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IIT Gandhinagar

Ministry of Human Resource
Development

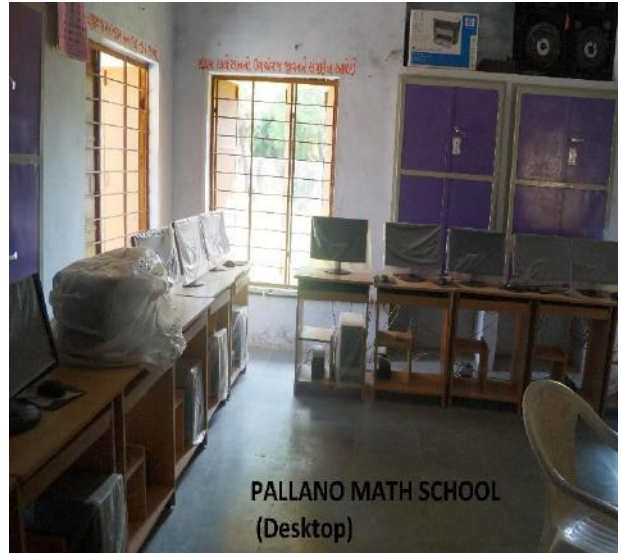
उन्नत भारत अभियान UNNAT BHARAT ABHIYAN

स्वस्थ भारत- स्वच्छ भारत- स्वावलंबी भारत- संपन्न भारत
विज्ञान एवं प्रौद्योगिकी आधारित ग्रामीण विकास कार्यक्रम

VILLAGE DEVELOPMENT PLAN FOR PALLANO-MATH, GANDHINAGAR GUJRAT

INDIAN INSTITUTE OF TECHNOLOGY GANDHINAGAR

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शिक्षित भारत- स्वस्थ भारत- स्वच्छ भारत-
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भारत

Village Development Plan for Pallano-Math

1.0 Introduction

Unnat Bharat Abhiyan was launched by the Ministry of Human Resource Development (MHRD) in November 2014. Subsequently, in August 2015, guidelines were provided by MHRD to the educational institutes to initiate work under UBA in consultation with the district administration. Accordingly, IIT Gandhinagar identified five clusters of villages and different work plan for their upliftment. The present report pertains to one of the village, viz; Pallano-Math.

1.1 Selection of the Village

As part of UBA activities, IIT Gandhinagar decided to adopt five villages in Dehgam block of Gandhinagar district in Gujrat, so as to help in proper planning of the development activities as outlined by Additional Secretary, MHRD and also detailed in the concept note on UBA drafted by IIT Gandhinagar. Prof Pranab Mohapatra carried out field research activities in villages in this block. It was decided to approach the district administration for identifying a suitable village in the area.

A meeting with the Gandhinagar District Collector (DM) was held in this regard. He put IITGn team in touch with the SDM of Dehgam. The prime objective of this meeting was to apprise the officers of the scope of the participation by IIT Gandhinagar in the upliftment of a village/village cluster. Accordingly, the BDO was requested to identify a backward village in the block Dehgam (District- Gandhinagar) which could be the focus of the work by this IIT Gandhinagar team under UBA.

Subsequently, the village Pallano-Math was identified which is at around 38 Km form IITGn Palaj campus. All other four villages are in the vicinity of Pallano-Math. and a *Gram Sabha* was called which was attended by the BDO, four members of the IITGn team, and villagers including men and women of all age groups. They were eagerly waiting for the meeting and handed over a neatly written list of the major problems faced by them. Many problems were brought out through discussion. A few of these are as follows:

1. The main road is also *kuchcha* and full of slush. Street roads are of without light.
2. No place for garbage disposal.
4. No primary health centre/First Aid Service in the village.
5. Families have a toilet but they are reluctant to use it.
6. There is no Gramin bank in the village
7. Issues related to potable water. Water tank is required.
9. Polluted water of pond located in the village.
10. Employment issues among youths

Village was very backward having lack or inadequacy of even basic amenities. Vinu Bhai Goswami is the village *sarpanch*.

1.2 Objectives of Intervention

Based on the preliminary interactions with the villagers and the district/block administration, the objectives of the work to be carried out by the IIT Gandhinagar team in this village was defined as follows:

1. To effectively *participate* in the holistic development of the village Pallano-Math by preparing an integrated plan for the development of the village using eco-friendly sustainable technologies and local resources creating sufficient employment opportunities in the process, harnessing multifarious Govt. schemes.
2. To establish the communication between district administration and panchayati raj institutions to help them prioritize the fund allocation to various developmental activities and provide necessary inputs on technologies to be implemented in the field.

1.3 Methodology: The objective can be met only when experts from various fields of knowledge come together to create an integrated plan for village development. The steps involved in the same can be enumerated as follows:

- (a) The first step towards this is identification of the areas in which IITGn can provide technical inputs along with the experts who will be part of the team.
- (b) Subsequently, a coordinated effort has to be made with each expert helping in preparation of the plan for their component. This may require conducting village level surveys to get information required for preparation of the plan.
- (c) This will be followed by integration of all these components to prepare a holistic plan.
- (d) At this stage, the cost estimates for the plan will be obtained.
- (e) This plan will be discussed with the District officials, viz., the DC, SDM, BDO and the Sarpanch to seek advice on which schemes can be used to provide funds for the same.
- (f) The plan will now be presented to the Gram Panchayat and the Gram Sabha and fine-tuning will be done in the same if required considering the feedback from the villagers.
- (g) It is proposed that after this, IITGn team will be involved in providing the technical support in implementation of this plan, like, preparation of technical specifications in tenders, selection of the supplier, being part of the team to oversee the work to ensure compliance with the specifications.
- (h) After implementation of the plans in each component, the IITGn team will also provide support in monitoring and evaluation of the same by guiding the technical personnel who can

be hired by the Panchayat. IITGn team will also help these technical personnel in preparing the monitoring and evaluation report.

(i) Subsequently, a consolidated report will be prepared based the experiences of the IITGn team related to the development work in the village Pallano-Math followed by preparation of guidelines for participation of any technical institute in the development of a village

2.0 Interactions and Data Collection

In the first few months, the IITGn team was still trying to understand the ecosystem of the village and their needs beyond the list provided by them. After September, 2016, we started interacting frequently with the *Sarpanch* trying to collect information in an informal way. The experts from the Civil Engineering department felt that getting a map of the village and digitising it would be a good starting point. Besides, faculty from IITGn specializing in different domains, viz., waste water treatment, rural roads, solar energy, design etc. visited the village to take stock of the situation so as to get clarity on further steps for an effective intervention.

2.1 The Village Map

The village *Sarpanch* provided the map of the village Pallano-Math. Map cannot be used for addressing the village problems, like water shortage, providing drainage, sanitation etc. Our team has prepared the village map (Fig. 1) showing the main features of the village like, road, temple, pond etc.

2.2 Basic Information about the Village

To collect some gross data about the village, a questionnaire was prepared by the IITGn team. A copy of the same is provided in the appendix. This questionnaire was filled with the help of the *Sarpanch*. It was significant to note that there are some educated youth in the village who can possibly be part of the local workforce required for implementing the plans to solve various problems being faced by the villagers.

2.3 House-to-house Survey

A *gramsabha* was called by the *Sarpanch* to inform the villagers about the engagement of IIT Gandhinagar in the village development for which a house-to-house survey would have to be conducted. All the villagers were very positive about the proposal of having this survey.

A questionnaire for the house-to-house survey was obtained from a Village Development plan prepared by NIRD, Hyderabad. A team of faculty, students and staff from IIT Gandhinagar did the pilot survey using this form in village. Based on this experience, the survey was modified to some extent and this form was then used for all the remaining households. A group of students from IIT Gandhinagar along with faculty and staff were involved in completing the survey. The *Sarpanch* identified the elected member or his close associate to help the surveyors in identifying the households in each ward. The villagers were very cooperative in responding to the survey.

3.0 Data Analysis

The entire data was entered in the computer and analysed for some broad parameters as given below.

No. of families in the village: 150

Total Population (according to sarpanch of the village): 680

No of families having BPL card: 15

No. of families having land: 150

No. of families without any savings account in bank/post office/cooperative society: 10-15

No. of families facing unemployment/poverty as a problem:

Table 1: Distribution of people in the working age of 18-60

Academic accomplishment type	Labour/Farmer/H. W.	Other
Illiterate	120 (20 M/100 F)	N. A
Below Matric	100 (80 M, 20 F)	N. A
Matric pass	17 (All male)	Daily wage labourer
Above 12th	3 (All male)	2- Government Job (Contract)

Note: H. W. = House Wife.

4.0 Prioritization of needs by the community

Almost all families perceived the lack of physical infrastructure such as houses, regular water supply and lack of proper roads as a major problem in the village. Road connecting to the farm lands are almost kuchcha. Almost fifty percent of the houses are kuchcha. There is strong need of construction of pucca building. IITGn is trying to come up with the idea of low cost housing. For this, IITGn is in contact with the experts of this field. Some households whose children were going out of the village for studying in middle/senior schools felt the school in the village must be till higher classes. When inquired about the sport participation or organisation activities, it is strongly felt that such activities should be promoted and it will be really good if a proper sport faculty is recruited. Lack of employment opportunities was also a concern of many families who worked as labour. There is a demand of one borewell by Sarpanch and he has reiterated this many time while collecting the information from him. Village is situated near Mesho river. During mansoon season, discharge increases in the river and it erodes the bank of village side. For stabilizing the bank of the river, structural measures can be taken. However, it requires detailed study. Community hall is needed. Panchayat building is in damaged so repair is required. Electric connectivity is satisfactory except Sim-vistar. Sim-Vistar is also facing shortage issue of drinking water. For cattle drinking, an open water tank at low level should be constructed

When prompted, many villagers expressed the need for a health centre in the village since for any ailment they had to go to Dehgam and in some cases even to Gandhinagar.

5.0 Plan of Activities

Part A: Basic Amenities

5.1 Water Management

5.1.1 Present Scenario

Water Resources: The village has one pond. It does not receive the grey water from the village. In the near bus stand. Water is quite contaminated and does not even support fish. It is very small pond. Even the cattle do not come here to drink water. The pond has no utility as of now for the villagers.

Pond is not fit for drinking water. Thus, for drinking water, a bore well is supplying piped water to every household. It is proposed to get the distribution network checked for adequacy of the design. There is a water tank in the village which is in very dilapidated situation. It is settling and highly damaged. So, there is an urgent requirement of making a water tank.

Grey water disposal: Gutter line has been laid in the village very recently. So, as of now there is no issues related to grey water disposal

Sewage: Currently, all the toilets in the village have soak pits underneath and hence there is no flow of sewage through the village.

5.1.2 Drinking Water Supply and Purification: The underground water in the village is very deep. For domestic usage and drinking purposes, bore well is available but owing to increase in the demands sarpanch has requested to set up one more bore well in the village. Once the pond is cleaned, the bore well in the middle of the pond can possibly be used for supplying drinking water to the village. Primary school in village has no R.O. for drinking water.

The drinking water currently received by the villagers are potable and if required may be tested for the quality.

Action Plan:

1. Contact will be established with the concerned authorities to work out a long-term plan for sustainable use and recharge of water in the area.
2. After the availability of funds, suitable filters can be installed at key locations in the village.

5.2 Roads

Construction of roads is a major requirement for the village. This village is relatively in good condition than the others. Most of the streets have pucca road. Details for the construction of road have been obtained from the sarpanch.

Total length of the streets/roads in the village which needs to be constructed: 1.5 km.

The details of the estimated stretch of road have been provided by the Sarpanch and listed in Table 2. A map (Fig. 1) has been prepared by our team after visiting the village and identifying.

Table 2: Details of road needs to be constructed

S. No	Origin of road	Termination point of road	Total stretch (m)
1.	Bus Stand	Panchayat Ghar	700
2	Panchayat Ghar	Shamsan	300
3.	Bus Stand	Dusra Rasta (Local name)	500

Action Plan:

1. Identify the various road types (PCC/RCC) and select the ones suitable for paving of different streets/roads. The estimates for road construction will be available only after that step.
2. Get a survey done by the students to determine the topography of the entire hamlet with slopes required in each street.

5.3 Solid Waste Management

The village needs an integrated waste management system. The IITGn team may take help from an organisation/NGO working on solid waste management. As of now, no NGO is looking this village. The following points need to be discussed and addressed are as follows:

1. Encourage the women in the village to make bins for the waste using locally available grass. Suitable liners, preferably washable, can be used for these bins. This exercise can become a source for income generation.
2. Provide three bins in each household and train the villagers in household level segregation of waste into three types: (i) biodegradable waste (wet as well as dry) (ii) dry non-biodegradable waste (iii) wet non-biodegradable waste.
3. Have a trolley/cart with three bins for collection of the waste from every house.
4. In order to accomplish the above, there should be minimum level of awareness among the villagers regarding this. We may conduct small workshop or awareness programme to educate them.

Action Plan:

1. To ascertain the amount of biodegradable waste being generated in the village per day. Also ascertain whether any amount of cattle dung can be made available for charging in a biogas plant.
2. Hence decide whether a biogas plant can be made for biodegradable waste.
3. Also ascertain whether anyone in the village would like to operate a shredder for the plastic waste. This machine can then handle waste from several villages in the surrounding area.

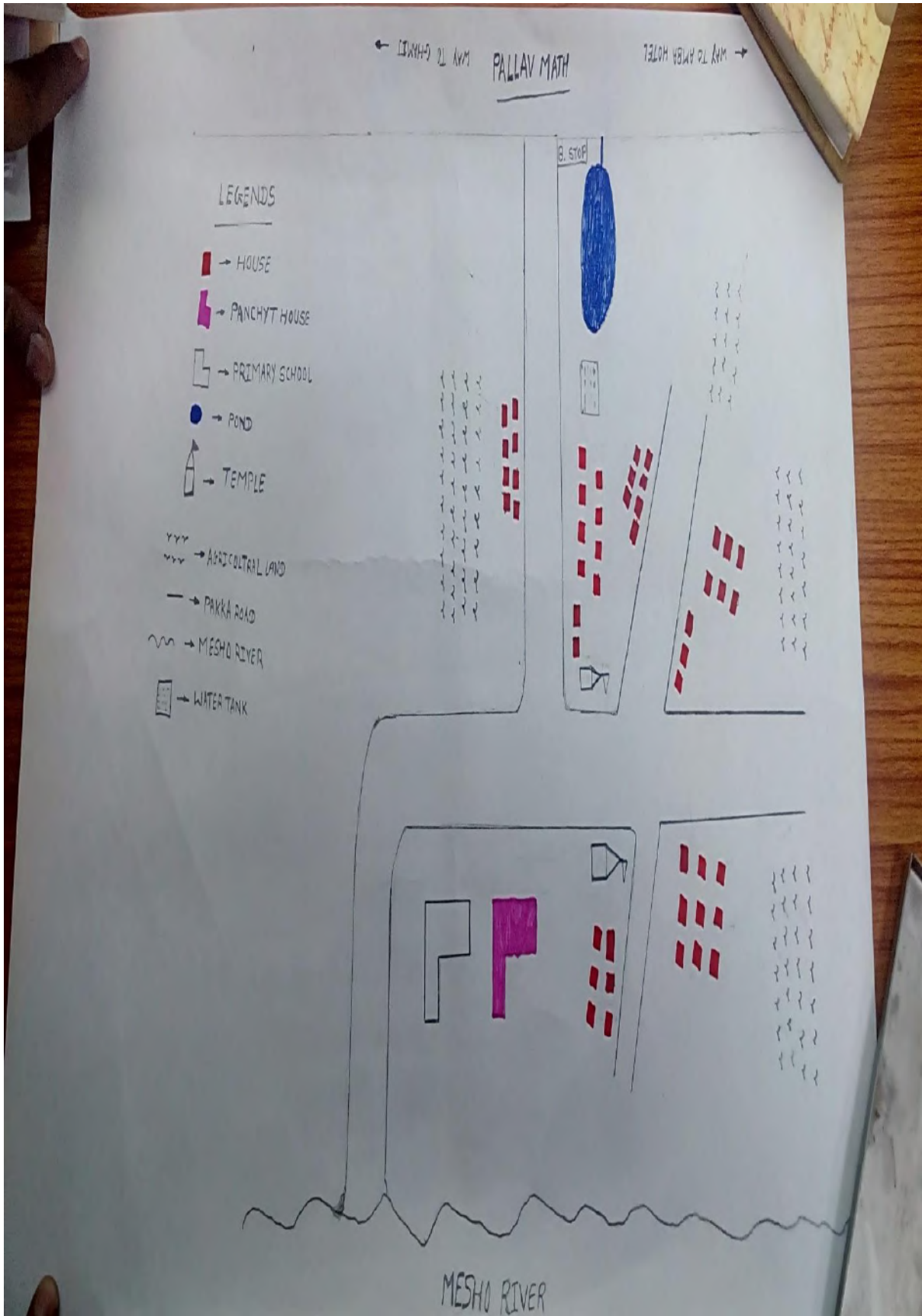


Figure 1: Map showing connectivity within the Gamtal of *Pallano-Math*

5.4 Energy Needs

These include electricity needs as well as the thermal needs. First, we will talk about the electricity needs.

5.4.1 Solar Street Lights

It is proposed to have solar PV based street lights with automatic off and on system. Survey done by IITGn team suggest that around twenty solar street lights are needed. SUKAM company is manufacturing these lights.

Action Plan:

1. To identify the locations where the street lights are required.
2. Prioritize the locations so that depending upon the availability of funds, street lights can be installed in a phased manner.

Cost Estimates: Each street light will cost about Rs 15,000. If 20 street lights are required for the village, they will cost Rs 3,00,000 lakhs.

5.4.2 Solar Power Station for Village

Roof tops of school building can be used to install the solar panel. Other location may also be identified to install such panels.

Using these panels, charging stations can be set up for solar lanterns, battery operated DC fans and even for e-rickshaws. It is proposed to promote operation of e-rickshaws by some of the villagers to provide paid transport between Dehgam and the nearby villages.

5.4.3 Solar-based Home Electric Systems

With the advancement in technology, the solar PV panels are available at the rate of Rs 60,000 to Rs 1 lakh for 1 kW. If DC appliances are used, the requirement per household for one fan and a few lights will be less than 100 W. The cost of installation per household will be Rs 10,000 for each household and the cost of DC appliances.

It is also proposed that the assembly of solar based home lighting system can be done locally by women with appropriate training. This is being used in several rural areas in the country and can also be tried here. This can become an income generating activity for some women in the village.

5.4.3 Improved Cookstoves (Chulha)

Most of the households do not have LPG connection. They use woods for food making. Government ambitious scheme 'UJJALA YOJNA' can bring the benefit for the villagers.

5.5 Health Services

The survey clearly brought out that the families which are poor and do not get good nutrition have many instances of frequent illness. Due to no health facilities in the village, they have to go to Ghamij/Dehgam or even to Gandhinagar if any specialised treatment is involved. Many a times, a small illness can get aggravated if they do not get the treatment in time.

In view of the above, considering the holistic approach of systems of medicine other than allopathy, it is proposed that in the long run if an AYUSH clinic can be set-up with the help of Ministry of AYUSH, it will be of great help to the villagers. To start with, even weekly visits of a physician from alternative system of medicines can be a very positive step. It is strongly recommended that a first aid health centre must be set up in the village.

5.6 Education

The school in Pallano-Math is only till primary. Our team and as paid multiple visit to the primary school. We inquired the head master about the activities going on the school. School lacks sports programme. Mithilesh Kumar Naradpati is the headmaster of primary school. Moreover, there are desktops available in the school. As there is no computer teacher so students could not avail it. School building, drinking water are found satisfactorily. Similarly, it is proposed to develop the already established anganwadi for holistic development of the child. We are in touch with experts who have a lot of experience in developing schools and anaganwadis at a low cost.

Part B: Employment

6.0 Skill Development and Entrepreneurship

6.1 Self-help Groups

IITGn team also help the villagers to form the self-help group (SHG). IITGn may take help from some NGO in this regard. IITGn will motivate the women of the village to come forward to form groups and manage them well by getting training in management of SHGs. IITGn team hopes to take this initiative forward by organising training of SHG leaders. IITGN itself may invite some youth from the village for the special training and workshop to develop the specific skill so that they can earn some money. Various need-based skill development training will be imparted to youth and women of the village. Our IITGn team are constantly contemplating on this. We have had talks with the sarpanch and villagers regarding this. They seemed very positive and said that they were ready for such training. We are in frequent contact with concerned authorities for the above.

6.2 Computer Education

There is no need of mentioning that how important the computer education is for everyone. This is also very ambitious plan of the Indian Government to make youth of the nation equipped with computer education. IITGn team, in this regard also took initiative. Our team got to know

that there are some students in the village who are taking coaching for this. We are developing a plan to introduce computer education for school pass-out boys and girls. For this project also, villagers and sarpanch have shown their interest. Soon we will come out with the concrete plan for the same.

Part C: Governance

7.0 IT-enabled Governance

IITGn team can play an important role in enabling IT platforms for effective governance of the village. However, this has to be done in close association with the district administration, particularly under the DIGI-India initiative. That is why no details are being mentioned here.

Water Quality assessment

Testing of water: - The water quality report for 3 samples from **village** pond will be carried out very soon as per the Table 3.

Table 3: Water quality analysis for village pond

S. No.	Parameters	Sample-1	Sample-2	Sample-3
1	pH			
2	Conductivity ($\mu S/cm$)			
3	Turbidity (NTU)			
4	Total Solids (mg/L)			
5	Total Dissolved Solids (mg/L)			
6	Total Suspended Solids (mg/L)			
7	Hardness (mg/L)			
8	Chloride (mg/L)			
9	Alkalinity (mg/L)			
10	COD (mg/L)			
11	BOD (mg/L)			

Appendix

Village data obtained from the Sarpanch and Talhati (Mehul Bhai).

Sarpanch (Vinu Bhai Goswami) - 9898804209

Headmaster (Mithilesh Kumar Naradpati) – 9909105371.

