Chapter 5
Sustainable Development in Smart Cities and Smart Villages:
An Indian Perspective

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ABSTRACT

A smart city makes use of ICT in order to manage its resources efficiently and therefore provide a lot of new kinds of services that help in improving the quality of life of its citizens. A smart village employs both technological and non-technological solutions to fulfil the basic needs of the village people like education, health, economic growth, and food security. In India, many initiatives for the development of smart cities and smart villages have been started in recent years. While some of these initiatives are implemented successfully, others are taking their pace. This chapter describes the essential elements of smart cities and smart villages. Both technological and non-technological solutions are required for the development of Indian smart cities and villages. The chapter also highlights the issues and challenges that need to be overcome for sustainable development and digital transformation of cities and villages.

INTRODUCTION

Majority of Indian people live in villages. Around 65% of the total population of India live in villages. However, each year a large number of people from villages migrate to cities in search of employment, better medical facilities, education, and better quality of life. Smart City is an initiative that aims to improve the condition of people living in cities. Likewise Smart Village is an initiative for rural development and to make the villages self-reliant.

In recent years, Government of India has initiated several projects in this direction with the goal of sustainable development and making the people self-reliant so that overall quality of life of both rural and urban citizens improve.

It is already more than a decade when the concept of Smart Cities and sustainable development emerged. However, in India, it has picked up its pace only in recent years. As the term Smart City itself

suggests, it makes extensive use of Information and Communication Technology to make it happen. As cited by many authors, citizens of smart cities have competitive edge over those where this concept is yet to reach. Basically, smart cities lead to sustainable development, both in terms of the smart infrastructure as well as the efficient administrative and governance system. In fact, smart city administration aims to include the participation of people in public services from every sector of the society so that the goal of long-term growth is achieved.

The concept of smart cities is built across several dimensions. This includes smart healthcare system, smart buildings, smart energy, smart parking, smart transport systems, and the smart governance. Smart cities lead to sustainable environment by adopting innovative ways of garbage collection and disposal, thereby, making the cities cleaner. Also, the smart cities have a strong surveillance system that makes it safer to its people. It is also evident that smart cities make people connected so that the people can perform their daily routine tasks more efficiently leading to a more productive environment and enables sustainable growth. Hence, eventually the quality of life of the people living in a smart city improves.

Additionally, smart cities also work towards preserving of natural resources by keeping track of their usage. For instance, a smart Air Conditioner can keep track of the people in a room and can automatically turn it off if it finds no one in the room. Hence, it can prevent both the wastage of electricity as well as the cost. In similar way, we can have a smart tap that turns off automatically once the vessel is full.

Smart energy meters also help residents to keep track of their energy consumption and prevent wastage. They also make the meter reading task automatic hence making the overall system more efficient.

Smart healthcare system help people to take advantage of medical facilities while sitting at home. Hence, not only the patients get instant help and prescriptions from the doctors, but the hospitals also receive the lesser load in terms of the patients. Hence, hospitals can also work more efficiently. Apart from the services provided by smart hospitals, people can also use smart wearable that can keep track of their health by monitoring sleep and activities, thus help in improving the general health of people.

If a city maintains smart transportation, then it also helps people in many ways. With every vehicle having installed GPS, people can optimize their routes. They can also get information about traffic congestion and alternate routes. The passengers of the cabs can get information about the distance travelled and total fair. Also, the smart public transport system makes it more tourist friendly as they get necessary information easily. Last but not the least, smart cities help in minimizing and curbing the crimes by maintaining the information on various aspects.

The sustainable development is not only limited to the cities and urban areas. In fact, it has huge potential to extend this concept in villages. Therefore we can also have smart villages. Already, there are many initiatives taken in this direction by several countries that bring the digital transformation in rural areas. However, in India it is the beginning of the concept of smart villages.

As we all know, the villages rely on agriculture for their living. The life of people living in villages revolves around the agriculture. Hence, the concept of smart villages start with improvement in agriculture techniques. Therefore, the smart farming and precision agriculture can bring the necessary change. Smart farming utilizes the applications of Information and Communication Technology (ICT) as well as autonomous systems like robots, drones, and sensor based technology. The basic requirement for achieving this requires making the electricity and Internet available in villages throughout the day. In most cases, the unavailability of these two resources hamper carrying out smart farming.

However, the use of non-conventional energy resources such as solar energy can make the concept of smart villages sustainable. The availability of sustainable energy resources is the most important factor

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