

# Research Paper on Development of Ahirwadi Village as Smart Village

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**Abstract** – This Research paper deals with the study and development of village as a smart village. The community, individuals and collectively, will be empowered to take smart decisions using smart technologies, communication and innovation. Basic concept of smart village is to collect community efforts and strength of people from various streams and integrate it with information technology to provide benefits to the rural community. At the same time, a "Smart Village" will ensure good education, better infrastructure, proper sanitation facility, health facilities, waste management, renewable energy, environment protection, clean drinking water, resource use efficiency, etc.

**Key Words:** Introduction, Concept, Services, Requirements, Benefits, methodology, Information of Ahirwadi Village, Surveys, Acknowledgement, Conclusion.

## 1. INTRODUCTION

In India there are 6,00,000 villages out of them 1,25,000 villages are backward so there is a need for designing and building the village as a smart village. With modernization and urbanization people migrate from one place to another place for different facilities such as education, employment and affinity of people towards the locality or city. Village is main criteria for development of nation. So, develop the village in such a way that which is self-dependent in providing the services, employment and well connected to the rest of the world i.e. smart village. The smart village corrects the social oversight by providing accommodations for sustainable family relationships without disturbing the lifestyle of different generations. The vision of smart village is that modern energy access can act as catalyst for development in education, health, productive enterprise, clean water, sanitation, environmental sustainability and participatory democracy which helps to support further improvement in access to energy. Initially the concept of development of village is of Mahatma Gandhi i.e. swaraj and suraj village. But, now days it is newly termed as smart village. We know that, India is a developing nation; with the help of smart village we can make India as a SS nation. Now days, our government also gives strong focus on smart village. Government implements so many schemes on smart village.



### 1.1 CONCEPT

The idea of smart village in the present day context seems more reasonable as there is a limit of growth of cities which is leading to creation of urban jungles, where the population ratio per km of land is way above the desired norms.

A smart village is one which will automatically link local production with local procurement and local distribution. A smart village is also have power, knowledge, health care, technology, entrepreneurship and internet connectivity.

### 1.2 PROBLEM

A) Health – A public hospital or government hospital is a hospital which is government owned and is fully funded by government and operates solely off the money that is collected from tax payers to fund health care initiatives.

Health is an inherent and major component which planning a smart city or smart village. Every village must have health care center but for selected village they didn't have health care centre so the solution of this problem we have design the health care centre for the village. The cost of this construction is 2,80395.71 Rs.

B) Sewer System - Sewer system plays very important role in sanitation and prevention from diseases. According to our survey we have come to know there is problem regarding sewer system.

➤ Sewer system of village is not in working process.

- In some other places we come to know, sewer system is totally broken. So the solution we have prepared, we had design the sewer system according to there situation the cost for this project is 41.24,468.31Rs.

C) Elevated Water Tank – As per standard data of NBC code,100 litre of water is required for per person per day in village area for drinking purpose. The water is supplied through underground pipes only one hour the drinking water is supplied according to our survey, we understand that the 80% of water for drinking purpose because of harsh of water because of damaged pipelines the water gets turbid. So as the solution of this problem we suggest reconstruct the water tank and also the pipelines. We provided the design of elevated water tank according to their population. The cost for to reconstruct the elevated water tank and also pipelines is 37,64,865Rs.

D) Primary School- Education is most important part of person's life where they get an opportunity to experience and learn many new things.

This phase of persons life is a time when personality gets shaped , confidence is built , and prepare for the future. Smart school is concept which uses technologies in the classroom which enables in giving better learning experience to the students.

### 1.3 Services

1. Educational Facilities
2. Safe Drinking Facilities
3. Improving Sewage Conditions
4. Health Well Fare
5. Public Amenities

### 1.4 Requirements

1. Efficient Transportation Facilities
2. Latest And Affordable Medical Facilities
3. E-Governance
4. Educational Facilities
5. Veterinary Hospital

### 1.5 Benefits:

- 1.Maintain its Identity, Culture and Heritage
  - 2.End all preventable maternal deaths and infant deaths.
  - 3.Good basic health facilities in health care center.
- Homes with access with toilet, safe drinking water and regular power.  
100% Institutional deliveries.

## 2. Literature Review

**Swapnil B Kale et.al.** The present research paper discusses about developing world. A rural area is a area which is located outside the towns and cities which are

known as “Village”. Number of villages in india are approx. 6,38,588. According to census 2011, village area has population about 68.84 %, whereas, city area has population of 31.16% only. In the Indian context villages are lifeline of the nation. The main aim to develop the villages by offering basic and needful amenities, education, employment generation activities , modern technologies ,etc. A village having active participation of people in various activities need to village as smart village. A smart village will not only bring big infrastructure, internet connection, smart transportation to rural lands, but also provide support for sustainable agricultural practices. Smart villages are need of hour as development is needed for both rural and urban areas for better livelihood and technology will offer effective solution.

**Gaurank Patil et.al.** This paper deals with study and development of village as smart village. In this paper we have focused on major rain water harvesting, improving sanitation conditions , use of renewable energy, solid and liquid waste water management , functional bank account, education facilities and medical facilities. The movement of individuals from villages to urban communities will make awkwardness in urban territories. The smart village is preside to the social oversight by giving compromises to feasible family connection without separating the living style of various ages.

After the above approaches and arrangements plans as the urban movement level in urban communities will decrease there will be ideal uses in village which will lead them to keep urban communities also.

**Boda Ramesh et.al** Author concluded that 69 % of india still lives in village. While explaining the concept of smart village author stated that there should be five path for development of village i.e; retrofitting, green fields , livelihood , redevelopment , E-Pan. To boost country growth, exploration of new opportunities and dimension for the rural population is needed as smart village is an initiation through the concept of urbanization.

**Aditya Jadhav et.al.** In this paper , this article examines community driven multiple use water services ( MUS ) as pioneered by the rural village water resources management project ( RVWRMP ) in the for and mid – western development regions of Nepal. Second paper is the current study mainly aimed to investigate the malaysian smart village project in rural community which is labeled as KG besting in Malaysia specifically the study intended to address the major issue faced by the community by farmers. Identify the smart village indicators and put forwarded strategic plan for the smart village implementation third paper is the geospatial information serves as the base data from which other data will be referenced upon to obtain information on the geospatial information availability in Indonesian cities. Fourth paper , the area jatimom has been developed into a religions tourism village although most pilgrims only come to the place at the tradition ceremony only the and results show that the tourism development and connecting the tourism objects through easy access and improving the quality of landscape.

**Dr. Milind Kulkarni.et.al.** In their paper entitled “ Clean and Smart Village: Aspects and Alternatives” According to this paper, In India large amount of population still lives in village. A lot of work needs to be done to making village clean. Mainly there are different aspect of clean village. Such as water supply, sanitation, Indoor air quality, solid waste management and renewable energy. Such aspect has different alternatives with the associated merits and demerits. In some aspect such as water supply considerable work is done but like sanitation that work is required to done. We can learn lot of lesion based on success and failure keeping in touch with technology clean village project should integrate technology and digital design. Which will make is not only clean but also smart. All this aspect with reference to Maharashtra and India. Engineering student can design and implement project of clean and smart village which will help in skill development. This paper focusses on to improve the services like water supply, sanitation, solid waste management and Indoor air pollution. It is very essential to solve all the problem in the village therefore the migration of people are reduce.

### 3. Information of Ahirwadi Village



Ahirwadi is a medium size village located in Walwa Taluka of Sangli district, Maharashtra with total 193 families residing. The Ahirwadi village has population of 876 of which 461 are males while 415 are females as per Population Census 2011. In Ahirwadi village population of children with age 0-6 is 89 which makes up 10.16 % of total population of village. Average Sex Ratio of Ahirwadi village is 900 which is lower than Maharashtra state average of 929. Child Sex Ratio for the Ahirwadi as per census is 894, equal than Maharashtra average of 894. Ahirwadi village has higher literacy rate compared to Maharashtra. In 2011, literacy rate of Ahirwadi village was 86.66 % compared to 82.34 % of Maharashtra. In Ahirwadi Male literacy stands at 93.00 % while female literacy rate was 79.62 %. As per constitution of India and Panchyati Raaj Act, Ahirwadi village is administrated by Sarpanch (Head of Village) who is elected representative of village. Our website, don't have information about schools and hospital in Ahirwadi village.

We have gone through the following methods of survey while investigation :

#### 1) Reconnaissance Survey

- 2) Social Survey
- 3) Aerial Survey

#### 1) Reconnaissance survey

Commencement of any survey the area to be surveyed is thoroughly examined by the survey who then thinks about the possible arrangement of the framework this primary investigation of the area is termed as reconnaissance survey During reconnaissance survey we walked through village and noted the various obstacles and whether or not the selected stations are inter visible

#### 2) Social economic survey

In these survey we collected information of each and every family by door to door survey in which we collected data required for design parameter for example house no. main person total member facilities as below.

#### 3) Aerial Survey

Professional survey grade Drones using hybrid Vertical Take off and Landing (VTOL) technology in conjunction with CORS network to expedite the data acquisition used for large scale mapping purposes. The high-resolution images enable community members to easily recognize their own lots and view the dimensions of their work areas.

Survey conducted using Professional Survey Grade Drones and use high resolution RGB sensor on 1:500 scale with image capturing of better than 5 cm accuracy to provide accurate projection centre and orientation of the images captured during the flying. Based on these mops, property cards would be issued to the rural household owners .

So let's understand steps that how mapping and surveying can be done using a drone.

- ✓ CORS station setup
- ✓ Demarcation
- ✓ Select area as per the requirement
- ✓ Drone Survey
- ✓ Establishment of control point
- ✓ Map Generation

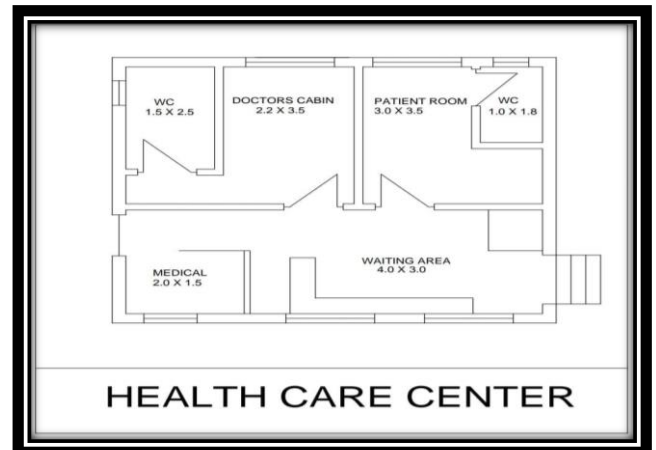




We have investigated the following points :

❖ Health Care Center

For health welfare every village must have smart Health Center but unfortunately , Ahirwadi don't have health care center. We have designed Health Care Center for village equipped with all needed facilities. The costing of health care center is approx. 2,80,395.71/-

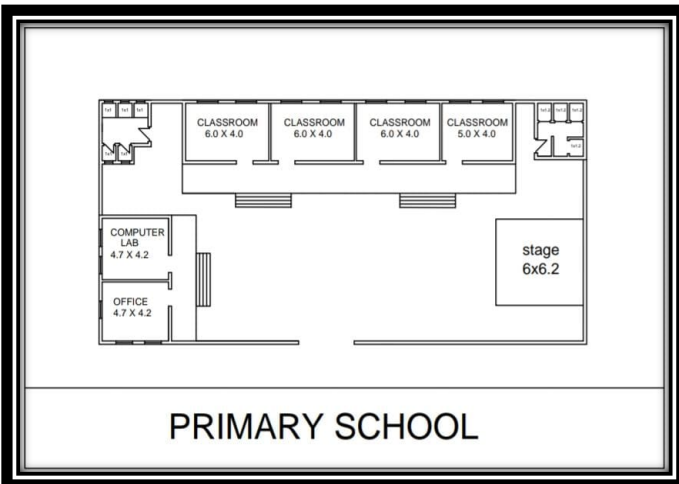


❖ Primary School

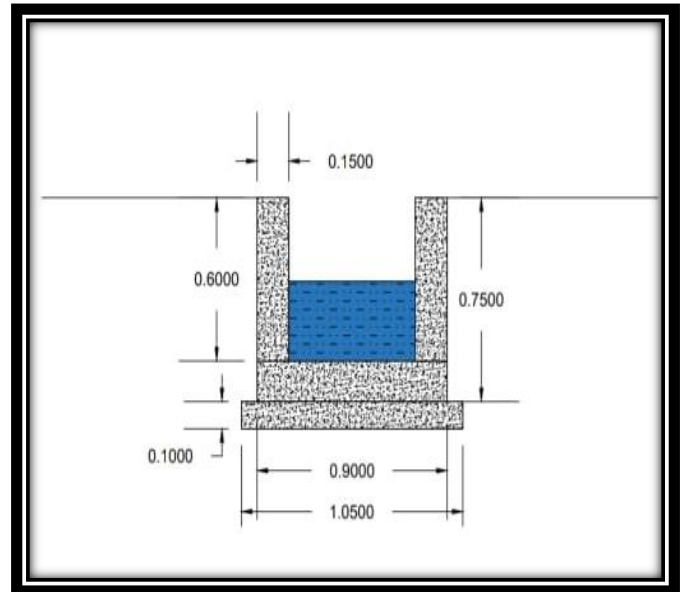
We have found that the school in the village is still using bygone method of teaching. And the structure of building is not in well condition. Apart from this it also has only 4 to 5 numbers of classroom which are not enough to adjust all the students.

So we are introducing smart school concept which uses the advanced equipment and technologies to take education process forward.

We have also provided the proposed structure of building.

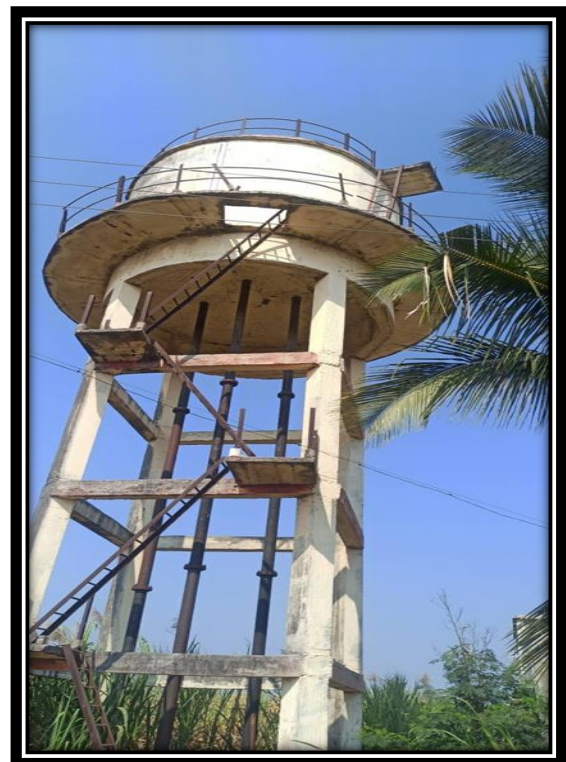


The total featured cost of the sewer system is 41,24,468.31/-



❖ Elevated Water Tank

❖ Sewer System



Sewer system provides a healthier and more appropriate way to manage liquid waste.

In the survey of village, we saw that sewer system have no proper lining and it is not in appropriate condition. And this may cause several disease which may have direct impact on human life.

So , to overcome this problem we have designed the proper sewer system as per the requirements of village and according to guidelines given by MORTH .

Water Problem

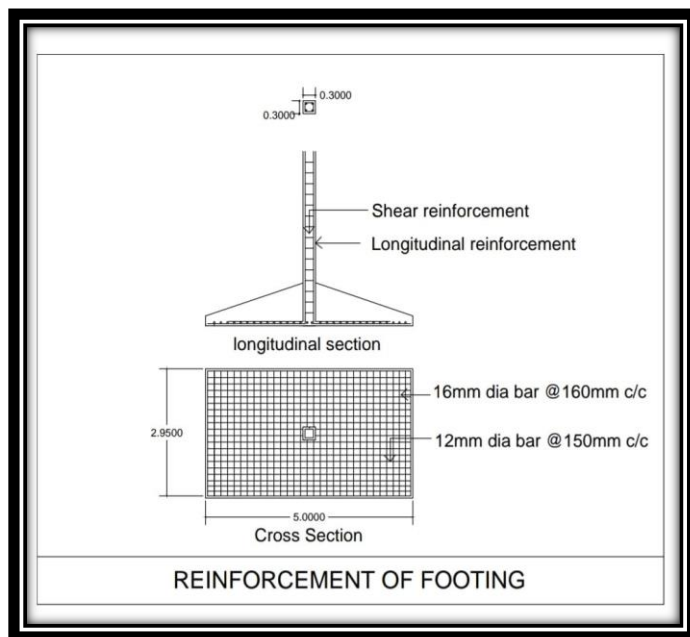
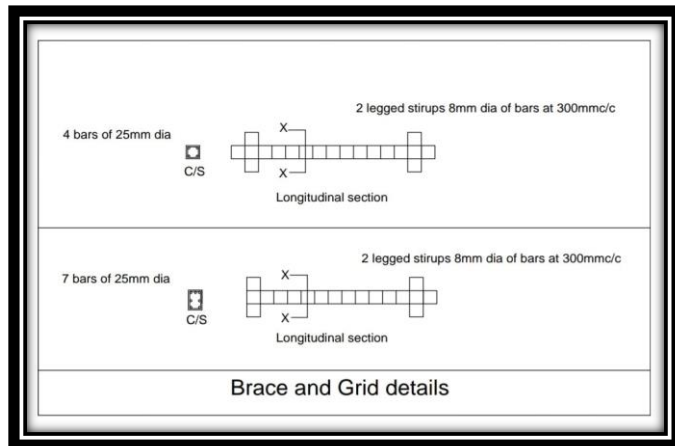
Pure In proposed village, water is supplied from two sources A] River B] Borewell

The river water is supplied for drinking purpose for 1 hour per day.

The borewell water is supplied for non-drinking purposes. Therefore test was performed on water the PH is above 7.

According to our social survey we come to know that the water is supplied through same pipeline. Due to this the people in village are going through health problems.

The estimated cost of project is 22,61,042.47/-



#### 4. CONCLUSIONS

- Smart villages will not only reduce the migration but also irrigate the population flow from urban to rural area as well.
- An educated rural youth will be an asset to the country and at most the overall development of the country can be possible with the development of the villages only.

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#### REFERENCES

- [1] Swapnil B Kale, Kiran R. Varpe, Rohit S. Chothave, Khushal S. Borse, Prof. P.H.Khairnar "The Development of Village" International Journal Of Advance Research in Science and Engineering, Vol. No. 6, Issue No. 3, March 2017.
- [2] Boda Ramesh "Concept Of Smart Village and its Impact on Rural urbanization" International Journal Of Trend In Scientific Research And Development. (2016)
- [3] Aditya Jadhav "Case study and planning of smart village" International Conference on Recent Trends in Engineering Science and Management. (Dec 2016)
- [4] Dr. Milind kulkarni "clean and smart village aspects and alternatives" International journal of Research in Engineering Science and Technology (IJREST), July (2015)
- [5] SVAMITVA (Survey of Villages and Mapping with Improvised Technology in Village Areas), Govt. of India.