DETAIL PROJECT REPORT

VISHWAKARMA YOJNA: VIII
AN APPROACH TOWARDS RURBANISATION

Tarnol Village
Anand District

PREPARED BY:

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COLLEGE NAME: - G.H. PATEL COLLEGE OF ENGINEERING & TECHNOLOGY

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NODAL OFFICER

YEAR: 2020-21

GUJARAT TECHNOLOGICAL UNIVERSITY
Chandkheda, Ahmedabad – 382424 Gujarat

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Year: 2020-21

Gujarat Technological University,
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CERTIFICATE

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

Detail Project Report for,

VILLAGE:-TARNOL

DISTRICT:-ANAND

Under

Vishwakarma Yojana: Phase-VIII

In partial fulfillment of the project offered by:

GUJARAT TECHNOLOGICAL UNIVERSITY, CHANDKHEDA

During the academic year 2020-21.

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

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ABSTRACT

In India a Home for 133 crore People is among the fastest growing economics of the world, with more than 68.84% of the total population living in the core of 7 lakh village.

These villages have a very beautiful and attractive lifestyle, free from the hustle and bustle of a city life, providing peaceful, clam, and quiet and a green environment. Today the world is grooving rapidly and living standard of society are improving due to development in each and every filed due to evolution of new affordable technologies world has become smaller and faster.

Due to lack of amenities people are moving from rural to urban area. The government of Gujarat launched Vishwakarma yojana which is work for help and provides better solution for development of village. Under this scheme village are surveyed, from survey identifying the problem of villages and give solution of problems. By providing RURBANIZATION is done. Villages are developing as urban areas.

Our project is about development of appropriate facility and suggestion for up gradation of Tarnol Village.

Tarnol Village is located in Anand district, so it is essential to develop the village under the district for the growth of state and also for the country. Population of village is 7677 and the area of village is 880 hectares. Despite availability of many infrastructure facilities, the growth in population has outpaced all efforts of development so far. Slow pace development in village and pursuit of better life style has led to huge migration from village to cities.

On the basis of collected data from techno-economic survey & smart village survey, we found Gap between existing facilities and required as per norms. For sustainable development we proposed some design in village which does not exist in the village.

Key words: - Vishwakarma Yojana, Urbanization, Rurbanization, Village development, Infrastructure, Rural Development, Sustainable development.

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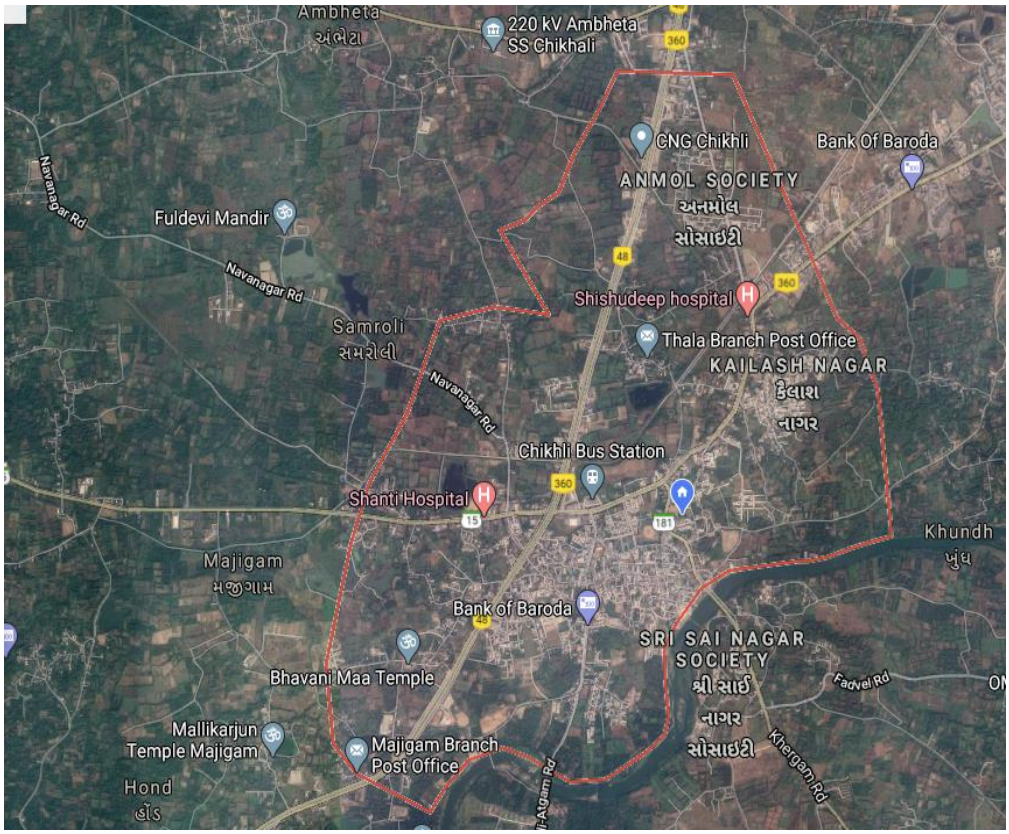
ABBREVIATIONS

SHORT NAME / SYMBOL	FULL NAME
GIS	Geographic information system
PMGSY	Pradhan mantri gram sadak Yojna
KM	Kilometer
SAGY	Sansad Adarsh Gram Yojna

Chapter 1: Ideal village visit from District of Gujarat State (Civil & Electrical Concept)

1.1 BACKGROUND & STUDY AREA LOCATION

Chikhli village is located at 29 km in Navsari. Agriculture is the main profession of this village. The village connected with National highway -48 from where state highway reaching ahawa via waghai and vansda, and to the hill station of saputara bifurcate. This village is developed during recent years very efficiently and now this village have all basic amenities like, road networks, underground drainage, water supply, gram panchayat, all houses are pucca, transportation services, higher education, gas pipe lines, CCTV cameras in all main roads, Solar panel street lights on roads,dustbins at different locations all around the village areas, recreational activities like Public garden, walk ways on the edges of lake, river front etc. The education is very good in this village. This village has post office and hospitals. The village is developed under pradhanmantri aadarsh gram yojna and also village is part of viswakarma yojna phase 2. Chikhli comes under the purview of surat metropolitan region. Chikhli is smallest city in south Gujarat. It has small river example kaveri and it is going to be a good market place for nearer villages. The idea of an Adarsh Gram or ideal village has been explored earlier as well, most notably through the Pradhanmantri Adarsh Gram Yojana, launched by the central Government in 2009.



(**Fig. 1** Map of Chikhli village)

1.2 CONCEPT OF IDEAL VILLAGE

1.2.1 Objective of Ideal Village

The Ideal village concept is a community village with self-sustaining income producing projects, independent electrification system generated from non-fuel-based device, clean water facility for drinking including water for irrigation, quality but affordable housing, school, medical facilities for human being and animals, proper sanitation system, information center, bank, police station, retail outlet for household and agriculture needs, phone facility, connection roads to nearby village and town, legal councilor.

Provide drinking water security through an integrated combination of pipe, local traditional water sources and multiple sources for alternative use. Conserve water through water resource management that includes rainwater harvesting and artificial recharge, conservation and renovation of traditional water sources build effective community institution at the local level by supporting capacity building and empowerment. Ensure that all community groups, including women, can participate in the decision- making processes and benefit from program improvement and improve household and community environment with sanitation improvement and increased hygiene4 awareness in communities.

1.2.2 Case Study of Ideal Village of India / Gujarat

Urban or municipal infrastructure refers to hard infrastructure systems generally owned and operated by municipalities, such as streets, water distribution, and sewers. It may also include some of the facilities associated with soft infrastructure, such as park, public pools, and libraries.

Green infrastructure is a concept that highlights the importance of the natural environment in decision about land use planning. There is an emphasis on the “life support” functions provided by a network of natural ecosystems, with an emphasis on interconnectivity to support long-term sustainability. Example include clean water and healthy soil, as well as the more androcentric function such as recreation and providing shade and shelter in and around towns and cities. The concept can be extended to apply to the management of storm water at the local level using natural system, or engineering systems that mimic natural systems, to treat polluted runoff.

1.2.3 The Idea of Model

1. Exposer visits are a very important training methodology as it enables the participants from a different setting to interact with learn from each other, allowing them to view practical / real life situation of successful integration of sustainable practices in the said field.

2. During this meeting border information exchanges took place between the two groups, beyond the core topic. It was observed that all the participants were enthusiastic for learning and implementing their learning's in their own village.

3. This visit was a step forward in the project as it was a real time experience for the participants on the struggle and hard work that goes into building a remarkable ideal village.

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

Punsari village is situated in sabarkantha Gujarat, Punsari is India's smartest village. The village is located 18 km away from the Gandhinagar, Punsari village has followed Panchayati raj system. The villagers used new and advance technology in education. The panchayat provided Wi-Fi system for all people of village. Punsari panchayat provide the facilities of local mineral water supply, sewer and drainage project, health care center, banking facilities, toll free complain reception service.

The village received award being the best gram panchayat of Gujarat. The village model has been appreciated by delegates from Nairobi and they are coming to replicant in the village of Kenya.

1.3 DETAIL STUDY

- **Socio economic**

The Chikhli panchayat collect around 75 lacs rupees as various tax funds from privet as well as government sectors the economic status of Chikhli Panchayat is Much better than others Village or rural areas. The various sources of income are housing tax water tax, cleaning charges, electricity bills, Taxes from Kamrej Factory of Sugar etc.

- **Physical, Demographic and Infrastructure Detail of Ideal Village**

Chikhli is a village facilitated with bituminous and R.C.C. roads for main village road as well as society streets. The road is facilitated with sign board, markings and signals for proper functioning of the vehicular traffic as well as pedestrian's traffic. The village is facilitated with proper street light for night travel.

Pure drinking water for morning and evening peak hours is also provided door to door with help of 6 over head water tank which range from 15000l to 25000l which are cleaned at regular intervals to maintain hygienic conditions.

Along with the facility of pure drinking water the facility for the removal of waste water is also provided. Drainage network for the whole town is constructed from door to door and is connected to main sewage line at Chikhli Taluka.

Education: -

They have hierarchy of education facilities from primary school to college. There are 6 pre-primary schools (Aganwadi), 2-primary school, 3 schools and private college. Also, it is noted that there is 98% enrollment and only 2% dropout ratio in schools. They have banned the tobacco, cigarette and other product in the 100-meter radius of school for better health of student.

(**Fig 2** Gate of Chikhli village)

(**Fig 3** High school of Chikhli Village)

(**Fig 4** post office, Chikhli)

(**Fig 5** Chikhli market)

(**Fig 6** Bus stand Chikhli)

(**Fig 7** chikhli garden)

(**Fig 8** Shiv murti at river front)

(**Fig 9** bituminous road Chikhli)

(**Fig 1**0 referral hospital chikhli)

(**Fig 11** Police Station, Chikhli)

1.4 SWOT ANALYSIS OF IDEAL VILLAGE

SWOT analysis of ideal village

- **Strength**

  - Education facility (kindergarten to college).
  - The village has bituminous road in all areas.
  - Gram panchayat building.
  - Post office.
  - Government hospitals as well as private hospitals private hospitals are there.
  - There are lots of banks available in village
  - CCTV cameras are fitted in every main road in village.
  - 24*7 working Bus stand is there in village.
  - Public library.
  - Drainage facility.
  - Solar light on main roads.
  - No criminal activities.
  - Gas pipe line facility in all areas.
  - Strong will power of the villagers for village development.
  - Kaveri River front, Lions club garden, Cricket ground, lake etc recreational facilities are available in the village.

- **Weakness**

  - No cinema hall

- **Opportunities**

  - to make whole village digital and wi-fi connected
  - to rise the living standards of people

- **Threats**

  - Vacant properties and property owners that do not maintain their property
  - Crop damages during heavy rain

1.5 FUTURE PROSPECTS OF THE IDEAL VILLAGE:

Chikhli village can be developed as an educational and recreational hub due to development of upcoming infrastructure projects near the village and due to ITI college campus in the premises of Chikhli village. Local business and employment opportunities can also be improved with regards to increase in the physical and social development of village.

1.6 BENEFITS OF THE VISITS

Purpose: -

To study about the development as well as the infrastructure facilities of villages which is an ideal village and can be considered as Benchmark for the development and growth of other villages which are developing or which needs to be development.

By visiting such villages, we students of civil engineering and electrical engineering can understand about the actual development that a rural area needs to satisfy its basic infrastructure facilities and compare with urban area and can implement these techniques and facilities for the development of other villages which actually needs development and can implement the same for the development of villages which are allocated to us as a final year project.

After visiting the village, we came to know about various facilities that can be provided in a village for Rurbanization of village and to reduce the migration of people from villages to city areas. We also came to know about the various methodologies and techniques that can be used for the development of village.

1.7 CIVIL CONCEPT / METHOD / USAGES IN THE IDEAL VILLAGE:

Civil engineering projects are increasingly complex and are associated with situations where robust decision is required to be taken. These decisions are made in different stages of civil engineering projects. For example, decision making takes place during feasibility study stage prior to design, procurement and construction stages in order to determine the viability of project undertaken by an investor.

With the help of an interdisciplinary approach to problem solving, however, many innovations are being made in an effort to bring practical, repeatable implementation to construction. Although the learning curve may be steep, the potential benefits are considerable. All the work of the village development is carried by the gram panchayat are in their presence and efforts to make their village world class and people will visit their village for their well-known facilities which are provided by gram panchayat.

Chapter 2: Literature Review

2.1 Introduction: Urban and Rural

The "Rural Area" means any place as per the "least census" which meets the following criteria,

- Area with population less than 5,000
- Density of population less than 400 per km
- More than "25% of the male working population" is engaged in agricultural works.

The definition of urban area is as follow:

1. All places with a municipality, corporation or notified town area committee, etc.
2. All other places which satisfied the following criteria:

    - Area with minimum population of 5,000
    - At least 75% of the male working population is engaged in nonagricultural activities.
    - A density of population of at least 400 persons per km^2

2.2 Importance of The Rural Development:

Rural development is important not only for the majority of the population residing in a rural area, but the growth of rural activities is necessary to stimulate the speed of overall economic expansion of the nation.

Rural development is pretended to be noticeable importance in the country today than in the olden days in the process of the evolution of the nation. It is a strategy trying to obtain improved rural creation and productivity, higher socio-economic equality, and ambition, stability in social and economic development.

The primitive task is to decrease the famine roughly about 70 percent of the rural population, implement sufficient and healthy food. Later, serve fair equipment of clothing and footwear, a clean environment and house, medical attention, recreational provision, education, transport, and communication.

2.3 Different Definition of Rural Area / Village

As urban markets saturate and companies spread their wings in search of new markets, everybody has the same question on their lips: what constitutes a "rural" market? The question to discover the real rural India continues in great earnest. Almost every economic agency today has a definition of rural India. Here are a few definitions.

According to the planning commission, a town with a maximum population of 15000 is considered rural in nature.

The national sample survey Organization (NSSO) defines "Rural" as follow:

- An area with a population density of up to 400 per km^2
- Villages with clear surveyed boundaries but no municipal board
- 0A minimum of 75% of male working population involved in agriculture and allied activities.

2.4 Scenario: Rural / Urban India And Gujarat As Per Census 2011 (Population Growth)

DATA HIGHLIGHTS – CENSUS 2011
Table no.1 Population (in Crore**)**

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

For the first time since Independence, the increase in population is more in urban areas than that in rural areas

- Rural- Urban distribution: 68.84% and 31.16%
- Level of urbanization increased from 27.81% in 2001 census to 31.16% in 2011 census
- The proportion of rural population declined from 72.195 to 68.84%

2.5 Rural issues and Concern

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

- **Issues of Agriculture**

In general, the issues are how to increase agriculture in India.

1. Increase the marketization level of agriculture production and operation and stabilizing the prices of agricultural products.
2. Changing the situation of smallholder economic agriculture, achieving economies of scale of agriculture production and operation
3. Guaranteeing the food security in India

- **Issues of Rural Areas**

This is particularly reflected in the disparity of economic and cultural development urban and rural areas. It is mainly caused by duel segmentation based on the household registration system.

- **Issues of Farmers**

It includes improving the income level of farmers, alleviating burdens of farmers, increasing the cultural quality of farmers, and safeguarding the right of farmers.

2.6 Various Measures for Rural Development:

For the development of rural different measures need to be taken to fulfil following objectives:

- To promote the rural economy by improving production and the employment situation and incomes of the rural population through:
- The development of new nonagricultural rural activities, such as agro industries, support services, etc., which will make higher level of productivity and competitiveness possible;
- The improvement of working, training and income condition of rural workers; and
- To promote the generation of saving and facilities a higher level of investment in the rural area.
- To help expand the access of the rural population to basic services, including, education, health care etc

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

- **Water supply: -**

Delivery of safe drinking water is vital for protecting public for public health and of promoting more secure livelihoods. The traditional approach to water quality and safe management has relied on the testing of drinking water, as it leaves the treatment works or at selected points, either within the distribution system or at consumer taps. It is referred to as “end-product testing”.

Various method for water supply:

- Gravity-fed water supply system in hilly areas
- Dug well-based rural water supply
- Borewell-based rural water supply
- Ground water recharging system
- Roof top rain water harvesting systems

- **Sanitation facilities: -**

Demand and supply of sanitation facilities and services should be addressed concurrently to ensure toilet adoption and sustained use and enable scale adoption and sustained use of sanitation facilities requires construction on safe toilets and their sustained use.

- **Roads: -**

The union ministry of rural development has recently issued fresh guidelines under the "Pradhan Mantri Gram Sadak Yojana" to prevent construction of poor-quality roads and streamline the bidding process throughout India. PMHSY is the largest rural road connectivity program in the world.

- **School: -**

Many small towns lack basic educational infrastructure. Most schools don't have proper toilets, electricity, and proper building with roofs. There is also lack of drinking water. The condition of government schools is also not satisfied according to many reports. There have been several cases of poisoning due to poor quality mid-day meals in government schools. Therefor, provide among the all facilities in rural schools like proper toilets, electricity and proper building and also provide good furniture which required in school.

2.8 Other Projects / Schemes

- **Projects / Schemes by Government Sector:**
  - ✓ IRDP (Integrated Rural Development Program)
  - ✓ SGSY (Swaranjayanti Gram Swarozgar Yojana)
  - ✓ NRUM (National Rurban Mission)
  - ✓ Pradhan Mantri Gram Sadak Yojana
- **Projects / Schemes by Private Sector:**
  - ✓ Intensive Agriculture area Program
  - ✓ Intensive Agriculture District Program
  - ✓ High Yielding Varieties Program
  - ✓ Rural Industries Projects

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

3.1 Concept, Definitions and Practices

The concept of smart city embraces several definitions depending on the meanings of the word "smart". Intelligent city, knowledge city, ubiquitous city, sustainable city, digital city etc. many definitions of smart city exist but no one has been universally acknowledged yet. From literature analysis it emerges that Smart city and digital city are the most used terminologies in literature to indicate the smartness of a city.

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

The vision of smart cities is that the smart cities are the center of the future, secure environmentally green, made safe, efficient because of all structure- whether for water, power, and transportation. Are designed, construction making use of integrated materials, sensors, and network which are interfaced computerized systems of database, decision making algorithms.

Calculation of the 79 different livability indicators prescribed in the 'livability standards in cities' requires data on a large number of aspects of urban infrastructure, governance, municipal finances, social infrastructure, economic aspects etc. wherever such data is regularly compiled by the ULBs or other services such as DISCOMS. Water and sewerage utilities etc. it should be sources from the records of such provides.

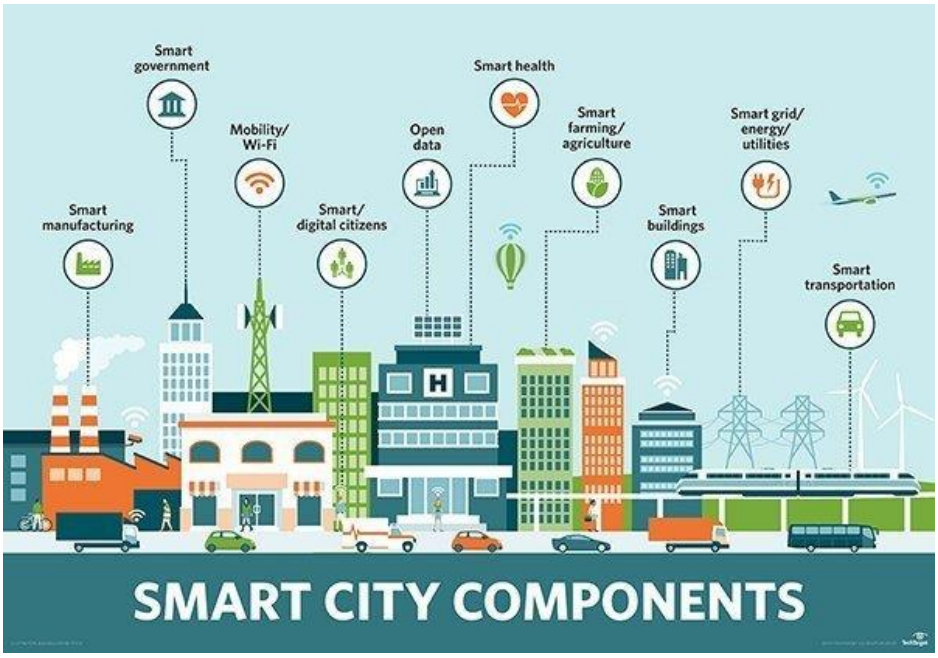
(fig. 12 Vision of Smart Village**)**

In some cases, the data may require on field through physical surveys. For certain indicators such as pollution, modal split of urban transport, water quality etc. data will have to be obtained from physical survey as per standard and prescribed survey and sampling techniques. And necessary maps may need to be prepared for cities where such information or maps are not available.

3.3 Technological Options for Smart Cities:

Cities and communities across the Nation are today facing complex and persistent challenges stemming from changing populations and infrastructure. In particular, demands on city infrastructure, systems, and services are growing and changing, prompting important new needs, such as more effective use of limited space, greater walkability, and ways to support residents across all socioeconomic statuses. The need for improved resilience in the face of natural and man-made disasters adds to the challenges that cities and communities are facing. These challenges directly manifest for city residents as well. Being able to address these challenges is in and of itself difficult.

Ongoing city operations are often dependent upon the very infrastructure, services, and systems that could benefit from innovation and finding the time, energy, and resources to improve city capabilities without adversely affecting these ongoing operations is not trivial. Consider, for example, routine roadway construction projects; cities and communities must often conduct these projects during limited nighttime and weekend hours, so as to minimize disruptions for residents who rely upon the roadways to commute to and from work.



(**fig. 13** Technological Options for Smart Cities)

At the same time, advances in networking and information technology over the last several decades have transformed individuals' lives, rapidly altering how we live, work, and communicate. Integrating these digital technologies with physical infrastructure at the city level similarly enables innovative opportunities and solutions to the challenge's cities are facing. By working closely with cities to support this integration in ways described in this strategic plan, Federal agencies can help facilitate solutions to city challenges and catalyze the smart of the future.

3.4 Road Map and Safeguards

The purpose of building smart cities is to make the lives of the people safer and easier. Technology can be used as an instrument to protect lives and improve services and, furthermore, it can be used to protect Personally Identifiable Information and cities critical infrastructures, such as water treatment systems, transportation, hospitals, and power plants. Technology can be used to reduce crimes by geographically spotting areas with high crime rates, identifying specific crime patterns, and reporting it to law enforcement instantly, many of these services are achieved.

(**fig. 14** Technology used in Future Smart Village)

Sensors are small measurement devices that can be integrated with electronics to detect certain smells, sound, or levels of variations. Sensors can be passive or active. Passive sensors do not necessarily act; they simply collect data, and they are used mainly to measure weather conditions, such as Ozone levels, wind speed, or the sun's ultraviolet levels. Active sensor devices, on the other hand, use electronics to process data and act.

3.5 Issues & Challenges

1. Retrofitting existing legacy city: infrastructure to make it smart, there are several issues to consider when reviewing a smart city concept. The most important is to determine the existing cities weak areas that need utmost consideration, e.g., 100-per-cent distribution of water supply and sanitation.

2. Financings of smart cities: The High-Power Expert Committee on Investment Estimates in Urban Infrastructure has assessed a per-capita investment cost of Rs 43,386 for a 20year period. Using an average figure of 1 million people in each of the 100 smart cities, the total estimate of investment requirements for the smart city comes to Rs 7 lakh crore over 20 years. This translates into an annual requirement of Rs 35,000 crore.

3. Availability of city development plan: Most of our cities don't have a city development plan, which is the key to smart city planning and encapsulates, and encapsulates all a city needs to improve and provide better opportunities to its citizens. Unfortunately, 70-80 % of Indian cities do not have.

4. Financial sustainability of ULBS: Most ULBS are not financially self-sustainable and tariff levels fixed by the ULBs for providing services often do not mirror the cost of supplying the same. Even if additional investments are recovered in a phased manner, inadequate cost recovery will lead to continued financial losses.

5. Technical constraints of ULBS: Most ULBS have limited technical capacity to ensure timely and cost-effective implementation and subsequent operations and maintenance owing to limited recruitment over a number of years along with inability of the ULBs to attract best of talent at market competitive compensation rates.

6. Three-tier governance: Successful implementation of smart city solutions needs effective horizontal and vertical coordination between various institutions providing various municipal amenities as well as effective coordination between local government, state government, central government, agencies on various issues related to financing and sharing of best practices and service delivery processes.

3.6 Smart Infrastructure

Smart information and communication technology have the potential to transform the way we plan and manage infrastructure. New development in computer hardware, new applications and software are changing the face of the infrastructure sectors, and society more generally, driving greater efficiency, increasing productivity, and greatly simplifying construction process and life of asset maintenance.

(**fig. 15** Smart Infrastructure)

3.7 Cyber Security

Cyber security is the body of technologies, processes and practices designed to protect network, computers, programs and data from attack, damage, or unauthorized access. In a computing context, security includes both cyber security and physical security.

Ensuring cyber security requires coordinated efforts throughout on information system. Elements of cyber security include:

- Application security
- Network security
- Operational security
- End-user education

(**fig. 16** Cyber Security)

3.8 District Cooling and Heating / Green Building

District cooling system produce chilled water, steam or hot water at a central plant and then pipe that energy out to building for air conditioning. Space heating and water heating. As a result, there buildings do not require their own chiller, air conditioners, boilers or furnaces.

District cooling systems are a highly efficient way for many owners and manufacturers to effectively address each of these challenges while meeting their comfort and process cooling and heating needs.

(**fig. 17** Benefits of Green Building)

Heat sources in use for various district heating systems include, power plants designed for combined heat and power including both combustion and nuclear power plants; and simple combustion of a fossil fuel or biomass; geothermal heat; solar heat; industrial heat pumps which extract heat from, river or lake water, seawater, sewage, and waste heat from industrial processes.

3.9 Strategic Option for Fast Development

Smart Infrastructure involves applying this to economic infrastructure for the benefit of all stakeholders. It will allow owners and operators to get more out of what they already have, increasing capacity, efficiency and resilience and improving services.

It brings better performance at lower cost. Gaining more from existing assets is the key to enhancing service provision despite constrained finance and growing resource scarcity. It will often be more cost-effective to add to the overall value of mature infrastructure via digital enhancements than by physical enhancements – physical enhancements add `more of the same', whereas digital enhancements can transform the existing as well.

Smart Infrastructure will shape a better future. Greater understanding of the performance of our infrastructure will allow new infrastructure to be designed and delivered more efficiently and to provide better whole life value.

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

More than 90% of the urban population has access to drinking water, and more than 60% of the population has access to basic sanitation. However, access to reliable, sustainable, and affordable water supply and sanitation (WSS) service is lagging. Are the Services Reliable? No Indian city receives piped water 24 hours a day, 7 days a week. Piped water is never distributed for more than a few hours per day, regardless of the quantity available. Raw sewage often overflows into open drains. Are the Services Technically and Financially Sustainable? Less than 50% urban population has access to piped water. The Non-Revenue Water (NRW: due to leakages, unauthorized connections, billing, and collection inefficiencies, etc.) is huge, estimated between 40-70% of the water distributed.

3.11 Initiative in Village Development by Local Self-Government

- **Rural Local Government (or Panchayat Raj Institutions)**
    - Zilla Panchayat
    - Mandal or Taluka Panchayat
    - Gram Panchayat

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

3.12 Smart Initiative by District Municipal Corporation

- Solid waste management.
- Selvedge water disposal.
- Effective road transportation.
- Maintaining streetlight facilities.
- Agriculture awakening center.

3.13 Any Projects Contributed Working by Government

- The panchayat raj system is a three-tier system with elected bodies at village, taluka, and district levels.
- The modern system is based in part on traditional panchayat government, in part on the vision of mahatma Gandhi and part by the work of various committees to harmonize the highly centralized Indian government administration with a degree of local autonomy.
- The result was intended to create greater participation in local government by people and more effective implementation of rural development programs.
- Although, as of 2015, implementation in all of India is not complete the intention is for there to be a gram panchayat for each village or group of villages, a tehsil level council, and a zilla panchayat at the district level.

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

- Each village should have following 5 basic amenities in 5 year:
  - Roads
  - Electricity
  - Water
  - Hospitals
  - Schools

- Basic amenities of for smart village from other countries are:

  - Schooling: smart classroom can improve the quality of education by providing access to a large amount of education resources.

  - 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 crops that can fetch them returns, by ensuring that there is no guilt of one product shortage of another.

Chapter 4: Introduction of Tarnol Village

4.1 Introduction:

4.1.1 Introduction About Tarnol Village Details

For development, planning and designing of rurbanization area we select Tarnol village in Viswakarma yojana project. It is situated in Anand district. It is situated 13 km away from Anand city.
Tarnol is a village is Umreth taluka of Anand district in Gujarat. Tarnol village has total geographic area of 880.16 hectares with population of 7677. In village no of houses are 1520 with 3969 male and 3708 females.

4.1.2 Justification / need of the study

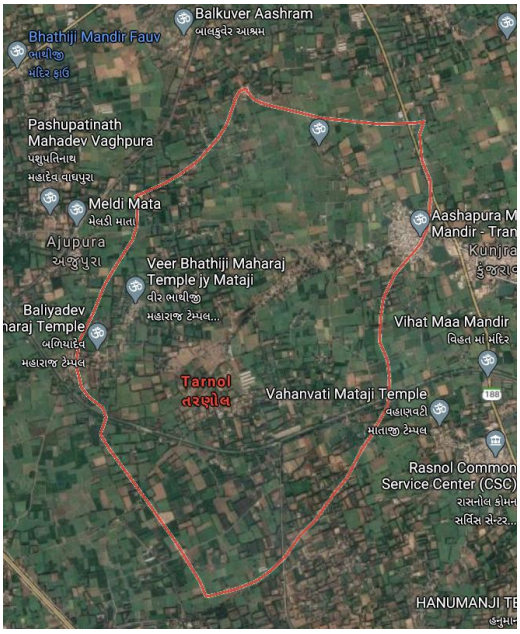
The Goal of research proposal is to present and justify the need to study a research problem and to present the practical ways in which this research should be conducted.

There are number of schemes of the Government which are being operated and run for rural development in the rural areas of the country. Evolution taken up so far for these schemes has been more or less in a piecemeal form, i.e. generally for each scheme separately. It has become difficult to get an overall picture of the development in totality in the rural areas and is difficult to assess the impact of any one particular scheme, since most of the schemes are complementary and supplementary. Hence a view has been formed to take up studies on trial-and-error basis to assess the impact of the important schemes as a whole in rural development in Tarnol village.

4.1.3 Study Area

- **Village Name :** Tarnol (તારણોલ)
- **Taluka Name:** Anand
- **District:** Anand
- **State:** Gujarat
- **Language:** Gujarati and Hindi
- **Time zone:** IST (UTC+5:30)
- **Elevation / Altitude:** 44 meters. Above Seal level
- **Telephone Code / Std Code:** 02692
- **Assembly constituency:** Umreth assembly constituency
- **Assembly MLA:** Govindbhai raijibhai parmar
- **Lok Sabha constituency:** Anand parliamentary constituency
- **Parliament MP:** PATEL MITESH RAMESHBHAI (BAKABHAI)

- **Serpanch Name:** Jyotsnaben ashokbhai
- **Pin Code:** 388335
- **Post Office Name:** Kunjrav



(**Fig 18** location map of tarnol village)

Tarnol village is situated in anand district. It is situated 13 km away from anand city. Tarnol is a village is umreth taluka of anand district in Gujarat. Tarnol village has total geographic area of 880.16 hectares with population of 7677. In village no of houses are 1520 with 3969 male and 3708 females.
It is mainly depended on farming almost 90% people are in farming business. The village has all religion places it has temples, mosque, and church. Village has wells, ponds , water tank etc…

4.1.4 Objective of the study

The main objective of the study undertaken is to utilize the results to provide true feedback of the present state of implementation of all development schemes in the rural areas. The observation made during the study are to inputs to help in bringing about changes in the formulation or reformulation.

- To access problems, constrains in the effective implementation.
- To know the basic requirement of village.
- To provide the basic facilities in rural area like Education, health, irrigation, electric power etc.
- To provide the impact of these various programs
- To gauge the general opinion of the people towards there schemes and programs of the government.

4.1.5 Scope of the Study

The aim of project is to develop the village with job opportunity for villagers. A team of project is finding the problem or need of a village in terms of socio – cultural or physical or social infrastructure and to design that facility with efficient engineering solution which include the design proposal and estimate cost to facilitate the require facility for the future growth of village with urban facilities.

The study will focus the development trend, intensity of growth of the village, and find out the problems related to the socio-cultural or physical development of the area, social infrastructure services, and the administrative systems of the village. The study of village gives the reason where there is need of sustainable facilities like infrastructure facilities, community hall, primary health center, post office, general market, pure drinking water, road network, schools, electricity, sanitation, library, Aanganwadi, overhead tank, police station, fire station, etc. are available or not.

Rural settlement engulfed in urban limits during the process of development, and also those located in the fringe areas of large cities, can be termed as urban villages.

4.1.6 Methodology Framework for Development of Your Village

To achieve the aim by passing through the objective, the study will be done in the following methodology, described as follow:

A. **Literature study:**

The various theories and case studies to be referred to the understanding of various issues related to the urban, to define the “Fringe villages”, to study the various issues of “Fringe villages”

B. Field Visit:

The field visit will be starts from collection of revenue maps and ‘gametal’ maps if possible, along with the map and other basic information of the study areas.

C. Primary Survey and Interview:

The primary surveys such as household surveys, questionnaire survey, to know the real status of the infrastructure services and quality of life they are living in the particular area and the major problems and issues they are facing, questionnaire survey of the real estate developers to know the scope and trend and scope of the development and status of the market and demand of that place.

D. Data Analysis:

An analysis form is used for finding a requirement of village as per government norms. A data collected during village survey is also used for an analysis government data on paper data.

E. Issues Findings, Development of Strategy:

From the above study in the detail of the literature review, situation analysis, study of the existing institutional framework, primary and secondary data analysis and mapping the best appropriate strategy to be formulated with possible recommendation, implementation strategy and allocating the roles and responsibilities of the different local bodies which give a scope for villagers to show their ability and chances of job opportunity.

F. Final Proposal:

Strategic theme-based proposal for fridge village from analysis in the form of rurban town.

4.1.7 List of objects Available Related to Civil Methodology.

- Anganwadi
- Panchayat office
- Overhead rectangular water tank
- Primary school
- Secondary school
- Drainage system
- Underground water system
- General store
- Public library
- Public garden
- Public toilets
- Community hall
- Cyber café

4.2 STUDY AREA PROFILE

4.2.1 Study Area Location

- **Village Name :** Tarnol (તારણોલ)
- **Taluka Name:** Anand
- **District:** Anand
- **State:** Gujarat
- **Language:** Gujarati and Hindi
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- **Serpanch Name:** Jyotsnaben ashokbhai
- **Pin Code:** 388335
- **Post Office Name:** Kunjrav

The village is situated in anand taluka anand district its is 14 km away from anand headquarters.

Connectivity of Tarnol

Table 2 Connectivity to Tarnol

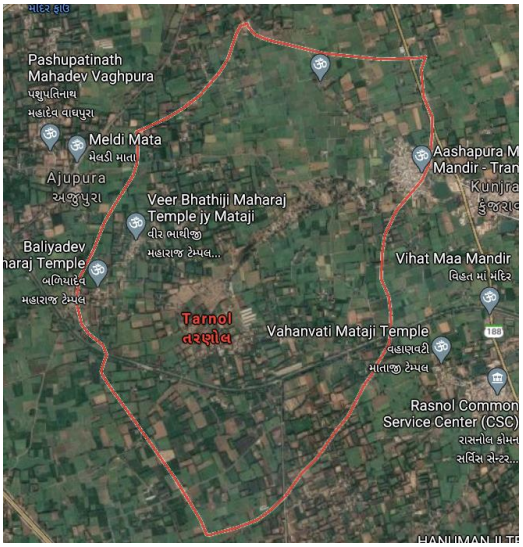
Type	Status
Public bus service	Available within village
Private bus service	Available within 10+ km distance
Railway station	Available within 5+ km distance

- Primary topographical and geographical details are described below.

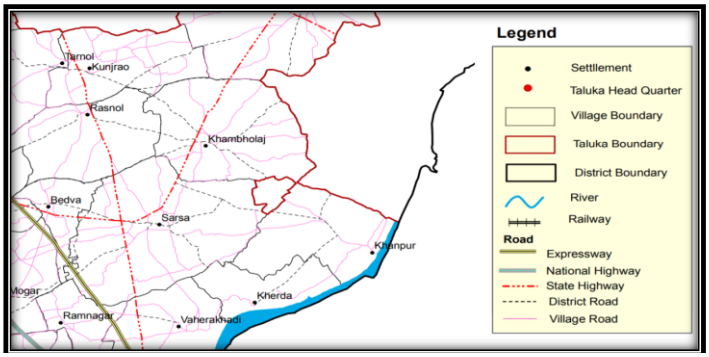
Table no.3 study area location

1	Nearest town and its distance	Anand- 14km
2	Temperature	29 C’
3	Annual rainfall	672mm

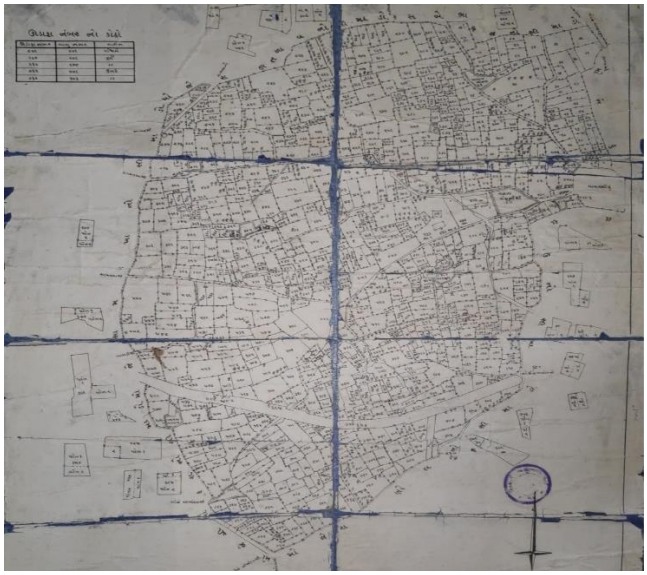
4.2.2 Base Location map, Land Map, Gram Tal Map



(fig 19 location map of Tarnol)



(Fig 20 Land map of Tarnol village)



(Fig 21 gram tal map of Tarnol village)

4.2.3 Physical & Demographical Growth

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

Demographical growth

Table no.4 Demographical growth

Sr.no.	Population	Male	Female	Total house hold
1	7677	3969	3708	1520

4.2.4 Economic Profile / Bank

The economic status of Tarnol gram panchayat is not well as compared the ideal village like Chikhli. Tarnol panchayat collects around 10 to 11 Lakh as various taxes and funds from the various sources of income are housing tax, income tax, water tax, electricity bills, cleaning charges, taxes from the House hold. And the other development work is done in village by the Grant Which is given by the Stat government or Central Government.

In tarnol village one bank is available with ATM facility so Villager do not have to Go other village for banking purpose.

4.2.5 Social scenario – Preservation of traditions, Festival, Cuisine

Stringent rules must be passed to ensure that corrupt practices do not hamper and harass the bank loan seekers, old age and handicapped pensioners, and other recipients of bank assistance for small enterprises or other beneficiaries for other interventions.

Festivals: the village folk culture is dance including garba, dandiya, raas, tipani etc.

Traditional wear: they wear traditional cloths like chanyacholi, kediyo, kachhado, Gujarati saree etc.

Cuisine: the regular food is Gujarati thali, Indian food, the villagers prefers the vegetables to eat which is they grow in their farm.

4.2.6 Migration Reasons / Trends

In Tarnol village people are migrate because of better opportunity for jobs, business, high living standard. People are migration to Anand is one of the economic hub of Gujarat, people earn more in the city rather than village that's why people migrate from village to city.

4.3 DATA COLLECTION

4.3.1 Methods for Data Collection

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

4.3.2 Primary Survey Details

Primary survey details are collected by interacting with the village dwellers and questioning them about facilities available and require. They were asked to give suggestions about the work required to be carried out for the development of the village to promote rurbanization.

4.3.3 Average Size of the House

The village has no specified size of house, but the Financially Capable villagers have good constructed House and poor villagers have small size or medium size house. The Average size of house is 100 var plot per house.

4.3.4 No. of Human being in one house

As per population and house hold number the average Human being in the one House is 5. Each House has 4-5 persons in the house.

4.3.5 Which Martial Use locally / Out Sourced Materials

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

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

4.3.6 Geographic Details

Table no.5 Geographic Details

Sr.no	Description	Information details
1	Area of village	880 hectors
2	Forest area	-
3	Residential area	110 hectors
4	Agriculture area	770 hectors
5	New area	-
6	Distance from nearest railway station	3km –sadanpura
7	Nearest town with distance	14 km – Anand

4.3.7 Demographic Details

Table no.6 Demographic Details

Sr.no.	Population	Male	Female	Total house hold
1	7677	3969	3708	1520

4.3.8 Occupational Details

Table no.7 Occupational Detail

Percentage of worker	Occupation
70%	Farming
20%	Work in farm as labor
10%	jobs

4.3.9 Agricultural Details

Table no.8 Agricultural Details

Weather	Crops name
Winter	Wheat
Summer	Tobacco
Monsoon	Ground nut

4.3.10 Manufacturing Hub / Ware house

No, manufacturing Hub

4.3.11 Tourism Cluster

No, tourism site at village

4.4 Infrastructure Details

4.4.1. Drinking water / Water management facilities

The Tarnol village does not Have R.O. Plant the villagers are drink direct supplied water without any treatment. The village has fifteen Overhead water tanks by the village has provided the water for drinking. The village also has 15 wells, 50 tube well, 1 irrigation canal, 14 ponds in which 6 is in working condition. The village does not have any underground sump.

(Fig. 22 Water Tank 1 Tarnol)

(Fig. 23 Water Tank 2 Tarnol)

4.4.2 Drainage network / sanitation Facilities

Tarnol village has Under Ground drainage system and all the house hold has provided Drainage system. Drainage system is in good condition. Village has one public Toilet.

4.4.3 Transportation and Road Network

Usually, the Villager use their own vehicle and Gujrat Government provide G.S.R.T.C. Bus service for transportation. The Village has no Bus stand Facilities but there is one bus pick up point which is not in good condition. The village has Bituminous and R.C.C. road, network. All the village roads are in good condition.

(Fig 24 bus stand of Tarnol village)

4.4.4 Housing condition

Village house hold has good Condition, almost villagers has good Paccca Makan (House), 80% houses are pucca remaining 20 % houses are in kattcha condition.

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

Tarnol village does not have Primary health center they have to go for nearby towns for medical facilities. Village has 12 aanganwadi, 4 primary school,1 secondary school.
The village also have one community hall with bathing facility.

(Fig 25 Primary school tarnol village)

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

Some of public buildings are in good condition like panchayat office and some public building like anganwadi and bus pickup point requires maintenance or redesign.

(Fig 26 Gram panchayat of Tarnol village)

(Fig 27 Aanganwadi of Tarnol village)

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

Table No. 9 Technology/ Mobile/ Wi-Fi / internet uses detail in percentage

Technology	Percentage of users
Mobile	82%
Wi-Fi	6%
Internet	50%

4.4.8 Sports Activities as Gram Panchayat

Table no.10 Sports Activities as Gram Panchayat

Sports Activities
Cricket
Volley ball

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

No, Tarnol village has no socio-cultural facilities.

4.4.10 Other Facilities

No other facilities.

4.4.11 Any other details

-Nil

4.5 ELECTRICAL CONCEPT

4.5.1 Renewable energy source planning particularly for villages

In Tarnol village renewable source like solar panels, rain water harvesting, biogas treatment plant etc. facility is not available in village. We are planning to give solar street light, solar panels in all government buildings, biogas treatment plant.

4.5.2 Irrigation Facilities

There is one irrigation canal in village. 50 % users are using the irrigation canal remaining farmers are using bore well and pond water for farming purpose. Farmers irrigate their farm with the use of tube or bore well and open well.

4.5.3 Electricity Facilities with Area

- In Tarnol village there are 24-hour electricity facilities.
- In agriculture land 8 hours electricity are supplied in one day.

4.6 EXISTING INSTITUTION LIKE - VILLAGE ADMINISTRATION – DETAIL PROFILE

4.6.1 Bachat Mandali

- No Bachat mandali

4.6.2 Dudh Mandali

- One Dudh Mandali is there in tarnol village.

(Fig 28 dudh mandli at tarnol village)

4.6.3 Mahila Forum

No Mahila Forum

4.6.4 Plantation for air pollution

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

4.6.5 Rain water Harvesting

No use of rain water Harvesting methods in village.

4.6.6 Agriculture Development

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

(Fig 29 seva sahkari mandli of tarnol village)

4.6.7 Other Facilities

In Tarnol Village there is also one HDFC bank and Atm for villagers to deposit or withdraw their savings.

(Fig 30 HDFC bank at tarnol village)

Chapter 5: Technical Options with Case Studies

5.1 CONCEPT (CIVIL)

5.1.1 Advance construction techniques

The construction industry is repeatedly criticizing for inefficient and slow to innovate. The conventional method of construction, technique and technology have changed very little since roman times. Every construction project is different, every site has a different prototype, construction works are located in various places, and involve the constant movement of man power and machinery.

The term 'advanced construction technology' covers a deep range of latest techniques and practices that encompass the latest development in material technology, design procedures, quantity surveying, facilities management, services, implementation of technologies structural analysis and design of structures, and management studies. Advanced construction technologies are available in every field of civil engineering for example in method of placing concrete in water there Is lots of modern technologies are available like tremie method, pump method, toggle bags, jute bags etc.

Different Modern Building Construction Techniques:

1) 3D Volumetric Construction.
2) Precast Flat Panel Modules.
3) Pre-cast Foundation Technique.
4) Hybrid Concrete Building Technique.
5) Thin Joint Masonry Technique
6) Insulating Concrete Formwork (ICF) Technique.

1. **3D Volumetric Construction**

In 3D volumetric construction, three dimensional structures are made within the factory by keeping the conditions within strict range. Then it is transported to the construction site either in its very basic or complete form. This technology offers the quality of concrete, whether it's in terms of fire resistance, mass or sound.

(Fig. 31 3D Volumetric Construction)

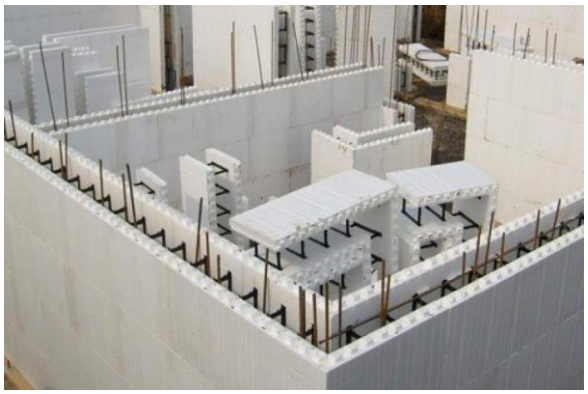
2. **Hybrid Concrete Construction**

This is an amalgam of precasting and casting in situ resulting in double the quality, half the construction time and an overall increase in economy. It is the favourite of those who look for commendable quality within an affordable range. The structure is durable and consistent in performance.

(Fig. 32 Hybrid Concrete Construction)

3. **Insulating Concrete Formwork**

As indicated by the name, this technology provides expanded polystyrene panels that provide insulation to a wall of a building which is then filled with a certified concrete to produce an unbreakable structure. The polystyrene makes sure to trap the heat inside while the concrete gives an acute strength to the wall.



(Fig. 33 Insulating Concrete Formwork)

4. **Precast Flat Panel System**

The PFP system involves the production of various structures such as doors, windows, walls and floor units in the factory which are then transported on site and erected. Suitable for repetitive projects, this technology offers both quality and effectiveness together with a swift speed of on-site erection.

(Fig. 34 Precast Flat Panel System)

5. **Precast Foundations**
   This system is made use of in the laying of foundations of a structure with concrete piles used mostly to provide the robustness and later connected to give the foundation its shape. All of this is done within a controlled environment inside a factory.

(Fig. 35 Precast Foundations)

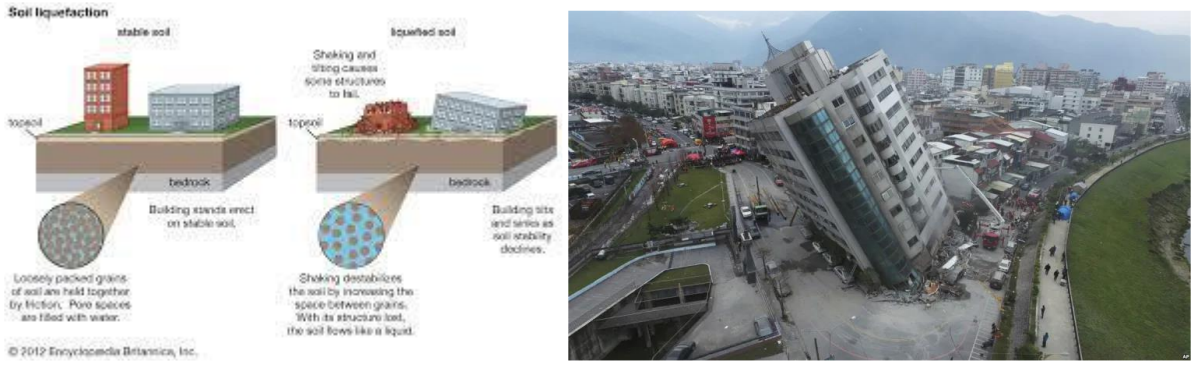
6. **Thin Joint Masonry**
   Thin joint masonry works in making the depth of the mortar thinner and hence bringing a considerable increase in the speed of its spread on longer walls. The mortar takes a couple of hours to get settled and also gets rid of the “floating” problem. As a result, more amount of work can be done in a short period of time.

(Fig. 36 Thin Joint Masonry)

5.1.2 Soil Liquefaction

Soil liquefaction occurs when a saturated soil 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.

Soil liquefaction most of time observed in saturated, low density soil, sandy soils. This is because a low-density soil has a tendency to compress when a load is applied. Highly Dense sands, by contrast, tend to expand in volume or 'dilate'. If the soil is saturated by water, a condition that often exists when the soil is below the water table, then water fills the voids between soil grains. In response to soil compressing, the pore water pressure increases and the water attempts to flow out from the soil to zones of low pressure (usually upward towards the ground surface). However, if the loading is rapidly applied and large enough, or is repeated many times (e.g. earthquake shaking, storm wave loading) such that the water does not flow out before the next cycle of load is applied, the water pressures may build to the extent that it exceeds the force (contact stresses) between the grains of soil that keep them in contact. These contacts between grains are how the weight from buildings and overlying soil layers is transferred from the ground surface to layers of soil or rock at greater depths. This loss of soil structure causes it to lose its strength (the ability to transfer shear stress), and it may be observed to flow like a liquid (hence 'liquefaction').



(fig 37 soil liquefaction)

5.1.3 Sustainable Sanitation

Sustainable sanitation is a structure designed to meet various criteria and to work well over the eternal. The structures consider the entire “sanitation worth chain", from the event of the user, excreta and sewerage collection methods, transportation of waste, treatment, and reuse or disposal. It 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.

(Fig. 38 Sustainable Sanitation)

5.1.4 Transport Infrastructure / system

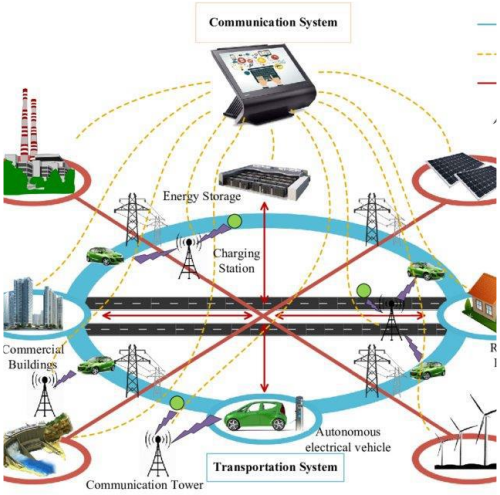
A road is a route on land between two or more regions that has been surfaced or unsurfaced otherwise Improved to allow travel by foot or some form of conveyance, including two wheelers, bullock cart, Bicycle, cars, truck or horse. Roads have been adopted to a large range of structures and types in order to achieve a common goal of transportation under a large and wide range of conditions. The road may be classified as follows:

- WBM roads
- Bituminous road
- RCC roads

Mass transit system is an integrated group of transportation facility which enable people or freight to be transferred from one place to another. Modes of public transports are:

- Buses
- City buses
- Trains

Intelligent transport system is an advanced application which aims to provide innovative services relating to different modes of transport and traffic management and enable users to be better informed and make safer, more coordinated, and smarter use of transport networks.



(**fig 39** transportation system)

5.1.5 Vertical Farming

Vertical farming are very popular now days. People live in towers are growing crops in their balconies and their terrace. Government are approaching growing vertical garden in bridge pillars and it is working. Vertical farming is the method of growing crops in vertically layers. It controls, which aims to optimize plant growth.

(Fig 40 vertical farming)

5.1.6 Corrosion Mechanism, Prevention & Repair Measures of RCC Structure

Mechanism: Corrosion Mechanism, Prevention & Repair Measures of RCC Structure Though concrete is quite strong mechanically, it is highly susceptible to chemical attack and thus structure gets damaged and even fail unless some preventive measures are adopted to counteract this and thereby increasing the durability of structure. In the case of Reinforced concrete structure, the ingress of moisture or air may lead to corrosion of steel, cracking and spalling of concrete cover thereby reducing durability of concrete structure. Repair has been suggested as the protective solution for damaged structure due to corrosion.

Overall, there is very little published empirical evidence that provides insight into the durability of silane treatments and their long-term residual protection (i.e., following at least 10 years of service). Such a gap in knowledge is undesirable given the scale of infrastructure treated with hydrophobic treatments such as silanes.

Prevention: Corrosion of steel in reinforced concrete structures can be divided into four different categories, based on how they provide protection:

1) Alternative reinforcement and slab design method includes materials that electrically isolate the steel from the concrete and create a barrier for chloride ions, materials that protect steel galvanic-ally, and materials that have significantly higher corrosion thresholds than conventional reinforcing steel. Concrete slabs have been designed without any internal reinforcement.

2) Barrier methods protect reinforced concrete from corrosion damage by preventing water, oxygen, and chloride ions from reaching the reinforcement and initiating corrosion.

3) Electrochemical methods use current and an external anode to protect the reinforcement, even when the chloride ion concentration is above the corrosion threshold.

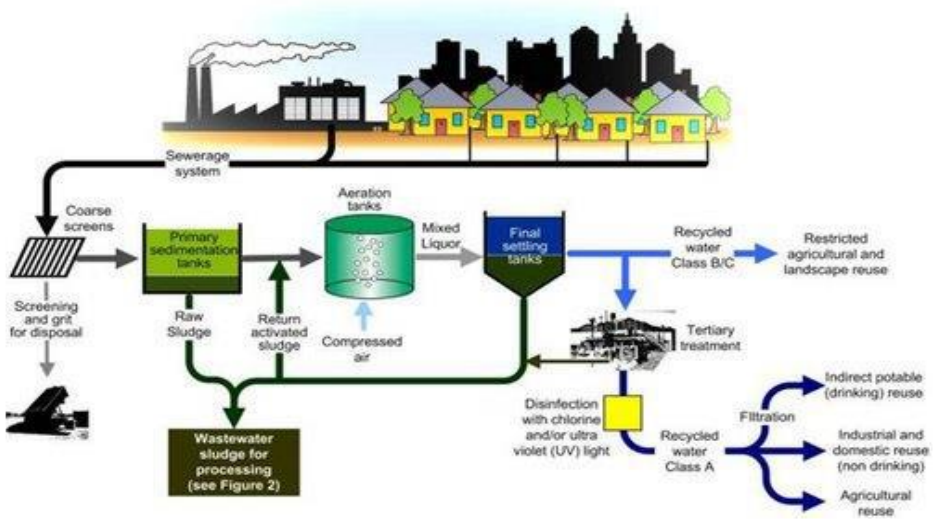
4) Corrosion inhibitors offer protection by raising the threshold chloride concentration level, by reducing the permeability of the concrete, or by doing both.

5.1.7 Sewage treatment plant:

Waste water refers all the effluents from houses, commercials, establishments and institutions, hospitals, industries, factories and so on. It also includes rain water, storm water, runoff, agricultural wastes, and horticulture and aquaculture effluent.

In simply term sewage is all kind of dirty water comes from municipal sources, industries etc. it includes grey water, black water, and yellow water.

We can't dispose waste water directly in any water bodies because biodegradation of the waste water is done by aerobic bacteria with the help of oxygen which is available in dissolved form in water sources so that limit of dissolved oxygen in water decreased. And ultimately this water we can't use for drinking purpose of portable purpose. So finally, we can say that the treatment of waste water must be required before disposing into natural water sources.



(**fig 41** sewage treatment plant)

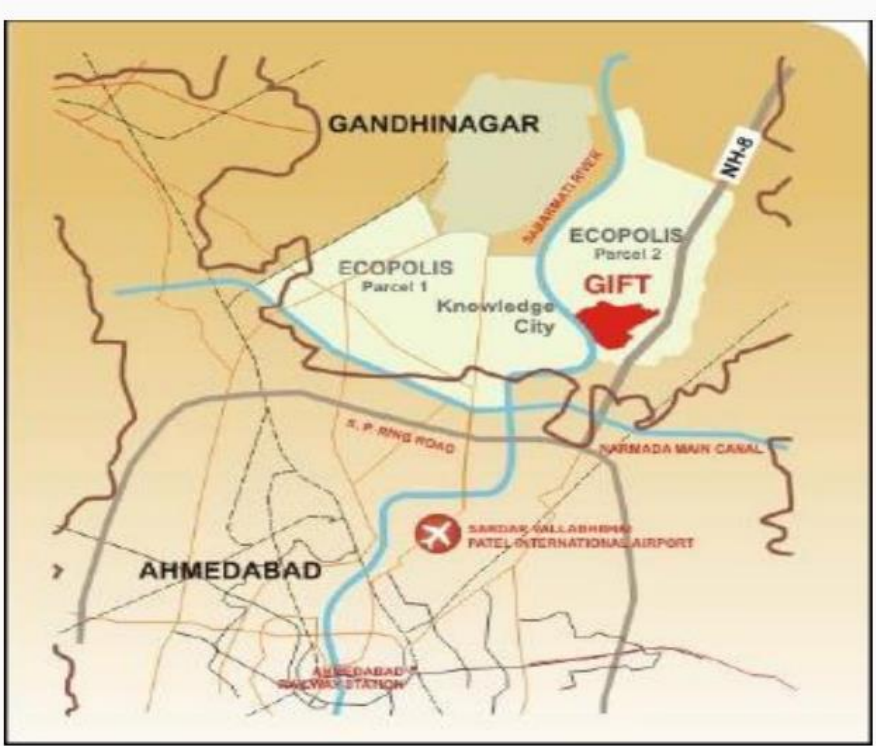
5.1.8 CASE STUDY ON GIFT - GUJARAT INTERNATIONAL FINANCE TEC-CITY (GANDHINAGAR - INDIA)

Abstract:

Gujarat International Finance Tec-City (GIFT) is a globally bench-marked international financial service Centre (IFSC) developed by Government of Gujrat. It is an under-construction central business district between Ahmedabad and Gandhinagar in Indian state of Gujarat. It will be India's first global financial and IT hub of its kind. The master plan of this Green Field Development incorporates its planning along River Sabarmati. It features to ensure that all the services in relation with the connectivity, technology, communication, quality of life and the business environment are established and sustained. As far as sustainability is concerned, GIFT reflects a defined planning approach to ensure the amalgamation of concerns related to Environment and Green Buildings, optimum usage of energy, water, construction materials and traffic management. All these concepts can be replicated in smart cities across India.

Introduction:

GIFT is planned as a financial Central Business District (CBD) between Ahmadabad and Gandhinagar as a Greenfield development. It is designed as a hub for the global financial services sector. More particularly, state-of-the-art connectivity, infrastructure and transportation access have been integrated into the design of the city.



(Fig. 42 Location of GIFT)

The project regenerates the area as high-quality, mixed use district of residential, commercial and open space facilities that optimize land and real estate values. It is characterized to be a Central Business District (CBD) developed on "Smart and Sustainable Development" principle thereby acting as a motivation for overall development of the region.

Features:

- GIFT Land Area 3.58 sq.km
- Construction Scale 8.5 mm sq m
- Greenbelt 1183 thousand sq m
- Height 410 m

Master Plan:

GIFT Master Plan reflects a sophisticated planning approach that integrates the intended program into the existing context of both the site and the region. The GIFT development is expected to become a contemporary model development in India, advancing the ideas of sustainability and ecology. GIFT, envisaged as an Eco-City, and will serve as the Vibrant Hub of Western India and as a habitat demonstrating business oriented, environmentally-sensitive growth.

(Fig. 43 Master Plan of GIFT)

Development:

The primary focus of the development is the commercial development. The major space is being dedicated to the offices for business segments of national and international services, retail, community center, hotels etc. The emphasis is also given towards the housing facilities for the employees working at GIFT. The services that are offered at GIFT are of highest quality and comprehensive. It is being planned with good judgment in terms of the latest technology and global sustainability. GIFT is incorporated with the internal infrastructures such as transportation, water supply & its treatment, integrated solid waste management by advanced waste collection and transportation system, fire-fighting system information & communication technology and control center.

Basic Principles:

The development of GIFT offers a significant opportunity to be a test-bed to drive reforms and innovation in various fields including in delivery systems, local government, physical planning, infrastructure development, environmental protection and so on. Getting these foundation principles right is crucial to plan and execute the development strategies.

Fulfilments of Human Needs for:

- Safe and clean environment,
- Food & Shelter,
- Education,
- Arts,
- Culture, and
- Useful and satisfying employment

Maintenance of Ecological Integrity Through:

- Low energy consumption
- Careful stewardship,
- Education,
- Reduction in wastes and
- Culture, and
- Protection of diverse and important natural species and systems

Sustainability Measures:

GIFT has incorporated in itself the various intelligent and green measures, which contribute to the sustainable development of this city. The different measures undertaken are elaborated.

- **Land use**

It had been planned based on high density development, considering that land is scarce resource. The Global Floor Space Index of 3.65 has been implemented in the entire GIFT area to achieve the envisaged density as part of its overall development. The figures pertaining to the land use is shown. (See Table-I).

- **Green Building Initiatives**

Green Building (also known as sustainable building) refers to both a structure and the using of processes that are environmentally responsible and resource efficient throughout a building's life cycle: from design, construction, operation, maintenance, renovation, and demolition.

It also has incorporated green and sustainability measures in terms of : a) reduction of wastage of energy, which will result in reduced energy bills, b) Construction of sky gardens or roof-top gardens, c) Increase in usage of non-conventional energy sources such as solar power, and also rain water harvesting, d) Planning and design according to climate, e) Other Green Building parameters such as structural design efficiency, materials efficiency, materials efficiency, indoor environmental quality enhancement, operations & maintenance optimization and waste reduction.

Another important aspect, which GIFT has implemented is the installation of district cooling system, which is a system of distributing heat generated in a centralized location for residential and commercial heating requirements, such as space heating and water heating. The heat is obtained from burning of fossil fuels, but increasing use of biomass, geothermal heating, and central solar heating is also being done. It has also been observed that district heating with combined heat and power is the cheapest way of cutting carbon emissions, and has one of the lowest carbon footprints of all fossil fuel generation plants.

- **Transportation**

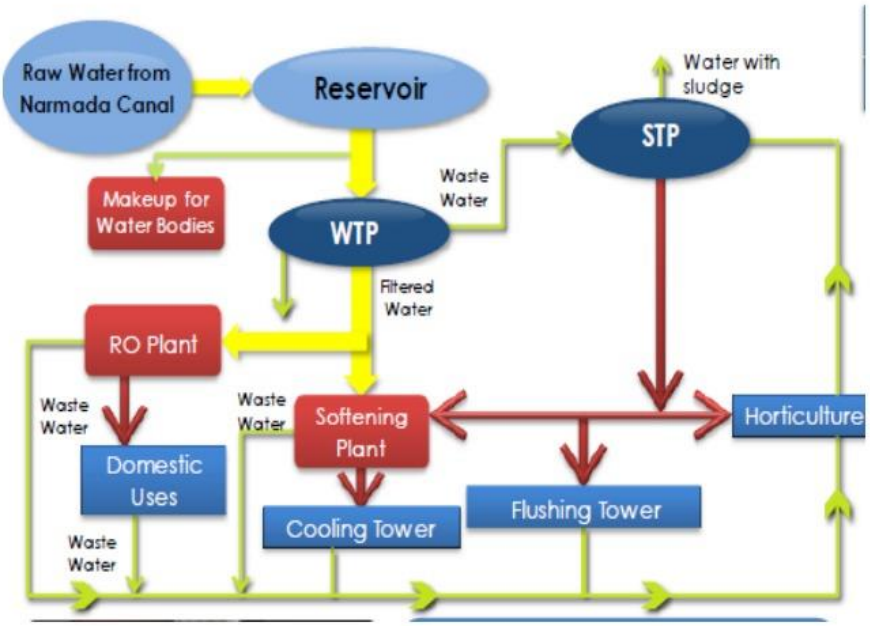
The transportation is planned in such a way that it will encourage the reduction of greenhouse gas emissions from the vehicles in GIFT. It aims at zero accidents.

- **Energy efficiency**

The efficiency is to be acquired by cooling systems and solar plants. The cooling systems facilitates in less energy consumption, more reliability, less impact on environment. A 10 MW solar plant has been installed within the city on pilot study. Many more plants of such capacities will be installed in near possible future as the city develops.

- **Water Supply and Sewerage Systems**

The water requirement for the GIFT city is 20 MG. The water sources from which GIFT draws its water are (a) Narmada Main Canal, (b) Recycling and reuse of waste water, and (c) Rainwater Harvesting. This has resulted in the city receiving 24x7 water supply. The concept of "zero discharge city "has been implemented, in which the waste water is treated and reused, which results in maximum utilization of water.

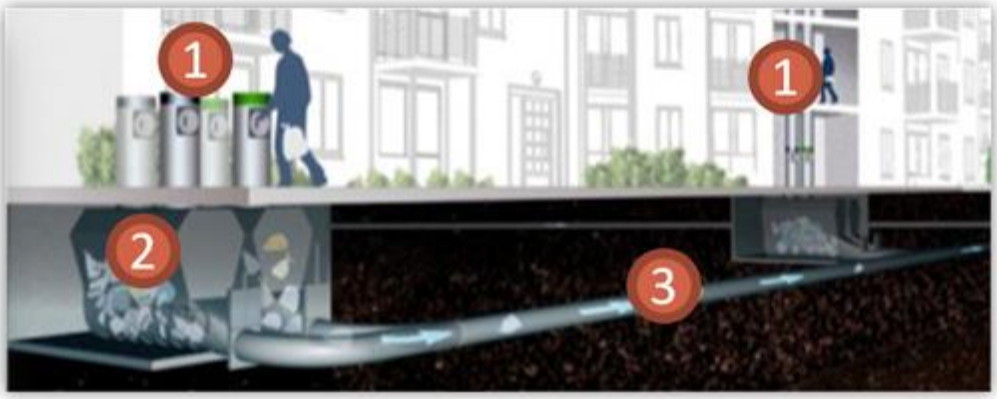


(Fig. 44 Smart Water Infrastructure)

A perennial water front has been ensured through the construction of three barrages on the Sabarmati River, called Samruddhi Sarovar. The waterfront is 1km in length and 7m in depth, with its width varying from 82 m to 160 m. It is designed for the storage of drinking water, which can last for up to 15 days.

- **Solid Waste Management**

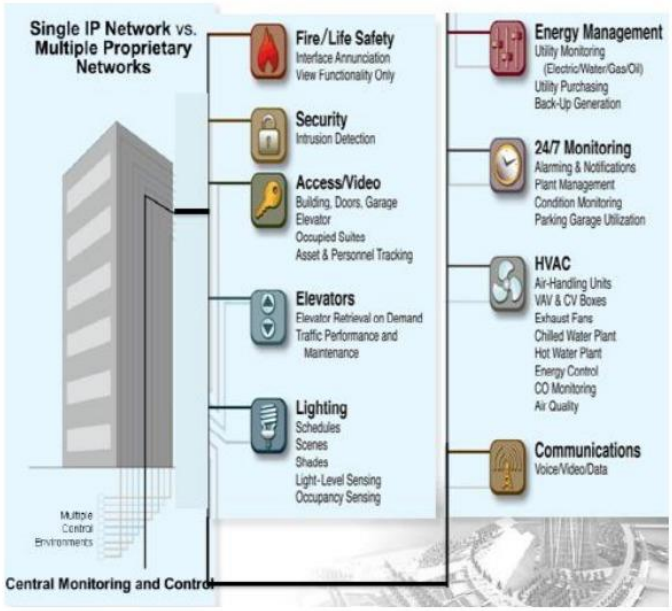
The projected waste quantity of GIFT is 488 TPD. It aims at minimizing the impact on environment, human intervention, space requirement, and less impact on health hazard. The GIFT city has automatic collection and transportation system. In this computer-controlled system, the waste is being thrown into the disposal chute, and the waste is sucked through pipes at speed of 90 km/hr. The Plasma Gasification Technology is used for the waste treatment.



(Fig. 45 Waste Collection System)

- **Landscaping**

Over 34% of the land area in GIFT has been utilized as green and open spaces. This has resulted in the major landscaping of those areas which is ecologically and aesthetically matured. Planting of evergreen, flowering trees, columnar spread trees, ground-cover or lawn area, and continuous shrub masses, as well as the construction of landscape terraces, has also been done to Accenture views where desirable.



(Fig. 46 Intelligent Building in GIFT)

- **Power Distribution:**

GIFT Power Company Ltd., 100% subsidiaries of GIFTCL are Power distribution licensee for GIFT. Projected Power demand of GIFT is 610 MVA. 220/33KV Receiving Stations with Dual source of Power. Initially 66/33KV receiving station with Dual source of Power. 33 kV dual feed cable distribution in Utility Tunnel to all the packages. Centralised Backup power feed through same network. State-of-the-art automation setup for Substation, Distribution, Lighting and distribution network with real time monitoring and control.

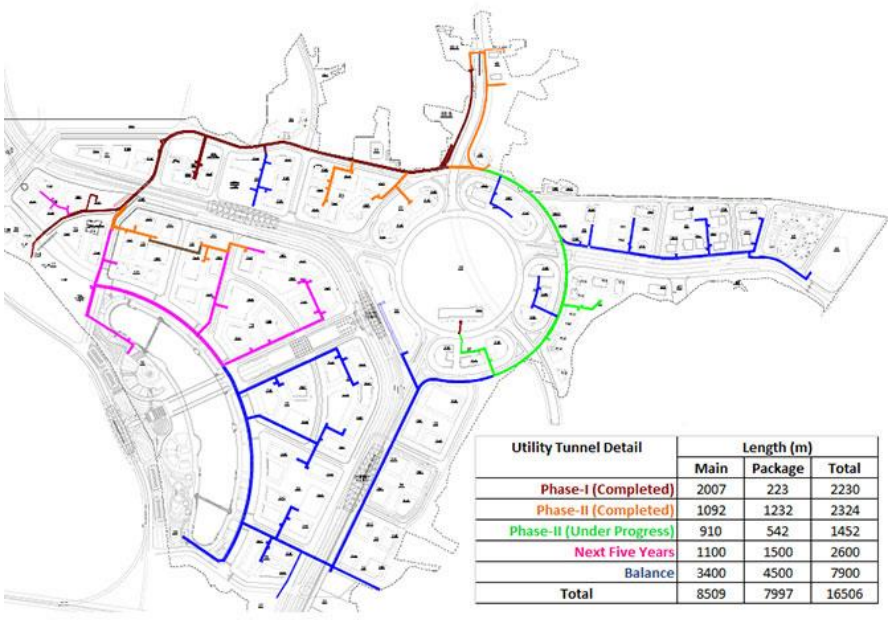
(Fig. 47 GIFT Power Company)

Utility Tunnel in GIFT City:

GIFT City is being developed as a state-of-the-art financial hub which shall require huge infrastructure with excellent planning, designing and engineering with latest technologies. In respect to vast infrastructure systems, GIFT developed the vision of "DIGGING FREE CITY" by placing all the utilities in a TUNNEL across the city so that there is no need to excavate the roads in future for repair/maintenance /renovation/up gradation of any utility. The provisions are made in the tunnel for smooth access, separation of utilities, proper drainage, lighting, and other long-term concerns, such as maintenance and security.

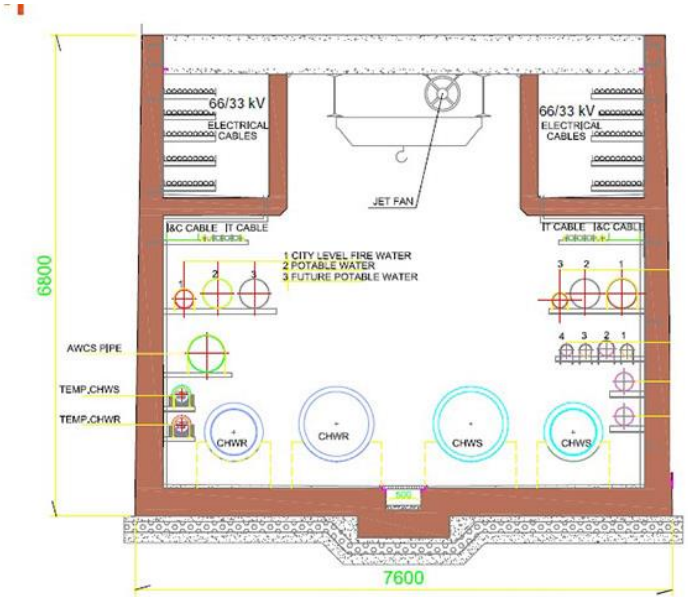
The Utility Tunnel will accommodate all the utilities including Power Cables, Raw Water supply pipe line to Water Treatment Plant (WTP) as well as treated water supply pipe line from WTP to various developments, chilled water supply from District Cooling Pipe (DCP) to various developments and return pipe line to DCP, ICT cables, Automated Waste Collection pipe line, Fire hydrant water pipe line, etc. From safety point of view the tunnel is divided into WET and DRY sections which are physically separated with each other. Wet section is carrying utilities related to water, ICT and others while dry section carries power cables and have access from top. The wet section has been designed in such a manner that material handling can be done efficiently and maintenance trolley may be used for material movement.

Total length of the Tunnel within GIFT City shall be approx. 16 Km and shall be provided with Ventilation system, Rodent Repellent System and Fire & Smoke Detection System for the purpose of safety. The size of the Tunnel shall vary depending on the no and size of the Utilities and may go up to as large as 8 M wide X 11M deep.



Utility Tunnel Detail	Length (m)		
	Main	Package	Total
Phase-I (Completed)	2007	223	2230
Phase-II (Completed)	1092	1232	2324
Phase-II (Under Progress)	910	542	1452
Next Five Years	1100	1500	2600
Balance	3400	4500	7900
Total	8509	7997	16506

(Fig. 48 Utility Tunnel Plan)



(Fig. 49 Utility Tunnel Typical Section)

Electricity:

The 400 MW electricity supply is planned to be 99.999% reliable (about 5.3 minutes of outage per year). All the electricity cables are laid in the Utility Tunnel in dry area protected by thick concrete wall in redundant paths.

Construction timeline:

Two commercial towers, each of 28 floors called the GIFT ONE and GIFT TWO have been finished. Tendering for the next bunch of towers is going on. This phase will also include building up of basic infrastructure. The second phase construction has already begun and the Hiranandani Signature building has been built which hosts India International exchange. The WTC is under construction apart from a couple of buildings as part of the SEZ. The road connectivity to and in GIFT City has increased with the construction of new roads. The third phase's planned period for construction and commencement of the fully built city is 2020-2023. The fourth phase, termed "The Enpeoplement", fills the planned city with humans to experience commerce and labour.

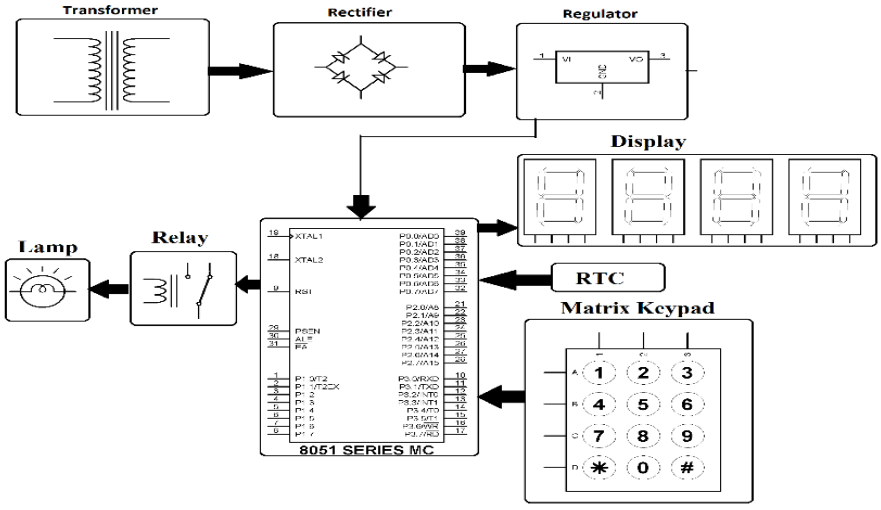
In Conclusion:

In this case study, we have seen the various methods and technologies which have been implemented and utilized in GIFT for the sustainable development of this project. Due to its efforts, GIFT has been presented with multiple awards and honors, such as “Smart City of the Future” b Cisco Technology Awards, 2014 and many others. GIFT stands as a model for successful sustainable development of industrial and commercial areas, and it will be seen in the future as a model, based on which the development of the other smart cities will take place.

5.2 Concept (Electrical)

5.2.1 Programmable Load Shedding

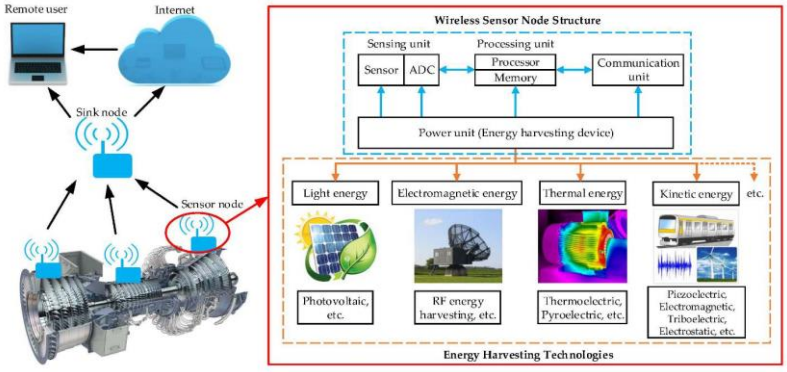
The project is an automatic load operation system that controls load operation, multiple numbers of times according to programmed instruction. The project eliminates the manual ON/OFF switching of load. A real time clock (RTC) is used to track the time and automatically switch ON/OFF the load. This project is required for load shedding time management which is used when the electricity demand exceeds the supply and there comes a need for manually switching ON/OFF the electrical devices in time. Hence this system eliminates the manual operation by automatically switching the load ON/OFF.



(fig 50 load shedding)

5.2.2 Management through Energy Harvesting Concept

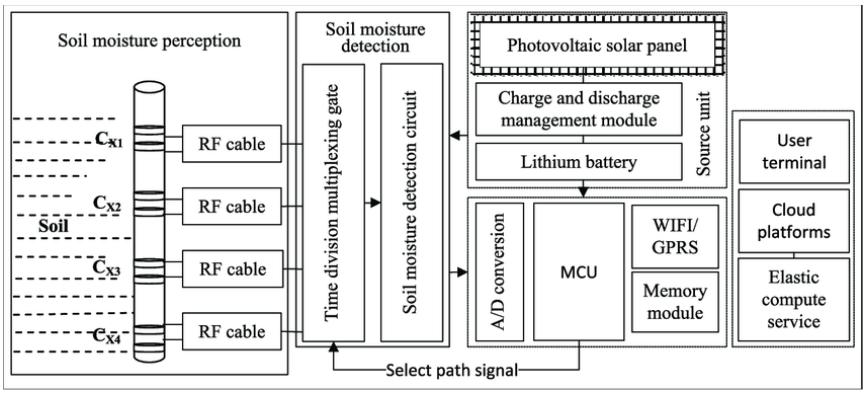
The objective of the Power Management through Energy Harvesting Concept project work has been designed and implemented in the power management through energy harvesting concept which deals with the power saving and optimization.



(fig 51 energy harvesting concept)

5.2.3 Moisture Monitoring System

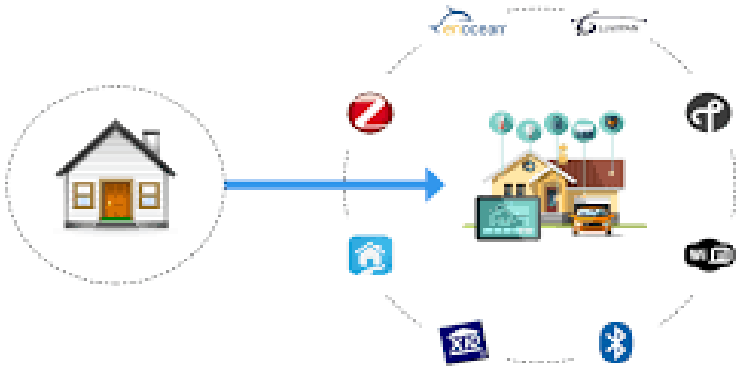
Soil moisture sensors aid good irrigation management. Good irrigation management gives better crops, uses fewer inputs, and increases profitability. Soil moisture sensors help irrigators to understand what is happening in the root zone of a crop.



(fig 52 moisture monitoring system)

5.2.4 Home Automation using IOT / Any other methodology

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



(Fig 53 home automation)

5.2.5 PC Based Electrical Load Control

Automation system is mostly depending upon the power systems in industrial, residential or commercial, which needs remote controlling and monitoring. By employing wireless technologies, it is more competent to execute a suitable technology depending upon the requirements of the proposed system like speed, cost, and distance.

For distant controlling and monitoring of different loads and by means of efficient power usage through real time power spending with the help of a PC based graphical user interface application. The progress of technology equipment is becoming simpler and easier for us. Automated systems have more benefits over manual system. PC based electrical load-controlled systems are highly reliable, precise and time conserving systems. They give number of features like rapid data storage, transfer data and data securities.

5.2.6 Electrical Parameters Measurements

Table no11 Electrical parameters measurement

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

Chapter 6: Swatchh Bharat Abhiyan (Clean India)

6.1 Swatchhta needed in allocated village:

- On 2nd October 2014, PM Narendra Modi launched the Swachh Bharat Abhiyan at New Delhi, by taking up the broom to clean a road of delhi. The swatchh bharat abhiyan was launched with eight main objectives. The one of the main objectives was to ensure a healthy life for Indian citizens and to improve India's semblance globally.
- Swatch bharat abiyan has goals aimed for the rural as well as urban regions.
- The Urban swatchh bharat abhiyan has a target to build 1 crore houses laterines, 2.5 lakh public laterines, 2.6 lakh public toilets and solid waste management. Ministries are to build 50,000 laterines in schools by August 2015. The agency for this work is the Urban Development and Housing Ministry.
- The focus is to move towards a 'Swachh Bharat' by providing flexibility to Governments, as Sanitation is a state subject, to decide on their implementation policy and mechanisms, taking into account State specific requirements.

(Fig. 54 Garbage in Tarnol Village)

(Fig. 55 Garbage in Tarnol Village 2)

In our allocated village the ponds of villages are very dirty. Some of villagers throwing garbage directly in ponds.

The village has the facility of door-to-door collection but some are throwing garbage on roads ponds.

6.2 Guidelines - Implementation in allocated village

(Fig 56 swatch bharat abhiyan)

A clean India would be the best tribute India could pay to Mahatma Gandhi on his 150-birth anniversary in 2019," said Shri Narendra Modi as he launched the Swachh Bharat Mission at Rajpath in New Delhi. On 2nd October 2014, Swachh Bharat Mission was launched throughout length and breadth of the country as a national movement. The campaign aims to achieve the vision of a 'Clean India' by 2nd October 2019. The Prime Minister exhorted people to fulfil Mahatma Gandhi's dream of a clean and hygienic India. Shri Narendra Modi himself initiated the cleanliness drive at Mandir Marg Police Station. Picking up the broom to clean the dirt, making Swachh Bharat Abhiyan a mass movement across the nation, the Prime Minister said people should neither litter, nor let others litter. He gave the mantra of 'Na gandagi karenge, Na karne denge.' Shri Narendra Modi also invited nine people to join the cleanliness drive and requested each of them to draw nine more into the initiative.

- Door to door awareness programs and seminars by students to be arranged in the 8th semester.
- Village government bodies will be given some suggestions for the improvement of the Clean-India Mission
- Villagers will be motivated through programs organized by the students.

6.3 Activities Done by Students for allocated village

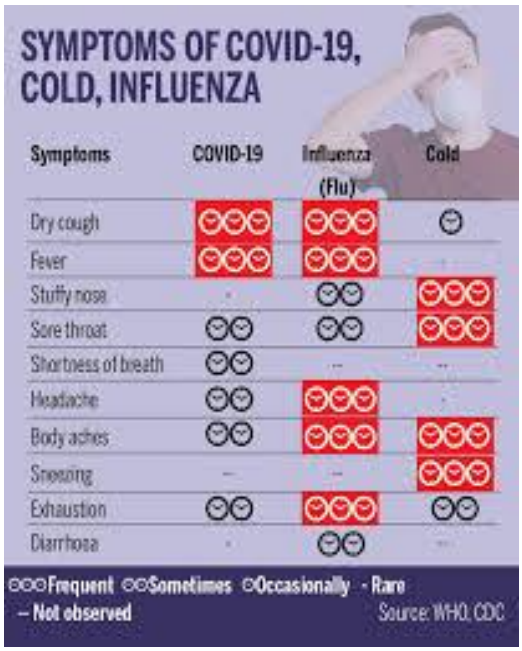
- We are going to organized awareness programs and seminars in next semester.
- We visit the and identify the place where the collected garbage dumped.
- We are going to aware peoples about swatchh bharat abhiyan.

Chapter 7: Village condition due to Covid-19

Coronaviruses are a family of viruses that can cause illnesses such as the common cold, severe acute respiratory syndrome (SARS) and Middle East respiratory syndrome (MERS). In 2019, a new coronavirus was identified as the cause of a disease outbreak that originated in China.

The virus is now known as the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). The disease it causes is called coronavirus disease 2019 (COVID-19). In March 2020, the World Health Organization (WHO) declared the COVID-19 outbreak a pandemic.

Public health groups, including the U.S. Centres for Disease Control and Prevention (CDC) and WHO, are monitoring the pandemic and posting updates on their websites. These groups have also issued recommendations for preventing and treating the illnesses.



(Fig. 57 Symptoms of Covid 19)

(Fig. 58 Corona Virus)

7.1 Impact of Covid-19 on Indian Villages

The nation-wide lockdown imposed in India from March 25 to May 31, 2020 following the breakout of the Covid-19 pandemic affected rural India in diverse ways. This was only to be expected given the great variation in production systems and socio-economic conditions in villages across agro-ecological zones.

This note analyses the impact of the lockdown – which brought almost all economic and public activity in India to a halt – on a select group of villages based on a rapid assessment survey conducted by the Foundation for Agrarian Studies (FAS) in April 2020. The survey was conducted through telephone interviews of 52 informants from 21 villages across 10 States of India. The FAS had already conducted detailed socio-economic surveys of 19 of the 21 villages under its India-wide programme of village studies (Project on Agrarian Relations in India) during the last decade.

7.2 Taken steps in allocated village related to existing situation

When this covid situation is started the village has provided barricades at all the entry and exit of the village. They followed guidelines given by the government.

- They were masks when they going outside of house whenever required.
- Social distance is maintained by the villagers.
- They washed their hands again and again.
- They followed the closing of shop at 7 pm.
- The children and old aged people are staying at home.
- They are in touch with government bodies and follow all the rules and regulations.

7.3 Activities Done by Students for allocated village:

We are not able to visit village during lockdown. When unlock started we visit the village to know the covid 19 on village but there are no casualties happened in village. All the villages are safe.

- We spread the awareness of covid.
- We explained how to wear mask properly.
- We distribute masks to needy ones.

7.4 Any other steps taken by the students / villagers:

We have visited the village after unlock and we distribute masks and sanitizers to needy one and we are spreading awareness about covid 19 in village we sticked poster of covid 19 regarding government guideline.

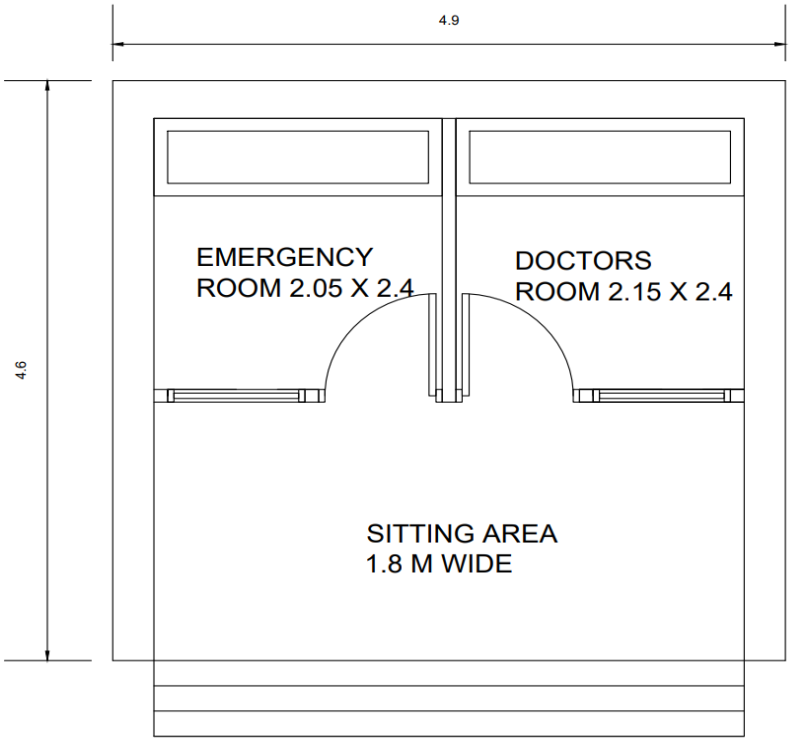
Chapter 8: Sustainable Design Planning Proposal (prototype Design) – Part 1

8.1 Design Proposals

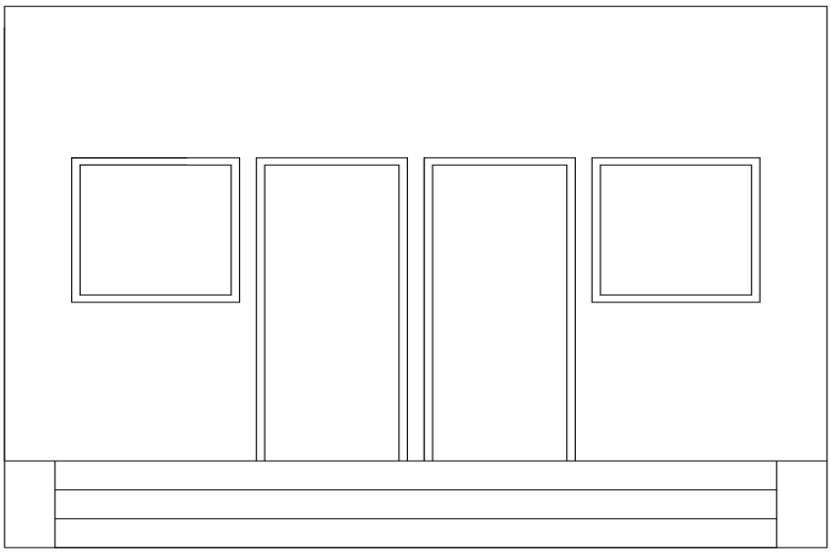
Department	Design
Civil	Plan and Estimation of Primary health center
Civil	Plan and Estimation of public toilet
Civil	Plan and Estimation of indoor games
Civil	Plan and Estimation of market
Civil	Plan and Estimation of library
Civil	Plan and Estimation of bus stand
Electrical	Estimation of solar street light
Electrical	Solar roof top at bus stand
Electrical	Solar roof top at primary health center

8.1.1 Plan and Estimation of Primary health center:

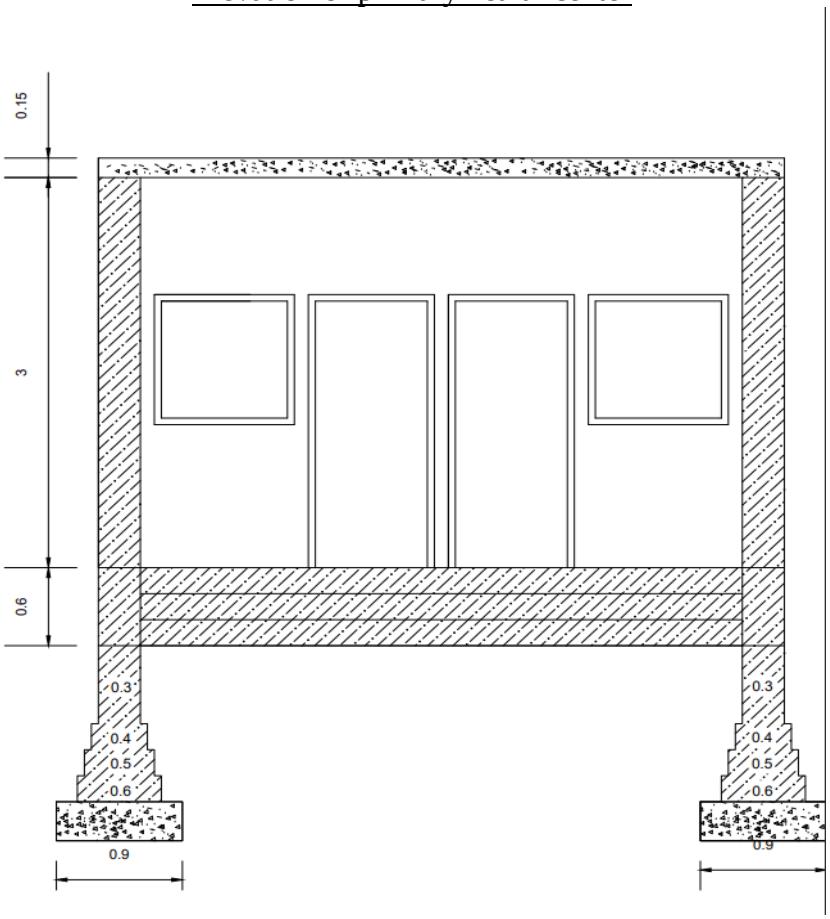
Sustainable Design:
We are providing primary health center in village so villagers get all the medical facility in village itself.



Plan of primary health center



Elevation of primary health center



Section of primary health center

Estimation sheet:

SR NO	DESCRIPTION	NOS	L	B	H	QUANTITY	TOTAL QUANTITY
1	EXCAVATION FOR FOUNDATION						
	LW1	2	4.9	0.9	1.5	13.23	
	SW1	2	4.6	0.9	1.5	12.42	
	IN STAIR	1	4.3	0.6	0.15	0.387	26.037 cu.m
2	PCC IN FOUNDATION						
	LW1	2	4.9	0.9	0.3	2.646	
	SW1	2	4.6	0.9	0.3	2.484	
	IN STAIR	1	4.3	0.6	0.15	0.387	5.517 cu.m
3	BRICKWORK IN FOUNDATION						
	FOR STEP 1						
	LW1	2	5.5	0.6	0.2	1.32	
	SW1	2	4	0.6	0.2	0.96	
	FOR STEP 2						
	LW1	2	5.4	0.5	0.2	1.08	
	SW1	2	4.1	0.5	0.2	0.82	
	FOR STEP 3						
	LW1	2	5.3	0.4	0.2	0.848	
	SW1	2	4.2	0.4	0.2	0.672	
	UP TO PLINTH						
	LW1	2	5.2	0.3	1.2	3.744	
	SW1	2	4.3	0.3	1.2	3.096	
	IN STEP 1(STAIRS)	1	4.3	0.6	0.2	0.516	
	IN STEP 2(STAIRS)	1	4.3	0.4	0.2	0.344	
	IN STEP 3(STAIRS)	1	4.3	0.2	0.2	0.172	13.572 cu.m
4	BRICKWORK IN SUPER STRUCTURE						
	LW1	2	4.6	0.3	3	8.28	
	SW1	1	4.3	0.3	3	3.87	
	LW2	1	2.5	0.1	3	0.75	
	SW2	1	4.2	0.1	3	1.26	
	DEDUCTION FOR DOORS						
	D1	2	0.9	0.1	2.1	0.378	
	W1	2	1	0.1	1	0.2	
	DEDUCTION FOR LINTELS						
	D1	2	1.2	0.1	0.15	0.036	

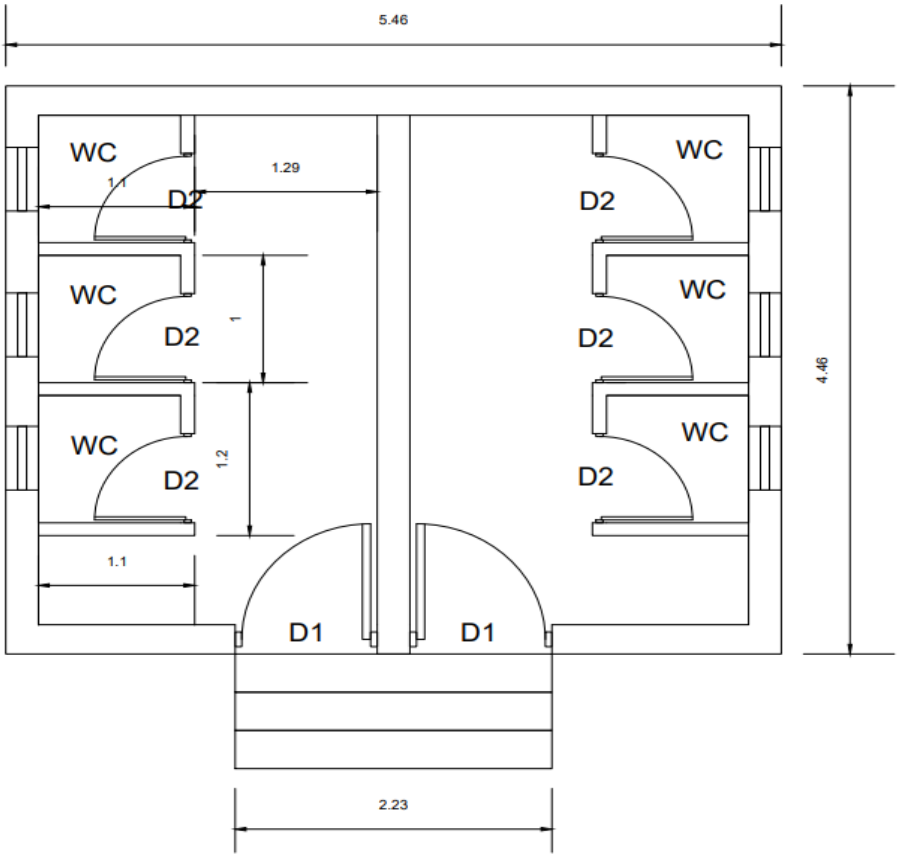
	W1	2	1.3	0.1	0.15	0.039	13.507 cu.m
5	PLASTER WORK						
	INSIDE						
	EMERGENCY ROOM	2	2.05		3	12.3	
		2	2.4		3	14.4	
	DOCTORS ROOM	2	2.15		3	12.9	
		2	2.4		3	14.4	
		2	1.8		3	10.8	
		1	4.3		3	12.9	
	OUT SIDE	2	4.6		3.3	30.36	
		1	4.9		3.3	16.17	
	CEILING PLASTER						
	EMERGENCY ROOM	1	2.05	2.4		4.92	
	DOCTORS ROOM	1	2.15	2.4		5.16	
	SITTING AREA	1	1.8	4.6		8.28	
	DEDUCTION					0	
	D1	1	0.9		2.1	1.89	
	W1	1	1		1	1	139.7 sq.m
6	RCC WORK						
	SLAB	1	4.9	4.6	0.15	3.381	3.381 cu.m
7	TILES					0	
	EMERGENCY ROOM	1	2.05	2.4		4.92	
	DOCTORS ROOM	1	2.15	2.4		5.16	
	SITTING AREA	1	1.8	4.6		8.28	18.36 sq.m

Abstract sheet:

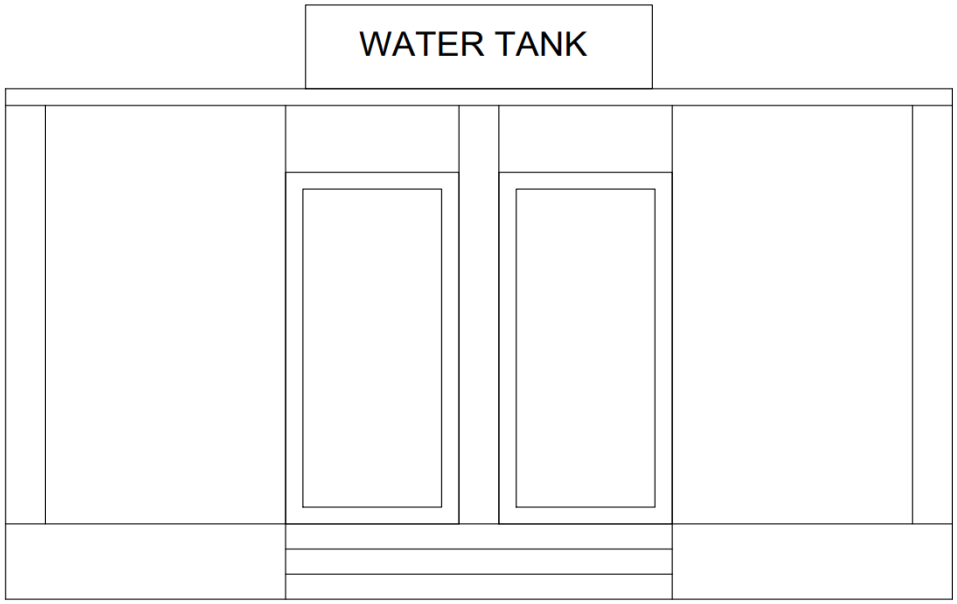
SR NO	DESCRIPTION OF ITEM	QUANTITY	UNIT	RATE	PER	ESTIMATED COST
1	EXCAVATION IN FOUN	26.037	cu.m	155	cu.m	4035.70
2	PCC IN FOUNDATION	5.517	cu.m	3000	cu.m	16551
3	BRICKWORK IN FOUNDATION	13.572	cu.m	3200	cu.m	43430.4
4	BRICKWORK IN SUPERSTRUCTURE	13.507	cu.m	3500	cu.m	47274.5
5	PLASTER WORK	139.7	sq.m	150	sq.m	20955
6	RCC WORK	3.381	cu.m	8800	cu.m	29752.8
7	TILE WORK	18.36	sq.m	900	sq.m	16524
						178522.9
				1.5% water	charge	2677.84
				10%contra	ctor profit	17852
						199052

8.1.2 Plan and Estimation of Public toilet:

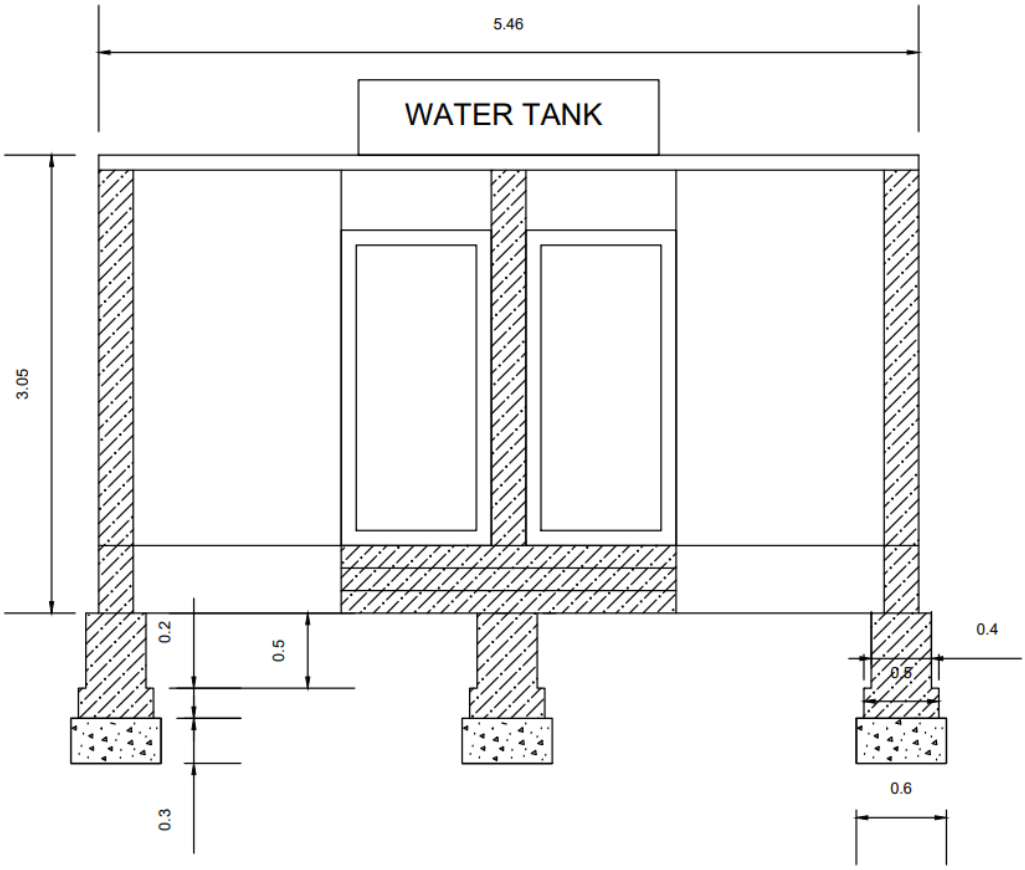
Physical design: Public Toilet



Plan of Public Toilet



Elevation of public toilet



Section of Public Toilet

ESTIMATION SHEET:

SR NO	DESCRIPTION	NOS	L	B	H	QUANTITY	TOTAL QUANTITY
1	Excavation For Foundation						
	Lw1	2	5.83	0.6	1	6.996	
	Sw1	3	3.63	0.6	1	6.534	
	For Steps	1	2.23	0.9	0.1	0.2007	13.73 Cu.M
2	Pcc In Foundation						
	Lw1	2	5.83	0.6	0.3	2.0988	
	Sw1	2	3.63	0.6	0.3	1.3068	
	In Steps	1	2.23	0.9	0.1	0.200	3.605 Cu.M
3	Brickwork In Foundation						
	For Step 1						
	Lw1	2	5.73	0.5	0.2	0.946	
	Sw1	3	3.73	0.5	0.2	0.4	
	For Step 2						
	Lw1	2	5.63	0.4	0.5	0.7408	
	Sw1	2	3.83	0.4	0.5	0.336	
	For Steps						
	Step 1	1	2.23	0.9	0.15	0.30	
	Step 2	1	2.23	0.6	0.15	0.20	
	Step 3	1	2.23	0.3	0.15	0.10	3.02 Cu.M
4	Brickwork In Super Structure						
	Up To Plinth						
	Lw1	2	5.53	0.23	0.45	1.144	
	Sw1	2	3.93	0.23	0.45	0.813	
	Plinth Leval To Slab Leval						
	Lw1	2	5.53	0.23	2.5	6.35	
	Lw2	2	3.93	0.23	2.5	4.519	
	Deduction For Main Wall						
	D1	2	1	0.23	2.1	0.966	
	V	6	0.5	0.23	0.5	0.345	11.515 Cu.M
	Brick Work For Partition Wall						
		6	1.1	0.1	2.5	1.65	
		6	1	0.1	2.5	1.5	
	Deduction In Partition Wall						
	D2	6	0.7	0.1	2.1	0.882	
	Deduction For Lintels						
	D2	6	0.7	0.1	0.1	0.042	2.226
5	Plaster Work						
	Inside						

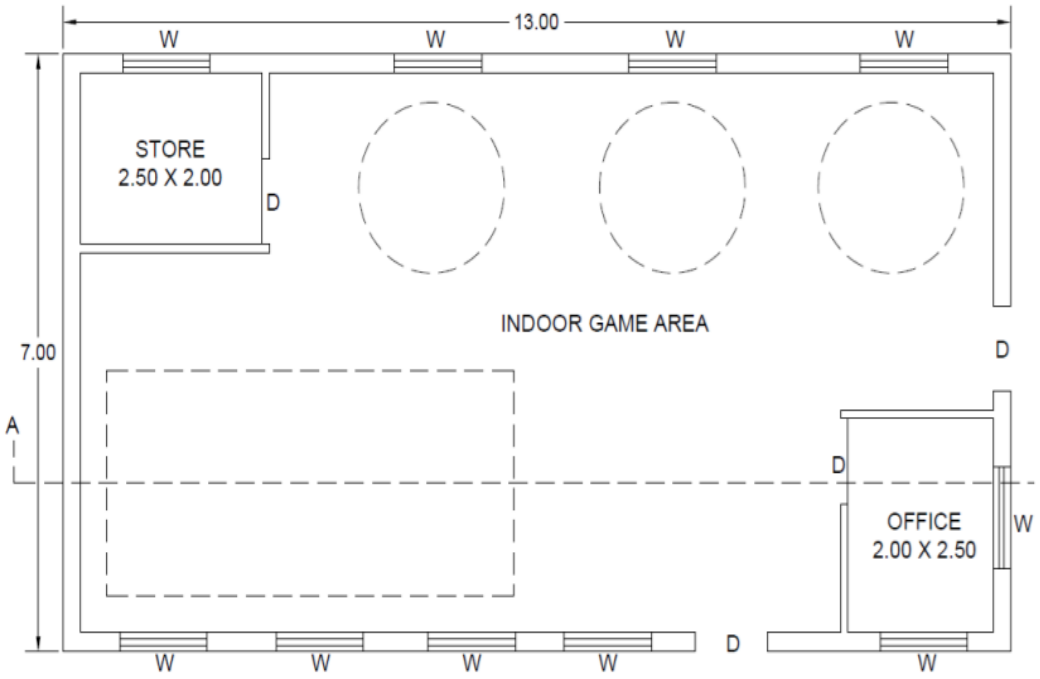
		2	4		2.5	12	
		2	2.39		2.5	13.62	
		2	0.7		2.5	3.5	
		2	1.29		2.5	6.45	
		8	1.1		2.5	22	
		4	3.3		2.5	33	
		12	1		2.5	30	
	Out Side	2	4.46		3.05	27.206	
		2	5.46		3.05	33.306	
	Ceiling Plaster						
		1	4	2.23		8.92	
	Deduction						
	D1	2	1		2.1	4.2	
	D2	6	0.7		2.1	8.82	
	V	6	0.5		0.5	1.5	175.482 Sq.M
6	Rcc Work						
	Slab	1	5.46	4.46	0.10	2.4351	1.2175 Cu.M

Abstract sheet:

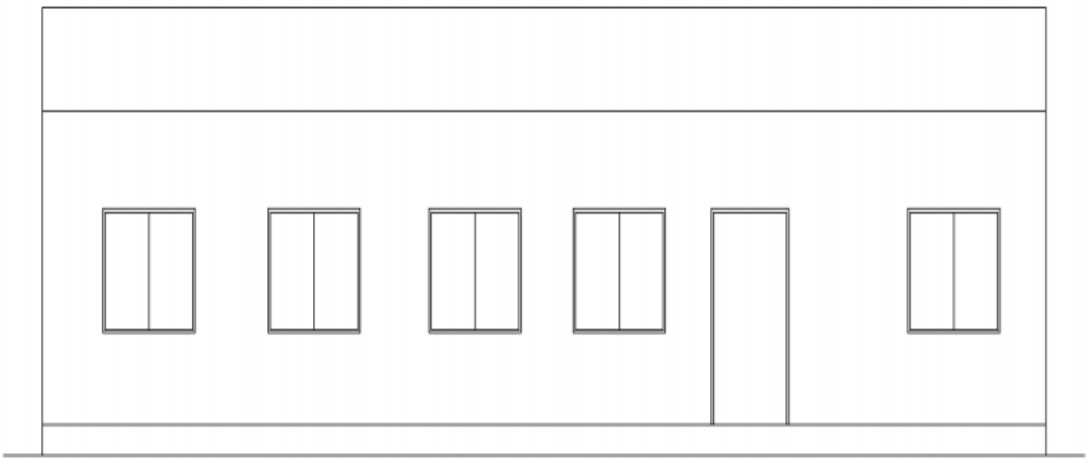
SR NO	DESCRIPTION OF ITEM	QUANTITY	UNIT	RATE	PER	ESTIMATED COST
1	Excavation In Foun	13.73	Cu.M	155	Cu.M	2128
2	Pcc In Foundation	3.605	Cu.M	3000	Cu.M	10815
3	Brickwork In Foundation	3.02	Cu.M	3200	Cu.M	9664
4	Brickwork In Superstructure	11.51	Cu.M	3500	Cu.M	40285
5	Brickwork In Partition Wall	2.226	Sq.M	3000	Sq.M	6678
6	Plaster Work	175.48	Sq.M	150	Sq.M	26322
7	Rcc Work	1.21	Cu.M	8800	Cu.M	10648
						106540
				1.5% Water	Charge	1600
				10%Contra	Contractor Profit	10654
						118764

8.1.3 Plan and Estimation of indoor games:

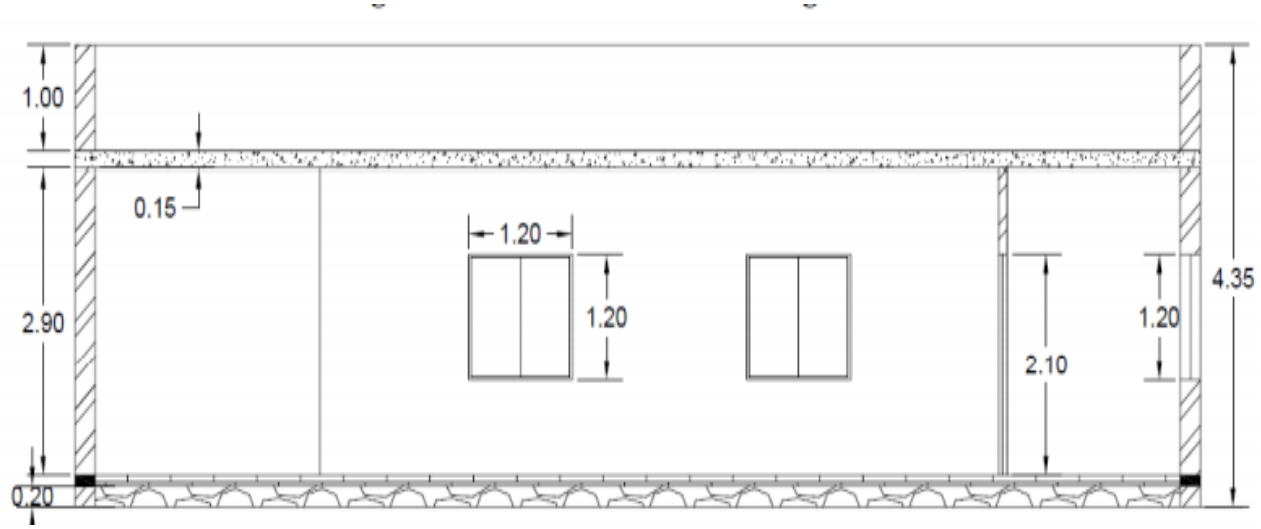
Social Design: Indoor games



Plan of Indoor Games



Elevation of Indoor Games



Section of Indoor Games

ESTIMATION SHEET:

SR NO	DESCRIPTION	NOS	L	B	H	QUANTITY	TOTAL QUANTITY
1	Excavation For Foundation						
	L= 39.08-(1/2*0.8)=38.68	1	38.68	0.8	1.05	32.49	32.49
2	B.B.C.C.						
	L=38.68	1	38.68	0.8	0.15	4.64	4.64
3	Brick Masonry In Foundation						
	1st Step						
	L=39.08-(1/2*0.5)=38.83	1	38.83	0.5	0.3	5.82	
	2nd Step						
	L=39.08-(1/2*0.4)=38.88	1	38.88	0.4	0.3	4.67	
	3rd Step						
	L=39.08-(1/2*0.3)=38.93	1	38.93	0.3	0.3	7.76	
	Up To Plinth Leval						
	L=39.08-(1/2*0.23)=38.965	1	38.965	0.23	0.35	3.58	21.83
4	Earth Filling						6.02
5	Partition Wall Brick Masonry						
	L=9.6	1	9.6		2.9	27.84	

	Deduction						
	D	1	1.2		2.1	5.04	
							22.80
6	Brick masonry In Super Structure						
	L=39.08-(1/2*0.23)=38.965	1	38.965	0.23	3.9	34.95	
	Deduction						
	W	10	1	0.23	1.2	2.76	
	D	2	1.2	0.23	2.1	1.1592	
	Deduction For Lintels						
	W	10	1.2	0.23	0.1	0.276	
	D1	2	1.5	0.23	0.1	0.069	30.68
8	Outside Plaster						
	L=40	1	40		4.05	192 SQ.M	
	Deduction						
	D	2	1.2		1.2	5.04	
	W1	10	1		2.1	12	
							144.96
9	Inside Plaster						
	L=38.16	1	38.16		2.9	110.664	
	Ceiling Plaster	1	12.54	6.54		82.0116	
	Parapet Wall Plaster	1	38.16		1	38.16	
	Partition Wall Plaster L=19.2	1	19.2		2.9	55.68	
	Deduction D	2	1.2		2.1	5.04	TOTAL PLASTER WORK =426.46
10	Tile Work						
	L=12.54 B=6.54	1	13.54	8.54		82.0116	82.0116
11	RCC WORK	1	13	7	0.15	13.65	13.65

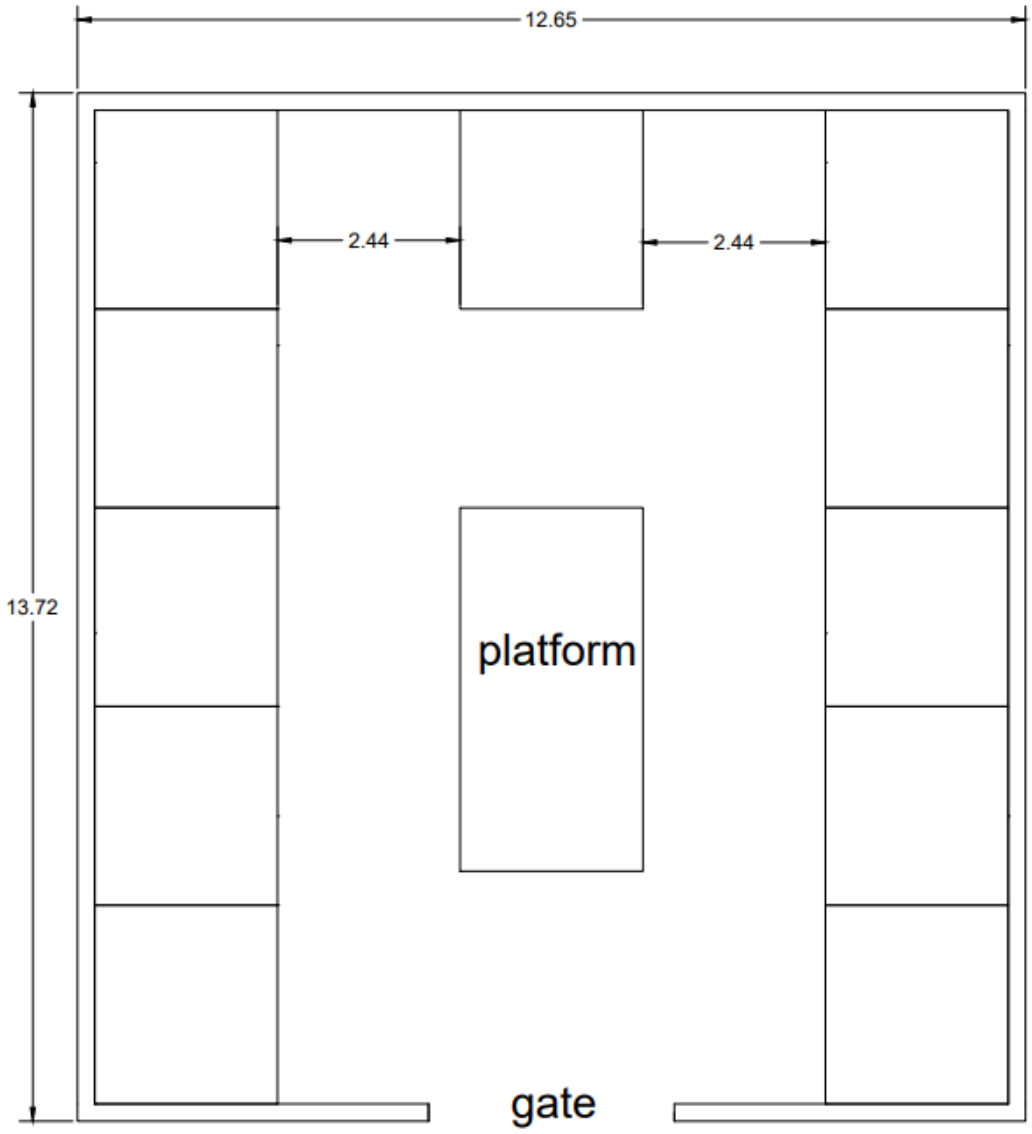
ABSTRACT SHEET

SR NO	DESCRIPTION OF ITEM	QUANTITY	UNIT	RATE	PER	ESTIMATED COST
1	Excavation In Foun	32.49	Cu.M	155	Cu.M	5035.5
2	Pcc In Foundation	4.64	Cu.M	3000	Cu.M	13920
3	Brickwork In Foundation	21.83	Cu.M	3200	Cu.M	69856
4	Earth Filling	6.02	Cu.M	1000	Cu.M	6020
5	Brickwork In Partition Wall	22.80	Sq.M	3000	Sq.M	68400
6	Brickwork In Superstructure	30.68	Cu.M	3500	Cu.M	107380
7	Plaster Work	426.46	Sq.M	150	Sq.M	63969
8	Rcc Work	13.65	Cu.M	8800	Cu.M	120120
9	Tile Work	82.0116	Sq.M	1500	Sq.M	123017.4
						577717.9
				1.5% Water	Charge	8664.76
				10%Contra	Contractor Profit	57771.79
						644154.45

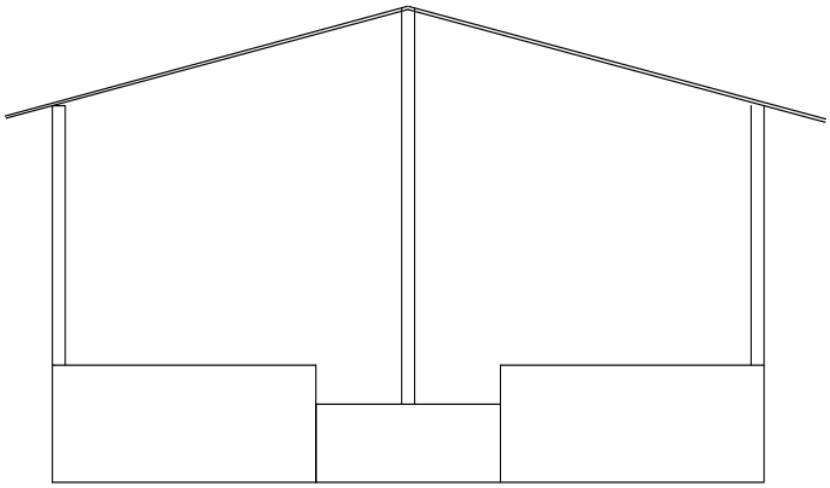
8.1.4 Plan and Estimation of market:

Socio-Cultural Design: Market

We Are Providing Market to Village So Villagers Do Not Have to Travel Nearby Towns to Get Vegetables and Fruits.



Plan of market



Elevation of market

Estimation Sheet

SR NO	DESCRIPTION	NOS	L	B	H	QUANTITY	TOTAL QUANTITY
1	EARTH WORK IN EXCAVATION FOR FOUNDATION						
	Total Centre Line						
	2*(13.72-0.23)+2*(12.65-0.23)=50.9						
	L=50.9	1	50.9	0.6	1.4	42.76	42.76
2	PCC In Foundation	1	50.9	0.6	0.3	9.16	9.16
3	Brick Masonry Upto Plinth Leval						
	Step 1	1	50.9	0.5	0.2	5.09	
	Step 2	1	50.9	0.4	0.2	4.07	
	Step 3	1	50.9	0.3	0.2	3.05	
	Step 4	1	50.9	0.23	0.86	10.07	22.28
4	Brick Masonry In Super Structure						
	L=50.9	1	50.9	0.23	1.83	21.42	
	Deduction						
	Gate	1	3.28	0.23	1.83	1.36	20.04
5	PCC For Platform						
	Platform 1	2	12.24	2.44	0.2	11.95	
	Platform 2	1	2.44	3.05	0.2	1.49	
	Platform 3	1	4.85	3.05	0.2	2.96	16.4

6	Brick Masonry For Platform						
	Platform 1	2	12.24	2.44	0.61	34.44	
	Platform 2	1	2.44	3.05	0.61	4.54	
	Platform 3	1	4.85	3.05	0.61	9.02	50.0
7	DPC						
	L=50.9	1	50.9	0.23		11.71	11.71
8	Plaster Work						
	Inside	2	12.24		1.22	29.87	
		2	12.8		1.22	31.23	
	Deduction						
	Gate	1	3.28		1.22	4	57.1
	Outside	2	13.26		1.83	48.53	
		2	12.65		1.83	46.3	
	Deduction						
	Gate	1	3.28		1.83	6	88.83
	Plaster On Platform						
	Top	2	12.24	2.44		59.73	
		1	2.44	3.05		7.44	
		1	4.85	3.05		17.79	
	Side	2	12.24		0.61	14.93	
		2	2.44		0.61	2.98	
		2	4.85		0.61	5.92	
		3	3.05		0.61	5.58	111.37
9	Filling In Excavation						
	Total Excavation					42.76	
	Cc In Foundation					9.16	
	Brickwork Below Gl					5.85	27

Abstract sheet

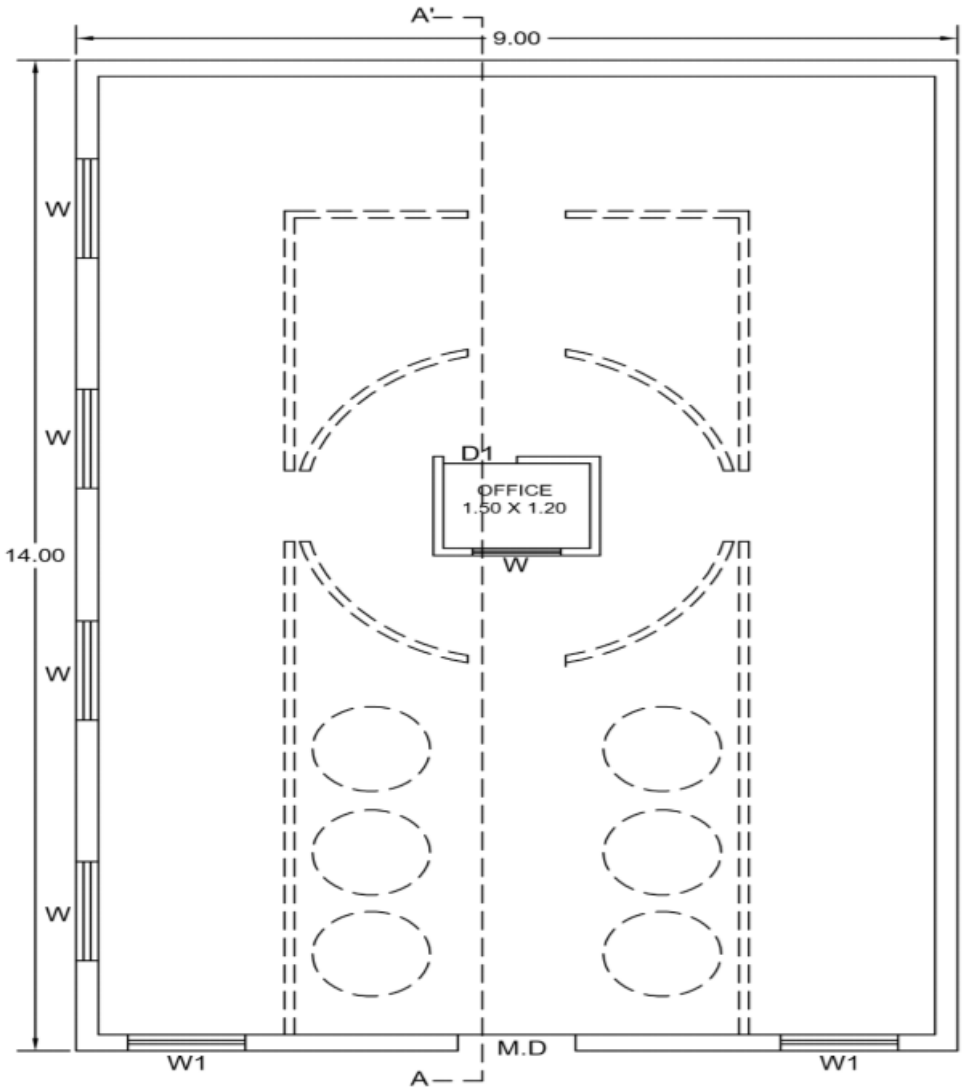
SR NO	DESCRIPTION OF ITEM	QUANTITY	UNIT	RATE	PER	ESTIMATED COST
1	Excavation In Foundation	42.76	Cu.M	155	Cu.M	6627.8
2	Filling In Excavation	27.75	Cu.M	70	Cu.M	1942.5
3	PCC	9.16	Cu.M	5000	Cu.M	45800
4	Brickwork In Foundation	22.28	Cu.M	3200	Cu.M	71296
5	Brickwork In Super Structure	20.04	Sq.M	3500	Sq.M	70140
6	PCC For Platform	16.4	Cu.M	5000	Cu.M	82000
7	Brickwork For Platform	50	Sq.M	3500	Sq.M	175000
8	Plaster Inside Plaster	57.1	Sq.M		Sq.M	8565

	Outside Plaster Platform Plaster	88.83 111.37	Sq.M Sq.M	150	Sq.M Sq.M	13324.5 16705.5
						491401.3
				1.5% Water	Charge	7371.40
				10%Contra	Ctor Profit	49140.123
						547912.82

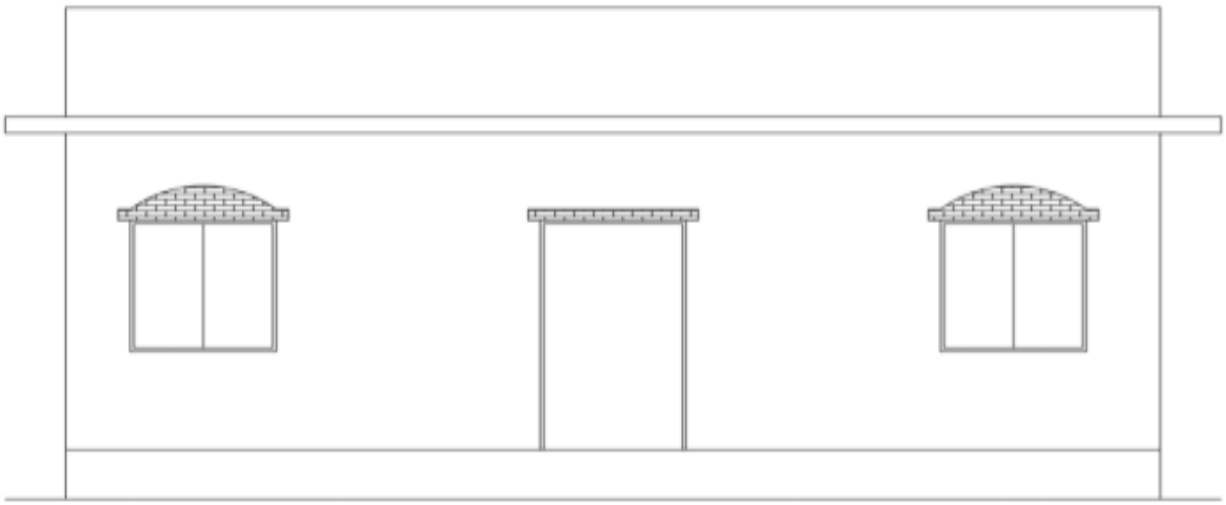
8.1.5 Plan and Estimation of library:

Smart Village Design:

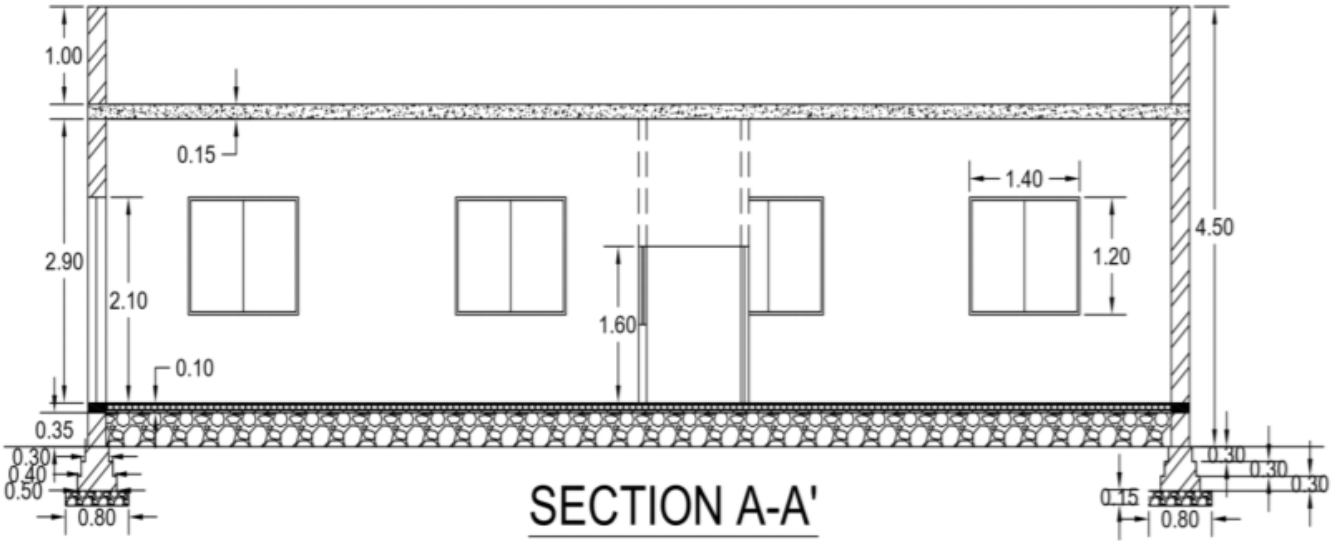
For the growth in education for youths as well as children of villagers we decided to give design proposal of public library to village.



Plan of Public Library



Elevation of Public Library



SECTION OF PUBLIC LIBRARY

Estimation Sheet

SR NO	DESCRIPTION	NOS	L	B	H	QUANTITY	TOTAL QUANTITY
1	Excavation For Foundation						
	L= 45.08-(1/2*0.8)=44.68	1	44.68	0.8	1.05	33.53	33.53
2	B.B.C.C.						
	L=44.68	1	44.68	0.8	0.15	5.36	5.36
3	Brick Masonry In Foundation						
	1st Step						
	L=45.08-(1/2*0.5)=44.83	1	44.83	0.5	0.3	6.72	
	2nd Step						
	L=45.08-(1/2*0.4)=44.88	1	44.86	0.4	0.3	5.39	
	3rd Step						
	L=45.08-(1/2*0.3)=44.93	1	44.93	0.3	0.3	4.04	
	Up To Plinth Leval						
	L=45.08-(1/2*0.23)=44.96	1	44.96	0.23	0.35	3.62	19.77
4	Earth Filling						12.40
5	Partition Wall Brick Masonry						
	L=5	1	5		2.9	14.50	
	Deduction						
	D1	1	0.75		1.8	1.35	
	W	1	1.4		1.2	1.68	
						6.06	6.06
6	Brickmasonry In Super Structure						
	L=45.08-(1/2*0.23)=44.96	1	44.96	0.23	3	31.0224	
	Deduction						
	M.D	1	1.2	0.23	2.1	0.5796	
	W	4	1.4	0.23	1.2	1.5456	
	W1	2	1.2	0.23	1.2	0.6624	
	Deduction For Lintels						
	MD	1	1.3	0.23	0.1	0.0299	
	W	4	1.5	0.23	0.1	0.138	
	W1	2	1.3	0.23	0.1	0.0598	28.0071
	Parapet Wall Brickmasonry						

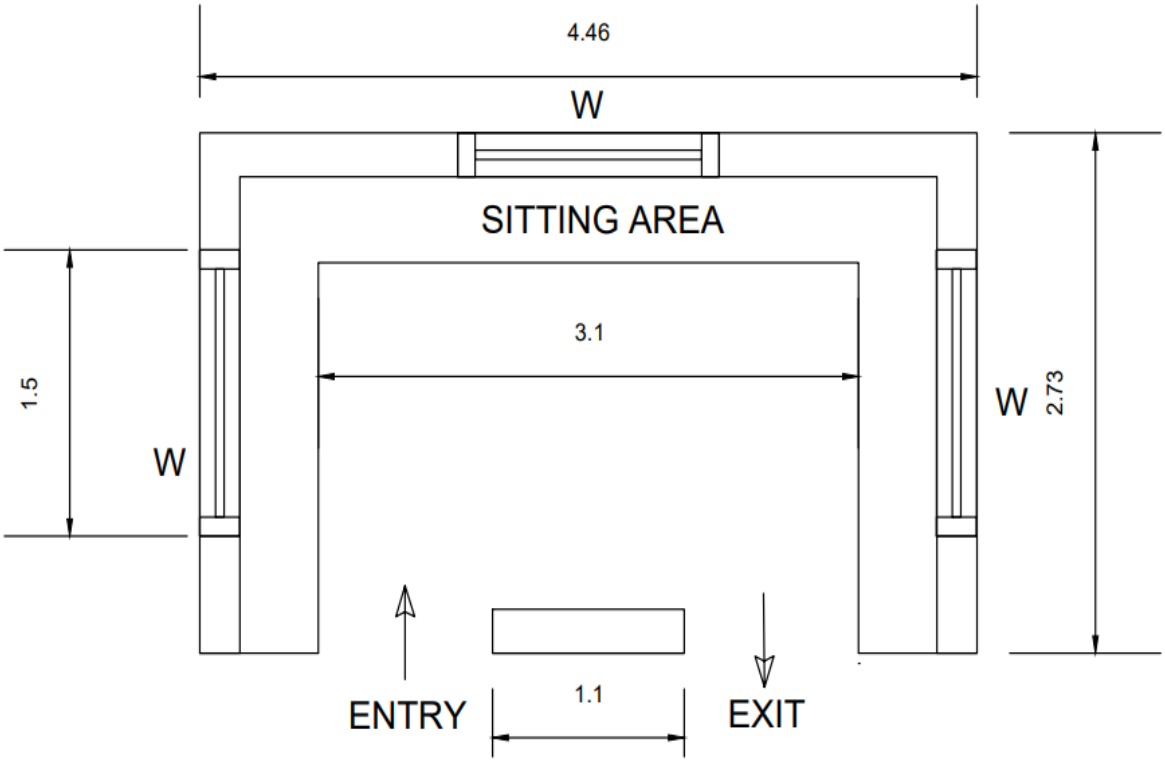
	L=45.08-(1/2*0.23)=44.96	1	44.96	0.23	1	10.34	TOTAL BM WORK =38.34
8	Outside Plaster						
	L=28+18=46	1	46		4.15	190.9 SQ.M	
	Deduction						
	M.D	1	1.2		2.1	2.52	
	W	4	1.4		1.2	6.72	
	W1	2	1.2		1.2	2.88	
						12.12	178.78
9	Inside Plaster						
	L=(27.08+17.08)=44.16	1	44.16		3	132.48	
	Ceiling Plaster	1	13.54	8.54		115.6316	
	Parapet Wall Plaster	1	44.16		1	44.16	471.05 Sq.M
10	Tile Work						
	L=13.54 B=8.54	1	13.54	8.54		115.6316	115.6316
11	Rcc Work	1	14	9	0.15	18.9	18.9

Abstract Sheet

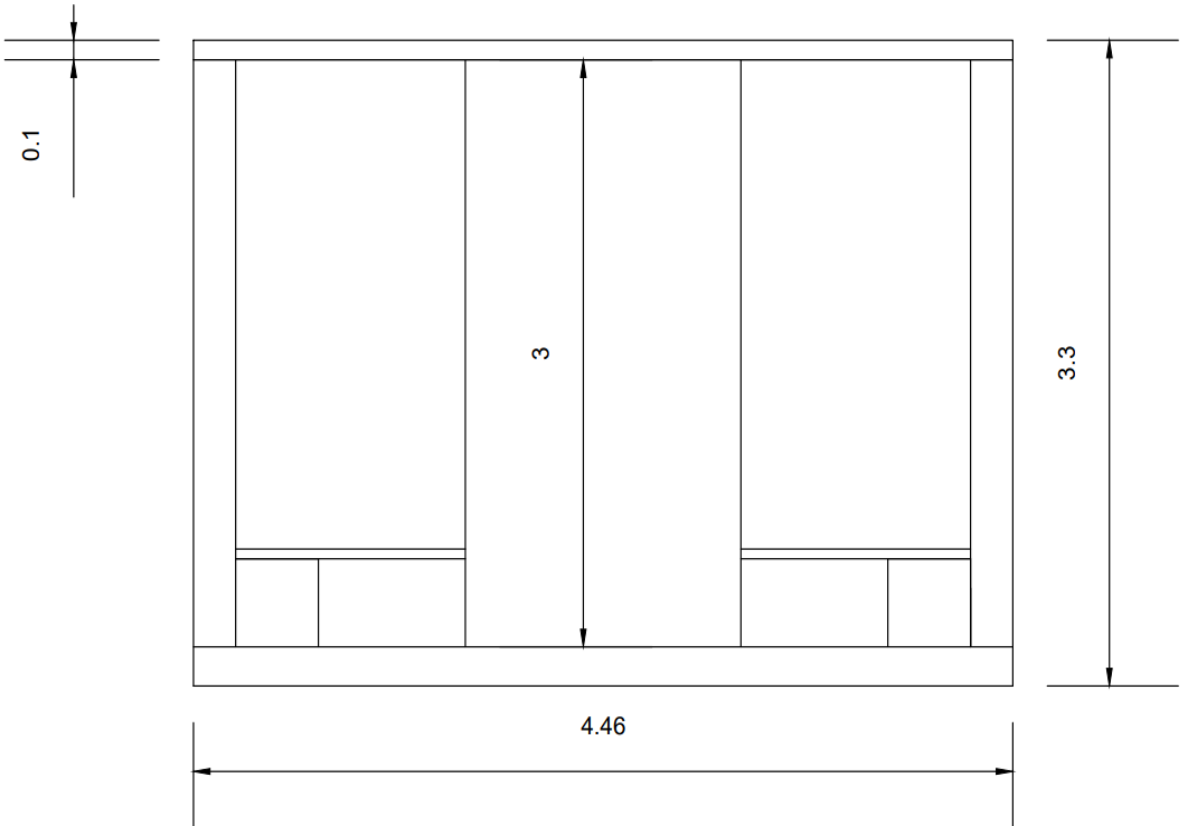
SR NO	DESCRIPTION OF ITEM	QUANTITY	UNIT	RATE	PER	ESTIMATED COST
1	Excavation In Foun	33.53	Cu.M	155	Cu.M	5971.5
2	Pcc In Foundation	5.36	Cu.M	3000	Cu.M	16080
3	Brickwork In Foundation	19.13	Cu.M	3200	Cu.M	61216
4	Earth Filling	12.40	Cu.M	1000	Cu.M	12400
4	Brickwork In Superstructure	38.34	Cu.M	3500	Cu.M	134190
5	Plaster Work	471.05	Sq.M	150	Sq.M	70657.5
6	Rcc Work	18.9	Cu.M	8800	Cu.M	166320
						466060.65
				1.5% Water	Charge	7000
				10%Contra	Contractor Profit	46606.06
						519666.71

8.1.6 Plan and Estimation of bus stand:

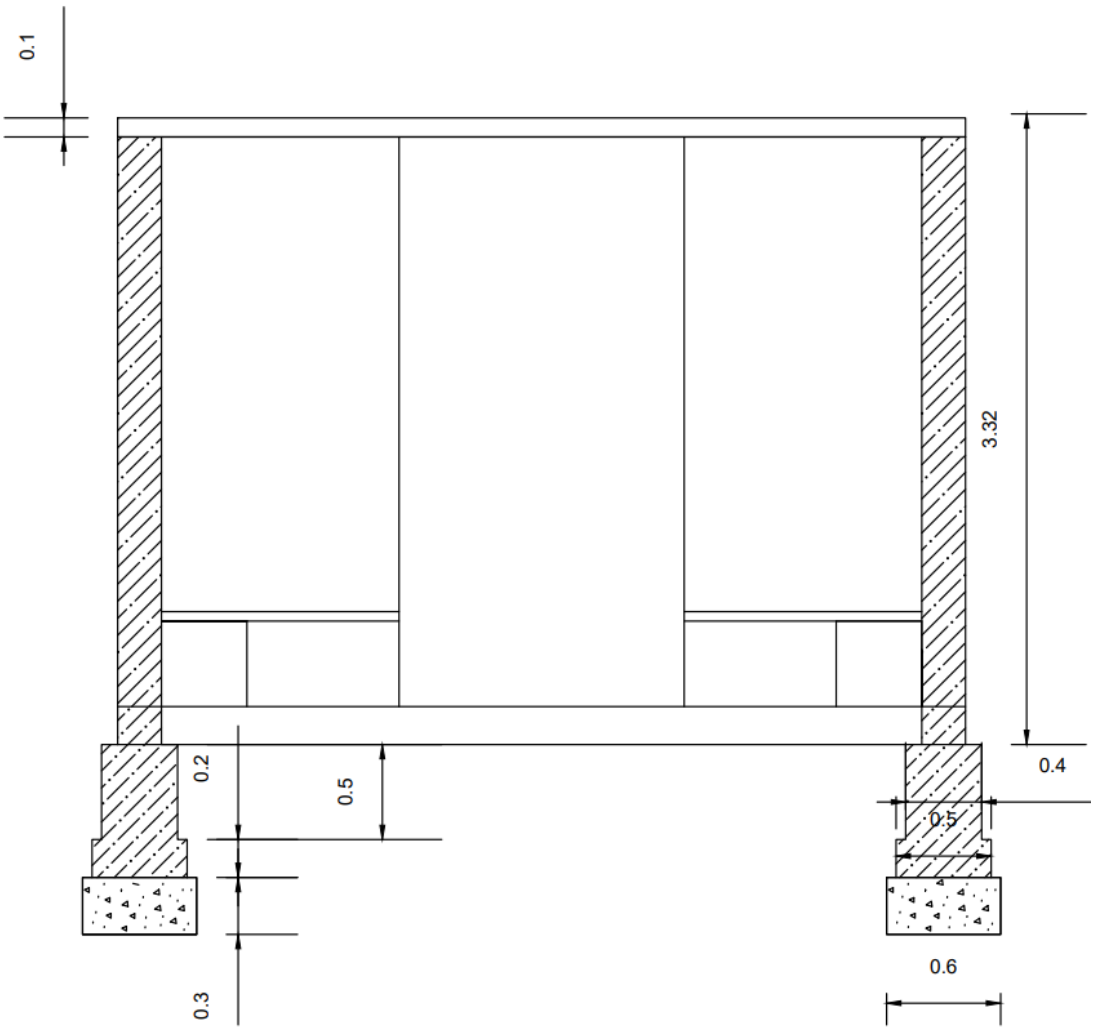
Heritage Village Design: BUS STAND



Plan of Bus Stand



Elevation of bus stand



Section of bus stand

ESTIMATION SHEET

SR NO	DESCRIPTION	NOS	L	B	H	QUANTITY	TOTAL QUANTITY
1	Excavation For Foundation						
	Lw1	2	4.83	0.6	1	5.916	
	Sw1	2	1.9	0.6	1	2.28	8.196
2	Pcc In Foundation						
	Lw1	2	4.83	0.6	0.3	1.7388	
	Sw1	2	1.9	0.6	0.3	0.684	2.42
3	Brickwork In Foundation						
	For Step 1						
	Lw1	2	4.73	0.5	0.2	0.946	

	Sw1	2	2.0	0.5	0.2	0.4	
	For Step 2						
	Lw1	2	4.63	0.4	0.5	0.7408	
	Sw1	2	2.1	0.4	0.5	0.336	2.42
4	Brickwork In Super Structure						
	Lw1	1	4.46	0.23	3	3.0774	
	Sw1	2	2.27	0.23	3	3.1326	
	Lw2	1	1.1	0.23	3	0.759	6.966
	Deduction for Lintels						
	W1	3	1.7	0.23	0.15	0.1759	6.7904
5	Plaster Work						
	Inside						
		1	4		3	12	
		2	2.27		3	13.62	
		1	1.1		3	3.3	
	Out Side	1	4.46		3.2	14.272	
		2	2.27		3.2	14.528	
		1	1.1		3.2	3.52	
	Ceiling Plaster						
		1	4	2.23		8.92	
	Deduction						
	W1	3/2	1.5		1.5	3.375	66.825 Sq.M
6	RCC Work						
	Slab	1	4.46	2.73	0.10	1.2175	1.2175 Cu.M

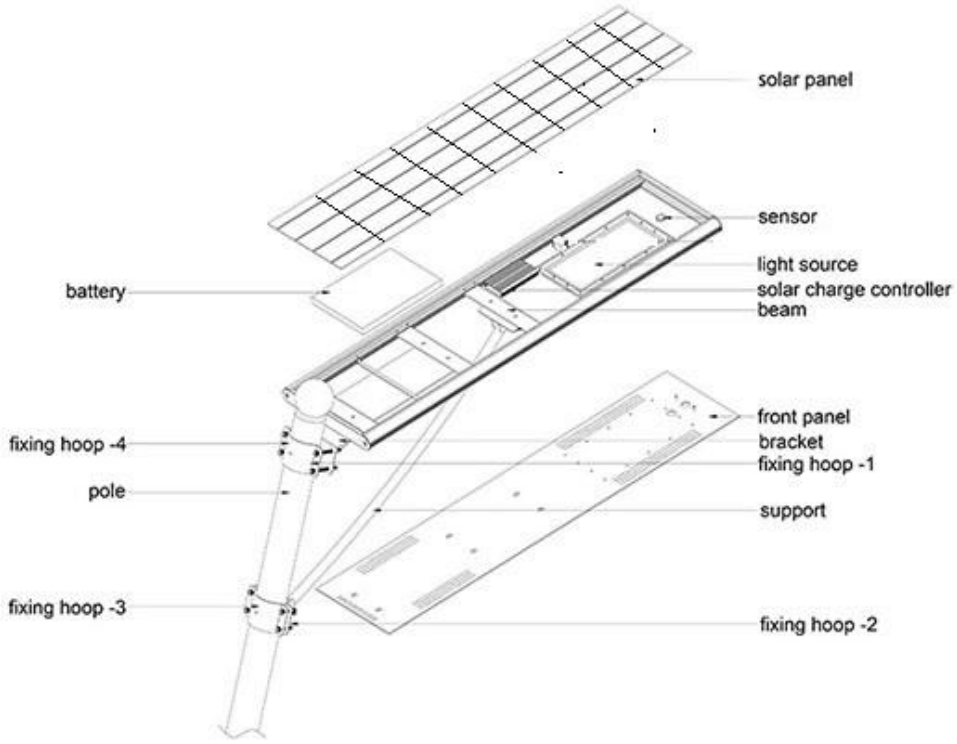
ABSTRACT SHEET

SR NO	DESCRIPTION OF ITEM	QUANTITY	UNIT	RATE	PER	ESTIMATED COST
1	Excavation In Foun	8.196	Cu.M	155	Cu.M	1270
2	Pcc In Foundation	2.423	Cu.M	3000	Cu.M	7270
3	Brickwork In Foundation	2.423	Cu.M	3200	Cu.M	7753.6
4	Brickwork In Superstructure	6.79	Cu.M	3500	Cu.M	23765
5	Plaster Work	66.825	Sq.M	150	Sq.M	10023.75
6	Rcc Work	1.2175	Cu.M	8800	Cu.M	10714
						60796.35
				1.5% Water	Charge	911
				10%Contra	Contractor Profit	6079
						67785.35

8.1.7 Design Estimation of solar street light:

All in one solar street light

- New Integrated Solar led Street Light is an extremely versatile and robust solar parking lot light, it is perfect for all kind of weather conditions. This compact solar powered street light provides extra lighting easily in no time. Installation is straightforward; only 4 bolts need to be tightened onto a pole. The unit can also be wall mounted. No trenching or connection to the electric grid is needed. The all-in-one LED solar street light is perfect for retrofitting old electric powered fixture or new installations. In this put solar panel, solar light, and battery all in one box. Show in below figure.



(Fig. 57 Solar Street Light)

(Fig. 58 Solar Light)

- This design is to put high efficiency monocrystalline silicon solar panel, LED lamps, long life Lithium battery and controller all in one box.
- Without any cable, very easy for shipment, installation and maintenance.
- In this solar light there are sensor fitted in light. in night light automatic on. & in day light automatic off with help of sensor.
- Use of sensor -Light on/off controlled by automatic daylight sensing or hour pre-set, no running or maintenance cost.
  All-in-one type has motion sensor to avoid wastage of energy.

SPECIFICATIONS

Model No		GMT- 20
Integrated Solar Street light		**20W**
Solar panel High Efficiency monocrystalline silicon	Max power	50-60W/20V
	Life time	25Years
Battery	Type	Lion / Lifepo4
	Life time	2years / 5years
LED Lamp	Max power	20W (1w x 20led)
	led chip brand	Bridge lux with high brightness
	lumen (LM)	2600-3000
	Life time	50000Hours
	Viewing Angle	120°
Charge time	by sun	6 - 7 Hours
Working Time	Bright Mode	6+6 Hours
	Dim Mode	12 Hours
Colour temperature	range(k)	6000 - 6500k
Mounting height	range (m)	7-8m
Lamps material of main	Aluminum Alloy	
Back Up	*2 - 3 Day*	
warranty period	1years	

- **Estimate cost of all-in-one solar street light:**

Sr. No	Item description	Rate in Rs
1	All in one (Solar panel, solar light, and battery)	5500
2	Pole (7-8Meter)	3000
3	labour charge & other	1200
	Total estimate cost in Rs	**9700**

- **8.1.8 Design and Estimation of solar roof top at bus stand:**

Total roof top area= 4.46*2.73
=12.17 m^2

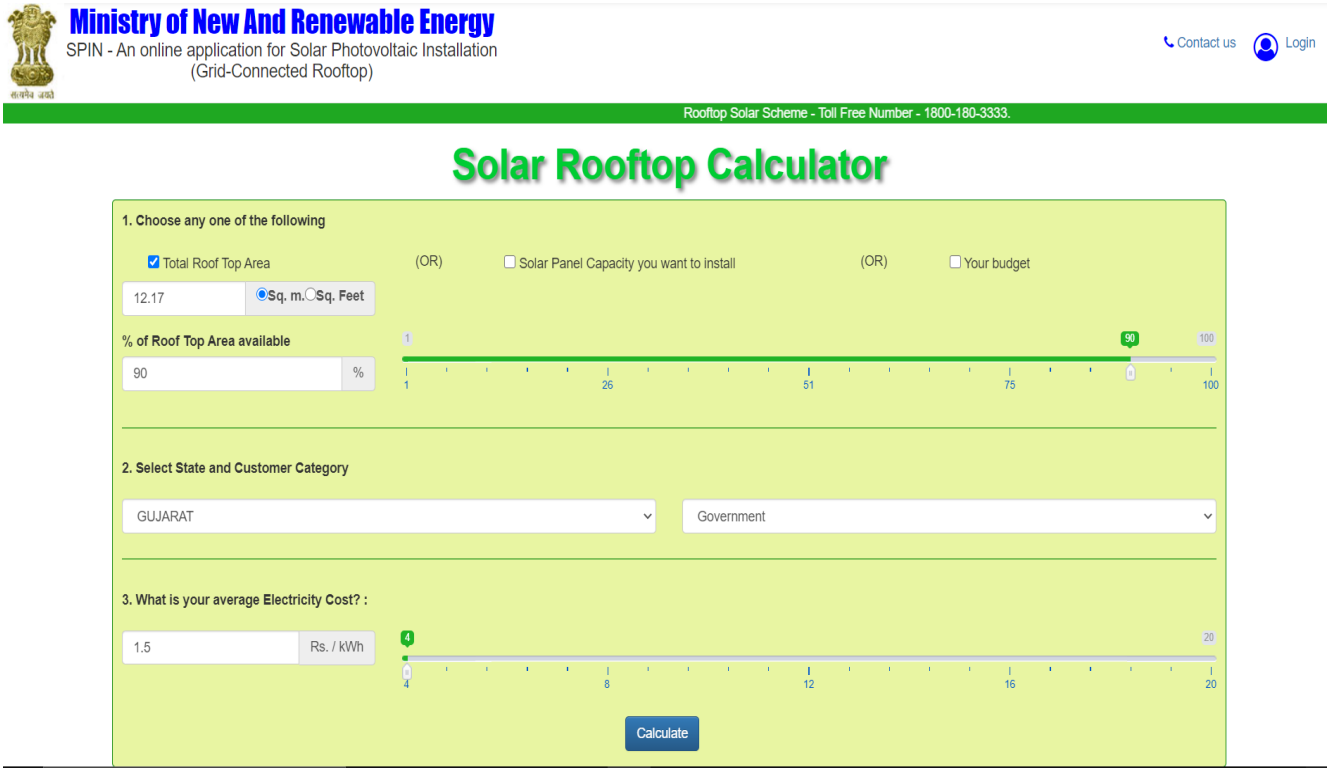
We are providing 3 LED tube light in bus stand.

Calculation for Daily consumption of 1 tube light:
Rating = 40 watts
Duration= 12 hours per day
Electric energy consumption: 40*12
=480 wh
Or= 0.48kwh
Or half unit for a day
Monthly electric bill for 1 tube light= 15 units
For 3 tube light =45 units
For 31- 100 units per unit charge is 3.70 rs
Single day consumption for 3 tube light= 1.5 units/day

So, providing solar roof top plant of size 1.1 kW

Estimated price for 1.1 kW plant=60000 RS (with subsidy)
=66000 RS (without subsidy)

(Fig. 60 Solar roof top)



Solar Rooftop Calculator

Average solar irradiation in **GUJARAT** state is **1266.52** W / sq.m

1kWp solar rooftop plant will generate on an average over the year **5.0** kWh of electricity per day (considering 5.5 sunshine hours)

1. Size of Power Plant	
Feasible Plant size as per your **Roof Top Area** :	**1.1**kW
2. Cost of the Plant :	
MNRE current Benchmark Cost :	Rs. **47000** Rs. / kW
Without subsidy (Based on current MNRE benchmark) :	Rs. **51700**
With subsidy **0** (Based on current MNRE benchmark) :	Rs. **51700**
3. Total Electricity Generation from Solar Plant :	
Annual :	**1650**kWh
Life-Time (25 years):	**41250**kWh
4) Financial Savings :	
a) Tariff @ Rs.1.5/ kWh (for top slab of traffic) - No increase assumed over 25 years :	
Monthly :	Rs. **206**
Annually :	Rs. **2475**
Life-Time (25 years) :	Rs. **61875**

Carbon dioxide emissions mitigated is	**34** tonnes.
This installation will be equivalent to planting	**54** Teak trees over the life time. (Data from IISc)

Disclaimer: The calculation is indicative in nature. Generation may vary from location to location.

8.1.9 Design and Estimation of solar roof top at Primary health center:

Total roof top area= 4.6*4.9
=22.54 m^2

We are provide 3 LED tube light and 4 ceiling fans in PHC

Tube light= 3*40=120 watt
Fan =4*75 = 300 watt

Total electricity consumption by tube light= 0.5 unit per day
Total electricity consumption by fan = 1.5 units per day
Total electricity consumption by fan and tube light= 45 units per month

Electricity consumption of 1 fan or ceiling fan:

For size: 36 inch- 56 inch
Power consumption: 55 watt-100 watt

A typical 48 inch ceiling fan use 75 watts, if it is operate 8 hours a day then,

Cost per hour: 0.0075
Cost per day: 0.0600
Cost per month: 1.83
Cost per year: 21.90
Kwh / day = 0.60

For 4 fans: = 0.60*4=2.40 kWh/ day
= 72 kWh/ day
Total electricity consumption of PHC: 1.5+2.4
=3.9 units/day
Or 45+72
=117 units/ month
So we are providing 2 kW solar roof top plant for PHC.

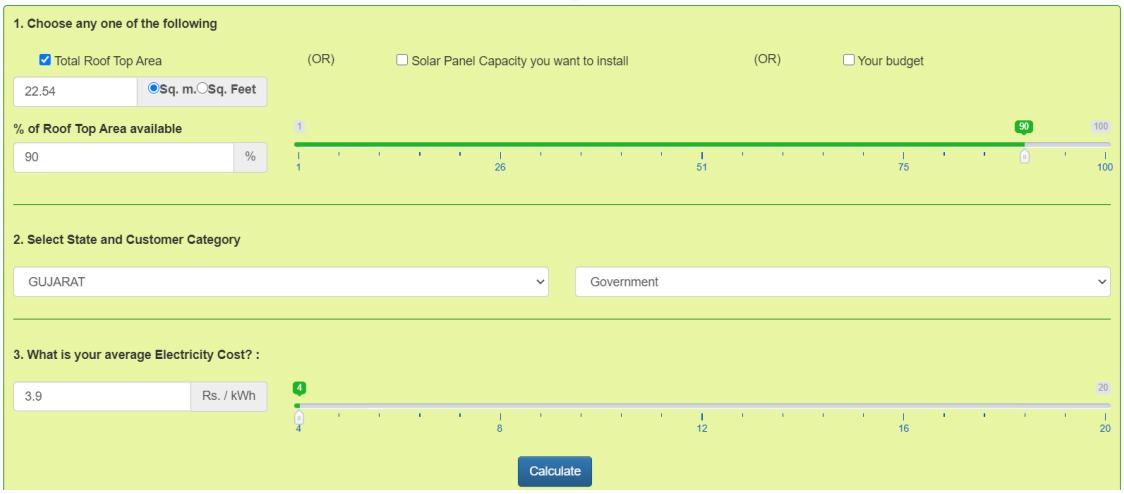
(Fig. 61 Solar Panel)

Ministry of New And Renewable Energy
SPIN - An online application for Solar Photovoltaic Installation
(Grid-Connected Rooftop)

Contact us Login

180-3333.

Solar Rooftop Calculator



Solar Rooftop Calculator

Average solar irradiation in **GUJARAT** state is **1266.52** W / sq.m

1kWp solar rooftop plant will generate on an average over the year **5.0** kWh of electricity per day (considering 5.5 sunshine hours)

1. Size of Power Plant	
Feasible Plant size as per your **Roof Top Area** :	**2.0**kW
2. Cost of the Plant :	
MNRE current Benchmark Cost :	Rs. **43000** Rs. / kW
Without subsidy (Based on current MNRE benchmark) :	Rs. **86000**
With subsidy **0** (Based on current MNRE benchmark) :	Rs. **86000**
3. Total Electricity Generation from Solar Plant :	
Annual :	**3000**kWh
Life-Time (25 years):	**75000**kWh
4) Financial Savings :	
a) Tariff @ Rs.3.9/ kWh (for top slab of traffic) - No increase assumed over 25 years :	
Monthly :	Rs. **975**
Annually :	Rs. **11700**
Life-Time (25 years) :	Rs. **292500**

Carbon dioxide emissions mitigated is	**61** tonnes.
This installation will be equivalent to planting	**98** Teak trees over the life time. (Data from IISc)

Disclaimer: The calculation is indicative in nature. Generation may vary from location to location.

8.2 Recommendations of the Design:

- Primary Health Centre
- Solar street light
- Bus stand
- Mini mart
- Bio gas plant
- Public Garden
- Solid waste treatment plant
- Raw Water treatment plant
- Public toilet
- Rain water harvesting for panchayat building

8.3 Suggestions / Benefits of the Villagers:

We visited the village and we see that all the basic facility are available in village. The renewable sources like bio gas plant, solar street lights, water harvesting etc are not available in the village. So that's why we are giving design proposal of bio gas plant, solar street light. Bio gas can be used for various uses like for cooking or it can be used as a natural gas. Solar Street light which uses solar energy to generate electricity which is very efficient system. In the village there is a volley ball ground for youngsters but for children and old aged people recreational facility is not available so we are giving design proposal of public Garden. The village doesn't have market so we are giving design proposal of mini mart.

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

In this semester we are not able to collect the detailed data about village we visited village one time because of covid 19 we cannot spend more time in village. We collect necessary data required and we do gap analysis and we conclude that village has all basic facilities like electricity, water supply, schools, Anganwadi, water tanks, Road facilities etc but we see that water facilities is available but there is no Treatment plant they directly use the raw water. Village also don't have market facility, cybercafé, public library, Primary health center etc.
Village has a bus pick up point but the condition is not good so we decided to give design proposal of PHC, Market, Public library, Cybercafé, water treatment plant, Bus stand, public garden.

Sr. No.	Design
1	Water treatment plant
2	Public garden
3	Bus stand
4	Cyber café
5	Market
6	Public library
7	Primary health center

Table design proposal for future development.

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

Villages and small towns play an important role as a "rural incubator" in the process of Rurban development and provide services in areas of marketing, agricultural inputs such as Fertilizer and agricultural machinery, municipal services such as educational facilities, primary health centers and so on for their rural regions.

After visiting of Ideal Village chikhli and Smart Village Punsari and peepariya, we get the idea and Scenario of a ideal village. Up till now in our mind we think the meaning of ‘village’ as low class people, leaving with normal life and with old mindset and old technology. But now a day scenario is totally changed, Indian villages growing out now and becoming a place full of postivity. With smart cities, Smart Village concept is also introduced and we are proudly say that, we are also part of that. Because through Vishwakarma Yojana we connect with the rural development concepts and we connect the self with village peoples and know how they live in village.

After carrying out physical survey (Gap analysis) and comparing the existing facility of village with the Basic facilities needed by a village based on population norms given by government of India And personal interface eighth many of the villagers of Tarnol and meeting with Sarpanch we Finalize the remaining facilities required fulfill basic need of this village based on the priority Requirement some of the facilities are designed and complete estimate is prepared.

After visiting village and after doing gap analysis we decided to give design proposal of PHC, Market, Public library, Cybercafé, water treatment plant, Bus stand, public garden.

Chapter 11: References refereed for this project

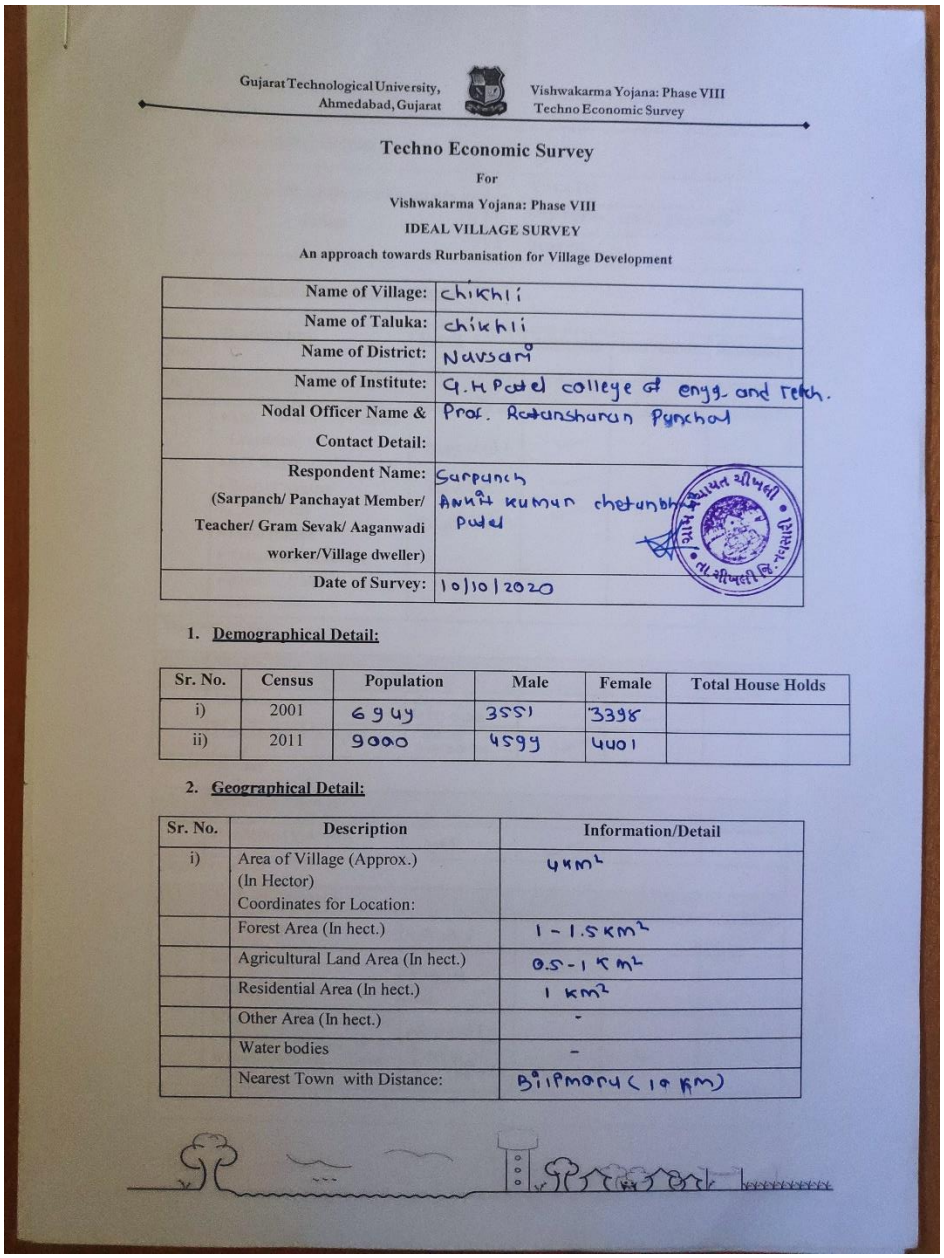
1) B.N. DATTA (2017) Stimtion publisher “Estimation and costing book”
2) The Hindu news (15 October 2013) “The 15 must have basic amenities in Villages.”
3) National Building Code of India (2016)
4) S.S. Bhavikatt, M.V. Chltawadagi (2014) I.K. International Pvt. Ltd. “Building planning and drawing”
5) G.B. Deshpandey, J.P. Nayak (2014) Nirali prakasan “Quantity surveying book”
6) Smart Village Development Principles And Driving Forces: The Case Of Lithuania
7) A Recapitulation on Exigency of Smart Villages in Indian Ambience
8) The Development Of Village (Smart Sustainable Village for Community)
9) Case Study And Planning Of Smart Village
10) Case Study Of Smart Village And Local Village

Web Sites: -

- www.Sciencedirect.com
- www.smartvillage.gujrat.gov.in
- https://www.census2011.co.in/
- https://bis.gov.in
- www.onefivenine.com/india/villages/tarnol
- www.irjet.net
- www.conferenceworld.in
- www.ijaerd.com
- https://www.sciendo.com/
- https://www.sciendo.com/

Chapter 12: Annexure attachments

12.1 Survey form of Ideal Village Scanned copy attachment in the report for Part-I



Gujarat Technological University, Ahmedabad, Gujarat

Vishwakarma Yojana: Phase VIII
Techno Economic Survey

Techno Economic Survey

For

Vishwakarma Yojana: Phase VIII

IDEAL VILLAGE SURVEY

An approach towards Rurbanisation for Village Development

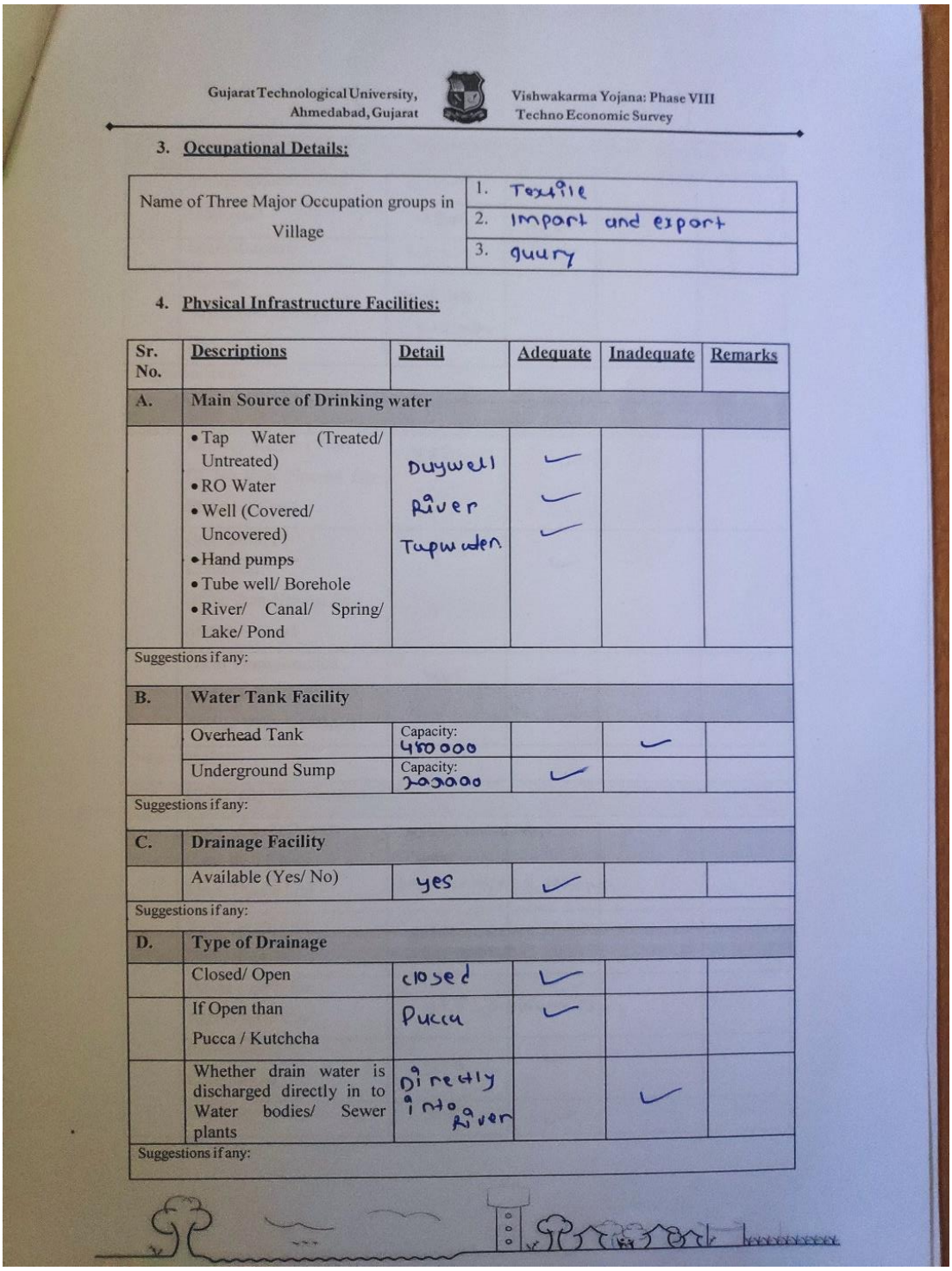
Name of Village:	chikhli
Name of Taluka:	chikhli
Name of District:	Navsari
Name of Institute:	G.H Patel college of engg. and Tech.
Nodal Officer Name & Contact Detail:	Prof. Ratansharan Panchal
Respondent Name: (Sarpanch/ Panchayat Member/ Teacher/ Gram Sevak/ Aaganwadi worker/Village dweller)	Sarpanch Amrit kumar chetanbhai Patel
Date of Survey:	10/10/2020

1. **Demographical Detail:**

Sr. No.	Census	Population	Male	Female	Total House Holds
i)	2001	6944	3551	3398	
ii)	2011	9000	4599	4401	

2. **Geographical Detail:**

Sr. No.	Description	Information/Detail
i)	Area of Village (Approx.) (In Hector) Coordinates for Location:	4 km^2
	Forest Area (In hect.)	1 - 1.5 km^2
	Agricultural Land Area (In hect.)	0.5 - 1 km^2
	Residential Area (In hect.)	1 km^2
	Other Area (In hect.)	-
	Water bodies	-
	Nearest Town with Distance:	Bilimora (10 KM)



Gujarat Technological University, Ahmedabad, Gujarat

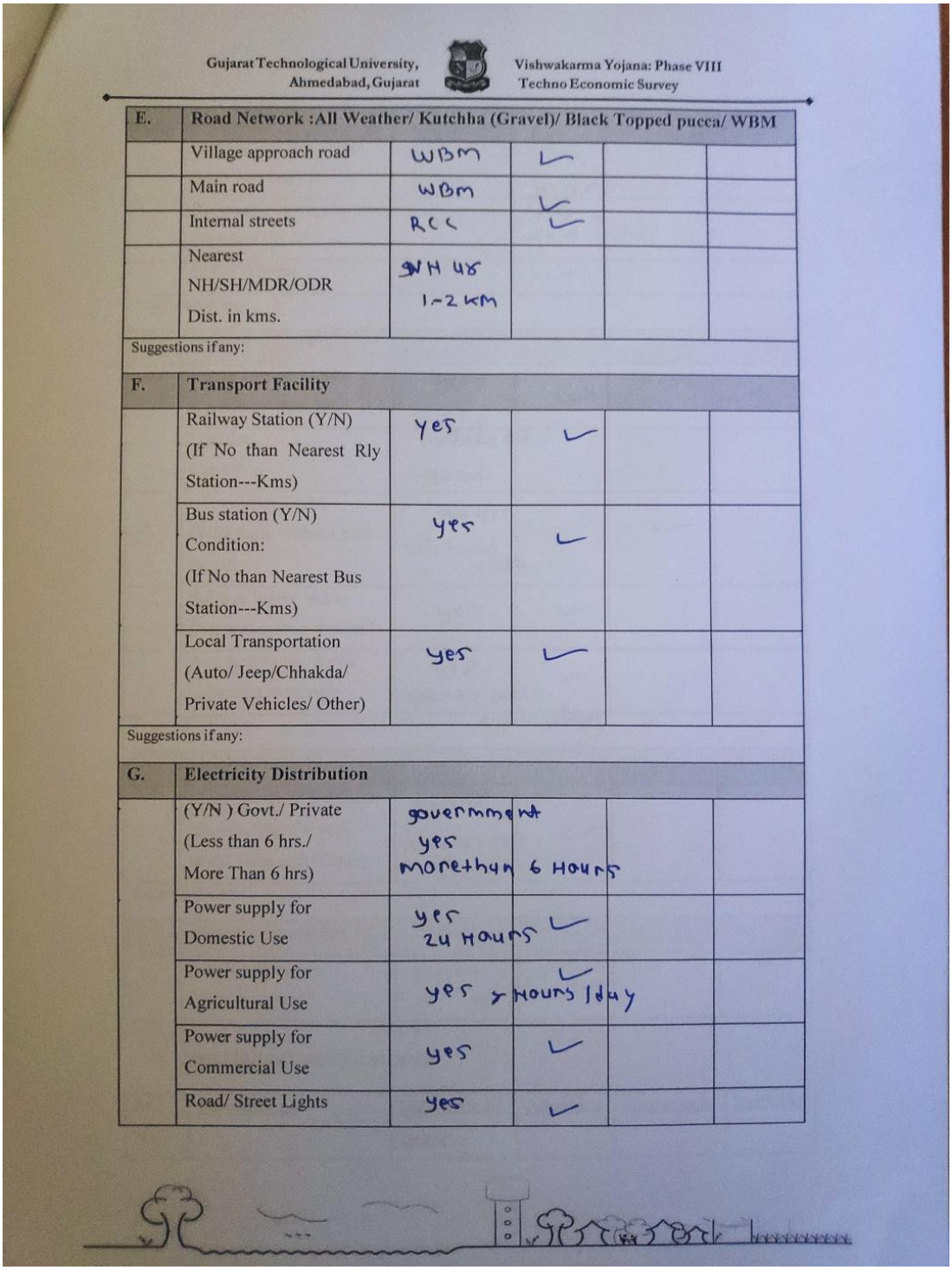
Vishwakarma Yojana: Phase VIII
Techno Economic Survey

3. **Occupational Details:**

Name of Three Major Occupation groups in Village	1. Textile 2. Import and export 3. quary

4. **Physical Infrastructure Facilities:**

Sr. No.	Descriptions	Detail	Adequate	Inadequate	Remarks
A.	**Main Source of Drinking water**				
	• Tap Water (Treated/ Untreated) • RO Water • Well (Covered/ Uncovered) • Hand pumps • Tube well/ Borehole • River/ Canal/ Spring/ Lake/ Pond	Duywell River Tapwater	✓ ✓ ✓		
Suggestions if any:					
B.	**Water Tank Facility**				
	Overhead Tank	Capacity: 450000		✓	
	Underground Sump	Capacity: 200000	✓		
Suggestions if any:					
C.	**Drainage Facility**				
	Available (Yes/ No)	yes	✓		
Suggestions if any:					
D.	**Type of Drainage**				
	Closed/ Open	closed	✓		
	If Open than Pucca / Kutchcha	Pucca	✓		
	Whether drain water is discharged directly in to Water bodies/ Sewer plants	Directly into River		✓	
Suggestions if any:					



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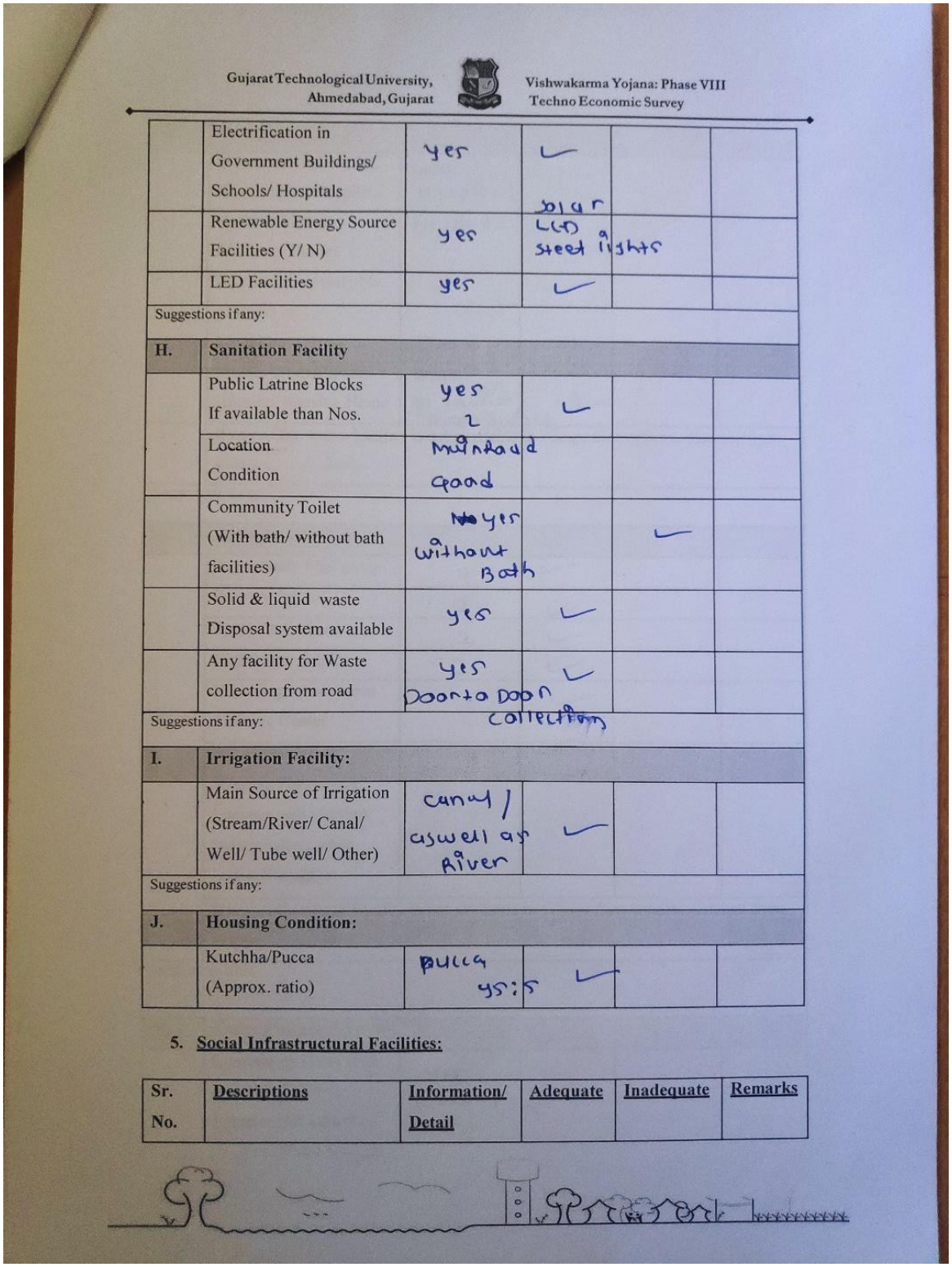
Techno Economic Survey

E.	**Road Network :All Weather/ Kutchha (Gravel)/ Black Topped pucca/ WBM**				
	Village approach road	WBM	✓		
	Main road	WBM	✓		
	Internal streets	RCC	✓		
	Nearest NH/SH/MDR/ODR Dist. in kms.	NH 48 1-2 KM			
Suggestions if any:					
F.	**Transport Facility**				
	Railway Station (Y/N) (If No than Nearest Rly Station---Kms)	yes	✓		
	Bus station (Y/N) Condition: (If No than Nearest Bus Station---Kms)	yes	✓		
	Local Transportation (Auto/ Jeep/Chhakda/ Private Vehicles/ Other)	yes	✓		
Suggestions if any:					
G.	**Electricity Distribution**				
	(Y/N) Govt./ Private (Less than 6 hrs./ More Than 6 hrs)	government yes morethan 6 Hours			
	Power supply for Domestic Use	yes 24 Hours	✓		
	Power supply for Agricultural Use	yes 8 Hours/day	✓		
	Power supply for Commercial Use	yes	✓		
	Road/ Street Lights	yes	✓		



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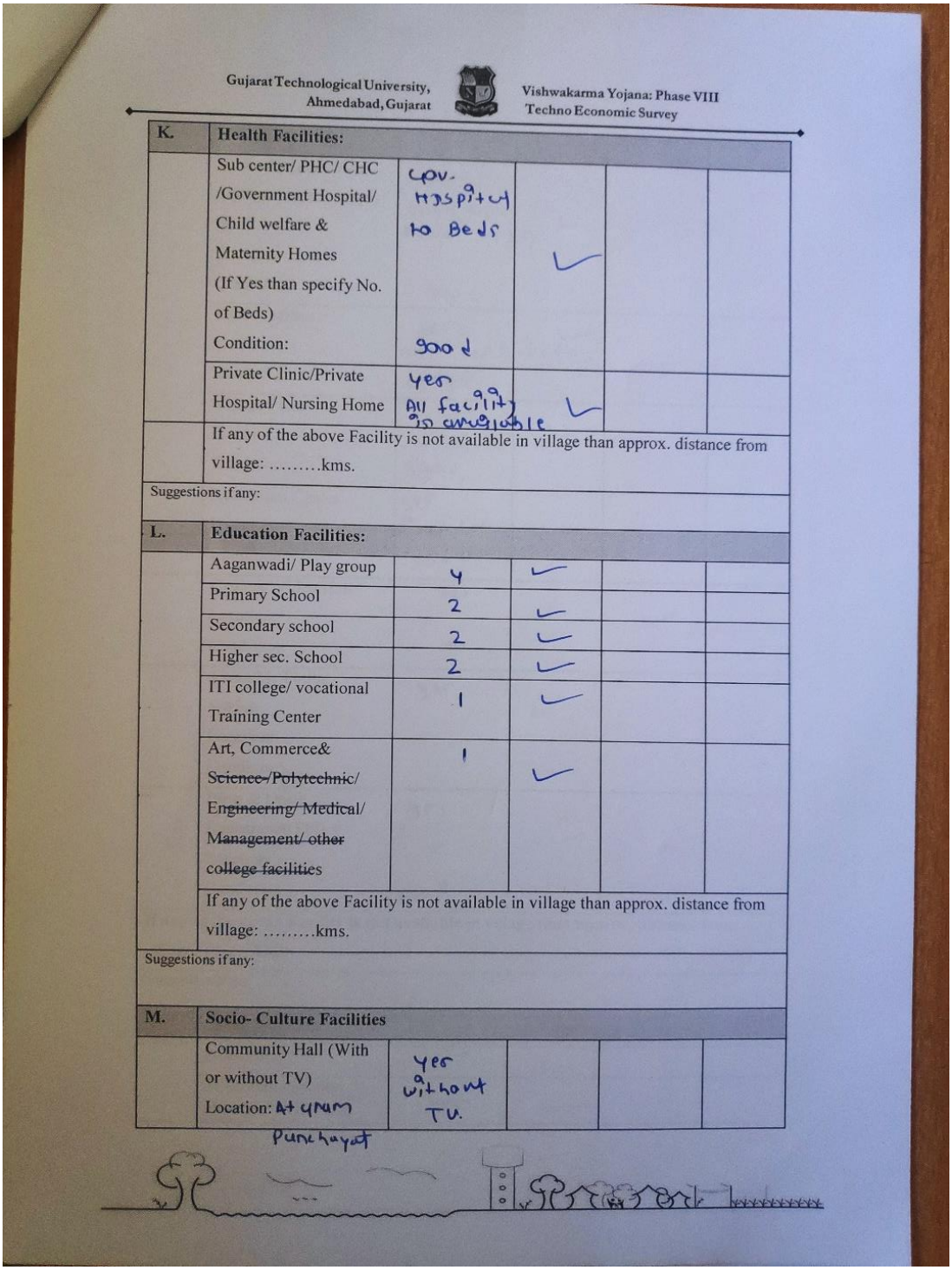
	Electrification in Government Buildings/ Schools/ Hospitals	yes	✓ solar		
	Renewable Energy Source Facilities (Y/ N)	yes	LED street lights		
	LED Facilities	yes	✓		
Suggestions if any:					
H.	**Sanitation Facility**				
	Public Latrine Blocks If available than Nos.	yes 2	✓		
	Location Condition	Main road Good			
	Community Toilet (With bath/ without bath facilities)	~~No~~ yes without Bath		✓	
	Solid & liquid waste Disposal system available	yes	✓		
	Any facility for Waste collection from road	yes Doorto Door collection	✓		
Suggestions if any:					
I.	**Irrigation Facility:**				
	Main Source of Irrigation (Stream/River/ Canal/ Well/ Tube well/ Other)	canal / as well as River	✓		
Suggestions if any:					
J.	**Housing Condition:**				
	Kutchha/Pucca (Approx. ratio)	Pucca yes: 5	✓		

5. **Social Infrastructural Facilities:**

Sr. No.	Descriptions	Information/ Detail	Adequate	Inadequate	Remarks



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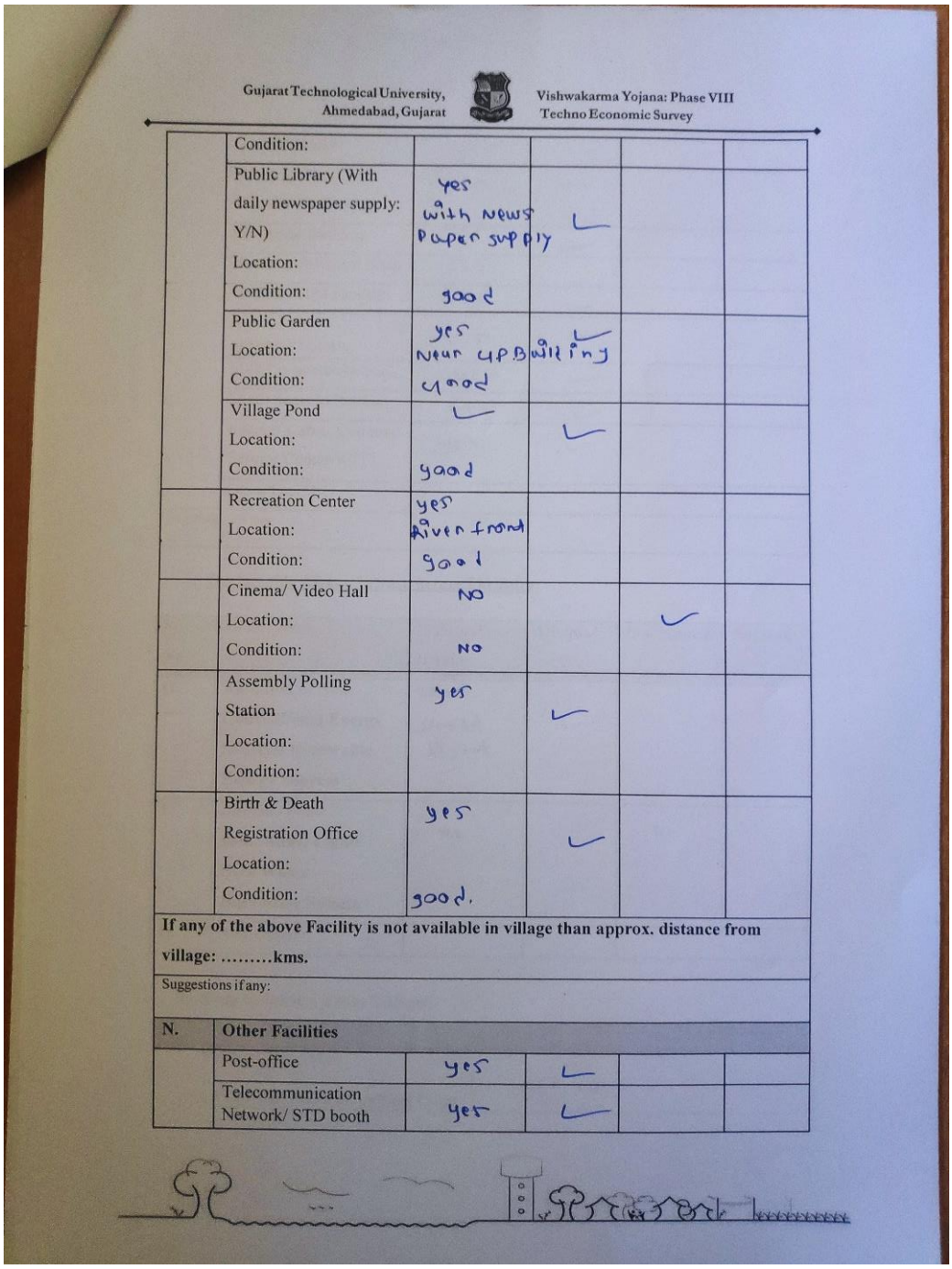
K.	Health Facilities:				
	Sub center/ PHC/ CHC /Government Hospital/ Child welfare & Maternity Homes (If Yes than specify No. of Beds) Condition:	Gov. Hospital 10 Beds Good	✓		
	Private Clinic/Private Hospital/ Nursing Home	Yes All facility is available	✓		
	If any of the above Facility is not available in village than approx. distance from village: .....kms.				
Suggestions if any:					

L.	Education Facilities:				
	Aaganwadi/ Play group	4	✓		
	Primary School	2	✓		
	Secondary school	2	✓		
	Higher sec. School	2	✓		
	ITI college/ vocational Training Center	1	✓		
	Art, Commerce& ~~Science-/Polytechnic~~/ ~~Engineering/ Medical~~/ ~~Management/ other college facilities~~	1	✓		
	If any of the above Facility is not available in village than approx. distance from village: .....kms.				
Suggestions if any:					

M.	Socio- Culture Facilities				
	Community Hall (With or without TV) Location: ~~At~~ Gram Panchayat	Yes Without TV.			



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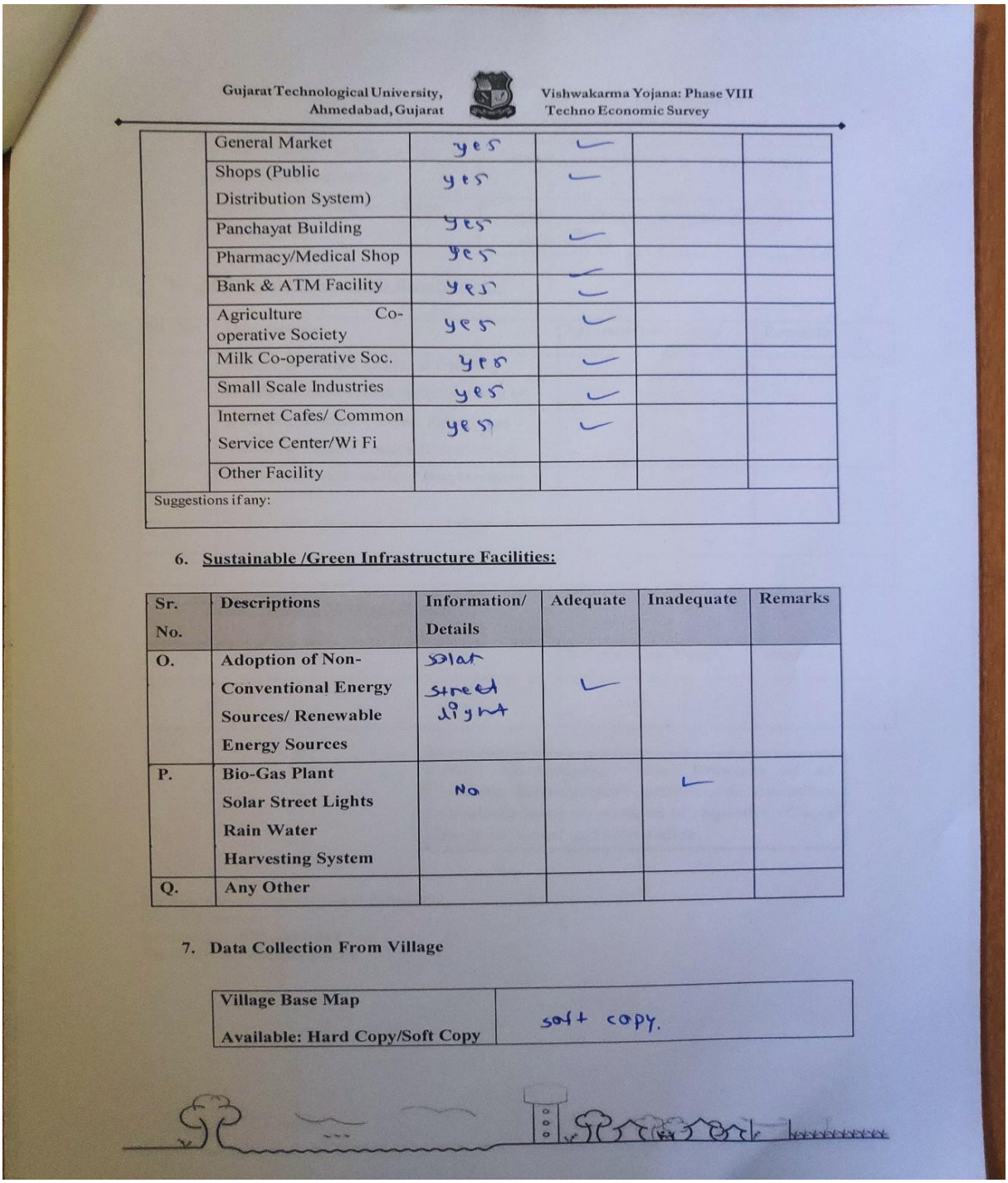
	Condition:				
	Public Library (With daily newspaper supply: Y/N) Location: Condition:	yes with News Paper supply good	✓		
	Public Garden Location: Condition:	yes Near GP Building good	✓		
	Village Pond Location: Condition:	✓ good	✓		
	Recreation Center Location: Condition:	yes River front good			
	Cinema/ Video Hall Location: Condition:	NO NO		✓	
	Assembly Polling Station Location: Condition:	yes	✓		
	Birth & Death Registration Office Location: Condition:	yes good.	✓		
If any of the above Facility is not available in village than approx. distance from village: .....kms.					
Suggestions if any:					
N.	**Other Facilities**				
	Post-office	yes	✓		
	Telecommunication Network/ STD booth	yes	✓		



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	General Market	yes	✓		
	Shops (Public Distribution System)	yes	✓		
	Panchayat Building	yes	✓		
	Pharmacy/Medical Shop	yes	✓		
	Bank & ATM Facility	yes	✓		
	Agriculture Co-operative Society	yes	✓		
	Milk Co-operative Soc.	yes	✓		
	Small Scale Industries	yes	✓		
	Internet Cafes/ Common Service Center/Wi Fi	yes	✓		
	Other Facility				
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	solar street light	✓		
P.	Bio-Gas Plant Solar Street Lights Rain Water Harvesting System	No		✓	
Q.	Any Other				

7. **Data Collection From Village**

Village Base Map Available: Hard Copy/Soft Copy	soft copy.

Recent Projects going on for Development of Village	Road widening work
Any NGO working for village development	Yes Prerna group is working.

8. **Additional Information/ Requirement:**

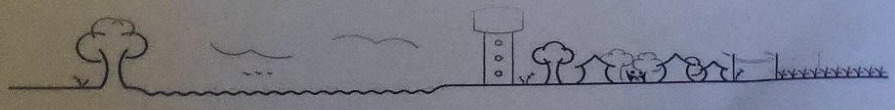
Sr. No.	Descriptions	Information/ Detail	Remarks
1.	Repair & Maintenance of Existing Public Infrastructure facilities(School Building, Health Center, Panchayat Building, Public Toilets & any other)	No	
2.	Additional Information/ Requirement	—	

9. **Smart Village Proposal Design**

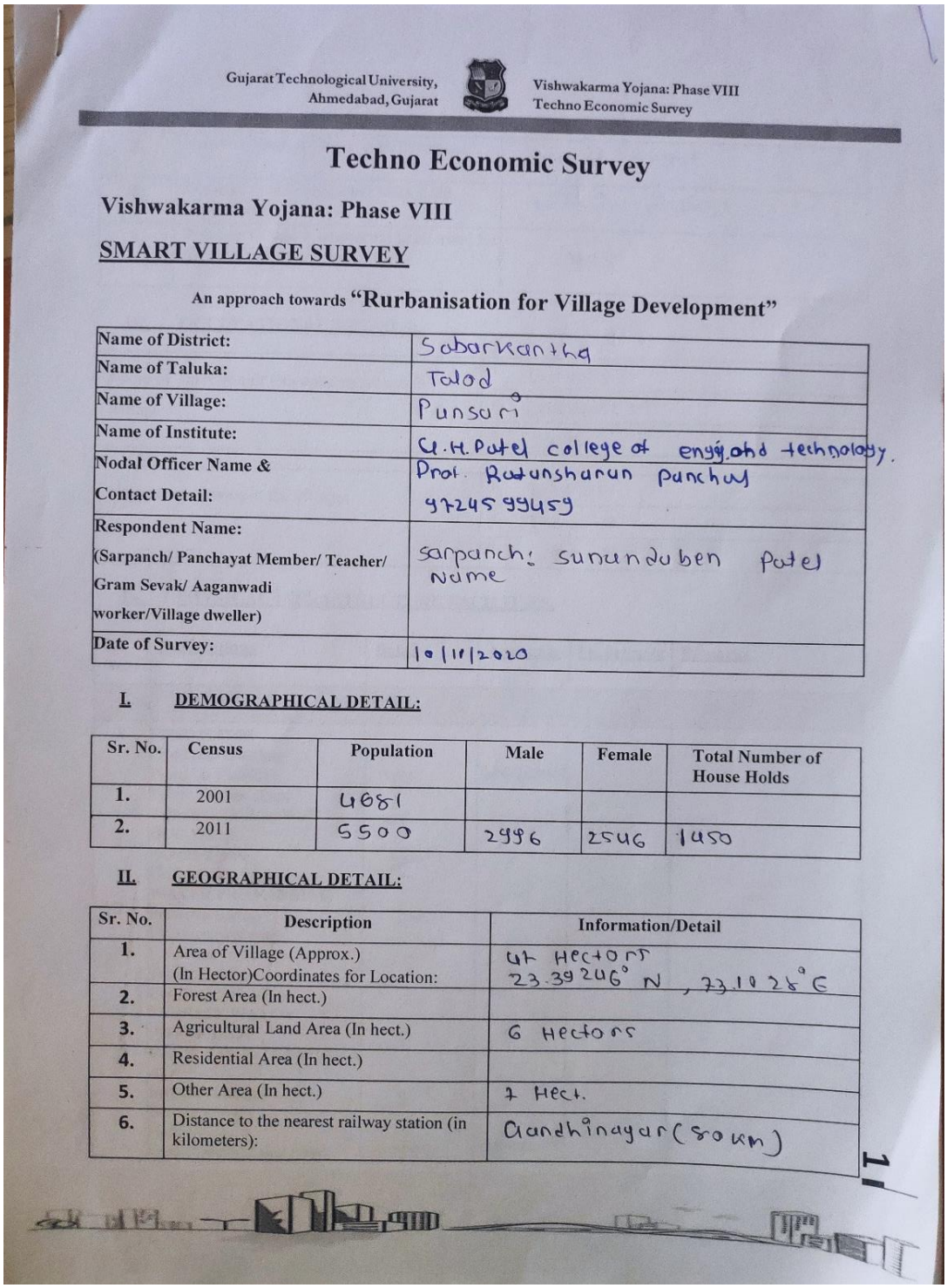
Sr. No.	Descriptions	Information/ Detail	Remarks
1.	—	—	

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 Survey form of Smart Village Scanned copy attachment in the report for Part-I



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Vishwakarma Yojana: Phase VIII
Techno Economic Survey

Techno Economic Survey

Vishwakarma Yojana: Phase VIII

SMART VILLAGE SURVEY

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

Name of District:	Sabarkantha
Name of Taluka:	Talod
Name of Village:	Punsari
Name of Institute:	G.H. Patel college of engg. and technology.
Nodal Officer Name & Contact Detail:	Prof. Ratansharan Panchal 9724599459
Respondent Name: (Sarpanch/ Panchayat Member/ Teacher/ Gram Sevak/ Aaganwadi worker/Village dweller)	sarpanch: Sunandu ben Patel Name
Date of Survey:	10/11/2020

I. DEMOGRAPHICAL DETAIL:

Sr. No.	Census	Population	Male	Female	Total Number of House Holds
1.	2001	4681			
2.	2011	5500	2996	2546	1450

II. GEOGRAPHICAL DETAIL:

Sr. No.	Description	Information/Detail
1.	Area of Village (Approx.) (In Hector)Coordinates for Location:	4+ Hectors 23.39246° N, 73.1128° E
2.	Forest Area (In hect.)	
3.	Agricultural Land Area (In hect.)	6 Hectors
4.	Residential Area (In hect.)	
5.	Other Area (In hect.)	1 Hect.
6.	Distance to the nearest railway station (in kilometers):	Gandhinagar (80 km)

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

III. OCCUPATIONAL DETAILS:

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

Major crops grown in the village:	1.	Wheat
	2.	Tobacco
	3.	Rice

IV. PHYSICAL INFRASTRUCTURE FACILITIES:

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

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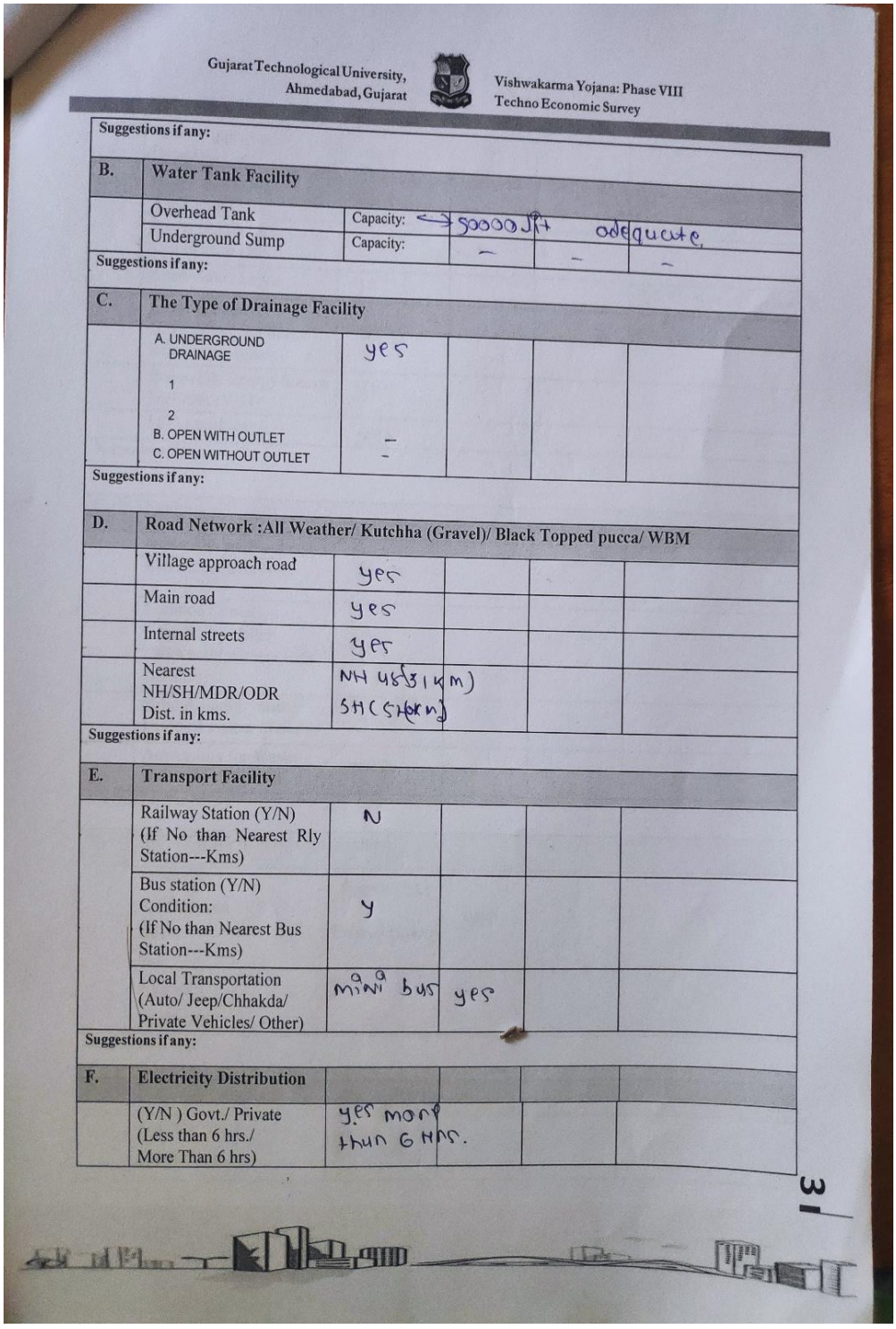

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Suggestions if any:					
B.	**Water Tank Facility**				
	Overhead Tank	Capacity:	50000 Lit	adequate	
	Underground Sump	Capacity:	–	–	–
Suggestions if any:					
C.	**The Type of Drainage Facility**				
	A. UNDERGROUND DRAINAGE	yes			
	1				
	2				
	B. OPEN WITH OUTLET	–			
	C. OPEN WITHOUT OUTLET	–			
Suggestions if any:					
D.	**Road Network :All Weather/ Kutchha (Gravel)/ Black Topped pucca/ WBM**				
	Village approach road	yes			
	Main road	yes			
	Internal streets	yes			
	Nearest NH/SH/MDR/ODR Dist. in kms.	NH 48 (3 km) SH (5 km)			
Suggestions if any:					
E.	**Transport Facility**				
	Railway Station (Y/N) (If No than Nearest Rly Station---Kms)	N			
	Bus station (Y/N) Condition: (If No than Nearest Bus Station---Kms)	y			
	Local Transportation (Auto/ Jeep/Chhakda/ Private Vehicles/ Other)	mini bus	yes		
Suggestions if any:					
F.	**Electricity Distribution**				
	(Y/N) Govt./ Private (Less than 6 hrs./ More Than 6 hrs)	yes more than 6 hrs.			

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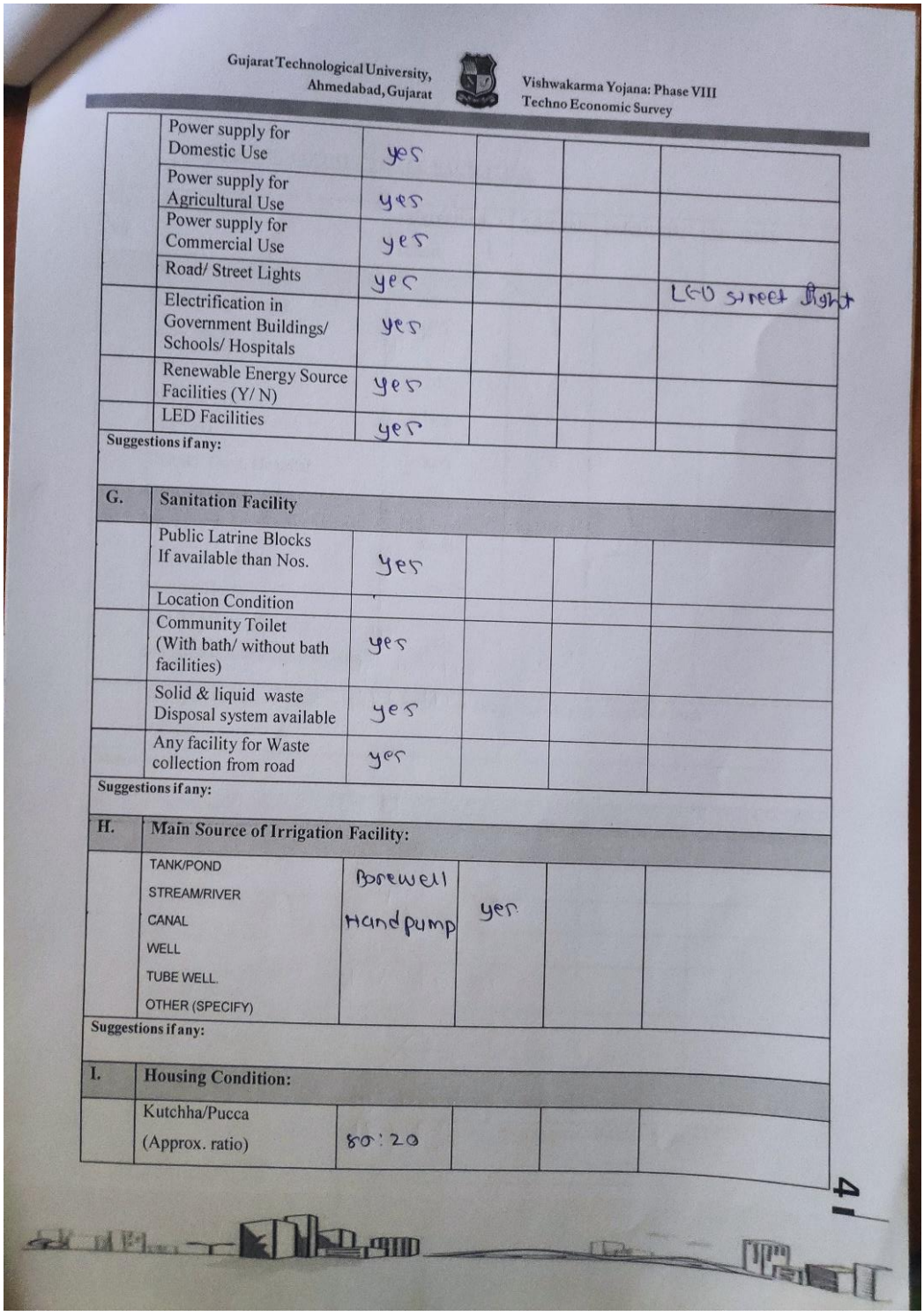

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	Power supply for Domestic Use	yes			
	Power supply for Agricultural Use	yes			
	Power supply for Commercial Use	yes			
	Road/ Street Lights	yes			LED street light
	Electrification in Government Buildings/ Schools/ Hospitals	yes			
	Renewable Energy Source Facilities (Y/ N)	yes			
	LED Facilities	yes			

Suggestions if any:

G.	**Sanitation Facility**				
	Public Latrine Blocks If available than Nos.	yes			
	Location Condition				
	Community Toilet (With bath/ without bath facilities)	yes			
	Solid & liquid waste Disposal system available	yes			
	Any facility for Waste collection from road	yes			

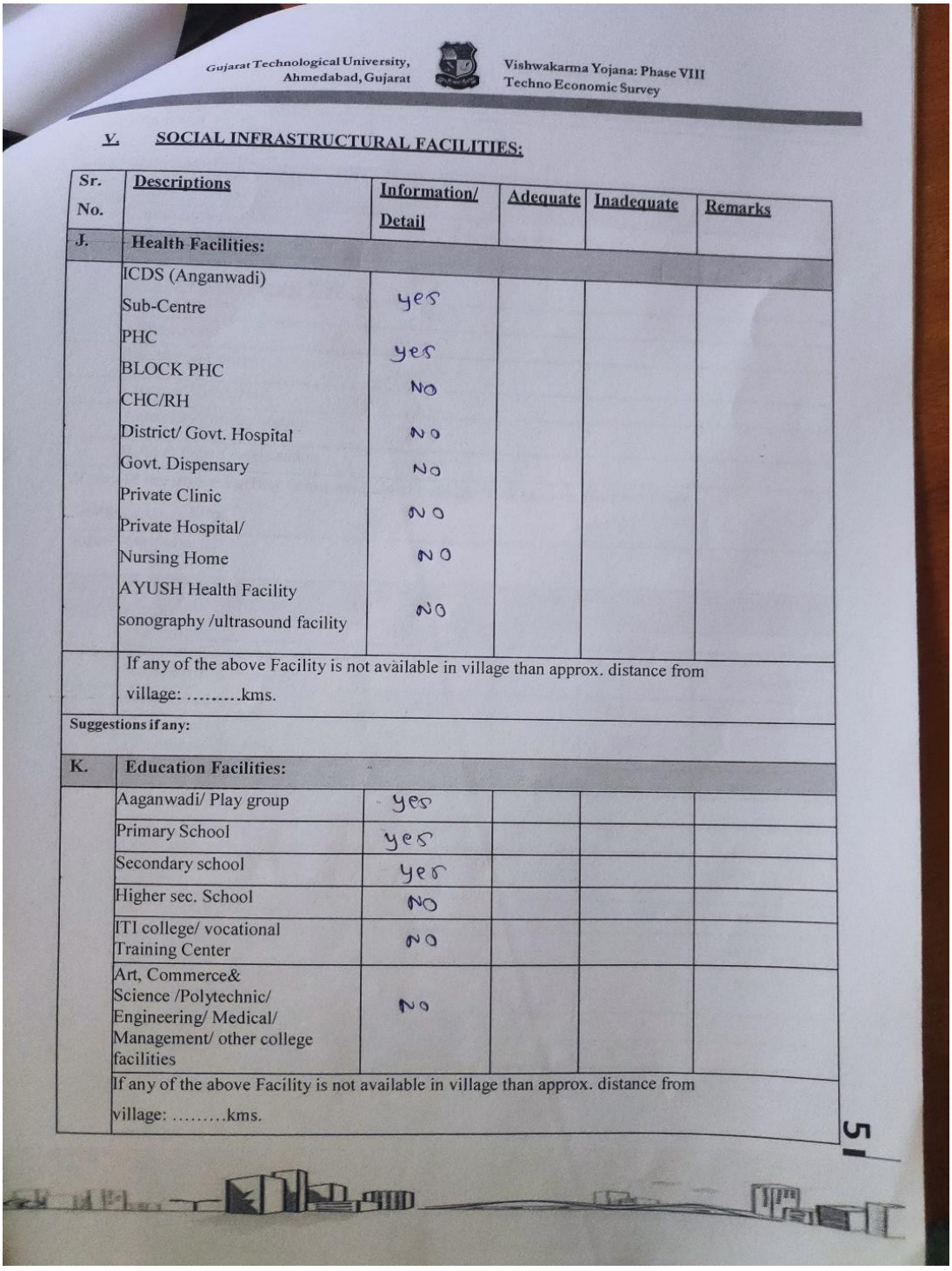
Suggestions if any:

H.	**Main Source of Irrigation Facility:**				
	TANK/POND STREAM/RIVER CANAL WELL TUBE WELL OTHER (SPECIFY)	Borewell Handpump	yes		

Suggestions if any:

I.	**Housing Condition:**				
	Kutchha/Pucca (Approx. ratio)	80:20			

4



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V. SOCIAL INFRASTRUCTURAL FACILITIES:

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

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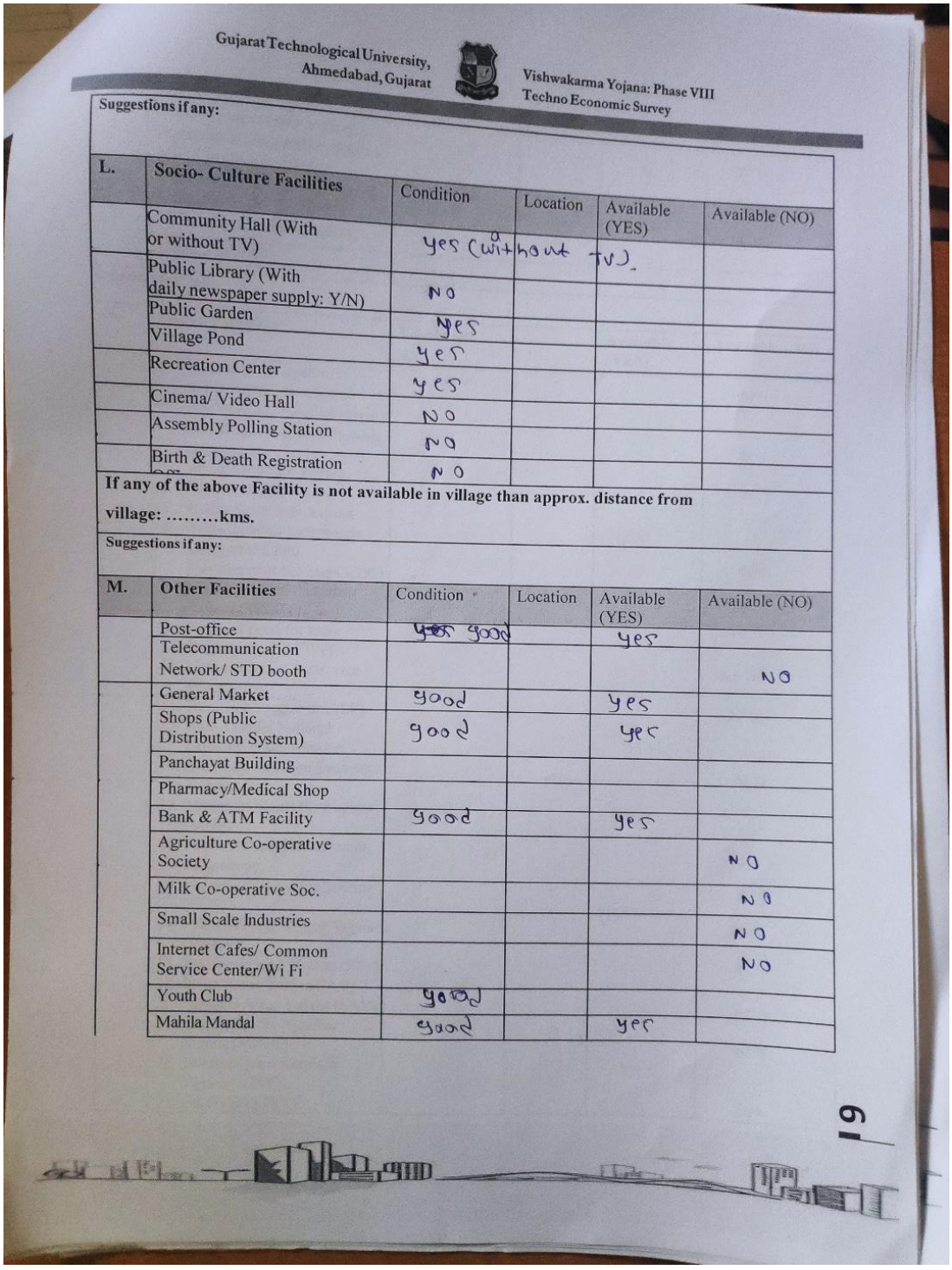

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Suggestions if any:

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

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

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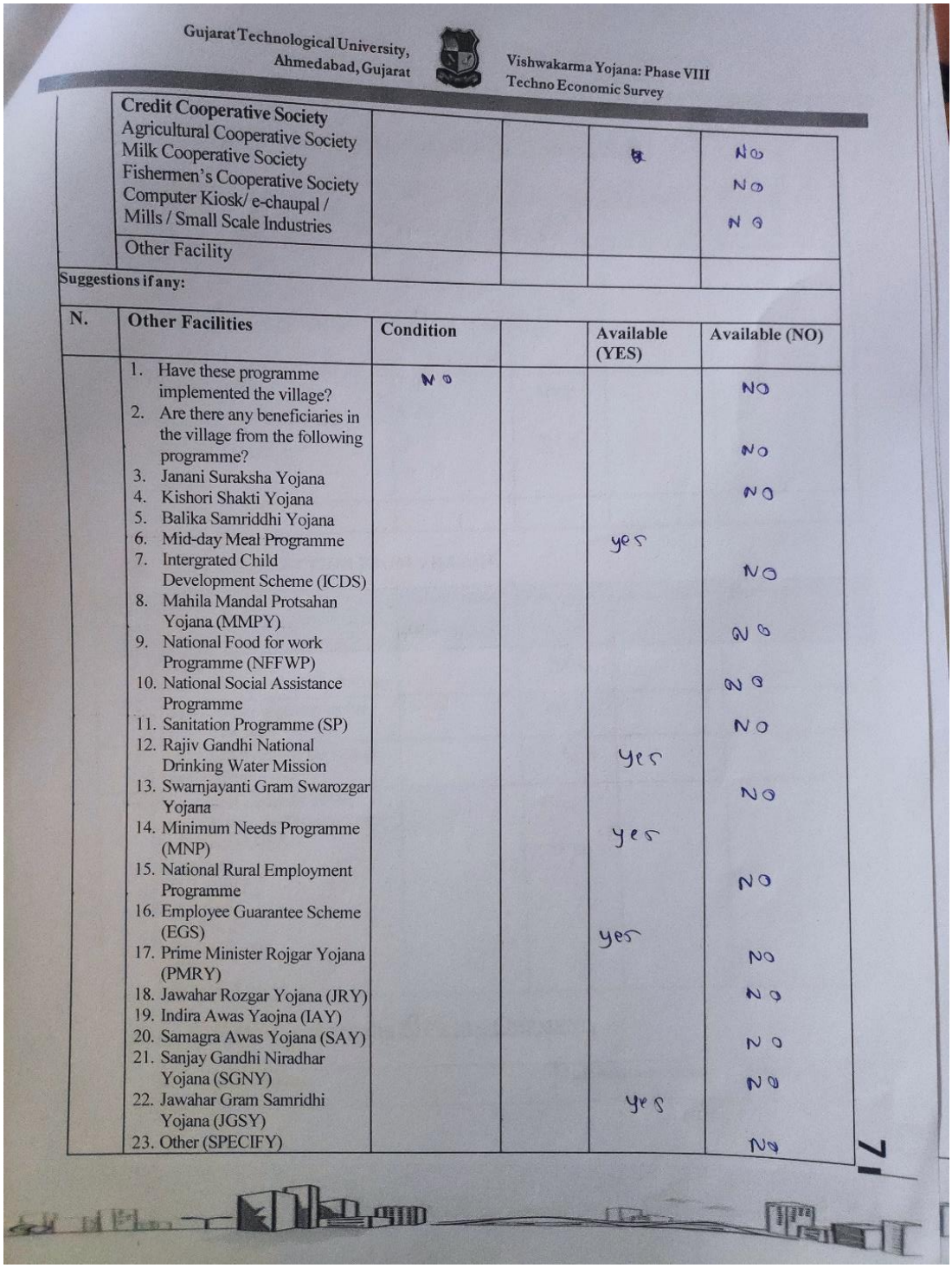

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Credit Cooperative Society Agricultural Cooperative Society Milk Cooperative Society Fishermen's Cooperative Society Computer Kiosk/ e-chaupal / Mills / Small Scale Industries				No No No
Other Facility				

Suggestions if any:

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

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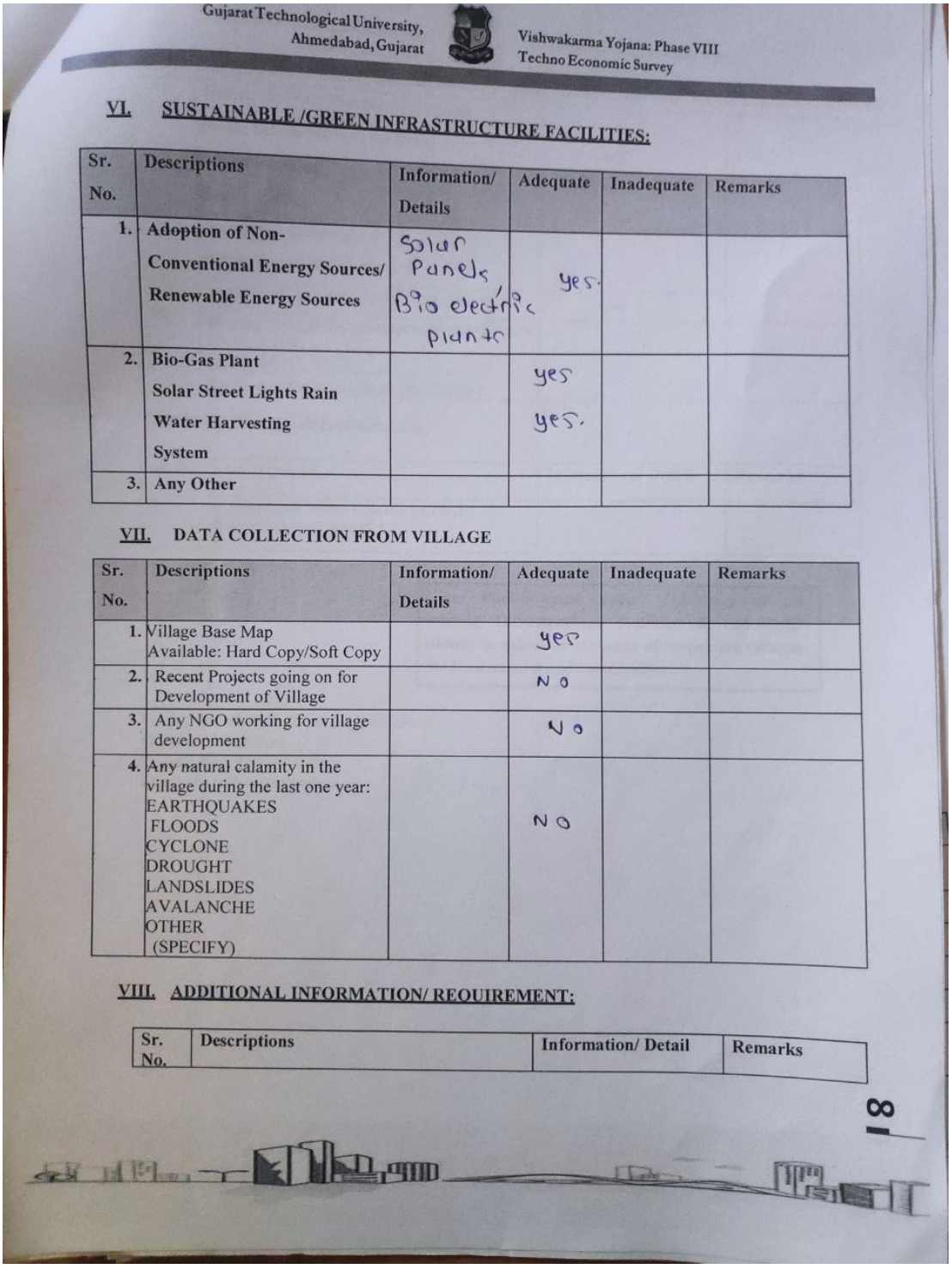

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VI. SUSTAINABLE /GREEN INFRASTRUCTURE FACILITIES:

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

VII. DATA COLLECTION FROM VILLAGE

Sr. No.	Descriptions	Information/ Details	Adequate	Inadequate	Remarks
1.	Village Base Map Available: Hard Copy/Soft Copy		yes		
2.	Recent Projects going on for Development of Village		No		
3.	Any NGO working for village development		No		
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

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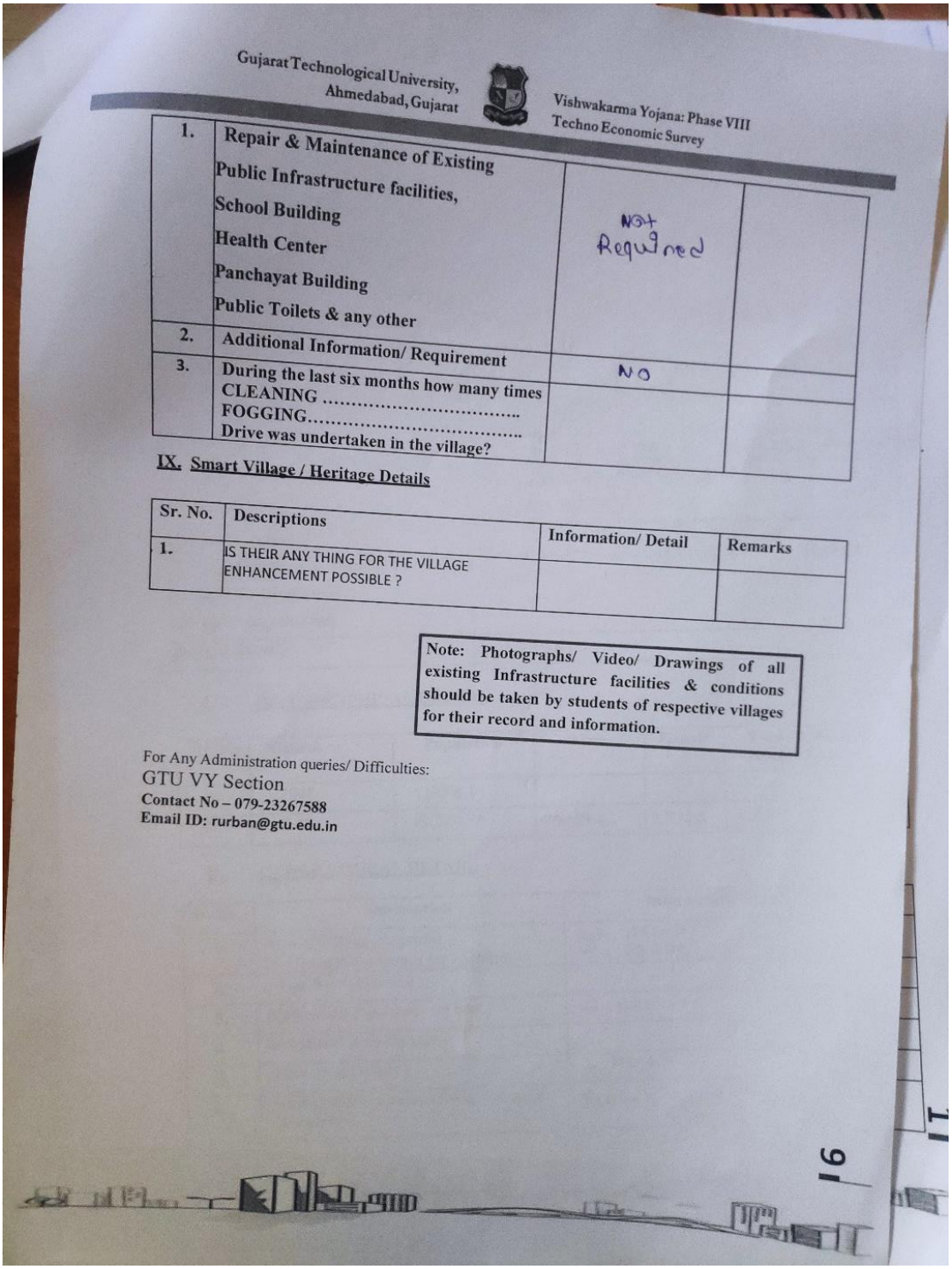

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1.	Repair & Maintenance of Existing Public Infrastructure facilities, School Building Health Center Panchayat Building Public Toilets & any other	Not Required	
2.	Additional Information/ Requirement	NO	
3.	During the last six months how many times 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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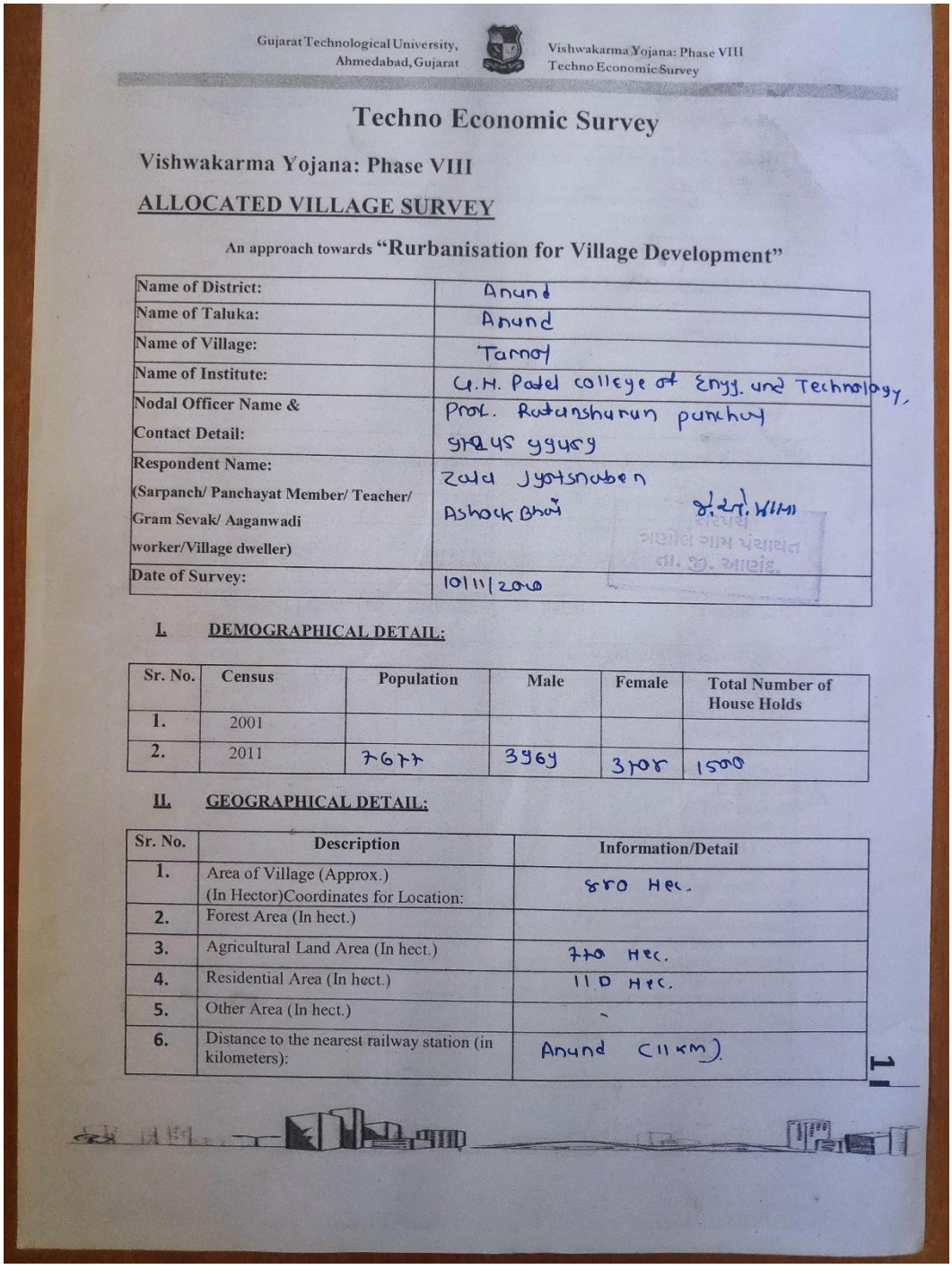
12.3 Survey form of Allocated Village Scanned copy attachment in the report for Part-I



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Vishwakarma Yojana: Phase VIII

ALLOCATED VILLAGE SURVEY

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

Name of District:	Anand
Name of Taluka:	Anand
Name of Village:	Tarnol
Name of Institute:	G.H. Patel college of Engg. and Technology,
Nodal Officer Name & Contact Detail:	Prof. Ratanshyam panchal ૯૪૨૫ ૯૯૫૬૯
Respondent Name: (Sarpanch/ Panchayat Member/ Teacher/ Gram Sevak/ Aaganwadi worker/Village dweller)	Zala Jyotsnaben Ashok Bhai
Date of Survey:	10/11/2020

I. DEMOGRAPHICAL DETAIL:

Sr. No.	Census	Population	Male	Female	Total Number of House Holds
1.	2001				
2.	2011	૭૬૭૭	૩૯૬	૩૭૮	૧૫૦૦

II. GEOGRAPHICAL DETAIL:

Sr. No.	Description	Information/Detail
1.	Area of Village (Approx.) (In Hector)Coordinates for Location:	૪૬૦ Hec.
2.	Forest Area (In hect.)	
3.	Agricultural Land Area (In hect.)	૭૭૦ Hec.
4.	Residential Area (In hect.)	૧૧૦ Hec.
5.	Other Area (In hect.)	-
6.	Distance to the nearest railway station (in kilometers):	Anand (11 KM)

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7.	Name of Nearest Town with Distance:	Anand (11km)
8.	Distance to the nearest bus station (in kilometers):	0km (Tarnol Bus stand)
9.	Whether village is connected to all road for the any facility or town or City?	

III. OCCUPATIONAL DETAILS:

Name of Three Major Occupation groups in Village	1. Farmers
	2. Labourer
	3. Khet mujur.

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

IV. PHYSICAL INFRASTRUCTURE FACILITIES:

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

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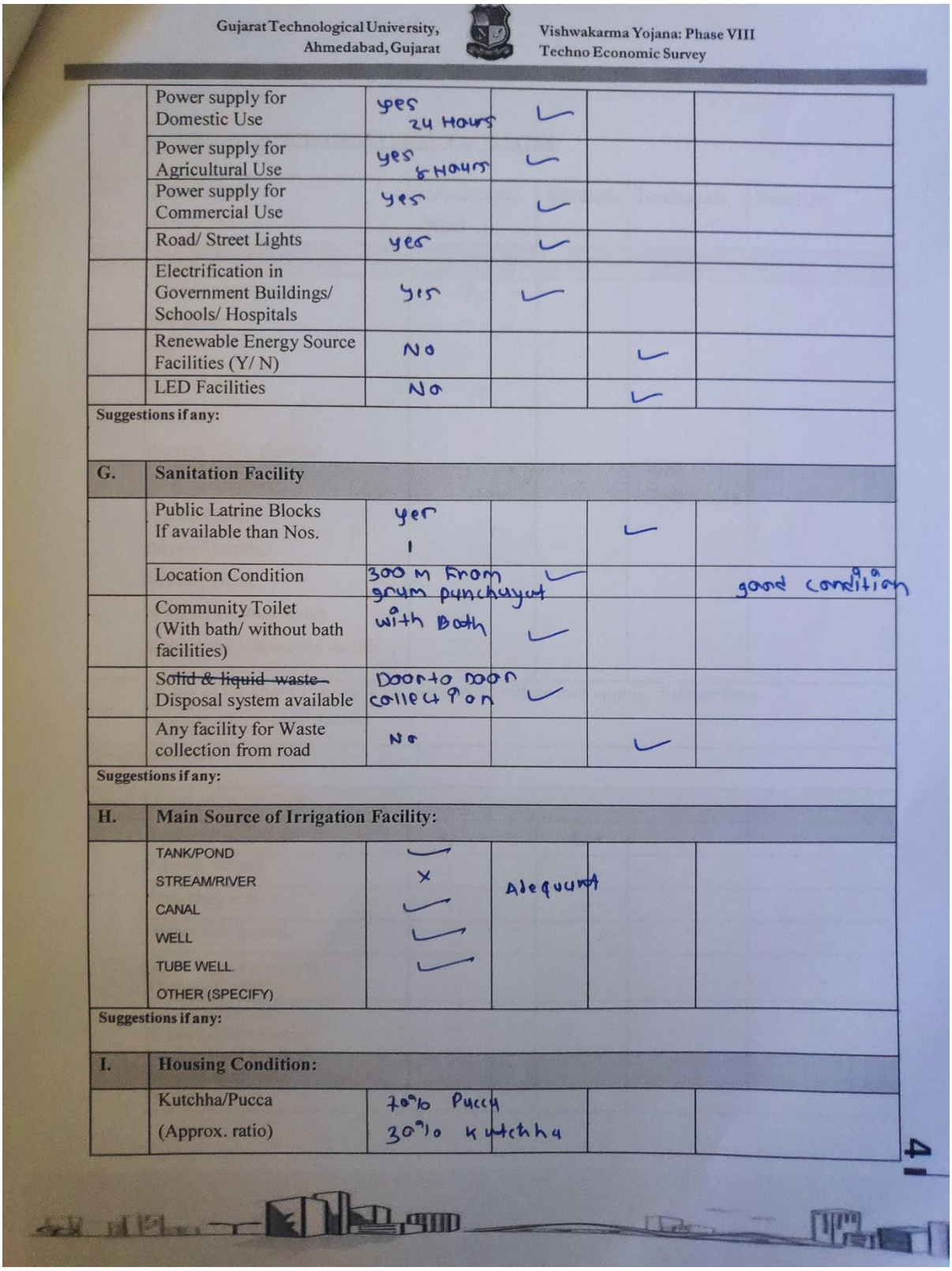
	Other(Specify)Lake/ Pond	15 ponds 7 in working condition	✓		
Suggestions if any:					
B.	**Water Tank Facility**				
	Overhead Tank	Capacity: 1,00,000 Lit	✓		
	Underground Sump	Capacity:	–		
Suggestions if any:					
C.	**The Type of Drainage Facility**				
	A. UNDERGROUND DRAINAGE 1	yes	✓		
Suggestions if any:					
D.	**Road Network :All Weather/ Kutchha (Gravel)/ Black Topped pucca/ WBM**				
	Village approach road	RCC.	✓		
	Main road	WBM	✓		
	Internal streets	RCC.	✓		
	Nearest NH/SH/MDR/ODR Dist. in kms.	NH 48 13-14 KM (Approx)	✓		
Suggestions if any:					
E.	**Transport Facility**				
	Railway Station (Y/N) (If No than Nearest Rly Station---Kms)	No 3KM away Sadanpur		✓	
	Bus station (Y/N) Condition: (If No than Nearest Bus Station---Kms)	Bad	✓	✓	
	Local Transportation (Auto/ Jeep/Chhakda/ Private Vehicles/ Other)	Rickshaw/ chakhada	✓		
Suggestions if any:					
F.	**Electricity Distribution**				
	(Y/N) Govt./ Private (Less than 6 hrs./ More Than 6 hrs)	yes more than 6 Hours	✓		

3



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	Power supply for Domestic Use	yes 24 Hours	✓		
	Power supply for Agricultural Use	yes 8 Hours	✓		
	Power supply for Commercial Use	yes	✓		
	Road/ Street Lights	yes	✓		
	Electrification in Government Buildings/ Schools/ Hospitals	yes	✓		
	Renewable Energy Source Facilities (Y/ N)	No		✓	
	LED Facilities	No		✓	
Suggestions if any:					
G.	**Sanitation Facility**				
	Public Latrine Blocks If available than Nos.	yes 1		✓	
	Location Condition	300 m From grum panchayat ✓			good condition
	Community Toilet (With bath/ without bath facilities)	with Bath ✓			
	~~Solid & liquid waste~~ Disposal system available	Door to door collection ✓			
	Any facility for Waste collection from road	No		✓	
Suggestions if any:					
H.	**Main Source of Irrigation Facility:**				
	TANK/POND	✓	Adequate		
	STREAM/RIVER	X			
	CANAL	✓			
	WELL	✓			
	TUBE WELL	✓			
	OTHER (SPECIFY)				
Suggestions if any:					
I.	**Housing Condition:**				
	Kutchha/Pucca (Approx. ratio)	70% Pucca 30% Kutchha			

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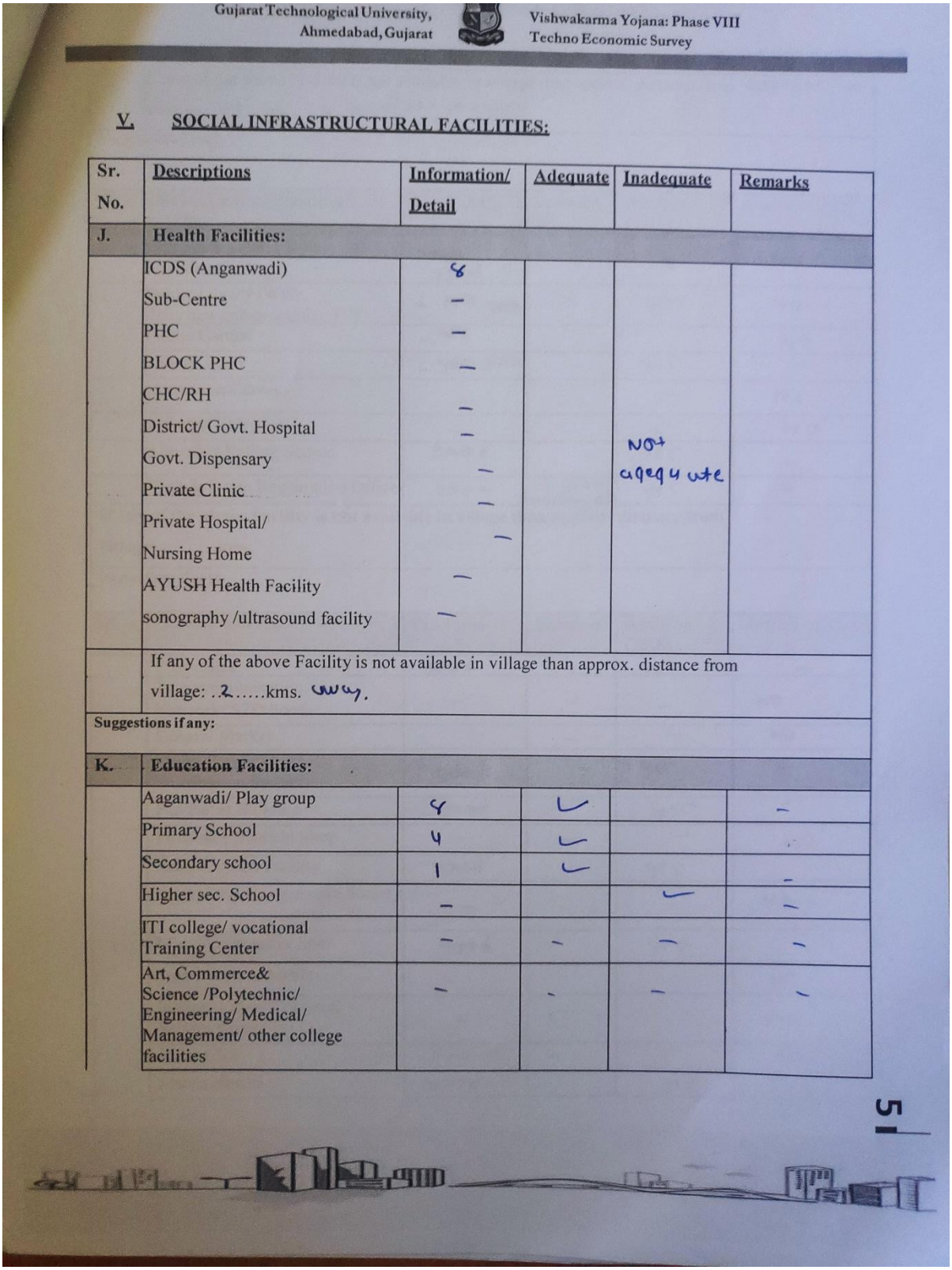

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V. SOCIAL INFRASTRUCTURAL FACILITIES:

Sr. No.	Descriptions	Information/ Detail	Adequate	Inadequate	Remarks
J.	**Health Facilities:**				
	ICDS (Anganwadi)	8			
	Sub-Centre	–			
	PHC	–			
	BLOCK PHC	–			
	CHC/RH	–			
	District/ Govt. Hospital	–			
	Govt. Dispensary	–		Not adequate	
	Private Clinic	–			
	Private Hospital/	–			
	Nursing Home	–			
	AYUSH Health Facility	–			
	sonography /ultrasound facility	–			
	If any of the above Facility is not available in village than approx. distance from village: ..2.....kms. away.				
Suggestions if any:					
K.	**Education Facilities:**				
	Aaganwadi/ Play group	4	✓		–
	Primary School	4	✓		
	Secondary school	1	✓		–
	Higher sec. School	–		✓	–
	ITI college/ vocational Training Center	–	–	–	–
	Art, Commerce& Science /Polytechnic/ Engineering/ Medical/ Management/ other college facilities	–	–	–	–

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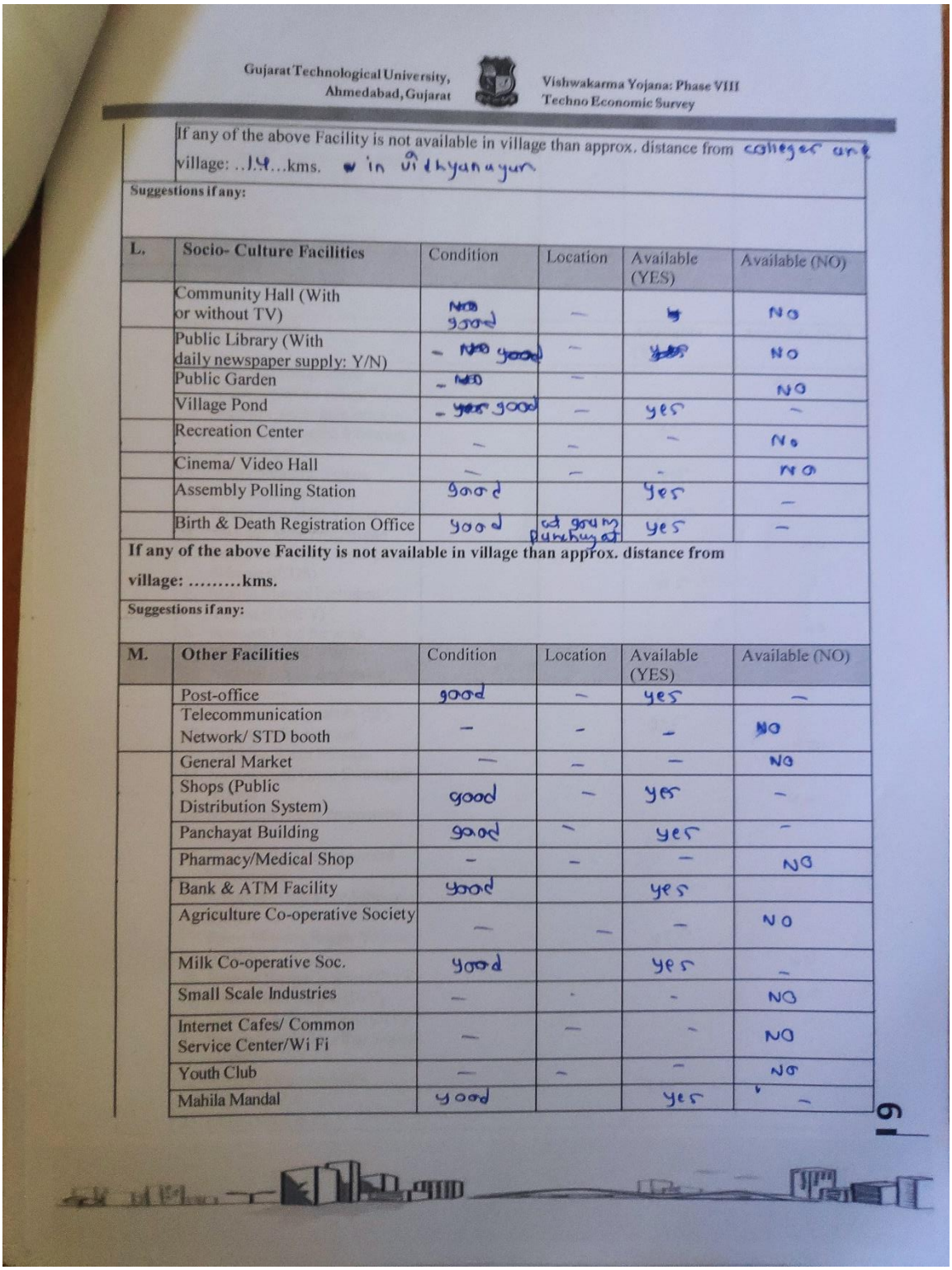

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If any of the above Facility is not available in village than approx. distance from college and village: ..14...kms. in vidhyanagar

Suggestions if any:

L.	Socio- Culture Facilities	Condition	Location	Available (YES)	Available (NO)
	Community Hall (With or without TV)	NOT good	–	–	NO
	Public Library (With daily newspaper supply: Y/N)	– NOT good	–	–	NO
	Public Garden	– NOT	–		NO
	Village Pond	– ~~yes~~ good	–	yes	–
	Recreation Center	–	–	–	No
	Cinema/ Video Hall	–	–	–	NO
	Assembly Polling Station	good		yes	–
	Birth & Death Registration Office	good	at gram panchayat	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	–	–	–	NO
	General Market	–	–	–	NO
	Shops (Public Distribution System)	good	–	yes	–
	Panchayat Building	good	–	yes	–
	Pharmacy/Medical Shop	–	–	–	NO
	Bank & ATM Facility	good		yes	
	Agriculture Co-operative Society	–	–	–	NO
	Milk Co-operative Soc.	good		yes	–
	Small Scale Industries	–	–	–	NO
	Internet Cafes/ Common Service Center/Wi Fi	–	–	–	NO
	Youth Club	–	–	–	NO
	Mahila Mandal	good		yes	–

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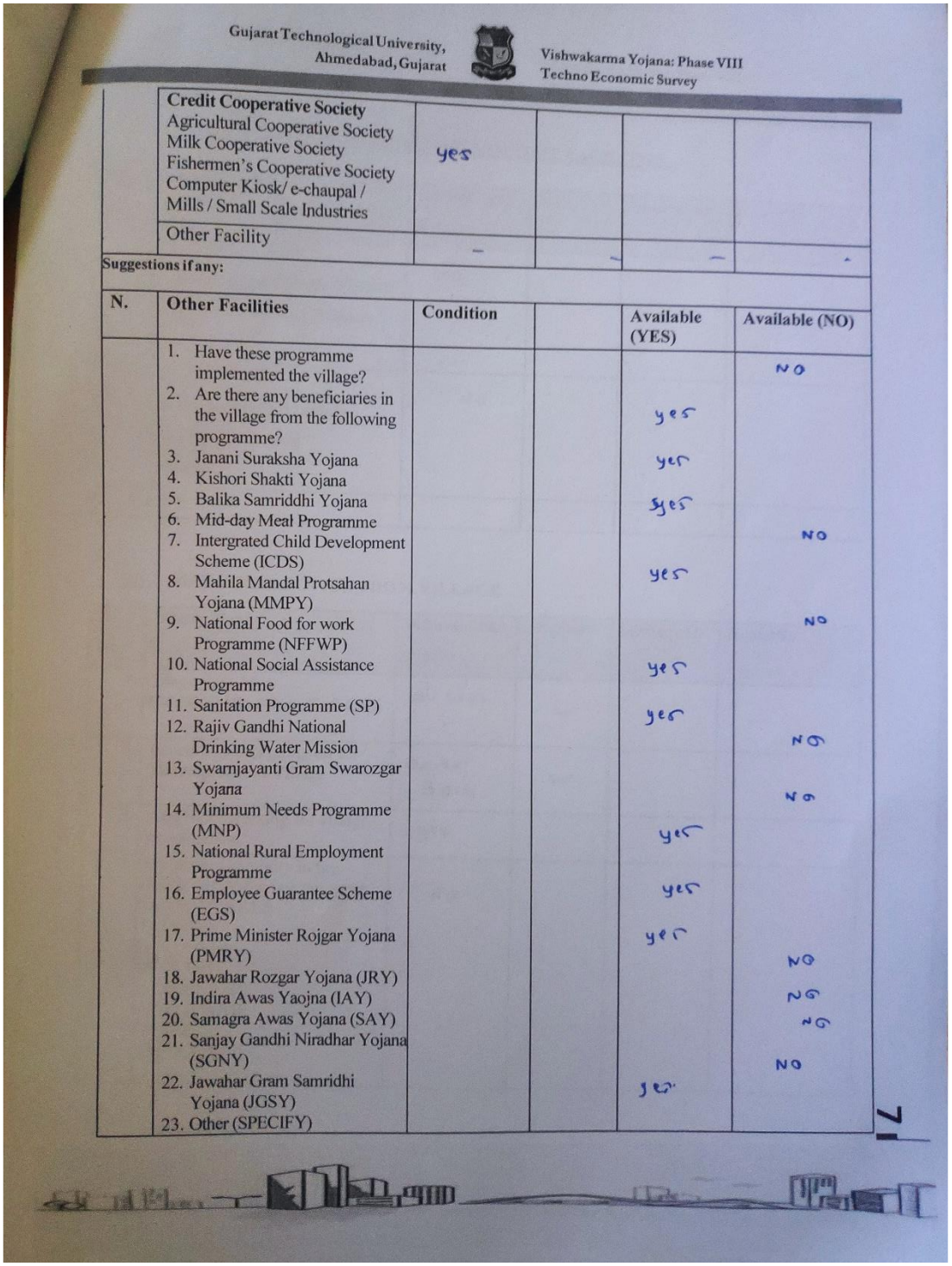

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	Credit Cooperative Society Agricultural Cooperative Society Milk Cooperative Society Fishermen's Cooperative Society Computer Kiosk/ e-chaupal / Mills / Small Scale Industries	yes			
	Other Facility	-	-	-	-

Suggestions if any:

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

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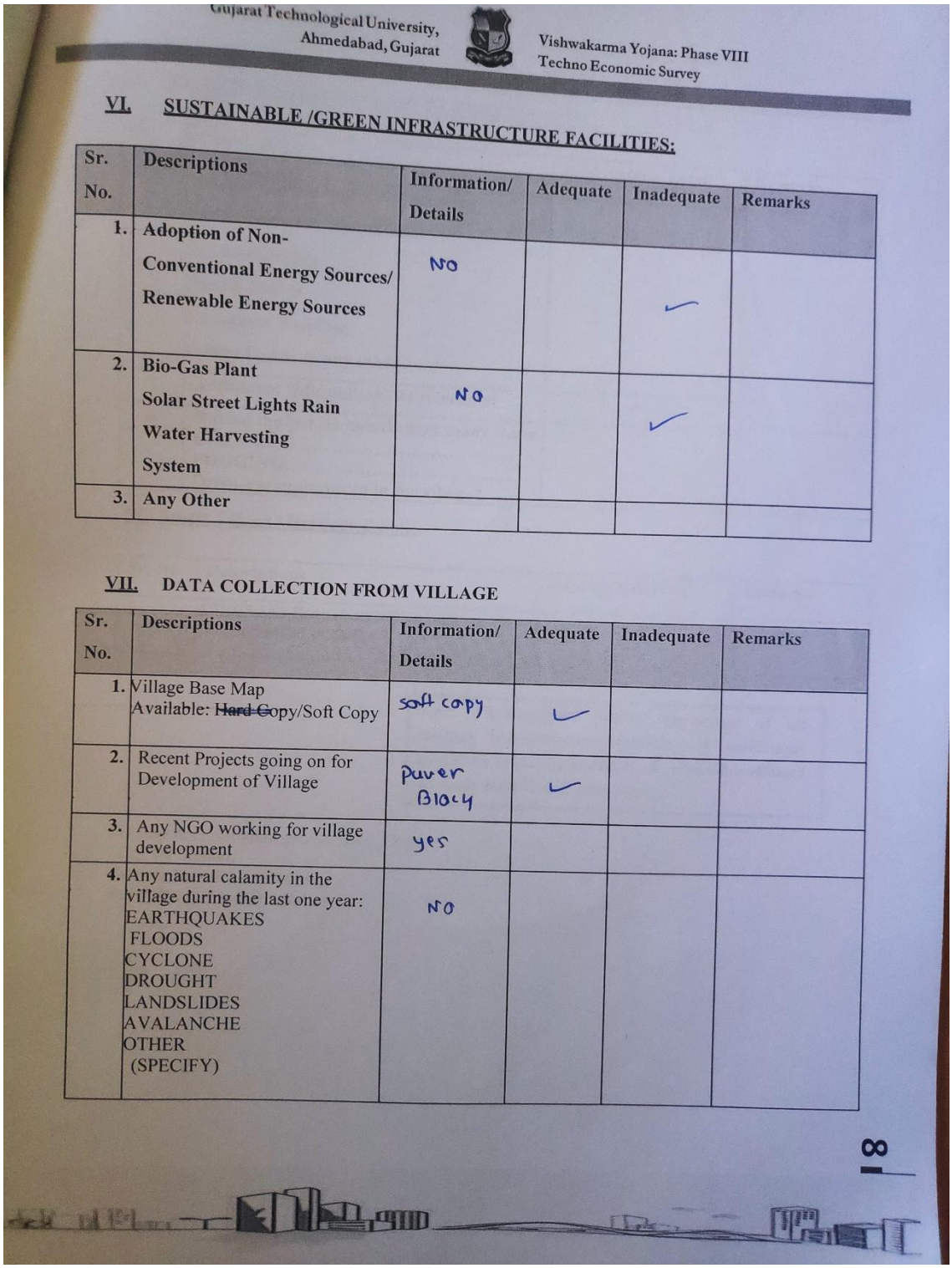

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VI. SUSTAINABLE /GREEN INFRASTRUCTURE FACILITIES:

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

VII. DATA COLLECTION FROM VILLAGE

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

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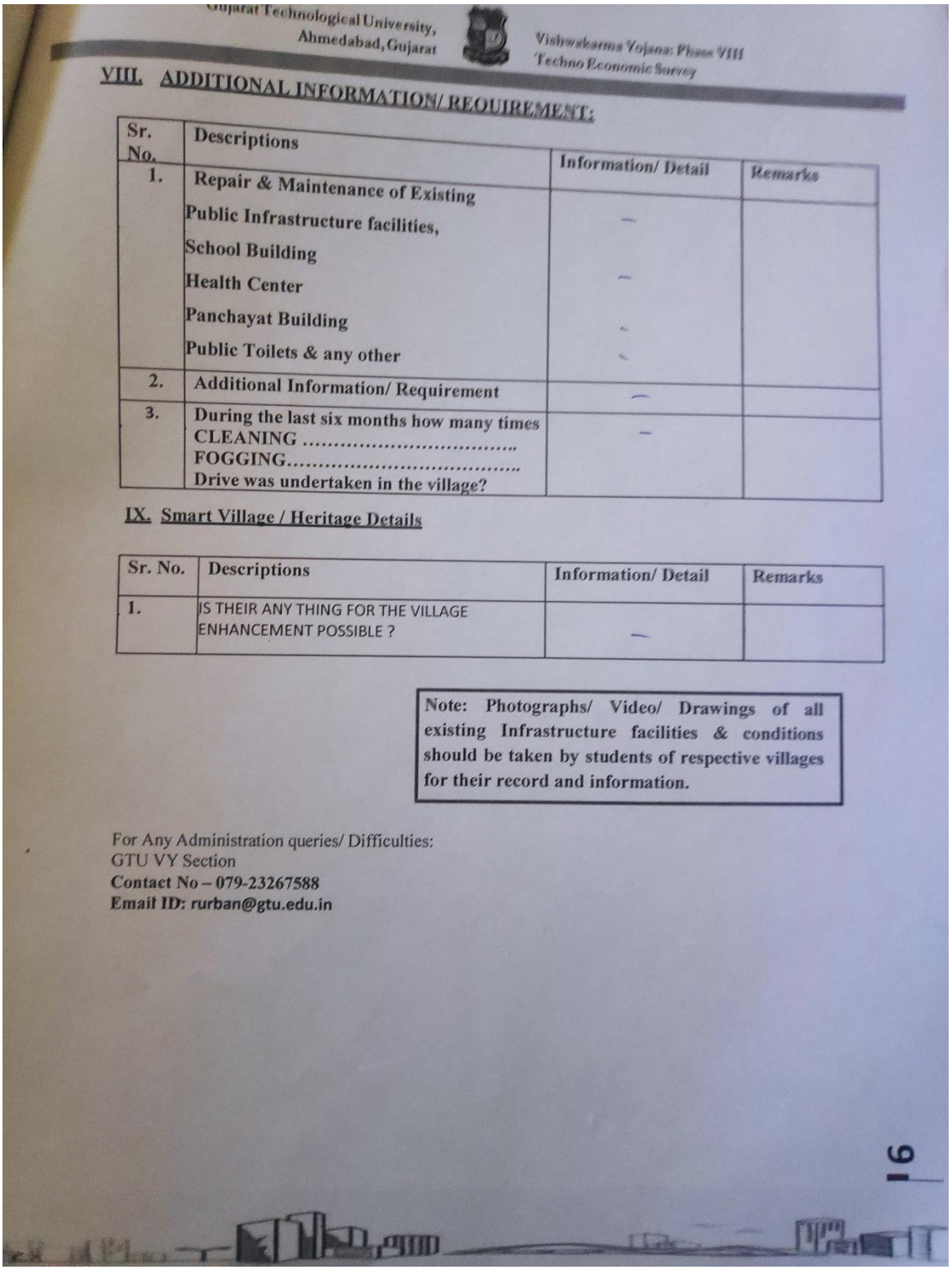

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VIII. ADDITIONAL INFORMATION/ REQUIREMENT:

Sr. No.	Descriptions	Information/ Detail	Remarks
1.	Repair & Maintenance of Existing Public Infrastructure facilities, School Building Health Center Panchayat Building Public Toilets & any other	–	
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 facilities	Planning commission/UDPFI norms	Village name: Rasnol			
		Population: 7677			
		Existing	Required	Smart village / cities future projection design	Gap
Education					
Anganwadi	Each or per 2500 population	8	2		+6
Primary school	Per 2500 population	4	1		+3
Secondary school	Per 7500 population	1	1		0
Higher secondary school	Per 15000 population	0			0
College	Per 125000 population	0			0
Tech. training institute	Per 100000 population	0			0
Agriculture research center	Per 100000 population	0			0
Skill development center	Per 100000 population	0			0
Health facilities					
Govt/panchayat dispensary or sub PHC or health center	Each village		1		-1
Primary health & child health center	Per 20000 population	0			0
Child welfare & maternity center	Per 10000 population	0			0
Multispecialty hospital	Per 100000 population	0			0
Public latrines	1 for 50 families (if toilet is not there in home, especially for	0			0

	slum pockets & kutcha house)				
Physical infrastructure facility					
Transportation		Adequate			0
Pucca village approach road	Each village	Adequate			0
Bus/auto stand provision	All villages connected by PT (ST Bus or Auto)	Adequate			0
Drinking water (min. 70 lpcd)		**Adequate**			0
Overhead tank	1/3 of total demand	Adequate			0
U/G sump	2/3 of total demand	Adequate			0
Drainage network		Adequate (underground)			0
Open		Adequate			0
Cover		Adequate			
Waste management system		Inadequate			-1
Socio cultural infrastructure:					
Community hall	Per 10000 population	1	Required		0
public library	Per 15000 population	0	Required		0
Cremation ground	Per 20000 population	0	Not Required		0
Post office	Per 10000 population	0	Required		1
Gram panchayat building	Each individual / group panchayat	1	Required		0

APMC	Per 100000 population	0	Not Required		0
Fire station	Per 100000 population	0	Not Required		0
Public garden	Per village	0	Not Required		0
Police post	Per 40000 population	0	Not Required		0

12.5 Summary Details of All the Village Designs in Table form as s Part-I and Part-II:

Table 1 Summary of Designs

Sr. No.	Village Name	Discipline	Part-I	Part-II
1.	Tarnol	Civil	Primary Health Center	Water Treatment Plant
			Bus Stand	Public Garden
			Market place	Cybercafe
			Public library	RCC street roads
			Public toilet	Rain water harvesting at gram panchayat
			Indoor games	E-Gram center
		Electrical	Solar Street Light	Solar roof top at community hall
			Solar roof top at bus stand	Solar roof top at gram panchayat building
			Solar roof top at primary health Centre	
2.	Hadgood	Civil	ATM	Drinking water facilities
			Public Toilets	Public Garden
			Community Hall	Animal shelter
			Road side Waste Management	Bank service
			Internet Zone and Library	Rain Water Harvesting System
			Entrance Gate	Citizen Service center
		Electrical	Solar Rooftop System for Govt. Buildings, School/college, Hospitals etc.	
			E-Gram Center	Drinking water facilities
3.	Rasnol	Civil	Anganwadi	Burial ground
			Agro Storage Unit	Animal shelter
			Milk Dairy Unit	Bank service
			Community Hall	Rain Water Harvesting System
			Prathmik Arogya Kendra	Citizen Service center
		Electrical	Solar Street Light	

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


વાચન હોલ


ચીખલી તાલુકા માં આપનું હાર્દિક સ્વાગત છે.


ઝવેરાભાઈ