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Smart Villages: Technical Demands and Challenges



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Abstract

As per statistics available there are approximately 6,38,000 villages in 676 districts of 29 states and 7 union territories in India. More than 70 percent population of our country lives in villages. "Look to Villages" policies of Government conceive a desirable future event to create and develop SMART VILLAGES across the country. The idea of smart village in present day context seems more plausible as there is a limit of growth of cities which is leading to creation of urban jungles, where the population density is way above the desired norms. A cluster of villages should be assigned to create a team of thinkers, social workers, and administrators etc. who would prepare a complete blueprint of the requirements including basic needs to develop infrastructure, roads, buildings, bridges, water- supply, sewage, schools, colleges, sports-facilities, hospitals and other facilities based on local requirements. The initiative of the Indian Prime Minister to develop smart villages by every Member of Parliament is an eye catcher undoubtedly if pursued in the right earnest.

The concept of smart villages has to encounter many gross level challenges while implementation like water, sanitation, health issues, malnutrition, education and employment. The present paper will study the concept in full and related challenges and try to find out some viable solutions.

Keywords: Urbanization, Cluster Of Villages, Sanitation, Infrastructure, Nutritional Food, Education And Employment.

Introduction

Since the advent of human history, numerous scientific inventions and technological efforts are being made to make human life easy, better and comfortable. Many kind of scientific inventions like information & communication technology, industrial revolution, green and white revolution, etc. are part of that continuous process of betterment which enables human society to live for more sophisticatedly than the previous generation. The innovations of science and technology are still taking place at large scale to fulfill the new emerging demands today. The present time can be said as an Economic era with great revolutions in science and Technology. Concept of Smart villages is a global modern approach for off-grid communities living in villages. Vision behind this concept is to assist the policy makers, educationalists, donors and socio-economic planner for rural development, with special focus on villages.

Review of Literature

A paper *SMART VILLAGES-NEED OF EMERGING INDIA* by S.Sesha Talpa Sai, Lecturer in Computer Science, K.B.N.College, Kothapet, Vijayawada discussed about the role of information and technology to improve the life of villagers. In this paper the author mentioned towards development of smart villages the economic component, environmental component, and social component. The author also mentioned the better livelihood for the people of rural and urban areas. To address the complex problem in villages PPP may play an effective key role for developing smart villages.

Sh. Narendra singh Tomar, was a government officer in Ministry of Rural Development, Government of India discussed about the cluster of 10-15 villages and then an effective role for development may be taken. In his paper he give an attention about the major difficulties in villages like water, sanitation, health issues, unemployment and many more which must be solved. I think this paper also helpful to the ministry to take initiative to implement 'sansad adarsh gram yojna'.

A paper *Smart Villages through Information Technology – need of Emerging India* by Pinak Ranade, Sunil Londhe, Asima Mishra of (C-DAC), Under Ministry of IT & Communications, Govt. of India, Pune gives an

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effective way to uplift the lives of villagers through information technology. In this paper they discussed to develop the village into smart villages because these are the need of emerging india.

Aim of the study:

Vision behind this paper is to assist the policy makers, educationalists, donors and socio-economic planner for rural development, with special focus on villages to increase the facilities like education, health, employment, electricity, water and sanitation to villagers. The idea of smart village in present day context seems more plausible as there is a limit of growth of cities which is leading to creation of urban jungles, where the population density is way above the desired norms. To address the complex problem, in villeges a concept of Public Private Partnership (PPP) may play effective role for developing smart villages. Smart village concept is having high replication potential in other countries of developing world. The concept of smart village may also be extended to small towns and also townships surrounding the big Cities.

The invasion of bedroom from the skies in the form of cable TV and the advancement in telephony through internet has given dreams to human mind that were unthinkable few years ago. However, the ground realities around him by way of minimum educational avenues, minimum basic needs of life and same age old shabby surroundings are a restrain for his talent and the dreams to take shape and become true. The rural youth find himself disconnect with the way of life in cities which impacts him culturally, professionally and mentally only to add to his woes and thrusts him on the path of crime, except in few cases. This results in tremendous socio-economic discomfort.

It is a fact that the rural population is suffering more consequences for livelihood as compared to urban areas. The difficulties of livelihood are forcing rural population to migrate to the urban areas. The government has already recognized this issue and has put serious efforts through various schemes for enhancing livelihood of rural masses. Presently, rural development mainly focuses on poverty alleviation, better livelihood opportunities, provision of basic amenities and infrastructure facilities through innovative programs of self employment. The population residing in the rural areas also needs the same quality of life as enjoyed by people living in sub urban and urban areas. Better livelihood in rural area may reduce the disturbing effects of poverty, unemployment and inadequate infrastructure on urban centers causing slums and consequential social and economic tensions. Hence, rural development is concerned with economic growth and social justice, improvement in the living standard of the rural people by providing adequate and quality social services and minimum basic needs becomes essential. Such rural development not only improves livelihood in rural areas, but also may reduce the migration of rural population in urban areas for employment and reduce pressure on urban infrastructure.

In the Indian context, villages are the heart of the nation. Hence, for the development to drip to the grass root level, focus must be devoted to the progress of villages and to smarten the rural population using ICT solutions, science and technological developments to achieve self sustainability. Imbalanced growth between rural and urban landscapes leads to the challenge of rapid urbanization in already crowded Indian urban masses. As per available statistics there are 676 districts in 29 states and 7 union territories in India with a total number of 6,40,000 villages. Approximate 72% population of our country lives in villages whereas remaining 28% lives in about 5,480 towns and urban areas.

Smart village concept may play crucial role in maintaining the balance between the development of rural and urban areas and help to reduce migration of rural population to urban areas. Urban population density is increasing in uncontrolled manner, while the numbers of cities are still inadequate to accommodate the migrating population from villages. This needs to be reversed and suitably managed to improve quality of life in Indian cities. The concept of "Smart Village" will also address the multiple challenges such as unplanned urbanization, under-development of villages, migration for economic pursuits, better standard of living etc. The idea of smart village in the present day context seems more plausible as there is a limit of growth of cities which is leading to creation of urban jungles, where the population density is far above the desired norms.

The policy of "look to villages" should envisage to create and develop SMART VILLAGES across the country. This would need a shift of thought process of the authorities. Each district may be divided in clusters of 15 to 20 villages (consisting of a specific number of population say 50-75,000). Each district could have 15 to 25 such clusters of villages depending on its size of population {One cluster of villages should be picked up by local authorities with the help of public leaders} since it may seem impossible to take up one village at a time to make it a smart village, it would be more practical and convenient if a cluster of villages is formed in each district. All the clusters should be assigned to create a team of thinkers who would prepare a complete blue print of the requirement of the cluster including need to develop infrastructure like roads, buildings, bridges, water, sewage, schools, colleges, hospitals and other facilities as per needs based on local talent available, local raw materials available, service avenues available locally or in the district or within the state.

A plan for 50 years could be made and implemented as a five year plan spread over next 50 years. Each cluster of villages once finalizes its blue print it shall also mention the contribution that the local population can make available like funds, shramdan, infrastructure, trained/untrained manpower to make their cluster a fore runner to be selected to make it a "Smart village cluster". The Government should allocate funds for development of rural clusters as per their plans and take up this project along side

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of Smart cities projects. Foreign countries could also be involved in this process in due course.

The needs of next five years should be identified in such a manner that each cluster of villages is allotted at least one major project. All the projects could be finished with the help of local population/leaders wherein the local population voluntarily comes forward to contribute by way of land, subsidized labour, physical help etc. to make this project a success in their own cluster of villages. In view of recent incidents of earthquakes it becomes imperative for planners and thinkers to modify their laid down norms in the changed scenario and there should be a zero tolerance policy in the implementation of such plans.

A State level body may be formed which should divide its state in a group of districts say a zone of 3 to 4 districts consisting say X number of such zones in a state. Each zone should be divided into cluster of village in a congruent manner which could consist of 15 to 20 villages based on population/socio economic background. Each cluster should be considered for one big project in such a way that this project serves a complete requirement of its zonal (consisting of 3/4 Districts) needs or even the needs of whole state depending on the size of the project. For example if an educational project is taken up for a particular cluster this would serve the whole zone and cater to all the residents of that zone or even serve as a nerve centre for that state. Each zone should be given a major project for its state based on its geography, local talent available etc.

The Challenge

Unfortunately it is a fact that in the world today, 1.3 billion people remain without access to electricity. In addition, 3 billion are still cooking on dangerous and inefficient stoves. Many of them live in remote rural village communities. Until such communities have access to modern energy services, little progress can be made to develop their economies and improve their lives. Since 20th Century Electricity has become a vital part of our lives, though we can survive without electricity but cannot progress and enjoy the benefits of development of science and technology.

Education

More than Seventy percent of population of India lives in villages and the youth belonging to this segment are passing through a phase of bewilderment and loss. The ratio of school dropouts at school or college level is quite high amongst the rural youth which is negative impact on the education policy and the targets of the Govt. The quality of education at primary, secondary and higher level accessible to the rural students is not up to the demands of the present day of global world. This is also a cause for inclination of rural youth towards the urban areas.

Water, Hygiene, and Malnutrition

Globally, an estimated one in four children under age 5 suffer from stunting, a form of malnutrition in which children are shorter than their normal age. In India, almost 62 million children (48 percent) across all income groups are stunted.

Stunting, or chronic malnutrition, is accompanied by a host of problems—weak immune system, risk of sickness and disease, diarrhea arrested cognitive and physical development, and a greater risk of dying before age 5. The visible cause for these factors seem to be lack of awareness in rural areas regarding health, sanitation and nutritional food and technique and ways to get preserve pure drinking water. Sectoral demands for water are growing rapidly in India owing mainly to urbanization and it is estimated that by 2025, more than 50% of the country's population will live in cities and towns. Population increase, rising income, and industrial growth are also responsible for this dramatic shift.

Rural Sanitation

The Central Rural Sanitation Program, which was started in 1986, was one of India's first efforts to provide safe sanitation in rural areas. This program focused mainly on providing subsidies to people to construct sanitation facilities. However, a study done by the government in 1996-97 showed that it was more important to raise awareness about sanitation as a whole rather than to just provide subsidies for construction. This understanding marked the first shift in the program. In 1999, a restructured Total Sanitation Campaign (TSC) was initiated to create supply-led sanitation by promoting local sanitary marts and a range of technological options. When sanitation conditions are poor, water quality improvements may have minimal impact regardless of amount of water contamination.

Need and Demands for Smart Villages

The following necessary criteria and more such requirements should be made for a smart villages cluster:-

1. A smart E-governance system.
2. Enough green park/sanctuaries/water bodies mandatory for a cluster of villages.
3. Garbage and Drainage system should be smart. A concept of reuse/recycle/reduce should be followed.
4. Sewage treatment facilities should be smart.
5. High resolution cameras to detect speeding and stolen things.
6. A smart public transport system.
7. Smart electricity power grid and to promote renewable energy sources.
8. A single window for the collection of all kind of bills like water, electricity, tolls etc.
9. Latest and affordable medical facilities and good quality medicines should be made available to each.
10. Education, Finance, Seed, Fertilizers etc. are necessary resources for smart villages.
11. In case of emergency - A effective and responsible system.
12. Smart security and Police system with a concept of zero tolerance on crime.
13. Innovative schemes and projects like "Skill India" should be extended to the cluster of villages.
14. Accelerate sanitation coverage in rural areas and encouraging the people to get facilities rather than expect from the Government.

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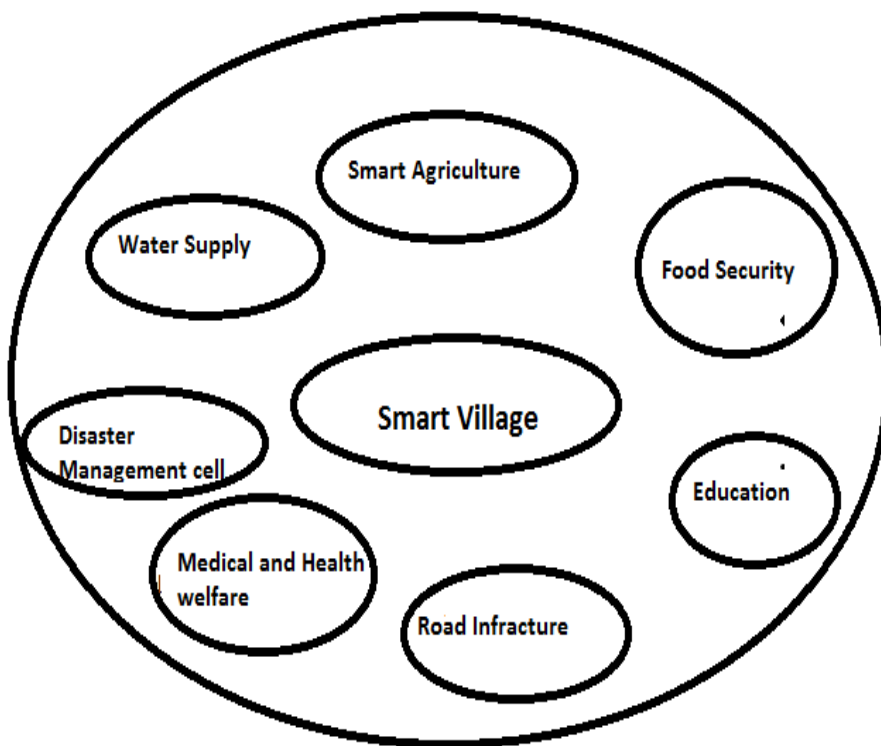
- 15. Telecom, IT, Mobile, and E-Kiosk are the delivery services which are necessary for smart villages.
- 16. Soil and water testing laboratory to help the farmers.

In smart villages access to sustainable energy services act as a catalyst for development enabling the provision of good education and healthcare, access to clean water, sanitation and nutrition, the growth of productive enterprises to boost income, and enhanced security, gender equality and democratic engagement. Smart village's concept is engaged in efforts to combat the real barriers to energy access in villages, particularly in developing

countries with technological, financial and educational methodology.

Finally this cluster of 15/20 villages prepares a blue print of the cluster for roads, infrastructure, industrial area, educational area, parks, tourism spot development, hospital, water/sewerages etc. as per requirements as above. All the facilities that the villagers of the cluster can provide from their own resources should also be incorporated in their blue print. There should be various thumb rules as to which cluster of villages out of the cluster of 3to 4 districts is allotted a particular project. One of the thumb rules could be that whichever cluster of villages is ready to provide maximum land and financial/other contributions in the execution of the project.

A Smart Village Core



Likewise every year one or two clusters of villages could be short listed for development of smart and safe cluster of villages. A homogenous project made for next 50 years could start as a small step in paving way in easing burden of villagers drain to cities. A time may come, if the project succeeds that the reverse drain (from cities to villages) eventually takes place in due course of time. The whole state shall gain and non-ending process of all states can be chalked out and developed in a dedicated time frame over next decades. This shall help absorb newer upcoming projects/requirements which could be taken up for fulfillment in the next upcoming cluster. This may result in even foreign nations making a beeline to adopt one or more clusters of villages in different states for different streams of professions. For example if a cluster is allotted an auto manufacturing

hub, some foreign country joining 'Made in India' may like to adopt the cluster. Similarly some other countries may vie to join in for education/ medical/ engineering/ IT/ aviation/vocational training hub or any other stream.

The major gains of the country from this project may bring a wind fall for the rural school dropout youth belonging to these clusters of villages, who could find ample avenues to take up one vocation or the other and help the nation to grow in the villages rather than depending heavily on the cities. Taking education, skill for vocations etc to villages can well channelize the energies of the youth as a powerful tool for the nation. An educated rural youth will be an asset to the country and even if he shifts to a city he shall prove to be an asset rather than a burden as is happening now. India needs

R.....M.....

educated population and not literate or uneducated otherwise all the smartness of cities or villages will result in failure.

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