

## **MAKING OF SMART CITY SHIMLA: PEOPLE'S PERCEPTION AND FUTURE COMMITMENTS**

**Naina Sambher\* & Prof. D.D. Sharma†**

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### **Abstract**

*Urbanisation is a cyclic process taking place in an integrated manner as the towns are growing both in number and size and moving up to the level of cities and finally a quest to achieve the target of being "Smart" in the present scenario. The present paper tries to analyse the spatial distribution of facilities in Shimla City and its status through the mirror of Smart. The demand of increasing urban amenities and resulting problems are viewed as one to one solution through "Smart City" project. The priority sectors comprising of availability of water supply, health facilities, educational facilities, sanitation facilities, along with the social, political, economic and environmental factors are retrieved in the Smart City Shimla theme through first hand data. It was evident by the secondary data collected from Municipal Corporation Shimla that around 80 percent households are covered by door-to-door waste collection and till now 12 initial projects have begun to be implemented in the city at ground level. Therefore the present paper has been aimed at analysing the perception survey of the public representatives of the city along with officials and other people in order to gauge their understanding of the concept of smart city and spatial distribution of amenities in Shimla town with a view for future planning and development. Thus general public is looking forward towards the government for their involvement in the projects as soon as possible so that they can see the results of their working visible on the ground.*

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\* Research Scholar, Department of Geography, Himachal Pradesh University Shimla-171005, email: sambher.naina@gmail.com

† Professor & Head Department of Geography, Himachal Pradesh University Shimla-171005, email: ddsharma100@rediffmail.com

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## **1. Introduction**

Urbanisation is a global phenomenon, its stabilisation process cannot be achieved merely by controlled population growth but many measures have to be taken up in an integrated manner as a cyclic process of transformation (Trewartha, 1969) Traffic jams, noise pollution, garbage disposal, sanitation and sewerage problem are the issues faced by urban city affecting quality of life and health of people. The smart cities mission is a bold new initiative of Government of India catalysing creation of smart cities in various parts of the country that can be replicated both within and outside smart city. The concept of smart city implies and helps one to think in a planned city manner such that each activity in the city is to be identified, monitored and controlled by the technology, innovation and globalisation (Gibson et al, 1992). Various cities have been designated as Smart in the world through the adoption of smart digital technologies and ICT (Batty et al, 2012). Citizen engagement has been considered as the top most priority through education, design thinking and sharing of the ideas. In Himachal Pradesh there are only two Smart Cities namely Shimla and Dharamshala. Shimla has little availability of land for further expansion and the relationship between man-environment is precious. Shimla is one such smart city selected by Ministry of Urban Development along with 99 other smart cities having placed Bhubaneswar (Odisha) at number one on the basis of planned development in the city, feasibility of the proposal, cost effectiveness, citizen participation, result orientation, vision and goals, strategic plan among others with a potential of saving up to 125 hours of an individual every day. Shimla is the only class-I city in Himachal Pradesh with a population of 1, 69,578 (2011 census). The haphazard construction of buildings indicates that no efforts have been made to construct residential areas in a planned manner and proper connectivity to roads. Smart alternatives are critical in retaining the natural heritage of Shimla

which require an immediate attention. Citizens in the city have faced many problems such as availability of basic facilities especially water almost in all the summers which attained the mark of water crises in May, 2018. People's perception is an important tool to have an overall idea of the ground reality in context to the problems people are facing such as unequal availability of various facilities in wards force people to come out of their areas towards main city centre by using their private vehicles thereby increasing pollution and traffic which most of the time acts as an obstacle while going for work. Due to poor road connectivity in some areas people have to walk for distances to avail facilities especially medical among which pregnant women and senior citizens are the main sufferers. It is also useful to know how aware people are about the smart city concept and about their participation in the smart city project, as it is based on citizen centric approach. Therefore, keeping in mind the problems of general public it is important for the government to work at ground level on the prerequisite projects keeping in mind the facilities available in Shimla so that the theoretical smartness can be achieved practically.

## **II. Objectives:**

The present study was conducted:

- To examine people' understanding of Smart City concept along with availability and distribution of various facilities in the study area.
- To analyse government actions required for making available facilities in smart city based on priority ranking of people.

## **III. Literature Review**

- ❖ **Shandil (1993)** analysed Population density of Shimla: A new perspective brings out the view that distribution of population is not uniform and depends upon locational advantages. There are negative areas devoid of any population; weighted mean density has been used shown by a dot map. There was a mention of many areas with reference to human habitation. She drew the conclusion

that population has concentrated on central ridge offering locational advantages.

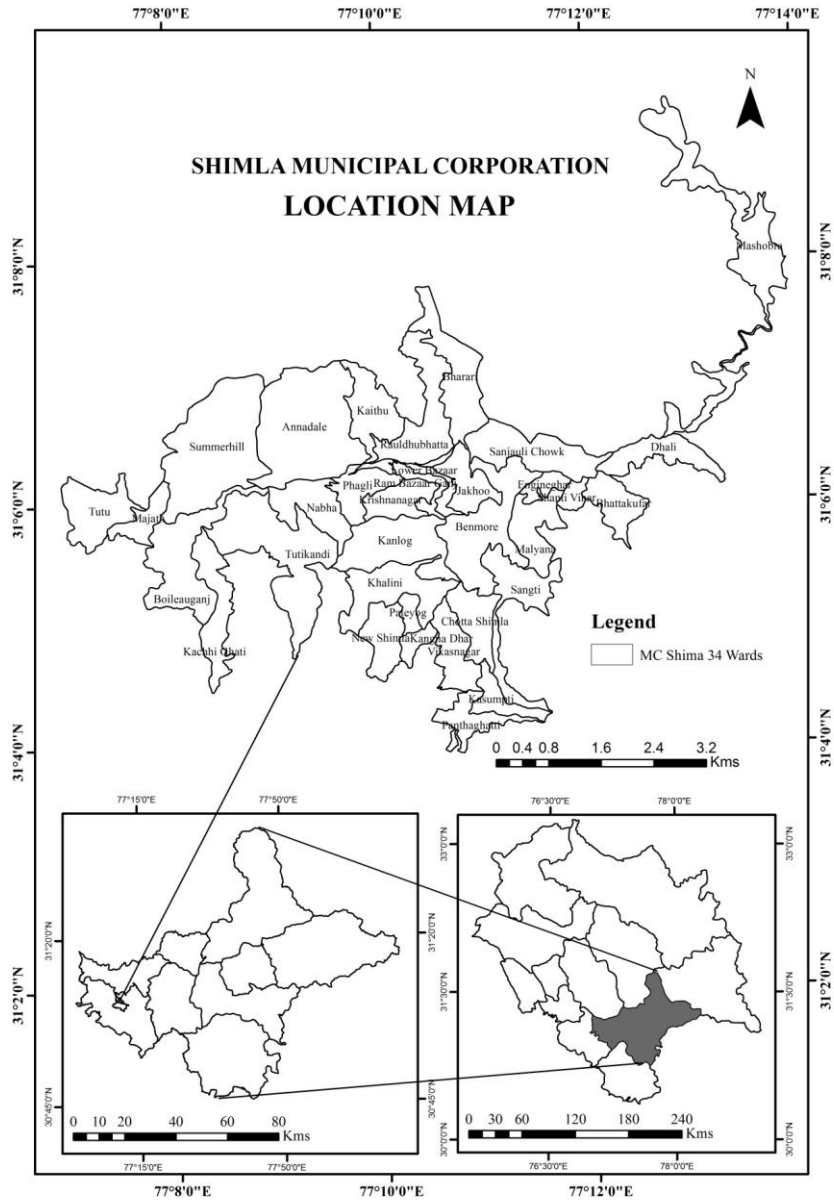
- ❖ **Glaeser et al. (2006)** made an attempt to study urban growth and housing supply focuses how increase in urban growth lead to an increase in housing prices and how they respond to increase in productivity. They imply that supply of housing is important to understand urban dynamics. There was no mention of the urban planning and sustainable growth. They concluded by mentioning that empirical work integrates the heterogeneity of housing supply into urban development.
- ❖ **Madakam and Ramaswamy (2013)** worked on the state of art: Smart cities in India. Smart cities are key to combining sustainable future with continued economic growth and job creation. They divided cities into ten categories and identified six main dimensions. There was a mention of JNNURM scheme and about various smart cities in India. They linked smart with the concept of sustainability.
- ❖ **Jawaid and Khan (2015)** evaluated the need for smart cities in India with various ongoing projects and governments proposal for the development of 100 smart cities throughout the country. They analysed that the cities are developing as a result of expansion of villages and towns due to rapid urbanisation. The cities lack basic infrastructure, basic amenities and require a change in the lifestyle to some extent. Lavasa, a gift city, Nano city, Kochi smart city are some green field developments started to cater to the demands of sustainable cities and smart urban cities. Thus, they concluded that to develop new cities in the country they are to be based on green field as well as the brown field developments.
- ❖ **Arora and Singh (2016)** worked on modernisation of a city into smart city and explained about the requirements to upgrade city

into a smart city. It is the principle infrastructure and is the basis for providing essential services to the residents. There was also a mention about the specific clearance and approvals required for implementation. They examined that the urban planners could provide necessary guidance for making cities smart with the usage of smart devices and smart concepts and neglected the concept of urban sprawl that will be dealt in this work.

#### **IV. Research Methodology**

The study was confined to Shimla Smart City inclusive of 34 wards (as shown in figure 1) of Municipal Corporation Shimla. A total of 100 samples were collected through purposive sampling method from the people directly or indirectly involved in the smart city project which forms representation of the whole as 50 percent of them are decision makers in the smart city proposal. The respondents comprised of MLA's of three constituencies (i.e Urban constituency falling wholly in the city while Rural and Kasumpti constituencies falling partially), Superintendent of Police, Councillors of different wards (including Mayor and Deputy Mayor), general public (inclusive of housewives, taxi drivers, garbage collectors, tourists and shopkeepers) and government employees (comprising of Commissioner Municipal Corporation Architect planner, General Manager Smart City, Executive engineer and Junior engineer smart city) to have a fair representation in view of geographical, social, economic, political and technological dimensions. All of them were interviewed through a structured questionnaire. The data was further clubbed with the facilities presently available in the city and that need to be catered in the future for people when Shimla will practically be a smart city at ground level.

Figure 1: Location Map



Source: Prepared by the Authors from the base map provided by Municipal Corporation Shimla

## V. Analysis and Discussions

A smart city according to Giffinger et al, 2007 is “a city performing in a forward-looking way in economy, people, governance, mobility, environment, and living, built on the smart combination of endowments and activities of self-decisive independent and aware citizens.” Smart city is citizen centric concept and citizens form the backbone in its overall planning, implementation, development, and execution of smart city projects. Of the total 45 percent respondents were females. They were familiar with the available facilities in the city as majority of them have been residing in the city for more than 3 decades. The idea of making a city “smart” is replacing the notion of “growing” cities dependent on the implementation of the urban planning.

### I. Availability of various facilities in the City: People’s Perception

The essential features of various aspects such as water supply, health facilities, educational facilities, transportation, heritage preservation, parking as suggested by the government are encouraging the public- private partnership mode for the cost benefit approach.

**Table 1: People’s Perception of availability of various facilities in Shimla City**

Number of Respondents/percentage									
S.No.	Availability	Water Supply	Connectivity	Education	Health	Tourism	Parking	Vendor market	Fire Fighting system
1	More than sufficient	6	16	31	20	39	6	7	11
2	Sufficient	21	46	50	56	32	23	36	21
3	Low	53	30	19	22	22	54	30	42
4	Very low	20	8	-	2	7	17	27	26
5	Total	100	100	100	100	100	100	100	100

Source: Based on Field Survey, (2018-19)

**i) Water Supply:** Various facilities come under the dominion of Municipal Corporation Shimla. On analysing the availability of water facilities it was known that about  $\frac{3}{4}$  respondents were not happy with the availability of water supply (Table 1) in the city. Shimla faced major water crisis in 2018 because of which water supply has become the top most priority of the government and the solution suggested is finding alternative means of source of water. Water Supply issue has been a long standing issue in Shimla and it touches everyone so it is treated more important than any of ICT provisions and people can't widen their views in this regard though in smart city the use of ICT can be done for smart and efficient distribution of water. Municipal Corporation provides essential services such as water supply, solid waste management and sanitation in the city e.g.; a total of 85 percent households have water supply connection, and about 70 metric tonnes of municipal solid waste is generated per day adding to the solid waste. Only 8-9 MLD sewage is treated at the sewage treatment plant (Yagya, 2017).

**ii) Transport Facilities:** Transport network is predominantly road based and 46 percent respondents feel that connectivity is sufficiently available in the entire city (Table 1) while only people in the Lower bazar, Rambazar and Krishnanagar wards were dissatisfied with the availability. Further the government has proposed plans to widen the main roads and connect main road to the artillery roads to decongest the areas. For dealing with the traffic congestion, government has recommended the construction of arterial roads, and increase in yellow line parking zones, encouragement of non-motorable transport infrastructure which involves the construction of tunnels, trail walkators, public bike sharing and construction of lifts and escalators (Yagya, 2017).

**iii) Educational Facilities:** Being historical, administrative and capital city Shimla has become a hub of education also. All the three tiers of educational institutions are well developed in all the prominent 34 wards. There is suggestion for the construction of skill development and vocational institutions and enhancement of Anganwaris to educate children of workers



and labours from the pre-primary level. Perception develops over longer period of time as a result of the environment we live in and ICT as a guide master in education has larger scope to revolutionise it further in future by coming up with digital e- learning.

**iv) Health Facilities:** Health facilities are adequately available in the city with sufficient distribution of health centres in various wards of Municipal Corporation Shimla. More than half of the respondents' feels health facilities are satisfactorily available in the city. Shimla has a state hospital and many private health centres. Thus, people are fully satisfied with the overall health facilities in the city as shown in Table (1).

**v) Parking:** In urban areas, parking is provided on- street, in surface lots, in underground garages, and in elevated decks. The roads are for sharing with other nodes including pedestrian and bicyclist (Bedi, 2016). Parking requirements vary from use to use. Out of the total, 54 percent respondents are not satisfied with the availability of parking comprising of the Kanlog, Boileauganj, Sanjauli Chowk, New Shimla, Mashobra wards to name a few and thus the government is further planning to bring in new laws to deal with this high priority issue. The ward representatives are planning to designate particular areas as parking zones in each ward. The maximum concentration of car parking's and taxi stands is in the central part of the city comprising of the lift parking, high court parking, Chotta Shimla parking, Sanjauli parking, parking near ISBT and many more (Yagya, 2017).

**vi) Vendor Market:** Shimla city has sufficient vendor market available and the main Sabzi Mandi is located near to the lower market in the city. The vendors do not have proper allotted sites to sit and sell goods thus MLA Rural has suggested allocation of particular areas to the vendors to avoid congestion along the road as in lower bazar and Sabzi Mandi.

**vii) Fire Fighting System:** Shimla city lack in the availability of adequate fire fighting system especially in the lower bazar, middle bazar and sabzi mandi wards. Due to congestion in these wards the fire brigade is non-

approachable and thus it is difficult to control the fire timely. Proper fire fighting system is required for the entire city. Only the wards connected to roads have high fire fighting system available while the ones away from road are rated low in terms of the availability. There is a need to look for alternatives such as pre-fabrication construction in these areas.

**II. Governmental actions for provision of facilities: Priority Ranking**

Study was conducted to accentuate the proportion of action government needs to take for provision of various facilities based on people perception above 50 percent ranking.

**i) Social Facilities: Priority Ranking**

The rapid increase in urbanisation and migration of people has led to problems such as population congestion, shortage of housing, pollution, lack of infrastructure. The cities are not well equipped with the facilities to handle these issues thus, government initiatives are required to cope up with these problems.

**Table 2: Social Facilities: Priority Ranking**

S. No.	Priority sectors	Priority ranking (Number of respondents/Percentage)					
		5 (Very quick action required)	4 (Quick action required)	3 (Moderate action required)	2 (Low action required)	1 (Very low action required)	0 (No action required)
1	Water supply and water quality	47	36	15	1	1	-
2	Health: PHCs and CHCs	10	45	31	9	5	-
3	Waste manageme	33	32	17	12	5	1

	nt						
<b>4</b>	Safety	34	38	25	3	-	-
<b>5</b>	Sanitation	21	42	26	11	-	-
<b>6</b>	Footpaths	42	25	22	8	3	-
<b>7</b>	Cycle tracks	29	22	18	11	10	10
<b>8</b>	Open spaces: Parks	40	18	26	5	9	2
<b>9</b>	Playgrounds	31	17	22	11	9	10
<b>10</b>	Water waste management	37	25	19	10	8	1
<b>11</b>	Animal Menace	36	33	16	8	6	1
<b>12</b>	Education	41	28	27	4	-	-
<b>13</b>	Housing and inclusiveness	21	38	22	15	4	-
<b>14</b>	Biodiversity : Forest	50	31	12	7	-	-
<b>15</b>	Better telecommunication	35	36	22	6	1	-
<b>16</b>	Ambulance road facility	51	26	14	6	3	-
<b>17</b>	Eco tourism development	49	22	10	9	6	4

*Source: Based on field survey, (2018-19)*

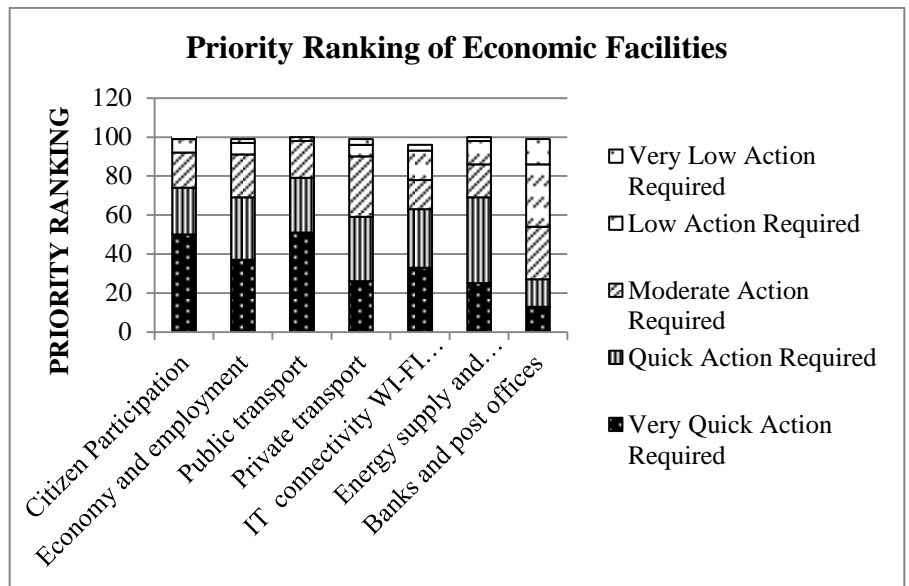
The (Table 2) lay emphasis on the facilities that require very quick action are ambulance road facility (51 percent), eco-tourism development (49 percent), water supply (47 percent) and footpaths (42 percent) to name a few with the largest number of respondents favouring them. The facilities which require quick action according to the perception of the respondents include health (45 percent), sanitation (42 percent), and animal menace (33 percent). The facilities kept at the lowest priority or which require no action

or very little action includes cycle tracks (10 percent), playgrounds (10 percent). In some wards facilities like eco-tourism development, cycle track development fall under the quick and very quick categories.

**ii) Economic Facilities: Priority Ranking**

Economy is the main driver force in implementation of the smart city initiatives comprising of citizen participation as the top most priority which has been neglected by the government even after two and half years of Shimla being designated as a smart city.

**Figure 2: Priority ranking of Economic Facilities based on People’s Perception**



Source: Based on field survey, (2018-19)

**Figure 2**

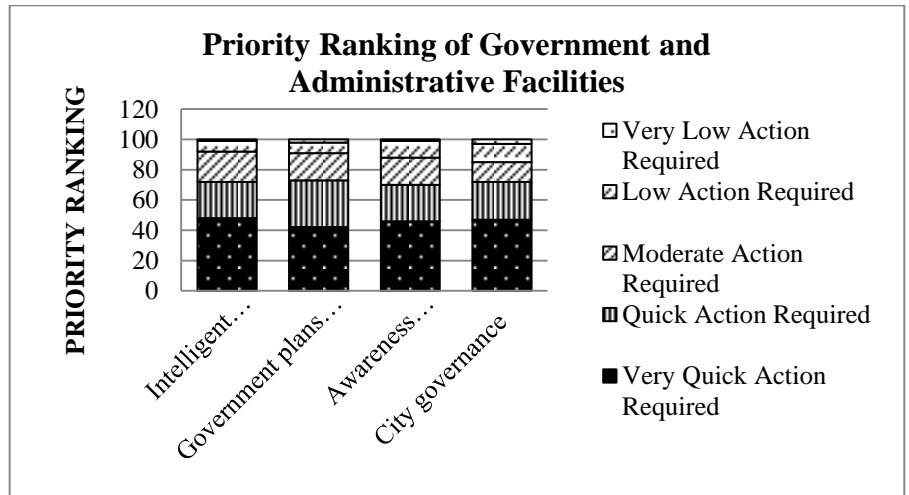
In context to the economic facilities as shown in figure 2 private facilities are enhancing keeping public transport at the backdrop thus government is planning and preparing measures to uplift the public transport as 90 km

motorable roads are accessed by public transport only; with 16 percent roads having footpaths. Banks and post offices essentials of the economy are available in adequate amount among the city which requires very less action as 32 percent respondents are satisfied. There is proposal to construct escalators in various parts of the city. Underground wiring of electricity is also proposed under the project. It is known that main cluster is close to the main city centre covering the lower bazar and the mall area. It is evident from the data that 30 percent favours WI-FI facility requires quick action by the government as we are moving towards digital economy.

**iii) Government and Administrative Facilities: Priority Ranking**

For cities to become smart, it is essential that governance structure is also smart. In order to improve the performance, citizen consultation and a transparent system is an important instrument. Government have created strategies to develop smart cities for the improvement of operational efficiencies, maximise environment sustainability and create new citizen services (Sarkar, 2016).

**Figure 3: Priority Ranking of Government and administrative Facilities based on People’s Perception**



Sources: Based on field survey, (2018-19)

**Figure 3**

Figure 3 clearly depicts that little less than half of the respondents favour city governance because government is considered as an urbanising force directed by political considerations. The similar number of respondents suggested that quick initiatives for intelligent government services are required by the government for smooth working of the proposal. Government plans and implementations are given priority which requires very quick action by the government as recommended by a total of 42 percent respondents because formulation and implementation of the plans form base for a city to become smart and achieve a common goal. Awareness campaigns need to be organised by the government to have more citizen participation in the project through which government can know about the problems faced by the people and can implement solutions suggested by them.

**iv) Technological Facilities: Priority Ranking**

The use of smart city technologies results in cost efficient, resilient infrastructure, and an improved urban experience emphasizing on the integration of technological networks and the built environment.

**Table 3: Priority Ranking of Technological facilities**

S. No.	Priority sectors	Priority ranking (Number of respondents/Percentage)					
		5 (Very quick action required)	4 (Quick action required)	3 (Moderate action required)	2 (Low action required)	1 (Very low action required)	0 (No action required)
1	Automated bus fare paying by card swiping	60	11	14	8	5	2
2	GPS enabled local	59	15	15	6	4	1

	transportation						
3	Free Wi-Fi facility	61	17	11	7	4	-
4	Gas pipeline in place of LPG cylinders	37	12	12	13	8	18
5	Online bill payment	58	15	13	5	5	4
6	GPS enabled parking facility	58	16	9	6	2	9
7	CCTV surveillance	59	15	13	7	6	-
8	Drones for security	35	15	11	7	11	21
9	Real-time information	61	15	7	8	4	5
10	Water recycling System	53	20	7	8	6	6

Source: Based on Field Survey, (2018-19)

The technologies are generating lots and lots of data, promoting innovation for the improvement of quality of life of citizens leading to digital divide (Odendaal, 2003 quoted by Sarkar, 2016). The city has not yet developed in terms of technological advancement. All the technological indicators require quick action by the government. ICT is the core of smart city and it is through the prioritisation of technology that people can avoid outside travel e.g. online banking facility, online payment of bills and fees. Priority ranking implies giving importance to some facilities which require quick government involvement for their provision to general public. The (table 3) clarifies that only about 35 percent respondents consider drone beneficial for the security while in the words of Superintendent of Police Shimla, drones are not at all required in a city like Shimla with small area. Nearly 1/5th of the respondents declined the replacement of LPG cylinders with gas pipelines due to the problem of landslides during rainy season while 15 percent respondents suggested GPS enabled local transportation and another 16 percent were in favour of GPS enabled parking facility. CCTV

surveillance facility is installed in the city and proposal has been sent by the wards lacking it. Majority (61 percent) respondents suggested real-time information a must indicator of technology in the city. Thus, innovation supported technological development is essential for offering competitive products and services.

## **VI. Findings**

1. It is evident from the perceptions that the councillors and general public were not familiar with the general terminology of Smart City. For them Smart City is a city well-equipped with WI-FI facility, 24x7 water supply and are ignorant about the other facilities. It is clear from the study that smart environment component is easy to implement in the city by organising cleanliness campaigns.
2. It has also been revealed that ICT has impact on smart city and availability of smart services such as technological facilities require very quick action on part of the government.
3. Smart city Shimla will have positive impact on the people by improving their quality of life and quality of services. Means to control traffic congestion and provision of quality water are considered as the top most priority in proposal that will have positive impact on people in the near future.
4. Smart city portal has been developed by the government in which problems faced by the residents and suggestions to it were called in by the government for framing.
5. National Green Tribunal has been formed for the effective and expeditious disposal of cases relating to environment protection and conservation of forests and other natural resources. NGT in Shimla in July, 2017 passed orders to ban constructions- residential, institutional and commercial-in core areas, green-belt and forest areas of Shimla. This has led to many problems in Shimla Smart City project when important institutional buildings like Cancer hospital were coming up in Shimla. It aims to save Shimla from crumbling under haphazard and unplanned construction.



6. Few people consider that it has negative financial impact because people who already have permission to increase their housing area under retention are now forced to break the construction which hitherto not regularised or have to pay a specified amount of environmental compensation.

## **VII. Suggestions**

- 1) Provisions need to be made for 24x7 water supplies in the city by finding alternative sources of water to equate supply of the water with its demand.
- 2) Construction of check dams and creation of water reservoirs for water conservation. Abating water contamination problems: since fresh water is a limited and scarce resource, its pollution by human activity is not desirable.
- 3) Awareness camps should be organised to generate awareness among people regarding the use of bicycle, especially youngsters that will be useful to reduce the carbon footprints in the city.
- 4) Media can play a dominant role by showing the problems people are facing and asking for the solutions.

## **Conclusion**

It can be gathered from the above discussion that the respondents indirectly associated with the smart city project are not familiar with the general terminology of smart city and keeps the water supply as the top most essential facility while ignoring the others. It was analysed that all the facilities namely social, economic, political, technological require considerable action by the government for provisions of these activities today and in future. It is also revealed that ICT has impact on the availability of smart services, thus technological facilities require very quick action by the government. Smart City Shimla will have positive impact on the people by improving their quality of life and quality of services. Means to control

traffic congestion and provision of quality water supply are considered as the top most priority in the proposal which is seeking the attention.

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