DETAIL PROJECT REPORT

VISHWAKARMA YOJNA: VIII
AN APPROACH TOWARDS RURBANISATION
Kuha Village

Ahmedabad District

PREPARED BY

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YEAR: 2020-21

GUJARAT TECHNOLOGICAL UNIVERSITY
Chandkheda, Ahmedabad - 382424 Gujarat

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CERTIFICATE

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

Detail Project Report for,

VILLAGE: KUHA

DISTRICT: AHMEDABAD

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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Date of Report Submission:	
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College Stamp:	

ABSTRACT

- Vishwakarma Yojana project and how you do your vision project:

  Vishwakarma Yojana is one of the initiatives towards urbanization of villages by Government of Gujarat hand over to GTU. The vision of Vishwakarma Yojana is to reduce and remove the rural-urban divide through infusion of urban patterns and services in rural systems to ensure provision of quality lifestyles and livelihood options while keeping the basic rural soul intact. By studying the village life with respect to delivery of basic needs, the main aim is to re the main objective of the project is to study the present status and to conduct techno economic survey of all selected villages of the state. It ascertains the existing basic and imagine, redesign, rejuvenate and strengthen the community life. Public amenities, essential commodities & other infrastructural facilities.

- About your village description:
  As per our actual visit of village, we found the current scenario of village. As village is tourist place all the major facilities are available in village like Gram Panchayat building, Banks, Hospital, Public toilets, School, etc. in good condition. Rice, wheat, Millet, is the major crops grown in village. There is underground drainage system in main localities
- About existing village condition:
  In this village Water supplied to the people is sufficient but the drainage system is poor. The damping of Garbage is improper condition of roads is poor except entrance all the village roads are pucca roads. In the village lack of basic facilities like public toilet, poor condition of panchayat building etc.

- About your proposed designs your view for village development:

  The condition of village is gloomy in now days. The village is considered to be sub developed so measure reasons as obtained from collect data compromise of the village lacking of basic facilities such as good sanitation facilities, adequate public toilets, solid waste management and disposal recreational area and so on.

- About future scope of the village development:
  The study will focus the development trend, intensity of growth of the village, and find out the problems related to the physical development of the area & infrastructure service of the village. Project proposal and sustainability aspect not consider in micro level it is only guide way.

Key Words: Green village, Social Infrastructure, Physical Infrastructure.

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We are highly indented to Gujarat Technological University, Ahmedabad for providing us such opportunity to work under Vishwakarma Yojana to get real work experience and applying our technical knowledge in the development of Villages.

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ABBREVIATIONS

Shortname/ Symbol	Full Name
P.H.C	Primary health centre.
SWOT	Strenths, weaknesses, opportunities, and threats analysis.
NRUM	National rurban misssion.
CSE	Centre of science and environment.
ICT	Infromation and communication technology
PMGSY	Pradhan mantri gram sadak yojana
IAY	Indira awas yojana
PPP	Public -private – partnership.
CD-BLOCK	Community devlopment block.
NH	National highway.
SH	State highway.
MDR	Major district road.
ODR	Other district road.

PCC	Plain cement concrete.

CHAPTER 1: IDEAL VILLAGE VISIT FROM DISTRICT FOR GUJARAT STATE

1.1 Background

Fig 1.1 Map of Punsari

Fig1.2 Satellite view of Punsari

Study Area Location

- Punsari is a village located in a Sabarkantha district in the state of Gujarat. The village is located at about 80 km from the state capital, Gandhinagar.
- There has been used advanced technology in education. Efforts have been made for empowerment of women and increasing the security in the village. Some of the facilities provided by the panchayat include local mineral water supply.

1.2 Concept: Ideal Village Concept: Ideal Village

1.2.1 Objectives:-

- In this village 100% toilet & bathroom facility is available.
- Milk Dairy is also available in the village.
- Primary & Secondary education facility is there in village.
- Water tanks & water supply is sufficient to supply to the water to the village.
- Electricity is 24 hours available in village.
- RCC roads are throughout the village made by Government Yojana.
- Solar Street lights provided in the streets of village.
- Aaganwadi is also available.
- Drainage system is work properly during monsoon season.

1.2.2 Example/live case studies of ideal village of India/Gujarat

1) Ankapoor, Telangana

Ankapoor is located in the Nizamabad district in the state of Telangana. Ankapoor has been

globally recognized as a "Model Agricultural Village" for its achievements in introducing modern technologies in agriculture while ensuring the participation of all the sections of the village community, particularly women. Organizations like the Indian Council for Agricultural Research (ICAR), International Rice Research Institute (IRRI), Manila and International Crops Research Institute for the Semi- arid Tropics (ICRISAT) have formally commended the developments in agriculture in the village.

2) Dharnai (Bihar) First fully solar powered village:

Dharnai, a village in Bihar, beat 30 years of darkness by developing its own solar powered system for electricity. With the aid of Greenpeace, Dharnai declared itself an energy-independent village in July. Students no long need to limit their studies to the day time, women no longer limit themselves to stepping out in the day in this village of 2400 residents.

3) Mawlynnong (Meghalaya) Asia's cleanest village:

Mawlynnong, a small village in Meghalaya, was awarded the prestigious tag of 'Cleanest village in Asia' in 2003 by Discover India Magazine. Located at about 90 Km from Shillong, the village offers a sky walk for you to take in the beauty as you explore it. According to visitors, you cannot find a single cigarette butt/plastic bag lying around there.

1.2.3The Idea of a model/ Smart village

- Smart village is a concept adopted by national, state and local government of India. As an Himanshu Patel is the sarpanch of punasari – a village has been declared by both the state and initiative focused on rural development, derived from mahatma Gandhi vision of Adarsh gram.
- central government. He has been sarpanch of the village for the past 9 years taking of the task of the development his own village at the age of 24 after completing his study.
- The scheme was implemented in pilot mode in 1000 villages of Assam, Bihar, Himachal Pradesh, Rajasthan and Tamil Nadu, with an allocation of Rs 10 lakh per village. This limit was later raised to Rs 20 lakh per village. The target villages under the scheme were those with more than 50% of the population belonging to Scheduled Castes (SCs). Additionally, State governments have also taken steps in this direction. Himachal Pradesh launched a Mukhya Mantri Adarsh Gram Yojana along similar lines in 2011, with the allocation of Rs 10 lakh per village.

1.2.4 Ancient History Civil

- The discovery of urban settlements of Mohenjo-Daro and Harappa indicate existence of civil engineering & architecture, which blossomed to a highly precise science of civil engineering and architecture and found expression in innumerable monuments of ancient India.Several sump pots and latrines built one above the other were uncovered on Mound ET at Harappa (now in Pakistan).Flush toilets were first used in the Indus Valley Civilization. These existed in most homes and were connected to a sophisticated sewage mechanism. The civilization was prominent in hydraulic.

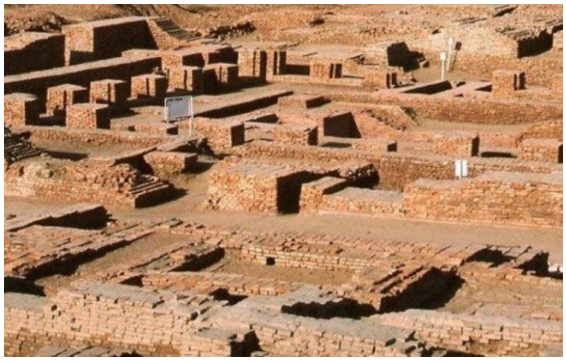


Fig 1.3 Harappa

Fig 1.4 Indus Valley Civilization

BHAKRA DAM

- Bhakra Dam is a concrete gravity dam across the Sutlej River, and is in Bilaspur, HimachalPradesh in northern India. The dam, located at a gorge near the (now submerged) upstream Bhakra village in Bilaspur district of Himachal Pradesh, is India's second tallest at 225.55 m(740 ft.) high next to the 261m Tehri Dam.

Fig 1.5 Bhakra Dam

1.3 Detail study of Ideal village / Smart Village with photograph

Fig 1.6 entry of pansari

Fig 1.7 SBI of punsari

Fig 1.8 Primary school of Pansuri

1.4 SWOT analysis of ideal village Strengths:-

Strength:

- Pacca Houses, Proper Sanitation, Drinking water facilities, Hospital facilities, Recreational facilities, Education facilities & Bank facilities.

Weakness:

- Literacy rate, Communication with the peoples, Survey problem, financial problem Government approval.

Opportunity:

- Social attention, Receive more grant for development, Good apparency, Good image.

Threats:-

- heft of valuables,Wastage disposal system

1.5 Future prospects of the Ideal Village:-

- In village, they are going to apply for PHC and Banking facility
- They are going to developed village with more technologies like rain water harvesting system & Bio gas plant.

1.6 Benefits of visits:-

- To improvement of allocated village.
- To understand allocated village conditions.

CHAPTER 2: VILLAGE LITERATURE REVIEW

2.1 Introduction Urban & Rural

Urban Area:

- An urban area is the region surrounding a city.Most people of urban areas have non-agricultural jobs.Urban areas are very developed, meaning there is a density of human structures such as houses, commercial buildings, roads, bridges, and railways. "Urban area" can refer to towns, cities, and suburbs.

Rural Area:

- A rural areas population density is very low. Many people live in a city, or urban area.Rural areas may develop randomly based on natural vegetation and fauna available in a region, but urban settlements are proper, planned, built up according to a process called urbanization. Rural people have low living standards and they lack of basic physical amenities.

2.2 Importance of the Rural development

- Analyze territorial partnership practices for towns/cities and rural areas.

Accomplish better cooperation between different actors in emerging and applying urban-rural initiatives.

Promote territorial multilevel governance. Importance:

- The national rurban mission (NRUM) follows the vision of “development of a cluster of villages that preserve nurture the essence of rural community life with focus on equity and inclusiveness without compromising with the facilities perceived to be essentially urban in nature, thus creating a cluster of “Rurban villages” The objective of the national rurban mission is to stimulate local economic development, enhance basic services and create well planned rurban clusters.
- Bridging the rural-urban divide-via: economic technology and those related to facilities Attracting investment in rural areas.
- Stimulating local economic development with emphasis on reduction of poverty and unemployment in rural areas. Spreading development in theregion.

2.3 Ancient Village / Different Definition of: Rural area/Villages:-

- An urban area is the region surrounding a city. Most inhabitants of urban areas have non-agricultural jobs. The population density is quite high. Urban areas are very developed, meaning there is a density of human structures such as houses, commercial buildings, roads, bridges, and railways. “Urban area" can refer to towns, cities, and suburbs. An urban area
- Includes the city itself, as well as the surrounding areas. Many urban areas are called metropolitan areas, when two or more metropolitan areas grow until they combine, the result may be known as a megalopolis.
- Rural areas are the opposite of urban areas. Rural areas, often called "the country," have low

population density and large amounts of undeveloped land. Usually, the difference between a rural area and an urban area is clear.

2.4 Scenario: Rural / Urban village of India population Growth:-

- Out of the total of 1210.2 million population in India, the size of Rural population is 833.1 million (or 68.84% of the Total Population).
- Urban population 377.1 million (or 31.16%). During 2001–2011 the population of the country increased by 181.4 million.
- Increase in Rural areas: 90.4 million.
- Increase in Urban areas: 91.0 million.

2.5 Scenario: Rural / Urban village of Gujarat as per Census 2011 and latest

Gujarat Population 2011

- Total population 60,439,692
- Total population of male: - 31,491,260
- Total population of female: 28,948,432
- Total population growth in decade is 19.28%
- Out of total population of Gujarat, 42.60% people lives in urban region and rest in rural

Table-2.1: Population of IndiaPopulation (in Cr)

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

Table: 2.2 Demographic data of Gujarat

Description	Rural	Urban
Population	57.14	42.60 %
Total population	34,694,609	25,745,083
Male population	17,799,159	13,692,101
Female population	16,895,450	12,052,982
Population growth	9.31 %	36.00 %
Sex ratio	949	880
Literates	21,420,842	19,672,516
Average literacy	71.71 %	86.31 %

2.6 Rural Development Issues.

- Market unavailable, Water problem, Swage system, Lower education, Poor Health services, Migration to urban areas. Lower living standards, No transportation facility, Economy of the people living in rural areas is low, Less income opportunities, Less awareness, Very less people are employed in rural areas, Lack of physical facilities in rural areas.

2.7 Various infrastructure guidelines with the Norms for Villages for the provisions of different infrastructure facilities

Table 2.3 Norms for Villages different infrastructure facilities

Village Facilities	Planning Commission/UDPFI Norms	Required as per Norms
Education		
Anganwadi	Each or Per 2500 population	1
Primary School	Each Per 2500 population	1
Secondary School	Per 7,500 population	0
Higher Secondary School	Per 15,000 Population	0
College	Per 125,000 Population	0
Tech. Training Institute	Per 100000 Population	0
Agriculture Research Centre	Per 100000 Population	0
Skill Development Center	Per 100000 Population	0

2.8 Other Projects/ Schemes of Gujarat / Indian Government:-

MGNREGA: Mgnrega launched on 2nd February 2006 as a momentous initiative towards pro-poor growth. For the first time, rural communities have been given not just a development program but also a regime of rights. The national rural employment guarantee act, 2005 (nrega) guarantees 100 days of employment in a financial year to

PMGSY: (Pradhan Mantri Gram SadakYojana) Pradhan Mantri Gram sadak yojana (PMGSY) was launched on 25th December 2000 as a fully funded Centrally Sponsored Scheme to provide all weather road connectivity in rural areas of the country. The program envisages connecting all habitations with a population of 500 persons and above in the plain areas and 250 persons and above in hill States, the tribal and the desert areas.

IAY (Indira AwasYojana) Housing is one of the basic requirements for human survival. For a normal citizen owning a house provides significant economic security and status in society. For a shelter less person, a house brings about a profound social change in his existence, endowing him with an identity, thus integrating him with his immediate social background.

CHAPTER 3: SMART CITIES & VILLAGE CONCEPT

3.1 Introduction: Concepts, Definitions and Practices

• Making a city "smart" is evolving as a strategy to ease the problems generated by the urban population growth and speedy urbanization. Yet little hypothetical research has sparingly discussed the phenomenon. To close the gap in the literature about smart cities and in response to the increasing use of the concept, this paper proposes an agenda to understand the concept of smart cities. Based on the exploration of a wide and extensive array of literature from various disciplinary areas we identify eight critical factors of smart city initiatives: management and organization, technology, governance, policy context, people and communities, economy, built infrastructure, and natural environment.

- Strategic planning
- Mobility
- Wi fi
- E – government
- Technological resiliency
- Cyber defense
- Renewable energy

3.2 Vision-Goals, Standards and Performance Measurement Indicators

1.Transport

• Maximum travel time of 30 minutes in small & medium size cities and 45 minutes in metropolitan areas.Continuous unobstructed footpath for 2 m wide on either side of all street with Row 12 m more, Dedicated and physically segregated bicycle tracks with width of 2 m or more, one in each direction, should be provided on all streets with carriage way larger than 10m.

• High quality and high frequency mass transport within 800 m (10-15-minute walking distance) of all residences in areas over 175persons / ha of built.

2.Spatial Planning

• 175 persons per Ha along transit corridors.95% of residences should have daily needs retail, parks, primary schools and recreational areas accessible within 400m walking distance.95% residences should have access to employment and public and institutional transport o or bicycle or walk At least 20% of all residential units to be occupied by economically weaker sections in each Transit Oriented Development Zone 800m from Transit Stations.At least 30% residential land 30 commercial/institutional in every TOD Zone within 800m of Transit Stations.

3.Water Supply

• 24 x 7 supply of water, 100% household with direct water supply connections, 135 liters of per capita supply of water, 100% metering of water connections, 100% efficiency in collection of water related Charges

4.Sewerage & Sanitation

- 100% households should have access to toilets, 100% schools should have separate toilets for girls, 100% households should be connected to the waste water network, 100% efficiency in the collection and treatment of waste water,100% efficiency in the collection of sewerage network.

5 Solid management

- 100% households are covered by daily door-step Collection system,100%collection of municipal solid waste,100% segregation of waste at source,bio,degradable and non-degradable waste 100%recycling of solid waste.

6 Storm storage

- 100% coverage of road network with storm water drainage network,Aggregate number of incidents of water logging reported in a Year = 0, 100 % rainwater harvesting.

3.3 Technological Options

1. Smart energy

Both residential and commercial buildings in smart cities are more efficient, using less energy, and the energy used is analyzed and data collected. Smart grids are part of the development of a smart city, and smart streetlights are an easy entry point for many cities, since LED lights save money and pay for themselves within a few years, as reported previously by TechRepublic.Lighting is ubiquitous--it's everywhere that people work, travel, shop, dine, and relax. Digital communications and energy-efficient LED lighting are revolutionizing urban lighting infrastructures already in place, transforming them into information pathways with the capacity to collect and share data and offer new insights that enable, and really drive, the smart city," said Susanne Seitinger, PhD., Philips Lighting, professional systems.

2. Smart transportation

A smart city supports multi-modal transportation, smart traffic lights and smart parking.

One of the key areas that we have seen a lot of activity on has to do with mobility. Anything around transportation, traffic monitoring, parking," said Sanjay Khatri, director of product marketing and IoT services for Jasper. "These are areas where cities are seeing a very fast return on investment. It not only helps to reduce the cost of monitoring parking and making sure that they are collecting fines, it's also reducing congestion."

By making parking smarter, people spend less time looking for parking spots and circling city blocks. Smart traffic lights have cameras that monitor traffic flow so that it's reflected in the traffic signals, Khatri said.

Even city buses are becoming connected, so that people have real time information on when a bus will arrive at a bus stop. In Australia, traffic lights are prioritized based on the bus schedules so that traffic flows more freely during rush hours, Khatri said.

3. Smart data

The massive amounts of data collected by a smart city must be analyzed quickly in order to make it useful. Open data portals are one option that some cities have chosen in order to publish city data online, so that anyone can access it and use predictive analytics to assess future patterns. Companies such as CommunityLogiq are working with cities to help them analyze data, and they're in the Startup in Residence (STiR) program for the city of San Francisco.

The pervasiveness of technology and the expansion of open data policies is about to unleash an economic growth engine for urban innovation that we have never seen. We are moving from analyzing data that exists within city hall, to generating new data from sensors that are deployed all across cities for use by multiple departments and people for multiple uses," said John Gordon, chief digital officer at Current, powered by GE.

4. Smart infrastructure

Cities will be able to plan better with a smart city's ability to analyze large amounts of data. This will allow for pro-active maintenance and better planning for future demand. Being able to test for lead content in water in real time when the data shows a problem is emerging could prevent public health issues, Chandi said.

Having a smart infrastructure means that a city can move forward with other technologies and use the data collected to make meaningful changes in future city plans.

5. Smart mobility

Mobility refers to both the technology and the data which travels across the technology. The ability to seamlessly move in and out of many different municipal and private systems is essential if we are to realize the promise of smart cities. Building the smart city will never be a project that is "finished." Technology needs to be interoperable and perform to expectations regardless of who made it or when it was made. Data also needs to be unconstrained as it moves between systems, with all due attention to intellectual property, security and privacy concerns. For this, public policy and legal technology needs to be state of the art," said Tom Blewitt, director of principal engineers, UL.

3.4 Road Map and Safe Guards for Smart Cities Road plan

- To become a digital city, governments will need an appropriate set of solutions that will help them advance to the next stage of ICT maturity. The more a city takes advantage of the potential offered by ICT in terms of the provision of digital services and an integrated urban network, the higher its level of ICT maturity. In many ways, this is easier for newer cities in emerging markets, which are just now investing in urban infrastructure.

- For example, Lusail City in Qatar, Masdar City in the UAE, and Songdo in South Korea are all making digital technology, networks, and apps a central part of how they operate and interact with citizens. By contrast, existing — or brown field — metropolitan areas face clear challenges in moving up the ICT maturity ladder, as they need to modernize their existing infrastructure with embedded sensors and control systems and retrofit old buildings — a complicated and expensive process.

- Indeed, in some cases it is impossible as the buildings cannot accommodate new technologies.

However, becoming a digital city is not so stark a choice that urban authorities either achieve this revolution or fail. Rather, even taking small steps, particularly for established cities, toward becoming more digitized and offering enhanced digital services provides a variety of benefits. In some cases, established cities can use the disruptive power of digitization to leapfrog some of the obstacles.

3.5 Smart Cities: Issues & Challenges by Smart City Council India

• Funding: One of the biggest challenges is having a streamlined funding for the development of smart cities. It was decided that each Smart City will receive 500 Crore over the period of 5 years by Central Government. But this amount won't be sufficient. To match the contribution of central government there should be some contribution from the state government too in order to create sustainable funding to take the smart cities from pilot phase to execution and then completion. There are many private firms that are providing funding but it requires to be in proper process.

Technology: There are certain technologies that are a part of the project and it is expensive to use them. Because of the advancement, some technologies are borrowed another challenge is in the discovery of technology and the need for a medium that can bring technology users and creators together to adopt faster platforms from other countries which make it more expensive. This hinders the success of smart city project.

• Problem of regulation and governance: Owing to a large set of investors, the list of stakeholders in the project is growing. In case of any legal issues, there is a strong need of separate legal framework in the stages of smart city mission. When the project is big there is a need of effective communication between central government, state and local governments. Apart from this, there is also a need of statutory bodies to provide quick approvals so that no resources and time goes waste.

• Smart Information and Communications Technology (smart ICT) has the potential to transform the way we plan and manage infrastructure. New developments in computer hardware, new applications and software are changing the face of the infrastructure sector, and society more generally; driving greater efficiency, increasing productivity, and greatly simplifying construction processes and life-of-asset maintenance.

3.6 Smart Infrastructure - Intelligent Traffic Management

• With the conception of smart city transmuting cities into digital societies, making the life of its citizens easy in every facet, Intelligent Transport System becomes the indispensable component among all. In any city mobility is a key concern; be it going to school, college and office or for any other purpose citizens use transport system to travel within the city. Leveraging citizens with an Intelligent Transport System can save their time and make the city even smarter. Intelligent Transport System (ITS) aims to achieve traffic efficiency by minimizing traffic problems. It enriches users with prior information about traffic, local convenience real-time running information, seat availability etc. which reduces travel time of commuters as well as enhances their safety and comfort.

• An intelligent traffic management system (ITMS) is defined as an advanced application that—without embodying intelligence as such aims to provide innovative services related to different modes of transport and traffic management. It enables users to be better informed and to make safer, more coordinated, efficient and smarter use of transportation networks.

3.7 CYBER SECURITY:-

• Cyber security in the context of Smart Cities is a hot topic. The objective of Smart Cities is to optimize the city in a dynamic way to offer a better quality of life to the citizens through the application of information and communication technology (ICT). The range of areas where cities can become smarter is extensive: it is an evolution of "Connected Cities" with the prevalence of data exchange at a larger scale.

• The benefits of Information and Computing Technologies (ICT) in a Smart City and of the Internet of Things are tremendous. Smart energy meters, security devices, smart appliances for health and domestic life: these and more offer unprecedented conveniences and improved quality of life. City infrastructures and services are changing with new interconnected systems for monitoring, control and automation. These may include water and sanitation to emergency responders and disaster recovery.

Methodology:

a. Several paradigms and categorical structures may be applied in analyzing the benefits and detriments of this data environment. An applicable paradigm used for this analysis is that of IBM that the Smart City, its components and its citizens are Instrumented
b. Interconnected
c. Intelligent

3.8 Retrofitting- Redevelopment- Greenfield Development District Cooling

Retrofitting:

a. Retrofitting refers to the addition of new technology or features to older systems, for ex

b. power plant retrofit, improving power plant efficiency / increasing output / reducing emissions.
c. home energy retrofit, the improving of existing buildings with energy efficiency equipment
d. seismic retrofit, the process of strengthening older buildings in order to make them earthquake-resistant
e. Naval vessels often undergo retrofitting in dry dock to incorporate new technologies, change their operational designation, or compensate for perceived weaknesses in their design or gun plan.

Greenfield Development District Cooling

• In the Southeast, air conditioners are almost crucial pieces of equipment for home comfort. However, it can be difficult to find the right air conditioner for your home, one that will provide

enough cool air in the summer to cool your home without driving your energy costs through the roof. We can help! At Hammond Services, we can help you choose the perfect air conditioner for your home, install it professionally, and even maintain/repair it in the years ahead.

3.9 Strategic options for fast development

• The strategic components of area-based development in the Smart Cities Mission are city improvement (retrofitting), city renewal (redevelopment) and city extension (Greenfield development) plus a Pan-city initiative in which Smart Solutions are applied covering larger parts of the city. Below are given the Deion's of the three models of Area-based smart city development:

• Retrofitting will introduce planning in an existing built-up area to achieve smart city objectives, along with other objectives, to make the existing area more efficient and livable. In retrofitting, an area consisting of more than 500 acres will be identified by the city in consultation with citizens. Depending on the existing level of infrastructure services in the identified area and the vision of the residents, the cities will prepare a strategy to become smart. Since existing structures are largely to remain intact in this model, it is expected that more intensive infrastructure service levels and a large number of smart applications will be packed into the retrofitted smart city. This strategy may also be completed in a shorter time frame, leading to its replication in another part of the city.

3.10 India's urban water and sanitation challenges and role of indigenous Technologies

• Swachh Bharat Abhiyaan was launched by Hon'ble Prime Minister of India on 2nd October 2015, which caught attention of everybody not only in India, but also in the world. The government has taken various steps to create awareness among the masses for keeping the area surrounding them neat and clean. Government is also paying special attention for cleaning of rivers, railway stations, tourist destinations and other public places.

• The BARC is playing a pivotal role in the development of these technologies. Some of these technologies are as follows.

3.11 Initiatives in village development by local self-government

• In the past "government as provider" approach, the priorities were to secure budget allocations and develop projects. The Housing Policy and the NCU statement implicitly give higher priority to two other requirements: first, the reform of policies and regulations that now inhibit development initiatives by the people; and second, more efficient resource management and the building of institutional capacity.

• Resource Management and Institutional Development. As discussed in Section 5, India's urban institutions do not have the capacity to provide adequate services at present, let alone address the requirements of accelerated urban growth in the future. Proposals relate to three types of institutions.

3.12 Smart Initiatives by District Municipal Corporation:-

• Urban India faces an enormous challenge: managing its gigantic load of solid waste. Centre for Science and Environment (CSE) attempts to find this out. It is not just a public health issue, but

also turning out to be a serious law and order problem as people resort to violent methods to protest waste being dumped in their backyard. But cities simply do not have the space or the wherewithal to dispose of waste. The challenge is going to be tougher. With India's urban population growing at 3-3.5 per cent annually, the waste generated by cities is expected to increase by 5% every year. How are our cities managing this challenges A survey by Delhi-based non-profit.

3.13 Project contributed working by NGO:-

- As a part of smart village project the EF youth leader selected Dhaurahara Mukundha, a Village in Faizabad District of Uttar Pradesh State, India. Milkipur is the Community Development Block (C.D. Block) of this village. It is situated 11km away from sub-district headquarter Milkipur, 34km away from district headquarter Faizabad and around 135.5 kilometer state capital Lucknow. The state code is 09 and the village code is 166014.

- Being one of the most trusted charitable organizations/trusts in India; the foundation has an independent functioning and do sent entertain any affiliation whether commercial, political or religious. With 46 years of service and having supported more than 500 charitable institution in India, the foundation also runs vocational courses for women and has been a champion for women development.

Rural Development Program:-

- This foundation have constructed school building with all basic amenities in more than 100 villages and handed over them to govt for conducting classes. Basic facilities for education health and portable water have been provided. The foundation has dug borwells and conducted overhead water tanks in several villages to provided safe drinking water to villagers.

1. Construction of school building (50 villages) banglore north taluka, banglore district.

2. Drinking water projects, banglore north taluka, banglore district.

3. Bore wells etc. for drinking water in 28 villages, banglore north taluka banglore.

3.14 How to implement other countries smart villages projects in Indian village context:-

A smart city and village are different. In city there are different opportunities to employ smart technologies. These are limited in villages. However, one can employ such technologies to improve several aspects of rural life. Some examples are,

1. Schooling – smart class rooms can improve the quality of education by providing access to a large amount of educational resources.

2. Health care – improving information available on the availability, location and cost of various types of health care.

Agriculture – provide information to farmers on the types of crop that can fetch them returns, by ensuring that there is no glut of one product and shortage of another.

CHAPTER 4: INTRODUCTION ABOUT KUHA VILLAGE

4.1 Introduction:

4.1.1 Introduction about Village:

According to Census 2011 information the location or village code of Kuha village is 511643. Kuha village is located in Daskroi Tehsil of Ahmadabad district in Gujarat, India. It is situated 25km away from Ahmadabad, which is both district & sub-district headquarter of Kuha village. As per 2009 stats, Kuha village is also a gram panchayat. The total geographical area of village is 2018.88 hectares. Kuha has a total population of 10,102 peoples. There are about 2,010 houses in Kuha village. Ahmadabad is nearest town to Kuha which is approximately 25km away.

4.1.2 Study justification/ need of the study:

Vishwakarma Yojana is one of the initiatives towards Rurbanization by Government of Gujarat, which was allotted as a pilot project to GTU. The students and Faculty Members meet all the stake- holders in a village, survey the existing facilities. Then they re-imagine and redesign the whole of the infrastructure of the village. The students and Faculty Members meet all the stake-holders in a village, survey the existing facilities. Then they re-imagine and redesign the whole of the infrastructure of the village. The students use their engineering skills to prepare detailed project reports for the infra-structure as a part of their Final Year project work.

4.1.3 Study Area (Broadly define):

Allotted village KUHA is 25 km far from the Ahmedabad. As it village named KUHA is in Dakroi taluka in Ahmedabad district.

4.1.4 Objectives of the study:

The main objectives of project work are to provide basic amenities in the village, like transportation, sanitation, educational, health care facilities.

1.To reduce migration from rural to urban.
2.To promote integrated development.
3.To provide sustainable development.
4.To propose the comprehensive planning suited for ideal village.

4.1.5 Scope of the Study:

To Improve life style of villagers by helping them to develop their skill by assisting them in implementing income generating activities in close coordination and cooperation with national and international organizations.

From the Gap analysis, development tactics for village development will be proposed and planning suggestions for physical infrastructure, social infrastructure and renewable energy source will be suggested for the village. This study will focus on the development of the village.

4.1.6 Methodology Frame Work for development of your village:

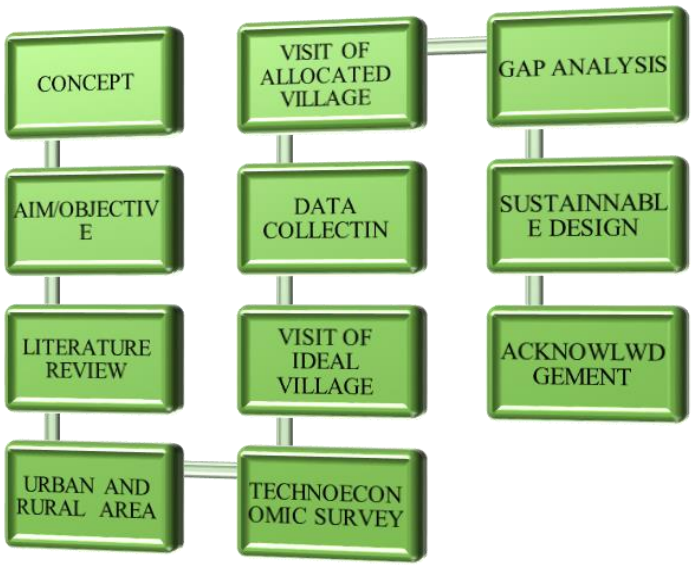


Fig 4.1 Study frame work

4.1.7 Available Methodology for development of related to Civil/Electrical:

- Gram Panchayat , Temple, Drainage System , Overhead Water Tank ,Bus Stop, Paver Blocks, Electricity 24*7 , Milk Co-Operative Society,General Provision Street,Water Supply System, Solid Waste Collection.

4.2Kuha Village Study Area Profile:

4.2.1 Study Area Location with brief History land use details:

Table 4.1 Primary details of Kuha village

Country	India
State	Gujarat
District	Ahmedabad
Sub district/Taluka	Daskoi
Nearest town	Ahmedabad (25km)
Area	2018 hectares
Population	10102
Pin code	382433

4.2.2 Base Location map, Land Map:

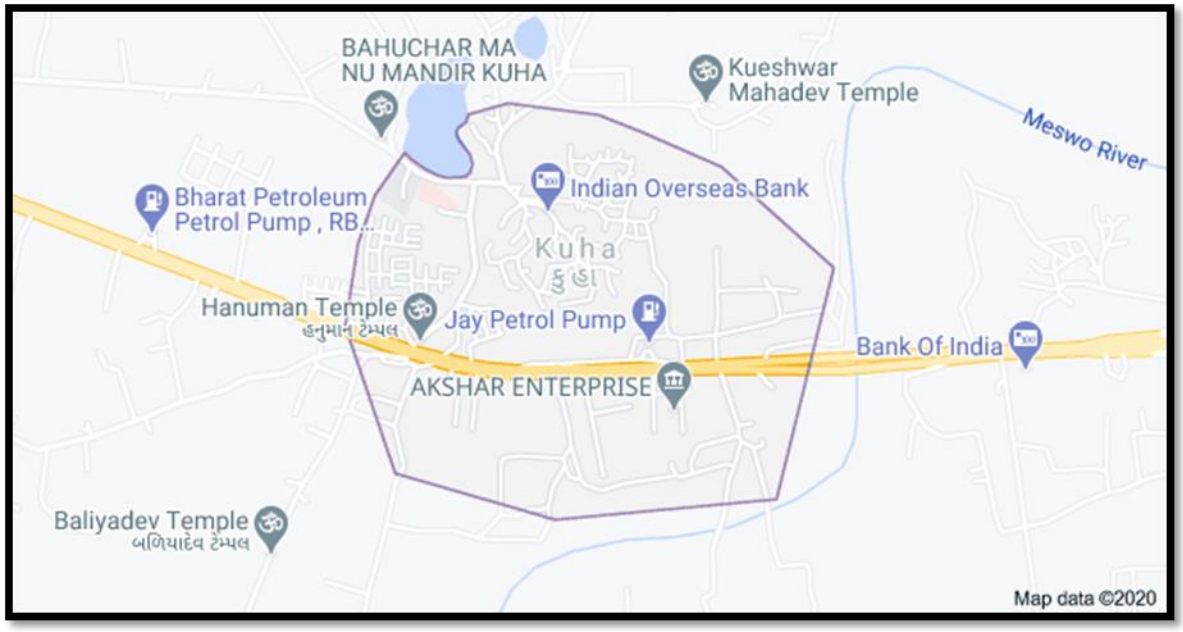


Fig 4.2 Base Location map of Kuha

4.2.3 Physical & Demographical Growth:

- Kuha village is located in Daskroi Tehsil of Ahmadabad district in Gujarat, India. It is situated 25km away from Ahmadabad, which is both district & sub-district headquarter of Kuha village. As per 2009 stats, Kuha village is also a gram panchayat. The total geographical area of village is 2018.88 hectares. Kuha has a total population of 10,102 peoples. There are about 2,010 houses in Kuha village. Ahmadabad is nearest town to Kuha which is approximately 25km away.

4.2.4 Economic generation profile:

- About the economic profile of this village, many citizens' work interest is farming and labor work. The village doesn't have any better facilities regarding infrastructure but has good electrification system which distributed 24*7 hours for domestic use and 8 hours for agricultural use. Village does not have good drainage system because there is open drainage etc. Dairy and milk production is also the prime source of income.

4.2.5 Actual Problem faced by Villagers and smart solution :

According to our survey we found out some problem which was being faced by village there are.

Problem:

- For the function of village there was not enough facility and space where they could conduct function.
- Condition of road was pretty damaged.
- Not enough facility for reading

Solution:

- To provide protection wall on the periphery of pond.
- To gave design of public library.
- A proper bituminous road with plastic admixture.

4.2.6 Social scenario:

- It was found that all the people of this village are not very much connected with today's technology environment rather than their main major working area. The major crops produced in the village are cotton, Groundnut and Castor. The major population is get income through the farming and there are no other job opportunities. The education is limited to secondary school.

4.3 Data Collection from village:

4.3.1 Describe Methods for data collection:

There are basically different types of data collection methods for collection of data from village or city or any of the town is as follows:

- By filling of survey form
- By interaction with villagers
- By interaction with sarpanch
- By observing the current condition of village
- Visiting different location of village

4.3.2 Primary survey details

Table 4.2 Primary survey details Kuha village

Locality Name	Kuha
City Name	Daskroi
District	Ahmadabad
State	Gujarat
Language	Gujarati and Hindi ,English
Time zone	IST (UTC+5:30)
Elevation / Altitude	35 meters. Above Seal level
Telephone Code / Std Code	02717

4.3.3 Average size of the House:

- Average total plot area in the village is 1500sqf Average total built up area in the village 400-500sqf.

4.3.4 No of Human being in One House:

- As per the Sarpanch and our there are average 7 personal per household in village.

4.3.5 Material available locally in the village:

- The construction of the house was made of cement, bricks, sand, concrete, lime etc.

4.3.6 Geographical Detail:

Table 4.3 Geographical Detail of Kuha

Country	India
State	Gujarat
District	Ahmedabad

Sub district/Taluka	Daskoi
Nearest town	Ahmedabad (25km)
Area	2018 hectares
Population	10102
Pin code	382433

4.3.7 Demographical Detail - Cast Wise Population Details / Which ID proof using by villagers:

Table 4.4 Village Survey Details

Particulars	Total	Male	Female
Total No. of Houses	3162	-	-
Population	10,102	5,113	4,989
Child (0-6)	1,461	775	686
Schedule Caste	257	135	122
Schedule Tribe	14	6	8
Literacy	76.73 %	87.25 %	66.12 %
Total Workers	3,707	2,930	777
Main Worker	2,891	-	-
Marginal Worker	816	204	612

4.3.8 Occupational Detail - Occupation wise Details / Majority business:

• In this village 2018.88 hectares connected with agriculture activities it's the villages main source of income. But village has the worker business so that's an income of source too there are approx. 99.63 % people are connected with farming and other are doing labor work for money.

4.3.9 Agricultural Details:

• Main source of income in this village is farming. Farmers use canal tube well, Lift irrigation system to do farming. The main agriculture product is rice, millet, wheat. 1568 hectare area covered.

4.3.10 Physical Infrastructure Facilities:

- Primary and secondary school
- Water tanks dead condition
- Open drainage
- WBM roads

- CC Roads are not good condition
- Panchayat building

4.3.11 Tourism development available in the village for attracting the tourist:

Tourism development are not available in the village. There is no structure or recreation Centre as tourismcluster.

4.4 Infrastructure Details (With Exiting Village Photograph):

4.4.1 Drinking Water:

There is only 1-2 hours water supply in the village. From the government supply water is come and then distributed in the village. There are two water tank in village.one is 50000lit Capacity and other is 1.5lac,lit Capacity:

Fig 4.3 water tank

4.4.2 Drainage Network:

There is open type drainage facility in kuha villege. The drain water is discharged directly in to its nearby water body or on the free land. Also it creates bad smell & polluted atmosphere. It is not good for the people those are living near it.

Fig 4.4 Discharge of Waste Wat

4.4.3 Transportation & Road Network:

There is bus stand in our village , the villager have to travel to other village or to the nearest highway which is about 15 km for bus transportation.The village doesn't have its separate railway station; they use ahmedabad railway station for travelling which is about 12 km from the village.The approach road of kuha village is well maintained bituminous road.While the road of the village are heavily damaged an most of all are earthen roads needed a proper maintenace .

Fig 4.5 Road Network, Bus Station and Public Transportation Stand in Kuha Village

4.4.4 Housing condition:

- There are 70% puchha house and 30% kachha hous.

Fig 4.6 Housing Condition in Kuha village

4.4.5 Social Infrastructure Facilities, Health, Education, Community Hall , Library:

4.4.5.1 SOCIAL INFRASTRUCTURAL FACILITIES:

There is type of health center is available such as clinic, PHC center etc.

Fig 4.7 Health Facilities in Kuha Village

4.4.5.2 Education Facilities:

Kuha village has 9 Anganwadi and 1 primary school. Primary School is managed by the Local body. The school is Co-educational and the school have an attached playground section. Gujarati is the medium of instructions in this school. This school is approachable by all-weather roads. The school is Government building. It has got 8-10 classrooms for instructional purposes. As per the observation classrooms are in good condition. The school has a separate room for Head master/Teacher. The school has electric connection.


Fig 4.8 Education facilities in Kuha Village

4.4.5.3 Community Hall:

Community Hall is Available in Kuha Village.

4.4.5.4 Public Library:

There is no Public library available in the Kuha village.

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

In Kubadthal public building like gram panchayat, school is good in condition. But anganwadi, post office condition is not well so maintenance is required.

4.4.7 Technology Mobile/ WIFI / Internet Usage Details:

In the Kuha village, there are only 70% people are using smart mobile and internet.

4.4.8 Sports Activity as Gram Panchayat:

There is no Any Sport Activity as Gram Panchayat.

4.4.9 Socio-Cultural Facilities

There is no availability of any socio-cultural facility like public library, public garden, and cinema hall.Etc. inside the village so Socio-cultural Facility is required.

Public garden/park/playground:

There is no playground, park and public garden in the village.

Village pond: two pond is available in village..


Fig 4.9 village pond

4.4.9.2 Village Pond/Lake:

Table 4.5 Details of Village Pond in Kuha Village

Sr. No.	Descriptions	Information/ Detail	Adequate	Inadequate
1	Village Pond Location: Center of village Condition:	Yes	Yes	-

4.4.10 Other Recreation Facilities:

In the village, none recreational facilities available like there is no cinema hall or theatre

4.4.11 Other Facilities

- There is one Panchayat Building in the village.
- There is one Bank in the village.
- There is one Milk Co-operative Society in the village.

4.5. Existing Institution like - Village Administration – Detail Profile:

4.5.1 Bachat Mandali:

- No bacchat mandali in village

4.5.2 Dudh Mandali:

- One dudh mandali is available and total dudh is supplied to the kuha.

4.5.3 Mahila forum:

- No Mahila forum in village

4.5.4 Plantation for the Air Pollution:

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

4.5.5 Rain Water Harvesting:

- Rainwater harvesting required in village

4.5.6 Agricultural Development:

- Main source of income in this village is farming. Farmers use canal tube well, Lift irrigation system to do farming. The main agriculture product is rice, millet, wheat.1568 hectare area covered.

Fig 4.10 Dudh Mandali in Kuha village

4.5.7 Any Other:

- In the village, the internal road is not in good condition. Water logging problem occurs every monsoon.

CHAPTER: 5 SUSTAINABLE TECHNIC OPTIONS WITH CASE STUDY OF EXISTING VILLAGE.

5.1 Concept (Civil)

5.1.1 Advance Sustainable construction techniques / Practices and Quantity Surveying

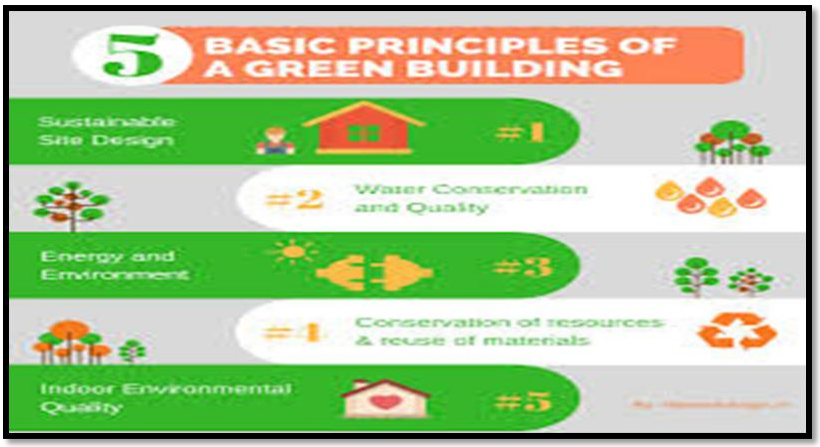
Site Planning:

- Simple techniques can be applied to site planning to reduce the environmental impact and development Costs.
- Locate building footprints and foundation elevations to avoid watercourses and limit site disturbance .Incorporate natural systems and retain existing vegetation within the site plan.
- Orient buildings to take advantage of Passive Solar Design opportunities. Consider solar heating.
- Incorporate low impact lighting solutions such as skylights and translucent panels.

Building Materials:

- Consider building materials that use less, and require less energy to manufacture than traditional ones.
- By using 'green' building materials and techniques you can effectively reduce the environmental footprint
- Of the structure and improve the long term health of building occupants and the greater region:
- Optimize energy performance by using energy efficient appliances and mechanical equipment.
- Consider renewable energy.
- Reduce CFC generated by air conditioning systems.
- Use locally available materials reduce fossil fuel consumption during transport.
- Use materials that are renewable in the short term.
- Reduce water use by installing low water use appliances and plumbing fixtures.
- Incorporate the storage and collection of recycled materials in the building design.
- Design the interior environment to reduce toxic emissions.
- Incorporate natural lighting and views from interior environment.
- Use natural materials for exterior finishes.
- Provide thermal efficiency through high quality insulation, energy efficient windows and doors, and Roofing materials.

Green' Building:



Sustainability is important in ensuring that the social, economic, and environmental systems that make up our seaside community are providing a healthy living experience for residents and visitors alike. While sustainability is a broad concept, the purpose of this brochure is to educate the development community and the community-at large regarding current sustainable building methods. As a part of the development permit process the City's Planning Department has been providing applicants with a sustainability checklist, and is pro-actively commenting on development proposals within the sustainability context. Often referred to as 'green' building techniques, the following examples refer to currently accepted alternative on-site development practices and material selections.

'Green' developments effectively reduce the negative impacts to the environment through emphasis on the sustainable use of building materials and by working with, and enhancing existing natural system. The physical design of developments should also promote social sustainability within the community. Designs should enhance social interaction and participation at the site and within the context of the surrounding community. Consideration and expression of the local cultural and biological heritage as well as adequate Provision.

Storm Water Source Controls:

Infiltration Trenches and Swales:

Infiltration facilities are designed to capture on site storm water run-off in an effort to delay heavy 'first flush'. Events that can contribute to downstream erosion and sedimentation of watercourses. Infiltration techniques are intended to capture, filter, and promote infiltration of surface run-off into site soils and existing Aquifers. Infiltration swales are often located adjacent to or within impervious paving areas, such as parking lots and patios. These facilities are effectively shallow ditches surfaced with grass over absorbent soils and a sand Base. Some techniques use an additional drain rock reservoir beneath to increase storage capacity and allow for Infiltration over a longer period of time.

Pervious Paving:

Pervious paving is intended to allow rainwater infiltration through surface materials, bedding aggregates and into substrate materials. This strategy is effective in reducing the amount of site run-off from hard surfacing. Pervious unit paving, reinforced grass cell paving, porous asphalt and porous concrete are typically used in low traffic volume areas. Parking areas, patios, fire lanes and walkways are commonly surfaced with pervious paving.

Fig 5.2 Pervious unit paving

Fig 5.3porous asphalt paving

Fig 5.4 Grass cell paving.

Rain Gardens:

Rain gardens function as a combination of conventional surface detention ponds and infiltration galleries. These facilities offer additional detention of water at the surface with a pond like appearance. Appropriate plantings are included to resemble a planting bed through the use of plants that are tolerant of fluctuating water tables.

Rainwater run-off from impervious site elements such as roofs and paved areas is directed into deep absorptive soils and subsurface reservoirs.

Surface reservoirs should be designed to hold water for no longer than 24 hours, due to potential mosquito breeding. Ponding depths in excess of 0.75m will require a 1.5m barrier fence.

Underground reservoirs are often designed to hold and slowly release stored water into an adjacent watercourse or storm sewer system.

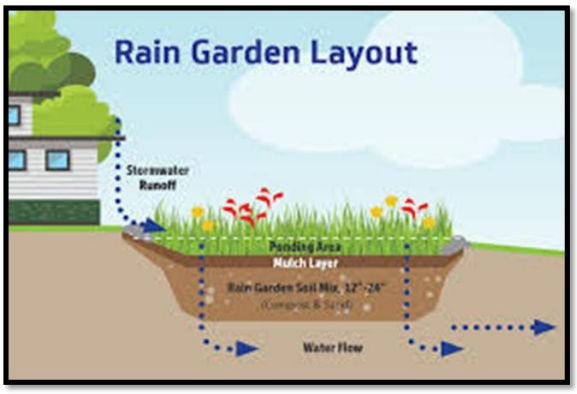


Fig 5.5 Rain garden

5.1.2 Soil Liquefaction:

Soil liquefaction occurs when a saturated or partially saturated soil substantially loses strength and stiffness in response to an applied stress such as shaking during an earthquake or other sudden change in stress condition in which material that is ordinarily a solid behaves like a liquid. In soil mechanics, the term "liquefied" was first used by Allen Hazen in reference to the 1918 failure of the Calaveras Dam in California. He described the mechanism of flow liquefaction of the embankment dam as: If the pressure of the water in the pores is Great enough to carry all the load, it

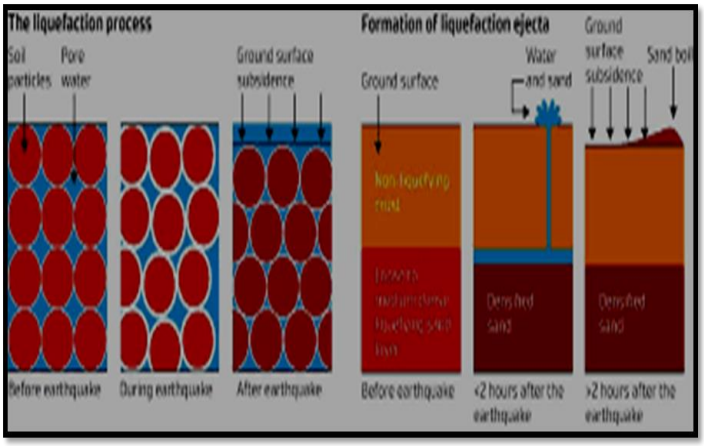


Fig 5.6 Soil liquefaction

will have the effect of holding the particles apart and of producing a condition that is practically equivalent to that of quick sand the initial movement of some part of the material might result in accumulating pressure, first on one point, and then on another, successively, as the early points of concentration were liquefied.

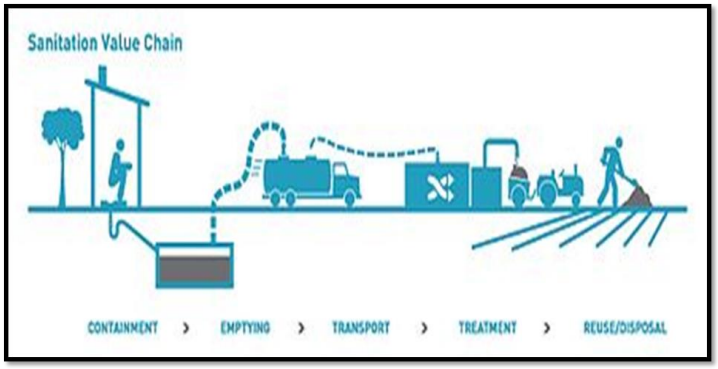
Soil liquefaction occurs when the effective stress (shear strength) of soil is reduced to essentially zero. This may be initiated by either monotonic loading (i.e. a single, sudden occurrence of a change in stress examples include an increase in load on an embankment or sudden loss of toe support) or cyclic loading (I.e. repeated changes in stress condition – examples include wave loading or earthquake shaking). In both cases a soil in a saturated loose state, and one which may generate significant pore water pressure on a change in load are the most likely to liquefy.

5.1.3 Sustainable Sanitation:

Sustainable sanitation is a sanitation system designed to meet certain criteria and to work well over the long term. The Sustainable Sanitation Alliance includes five features (or criteria) in its definition of "Sustainable sanitation." Systems need to be economically and socially acceptable, technically and Institutionally appropriate and protect the environment and natural resources.

Health:

Health aspects include the risk of exposure to pathogens and hazardous substances that could affect public heal that all points of the sanitation system from the toilet via the collection and treatment system to the point of reuse or disposal. The topic also covers aspects such as hygiene, nutrition and the improvement of Livelihood achieved by the application of a certain sanitationsystem as well as



downstream effects.

Environment and natural resources:

Environment and natural resources aspects involve the required energy, water and other natural resources for Construction, operation and maintenance of the system, as well as the potential emissions to the environment Resulting from use. It also includes the degree of recycling and reuse of excreta practiced and the effects of these For example reusing the wastewater, returning nutrients and organic material to agriculture, and the protecting of other non-renewable resources, for example through the production of renewable energy.

5.1.4 Transport Infrastructure / system:

Since the 1970s, there has been increased massive development in the transportation sector, accelerating the construction of roads, bridges, tunnels, and hard scrapes that are eventually causing deadly environmental crisis. We certainly need advanced technology for the infrastructure and transportation sector to mitigate the Environmental crisis. Therefore in this chapter, a sustainable infrastructure and high-tech transportation system has been proposed by implementing all possible advanced engineering applications to confirm an Environmentallyfriendly infrastructure and faster, cleaner, and safer transportation system to develop a resilient Urban and rural area.

Roads:

A road is a paved surface to facilitate the movement of people or goods with means, such as automobiles, Bicycles, buses, vans or trucks. Roads in itself are not an interesting security target, but blocking a road will cause problems with the traffic flow and reachability of certain parts of the city or area. This can be prevented by Designing and to detect a disruption and minimize the consequences, using Rails are the infrastructure for rail transport. A rail road which connects two locations is also called a rail line. As for roads, rails on itself are not an interesting security target, but blocking a railroad will cause large problems with the rail transport.

Pedestrian / Bicycle paths:

Delineated bicycle and pedestrian paths at roundabouts in The Netherlands Pedestrian paths or sidewalks, curbs, pavements, footpaths or platforms are paths alongside a road designated Bicycle paths comprises of several different forms of cycling infrastructure, from for pedestrians

Non-segregated pathways aligned next to the road to segregated cycle facilities. Segregated cycle facilities are a Form of cycling infrastructure consisting of marked lanes, tracks, shoulders and paths designated for use Cyclists and from which motorized traffic is generally excluded. The term includes bike lanes, cycle tracks, Separated bike lanes, road shoulders and side paths located within a road

Fig 5.9 Pedestrian.

right. Urban waterways Inter and intra urban transport over waterways such as canals, rivers or other waterways forms a smaller although still important aspect of the urban transport system. For port cities such as Rotterdam, Antwerp or Hamburg the waterway system is of vital importance for their economic development.

Urban waterways:

Inter and intra urban transport over waterways such as canals, rivers or other waterways forms a smaller although still important aspect of the urban transport system. For port cities such as Rotterdam, Antwerp or Hamburg the waterway system is of vital importance for their economic development.

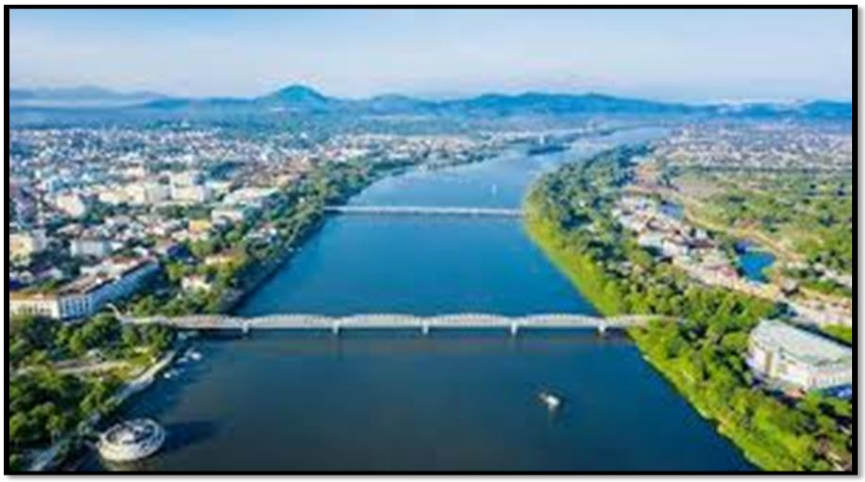


Fig 5.10 Urban waterways

Airport:

An airport is a location where aircraft such as fixed-wing aircraft, helicopters, and blimps take off and land. Aircraft may be stored or maintained at an airport. An airport consists of at least one surface such as a runway for a plane to take off and land, a helipad, or water for takeoffs and landings, and often includes buildings such as control towers, hangars and terminal buildings.

Train station:

A train station, also called a railroad station (mainly in the United States) or railway station (mainly in the British Commonwealth) and often shortened to just station, is a railway facility where trains regularly stop to load or unload passengers or freight. It generally consists of a platform next to the track and a station building (depot) providing related services such as ticket sales and waiting room.

5.1.5 Vertical Farming:

Vertical farming is the practice of growing crops in vertically stacked layers. It often incorporates controlled-environment agriculture, which aims to optimize plant growth, and soilless farming techniques such as hydroponics, aquaponics, and aeroponics. Some common choices of structures to house vertical farming systems include buildings, shipping containers, tunnels, and abandoned mine shafts.

In India, vertical farming has been introduced. ICAR experts are working on the concept of 'vertical farming' in soil-less conditions, in which food crops can be grown even on multi-stored buildings in metros like New Delhi, Mumbai, Kolkata and Chennai without using soil or pesticides.

Types of Vertical Farming:

- Building-based Vertical Farms
- Shipping-container Vertical Farms
- Deep FarmsTechniques of Vertical Farming:

Hydroponics: Hydroponics refers to the technique of growing plants without soil.

- Aquaponics: aquaculture, which refers to fish farming, and hydroponics—the technique of growing plants without soil.
- Aeroponics: The invention of aeroponics was motivated by the initiative of NASA (the National Aeronautical and Space Administration) to find an efficient way to grow plants in space in the 1990

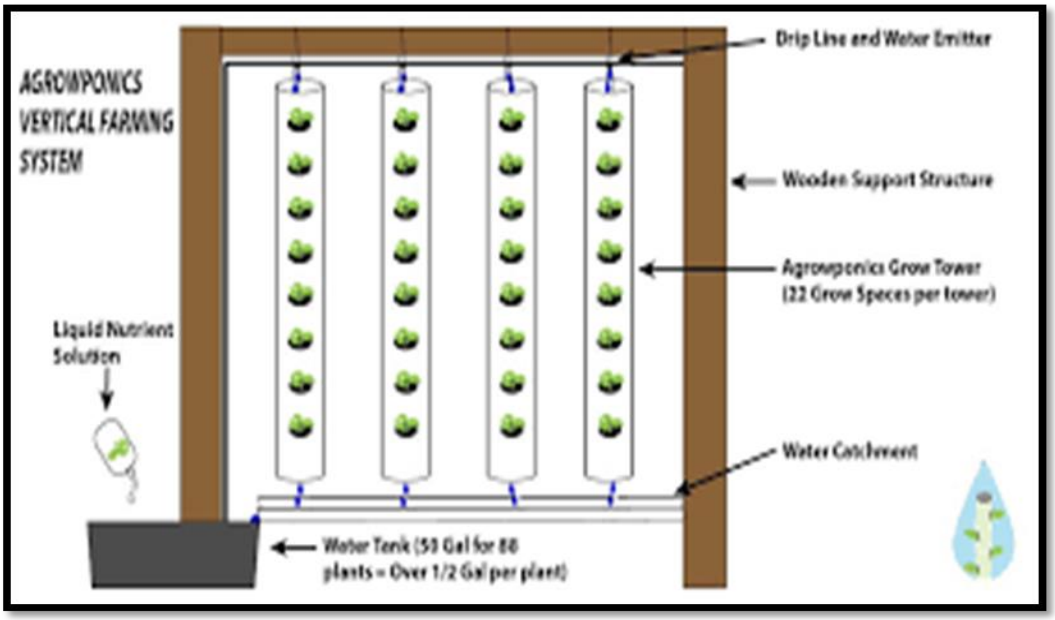


Fig 5.14 Vertical Farming Diagram

5.1.6 Corrosion Mechanism, Prevention & Repair Measures of RCC Structure:

Corrosion Mechanism:

- In the presence of moisture, an oxidation reaction takes place on the energized area of the metal surface to elute metal as an ion (anode). On the metal surface, oxidation on anode and reduction on cathode proceed in equal rates and metal corrosion takes place. Normally, corrosion of metal occurs on anode.

Prevention & Repair Measures of RCC Structure:

Traditional methods to prevent corrosion:

- There are some methods for controlling the corrosion of reinforced concrete. An effective corrosion control system should extend the time to corrosion initiation or, reduce the corrosion rate of embedded steel, or do both.

Some of the traditional measures used to combat the corrosion of reinforced concrete are:

- Cathodic protection;
- Corrosion inhibitor admixtures; and
- Anti-corrosion coating.

When the steel begins to rust and produce pits or holes in its surface, strength is reduced. Unfortunately, these traditional methods meant for tackling concrete corrosion have proven to be

less effective than desired considering the current state of deteriorating infrastructure. Thick or dense concrete cover over reinforcing steel will help, but still leaves the concrete vulnerable to cracking and a whole new set of issues. Corrosion inhibitors provide only temporary protection. Cathodic protection is expensive and has its own downsides, and repair procedures often have short service lives and may be continuously reinstalled. The constant repair of reinforced concrete infrastructure results in high lifecycle costs over the structure's required service life. Overall, the shortfall of traditional corrosion preventative measures is they do not adequately prevent or counteract the development of corrosive conditions in the concrete.

As mentioned, water is one of the three required elements for corrosion to occur. Water also acts as a carrier for chloride ions, which is the leading cause of deterioration of the passive layer that would otherwise protect the rebar. Hence, the critical factor in the corrosion of steel reinforcement, as well as concrete deterioration all together, is the penetration of water and waterborne chlorides into concrete.

Therefore, the first line of defense against corrosion in reinforced concrete is to prevent the penetration of water. It is important to use concrete with low permeability and to use an appropriate amount of concrete cover for the application

Latest Techniques for Repair & Rehabilitation- A Perspective

Epoxy Crack Injection:

For a successful repairing work of a structure, the most vital things to be considered are identification of the root cause, selection of the right products & methods, proper repairing of the damage by skilled applicators, and last but not the least, assurance that the repaired structure is protected from further deterioration, say experts.

Latest Techniques for Repair Rehabilitation Concrete is the most versatile construction material with several advantages over other construction materials. However, very often we notice some distress/damage in concrete in the form of cracks, swelling of concrete, exposure of reinforcement, excessive deflections or other signs of distress which call for either repairs of the affected areas or strengthening of the entire structure.

Before we start the repairing, it is important to identify the root cause of the deterioration. A faulty diagnosis may lead to improper selection of materials and repair techniques, leading to the failure of the repaired zone again. If the cause is properly identified, successful repairing can improve the strength and durability of the structure, thus extending its life.

Once the cause has been identified, repairing technique should be selected. The method to be adopted for repair or restoration of the structure depends on the cause, extent and nature of damage, function and importance of the structure, availability of suitable materials, and a thorough knowledge of the long-term behavior of the materials used for the repair work. A variety of new materials and efficient solutions such as high strength pre-packed mortars, ready

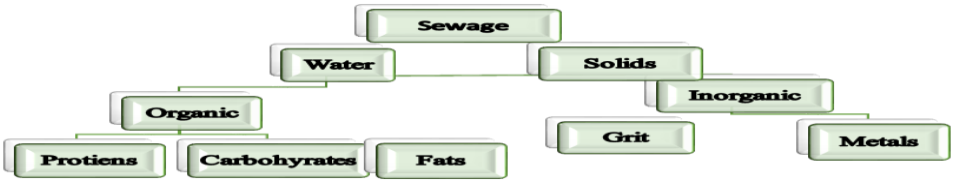
to spray mortars, micro-concrete, concrete & corrosion protection system, different kind of sealants, coatings etc., have been developed for the repair and restoration of damaged structures. Depending upon the requirement, the repairing technique may be of a superficial nature or may involve replacement of the affected part.

Apart from identification of cause and selection of right material & method, proper application of material is a vital aspect in R&R activities, hence, applicator training is of utmost importance. As materials get more sophisticated, the application techniques and applicator skills need to be improved simultaneously for the execution of durable and sustainable projects.

Here, we're presenting the views of captains of the industry on the current trends and innovative products & methods being adopted for successful repair and rehabilitation of structures.

5.1.7 Sewage treatment plant:

Composition of Sewage:



Sewage treatment is the process of removing contaminants from municipal wastewater, containing mainly household sewage plus some industrial wastewater. Physical, chemical, and biological processes are used to remove contaminants and produce treated wastewater (or treated effluent) that is safe enough for release into the environment. A by-product of sewage treatment is a semi-solid waste or slurry, called sewage sludge. The sludge has to undergo further treatment before being suitable for disposal or application to land.

Sewage treatment may also be referred to as wastewater treatment. However, the latter is a broader term which can also refer to industrial wastewater. For most cities, the sewer system will also carry a proportion of industrial effluent to the sewage treatment plant which has usually received pre-treatment at the factories themselves to reduce the pollutant load. If the sewer system is a combined sewer then it will also carry urban runoff (storm water) to the sewage treatment plant. Sewage water can travel towards treatment plants via piping and in a flow aided by gravity and pumps. The first part of filtration of sewage typically includes a bar screen to filter solids and large objects which are then collected in dumpsters and disposed of in landfills. Fat and grease is also removed before the primary treatment of sewage.

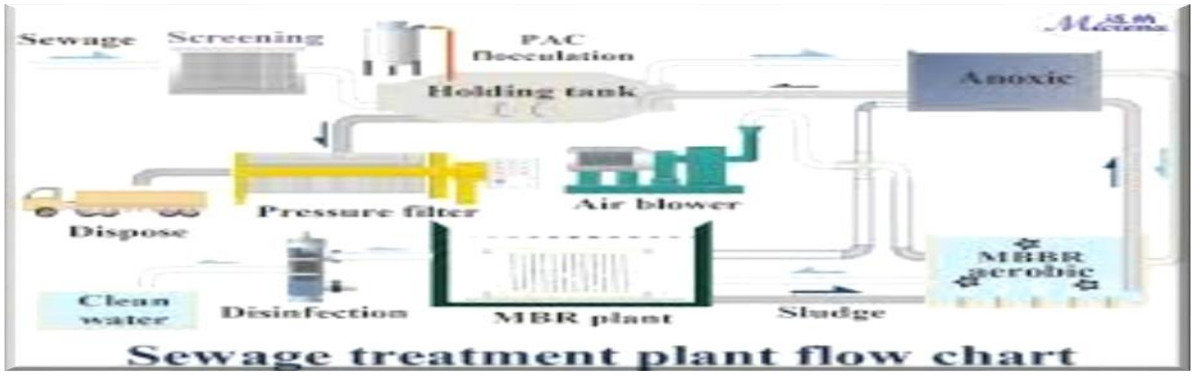


Fig5.15 Sewage Treatment plan flow chart

5.1.8 Technical Case "Study On Bandra–Worli Sea Link

The Bandra–Worli Sea Link (officially known as Rajiv Gandhi Sea Link[1]) is a bridge that links Bandra in the Western Suburbs of Mumbai with Worli in South Mumbai. It is a cable-stayed bridge with pre-stressed concrete-steel viaducts on either side. It is a part of the proposed Western Freeway that will link the Western Suburbs to Nariman Point in Mumbai's main business district.The 1M bridge was commissioned by the Maharashtra State Road Development Corporation (MSRDC), and built by the Hindustan Construction Company. The first four of the eight lanes of the bridge were opened to the public on 30 June 2009. All eight lanes were opened on 24 March 2010.

Fig 5.16 view-of-bandra-worli in map

The sea-link reduces travel time between Bandra and Worli during peak hours from 20–30 minutes to 10 minutes. As of October 2009, BWSL had an average daily traffic of around 37,500 vehicles.

History:

Mahim Causeway was the only road connecting the western suburbs to Mumbai's central business district. This north-southwestern corridor became a bottleneck and was highly congested at peak hours. The Western Freeway project was proposed to span the entire western coastline of Mumbai to ease congestion. The Bandra–Worli Sea-Link, a bridge over Mahim Bay, was proposed as the first phase of this freeway system, offering an alternative route to the Mahim Causeway.

The Mujeeb Acharwala Bridge connects the intersection of the Western Express Highway and Swami Vivekanand Road in Bandra to the Khan Abdul Ghaffar Khan Road in Worli. From Worli Seaface, it connects to Mumbai's arterial Annie Besant Road.

The project was commissioned by the Maharashtra State Road Development Corporation Limited (MSRDC). The contract for construction was awarded to the Hindustan Construction Company (HCC), with project management led by the UK offices of Dar Al-Handasah.

The foundation stone was laid in 1999 by Bal Thackeray. The original plan estimated the cost at ₹6.6 billion to be completed in five years.But the project was subject to numerous public interest litigations, with the 5-year delay resulting in the cost escalating to ₹16 billion ,with the additional interest cost alone accounting for ₹7 billion.

Design:

BWSL was designed as the first cable-stayed bridge to be constructed in open seas in India. Due to the underlying geology, the pylons have a complex geometry and the main span over the Bandra channel is one of the longest spans of concrete deck attempted. Balancing these engineering complexities with the aesthetics of the bridge presented significant challenges for the project.The superstructure of the viaducts were the heaviest precast segments to be built in India. They were built using a span-by-span method using overhead gantry through a series of vertical and horizontal curves.The 20,000 tonne Bandra-end span of the bridge deck is supported by stay cables within a very close tolerance of deviations in plan and elevation.

The Bandra–Worli Sea Link was the first infrastructure project in Mumbai to use seismic arresters. These will enable it to withstand earthquakes measuring up to 7.0 on the Richter scale.

Foundation and substructure:

The construction of the bridge's structure presented major engineering challenges. These included the highly variable geotechnical conditions due to the underlying marine geology of the seabed. At times, even for plan area of a single pile had a highly uneven foundation bed. Further complications included the presence of a variable intertidal zone, with parts of the foundation bed exposed in low tide and submerged in high tide.

The foundations for the BWSL's cable-stayed bridges consist of 120 reinforced concrete piles of 2,000 millimetres (6.6 ft) diameter. Those for the viaducts consist of 484 piles of 1,500 millimetres (4.9 ft). These 604 piles were driven between 6m and 34m into the substrate in geotechnical conditions that varied from highly weathered volcanic material to massive high strength rocks.

BWSL consists of twin continuous concrete box girder bridge sections for traffic in each direction. Each bridge section, except at the cable-stayed portion, is supported on piers typically spaced 50 metres (160 ft) apart. Each section is designed to support four lanes of traffic with break-down lanes and concrete barriers. Sections also provide for service side-walks on one side. The bridge alignment is defined with vertical and horizontal curves.

The bridge consists of three distinct parts: the north end viaduct, the central cable-stayed spans and the south end viaduct. Both the viaducts used precast segmental construction. The cable-stayed bridge on the Bandra channel has a 50m-250m-250m-50m span arrangement and on the Worli channel it has a 50m-50m-150m-50m-50m span arrangement.

Fig 5.17 view-of- Bandra–Worli Sea Link

Northern & Southern viaducts:

The viaducts on either side of the central cable-stayed spans are arranged in 300-metre (980 ft) units consisting of six continuous spans of 50 metres (160 ft) each. Expansion joints are provided at each end of the units. The superstructure and substructure are designed in accordance with IRC codes. Specifications conform to the IRC standard with supplementary specifications covering special items. The foundation consists of 1.5 metres (4 ft 11 in) diameter drilled piles (four for each pier) with pile caps. Bridge bearings are of disc type. The modular expansion joints for the bridge were provided by Swiss Civil Engineering firm mageba.

The viaducts were built utilising pre-cast, post-tensioned, segmental concrete-steel box girder sections. An overhead gantry crane with self-launching capability was custom built on the site to lay the superstructure of the precast segments. The Pre-Cast segments are joined together using high strength epoxy glue with nominal pre-stressing initially. The end segments adjacent to the pier are short segments "cast-in-situ joints". Geometrical adjustments of the span are made before primary continuous tendons are stressed.

Segment types are further defined by the changes in the web thickness and type of diaphragms cast in cell. The segment weights vary from 110 to 140 tonnes per segment. The segment length varies from 3,000 to 3,200 mm (9.8 to 10.5 ft). Deck post tensioning is performed at the completion of the erection of each 50-metre (160 ft) bridge span

Cable-stayed spans:

The cable-stayed portion of the Bandra channel is 600 metres (2,000 ft) in length between expansion joints and consists of two 250-metre cable supported main spans flanked by 50 metres conventional approach spans. A centre tower, with an overall height of 128 metres above pile cap level, supports the superstructure by means of four planes of cable stay in a semi-harp arrangement. Cable spacing is 6.0 metres along the bridge deck.

The cable-stayed portion of the Worli channel is 250 metres (820 ft) in length between expansion joints and consists of one 150 metres cable supported main span flanked on each side by two 50 metres conventional approach spans. A centre tower, with an overall height of 55 metres, supports the superstructure above the pile cap level by means of four planes of cable stay in a semi-harp arrangement. Cable spacing here is also 6.0 metres along the bridge deck.

The superstructure comprises twin precast concrete box girders with a fish belly cross sectional shape, identical to the approaches. A typical Pre-Cast segment length is 3.0 metres with the heaviest superstructure segment approaching 140 tonnes. Balanced cantilever construction is used for erecting the cable supported superstructure as compared to span-by-span construction for the approaches. For every second segment, cable anchorages are provided.

A total of 264 cable stays are used at Bandra channel with cable lengths varying from

Fig 5.18 Main cable-stayed span

approximately 85 metres to nearly 250 metres. The tower is cast in-situ reinforced concrete using the climbing form method of construction. The overall tower configuration is an inverted "Y" shape with the inclined legs oriented along the axis of the bridge. Tower cable anchorage recesses are achieved by use of formed pockets and transverse and longitudinal bar post-tensioning is provided in the tower head to resist local cable forces.

A total of 160 cable stays are used at Worli channel with cable lengths varying from approximately 30 metres minimum to nearly 80 metres maximum. Like the Bandra channel, the tower here is also cast in-situ reinforced concrete using the climbing form method of construction but the overall tower configuration is "I" shape with the inclined legs. Similarly, tower cable anchorage recesses are achieved by use of formed pockets.

The foundations for the main tower comprise 2-metre-drilled shafts of 25-metre length each. Cofferdam and tremie seal construction have been used to construct the six-metre deep foundation in the dry.

Bridge management:

- Toll collection: Automatic electronic payment system through On-board Units mounted on vehicles for frequent-commuters that enable vehicles to pass without stopping.
- Semi-automatic cash-less electronic payment via a smart card in unattended lanes.
- Manual toll collection for payment by cash, to a toll attendant.

CHAPTER :6 SWATCHHTA NEEDED IN ALLOCATED VILLAGE -EXISTING SITUATION WITH PHOTOGRAPH

6.1 Swatchhta needed in allocated village -Existing Situation with photograph

Slogan of swachh Bharat Abhiyan: One step towards cleanliness.

- Swachh Bharat Mission (SBM), Swachh Bharat Abhiyan (SBA), or Clean India Mission is a country-wide campaign initiated by the Government of India in 2014 to eliminate open defecation and improve solid waste management (SWM). Phase 1 of the mission lasted till October 2019. Phase 2 will be implemented between 2020-21 and 2024-25.
- The mission was split into two: rural and urban. In rural areas "SBM - Gramin" was financed and monitored through the Ministry of Drinking Water and Sanitation; whereas "SBM - urban" was overseen by the Ministry of Housing and Urban Affairs.
- The government provided subsidy for construction of nearly 110 million toilets between 2014 and 2019, although many Indians especially in rural areas choose to not use them.The campaign was criticized for using coercive approaches to force people to use toilets. Many households were threatened with a loss of benefits such as access to electricity or food entitlements through the public distribution system.
- In a kuha village the garbage collect from the different place of village can be dump in the nearest place because none of the government facility for the collecting or dumping are not available in our village, There for villagers are dump the garbage and all type of waste in open area, The open dumping area can produce more pollution and disease.

Fig 6.2 Kuha Village Garbage Dumping Area

- There for we decide to design waste management in our village development project.

6.2 Guidelines - Implementation in allocated village with Photograph.

- Elimination of open defecation
- Eradication of Manual Scavenging
- Modern and Scientific Municipal Solid Waste Management
- To effect behavioral change regarding healthy sanitation practices

- Generate awareness about sanitation and its linkage with public health Capacity Augmentation for ULBs to create an enabling environment for private sector participation in Capex (capital expenditure) and Opex (operation and maintenance) Mission Strategy
- The estimated cost of implementation of SBM (Urban) based on unit and per capita costs for its various components is Rs. 62,009 Crore.

The balance funds are proposed to be generated through various other sources of fund which are, but not limited to:

- Private Sector Participation
- Additional Resources from State Government/ ULB
- Beneficiary Share
- User Charges
- Land Leveraging
- Innovative revenue streams
- Swachh Bharat Kosh
- Corporate Social Responsibility
- Market Borrowing
- External Assistance

Mission Components:
Household toilets, including conversion of insanitary latrines into pour-flush latrines Community toilets

a. Public toilets and urinals
b. Solid waste management
c. IEC & Public Awareness
d. Capacity building and Administrative & Office Expenses (A&OE)

6.3 Activities Done by Students for allocated village with Photograph

Fig 6.3 garbage collection vehicle in kuha village

CHAPTER 7: VILLAGE CONDITION DUE TO COVID-19

7.1 Taken steps in allocated village related to existing situation with photograph

In kuha village the all precaution for the covid-19 are in working as per WHO and all Government guidelines, For example: social distancing, sanitizing, temperature checking etc.

Fig 7.1 garm panchayat entrance

7.2 Activities Done by Students for allocated village Clean with Photograph

Fig 7.2 vegetable shop

Fig 7.3 general store

7.3 Any other steps taken by the students / villagers

Fig 7.4 Barber shop

Fig 7.5 auto driver

Fig7.6 Fire craker hand cart

CHAPTER 8: Sustainable Design Planning Proposal (Prototype Design)- Part- I

8.1 Design Proposals

- In the Vishwakarma Yojana Phase-VIII Part – I we have given total six design according to the village need and useful for the villagers.

The design proposals are: -

- Public Toilet
- Public library
- Auditorium
- Ground Water Recharge by Vertical Shaft
- Medical shop

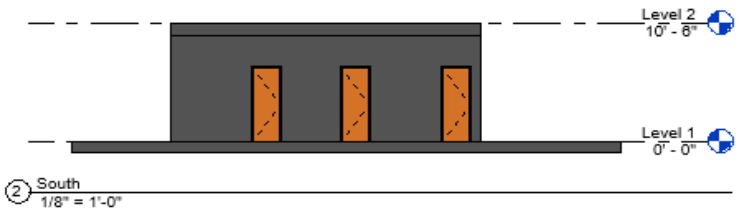
8.1.1 Public Toilet (Sustainable Design)

- Proposed public toilet consists of total 8 WC units (2 man & 3 woman) and 1 bath toilet

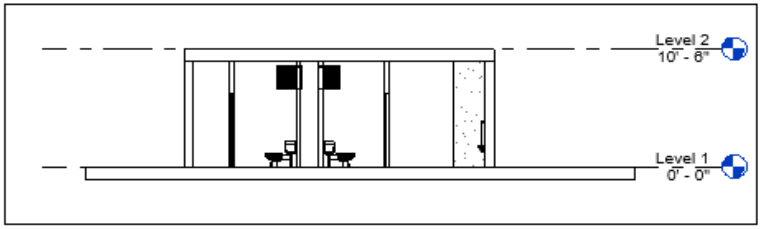
(Schedule of Door and Window)

SCHEDULE OF DOOR & WINDOW

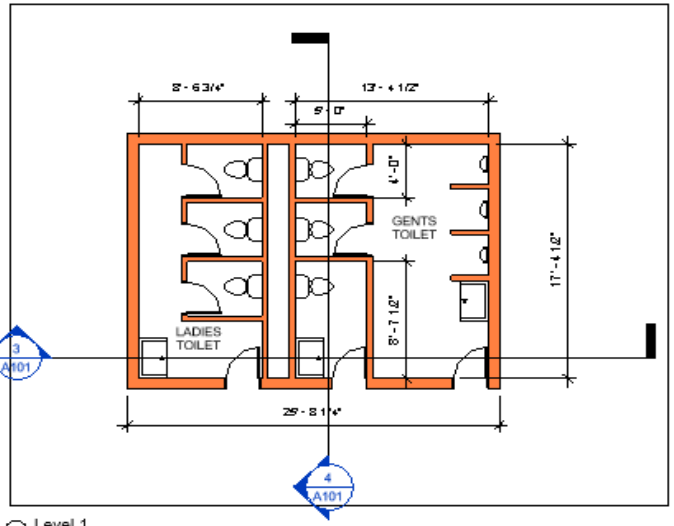
	TYPE		SIZE
1	DOOR	D1	1.0 X 2.1
2	DOOR	D2	0.80 X 2.1
3	VENTILATION	V	0.60 X 0.60



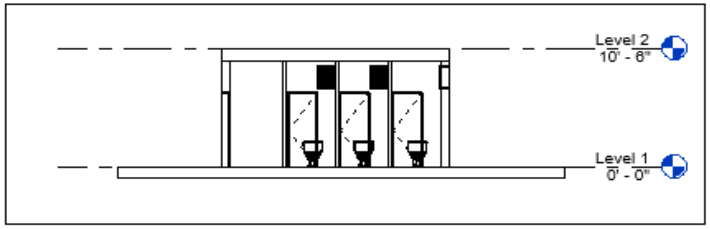
2 South
1/8" = 1'-0"



3 Section 1
1/8" = 1'-0"



1 Level 1
1 : 80



4 Section 2
1/8" = 1'-0"

DESIGN NO:	Public Toilet Plan
PREPARED BY:	Kureshi Abdulla.S Mansuri aiyan .S
PROJECT NAME:	Vishwakarma yojana phase-VIII kuha Ahmedabad
INTITUTE NAME:	Hasmukh Goswami College Of Engineering
UNIVERSITY NAME:	Gujarat Technological University

MEASUREMENT SHEET OF PUBLIC TOILET						
SR. NO.	DESCRIPTION	**NO.**	**LENGTH (M)**	**BREATH (M)**	**HEIGHT (M)**	**QUANTIY**
1	**Excavation in Foundation**					
	Total C.L=53.28 m					
	Actual Length=53.81 m	1	53.81	0.9	1.2	58.11m^3
	Total					**58.11 m^3**
2	**Plaincement concrete(P.C.C in Foundation(1:4:8)**					
	PCC	1	53.81	0.9	0.3	14.53 m^3
	Total					**14.53 m^3**
3	**Brickwork in Foundation up to Plinth level**					
	First step	1	53.81	0.6	0.3	9.69 m^3
	Second step	1	53.81	0.3	0.2	3.23 m^3
	Third step	1	53.81	0.228	0.8	9.81 m^3
	Total					**22.85 m^3**
4	**Brickwork in Superstructure in cement mortar 1:6**					
	For Ground Floor					
	External Wall	1	38.6	0.228	3	26.40 m^3
	Internal Wall	1	15.25	0.112	3	5.12m^3
						31.52 m^3
	Deduction for Door/V:					
	D1	2	1.02	0.228	2.2	1.02 m^3
	D2	6	1.02	0.112	2.2	1.51 m^3
	V	6	0.69	0.228	0.69	0.65 m^3
						(-) 3.18 m^3
	Deduction for lintels:					
	Bearing = 0.10 m					
	D1	2	1.22	0.228	0.10	0.056 m^3
	D2	6	1.22	0.112	0.10	0.082 m^3

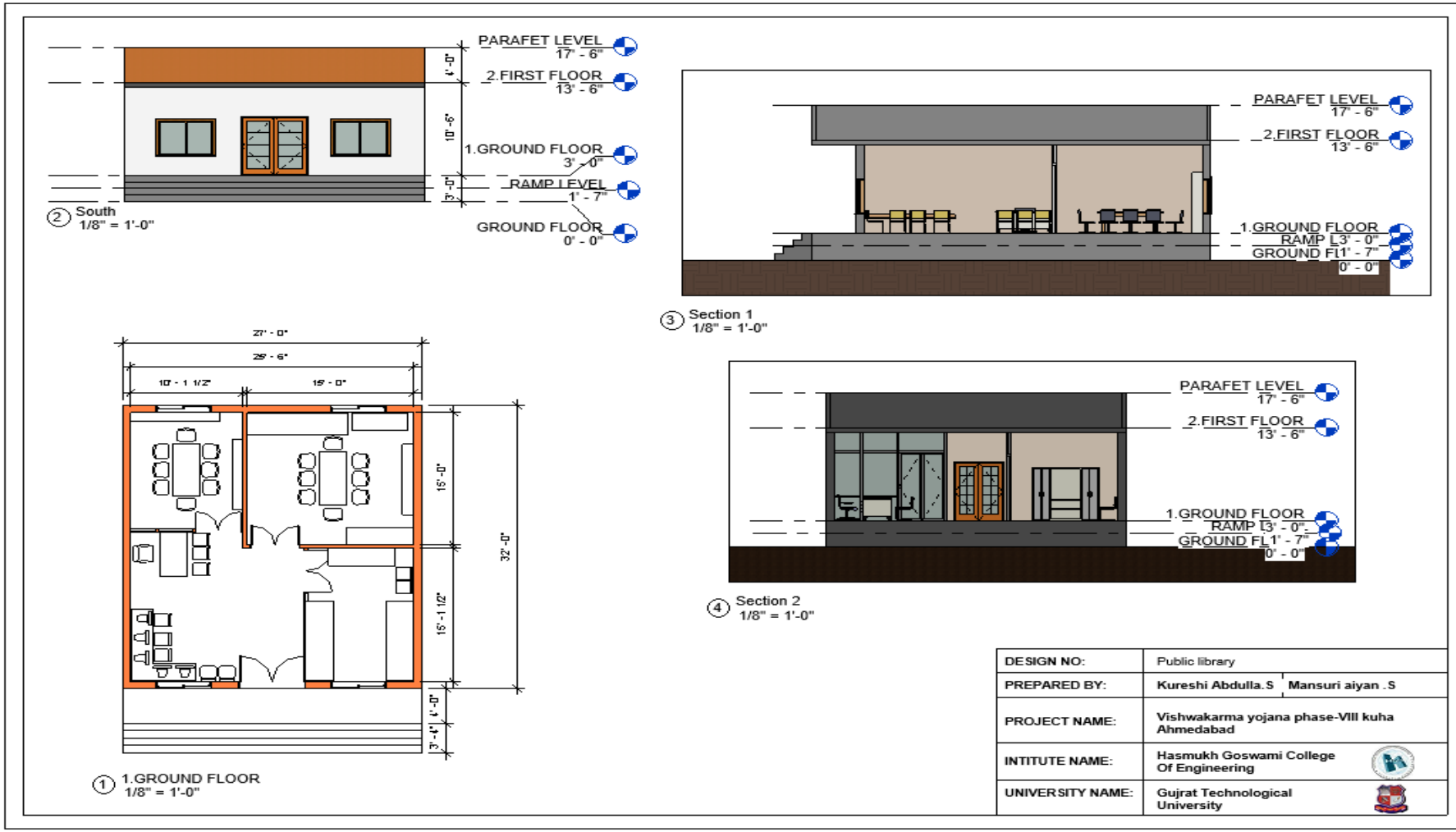
	V	6	0.89	0.228	0.10	0.122 m^3

						(-)0.26 m^3
	Total					**28.08m^3**
5	**RCC Work**					
	Slab	2	5.65	7.25	0.125	10.24 m^3
	Lintel					0.759
	Total					**11 m^3**
6	**2 cm thick marble flooring**					
	Blocks	5	1.51	1.27		9.59 m^2
	Passage1	1	5.25	2.24		11.76 m^2
	Passage2	1	5.25	2.32		12.18 m^2
	Extra space	1	1.51	2.28		3.44 m^2
	Total area					**36.97 m^2**
7	**Smooth plaster on inside walls and ceiling in cm.(1:3)**					
	Wall	4	4.05		3	48.6 m^2
		2	3.3		3	19.8 m^2
	Ceiling	2	4.05	3.3		26.73 m^2
	Total					**95.13 m^2**
9	**Earth filling in Excavation**					
	Total excavation for walls					58.11 m^3
	Brickwork up to G.L.					(-)22.85 m^3
	PCC					(-)14.53 m^3
	Total					**20.73 m^3**

TABLE 8.2 ABSTRACT SHEET OF PUBLIC TOILET

ABSTRACT SHEET OF PUBLIC TOILET						
SR. NO.	**PARTICULARS**	**QUANTITY**	**UNIT**	**RATE**	**PER**	**AMOUNT**
1	**Excavation in Foundation**	53.81	m^3	85	m^3	4574
2	**Plain cement concrete(P.C.C) in Foundation(1:4:8)**	14.53	m^3	3000	m^3	43590
3	**Brickwork in Foundation up to Plinth level**	22.85	m^3	3200	m^3	72960
4	**Brickwork in superstructure in cement mortar 1:6**	31.52	m^3	3500	m^3	110320
5	**RCC Work**	11	m^3	8800	m^3	96800
6	**2cm thick marble flooring**	36.97	m^2	500	m^2	18485
7	**Smooth plaster on inside walls and ceiling in cm.(1:3)**	95.13	m^2	150	m^2	14273
8	**Earth filling in Excavation**	20.73	m^3	50	m^3	1037
	Total					**3,62,039 Rs.**
	Add5%contingencies					**18,101 RS.**
	Grand Total					**3,80,140 Rs.**

8.1.2 Physical design (Public library)



MEASUREMENT SHEET OF PUBLIC LIBRARY						
NO.	DESCRIPTION	**NO.**	**LENGTH**	**BREATH**	**HEIGHT**	**QUANTITY**
1.	**Excavation in Foundation**					
	Total C.L=36.8	1	36.8	0.9	1.2	40 m^3
	Total					**40 m^3**
2.	**Plaincement concrete(P.C.C) in Foundation(1:4:8)**					
	PCC	1	36.8	0.9	0.3	9.94 m^3
	Total					**9.94m^3**
3.	**Brickwork in Foundation up to Plinth level**					
	First step	1	36.8	0.6	0.3	6.62 m^3
	Second step	1	36.8	0.3	0.2	2.21 m^3
	Third step	1	36.8	0.228	0.8	6.71 m^3
	Total					**15.54m^3**
4.	**Brickwork in Superstructure in cement mortar 1:6**					
	For Ground Floor					
	External Wall	1	36	0.228	4	32.83 m^3
	Total					**32.83 m^3**
	Deduction forDoor/Ventilation					
	D1	1	1.93	0.228	2.1	0.924 m^3
	W1	4	2.11	0.228	1.0	1.92 m^3
						(-) 2.84 m^3
	Deduction for lintels:					
	Bearing = 0.10 m					
	D1	1	2.13	0.228	0.10	0.049 m^3
	W1	4	2.31	0.228	0.10	0.21 m^3

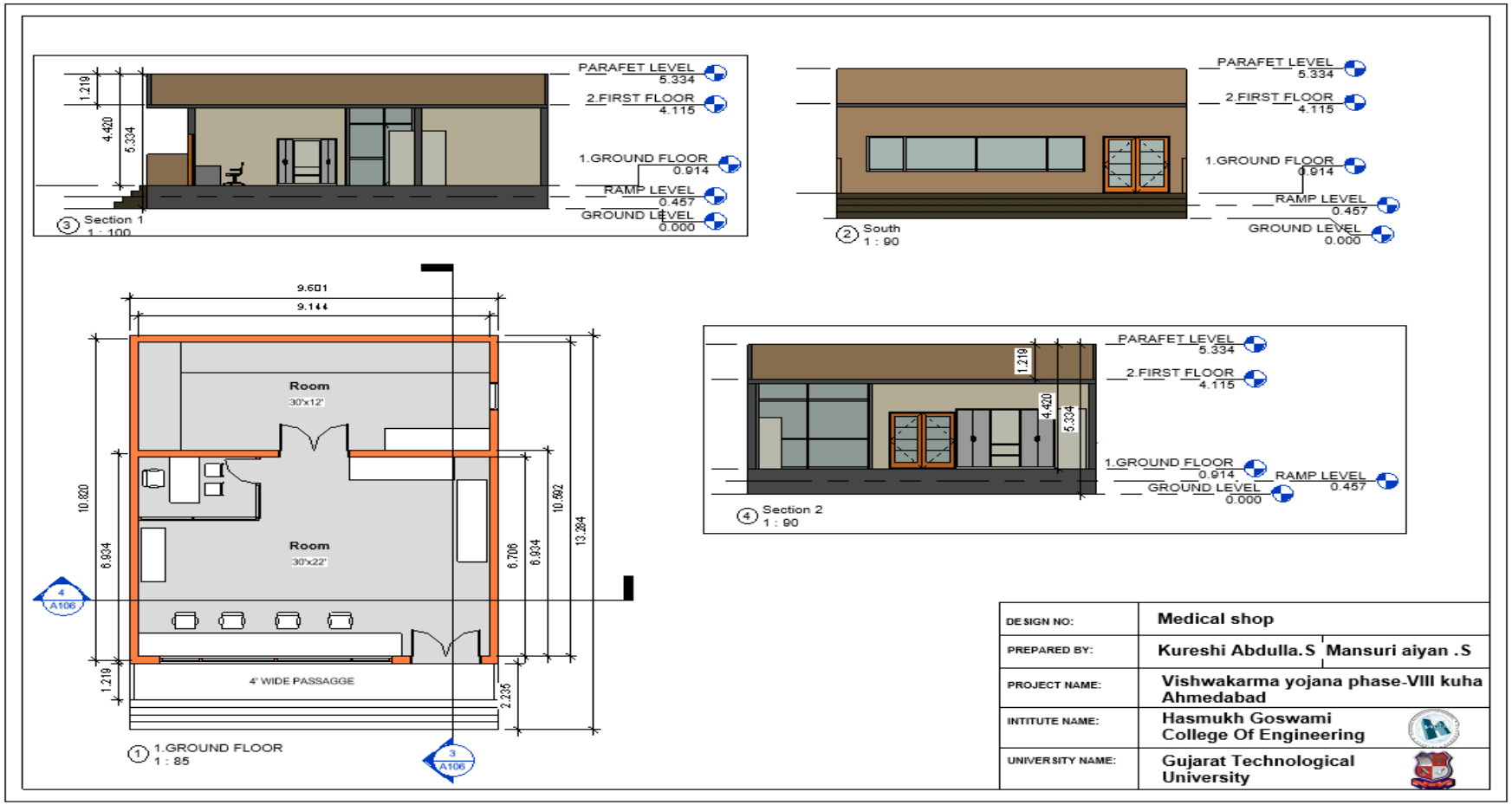
						(-)0.259m^3
	Aluminum internal wall	1	3.84		4	**15.36**
		1	4.26		4	**17.04**
5.	**RCC Work**					
	Slab	1	8.3	9.7	0.15	12.8
	Lintel					0.759
	Total					**13.56 m^3**
6.	**2 cm thick marble flooring**					
	Blocks	1	8.3	9.7		80.51
	Passage	1	8.3	0.31		2.57
	Total area					**83.08 m^2**
7.	**Smooth plaster on inside walls and ceiling in cm.(1:3)**					
	Wall	1	4.08		4	16.32
		1	2.15		4	8.36
		2	9.7		4	77.6
	Ceiling	1	8.3	9.7		80.51
	Total					**182.79 m^2**
8.	**Earth filling in Excavation**					
	Total excavation for walls					40 m^3
	Brickwork up to G.L.					(-)15.54 m^3
	PCC					(-)9.94m^3
	Total					**14.52 m^3**
9.	**Wood work for door and window**					
	D	1	1.93		2.1	4.05 m^2

	W	4	2.11		1.0	8.44 m^2
	Total					**12.49 m^2**
10.	**Number of chair**	36				**36nos**

ABSTRACT SHEET OF PUBLIC LIBRARY

	PARTICULARS	QUANTITY	UNIT	RATE	PER	AMOUNT
1	**ExcavationinFoundation**	40	m3	85	m3	3400
2	**Plaincement concrete(P.C.C)in Foundation(1:4:8)**	9.94	m3	3000	m3	29820
3	**Brickwork in Foundation up to Plinth level**	15.54	m3	3200	m3	49728
4	**Brickwork in superstructure in cement mortar 1:6**	32.83	m3	3500	m3	114905
5	**RCC Work**	13.56	m3	8800	m3	119328
6	**2 cm thick marble flooring**	83.08	m2	500	m^2	41540
7	**Smooth plaster on inside walls and ceiling in cm.(1:3)**	182.79	m2	150	m^2	27418
9	**Earth filling in Excavation**	14.52	m3	50	m3	726
10	**Wood work for door and window**	12.49	m3	8800		109912
11	**Number of chair**	36	nos	600		21600
	Total					**5,18,377 Rs.**
	Add5%contingencies					**25,919**
	Grand Total					**5,44,296 Rs.**
					say	**5,45,000 Rs.**

8.1.3 Social design (medical shop)



MEASUREMENT SHEET OF MEDICAL SHOP

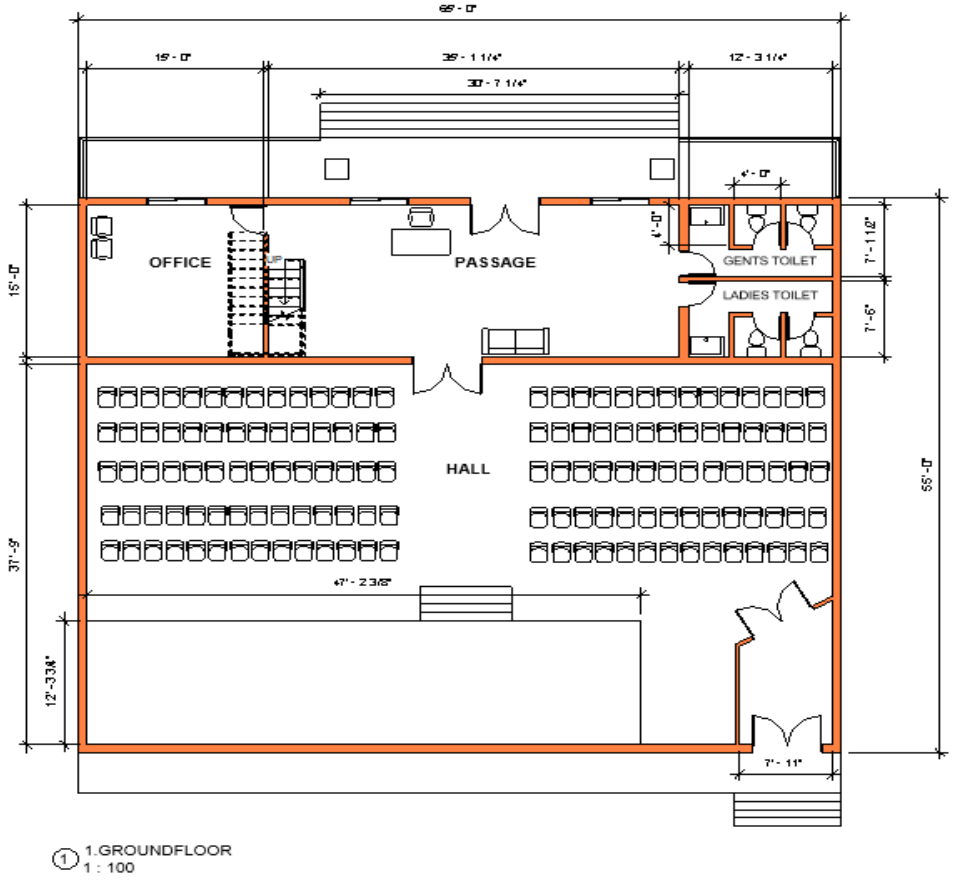
SR. NO.	DESCRIPTION	NO.	LENGTH (M)	BREATH (M)	HEIGHT (M)	QUANTITY
1	**Excavation in Foundation**					
	Total C.L=37.07	1	37.07	0.9	1.2	40 m^3
	Total					**40 m^3**
2	**Plaincement concrete(P.C.C) in Foundation(1:4:8)**					
	PCC	1	37.07	0.9	0.3	10 m^3
	Total					**10m^3**
3	**Brickwork in Foundation up to Plinth level**					
	First step	1	37.07	0.6	0.3	6.67m^3
	Second step	1	37.07	0.3	0.2	2.24 m^3
	Third step	1	37.07	0.228l	0.8	6.76 m^3
	Total					**15.67 m^3**
4	**Brickwork in Superstructurein cement mortar 1:6**					
						(-)0.26 m^3
	Total					**22.9m^3**
5	**RCC Work**					

	Slab	1	8.6	10.49	13.53 m^3
	Lintel				0.759
	Total				**11 m^3**
6	**2 cm thick marble flooring**				
	Blocks	1	8.6	10.49	90.21m^2
	Total area				**90.21 m^2**
7	**Smoothplaster on inside wall sand ceilingin cm.(1:3)**				
	Wall	2	9.29		55.74 m^2
		1	5.87		17.61m^2
		1	7.67		23.01 m^2
		1	8.6		25.8 m^2
	Ceiling	1	90.20	0.3	26.73 m^2
	Total				**148.8 m^2**
8	**Earth filling in Excavation.**				
	Total excavation for walls				40 m^3
	Brickwork up to G.L.				(-)15.67 m^3
	PCC				(-)10 m^3
	Total				**14.33 m^3**

ABSTRACT SHEET OF MEDICAL SHOP

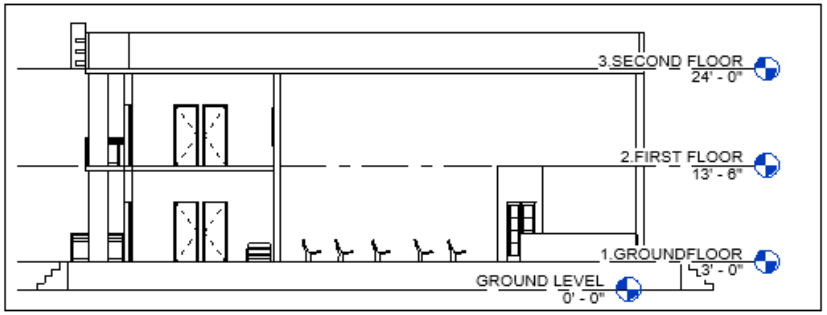
SR. NO.	PAR€TICULARS	QUANTITY	UNIT	RATE	PER	AMOUNT
1	**Excavation in Foundation**	40	m3	85	m3	3400
2	**Plain cement concrete(P.C.C) in Foundation(1:4:8)**	10	m3	3000	m3	30000
3	**Brickwork in Foundation up to Plinth level**	15.67	m3	3200	m3	50144
4	**Brickwork in superstructure in cement mortar 1:6**	24.80	m3	3500	m3	86800
5	**RCC Work**	11	m3	8800	m3	96800
6	**2 cm thick marble flooring**	90.21	m2	500	m^2	45105
7	**Smooth plaster on inside walls and ceiling in cm.(1:3)**	148.8	m2	150	m^2	22320
8	**Earth filling in Excavation**	14.33	m3	50	m3	716
	Total					3,35,285 Rs.
	Add 5% contingencies					16264Rs.
	Grand Total					3,51,549 Rs.
					say	3,52,000 Rs.

8.1.4 Socio-Cultural design (Auditorium)

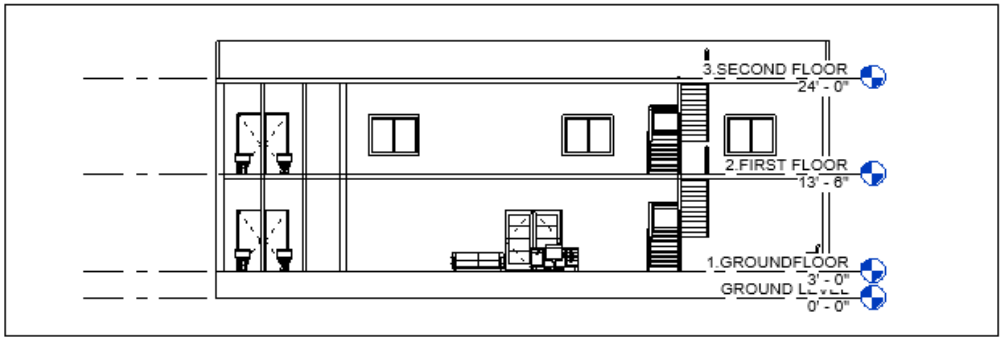


DESIGN NO:	Auditorium
PREPARED BY:	Kureshi Abdulla.S | Mansuri aiyan .S
PROJECT NAME:	Vishwakarma yojana phase-VIII kuha Ahmedabad
INTITUTE NAME:	Hasmukh Goswami College Of Engineering
UNIVERSITY NAME:	Gujarat Technological University

1 North
1" = 10'-0"



2 Section 1
1" = 10'-0"



3 Section 2
1" = 10'-0"

DESIGN NO:	Auditorium
PREPARED BY:	Kureshi Abdulla.S Mansuri aiyan .S
PROJECT NAME:	Vishwakarma yojana phase-VIII kuha Ahmedabad
INTITUTE NAME:	Hasmukh Goswami College Of Engineering
UNIVERSITY NAME:	Gujarat Technological University

MEASUREMENT SHEET OF AUDITORIUM

NO.	DESCRIPTION	NO.	LENGTH (M)	BREADTH (M)	HEIGHT (M)	QUANTITY
1	**Excavation in Foundation**					
	Total C.L=10.677	1	106.77	0.9	1.2	115.31m^3
	Total					**115.31 m^3**
2	**Plaincement concrete(P.C.C in Foundation(1:4:8)**					
	PCC	1	106.77	0.9	0.3	28.82m^3
	Total					**28.82m^3**
3	**Brickwork in Foundation up to Plinth level**					
	First step	1	106.77	0.6	0.3	19.21m^3
	Second step	1	106.77	0.3	0.2	6.40m^3
	Third step	1	106.77	0.228	0.8	19.47 m^3
	Total					**45.08m^3**
4	**Brickwork in Superstructure in cement mortar 1:6**					
	For Ground Floor					
	External Wall	1	106.77	0.228	3	73.03m^3
	Total					**73.03m^3**
	Deduction for Door/Ventilation :					
	D1	2	1.7	0.228	2.2	1.70m^3
	D2	2	1.02	0.228	2.05	0.95m^3
	D3	2	0.83	0.228	2.2	0.83 m^3
	W2	4	1.55	0.228	2.0	2.83m^3

						(-) 6.31m^3
	Deduction for lintels:					
	Bearing = 0.10 m					
	D1	6	2.13	0.228	0.10	0.29 m^3
	W1	4	2.31	0.228	0.10	0.21 m^3

						(-)0.5 m^3
	Total					**66.22 m^3**
5	**RCC Work**					
	Slab	1	20	17	0.150	51m^3
	Lintel					0.759
	Total					**51.759 m^3**
6	**2 cm thick marble flooring**					
	Blocks	1	20	17		340m^2
	Total area					**340m^2**
7	**Smooth plaster on inside walls and ceiling in cm.(1:3)**					
	Wall	2	20		6	240m^2
		3	17		6	306m^2
		2	4.78		6	57.36m^2
	Ceiling	1	20	17		340m^2
	Total					**943.36m^2**
8	**Earth filling in Excavation**					
	Total excavation for walls					115.31 m^3
	Brickwork up to G.L.					(-)45.08$_{m^3}$
	PCC					(-)28.82 m^3
	Total					**41.41 m^3**

ABSTRACT SHEET OF AUDITORIUM

SR. NO.	PARTICULARS	QUANTITY	UNIT	RATE	PER	AMOUNT
1	**Excavation in Foundation**	115.31	m3	85	m3	9801
2	**Plaincement concrete(P.C.C) in Foundation(1:4:8)**	28.82	m3	3000	m3	86460
3	**Brickwork in Foundation up to Plinth level**	45.08	m3	3200	m3	144256
4	**Brickwork in superstructurein cement mortar 1:6**	73.03	m3	3500	m3	255605
5	**RCC Work**	51.759	m3	8800	m3	455479
6	**2cmthick marbleflooring**	340	m2	500	m^2	170000
7	**Smoothplaster on inside walls and ceiling in cm.(1:3)**	943.36	m2	150	m^2	141504
9	**Earth Filling In Excavt Ion.**	41.41	m3	50	m3	2070
10	**Wood work for door and window**	27.71	m3	8800		243848
11	**Number of chair**	189	nos	600		113400
	Total					**16,22,423 Rs.**
	Add5%contingencies.					**81121Rs.**
	Grand Total					**17,03,544 Rs.**
					say	**17,05,000 Rs.**

8.1.5 Smart Village Design (Civil)

Introduction

- Main source of water in village is ground water. Due to excessive use and population expansion ground water level is depleting. To maintain round water level and conserve it for future generation Ground water recharge is necessary.
- In an Artificial groundwater recharge we will use vertical recharge shaft method. In this shaft the top portion we use PVC ball & Rubber lip which is help in whenever river water level gone up & rubble lip will automatically open fill with water.
- The diameter of shaft is 0.45 M .depth of PVC pipe is 15 M. It should end in more permeable strata below the top impermeable strata. It may not touch water table.
- To begin with in PVC pipe on top portion provide rubber valve. Below it 0.20 Inches diameter screen is placed to remove rags, paper and plastic to prevent damage.
- In PVC pipe 10 M deep filtration bucket is connected with bolt. In which there are three layer of fine, gravel and coarse material placed.
- At bottom there is one extra screen provided which is prevent filter material to the ground. In PVC pipe provide hole to spread water in to confined aquifer.

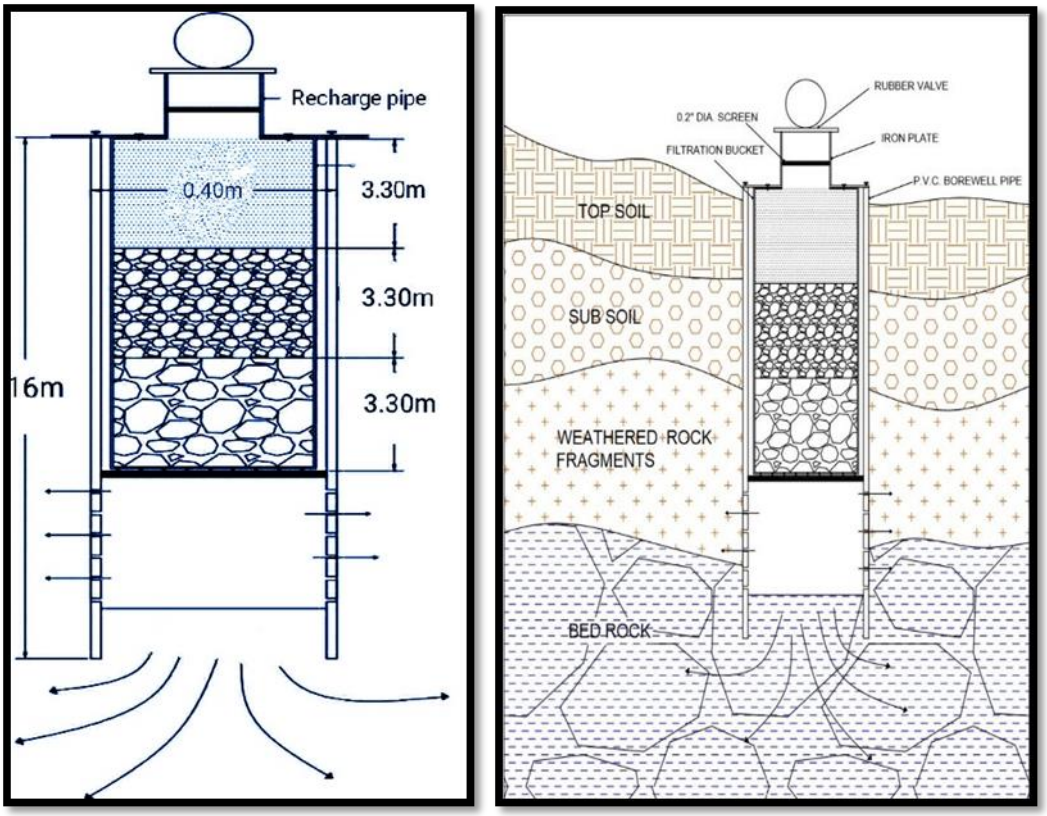


Fig8.15 Vertical recharge shaft Section

ABSTRACT SHEET

SR. No.	Particulars	Amount (Rs.)
1	PVC Pipe	230
2	Geo Net (Screen)	1500
3	Rubber Valve	3000
4	Bolt	100
5	Iron Plate	10000
6	Bucket	11000
7	Sand	50
8	Gravel	40
9	Coarse Aggregate	80
10	Labour	15000
11	Excavation Equipment rent (Per Month)	3000
	Sub Total	**44000/-**

8.1.6 Heritage Village Design (Waste collector bin)

- In sense of cleanliness the kuha village require sounder strategic plan for making village swatchh. At present there is no plan or strategy for waste management. Due to this reasons the present outlook of kuha village is not very good according to swatchhta, on the roads of kuha village you can see the scattered waste, this scattered waste invite mosquitoes, fly and many other small insect and due to this disease like malaria and dengue spread it.so by keeping this point in mind we decided to give two community dustbin in village.

Fig 8.16 solid waste management problem in village

Details of community dustbin provided

Size	2.5 cubic meter
Material	Mild steel
Color	Green
length	1.8 meter
height	1.2 meter
width	1.2 meter
Cost/unit	25000 Rs

Total cost for three dustbin = 75000 Rs

CHAPTER 9: Future Development of village (Part II Design)

- The study is aimed to know the basic scenario of village through techno economic survey and gap analysis form.
- Our design proposal shows that we are interested to provide economical services and facilities to the villagers.
- Our aim is to work according to the new upcoming town planning scheme in Kuha village.
- We would like to bring each possible facility like easy transportation, economic electricity (using renewable energy), adequate water supply, Public infrastructures, medical facility, Higher education Facility.
- Our very next plan is to propose our design to the Talati officer and get approval to execute our design.
- Also we would like to make villagers know how these designs ay help them.

CHAPTER 10. Conclusion

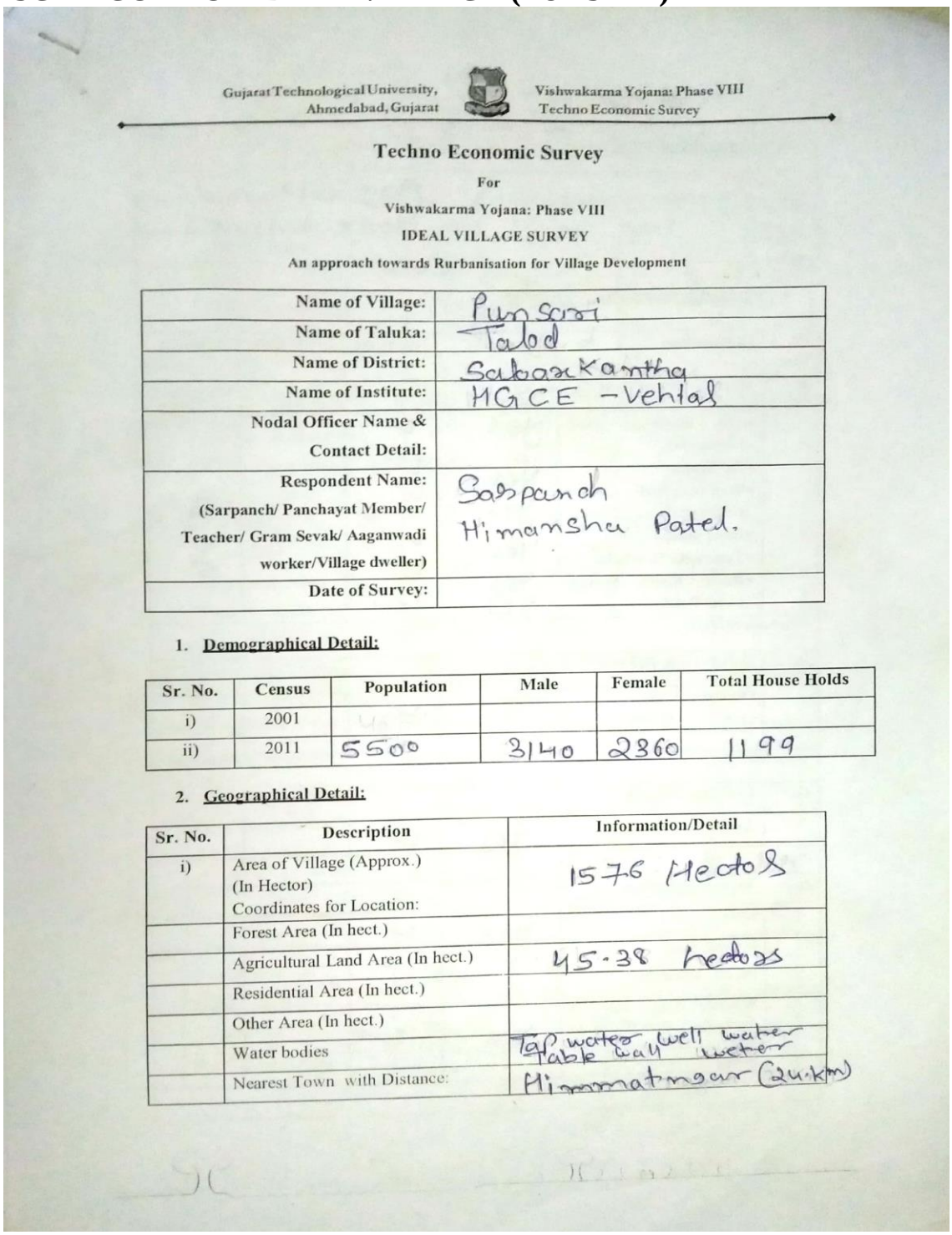
- Vishwakarma Yojana is a Gujarat government project allotted to GTU in which we the students of GTU who were involved in this project were allocated with a village in our district for Rurbanisation. We made physical visits & Surveys at kuha, punsari & Dharmaj. Which helped us to know our strengths, weaknesses, opportunities & threats. From this we analyzed problems and requirement of our allocated village and started finding the solution. From various thinking, research and group discussions we decided to prepare 6 design solutions for civil facility. And at the end of semester we were ready with these designs for the proposal

CHAPTER 11: References refereed for this project

1. UDPFI (Urban Development Plan Formulation & Implementation) Guidelines.
2. Schedule of rate.
3. Wikipedia.
4. Google Maps.
5. https://en.wikipedia.org/wiki/Kuha
6. http://www.vyojana.gtu.ac.in/

CHAPTER 12: Annexure attachment12.1 Survey form of Ideal Village Scanned copy attachment in the report part 1.

12.1 SCAN COPY OF IDEAL VILLAGE (PUNSARI)



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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:	Punsari
Name of Taluka:	Talod
Name of District:	Sabarkantha
Name of Institute:	HGCE - Vehlal
Nodal Officer Name & Contact Detail:	
Respondent Name: (Sarpanch/ Panchayat Member/ Teacher/ Gram Sevak/ Aaganwadi worker/Village dweller)	Sarpanch Himanshu Patel.
Date of Survey:	

1. **Demographical Detail:**

Sr. No.	Census	Population	Male	Female	Total House Holds
i)	2001				
ii)	2011	5500	3140	2360	1199

2. **Geographical Detail:**

Sr. No.	Description	Information/Detail
i)	Area of Village (Approx.) (In Hector) Coordinates for Location:	1576 Hectors
	Forest Area (In hect.)	
	Agricultural Land Area (In hect.)	45.38 Hectors
	Residential Area (In hect.)	
	Other Area (In hect.)	
	Water bodies	Tap water well water Table water
	Nearest Town with Distance:	Himmatnagar (24 km)

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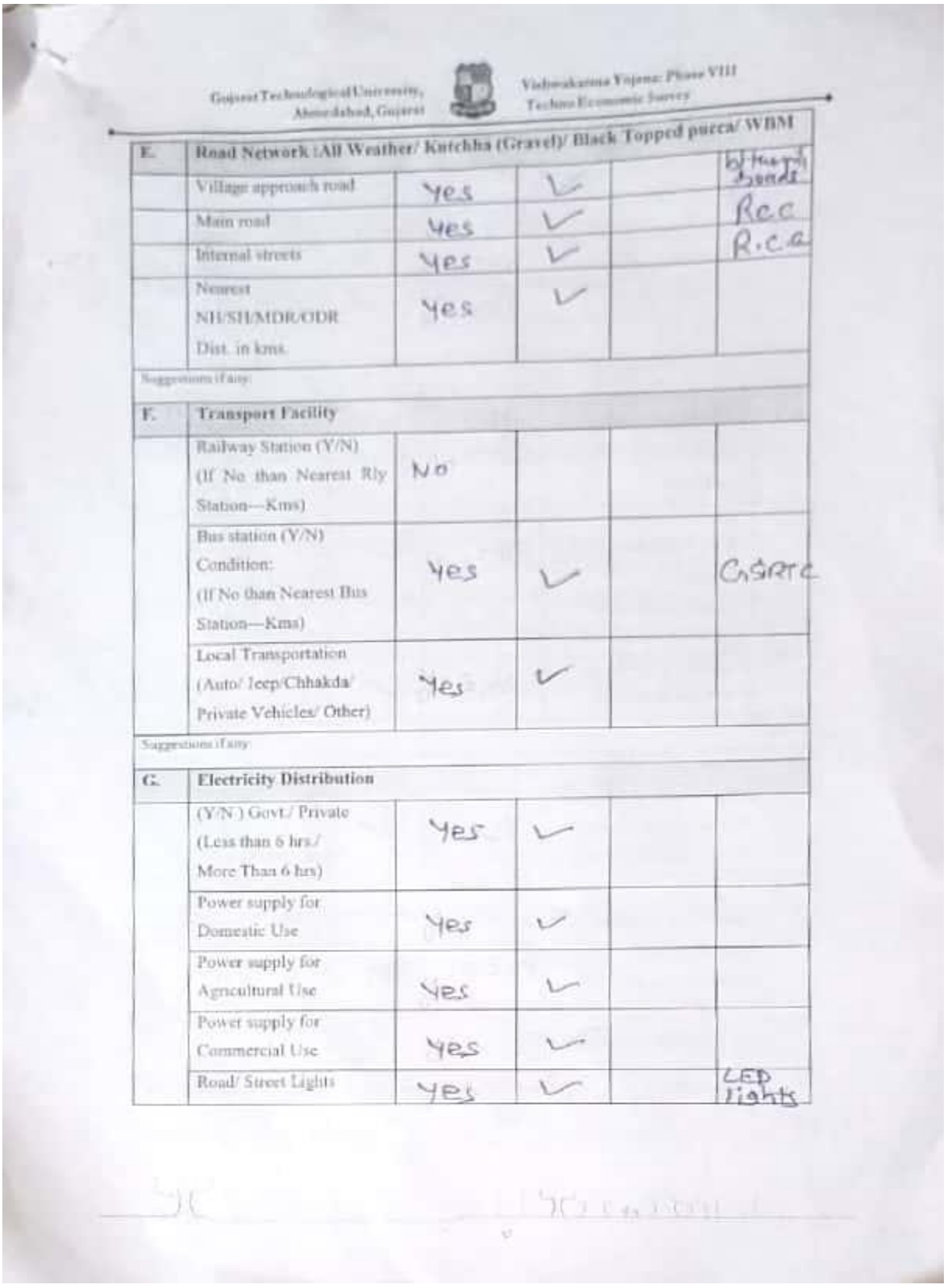
3. **Occupational Details:**

Name of Three Major Occupation groups in Village	1. Aggrical-tuerd 2. Home bussiness 3.

4. **Physical Infrastructure Facilities:**

Sr. No.	Descriptions	Detail	Adequate	Inadequate	Remarks
A.	**Main Source of Drinking water**				
	• Tap Water (Treated/ Untreated)	yes	✓		
	• RO Water	Yes	✓		
	• Well (Covered/ Uncovered)	Yes	✓		73
	• Hand pumps		✓		4
	• Tube well/ Borehole	Yes	✓		5
	• River/ Canal/ Spring/ Lake/ Pond	Yes Yes	✓		
Suggestions if any:					
B.	**Water Tank Facility**				
	Overhead Tank	Capacity:	✓		
	Underground Sump	Capacity:	✓		
Suggestions if any:					
C.	**Drainage Facility**				
	Available (Yes/ No)	Yes	✓		
Suggestions if any:					
D.	**Type of Drainage**				
	Closed/ Open	Yes	✓		
	If Open than Pucca / Kutchcha				
	Whether drain water is discharged directly in to Water bodies/ Sewer plants	Yes	✓		
Suggestions if any:					



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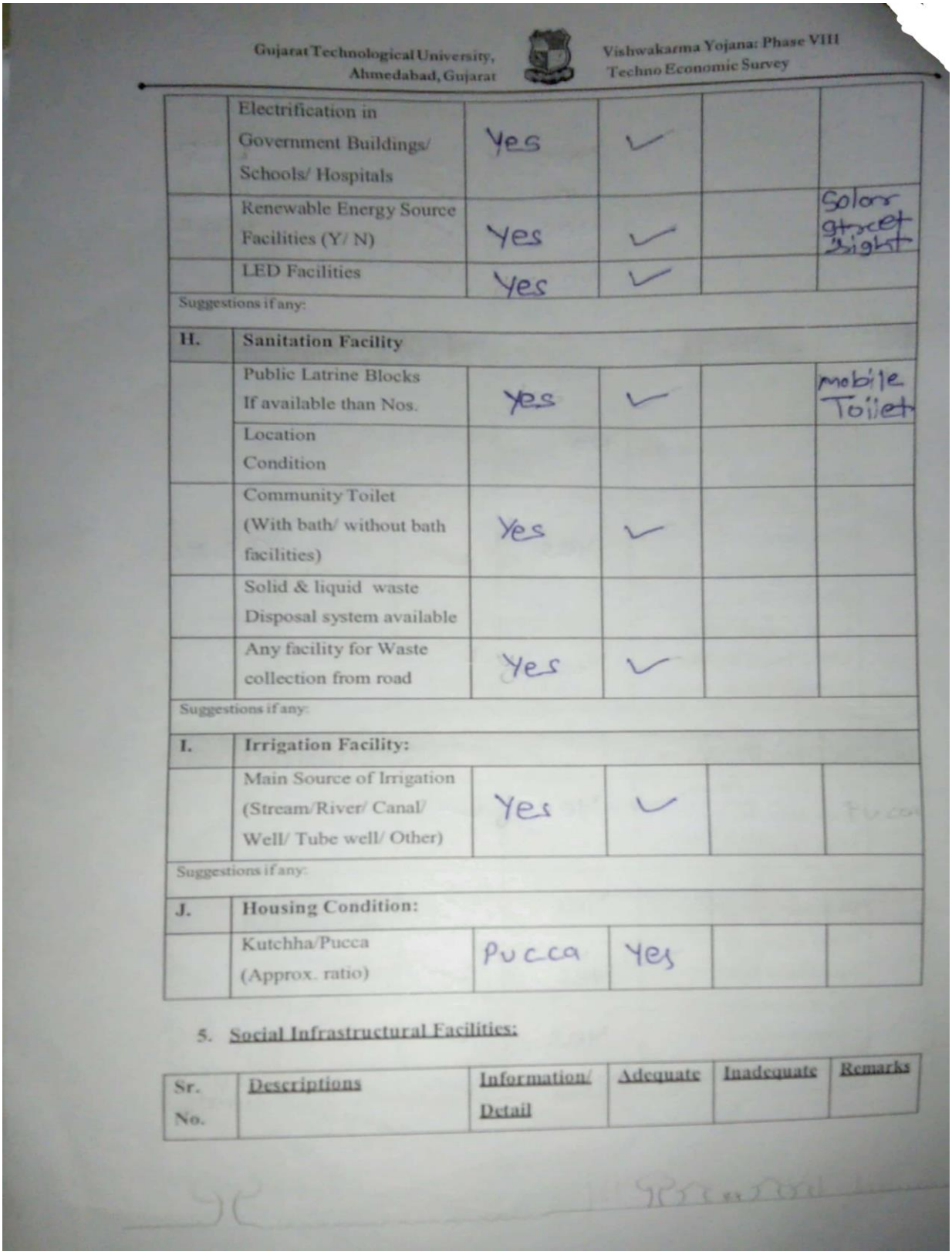
E.	**Road Network (All Weather/ Kutchha (Gravel)/ Black Topped pucca/ WBM**				
	Village approach road	Yes	✓		By Hand Bonds
	Main road	Yes	✓		R.C.C
	Internal streets	Yes	✓		R.C.C
	Nearest NH/SH/MDR/ODR Dist. in kms.	Yes	✓		
Suggestions if any:					
F.	**Transport Facility**				
	Railway Station (Y/N) (If No than Nearest Rly Station—Kms)	No			
	Bus station (Y/N) Condition: (If No than Nearest Bus Station—Kms)	Yes	✓		GSRTC
	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	✓		
	Power supply for Domestic Use	Yes	✓		
	Power supply for Agricultural Use	Yes	✓		
	Power supply for Commercial Use	Yes	✓		
	Road/ Street Lights	Yes	✓		LED lights



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	Electrification in Government Buildings/ Schools/ Hospitals	Yes	✓		
	Renewable Energy Source Facilities (Y/ N)	Yes	✓		Solar street light
	LED Facilities	Yes	✓		
Suggestions if any:					
H.	**Sanitation Facility**				
	Public Latrine Blocks If available than Nos.	Yes	✓		mobile Toilet
	Location Condition				
	Community Toilet (With bath/ without bath facilities)	Yes	✓		
	Solid & liquid waste Disposal system available				
	Any facility for Waste collection from road	Yes	✓		
Suggestions if any:					
I.	**Irrigation Facility:**				
	Main Source of Irrigation (Stream/River/ Canal/ Well/ Tube well/ Other)	Yes	✓		
Suggestions if any:					
J.	**Housing Condition:**				
	Kutchha/Pucca (Approx. ratio)	Pucca	Yes		

5. Social Infrastructural Facilities:

Sr. No.	Descriptions	Information/ Detail	Adequate	Inadequate	Remarks

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	Condition:				
	Public Library (With daily newspaper supply Y/N) Location: Condition:	Yes	✓		
	Public Garden Location: Condition:	No			
	Village Pond Location: Condition:	Yes			
	Recreation Center Location: Condition:	Yes	✓		
	Cinema/ Video Hall Location: Condition:	No			
	Assembly Polling Station Location: Condition:	–			
	Birth & Death Registration Office Location: Condition:	Yes			
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	✓		1
	Telecommunication Network/ STD booth	Yes	✓		1

	General Market	Yes	✓		1
	Shops (Public Distribution System)	Yes	✓		
	Panchayat Building	Yes	✓		
	Pharmacy/Medical Shop	Yes	✓		
	Bank & ATM Facility	Yes	✓		2
	Agriculture Co-operative Society	Yes	✓		
	Milk Co-operative Soc.	Yes	✓		2
	Small Scale Industries	Yes	✓		
	Internet Cafes/ Common Service Center/Wi Fi	Yes	✓		
	Other Facility	Yes	✓		C.C.TV
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			Solar street light
P.	Bio-Gas Plant Solar Street Lights Rain Water Harvesting System	Yes	✓		
Q.	Any Other				

7. **Data Collection From Village**

Village Base Map Available: Hard Copy/Soft Copy	

Recent Projects going on for Development of Village	
Any NGO working for village development	Yes

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)		
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 SCAN COPY OF SMART VILLAGE (DHARMAJ)

Techno Economic Survey

Vishwakarma Yojana: Phase VIII

SMART VILLAGE SURVEY

An approach towards "Rurbanisation for Village Development"

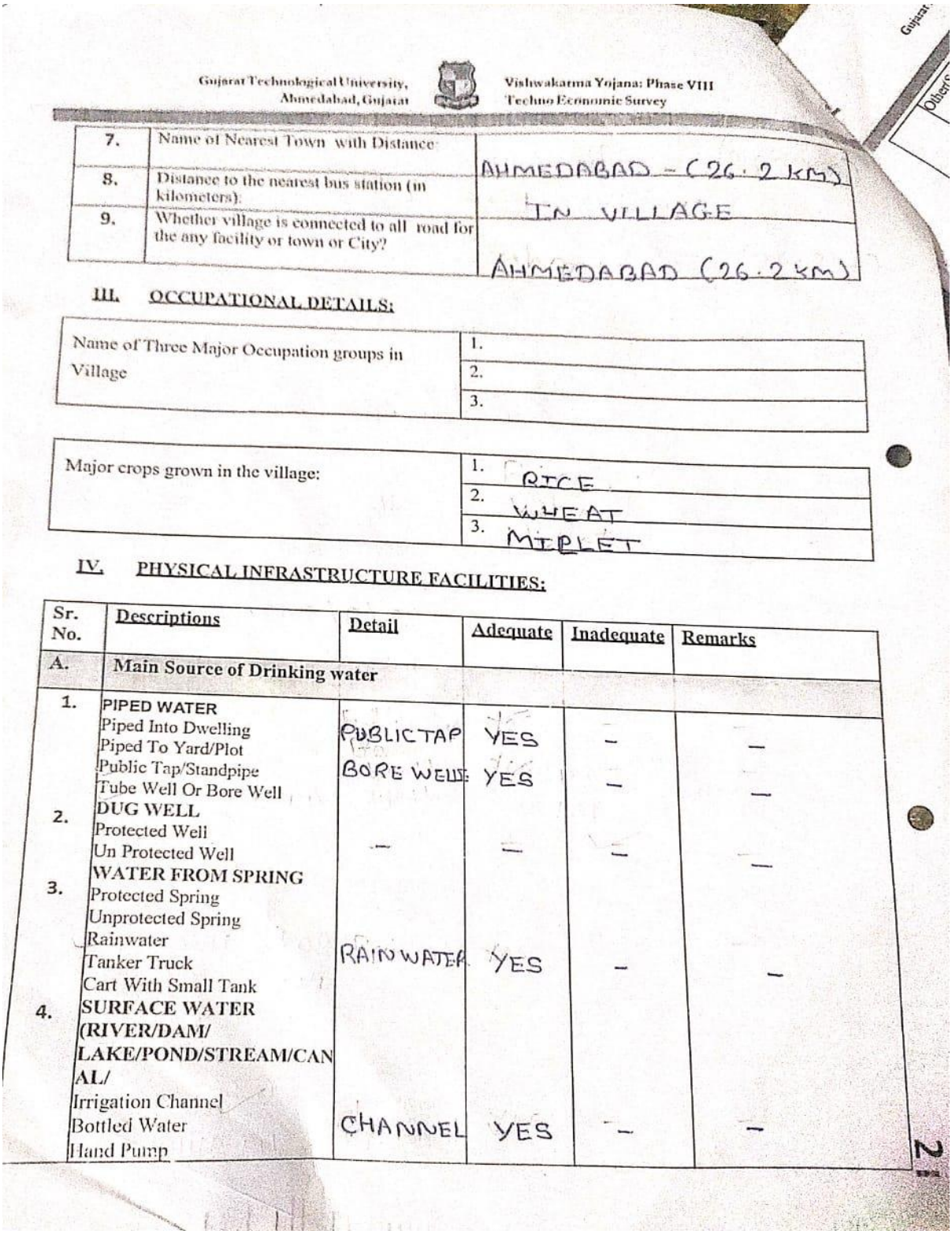
Name of District:	Anand
Name of Taluka:	Petlad
Name of Village:	Dharmaj
Name of Institute:	MCE - Vehlal
Nodal Officer Name & Contact Detail:	Prof- Srinath Kadli
Respondent Name: (Sarpanch/ Panchayat Member/ Teacher/ Gram Sevak/ Aaganwadi worker/Village dweller)	Jayvikbhai C. Patel
Date of Survey:	

I. DEMOGRAPHICAL DETAIL:

Sr. No.	Census	Population	Male	Female	Total Number of House Holds
1.	2001				
2.	2011	10429	5,380	5049	2232

II. GEOGRAPHICAL DETAIL:

Sr. No.	Description	Information/Detail
1.	Area of Village (Approx.) (In Hector)Coordinates for Location:	1445.6
2.	Forest Area (In hect.)	13
3.	Agricultural Land Area (In hect.)	275
4.	Residential Area (In hect.)	157.6
5.	Other Area (In hect.)	
6.	Distance to the nearest railway station (in kilometers):	Petlad - 10.4 Km



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7.	Name of Nearest Town with Distance:	AHMEDABAD - (26.2 KMS)
8.	Distance to the nearest bus station (in kilometers):	IN VILLAGE
9.	Whether village is connected to all road for the any facility or town or City?	AHMEDABAD (26.2 KMS)

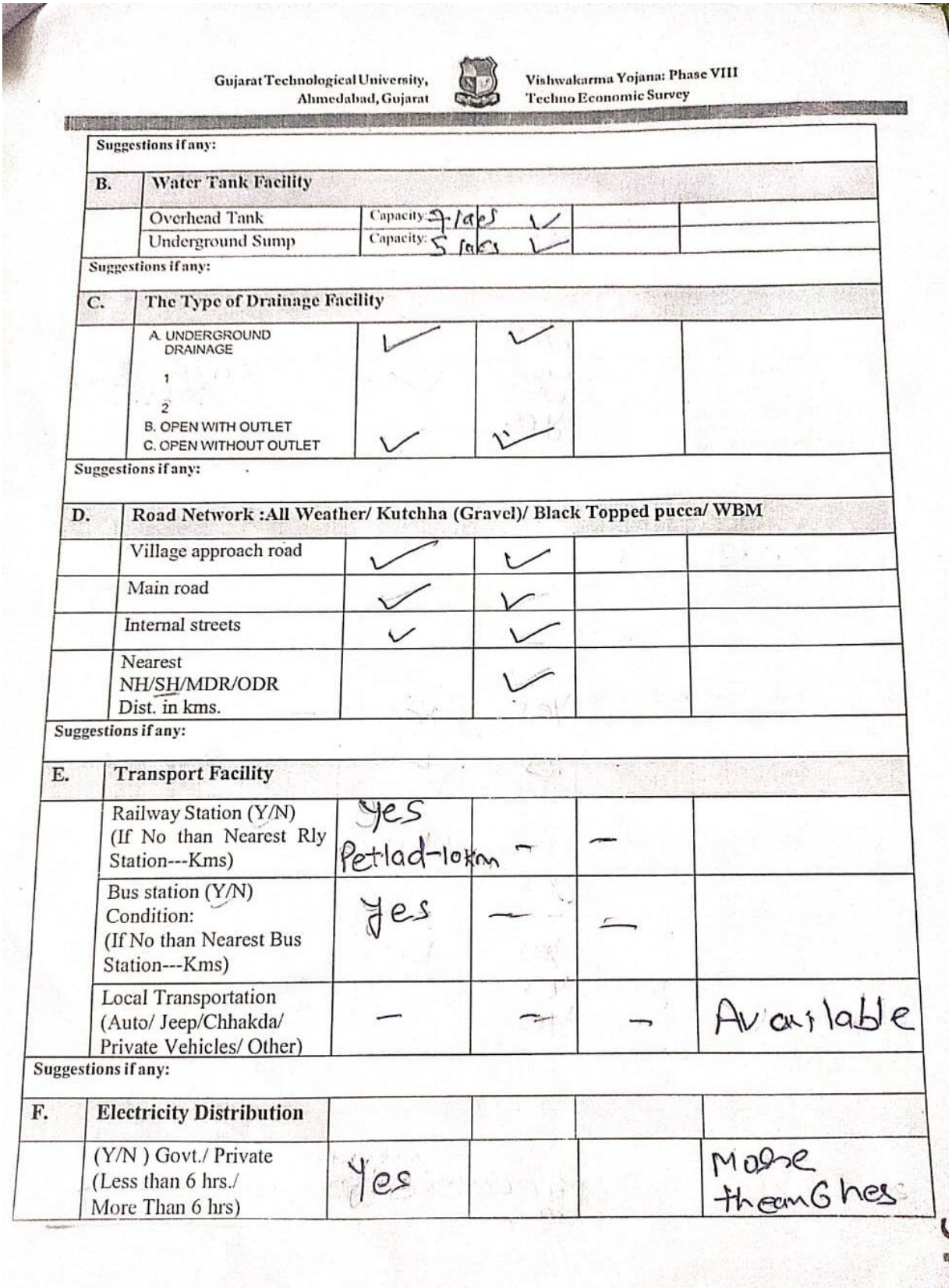
III. OCCUPATIONAL DETAILS:

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

Major crops grown in the village:	1. RICE
	2. WHEAT
	3. MILLET

IV. PHYSICAL INFRASTRUCTURE FACILITIES:

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



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Vishwakarma Yojana: Phase VIII
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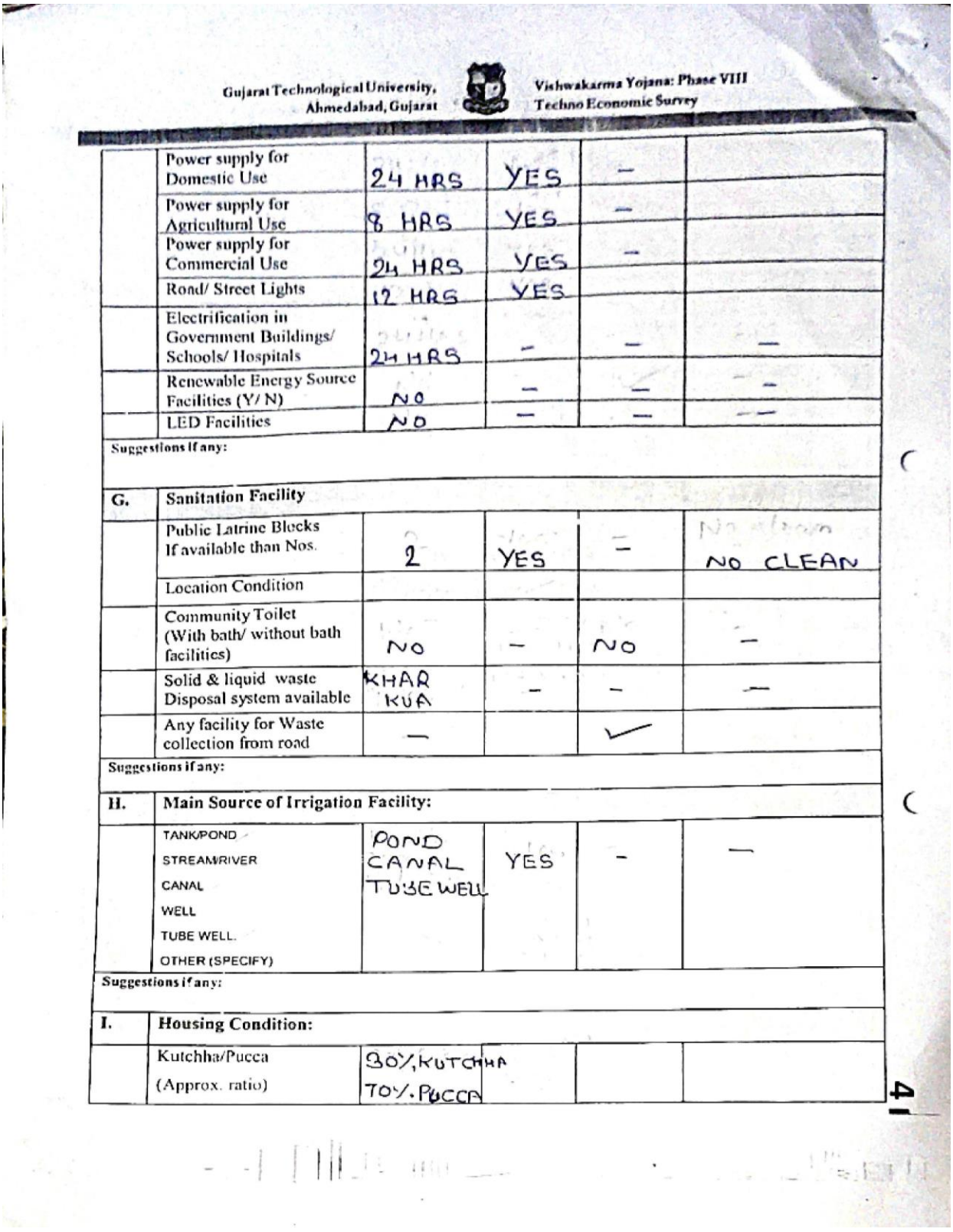
Suggestions if any:					
B.	**Water Tank Facility**				
	Overhead Tank	Capacity: 5 lacs ✓			
	Underground Sump	Capacity: 5 lacs ✓			
Suggestions if any:					
C.	**The Type of Drainage Facility**				
	A. UNDERGROUND DRAINAGE 1 2 B. OPEN WITH OUTLET C. OPEN WITHOUT OUTLET	✓ ✓	✓ ✓		
Suggestions if any:					
D.	**Road Network :All Weather/ Kutchha (Gravel)/ Black Topped pucca/ WBM**				
	Village approach road	✓	✓		
	Main road	✓	✓		
	Internal streets	✓	✓		
	Nearest NH/SH/MDR/ODR Dist. in kms.		✓		
Suggestions if any:					
E.	**Transport Facility**				
	Railway Station (Y/N) (If No than Nearest Rly Station---Kms)	Yes Petlad-10km	-	-	
	Bus station (Y/N) Condition: (If No than Nearest Bus Station---Kms)	Yes	-	-	
	Local Transportation (Auto/ Jeep/Chhakda/ Private Vehicles/ Other)	-	-	-	Available
Suggestions if any:					
F.	**Electricity Distribution**				
	(Y/N) Govt./ Private (Less than 6 hrs./ More Than 6 hrs)	Yes			More than 6 hrs



Gujarat Technological University, Ahmedabad, Gujarat

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	Power supply for Domestic Use	24 HRS	YES	–	
	Power supply for Agricultural Use	8 HRS	YES	–	
	Power supply for Commercial Use	24 HRS	YES	–	
	Road/ Street Lights	12 HRS	YES		
	Electrification in Government Buildings/ Schools/ Hospitals	24 HRS	–	–	–
	Renewable Energy Source Facilities (Y/ N)	NO	–	–	–
	LED Facilities	NO	–	–	–
Suggestions if any:					
G.	**Sanitation Facility**				
	Public Latrine Blocks If available than Nos.	2	YES	–	NO CLEAN
	Location Condition				
	Community Toilet (With bath/ without bath facilities)	NO	–	NO	–
	Solid & liquid waste Disposal system available	KHAR KUA	–	–	–
	Any facility for Waste collection from road	–		✓	
Suggestions if any:					
H.	**Main Source of Irrigation Facility:**				
	TANK/POND STREAM/RIVER CANAL WELL TUBE WELL. OTHER (SPECIFY)	POND CANAL TUBEWELL	YES	–	–
Suggestions if any:					
I.	**Housing Condition:**				
	Kutchha/Pucca (Approx. ratio)	30% KUTCHHA 70% PUCCA			

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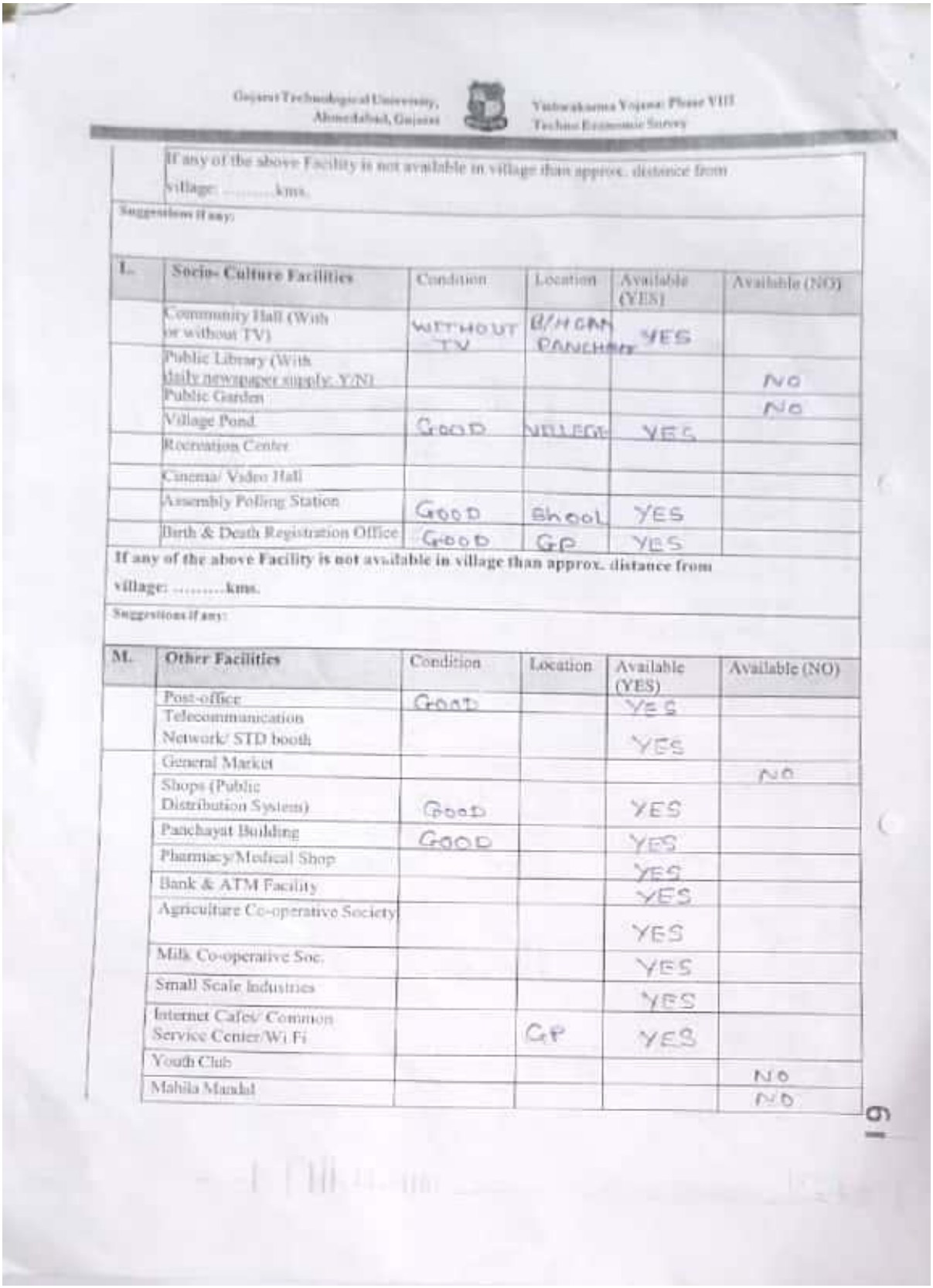
V. SOCIAL INFRASTRUCTURAL FACILITIES:

Sr. No.	Descriptions	Information/ Detail	Adequate	Inadequate	Remarks
J.	**Health Facilities:**				
	ICDS (Anganwadi)	✓			12
	Sub-Centre	✓			5-7
	PHC	✓			
	BLOCK PHC				
	CHC/RH	✓			
	District/ Govt. Hospital				
	Govt. Dispensary				
	Private Clinic				
	Private Hospital/ Nursing Home	✓			Jadavam Hoks
	AYUSH Health Facility				
	sonography /ultrasound facility	✓			
	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	12			
	Primary School	4			2 govt. 2 sem-govt
	Secondary school				
	Higher sec. School	3			
	ITI college vocational Training Center	7			
	Art, Commerce& Science /Polytechnic/ Engineering/ Medical/ Management/ other college facilities	7			
	If any of the above Facility is not available in village than approx. distance from village: .....kms.				



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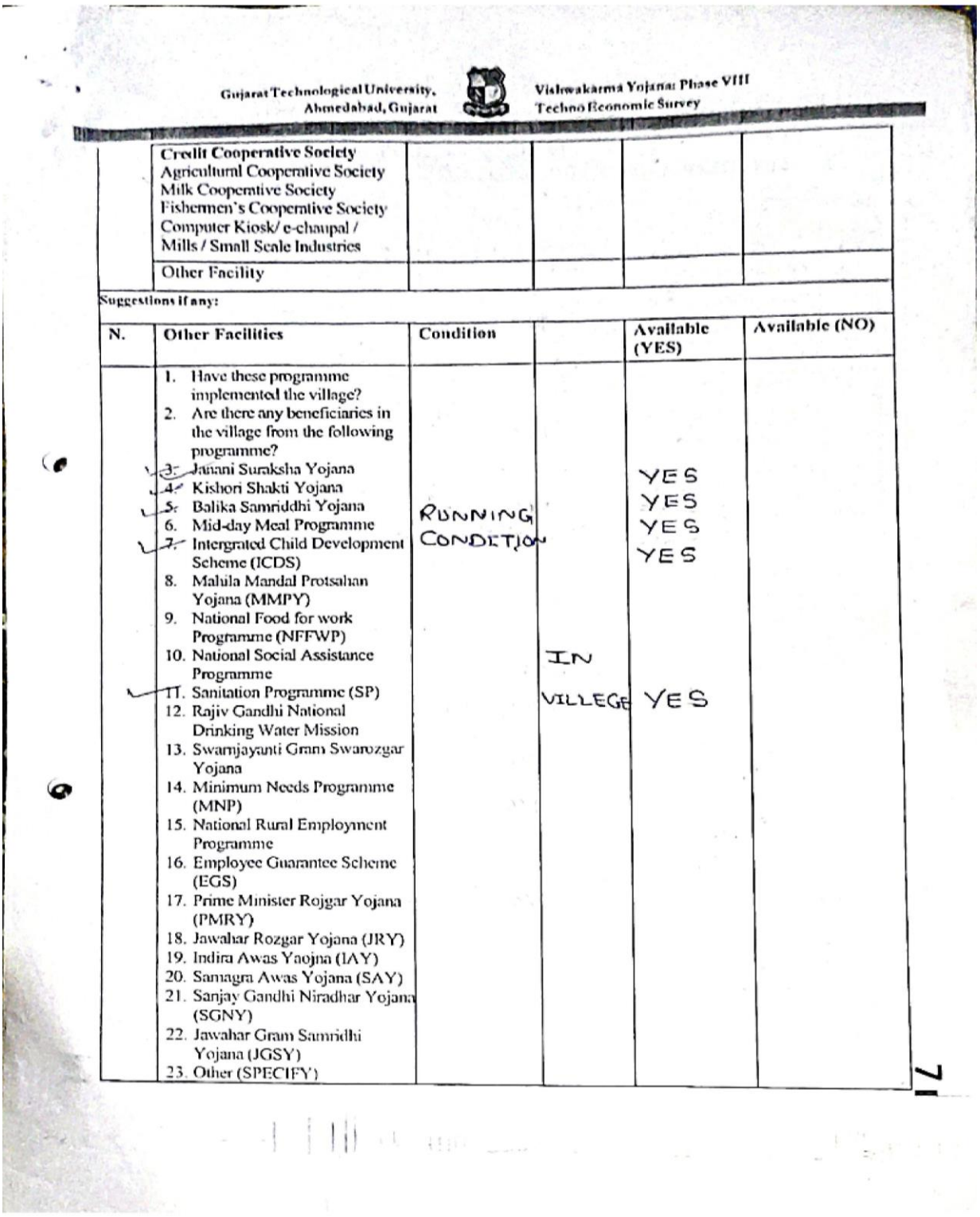
	If any of the above Facility is not available in village than approx. distance from village: .....kms.				
Suggestions if any:					
L.	**Socio- Culture Facilities**	Condition	Location	Available (YES)	Available (NO)
	Community Hall (With or without TV)	WITHOUT TV	B/H GRAM PANCHAYAT	YES	
	Public Library (With daily newspaper supply: Y/N)				NO
	Public Garden				NO
	Village Pond	GOOD	NEAR GP	YES	
	Recreation Center				
	Cinema/ Video Hall				
	Assembly Polling Station	GOOD	School	YES	
	Birth & Death Registration Office	GOOD	GP	YES	
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	GOOD		YES	
	Telecommunication Network/ STD booth			YES	
	General Market				NO
	Shops (Public Distribution System)	GOOD		YES	
	Panchayat Building	GOOD		YES	
	Pharmacy/Medical Shop			YES	
	Bank & ATM Facility			YES	
	Agriculture Co-operative Society			YES	
	Milk Co-operative Soc.			YES	
	Small Scale Industries			YES	
	Internet Cafe/ Common Service Center/Wi Fi		GP	YES	
	Youth Club				NO
	Mahila Mandal				NO



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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				
	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			YES	
	4. Kishori Shakti Yojana			YES	
	5. Balika Samriddhi Yojana	RUNNING		YES	
	6. Mid-day Meal Programme	CONDETION		YES	
	7. Intergrated Child Development Scheme (ICDS)				
	8. Mahila Mandal Protsahan Yojana (MMPY)				
	9. National Food for work Programme (NFFWP)				
	10. National Social Assistance Programme		IN		
	11. Sanitation Programme (SP)		VILLEGE	YES	
	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)				

VI. SUSTAINABLE /GREEN INFRASTRUCTURE FACILITIES:

Sr. No.	Descriptions	Information/ Details	Adequate	Inadequate	Remarks
1.	Adoption of Non-Conventional Energy Sources/ Renewable Energy Sources	yes			
2.	Bio-Gas Plant Solar Street Lights Rain Water Harvesting System	NO — yes	LED		
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	Hard Copy			Photo
2.	Recent Projects going on for Development of Village	Solar Survey			
3.	Any NGO working for village development	Jalaram Jantrust			
4.	Any natural calamity in the village during the last one year: EARTHQUAKES FLOODS CYCLONE DROUGHT LANDSLIDES AVALANCHE OTHER (SPECIFY)				NO

VIII. ADDITIONAL INFORMATION/ REQUIREMENT:

Sr. No.	Descriptions	Information/ Detail	Remarks

18

1.	Repair & Maintenance of Existing Public Infrastructure facilities, School Building Health Center Panchayat Building Public Toilets & any other	No	—
2.	Additional Information/ Requirement		
3.	During the last six months how many times CLEANING ....1..... 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

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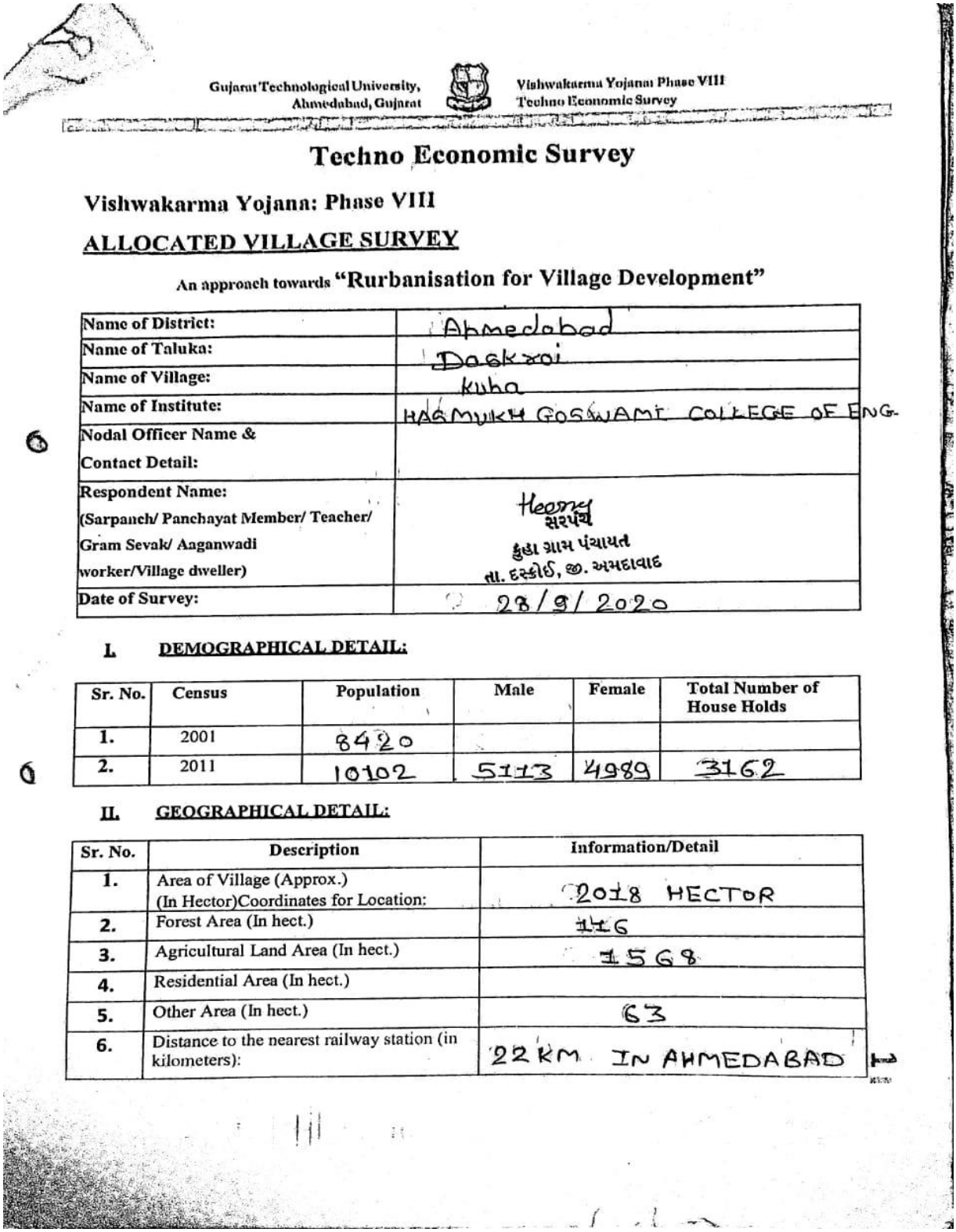
12.3 SCAN COPY OF ALLOCATED VILLAGE (KUHA)



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Techno Economic Survey

Techno Economic Survey

Vishwakarma Yojana: Phase VIII

ALLOCATED VILLAGE SURVEY

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

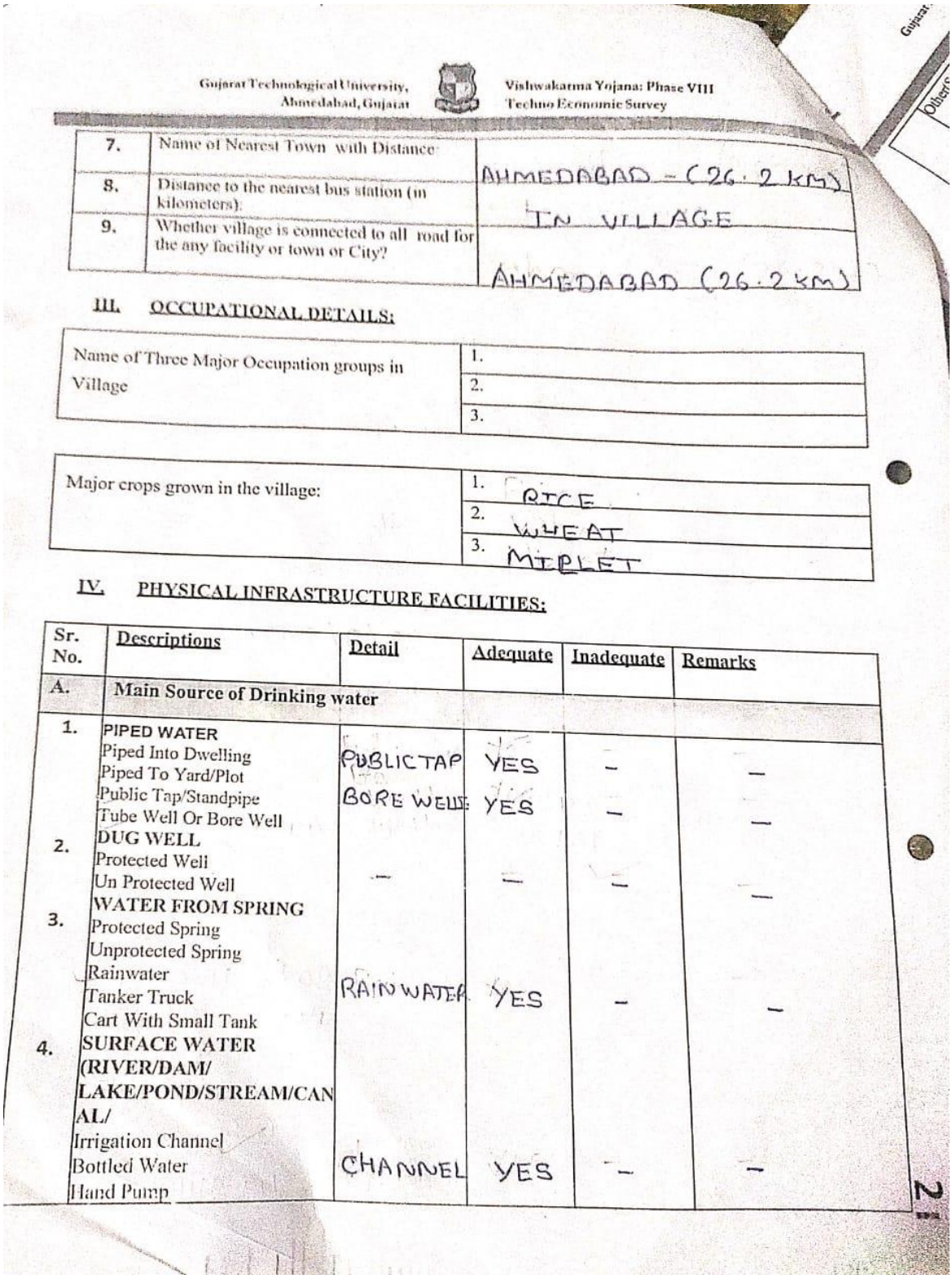
Name of District:	Ahmedabad
Name of Taluka:	Daskroi
Name of Village:	Kuha
Name of Institute:	HASMUKH GOSWAMI COLLEGE OF ENG.
Nodal Officer Name & Contact Detail:	
Respondent Name: (Sarpanch/ Panchayat Member/ Teacher/ Gram Sevak/ Anganwadi worker/Village dweller)	Hegorji સરપંચ કુહા ગ્રામ પંચાયત તા. દસ્ક્રોઈ, જી. અમદાવાદ
Date of Survey:	28/9/2020

I. DEMOGRAPHICAL DETAIL:

Sr. No.	Census	Population	Male	Female	Total Number of House Holds
1.	2001	8420			
2.	2011	10102	5113	4989	3162

II. GEOGRAPHICAL DETAIL:

Sr. No.	Description	Information/Detail
1.	Area of Village (Approx.) (In Hector)Coordinates for Location:	2018 HECTOR
2.	Forest Area (In hect.)	116
3.	Agricultural Land Area (In hect.)	1568
4.	Residential Area (In hect.)	
5.	Other Area (In hect.)	63
6.	Distance to the nearest railway station (in kilometers):	22 KM IN AHMEDABAD



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7.	Name of Nearest Town with Distance:	AHMEDABAD - (26.2 KM)
8.	Distance to the nearest bus station (in kilometers):	IN VILLAGE
9.	Whether village is connected to all road for the any facility or town or City?	AHMEDABAD (26.2 KM)

III. OCCUPATIONAL DETAILS:

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

Major crops grown in the village:	1. RICE
	2. WHEAT
	3. MILLET

IV. PHYSICAL INFRASTRUCTURE FACILITIES:

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

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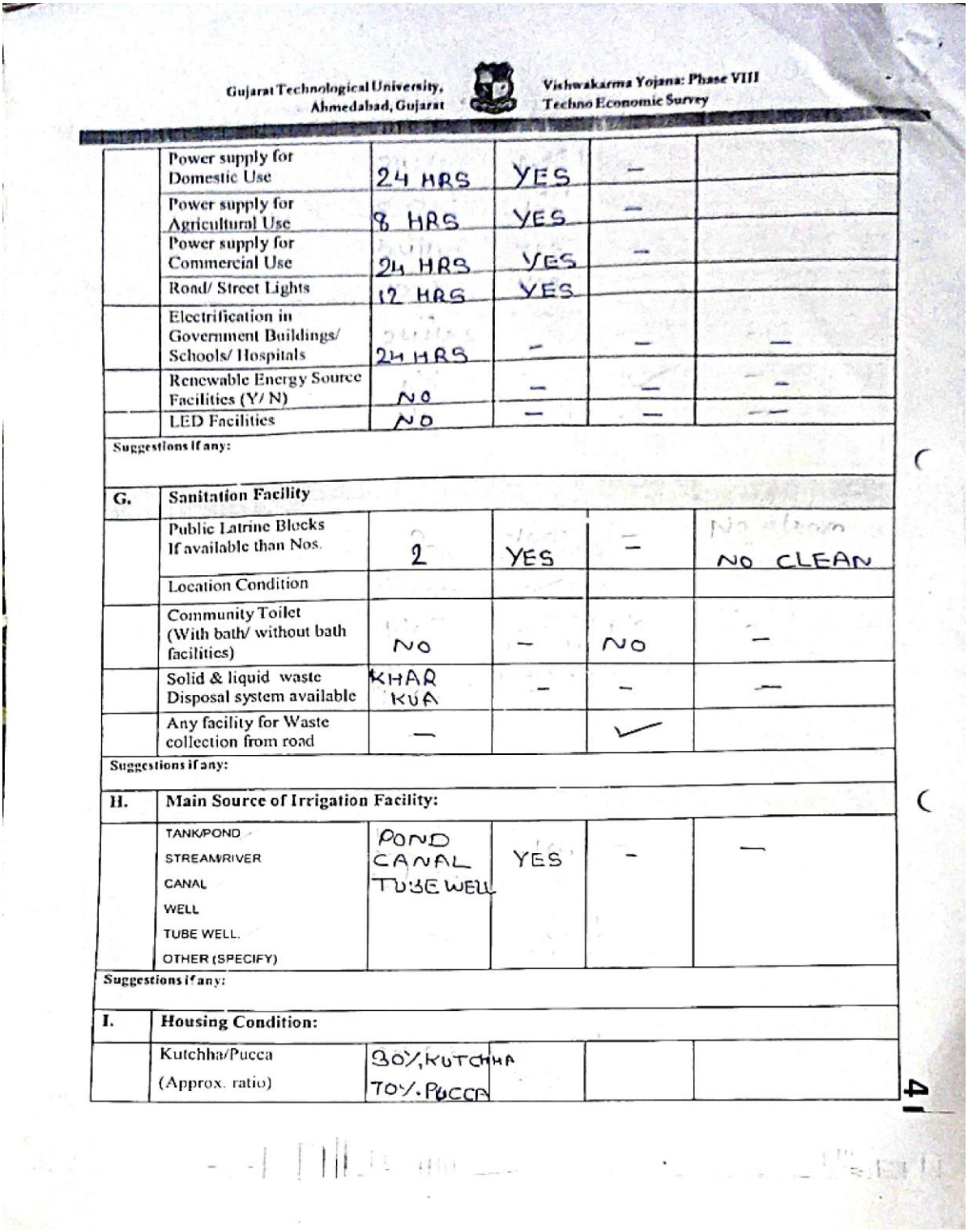
	Other(Specify)Lake/ Pond	POND LAKE	YES	–	–
Suggestions if any:					
B.	**Water Tank Facility**				
	Overhead Tank	Capacity: 2	HSL	50000	–
	Underground Sump	Capacity:			
Suggestions if any:					
C.	**The Type of Drainage Facility**				
	A. UNDERGROUND DRAINAGE 1	YES	YES		
Suggestions if any:					
D.	**Road Network :All Weather/ Kutchha (Gravel)/ Black Topped pucca/ WBM**				
	Village approach road	BTWMEN	YES	–	–
	Main road	BITWMEM	YES		
	Internal streets	PCC	–	YES	NOT GOOD
	Nearest NH/SH/MDR/ODR Dist. in kms.	NH-147 0-8 KM	–	–	–
Suggestions if any:					
E.	**Transport Facility**				
	Railway Station (Y/N) (If No than Nearest Rly Station---Kms)	NO	–	–	KALUPUR RAILWAY STATION (22KM)
	Bus station (Y/N) Condition: (If No than Nearest Bus Station---Kms)	IN VILLEGE	✓		
	Local Transportation (Auto/ Jeep/Chhakda/ Private Vehicles/ Other)	AUTO PRIVATE VEHICLES	✓		
Suggestions if any:					
F.	**Electricity Distribution**				
	(Y/N) Govt./ Private (Less than 6 hrs./ More Than 6 hrs)	MORE THEN 6 HRS.	GOOD	–	–



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Vishwakarma Yojana: Phase VIII
Techno Economic Survey

	Power supply for Domestic Use	24 HRS	YES	–	
	Power supply for Agricultural Use	8 HRS	YES	–	
	Power supply for Commercial Use	24 HRS	YES	–	
	Road/ Street Lights	12 HRS	YES		
	Electrification in Government Buildings/ Schools/ Hospitals	24 HRS	–	–	–
	Renewable Energy Source Facilities (Y/ N)	NO	–	–	–
	LED Facilities	NO	–	–	–
Suggestions if any:					
G.	**Sanitation Facility**				
	Public Latrine Blocks If available than Nos.	2	YES	–	NO CLEAN
	Location Condition				
	Community Toilet (With bath/ without bath facilities)	NO	–	NO	–
	Solid & liquid waste Disposal system available	KHAR KUA	–	–	–
	Any facility for Waste collection from road	–		✓	
Suggestions if any:					
H.	**Main Source of Irrigation Facility:**				
	TANK/POND STREAM/RIVER CANAL WELL TUBE WELL OTHER (SPECIFY)	POND CANAL TUBE WELL	YES	–	–
Suggestions if any:					
I.	**Housing Condition:**				
	Kutchha/Pucca (Approx. ratio)	30% KUTCHHA 70% PUCCA			

V. SOCIAL INFRASTRUCTURAL FACILITIES:

Sr. No.	Descriptions	Information/ Detail	Adequate	Inadequate	Remarks
J.	**Health Facilities:**				
	ICDS (Anganwadi)	✓			12
	Sub-Centre	✓			3-7
	PHC	✓			
	BLOCK PHC				
	CHC/RH	✓			
	District/ Govt. Hospital				
	Govt. Dispensary				
	Private Clinic				
	Private Hospital/ Nursing Home	✓			Jadavam nokes
	AYUSH Health Facility				
	sonography /ultrasound facility	✓			
	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	12			
	Primary School	4			2 govt. 2 sem-govt
	Secondary school				
	Higher sec. School	3			
	ITI college vocational Training Center	7			
	Art, Commerce& Science /Polytechnic/ Engineering/ Medical/ Management/ other college facilities	7			
	If any of the above Facility is not available in village than approx. distance from village: .....kms.				

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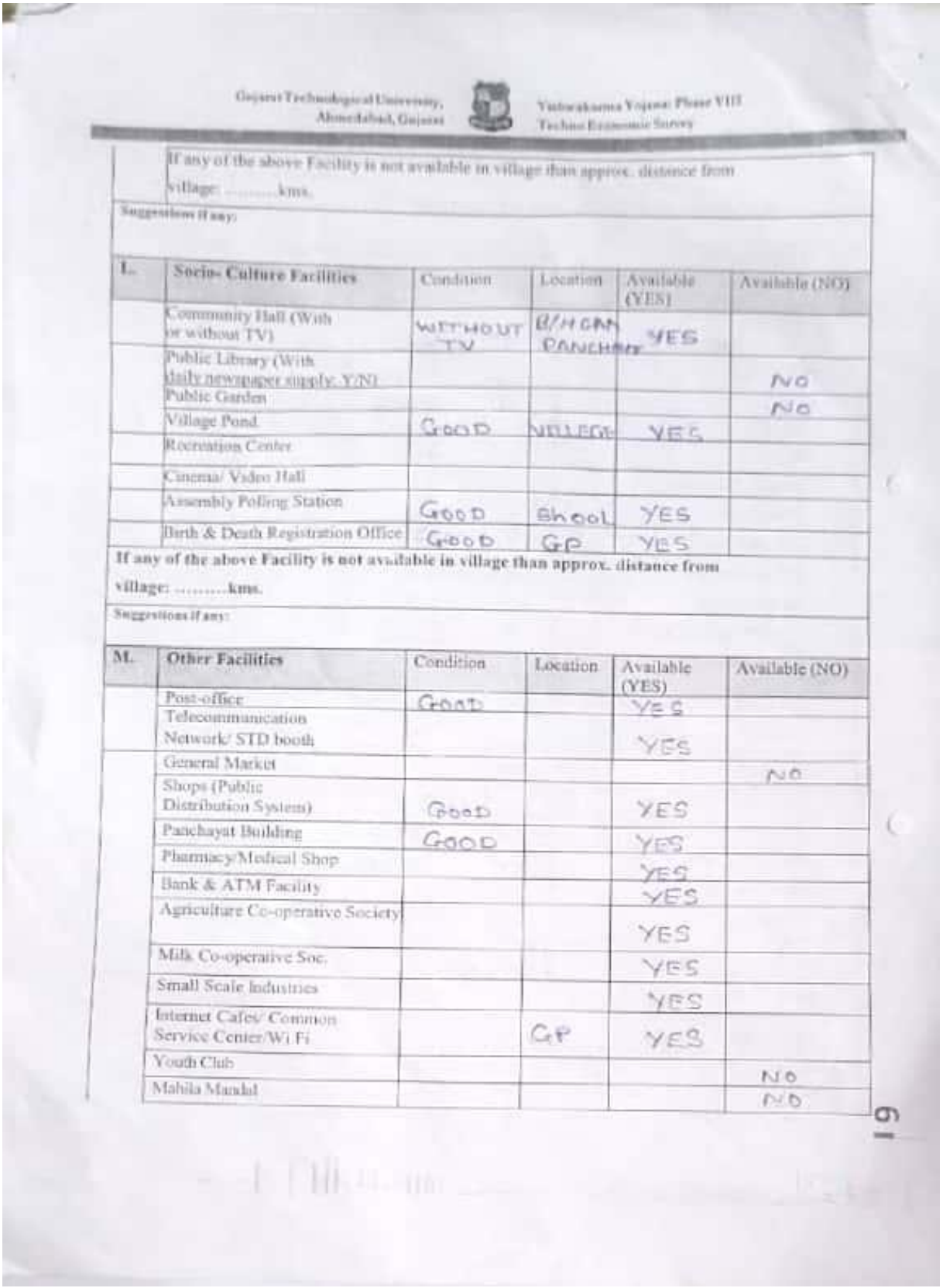

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Techno Economic Survey

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

Suggestions if any:

I.	Socio- Culture Facilities	Condition	Location	Available (YES)	Available (NO)
	Community Hall (With or without TV)	WITHOUT TV	B/H GRAM PANCHAYAT	YES	
	Public Library (With daily newspapper supply: Y/N)				NO
	Public Garden				NO
	Village Pond	GOOD	NEUTRAL	YES	
	Recreation Center				
	Cinema/ Video Hall				
	Assembly Polling Station	GOOD	School	YES	
	Birth & Death Registration Office	GOOD	GP	YES	

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

	Credit Cooperative Society Agricultural Cooperative Society Milk Cooperative Society Fishermen's Cooperative Society Computer Kiosk/ e-chaupal / Mills / Small Scale Industries			✓ ✓ – ✓ ✓	✓
	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)				

VI. SUSTAINABLE /GREEN INFRASTRUCTURE FACILITIES:

Sr. No.	Descriptions	Information/ Details	Adequate	Inadequate	Remarks
1.	Adoption of Non-Conventional Energy Sources/ Renewable Energy Sources	yes			
2.	Bio-Gas Plant Solar Street Lights Rain Water Harvesting System	NO — yes	LED		
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	Hard Copy			Photo
2.	Recent Projects going on for Development of Village	Solar Survey			
3.	Any NGO working for village development	Jalaram Santhan			
4.	Any natural calamity in the village during the last one year: EARTHQUAKES FLOODS CYCLONE DROUGHT LANDSLIDES AVALANCHE OTHER (SPECIFY)				NO

VIII. ADDITIONAL INFORMATION/ REQUIREMENT:

Sr. No.	Descriptions	Information/ Detail	Remarks

18

1.	Repair & Maintenance of Existing Public Infrastructure facilities, School Building Health Center Panchayat Building Public Toilets & any other	No	—
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

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12.4 Gap Analysis of the Allocated Village:

VILLAGE GAP ANALYSIS					
Village Facilities	**Planning Commission/UDPFI Norms**	**Village Name:**	KUHA		
		Population:	10102		
		Existing	**Required as per Norms**	**Smart Village / Cities / Heritage Future Projection Design**	**Gap**
	Social Infrastructure Facilities				
Education					
Anganwadi	Each Per 2500 population	9	4		**5**
Primary School	Each Per 2500 population	10	4		**6**
Secondary School	Per 7,500 population				
Higher Secondary School	Per 15,000 Population	1	0		**1**
College	Per 125,000 Population	0	0		**0**
Tech. Training Institute	Per 100000 Population	0	0		**0**
Agriculture Research Centre	Per 100000 Population	0	0		**0**
Skill Development Center	Per 100000 Population	0	0		**0**
Health Facility					
Govt/Panchyat Dispensary or Sub PHC or Health Centre	Each Village				
Primary Health & Child Health Center	Per 20,000 population				
Child Welfare and Maternity Home	Per 10,000 population				
Multispeciality Hospital	Per 100000 Population				
Public Latrines	1 for 50 families (if toilet is not there in home, specially for slum pockets & kutcha house)				
	Physical Infrastructure Facilities				

Transportation		**Adequate/ Inadequate**			
Pucca Village Approach Road	Each village	2			0
Bus/Auto Stand provision	All Villages connected by PT (ST Bus or Auto)	1			0
Drinking Water (Minimum 70 lpcd)		**Adequate/ Inadequate**			
Over Head Tank	1/3 of Total Demand	2			0
U/G Sump	2/3 of Total Demand	0			0
Drainage Network - Open		**Adequate/ Inadequate**			
Drainage Network - Cover					
Waste Management System		**Adequate/ Inadequate**			
Socio- Cultural Infrastructure Facilities					
Community Hall	Per 10000 Population	**1**	1		**0**
community hall and Public Library	Per 15000 Population	**0**	0		**0**
Cremation Ground	Per 20,000 population	**0**	0		**0**
Post Office	Per 10,000 population	**1**	1		**0**
Gram Panchayat Building	Each individual/group panchayat	**1**	1		**0**
APMC	Per 100000 Population	**0**	0		**0**
Fire Station	Per 100000 Population	**0**	0		
Public Garden	Per village	**0**	1		**1**
Police post	Per 40,000Population	**0**	0		**0**

12.5Summary Details of All the Villages Designs in Table form ~~as~~ Part-I and Part-II

Sr. No.	Village	Discipline	Part I	Part II
1.	Kuha	Civil	Public Toilet.	
			Auditorium	
			Ground Water Recharge Shaft	
			Public library	
			Government Medical shop	
			Waste Management	
2.	Kubadthal	Civil	Bank	
			P.H.C.	
			Skill Development Classes	
			Cyber Café	
			Post Office	
			Aangnwadi	
3.	Kanbha	Civil	Public toilet	
			RCC road	
			Library	
			Super Market	
			Bus Stand	
			Under Ground Water tank	
4.	Bilasiya	Civil	Public Toilet	
			Public Garden	
			Library	
			Solar Water Distribution Pump	
			Community Hall	
			P.H.C.	

12.7 Summary of Good Photographs in Table Format (village visits, Ideal, Smart Village or any other)


REDMI NOTE 7 PRO
AI DUAL CAMERA


કુહા ગ્રામ પંચાયત
કચેરી
REDMI NOTE 7 PRO
AI DUAL CAMERA


આયુષ્યમાન ભારત
REDMI NOTE 7 PRO
AI DUAL CAMERA

12.8 Village Interaction with sarpanch Report with the photograph:

12.9Sarpanch Letter giving information about the village development