RESEARCH FRONT

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USE OF INFORMATION TECHNOLOGY FOR THE CREATION OF SMART VILLAGES & SUSTAINABLE DEVELOPMENT

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ABSTRACT

If the nation has to become successful and build a strong society, it has to strengthen the majority of its citizens. And in the country like India, around if 70% of the citizens are living in villages then to strengthen the villages is the right choice. If the country has to progress the villages should be self-sufficient. The key of developed India lies in Successful, self-sufficient and developed villages. This paper majorly covers the related aspects of need of smart villages and the future scenario of smart villages, the basic requirements needed to develop the smart villages and the role of Information Technology in building smart villages for the sustainable development. The study is purely based on the secondary data and the views of the experts, government initiatives are taken into consideration. The researcher has tried to find out the ways by which government can create smart villages and the route of sustainable development goes through the Information Technology.

Key words:- Smart Village, Sustainable Development, Information Technology.

INTRODUCTION

According to Census report 2011, more than 68.84% of Indian population i.e. 83.31 Crore population lives in 6 lakhs 40 thousand villages where the geographical area and the population size is different. In which 2 lakhs 36 thousand 4 villages are having a population less than 500 and 3976 villages are having a population more than 10000. The concept of Smart village has been stated by different authors, sociologist and politicians in different ways. Central Government by its Communication and IT ministry under SPMRM scheme has proposed work worth 5142.08 crore for the social, infrastructural and economic needs.

Mahatma Gandhi once said that" India Lives in Villages." From the smart village concept government is expecting a development of smart villages with the help of Digital and Information Technology. The requirements are different at different geographical locations. To prepare a perfect solution for all villages' need is a difficult task but a comprehensive solution is possible with the help of Information Technology.

After the launch of 100 Smart Cities Mission, it's time to make Smart Villages. The Government is preparing its plan for 2,500 Smart Villages by 2019. More than 69% of Indian population lives in villages. According to Census report 2011 there are no basic facilities. The meaning of a smart village means construction and providing the services which are delivered to its residents and businesses in an effective and efficient manner. Many services including the construction, farming, electricity, health care, water, retail, manufacturing and logistics are needed to develop a smart village

Internet and communication facilities with information technologies will be essential and will play a vital role in forming a structure of the villages with the delivery of the essential services including the government services at their doorstep and monitoring the execution of services along with the necessary support. Information technology will be an indispensable part during the planning and development phase and also at the time of execution.

OBJECTIVES

1) To study the ways by which information technology can be used for the making of smart villages.
2) To study the uses of information technology for the sustainable economic development.

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RESEARCH METHODOLOGY

The research paper is purely based on the secondary data in which the views experts, government initiatives are taken into consideration. The researcher has studied the various reports published on the subject along with the various state governments' initiatives and reports and mobile apps. Also data and information from various newspapers and websites have been collected for the overall concept development.

SMART VILLAGE

The concept of smart village has many means and meanings. By the word smart, self-sufficiency is expected and self-sufficiency can be achieved when there will be communication facilities available, there will be high literacy rate and compulsory primary education, every ones basic needs like work, own house, hygienic food, clean drinking water, proper clothing and other facilities like medical facilities, banking facilities, basic citizen services, facilities for the persons of disabilities.

Apart from this Clean and concrete roads, inter and intra village connectivity, Dust free streets, Primary and Secondary Schools with industry driven education, Library with E-Library Facility , Empowered Panchayats for settling disputes, own production of grains, vegetable, fruits, Recreation and playgrounds for adults and children, Cooperative activities, Cooperative Dairy, Access to markets, industries and income maximization, Access to best practices for agriculture, horticulture, sanitation will be there.

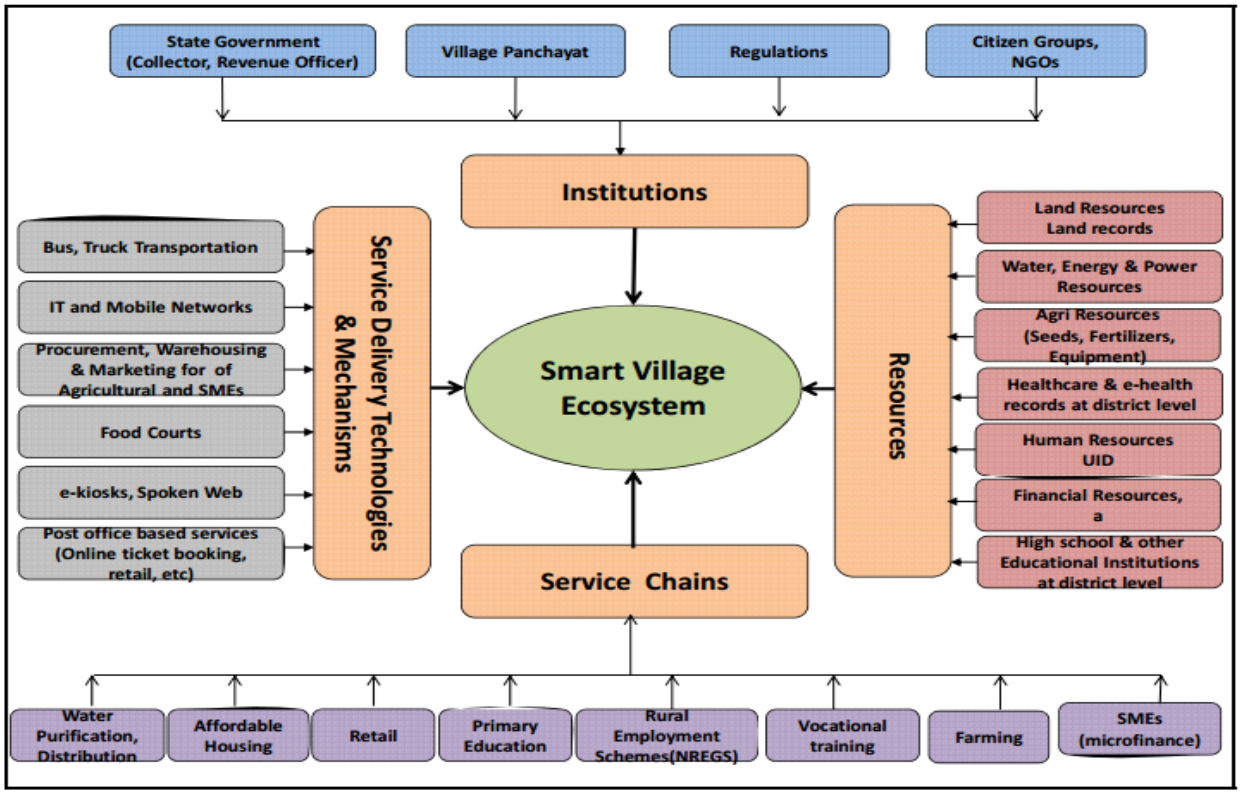

Figure1: Smart Village Ecosystem

Source :- ***http://lcm.csa.iisc.ernet.in/nv/Mypublications/C/z.pdf***

Figure 1 shows a typical smart village ecosystem. This Ecosystem approach integrates all the institutions that are responsible, resources needed, services to be rendered and the service delivery technologies and mechanisms. Smart village can be defined as a bundle of services delivered to its residents and businesses in an effective and efficient manner. The Smart Village ecosystem brings all the services of the village and its providers and users on a single platform.

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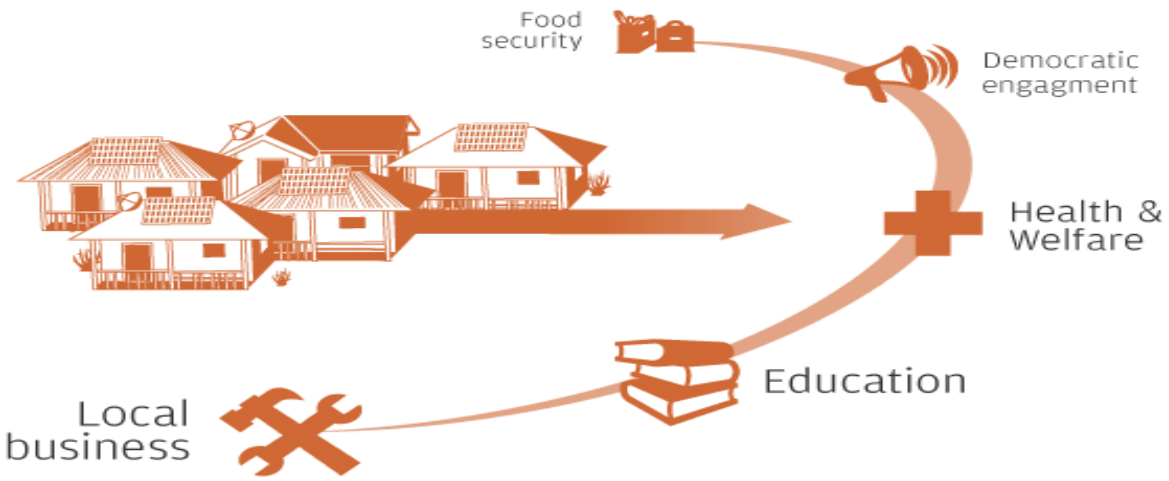

Figure 2 Concept of Smart Village Source: http://e4sv.org/about-us/what-are-smart-villages

The concept of SMART Village is as defined below:

S	Social, Skilled and Simple	Zero Tolerance for Caste and Creed or better no caste & creed and no discrimination on Gender and Religion Everyone is Literate and skilled Simple living and high thinking
M	Moral, Methodical and Modern	Moral values of Gandhiji, Swami Vivekananda etc Methodical using Total Literacy and latest techniques Modern like cities
A	Aware, Adaptive and Adjusting	Highest level of awareness on global social & economic issues Adaptive and adjusting to fast changing environments
R	Responsive and Ready	Responsive to collective wisdom, cooperative movement & larger social issues Ready to generate own resources for self-sufficiency and self-reliance
T	Techno-Savvy and Transparent	Techno-savvy for IT and Mobile usage Transparent in harmonic relations and delivery of services

Figure 1 Concept of Smart Village Source (www.smartcitiesindia.com, 2016)

SUSTAINABLE DEVELOPMENT

Sustainability is the result of having such sustainable policies and processes, and aligning them so that goals in one area are not compromised in favor of those in another.

Brunt land Commission defined the Sustainable Business Development in the way that which “meets the needs of the present without compromising the ability of future generations to meet their own needs”. The practical implementation of the definition will vary across industries, geographies and job functions, because at the core sustainability is an underlying approach rather than a definitive list of activities.

INFORMATION TECHNOLOGY

It has been defined differently by different people. IT, as defined by the Information Technology Association of America (ITAA), is "the study, design, development, implementation, support or management of computer-based information systems, particularly software applications and computer hardware." It deals with the use of electronic computers

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and computer software to convert, store, protect, process, transmit and retrieve information, securely. Development in computer and communication technology has brought a new dimension to the program of information handling. The introduction of microprocessor and microcomputers has made things easier.

Mahatma Gandhi defined a smart village as: (www.smartcitiesindia.com, 2016)

- An ideal Indian village will be constructed to lend itself to perfect sanitation
- It will have cottages with sufficient light and ventilation built of a material obtainable within a radius of five miles
- The village lanes and streets will be free of all avoidable dust
- It will have wells according to its needs and accessible to all
- It will have houses of worship for all; also a common meeting place, a village common for grazing its cattle, a co-operative dairy, primary and secondary schools in which industrial education will be the central fact, and it will have panchayats for settling disputes
- It will produce its own grains, vegetables and fruit, and its own khadi
- That village may be regarded as reformed where the largest possible number of village industries are flourishing
- In which nobody is illiterate
- Where the roads are clean, there is a fixed place for evacuation, the wells are clean
- There is harmony among the different communities, and untouchability is completely absent
- In which everybody gets cow's milk, ghee etc., in moderate quantities
- In which nobody is without work, and which is free from quarrels and thefts
- The idea of village swaraj is that it is a complete republic, independent of its neighbors for its own vital wants, and yet interdependent for many others in which dependence is a necessity
- Thus every village's first concern will be to grow its own food crops and cotton for its cloth
- It should have a reserve for its cattle, recreation and playground for adults and children
- Then if there is more land available, it will grow useful money crops, thus excluding ganja, tobacco, opium and the like
- The village will maintain a village theatre, school and public hall
- It will have its own waterworks, ensuring clean water supply. This can be done through controlled wells or tanks
- Education will be compulsory up to the final basic course
- As far as possible every activity will be conducted on the cooperative basis
- There will be no castes such as we have today with their graded untouchability
- The task before every lover of the country is how to reconstruct the villages of India so that it may be as easy for anyone to live in them as it is supposed to be in the cities.

For the development of the smart villages following things are essential and how information technology will help in the development has been stated

1) **Government Schemes and policies**

   For the development of villages, careful and systematic implementation of government policies and schemes is important. Information and technology can play a important role in the implementation as literacy rate is growing day by day and with the help of "Suvidha Kendra " and smart phones it is possible. Smart phones and internet are easily accessible now in many rural places. Details of welfare schemes and programs offered by the Ministry of Rural Development can be provided online. Users can find information pertaining to Rural Housing, Mahatma Gandhi National Rural Employment Guarantee Act, National Social Assistance Programme and training etc. Government can give the information about the land reforms programs and schemes is also available. Also government can take the feedback of its schemes and can avail the information about its current works. Also the Users can access information about name of the road, its number, package number, block and district under which the job is done, current status of the job, quality monitoring by the state or national agencies, etc.

2) **Education**

   The Role of Information Technology in Education is exploring the potential for technology to redefine the terms of teaching and learning. The information can play an important role in

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teaching and learning. From the public school to the university setting, from local communities to nonprofit organizations, IT is useful. With the help of IT better teaching facilities can be provided to the village students along with Audio- visual facilities. Virtual classroom facility may be provided to use the benefit of available experts at other locations.
The education related to various disaster management techniques, new skills of agriculture, horticulture is also possible with the help of information technology.

3) **Basic citizen services-**
To get the basic services like Ration Card, Pan Card, Adhar Card, various governments' certificates, annual income certificate, college certificates is very difficult for the village people. Many times they have to travel to the Taluka and district places which puts unnecessary burden on the villagers. With the help of Information Technology it will be easy to deliver these services at the village itself, which will save their productive time and money. The information and technology is also helpful in

-Village Suvidha Kendra.
-Lodging Grievances and Providing Status of Grievances
-Access and assistance for Admissions
- Job statues in MANREGA and various pay out statues in case of government Payouts

4) **Communication**
Good communication tools are very important for the development of the nation. Unless and until the proper communication facilities are not available no nation or geographical area can grow. All types of the communication include peer-to-peer communication and government and social communication is possible with the help of proper information technology set-up.

5) **Banking Facility/ ATM Facility**
Banking is a part of core infrastructure of any nation. Today banking facilities are not that much penetrated in villages which were essential. IT will be very useful in banking or at least in providing ATM facilities, ultimately which will be helpful in creation of smart villages.

6) **Inter and intra village connectivity**
Information technology is helpful in creating an infrastructure for the inter and intra village connectivity. Setting up of the kioks and wi-fi at village level will be a good solution for the problem as today the users of mobile are increasing and most of them are android and smart phone users. The solutions should be easy to deploy and should be low operational expenditure and low on power consumption.

7) **Empowered Panchayats**
With the help of effective and proper use of information technology the Gram panchayats, Nagar-Panchayats and Nagar-Parishads can be empowered by setting up a proper channel of communication between various government officials with which they can interact. If the information gateways will be available, then they can form and implement their policies in better way and they will be empowered.

8) **Cooperative Activities.**
Cooperative activities are very important for the overall growth of the villages which can be possible with the help of information technology. Information about government schemes and policies, rules and regulations can be communicated through I.T.

9) **Access to best practices for agriculture i.e. Smart Agriculture, horticulture, sanitation.**
Agriculture is the backbone of Indian economy. Almost two-thirds of our population is directly or indirectly depending on farming and its agro-products for livelihood. There are many problems affecting the farmers, leading to a large number of farmer suicides across India. Some of these problems can be solved by timely expert advice such as what fertilizers

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and pesticides to apply - when and how, what crops to be grown along with the main crops or on rotation basis to increase yield, side-businesses that can be taken up etc.

Lots of improvements are happening in agriculture field but they have not been put to practice by the Indian farmers due to lack of information and availability of technology. The farmer friendly services which use technology to bridge the existing wide gap between the expertise of agro-scientists and the transfer of this knowledge in a personalized way to the farmers in the village is possible. Also taking the advice of agricultural experts from the Agricultural University is also possible.

One way to solve the issues of agriculture and horticulture, is to improve the quality and quantity of agricultural production is using sensing technology which make farms more "intelligent" and more connected through the so-called "precision agriculture" also known as 'smart farming'.

10) Access and assistance to Jobs

To provide the information about the availability of the various private and government jobs is possible with the help of information technology which will create a door of opportunities to the citizens of rural area and villages. Apart from providing information assistance also can be provided with the help of IT. Placement companies can contact and hire the people from the rural area.

11) Assistance for Skill Development Programmes.

Government is launching various skill based programs whose knowledge and information can be spread by the help of IT. To inform and educate citizens of villages with the help of computer outlets and TV monitors is possible. The main goal is to create opportunities, space and scope for the development of the talents of the Indian youth and to develop more of those sectors which will provide the job opportunities to the youths. To provide updated knowledge to the workers, Provides training, support and guidance for all occupations that were of traditional type like carpenters, cobblers, welders, blacksmiths, masons, nurses, tailors is possible with the help of information technology.

12) Smart Water Supply

Lack of water is a global problems and the issue has been increasing. Agriculture consumes 70 per cent of the world's fresh water supply which is a major portion of the available fresh water. If the drip water, irrigation system, sprinkling system is used then the portion can come down. For this to employ effective water supply system is important and this can be possible with information technology.

Conclusion

Information and technology can create bridge the communication gap between the senders ie. Government, banking system, various schemes and subsidies, weather information etc. and the receivers i.e the village population. I.T can create a platform for the sustainable development with the creation of smart villages. The Indian Government has to cache on the huge human resource potential available in the villages and work towards their development if it has to reduce the load on urban infrastructure and reduce the geographical population dominance.

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