DETAIL PROJECT REPORT

VISHWAKARMA YOJNA: VIII

AN APPROACH TOWARDS RURBANISATION

Hadgood Village

Anand District

PREPARED BY

STUDENT'S NAME	BRANCH NAME	ENROLLMENT NO.
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COLLEGE NAME

G. H. Patel College of Engineering & Technology (V.V. Nagar, Anand)

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NODAL OFFICERS NAME

COLLEGE LOGO

YEAR: 2020-21

GUJARAT TECHNOLOGICAL UNIVERSITY
Chandkheda, Ahmedabad – 382424 Gujarat

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ON

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Gujarat Technological University,
Chandkheda, Ahmedabad – 382424 Gujarat

CERTIFICATE

This is to certify that the following students of Degree/ Diploma Engineering successfully submitted

Detail Project Report for,

VILLAGE: Hadgood

DISTRICT: Anand

Under

Vishwakarma Yojana: Phase-VIII

in partial fulfillment of the project offered by

GUJARAT TECHNOLOGICAL UNIVERSITY, CHANDKHEDA

during the academic year 2020-21.

This project work has been carried out by them under our supervision and guidance.

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ABSTRACT

"Developing a village with a rural soul but with all urban amenities is that a city may have" Vishwakarma Yojana is one of the initiatives towards GUJARAT TECHNOLOGICAL UNIVERSITY. Which was allotted a real-time situation type of project provides to GTU. The students are meeting the people of the village and survey the existing facilities provided in the village. The villages in Gujarat still not developed concerning amenities required. The project will provide some Design and Recommendation of Various Infrastructure facilities for the development of the Village. The main aim of the project is to provide urban amenities in rural areas and maintaining the rural soul. The project will help in developing villages in, sustainable manner, reduce migration from villages, and communicate for the city. It consists is also an assessment of the infrastructure facilities like Water, Electricity, Drainage, Road, Solid waste management, renewable energy application, Communication eye, and Social infrastructure facilities like water, Education, Heath Library. Community Hall, Recreation facilities and other Renewable energy like solar Street light, Rainwater harvesting, Biogas plant, & others for sustainable development.

The name of allocated village is Hadgood in Anand district. The village consists of about 2850+ houses with around 14262 human populations in which 8569 are males and 5693 are females according to census of 2011. The physical infrastructures are available in village but few of them are not in good condition.

On the basis of survey data we have observed that there are some physical infrastructures like water tank, dairy, primary school, etc. but among them some are not in good condition which creates problems to villagers. As per the feedback given by villagers, the work of Sarpanch and Talati was appropriate. Clinic facility is also not available. Construction of roads is not in good condition. More such problems are identified and are to be designed and renovated in this project phases.

By introducing necessary amenities in village can help in reducing the migration from villages to towns and cities. This ultimately leads to the overall development of village and help villagers to enhance the life style.

Key words: Vishwakarma Yojana, Infrastructure, Rural Development, Sustainable development.

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CHAPTER 1: Ideal village visit from District of Gujarat State (Civil and Electrical Concept)

1.1 Background & Study Area Location

Hadgood town is old town. The organizer of this town is Saiyad Kamaluddin Baba (R.A) the greatest holy person. On 14 December 1946 the establishment of Anand Milk Association Restricted (AMUL) was laid. The first branch of it lay in this village. During decade of 1970 Ruler Charles s/o Sovereign Elizabeth visited this town to see the main branch of Amul. The introduction of Amul dairy plant was begun with the assistance of Hadgood town people. Hadgood town greater part populace is Muslim (Saiyad people group).

This town is popular around the regions for desserts like Jalebi and handmade sacks for Fournier's. There is peace in religions like Muslim, Hindu, Christian and Sikhs over here. HDFC bank is there. For non veg, it is best place. Many inns are available. For school, Shanta School is very good. Hadgood is a Region in Anand City in Gujarat State, India.

Hadgood Pin code is 388110 and postal administrative centre is Anand Agricultural Institute (Anand).

1.2 Concept: Ideal Village, Normal Village

1.2.1 Objectives of ideal village

An ideal Indian village will be developed in such a way that it is hygienic. It must have houses with sufficient light and ventilation. They are built of material which is easily available in that area. Houses should be designed in such a way that they are self-sufficient they have place to grow their own vegetables, fruits & they can generate their own energy with help of solar panels. The village lanes and streets will be free of all avoidable dust. It must have wells according to its needs and accessible to all.

It must have place 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.

1.2.2 Case Study of Ideal Village of India / Gujarat

Dharnai (Bihar) first completely sunlight based controlled village: Dharnai, a town in Bihar, beat 30 years of obscurity by building up its own sun based powered system for power. With the guide of Greenpeace, Dharnai proclaimed itself an energy-independent village in July. Understudies no long need to restrict their investigations to the day time; ladies no longer limit themselves to venturing out in the day in this town of 2400 residents.

Pothanikkad (Kerala) The town with 100% proficiency rate: Unsurprisingly in Kerala, Pothanikkad town was the first in the nation to accomplish a 100%literacy rate. Not exclusively

does the town brag of city-standard secondary schools; however, it additionally has primary schools and non-public schools. Theory the quantity of individuals the town has instructed? Well, according to the 2001 evaluation there are 17563 inhabitants living in the village.

Mawlynnong (Meghalaya) Asia's cleanest town: Mawlynnong, a little town in Meghalaya, was granted the esteemed tag of 'Cleanest Village in Asia' in 2003 by Discover India Magazine. Situated at around 90 kms from Shillong, the village offers a sky stroll for you to take in the magnificence as you investigate it. As indicated by guests, you cannot locate a solitary cigarette butt/plastic sack lying around there.

1.2.3 The Idea of Model

1. Adopt people's participation as an end in it – ensuring the involvement of all sections of society in all aspects related to the life of a village, especially in decision-making related to governance.

2. Adhere to Antyodaya (development unto the last) – enabling the "poorest and the weakest person" in the village to achieve well-being.

3. Affirm gender equality and ensuring respect for women.

4. Guarantee social justice.

5. Instill dignity of labor and the spirit of community service and voluntarism.

6. Promote a culture of cleanliness.

7. Live in consonance with nature – ensuring a balance between development and ecology.

8. Preserve and promote local cultural heritage.

9. Inculcate mutual cooperation, self-help, and self-reliance.

10. Foster peace and harmony in the village community.

11. Bring about transparency, accountability, and probity in public life, Nurture local self-governance.

1.2.4 Ancient History Civil / Electrical Concept about Indian Village / Foreign Countries Perspective and Its Development

1. Harappa and Mohenjo-Daro are best examples of this architecture and mature urban civilization. In Harappa civilization the underground drainage system was from small to

big sewer then to channel and then channel to river. It has also a remarkable town planning system. Better system then this has never seen till today.

2. Now we have done so many researches and brought so many relevant facts .example- how many gallons of water are needed for a village but the problem of drainage is still there. We know that we are surrounded by population and pollution and other problems but I believe that before science these all problems are negligible.
3. Ancient fort and huge bath and bawadiya etc. are very attractive .one of the most beautiful examples of patterns in architecture it is Chand bauri well in Rajasthan which is 100 feet below the earth level. Mughals have done changes in architecture; the use of marbles shows that we had good knowledge of geology too.
4. Jagannath temple: the shadow of the main dome is not visible whatever be the time it shows architecture feat. Also, the sudarshan chakra on the top seems always facing you. Irrespective of wherever you stand. When you enter the temple by singhdwara after first step you cannot hear any sound of ocean but when you exit it can be clearly heard.
5. The Narayan pal Vishnu mandir of chitrkut, bastar was completely built only in a day. Its structure and arts are also built in a shorter period of time of a day.
6. The Konark sun temple is one of the UNESCO heritage sites. The main attraction of the temple is its twelve pairs of wheels located at the base of the temple. These wheels are not ordinary wheels but tell time as well the spokes of the wheels create a sundial. One can calculate the precise time of the day by just looking at the shadow cast by these spokes.
7. Kailash temple of Alora caves is carved from a massive rock structure. The whole rock is cut by manpower.
8. Now these facts prove that our ancestors had knowledge of civil and science in fact their technology was highly advanced than of the modern.

1.3 Detail Study

Socio Economic:

For a town to function as a whole the participation of a community plays a vital role. Through festival and social gatherings, the involvement and participation at the community level breaks the social banking and enhances the informal interaction. Human settlements in cities, towns or villages have a surrounding on the basis of the diversity of in inhabitance and the complexity of the activities. They can be distinguished by their dependence on their formal provision of services.

Integrated Human Settlements:

- Zoroastrians
- Parsis

- Iranis
- Mangela Community
- Dhodia Community
- Halpatti Community
- Mahayavanshi Community

Major occupation:

Mobile shops, door to door service providers comprise the vegetable vendors, newspaper-wallahs, milkmen, home-made masala vendors. Machimars and the ice-cream-wallahs.

1.4 SWOT Analysis of Ideal Village

SWOT Analysis is a useful technique for understanding your strengths and weaknesses, and for identifying both the opportunities open to you and the threats you face:

Strength:

- Public hospitals
- Education facility
- The village has bituminous road in all areas
- Gram panchayat building
- Post office
- Government hospitals as well as private hospitals private hospitals are there
- CCTV cameras are fitted in every main road in village
- Transport facility (Bus, Railway)
- No criminal activities
- Gas pipe line facility in all areas
- Electricity

Opportunities:

- To providing equipment for farming and fishing
- To rise the living standards of people
- To making the village cleanness

Benefits of the Visits:

- To know the strength and weakness of village
- We see some different type of little requirements of village
- We discussed the good and bad thing about village from village people
- We saw all type of basic and primary amenities available

1.5 Future Prospects of the Ideal Village

For future possibility, the town udvada can utilize further developed advancements for rural prospect and for different necessities moreover. They can make the town Wi-Fi zone and can improve the computer labs in the schools. Local business and employment opportunities can also be improved with regards to increase in the physical and social development of village. They can likewise give biogas plant in the town. There should be police headquarters in the town for the security purposes.

1.6 Benefits of the Visits

By the visit of the village udvada, we got an idea about an ideal village. We had seen many kinds of new technologies which can be used in village that are being used in the urban area. By visiting such towns, we understood the structural designing and electrical designing can comprehend about the real advancement that a provincial territory needs to fulfill its essential framework offices and contrast and metropolitan zone and can actualize these strategies and offices for the improvement of different towns which quite improvement and can execute the equivalent for the advancement of towns which are distributed to us as a last year venture.

In the wake of visiting the town, we came to think about different offices that can be given in a town to Rurbanization of town and to diminish the relocation of individuals from towns to city regions. We likewise came to think about the different procedures and strategies that can be utilized for the improvement of town. By this visit of udvada, it improved our communication skills and we knew how to interact with the different peoples.

1.7 Civil Concept / Method / Usages in the Ideal Village:

Structural designing ventures are progressively unpredictable and are related with circumstances where hearty choice is needed to be taken. These choices are made in various phases of structural designing ventures. For instance, dynamic happens during possibility study stage before plan, obtainment and development stages to decide the suitability of venture embraced by a financial specialist.

With the assistance of an interdisciplinary way to deal with critical thinking, in any case, numerous developments are being put forth trying to bring commonsense, repeatable execution to development. Despite the fact that the expectation to absorb information might be steep, the potential advantages are significant. All crafted by the town improvement is conveyed by the gram panchayat are in their quality and endeavors to make their town a-list and individuals will visit their town for their notable offices which are given by gram panchayat.

CHAPTER 2: Literature Review

2.1 Introduction: Urban and Rural

Urban: Urban is that zone where the populace thickness is more and new offices are given to the people. Urban territory is the area encompassing a city. The vast majority of occupants of metropolitan territories have non-farming positions. Metropolitan territories have district, company, cantonment board or told town zone committees. As indicated by statistics 2011, there are 7,935 towns, 4,041 legal town and 3,894 enumeration towns.

Rural: All the territories which are not described as metropolitan zone is called rural region. In which the population is low contrasted with metropolitan territories. Basically, they rely upon agrarian exercises. Concurring to census 2011, there are 6, 40,867 towns in India. The region where over 75% of male population is related with horticultural movement is known as country territory.

2.2 Importance of the Rural Development:

In India, more than 70 percent of the population resides in rural communities. When the concept of development of the country is taken into consideration, then two main areas need to be emphasised upon, urban and rural. The development of both the areas is necessary in order to lead to effective growth and development of the country. The development of all aspects within rural communities is vital for the effective development of the country.

These include, education, employment opportunities, infrastructure, housing, civic amenities and the environmental conditions. Furthermore, rural individuals need to be aware of all modern and innovative methods and techniques that are vital to augment productivity. Within the country, the rural communities are still in an underdeveloped state.

The individuals are residing in the conditions of poverty, they are illiterate and unemployed. Due to these factors, they are unable to sustain their living conditions in an appropriate manner. It is essential to formulate programs, schemes and measures that have the main objective of bringing about improvements in rural communities.

2.3 Different Definition of Rural Area / Village

Rural area is otherwise called the 'open country' or a 'town' in India. It has a low populace thickness. In country regions, agriculture is the main source alongside fishing, cotton, earthenware and so on. According to the Planning Commission, a town with a most extreme populace of 15,000 is viewed as country in nature. In these territories the panchayat settles on all the choices.

Also, rural areas have a low population density and small settlements. An area with a population density of up to 4000 per sq. km is considered as a rural area.

2.4 Scenario: Rural / Urban India and Gujarat as Per Census 2011 (Population Growth)

DATA HIGHLIGHTS – CENSUS 2011

Table 1 Population (in Crores)

	2001	2011	Difference
Population in India	102.9	121.0	18.1
Rural	74.3	83.3	9.0
Urban	28.6	37.7	9.1

Unexpectedly since Autonomy, the expansion in populace is more in metropolitan territories than that in rustic zones

- Rural-Metropolitan conveyance: 68.84% and 31.16%.
- Level of urbanization expanded from 27.81% in 2001 registration to 31.16% in 2011 enumeration.
- The extent of country populace declined from 72.195 to 68.84%.

2.5 Rural Issues and Concern

The major three issues are Agriculture, Rural area and Farmers:

- Issues of Agriculture
  As a rule, the issue is the means by which to expand agriculture in India. It incorporates:
  1. Increase the marketization level of agriculture creation and activity and settling the costs of farming items.
  2. Changing the circumstance of smallholder monetary agribusiness, accomplishing economies of size of farming creation and activity.
  3. Guaranteeing the food security in India.
- Issues of Provincial Regions
  This is especially reflected in the uniqueness of financial and social advancement metropolitan and rustic territories. It is basically brought about by dual division dependent on the family unit enlistment framework.

- Issues of Ranchers
  It incorporates improving the pay level of ranchers, lightening weights of ranchers, expanding the social nature of ranchers, and protecting the privilege of ranchers.

Different Measures for Provincial Turn of events:

For the improvement of country various measures should be taken to satisfy following targets:

- To advance the country economy by improving creation and the business circumstance and salaries of the rustic populace through:

- The advancement of new nonagricultural country exercises, for example, agro businesses, uphold administrations, and so on, which will make more elevated level of profitability and seriousness conceivable;

- The improvement of working, preparing and pay state of rustic laborers; and

- To advance the age of sparing and offices a more elevated level of interest in the rustic territory.

- To help extend the entrance of the country populace to fundamental administrations, including, instruction, medical care and so on.

2.6 Various Infrastructure & Guideline / Norms for Village for the Provision of Different Infrastructure Facilities

Water supply:

Conveyance of safe drinking water is fundamental for ensuring public for general wellbeing and of advancing safer vocations. The conventional way to deal with water quality and safe administration has depended on the testing of drinking water, as it leaves the treatment works or at chose focuses, either inside the circulation framework or at buyer taps. It is alluded to as “finished result testing”.

Different technique for water supply

- Gravity-took care of water supply framework in bumpy territories
- Dug all around based provincial water supply
- Borewell-based rustic water supply
- Ground water energizing framework
- Roof top downpour water reaping frameworks

Sanitation offices:

Request and supply of disinfection offices and administrations should be tended to simultaneously to guarantee latrine appropriation and continued utilize and empower scale reception and supported utilization of sterilization offices requires development on safe latrines and their supported use.

Roads:

The association service of provincial advancement has as of late gave new rules under the "Pradhan Mantri Gram Sadak Yojana" to forestall development of low-quality streets and smooth out the offering cycle all through India. PMHSY is the biggest provincial street availability program on the planet.

School:

Numerous unassuming communities need essential instructive foundation. Most schools don't have appropriate latrines, power, and legitimate structure with rooftops. There is additionally absence of drinking water. The state of government schools is additionally not fulfilled by numerous reports. There have been a few instances of harming because of low quality noontime dinners in government schools. Therefore, give among the all offices in country schools like legitimate latrines, power and appropriate structure and furthermore give great furniture which needed in school.

2.7 Other Projects / Schemes

Projects/Plans by Government Area:

- IRDP (Coordinated Rustic Advancement Program)
- SGSY (Swaranjayanti Gram Swarozgar Yojana)
- NRUM (Public Rurban Mission)
- Pradhan Mantri Gram Sadak Yojana
- Mahatma Gandhi Public Provincial Work Assurance Act-2005
- PURA (Arrangement of Metropolitan Courtesies in Provincial Zones)
- JNNURM (Jawaharlal Nehru Public Metropolitan Recharging Mission)
- JWDP (Incorporated No man's land Improvement Program)

Projects/Plans by Private Area:

- Intensive Agribusiness territory Program
- Intensive Agribusiness Locale Program
- High Yielding Assortments Program
- Rural Businesses Ventures

CHAPTER 3: Smart (Cities / Village) Concept as per Your Idea and its Visit (Civil & Electrical Concepts)

3.1 Concept, Definitions and Practices

A smart city is a city that utilizes innovation to offer types of assistance and take care of city issues. A smart city does things like improve transportation and availability, improve social administrations, advance maintainability, and give its residents a voice. Despite the fact that the expression "Smart city" is new, the thought isn't.

3.2 Bench Marks: Vision, Goal, Standards and Performance Measurement Indicators

The vision of smart urban areas is that the brilliant urban communities are the focal point of things to come, secure naturally green, made protected, proficient as a result of all structure-whether for water, power, and transportation. Are planned, developments utilizing coordinated materials, sensors, and organization which are interfaced modernized frameworks of information base, dynamic calculations?

Count of the 79 distinctive decency markers recommended in the ‘reasonableness guidelines in urban communities’ requires information on an enormous number of parts of metropolitan foundation, administration, city funds, social framework, monetary viewpoints and so on any place such information is consistently accumulated by the ULBs or different administrations, for example, DISCOMS. Water and sewerage utilities and so forth it should be sources from the records of such gives.

At times, the information may need on field through actual reviews. For specific pointers, for example, contamination, modular split of metropolitan vehicle, water quality and so on information should be gotten from actual review according to standard and endorsed overview and testing methods. What’s more essential is that guides should be ready for urban areas where such data or guides are not accessible.

3.3 Technological Options for Smart Cities:

Urban areas and networks the country over are today confronting intricate and diligent difficulties coming from changing populaces and foundation. Specifically, requests on city framework, frameworks, and administrations are developing and changing, inciting significant new requirements, for example, more successful utilization of restricted space, more noteworthy walkability, and approaches to help occupants over all financial statuses. The requirement for improved versatility despite normal and man-made debacles adds to the difficulties that urban areas and networks are confronting. These difficulties straightforwardly show for city occupants too. Having the option to address these difficulties is all by itself troublesome

Progressing city tasks are regularly reliant upon the very foundation, administrations, and frameworks that could profit by development and finding the time, energy, and assets to improve city capacities without unfavorably influencing these continuous activities isn't trifling. Consider, for instance, routine street development ventures; urban areas and networks should regularly direct these undertakings during restricted evening time and end of the week hours, in order to limit disturbances for occupants who depend upon the streets to drive to and from work.

Simultaneously, propels in systems administration and data innovation in the course of the most recent quite a few years have changed people's lives, quickly modifying how we live, work, and impart. Incorporating these advanced advances with actual foundation at the city level comparatively empowers imaginative chances and answers for the test's urban communities are confronting. By working intimately with urban areas to help this reconciliation in manners depicted in this essential arrangement, Government organizations can help encourage answers for city challenges and catalyze the smart of things to come.

3.4 Road Map and Safeguards

The reason for building smart urban areas is to make the lives of the individuals more secure and simpler. Innovation can be utilized as an instrument to ensure lives and improve administrations and, besides, it tends to be utilized to secure By and by Recognizable Data and urban areas basic foundations, for example, water treatment frameworks, transportation, emergency clinics, and force plants. Innovation can be utilized to decrease wrongdoings by topographically spotting zones with horror rates, distinguishing explicit wrongdoing examples, and detailing it to law authorization right away, huge numbers of these administrations are accomplished.

Sensors are little estimation gadgets that can be incorporated with hardware to identify certain scents, sound, or levels of varieties. Sensors can be latent or dynamic. Inactive sensors don't really act; they basically gather information, and they are utilized essentially to gauge climate conditions, for example, Ozone levels, wind speed, or the sun's bright levels. Dynamic sensor gadgets, then again, use hardware to deal with information and act.

Figure 1 Smart Village Project

3.5 Issues & Challenges

1. Retrofitting existing inheritance city: framework to make it brilliant, there are a few issues to consider while inspecting a keen city idea. The most significant is to decide the current urban communities' frail zones that need most extreme thought, for example 100% dispersion of water supply and disinfection. The mix of once separated heritage frameworks to accomplish citywide efficiencies can be a huge test.
2. Financings of smart urban areas: The Powerful Master Panel on Speculation Evaluations in Metropolitan Foundation has surveyed a for every capita venture cost of Rs 43,386 for a 20year period. Utilizing a normal figure of 1 million individuals in every one of the 100 smart urban communities, the complete gauge of venture prerequisites for the keen city comes to Rs 7 lakh crore more than 20 years. This converts into a yearly prerequisite of Rs 35,000 crore. One necessity to perceive how these ventures will be financed as the vast majority of the task need would travel through complete private speculation or through PPPs (public-private organization).
3. Accessibility of city advancement plan: The vast majority of our urban communities don't have a city advancement plan, which is the way to keen city arranging and embodies, and epitomizes all a city requires to improve and give better occasions to its residents. Tragically, 70-80 % of Indian urban areas don't have.
4. Monetary manageability of ULBS: Most ULBS are not monetarily self-feasible and tax levels fixed by the ULBs for offering types of assistance regularly don't reflect the expense of providing the equivalent. Regardless of whether extra speculations are recuperated in a staged way, lacking cost recuperation will prompt proceeded with monetary misfortunes.
5. Specialized requirements of ULBS: Most ULBS have restricted specialized ability to guarantee opportune and financially smart execution and resulting tasks and support inferable from restricted enrollment over various years alongside powerlessness of the ULBs to draw in best of ability at market serious pay rates.
6. Three-level administration: Fruitful execution of brilliant city arrangements needs compelling flat and vertical coordination between different foundations giving different city pleasantries just as powerful coordination between neighborhood government, state government, focal government, organizations on different issues identified with financing and sharing of best practices and administration conveyance measures.
7. Giving clearances in an opportune way: For convenient culmination of the venture, all clearances should utilize online cycles and be cleared in a period bound way. An administrative body should be set up for every single utility assistance so, a level battleground is made accessible to the private area and duties are set in a way that offsets monetary manageability with quality.
8. Managing a multivendor climate: Another significant test in the smart city space is that product foundation in urban areas contains segments provided by various sellers. Thus,

the capacity to deal with complex mixes of keen city arrangements created by numerous innovation sellers turns out to be huge.

9. Limit building program: Building limit with respect to 100 brilliant urban communities is definitely not a simple assignment and most aspiring activities are deferred inferable from absence of value hardware and labor, both at the middle and state levels. Regarding reserves, just around 5 percent of the focal designation might be assigned for limit building programs that emphasis on preparing, relevant examination, information trade and a rich information base. Interests in limit building programs have a multiplier impact as they help in time-bound consummation of ventures and in planning programs, creating personnel, building information bases just as planning toolboxes and choice emotionally supportive networks. As all these make some slack memories, limit constructing should be reinforced right at the beginning.
10. Unwavering quality of utility administrations: For any keen city on the planet, the attention is on dependability of utility administrations, regardless of whether it is water, phone, power, broadband administrations. Smart urban communities ought to need to give power 24 Hours.

3.6 Smart Infrastructure

Smart data and correspondence innovation can possibly change the manner in which we design and oversee framework. New improvement in PC equipment, new applications and programming are changing the essence of the framework areas, and society all the more for the most part, driving more noteworthy proficiency, expanding profitability, and incredibly disentangling development cycle and life of resource upkeep.

Figure 2 Smart Infrastructure

3.7 Cyber Security

Network protection is the collection of innovations, cycles and practices intended to ensure network, PCs, projects and information from assault, harm, or unapproved access. In a registering setting, security incorporates both network protection and actual security. Guaranteeing network safety requires facilitated endeavors all through on data framework. Components of digital protection include:

- Application security

Figure 3 Cyber Security

- Network security
- Operational security
- End-client training

3.8 District Cooling and Heating / Green Building

Region cooling framework produce chilled water, steam or high temp water at a focal plant and afterward pipe that energy out to working for cooling Space warming and water warming. Therefore, there structures don't need their own chiller, forced air systems, boilers or heaters.

Area cooling frameworks are an exceptionally proficient path for some proprietors and producers to adequately address every one of these difficulties while meeting their solace and cycle cooling and warming necessities.

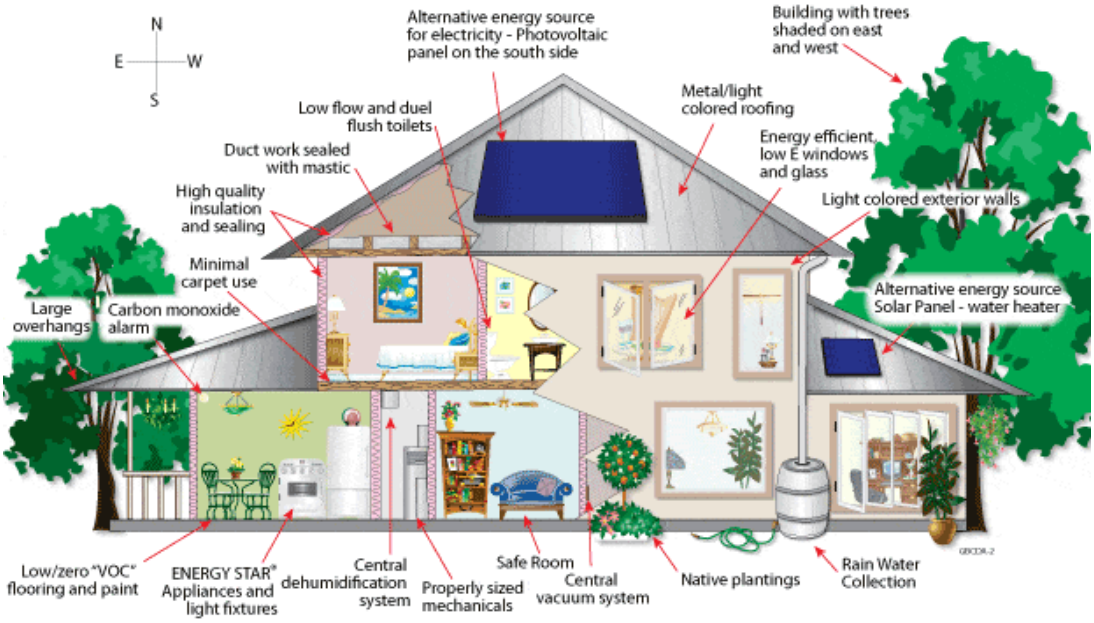


Figure 4 Green Building Concept

Warmth sources being used for different region warming frameworks incorporate, power plants intended for consolidated warmth and force including both burning and atomic force plants; and basic ignition of a petroleum product or biomass; geothermal warmth; sun-based warmth; mechanical warmth siphons which concentrate heat from, waterway or lake water, seawater, sewage, and waste warmth from modern cycles.

3.9 Strategic Option for Fast Development

Smart Framework includes applying this to monetary foundation to support all partners. It will permit proprietors and administrators to get more out of what they as of now have, expanding limit, effectiveness and strength and improving administrations.

It brings better execution at lower cost. Acquiring from existing resources is the way to improving assistance arrangement notwithstanding obliged account and developing asset shortage. It will regularly be smarter to add to the general estimation of develop framework by means of advanced improvements than by actual upgrades – actual upgrades add 'business as usual', though computerized upgrades can change the current also.

Keen Foundation will shape a superior future. More prominent comprehension of the exhibition of our foundation will permit new framework to be planned and conveyed all the more proficiently and to give better entire life esteem.

3.10 Indian's Urban Water and Sanitation Challenges and Role of Indigenous Technologies

Over 90% of the metropolitan populace approaches drinking water, and over 60% of the populace approaches fundamental disinfection. In any case, admittance to dependable, economical, and moderate water supply and disinfection (WSS) administration is slacking. Are the Administrations Dependable? No Indian city gets channeled water 24 hours per day, 7 days per week. Funneled water is never disseminated for in excess of a couple of hours out of each day, paying little heed to the amount accessible. Crude sewage frequently floods into open channels. Are the Administrations In fact and Monetarily Manageable? Under half metropolitan populace approaches channeled water. The Non-Income Water (NRW: because of spillages, unapproved associations, charging, and assortment failures, and so on) is enormous, assessed between 40-70% of the water circulated.

Tasks and upkeep cost recuperation through client charges is not really 30-40%. Most metropolitan activities make due on huge working sponsorships and capital awards.

3.11 Initiative in Village Development by Local Self-Government

Rural Local Government (or Panchayat Raj Institutions):

- Zilla Panchayat
- Mandal or Taluka Panchayat
- Gram Panchayat

Initiation by Local People:

- Organization program for increase literacy for peoples of village.
- Providing enough information regarding to using of various facilities.
- Peoples have to learn various things regarding how to keep facilities in good condition.

3.12 Smart Initiative by District Municipal Corporation

- Solid waste management
- Selvedge water disposal
- Effective road transportation

- Maintaining streetlight facilities
- Agriculture awakening center

3.13 Any Projects Contributed Working by Government

- The panchayat raj framework is a three-level framework with chose bodies at town, taluka, and region levels.
- The present-day framework is situated to a limited extent on customary panchayat government, partially on the vision of Mahatma Gandhi and part by crafted by different boards to orchestrate the exceptionally unified Indian government organization with a level of neighborhood independence.
- The result was proposed to make more prominent interest in nearby government by individuals and more successful execution of provincial advancement programs.
- Although, starting at 2015, execution in all of India isn't finished the goal is for there to be a gram panchayat for every town or gathering of towns, a tehsil level committee, and a zilla panchayat at the local level.

3.14 How to Implement Other Countries Smart Villages project in Indian Village context

Every town ought to have following 5 essential pleasantries in long term:

- Roads
- Electricity
- Water
- Hospitals
- Schools

Figure 5 Smart Village

Essential conveniences of for smart town from different nations are:

- *Schooling:* keen study hall can improve the nature of training by giving admittance to a lot of schooling assets.
- *Health care:* improving data accessible on the accessibility, area, and cost of different sorts of medical services.
- *Agriculture:* give data to ranchers on the sorts of harvests that can bring them returns, by guaranteeing that there is no blame of one item deficiency of another.

CHAPTER 4: Introduction of Hadgood Village

4.1 Introduction

4.1.1 Introduction about Hadgood Village Details

- Name: Hadgood
- District: Anand
- Taluka: Anand
- Distance from Anand: 8 km
- Pin code: 388110
- Language: Gujarati
- Population: 14262 (census 2011)

Hadgood is an enumeration town city arranged in Anand taluka of Anand local. According to the population evaluation 2011, There are all out population of Hadgood is 14262 out of which 7389 are guys and 6873 are females subsequently the normal sex proportion of Hadgood is 930. According to the statistics 2011, the education pace of Hadgood is 88.6%. The male education rate is 95.09% and the female proficiency rate is 81.6%.

Hadgood statistics town has complete organization more than 2846 houses to which it supplies fundamental conveniences, for example, water and sewerage. It is additionally approved to fabricate streets inside registration town restricts and force charges on properties going under its locale. This town is celebrated around the locale for desserts like jalebi and handmade packs for traveler.

4.1.2 Justification / Need of the Study

The Objective of exploration proposition is to introduce and legitimize the need to examine an examination issue and to introduce the functional manners by which this examination should be directed. There are number of plans of the Public authority which are being worked and run for rustic advancement in the provincial regions of the nation.

Development taken up so far for these plans has been pretty much in a piecemeal structure, for example by and large for each plan independently. It has gotten hard to get a general image of the advancement in entirety in the rustic zones and is hard to survey the effect of any one specific plan, since the vast majority of the plans are corresponding and beneficial and more often than not, they all are adding to the effect. Consequently, a view has been shaped to take up examinations being investigated premise to evaluate the effect of the significant plans all in all in provincial advancement in chosen town.

4.1.3 Study Area

Present status and techno-economic survey of villages in given District of the state in terms of basic and public amenities, essential commodities, other infrastructural facilities for the need of people and on the adequacy of the available resource with reference to the population of the village and growth of the area with the consultation of Local revenue authorities, TDO and

DDO the future need of the village keeping to mind the need of days, future targeted population growth, growth of surrounding town or Taluka places etc.

4.1.4 Objective of the study

- Production of foundation – network, community and social framework alongside Arrangement of elective job age are the key columns.
- Fundamental Actual Foundation – Water Supply, Transport, Sewerage and Strong Waste Administration should be the need center and be given.
- Essential Social Foundation – Wellbeing and Training offices should be given and guarantee legitimate conveyance of offices to town tenants.
- Advance incorporated improvement of rustic zones with arrangement of value lodging, better availability, work openings and supporting physical and social foundation.
- Diminish relocation from provincial to metropolitan regions because of absence of fundamental administrations and adequate financial exercises in rustic regions.
- Inward streets inside town settlement, Effective Mass Transportation frameworks to improve availability among metropolitan and rustic regions, Public transportation offices that should be created like bus stations, transport stop and so on.
- ID of disinfection offices that need improvement – sewerage and seepage line for family unit association, entryway to entryway strong waste assortment and unloading offices.
- Renovating of town lakes, water tanks and wells, development of downpour water gathering structures for manageable Turn of events.
- Advancement of socio culture offices like network lobby, public library, recreational exercises and fixing of existing comforts.
- Fix and support of Existing Public Structures like Gram Panchayat, Public Library, School Structures, Wellbeing Center, Public Latrine Square and Other.

4.1.5 Scope of the Study

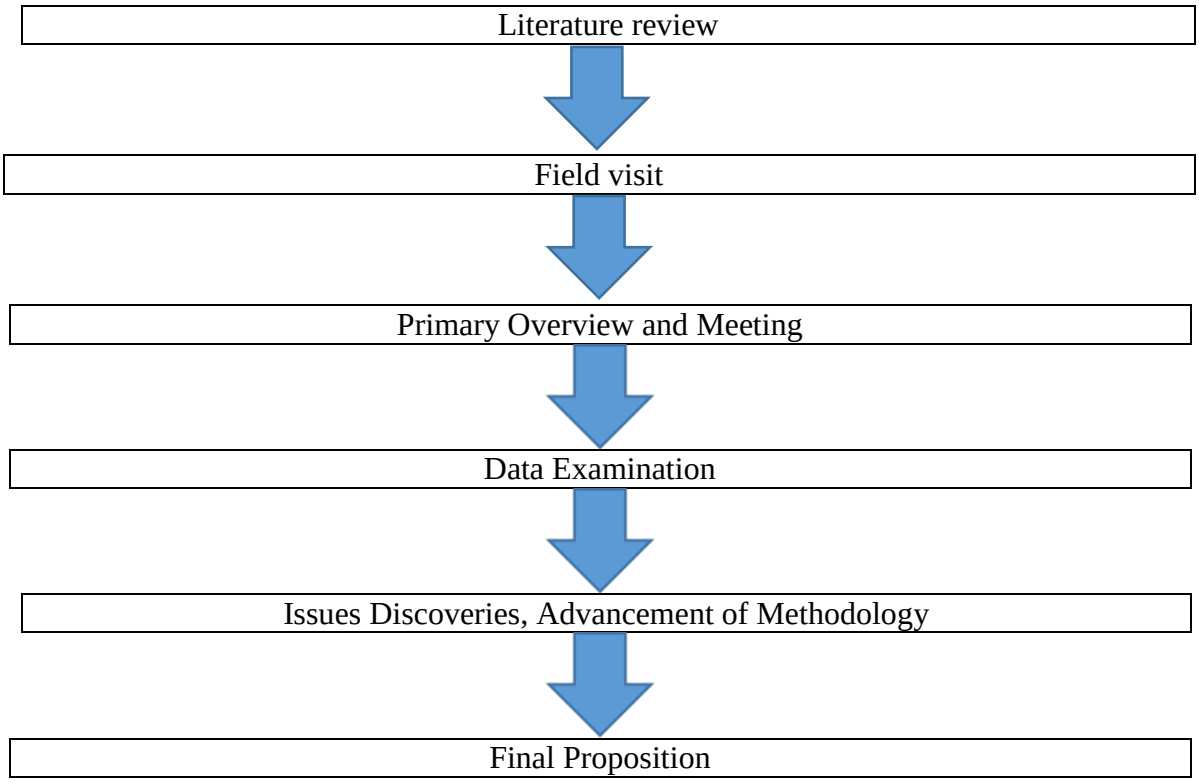
The point of venture is to build up the town with opening for work for townspeople. A group of undertaking is finding the issue or need of a town as far as socio – social or physical or social framework and to plan that office with effective designing arrangement which incorporate the plan proposition and gauge cost to encourage the require office for the future development of town with metropolitan offices.

The investigation will center the improvement pattern, power of development of the town, and discover the issues identified with the socio-social or actual advancement of the zone, social foundation administrations, and the managerial frameworks of the town. The investigation of town gives the explanation where there is need of practical offices like foundation offices, network corridor, essential wellbeing place, mail center, general market, unadulterated drinking water, street organization, schools, power, sterilization, library, Anganwadi, overhead tank, police headquarters, fire station, and so on are accessible or not.

Rustic settlement inundated in metropolitan cutoff points during the cycle of improvement, and those situated in the periphery territories of enormous urban communities, can be named as metropolitan towns.

4.1.6 Methodology Framework for Development of Your

To accomplish the point by going through the goal, the examination will be done in the accompanying system, depicted as follow:



4.1.7 List of objects Available Related to Civil Methodology

- Anganwadi
- Panchayat office
- Overhead rectangular water tank
- Primary school
- Drainage system
- Underground water system
- General store

4.2 Study Area Profile

4.2.1 Study Area Location

Name of Village: Hadgood
Name of Taluka: Anand
Name of District: Anand

Hadgood is a village panchayat located in the Anand district of Gujarat state, India. The latitude 22.528182 and longitude 72.9785353 are the geocoordinate of the Hadgood. Gandhinagar is the state capital for Hadgood village. It is located around 93.0 kilometer away from Hadgood. The other nearest state capital from Hadgood is Ranchi and its distance is 302.7 KM. The other 29 surrounding state capitals are Daman 234.9 KM., Mumbai 397.1 KM., Raipur 405.6 KM.

4.2.2 Base Location map, Land Map, Gram Tal Map

The location map, Land map & Gram Tal map are as follows:

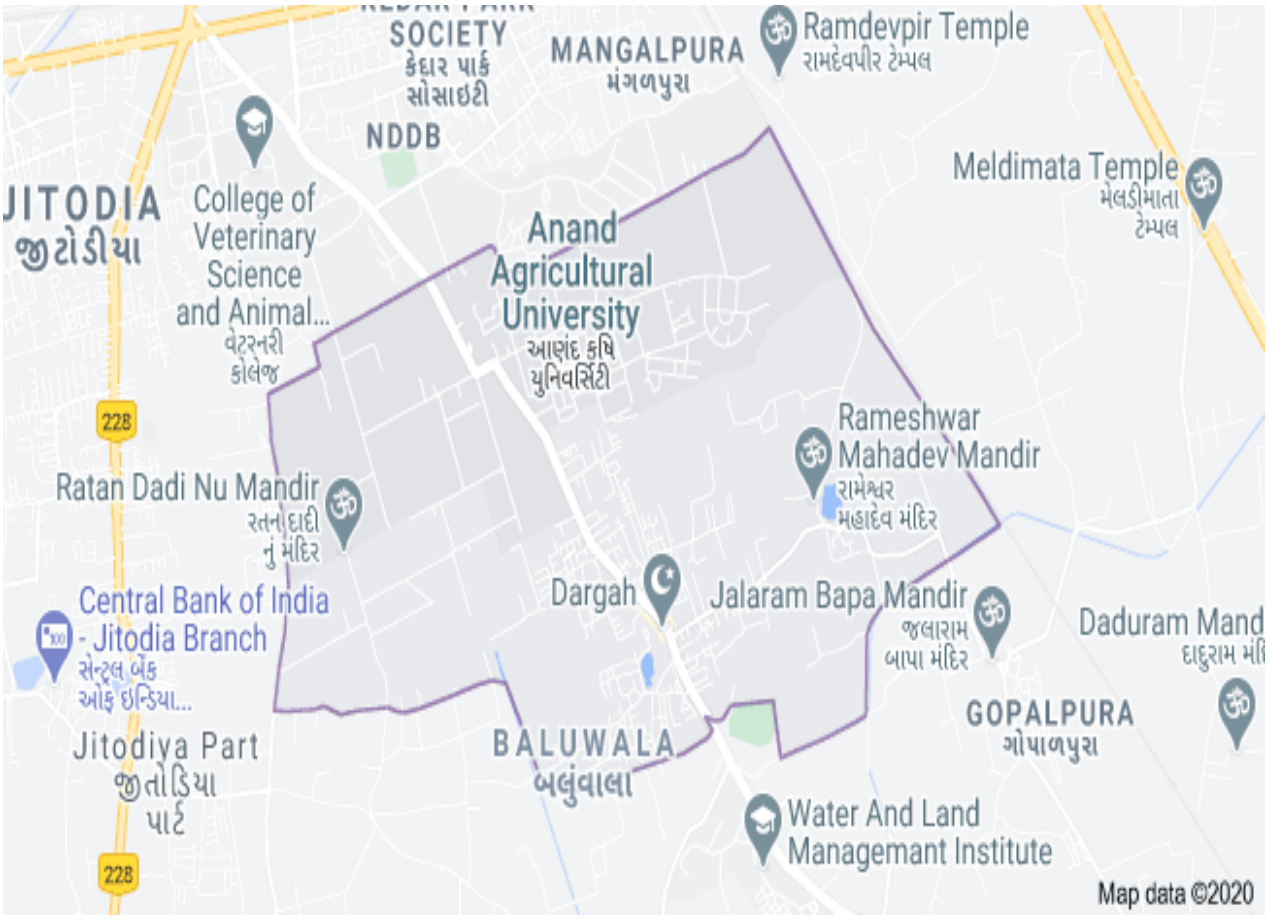


Figure 6 Land Map of Hadgood

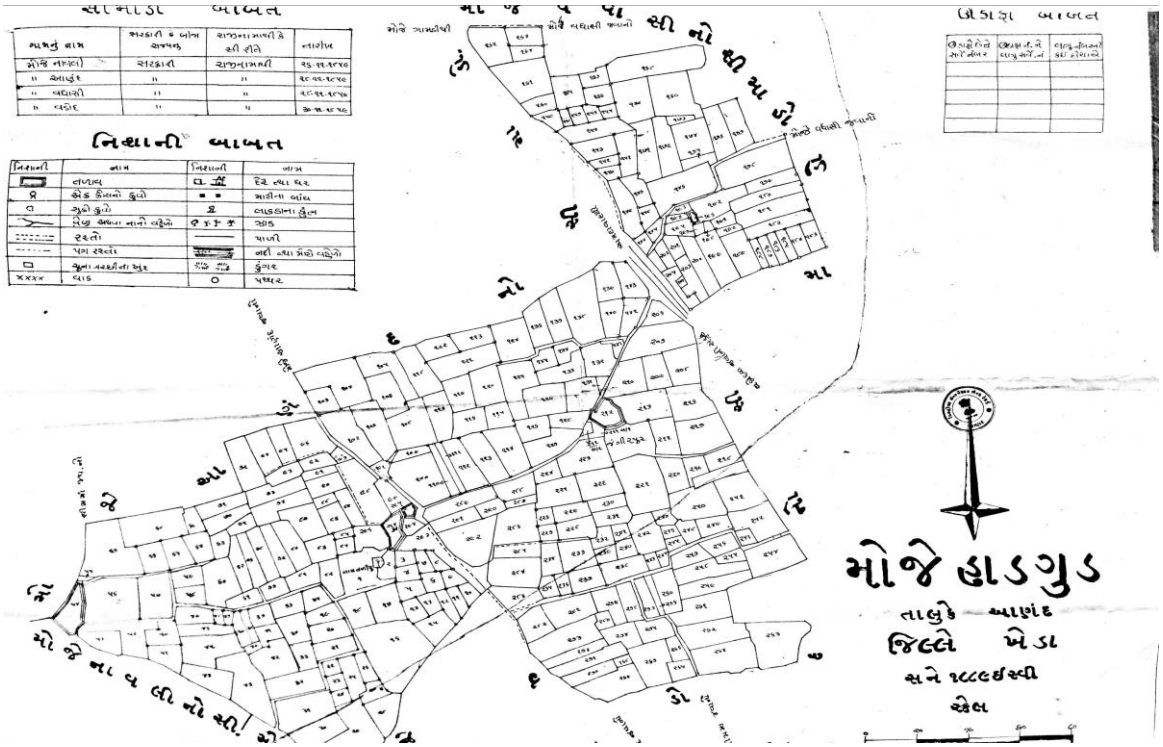


Figure 7 Gram Tal map

Figure 8 Satellite Map of Hadgood

4.2.3 Physical & Demographical Growth

The facilities are essential for economic as well as social growth of any area. These facilities include proper road network, water supply, drainage etc. any village which needs to be economically development must contain the above-mentioned facilities.

Demographical growth

Table 2 Demographical Growth

Sr.no.	Population	Male	Female	Total house hold
1	14262	8569	5693	2846

4.2.4 Economic Profile / Bank

This village is famous around the districts for sweets like jalebi and handmade bags for tourist. Its economic status is not good as compared to Ideal village or smart village it earns its funds from various sources such as tourism, farming, labor for painting and jobs.

4.2.5 Social scenario – Preservation of traditions, Festival, Cuisine

Severe guidelines should be passed to guarantee that bad practices don't hamper and bother the bank credit searchers, mature age and crippled retired people, and different beneficiaries of bank help for little endeavors or different recipients for different intercessions.

Celebrations: the town people culture is dance including garba, dandiya, raas, tipani and so on.

Customary wear: they wear conventional materials like chanyacholi, kediyo, kachhado, Guajarati saree and so on.

Cooking: the ordinary food is Gujarati thali, Indian food, the locals incline toward the vegetables to eat which is they fill in their homestead.

4.2.6 Migration Reasons / Trends

In Hadgood town individuals are move due to better open door for occupations, business, and high expectation for everyday comforts. Individuals are movement to Anand is one of the financial centers of Gujarat, individuals acquire more in the city instead of town that is the reason individuals relocate from town to city.

4.3 Data Collection

4.3.1 Methods for Data Collection

- By filling survey forms
- By interaction with villagers
- By interaction with sarpanch / panchayat members
- By observation, the current condition of the village

4.3.2 Primary Survey Details

Essential overview subtleties are gathered by connecting with the town inhabitants and interrogating those concerning offices accessible and require. They were gotten some information about the work needed to be done for the improvement of the town to advance rurbanization.

4.3.3 Average Size of the House

The town has no predetermined size of house, however the they have little size or medium size house.

4.3.4 No. of Human being in one house

As per population and household number the average Human being in the one House is 4. Each House has 4 persons in the house

4.3.5 Which Martial Use locally / Outsourced Materials

The village has no specific material. All the martial which are required which has been transported to village from the nearest town like Anand. Which material use locally the village has no specific material. All the martial which is required which has been Transported to village from the nearest town like Anand.

4.3.6 Geographic Details

Table 3 Geographic Details

Sr.no	Description	Information details
1	Area of village	1700 hectors
2	Agricultural area	40%
3	Residential area	60%
4	Other area	
5	Distance from nearest railway station	3.2 km
6	Nearest town with distance	6 km – Anand

4.3.7 Demographic Details

Table 4 Demographic Details

Sr.no	Population	Male	Female	Total house hold
1	14262	8569	5693	2846

4.3.8 Occupational Details

Table 5 Occupational Details

Percentage of worker	Occupation
60%	Farming
20%	Painting
20%	Government jobs

4.3.9 Agricultural Details

Table 6 Agricultural Details

Major crops grown in village	Crops name
1	Wheat
2	Bajara
3	Paddy

4.3.10 Manufacturing Hub / Warehouse

No, manufacturing Hub

4.3.11 Tourism Cluster

This village is famous for sweets like Jalebi and handmade bags for tourist.

4.4 Infrastructure Details

4.4.1. Drinking water / Water management facilities

The Hadgood village has their own boring by which the people get there drinking water facilities. The village has Two Overhead water tanks by the village have provided the water for drinking which are of 50000 & 25000 Lit capacities. There is no public drinking water facility available

4.4.2 Drainage network / sanitation Facilities

Hadgood village has under Ground drainage system and all the household are connected to it. Village has one public Toilet

4.4.3 Transportation and Road Network

Typically, the Resident utilizes their own vehicle and Gujrat Government gives G.S.R.T.C. Transport administration for transportation. The Town has no Transport stand Offices. The town has Bituminous and R.C.C. Street, organization.

4.4.4 Housing condition

Village house hold approx. ratio is 1/6 pukka & kuccha house 500/3000.

4.4.5 Social Infrastructure Facilities Health, Education, community hall, Library

Hadgood village has health care center, and primary school, library (it is not it good condition) and community hall (but with no modern facility).

4.4.6 Existing Condition of Public Buildings & Maintenance of existing Public Infrastructure

Public buildings are not in good condition they need major repair work.


Figure 9 Gram Panchayat Office Hadgood

4.4.7 Technology/ Mobile/ Wi-Fi / internet use detail in percentage

Table 7 Technology/ Mobile/ Wi-Fi / internet uses detail in percentage

Technology	Percentage of users
Mobile	98%
Wi-Fi	0%
Internet	80%

4.4.8 Sports Activities as Gram Panchayat

Table 8 Sports Activities as Gram Panchayat

Sports Activities
Cricket
Football

4.4.9 Socio-Cultural Facilities, Public Garden / Park / Playground / Pond / Other Recreation Facilities

There are 5 ponds but no park

4.4.10 Other Facilities

No other facilities.

4.5 Electrical Concept

4.5.1 Renewable energy source planning particularly for villages

There are no such facilities available for renewable energy.

4.5.2 Irrigation Facilities

Irrigation facilities are available for farmer such as canal, tube well and bore well etc.

4.5.3 Electricity Facilities with Area

In Hadgood village there is 24-hour electricity facilities.

4.6 Existing Institution Like: Village Administration Detail Profile

4.6.1 Bachat Mandali

No Bachat Mandali.

4.6.2 Dudh Mandali

Yes, Dudh Mandali is available.

4.6.3 Mahila Forum

Yes, Mahila Forum is there.

4.6.4 Plantation for air pollution

For reducing pollution panchayat has stated planting trees over the areas on which plantation is possible.

4.6.5 Rain water Harvesting

No use of rain water harvesting methods available on village.

4.6.6 Agriculture Development

Hadgood Villagers use advanced technology for irrigation and plantation of crop and advanced machinery for framing.

4.6.7 Any Other

No

Figure 10 Temple at Hadgood

CHAPTER 5: Technical Options with Case Studies

5.1 CONCEPT (CIVIL)

5.1.1 Advance construction techniques

The development business is over and again censured for being wasteful and delayed to advance. The fundamental strategy for development, procedures and advancements has changed little since roman occasions. Each development venture is extraordinary, each site is a particular model, development works are in better places, and include the consistent development of faculty and apparatus. The term 'progressed development innovation' covers a wide scope of current strategies and practices that include the most recent improvement in materials innovation, plan systems, amount reviewing, offices the board, administrations, primary examination and plan, and the executives contemplates.

1. Planning, Design and Specifications:

Majorly all structures needed to be planned and designed thoroughly before execution of its construction. Detailed specifications provide more accurate details and also help in maintaining workmanship and quality of construction. Hence, proper planning and designing along with detailed specification is necessary requirement for any project.

2. Construction Practices:

Good Engineering and Construction Practice means the good engineering practices and other practices, methods, equipment and procedures usually employed in engineering, design, construction, completion and commissioning by construction contractors and that degree of skill, diligence, prudence and foresight which would reasonably be expected to be observed by a skilled and experienced contractor engaged in carrying out activities the same as or similar to the IP Works under the same or similar circumstances for the lawful, safe, reliable and efficient, design, engineering, construction, completion and commissioning of sewage conveyance and treatment using the best available techniques and other best practices, methods, equipment and procedures, in all cases with a view to minimizing environmental harm.

3. Material Conservation and Selection:

After water, concrete is the most widely used substance on Earth. If the cement industry were a country, it would be the third largest carbon dioxide emitter in the world with up to 2.8 billion tonnes, surpassed only by China and the US. The material is the foundation of modern development, putting roofs over the heads of billions, fortifying our defenses against natural disaster and providing a structure for healthcare, education, transport, energy and industry.

Taking in all stages of production, concrete is said to be responsible for 4-8% of the world's CO2. Among materials, only coal, oil and gas are a greater source of greenhouse gases. Half of concrete's CO2 emissions are created during the manufacture of

clinker, the most-energy intensive part of the cement-making process. Concrete is a thirsty behemoth, sucking up almost a 10th of the world's industrial water use. This often strains supplies for drinking and irrigation, because 75% of this consumption is in drought and water-stressed regions. In cities, concrete also adds to the heat-island effect by absorbing the warmth of the sun and trapping gases from car exhausts and air-conditioner units – though it is, at least, better than darker asphalt.

4. Demolition and Recycling:

Construction waste is bulky and heavy and is mostly unsuitable for disposal by incineration or composting. The growing population in the country and requirement of land for other uses has reduced the availability of land for waste disposal. Reutilization or recycling is an important strategy for management of such waste. Waste during construction activity relates to excessive cement mix or concrete left after work is over, rejection/ demolition caused due to change in design or wrong workmanship etc.

Estimated waste generation during construction is 40 to 60 Kg. per sq. m. Similarly, waste generation during renovation/repair work is estimated to be 40 to 50 kg/sq.m. The highest contribution to waste generation is due to demolition of buildings. According to findings of survey, the most dominant reason for not adopting recycling of waste from Construction Industry is "Not aware of the recycling techniques". While 70% of the respondents have cited this as one of the reasons, 30% of the respondents have indicated that they are not even aware of recycling possibilities.

5. Energy Conservation:

Energy conservation in buildings especially in high rise office and commercial buildings is a must for all countries including those situated in warm climates. Energy savings of the order of 15 to 20 percent are possible through conventional building designs aimed at minimizing the external heat gains. Daylighting design has a considerable potential to save energy used for lighting and deserves greater attention.

Computer simulation studies on effect of various design parameters on building energy consumption should be made for hot-dry and composite climates as well. Most of the passive cooling techniques need further development to make their application feasible and to gain general acceptance.

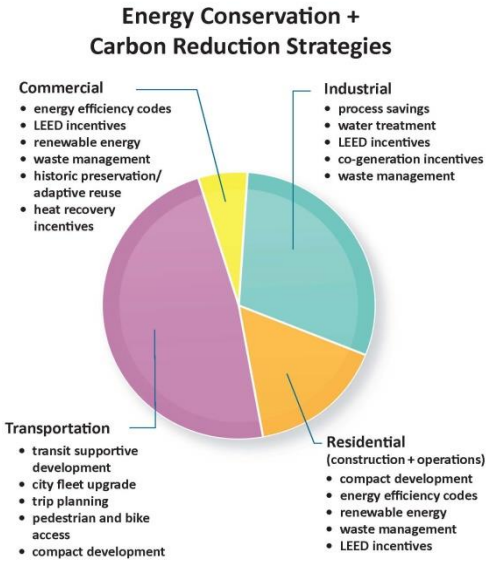


Figure 11 Energy Conservation

5.1.2 Soil Liquefaction

Soil liquefaction happens when an immersed or incompletely soaked soil considerably loses strength and solidness because of an applied pressure, for example, shaking during a seismic tremor or other unexpected change in pressure condition, in which material that is usually a strong carries on like a fluid. Sometimes it can suck whole village inside the soil.

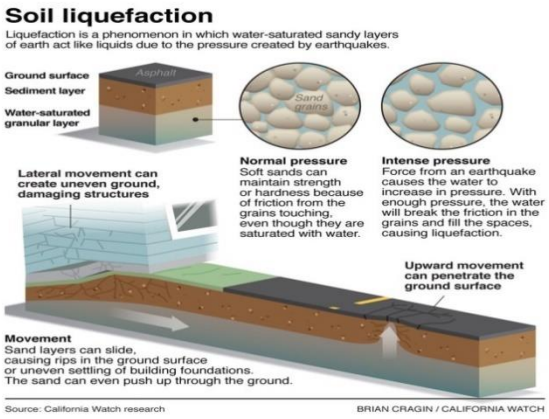


Figure 12 Soil Liquefaction Concept

Figure 13 Soil Liquefaction

5.1.3 Sustainable Sanitation

Feasible disinfection is a framework intended to meet certain standards and to function admirably over the long haul. Manageable sterilization frameworks think about the whole "disinfection esteem chain", from the experience of the client, excreta and wastewater assortment techniques, transportation or movement of waste, treatment, and reuse or removal. The Manageable Sterilization Coalition incorporates five highlights (or measures) in its meaning of "supportable disinfection": Frameworks should be monetarily and socially adequate, actually and institutionally suitable and secure the climate and regular assets.

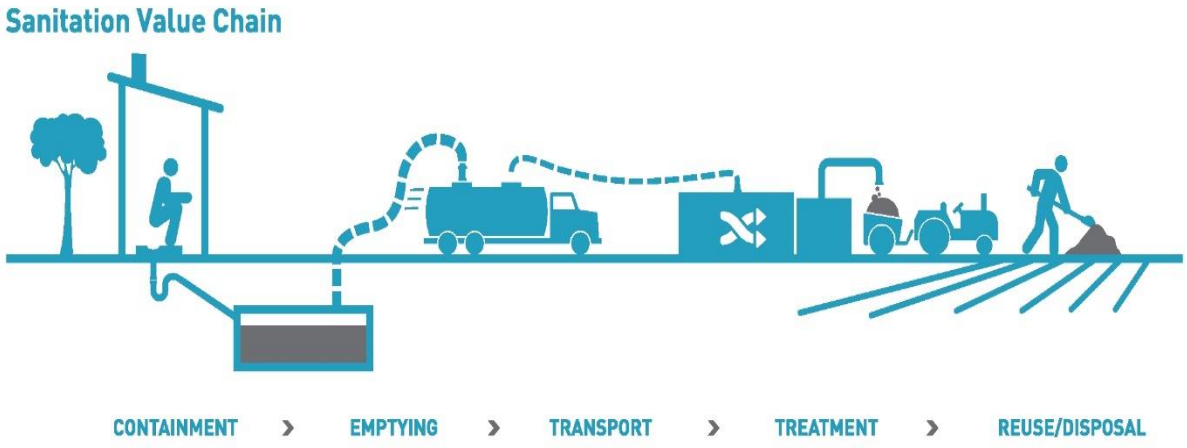


Figure 14 Sustainable Sanitation

5.1.4 Transport Infrastructure / system

- WBM streets
- Bituminous streets
- Concrete streets

Figure 15 Transportation Infrastructure

Smart transport framework is a high-level application which means to offer inventive types of assistance identifying with various methods of transport and traffic the executives and empower clients to be better educated and make more secure, more planned, and more astute utilization of transport organizations.

5.1.5 Vertical Farming

Vertical cultivating is the act of developing yields in vertically stacked layers. It regularly fuses controlled-climate agribusiness, which expects to enhance plant development, and soilless cultivating procedures, for example, aquaculture, hydroponics, and aeroponics. Some basic selections of structures to house vertical cultivating frameworks incorporates structures, steel trailers, burrows, and relinquished mining tunnels.

Figure 16 Vertical Farming (a)

Figure 17 Vertical Farming (b)

5.1.6 Corrosion Mechanism, Prevention & Repair Measures of RCC Structure

Consumption Component, Anticipation and Fix Proportions of RCC Structure However concrete is very solid precisely, it is profoundly powerless to compound assault and along these lines structure gets harmed and even bomb except if some preventive measures are embraced to balance this and consequently expanding the solidness of structure. On account of Strengthened solid structure, the entrance of dampness or air may prompt consumption of steel, breaking and spalling of solid cover consequently lessening sturdiness of solid structure. Fix has been recommended as the defensive answer for harmed structure because of erosion. Generally, there is almost no distributed observational proof that gives understanding into the solidness of silane medicines and their drawn-out remaining insurance (for example following in any event 10 years of administration). Such a hole in information is unwanted given the size of foundation treated with hydrophobic medicines, for example, silanes.

5.1.7 Sewage treatment plant

Sewage treatment is the way toward eliminating pollutants from civil wastewater, containing predominantly family unit sewage in addition to some mechanical wastewater. Physical, substance, and natural cycles are utilized to eliminate toxins and produce treated wastewater (or treated gushing) that is protected enough for discharge into the climate. A result of sewage treatment is a semi-strong waste or slurry, called sewage ooze. The muck needs to go through additional treatment prior to being reasonable for removal or application to land.

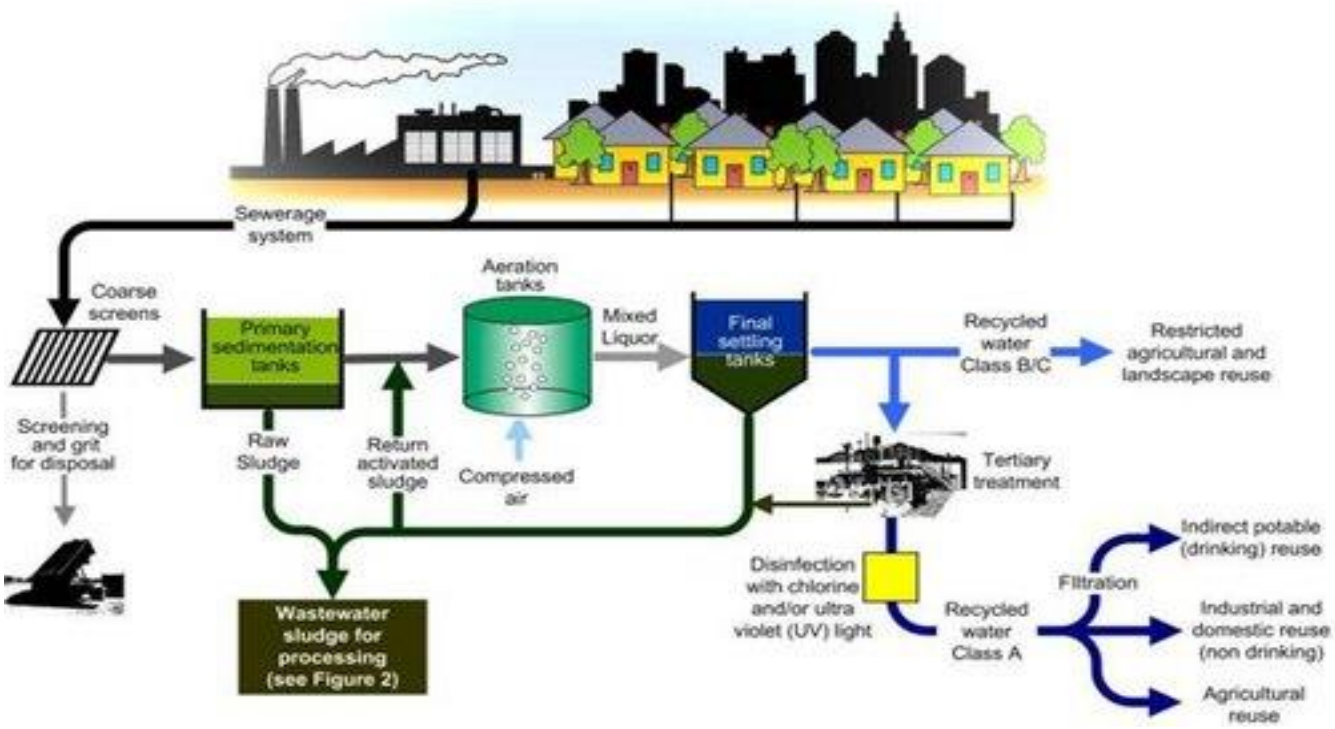


Figure 18 Sewage Treatment Process

5.2 CONCEPT (Electrical)

5.2.1 Programmable Load Shedding

The undertaking is a programmed load activity framework that controls load activity, various quantities of times as per modified guidance. The venture wipes out the manual ON/OFF exchanging of burden. An ongoing clock (RTC) is utilized to follow the time and naturally switch ON/OFF the heap. This venture is needed for load shedding time the board which is utilized when the power request surpasses the stock and there comes a requirement for physically turning ON/OFF the electrical gadgets as expected. Henceforth this framework wipes out the manual activity via naturally turning the heap ON/OFF.

5.2.2 Management through Energy Harvesting Concept

The target of the Force The board through Energy Collecting Idea venture work has been planned and actualized in the force the executives through energy reaping idea which manages the force sparing and streamlining.

5.2.3 Moisture Monitoring System

Soil dampness sensors help great water system the board. Great water system the board gives better yields, utilizes less sources of info, and expands productivity. Soil dampness sensors help irrigators to comprehend what's going on in the root zone of a harvest.

5.2.4 Home Automation using IoT / Any other methodology

Home automation system using IoT that can control and automate most of the home appliances. The proposed system consists of an Arduino Uno board (ATmega32 IC), GSM module (SIM 300), PIR sensor, temperature sensor (LM 35), gas sensor (MQ-6), power select (7805) and web application.

5.2.5 PC Based Electrical Load Control

Robotization framework is generally relying on the force frameworks in mechanical, private or business, which needs distant controlling and checking. By utilizing remote advancements, it is more skillful to execute a reasonable innovation relying on the necessities of the proposed framework like speed, cost, and distance. For removed controlling and observing of various burdens and by methods for effective force use through ongoing force going through with the assistance of a PC based graphical UI application. The advancement of innovation hardware is getting less complex and simpler for us. Mechanized frameworks have more advantages over manual framework. PC based electrical burden-controlled frameworks are profoundly dependable, exact and time saving frameworks. They give number of highlights like fast information stockpiling, move information and information protections.

5.2.6 Electrical Parameters Measurements

Table 9 Electrical Parameters Measurement

Electrical parameter	Measuring unit	Symbol
Voltage	Volt	V or E
Current	Ampere	I or i
Resistance	Ohm	R or Ω
Conductance	Siemen	G or ℧
Capacitance	Farad	C
Charge	Coulomb	Q
Inductance	Henry	L or H
Power	Watts	W
Frequency	Hertz	Hz

5.3 Technical Case Study of on School at Vapi

The St. Francis High School Vapi was established in 1998 and it is managed by the Pvt. Unaided and located in the urban area. The school facilitates about 2800 students and consists of grade from 1 to 12 without any pre-primary sections. The medium of education is English is facilitated by all-weather approachable roads. School has 2 private buildings and around 40 class rooms along with 12 boys' toilets and 12 girls' toilets. The school has a bog playground and a library which consist of 3125 books in it. The school is located in Chala region of Vapi town so the region also facilitated by education.

Figure 19 Francis High School Vapi

Facilities available in school:

- Computer lab
- Science lab
- Smart class
- Bus
- D&T
- Playground
- Canteen
- Meeting Hall
- Library

Total cost estimated for construction:

The St. Francis High School Vapi was constructed into 2 different building nearby each other. The main building is constructed at the cost of about 12700000 Rs. While the second building is constructed latterly at cost of around 4300000 Rs. Hence the total cost of construction is about 17000000 Rs.

Figure 20 Images of School

The plans of both the buildings are as follows:

- Ground Floor plan of Main Building

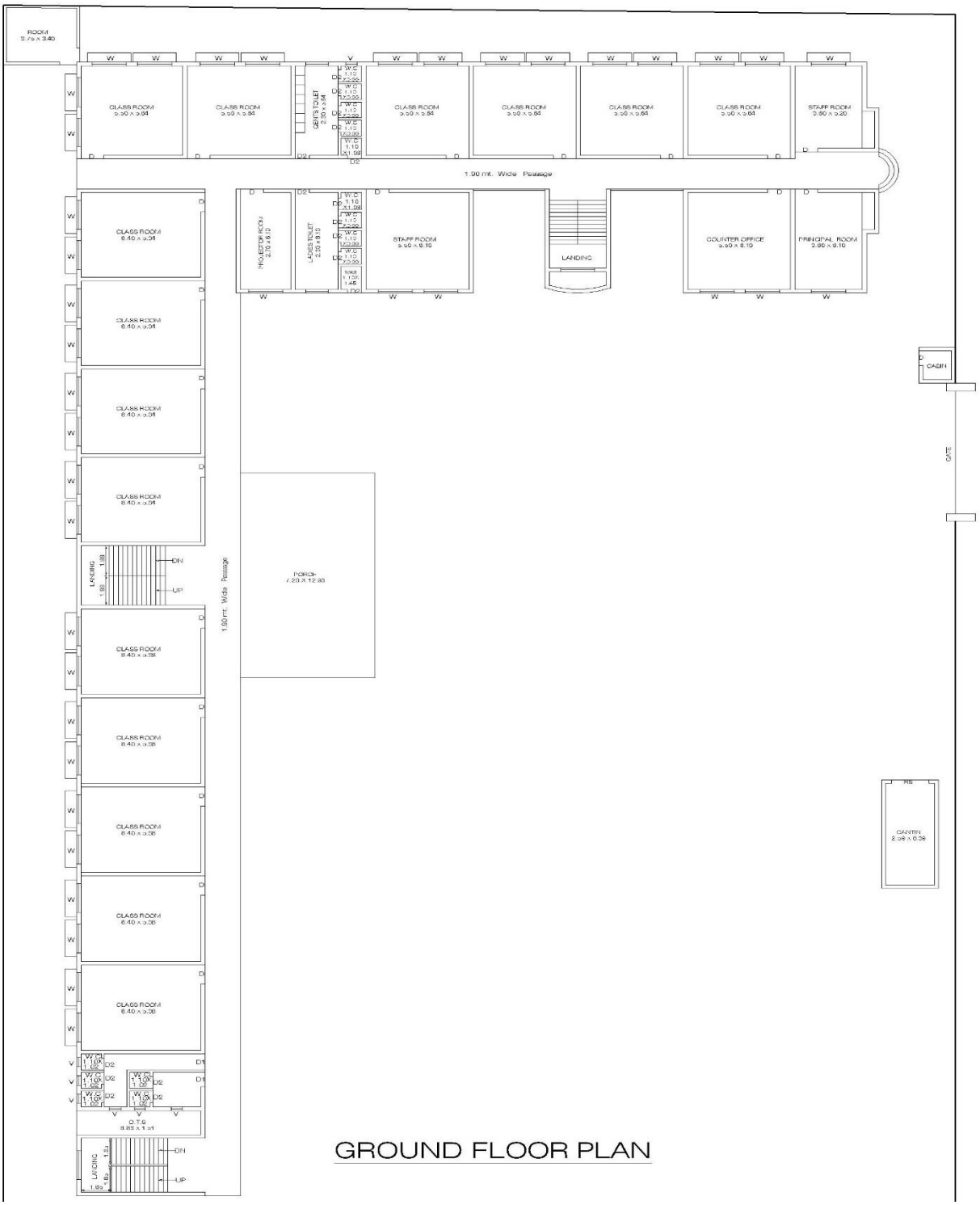


Figure 21 Ground Floor Plan of Main Building

- Typical Floor plan of Main Building

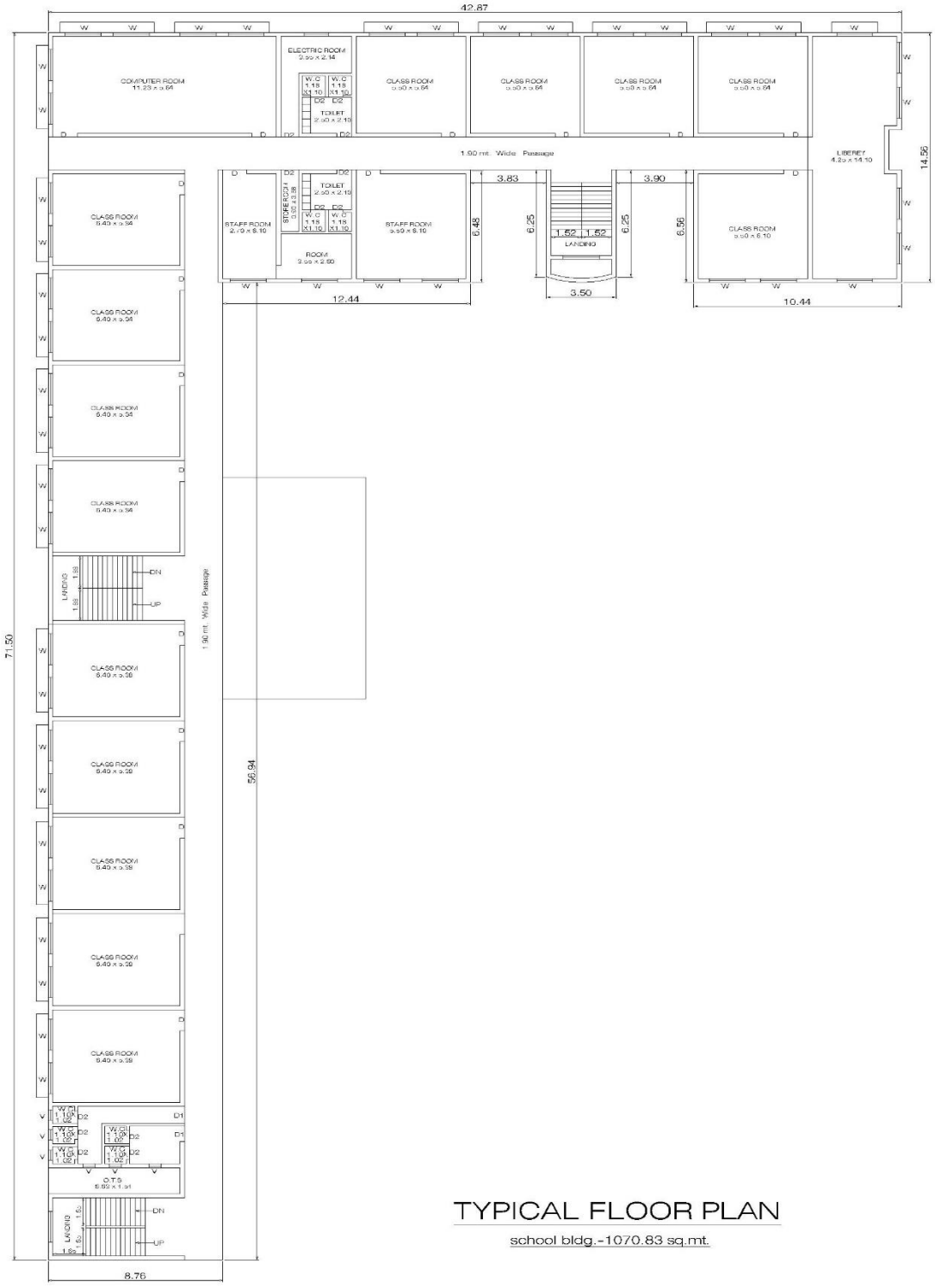


Figure 22 Typical Floor Plan of Main Building

- Ground Floor plan of 2nd Building

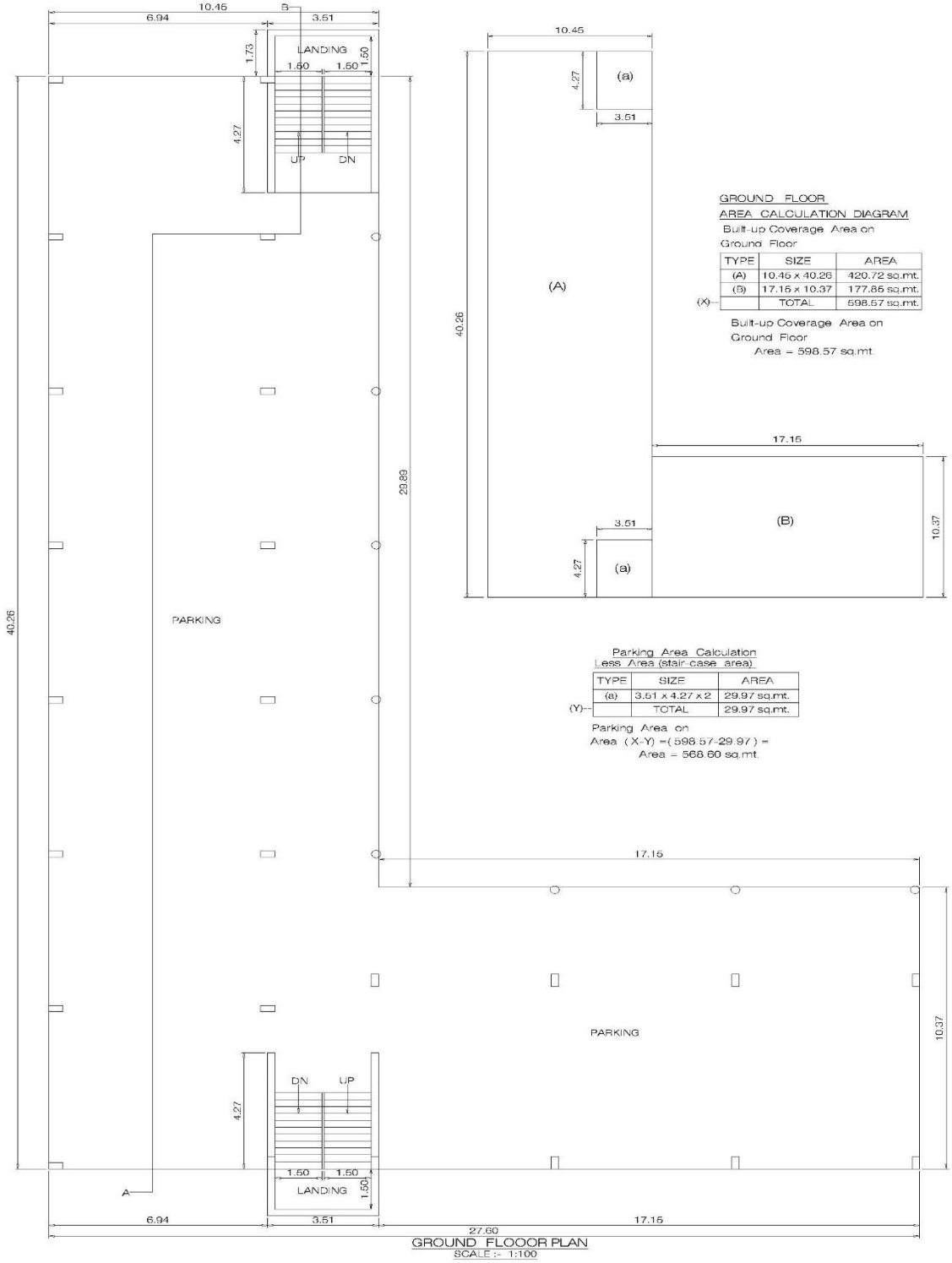


Figure 23 Ground Floor Plan of 2nd Building

- Typical Floor plan of 2nd Building

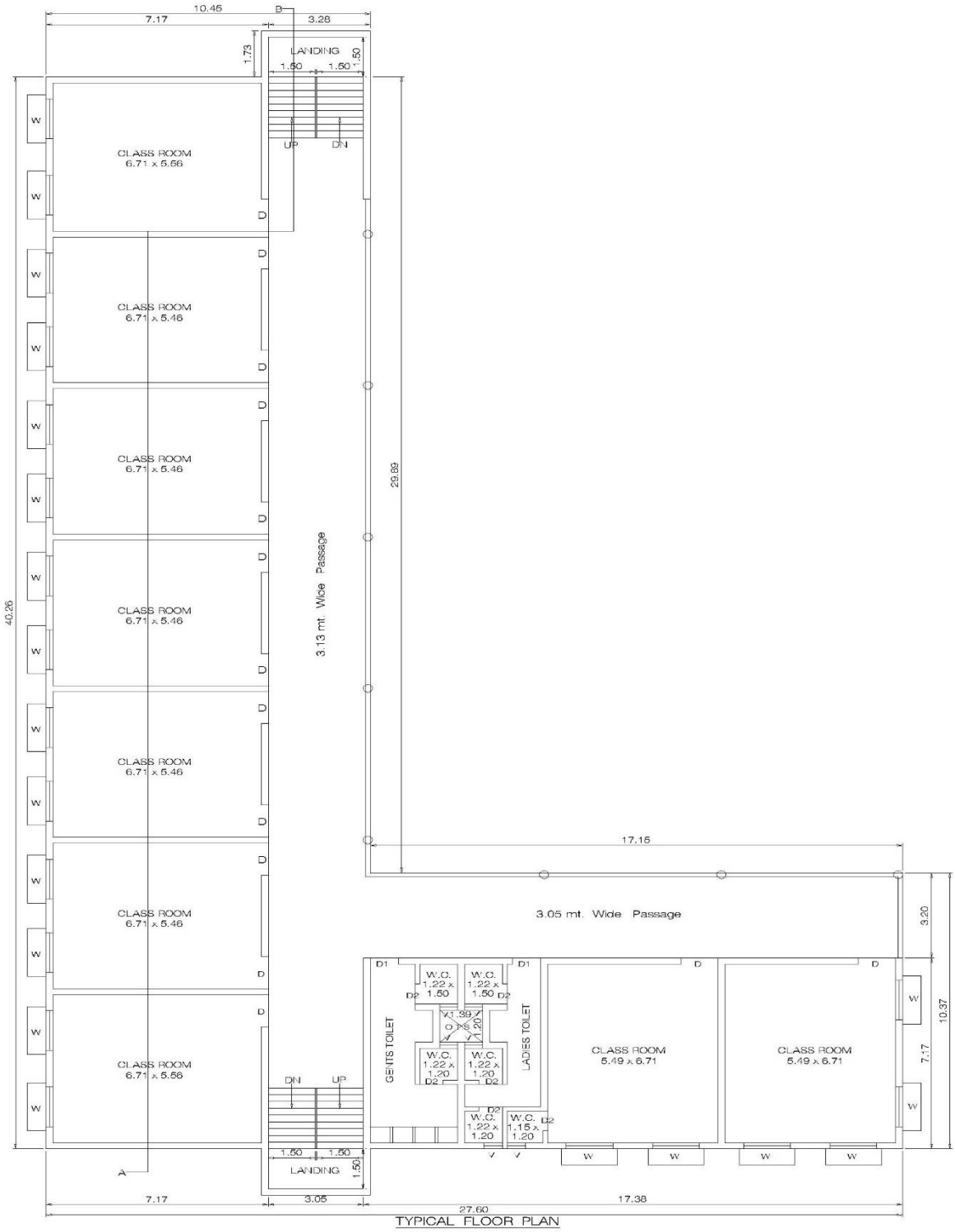


Figure 24 Typical Floor Plan of 2nd Building

Chapter 6: Swatchh Bharat Abhiyan (Clean India)

6.1 Swatchhta needed in allocated village

The Nirmal Bharat Abhiyan has been rebuilt into the Swachh Bharat Mission (Garmin). The mission expects to make India an open crap free nation in Five Years. It tries to improve the degrees of neatness in provincial regions through Strong and Fluid Waste Administration exercises and making Gram Panchayats Open Crap Free (ODF), spotless and sterilized. Town requires strong garbage removal, sterilization, fluid waste administration and so forth.

6.2 Guidelines - Implementation in allocated village

- By ensuring safe sanitation in all households, public, offices, institutions and places.
- By educating communities about safe usage of water, prevent of contamination and about hygienic habits.
- Identification of Household without toilets corrective action.
- To promotes modern agriculture and water use technologies to conserve water.
- By proper plan and implementation of water supply schemes.
- To establish local environmental safeguard measures.

6.3 Activities Done by Students for allocated village

- Student has to aware the villagers about waste and waste segregation.
- Students can help to clean their school's colleges and aware the people to don't throw the garbage on the road.
- They can give the information to people about dry and wet garbage and dispose them to separate.
- Student can aware the people and make campaigning about Swatchh Bharat Abhiyan.

Figure 25 Swatchh Bharat Abhiyan

The cleanliness of the village is not appropriate as there are many locations where people are throwing their garbage. Hence need of public awareness about the Swatchh Bharat Abhiyan.

Figure 26 cleanliness of Hadgood

Chapter 7: Village condition due to Covid-19

7.1 Taken steps in allocated village related to existing situation

Villagers follow the covid-19 guideline which is provided by the government of Gujarat. And according to that Gram panchayat and Sarpanch make a guideline for villagers to take some steps against covid-19.

- Wearing mask
- 6 feet distance (social distancing)
- Washing hand repeatedly
- Shutdown shops after 7pm

7.2 Activities Done by Students for allocated village

- Student could spread aware to the villagers about covid-19.
- Students made the masks and distribute to needy
- Students sticked the posters regarding government guideline of covid-19 in village.

7.3 Any other steps taken by the students / villagers

We took extra care during our visits as the pandemic had affected many areas in country. We took all the precautions which were needed while researching and getting information such as wearing masks, and using sanitizers whenever we came in contact with foreign objects and also avoided shaking hands with everyone.

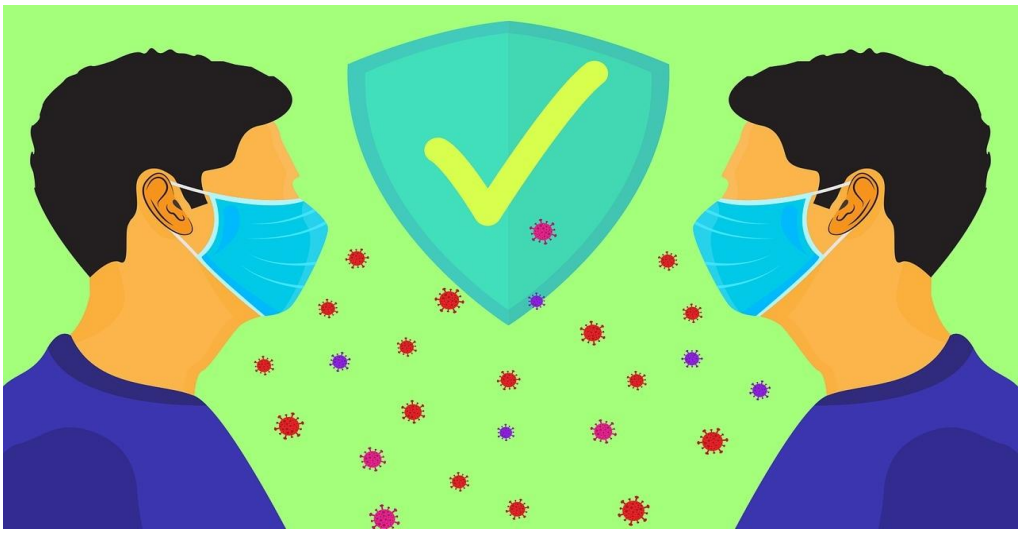


Figure 27 COVID - 19 Poster

The people of hadgood village are totally careless about the deadly COVID-19 that they are not using masks and sanitizers. So we have aware public about the deadly virus and give masks and sanitizers to peoples of village.

Figure 28 Situation in COVID-19

Chapter 8: Design Proposals (prototype Design)

8.1 Design Proposals

Table 10 Design Proposals

Sr. no	Description	Design
1	Civil	Sustainable: Design of ATM
2	Civil	Physical: Design of Public Toilets
3	Civil	Social: Design of Community Hall
4	Civil	Socio-Culture: Design of Road side Waste Management
5	Civil	Smart: Design of Internet Zone And Library
6	Civil	Heritage: Design of Entrance Gate
7	Electrical	Design of Solar Rooftop System for Govt. Buildings, School/college, Hospitals etc.
8	Electrical	Design Of E-Gram Center
9	Electrical	Design of Smart Street Lighting

8.2 Recommendations of the Design

As per different analysis we are recommending following designs for the village:

- Public Toilets
- Road side Waste management
- Solar Rooftop System for Govt. Buildings, School/college, Hospitals etc.
- Bus Stop
- E-Gram center
- Library

8.3 Suggestions / Benefits of the Villagers

Villagers give us suggestions that they require bus stop, public toilets, Waste management system, well-constructed road etc. This is helpful for the villager.

❖ Design of ATM

The Hadgood village has only one ATM which is most of time out of money. So, more ATMs are required within the village so that villagers can enjoy the banking facilities easily.

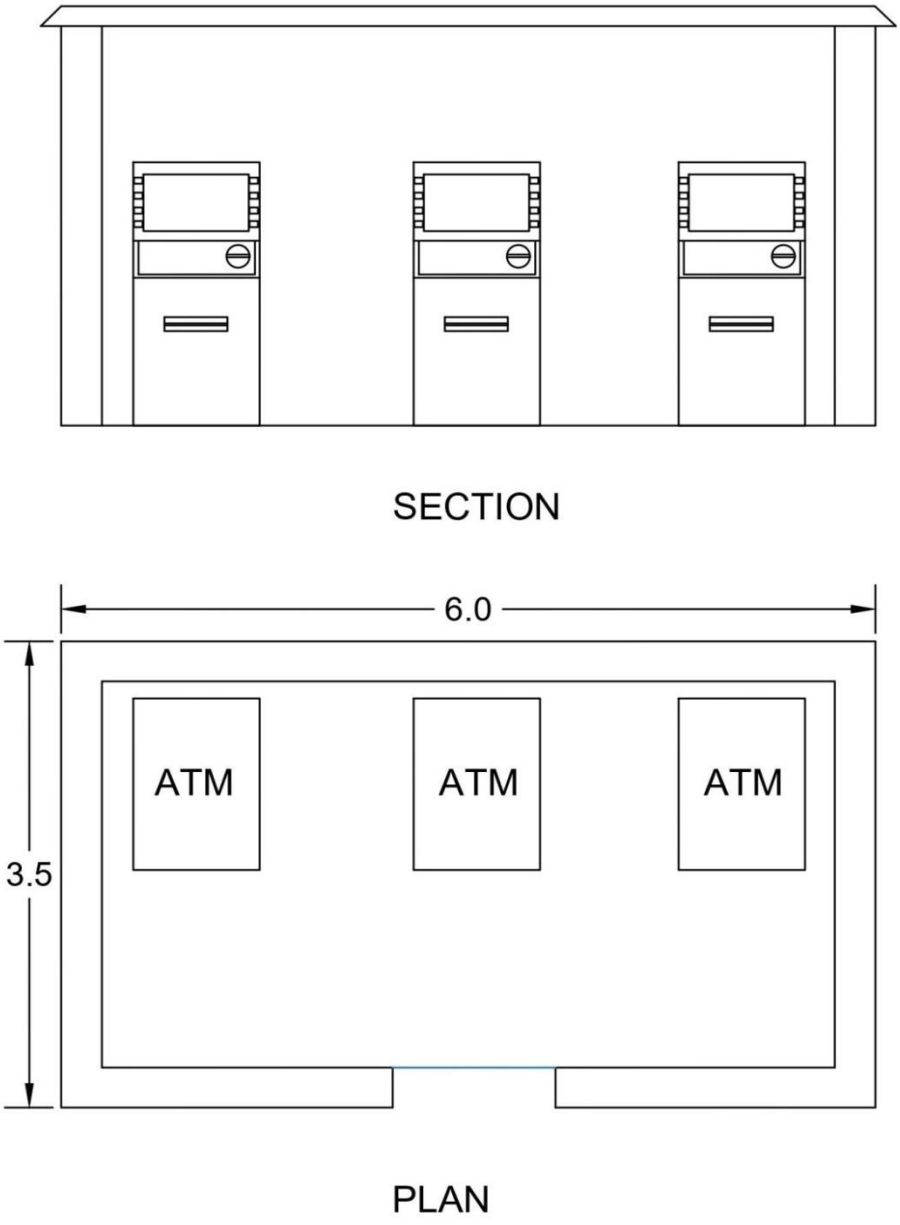


Figure 29 Plan and Section of ATM

Estimation of ATM

Table 11 Building Estimate of ATM

BUILDING ESTIMATE						
QUANTITY SHEET						
Sr No.	**Item Description**	**No.**	**Length (m)**	**Width (m)**	**Height (m)**	**Quantity (CUM / SQM)**
1	**Earthwork in Excavation in Foundation**					
	Excavation for Foundation	1	19	0.3	1.5	8.55
				TOTAL QTY.		8.55
2	**P.C.C. in Excavation in Foundation**					
	P.C.C. for Foundation	1	19	0.3	0.2	1.14
				TOTAL QTY.		1.14
3	**R.C.C. for Foundation**					
	Volume	1	6	3.5	1.3	27.3
				TOTAL QTY.		27.3
	R.C.C. for Beam					
	Beam 1	2	6	0.23	0.3	0.828
	Beam 2	2	3.5	0.23	0.3	0.483
				TOTAL QTY.		28.611
4	**Brick Masonry in Super Structure**					
	Long Wall	2	6	0.23	3	8.28
	Short Wall	2	3.5	0.23	3	4.83
	Deduction for Door & Window					
	D	1	0.9	0.23	2.1	0.435
				TOTAL QTY.		12.675
5	**Flooring**					
	Room	1	5.4	2.9		15.66
				TOTAL QTY.		15.66
6	**R.C.C. for Slab**					
	(1:1.5:3)	1	6.5	3.75	0.2	4.875
				TOTAL QTY.		4.875

7	**Outside Plaster**					
	2(6+3.5)	1	19		3	57.00
				TOTAL QTY.		57.00
	Deduction					
	D	1	0.9		2.1	1.89
				TOTAL QTY.		55.11
8	**Inside Plaster (1:4)**					
	Long Wall	2	5.4		3	32.4
	Short Wall	2	2.9		3	17.4
				TOTAL QTY.		49.8
	Deduction					
	D	1	0.9		2.1	1.89
				TOTAL QTY.		47.91
9	**Color Outside**					
	2(6+3.5)	1	19	3		57.00
				TOTAL QTY.		57.00
	Deduction					
	D	1	0.9		2.1	1.89
				TOTAL QTY.		55.11
10	**Color Inside**					
	Long Wall	2	5.4		3	32.4
	Short Wall	2	2.9		3	17.4
				TOTAL QTY.		49.8
	Deduction					
	D	1	0.9		2.1	1.89
				TOTAL QTY.		47.91
11	**R.C.C. Column**					
		4	0.23	0.23	5	1.058
				TOTAL QTY.		1.058

Abstract Sheet of ATM

Table 12 Abstract Sheet of ATM

Abstract sheet of ATM					
Sr. No.	**Item Description**	**QTY**	**Rate**	**Per**	**Amount**
1	Earthwork in Excavation in Foundation	8.55	90	CU M	769.5
2	P.C.C. For Foundation	1.14	3200	CU M	3648
3	R.C.C. For Foundation and Beam	28.611	4500	CU M	128749.5
4	Brick Masonry in Super Structure	12.675	1700	SQ M	21547.5
5	Flooring	15.66	200	SQ M	3132
6	R.C.C. For Slab	4.875	4900	SQ M	23887.5
7	Outside Plaster (1:4)	55.11	145	SQ M	7990.95
8	Inside Plaster (1:4)	47.91	110	SQ M	5270.1
9	Color Outside	55.11	130	SQ M	7164.3
10	Color Inside	47.91	90	SQ M	4311.9
11	R.C.C. For Column	1.058	4900	CU M	5184.2
		TOTAL Rs.			211655.45
		Add 1.5% Water Charge			3174.83
		Add 10% Co. Charge			21165.55
		Total Estimate Cost in Rs.			235995.83 =235996

❖ Design of Public Toilets

The Hadgood village although has one public toilet within village but still it was lacking for the purpose. Hence the village requires few more no. of public toilets within village to serve each and every villager. So, we provide 8 nos. of public toilets within village.

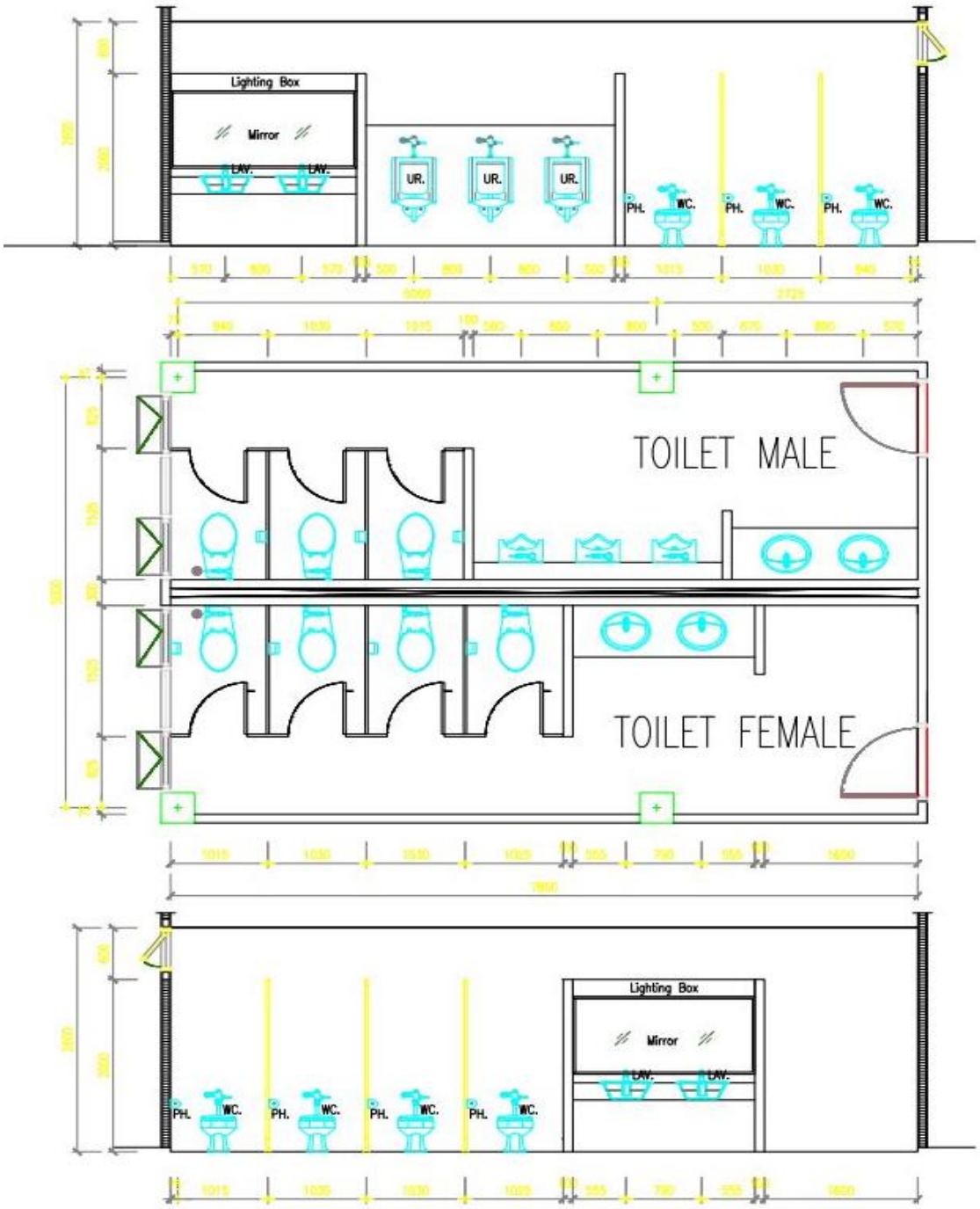


Figure 30 Plan & Section of Public Toilet

Estimation of Public Toilets

Table 13 Building Estimate of Public Toilets

BUILDING ESTIMATE						
QUANTITY SHEET						
Sr No.	**Item Description**	**No.**	**Length (m)**	**Width (m)**	**Height (m)**	**Quantity (CUM / SQM)**
1	**Earthwork in Excavation in Foundation**					
	Excavation for Foundation	4	4	4	1.5	96.00
	Excavation for Steps	2	1.2	0.6	0.2	0.288
				TOTAL QTY.		96.288
2	**P.C.C. in Excavation in Foundation**					
	P.C.C. for Foundation	4	4	4	0.1	6.4
	P.C.C. for Steps	2	1	0.6	0.1	0.12
				TOTAL QTY.		6.52
3	**R.C.C. for Foundation**					
	Volume	4	0.2			0.8
				TOTAL QTY.		0.8
	R.C.C. for Beam					
	Beam 1	2	5	0.23	0.3	0.69
	Beam 2	2	3	0.23	0.3	0.414
	Beam 3	3	5	0.23	0.3	1.035
				TOTAL QTY.		2.939
4	**Brick Masonry in Super Structure**					
	Long Wall 1L = 4.75 m	2	4.75	0.23	3.5	7.648
	Long Wall 2L = 2.75 m	2	2.75	0.23	3.5	4.428
	Long Wall 1L = 7.8 m	2	7.8	0.23	3.5	12.558
	Long Wall 1S = 4.75 m	2	4.75	0.23	3.5	7.648
	Brick Masonry Steps					
	Step 1	2	1	0.6	0.3	0.36
	Step 2	2	1	0.3	0.3	0.18
	Deduction for Door & Window					

	D	2	0.9	0.23	2.1	0.870
	D1	7	0.75	0.23	2.1	2.536
	V	4	0.7	0.23	1.2	0.773
				TOTAL QTY.		28.643
5	**Flooring**					
	Kota Stone					
	Male Room	1	7.8	2.5		19.5
	Female Room	1	7.8	2.5		19.5
				TOTAL QTY.		39.00
6	**R.C.C. for Slab**					
	(1:1.5:3)	1	8	5.5	0.2	8.8
				TOTAL QTY.		8.8
7	**Outside Plaster**					
	2(8+5.5)	1	27		3.5	94.50
				TOTAL QTY.		94.50
	Deduction					
	D	2	0.9		2.1	3.78
	V	4	0.7		1.2	3.36
				TOTAL QTY.		87.36
8	**Inside Plaster (1:4)**					
	Long Wall 1	4	7.8		3.5	109.20
	Short Wall 1	4	2.5		3.5	35.00
				TOTAL QTY.		144.20
	Deduction					
	D	2	0.9		2.1	3.78
	D1	7	0.75		2.1	11.025
	V	4	0.7		1.2	3.36
				TOTAL QTY.		126.035
9	**Color Outside**					
	2(8+5.5)	1	27	3.5		94.50
				TOTAL QTY.		94.50
	Deduction					
	D	2	0.9		2.1	3.78

	V	4	0.7		1.2	3.36
				TOTAL QTY.		87.36
10	**Color Inside**					
	Long Wall 1	4	7.8		3.5	109.20
	Short Wall 1	4	2.5		3.5	35.00
				TOTAL QTY.		144.20
	Deduction					
	D	2	0.9		2.1	3.78
	D1	7	0.75		2.1	11.025
	V	4	0.7		1.2	3.36
				TOTAL QTY.		126.035
11	**R.C.C. Column**					
		4	0.23	0.23	5	1.058
				TOTAL QTY.		1.058

Abstract Sheet of Public Toilets

Table 14 Abstract Sheet of Public Toilets

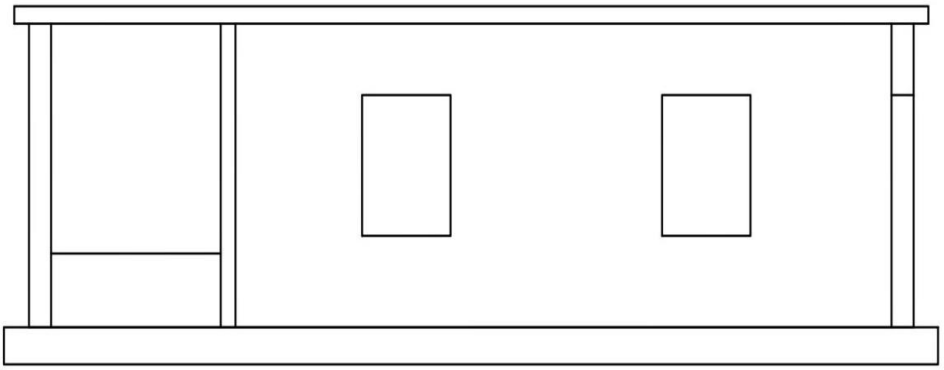
Abstract sheet of Public Toilets					
Sr. No.	**Item Description**	**QTY**	**Rate**	**Per**	**Amount**
1	Earthwork in Excavation in Foundation	96.288	90	CU M	8665.92
2	P.C.C. For Foundation	6.52	3200	CU M	20864.00
3	R.C.C. For Foundation and Beam	2.939	4500	CU M	13225.50
4	Brick Masonry in Super Structure	28.643	1700	SQ M	48693.10
5	Flooring	39.00	200	SQ M	7800.00
6	R.C.C. For Slab	8.8	4900	SQ M	43120.00
7	Outside Plaster (1:4)	87.36	145	SQ M	12667.20
8	Inside Plaster (1:4)	126.035	110	SQ M	13863.85
9	Color Outside	87.36	130	SQ M	11356.80

10	Color Inside	126.035	90	SQ M	11343.15
11	Woodwork for Door and Window	18.165	250	SQ M	4541.25
12	R.C.C. For Column	1.058	4900	CU M	5184.20
		TOTAL Rs.			201324.97
		Add 1.5% Water Charge			3019.875
		Add 10% Co. Charge			20132.497
		Total Estimate Cost in Rs.			224477.342 = 224478

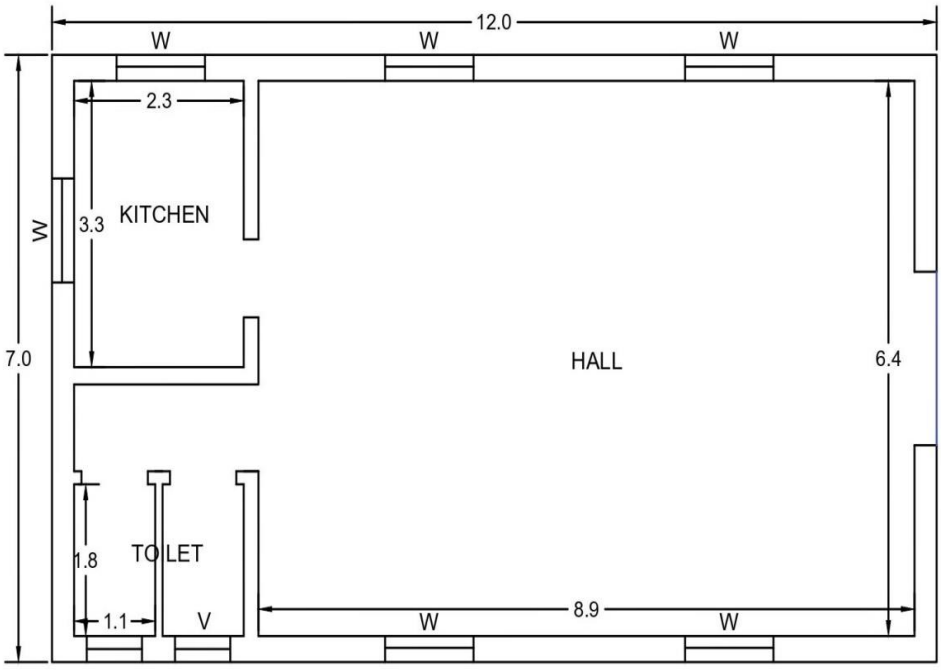
Figure 31 Image of Public Toilet

❖ Design of Community Hall

Hadgood village has 1 Community Hall but the condition of that hall is not useable so, we have decided to provide one more Community Hall for the village. This will help villagers to get socially connected with their communities.



SECTION



PLAN

Figure 32 Community Hall

Estimation of Community Hall

Table 15 Building Estimate of Community Hall

BUILDING ESTIMATE						
QUANTITY SHEET						
Sr No.	**Item Description**	**No.**	**Length (m)**	**Width (m)**	**Height (m)**	**Quantity (CUM / SQM)**
1	**Earthwork in Excavation in Foundation**					
	Long wall	2	12	0.9	1.5	32.4
	Short wall	2	7	0.9	1.5	18.9
				TOTAL QTY.		51.3
2	**P.C.C. in Excavation in Foundation**					
	Long wall	2	12	0.9	0.2	4.32
	Short wall	2	7	0.9	0.2	2.52
				TOTAL QTY.		6.84
3	**R.C.C. for Foundation**					
	Volume	1	12	7	1.3	109.2
				TOTAL QTY.		109.2
	R.C.C. for Beam					
	Beam 1	2	12	0.3	0.3	2.16
	Beam 2	2	7	0.3	0.3	1.26
				TOTAL QTY.		112.62
4	**Brick Masonry in Super Structure**					
	Long wall	2	12	0.3	3.5	25.2
	Short wall	2	7	0.3	3.5	14.7
	Partition wall	1	11.5	0.2	3.5	8.05
				TOTAL QTY.		47.95
	Deduction for Door & Window					
	D	1	2	0.3	2.1	1.26
	D1	2	0.9	0.2	2.1	0.756
	W	6	1.2	0.3	1.2	2.592
	V	2	0.75	0.3	1.2	0.54

				TOTAL QTY.		42.802
5	**Flooring**					
		1	12	7		84
				TOTAL QTY.		
6	**R.C.C. for Slab**					
	(1:1.5:3)	1	12	7	0.2	16.8
				TOTAL QTY.		
7	**Outside Plaster**					
	2(12+7)	1	38		3.5	133
				TOTAL QTY.		133
	Deduction					
	D	1	2		2.1	4.2
	W	6	1.2		1.2	8.64
	V	2	0.75		1.2	1.8
				TOTAL QTY.		118.36
8	**Inside Plaster (1:4)**					
	Long wall	2	12		3.5	84
	Short wall	2	7		3.5	49
	Partition wall	1	11.5		3.5	40.25
				TOTAL QTY.		173.25
	Deduction					
	D	1	2		2.1	4.2
	D1	2	0.9		2.1	3.78
	W	6	1.2		1.2	8.64
	V	2	0.75		1.2	1.8
				TOTAL QTY.		154.83
9	**Color Outside**					
	2(12+7)	1	38		3.5	133
				TOTAL QTY.		
	Deduction					
	D	1	2		2.1	4.2
	W	6	1.2		1.2	8.64
	V	2	0.75		1.2	1.8

				TOTAL QTY.		118.36
10	**Color Inside**					
	Long wall	2	12		3.5	84
	Short wall	2	7		3.5	49
	Partition wall	1	11.5		3.5	40.25
				TOTAL QTY.		173.25
	Deduction					
	D	1	2		2.1	4.2
	D1	2	0.9		2.1	3.78
	W	6	1.2		1.2	8.64
	V	4	0.75		1.2	1.8
				TOTAL QTY.		154.83
11	**R.C.C. Column**					
		4	0.23	0.23	5	1.058
				TOTAL QTY.		1.058

Abstract Sheet of Community Hall

Table 16 Abstract Sheet of Community Hall

Abstract sheet of Community Hall					
Sr. No.	**Item Description**	**QTY**	**Rate**	**Per**	**Amount**
1	Earthwork in Excavation in Foundation	51.3	90	CU M	4617
2	P.C.C. For Foundation	6.84	3200	CU M	21888
3	R.C.C. For Foundation and Beam	112.62	4500	CU M	506790
4	Brick Masonry in Super Structure	42.802	1700	SQ M	72763.4
5	Flooring	84	200	SQ M	16800
6	R.C.C. For Slab	16.8	4900	SQ M	82320
7	Outside Plaster (1:4)	118.36	145	SQ M	17162.2
8	Inside Plaster (1:4)	154.83	110	SQ M	17031.3

9	Color Outside	118.36	130	SQ M	15386.8
10	Color Inside	154.83	90	SQ M	13934.7
11	R.C.C. For Column	1.058	4900	CU M	5184.2
		TOTAL Rs.			773877.6
		Add 1.5% Water Charge			11608.164
		Add 10% Co. Charge			77387.76
		Total Estimate Cost in Rs.			862873.524 =862874

Figure 33 Community Hall

❖ Design of Road side Waste management system

Hadgood village has no facility for waste management although it is very near to Anand. Anand municipal office is just 5.6 Kms from hadgood we can send the waste to Anand municipality for proper disposal but for that also we require proper road side bins for waste collection. So we are providing 50L-100L capacity bins for solid, liquid & hazardous waste at multiple locations of village especially near public buildings. So that Anand municipal can easily collect these all waste from this bins and dispose it at proper location.

Figure 34 Image of Road side Bins

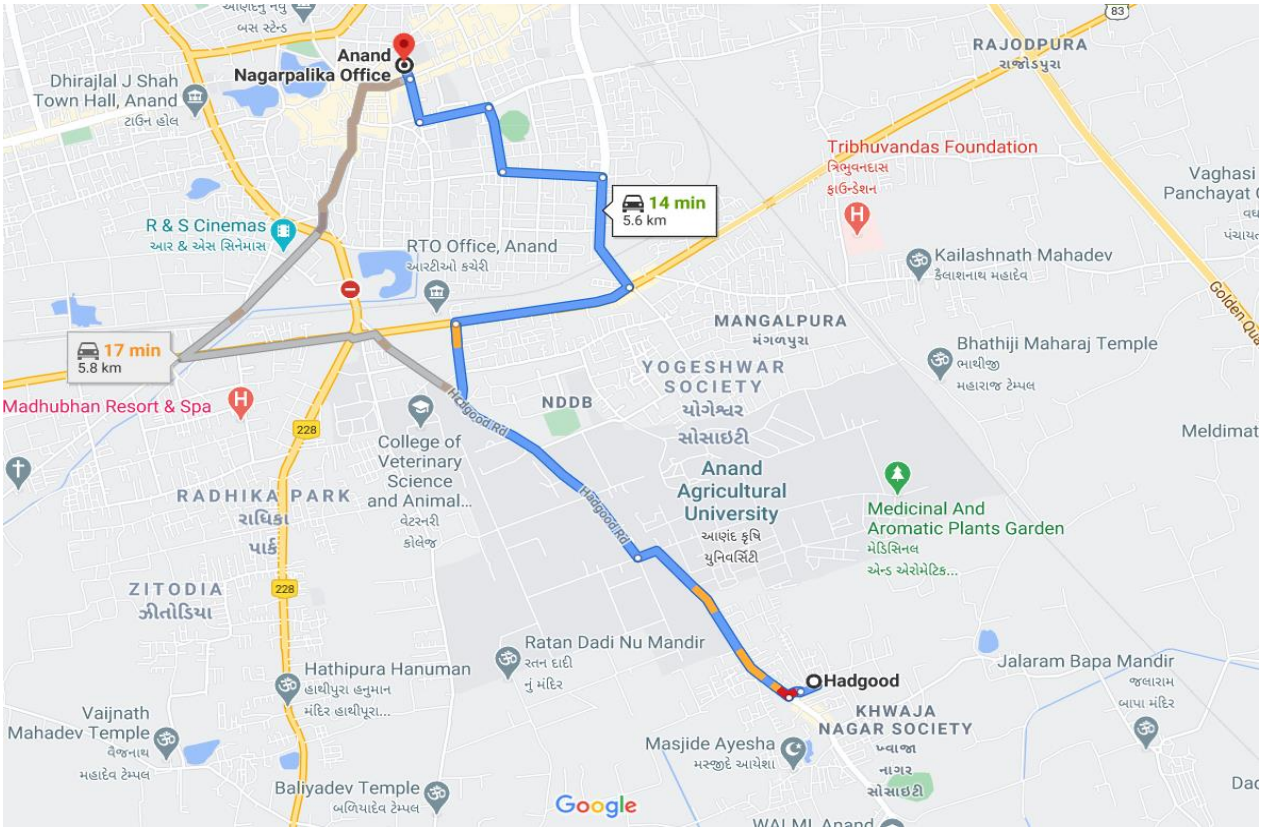


Figure 35 Location of Anand Nagarpalika from Hadgood

❖ Design of Internet Zone and Library

It is very important to aware children and also young people about education and other related services. Now days our country is moving towards digitalization and people are also appreciating. So to make happen this and to aware people and also to improve education system in village or in rural area the biggest step is to build internet zone and library.
For building the internet zone and library we need some space of land and one infrastructure. Here is some design criteria's are mentioned;

Figure 36 Internet Zone

Figure 37 Library

We can create library and internet zone combined in a single building. In that we can divide the library portion and internet zone portion. For this we required one building with electricity, water, toilets etc. basic facilities in 50 square feet.

Equipment and Facilities Required:

- 5-6 desks capacity of each is 50 books
- Tables (8 Nos.)
- Chairs (25 Nos.)
- PCs (8 Nos)
- Tables for PCs
- Internet Router
- Electricity
- Drinking water
- Toilets
- Lamps, fans, Tubeligths
- Books, Newspapers, novels etc. Reading materials
- Working staff (at least 2 person)

BENEFITS:

- Awareness in people about digital world and education
- Helpful for students who are living in village to get proper materials

- Students and young generation can use internet and can do their online works and can make change in the society. Also students can fill their online forms in internet zone
- Farmers will be aware about different YOJANAs of Government and can apply online here.
- People can read books, newspapers, novels etc.
- Children can learn the computer and operating system.
- Students can do their meetings.
- People can pay the bills like electricity bill, gas bill etc.

COST ESTIMATION:

Table 17 Cost Estimation of Internet Zone and Library

Equipment	Cost(RS)
Desk	10000
Table	18000
Chair	6500
PCs	350000
Table for PCs	25000
Internet Router	5000
Lamps, Fans, Tube-light, Switch-board	20000
Books, Newspaper, Novel	20000

- Working Staff=2 Persons=20000Rs
- Cost of Land=450000Rs
- Construction Cost=1000000Rs
- Additional costs like light fitting, water etc. = 30000Rs
- **Total Cost**=2000000Rs

❖ Design of Entrance Gate of Village

The entrance gate signifies the heritage of the village but it is merely decorative. The do not have any moving members rather than the vertical columns at side and top decorative beam. The village gate may encourage the tourism of village.

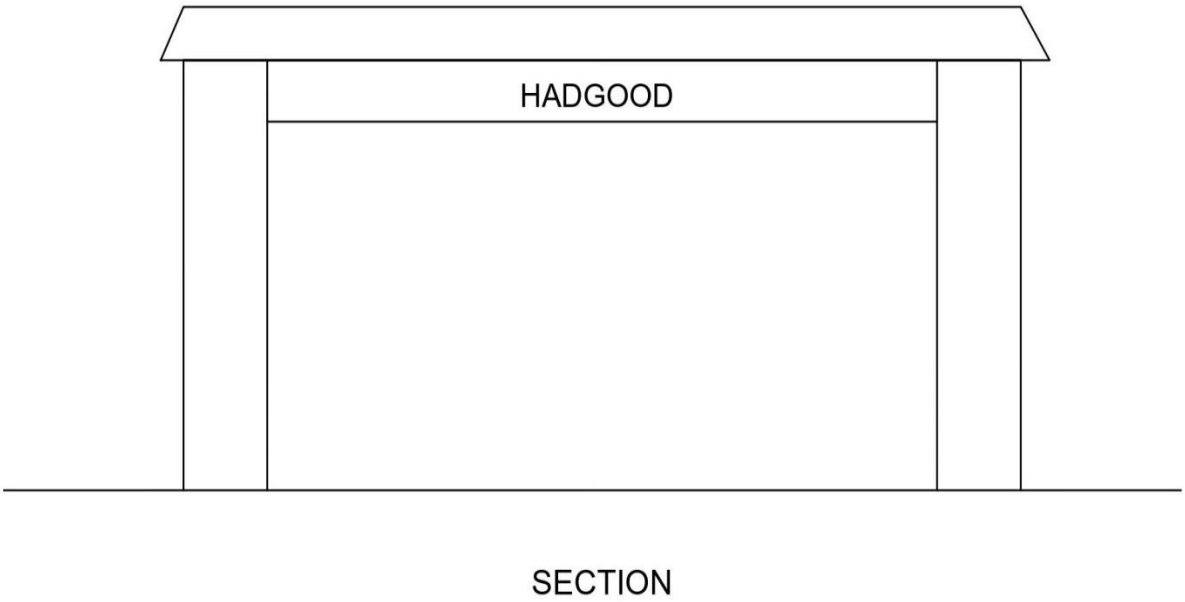


Figure 38 Plan and Elevation of Entrance Gate

❖ Estimation of Entrance Gate

Table 18 Building Estimate of Entrance Gate

BUILDING ESTIMATE						
QUANTITY SHEET						
Sr No.	**Item Description**	**No.**	**Length (m)**	**Width (m)**	**Height (m)**	**Quantity (CUM / SQM)**
1	**Earthwork in Excavation in Foundation**					
		2	4	4	2	64
				TOTAL QTY.		64
2	**P.C.C. in Excavation in Foundation**					
		2	4	4	0.3	9.6
				TOTAL QTY.		9.6
3	**R.C.C. for Foundation**					
	Volume	2	3	3	1.7	30.6
				TOTAL QTY.		30.6
	R.C.C. for Beam					
	Beam	1	12	0.5	0.5	3.0
				TOTAL QTY.		33.6
4	**Plaster**					
	Columns	2	3		6	36
	Beam	1	12		0.5	6
				TOTAL QTY.		42
5	**Color**					
	Columns	2	3		6	36
	Beam	1	12		0.5	6
				TOTAL QTY.		42
6	**R.C.C. Column**					
		2	3	3	6	108
				TOTAL QTY.		108

Abstract sheet of Entrance Gate

Table 19 Abstract sheet of Entrance Gate

Abstract sheet of Entrance Gate					
Sr. No.	**Item Description**	**QTY**	**Rate**	**Per**	**Amount**
1	Earthwork in Excavation in Foundation	64	90	CU M	5760
2	P.C.C. For Foundation	9.6	3200	CU M	30720
3	R.C.C. For Foundation and Beam	33.6	4500	CU M	151200
7	Plaster (1:4)	42	145	SQ M	6090
9	Color Outside	42	130	SQ M	5460
11	R.C.C. For Column	108	4900	CU M	529200
		TOTAL Rs.			728430
		Add 1.5% Water Charge			10926.45
		Add 10% Co. Charge			72843
		Total Estimate Cost in Rs.			812199.45 =812200

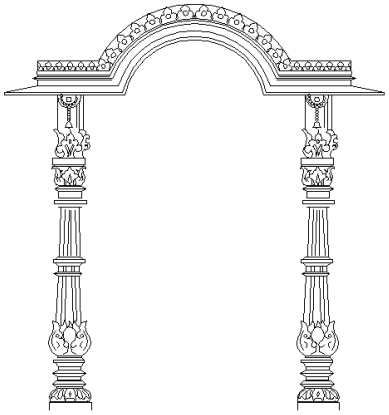


Figure 39 Village Entrance Gate

❖ Design of Solar Rooftop System for Govt. Buildings, School/college, Hospitals etc.

Now a day's renewable energy sources like solar, wind, hydro etc. are most economic and reliable energy source on this planet. Solar system is most suitable in villages and rural areas because of maximum availability of sunrays. For small village, we can implement solar system to providing electricity to whole village. But in the case of large village electricity from government is mostly available.

So we can implement solar system for following application:

- School and College Building
- Hospital
- Government Offices
- Gram Panchayat
- At Farm for Irrigation purpose
- Solar rooftop for house

In our selected village Hadgood 5 Anganwadi/play group, primary school, secondary school, health center, panchayat building is there. These all buildings are taking electricity from state electricity board.

We can conserve the energy by adding renewable energy source in these particular buildings. The way of using solar rooftop system is made in such a way that in cloudy season we can take the supply from state electricity company. It means we have two alternate options for electricity:

1. From solar rooftop
2. From electricity board.

This system works like when we need more power than addition power is taken from the electricity board, as well as when power consumption is less than this power is fiddling to the electricity board. This data of incoming and outgoing will be shown and recorded in the energy.

The data based on particular building is shown below:

Table 20 Power Rating

Type of Building	**Power Rating**
Anganwadi/Play group	2kw
Primary School	5kw
Secondary School	5kw
Public Toilet	2kw
Community Hall	10kw
Public Library	5kw

Post Office	2kw
Panchayat Building	2kw
Bank	2kw
Milk Dairy	5kw

Material Required:

- Junction box
- DC cable
- AC cable
- Solar panel in numbers
- Solar structure
- On grid solar inverter
- MC4 connector
- DC junction box
- AC junction box
- Solar accessories
- Coper wires

Space Required:

Table 21 Space Required

CAPACITY	**SPACE REQUIRED**
1KW	10 sq. meter
2KW	200 sq. feet
3KW	300 sq. feet
4KW	24 sq. meter
5KW	500 sq. feet
6KW	40 sq. meter
7KW	50 sq. meter
8KW	50 sq. meter
9KW	55 sq. meter
10KW	60 sq. meter

Working:

Sunrays are direct falling on the surface of solar panel. This panel converts solar rays into the DC Power directly. And this power is given to the inverter. We can also use this DC power directly. Inverter converts DC into AC. This AC supply is given to the Energy Meter and from that it is fed to the home appliances or to the grid as shown in fig. Also the data of incoming and outgoing power is stored in the energy meter.

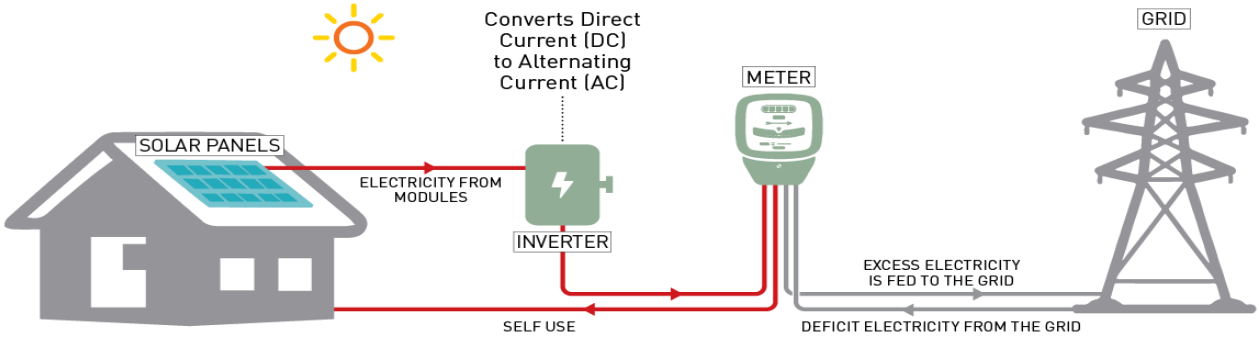


Figure 40 Solar Panels on Roof top of Public Buildings

Benefits:

- Saving in money.
- Support from government.
- Reduces carbon footprints.
- Low maintenance cost.
- Green source of energy.
- It increases access to energy.
- Suitable for Indian climates.

Cost Estimation:

Table 22 Cost estimation of solar roof top

CAPACITY	COST
1KW	40000 Rs
2KW	60000 Rs
3KW	110000 Rs
4KW	140000 Rs
5KW	175000 Rs
6KW	210000 Rs
8KW	320000 Rs
9KW	360000 Rs
10KW	400000 Rs

- KW= 5*60000=300000
- 5 KW=4*175000=700000
- 10KW=1*400000=400000
- **Total Cost** = 300000+700000+400000
  =1400000 Rs

❖ Design of E-Gram Centre

E-Gram center is very helpful for villagers. Here some benefits are given;

- Birth and death certificate
- Caste and income certificate
- Tax collection receipts
- Land right records services
- Application forms of various development schemes
- Data entry work for government departments like health, sports, gram Sabha, etc
- Electricity bill collection
- E -ration card coupon
- Kishan - farmer registration
- GSPC bill collection
- Utility bill payments (telephone, mobile, DTH etc.)
- Financial services

COST ESTIMATION:

A room of 10:12 is required. Cost of construct this room is 200000Rs.

Table 23 Cost Estimation of E-Gram center

Equipment	**Costs**
2 table, chair	6000rs
2-3 PCs	80000rs
2 fans	2500rs
2 tube-light	600rs
AC	30000rs
Internet Router	3000rs
2 printer	5000rs
CCTV camera	5000rs

2 working staff is required.

So the Total Cost = 200000+6000+80000+2500+600+30000+3000+5000+5000+20000
=352100Rs

❖ Design of Smart Street Lighting

Smart street lighting refers to public street lighting that adapts to movement by pedestrians, cyclists and cars. Intelligent street lighting also referred to as adaptive street lighting, dims when no activity is detected, but brightens when movement is detected. This type of lighting is different from traditional, stationary illumination, or dimmable street lighting that dims at pre-determined times. This will help village to be illuminated during night times.

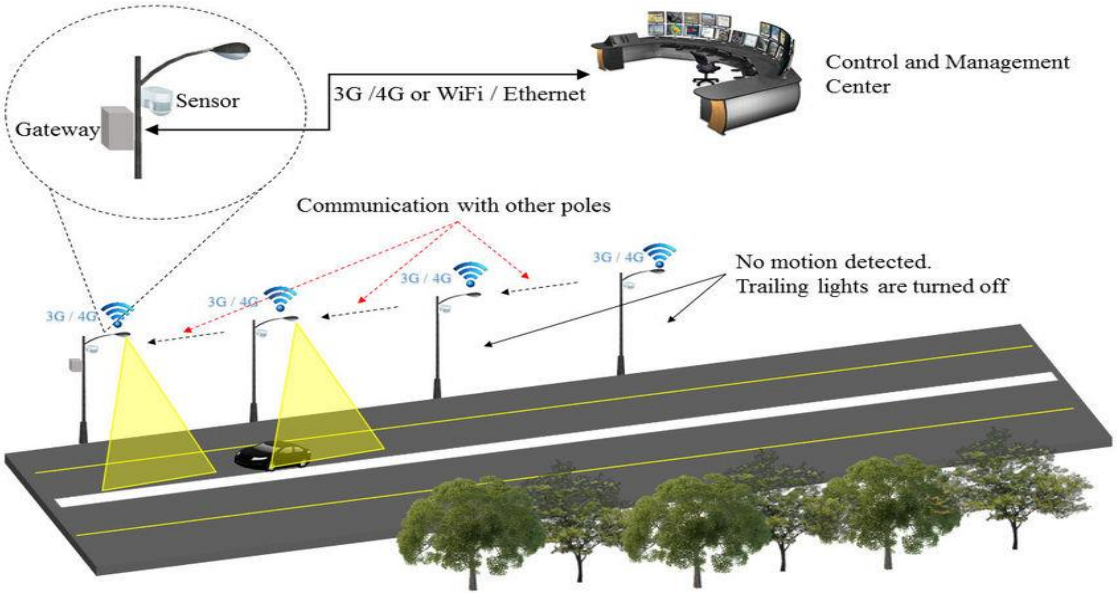


Figure 41 Smart Street Lighting

COST ESTIMATION:

Table 24 Cost Estimation of Smart Street Lighting

Equipment	**Costs**
CCTV camera	5000rs
LED Bulbs	10000rs
Electrical wires	25000rs
Sensors	4200rs
Electrical poles	10000rs
Monitoring PC	80000rs

10 working staff is required.

So the Total Cost = 5000+10000+25000+4200+10000+80000
=134200Rs

CHAPTER 9: Proposing designs for Future Development of the Village for the PART-II Design

After completion of visit & data collection the project carried out in the current semester by the group members which includes the design of sustainable facilities. Future scope would be study over other different urban amenities that would be sustainable in rural areas.

Table 25 Part II design

Sr. No.	Design
1	Drinking water facilities
2	Burial ground
3	Animal shelter
4	Bank with ATM service
5	Rain Water Harvesting System
6	Citizen service center

CHAPTER 10: Conclusion of the Entire Village Activities of the Project

For India's economy to be strong, the rural economy needs to grow. Rural areas are still plagued by problems of malnourishment, illiteracy, unemployment and lack of basic infrastructure like schools, hospitals, sanitation, etc. Our villages need to grow in tandem with cities and standard of life has to improve there for inclusive growth to happen. If rural India is poor, India is poor.

While we have latest services and products available in our cities now, villagers are still coping with age old products.

1. While we have international fully air-conditioned schools in our cities, the schools in villages still don't have benches and chairs, leave alone computers. We have a huge shortage of teachers in rural areas, and the school dropout rate is huge.
2. In cities, we have wide roads, flyovers and underpasses while many villages still don't have proper roads. Urban-rural road links can play a vital role in rural growth.
3. Employment opportunities are hardly there in villages which forces youth to move to cities creating imbalance in the ecosystem and leaving the villages deprived.
4. While we may have numerous hospitals, nursing homes and medical facilities in cities, villages neither have health awareness nor health facilities. See the condition of major hospitals like AIIMS to know how many villagers have to flock to cities for even basic treatments.

Vishwakarma Yojana aims to procure development in villages without losing essence. After all the way to uplift our country is through developing the villages. The scheme would reinforce wellbeing of people and further quality of living standard.

CHAPTER 11: References refereed for this project

1. National Building Code of India (2016)
2. The Hindu news (15 October 2013) “The 15 must have basic amenities in Villages.”
3. B.N. DATTA (2017) CBS Publishers “Estimation and costing book”
4. S.S. Bhavikatt, M.V. Chltawadagi (2014) I.K. International Pvt. Ltd. “Building planning and drawing”
5. G.B. Deshpandey, J.P. Nayak (2014) Nirali Prakashan “Quantity surveying book”

Web Sites:

1. http://wikiedit.org/India/Hadgood/156116/
2. http://www.onefivenine.com/india/villages/Anand/Anand/Hadgood
3. www.Sciencedirect.com
4. www.smartvillage.gujrat.gov.in
5. https://www.census2011.co.in/

Chapter 12: ANNEXURE

12.1 Scanned Copy Ideal Village Survey Form

Gujarat Technological University, Ahmedabad, Gujarat

Vishwakarma Yojana: Phase VIII
Techno Economic Survey

Techno Economic Survey

For

Vishwakarma Yojana: Phase VIII

IDEAL VILLAGE SURVEY

An approach towards Rurbanisation for Village Development

Name of Village:	Udwada (ઉદવાડા)
Name of Taluka:	Pardi (પારડી)
Name of District:	Valsad (વલસાડ)
Name of Institute:	G.H.Patel College of Engg. & Tech. V.V.Nagar
Nodal Officer Name & Contact Detail:	
Respondent Name: (Sarpanch/ Panchayat Member/ Teacher/ Gram Sevak/ Aaganwadi worker/Village dweller)	Patel R.R સરપંચ, ગ્રામ પંચાયત, ઉદવાડા, તા. પારડી, જી. વલસાડ.
Date of Survey:	14th Dec, 2020

1. **Demographical Detail:**

Sr. No.	Census	Population	Male	Female	Total House Holds
i)	2001	5897			
ii)	2011	6303	3191	3112	1447

2. **Geographical Detail:**

Sr. No.	Description	Information/Detail
i)	Area of Village (Approx.) (In Hector) Coordinates for Location:	605.16 Hectares
	Forest Area (In hect.)	48.67 Hectares
	Agricultural Land Area (In hect.)	418.67 Hectares
	Residential Area (In hect.)	27.55 Hectares
	Other Area (In hect.)	31.57 Hectares
	Water bodies	78.70 Hectares
	Nearest Town with Distance:	Pardi (10 Km)

3. Occupational Details:

Name of Three Major Occupation groups in Village	1. Fishermens & workers in Companies nearby 2. Agriculture (Farmers) 3. Homemade Products (Gruhuddhyog)

4. Physical Infrastructure Facilities:

Sr. No.	Descriptions	Detail	Adequate	Inadequate	Remarks
A.	**Main Source of Drinking water**				
	• Tap Water (Treated/ Untreated)	Yes			
	• RO Water	No			
	• Well (Covered/ Uncovered)	Yes			
	• Hand pumps	Yes			
	• Tube well/ Borehole	Yes			
	• River/ Canal/ Spring/ Lake/ Pond	Yes			
Suggestions if any:					
B.	**Water Tank Facility**				
	Overhead Tank	Capacity: There are many with in Village			
	Underground Sump	Capacity: No			
Suggestions if any:					
C.	**Drainage Facility**				
	Available (Yes/ No)	Yes			
Suggestions if any:					
D.	**Type of Drainage**				
	Closed/ Open	Open			
	If Open than Pucca / Kutchcha	Pucca			
	Whether drain water is discharged directly in to Water bodies/ Sewer plants	Yes, Directly into water bodies			
Suggestions if any:					

E.	**Road Network :All Weather/ Kutchha (Gravel)/ Black Topped pucca/ WBM**				
	Village approach road	Bituminous			
	Main road	In few regions Bituminous.	and in few region Concrete		
	Internal streets	WBM with blocks layed over it			
	Nearest NH/SH/MDR/ODR Dist. in kms.	- NH → 1 km → 48 - SH → 0 km → 484 - Costal way → 0 km			
Suggestions if any:					
F.	**Transport Facility**				
	Railway Station (Y/N) (If No than Nearest Rly Station---Kms)	Yes			
	Bus station (Y/N) Condition: (If No than Nearest Bus Station---Kms)	Yes			
	Local Transportation (Auto/ Jeep/Chhakda/ Private Vehicles/ Other)	Yes			
Suggestions if any:					
G.	**Electricity Distribution**				
	(Y/N) Govt./ Private (Less than 6 hrs./ More Than 6 hrs)	Yes GEB (DGVCL)			
	Power supply for Domestic Use	24 hrs			
	Power supply for Agricultural Use	8 hrs			
	Power supply for Commercial Use	24 hrs			
	Road/ Street Lights	Yes			

	Electrification in Government Buildings/ Schools/ Hospitals	Yes			
	Renewable Energy Source Facilities (Y/ N)	Recently few houses has Solar Power generation			
	LED Facilities	Yes			
Suggestions if any:					
H.	**Sanitation Facility**				
	Public Latrine Blocks If available than Nos.	No			
	Location Condition	Good			
	Community Toilet (With bath/ without bath facilities)	Yes			
	Solid & liquid waste Disposal system available	Yes			
	Any facility for Waste collection from road	No			
Suggestions if any:					
I.	**Irrigation Facility:**				
	Main Source of Irrigation (Stream/River/ Canal/ Well/ Tube well/ Other)	90.37 ha - Canal 5.13 ha - Tube wells 20.14 ha - Pond and tanks			
Suggestions if any:					
J.	**Housing Condition:**				
	Kutchha/Pucca (Approx. ratio)	$\frac{470}{977} = 0.48$			

5. **Social Infrastructural Facilities:**

Sr. No.	Descriptions	Information/ Detail	Adequate	Inadequate	Remarks

K.	**Health Facilities:**				
	Sub center/ PHC/ CHC /Government Hospital/ Child welfare & Maternity Homes (If Yes than specify No. of Beds) Condition: Good	2- PHC Around 70 no. of beds.			
	Private Clinic/Private Hospital/ Nursing Home	1 - Clinic 3- hospitals			
	If any of the above Facility is not available in village than approx. distance from village: .....kms.				
Suggestions if any:					
L.	**Education Facilities:**				
	Aaganwadi/ Play group	Yes -			
	Primary School	Yes			
	Secondary school	Yes			
	Higher sec. School	Yes			
	ITI college/ vocational Training Center	No Available @ Pardi (12km)			
	Art, Commerce& Science /Polytechnic/ Engineering/ Medical/ Management/ other college facilities	No Availabe @ Valsad (30 km)			
	If any of the above Facility is not available in village than approx. distance from village: .....kms.				
Suggestions if any:					
M.	**Socio- Culture Facilities**				
	Community Hall (With or without TV) Location: Pardi	Yes (9 km)			

	Condition: Good				
	Public Library (With daily newspaper supply: Y/N) Location: Pardi Condition: Good	Yes (11 Kms)			
	Public Garden Location: Daman Condition: Good	From Udvada about 15 kms			
	Village Pond Location: Udvada Condition: Good	within Village			
	Recreation Center Location: Udvada Condition: Good	Many Temples and beach with in Village			
	Cinema/ Video Hall Location: Atul Condition: Good	About 12 km outside village			
	Assembly Polling Station Location: Udvada Condition: Good	locations Nos -Kikrla 2 - Kolak 6 -Tukwada 4			
	Birth & Death Registration Office Location: Pardi Condition: Good	Has within Pardi Mattador office (12km)			
If any of the above Facility is not available in village than approx. distance from village: .....kms.					
Suggestions if any:					
N.	**Other Facilities**				
	Post-office	Yes			
	Telecommunication Network/ STD booth	Yes, 90% of Peoples Using Smartphones			

	General Market	3- Nearby Markets			
	Shops (Public Distribution System)	Yes			
	Panchayat Building	Yes			
	Pharmacy/Medical Shop	Yes			
	Bank & ATM Facility	4 Banks with ATMs			
	Agriculture Co-operative Society	No, it is in Navsari (60km)			
	Milk Co-operative Soc.	No			
	Small Scale Industries	Yes			
	Internet Cafes/ Common Service Center/Wi Fi	No			
	Other Facility	Yes, Police stations Fire stations			
Suggestions if any:					

6. **Sustainable /Green Infrastructure Facilities:**

Sr. No.	Descriptions	Information/ Details	Adequate	Inadequate	Remarks
O.	Adoption of Non-Conventional Energy Sources/ Renewable Energy Sources	Yes, Recently many peoples are adopting Solar Power generation for residential purpose			
P.	Bio-Gas Plant Solar Street Lights Rain Water Harvesting System	– No – Yes – Yes (Under development)			
Q.	Any Other				

7. **Data Collection From Village**

Village Base Map **Available: Hard Copy/Soft Copy**	

Recent Projects going on for Development of Village	No
Any NGO working for village development	No

8. **Additional Information/ Requirement:**

Sr. No.	Descriptions	Information/ Detail	Remarks
1.	Repair & Maintenance of Existing Public Infrastructure facilities(School Building, Health Center, Panchayat Building, Public Toilets & any other)	Under progress.	
2.	Additional Information/ Requirement		

9. **Smart Village Proposal Design**

Sr. No.	Descriptions	Information/ Detail	Remarks
1.			

Note: Photographs/ Video/ Drawings of all existing Infrastructure facilities & conditions should be taken by students of respective villages for their record and information.

For Any Administration queries/ Difficulties:
GTU VY Section:
Contact No – 079-23267588
Email ID: rurban@gtu.edu.in

12.2 Scanned Copy Smart Village Survey Form

Gujarat Technological University, Ahmedabad, Gujarat

Vishwakarma Yojana: Phase VIII
Techno Economic Survey

Techno Economic Survey

Vishwakarma Yojana: Phase VIII

SMART VILLAGE SURVEY

An approach towards "Rurbanisation for Village Development"

Name of District:	Panchmahal
Name of Taluka:	Talod
Name of Village:	Subashkantha
Name of Institute:	
Nodal Officer Name & Contact Detail:	
Respondent Name: (Sarpanch/ Panchayat Member/ Teacher/ Gram Sevak/ Aaganwadi worker/Village dweller)	Sarpanch Name :- Sumandaben Patel
Date of Survey:	

I. DEMOGRAPHICAL DETAIL:

Sr. No.	Census	Population	Male	Female	Total Number of House Holds
1.	2001	4681			
2.	2011	5500	2996	2548	1150

II. GEOGRAPHICAL DETAIL:

Sr. No.	Description	Information/Detail
1.	Area of Village (Approx.) (In Hector)Coordinates for Location:	47 Hectors 23.3926° N, 73.1128° E
2.	Forest Area (In hect.)	
3.	Agricultural Land Area (In hect.)	6 hectares
4.	Residential Area (In hect.)	
5.	Other Area (In hect.)	7
6.	Distance to the nearest railway station (in kilometers):	Gandhinagar (80 km)

7.	Name of Nearest Town with Distance:	
8.	Distance to the nearest bus station (in kilometers):	
9.	Whether village is connected to all road for the any facility or town or City?	

III. OCCUPATIONAL DETAILS:

Name of Three Major Occupation groups in Village	1. Agriculture 2. Dairy 3.

Major crops grown in the village:	1. 2. 3.

IV. PHYSICAL INFRASTRUCTURE FACILITIES:

Sr. No.	Descriptions	Detail	Adequate	Inadequate	Remarks
A.	**Main Source of Drinking water**				
1.	**PIPED WATER** Piped Into Dwelling Piped To Yard/Plot Public Tap/Standpipe Tube Well Or Bore Well	Yes	Yes	No	Reverse osmosis Plant
2.	**DUG WELL** Protected Well Un Protected Well				
3.	**WATER FROM SPRING** Protected Spring Unprotected Spring Rainwater Tanker Truck Cart With Small Tank	Yes			
4.	**SURFACE WATER (RIVER/DAM/ LAKE/POND/STREAM/CANAL/** Irrigation Channel Bottled Water Hand Pump Other(Specify)**Lake/ Pond**	Yes			

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Suggestions if any:					
B.	**Water Tank Facility**				
	Overhead Tank	Capacity:			
	Underground Sump	Capacity:			
Suggestions if any:					
C.	**The Type of Drainage Facility**				
	A. UNDERGROUND DRAINAGE 1 2 B. OPEN WITH OUTLET C. OPEN WITHOUT OUTLET				
Suggestions if any:					
D.	**Road Network : All Weather/ Kutchha (Gravel)/ Black Topped pucca/ WBM**				
	Village approach road	Yes	Yes	No	
	Main road	Yes	Yes	No	
	Internal streets	Yes	Yes	No	
	Nearest NH/SH/MDR/ODR Dist. in kms.	NH 48 (31km) SH 57 (6km)	Yes Yes	No No	
Suggestions if any:					
E.	**Transport Facility**				
	Railway Station (Y/N) (If No than Nearest Rly Station---Kms)	N (Dhamsusa Railway Station)	Y	N	
	Bus station (Y/N) Condition: (If No than Nearest Bus Station---Kms)	Y			
	Local Transportation (Auto/ Jeep/Chhakda/ Private Vehicles/ Other)	Mini Bus	Yes	No	
Suggestions if any:					
F.	**Electricity Distribution**				
	(Y/N) Govt./ Private (Less than 6 hrs./ More Than 6 hrs)	Y More than 6 Hrs.	Y	N	There is a 66 KV GETCO sub-station that supplie power to the village.

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	Power supply for Domestic Use	Y	Y	N	
	Power supply for Agricultural Use	Y	Y	N	
	Power supply for Commercial Use	Y	Y	N	
	Road/ Street Lights	Y	Y	N	LED street light
	Electrification in Government Buildings/ Schools/ Hospitals	Y	Y	N	
	Renewable Energy Source Facilities (Y/ N)	Y	Y	N	Bio-electric plant & solar stood light
	LED Facilities	Y	Y	N	Around 450 LED lights
Suggestions if any:					
G.	**Sanitation Facility**				
	Public Latrine Blocks If available than Nos.	Y	Y	N	
	Location Condition	Near bus stand			
	Community Toilet (With bath/ without bath facilities)	Y			
	Solid & liquid waste Disposal system available	Y	Y	N	
	Any facility for Waste collection from road	Y	Y	N	
Suggestions if any:					
H.	**Main Source of Irrigation Facility:**				
	TANK/POND STREAM/RIVER CANAL WELL TUBE WELL OTHER (SPECIFY)	Borewell, Hand pump	Yes	No	
Suggestions if any:					
I.	**Housing Condition:**				
	Kutchha/Pucca (Approx. ratio)				

V. SOCIAL INFRASTRUCTURAL FACILITIES:

Sr. No.	Descriptions	Information/ Detail	Adequate	Inadequate	Remarks
J.	**Health Facilities:**				
	ICDS (Anganwadi) Sub-Centre PHC BLOCK PHC CHC/RH District/ Govt. Hospital Govt. Dispensary Private Clinic Private Hospital/ Nursing Home AYUSH Health Facility sonography /ultrasound facility	Health care centre ~~care~~			It has all the amenities for proper treatment of all common diseases & is well equipped & sufficient
	If any of the above Facility is not available in village than approx. distance from village: .....kms.				
Suggestions if any:					
K.	**Education Facilities:**				
	Aaganwadi/ Play group	Y	Y	N	
	Primary School	Y	Y	N	
	Secondary school				
	Higher sec. School				
	ITI college/ vocational Training Center				
	Art, Commerce& Science /Polytechnic/ Engineering/ Medical/ Management/ other college facilities				
	If any of the above Facility is not available in village than approx. distance from village: .....kms.				

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Suggestions if any:

L.	Socio- Culture Facilities	Condition	Location	Available (YES)	Available (NO)
	Community Hall (With or without TV)				
	Public Library (With daily newspaper supply: Y/N)				
	Public Garden				
	Village Pond				
	Recreation Center				
	Cinema/ Video Hall				
	Assembly Polling Station				
	Birth & Death Registration				

If any of the above Facility is not available in village than approx. distance from village: .....kms.

Suggestions if any:

M.	Other Facilities	Condition	Location	Available (YES)	Available (NO)
	Post-office	Yes			
	Telecommunication Network/ STD booth				
	General Market				
	Shops (Public Distribution System)	Yes			
	Panchayat Building	Yes			
	Pharmacy/Medical Shop	Yes			
	Bank & ATM Facility	Yes			
	Agriculture Co-operative Society	Yes			
	Milk Co-operative Soc.	Yes			
	Small Scale Industries				
	Internet Cafes/ Common Service Center/Wi Fi	Yes	Yes		
	Youth Club				
	Mahila Mandal				

VI. SUSTAINABLE /GREEN INFRASTRUCTURE FACILITIES:

Sr. No.	Descriptions	Information/ Details	Adequate	Inadequate	Remarks
1.	Adoption of Non-Conventional Energy Sources/ Renewable Energy Sources	Solar Panels, Bio electric plants	Yes		
2.	Bio-Gas Plant Solar Street Lights Rain Water Harvesting System	Yes Yes	Yes Yes		
3.	Any Other				

VII. DATA COLLECTION FROM VILLAGE

Sr. No.	Descriptions	Information/ Details	Adequate	Inadequate	Remarks
1.	Village Base Map Available: Hard Copy/Soft Copy		Yes		
2.	Recent Projects going on for Development of Village				
3.	Any NGO working for village development				
4.	Any natural calamity in the village during the last one year: EARTHQUAKES FLOODS CYCLONE DROUGHT LANDSLIDES AVALANCHE OTHER (SPECIFY)				

VIII. ADDITIONAL INFORMATION/ REQUIREMENT:

Sr. No.	Descriptions	Information/ Detail	Remarks

1.	**Repair & Maintenance of Existing Public Infrastructure facilities, School Building Health Center Panchayat Building Public Toilets & any other**		
2.	**Additional Information/ Requirement**		
3.	**During the last six months how many times CLEANING ..... FOGGING..... Drive was undertaken in the village?**		

IX. Smart Village / Heritage Details

Sr. No.	Descriptions	Information/ Detail	Remarks
1.	IS THEIR ANY THING FOR THE VILLAGE ENHANCEMENT POSSIBLE ?		

Note: Photographs/ Video/ Drawings of all existing Infrastructure facilities & conditions should be taken by students of respective villages for their record and information.

For Any Administration queries/ Difficulties:
GTU VY Section
Contact No – 079-23267588
Email ID: rurban@gtu.edu.in

12.3 Scanned Copy Allocated Village Survey Form

Gujarat Technological University, Ahmedabad, Gujarat

Vishwakarma Yojana: Phase VIII
Techno Economic Survey

Techno Economic Survey

Vishwakarma Yojana: Phase VIII

ALLOCATED VILLAGE SURVEY

An approach towards **"Rurbanisation for Village Development"**

Name of District:	Anand.
Name of Taluka:	Anand
Name of Village:	Hadgood.
Name of Institute:	GCET.
Nodal Officer Name & Contact Detail:	
Respondent Name: (Sarpanch/ Panchayat Member/ Teacher/ Gram Sevak/ Aaganwadi worker/Village dweller)	સરપંચ ગ્રામ પંચાયત હાડગુડ તા. જી. આણંદ
Date of Survey:	

I. DEMOGRAPHICAL DETAIL:

Sr. No.	Census	Population	Male	Female	Total Number of House Holds
1.	2001				
2.	2011	14262	6569	7693	

II. GEOGRAPHICAL DETAIL:

Sr. No.	Description	Information/Detail
1.	Area of Village (Approx.) (In Hector)Coordinates for Location:	1700.
2.	Forest Area (In hect.)	-
3.	Agricultural Land Area (In hect.)	40%.
4.	Residential Area (In hect.)	60%.
5.	Other Area (In hect.)	
6.	Distance to the nearest railway station (in kilometers):	

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7.	Name of Nearest Town with Distance:	
8.	Distance to the nearest bus station (in kilometers):	
9.	Whether village is connected to all road for the any facility or town or City?	

III. OCCUPATIONAL DETAILS:

Name of Three Major Occupation groups in Village	1.	farmer
	2.	Painter
	3.	Government job.

Major crops grown in the village:	1.	Wheat
	2.	Bajra.
	3.	Sirsi

IV. PHYSICAL INFRASTRUCTURE FACILITIES:

Sr. No.	Descriptions	Detail	Adequate	Inadequate	Remarks
A.	**Main Source of Drinking water**				
1.	**PIPED WATER**				
	Piped Into Dwelling				
	Piped To Yard/Plot				
	Public Tap/Standpipe				
	Tube Well Or Bore Well	✓			
2.	**DUG WELL**				
	Protected Well	X			
	Un Protected Well				
3.	**WATER FROM SPRING**	X			
	Protected Spring				
	Unprotected Spring				
	Rainwater				
	Tanker Truck				
	Cart With Small Tank				
4.	**SURFACE WATER (RIVER/DAM/ LAKE/POND/STREAM/CANAL/**				
	Irrigation Channel	✓			
	Bottled Water	✓			
	Hand Pump				

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	Other(Specify)Lake/ Pond	✓			
Suggestions if any:					
B.	**Water Tank Facility**				
	Overhead Tank 2	Capacity:	50000	25000	
	Underground Sump	Capacity:			
Suggestions if any:					
C.	**The Type of Drainage Facility**				
	A. UNDERGROUND DRAINAGE 1	yes.			
Suggestions if any:					
D.	**Road Network :All Weather/ Kutchha (Gravel)/ Black Topped pucca/ WBM**				
	Village approach road	RCC			
	Main road	W13 M.			
	Internal streets	RCC.			
	Nearest NH/SH/MDR/ODR Dist. in kms.	NH. (5-7 kms)			
Suggestions if any:					
E.	**Transport Facility**				
	Railway Station (Y/N) (If No than Nearest Rly Station---Kms)	Vadod (8km)			
	Bus station (Y/N) Condition: (If No than Nearest Bus Station---Kms)	yes (0.4 onm)			
	Local Transportation (Auto/ Jeep/Chhakda/ Private Vehicles/ Other)	yes.			
Suggestions if any:					
F.	**Electricity Distribution**				
	(Y/N) Govt./ Private (Less than 6 hrs./ More Than 6 hrs)	yes	MOUCH	24hrs	

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	Power supply for Domestic Use	24 hr.			
	Power supply for Agricultural Use	6 hr.			
	Power supply for Commercial Use	24 hr.			
	Road/ Street Lights	6 hr.			
	Electrification in Government Buildings/ Schools/ Hospitals	24 hr.			
	Renewable Energy Source Facilities (Y/ N)	NO.			
	LED Facilities	LED available only on Main Rd			

Suggestions if any:

G.	**Sanitation Facility**				
	Public Latrine Blocks If available than Nos.	NO			
	Location Condition	NO.			
	Community Toilet (With bath/ without bath facilities)	NO.			
	Solid & liquid waste Disposal system available	NO.			
	Any facility for Waste collection from road	NO.			

Suggestions if any:

H.	**Main Source of Irrigation Facility:**				
	TANK/POND	5			
	STREAM/RIVER				
	CANAL	1			
	WELL				
	TUBE WELL.	12-15			
	OTHER (SPECIFY)	Borewell (Private).			

Suggestions if any: 150/500

I.	**Housing Condition:**				
	Kutchha/Pucca (Approx. ratio)	Yes (500/3000).			

V. SOCIAL INFRASTRUCTURAL FACILITIES:

Sr. No.	Descriptions	Information/ Detail	Adequate	Inadequate	Remarks
J.	**Health Facilities:**				
	ICDS (Anganwadi)	1			
	Sub-Centre	1			
	PHC	NO.			
	BLOCK PHC	1.			
	CHC/RH	NO(Anand).		5.KM.	
	District/ Govt. Hospital				
	Govt. Dispensary	4.			
	Private Clinic	1.			
	Private Hospital/ Nursing Home	NO.			
	AYUSH Health Facility	NO.			
	sonography /ultrasound facility	NO.			
	If any of the above Facility is not available in village than approx. distance from village: ~~Anand~~ kms. 5.5KM				
Suggestions if any:					
K.	**Education Facilities:**				
	Aaganwadi/ Play group	5.			
	Primary School	Yes.			
	Secondary school	Yes.			
	Higher sec. School	NO			
	ITI college/ vocational Training Center	NO.			
	Art, Commerce& Science /Polytechnic/ Engineering/ Medical/ Management/ other college facilities	No.			

Techno Economic Survey

If any of the above Facility is not available in village than approx. distance from village: .....kms.

Suggestions if any:

L.	Socio- Culture Facilities	Condition	Location	Available (YES)	Available (NO)
	Community Hall (With or without TV)	without TV.			
	Public Library (With daily newspaper supply: Y/N)	Yes (Not Proper Condition)			
	Public Garden	NO.			
	Village Pond	S			
	Recreation Center	NO.			
	Cinema/ Video Hall	NO.			
	Assembly Polling Station	yes			
	Birth & Death Registration Office	yes			

If any of the above Facility is not available in village than approx. distance from village: Amund **kms.** 55 KM

Suggestions if any:

M.	Other Facilities	Condition	Location	Available (YES)	Available (NO)
	Post-office	Not Proper		yes	
	Telecommunication Network/ STD booth			N	NO
	General Market	Proper			
	Shops (Public Distribution System)				
	Panchayat Building				
	Pharmacy/Medical Shop				
	Bank & ATM Facility	Only Private Bank.			
	Agriculture Co-operative Society				
	Milk Co-operative Soc.				
	Small Scale Industries				
	Internet Cafes/ Common Service Center/Wi Fi	Not Available			
	Youth Club				
	Mahila Mandal				

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	Credit Cooperative Society Agricultural Cooperative Society Milk Cooperative Society Fishermen`s Cooperative Society Computer Kiosk/ e-chaupal / Mills / Small Scale Industries	No yes yes. yes yes			
	Other Facility				

Suggestions if any:

N.	Other Facilities	Condition		Available (YES)	Available (NO)
	1. Have these programme implemented the village?				
	2. Are there any beneficiaries in the village from the following programme?				
	3. Janani Suraksha Yojana				
	4. Kishori Shakti Yojana				
	5. Balika Samriddhi Yojana				
	6. Mid-day Meal Programme			✓	
	7. Intergrated Child Development Scheme (ICDS)				
	8. Mahila Mandal Protsahan Yojana (MMPY)			✓	
	9. National Food for work Programme (NFFWP)				
	10. National Social Assistance Programme				
	11. Sanitation Programme (SP)				
	12. Rajiv Gandhi National Drinking Water Mission				
	13. Swarnjayanti Gram Swarozgar Yojana				
	14. Minimum Needs Programme (MNP)				
	15. National Rural Employment Programme				
	16. Employee Guarantee Scheme (EGS)				
	17. Prime Minister Rojgar Yojana (PMRY)				
	18. Jawahar Rozgar Yojana (JRY)			✓	
	19. Indira Awas Yaojna (IAY)				
	20. Samagra Awas Yojana (SAY)				
	21. Sanjay Gandhi Niradhar Yojana (SGNY)				
	22. Jawahar Gram Samridhi Yojana (JGSY)				
	23. Other (SPECIFY) (GSB) સુકન્યા સમૃદ્ધિ યોજના.			✓	

VI. SUSTAINABLE /GREEN INFRASTRUCTURE FACILITIES:

Sr. No.	Descriptions	Information/ Details	Adequate	Inadequate	Remarks
1.	Adoption of Non-Conventional Energy Sources/ Renewable Energy Sources	NO.			
2.	Bio-Gas Plant Solar Street Lights Rain Water Harvesting System	NO.			
3.	Any Other				

VII. DATA COLLECTION FROM VILLAGE

Sr. No.	Descriptions	Information/ Details	Adequate	Inadequate	Remarks
1.	Village Base Map Available: Hard Copy/Soft Copy	Not available.			
2.	Recent Projects going on for Development of Village	Road construction.			
3.	Any NGO working for village development	Yes.			
4.	Any natural calamity in the village during the last one year: EARTHQUAKES FLOODS CYCLONE DROUGHT LANDSLIDES AVALANCHE OTHER (SPECIFY)	NO.			

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VIII. ADDITIONAL INFORMATION/ REQUIREMENT:

Sr. No.	Descriptions	Information/ Detail	Remarks
1.	Repair & Maintenance of Existing Public Infrastructure facilities, School Building Health Center Panchayat Building Public Toilets & any other	yes (Running).	
2.	Additional Information/ Requirement		
3.	During the last six months how many times CLEANING ..... FOGGING..... Drive was undertaken in the village?	daily.	

IX. Smart Village / Heritage Details

Sr. No.	Descriptions	Information/ Detail	Remarks
1.	IS THEIR ANY THING FOR THE VILLAGE ENHANCEMENT POSSIBLE ?	Government School, Road, Ground.	

Note: Photographs/ Video/ Drawings of all existing Infrastructure facilities & conditions should be taken by students of respective villages for their record and information.

For Any Administration queries/ Difficulties:
GTU VY Section
Contact No – 079-23267588
Email ID: rurban@gtu.edu.in

12.4 Gap Analysis

Table 26 Gap Analysis

Village facilities	**Planning commission/UDPFI norms**	**Village name:**	Hadgood		
		Population: 14262			
		Existing	**Required**	**Smart village / cities future projection design**	**Gap**
Education					
Anganwadi	Each or per 2500 population	5	5		0
Primary school	Per 2500 population	1	1		0
Secondary school	Per 7500 population	1	1		0
Higher secondary school	Per 15000 population	0	0		0
College	Per 125000 population	0	0		0
Tech. training institute	Per 100000 population	0	0		0
Agriculture research center	Per 100000 population	0	0		0
Skill development center	Per 100000 population	0	0		0
Health facility					
Govt/panchayat dispensary or sub PHC or health center	Each village	0	1		1
Primary health & child health center	Per 20000 population	1	1		0
Child welfare & maternity center	Per 10000 population	0	0		0
Multispecialty hospital	Per 100000 population	0	0		0
Public latrines	1 for 50 families (if toilet is not there in home, especially for slum pockets & kutcha house)	1	9		8
Physical infrastructure facilities					
Transportation		Adequate / Inadequate			

Pucca village approach road	Each village	Adequate			
Bus/auto stand provision	All villages connected by PT (ST Bus or Auto)	Adequate			
Drinking water (min. 70 LPCD)		Adequate / Inadequate			
Overhead tank	1/3 of total demand				
U/G sump	2/3 of total demand				
Drainage network		Adequate / Inadequate			
Open					
Cover					
Waste management system		Inadequate			
Socio cultural infrastructure					
Community hall	Per 10000 population	YES	Not Required		
public library	Per 15000 population	YES	Required		
Cremation ground	Per 20000 population	YES	Not Required		
Post office	Per 10000 population	1	Adequate		
Gram panchayat building	Each individual / group panchayat	1	Inadequate		
APMC	Per 100000 population	0	Inadequate		
Fire station	Per 100000 population	NO	Not Required		
Public garden	Per village	NO	Required		
Police post	Per 40000 population	YES	Not Required		

12.5 Photos of Villages

Allocated Village – Hadgood Village

Figure 42 Hadgood Village Images

Ideal Village – Udvada Village

Figure 43 Udvada Village Images