

Case Study: Development Map for Adarsh Gram

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Abstract—In India, the populations’ density in metropolitan cities is very high. India is considered as agrarian country. Majority of people stay in villages and totally depends on farming. In Central India states and north east states 60 % and 70 % respectively peoples stay in villages. The fact is that village peoples are far away from the basics facilities, tools and technology. The concept of Smart Villages is prominently discussed to covers human settlements in rural areas and surrounding landscapes.

This paper aims to provide the survey of the villages and facilities, tool and technologies provided to villages and form a road map of convergence of modern services. Main focus is to improve the basic facilities through use of technology and transform their life style. This would reduce the migration of people from rural area to densely populated urban area. This includes the key sector such as education, healthcare and employability. Paper presents the basic action plan to strengthen these key sector to make villages smart. The idea behind this program is to achieve enrichment employability to local peoples. The prospective of technology with smart thoughts make smart village.

Keywords—component, formatting, style, styling, insert (key words)

I. INTRODUCTION (HEADING 1)

In India agriculture is considered as second source of employment and in average 60 % people stay in rural areas and are totally dependent on agriculture. Secondly agriculture is gamble in monsoon. The ruler area is always outside the city. The main source of such ruler area is farming and traditional work from their community. The basic facilities are not available in these areas and many times not affordable. There is no modernization in rural area and people like to adopt the modernization in rural area and as a results large scale people are migrating from rural areas to urban areas. On the other hand the population ratio of city is unbalanced that leads the low category lifestyle to such migrants and secondly increase load on the basic infrastructure facilities available in these area. Only solution is to improve the facilities and employability in bottom area like rural area. Three is urgent need to take baby steps towards to the grass root level, so that every village has to be sustainable, measurable, and replica through technology which is called SMART village.

II. LITERATURE SURVEY

A survey was conducted in Chive and neighboring villages on 6th and 7th June 2018. Survey is conducted with interaction between students teachers of Primary Schools, Anganwadi sevika, Gram Panchayat , Rular development fellow and discussed about the live problem facing by the villagers. Table 1 represents the live survey of the villages and highlights the feasible technological solution over the current problem.

Table 1: Survey of villages

Community	Village1 General , mostly SC & ST	Village2 General , mostly SC & ST	Village3 General , mostly SC & ST	Village4 General , mostly SC & ST	Technological action plan
Employment	Farming , Farm labourers	Farming , Farm labourers	Farming, Farm labourers	Farming , Farm labourers	Initiate local business based on available major resources
Education	Ill 1V std.	Ill 1V std.	Ill 1V std.	Ill 1V std.	Development of software application or animation for teaching learning
Water facility	Taps Wells	River, Well Taps	Tap water Lake, Dam	River ,Well	Irrigation plans. Water harvesting
Drainage waste management	No	No	Yes	No	Waste conversion in fuel. Drainage systems
Health care	Health Check up once in 2 months for children and pregnant women.	Health Check up once in 3 months for children and pregnant women.	Health Check up once in 3 months for children and pregnant women.	Health ? Malnourish ed	<ul style="list-style-type: none"> Development of software medical application in local language about the information of healthy food, vaccines for all age groups Digital record of health care centre regarding health progress
Sanitization	No	No	Yes	No	Deployment of Self cleaning toilet system
Renewable Energy	No	No	No	No	Solar based energy, Network booster
Agriculture	Mostly rice crop on Small scale agriculture facilities provided			So only basic	<ul style="list-style-type: none"> Development of software Agriculture Application in local language that guide about environment change, fertilizers, pesticides, crop dieses , market rate of crop for trading, Solar dryer for storage, Jiggery production from coconut
Migration Rate	40%	40-50%	50-70%	Almost 50%	Start-up of local business based on the available

III. OBJECTIVE OF SMART VILLAGE

The main broad sector of village that need more improvement is to create cleanliness awareness to improve the health. Water supply and energy conservation are the key part to create smart agriculture. The awareness of the government schemes about the infrastructure and local business which gives sustainable employability is possible through Innovation and technology.

A. Mentoring

As per the live survey we observed that at initial stage village people’s needs to open up with their idea with awareness about the right as a human being. Ruler development fellow plays a key role in such villages. The rural peoples are more comfortable with local language. The local language should be given more importance so that these people can understand effectively. Figure 1 highlights the sectors need technological improvement.

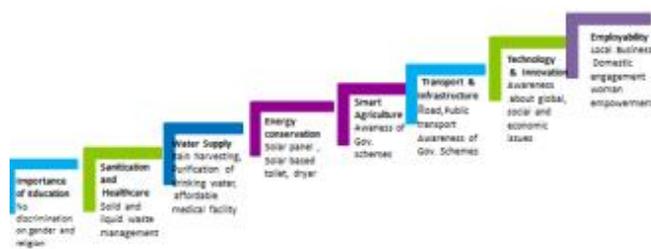


Figure1: Important sector of smart village

B. Importance of Education

- RDF can effectively use the educational environment for creating awareness program by conducting weekly Workshop on Literacy, Change of mind-set and to imbibe the significance of Smart Village initiatives. These program can be used to motivatee different group by ensuring community touch base with the experts and able to gain understanding.
- Use modern mode of content delivery through trained teacher to attract the students in school. The content delivery could be through video or live game, animation to make interactive session and helps to build confidence in the students' confidence. The content delivery may be using Internet of Things (IoT) which brings together different technologies like Internet, Mobile and smart devices and hence assists in the learning process. Learning experience would generate fun. The main issue of Digitization in villages can be overcome by offline program through wired technology.

C. Sanitization and Healthcare

Cleanness is directly related to health. Grampanchat builds toilet under different schemes of state and central schemes. The proper drainage system will helps in biogas plant. The system should be developed to bring awareness through RDF to different community to change their lifestyle. We motivate peoples to initiate and participate in Swach Bharat Abhiyan to become a role model to other villages. Aangawadi sevika plays important role to nurture the culture of cleanness from all categories like childhood, teenagers, and pregnant women.

Solid and liquid waste Management: Waste mechanism is essential to ensure for reuse and recycle. It is important to implement system for safe disposal of solid and liquid waste to reduce the water borne diseases. Solid waste mechanism is as shown in figure 2.

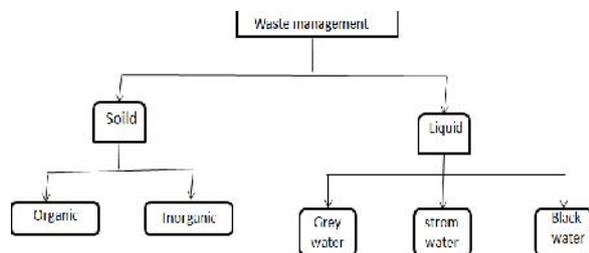


Figure 2: Classification of waste management

- Separate garbage bin is required for solid waste collection from house to commercial community. The information on the garbage bin should be in local language that makes easy to non-educated people to categorize in biodegradable and non-biodegradable waste. Bio wastes can collect and dumped into composite pit useful for agriculture and low cost. The layer based approach can make systematic design of composite pit. Composite tank can be constructed with better

air circulation so that composting is faster. This could one of the source of local employment. In vermi composting the organic matter is broken by the verm that increases the nutrition of fertilizer as well as improve the quality of soil.

Different types of waste water need to disposal safely. The gray water such as kithch, washing, bathroom water can diverted to garden or for soak pit. The black water drained from toilet can be diverted to septic tank, leach pit whose outlet is given to root zone bed where plants can grow. The storage facility such as cannal, pond, of rain water is needed to avoid the water stagnation.

D. Employability

Migration rate form village to city is increasing day by day because of non-availability of employment in rural areas. Peoples are not aware of local business that they can make employable. Almost all the peoples are farmer. The employment mainly depends on monsoon as agriculture in India is gamble in monsoon. The monsoon is very unpredictable in India. It is woke up time to aware and create local business for rest of the season to reduce the migration to cities.

- Agriculture: Kishan Suvidha scheme of central government has developed many application for farmers to get information on climate update, crop diseases, market price of crop that will help to farmers at the time of sowing, These schemes are not reached to the village farmer so he awareness program or workshop should be conducted by agriculture officer with the help of rural development fellow.
- Training program to train young on different schemes of government generation should be developed in local language so that local youth will be attached to their own village. It is easy to transfer the knowledge of technology to farmers about the region wise climate changes that will guide farmers about the perfect period of harvesting.
- Organic food is on demand from the metro peoples. so need to nurture the culture of organic farming in the current generation of village so that it motivates to transform the agriculture sector for employability aspects.
- Local Business-Create awareness of the government scheme such as Mudra yogani for the startup of women enterpner. Bachat gat yogini for small business such as swing, handicraft. Konkan villagers can make antic and show pieces from the coconut and trading to nearby cities.

IV. TECHNOLOGICAL PROPOSAL

As an engineer the key area to focus is sanitization and healthcare. A survey of Chive village's revels that medical check-ups in anganwadi are arranged every 3-months for pregnant women, children upto 4th standard and adolescent girls. The caretakers appointed by government give medical advices based on previous experiences rather than on proper diagnosis. Proper medical facilities such as clinic or hospitals not available in the villages. Villagers have to visit Pali for any medical help.

A. Proposal I

The aim is to address issues of healthcare faced by the community of Chive Village in Sudhagad in Maharashtra, India and propose practical strategic plan to implement the concept of the Smart Village project. This paper aims in building an independent system that automatically logs vital parameters of patients. The data is accessible to doctors. The host computer stores all the data, to analyse the patient's overall health condition and provide immediate attention. **TELEhealth:** Digital connection to doctors in rural area. A medical kit is to be installed in the village which measures the basic parameters. The kit is to be interfaced with a workstation viz. working computer with internet connectivity at Gram Panchayat Office. The collected data is then uploaded on a server which is accessible to doctors in hospital which is far away from the village.

The proposed circuit has the ability to determine the patient's temperature in real-time. Heart beat sensor is designed to give a digital output of heart beat when the patient places his/her finger in the clip. This digital output will be transmitted to micro controller directly to measure the Beats per Minute (BPM) rate. The ECG (Electrocardiogram) records the pathway of electrical impulses through the heart muscle, and can be recorded on resting and provides information on the heart's response to physical exertion.

B. Proposal II

One of the major problems in village is poor sanitation facilities. These facilities are very poor in primary school and entire village. One of the technological solutions is use of SELF CLEANING TOILETS. Chennai gets India first self cleaning smart toilets as shown in figure 3.



Figure 3: First self cleaning smart toilets at chennai

E-Toilet is India's first unmanned Electronic Public Toilet. It is portable, eco-friendly and hygienically maintained with a GPRS-enabled system, monitoring the toilet remotely.

Proposed aim mainly focuses the sanitization that indirectly affects health. Here the emphasis is on the use of solar based sensor-based technology for cleaning of toilet. It has a self-cleaning and water conservation mechanism. These are unmanned toilets with automated access control. Self-cleaning concept reduces the man power as well as maintains the sanitization. Such technology solution about sanitization transform the life style of rural peoples as shown in figure 4.



Figure 4: Prototype of self-cleaning toilet

C. Proposal III

Regarding agriculture and from the perspective of farmers, storage of crop food such as vegetables is big challenge. In rural area the population is too less and difficult to provide the storage area for crop or food by agriculture field. The solution for such problem is solar dryer. It is the food or crop drying technology that store long time without preservative. The technology based on renewal energy solar which consumes less energy and economical than refrigerator. Drying process is hygienic and ecofriendly shown in figure 5.



Figure 5 : Solar based dryer

^a Sample of a Table footnote. (Table footnote)

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