

## **Indian Outlook of Sustainable Smart Governance: A Paramount for Smart Cities**

M Afshar Alam<sup>1</sup>, Lubna Ansari<sup>2,\*</sup>, Ranjit Biswas<sup>3</sup>, Syed Imtiyaz Hassan<sup>4</sup>, Zain Mohammad Sulaiman<sup>5</sup>

<sup>1,2,3,4</sup> Department of Computer Science and Engineering, Jamia Hamdard, New Delhi-110062, India

<sup>5</sup> Aligarh Muslim University, Aligarh-202001, India

**Abstract:** - Smart city is a mutable term. The objectives, characteristics of Smart Cities changes according to the country, its geographical condition, resources available[1]. Smart cities concept is mushrooming gradually around the globe[1]. India is also participating in the development of smart city by promoting Smart Cities Mission. Smart City have many attributes depends upon country to country. One of the major attribute of Smart Cities is Smart Governance. Smart Government uses ICT to interact with the citizens, enhancing public services[2]. Smart Governance that uses ICT with an aim to maintain sustainability is termed as Sustainable Smart Governance. In this paper, we address some of the challenges faced by India to foster Sustainable Smart Governance. We presented an Indian outlook of sustainable Smart Governance.

**Keywords:** Smart Cities, Sustainable Development, Sustainable Smart Government, Smart Cities Mission

### **1. Introduction**

“Earth provides enough to satisfy every man’s needs, but not every man’s greed”, intelligent words by Mahatma Gandhi. With the growing demands of a man and limited resources offered by planet Earth, a new concept “Sustainable Development” comes into existence. When we are able to satisfy present generation needs by making sure that the future generations won’t compromise their needs, then we successfully obtain Sustainable Development [1]. Sustainable Development is about finding better ways of doing things both for the future and the present. The longer we practice unsustainable development, the more frequent and severe its consequences are likely to become, and that is why we need to take actions now. We can promote sustainable development by implementing more and more Smart Cities.

Smart Cities is a new concept which is emerged from Sustainable and Digital City [1]. Everyone is talking about it and trying to implement it. But, the universal question is “what is the meaning of Smart City?” A Smart city can be defined as a coherent and prevalent application of ICT in cities[3]. A smart city is a city with features like innovative culture, high standard of life, safety and security and environmental and financial sustainability[4]. According to Gaur et al a Smart City can be any city which can find out a better way to utilize or manage various resources available to a city such as transport, health, energy, infrastructure and the environment[2]. Another definition states that a smart city is a city that uses ICT to enhance the quality and performance of resources like energy, transportation and utilities in order to reduce resource consumption, wastage and overall costs[29]. But there is no perfect definition of Smart City which can be applicable to all situations. The idea of Smart City depends upon the development level, available resources and requirements of the citizens and therefore varies from one city to another and even from one country to another[30]. But Smart Cities should be more inclined on people’s needs and interests rather than on technology[5]. The conceptualization of Smart City is different for, say USA than in India. Still we can set some definitional boundaries to define Smart City by targeting things to be done in a particular area.

India is also participating in the Smart City Campaign by promoting Smart Cities Mission. Smart Cities Mission is one of innovative initiative taken up by GOI (Government of India). The idea of Smart Cities Mission is to assist cities with basic infrastructure and give a high standard of living to their electorate, a cleaner, greener and sustainable environment and use of ICT enabled “Smart” Solutions [30]. The mission targets various issues like sustainability concerns, right model for Smart Cities in Indian context, attaining the good governance agenda [6]. The inception of Smart Cities Mission focused on 10 elements i.e. Sanitization, Affordable Housing, Safety & Security, Assured Electricity Supply, Sustainable Environment, Adequate Water Supply, Health & Education, Robust IT & Digitization, Efficient Urban Mobility & Public Transport and Good Governance & Citizen Participation. To support or promote these agendas of Smart Cities Mission, Government of India is running many plans or schemes. One of the important elements of Smart Cities Mission is Good Governance & Citizen Participation. Irrespective of the fact that how much smartness a city attains, E-governance deliverables are very much important for a nation[6]. Even United Nations (UN) included E-governance in Sustainable Development Goal(SDG) [6]. According to Nam and Pardo, Smart City has three folds viz Technology, Population and Institutions (policies and governance)[7]. Lazaroiu and Roscia discussed vital elements of smart city [8]. A smart city is composed of smart living, smart people, smart economy and smart governance[8].

## **2. Sustainable Smart Governance**

Governance is the functionality of the Government. Good Governance or Smart Governance means how efficient the government is in providing solutions to the citizen. Smart Governance is like a strand of E-Governance[9]. Smart Governance tackles the convolution in a smart city related to a city governance with appropriate technologies, infrastructure, financial status, human resources, laws, norms, information systems, policies and regulations[9]. According to World Bank, E-government is the government that uses ICT (like mobile computing, Internet) to enhance communication with private sectors, electorate and other government departments[10]. A smart city must have a smart city government or smart government which can tackle and implement various rules or policies by enforcing ICTs and by interacting with citizens[4]. GOI is making efforts to make citizens of India happy and satisfied. The Smart Cities Mission requires skilled people who can participate in governance. Citizen involvement means regular participation in governance.

Smart Governance can be defined in many ways. Smart governance is when we give choice to our citizen that they can avail government services & information when & where they want it[11]. Smart governance is an aggregation of principles, factors and capacities that form governance which can tackle the conditions and requisite of present society[12]. The concept of Smart Governance described by coherent systematic and schematic vision which is capable to know, perceive and govern city by maintaining a balance between “big data”, infrastructure and citizens[12]. Gil-Garcia[13], Pereira et al[14] define Smart Government as a government that uses futuristic ICT to amalgamate institutions, information, infrastructure and processes to better serve electorate. According to Gartner Inc.[15] Smart Government is a government which can merge communication, information and ICT to management, planning and operations across various domains to trigger sustainable public value. World Bank defines Smart Governance by considering Smart as an acronym – where S stands for Social, M stands for Mobile, A stands for Analytics, R stands for Rational-Openness, T stands for Trust. Smart Governance is a conglomeration of factors, principles and capacities that comprises governance which is able to manage the conditions and need of stakeholders[4]. To build competencies and acquire flexibility smart governance has to tackle complexity and unpredictability, this competencies and flexibility can be referred as smart governance infrastructure, consists of both hard and soft component like policies, norms, skills, information, technologies and various resources[4][16]. The objectives of Smart Governance are: to promote citizen participation; to make transparent smart governance; to lower the cost & reaction time; to make a well informed society[11].

Smart Governance involves three main stakeholders viz people, businesses and government itself[17]. These stakeholders can be further categorized like people can be further categorized into people as electorate or people as service user[17]. A particular individual may fall into many category[17]. There is a strong relationship between these stakeholders which can be categorized into three e-governance models:

- Government-to-citizens e-governance (G2C): The focus of this e-governance is to find an efficient and inexpensive way to content citizens with required information and e-services[17]. This will make the connection between the citizens and the government stronger[17]. Various e-services include access to government sites and documents, making e-transactions like tax payment[17].
- Government-to-businesses e-governance (G2B): The idea of G2B e-governance is to strength the relationship between the government and private sector[17]. G2B governance will keep the private sector well informed and also will give knowledge about best practices of e-business[17]. For example E-Licensing (where private sector companies can apply and acquire license from Government).
- Government-to-government e-governance (G2G): To make a cost effective communication between various government departments and organization G2G e-governance comes into existence[17]. G2G will also promote online communication between government authorities[17]. For example E-police and E-courts. With these three e-governance models, government is able to establish a hassle-free, efficient government. Another important feature of Smart governance is that it has to Sustainable. As already discussed, sustainability is the paramount of Smart Cities. A Smart city without the concept of sustainability will be nothing but futile. Therefore if we want to make Smart governance more powerful, more effective and more efficient then we have to make our Smart Governance Sustainable. A Smart Governance will be Sustainable Smart Governance if it supports three sustainability[10]:
- Economic Sustainability: By utilizing government approaches to foster the effectiveness and efficiency in e-government for development and growth[10]. Government approaches or structures need to be transformed in such a way that it will increase electorate involvement, transparency level and accountability which in turn make the citizen services more sustainable[10].
- Environmental Sustainability: We can achieve Environmental Sustainability by supporting environmental institutions by making them online and associating them with government agencies[10].
- Social Sustainability: Social sustainability can be achieved by eradicating the social barrier and supporting social equity[10]. Government services should be provided to each and every citizen in same way irrespective of cast, creed and religion[10].

Smart governance must support Sustainable development domain to be a Sustainable Smart Governance[18]. It can be obtained by magnifying the efficiency of government services with Sustainable development based ICT architectures, strategies, infrastructures and processes[18]. Yanni Yu[19] states that in an annual report in China Smart Governance has three major roles viz broadcasting information about environment, interaction between government and citizen and

providing government services in one-stop. Sustainable Smart Governance uses ICT to deliver public services, support public administration and enhance communication between government departments and electorate, with increased citizen participation in government decisions and fostering social equality and preserving natural resources for present and next generations[18]. Sustainable smart governance can also be defined in terms of how environment friendly it is i.e. government should monitor the ICT technologies used are environmental friendly (like check on carbon emissions) and sustainable[20].

Smart Governance have many benefits for example if a country promote smart governance then all the services will be timely delivered to the citizens; also government can easily be aware of its available resources and can make right decision of where they are needed the most[11].

### **3. Indian Outlook of Sustainable Smart Governance**

As already mentioned earlier that India is also taking part in mushrooming the idea of Smart Cities. Former President of India, Dr. APJ Kalam, in a conference at IIT Delhi, stated “ E-Governance has to be citizen friendly. Service delivery to citizens is a primary function of the government. In a democratic nation of over 1 billion people like India, E-government should enable seamless access and flow of information across the state and central government in the federal setup. No country has so far implemented an e-government system for 1 billion people .It is a big challenge for us[11].” Our Honorable Prime Minister, Mr. Narendra Modi emphasized on “Minimum Government and maximum Governance.[21]”. And to support Smart Cities Mission, he guided Smart cities campaign in order to select cities for further grooming to be a Smart City. In various rounds many cities have been selected like Bhubneshwar, Pune, Jaipur, Surat, Kochi, Ahmedabad, Lucknow, Bhagalpur, Faridabad, Amritsar, Kalyan, Nagpur, Agra, Thiruvananthapuram, Rajkot, Karnal, Saharanpur, Itanagar [32]. Though Smart Governance is considered to be an essential element of Smart cities but in India its conception started a long time back. In year 1995 internet is launched in India[11]. Department of IT, GOI e procurement and state data centre are initiated in year 1998[11]. On 15<sup>th</sup> Aug, 2000 centre for E-Government was developed in Delhi as “ Electronics Niketan” ; primary objective is to help the state and centre government to implement the e-government process and also to showcase the feasibility of e-government to stakeholder[11]. On may 18, 2006 National E-government Plan (NeGP) was approved by GOI with a vision “to make every government service available to public in their locality and ensuring reliability, transparency and efficiency of all services at low price to fulfill basic need of the citizen” [11]. Broadband was launched in 2007 and total broadband connections in India have reached 2.996 million by 2009 end[11]. Digital India concept originated in year 2015[11]. And in year 2016 concept of Smart Cities announced[11].

To foster smart governance many projects like Aadhar Card, Akshaya, Bhoomi were implemented in addition to that many SCP (Smart Cities Project) have been either implemented or proposed. Some app based solution projects in India are:

- Integration of public and privately owned (publicly accessible) parking availability data on to common platform and parking mobile app. (Parking Management - Integrated City Operation Management Center – ICOMC in Bhubneshwar[30].
- Bus System Intelligent Traffic Management System (ITMS) in Pune. It is a smart Public Transport which monitors Buses by using GPS for real time tracking. Maintenance of buses using health Monitoring system. Every bus and bus stop equipped with LED screens to display passenger information. Passenger can also track the location of the bus by mobile app. By using smart sensors ride quality can be monitored. In addition to that every bus is also equipped with wi-fi and entertainment systems [30].
- e-Chalaan systems with which traffic police able to do smart chalaan payments by using android based e-chalaan tablets[30].
- Smart & Sustainable Civic Infrastructure- Citizens by using mobile application can report street problems in Jaipur[30].
- Cleanliness metering through "Apna Nigam" App in Jabalpur. By using “Apna Nigam” App citizens can participate in the cleanliness of the society by rating various public places cleanliness. Cleanliness in the city is done by real time monitoring so that places will be identified in no time that needs immediate action [30].
- ICT & E-Governance in Davangere. For enhancing interaction between Government and Citizen, One City One website & App is proposed to interlink all Government departments via one program and also to foster all e-transactions; One City One Number - an unique 4 digit IVRS based number for electorates to have access and can communicate with any Government official site to get essential information and track complaints [30].

Government of India also launched recently UMANG (Unified Mobile Application for new-Age Governance) because of the increasing use of mobile phones[21]. UMANG is developed by National E-governance Division and MeIT ( Ministry of Electronic and Information Technology)[21] . By UMANG electorate can access all government services at one platform[21]. Another initiative by Prime Minister is MyGov, a unique platform where electorate can voice their thoughts about the government and can actively participate in government activities[21].

Smart Governance is the basic and highly important aspect of Smart Cities Mission of Govt. of India. The objective of Smart City differs from one place to another. It is influenced by many factors and face many challenges like cultural, political, social, technical and governmental[22]. The meaning of Smart Governance, being an important part of Smart

City, varies accordingly. The Indian Perspective of Smart Governance is very much different from other countries because of many factors like:

- **High Population:** The population of India is growing rapidly and it is predicted by World Bank that around 600 million people are expected to live in India's cities by the year 2031. Developing the architecture of Smart Governance for such a huge population is a challenge for India[23]. As Smart Governance architecture for massive population is different from other countries.
- **Literacy Rate:** India's literacy rate is at 74.04% which is a small figure in comparison to other countries like USA. Most of the Indian citizens are unable to understand English but their native language. Internet is dominated by English Language, which makes it difficult for people who does not understand English[24]. 95% of Indian Population cannot understand or use English[24][11]. Literacy rate is another hurdle for Smart Governance[23][25].
- **Infrastructure/ Resources:** Smart Governance is majorly dependant on infrastructure. If we do not have sufficient resources we cannot implement a successful architecture of Smart Governance[11][27]. The primary Infrastructure and Resources like electricity, internet and ways of communications mandatory for a successful implementation of Smart Governance in our country are fewer in our India as provided by other countries[24].
- **Financial Status:** Financial status of any country can be measured by GDP. Indian economy is Developing Mixed Economy. India ranks 141<sup>st</sup> in per capita GDP(nominal) and 123<sup>rd</sup> in per capita GDP(PPP) while USA ranks 7<sup>th</sup> in per capita GDP(nominal) and 11<sup>th</sup> per capita GDP(PPP). Data shows that India's financial status is lagging far behind the other countries. Either we need strong financial support for a successful Smart Governance architecture or we need to use available financial support effectively[11][28].
- **Awareness:** Smart governance has so much potential , it can serves the citizen irrespective of distance , caste or other barriers[26]. But the awareness about Smart Governance is limited to few educated citizens[26]. In 2017, the 10<sup>th</sup> common review mission discovered that IT infrastructure for health is very weak in Nagaland[26]. Especially the North – East region of India suffers with low awareness about Smart Governance.  
These factors are a big challenge for Government of India. India has to eradicate these problems in order to successfully implement Sustainable Smart Governance.

#### 4. Conclusion

This paper enlighten about Sustainable Smart Governance and its huge benefits to citizens, private sectors and to government itself. Also, this paper focuses on the importance of Sustainable Smart Governance to Smart Cities. We presented Indian outlook of Sustainable Smart Governance and various challenges faced by India in order to successfully implement Sustainable Smart Governance.

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