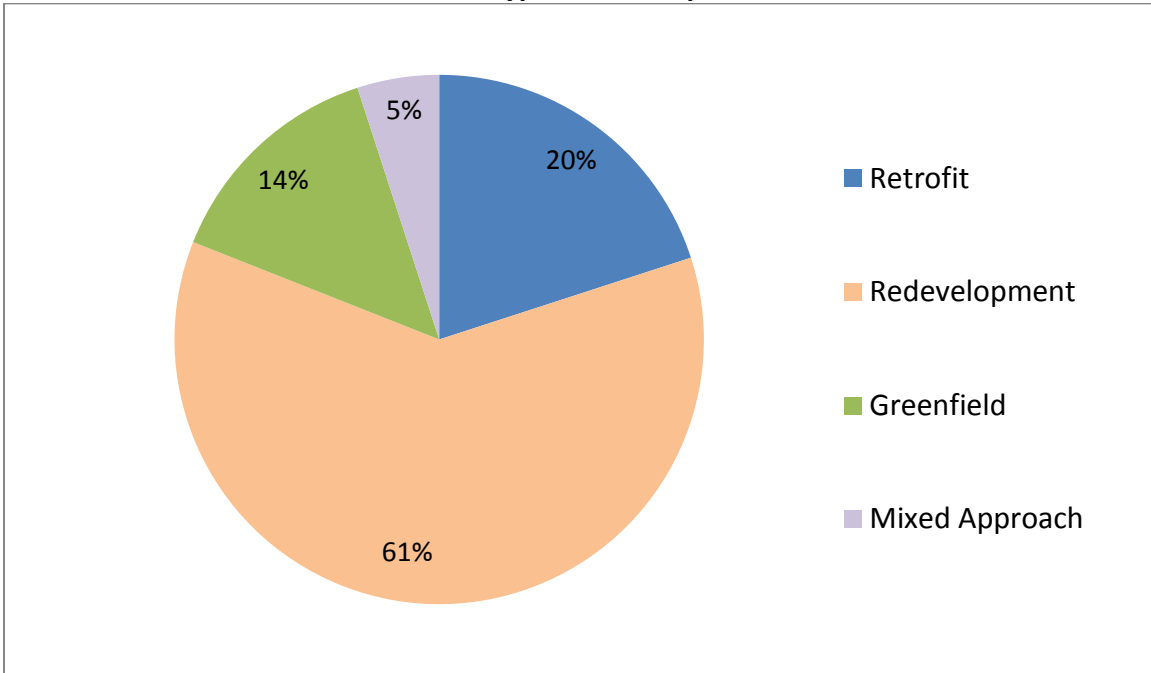


Exhibit 65: Type of Development Model — By Slum / Non-Slum

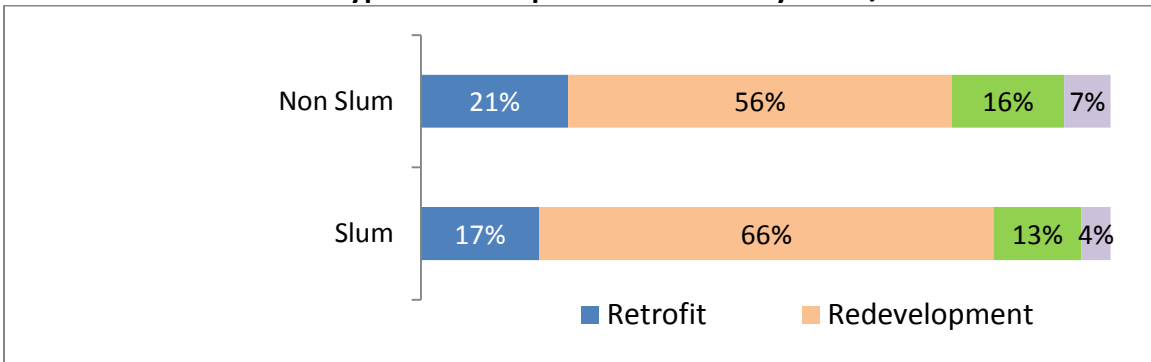
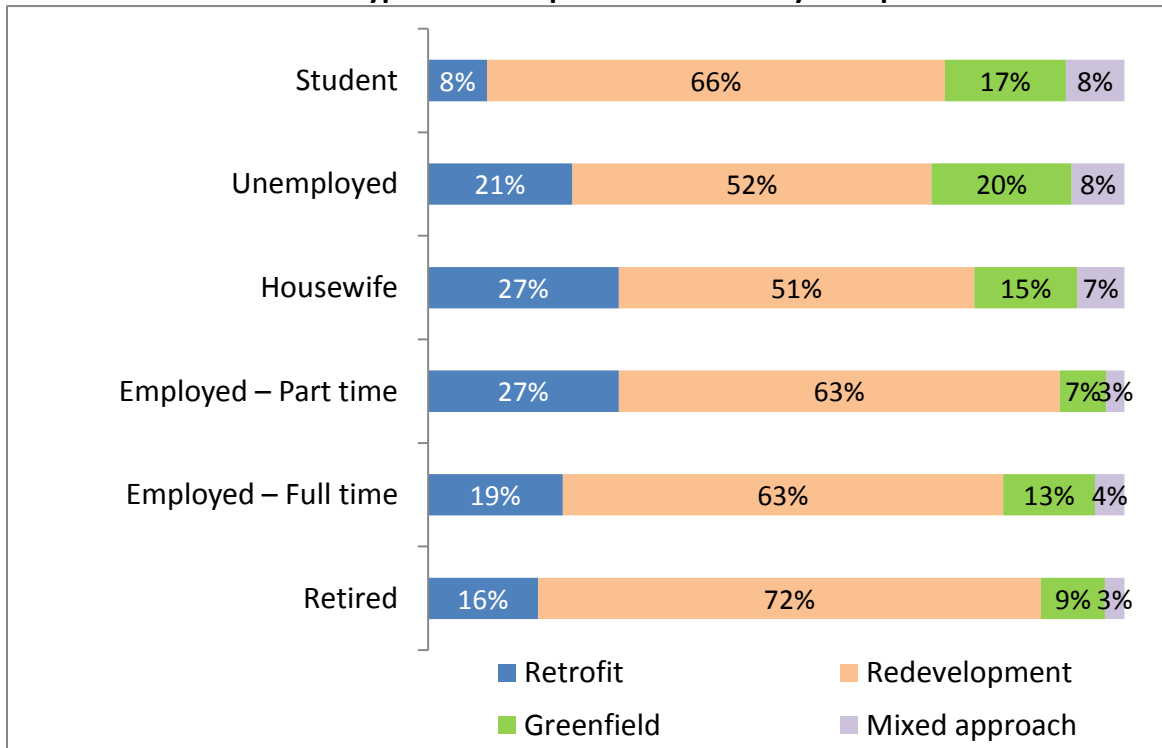


Exhibit 66: Type of Development Model — By Occupations



4.9 Areas Identified for Each of the Development Model

After understanding the city profile with BMC experts, areas were identified for each development model, that is, 10 areas were identified for Redevelopment, four areas were identified for Retrofit, and eight areas were identified for Greenfield.

During citizen consultation, each citizen was asked for his/her preference in development model and was followed by showing the areas for that preferred development model.

Exhibit 67: Areas Identified for Redevelopment Model

Area names for Redevelopment
1100 quarters
Shivaji Nagar 1250 hospitals
South TT Nagar (Jawahar Chowk to TT Nagar Stadium)
Chowk Bazar Old City
Hamidia road — Nadra bus stand and surrounding areas
Shaheed Nagar (BSNL office, old RTO, Karbala government bungalows)
BHEL
Old district court and surrounding areas (lower Idgah Hills)
74 Bungalows
45 Bungalows and GTB complex

Exhibit 68: Areas Identified for Retrofit

Area names for Retrofit
New market and surrounding areas
MP Nagar and surrounding areas
Old City-1 (Fatehgarh, Ibrahimपुरा, Bohipura, Ginnori, Kali Mandir, Chowk Bazar, Itwara, Mangalwara, Budhwara, Jumerati, Ghoda Nakkas, Laxmi Talkies, Imami Gate, Noor Mahal, and Peer Gate)
Old City-2 (Teela Jamalपुरा, Shahjahanabad, Qazi Camp, Sindhi Colony, Kabad Khana, Chhola, Nadra Bus Stand, Hamidya Road, Bharat Talkies, Railway Station, Chandbad, 80 Feet Road, Ashoka Garden, Punjabi Bagh, and Pul Bogda)

Exhibit 69: Areas Identified for Greenfield

Area names for Greenfield
Bhori-Fanda (Sehore Road)
Lambakheda (Berasia Road)
Katara Hills
Samardha (Misrod, Mandideep Road)
Mendori-Kheda-Ratibad
Rasuliya Jagir Kolar Road
Sukhi Sewaniya
Mubarakpur-Khurana (Jaipur Road)

4.10 Redevelopment Model

As seen in section 3.10, Redevelopment is the most preferred model and under Redevelopment, Shivaji Nagar is the most preferred area (preferred by 48%).

Shivaji Nagar is preferred most by both Slum and Non-Slum citizens but citizens from Slum prefer it more than those from Non-Slum. Likewise, Shivaji Nagar is preferred most by citizens of almost all occupations except for the retired ones, who prefer South TT Nagar the most (seen from Exhibit 72).

Exhibit 70: Redevelopment Model

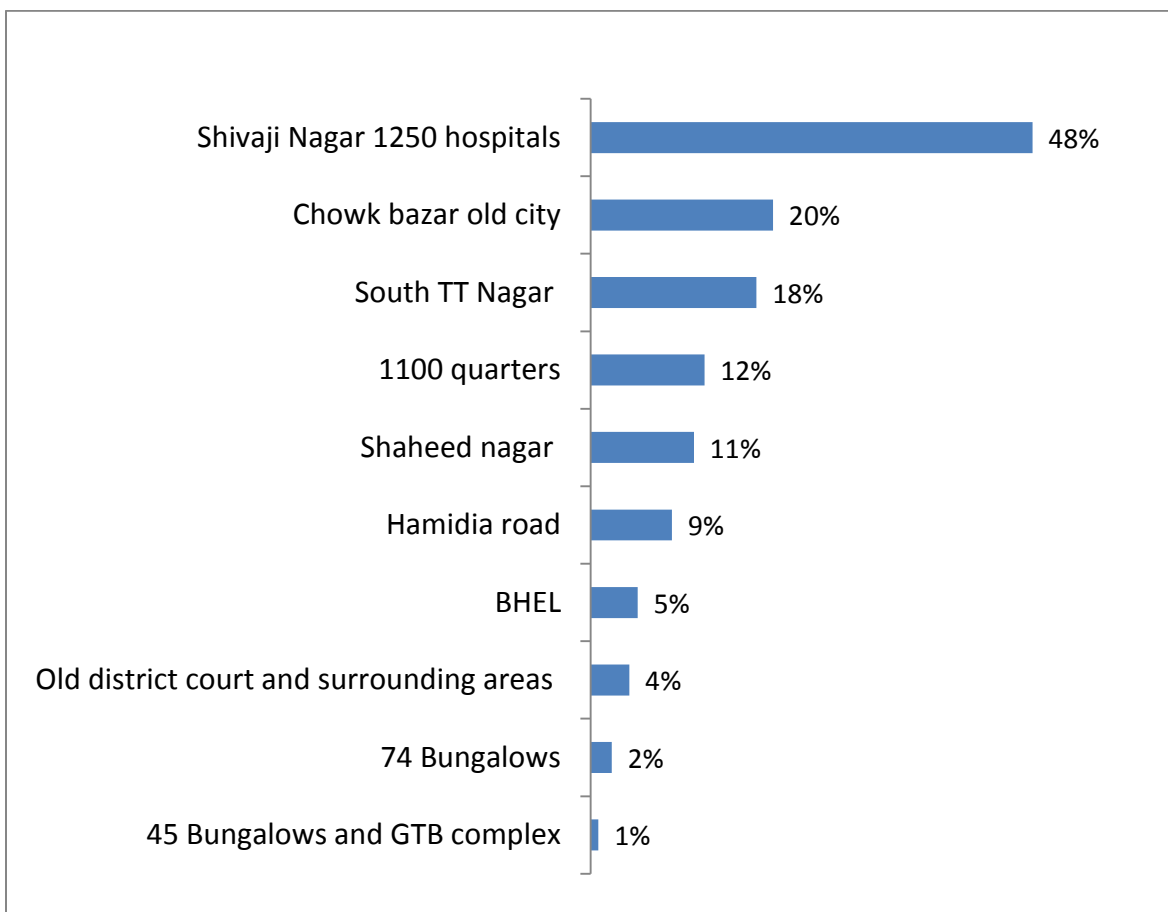


Exhibit 71: Redevelopment Model — Slum / Non-Slum

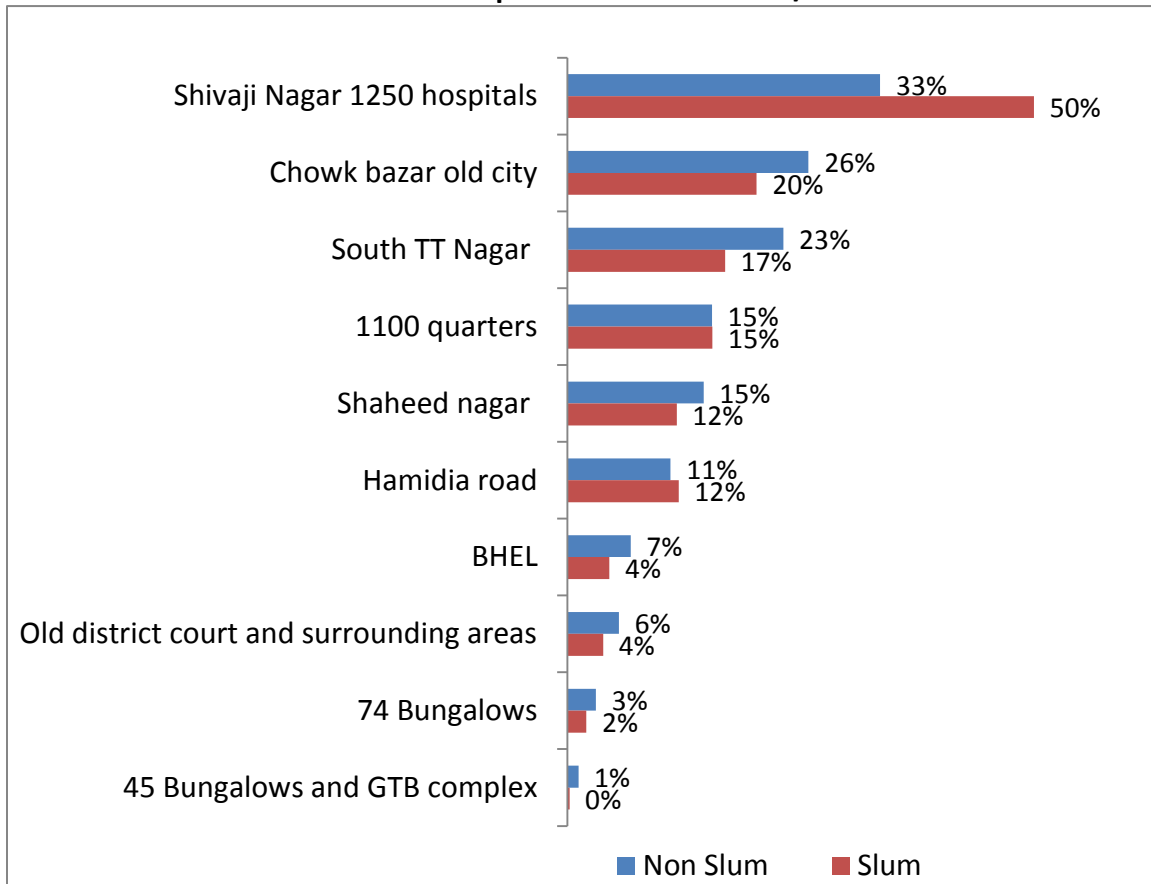
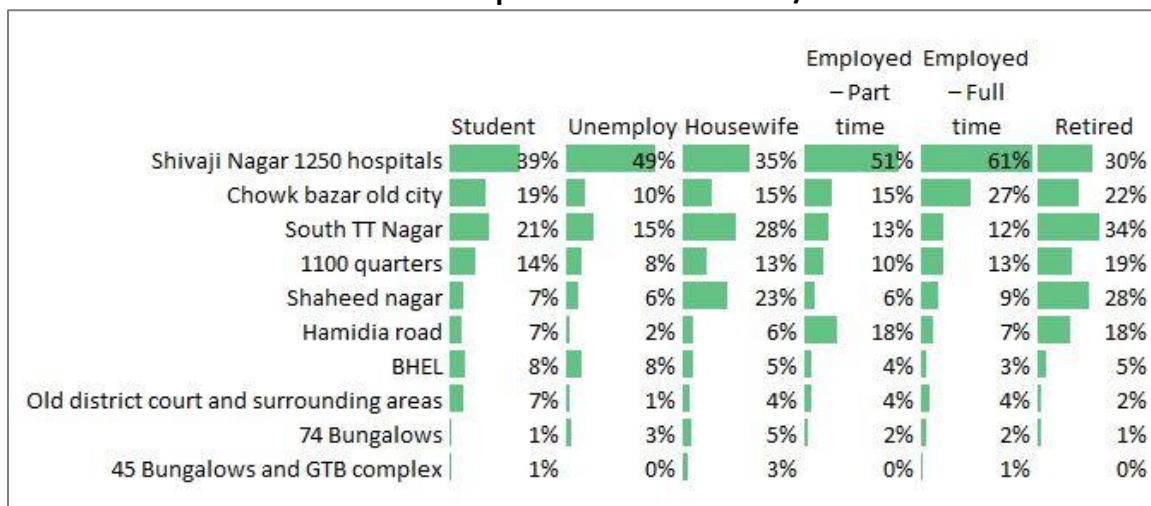


Exhibit 72: Redevelopment Model — Slum / Non-Slum



4.11 Area-based Development — Development of Shivaji Nagar

Citizen consultation was used to understand the type of development model, then the area under preferred development model, and then the priority of features under the preferred area.

As seen from Exhibit 64 and 70, Redevelopment is the preferred model and under redevelopment, Shivaji Nagar is the preferred area. The exhibit below shows the preference in features in redevelopment of Shivaji Nagar.

IT connectivity is the most important feature that citizens want in redeveloped Shivaji Nagar followed by job opportunities, 24*7 electricity, good and effective transportation, and walkability.

In addition to above important features, citizens also want the following features, which are of secondary importance in development of Shivaji Nagar — Energy source, open space, housing, sanitation, and waste management.

Top requirements from Shivaji Nagar from citizens residing in Slum are job opportunities, electricity, and housing, whereas Non-Slum citizens want IT connectivity, job opportunities, 24*7 electricity, and good transport facilities.

Students, unemployed citizens, and part-time and full-time employees want IT connectivity and job opportunities in redeveloped Shivaji Nagar, whereas housewives want 24*7 electricity, 24*7 water supply, and walkable area. Retired citizens want open space, walkable area, and 24*7 electricity in redeveloped Shivaji Nagar.

Exhibit 73: Features Identified in Development of Shivaji Nagar

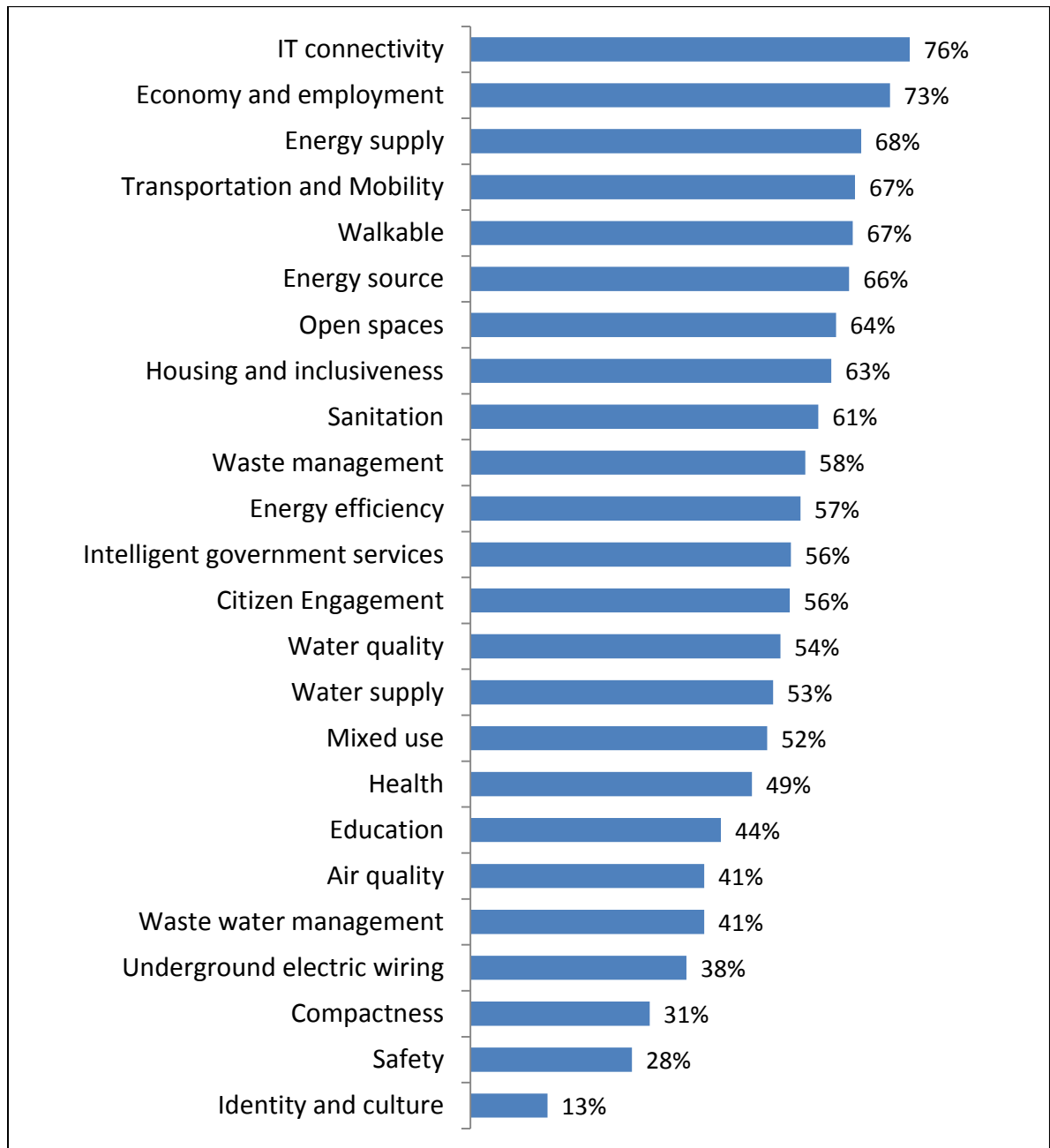


Exhibit 74: Features Identified in Development of Shivaji Nagar — Non-Slum / Slum

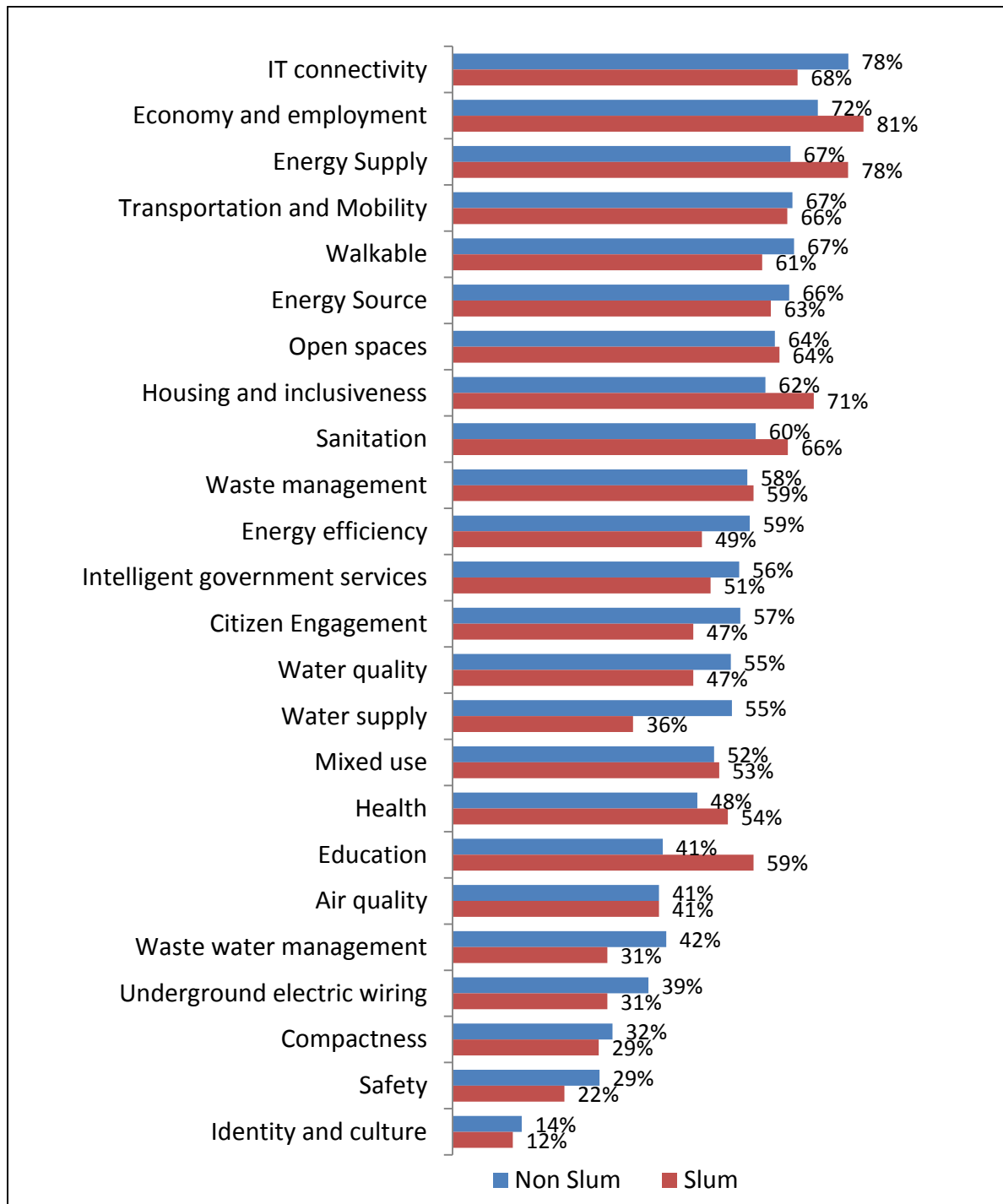
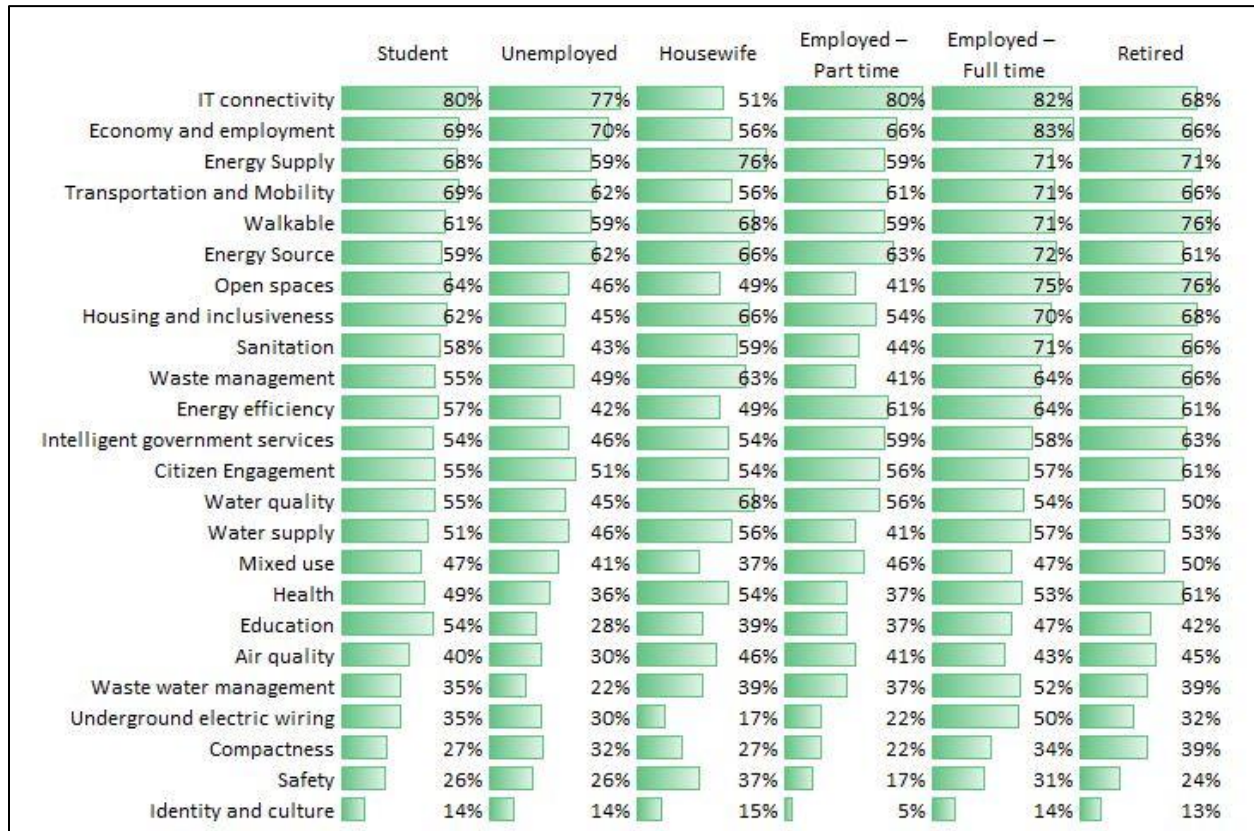


Exhibit 75: Features Identified in Development of Shivaji Nagar —Occupation



5.0 Qualitative Citizen-centric Engagement

In addition to quantitative methodology, citizen engagement was also carried out following qualitative design. Citizens, students, teachers, visitors to Bhopal, and foreign delegates were interviewed using through personal interactions, focus group discussions, events, road shows, essay competition, and public meetings.

5.1 Meetings with Citizens and Stakeholders

The BMC organized 23 events among various stakeholders to understand their needs, expectations, and solutions in the course of smart city mission. These events were headed by the Honourable Mayor, the Commissioner, and other important dignitaries from the BMC and State Government.

Over 2,760 stakeholders were invited and were part of these public meetings.

Events with following stakeholders were held during the Bhopal Smart City Mission

- District bar association
- Chamber of commerce
- ATPI
- Ex-mayor of Adelaide
- Shahapura colony house owner association
- DRM office with railway employees
- Transgender
- Students and Teachers
- IAS officers
- Tax and bar association
- CREDAI association
- Corporators
- Doctors and medical practitioners
- High-level dignitaries of State Government and MLA
- Others

The BMC had organized 11 group meetings among students in colleges to understand their needs, expectations, and solutions for making Bhopal a Smart City; over 10,000 students participated in these events.

Exhibit 76: Press conference of Bhopal Smart city by Honourable Mayor



Exhibit 77: Honourable Mayor addressing citizens about Smart City





**Exhibit 78:
Meeting with
Chamber of
Commerce**



**Exhibit 79:
Meeting with
Association of
Technical
Professional
Institutions**



**Exhibit 80:
Meeting with
CREDAI**



**Exhibit 81:
Meeting with
Transgender**



**Exhibit 82:
Meeting with X-
Mayor of
Adelaide**



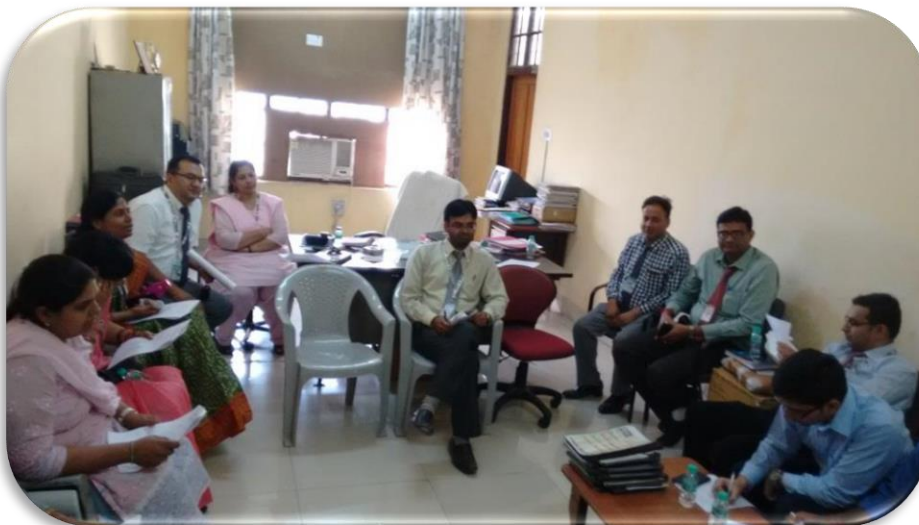
**Exhibit 83:
Meeting with
Important
Stakeholders**



**Exhibit 85:
Focus Group
Discussion with
Tax and Bar
Association**



**Exhibit 86:
Focus Group
Discussion with
College
Students**



**Exhibit 87:
Focus Group
Discussion with
Teachers**

5.2 Key Takeaways from the Meetings with Citizens and Stakeholders

Detailed discussions were carried among various stakeholders and students on the challenges faced by them and on the probable solutions in overcoming these challenges.

Poor Project Execution

- An independent monitoring body should be in place to ensure timely execution of projects.
- Definite deadline should be set and discrepancies should be checked.
- Projects should be privatized for quicker implementation.

Transportation / Traffic

- Widening of roads, building walk-over bridges for pedestrians, and building a circle road around key areas are some solutions to traffic problems.
- Multi-level parking facilities should be implemented.
- Technology should be used to provide better parking and transportation solutions.
- Flyovers should be constructed at strategic places.
- Dedicated bicycle and walking lanes should be present, bicycle sharing should be facilitated.
- Services provided by public transportation must be improved and encouraged to use; it should reach to every corner of the city and should be made economical for everyone to use.

Solid Waste Management

- All houses should manage their own waste by generating compost and by deploying dustbins.
- This sector should be privatized including environment-friendly disposal.
- More dumping and recycling **centers** should be started across the city.

Sewage / Wastewater / Drainage

- Modernizing the existing system and incorporating new water-saving techniques.
- Working on new drainage policies, separate sewage system for every colony, and its release at colony level.
- Integrated sewage plan for the entire city is needed; adding new sewage plants as per the city topography.
- Sensor alarms should be installed for any kind of leakage.

Unemployment

- More jobs to be created in industrial, commercial, and IT space.
- Being centrally located, development of Bhopal from logistic perspective is possible.
- Tourist attraction will generate more employment opportunities.
- Initiatives and schemes should be undertaken to employ and retain the digitally literate and talented youth that pass out of several degree-level colleges in Bhopal.

Slums / Encroachments

- Rehabilitation of all encroachment and educating them of drawbacks.
- Roads should be free of encroachments; specific hawker zones should be created.
- Poor slum people should be relocated; shelter homes should be made for them.
- Infrastructure and living conditions for slum dwellers should be improved with sanitation facilities.
- Dedicated hubs should be created to avoid encroachments on vacant government land.
- Strict law should be enforced against encroachments and illegal hawkers.
- Proper rehabilitation and education facilities should be provided for children living in slums.

Civic Responsibility

- Strict laws should be implemented and monitored to ensure compliance.
- Awareness of laws and penalties for negligence is a must.

Corruption

- All government tendering should be transparent and done online.
- Digitalizing of all payments and tenders.

Medical Facilities

- Government and private medical **centers** should be reformed and made smart.
- Separate hospitals to cater to personal needs of transgender.

5.3 Focus Group Discussions

Detailed focus group discussions were conducted among various stakeholders to further understand the city challenges and solutions in the view of making Bhopal a Smart City.

5.4 Defining City Vision

Citizens envision Bhopal as a city where each citizen should have a job and the city should take huge strides in industrial development.

Bhopal residents strongly wished that the city should have a wide sewage and waste management system, which will help city to be cleaner and to improve its esthetic value.

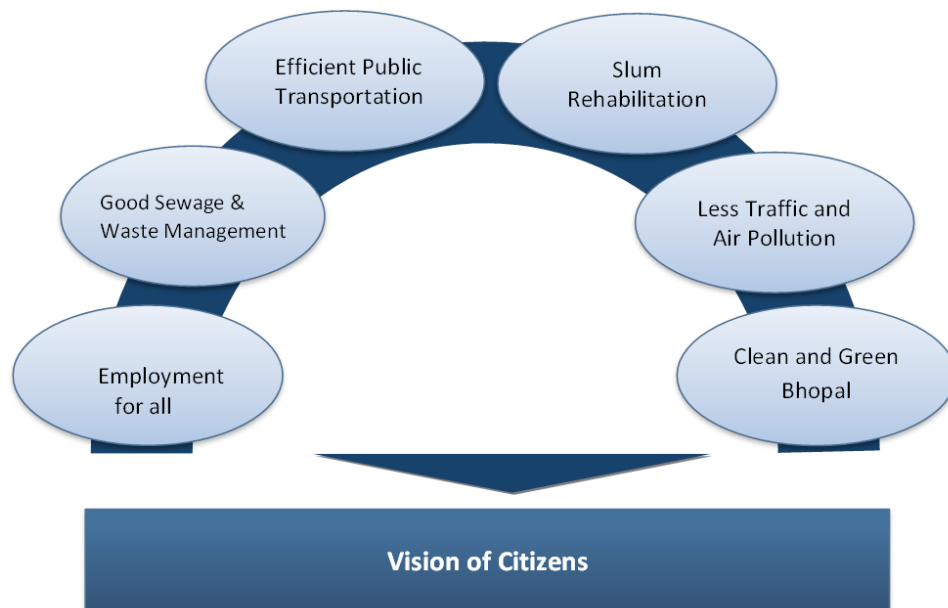
Citizens want an efficient public transportation system, which should not only be economical but should also connect all parts of city.

People living in slums should be properly rehabilitated and each citizen should have a house of this own.

Citizens also want dedicated walking / cycling lanes, which would reduce traffic as well as air pollution.

The youth specifically emphasized on a clean and green Bhopal with more public spaces and employment opportunities.

Exhibit 88: City Vision



5.5 Understanding Challenges

The citizens of Bhopal are facing numerous challenges in their day-to-day life, of which the following are the top five challenges which they want to be addressed:

Exhibit 89: Understanding Challenges



5.6 Solutions for Making Bhopal a Smart City

In line to the challenges mentioned above, citizens have recommended the following solutions to overcome these challenges:

Provide Employment to All

Bhopal should be projected as a start-up hub and industries should be encouraged to set up their offices here. In doing so, Bhopal would avoid loss of talent to other states.

Citizens who are illiterate and less educated should be given opportunities to work in industrial and factory set-ups.

Bhopal should use its advantage of strategic location and should convert itself as a logistic hub.

It should focus more on tourism; this will provide new job opportunities.

Entrepreneurship must be encouraged

**Provide affordable
Transport Facilities**

The citizens of Bhopal feel that the current public transportation system is a big challenge.

A lot of colleges are in the outskirts of Bhopal where public transport is not accessible.

Auto rickshaws in the city do not travel by meter, which is a burden to citizens, as they end up paying much more than a meter would have charged them.

Frequency and service of existing public transport is very poor and needs improvement.

Hence, the citizens want a more integrated and reliable transport system in Bhopal, which would result in better productivity of time for all.

**Better Sewerage,
Sanitation, and Waste
Management**

Proper sanitation facility must be provided to all citizens in slum, awareness to use toilets and to not dissipate in open should be provided.

The Government should build more public toilets in slum areas.

The sewerage system of city is very old and needs serious improvement.

Citizens feel that very few initiatives have been launched for rain-water harvesting and other techniques of saving water like installing water meters to detect and prevent leakages in pipes should also be implemented.

A proper mechanism for treating all the wastewater in the city must be incorporated, which will enable reuse of water for secondary purposes.

Traffic solution and pollution control

Road conditions should be improved; they should be constructed using good quality material, must be wide, and should have visible markings.

Traffic signals must be followed by citizens and people must be punished if they break traffic rules irrespective that person is.

Bridges and circles must be made at key points where traffic is more.

Traffic police must be on roads doing their duty from 8 am to 11 am and from 5pm to 9pm.

Signal wait time must be monitored using CCTV cameras and must be kept flexible depending on traffic situation.

Announcement must be made to inform traffic situations.

People should be encouraged to ride bicycle and to walk.

Bicycle sharing must be provided.

CCTV camera must be installed at various locations to keep an eye on traffic.

Run odd number cars on one day and even number cars on another day.

Encourage electric cars.

Encroachment Solution

Hawkers must be removed; this will give people more space to walk on foot path and will eventually make space for cars on roads.

Separate hawking zone must be created.

Slums must be properly rehabilitated.

Historic places must be free from encroachment.

In addition to above areas, citizens also think that Bhopal should work on IT connectivity and Healthcare to become a smart city.

IT Connectivity

Citizens understand that Information Technology is the underlying backbone of every Smart City feature, be it Smart Mobility, Smart Healthcare, Smart Governance, Smart Education, Smart Buildings or Smart Energy.

For sensors and devices to interact with each other and send data to the central command centers for analysis, a strong IT connectivity is a must.

The youth urged for more Smart Education services where they can virtually attend classroom sessions irrespective of their current location via mobile devices using latest technologies and high-speed wireless networks.

Healthcare

Health amenities is an essential feature of any smart city and citizens feel that emergency services like helplines, ambulances, and chemists should be available 24*7. The current condition of Government hospitals is quite bad and building of old-age homes is required. Thus, the citizens felt healthcare deserves more attention in Bhopal's smart city development plan with the emergence of technologies such as connected devices and m-healthcare. New insurance schemes and policies are also expected by the citizens.

5.7 Area-based Development

Citizens were explained the concept of three development models – Retrofit, Redevelopment, and Greenfield and were asked which development model is more suitable for Bhopal to adopt to become a smart city.

Citizens discussed positives and negatives of each model and emerged to a conclusion that Redevelopment model at Shivaji Nagar is most appropriate for Bhopal in beginning its journey toward Smart City.

Challenges like citizens willing to cooperate in providing their property for development was the key area of focus along with duration of development and transparency of system.

Shivaji Nagar is predominantly under the ownership of the State Government; hence, land related hurdles are minimal. Also, various Smart Features / prototypes can be showcased / tested in this development, thereby, becoming a laboratory for finest Urban Smart Solutions. Development at this place would provide opportunity for contemporary model for future intervention / development in the City of Bhopal.

5.8 Personal Interviews with Foreign Delegates at Vishwa Hindi Sammelan, during September 8-10, 2015

Exhibit 88: Interviews with Foreign Delegates during Vishwa Hindi Sammelan



The key findings of personal interviews are as follows:

Bhopal is rich in culture and traditions and should continue to embrace this and use this to its advantage in creating a separate identity.

Bhopal should promote tourism more promptly; this will not only enhance their identity but will also provide job opportunities.

All foreigners found the place peaceful and the people to be friendly; they consider the city to be safer than many other cities they have travelled in India.

Bhopal was found to be green and clean and they liked the lakes and other cultural and historic places.

They also liked the hospitality offered by people at various interaction points.

Most foreigners suggested slum rehabilitation, provision of education for all, and widening of roads.

6.0 Other Citizen Engagements

In addition to quantitative and qualitative design, citizen engagement was also carried out using the following methodology:

- MyGov
- BMC Website
- Facebook
- Twitter
- YouTube
- Events
- Newspaper

6.1 Citizen Engagement on MyGov

MyGov is a citizen engagement platform founded by the Government of India to promote the active participation of Indians in their country’s governance and development.

MyGov was used to receive response for making smart cities. Each city can use this platform to receive responses from their citizens on various challenges faced by them and can also seek solutions. It can be also used to take an opinion poll and to invite participations on essay and logo competition.

Bhopal was the second city to register itself on MyGov website. Bhopal tops the list in number of discussion / suggestions received from citizens of Bhopal.

Exhibit 89: Snap Shot of Bhopal ranking no 1 on discussion on MyGov

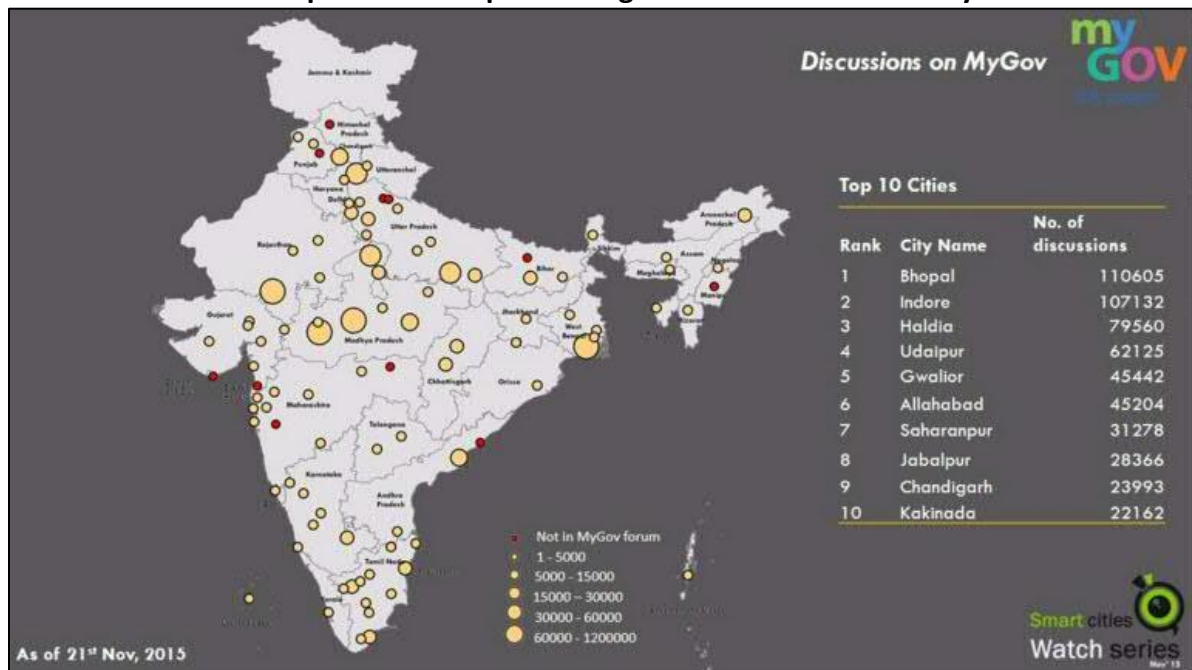


Exhibit 90: Bhopal Smart City Discussion Page

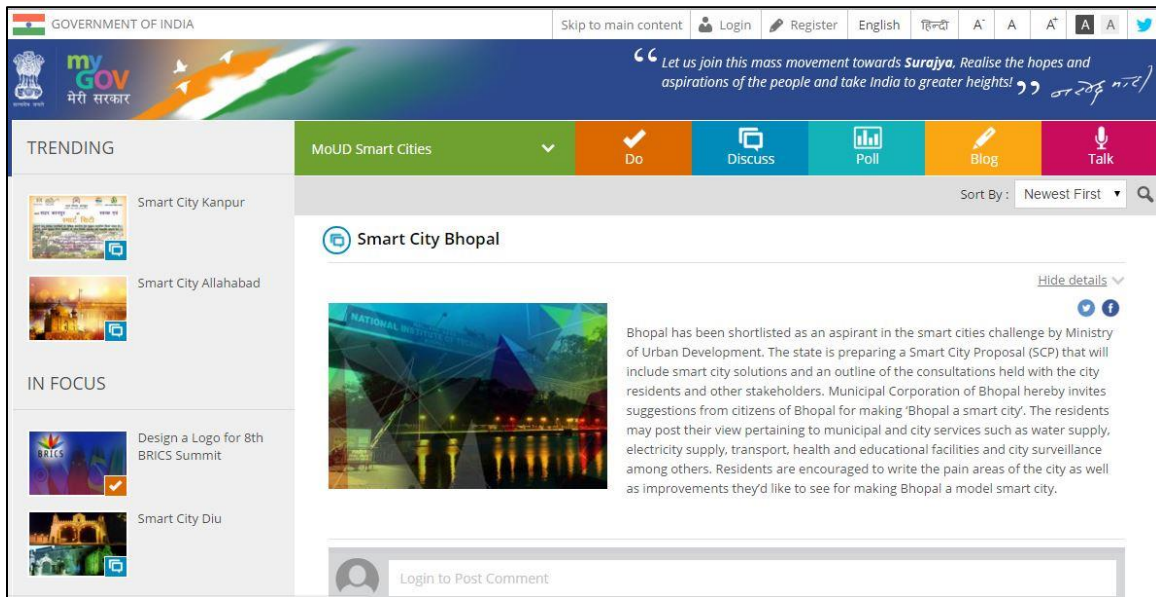


Exhibit 91: Bhopal inviting citizen participation in essay and logo competition

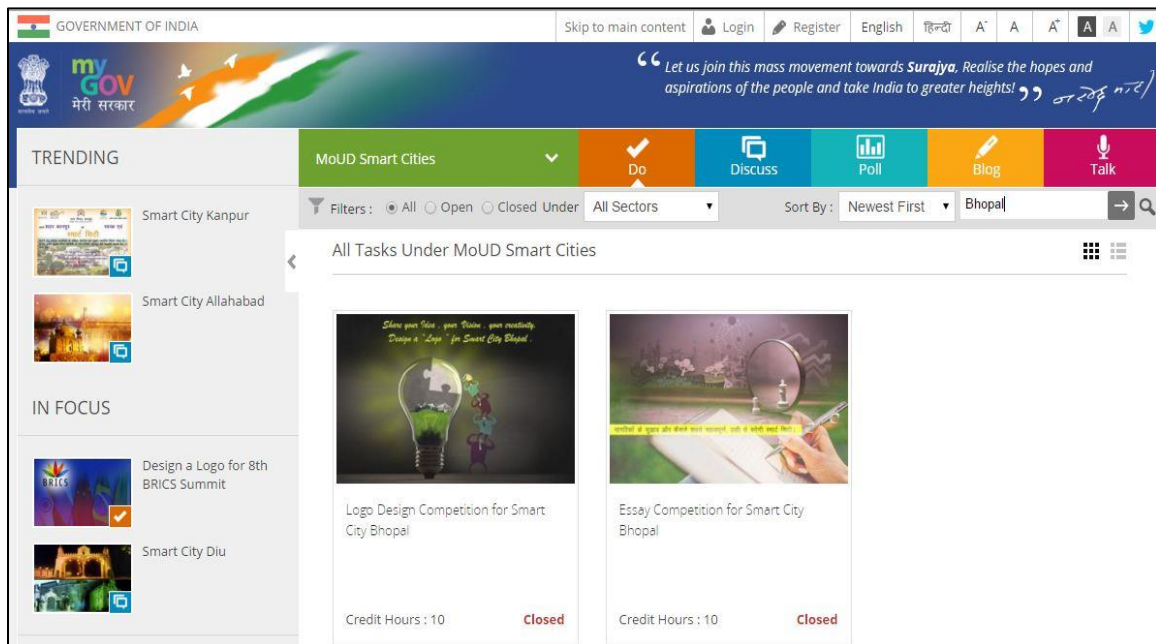


Exhibit 92: Bhopal received 81 responses in logo competition

The screenshot shows the myGov portal for the Government of India. At the top, there is a navigation bar with 'Skip to main content', 'Login', 'Register', and language options (English, हिन्दी). A quote from the Prime Minister is displayed: "Let us join this mass movement towards Surajya. Realise the hopes and aspirations of the people and take India to greater heights!". Below this is a menu with 'Creative Corner', 'Do', 'Discuss', 'Poll', 'Blog', and 'Talk'. The main content area features a 'TRENDING' sidebar with 'Smart City Kanpur' and 'Smart City Allahabad'. The central focus is the 'Logo Design Competition for Smart City Bhopal' announcement, which states: "Bhopal has been selected under the Smart City Mission to compete with 97 other cities to make it to the top 20 cities to receive funding from the next fiscal. The city is in process ...". A summary bar at the bottom of the announcement shows: "Total Submissions (81) Approved Submissions (0) Submissions Under Review (81) Submission Closed."

Exhibit 93: Bhopal received over 5000 essays

The screenshot shows the myGov portal for the Government of India, similar to Exhibit 92. The main content area features the 'Essay Competition for Smart City Bhopal' announcement, which states: "The City of Lakes" Bhopal, has been shortlisted as an aspirant in the smart cities challenge by Ministry of Urban Development. The City is preparing a Smart City Proposal (SCP) ...". A summary bar at the bottom of the announcement shows: "Total Submissions (5091) Approved Submissions (988) Submissions Under Review (4103) Submission Closed."

Exhibit 94: Response to polling question on MyGov

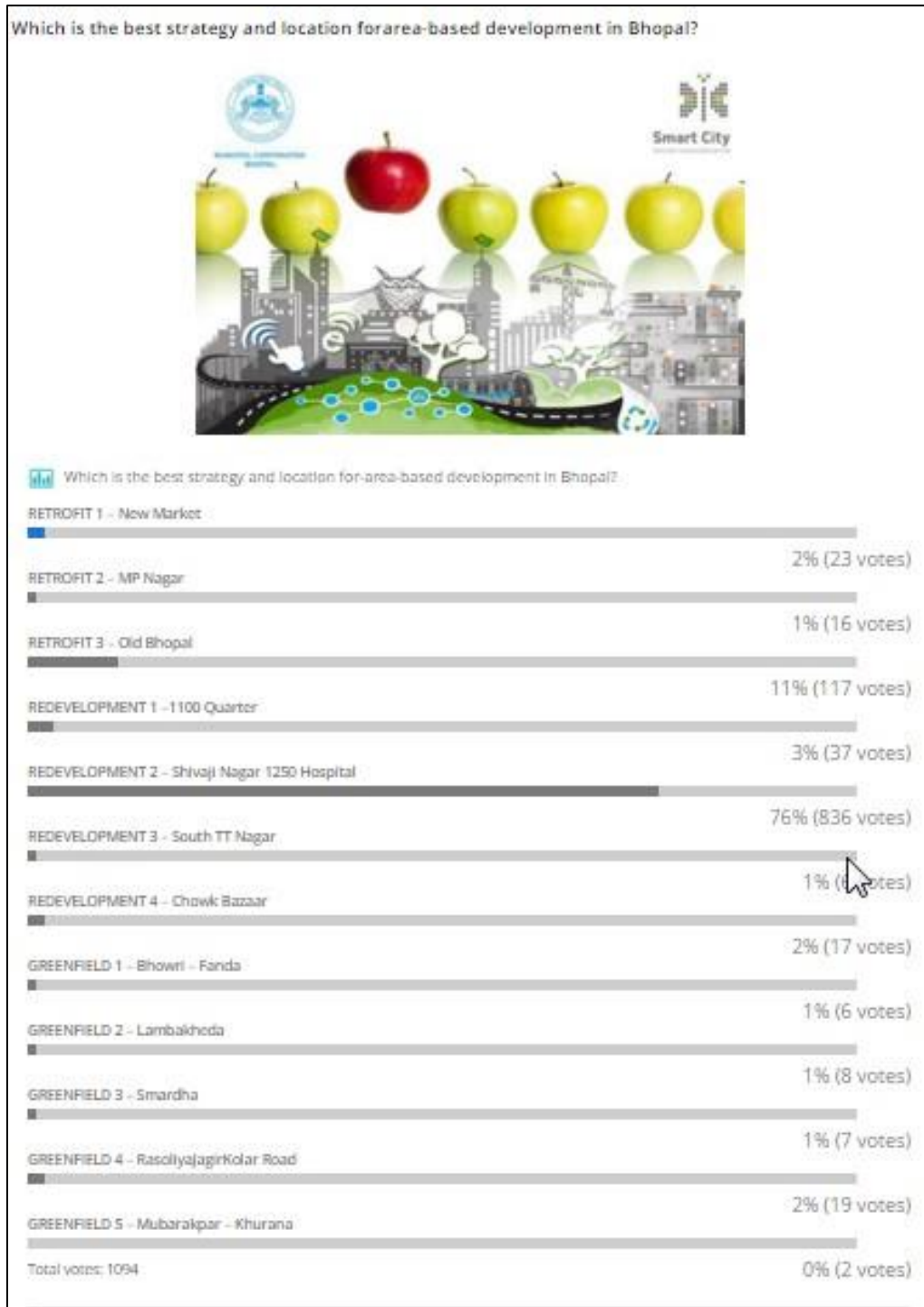


Exhibit 95: Bhopal Smart city meetings shown live in MyGov — Bhopal Commissioner addressing to students on Smart City Mission

The screenshot shows the MyGov interface for 'MoJD Smart Cities'. At the top, there are navigation buttons for 'Do', 'Discuss', 'Poll', 'Blog', and 'Talk'. Below the navigation bar, the page title is 'Bhopal Smart City Live Talk'. A video player is embedded, showing a live stream of a man speaking at a podium. The background screen displays 'Bansal Group of Institutes, Bhopal' and 'स्मार्ट सिटी मिशन' (Smart City Mission) in Hindi. Below the video, there is a text block from the Bhopal Municipal Corporation explaining the citizen consultation process for the Smart City Mission. It lists the speakers: Mr. Alok Sharma (Mayor), Mr. Tejaswi Naik (Commissioner), and a representative of the Frost & Sullivan consultant team. The venue is identified as Smart City Hall, BMC, Bhopal.

Bhopal Municipal Corporation have initiated the process of citizen consultations for Stage 2 of the "Smart City Mission" City Challenge through various mediums such as MyGov, BMC online, social media (including Facebook, Twitter and Whatsapp), along with the launch of our website (<http://www.smartcitybhopal.org/>)

As part of the process, Bhopal Municipal Corporation is organizing an online talk where citizens will be briefed about the Smart City Mission, the city challenge and the vital role that citizens need to play. Citizens may post their questions about the Smart City Mission on or before 19th October 2015, which will be addressed by:

1. Mr. Alok Sharma (Mayor, Bhopal)
2. Mr. Tejaswi Naik (Commissioner, Bhopal Municipal Corporation)
3. Representative of Consultant Team (Frost & Sullivan) & other representatives of Bhopal Municipal Corporation

Venue: The event will be streamed live from Smart City Hall, BMC, Bhopal

Exhibit 96: MyGov was used to upload key points of public meetings conducted during citizen consultation

GOVERNMENT OF INDIA Skip

my GOV मेरी सरकार Let us join this mass movement aspirations of the people of India

Smart City Bhopal - Consultation with United Doctors Federation

27 Oct 2015

CITIZEN CONSULTATION FOR SMART CITY BHOPAL

On 10th October 2015, Hon. Mayor Mr. Alok Sharma hosted the United Doctors Federation and other medical practitioners at the Jehan Numa Palace Hotel. Other dignitaries present at the event were Mr. Surjeet Singh Chauhan (BMC Chairman) and Mr. Chandramauli Shukla (Additional Commissioner of BMC).

Mr. Shukla went on to brief the audience about the Smart City Mission challenge and the efforts made for citizen consultation. Mr. Shukla also spoke about the importance of doctors in society and urged them to come forth and play a vital role in Bhopal's transformation into a Smart City. This was followed by a round of suggestions that were put forth by various doctors present at the forum. A brochure containing information about the mission and citizen engagement process was also distributed, along with a brief self-filled survey which captured the issues and suggestions of the people.

Smart City Bhopal - Consultation with 'United Doctors Federation'

6.2 Citizen Engagement on BMC website

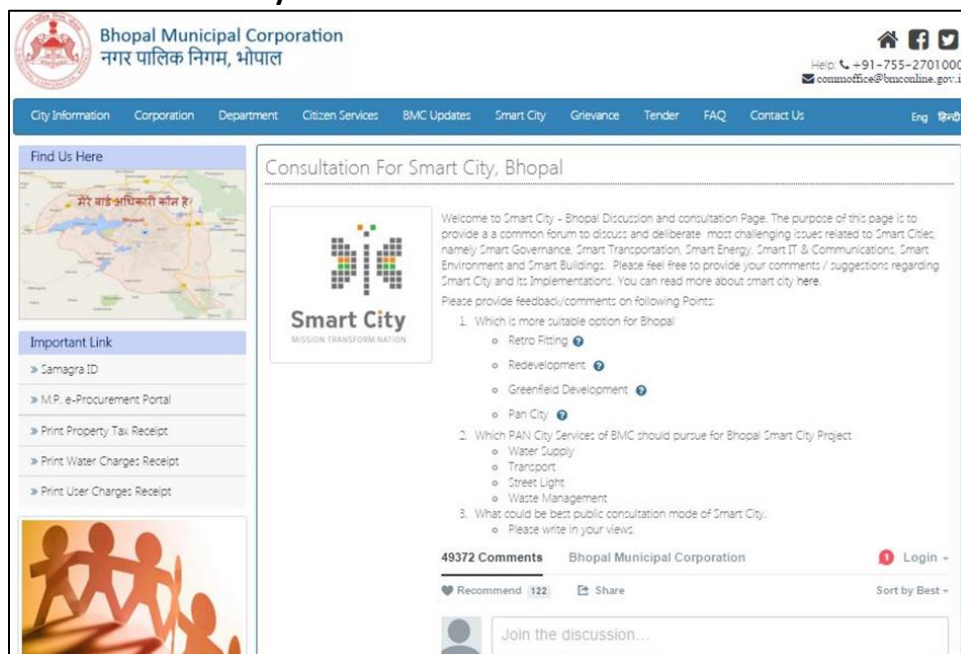
The Bhopal Municipal Corporation has used their official website for citizen consultation. A web survey seeking responses on various aspect of smart city was hosted on their website.

Exhibit 97: Citizen Engagement survey hosted on BMC website



In addition to web survey, a discussion forum was created seeking the citizens' responses on the various challenges faced and their solutions.

Exhibit 98: Smart city discussion forum on BMC website



6.3 Citizen Engagement on Facebook

Facebook was used mostly to promote the smart city mission and to invite participation in various citizen engagement activities.

Pictures of events were shared on Facebook to inform citizens on the events happening or about to happen.

Exhibit 99: Smart city discussion forum on BMC website



Exhibit 100- Inviting citizens to visit BMC site using Facebook



This post was to invite suggestions from people on the BMC online portal. It received 26 likes and many comments where people gave suggestions about street-lights, overall roads, and a cleaner environment. They also highlighted the importance of use of solar energy, conservation of environment, and the necessity of good healthcare.

Exhibit 101- Inviting citizens to participate in web survey by using Facebook



This post was to ask people to fill the web-survey for making Bhopal a smart city. It was well-received with over 921 likes, 22 shares, and over 40 comments. People suggested about having a better drainage system, better and wider roads, conservation the greenery and heritage structures, rehabilitation of slums, and making citizens aware and smart.

Exhibit 102- Inviting citizens to participate in web survey by using Facebook



This post again urged people to speak up and fill the web-survey for transforming Bhopal to a smart city. It got 531 likes and four shares. People save suggestions to include skill development and to make our citizens smart first. People also mentioned preservation of the city’s heritage sites, greenery, lakes, and natural habitat.

Exhibit 103- Creating awareness on various mediums of citizen engagement



This was an informative post creating awareness about the various mediums through which the citizens of Bhopal can give their suggestions and share their vision for the city. People spoke about generating revenue in Smart City Bhopal through monetization of fixed assets and developing hospitals and parks via PPP mode. We could also leverage technology to build a connected city and encourage paperless transactions.

Exhibit 104- Inviting to participate in poll



This post is for asking people to participate in a poll to suggest the best strategy and suitable location for Area-based development in Bhopal. The post was well-received with over 288 likes and five shares. People re-emphasized the importance of education and creation of jobs to retain top talents in Bhopal.

Exhibit 105- Post to announces price for best suggestion



This post announced prizes for best suggestions received for making Bhopal a smart city. It was well-received with over 100 likes and 12 shares. People commented about conservation of heritage buildings, removal of illegal hawkers and vegetable vendors in areas like TT Nagar, Kolar, etc., better facilities at Government hospitals, developing parks and open spaces, and developing education infrastructure.

6.4 Citizen Engagement on Twitter

Like Facebook, Twitter was used to promote various events conducted during smart city mission.

The Honourable Mayor and the BMC Commissioner actively shared tweets of various events, and Bhopal citizens responded positively by retweeting the various posts.

Exhibit 106- Citizen Engagement using Twitter





6.5 Citizen Engagement on YouTube

YouTube was actively used to promote the smart city mission; citizens were able to see the events LIVE on YouTube and were also able to comment on them.

Various videos related to Bhopal Smart City were uploaded on YouTube.

Exhibit 10: Bhopal Smart City videos on YouTube

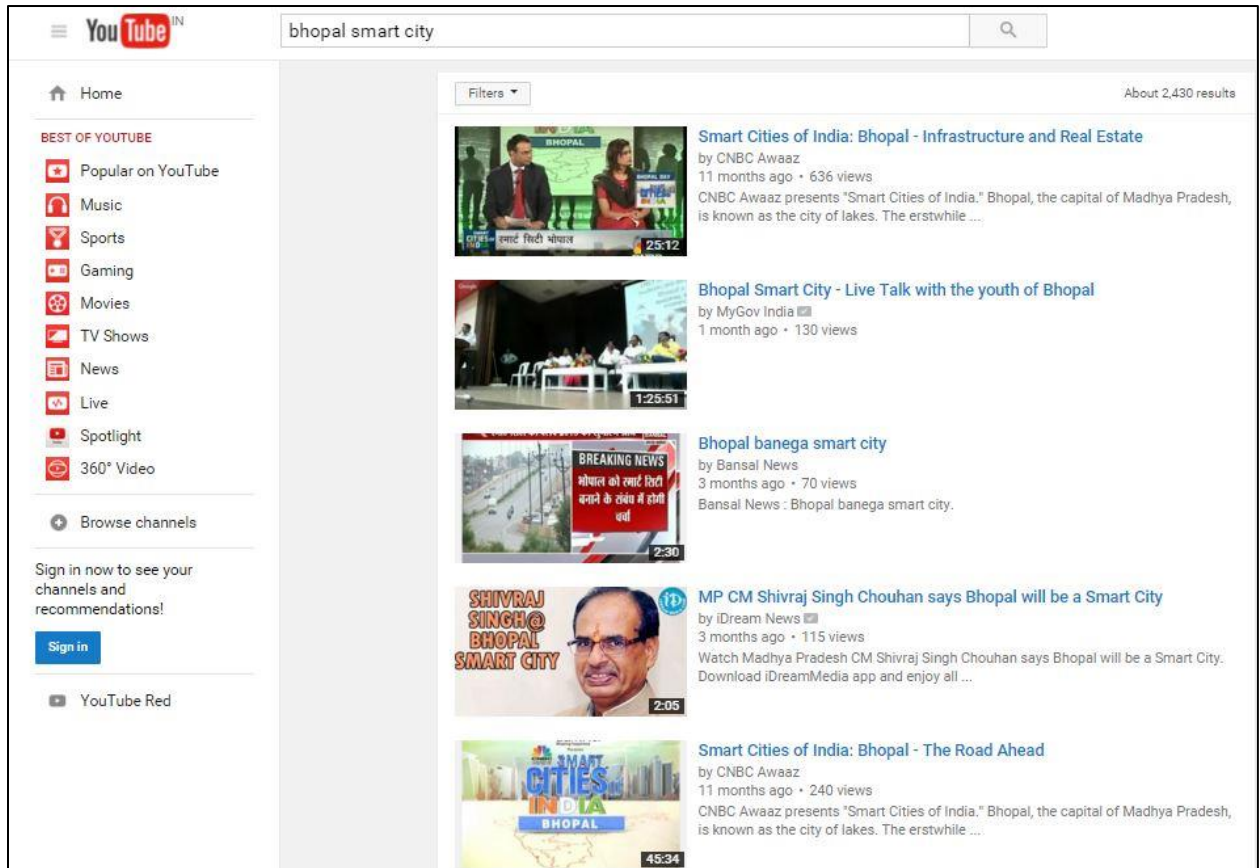


Exhibit 108: Live Broadcasting of speech of the Honorable Mayor



Exhibit 109: Live Broadcasting of speech of the BMC Commissioner



6.6 Citizen Engagement Events — Idea Generation

Idea generation camp near Lal Parade ground during September 8-10, 2015. Citizen responses were collected using web survey.

Exhibit 110: Idea generation Event



6.7 Citizen Engagement Events – Road Shows

Road shows were used to create awareness among citizens and to invite participation to engagement survey.



Exhibit 111: Capturing responses to citizen engagement surveys.



Exhibit 112: Road show – Poster competition.



Exhibit 113: Road show to promote Bhopal Smart City Mobile App.

6.8 Citizen Engagement Event — Drawing and Essay competition in Schools



Exhibit 114: Drawing competition in schools



Exhibit 115: Drawing competition in schools / orphanage.



Exhibit 116: Drawing competition among special students.



Exhibit 117: School kid showing his view on smart city



Exhibit 118: Posters were put on display for public viewing

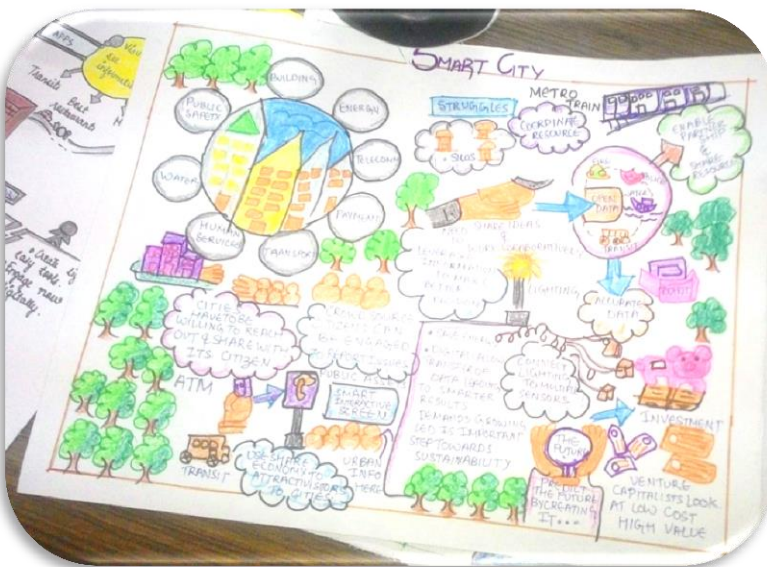


Exhibit 119: Creative and insightful looking poster designed by a schoolkid

6.9 Citizen Engagement using Bhopal Smart City App

Bhopal launched a Smart City App to further engage in smart city mission. Through this app, citizens of Bhopal were able to share their views on smart city mission.

This app guided citizens to participate in polls related to smart city, guided to Bhopal Smart city Facebook page, Twitter page, and on the Bhopal Municipal Corporation official website where citizens could fill up an online / web survey. It also provided an option to citizen to send his feedback via sms or by using WhatsApp messages.

The Bhopal Smart City app was easy to launch; roadshow, Facebook, and Twitter were used to promote Bhopal smart city app. A mobile van was used in road show, which helped citizens to download this app by providing free wifi facility.

Exhibit 120: Bhopal Smart City App

Smart City Bhopal

appSkool Social

★★★★★ 6

3+

This app is compatible with your device.

Installed

Bhopal will be the Future Smart City. Of the People, For the People and By the People. -Atul Sharma (Mayor)

Smart City Bhopal

Submit your idea

Name: Enter your name

Email: Enter your email

Mobile: Enter your mobile number

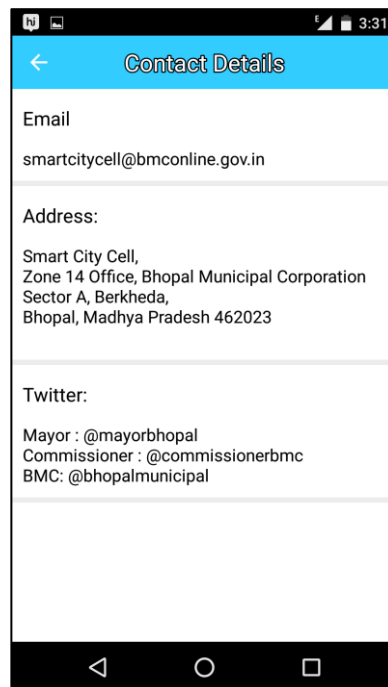
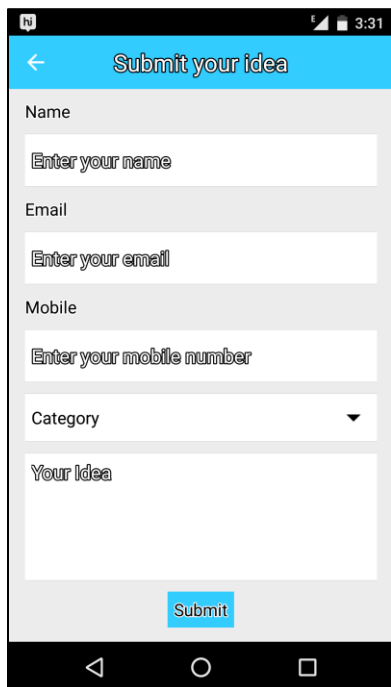
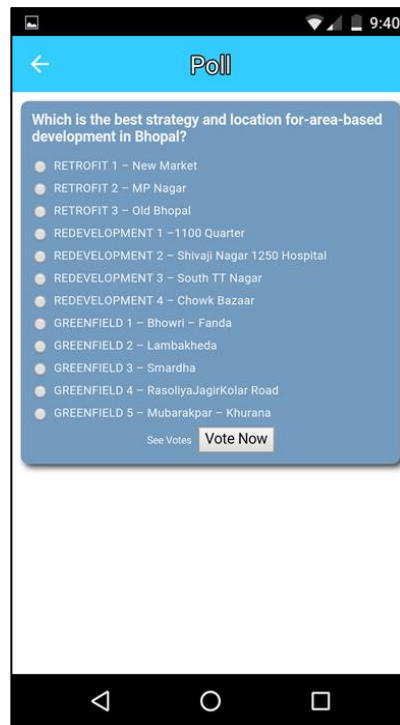
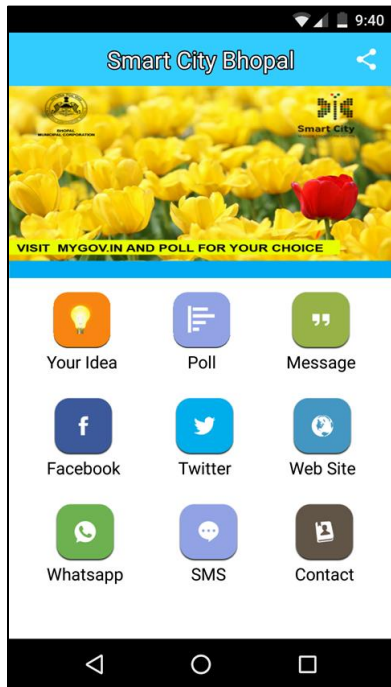
Category: [Dropdown]

Your Idea: [Text Area]

Submit

Bhopal Smart City App will enable the citizens to contribute towards making Bhopal smarter. This app will provide updates to the citizens as well as take feedback. Citizens of the city will be able to participate in all the Smart City Initiatives and provide feedback and get information

Exhibit 121: Snapshot of Bhopal Smart City App



6.10 Citizen Engagement in Media

Newspapers played a big role in creating awareness and promoting smart city. News and updates of key events were communicated to citizens and this helped in receiving citizen participation in various quantitative and qualitative designs.

Exhibit 122: Smart City article in Bhopal newspaper

कैसी होगी स्मार्ट सिटी, फाइनेल ड्राफ्ट सबसे पहले दैनिक भास्कर में

शिवाजी नगर में अंडरग्राउंड बीआरटीएस व ट्विन टॉवर

पूरी तरह बदल जाएगी लिंक रोड 1 और 2 के बीच की तस्वीर



प्रस्तावित डिजाइन

359 एकड़ इलाके में सरकारी मकानों की जगह आकार लेंगी 40 से 50 मंजिला इमारतें

कुरुदीप तिगौरिया | भोपाल

भोपाल की स्मार्ट सिटी का खाका तय हो गया है। शिवाजी नगर के 359 एकड़ में सरकारी मकानों को तोड़कर 40 से 50 मंजिला इमारतें बनेंगी। हमारी इस स्मार्ट सिटी में अमेरिका के बल्ड ट्रेड सेंटर और मलेशिया के पेट्रोनास टॉवर की तर्ज पर ट्विन टॉवर बनाने का प्रावधान रखा गया है। यही नहीं, बीआरटीएस को अंडरग्राउंड कर उसके ऊपर साइकिल ट्रेक, फुटपाथ और पार्क बनाने का प्लान तैयार किया गया है। केंद्र सरकार को गाइडलाइन के तहत इसमें स्मार्ट सिटी के सभी 24 फीचर शामिल किए गए हैं।

स्मार्ट सिटी के बाहरी सर्किल के चारों ओर की सड़कें आठ लेन होंगी। मोटर व्हीकल यहीं चल सकेंगे। उन्हें पार्किंग भी इन्हीं हिस्सों में उपलब्ध होगी। अंदर साइकिल और पैडस्ट्रियन के हिस्से में सड़कें बनेंगी। इसके किमी भी हिस्से में अधिकतम 400 मीटर की दूरी पर लाइट मेट्रो या बीआरटीएस की सुविधा होगी। स्मार्ट प्लानिंग और तकनीक की ऐसी ही कई खुशियों को स्मार्ट सिटी मसौदे में शामिल किया गया है।

राज्य सरकार को इसका पहला खाका भेज दिया गया है। छह करोड़ 9 लाख वर्ग फुट का कुल निर्माण (विल्टअप) होगा। यानी निजी कंपनियों के निवेश के बाद इसकी लागत करीब 18 हजार करोड़ रुपए होगी। नगर निगम द्वारा 5 दिसंबर तक अंतिम मसौदा सरकार को भेजा जाएगा।

लिंक रोड एक से डायवर्ट होगा बीआरटीएस

ट्विन टॉवर के लिए मसौदे में बीआरटीएस को लिंक रोड एक से डायवर्ट कर शिवाजी नगर में अंदर की ओर अंडरग्राउंड किया जाएगा। इसी तरह लिंक रोड दो पर लाइट मेट्रो के ट्रेक को भी ट्विन टॉवर से निकाला जाएगा। यानी दोनों सड़कों पर बस और लाइट मेट्रो न खेने से कारों के लिए जगह जगह मिलेगी।

हर हब के लिए आइकोनिक हाईराइज इमारतें

लिंक रोड एक पर सैजैव्ही से व्यापक चौराहा और लिंक रोड दो पर जेन मंदिर से बृहन्न कॉलेज तक का डिप्लोमा स्मार्ट सिटी के लिए तैयार किया है। मौजूदा जेपी हॉस्पिटल से घर इमरू वाली रोड के बीच में ट्विन टॉवर के लिए जगह प्रस्तावित की गई है। यह एरिया कंसर्शियल हब होगा। जबकि जेन मंदिर वाले इलाका एजुकेशन हब, मयूर पार्क पर हेल्थ हब, वर्मिस भवन के सामने रिसीटेंशियल और बृहन्न कॉलेज के सामने वाला इलाका डिजिटल व इनोवेशन हब के रूप में विकसित करने की प्लानिंग रखी गई है। मौजूदा पीपल नंबर स्टोप के पास मंदिरों वाले जगह को कल्चरल हब बनाया जाएगा। इन सब हब के लिए एक आइकोनिक हाईराइज इमारतें रखी गई हैं।

ऐसी है प्लानिंग

- ट्रांजिट ओरिएंटेड डेवलपमेंट वाली मेट्रो और बीआरटीएस पर बसे स्टेशनों के आसपास हाईराइज इमारतें।
- स्टेशन के आसपास उच्च घनत्व। लॉक टू वर्क कॉन्सेप्ट। स्वीकल फ्री डेवलपमेंट।
- कम्यूनिटी स्पेस। सड़क किनारे गार्डन, डिज्मै सडकिल ट्रेक का निर्माण।
- विजनी लड्डेन, ड्रेजिज आदि के लिए अंडरग्राउंड यूटिलिटी डक्ट।
- सॉलिट वेस्ट मैनेजमेंट और सेलर प्लाज्मा प्लांट्स।

यह भी खास

- सेंटरलड एयर क्लिंग सिस्टम
- 500 मीटर की दूरी पर अर्क ट्रांसपोर्ट मेट्रो और लो फ्लोर बस साइकिल और ई रिचसे।
- मौजूदा वाले को चौड़ा कर वाटर वाडी बनाना। इसके आसपास पब्लिक स्पेस होगा। 60 प्रतिशत ऑपन स्पेस।
- ऊर्जा की बचत करने वाली खीन बिडिडिंग्स।

भोपाल का स्मार्ट सिटी का प्रस्ताव दूसरे शहरों से बहुत अलग और शहर के विकास को लई दिशा देने वाला है। इस स्मार्ट सिटी के चयन जाने से भोपाल को अंतरराष्ट्रीय स्तर पर पहचान मिलेगी। अब कोशिश है कि हम देशभर में टॉप 20 में आएं, ताकि अगले सत से उमीन पर काम शुरू हो सके। -आलीक शर्मा, मल्टीपूर

Exhibit 123: Smart City article in Bhopal newspaper

सीवेज सिस्टम के झंझट से बिल्डरों को मिलेगी मुक्ति

भोपाल @ पत्रिका

smarta.com/bhopal

स्मार्ट सिटी बनाने में बड़ा अड़ंगा शहर की गंदगी है। कालोनियों में हाल ये है कि प्रोजेक्ट आते ही बिल्डर दूसरे की कालोनी की सीवेज लाइन पर कब्जा कर लेता है। कॉमन सीवेज सिस्टम न होने से ये समस्या बनी रहेगी।

गुरुवार को आयोजित सम्मेलन में बिल्डर्स और बीएम्सी के बीच सुझावों के अलावा समस्याओं को लेकर भी बहस हुई। इस पर महापौर आलोक शर्मा ने बताया कि 2 हजार करोड़ रूप्य की लागत से भोपाल का कॉमन सीवेज सिस्टम बनेगा इस अवसर पर भाजपा उपाध्यक्ष विजेश लुनावत, अध्यक्ष सुरजीत सिंह चौहान, क्रैडार्ड के वामिक हुसैन व अन्य मोहंगांकर आदि मौजूद थे।

■ शहर में ट्रांसफर डेवलपमेंट राइट्स पॉलिसी लाकर सड़कों का विकास कराया जाए।

■ मास्टर प्लान की अधूरी सड़कें बनें। नई बनने वाली कालोनियों की छतों पर सोलर पैनल लगाने का प्लान भी किए जाएं।

■ शहर में अंडरग्राउंड केबलिंग की जाए। ■ वाटर हरबेस्टिंग के लिए नगर विभाग स्तर पर योजनाएं बनाई जाएं।

patrika Fri, 16 October 2015
epaper.editions epaper.patrika.com/c/6906266

Exhibit 124: Smart City article in Bhopal newspaper

दृबंग दुनिया मोपाल
निष्पक्ष नजर, निष्पक्ष खबर

स्मार्ट सिटी विजन: एडिलेड के पूर्व मेयर स्टीफन यारवुड बोले, मेरा भी पसंदीदा शहर बनेगा भोपाल

ऑस्ट्रेलिया ने दिलाया भरोसा मिलकर बनाएंगे स्मार्ट सिटी

दृबंग रिपोर्टर • भोपाल

स्मार्ट सिटी मिशन के लिए बीएम्सी ने शहर के सभी वर्गों को जोड़ना शुरू कर दिया है। गॉर्गेंद्वारा स्थित स्मार्ट सिटी सेल के सभागार में योजना विभाग वर्ग के विशेषज्ञों के साथ महापौर आलोक शर्मा समेत बीएम्सी के अफसरों को टीम सुझाव आमंत्रित कर राते हैं। इसके लिए शुक्रवार का दिन महत्वपूर्ण रहा, जिसमें ऑस्ट्रेलिया के एडिलेड शहर के पूर्व मेयर स्टीफन यारवुड भी भोपाल पहुंचे, उन्होंने शहर के विभिन्न क्षेत्रों के विशेषज्ञों को स्मार्ट सिटी के टिप्पण भी दिए और शहर को खुबसूरती और पर्यावरण को सुरक्षित भी की। खास बात यह रही कि अब ऑस्ट्रेलिया के एडिलेड की किर्कसिड संरचना और प्लानिंग का भी भोपाल नगर निगम को सहयोग मिलेगा।

दृबंग सरोकार

बेहतर समन्वय बनाता है सिटी को स्मार्ट

स्टीफन ने बंग दुनिया से बातचीत में कहा कि भोपाल पॉलिटेक्निक इमारतों और परिसरों से भरा है। हम स्मार्ट सिटी के लिए चुकाओ को जोड़ना होगा। अलग-अलग रीजन में कहा कि मेरा भारत का प्रिय शहर है और मुझे जानने है, यह मेरा भी शहर बनना। पहले जो स्मार्ट शहर होने चाहिए जीवन स्मार्ट शहर को हीन प्लानिंग नहीं कालोनी से शुरू, सुरक्षित शहर के साथ सड़क भी है। स्मार्ट सिटी के लिए रवलीनो भी रिक्टि, सीवेज, यातायात, पार्किंग, ऊर्जा के साथ एव उनके बेहतर समन्वय बनना होगा।

हर वर्ग की ले रहे हैं राय

महापौर आलोक शर्मा ने कहा कि भोपाल को स्मार्ट सिटी बनाने के लिए योजना तैयार करने के लिए शहर के हर वर्ग की राय ले रहे हैं। उनके विचारों को समझते हुए भोपाल को स्मार्ट, डिजिटल और स्मार्ट सिटी बनाना है। उन्होंने कहा कि हमारा लक्ष्य है कि एडिलेड जैसे सुव्यवस्था शहर के पूर्व महापौर स्टीफन के अनुभव एव उनके स्मार्ट सिटी की सेवा का लाभ हमें मिलेगा।

रो रो उपस्थित

पूर्व महापौर डॉ. आरके विस्तारिया, निगम के पूर्व अड्डाक डीप्टी कमिश्नर, केमर अंडर कोमन के अध्यक्ष सतिश जैन, डीएचआईडी के टीम लीडर डॉ. रिचर्ड स्वेटर, वास्तुविद परमन हुसैन, डिजिटल मनोप डीप्टिव नै स्ट्रीफन से प्रश्न भी किए, उनके उत्तर उन्होंने दिए। बैठक में निगम परिषद अध्यक्ष डॉ सुरजीत सिंह चौहान, अपर आयुक्त राजय कुमार, एमपी सिंह अति उपस्थित थे।

स्मार्टसिटी के लिए यातायात नियंत्रण की आवश्यकता है- जर्ना

भोपाल। स्मार्ट सिटी बनाने के लिए सरकार के साथ सभी स्टार्टअपों को जोड़ना है और जल्द ही भोपाल शहर में वास्तविक प्रोजेक्ट की आवश्यकता है सभी स्मार्ट सिटी की कल्पना को साकार कर सकते हैं। यह विचार मुजरात से आर लवलीन वर्ग ने स्मार्ट सिटी प्लानिंग एड पैलेजेशन विषय पर व्यक्त किए।

5 किमी में मिलता है शेर

हमारे शहर की महान शेरिटीज सिटी, 16 जलवा, पार्किंग और खुबसूरती बेमिसल है। शहर का इकोलॉजी रिस्टम तो देखिए कि हमें पता किमी की दूरी में शेर भी मिल जाते हैं। पर्यावरणीय सुरक्षा से शेर के अस्तित्व की कृषि भूमि खल नहीं होने चाहिए।
-रितीप सूर्यवंशी, बिलर व उद्योगपति

इन हरितियों ने भी दिए सुझाव

जनता की मंता पर बने स्मार्ट सिटी विकास को सुनिश्चित करके ही आप शहर को स्मार्ट सिटी बना सकते हैं। शहर को जनता जनमानों की सेवा के अंतर्गत ही स्मार्ट सिटी का स्वरूप प्रदान किया जा सकता है।
-कविता खन्ना, उद्योगपति

स्वच्छता पर विदेशों को भी पीछे छोड़ना होगा

शहर का स्मार्टस्टार स्मार्ट नहीं होता। हमें सिस्टम को स्मार्ट बनाना है। शिक्षा, आराम अनुसंधान के जरिए हमें विदेशों की तरफ पर स्वच्छता को आननी होने, लेकिन उनसे भी ज्यादा आने की प्लानिंग के साथ।
-अरुणेश्वर शिंदेव, जरीड अरुण परमन

Exhibit 125: Smart City article in Bhopal newspaper

स्मार्ट सिटी | सुझाव सम्मलेन में व्यापारियों ने कहा-

स्मार्ट कमर्शियल एरिया और रोजगार बढ़ने से बनेगी बात

भोपाल टॉप 20 शहरों में आएगा या नहीं, इसका ऐलान 26 जनवरी को

इंफ्रास्ट्रक्चर रिपोर्टर | भोपाल

स्मार्ट सिटी बनाने के लिए देश भर में से 20 शहरों को केंद्र सरकार सबसे पहले फंड देगी। इसमें भोपाल शामिल होगा या नहीं, इसका ऐलान प्रधानमंत्री नरेंद्र मोदी 26 जनवरी, 2016 को करेंगे। हालांकि शहर के लोगों ने काफी उत्साह के साथ भोपाल को स्मार्ट सिटी बनाने के लिए अपने सुझाव दिए हैं। इनमें काफी अहम सुझाव भी सामने आए हैं। नगर निगम ने भोपाल चैंबर ऑफ कामर्स के साथ सोमवार को होटल नूर उस सबाह में स्मार्ट सिटी सुझाव सम्मेलन आयोजित किया था। इसमें शहर के सभी व्यापारिक एसोसिएशन के प्रतिनिधियों ने स्मार्ट सिटी का खाका खींचने के लिए सुझाव दिए।

महापौर आलोक शर्मा ने 20 शहरों में भोपाल को शामिल करने के लिए सभी को सुझाव देने की अपील की। इस मौके पर स्मार्ट सिटी भोपाल वेबसाइट का भी लोकार्पण किया गया। कारोबारियों ने स्मार्ट सिटी में रोजगार और अर्थव्यवस्था के लिए स्मार्ट कमर्शियल एरिया बनाने का अहम सुझाव दिया। व्यवसायियों का मानना था कि पुराने शहर और न्यूमार्केट के आसपास री डेवलपमेंट किया जाए। बाजारों में अतिक्रमण, पार्किंग और सार्वजनिक सुविधाओं की कमी दूर करने पर भी जोर दिया गया।

विकास के मुद्दे पर जुटे कारोबारी



स्मार्ट सिटी के लिए आयोजित सुझाव सम्मेलन में सोमवार को नूर-उस-सबाह में व्यापारी संघों के प्रतिनिधियों और कारोबारियों ने नगर निगम के अफसरों को अपने सुझावों से अवगत कराया।

कुछ प्रमुख सुझाव

■ स्मार्ट इंडस्ट्रियल एरिया विकसित किया जाए। सॉलिड वेस्ट मैनेजमेंट, सीवेज और पानी सप्लाई की व्यवस्था की जाए। पर्यटन को प्रमोट करने वाली सिटी के रूप में शहर का विकास हो।

मुकेश सचदेवा, अध्यक्ष, गोविंदपुरा इंडस्ट्रियल एरिया

■ एमपी नगर को स्मार्ट किया जाए। यहां वाई-फाई फ्री जोन हो। पुराने इलाकों को री डेवलप करके इसे नया स्वरूप दिया जाए।

नवीन सुजवानी, अध्यक्ष, एमपी नगर व्यापारी संघ

■ 5000 लोगों की क्षमता वाला कंवेशन सेंटर बनाया जाए। भोपाल की पहचान पट्टेबाजी को स्मार्ट सिटी में भी रखा जाए।

सुयश कुलश्रेष्ठ, सदस्य, तावस यत्न

यह भी कहा

■ ऐसी पुरानी इमारतें जो हैरिटेज नहीं हैं, उन्हें नष्ट कर मल्टीलेवल पार्किंग या नए एरिया विकसित किए जाएं।

■ आनंद नगर बायपास से एयरपोर्ट रोड को खूबसूरत किया जाए।

■ बिजली के तारों को अंडरग्राउंड किया जाए।

■ वन वे ट्रैफिक व पब्लिक ट्रांसपोर्ट में सुधार हो।

■ जोन स्तर पर वाटर ट्रीटमेंट प्लांट बनाकर पानी को रीसाइकिल किया जाए।

■ पूरे शहर में वाई फाई जोन व चार्जिंग पाइंट बनाए जाएं।

स्मार्ट सिटी वेबसाइट लॉन्च

वेबसाइट <http://smartcitybhopal.org/> पर स्मार्ट सिटी कार्यक्रमों की जानकारी, सीधा प्रसारण, सुझाव और केंद्र सरकार के प्रोजेक्शन और गाइडलाइन अपलोड की गई है।

7.0 Summary and Way Forward

Over four lac responses were received through various citizen consultation programs.

These responses helped in understanding following:

- Citizens' vision of Bhopal, what they understand as smart city and their role in making Bhopal a smart city.
- Essence of Bhopal or what citizens are proud about the city and how this essence can be used in making Bhopal a smart city.
- Challenges faced by them —water, electricity, governance, public transport, job opportunities, education, rise in cost of living infrastructure, etc. — and their likely solutions.
- These citizen engagement programs also helped in understanding the current standing / performance of Bhopal on key features (24 smart city features defined by MOUD) and features / solutions required by citizens for becoming smart city.
- Development model to be used, that is, Retrofit / Redevelopment / Greenfield and area identification for this development model.

Citizen vision Bhopal of being a clean and green city with smart infrastructure and smart governance and with houses, education, employment, and health facilities for all.

Bhopal citizens are proud of Lakes, Historic places, Greenery, and Education facilities and have suggested using them in various ways in smart city mission.

Citizens, being proud of the cleanliness and greenery of Bhopal, understand its importance and are worried of its declining trend. Issues related to Electricity, Infrastructure, and Sanitation bother them on day-to-day basis; availability of job opportunities and job quality is another area of concern.

Through these consultation programs, it was learnt that in view of becoming a smart city, citizens wish to have the following features— intelligent governance, IT connectivity, solutions to waste management, sanitation, and electricity.

Citizens find the Redevelopment model at Shivaji Nagar as the best option to start the Bhopal Smart City Mission and suggest use of this as an example and as a success story to create multiple smart places all over the Bhopal.

In addition to understanding responses from the smart city perspective, citizen consultation programs helped in deriving strength, weakness, opportunities, and threats for Bhopal, which can be further use to define steps in becoming a smart city.

<p>Strength</p> <ol style="list-style-type: none"> 1. Bhopal has fascinating blend of scenic beauty with its lakes, parks, temples, mosques, gardens, museums, and statues, makes Bhopal a good tourist destination. 2. Good on livability and happiness index 3. Good educational hub 4. Good and active on governance and citizen engagement activities 5. Strategic location of city can be used as an advantage for driving economy 	<p>Weakness</p> <ol style="list-style-type: none"> 1. Lack of core infrastructure, especially in sewerage, sanitation, and solid waste management 2. Majority of the population belong to LIG and EWS category and lack social development 3. Less employment opportunities and issue with quality of employment (low pay scale jobs) 4. City spreading beyond boundaries
<p>Opportunity</p> <ol style="list-style-type: none"> 1. To grow as a good tourist destination leading to income for city and jobs for people 2. Tremendous scope for development of the hospitality industry due to tourism 3. Bhopal can become a big logistic hub due to its advantage of being located at center of India 4. It can grow in the Industrial sector 5. Bhopal should leverage the advantage of being an educational hub and should use these students to drive city economy by fulfilling requirements of firms and business across various sectors 	<p>Threats</p> <ol style="list-style-type: none"> 1. Provide day-to-day facilities to those moving outside current city boundaries 2. Migration of young talent to other states in search of jobs 3. Decline in greenery and cleanliness in city 4. Diminishing cultural identity and rise in crime rates

As a way forward, Bhopal should use its strength on being good on scenic beauty to its advantage in transforming itself into a tourist destination; this will also help in creating job opportunities in tourism sector.

Strategic location of Bhopal should be used to generate employment; this should help in providing jobs to young talent who are currently migrating out of Bhopal in search of jobs.

Bhopal Municipal Corporation has succeeded in generating citizen’s confidence in its governance, which is clearly seen from the high participation in citizen engagement activities. BMC should continue involving citizens at various decisions and should maintain transparency.

Information technology (IT) has become part of almost everyone life and is the backbone for all employment and development related activities. Bhopal should effectively use IT solutions to improve quality of life.

In addition to maintaining greenery and cleanliness, Bhopal should work on improving infrastructure like constructing good quality wide roads and bridges to reduce traffic. Bhopal should use IT in providing solutions to traffic, waste and sanitation problems.

Bhopal should work towards generating energy from renewables, using energy efficiency practices in buildings, street lights etc. and in providing 24 * 7 electricity to citizens.

Water being the basic need of citizens and Bhopal being known for its lakes should ensure that citizens get adequate quantity of water for that Bhopal should invest efforts in harvesting rain water and in ensuring minimum wastage.

Bhopal should redevelop Shivaji Nagar by providing following features on priority IT connectivity, employment opportunities, energy solutions, transportation and mobility and walkable space. In addition to these features Shivaji Nagar should also provide housing sanitation and waste management solutions.

Bhopal should use the success story of Shivaji Nagar and should create similar smart places across Bhopal.

Annexures

8.0 Report submitted to PWC as per MOUD guidelines


Q3. Based on the detailed city profiling, what are the strengths and developmental areas of the city? Conduct a detailed SWOT analysis of the city with all relevant metrics and data.

<p>Strength</p> <ol style="list-style-type: none"> 1. City with fascinating blend of scenic beauty with its lakes, parks, temples, mosques, gardens, museums and statues , hence a good tourist destination 2. Good on livability index (peaceful life) 3. Good educational hub 4. Good governance and citizen engagement 	<p>Weakness</p> <ol style="list-style-type: none"> 1. City infrastructure (Street lights, road quality, traffic congestion, parking issues) 2. Electricity and water quality and quantity problem 3. Issues with respect to waste/sewage management and sanitation 4. Less employment opportunities and quality of employment (City have more of low pay scale jobs)
<p>Opportunity</p> <ol style="list-style-type: none"> 1. To grow as a good tourist destination leading to income for city and jobs for people 2. City can become a big logistic hub due to its advantage of being located in center of India 3. Can grow in Industrial sector 	<p>Threats</p> <ol style="list-style-type: none"> 1. Decline in greenery and cleanliness in city 2. Diminishing cultural identity 3. Migration of young talent to other states in search of jobs

F R O S T & S U L L I V A N 2

Q4. Based on the SWOT analysis, what should be the strategic focus of the city and the strategic blueprint for its development over next 5-10 years to make it more livable and sustainable?

- 1 To further **improve quality of life** by providing adequate level of following facilities- water quantity and quality, electricity and good infrastructure facilities like good roads, improvement in traffic and parking conditions.
- 2 To retain greenery, cleanliness, lakes and other important places in city and to develop itself as **good tourist destination**
- 3 To **provide more employment opportunities** and quality of employment and to retain young talent from moving out to other cities in search of jobs. Employment opportunities can specially be created in Tourism, Industrial, logistic space
- 4 To provide smart governance and effective citizen engagement model
- 5 To **retain cultural values** and harmony among different religion of people




F R O S T & S U L L I V A N 3

Submitted to PWC

Q5. What should be the vision of the city based on the strategic blueprint? How does the Vision Statement relate specifically to the city’s profile and the unique challenges and opportunities present in your city? Define overall aspirations and goals for the city along with how you see key metrics of livability and sustainability improving over the next 5-10 years?

Vision of city is defined based on city profile, unique challenges and opportunities present in city

<p style="text-align: center;">City Profile</p> <p>Strength</p> <ol style="list-style-type: none"> 1. City with fascinating blend of scenic beauty with its lakes, parks, temples, mosques, gardens, museums and statues , hence a good tourist destination 2. Good on livability index (peaceful life) 3. Good educational hub 4. Good governance and citizen engagement <p>Opportunity</p> <ol style="list-style-type: none"> 1. To grow as a good tourist destination leading to income for city and jobs for people 2. City can become a big logistic hub due to its advantage of being located in center of India 3. Can grow in Industrial sector <p style="text-align: center;">Opportunities</p>	<p style="text-align: center;">City Challenges</p> <p>Weakness</p> <ol style="list-style-type: none"> 1. City infrastructure (Street lights, road quality, traffic congestion, parking issues) 2. Electricity and water quality and quantity problem 3. Issues with respect to waste/sewage management and sanitation 4. Less employment opportunities and quality of employment (City have more of low pay scale jobs) <p>Threats</p> <ol style="list-style-type: none"> 1. Decline in greenery and cleanliness in city 2. Diminishing cultural identity 3. Migration of young talent to other states in search of jobs
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Vision of city

1. To have clean and green city
2. To have smart and effective governance and citizen engagement
3. To develop into world class city consisting of smart and efficient services
4. To have house, employment, education and health facilities for all

FROST & SULLIVAN 4

Q6. How has city leveraged citizen engagement as a tool to define its vision and goals?

Extent of citizens involved in shaping vision and goals

Over 4 lakh responses were received through various citizen consultation programs which helped in identifying key challenges faced, their needs and expectations, these responses were used to define city vision and goals

Engagement strategy to get best results from citizens

Engagement strategy was to reach as many citizens as possible using different engagement programs.

Received responses from citizens across

- Across all 85 wards from city
- Age (from 15 years and above)
- Gender (both male and female)
- Occupation (students, Housewife, unemployed, employed and retired)
- Income groups (categorizing as citizens from slums with low income, to middle class to high class)

FROST & SULLIVAN 5

Submitted to PWC

Q6. How has city leveraged citizen engagement as a tool to define its vision and goals?

Different means of citizen engagement adopted

Citizen engagement was conducted in three rounds using following means

Round 1

- House to House surveys using face to face and pen and paper interviewing methodology, these surveys were conducted across all 85 wards in Bhopal, in all 5000 interviews were conducted.
- Citizen engagement event conducted for 3 days, 375 responses collected
- Web survey on www.bhopalmunicipal.com
- Media (TV, newspaper and radio) was used to inform people to participate in surveys

Round 2

- House to House surveys across all 85 wards in Bhopal, 5000 interviews were conducted.
- Over 20 citizen consultation events among various stake holders (*list of events mentioned on next slide)
- 4 Focus group discussions conducted among various stakeholders
- Over 1,05,000 responses received on MyGov website
- Essay writing and logo development was also conducted on MyGov
- Over 37,000 responses were received on BMC website
- 1.65Lakh self-filled citizen consultation survey forms filled at various ward offices
- Comments received on mobile via sms and whatsapp
- Web survey on www.bhopalmunicipal.com
- Multiple discussions on social networking sites like Facebook and Twitter

Q6. How has city leveraged citizen engagement as a tool to define its vision and goals?

Different means of citizen engagement adopted

Citizen engagement was conducted in three rounds using following means

Round 3

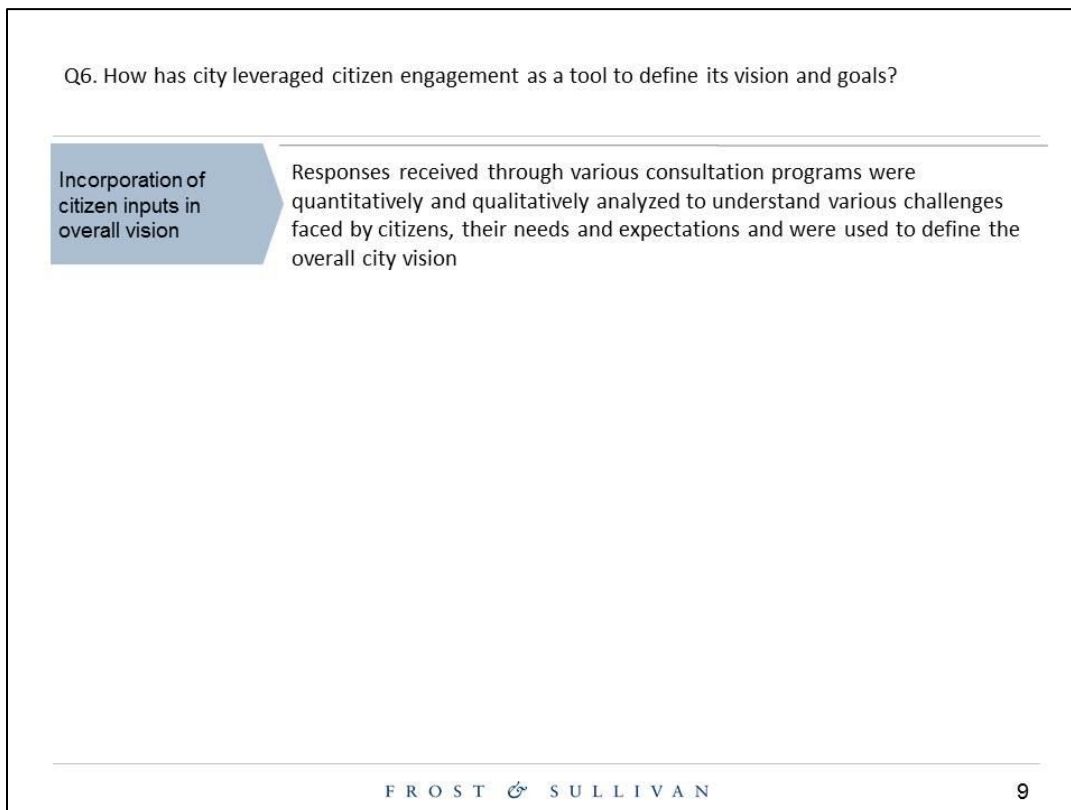
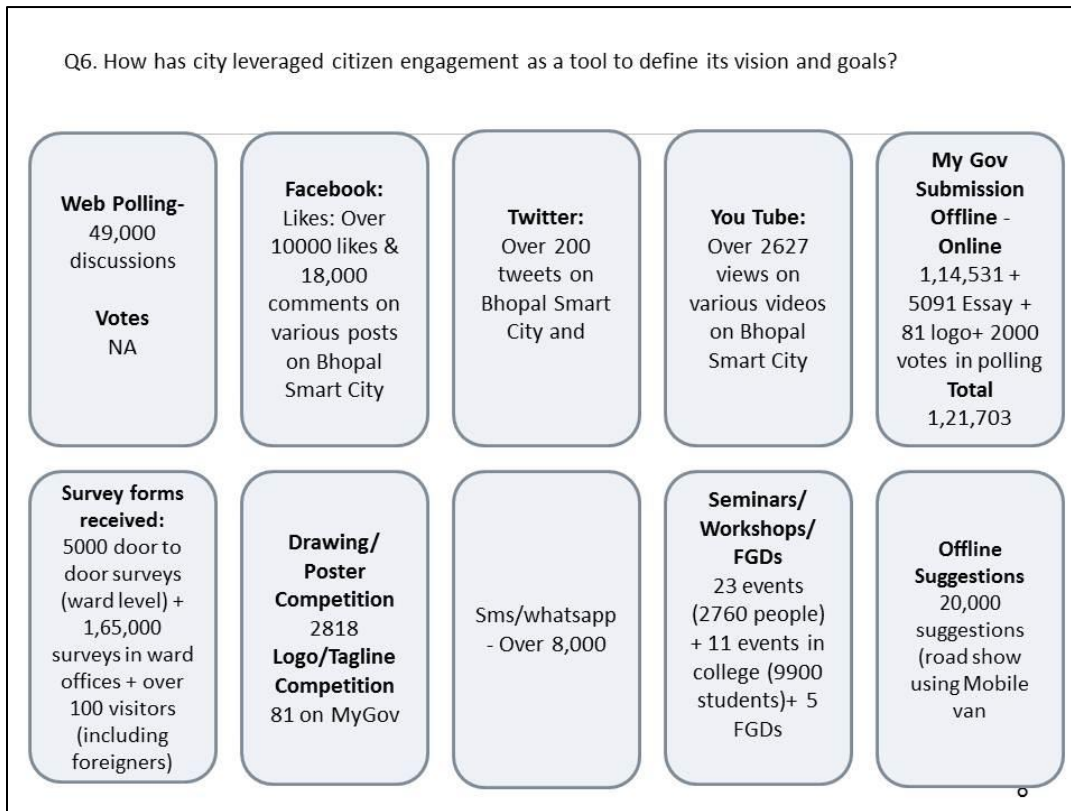
- Media (TV, newspaper and radio) was used to inform people on plans for pan-city solutions and area based developments
- Group meetings were conducted among various stake holders to discuss the smart city proposal prepared and inputs were taken to fine tune it further

* Various stakeholder meetings conducted in Round 2 are

▪ District bar association	▪ Students and Teachers
▪ Chamber of commerce	▪ IAS officers
▪ ATPI	▪ Tax and bar association
▪ Ex-mayor of Adelaide	▪ CREDAI association
▪ Shahapura colony house owner association	▪ Corporators
▪ DRM office with railway employees	▪ Doctors and medical practitioners
▪ Transgender	▪ High-level dignitaries of state govt. and MLA

F R O S T & S U L L I V A N 7

Submitted to PWC



Submitted to PWC

City Challenges



- 1 Decline in Greenery & Cleanliness
- 2 Energy efficiency
- 3 Smart Infrastructure
- 4 Sewerage/Sanitation issues
- 5 Job opportunities and quality

FROST & SULLIVAN

10

Q10. What is the approach and methodology followed in selecting/identifying the area-based development?

Citizen opinion and engagement

- Approach- Quantitative face to face surveys

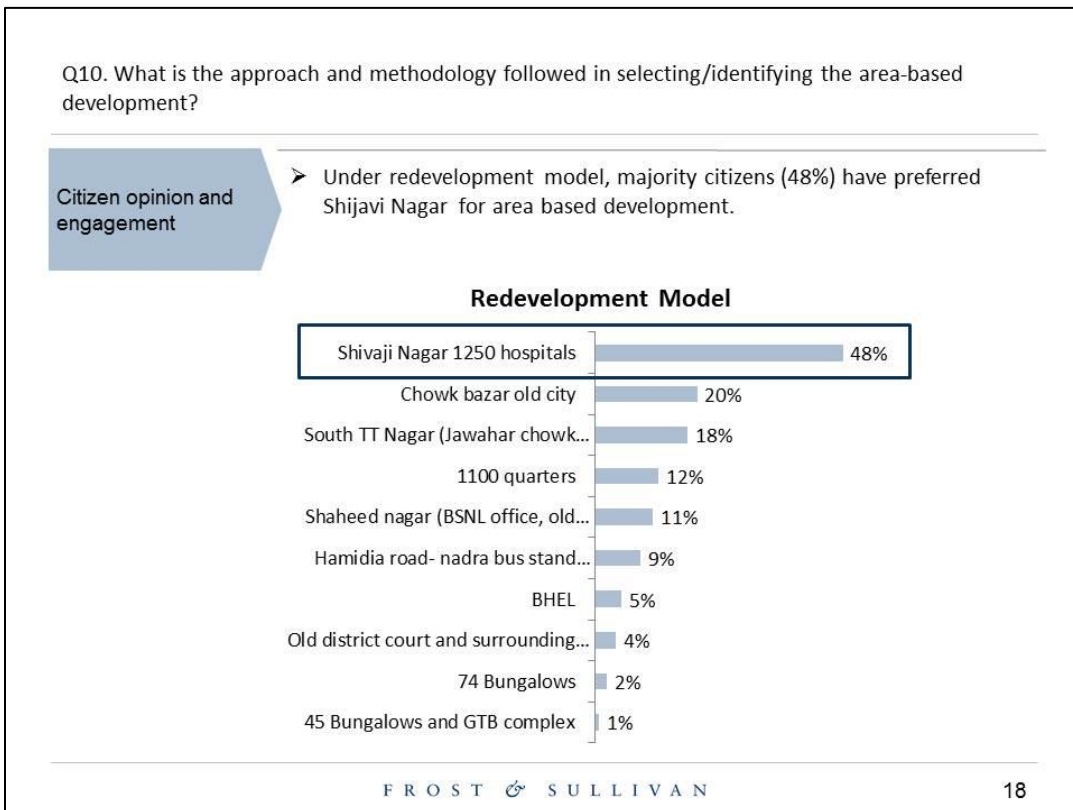
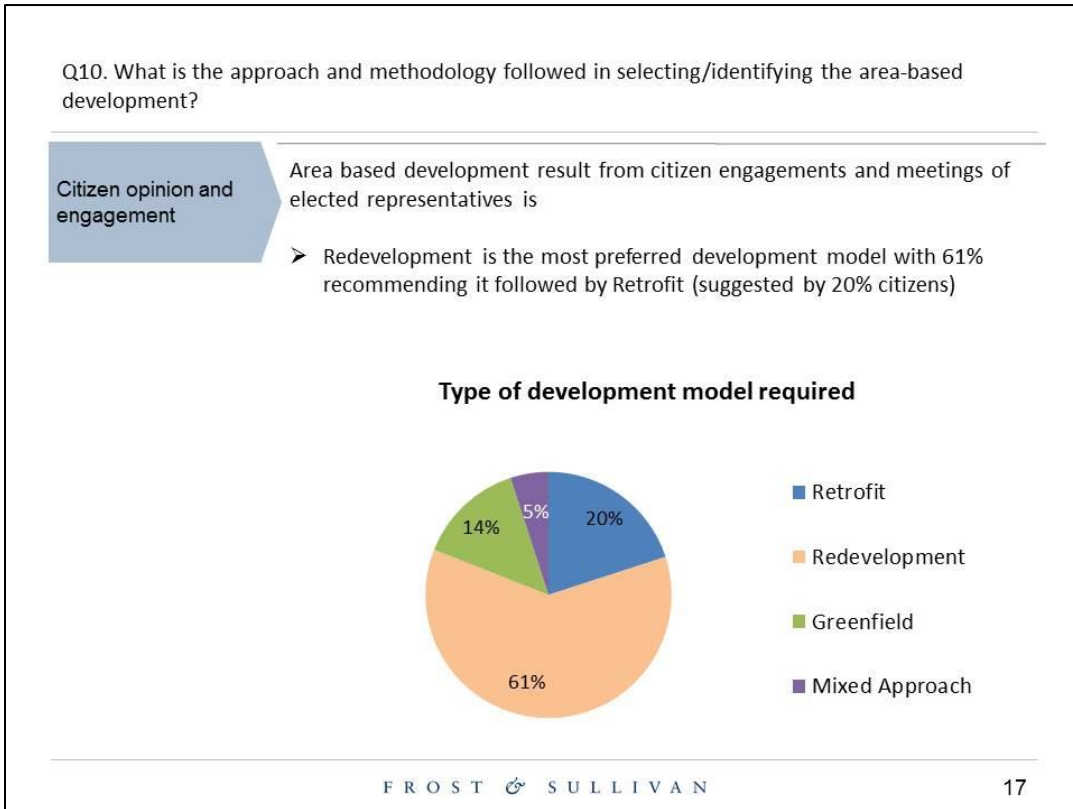
Methodology-

- In citizen consultation programs, citizens were first explained meaning of different development models using a concept card i.e meaning of Retrofit, Development and Green field were explained.
- After explaining meaning and difference between these development models, citizens were asked to choose the most suitable model for Bhopal.
- Each citizen was further asked to choose a suitable area for the development model selected by them i.e. if a citizen thinks redevelopment is suitable model then he was asked which area/s should be redeveloped.

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Q10. What is the approach and methodology followed in selecting/identifying the area-based development?

Opinion of the elected representatives

- Approach followed was – Qualitative approach, Group discussions and personal interviews

Methodology used is as follows:

- In round 2 of research, in addition to citizen engagement activities, various meetings among high level dignitaries of State Government, MLAs, Corporators, Ex-Mayor of Adelaide and others were conducted to discuss pan city solutions
- Detailed discussions on all positives and negatives for various development models i.e. Retrofit, Redevelopment, Greenfield and Mix approach were discussed.
- Discussions on these development models were done in view of some key areas like New market area, MP Nagar, Old Bhopal, Shivaji Nagar, 1100 Quarters, Chowk bazar, Bhowri fanda, Lambhakedha etc.
- Output from these meetings of elected representative were used along with findings of citizen engagement surveys to decide on identifying area based development.

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Q20. List the key components of your pan-city proposal.

- Easy interaction between citizens and government has evolved as the most important pan city solution followed by IT connectivity and waste management
- Sanitation and Energy supply are other important pan city solutions required by citizens of Bhopal

Top 10 Pan City solutions required by citizens

Pan City Solutions-Factors important in making Bhopal a smart city (mean rank indexed to 100)

Intelligent government services	74
IT connectivity	74
Waste management	73
Sanitation	72
Energy supply	71
Water supply	67
Economy and employment	66
Transportation and Mobility	64
Citizen Engagement	62
Education	61
Water quality	60
Waste water management	60
Housing and inclusiveness	57
Health	56
Safety	56
Energy source	55
Identity and culture	54
Energy efficiency	53
Air quality	53
Walkable	53
Mixed use	50
Open spaces	48
Compactness	48
Underground electric wiring	47

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Q21. What is the approach and methodology followed in selecting/identifying the pan-city proposal?

Citizen opinion and engagement

- Approach followed was – Quantitative Face to Face interviews

Methodology used is as follows:

- In citizen consultation programs, citizens were shown a concept card which had explanations of 24 smart city features (as mentioned in Annexure 1)
- Each citizen was first asked to identify 10 most important features out of a list of 24 smart city features, which they think are important from making Bhopal a smart city
- After identification of these top 10 features, each citizen was asked to assign a rank from 1 to 10 to each of these features. These ranking were asked to be done based on importance that citizen think that feature has in development of Bhopal as a smart city.
- An illustrative example shown on next slide

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Q21. What is the approach and methodology followed in selecting/identifying the pan-city proposal?

A Sample Illustration

		Step 1
Sr. No	Smart City Features (as per Annexure 1)	Identify top 10 features (✓ if important)
1	Citizen Engagement	✓
2	Identity and culture	
3	Economy and employment	
4	Health	
5	Education	✓
6	Mixed use	
7	Compactness	
8	Open spaces	
9	Housing and Inclusiveness	
10	Transportation and Mobility	✓
11	Walkable	
12	IT connectivity	✓
13	Intelligent government services	
14	Energy supply	✓
15	Energy source	
16	Water supply	
17	Waste water management	✓
18	Water quality	✓
19	Air quality	
20	Energy efficiency	
21	Underground electric wiring	
22	Sanitation	✓
23	Waste management	✓
24	Safety	✓

Rank these 10 features from Rank 1 to 10

		Step 2
		Assign Rank (from 1 to 10)
Citizen Engagement	1	
Education	5	
Transportation and Mobility	4	
IT connectivity	2	
Energy supply	6	
Waste water management	10	
Water quality	3	
Sanitation	8	
Waste management	7	
Safety	9	

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Q21. What is the approach and methodology followed in selecting/identifying the pan-city proposal?

Opinion of elected representative

➤ Approach followed was – Qualitative approach, Group discussions and personal interviews

Methodology used was as follows:

- In round 2 of research, in addition to citizen engagement activities, various meetings among high level dignitaries of State Government, MLAs, Corporators, Ex-Mayor of Adelaide and others were conducted to discuss pan city solutions
- Pan city requirements were discussed in detailed in line to what is genuinely required and what is practically possible to offer.
- Output from these meetings of elected representative were used along with findings of citizen engagement surveys to decide on pan city solutions

9.0 Sample Size distribution of Quantitative Door to Door Survey

Detailed distribution of sample covered across zones and wards is as follows:-

Ward No.	Ward Name	Zone No.	Sample Size
1	Mahatma Gandhi	1	58
2	Airport	1	56
3	Bhouri	1	57
4	Hemu Kalani	1	59
5	Sadhu Vaswani	1	59
6	Maha Virgiri	2	61
7	Koh -e- Fiza	2	57
8	Royal Market	2	57
9	Bagh Munshi Husain Khan	3	63
10	Idgah Hills	2	69
11	Babu Jagjeevan Ram	3	58
12	Nariyal Kheda	3	60
13	Geetanjali	3	57
14	Shahjahanabad	3	68
15	J.P Nagar	4	56
16	Motilal Nehru	4	56
17	Ibrahimganj	4	58
18	Ram Mandir	4	55
19	Lal Bahadur Shastri	5	59
20	Mahavir Swami	4	57

21	Jain Mandir	2	56
22	Moti Masjid	5	59
23	Islamapura	5	57
24	Rani Kamlapati	5	58
25	Swami Vivekanand	6	56
26	Dr Ambedkar	6	58
27	Goswami Tulsi Das	6	60
28	Rani Awanti Bai	6	60
29	Moulana Abul Kalam Azad	18	56
30	Kushabhau Thakre	7	58
31	Chhatrapati Shaviji	7	61
32	Jawahar Lal Nehru	7	65
33	Pandit Madan Mohan Malviya	8	57
34	Ravindranath Tagore	8	58
35	Jahanagirabad	8	58
36	Chandbad	10	58
37	Kapda Mill	10	60
38	Semra	10	58
39	Naveen Nagar	11	55
40	Aishbag	11	56
41	Bag Farhat Afza	11	55
42	Maharani Laxmi Bai	8	59

43	Maharana Pratab	9	56
44	Subhash Chanossdra B	12	72
45	Indira Gandhi	9	55
46	Pandit Ravi Shankar Shukl	7	57
47	Dr Rajendra Prasad	8	54
48	Arera Colony	9	60
49	Asha Niketan	9	60
50	Gulmohar	9	59
51	Shahpura	7	59
52	Misrod	13	64
53	Jaatkhadi	13	59
54	Barkatullah	13	59
55	Bag Mulagiya	13	60
56	Brakheda Pathani	14	55
57	Saket Shakti	14	66
58	Kasturba	12	58
59	Barkheda BHEL	12	58
60	Govindpura	14	62
61	Khajurikalan	14	57
62	Hataikheda	15	54
63	Goutam Bhdhh	15	65
64	Sonagiri	15	57
65	Govindpura Udhyogiki	16	57

Kshatra			
66	Narela Shankari	15	59
67	Indrapuri	15	61
68	Ayodhya Nagar	16	64
69	Gurunanak Dev	12	58
70	Panjabi Bagh	11	58
71	Dashera Maidan Ashoka Gardan	10	57
72	Rajiv Gandhi	16	58
73	Bhopal Memorial Hopital	16	59
74	Bhanpur	16	58
75	Bashwai	17	63
76	Chhola	17	59
77	Russalli	17	58
78	Karond	17	57
79	Navibagh	17	58
80	Sarvdharam Kolar	18	59
81	Kanhakunk	19	63
82	Danish Kunj	18	58
83	Sankhedi	18	60
84	Ratnapur Sadak	19	59
85	Katara	19	59
Total			5006

A total of 5006 citizens were met across 85 wards/19 zones.

10.0 Smart City Features

Citizen Engagement	Taking opinion from citizen for making plans /strategies for betterment of the city
Identity and culture	Each city has a unique identity, which distinguishes it from all other cities, like location or climate, industry, cultural heritage, local culture, etc.
Economy and employment	Robust and resilient economic base and growth strategy that creates large scale employment and increase opportunities for majority of its citizens
Health	Access to healthcare for all its citizens
Education	Education opportunities for all children in the city
Mixed use	Different kind of land uses in same places, such as offices, housing, shops clustered together
Compactness	Place of stay and work are close to public transport
Open spaces	Sufficient and usable open spaces are mostly green and used for exercise and outdoor recreation by all age groups. Access to all people.
Housing and inclusiveness	Housing for all income groups and integration among social groups
Transportation and Mobility	Minimum requirement of transport to move around, good public and private transport facilities
Walkable	Good planned roads for pedestrians, cyclists and vehicles, following traffic rules and sufficient lights during nights on roads
IT connectivity	Robust Internet network allowing high-speed connections to all offices and houses
Intelligent government services	Easy interaction between Citizen and government , via online and telephonic services
Energy supply	24*7 electricity supply, no delays in repairs

Energy source	At least 10% of electricity generated by renewables
Water supply	24*7 good quality water supply
Waste water management	Advance water management programs, which includes smart meters, rain water harvesting, and green infrastructure to manage storm water runoffs
Water quality	Take care of sewage to prevent water from polluting thereby ensuring good water quality
Air quality	Ensure good quality air by reducing pollution by various methods
Energy efficiency	Use of energy efficiency practices in buildings, street lights and transit systems
Underground electric wiring	Use of underground electric wiring, to avoid black outs due to storm and to eliminate unsightliness
Sanitation	No open defecation and a full supply of toilets for all citizens
Waste management	Waste management system, which removes household and commercial garbage and disposes it environmentally and economically
Safety	Safety for all people and especially women, children, at all time.

11.0 Key takeaways of stakeholder meetings

11.1 Key takeaways of the Bar Council meeting are as follows:

Problems	Solutions
Lack of coordination and cooperation between different development authority of the city	Arranging a seminar to discuss problems leading to coordination and cooperation issues.
Encroachment problems	Rehabilitation of all encroachment and educating them of drawbacks.
Traffic issues	Widening of roads and improving public transportation systems, building walk over bridges for pedestrians and building a circle road around key areas.
Drainage problems	Modernizing the existing system and working on new drainage polices.
Housing issues for slum	Rehabilitation of slum with proper houses
Water wastage	New techniques to save water should be incorporated.
Employment issues	More jobs need to be created in industrial and commercial areas.
Solar consumption requirement	Solar panels should be installed on all roof tops and at least 15% of energy requirements should be fulfilled.

11.2 Key takeaways of the Chamber of Commerce meeting are as follows:

Problems	Solutions
Solid waste management	All buildings should manage their own waste by generating compost, deploying dustbins.
Industrial area problems	New industrial areas should not face same infrastructure problems as old ones.
Crowded markets	Future planning should be done to ensure that every business has a specific area.
Encroachments	Roads should be free of encroachments, specific hawker zones should be created.
Slums	Poor slum people should be relocated. Shelter homes should be made for them.
Gas supply	Gasoline supply and gas pipeline should be available for commercial use.

11.3 Key takeaways of the ATPI meeting are as follows:

Problems	Solutions
Bogus social associations	All bogus associations causing encroachments should be listed and serious action should be taken against them.
Sewage problem	Separate sewage system for every colony and its release at colony level.
Late execution of projects	Monitoring body should be in place to ensure timely execution of projects.
Encroachments	Encroachers should be relocated; specific hawker zones should be created.
Digging of roads	A common duct should be created for all pipes to be included.
Hoardings in city	Unipole hoarding policy should be introduced.
Lack of employment	Development of IT and logistics hub, tourist attraction will generate employment.
Transportation/traffic problem	Addition of parking spots and lanes in congested areas, better public transport facilities.

11.4 Key takeaways of the Ex-Mayor of Adelaide meeting are as follows:

Problems	Solutions
Lack of awareness of rich heritage	Create awareness campaigns about the city's rich culture and heritage.
Poor living conditions of people	Smart city plans should improve living conditions of citizens.
Encouraging physical activity	Cycling, walking should be encouraged and infrastructure should be available for the same.
Public transport and parking	Technology should be used to provide better parking and transport facilities in city.
Lack of employment	Employment initiatives should be undertaken to employ the digitally literate youth.
Lack of renewable energy sources	More options of renewable energy like solar panels should be implemented.
Sewage problem	Proper planning of sewage collection and treatment plants.

11.5 Key takeaways of the Shahpura Colony association meeting are as follows:-

Problems	Solutions
Lack of cleanliness	Awareness campaigns, addition of dustbins.
Safety of children and women	CCTV cameras and strict law enforcement.
Corruption	Digitalizing of all payments and tenders.
After-service is poor	Improving maintenance avoids redevelopment of work.
Lack of employment	Employment initiatives should be undertaken to employ the digitally literate youth.
Civic responsibility	Strict laws should be implemented and monitored to ensure compliance.

11.6 Key takeaways of the Railway DRM meeting are as follows:-

Problems	Solutions
Transport/traffic	Flyovers are needed.
Local services not reliable	They should be made self-sustainable.
Bad infrastructure	Existing infrastructure needs to be modified to make the city better.
Low funds	New schemes should be introduced for ensuring sustainable funds.

11.7 Key takeaways of the Transgender meeting are as follows:-

Problems	Solutions
Education facilities	Special education centers and night schools for them.
Proper healthcare	Separate hospitals to cater to their personal needs.
Security issue	Better security assurances needed in case of emergency.
Residence	Separate housing colony needed for transgender of the city.

11.8 Key takeaways of the Bansal college meeting are as follows:-

Problems	Solutions
Transport issue	Proper facilities for public and private transport.
Execution of government projects	A special team should be deployed and measures should be taken to ensure timely execution of projects.
Corruption	All Government tendering should be transparent and done online.
Clean drinking water	Shiv Neer initiative should be extended to all locations for free drinking water.

11.9 Key takeaways of meeting with the IAS officers are as follows:-

Problems	Solutions
Lack of self-will	More awareness and encouragement to act at a ward level.
Maintenance of heritage sites	All heritage and cultural sites of the city should be well-funded to maintain its beauty.
Encroachments	Dedicated hubs should be created to avoid encroachments on vacant government land.
Sewage problem	Integrated sewage plan for entire city is needed.
Lack of electricity and clean water	Smart policies should be initiated for all of them.
Lack of renewable energy sources	More options of renewable energy like solar panels should be implemented.

11.10 Key takeaways of meeting at the LNCT College are as follows:-

Problems	Solutions
Crowded areas in city	Facilitate more public spaces.
Slums	Should be moved and provided with better facilities.
Lack of civic sense	Laws should be made and monitored to ensure people comply by them.
Delay in completion of projects	An independent body should monitor and ensure timely execution of the project.
Lack of medical facilities	Government and private medical centers should be reformed and made smart.
Overflowing dustbins	Sensor alarms should be installed which will alert the authorities when garbage reaches a certain limit.
Bad sanitation facility	There should be more public toilets and they should be maintained better.

11.11 Key takeaways of the Tax and Bar association meeting are as follows:-

Problems	Solutions
Solid waste management	This sector should be privatized including environment-friendly disposal.
Lack of inter-department coordination leading to delay in project deadlines	There should be a monitoring body that sets a definite deadline and checks for discrepancies.
Slums	Proper rehabilitation and education facilities for children living in slums.
Public behaviour and civic sense	Awareness of laws and penalties for negligence is a must.
Increasing number of vehicles/ Parking issues	Dedicated bicycle/walking lanes should be present, public transport usage should be encouraged and multi-level parking facilities should be used.
Soil and water pollution	Research and scientific labs should suggest remedies for losses already done and the way ahead.

11.12 Key takeaways of the CREDAI meeting are as follows:-

Problems	Solutions
Waste water treatment	New sewage plants should be added as per the city topography.
Master plan execution lacking	Independent body should monitor the execution of the master plan details.
Employment	More employment generating schemes should be announced to retain talented youth.
Project execution issues	Projects should be privatized for quicker implementation.
Street dogs/ stray animals	They should be rehabilitated completely so that they don't create further menace.
Air, water and soil pollution	Battery operated vehicles, proper dustbins and pollution-check machines should be introduced in the new plan.

11.13 Key takeaways of the meeting with Corporators are as follows:-

Problems	Solutions
Improper execution of services	Monitoring mechanism should be setup.
Poor public transport system	It should reach every corner of the city and made more economical and comfortable.
Water leakage	Sensor alarms should be installed for any kind of leakage.
Electricity supply	Renewable sources of energy should be encouraged to counter electricity shortage.
Solid waste management	More dumping and recycling centers should be started across the city. Recycling should begin at household level.
Lack of usage of think-tanks	There is a vast think-tank in the city, which should be leveraged for better ideas.

11.14 Key takeaways of the meeting with Doctors are as follows:-

Problems	Solutions
Poor research facilities	There should be proper facilities for research work in medical field. Diagnosis centers, thrombosis lab, and advance labs.
Few convention centers	Convention center having capacity of at least 2000-3000 is needed.
General and bio-medical waste	There should be separate recycling and disbursement plants.
Traffic issues	Flyovers and extra lanes are needed; dedicated walking and cycling lanes are required, too.
Parking woes	Proper parking facilities with multi-level parking in crowded areas of city.
Lack of disaster management initiatives	Medical and Government organizations should be connected for better communication to deal with any emergency.
Encroachment issues	Strict law should be enforced against them.
Lack of old-age homes	More old-age homes for senior citizens who need regular medical attention should be initiated in the new plan.
Bad shape of medical institutions	Primary healthcare centers should be present at every ward in the city. Facilities at current medical institutions should be improved.
Lack of focus on social, mental and spiritual wellbeing	Initiatives to include Yoga and meditation as part of school curriculum should be introduced.
Lack of digital medical records	Every citizen's medical history and documents should be available online to avoid excess paperwork.

11.15 Key takeaways of the meeting with State Government dignitaries are as follows:

Problems	Solutions
City development	City should be classified into five zones and different type of planning should be done according to nature and availability of resources in that particular zone.
Lots of inherent shortcomings in city infrastructure	The best model to overcome the current issues is via Redevelopment.