Smart Citizens for Smart Cities: An Indian Scenario

*Pushpendra Kumar Sharma, Associate Professor, School of Civil Engineering, Lovely Professional University, Phagwara, Punjab, India. p.sharmaji10@gmail.com

Chandra Nath Tripathi, Ex-Associate Professor, Department of Civil & Environmental Engineering, H.C.S.T., Farah, Mathura, UP, India. cntripathi01@gmail.com

Ms. Snigdha Pandit, MBA, Scholar, Gautam Buddha University, Greater Noida, Uttar Pradesh, India. snigi.high15@gmail.com

Abstract - This paper focuses characteristics, concepts and various guide lines for making the cities smarter and more sustainable in number of aspects. The authors find that whatever are the norms and guide lines adopted for making the cities smarter and more sustainable as per available literature but every attempt goes waste if the citizens or the habitants are not of positive attitude. The habitants must possess the feelings of belongingness along with the constructive behavior towards the smart cities otherwise all attempts become useless. Keeping this in mind the authors have emphasized to make the citizens first smart before making the cities smart so as to achieve the goals of smart cities with higher sustainability. The authors recommend the need of spreading general awareness among the habitants to own the cities and maintaining them clean, green and more sustainable through their good habits without attributing local authorities or governments. So it is we people, the inhabitants who will make our cities smarter and more sustainable.

Keywords: Habitants, attribute, sustainable, citizens, smart, attitude etc.

I. INTRODUCTION

The word smart is becoming very popular now days after the smart phones, smart living, smart cities and a very few people think of smart public.

Sustainable development meets the needs of present generations without compromising those of future generations. All natural systems have their limits within which human well-being requires living. So the renewable resources must be used wherever possible and husbanding non renewable resources to extend their viability for generations to come (Pandit and Sharma 2017).

More than 60 percent of the world's population lives in urban areas which is expected further more in future and will consume more resources in years to come? There are many daily problems likely to come in these rapidly growing cities. So there is an urgent need to innovate some methods and technology to overcome these urban problems so as to improve the living standards of urban inhabitants.

So the conceptual idea to make the cities smarter and more sustainable is somewhat managing the services of water, electricity, transportation, energy and green construction without any kind of pollution at all. Some other points of consideration with view point of smart cities may be urban planning, economy, architectural development, environmental sustainability, cleanliness, green buildings and many more. Hence the environmental awareness and deep understanding of the advancements to be practiced in urban areas worldwide has become the today's priority and has drawn attention of professionals, academicians and researchers to develop smarter cities and more sustainable.

A city where capital, natural resources and knowledge is wisely managed emphasizing innovation, efficiency, quality of living and sustainability is called to be a smart city. This requires not only a clear vision and long term governmental or local body planning with innovative, effective and practical approach but also a good understanding and wise users of the city resulting in quality life of clean, green environment with public spaces, natural water bodies to maintain which individual contribution is must. The habitants of smart cities must be futuristic but sustainable in all respects. Citizens must follow code and conduct maintaining environmental ethics without which even a single theme of smart city is impossible. So the role of citizen becomes very important as far as smart city is concerned, especially in developing countries like India where there are people starving for subsidy, reservation, religion, backwardness, without owning the city and nation. Indians priorities are different needing everything free without any effort and they do not want to contribute and pay back to city, society or nation to make it smart and that is why there is an urgent need of social awareness meaning to say is first Indians are to be made smart before making their cities or nation to be

smart. The citizens must be of constructive attitude with a great feeling of "My Nation First" where I am earning, eating, clothing and sheltering and what can I pay back to my society.

II. ENVIRONMENTAL GUIDE LINES

A. Background

While planning and designing of a proposed smart city from an environmental perspective there are some concepts to be kept in mind such as clean, green, safe and sustainable city without any kind of pollution at all. There are some set of environmental criteria to be followed as per different and unique site of the project. Any smart city is composed of residential, commercial, official and entertainment areas within the boundaries of which any activity of builders require an Environment Impact Assessment (EIA) License under the Environment Protection Act.

There should be the provisions to generate individuals level energy and water resources through water harvesting, water recharging of natural or artificial water bodies, water conservation reducing the demand pressures on our surface and ground water resources like lakes, ponds, wetlands, reservoirs or natural streams. To promote biodiversity green belts, gardens, corridors, river fronts must be developed along with foot paths or bicycle tracks for the human enjoyment of nature. The buildings must be energy conserving so as to protect environment and providing sustainable living. There should not be any kind of traffic congestion leading to modern transportation systems providing sustainable mobility. The citizen must understand the importance of sustainable lifestyle and wise consumption leading to minimum waste, green agriculture and organic farming etc.

B. Basic Sustainable Features

Six basic segments for planning of smart cities are:

b1. *Environment:* covering planning for judicial use of land, attractive naturals, environmental protection and pollution control measures, sustainable buildings equipped with waste recycling and water efficiency.

b2 *Life Style:* including quality health, safety, cultural and education vantage, green buildings, tourism and social integration.

b3. *Local Government:* A government should be transparent, making decision with public sharing, provide quality social and public services. The sharing between the local governance and public reduces the conflicts of opinions and ensures easy implementation.

b4. *Economy:* covers promotion of local items, e-business and e-commerce vantage and entrepreneurship along with productivity mood.

b5. *Mobility:* safe and sustainable transport system along with local and national reach.

b6. *Smart Habitants:* with an attitude of lifelong learning, social and ethnic diversified, environmentally aware, creative and community participating. Smart habitants require to be fully inclusive, innovative and sustainable.

C. Environmental Parameters

At the very beginning stage of planning and designing of any project to ensure low carbon, low water and low ecological foot print with infrastructure keeping present and future impacts of climate changes, promoters must think of land use, green and energy efficient buildings, disaster management systems, water efficiency, reuse and recycling, waste management, sustainable transport, green biodiversity and community.

D. Parking and Transport

There should be proper parking spaces planned so as to meet the requirements of a smart city. As far as possible underground parking should be preferred provided with safety alarms during floods or other natural disasters (EGL 2015). A smart transport system with proper road signs both sides followed by green parking and both side plantations without any congestion with due consideration of industrial area existing away from highways to avoid accidents and traffic noise should be planned (Pandit and Sharma, 2017).

E. Sustainable Buildings and Energy Saving

Minimize consumption of fossil fuels and decrease the CO_2 emissions lowering GHG emissions. The orientation should be North- South direction in tropical regions and East-West in cold regions. The buildings must fetch maximum natural light in day time and during night energy efficient lights may be promoted. The whole building construction should be of locally available materials. As far as possible green concrete should be used for construction so as to achieve the goal of sustainable construction (Sharma and Agrawal 2018).

III. GENERAL ENVIRONMENTAL AWARENESS

A desired cleanliness and housekeeping should be maintained not only inside/outside houses but also in industries. The residential areas should be well distant from the dumping sites so as to avoid ground water contamination through leaching and various kinds of pollution effects on public health. Keeping this in view the displaced persons who have lost their agricultural lands in installed projects should be well rehabilitated.

As far as air pollution is concerned the stacks should be higher than (30 m) what is prescribed by State and Central Pollution Control Boards, down-wind side of the community isolated by some physiographical barrier along

with one to two km green belt for absorption and dispersion of polluting emissions. Their pollution level should be well within the prescribed limits and should be monitored after regular intervals of time by Environmental Management Cell well equipped with infrastructural facilities.

Pretreated solid wastes should be disposed well away down-wind side from the residential areas as per planned and approved green planted landscape with proper check against leaching so as not to contaminate ground water reserves. Reactive materials in solid wastes should be kept immobilized and made inert using some low cost additives.

Solids and liquid effluents from existing industries should be made sure pre treated before disposal and whatever possible conservation and reuse of water should be ensured. Adequate shock absorbers for vibrations and noise control devices should also be there. Proper precautions for health, safety and environment should be checked time to time in all kinds of industries. Fire, sudden leakage of oils, gases, explosions including natural calamities like earth quake, floods etc. type disasters should be planned at strategic level for relief works to save lives and property (Pandit and Sharma, 2017)

IV. SOCIAL AWARENESS

Social awareness is nothing but social emotional learning and can be defined as the ability is to take the perspective of and empathize with others from different backgrounds, cultures and religions; to understand social and ethical conduct and to diagnose family, school, society and community resources and supports. It deals with understanding one's own emotions and others to guide thinking and behavior, motivations and feelings under particular situations. Social awareness matters because it links us with others emotions and environment creating positive understanding of belongingness to the city, society or nation and this is what develops constructive attitude which will help a lot the citizens to develop sustainable society and smarter cities. It builds positive relations among various casts and religions with enthusiastic support.

V. SMART HABITANT

A developing country converts into developed when its citizens update and upgrade by their own. In India the mission of smart cities is in full swing covering first 20 smart cities stepping in to the implementation with respect to the advance technology and infrastructure (The HINDU, 2016). The authors feel an urgent need of smart habitants first and then after the mission of smart cities will come true. So the most important factor for smart cities that plays a very vital role is its inhabitants who live and work in this city-must be integral to the implementation process

as well. So the success of the mission of smart cities is solely vested in smart citizens who have civic sense, believe in Indian constitution and respect the law irrespective of religion or castes. Smart habitants obey the traffic rules, drive within speed limits, ungear from jumping signals, give way to pedestrians first, respect elders and help senior citizens, park their vehicles on designated parking not anywhere else, maintain hygienic conditions in individual flats and complexes, put segregated garbage in bins, efficiently use the smart services, consume least energy by behavior, positively participate in so called awareness towards smart city services etc. Policies are never ever enough to satisfy the demands of the mission until unless there is a support from the habitants and local stakeholders. The habitants should bear collective responsibilities to meet the challenges of the future to make the city future ready.

Innovative Information and Communication technological support through internet helps a lot in sharing advances of technology to make the cities and their habitants smart enough. MyGov.in is an excellent example to increase the habitant's engagements to take the smart city initiatives. A city reflects how its habitants feel and the smart city acts as an innovative ecosystem. So the ihabitants must be active in the process of city design for the success of the mission smart city (The HINDU, 2016).

XI. CONCLUSIONS AND RECOMMENDATIONS

The authors have personally felt that people over speed the limits in dense populated areas, cross the zebra strips at crossings, do not follow the traffic rules, spit gutkha and throw garbage or urinate publically anywhere they like but it does not mean they do not know the civic rules, actually the problem is they are not well civilized. They enjoy breaking rules and get angry if advised to do correct as ego hearted. The rule breaker should be well punished and educated. So if the habitants without human kind and basic integrity can never dream their city to be smart. It needs smart habits of the residents. All the efforts for the development of the city to make smart is waste, if the residents are not to infuse civil habits. Our government should penalize such indiscipline peoples. But obvious we can have ultra modern facilities in our cities yet there is an urgent need of the citizens to make their optimum use wisely with civic sense. There will be no use if these modern facilities are not maintained by public. For example if street light is provided then these are the street habitants who have to put it on or off timely and every one of us need to be trained well with these civic rules.

So we can conclude our discussion that cities before to be smart need smart citizens and the condition to date is that most of we Indians do not qualify for the basic denizen required for civic rules for a smart city which we break

every step without any fine. We are only the Indians out of the world who have been ever interested in everything freely available without any charge, labor or hard work. We want everything free like light, water, house, education, health services, jobs on the basis of reservation based on cast, religion and many more options. We want to live like parasites and have been addicted to do so. We never want to stand on our foot and never even tend to contribute back to our city, society or the nation. So it is not less than a challenge to train, enroll, help and engage the habitants transiting them into the ambience of the smart city first. And hence before commencing any future project regarding smart city, it is very important to train our users so as to use it in smart manner.

So it is recommended that before a smart city first a type of community should be well defined with their occupation and business details according to which the policies can be defined keeping responsibilities, objectives, goals along with the full engagement of the residents in mind of developers and promoters through e-government initiatives, sport events, local business developments and innovations to make the local business world class.

REFERENCES

[1] Sharma, P.K. and Agrawal, P. (2018) "Green Concrete: A Sustainable Solution." *International Journal of Computational Engineering Research (IJCER)*, ISSN (e) 2250-3005, vol. 08, no. 01, January-2018, pp. 40–43.

[2] Pandit, S. and Sharma, P.K. (2017) "Sustainable Environmental Management: A Social Responsibility for clean, green and smart India" Proceedings *3rd International conference on Advances in Management & Decision Sciences*, Gautam Buddha University, Greater NOIDA, December 30 & 31, 2017.

[3] Article (2016) "Why smart cities need smart citizens?" 'THE HINDU' May 20, 2016 updated on Sept. 12, 2016.

[4] www.transformingeducation.org

[5]http://www.investmauritius.com/media/302490/Environmental-Guideline-for-smart-citiesdocx-July-2015.pdf

 [6]http://www.thehindu.com/features/homes-and-gardens/why-smart-cities-need-smart-citizens/article8625075.ece