DETAIL PROJECT REPORT

VISHWAKARMA YOJNA: VIII

AN APPROACH TOWARDS RURBANISATION

DEVDA VILLAGE

RAJKOT DISTRICT

PREPARED BY

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ATMIYA INSTITUTE OF SCINCE & TECHNOLOGY FOR DIPLOMA STUDIES

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MR. KHEMENDRA R DATTANI

YEAR: 2020-21

GUJARAT TECHNOLOGICAL UNIVERSITY

Chandkheda, Ahmadabad– 382424 Gujarat

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CERTIFICATE

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

Detail Project Report for, DEVDA RAJKOT DISTRICT

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

"Vishwakarma Yojana" provides the benefit of real world experience to engineering The studentsuse their engineering skills to prepare detailed project reports for the infra-structure as apart of their final year project work.The students and Faculty Members meet all the citizen of a village, survey the existing facilities.

According to census 2011 information the village code of Devda village is 360021. Devda village is located in lodhika Tehsil of Rajkot district in Gujarat, India. It is situated 19km away from sub-district headquarter lodhika and 26km away from district headquarter Rajkot. The total geographical area of village is 955.59 hacter. There are about 171 houses in devda village. Farm land Area of devda village is 240 hector. As per 2011 devda has a total population of 776 peoples (Male = 380 & Female = 396). There are about 171 houses in lodhika is nearest town to devda which is approximately 19km away.

"Developing village with a 'rural soul' but with all urban amenities that a city may have"

As per the present scenario, the village has larger area but lack of infrastructures and facilities. They all have separate toilets at home by participating in Swachchh Bharat Abhiyan. The coordination between the villagers is good. The Village has Primary School. Village has underground Drainage System & also has anganwadi. There is 24*7 electricity supply for residential use and 8 hours for agricultural use. The village has some commercial Shop with lack of facilities. There has many problem in road. There devda bus stop is 3km far away from devda village.

Vishwakarma Yojana is one of the approaches to reduce urban city Pressure and lower the migration rate by developing village with a **"rural soul"** but with all urban amenities that a city may have.

The main objective of this Yojana is "**Creation of infrastructure - connectivity, civic and social infrastructure along with provision of alternative Economy generation is the key pillars that the concept hinges on."**

For development of devda village we are trying to provide required facilities like Community hall, Medical store, Biogas plant, Internet cafe, Anganwadi, Bank with ATM, Chabutra, etc.

Based on survey we tried to give design of basic facilities to fulfill their needs. By providing these basic facilities to village for reduce urban city pressure and decrease migration rate, which is ultimate aim of Vishwakarma Yojana.

Key Words: Smart Infrastructure, urbanization, Sustainable Infrastructure, facilities.

ACKNOWLEDGEMENT

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

We wish to express our deep sense of gratitude to **Prof. (Dr.) Navin Sheth**, **Hon'ble Vice Chancellor, Gujarat Technological University-Ahmadabad**, for his encouragement and giving us the wonderful project.

We also express our gratitude to **Dr. K.N.Kher**, **Registrar, Gujarat Technological University-Ahmadabad** for giving us complete support.

We express our sincere thanks to **Commissionerate of Technical Education, Gujarat State** for appreciating and acknowledging our work.

We express our sincere thanks to **DDO, TDO, Sarpanch, Talatiand staff members of Ahmadabad** District for providing us with requisite data whenever we approached them. Especially our thanks are to all villagers and stake holders for their support during Survey.

We are also thankful to our **Prof. M.S. Kagthara Principal**, faculties of our colleges for their encouragement and support to complete this project work.

An act of gratitude is expressed to our internal guide / Evaluator / Nodal Officer, **Mr. Khemendra R Dattani from College Atmiya Institute of Technology and Science for Diploma Studies, Rajkot** for their invaluable guidance, constant inspiration and active involvement in our project work.

We are also thankful to all the experts who provided us their valuable guidance during the work. We express our sincere thanks to, **Dr. Jayesh Deshkar, Hon'ble Director of Vishwakarma Yojana project and Principal, V.V.P Engineering College and Core Committee member of Vishwakarma Yojana project Prof (Dr.) Jigar Sevalia**,Professor, SCET, Surat, **Prof.K.L.Timani,** Associate Professor,VGEC, **Prof.Rena Shukla**, Associate Professor, LD Engineering College, **Prof.Y.B.Bhavsar,**Associate Professor,VGEC,**Prof.Jagruti Shah**, Assistant Professor, BVM Engineering College for providing us technical knowledge of this project work.

We are also thankful to **Ms. Darshana Chauhan, Vishwakarmrma Yojana**, for all support during our work. We therefore, take this opportunity for this Project work expressing our deep gratitude and sincere thanks for her cooperation to produce this project work in the present form.
Above all we would like to thank our Parents, family members and Friends for their encouragement and support rendered in completion of the present this work.

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ABBREVIATIONS

SHORT NAME / SYMBOL	FULL NAME
C.C	Cement concrete
R.C.C	Reinforce cement concrete
R.M.C	Rajkot municipal corporation
P.C.C	Plain cement concrete

Chapter 1 Ideal village visit from District of Gujrat State

1.1 Background & Study Area Location

- Name of ideal village: Munjka
- Ideal village taluka: Rajkot
- Ideal village district: Rajkot
- Ideal village pin code: 360005
- munjka is well developing village so we consider as an ideal village.
- The nearest villages from munjka are bedi, anandpar, vavdi, mota mova, etc.

1.2 Concept: Ideal village, Normal Village

- The village having all the facilities like public health centare, drinking water, recreation centare, education centare, vegetable market, good housing, banking & ATM facilities, sanitation, drainage, transportation facilities, police station etc.

Figure 1.1 Road of munjka

1.2.1 Objectives

- Basic physical infrastructure -water supply, transport, sewerage and soil waste management should be the priority focus and be provided.
- Reduce migration from rural to urban area due to lack of basic services and sufficient economic activities in rural area.
- Basic social infrastructure -health and education facilities should be provided and ensure proper delivery of facilities to village dwellers.

- To suggest improvement of basic facility like soil waste management, drainage facility etc. and amenities like garden, community hall etc.
- To suggest the suitable technical solution of problem.

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

- The current sarpanch of munjka village is mr. jayeshbhai jadav.
- munjka is 1 km away from Rajkot.
- Munjka's population is 3483. According to census 2011.
- The village has its own post office and pin code of munjka village is 360005.
- Mainly the village has a road of C.C. & R.C.C.
- Literacy rate of munjka town area 75%.
- The residential area of munjka village is 336 hectors.
- The agriculture area of munjka village is 445 hectors.
- Door to door collection of garbage in munjka village by R.M.C.
- The major occupation of villagers is labour, farming etc.

1.2.3 The ideal of a model / smart village

- Smart village is a concept adopted by national, state and local governments of India, as an initiative focused on holistic rural development, derived from mahatma Gandhi's vision of Adarsh gram (ideal village) and swaraj (self reliance).
- This research created a smart village modal that was capable to be a guide for each village to develop towards better future.
- An ideal village Indian village will be constructed to lend itself to perfect sanitation.
- The village lenes and streets will be free of all avoidable dust. It will have wells according to its needs and accessible.

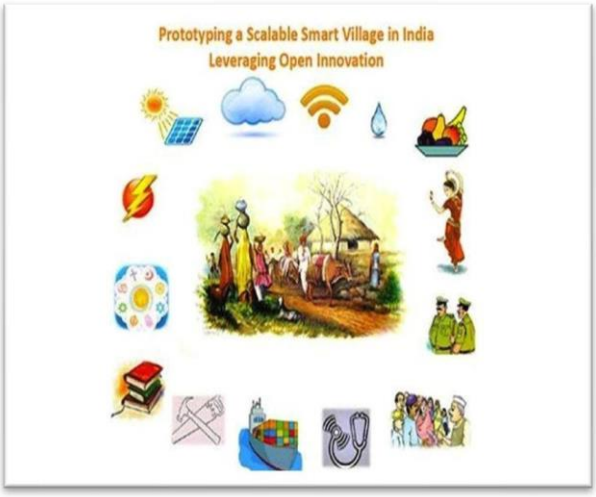


Figure 1.2 The ideal model

1.2.4 Ancient history civil concept about Indian village / other countries perspective about village and its new development

- Ancient history as a term refers to the aggregate of past events from the beginning of writing and recorded human history and extending as far as post-classical history. The phrase may be used either to refer to the period of time or the academic discipline.

- In the past, villages were a usual form of community for societies that practice subsistence agriculture, and also for some non-agricultural societies.
- **Dholavira history:**
- The city of dholavira located in khadir island of ran of kutchch belonged to marured harappan phase. Today what is seen as a fortified quadrangular city set in harsh arid land, was once a thriving metropolis for 1200 years and had an access to the sea prior to decrease in sea level.
- Dholavira show large scale use of dressed stone in construction. Few rooms have been found to have been built of dressed stone and in some cases show segments of highly polished stone pillars of square or circular section having a central hole. To create a pillar, such segments were piled to attain requisite height and a wooden pole was inserted to ensure stability. This method of constructing a column was an ingenious alternative to a monolithic column.
- Water conservation of Dholavira speaks volume of the ingenuity of the people who developed a system based on rainwater harvesting to support life in a parched landscape, with scanty sweet water. Relying partly on rain-water and little from the ground a complex water system comprising of large rock-cut reservoirs, located at the eastern and southern fortification and rock-cut wells were developed
- Huge stone drains can be seen in the city the directed storm water to the western and northern section of the lower town separated by broad bunds, creating in-effect a series of reservoirs.
- The most imposing well was located in the castle and is possibly the earliest example of a rock cut well. The city also drew water from the seasonal streams flowing on the northern and southern faces of the fortification. The water from these streams was slowed by a series of dams and partly channelized water into the lower town. Every drop of water was conserved to ensure survival.

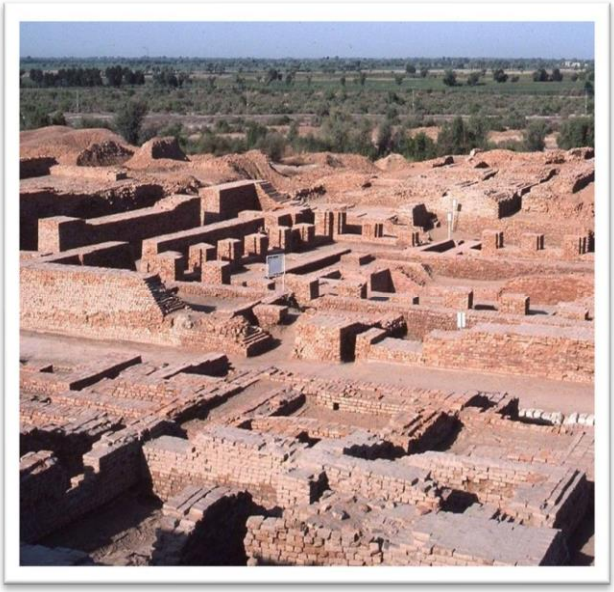


Figure 1.3 Dholavira

1.2 Detail study (socio economic, physical, demographic and infrastructure details) of ideal village/smart village with photograph

Population	3483
Male population	1816

Female population	1667
Children population	423
Number of households	752
Literacy	75.14%
Male literacy	76.98%
Female literacy	73.13%
Sex–ratio	918
Scheduled caste (SC)%	0.75%
Scheduled tribes (ST)%	0

Table 1 Detail study

Population of munjka village

- The population of munjka village is 3483. Of which, the males are 1816 while the female count 1667 and the total number of households here is 753.

Geographical detail

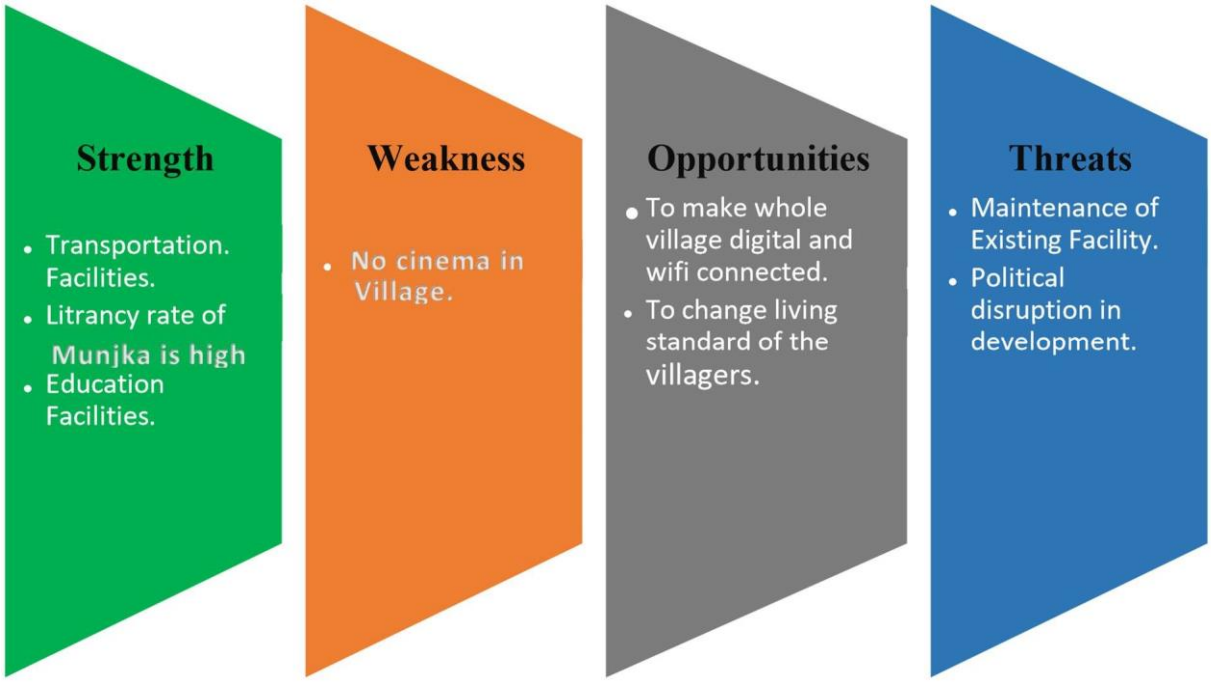
- The total area of munjka village (16ishwak.) 748 hector.
- The agriculture land area of munjka village is 445 hector.
- The residential area of munjka village is 336 hector.
- The other area of munjka village is 300 hector.

Infrastructure detail

- Hospital
- School
- Bank with ATM
- Collage
- Water facilities
- Transport facilities
- Drainage facilities, etc.

1.4 SWOT analysis of ideal village / smart village

- Analysis is a strategic planning method used to evaluate the Strengths, Weaknesses, Opportunities, and Threats involved in a project or in a business venture.



1.5 Future prospect of development of the ideal village /smart village

- New technology and new things to improve village growth and development.
- Collect the rain water and use it in to agricultural purpose and domestic purpose.
- People are aware for cleanliness and built pollution free atmosphere.
- Sufficient health facility.
- Good sanitation facility, etc.

1.6 Benefits of the visits of ideal village /smart village

- We discussed the good and bed thing about village from village people.
- From the village visit we know that how to develop allocated village.
- We can easily connect with requirement of people.
- To know the strength and weakness of village.

1.7 Civil aspects required in ideal village/smart village

- There should also be separate ponds for villagers to take bath and to get water for their cattle.
- An ideal village should have good supply of clean drinking water.

Figure 1.4 Water Tank

Figure 1.5 Road

Figure 1.6 Entry gate

Figure 1.7 Amul store

Figure 1.8 Saurashtra university

Figure 1.9 Lake

Figure 1.10 Gram panchayat

Figure 1.11 police station

Figure 1.12 ATM

Figure 1.13 school

Chapter 2 Literature Review – Devda village

Introduction: urban & rural

concept Urban:

Urban villages are seen to provide an alternative to recent patterns of urban development in many cities, especially decentralization and urban sprawl. They are generally purported to:

- Reduce car reliance and promote cycling, walking and transit use.
- Provide a high level of self-containment (people working, recreating and living in the same area)
- Help facilitate strong community institutions and interaction

Figure 2.1 Urban area

Rural:

- In general, a rural area or countryside is a geographic area that is located outside towns and cities.
- Typical rural areas have low population density and small settlements. Agricultural areas are commonly rural, as are other types of areas such as forests.
- Rural areas should speed up their growth in order to limit their developmental disparities and make a contribution to the general socio – economic progress of the country.

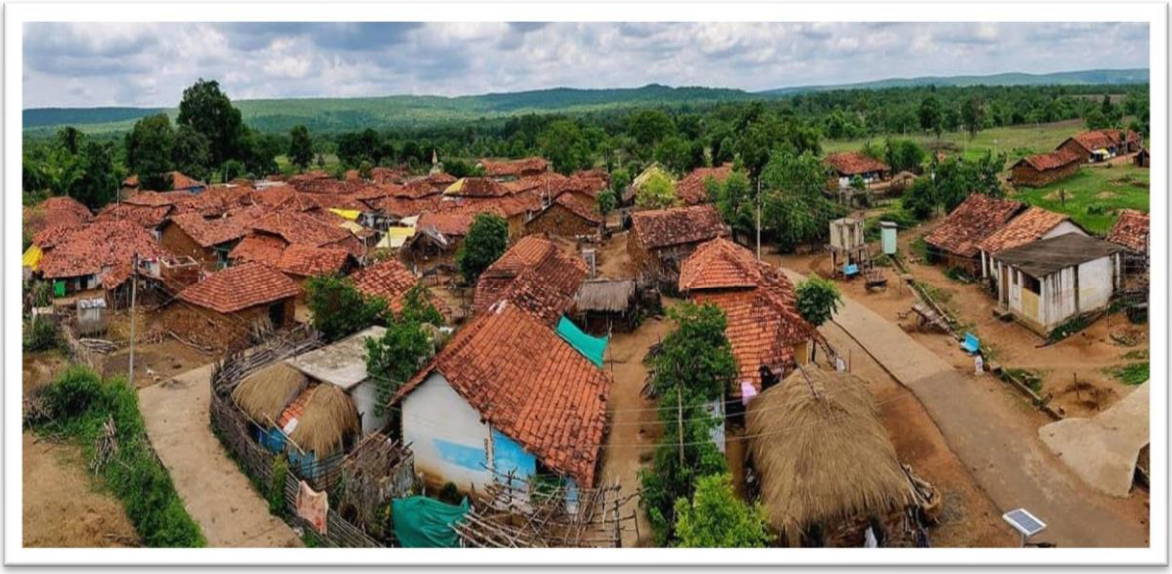


Figure 2.2 Rural area

2.2 Importance of the rural development:

- Rural development is pretended to be noticeable importance in the country today than 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.
- 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.
- 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, recreation provision, education, transport, and communication.
- The main objective of the rural development programme is to raise the economic and social level of the rural people.
- Rural development implies both the economic betterment of people as well as greater social transformation.
- Rural Development refers to the process of improving or uplifting the living conditions of the people living in rural areas
- The people of India live mostly in rural areas (villages). Therefore, it is in the heart of the villages that the nation lives. Indeed, “the soul of India is in the toil of the rural areas”. The welfare of India depends upon the prosperity of the villages.

2.3 Ancient villages / different definition of: rural urban villages

- A village is a clustered human settlement or community, larger than a hamlet but smaller than a town, with a population typically ranging from a few hundred to thousand. Though villages are often located in rural areas, the term urban village also applied to certain urban naighborthoods.
- The basic unit for rural area is the revenue village Which has definite surveyed boundaries. The revenue village may comprise several hamlets but the entire village has been treated as one unit for presentation of data.

Figure 2.3 Different of urban & rural

2.4 Scenario: rural / urban village of India population growth Population in million

	2001	2011	Different
India	1028.77	1210.2	181.43
Rural	742.66	833.1	90.47
Urban	286.11	377.1	90.99

Table 2 Scenario of rural and urban

Literancy rate of India in %

	2001	2011	Different
India	64.8	74.0	+9.2
Rural	58.7	68.9	+10.2
Urban	79.9	85.0	+5.1

Table 3 Literancy rate

Sex ratio of India

	2001	2011	Different
India	933	940	+7
Rural	946	947	+1
Urban	900	926	+26

Table 4 Sex ratio

2.5 Scenario: rural / urban village of Gujrat as per census 2011 and latest Gujrat data as per census 2001 and 2011

Description	2001	2011
Approximate population	5.07 crore	6.crore
Actual population	50,671,017	60,439,692
Male	26,385,577	31,491,260
Female	24,285,440	28,948,432
Percentage of total population	4.93%	4.99%
Population growth	22.48%	19.28%
Sex ratio	920	919
Child sex ratio	883	890
Area(km^2)	196,024	196,244
Area(mi2)	75,685	75,770
Density/km2	258	308
Male population (0-6 age)	4,000,148	4,115,384

Female population (0-6 age)	3.532,256	3,661,878
Total child population (0-6 age)	7,532,404	7,777,262
Litarecy	69.14%	78.03%
Male litarecy	79.66%	85.75%
Female litarecy	57.80%	69.68%

Table 5 Scenario of Gujrat

2.6 Rural development issues – concerns – measures issues concerns

- The major problems consist of agriculture, the ownership of the land, the lack of cottage industries, lack of education social evils, death of animal, wealth, bad wealth and so on. These problems are the result of traditionalism and conservatism of the rural society.
- Rural area are still plagued by problem of malnourishment, illiteracy, unemployment and lack of basic infrastructure like schools, colleges, hospitals, sanitation, etc. this has led to youth moving out of villages to work in cities. This could be compared to the brain drain from India to US.

People related issues:

- Traditional way of thinking.
- Poor understanding.
- Low level of education to understand developmental effort and new technology.
- Lack of confidence.
- Poor awareness.
- Low level education.

Economic related issues:

- Unfavorable economic condition to adopt highcost technology.
- High cost of inputs.
- Under privileged rural industries.

Agriculture related issues:

- Poor marketing facility.
- Small size of landholding.

Infrastructural related issues:

Poor infrastructure facility like:-

- Water
- Electricity
- Transport

- Educational institutions
- Communication
- Health
- Employment
- Storage facility etc.

2.7 Various infrastructure guidelines with the norms for villages for the provision of different infrastructure facilities:

1. Health – care

- Health indicators
- Existing health infrastructure

2. Education facilities

- Access to education
- Education norms prescribed under (SSA)
- Higher education
- Hostel facility

3. socio-cultural facilities

- Community room/lecture hall
- Library
- Recreation club
- Music, dance, & drama center
- Religious sites
- Vocational training center for handicrafts etc.

4. Other public & semi-public facilities

- Police
- Fire & emergency services
- Communication
- Postal facilities

2.9 Other projects / schemes

- Swachh Bharat Abhiyan
- Mahatma Gandhi National Rural Employment
- Pradhanmantri Gram Sadak Yojana

Chapter 3 Smart (Cities/Village) concept idea and its visit

3.1 Introduction: concepts, definition and practices Concept:

- The development of the currently celebrated smart – cities has been progressing for the last several years, especially in the development countries. Since its inception, the electronic war ll, has taken on diverse forms, developing from early room – sized behemoths to tiny dust particles.
- Abstract Smart Village refers to a concept developed in rural area that provides solutions to problems occurred and improves the quality of life. The main problems faced by rural areas are cover poverty, low level of education, and limited access to technology.
- Smart Village is a concept adopted by national, state and local governments of India, as an initiative focused on holistic rural development, derived from Mahatma Gandhi's vision of Adarsh Gram (Ideal Village) and Swaraj (Self Reliance).

Definition:

- "Smart villages are rural area and communities which build on their exiting strengths and assets as well as on developing new opportunities", where "traditional and networks and services are enhanced by means of digital, telecommunication technologies, innovations and the better use of knowledge.

Practices:

- Waste management
- Library facilities
- Transportation facilities ▪ Health center facilities ▪ School, etc.

Figure 3.1 smart village

3.2 Vision – Goal, standards and performance measurement indicators:

Vision – Goal Vision

- The vision of smart village is that modern energy access can act as catalyst for development in education, clean water, sanitation, health productive enterprise, environmental sustainability and participatory democracy which helps to support further improvement in access to energy.

Goal

- Quality education
- Good health and well-being
- Clean water and sanitation
- Gender equality
- Industry, innovation and infrastructure
- Sustainable cities and communities
- Economic growth

Standards:

- Strategic. Standards that provide guidance to city l`eadership and other bodies on the "process of developing a clear and effective overall smart city strategy". They include guidance in identifying priorities, how to develop a roadmap for implementation and how to effectively monitor and evaluate progress along the roadmap.
- Process. Standard focused on procuring and managing smart city projects, and in particular those that cross both organization and sectors. These essentially offer best practices and associated guidelines.
- Technical. Standard that cover the myriad technical specifications that are needs to actually implement smart city products and services so that they meet the overall objectives.

Performance measurement indicators

- The term "smart" includes technology as an enabler but a smart city strategy is by far not limited to technological solution. In fact, "being smart" is more about intelligent methodology and proper implementation of beneficial and effective solutions than about technology.

3.3 Technological options

- Smart water supply

- Smart waste management
- Smart study
- Smart transportation
- Smart school
- Smart infrastructure
- Smart energy, etc.

3.4 Road map and guards

- The road map will provide key tools for each step of the 'smart village journey'. Practical tools (including guidance, explanatory video, questionnaires, templates, etc.) will aim to help village to develop and implement smart village strategies.
- The second step in establishing a smart city roadmap is by developing a policy that drives the whole initiatives.
- One goal of engaging the citizens is to build trust and make them part of the solution.

3.5 Issues & challenges

- **Lack of experienced professional: -**Another most-pressing challenge for smart cities is the lack of skilled professionals. For preparing a strategy to achieve smart city project success, identifying areas for implementation of technologies, and operating these tools, tech experts are required.
- **Insufficient Funds: -**Making cities smart means deploying smart, complex infrastructure for implementing digital technologies. Besides, tons and tons of smart devices have to be integrated for data collection. In addition, to ensure smart city success, governments have to hire enough tech experts and city planners.
- **Inconsistent network connectivity: -**For the smart management of a municipality, several sensors, cameras, and actuators are installed everywhere. These sensors gather and send large volumes of data in real time. Analysis and processing of the collected data Should happen almost instantaneously for efficient management of city operations. And for instant processing, high-speed Internet connectivity is mandatory.

3.6 Smart infrastructure – intelligent traffic management

- The number of vehicles has increased drastically, but in contract, the capabilities of our roads and transportation systems still remain under development and as a result, fail to cope with this upsurge in the number of vehicles, as a consequence, traffic jamming, road accidents, increase in pollution levels are some of the common traits that can be observed in our new age cities.

- With the emergence of the internet of things and its applicability in smart cities, creates a perfect platform for addressing traffic-related issues, thus leading to the establishment of intelligent traffic management systems (ITMS).
- The work presented in this paper talks about an intelligent traffic management system that lays its foundation on cloud computing, internet of things and data analysis.
- Our proposed system helps to resolve the numerous challenges being faced by traffic management authorities, in terms of predicting an optimum route, reducing average waiting time, traffic congestion, travel cost and the extent of air pollution.
- The system aims at using machine learning algorithms for predicting optimum routes based upon traffic mobilization patterns, vehicle categorization, accident occurrences and levels of precipitation.
- Finally, the system comes up with the concept of a green corridor, wherein emergency services are allowed to travel without facing any kinds of traffic congestion.

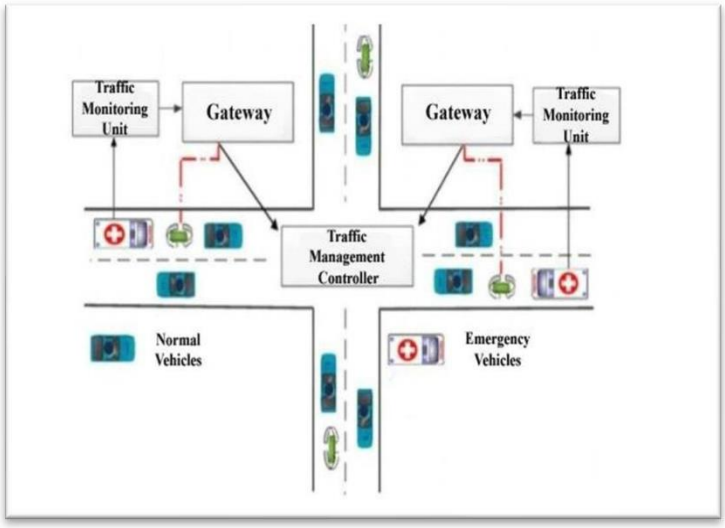


Figure 3.2 traffic management

3.7 Cyber security or any other concept as per the

- Cyber security refers to the body of technologies, processes, and practices designed to protect networks, devises, damage, or unauthorized access.
- Cyber security may also be referred to as information technology security.
- For an effective cyber security, an organization needs to coordinate its efforts throughout its entire information system. Element of cyber encompass all of the following:
- Network security
- Application security
- Endpoint security

- Data security
- Identity management
- Database and infrastructure security
- Cloud security
- Mobile security
- Disaster recovery/business continuity planning
- End-user education

3.8 Retrofitting- redevelopment – greenfield development district cooling

- **Retrofitting** will introduce planning in an existing built-up area to achieve smart city objectives, along with other objectives, to make the existing area more efficient and liveable. In retrofitting, an area consisting of more than 500 acres will be identified by the city in consultation with citizens. Depending on the existing level of infrastructure services in the identified area and the vision of the residents, the cities will prepare a strategy to become smart. Since existing structures are largely to remain intact in this model, it is expected that more intensive infrastructure service levels and a large number of smart applications will be packed into the retrofitted smart city. This strategy may also be completed in a shorter time frame, leading to its replication in another part of the city.
- **Redevelopment** will effect a replacement of the existing built-up environment and enable co-creation of a new layout with enhanced infrastructure using mixed land use and
- increased density. Redevelopment envisages an area of more than 50 acres, identified by Urban Local Bodies (ULBs) in consultation with citizens. For instance, a new layout plan of the identified area will be prepared with mixed land-use, higher FSI and high ground coverage.
- **Greenfield development** will introduce most of the Smart Solutions in a previously vacant area (more than 250 acres) using innovative planning, plan financing and plan implementation tools (e.g. land pooling/ land reconstitution) with provision for affordable housing, especially for the poor. Greenfield developments are required around cities in order to address the needs of the expanding population.
- greenfield developments could be located either within the limits of the ULB or within the limits of the local Urban Development Authority (UDA).

3.9 Strategic option for fast development

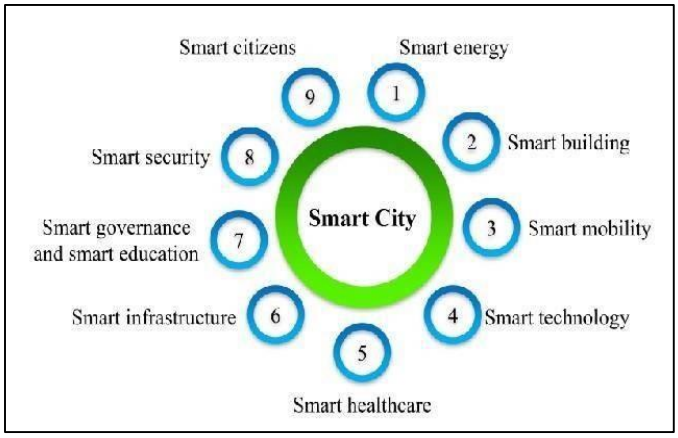


Figure 3.3 strategi option

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

- India's water and sanitation crisis India is the second most population country in the world, with more than 1 billion citizens. The scale of needs in India is immense, making India the concentrated center of the global water and sanitation crisis.
- About 26% of India's population practices open defecation, a critical factor contributing to water-borne illness, stunting and death.
- These factors, combined with the current political push to end this crisis, has created unprecedented urgency to implement effective solution to increase access to safe water and sanitation.
- Since 2005, water.org has played a significant role in India's progress toward improved water and sanitation, empowering 13.6 million people with access to safe water and sanitation.

3.11 Initiatives in village development by local self-government

- Local self-government in India refers to governmental jurisdictions below the level of the state.
- India is a federal republic with three spheres of government: central (union), state and local. The 73rd and 74th constitutional amendments give recognition and protection to local governments and in addition each state has its own local government legislation.

3.12 Smart initiatives by district municipal corporation

- Publicize and propagate the scheme in the district.
- Review the physical and financial achievements of the works every month.

- Encourage gram panchayat for taking part in the competition.

3.13 Any projects contributed working by government/ NGO/ other digital country concept Ministry of rural development (India)

- The ministry of rural development, a branch of the government of India, is entrusted with the task of accelerating the socio-economic development of rural India. Its focus is on health, education, drinking water, housing and roads.
- The ministry has two department:
  - Department of rural development
  - Department of land resources
- Headed by a senior civil servant designated as the secretary of the department.
- **Department of rural development:** the department run three national-level schemes Pradhan Mantri Gram Sadak Yojana (PMGSY) for rural road development,
  - Swarnajayanti Gram Swarozgar Yojana (SGSY) rural employment and for rural housing
  - Pradhan Mantri Awas Yojana it handles the administration of district rural development agency (DRDA), and has three autonomous organisations under it.
    - Council of advancement of people's action and rural technology (CAPART)
    - National institute of rural development (NIRD)
    - National rural road development agency (NRRDA)
- **Department of land resources:** the department of land resources runs three nationallevel programs:
  - Pradhan Mantri Krishi Sinchayee Yojana (Watershed Development Component)
  - Digital India Land Record Modernization Programme
  - Neeranchal National Watershed Project
  - Other programmes
    - GIZ led pilot land use planning and management project
    - Ease of doing business – initiatives

3.14 How to implement other countries smart villages projects in Indian villages

- By visiting the countries having a smart villages, we can study and analyze the smart village of the county. After that study one particular village of India, after studying situations of the India village we can implement the project of other country's smart village project.

Chapter 4 Allocated village – Devda village

4.1 Introduction

- We selected devda village as allocated village of vivshwakarma yojana. This is situated in lodhika tehsil of Rajkot district in Gujrat, India.
- Area pin code of devda village is 360021. It is 27km away from district headquarter of Rajkot.
- Lodhika is the nearest town from devda(19km).

Figure 4.1 Devda village

4.1.2 justification/ need of the study

- For purpose of data collection. Data regarding the demographic, geographic, social, economic, educational etc.
- To now the various benefit to villagers though various government schemes in village.

- Ultimately after visit of ideal and smart village, this village gives the actual scenario of rural area.
- To know current development going on in village.

4.1.3 Study area

- In devda village some physical and social facilities are better like underground drainage, cement concrete road, primary school and Anganwadi. In the village lack of basic facilities like secondary school, public toilet, public garden, public library.
- Based on survey we tried to give design of basic facilities to fulfil their needs. By providing this basic facility to village for reduce urban city pressure and decrease migration rate, which is ultimate aim of Vishwakarma Yojana.
- For development devda village we are try to provide required facilities like vegetable market as a physical infrastructure facility, as a social infrastructure facility, public library as a social-culture infrastructure, liquid waste management as a sustainable infrastructure and rain water harvesting as a smart infrastructure facility.
- Devda village is 26 km away from Rajkot.

Figure 4.2 Devda road

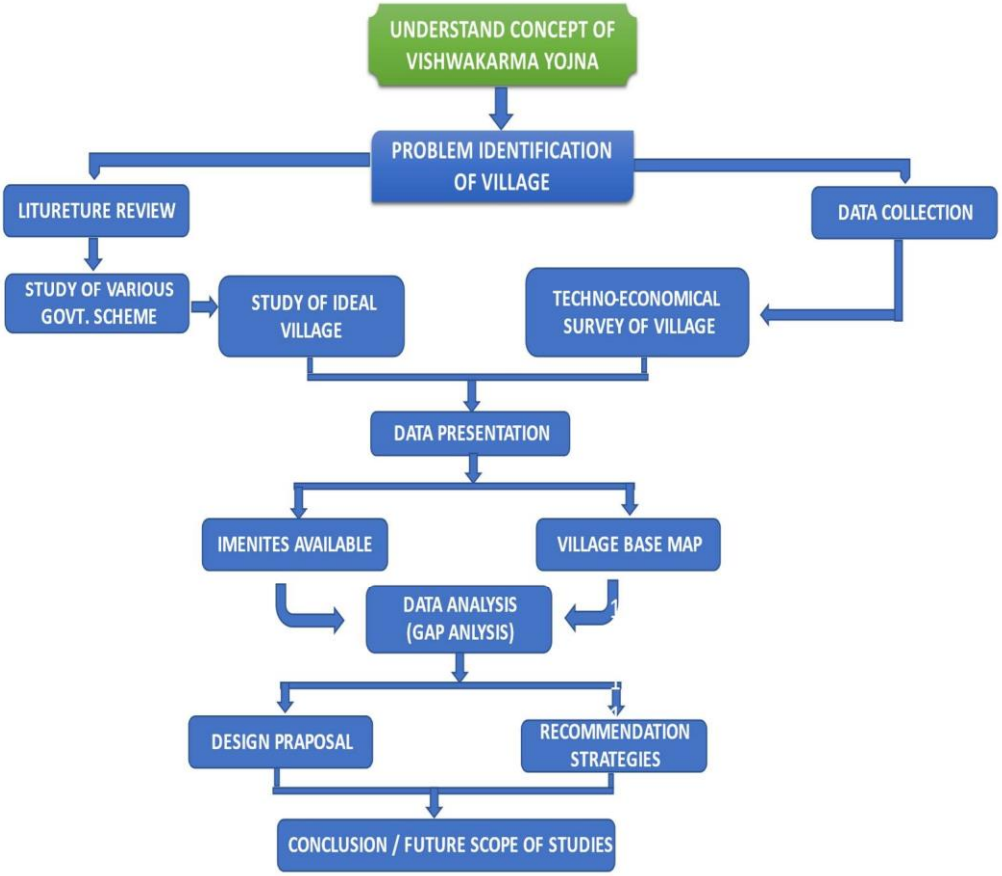
4.1.4 Objectives of the study

- To study how to improve a drainage facility of rural areas.
- To analyse the life of the structure like schools, houses, water tank, drainage system, etc.
- To study the exiting growth, characteristics and development of villages.
- To study the future growth and future scenario of village.
- To study how to improve a drainage facility of rural areas.

4.1.5 Scop of the study

- The information of the village collected based on different categories like, education, water facilities, drainage facilities, transportation facilities, primary health center, bank facilities, public toilet, community hall, and other amenities.
- Based on these studies the required can be know and the further plan based on this requirement can be visualize for compacted development of the village.
- To improve education facilities and to develop village as smart village.

4.1.6 Methodology frame work for development of your village



4.1.7 Available methodology for development of related to civil

Devda village some basic facility as below

- Anganwadi
- Primary school
- Cement concrete road
- Underground drainage
- Bus stand

4.2 Study area of devda village

4.2.1 Study area location with brief history land use details

- Name of village :- Devda
- Name of taluka :- Lodhika
- Name of district :- Rajkot
- Village code :- 360021
- Total population :- 880
- Total no. of house :- 171
- Total area of village :- 955.59 hectare

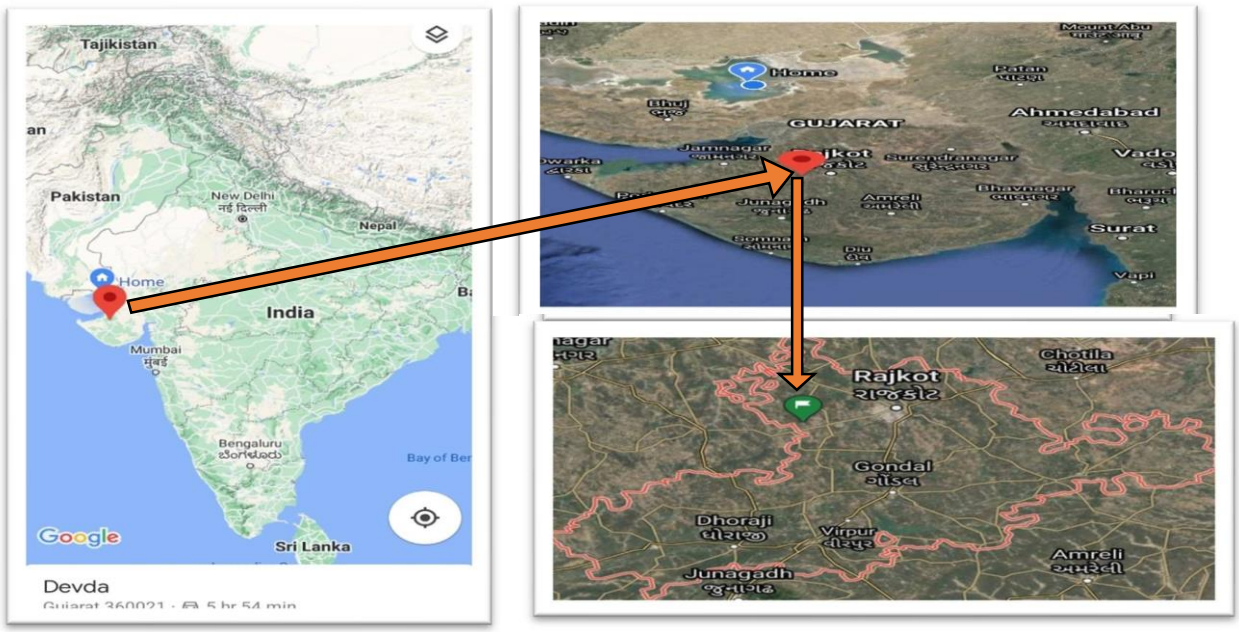


Figure 4.3 Devda located map

4.2.2 Base location map, land map

Figure 4.4 base location

4.2.3 Physical & demographical growth

- The total number of households in devda village are 171.
- It relies on the total population of 776 people. As per male population concern the number of populations is 380 of the village devda and the total female population number is 396. The reference taken to publish these data is of year 2011.

4.2.4 Economic generation profile/ banks

- The village has good electrification system which distributed 24 hours for domestic use and 8 hours for agricultural use.
- The major population of devda village is engaged with agriculture activities and other some people is doing many small provision stores.
- The village doesn't have any better facilities regarding infrastructure.

4.2.5 Actual problem faced by villagers and smart solution

Actual problem

- Lack of water disposal
- Lack of waste management
- Lack of storage facilities for excess rainwater
- Lack of bank and ATM
- Lack of education facilities

Smart solution

- By providing good height of bridge
- By providing solid waste bucket and liquid waste bucket
- By providing rainwater storage tank
- By providing bank and ATM
- By providing secondary school and collage in village

4.2.6 Social scenario -preservation of traditions, festivals, cuisine

- The people of devda village follow Indian traditions and cuisine. They celebrate all the Indian festivals.

4.2.7 Migration reasons/ trends

- Migration owing to a number of attractions offered by a city is interpreted as migration due to 'push' factors; on the other hand, people move out of villages due to 'pull' factors – such as better opportunities of employment, education, recreation, health care facilities, business, etc. outside villages.
- The movement of population from one region to another is termed as migration. Migration is commonly of two types: temporary and permanent.

- Temporary migration encompasses annual, seasonal or even daily two cities; it is also called 'commutation'.
- Pattern The pattern of internal migration may be divided into the following: intrastate movement in the case of movement of people within the state itself, and interstate movement when the migrants cross the borders of a state and settle down in another state. The bulk of intra-state migrations were not caused by economic factors. Since about three-fourths of all migrants were females, it becomes obvious that marriage was the prime reason for such migration.

4.3 Data collection devda village

4.3.1 Describe methods for data collection

- Self – survey of the village
- Interaction with the village
- Techno economic survey
- House interviewing method
- Statement of villagers

4.3.2 Primary details of survey

- Devda is village located in lodhika taluka of Rajkot district. Sarpanch of the village is kamleshbhai B. khapra. Village is located 19 km away from lodhika. Total geographical area of village is 955.59 hectare.
- Total population of the village is 776 among them 380 are male and 396 are female as per census 2011.
- Total households in devda village are 171 as per census. Main occupation of the devda village people is farming.

4.3.3 Average size of the house – geo – tagging of house

- According to our survey & on the basis of information given by the sarpanch the average size of house is around 75 to 110 var.
- In devda village 40% is kutcha house and 60% pucca house.

4.3.4 No of human being in one house

- In the village, there are average 5 persons per household.

4.3.5 Material available locally in the village and material out sourced by the villagers

- In this village kutcha houses are more than the pucca houses.
- The construction of the houses was made of stone, cement, sand, brick and concrete.

4.3.6 Geographical details

Sr no	Description	Information/ Detail
1.	Area of village(39ishwak.)(in hectare)	250 to 300 hectare
2.	Agriculture land area (39ishwak.)(in hectare)	200 to 250 hectare
3.	Residential area (39ishwak.)(in hectare)	5 to 6 hectare
4.	Name of nearest town with distance	Lodhika (19km)
5.	Distance to the nearest bus station (in km)	2 km (kalawad road)
6.	Elevation/Altitude (above sea level)	196 meter

Table 6 Geographical details

4.3.7 Demographical detail – cast wise population details / which ID proof using by villagers

- The devda village has population of 776 of which 380 are males while 396 are female as per population census 2011.
- Households = 171.

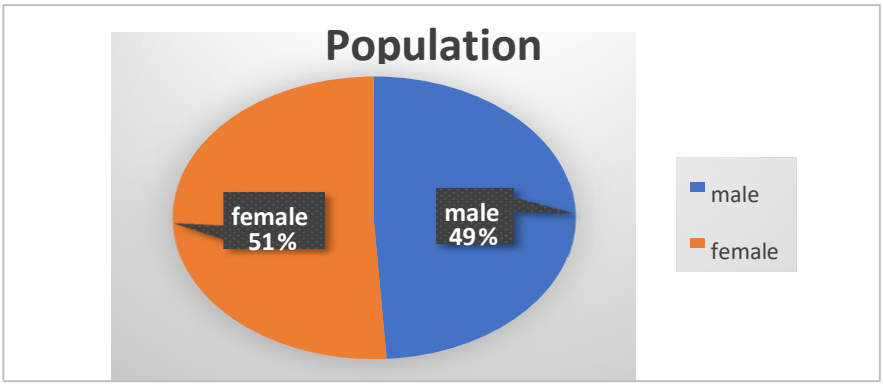


Figure 4. 5 Population Chart

4.3.8 Occupational detail – occupation wise detail/majority business

- In devda village most of the population are connected with farming works, labor works and small business such as provisional stores.

4.3.9 Agriculture details/ organic farming / fishery

- Agriculture is the main source of income for villagers.
- The soil of devda village is suitable for the production of cumin, cotton, garlic, corn and sorghum.

- The irrigation facilities for farming are provided by means of borevel, check dam, and narmada canal.

4.3.10 Physical infrastructure facilities – manufacturing HUB/ ware house

- Cement concrete road.
- Electric facilities.
- Underground drainage.
- Panchayat building.
- Hand pump facilities.

4.3.11 Tourism development available in the village for attracting the tourist

- There is no tourist cluster in devda village.

4.4 Infrastructure details (with exiting village photograph)

4.4.1 Drinking water / water management facilities

- For drinking purpose, people use hand pump at their homes
- There is underground water tank for storage of water. With 5000 liters.
- There is not overhead tank as a basic facility.

4.4.2 Drainage network/ sanitation facilities

- The village has underground drainage facilities which are in good condition.

4.4.3 Transportation and road network

- The village has C.C only road.
- The village has bus station but it is not in good condition.
- The bus station is 2 km away from village.

4.4.4 Housing condition

- There are total 171 houses in the village, 40% houses are kutcha and 60% are pucca.
- There are 24 hours facilities of electricity in houses.
- The water facilities in house are providing by hand pump system water supply.

4.4.5 Social infrastructure facilities, health, education, community hall, and library

- There is no health center, no medical store or any government dispensary in village.

Education facilities

- There is Anganwadi and primary school.

- The structure condition of primary school is poor.

Figure 4.6 Devda School

Library

- There is no library in devda village.

4.4.6 Existing condition of public building & maintenance of existing public infrastructure

Bus stand

- In devda village there is one bus stand.
- Bus stand is 2 km away from village.
  - Structure condition of bus stand is poor there are lots of cracks in bus stand with lack of facilities.

Figure 4.7 Devda Bus Stand

4.4.7 Technology mobile / Wi-fi/ internet usage details

- All most 70% people have smart phone and they use internet, but there is no Wi-Fi facilities in village.
- People mostly use the mobile networks of Vodafone, jio and artel.

4.4.8 Sport activity as gram panchayat

- There is no sport activity is promoted in village and gram panchayat also does not take any step for development of sport activity.

4.4.9 Socio-cultural facilities, public garden/park/playground/pond/other recreation facilities

- There are no facilities of public garden, park, playground, pond and other recreation facilities in devda village.

4.4.10 Other facilities

- Public toilet, playground, garden, library, secondary school required.

4.4.11 Any other details

- No

4.5 Existing institution like – village administration – detail profile

4.5.1 Bachat mandali

- There is no bachat mandali in devda village.

4.5.2 Dudh mandali

- There is one dudh mandali in devda village, which's structure condition is good.

Figure 4.8 Devda Dudh Mandali

4.5.3 Mahila forum

- There is not any facilities of mahila forum in devda village.

4.5.4 Plantation for air pollution

- In the past, air pollution meant smoke pollution and it was limited to the urban area.

- Air pollution has become more subtle and recognizes no geographical or political boundaries. The air pollution is one of the present day health problem throughout the world.
- The objective of this chapter is to highlight the public health importance of the so far neglected issue of quality of air in rural area and to attract the attention of scientific community for further research no the subject.

4.5.5 Rain water harvesting – waste water recycling

- Applications of rainwater harvesting in urban water system provide a substantial benefit for both water supply and wastewater subsystems by reducing the need for clean water in water distribution system, less generated stormwater in sewer system, and a reduction in stormwater runoff polluting freshwater bodies.
- Current water shortages and the cost associated with freshwater have made water reuse and recycling of major importance.

4.5.6 Agriculture development

- The agriculture product like cumin, garlic, onion, peanuts, cotton, corn, sorghum, millet and vegetables etc. are being cultivated in devda village.

4.5.7 Any other

- No

Figure 4.9 Inquiry of village

Figure 4.10 Devda Entry Gate

Figure 4.11 Road

Figure 4.12 Water tank

Figure 4.13 At village

Figure 4.14 Ram temple

Figure 4.15 R.C.C Road

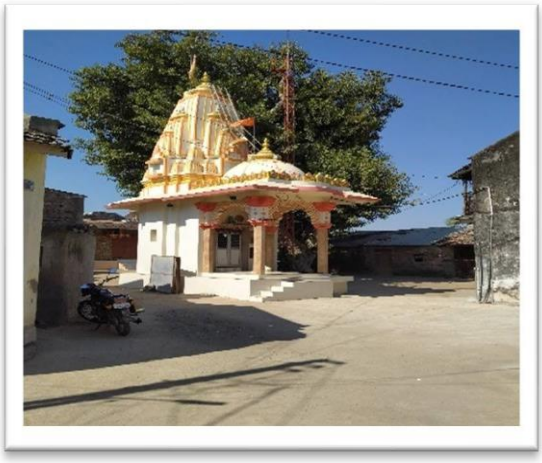


Figure 4.15 Shiv temple

Figure 4.16 Electric pillar

Figure 4.17 Light

Chapter 5 Technical Options with Case Studies

5.1 Concept (Civil)

5.1.1 Advance Sustainable construction techniques / Practices and Quantity Surveying

- For contractors, a strategy for saving time and materials can lead to higher profitability and the good feeling of not creating unnecessary waste. Here's a look at five techniques that are having the greatest impact on sustainable building construction.
- A quieter part of the sustainability story is the evolution in construction techniques and materials acquisition that can reduce waste, energy and various inefficiencies at building sites.

Uses

- Solar power has been increasingly exploited as sustainable construction technology.
- The use of biodegradable materials is an eco-friendly means of making construction sustainable.
- Insulation is one of the greatest concerns when it comes to the construction of buildings and homes.
- The Use of Smart Appliances.
- Sustainable resource sourcing is the key element of sustainable construction technology because it ensures the use of construction materials designed and created from recycled products, and that should be environmentally friendly.
- Selecting low emitting materials and products is an essential consideration in today's design and construction world. It not only improves human health but also goes a long way in protecting the overall environment.
- There are several water-efficient technologies used, which are all part of sustainable construction technologies. Essentially, the technologies encompass the re-use and application of efficient water supply systems, including the use of processes like dual plumbing, greywater re-use, rainwater harvesting, and water conservation fixtures.
- The health and safety of the building residents are fundamental, and it must be guaranteed during the construction of any building or home. Therefore, sustainable indoor technologies are mandatory in green construction.
- Electronic Smart Glass constitutes one of the techniques used in sustainable construction.

5.1.2 Soil Liquefaction

- Soil liquefaction occurs when a saturated or partially saturated soil substantially loses strength and stiffness in response to an applied stress such as shaking during an

earthquake or other sudden change in stress condition, in which material that is ordinarily a solid behaves like a liquid. In soil mechanics, the term “liquefied” was first used by Allen Hazen.

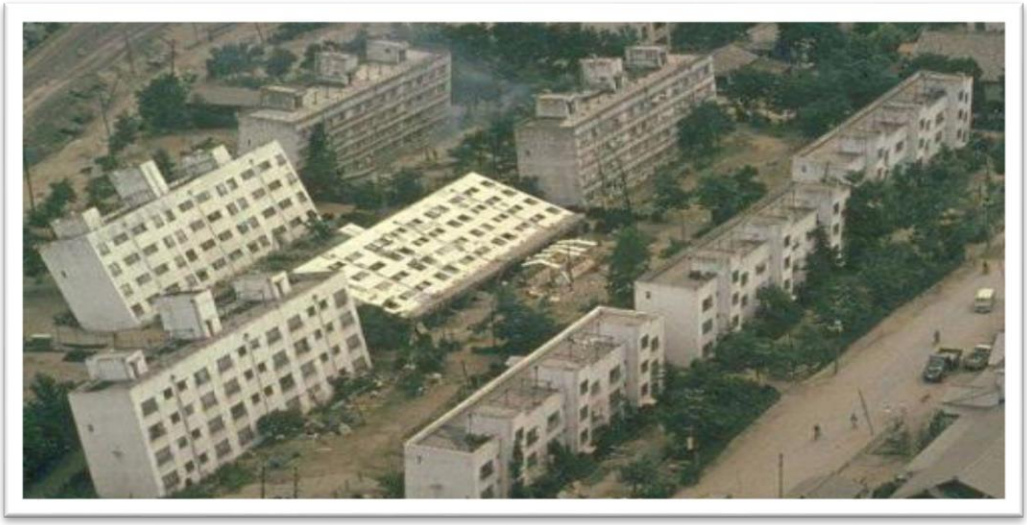


Figure 5.1 Liquefaction

5.1.3 Sustainable Sanitation

- Sustainable sanitation is a sanitation system designed to meet certain criteria and to work well over the long-term. Sustainable sanitation systems consider the entire “sanitation value chain”, from the experience of the user, excreta and wastewater collection methods, transportation or conveyance of waste, treatment, and reuse or disposal.
- The Sustainable Sanitation Alliance (Susana) 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.
- The purpose of sustainable sanitation is the same as sanitation in general: to protect human health. However, “sustainable sanitation” attends to all processes of the system: This includes methods of collecting, transporting, treating and the disposal (or reuse) of waste.

5.1.4 Transportation Infrastructure

- About seventy percent of the population of India are living in the rural areas. Therefore developments in urban centres alone do not indicate the overall development of the country. Only with the improvement in transportation facilities in rural areas, there could be faster developments of these areas, resulting in overall development of the country.

- Transportation refers to any vehicle or activity that moves people and goods from one place to another. In the United States, key modes of transportation for people and goods include buses, trains, trucks, cars, airplanes, and other forms of motorized vehicles. However, transportation can also refer to bicycles, boats, and even pedestrian traffic.
- **Transportation infrastructure** may include roads, bridges, bus stations, train tracks, airports, sidewalks, or ferry terminals.

Advantages of Transportation

- Less capacity outlay
- Door to door service
- Service in rural area
- Flexible service
- Suitable for short distance
- Lesser risk of damage in transit
- Saving in packing cost
- Rapid speed
- Less cost
- Private owned vehicles
- Feeder to other modes of transport

Figure 5.2 Transportation

Disadvantages of Transportation

- Seasonal nature
- Accident and breakdowns
- Unsuitable for long distance and bulky traffic
- Slow speed
- Lack of organisation

Characteristics of transportation

- **Two types of characteristics**
- Service characteristics
- Traffic characteristics

Figure 5.3 Rail accident

1.Service characteristics

- Punctuality
- Affordability
- Accessibility
- Safety and security
- Speed
- Regularity
- Capacity
- Comfort

2.Traffic characteristics

- Passenger traffic
- Freight/Goods traffic

Five modeof transport

- Road transport
- Rail transport
- See/Water transport
- Air transport
- Pipeline

Road transport

❖ Road transport mean transportation of goods and personnel from one place to the other on roads. Road is a route between two destinations, which has been either paved or worked on to enable transportation by way of 50ishwakar and non-motorised carriages.

Figure 5.4 Road transport

Rail transport

- **Rail transport** is also known as train **transport**. It is a means of **transport**, on vehicles which run on tracks (**rails** or railroads). It is one of the most important, commonly used and very cost effective modes of commuting and goods carriage over long, as well as, short distances.

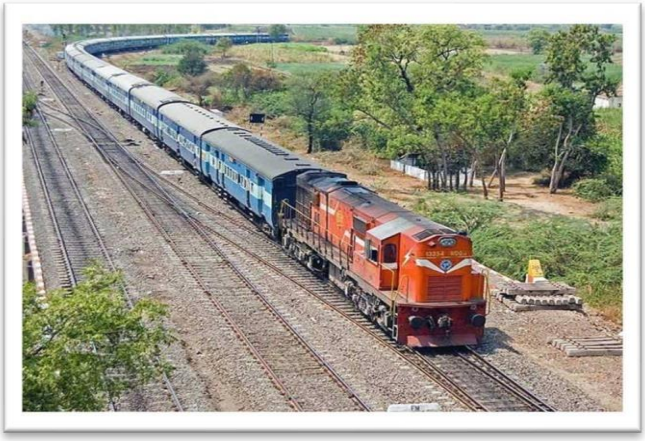


Figure 5.5 rail transport

See/Water transport

- **Water transport** is the process of moving people, goods, etc. by barge, boat, ship or sailboat over a **sea**, ocean, lake, canal, **river**, etc. This category does not include articles on the **transport** of **water** for the purpose of consuming the **water.**

Figure 5.6 water transport

Air transport

- The movement of passengers and **cargo** by aircraft such as airplanes and helicopters. **Air transportation** has become the primary means of common-carrier traveling. ... **Air transportation** also provides a communication or medical link, which is sometimes vital, between the different groups of people being served.

Figure 5.7 air transport

Pipeline

- **Pipeline transport** is the long-distance **transportation** of a liquid or gas through a system of pipes— a **pipeline**—typically to a market area for consumption.
- This mode of transportation is mostly used for transport of crude and refined petroleum products such as oil and natural gas. However, pipelines are also useful for transporting other fluids such as water, slurry, sewage, and beer.

Figure 5.8 pipeline

5.1.5 Vertical Farming

- Vertical farming is the practice of growing crops in vertically stacked layers. It often incorporates controlled-environment agriculture, which aims to optimize plant growth, and soilless farming techniques such as hydroponics, aquaponics, and aeroponics. Some common choices of structures to house vertical farming systems include buildings, shipping containers, tunnels, and abandoned mine shafts. As of 2020, there is the equivalent of about 30 ha (74 acres) of operational vertical farmland in the world.
- The modern concept of vertical farming was proposed in 1999 by Dickson Despommier, professor of Public and Environmental Health at Columbia University. Despommier and his students came up with a design of a skyscraper farm that could feed 50,000 people. Although the design has not yet been built, it successfully popularized the idea of vertical farming.

Uses

- drastically reduces agricultural land use.
- saves up to 95% water.
- makes cultivation possible, independent of weather conditions & season.
- delivers each harvest with continuous quality.
- brings maximum freshness into the city.
- saves on transport to the consumer.

5.1.6 Corrosion Mechanism, Prevention & Repair Measures of RCC Structure

- The durability of concrete structures is influenced by various factors, for example, ecological presentation, electrochemical responses, mechanical stacking, affect harm and others. Of all of these, consumption of the fortification is likely the primary driver for the disintegration of steel strengthens cement (RC) structures.
- The deterioration of reinforced concrete structures is a major problem. The cost of repairing or replacing deteriorated structures has become a major liability for highway agencies, estimated to be more than $20 billion and to be increasing at $500 million per year.
- The primary cause of this deterioration (cracking, delamination, and spalling) is the corrosion of steel reinforcing bars due to chlorides.
- The two main sources of chlorides are deicing chemicals and seawater.
- The bare pavement policies of many highway agencies for winter snow and ice removal have resulted in extensive use of salt-based deicing chemicals.
- The most common chemical used has been sodium chloride.

- Many bridges have also been built in coastal areas and are exposed to seawater.

5.1.7 Sewage treatment plant

- Sewage treatment is the process of removing contaminants from domestic and municipal wastewater, containing mainly household sewage plus some industrial wastewater. Physical, chemical, and biological processes are used to remove contaminants and produce treated wastewater (or treated effluent) that is safe enough for release into the environment. A by-product of sewage treatment is a semi-solid waste or slurry, called sewage sludge. The sludge has to undergo further treatment before being suitable for disposal or application to land.
- Sewage treatment may also be referred to as wastewater treatment. However, the latter is a broader term that can also refer to industrial wastewater. For most cities, the sewer system will also carry a proportion of industrial effluent to the sewage treatment plant that has usually received pre-treatment at the factories to reduce the pollutant load. If the sewer system is a combined sewer, then it will also carry urban runoff (stormwater) to the sewage treatment plant. Sewage is conveyed in sewerage which comprises the drains, pipework and pumps to convey the sewage to the treatment works inlet.

Benefits

- Provides clean, safe water processed
- Saving you money
- Beneficial to the environment
- Saving water
- A way to minimize waste

Chapter 6 Swatch Bharat Abhiyan (Clean India)

6.1 Swatchta needed in allocated village – Existing situation with photograph

- "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.
- Swatch Bharat Abhiyan is one of the most significant and popular mission to have taken place in India. Swachh Bharat Abhiyan translates to clean India mission. This drive was formulated to cover all the cities and towns of India to make them clean.
- In devda village there is not any activities done under Swatch Bharat Abhiyan.
- In devda village, there are not any activities running for waste garbage management.
- There No Any Facilities for Underground Drainage.

Figure 6.1 Clean India

6.2 Guideline – Implementation in allocated village with photograph Solid waste management

- The most important reason for waste collection is the **protection** of the environment and the health of the population.
- Rubbish and waste can cause **air** and **water** pollution. Rotting garbage is also known to produce harmful gases that mix with the **air** and can cause breathing problems in people.
- Solid – waste management, the collecting, treating, and disposing of solid material that is discarded because it has served its purpose or is no longer useful.

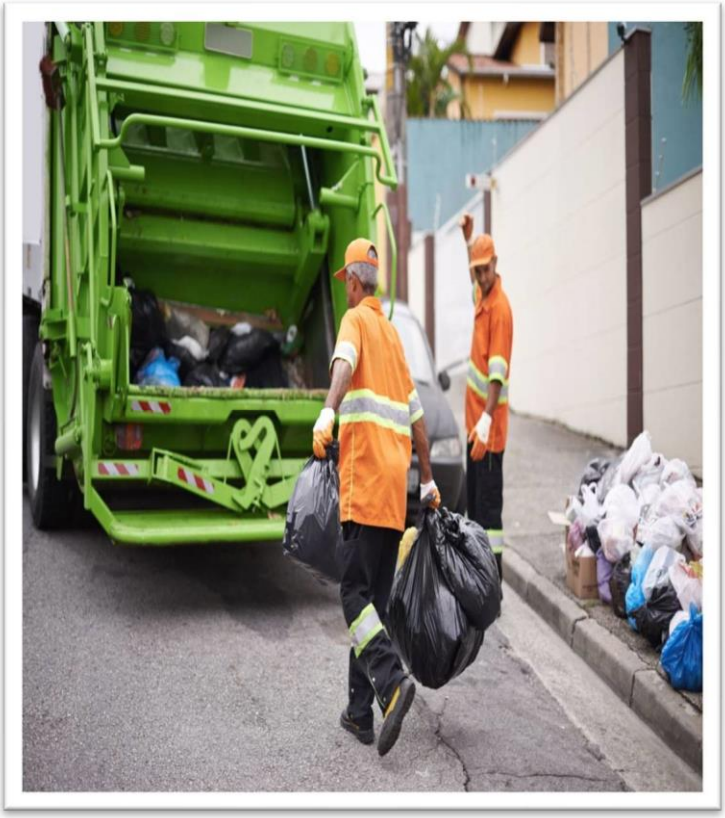


Figure 6.2 Waste collection truck

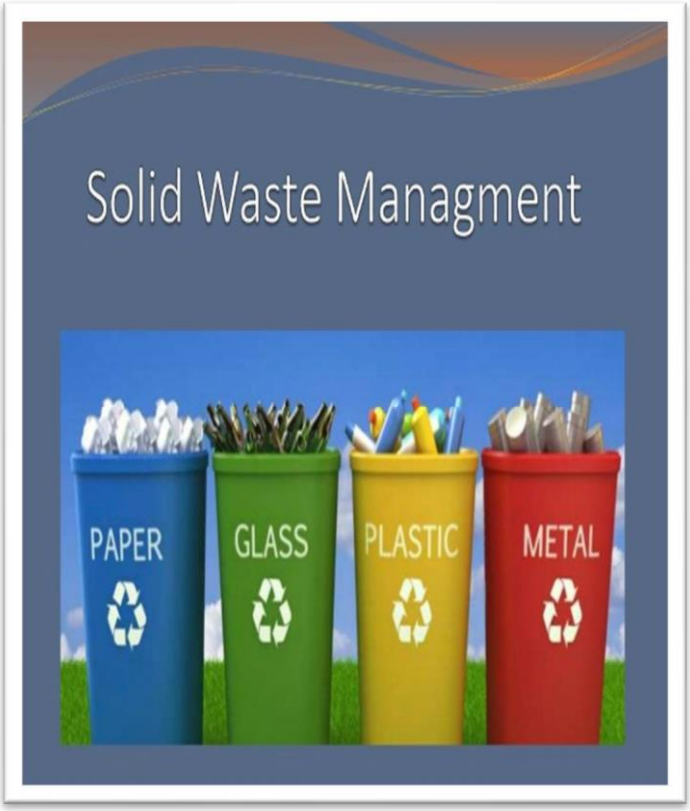


Figure 6.3 Solid waste bucket

Common toilet in village

- Toilet use is crucial to unlocking social and economic progress in India, and to saving the lives of thousands of children. In rural India, where 61% of the population defecate in the open, it is practised among all socio-economic groups. In urban India, 10% of the population practice open defecation. More than half the children living in slums in Delhi don't use toilets.
- Without improved sanitation facilities and awareness, the risks of infection or other illnesses from faecal sludge or wastewater are extremely high.

Figure 6.4 Toilet

Cleaning of road

- It is important to ensure proper design and quality constriction to reduce the burden of maintenance.
- It is necessary to accommodate utility services along and across the roads these include:
  - ✦ Sewer and drainage
  - ✦ Storm water drain
  - ✦ Water supply lines
  - ✦ Electricity cables
  - ✦ Telecommunication cables
  - ✦ Gas pipelines
  - ✦ Lighting
  - ✦ Drainage
- To ensure that streets look batter and cleaner on a long – term basis, formulation and thorough implementation of a street cleaning schedule is the first and most important part of defining street cleaning practices.

Figure 6.5 Road cleaning

6.3 Activities done by students for allocated village with photograph

- No any activities done by student due to covid-19.

Chapter 7 Village condition due to Covid-19

7.1 Taken step in allocated village related to exiting situation with photograph:

- We don't visit our allocated village due to covid-19.
- As per review of Villagers Devda village is very clean during covid-19 lockdown.
- They don't have the facility of collecting door-to-door garbage.
- These are some requirements for sanitization of village.

7.2 Activities done by students for allocated village with photograph:

- No any activities by students.

7.3 Any other steps taken by the student/villagers

- In village Anganwadi workers, school teachers and doctor motivated people due to covid-19 and also gave knowledge about covid-19.
- So, people understand the situation of covid-19 and village become safer.

Chapter 8 Sustainable design planning proposal (prototype design)- part – 1

8.1 Design proposals

- There is not any P.H.C.
- There is Anganwadi situation is very poor.
- In the 58ishwakarma yojana phase- VII part – 1 – I we have given total six design according to the village need and useful for the villagers.

8.2 Recommendation of the design

- Bank with ATM
- Anganwadi
- Medical store
- Cabin for control of CCTV/internet café
- Bio gas plant
- Chabutra

8.3 Benefit to villagers

- Anganwadi give growth to small children.
- Medical store is providing easy and emergency medicines.
- The internet café is to put users in touch with the global market and happenings in the world.
- The gases methane, hydrogen, and carbon monoxide (CO) can be combusted or oxidized with oxygen. This energy release allows biogas to be used as a fuel.

❖ Bank with ATM

- All dimensions are in meter.
- The area of bank and ATM is 12.46 x 9.46 m.
- Locker room, manager room, store room, ATM room, sitting place are included in the bank.
- Five counter table are provided.
- 2 cm thick marble flooring is used in bank.
- Total number of brick are 32,000 nos. use in this bank and ATM.
- 7.5 cm BBCC is used above earth filling.
- 2.5 cm mortar bed is used.
- Earth filling thickness is about 0.6 m.
- The step footing below the ground level is about 0.9 m.

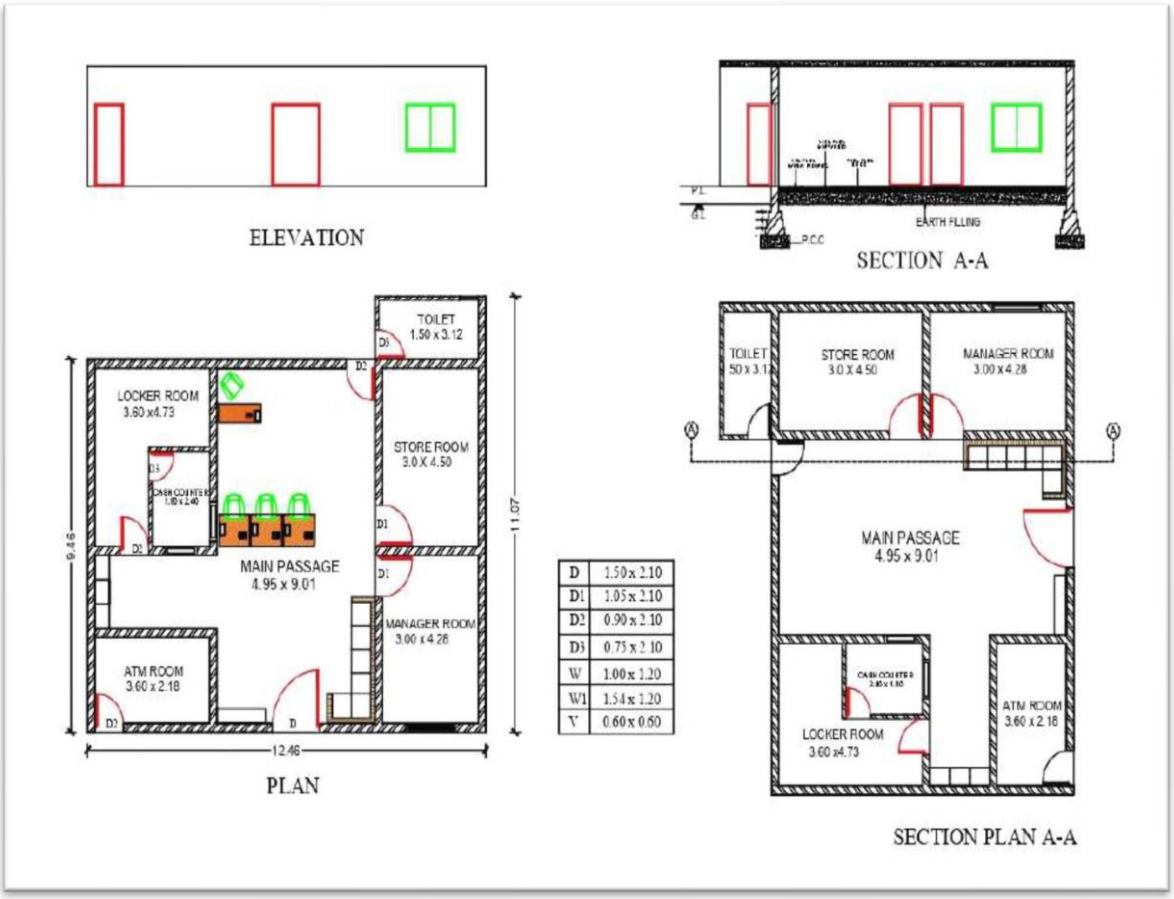


Figure 8.1 Bank with ATM

Measurement sheet of bank with ATM

SR NO	ITEAM DISCRIPTION	NO	LENGTH	BREADTH	HEIGHT	QUANTITTY
1	Excavation in foundation					
	Long wall=10.36m	2	10.36	0.9	1.5	27.972
	Short wall=11.56m	2	11.56	0.9	1.5	31.212
					Total =	**59.184Cu.m**
2	Plain cement concrete in foundation(1:2:4)					
	Long wall=10.36m	2	10.36	0.9	0.3	5.5499
	Short wall=11.56m	2	11.56	0.9	0.3	6.2424
					Total =	**11.8368Cu.m**
3	Brick work in foundation and plinth in C.M(1:6)					
	Long wall					
Step 1	9.46+0.6=10.06m	2	10.06	0.6	0.2	2.4144
Step 2	9.46+0.5=9.96m	2	9.96	0.5	0.2	1.992
Step 3	9.46+0.4=9.86m	2	9.87	0.4	0.2	1.5776
Step 4	9.46+0.3=9.76	2	9.78	0.3	0.6	3.5136
						9.4976
	Short wall					
Step 1	11.56-0.6=10.96m	2	10.96	0.6	0.2	2.6304
Step 2	11.56-0.5=11.06m	2	11.06	0.5	0.2	2.212
Step 3	11.56-0.4=11.16m	2	11.16	0.4	0.2	1.7856
Step 4	11.56-0.3=11.26m	2	11.26	0.3	0.6	4.0536
					Total =	**29.6768Cu.m**
4	Brick work in super structure					
	Long wall=10.36m	2	10.96	0.3	3	18.648
	Short wall=11.56m	2	11.56	0.3	3	20.808
					Total =	**39.456Cu.m**

	Deduction for door/window					
	Door	1	1.5	0.3	2.1	0.945
	Door1	2	1.05	0.3	2.1	1.323
	Door2	3	0.9	0.3	2.1	1.701
	Door3	2	0.75	0.3	2.1	0.945
	Window	2	1	0.3	1.2	0.72
	Window2	1	1.54	0.3	1.2	0.5544
	V	1	0.6	0.3	0.6	0.108
					Total =	**6.2964Cu.m**

	Deduction for lintel					
	Door	1	1.5	0.3	2.1	0.945
	Door1	2	1.05	0.3	2.1	1.323
	Deduction for lintel					
	Door	1	1.5	0.3	2.1	0.945
	Door1	2	1.05	0.3	2.1	1.323
	Door2	3	0.9	0.3	2.1	1.701
	Door3	2	0.75	0.3	2.1	0.945
	Window	2	1	0.3	1.2	0.72
	Window1	1	1.54	0.3	1.2	0.5544
	V	1	0.6	0.3	0.6	0.108
						6.2964Cu.m
				Total deduction =		7.6194Cu.m
					Total =	**-6.2964Cu.m**
5	R.C.C. slab chajja and lintel					
	R.C.C. slab					
	Breadth=11.56m	1	10.36	11.56	0.12	14.3714
	Length=10.36m					

6	2 cm marble flooring					
	Passage	1	4.95	9.01		44.5995m.sq
	Locker room	1	3.6	4.73		17.028m.sq
	ATM room	1	3.6	2.18		7.848m.sq
	Store room	1	3	4.5		13.5m.sq
	Manager room	1	3	4.28		12.84m.sq
	Toilet	1	1.5	3.12		4.68m.sq
					Total =	**100.496Cu.m**
7	Earth filling plinth					
	Passage	1	4.95	9.01	0.48	21.4078Cu.m
	Locker room	1	3.6	4.73	0.48	8.17344Cu.m
	ATM room	1	3.6	2.18	0.48	3.76704Cu.m
	Store room	1	3	4.5	0.48	6.48Cu.m
	Manager room	1	3	4.28	0.48	6.1632Cu.m
	Toilet	1	1.5	3.12	0.48	2.2464Cu.m
					Toilet =	
8	Smoot plaster inside the room in cm(1:3)					
	Passage	2	4.95		3	29.7Sq.m

		2	9.01		3	54.06Sq.m
	Locker room	2	3.6		3	21.6Sq.m
		2	4.73		3	54.06Sq.m
	ATM room	2	3.6		3	21.6Sq.m
		2	2.18		3	13.08Sq.m
	Store room	2	3		3	18Sq.m
		2	4.5		3	27Sq.m
	Manager room	2	3		3	18Sq.m
		2	4.28		3	25.68Sq.m
	Toilet	2	1.5		3	9Sq.m
		2	3.12		3	18.72Sq.m
					Total =	**310.5Sq.m**

	Deduction for door and window					
	Door	0.5	1.5		2.1	1.575
	Door1	0.5	1.05		2.1	1.1025
	Door2	0.5	0.9		2.1	0.945
	Door3	0.5	0.75		2.1	0.7875
	Window	0.5	1		1.2	0.6
	Window1	0.5	1.54		1.2	0.924
	V	0.5	0.6		0.6	0.18
						6.114Sq.m
					Total =	**304.386Sq.m**
9	Smooth plaster outside the room in c.m(1:3)					
	Room	2	9.46		3	56.76
		2	12.46		3	74.76
	Toilet	2	1.5		3	9
		2	3.12		3	18.72
						159.24Sq.m
	Deduction for door and window					
	Door	0.5	1.5		2.1	1.575
	Door2	0.5	0.9		2.1	0.945
	Door3	0.5	0.75		2.1	0.7875
	Window1	0.5	1.54		1.2	0.924
	V	0.5	0.6		0.6	0.18
						4.4115Sq.m
					Total =	**154.829Sq.m**
10	Painting inside					
	Passage	2	4.95		3	29.7Sq.m
		2	9.01		3	54.06Sq.m
	Locker room	2	3.6		3	21.6Sq.m
		2	4.73		3	54.06Sq.m

	ATM room	2	3.6		3	21.6Sq.m
		2	2.18		3	13.08Sq.m
	Store room	2	3		3	18Sq.m
		2	4.5		3	27Sq.m
	Manger room	2	3		3	18Sq.m
		2	4.28		3	25.68Sq.m
	Toilet	2	1.5		3	9Sq.m
		2	3.12		3	18.72Sq.m
					Total =	**310.5Sq.m**
	Deduction for door and window					
	Door	0.5	1.5		2.1	1.575
	Door1	0.5	1.05		2.1	1.1025
	Door2	0.5	0.9		2.1	0.945
	Door3	0.5	0.75		2.1	0.7875
	Window	0.5	1		1.2	0.6
	Window1	0.5	1.54		1.2	0.924
	V	0.5	0.6		0.6	0.18
						6.114Sq.m
					Total =	**304.386Sq.m**
11	Painting outside					
	Room	2	9.46		3	56.76
		2	12.46		3	74.76
	Toilet	2	1.5		3	9
		2	3.12		3	18.72
						159.24Sq.m
	Deduction for door and window					
	Door	0.5	1.5		2.1	1.575
	Door2	0.5	0.9		2.1	0.945

	Door3	0.5	0.75		2.1	0.7875
	Window	0.5	1.54		1.2	0.924
	V	0.5	0.6		0.6	0.18
						4.4115Sq.m
					Total =	**154.829Sq.m**
12	Door and window					
	Door	1	1.5		2.1	3.15
	Door1	2	1.05		2.1	4.41
	Door2	3	0.9		2.1	5.67
	Door3	2	0.75		2.1	3.15
					Total =	**16.38Sq.m**
	Window	2	1		1.2	2.4
	Window1	1	1.54		1.2	1.848
	V	1	0.6		0.6	0.36
					Total =	**4.608Sq.m**

Abstract sheet of bank and ATM

SR NO	PATICULARS	QUANTITY	PER	RATE	AMOUNT Rs.
1	Excavation in foundation	59.184	Cu.m	85	5030.64
2	Palin cement concrete in	11.8368	Cu.m	3200	37877.76
	Foundation				
3	Brick work in foundation	29.6768	Cu.m	3200	94965.76
4	Brick work in super structure	26.8632	Cu.m	3200	85962.24
5	R.C.C. work in slab, chajja, and	14.371392	Cu.m	8800	126468.25
	lintel				

6	2 cm marble flooring	100.4955	Sq.m	500	50247.75
7	Earth filling in plinth	48.23784	Cq.m	50	2411.89
8	Smooth plaster inside the room	304.386	Sq.m	260	79140.36
	In c.m(1:3)				
9	Smooth plaster outside the room	154.8285	Sq.m	350	54189.98
	In c.m(1:3)				
10	Painting inside	304.386	Sq.m	230	70008.78
11	Painting outside	154.8285	Sq.m	320	49545.12
12	Switchboard and wiring of	13	nos.	450	5950.00
	Electricity				
13	CCTV camera	7	nos.	7999	55993.00
14	Door	16.38	Sq.m	410	6715.80
15	Window	4.608	Sq.m	320	1474.56
				Rs.	**725881.89**
		ADD 5%	**Contingencies**	**Rs.**	**1415.76**
			Total Rs.		**727333.65**
			Total Rs. Say=		**7,27,400.00**

- **Anganwadi: -**
  - The area of Anganwadi is 6.10 x 9.15 m.
  - 2 cm thick marble flooring are used in Anganwadi.
  - 2.5 cm mortar bed is used.
  - Total number of brick are **11,750 nos.** use in this Anganwadi.

- 7.5 cm BBCC is used about earth filling.
- The step footing below the ground level is about 0.9 m. ▪
- Earth filling thickness is about 0.6 m. Wall thickness is 0.3 m.
- Where V is Ventilator.

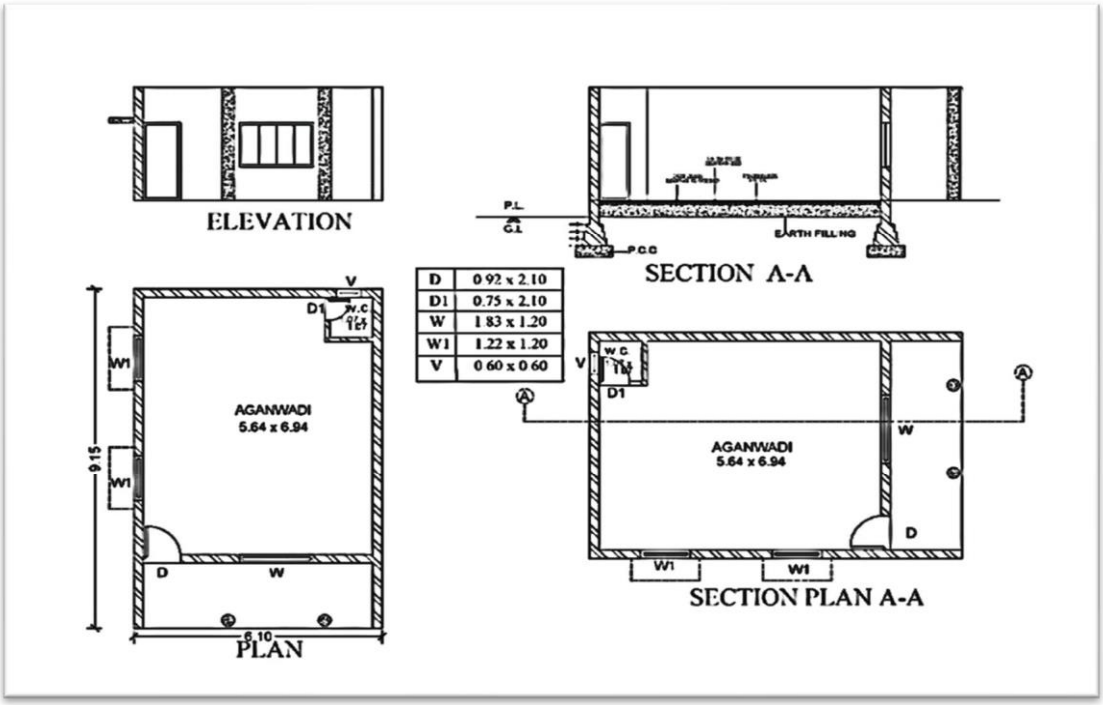


Figure 8.2 Anganwadi

Measurement Sheet of Anganwadi

SR NO.	ITEM DESCRIPTION	NO	LENGTH	BREADTH	HEIGHT	QUANTITY
1	Excavation in foundation					
	Long wall =9.7m.	2	9.75	0.9	1.5	26.324
	Short wall =5.5m	2	5.5	0.9	1.5	14.85
						41.175Cu.m
2	Plain cement concrete in foundation (1:2:4)					
	Long wall =9.75m	2	9.75	0.9	0.3	5.265
	Short wall =5.5m	2	5.5	0.9	0.3	2.97

						8.235Cu.m
3	Brick work in foundation and plinth in C.M(1:6)					
	Long wall					
Step 1	9.15+0.6 =9.75m	2	9.75	0.6	0.2	2.34
Step 2	9.15+0.5 =9.65m	2	9.65	0.5	0.2	1.93
Step 3	9.15+0.4 =9.55m	2	9.55	0.4	0.2	1.528
Step 4	9.15+0.3 =9.45m	2	9.45	0.3	0.6	3.402
						9.2
	Short wall					
Step 1	6.1-0.6=5.5m	2	5.5	0.6	0.2	1.32
Step 2	6.1-0.5=5.6m	2	5.6	0.5	0.2	1.12
Step 3	6.1-0.4=5.7m	2	5.7	0.4	0.2	0.912
Step 4	6.1-0.3=5.8m	2	5.8	0.3	0.6	2.088
						23.84Cu.m
4	Brick work in super structure					
	Long wall =9.75m	2	9.75	0.3	3	17.55
	Short wall =5.5m	2	5.5	0.3	3	9.9
						27.45Cu.m
	Deduction for door/window					
	Door	1	0.9	0.3	2.1	0.567
	Door1	1	0.7	0.3	2.1	0.441
	Window	1	1.5	0.3	1.2	0.54
	Window1	1	1	0.3	1.2	0.36
	V	1	0.6	0.3	0.6	0.108

						2.016Cu.m
5	R.C.C slab, chajja and lintel					
	R.C.C slab					

	Breadth =5.5m	1	9.75	5.5	0.12	**6.435**
	Length =9.75m					
	R.C.C chajja					
	Window	1	1.8	0.6	0.1	0.108
	Window1	1	1.3	0.6	0.1	0.078
	R.C.C lintel					**8.637Cu.m**
6	2 cm marble flooring					
	Room	1	5.64	6.94		**39.1418Cu.m**
7	Earth filling in plinth	1	5.64	6.94	0.48	**18.788Cu.m**
8	Smooth plaster inside the room in c.m.(1:3)					
	Room	2	5.64		3	33.84
		2	6.94		3	41.64
						75.48Sq.m
	Deduction for door/window					
	Door	0.5	0.9		2.1	0.945
	Door1	0.5	0.7		2.1	0.735
	Window	0.5	1.5		1.2	0.9
	Window1	0.5	1		1.2	0.6
	V	0.5	0.6		0.6	0.18
						3.36Sq.m
					Total =	**72.12Sq.m**
9	Smooth plaster outside the room in c..m.(1:3)					
	Room	2	9.75		3	58.5
		2	5.5		3	33
						91.5Sq.m
	Deduction for door/window					
	Door	0.5	0.9		2.1	0.945

	Door1	0.5	0.7		2.1	0.735
	Window	0.5	1.5		1.2	0.9
	Window1	0.5	1		1.2	0.6
	V	0.5	0.6		0.6	0.18
						3.36Sq.m
					Total =	**88.14Sq.m**
10	Painting in inside					
	Room	2	5.64		3	33.84
		2	6.94		3	41.64
						75.48Sq.m
	Deduction for door/window					
	Door	0.5	0.9		2.1	0.945
	Door1	0.5	0.7		2.1	0.735
	Window	0.5	1.5		1.2	0.9
	Window1	0.5	1		1.2	0.6
	V	0.5	0.6		0.6	0.18
						3.36Sq.m
					Total =	**72.12Sq.m**
11	Painting in outside					
	Room	2	9.75		3	58.5
		2	5.5		3	33
						91.5Sq.m
	Deduction for door/window					
	Door	0.5	0.9		2.1	0.945
	Door1	0.5	0.7		2.1	0.735
	Window	0.5	1.5		1.2	0.9
	Window1	0.5	1		1.2	0.6
	V	0.5	0.6		0.6	0.18
						3.36Sq.m
					Total =	**88.14Sq.m**
13	Windows	1	1.83		1.2	2.194

		1	1.22		1.2	1.464
		1	1.22		1.2	1.464
					Total =	**5.124Sq.m**

Abstract Sheet Of Anganwadi

SR NO.	PATICULARS OF ITEM	QUANTITY	PER	RATE	AMOUNT RS.
1	Excavation in foundation	41.175	Cu.m	180	7411.5
2	Plain cement concrete in foundation	8.235	Cu.m	4300	35410.5
3	Brick work in foundation	23.84	Cu.m	3500	83440
4	Brick work in super structure	23.42	Cu.m	3800	88996
5	R.C.C work in slab, chajja and lintel	8.637	Cu.m	6300	54413.1
6	2 cm marble flooring	39.1416	Sq.m	700	27399.12
7	Earth filling	18.788	Cu.m	50	939.4
8	Smooth plaster inside the room in	72.12	Sq.m	260	18751.2
	c.m(1:3)				
9	Smooth plaster outside the room in	88.14	Sq.m	350	30849
	c.m(1:3)				
10	Painting in inside	72.12	Sq.m	230	16587.6
11	Painting in outside	88.14	Sq.m	320	28204.8
12	Switchboard and wiring of electricity	3	nos.	450	1350

13	CCTV camera	1	nos.	7999	7999
14	Door	1	nos.	3800	3800
15	Window	5.124	Sq.m	320	1639.68
				Rs.	**407190.9**
		ADD 5% contingencies Rs.			**20359**
			Total Rs.		**427549.9**
			Total Rs.Say=		**427600**

- **Medical Store**
  - All dimensions are in meter.
  - The are of internet café is 2.59 x 3.51 m.
  - Total number of bricks are **3950 nos**. use in this medical store.

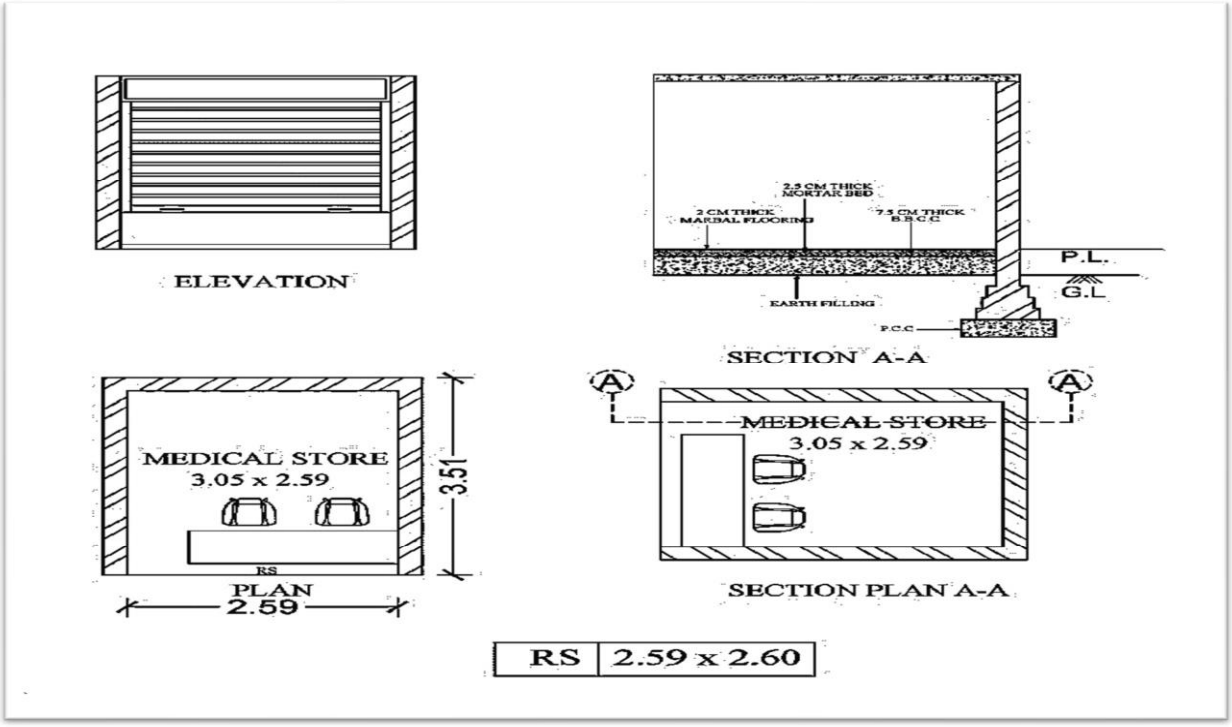


Figure 8.3 Medical store

Measurement sheet of medical store

SR NO	ITEM DESCRIPTION	NO	LENGTH	BREADTH	HEIGHT	QUANTITY
1	Excavation in foundation					
	Long wall=3.51m	1	3.51	0.9	1.5	4.7385
	Short wall=2.59m	2	2.59	0.9	1.5	6.993
					Total =	**11.7315Cu.m**
2	Plain cement concrete					
	In foundation (1:2:4)					
	Long wall=3.51m	1	3.51	0.9	0.3	0.9477
	Short wall=2.59m	2	2.59	0.9	0.3	1.3986
					Total =	**2.3463Cu.m**
3	Brick work in foundation					
	and plinth in c.m(1:6)					
	Long wall					
Step 1	3.51+0.6=4.11m	1	4.11	0.6	0.2	0.4932
Step 2	3.51+0.5=4.01m	1	4.01	0.5	0.2	0.401
Step 3	3.51+0.4=3.91m	1	3.91	0.4	0.2	0.3128
Step 4	3.51+0.3=3.81m	1	3.81	0.3	0.6	0.6858
						1.8928
	Short wall					
Step 1	2.59-0.6=1.99m	2	1.99	0.6	0.2	0.4776
Step 2	2.59-0.5=2.09m	2	2.09	0.5	0.2	0.418
Step 3	2.59-0.4=2.19m	2	2.19	0.4	0.2	0.3504
Step 4	2.59-0.3=2.29m	2	2.29	0.3	0.6	0.8244
					Total =	**5.856Cu.m**
4	Brick work in super					
	Structure					
	Long wall=3.51m	1	3.51	0.3	3	3.159
	Short wall=2.59m	2	2.59	0.3	3	4.662

					Total =	**7.821Cu.m**
5	R.C.C. slab,chajja,and lintel					
	R.C.C. slab					
	Breadth=2.59m	1	3.51	2.59	0.12	1.09091
	Length=3.51m					
6	2 cm marble flooring					
	Room	1	3.05	2.59		7.895m.sq
7	Earth filling plinth	1	3.05	2.59	0.48	3.7176Cu.m
8	Smooth plaster inside the					
	room in c.m.(1:3)					
	Room	1	3.05		3	9.15
		2	2.59		3	15.54
					Total =	**24.69Sq.m**
9	Smooth plaster outside					
	The room in c.m.(1:3)					
	Room	1	3.51		3	10.53
		2	2.59		3	15.54
					Total =	**26.07Sq.m**
10	Painting inside					
	Room	1	3.05		9.15	
		2	2.59		15.54	
					Total =	**24.69Sq.m**
11	Painting outside					
	Room	1	3.51		3	10.53
		2	2.59		3	15.54
					Total =	**26.07Sq.m**

12	Rolling shutter	1	2.59		2.6	**6.734Sq.m**

Abstract Sheet of Medical Store

SR NO	PARTICULARS ITEM	QUANTITY	PER	RATE	AMOUNT RS.
1	Excavation in foundation	11.73		130	2111.4
2	Plain cement concrete in foundation	2.346		4300	10087.8
3	Brick work in foundation	5.846		3500	20461
4	Brick work in super structure	7.821		3800	29719.8
5	R.C.C work in slab, chajja and lintel	1.09		6300	6867
6	2 cm marble flooring	7.899		700	5529.3
7	Earth filling	3.791		50	189.55
8	Smooth plaster inside the room in c.m(1:3)	24.69		260	6419.4
9	Smooth plaster outside the room In c.m(1:3)	26.07		350	9124.5
10	Painting in inside	24.69		230	5678.7
11	Painting in outside	26.07		320	8342.4
12	Rolling shutter	6.734		1210	8148.14

13	Switchboard and wiring of electricity	2		450	900
14	CCTV camera	1		7999	7999
				Rs.	**121577.99**
		ADD 5%contingencies Rs.			**61505**
			Total Rs. =		**183082.99**
		Total Rs. Say =			**183100**

❖ Internet café

- ❖ All the dimensions are in meter.
- ❖ The area of internet café is 3.05 x 6.10 m.
- ❖ 2 cm thick marble flooring is used in internet café.
- ❖ 7.5 cm BBCC is used above earth filling.
- ❖ 2.5 cm mortar bed is used.
- ❖ Total number of bricks are **6,350 nos.** use in this internet café.
- ❖ Earth filling thickness is about 0.6 m.
- ❖ The step footing below the ground level is about 0.9 m. ▪ Internet facilities is use to a village.

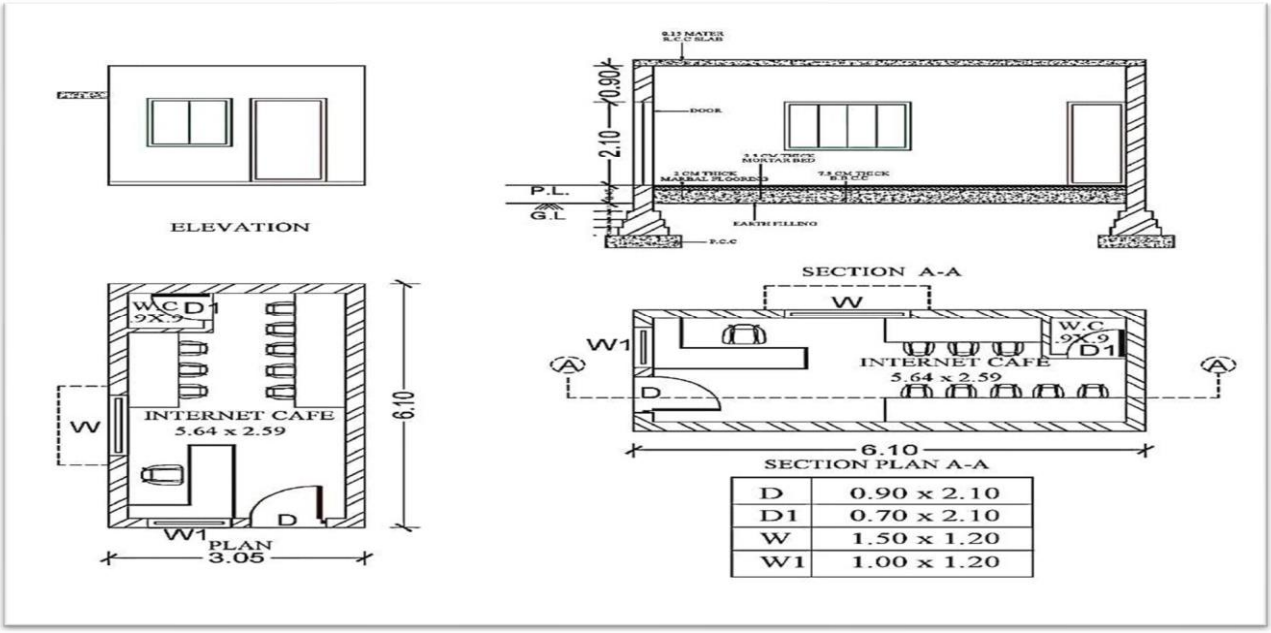


Figure 8.4 Internet café

Measurement Sheet Of Internet Café

SR NO	ITEM DESCRIPTION	NO	LENGTH	BREADTH	HEIGHT	QUANTITY
1	Excavation in foundation					
	Long wall=6.70m	2	6.7	0.9	1.5	18.309
	Short wall=3.65m	2	3.65	0.9	1.5	9.855
				Total quantity =		**27.945Cu.m**
2	Plain cement concrete in					
	foundation(1:2:4)					
	Long wall=6.70m	2	6.7	0.9	0.3	3.618
	Short wall=2.45m	2	2.45	0.9	0.3	1.323
				Total quantity =		**4.941Cu.m**
3	Brick work in foundation					
	and plinth in c.m(1:6)					
	Long wall					
Step 1	6.10 +0.6=6.70m	2	6.7	0.6	0.2	1.608
Step 2	6.10+0.5=6.60m	2	6.6	0.5	0.2	1.32
Step 3	6.10+0.4=6.50m	2	6.5	0.4	0.2	1.04
Step 4	6.10+0.3=6.40m	2	6.4	0.3	0.6	2.304
						6.272
	Short wall					
Step 1	3.05-0.6=2.45m	2	2.45	0.6	0.2	0.588
Step 2	3.05-0.5=2.55m	2	2.55	0.5	0.2	0.51
Step 3	3.05-0.4=2.65m	2	2.65	0.4	0.2	0.424
Step 4	3.05-0.3=2.75m	2	2.75	0.3	0.6	0.99
				Total quantity =		**15.056Cu.m**
4	Brick work in super					
	Structure					
	Long wall=6.70m	2	6.7	0.3	3	120.6

	Short wall=2.45m	2	2.45	0.3	3	4.41
				Total quantity =		**16.47Cu.m**
	Deduction for					
	door/window					
	Door	1	0.9	0.3	2.1	0.567
	Door 1	1	0.7	0.3	2.1	0.441
	Window	1	01.5	0.3	1.2	0.54

	Window 1	1	1	0.3	1.2	0.36
						1.908Cu.m
	Deduction for lintel					
	Door	1	0.9	0.3	2.1	0.567
	Door 1	1	0.7	0.3	2.1	0.441
	Window	1	1.5	0.3	1.2	0.54
	Window 1	1	1	0.3	1.2	0.36
						1.908Cu.m
				Total deduction =		**3.816Cu.m**
				Total quantity =		**12.54Cu.m**
5	R.C.C. slab, chajja and					
	lintel					
	R.C.C slab					
	Breadth=2.45m	1	6.7	2.45	0.12	**1.9698**
	Length=6.70m					
	R.C.C chajja					
	Window	1	1.8	0.6	0.1	0.108
	Window 1	1	1.3	0.6	0.1	0.078
	R.C.C lintel					1.908
						4.0638Cu.m
6	2 cm marble flooring					

	Room	1	5.64	2.6		**14.664m.sq**
7	Earth filling plinth	1	5.64	2.6	0.48	**7.03872Cu.m**
8	Smooth plaster inside					
	The room in c.m(1:3)					
	Room	2	5.64		3	33.84
		2	2.6		3	15.6
						49.44Sq.m
	Deduction for door and					
	Window					
	Door	0.5	0.9		2.1	0.945
	Door 1	0.5	0.7		2.1	0.735
	Window	0.5	1.5		1.2	0.9
	Window 1	0.5	1		1.2	0.6
						3.18
				Total quantity =		**46.26Sq.m**
9	Smooth plaster outside					
	The room In c.m(1:3)					
	Room	2	6.7		3	40.2
		2	2.45		3	14.7
						54.9Sq.m
	Deduction door and					
	window					
	Door	0.5	0.9		2.1	0.945
	Door 1	0.5	0.7		2.1	0.735
	Window	0.5	1.5		1.2	0.9
	Window 1	0.5	1		1.2	0.6
						3.18
				Total quantity =		**51.72Sq.m**
10	Painting inside the room					

	Room	2	5.64		3	33.84
		2	2.6		3	15.6
						49.44Sq.m
	Deduction for door and					
	window					
	Door	0.5	0.9		2.1	0.945
	Door 1	0.5	0.7		2.1	0.735
	Window	0.5	1.5		1.2	0.9
	Window 1	0.5	1		1.2	0.6
						3.18
				Total quantity =		**46.26Sq.m**
11	Painting outside th room					
	Room	2	6.7		3	40.2
		2	2.45		3	14.7
						54.9Sq.m
	Deduction for door and					
	window					
	Door	0.5	0.9		2.1	0.945
	Door 1	0.5	0.7		2.1	0.735
	Window	0.5	1.5		1.2	0.9
	Window 1	0.5	1		1.2	0.6
						3.18Sq.m
				Total quantity =		**51.72Sq.m**
13	Window	1	1.5		1.2	1.8Sq.m
		1	1		1.2	1.2Sq.m
				Total quantity =		**3Sq.m**

Abstract sheet of internet café

SR NO	PARTICULARS ITEM	QUANTITY	PER	RATE	AMOUNT RS.

1	Excavation in foundation	27.945	Cu.m	180	5030.1
2	Plain cement concrete in	4.941	Cu.m	4300	21246.3
	Foundation				
3	Brick work in foundation	15.056	Cu.m	3500	52696
4	Brick work in super structure	12.654	Cu.m	3800	48085.2
5	R.C.C work slab, chajja and lintel	4.063	Cu.m	6300	25596.9
6	2 cm marble flooring	14.664	Sq.m	700	10264.8
7	Earth filling in plinth	7.038	Cu.m	50	351.9
8	Smooth plaster inside th room in	46.26	Sq.m	260	12027.6
	c.m(1:3)				
9	Smooth plaster outside the room	51.72	Sq.m	350	18102
	In c.m(1:3)				
10	Painting in inside	46.26	Sq.m	230	10639.8
11	Painting in outside	51.72	Sq.m	320	16550.4
12	Switchboard and wiring of electricity	4	nos.	450	1800
13	CCTV camera	1	nos.	7999	7999
14	Door	1	nos.	3800	3800
15	Window	3	Sq.m	320	960
				Rs.	**235150**

		ADD 5% contingencies Rs.			**11757**
			Total Rs.		**246907**
			Total Rs. Say =		**247000**

- **Bio gas plant**

Data to be taken

Number of animal to one of villagers = 17(as per survey)

As per standard data per day dung for animal = 10 kg

So total dung per day = 170 kg/day

Design digester

Retension period (RT) = 60 days

Mixing proportion of solid and water is 1:1

Total amount of slurry per day (Sd) =

Total dung + water amount = 340 kg/day

Water amount = 170 lit.

Digester volume (Vd) = Sd*RT

20.4cu.m

Consider = 21cu.m

Design of gas holder

Assume digester tempreture = 26-28 degree C.

Specific gas production Gd = 34 lit./kg/day

Daily gas production G = Gd*feed volume = 11560 lit.

In cubic meter = 11.56cu.m

Assume gas holder capacity = 60%

Gas holder volume =

Daily gas produce * capacity = 6.936cu.m

Consider = 7cu.m

Provide cylinder shape holder so, h = 0.5 m

R = 2.13 m

Design of inlet and outlet chamber

Total volume of slurry mixer unit = 0.34cu.m/day

Total volume for one time of slurry mixer = L*B*H

Assume L = 1.5B

B = 0.6733 m

Consider B = 0.7 m

L = 1.05 m

So, dimension of inlet chamber are,

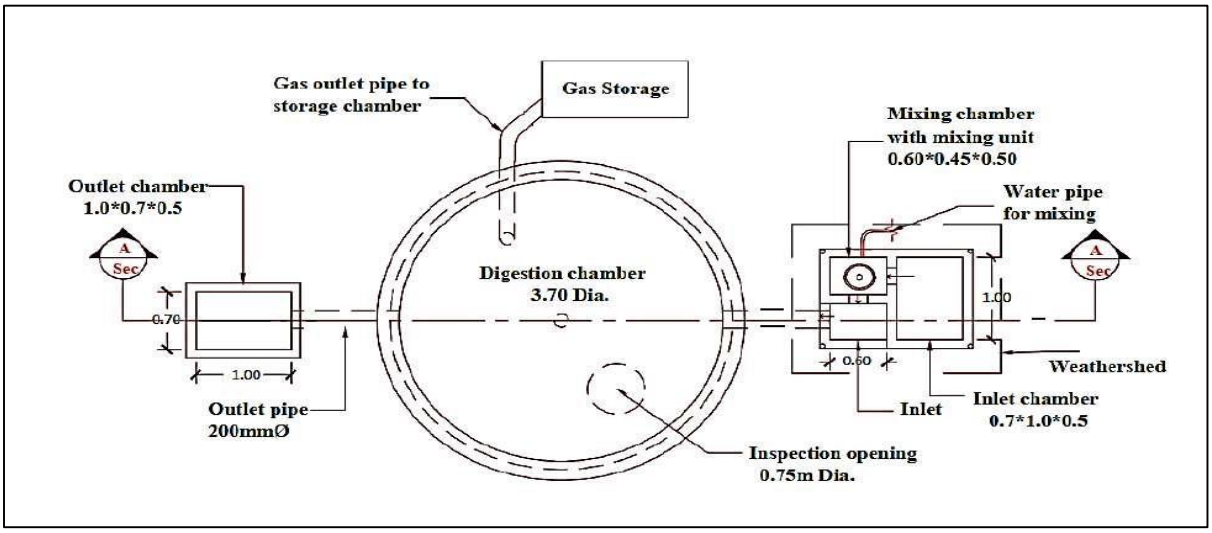
L = 1.05 m

B = 0.7

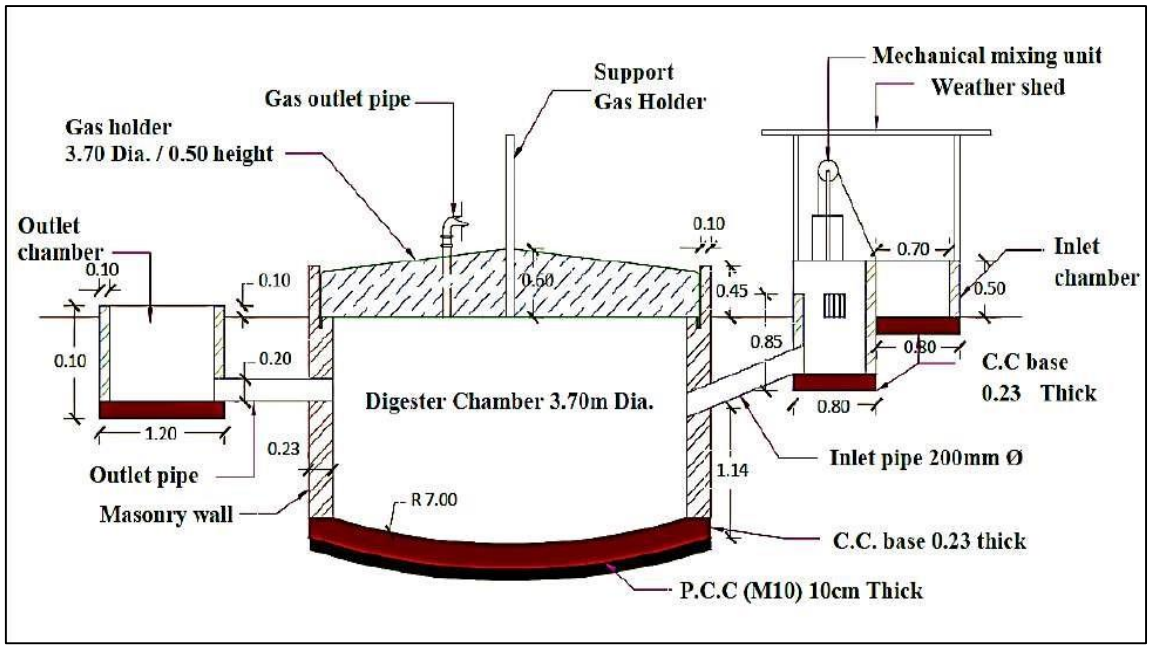
H = 0.5 m

Provide same size for outlet chamber also.

- **Layout of proposed bio gas plant**



Plant



Section A-A

Figure 8.5 Bio gas plant

Measurement sheet of Bio gas plant

Sr no.	Item description	No	Length	Width	Height	Quality
1	Excavation for foundation					
	Inlet chamber	1.00	0.90	1.20	0.25	0.27cu.m
		1.00	0.70	0.70	0.25	0.12cu.m
		1.00	0.70	0.70	0.75	0.37cu.m
	Digester chamber	1.00	10.75		2.33	25.05squ.m
	Outlet chamber	1.00	1.00	0.90	1.00	0.90cu.m
	For inlet and outlet pipe	2.00	0.90	0.30	0.80	0.43cu.m
					Total =	**27.14cu.m**
2	P.C.C. in foundation					
	Inlet chamber	1.00	0.90	1.20	0.10	0.11cu.m
		1.00	0.70	0.70	0.10	0.05cu.m
		1.00	0.70	0.70	0.10	0.05cu.m

	Digester chamber	1.00	10.75		0.10	1.08sq.m
	Outlet chamber	1.00	0.90	1.00	0.10	0.09cu.m
					Total =	**1.37cu.m**
3	Cement concrete for foundation					
	Inlet chamber	1	0.9	1.2	0.23	0.25cu.m
		1	0.7	0.7	0.23	0.11cu.m
		1	0.7	0.7	0.23	0.11cu.m
	Digester chamber	1.00	10.75		0.23	2.47sq.m
	Outlet chamber	1.00	0.90	1.00	0.23	0.21cu.m
					Total =	**3.15cu.m**
4	Brick masonry work					
	Inlet chamber	1	0.9	1.2	0.23	0.25cu.m
		1	0.7	0.7	0.23	0.11cu.m
	Digester chamber	1.00	12.56	0.23	1.77	5.11cu.m
	Outlet chamber	1.00	3.70	0.11	1.30	0.48cu.m
					Total =	**5.96cu.m**
5	Plastering double coat water					
	Proof					
	Inlet chamber	1	3.7		0.5	1.85sq.m
		1	2.8		1.15	3.22sq.m
	Digester chamber	1.00	23.68		1.77	41.91sq.m
		1	24		1	24.00sq.m
	Outlet chamber	1.00	3.70		1.30	4.81sq.m
					Total =	**75.79sq.m**
6	200mm dia. Pipe required	1	2.33			**2.33sq.m**

Abstract sheet of bio gas plant

Sr no.	Item description	Quality	Per	Unit rate	Amount Rs.
1	Excavation for foundation	27.14	Cu.m	180.00	4885.11
2	P.C.C. in foundation	1.37	Cu.m	4300.00	5895.30
3	Cement concrete for foundation	3.15	Cu.m	3500.00	11036.55
4	Brick masonry work	5.96	Cu.m	3800.00	22630.05
5	Plastering double coat water proof	75.79	Sq.m	260.00	19706.34
6	200mm dia. Pipe required	2.33	Sq.m	330.00	768.90
				Total =	**64922.24**
			ADD 5% contingencies =		**3246.11**
			Total amount =		**68168.36**
				Say =	**68200.00**

- **Chabutra**

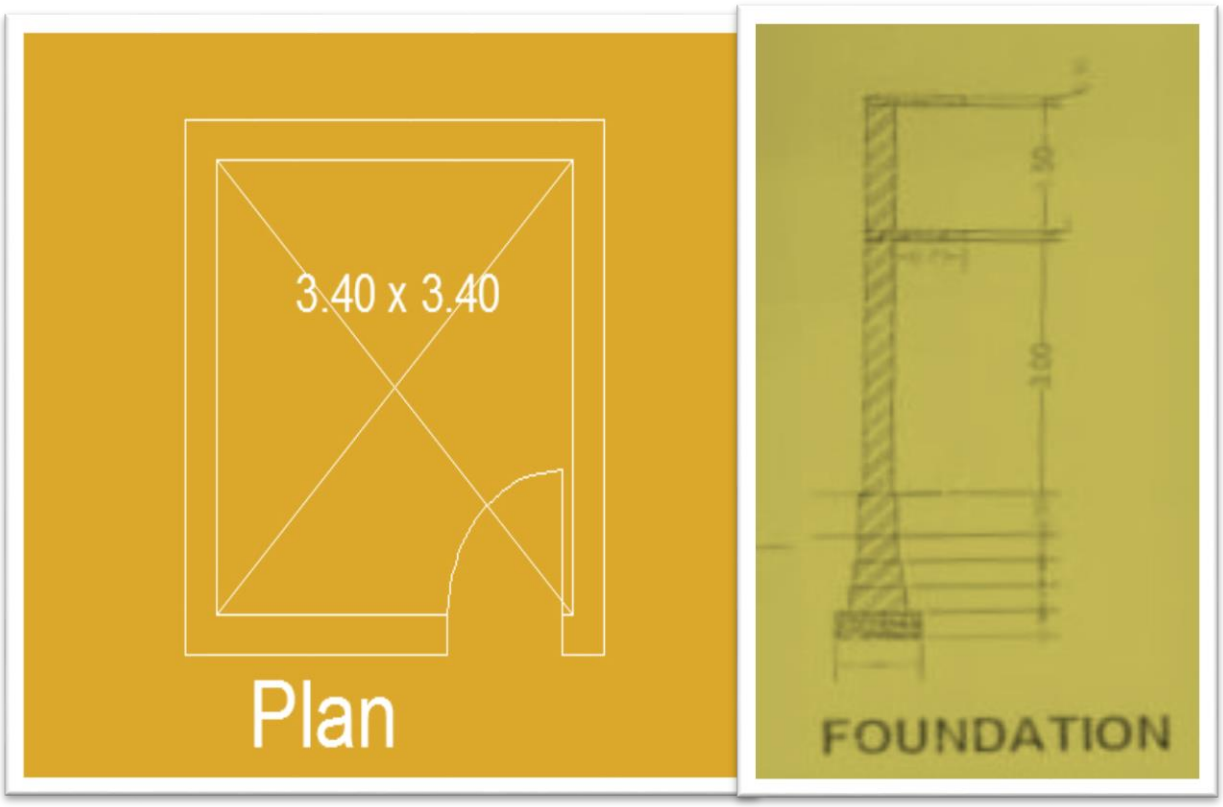


Figure 8.6 Chabutra

Measurement sheet of chabutra

Sr no.	Item description	Length	Width	Height	Quality(cu.m)
1	Excavation for foundation in soft				
	Ordinary soul				
	Total length=14.8m	14.8	0.9	1.2	15.984
2	Providing and laying foundation				
	Concrete (P.C.C.) (1:4:8) at				
	Foundation	14.8	0.9	0.3	3.996
3	Providing and laying brick masonry				

	At foundation up to G.L.				
3.1	1st footing				
	Total length=14.8m	14.8	0.6	0.3	2.664
3.2	2nd footing				
	Total length=14.8m	14.8	0.5	0.3	2.32
3.3	3rd footing up to G.L.				
	Total length=14.8m	14.8	0.4	0.3	1.776
4	Brick masonry up to P.L.	14.8	0.4	0.5	2.96
				Total =	**9.62**
5	Providing refilling of the ordinary	Refilling=total excavation-(p.c.c.) +brick masonry of 1st -3rd footing +brick masonry up to G.L=5.324			
	Soil in foundation trenches				
	Providing and refilling of the yellow				
	Soil up to the plinth level	Refilling =5.5			
6	Providing and laying brick masonry				
	Up to bottom of the slab				
	Total length=14.8m	1 14.8	0.3	3	13.32
	Deduction				
	D	1 1.2	0.3	2.1	0.756
	Brick masonry 1st slab to 2nd slab	5 0.3	0.3	1.5	0.675
				Total =	**13.239**
7	Providing and laying R.C.C (1:2:4)				
	Work for				
	1st slab	1 3.7	3.7	0.15	2.0535
	2nd slab	1 3.7	3.7	0.15	2.0535
	R.C.C chajja (1:2:4) D	1 1.4	0.3	0.15	0.063
				Total =	**4.17**
9	Plaster				
9.1	Inside plaster				
	Total length=	4 3.4	3		40.8
	Deduction				

	D	0.5	1.2		2.1	1.26
9.2	Outside plaster					
	Total length	4	3.7		3	44.4
	Plaster for brick masonry column					
	Up to 1st and 2nd slab	5	0.3		1.5	2.25
	Deduction					
	D	0.5	1.2		2.1	1.26
					Total =	**45.43**
10	Flooring	1	3.4	3.4		11.56

Abstract sheet

Sr no.	Item description	Total qln.	Rate	Per	Amount (Rs.)
1	Excavation for foundation	15.98	90	Cu.m	1438.2
2	P.C.C work for foundation	3.996	8000	Cu.m	11988
3	Providing refilling of the ordinary soil in	5.324	110	Cu.m	585.04
	Foundation trencher				
4	Brick masonry at foundation and plinth	9.62	900	Cu.m	8658
5	Providing and refilling of the yellow soil	5.5	215	Cu.m	1182.5
	At plinth level				
6	Brick masonry up to bottom of the slab	13.239	3600	Cu.m	47660.4
7	R.C.C work	4.17	9000	Cu.m	37530
8	12mm thick cement plaster in c.m. (1:4)	97.33	150	Sq.m	14599.5
9	Providing fixing tiles flooring	11.56	700	Sq.m	8092
		Total cost in Rs. = 131734.24 Rs			

Chapter 9 Proposing designs for future development of the village for the PART – II Design

- In this project, we gave 6 designs for Part-1.
- Bank with ATM
- Anganwadi
- Medical store
- CCTV camera cabin/internet café
- Bio gas plant
- Chabutra
- For part-2, we provide required of design like.
- Feast of water
- Water tank
- Public toilet
- Bus stop
- Post office
- Plastic bottle crusher machine
- This is some requirement design for development of the village.
- The is aimed to know the basic scenario of village through techno economic survey and gap analysis done.
- We should focus on making the village smarter by adopting various technology.

Chapter 10 Conclusion of the entire village activities for the project

- From the above study and the visits conducted in the villages it is conducted that the village needs advancement and up gradation like smart village with all the basic and advanced facilities.
- In this process of ideal village, the attempt has been made by giving design proposals of the Bank with ATM, Anganwadi, medical store, internet café, Bio gas plant, Chabutra.
- By use of gap analysis we compare all the available facilities and required facilities in Devda village. We observe available amenities in village like road network, education facility, transportation facility, sanitation facility, health facility, drinking water facility and renewable source facility.
- Using techno-economic survey of all 3 villages we get existing condition of village like demographical details, geographical details, occupational details, physical infrastructure details, socio-cultural facilities, sustainable infrastructure facilities and other facilities.
- We discuss with kolki, Munjka and Devda Village authorities and dwellers of village and filled different types of survey form and analyses it.
- Vishwakarma project is provide the benefits of real-world experience to engineering student and simultaneously apply their technical knowledge in the development of infrastructure in rural development.
- This project is helped us to understand the village situation their problem and how to solved it, this project increases our skills and make it batter. We got lost of knowledge about village their infrastructure and how to deal with people.

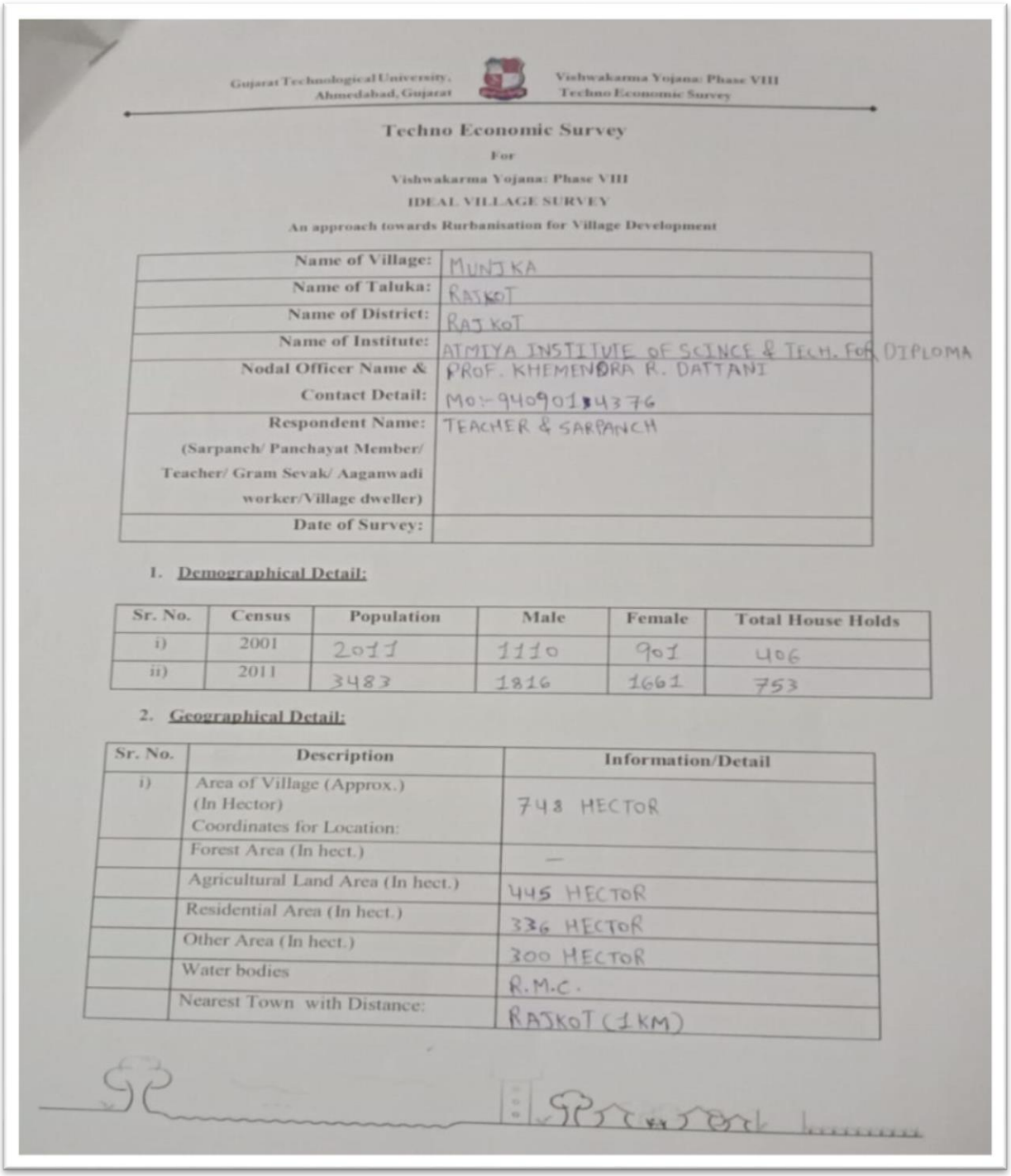
Chapter 11 References refereed for this project

- Census of India
- Google.com
- Wikipedia
- smartcityindia.com
- rural.nic.in
- www.researchgate.net

Chapter 12 Annexure attachment

12.1 Survey form of ideal village scanned copy attachment in the report for

Part- 1



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:	MUNJKA
Name of Taluka:	RAJKOT
Name of District:	RAJKOT
Name of Institute:	ATMIYA INSTITUTE OF SCINCE & TECH. FOR DIPLOMA
Nodal Officer Name & Contact Detail:	PROF. KHEMENDRA R. DATTANI M0:-9409013376
Respondent Name: (Sarpanch/ Panchayat Member/ Teacher/ Gram Sevak/ Aaganwadi worker/Village dweller)	TEACHER & SARPANCH
Date of Survey:	

1. Demographical Detail:

Sr. No.	Census	Population	Male	Female	Total House Holds
i)	2001	2011	1110	901	406
ii)	2011	3483	1816	1661	753

2. Geographical Detail:

Sr. No.	Description	Information/Detail
i)	Area of Village (Approx.) (In Hector) Coordinates for Location:	748 HECTOR
	Forest Area (In hect.)	—
	Agricultural Land Area (In hect.)	445 HECTOR
	Residential Area (In hect.)	336 HECTOR
	Other Area (In hect.)	300 HECTOR
	Water bodies	R.M.C.
	Nearest Town with Distance:	RAJKOT (1 KM)

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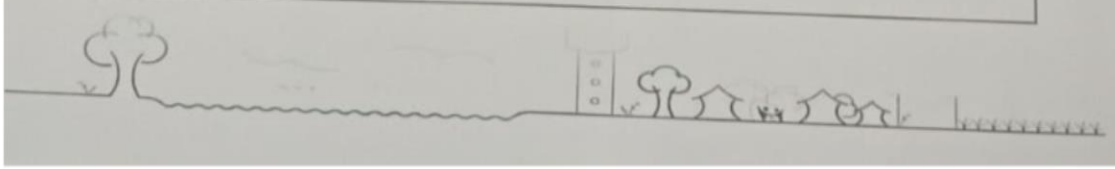
Vishwakarma Yojana: Phase VIII
Techno Economic Survey

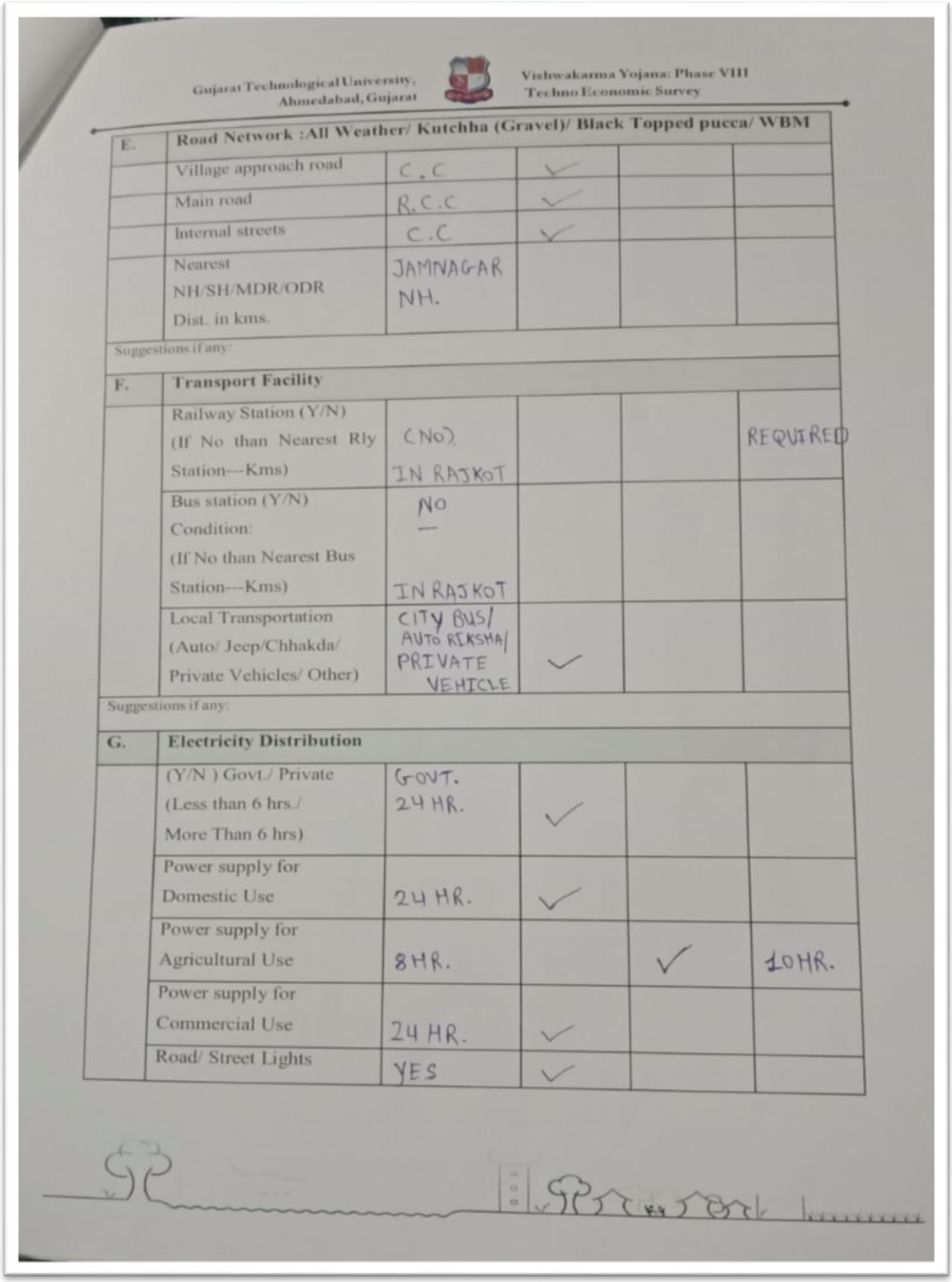
3. **Occupational Details:**

Name of Three Major Occupation groups in Village	1. FARMING
	2. SAND- AGGREGATE
	3. LABOUR.

4. **Physical Infrastructure Facilities:**

Sr. No.	Descriptions	Detail	Adequate	Inadequate	Remarks
A.	**Main Source of Drinking water**				
	• Tap Water (Treated/ Untreated)	FOR DRINK		✓	MORE REQUIRE
	• RO Water				
	• Well (Covered/ Uncovered)	1 (UNCOVER)		✓	MORE REQUIRE
	• Hand pumps				
	• Tube well/ Borehole	1 (NOT IN WORK)		✓	
	• River/ Canal/ Spring/ Lake/ Pond	BORE HOLE	✓		
Suggestions if any:					
B.	**Water Tank Facility**				
	Overhead Tank	Capacity: 1.5 lakh	✓		
	Underground Sump	Capacity: 50,000 L	✓		
Suggestions if any:					
C.	**Drainage Facility**				
	Available (Yes/ No)	UNDER. (Y)	✓		
Suggestions if any:					
D.	**Type of Drainage**				
	Closed/ Open	closed	✓		
	If Open than Pucca / Kutchcha	P / K 96% / 4%	✓		
	Whether drain water is discharged directly in to Water bodies/ Sewer plants	NO.			QUICK REQUIRE
Suggestions if any:					





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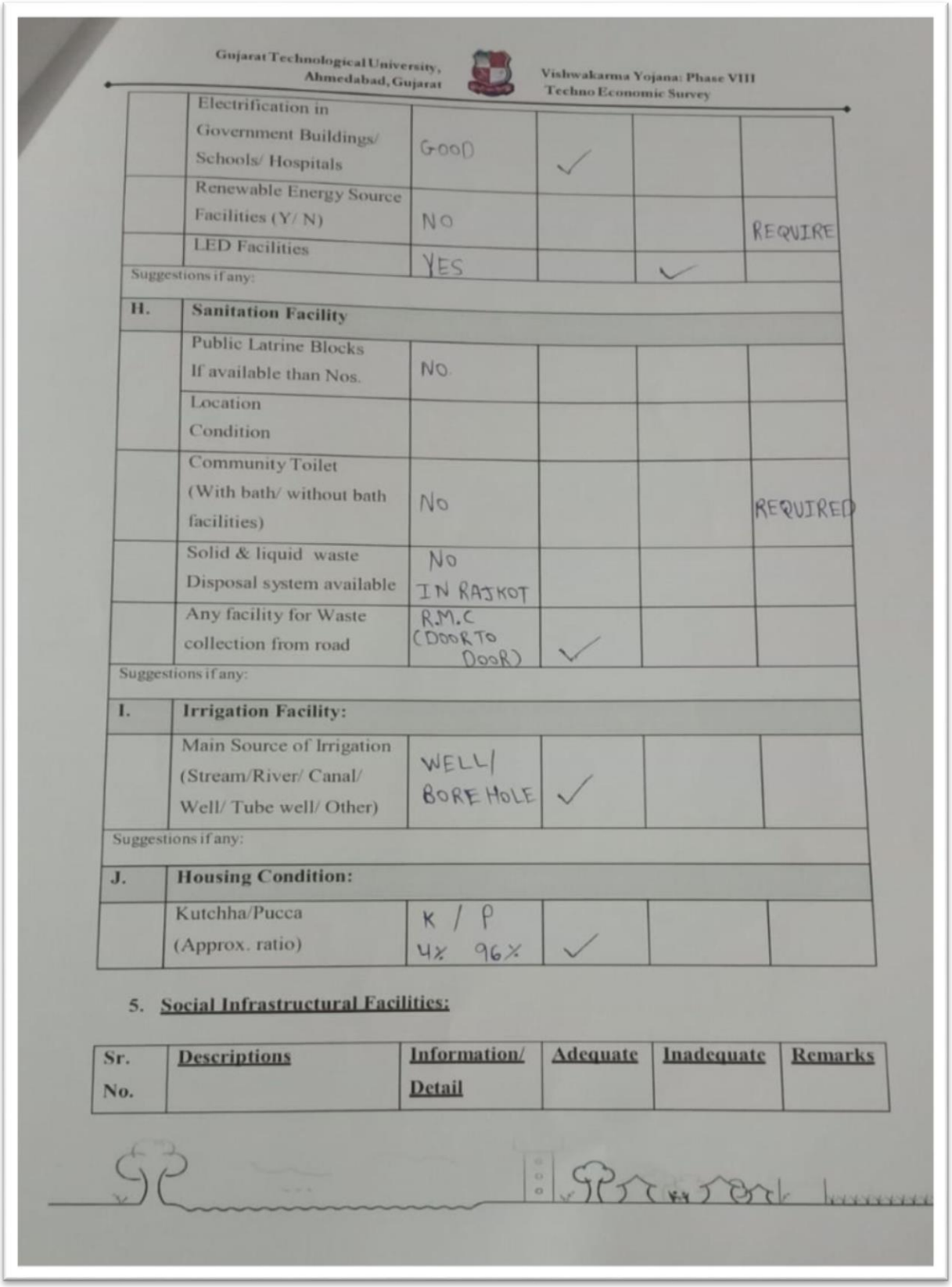
Vishwakarma Yojana: Phase VIII
Techno Economic Survey

E.	**Road Network :All Weather/ Kutchha (Gravel)/ Black Topped pucca/ WBM**				
	Village approach road	C.C	✓		
	Main road	R.C.C	✓		
	Internal streets	C.C	✓		
	Nearest NH/SH/MDR/ODR Dist. in kms.	JAMNAGAR NH.			
Suggestions if any:					
F.	**Transport Facility**				
	Railway Station (Y/N) (If No than Nearest Rly Station---Kms)	(NO) IN RAJKOT			REQUIRED
	Bus station (Y/N) Condition: (If No than Nearest Bus Station---Kms)	NO — IN RAJKOT			
	Local Transportation (Auto/ Jeep/Chhakda/ Private Vehicles/ Other)	CITY BUS/ AUTO RIKSHA/ PRIVATE VEHICLE	✓		
Suggestions if any:					
G.	**Electricity Distribution**				
	(Y/N) Govt./ Private (Less than 6 hrs./ More Than 6 hrs)	GOVT. 24 HR.	✓		
	Power supply for Domestic Use	24 HR.	✓		
	Power supply for Agricultural Use	8 HR.		✓	10 HR.
	Power supply for Commercial Use	24 HR.	✓		
	Road/ Street Lights	YES	✓		



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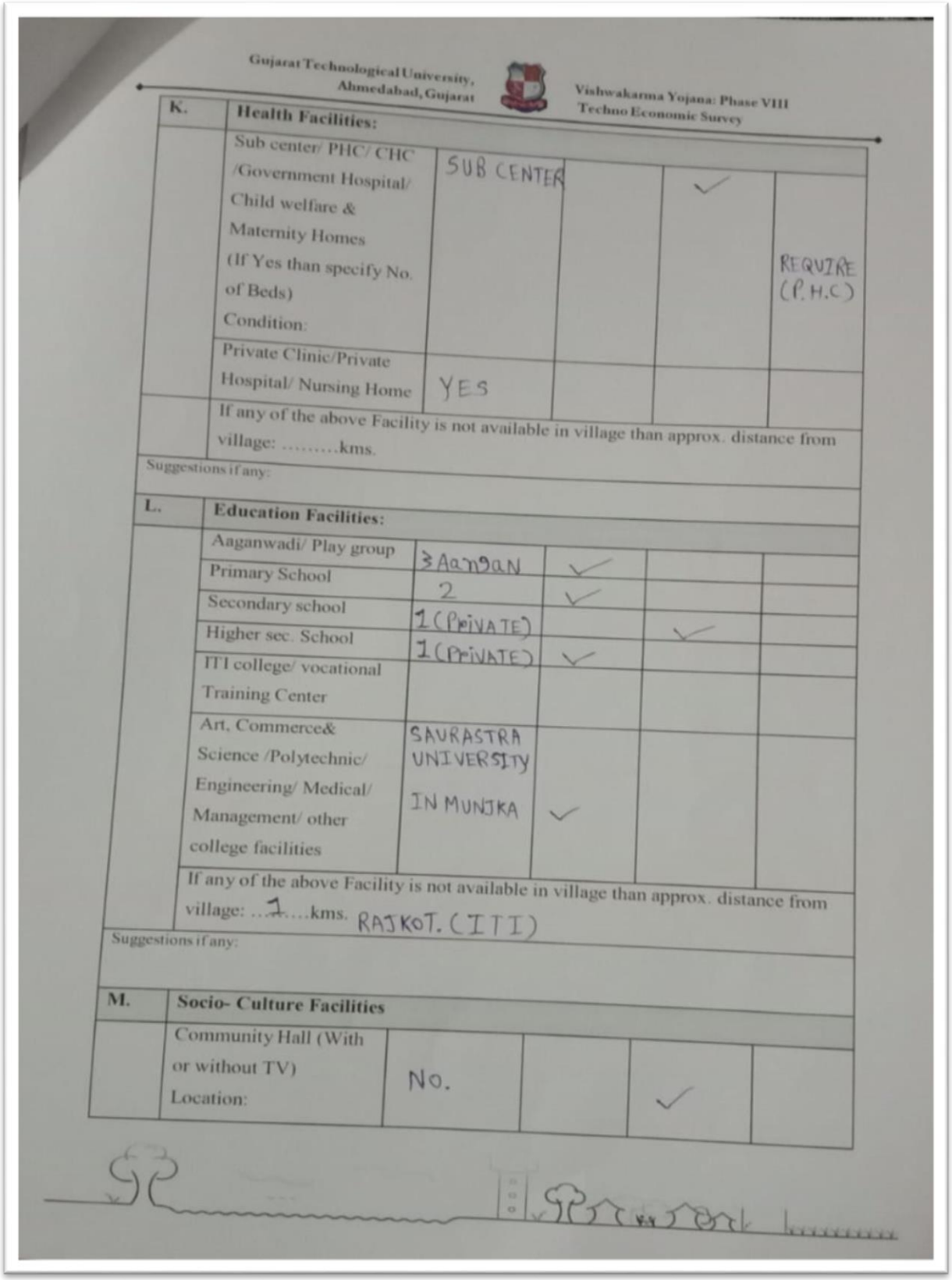
Techno Economic Survey

	Electrification in Government Buildings/ Schools/ Hospitals	GOOD	✓		
	Renewable Energy Source Facilities (Y/ N)	NO			REQUIRE
	LED Facilities	YES		✓	
Suggestions if any:					
H.	**Sanitation Facility**				
	Public Latrine Blocks If available than Nos.	NO.			
	Location Condition				
	Community Toilet (With bath/ without bath facilities)	No			REQUIRED
	Solid & liquid waste Disposal system available	No IN RAJKOT			
	Any facility for Waste collection from road	R.M.C (DOOR TO DOOR)	✓		
Suggestions if any:					
I.	**Irrigation Facility:**				
	Main Source of Irrigation (Stream/River/ Canal/ Well/ Tube well/ Other)	WELL/ BOREHOLE	✓		
Suggestions if any:					
J.	**Housing Condition:**				
	Kutchha/Pucca (Approx. ratio)	K / P 4% 96%	✓		

5. **Social Infrastructural Facilities:**

Sr. No.	Descriptions	Information/ Detail	Adequate	Inadequate	Remarks



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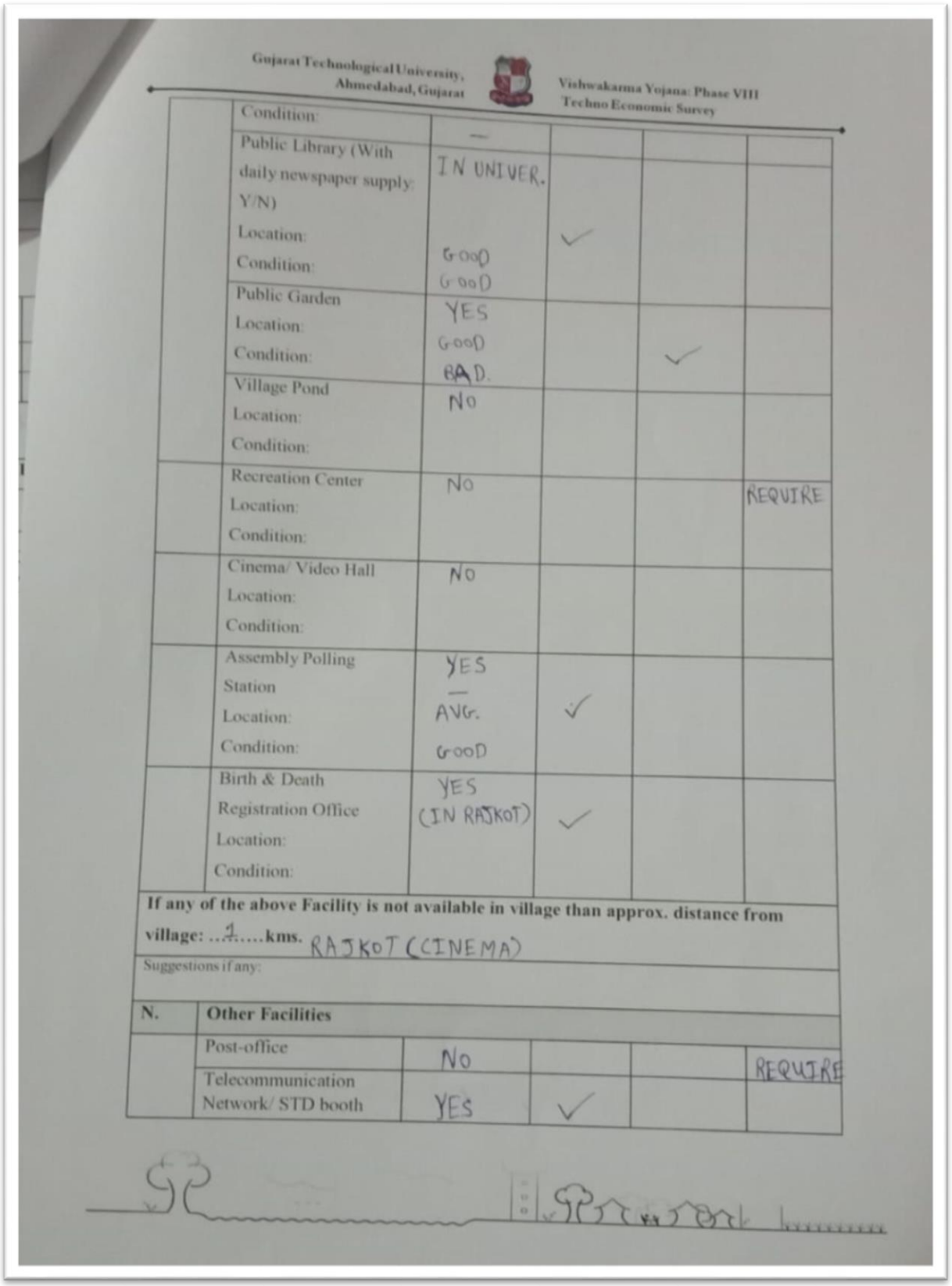
K.	Health Facilities:					
	Sub center/ PHC/ CHC /Government Hospital/ Child welfare & Maternity Homes (If Yes than specify No. of Beds) Condition:	SUB CENTER		✓		REQUIRE (P.H.C)
	Private Clinic/Private Hospital/ Nursing Home	YES				
	If any of the above Facility is not available in village than approx. distance from village: .....kms.					
Suggestions if any:						

L.	Education Facilities:					
	Aaganwadi/ Play group	3 AANGAN	✓			
	Primary School	2	✓			
	Secondary school	1 (PRIVATE)				
	Higher sec. School	1 (PRIVATE)	✓			
	ITI college/ vocational Training Center					
	Art, Commerce& Science /Polytechnic/ Engineering/ Medical/ Management/ other college facilities	SAURASTRA UNIVERSITY IN MUNJKA	✓			
	If any of the above Facility is not available in village than approx. distance from village: ...7....kms. RAJKOT. (ITI)					
Suggestions if any:						

M.	Socio- Culture Facilities				
	Community Hall (With or without TV) Location:	NO.		✓	



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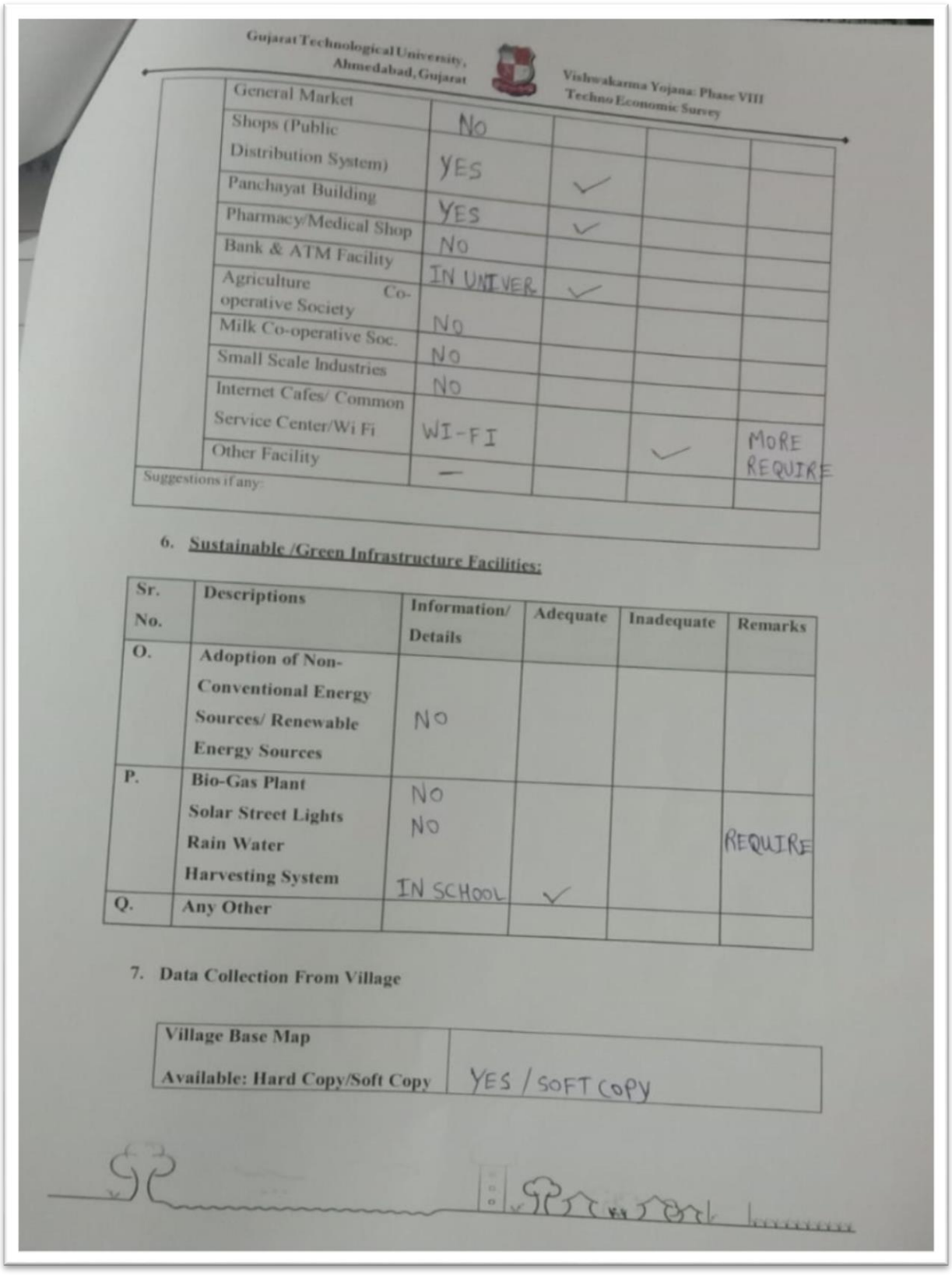
	Condition:	—			
	Public Library (With daily newspaper supply: Y/N) Location: Condition:	IN UNIVER. GOOD GOOD	✓		
	Public Garden Location: Condition:	YES GOOD BAD.		✓	
	Village Pond Location: Condition:	NO			
	Recreation Center Location: Condition:	NO			REQUIRE
	Cinema/ Video Hall Location: Condition:	NO			
	Assembly Polling Station Location: Condition:	YES — AVG. GOOD	✓		
	Birth & Death Registration Office Location: Condition:	YES (IN RAJKOT)	✓		

If any of the above Facility is not available in village than approx. distance from village: ..1.....kms. RAJKOT (CINEMA)

Suggestions if any:

N.	Other Facilities				
	Post-office	NO			REQUIRE
	Telecommunication Network/ STD booth	YES	✓		



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	General Market	NO			
	Shops (Public Distribution System)	YES	✓		
	Panchayat Building	YES	✓		
	Pharmacy/Medical Shop	NO			
	Bank & ATM Facility	IN UNIVER.	✓		
	Agriculture Co-operative Society	NO			
	Milk Co-operative Soc.	NO			
	Small Scale Industries	NO			
	Internet Cafes/ Common Service Center/Wi Fi	WI-FI		✓	MORE REQUIRE
	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	NO			
P.	Bio-Gas Plant	NO			
	Solar Street Lights	NO			REQUIRE
	Rain Water Harvesting System	IN SCHOOL	✓		
Q.	Any Other				

7. **Data Collection From Village**

Village Base Map Available: Hard Copy/Soft Copy	YES / SOFT COPY

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

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)	YES (PHC/SCHOOL) REQUIRED (PUBLIC TOILET)	
2.	Additional Information/ Requirement	–	

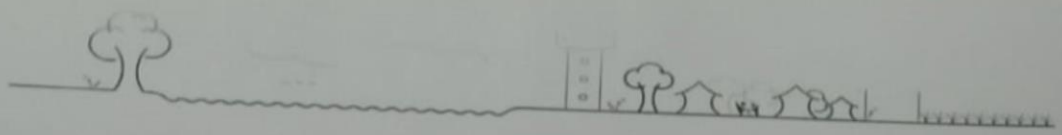
9. **Smart Village Proposal Design**

Sr. No.	Descriptions	Information/ Detail	Remarks
1.			

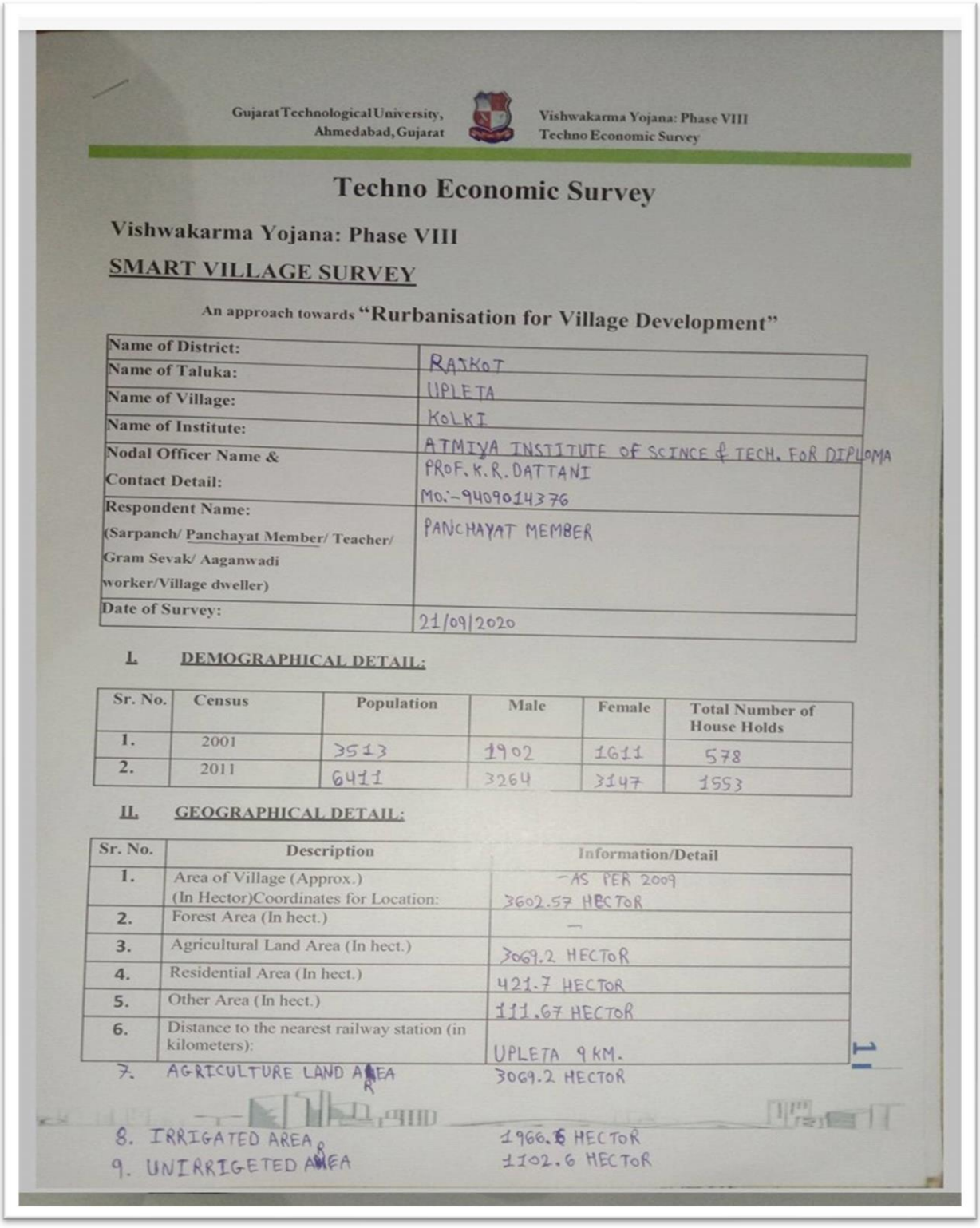
Note: Photographs/ Video/ Drawings of all existing Infrastructure facilities & conditions should be taken by students of respective villages for their record and information.

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

01/02/2021



12.2 Survey from of smart village scanned copy attachment in the report for Part-1



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Techno Economic Survey

Vishwakarma Yojana: Phase VIII

SMART VILLAGE SURVEY

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

Name of District:	RAJKOT
Name of Taluka:	UPLETA
Name of Village:	KOLKI
Name of Institute:	ATMIYA INSTITUTE OF SCINCE & TECH. FOR DIPLOMA
Nodal Officer Name & Contact Detail:	PROF. K.R. DATTANI MO:-9409014376
Respondent Name: (Sarpanch/ Panchayat Member/ Teacher/ Gram Sevak/ Aaganwadi worker/Village dweller)	PANCHAYAT MEMBER
Date of Survey:	21/09/2020

I. DEMOGRAPHICAL DETAIL:

Sr. No.	Census	Population	Male	Female	Total Number of House Holds
1.	2001	3513	1902	1611	578
2.	2011	6411	3264	3147	1553

II. GEOGRAPHICAL DETAIL:

Sr. No.	Description	Information/Detail
1.	Area of Village (Approx.) (In Hector)Coordinates for Location:	AS PER 2009 3602.57 HECTOR
2.	Forest Area (In hect.)	—
3.	Agricultural Land Area (In hect.)	3069.2 HECTOR
4.	Residential Area (In hect.)	421.7 HECTOR
5.	Other Area (In hect.)	111.67 HECTOR
6.	Distance to the nearest railway station (in kilometers):	UPLETA 9 KM.
7.	AGRICULTURE LAND AREA	3069.2 HECTOR
8.	IRRIGATED AREA	1966.6 HECTOR
9.	UNIRRIGETED AREA	1102.6 HECTOR

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

III. OCCUPATIONAL DETAILS:

Name of Three Major Occupation groups in Village	1. FARMING 2. LABOUR WORK 3. COTTAGE INDUSTRY
Major crops grown in the village:	1. GROUND NUT 2. COTTON 3. WHEAT

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	BORE WELL	✓		
2.	**DUG WELL** Protected Well Un Protected Well	✓		✓	
3.	**WATER FROM SPRING** Protected Spring ✓ Unprotected Spring ✓ Rainwater Tanker Truck Cart With Small Tank	DAM	✓		
4.	**SURFACE WATER (RIVER/DAM/ LAKE/POND/STREAM/CANAL/** Irrigation Channel Bottled Water Hand Pump Other(Specify)**Lake/ Pond**	BORE WELL	✓		

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Techno Economic Survey

Suggestions if any:						
B.	**Water Tank Facility**					
✓	Overhead Tank	Capacity:	10,000,000			
	Underground Sump	Capacity:	5,00,000			
Suggestions if any:						
C.	**The Type of Drainage Facility**					
	A. UNDERGROUND DRAINAGE 1 2 B. OPEN WITH OUTLET C. OPEN WITHOUT OUTLET	UNDER GROUND OUTLET IN RIVER	 ✓			
Suggestions if any:						
D.	**Road Network :All Weather/ Kutchha (Gravel)/ Black Topped pucca/ WBM**					
	Village approach road	C.C	✓			
	Main road	C.C.	✓			
	Internal streets	C.C	✓			
	Nearest NH/SH/MDR/ODR Dist. in kms.	NH1-8B 9KM	✓			
Suggestions if any:						
E.	**Transport Facility**					
	Railway Station (Y/N) (If No than Nearest Rly Station---Kms)	NO				
	Bus station (Y/N) Condition: (If No than Nearest Bus Station---Kms)	YES	✓			
	Local Transportation (Auto/ Jeep/Chhakda/ Private Vehicles/ Other)	ALL	✓			
Suggestions if any:						
F.	**Electricity Distribution**					
	(Y/N) Govt./ Private (Less than 6 hrs./ More Than 6 hrs)	GOVT.			24 HOUR.	

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✓	Power supply for Domestic Use	GOVT	✓		24 Hours
	Power supply for Agricultural Use	GOVT	✓		—
	Power supply for Commercial Use	GOVT	✓		24 Hours
	Road/ Street Lights	GOVT	✓		24 Hours
	Electrification in Government Buildings/ Schools/ Hospitals	GOVT	✓		24 Hours
	Renewable Energy Source Facilities (Y/ N)	SOLAR	✓		—
	LED Facilities	YES	✓		

Suggestions if any:

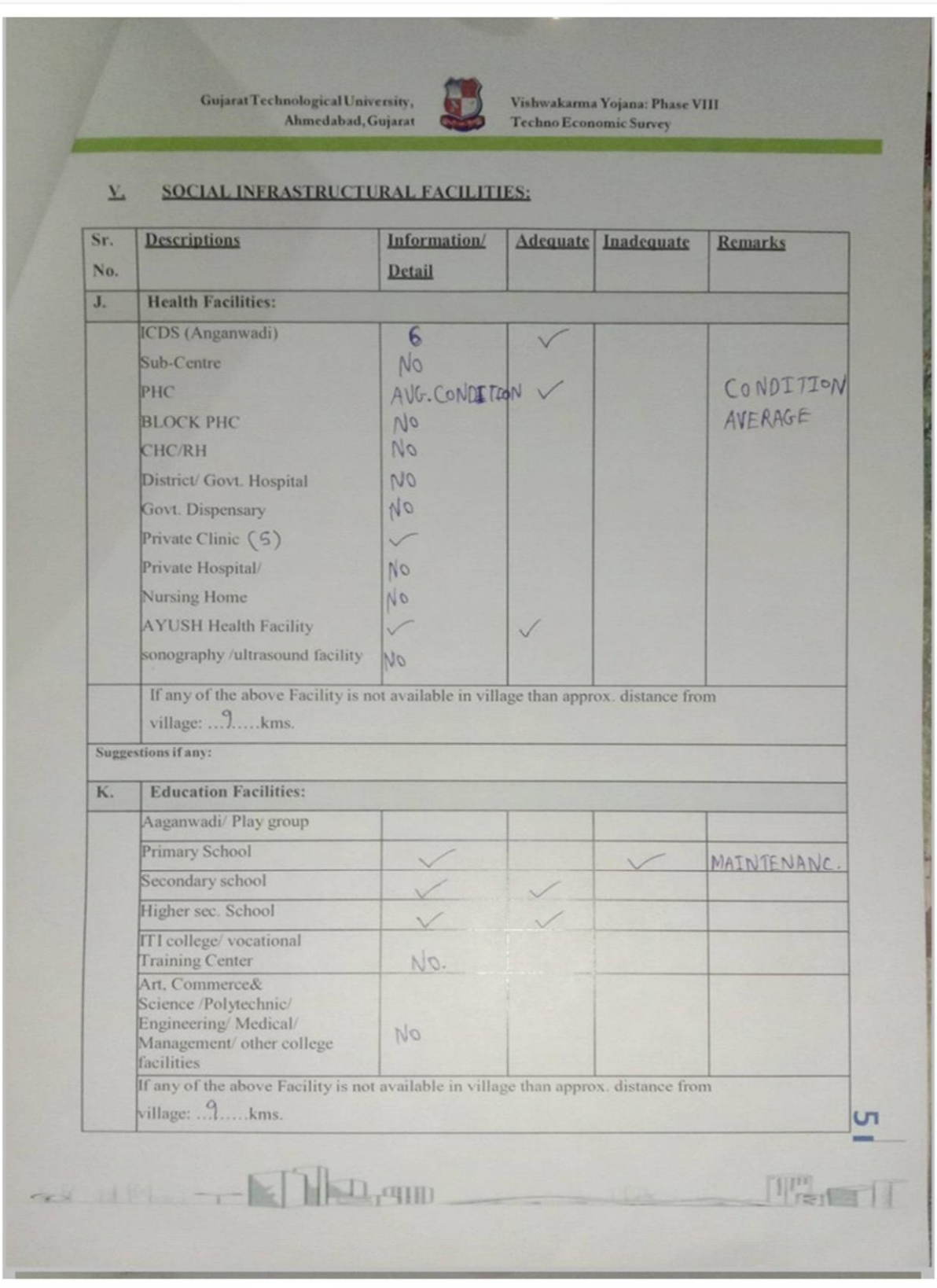
G.	**Sanitation Facility**				
	Public Latrine Blocks If available than Nos.	YES		40. TOILET	
	Location Condition	AVG.			
	Community Toilet (With bath/ without bath facilities)	NO			
	Solid & liquid waste Disposal system available	YES			
	Any facility for Waste collection from road	YES			

Suggestions if any:

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

Suggestions if any:

I.	**Housing Condition:**				
	Kutchha/Pucca (Approx. ratio)	1%/99% K/P	✓		



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V. SOCIAL INFRASTRUCTURAL FACILITIES:

Sr. No.	Descriptions	Information/ Detail	Adequate	Inadequate	Remarks
J.	**Health Facilities:**				
	ICDS (Anganwadi)	6	✓		
	Sub-Centre	No			
	PHC	AVG. CONDITION	✓		CONDITION AVERAGE
	BLOCK PHC	No			
	CHC/RH	No			
	District/ Govt. Hospital	No			
	Govt. Dispensary	No			
	Private Clinic (5)	✓			
	Private Hospital/	No			
	Nursing Home	No			
	AYUSH Health Facility	✓	✓		
	sonography /ultrasound facility	No			
	If any of the above Facility is not available in village than approx. distance from village: ...9.....kms.				
Suggestions if any:					
K.	**Education Facilities:**				
	Aaganwadi/ Play group				
	Primary School	✓		✓	MAINTENANC.
	Secondary school	✓	✓		
	Higher sec. School	✓	✓		
	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: ...9.....kms.				

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Suggestions if any:

L.	Socio- Culture Facilities	Condition	Location	Available (YES)	Available (NO)
	Community Hall (With or without TV)	GOOD	IN VILLAGE	YES	
	Public Library (With daily newspaper supply: Y/N)	V.GOOD	IN VILLAGE	YES	
	Public Garden				
	Village Pond	GOOD	600M	YES	
	Recreation Center		AWAY FROM VILLAGE		No
	Cinema/ Video Hall				No
	Assembly Polling Station				No
	Birth & Death Registration			YES	IN PANCHAYAT

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	IN VILA.	YES	
	Telecommunication Network/ STD booth				No
	General Market				No
	Shops (Public Distribution System)	GOOD	IN VILA.	YES	
	Panchayat Building	V.GOOD	IN VILA.	YES	
	Pharmacy/Medical Shop	GOOD	IN VILA.	YES	
	Bank & ATM Facility	GOOD		YES	
	Agriculture Co-operative Society	GOOD	IN VILA	YES	
	Milk Co-operative Soc.	GOOD	IN VILLA.	YES	
	Small Scale Industries	AVG.	500-1000M. FROM VILLA.	YES	
	Internet Cafes/ Common Service Center/Wi Fi	GOOD		YES	
	Youth Club				No
	Mahila Mandal	GOOD		YES	

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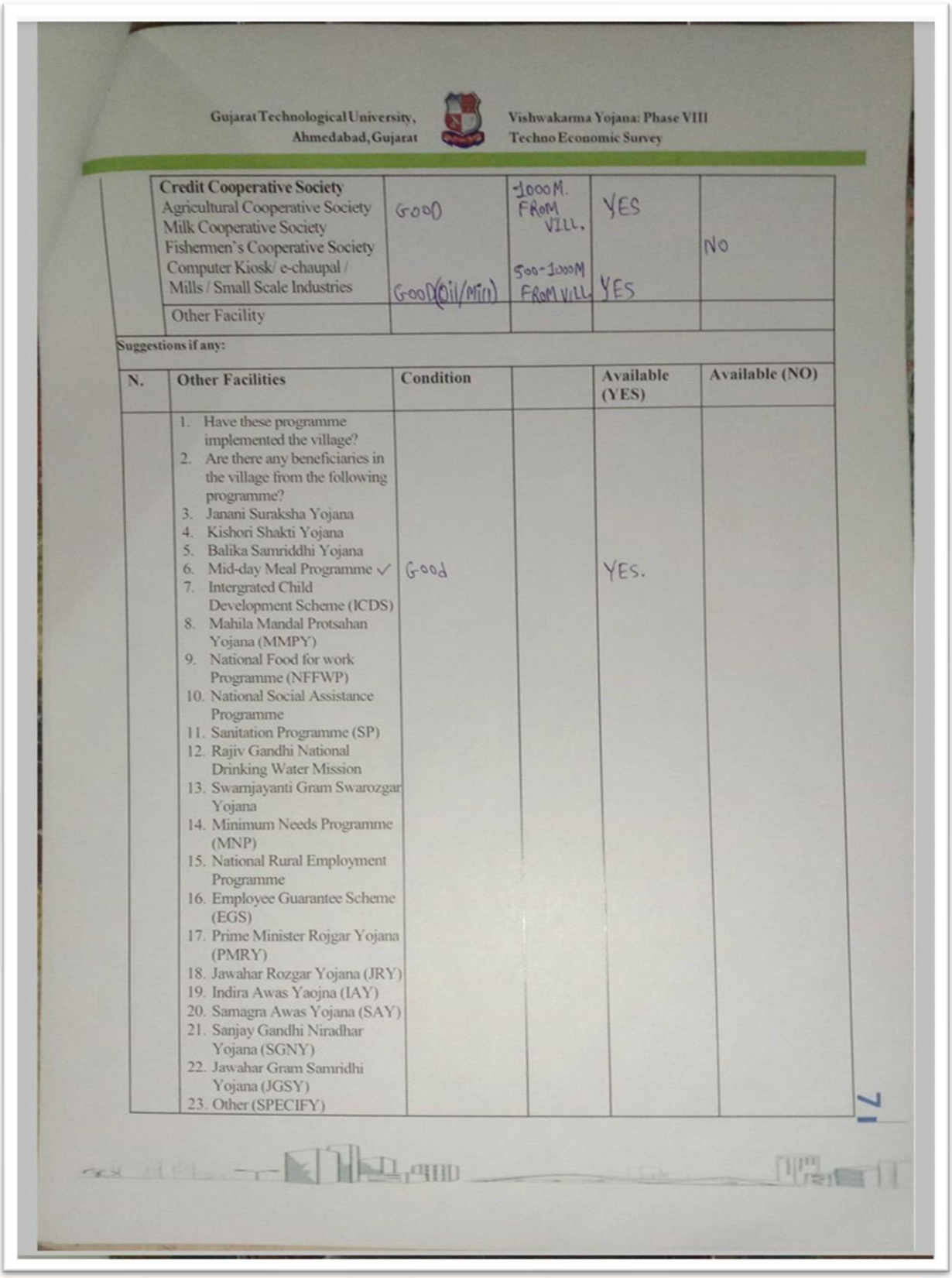

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Credit Cooperative Society Agricultural Cooperative Society Milk Cooperative Society Fishermen's Cooperative Society Computer Kiosk/ e-chaupal / Mills / Small Scale Industries	Good Good(Oil/Min)	1000M. FROM VILL. 500-1000M FROM VILL.	YES YES	NO
Other Facility				

Suggestions if any:

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

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→ R.O SYSTEM IN WHOLE VILLAGE
1 coin - 5 Ns → 4 TO 5 L WATER

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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 PANEL	✓		
2.	Bio-Gas Plant Solar Street Lights Rain ✓ Water Harvesting System		✓		
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				
2.	Recent Projects going on for Development of Village	YES	✓		
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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1.	**Repair & Maintenance of Existing Public Infrastructure facilities, School Building, Health Center, Panchayat Building, Public Toilets & any other**	SCHOOL BUILDING NEED RENOVATION	
2.	**Additional Information/ Requirement**		
3.	**During the last six months how many times CLEANING ...DAILY..... FOGGING......NO...... 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

સરપંચ,
શ્રી ગ્રામ પંચાયત-કોલ

12.3 Survey form of allocated village scanned copy attachment in the report for part – 1

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Vishwakarma Yojana: Phase VIII Techno Economic Survey

Techno Economic Survey

Vishwakarma Yojana: Phase VIII

ALLOCATED VILLAGE SURVEY

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

Name of District:	Rajkot
Name of Taluka:	Lodhika
Name of Village:	Devda
Name of Institute:	Atmiya Intitude of Scince & Tech.ology.
Nodal Officer Name & Contact Detail:	PROF. K. R. Pattani Mo:- 9909014376
Respondent Name: (Sarpanch/ Panchayat Member/ Teacher/ Gram Sevak/ Aaganwadi worker/Village dweller)	Lalji bhai Nathabhai Kadhadiya MO:- 9879528516.
Date of Survey:	26/1/2021

I. DEMOGRAPHICAL DETAIL:

Sr. No.	Census	Population	Male	Female	Total Number of House Holds
1.	2001	730	430	300	145
2.	2011	776	380	396	171

II. GEOGRAPHICAL DETAIL:

Sr. No.	Description	Information/Detail
1.	Area of Village (Approx.) (In Hector)Coordinates for Location:	5 to 6 hectors.
2.	Forest Area (In hect.)	—
3.	Agricultural Land Area (In hect.)	200 to 250 Hectors (Approx)
4.	Residential Area (In hect.)	5 to 6 Hectors (APPROX)
5.	Other Area (In hect.)	—
6.	Distance to the nearest railway station (in kilometers):	—

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7.	Name of Nearest Town with Distance:	19km (Jodhika)
8.	Distance to the nearest bus station (in kilometers):	2km Kalavad Road
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.	farming.
	2.	-
	3.	-

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

IV. PHYSICAL INFRASTRUCTURE FACILITIES:

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

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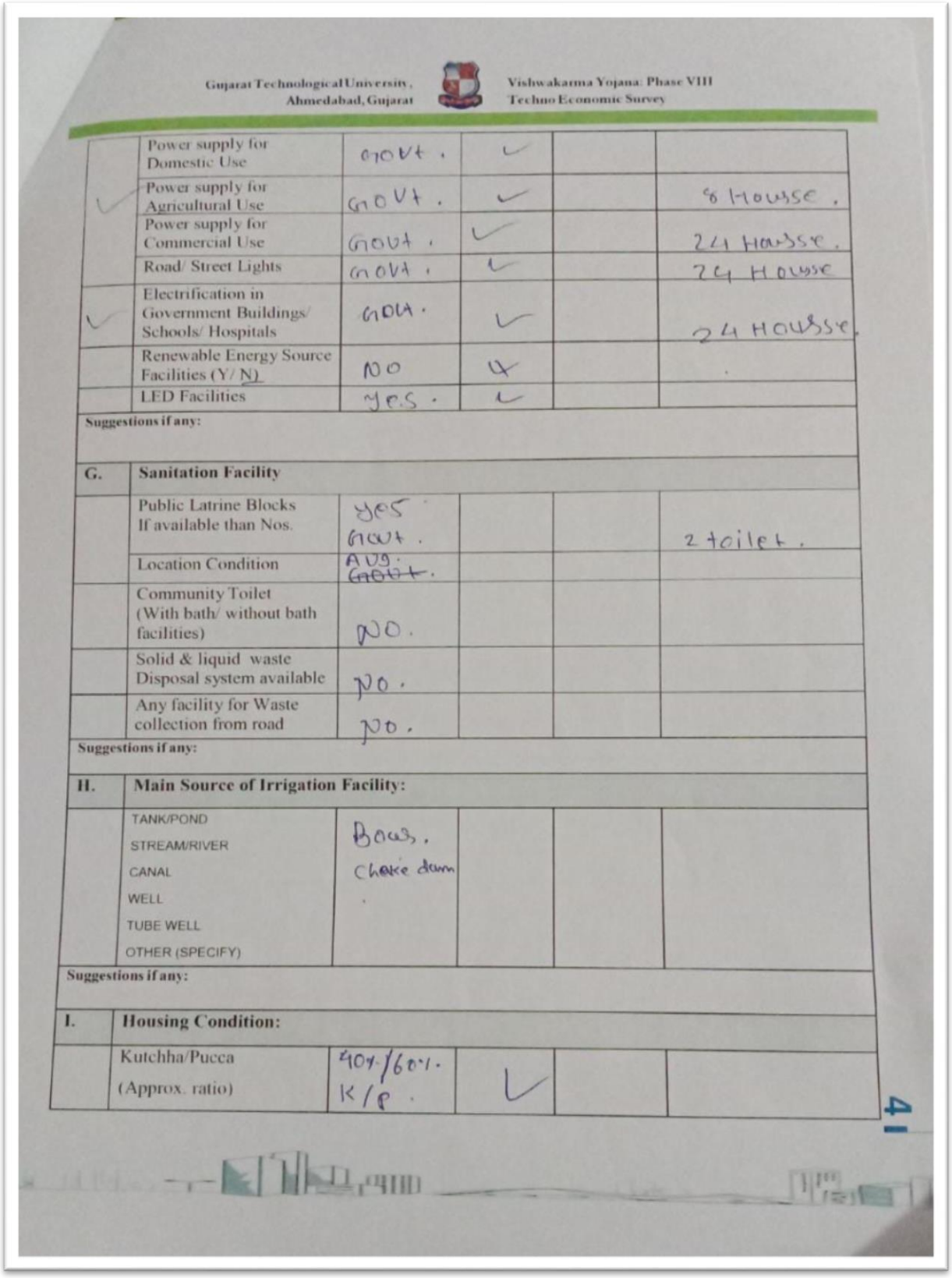

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	Power supply for Domestic Use	GOVT.	✓		
✓	Power supply for Agricultural Use	GOVT.	✓		8 HOUSSE.
	Power supply for Commercial Use	GOVT.	✓		24 HOUSSE.
	Road/ Street Lights	GOVT.	✓		24 HOUSSE
✓	Electrification in Government Buildings/ Schools/ Hospitals	GOVT.	✓		24 HOUSSE.
	Renewable Energy Source Facilities (Y/ N)	NO	✓		
	LED Facilities	YES.	✓		

Suggestions if any:

G.	**Sanitation Facility**				
	Public Latrine Blocks If available than Nos.	YES GOVT.			2 toilet.
	Location Condition	AVG. ~~GOVT.~~			
	Community Toilet (With bath/ without bath facilities)	NO.			
	Solid & liquid waste Disposal system available	NO.			
	Any facility for Waste collection from road	NO.			

Suggestions if any:

H.	**Main Source of Irrigation Facility:**				
	TANK/POND STREAM/RIVER CANAL WELL TUBE WELL OTHER (SPECIFY)	Bore, Check dam			

Suggestions if any:

I.	**Housing Condition:**				
	Kutchha/Pucca (Approx. ratio)	40%/60%. K/P.	✓		

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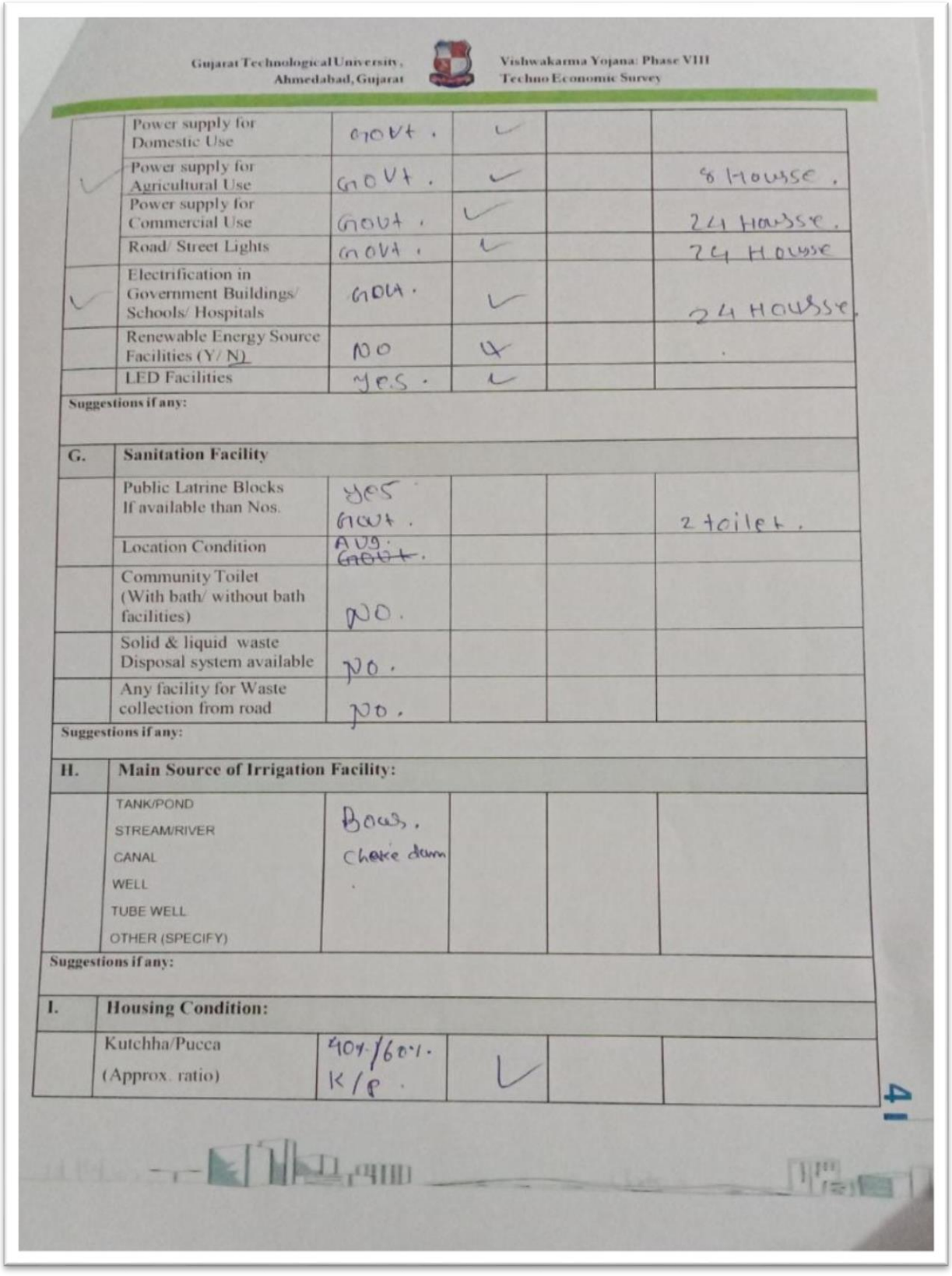

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Techno Economic Survey

	Power supply for Domestic Use	GOVt.	✓		
✓	Power supply for Agricultural Use	GOVt.	✓		8 House.
	Power supply for Commercial Use	GOVt.	✓		24 House.
	Road/ Street Lights	GOVt.	✓		24 House
✓	Electrification in Government Buildings/ Schools/ Hospitals	GOVt.	✓		24 House.
	Renewable Energy Source Facilities (Y/ N)	NO	✗		.
	LED Facilities	Yes.	✓		

Suggestions if any:

G.	**Sanitation Facility**				
	Public Latrine Blocks If available than Nos.	Yes GOVt.			2 toilet.
	Location Condition	AVg. GOVt.			
	Community Toilet (With bath/ without bath facilities)	NO.			
	Solid & liquid waste Disposal system available	NO.			
	Any facility for Waste collection from road	NO.			

Suggestions if any:

H.	**Main Source of Irrigation Facility:**				
	TANK/POND STREAM/RIVER CANAL WELL TUBE WELL OTHER (SPECIFY)	Bore. Check dam			

Suggestions if any:

I.	**Housing Condition:**				
	Kutchha/Pucca (Approx. ratio)	40%/60%. K/P.	✓		

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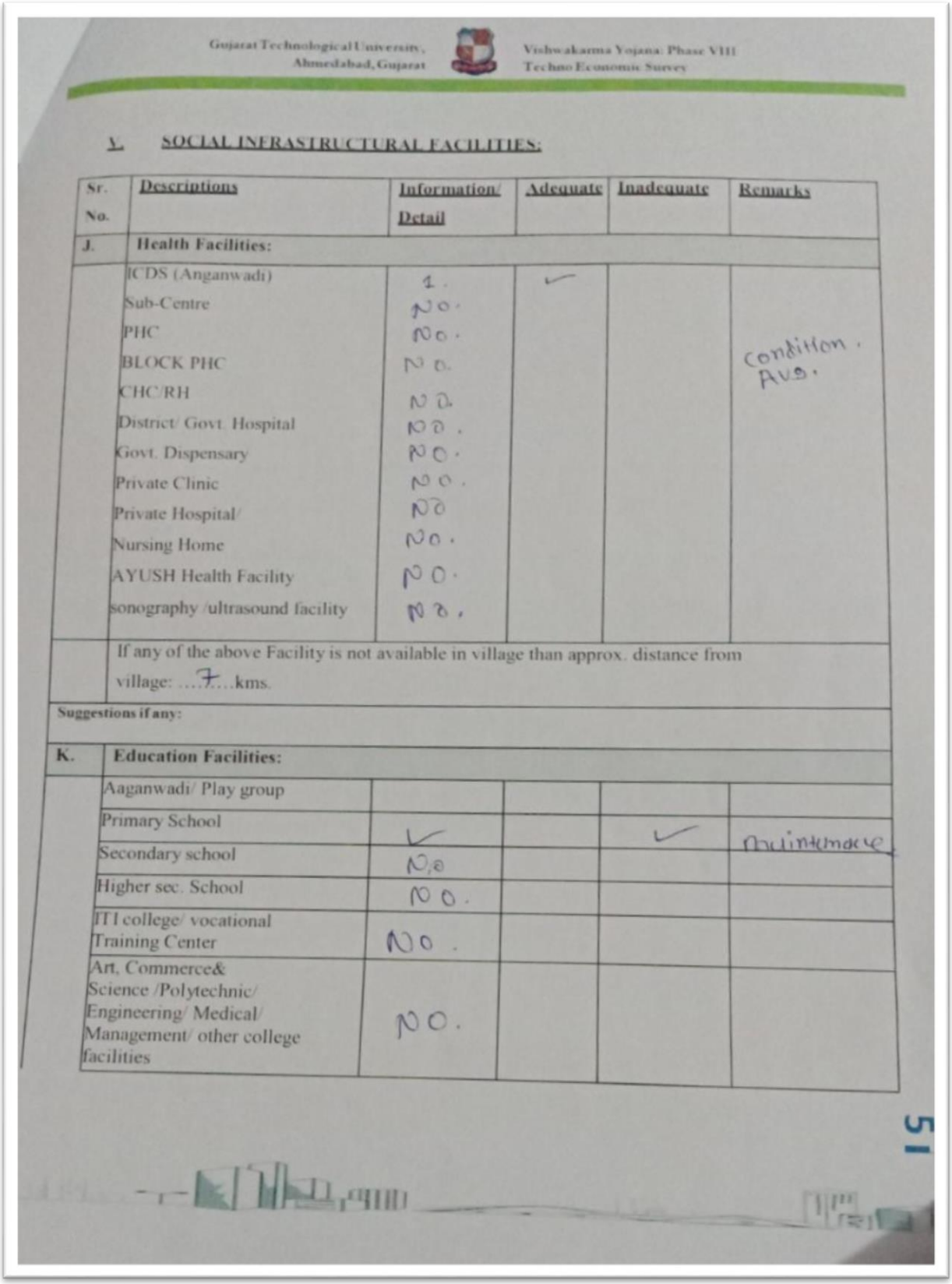

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V. SOCIAL INFRASTRUCTURAL FACILITIES:

Sr. No.	Descriptions	Information/ Detail	Adequate	Inadequate	Remarks
J.	**Health Facilities:**				
	ICDS (Anganwadi)	1.	✓		
	Sub-Centre	No.			
	PHC	No.			
	BLOCK PHC	No.			condition. Avg.
	CHC/RH	No.			
	District/ Govt. Hospital	No.			
	Govt. Dispensary	No.			
	Private Clinic	No.			
	Private Hospital/	No			
	Nursing Home	No.			
	AYUSH Health Facility	No.			
	sonography /ultrasound facility	No.			
	If any of the above Facility is not available in village than approx. distance from village: ....7....kms.				
Suggestions if any:					
K.	**Education Facilities:**				
	Aaganwadi/ Play group				
	Primary School	✓		✓	maintenance
	Secondary school	No			
	Higher sec. School	No.			
	ITI college/ vocational Training Center	No.			
	Art, Commerce& Science /Polytechnic/ Engineering/ Medical/ Management/ other college facilities	No.			

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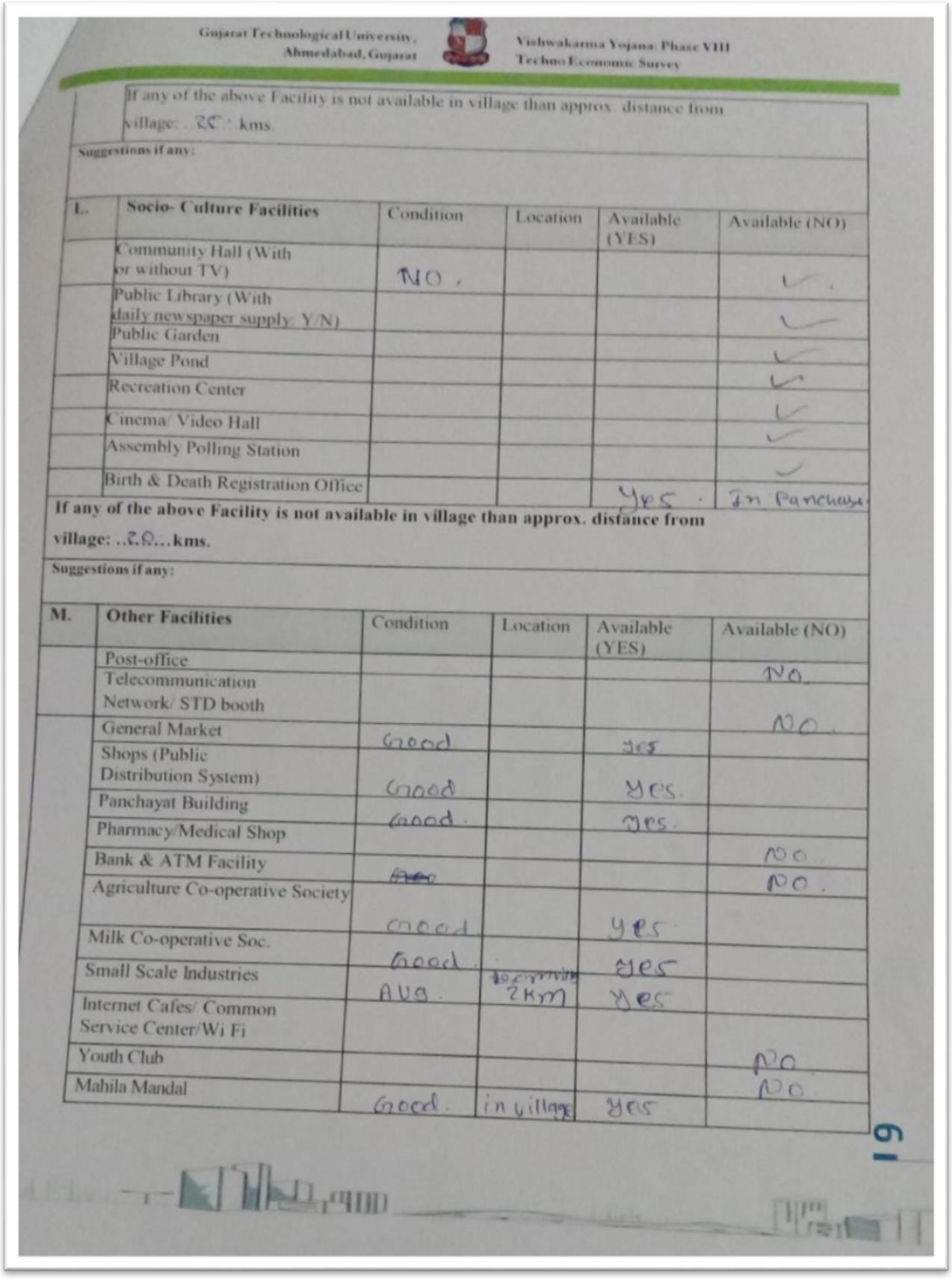

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If any of the above Facility is not available in village than approx. distance from village: . 25 : kms.

Suggestions if any:

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

If any of the above Facility is not available in village than approx. distance from village: ..2.0...kms.

Suggestions if any:

M.	Other Facilities	Condition	Location	Available (YES)	Available (NO)
	Post-office				NO.
	Telecommunication Network/ STD booth				NO.
	General Market	Good		Yes	
	Shops (Public Distribution System)	Good		Yes.	
	Panchayat Building	Good.		Yes.	
	Pharmacy/Medical Shop				NO.
	Bank & ATM Facility	~~Avg~~			NO.
	Agriculture Co-operative Society	Good		Yes	
	Milk Co-operative Soc.	Good.		Yes	
	Small Scale Industries	Avg.	2Km	Yes	
	Internet Cafes/ Common Service Center/Wi Fi				
	Youth Club				NO.
	Mahila Mandal	Good.	in village	Yes	NO.

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

Suggestions if any:

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

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	Bio-gas.	✓	yes.	
3.	Any Other				NO.

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		yes.		
3.	Any NGO working for village development	NO.			NO.
4.	Any natural calamity in the village during the last one year: EARTHQUAKES FLOODS CYCLONE DROUGHT LANDSLIDES AVALANCHE OTHER (SPECIFY)	NO.			

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VIII. ADDITIONAL INFORMATION/ REQUIREMENT:

Sr. No.	Descriptions	Information/ Detail	Remarks
1.	Repair & Maintenance of Existing Public Infrastructure facilities, School Building Health Center Panchayat Building Public Toilets & any other	School building Panchayat building Public toilets Renovation.	
2.	Additional Information/ Requirement		
3.	During the last six months how many times CLEANING .....No..... FOGGING.....No..... 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	Devda	
		Population	771	
		Existing	Required as per norms	Gap
Social infrastructure facilities				
Education				
Anganwadi	Each or per 2500 population	1	1	0
Primary school	Each or per 2500 population	1	0	1
Secondary school	Per 7,500 population	0	1	-1
Higher secondary school	Per 15,000 population	0	1	-1
Collage	Per 125,000 population	0	0	0
Tech. training institute	Per 100000 population	0	0	0
Agriculture research centre	Per 100000 population	0	0	0
Skill development centre	Per 100000 population	0	0	0
Health facilities				
Govt/panchayat dispensary or sub	Each village	1	0	1
Primary health & child health	Per 20,000 population	0	1	-1
Child welfare and maternity	Per 10,000 population	0	0	0
Multispecialty hospital	Per 100000 population	0	0	0
Public latrines				
	1 for 50 families (if toilet is not there in home, especially for slum pockets & kutcha house)	0	1	-1
Physical infrastructure facilities				
Transportation		**Adequate**	**Inadequate**	
Pucca village approach road	Each village	No	Yes	
Bus/auto stand provision	All village connected by PT (S.T. Bus or auto)	No	Yes	
Drinking water (minimum 70 ipcd)	Not available	-	-	
Over head tank	1/3 of total demand	No	Yes	
U/G sump	Not available	-	-	
Drainage network – open		-	-	
Drainage network – cover		Yes	No	
Waste management system		-	-	

Socio cultural infrastructure facilities		Existing	Required as per norm	Gap
Community hall	Per 10,000 population	1	0	1
Community hall and public library	Per 15,000 population	0	1	-1
Cremation ground	Per 20,000 population	0	1	-1
Post office	Per 10,000 population	0	1	-1
Gram panchayat building	Each individual/ group	1	0	1
APMC	Per 100000 population	0	1	-1
Fire station	Per 100000 population	0	0	0
Public garden	Per village	0	1	-1
Police post	Per 40,000 population	0	0	0
Shopping mall		0	0	0

Table 7 Gap analysis

12.5 Summary detail of all village design table from part-1

Sr. no	Village	Discipline	Part 1
1	Devda	Civil	Bank with ATM Anganwadi Medical store Internet café Bio-gas plant Chabutro
2	Charakhadi	Civil	Overhead tank Public toilet Super market Rain water harvesting Gate
3	Bavakhakhariya	Civil	Water butt Public garden PHC Assemble hall Plastic bottle crasher Avedo
4	Vajdi(vaad)	Civil	Soap pit Post office Public toilet E. corner Public library museam

Table 8 Design table part 1

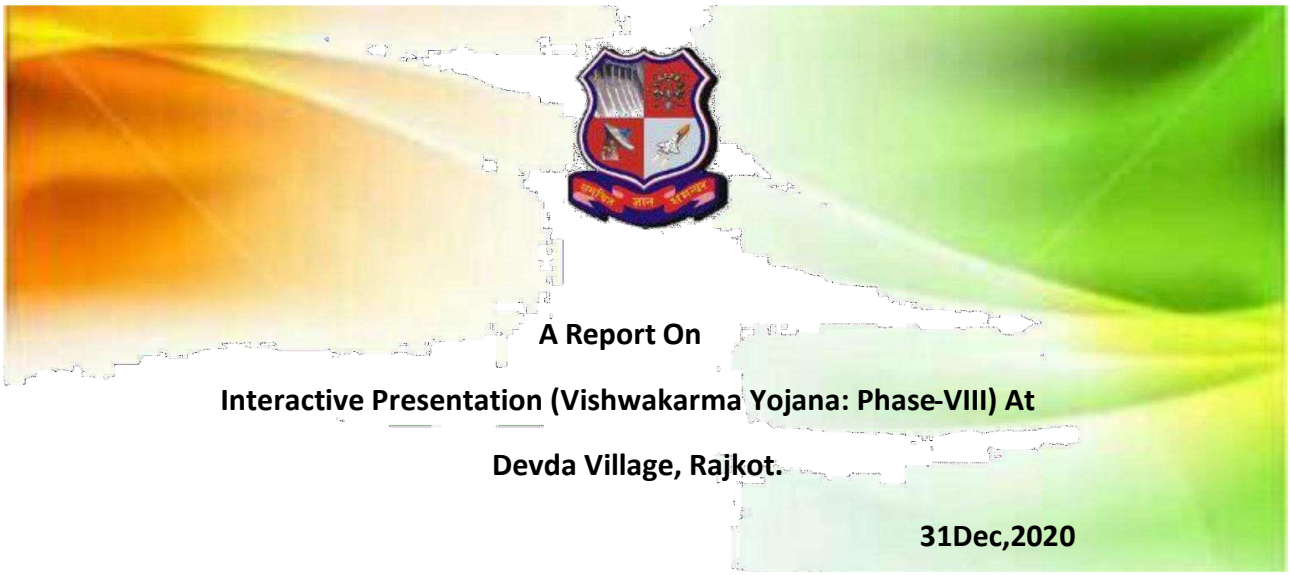
12.6 Drawings

- All design is visible and clear so drawings are not required.

12.7 Summary of good photograph in table format.

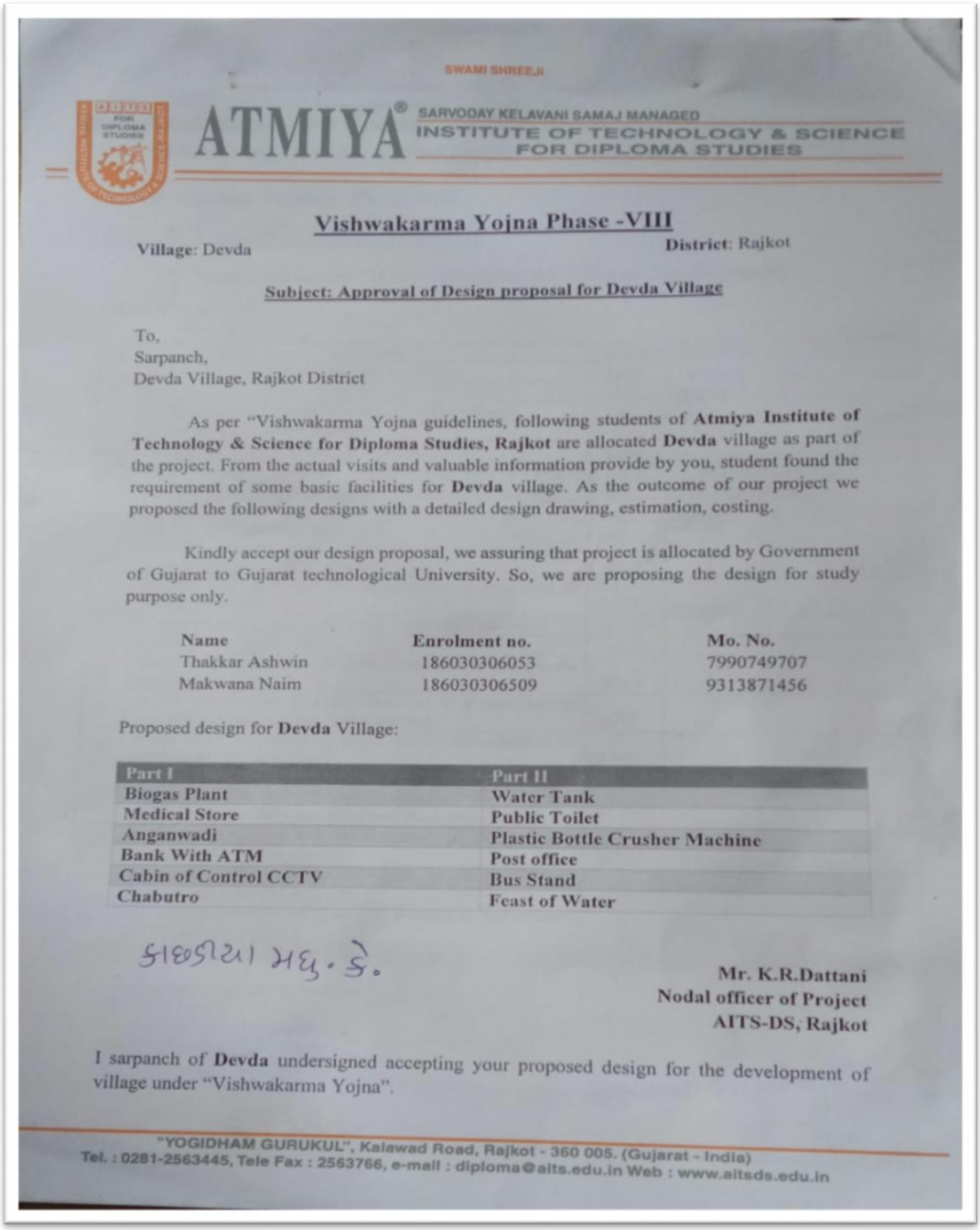

EMERALD CLUB
દેવડા
બસ સ્ટોપ

12.8 Village interaction with sarpanch with the photograph



- As per 123ishwakarma yojna we selected the village devda. We visited village and we meet and talk with village people's, panchayat member and we interact with villagers what's main aim of 123ishwakarma yojna.We take some information from panchayat member and villagers to understand the village condition.
- In village we saw many infrastructure like Anganwadi, 123ishwakar school, gram Panchayat and other infrastructures.we also studies their conditions, we also study their agriculture details , occupational survey and road.
- we understand the village conditions and try to make some design for village like medical store, biogas plant, Internet cafe etc.
- we try to understand villagers' problems then try to give their smart solutions. So 123ishwakarma yojna is very useful for students and villagers.

12.9 Sarpanch letter giving information about the village development



SWAMI SHREEJI

ATMIYA® SARVODAY KELAVANI SAMAJ MANAGED
INSTITUTE OF TECHNOLOGY & SCIENCE FOR DIPLOMA STUDIES

Vishwakarma Yojna Phase -VIII

Village: Devda **District**: Rajkot

Subject: Approval of Design proposal for Devda Village

To,
Sarpanch,
Devda Village, Rajkot District

As per "Vishwakarma Yojna guidelines, following students of **Atmiya Institute of Technology & Science for Diploma Studies, Rajkot** are allocated **Devda** village as part of the project. From the actual visits and valuable information provide by you, student found the requirement of some basic facilities for **Devda** village. As the outcome of our project we proposed the following designs with a detailed design drawing, estimation, costing.

Kindly accept our design proposal, we assuring that project is allocated by Government of Gujarat to Gujarat technological University. So, we are proposing the design for study purpose only.

Name	Enrolment no.	Mo. No.
Thakkar Ashwin	186030306053	7990749707
Makwana Naim	186030306509	9313871456

Proposed design for **Devda** Village:

Part I	Part II
Biogas Plant	Water Tank
Medical Store	Public Toilet
Anganwadi	Plastic Bottle Crusher Machine
Bank With ATM	Post office
Cabin of Control CCTV	Bus Stand
Chabutro	Feast of Water

Mr. K.R.Dattani
Nodal officer of Project
AITS-DS, Rajkot

I sarpanch of **Devda** undersigned accepting your proposed design for the development of village under "Vishwakarma Yojna".

"YOGIDHAM GURUKUL", Kalawad Road, Rajkot - 360 005. (Gujarat - India)
Tel. : 0281-2563445, Tele Fax : 2563766, e-mail : diploma@aits.edu.in Web : www.aitsds.edu.in

12.10 Comprehensive report preparation as per format: -

- We are selected devda village as allocated village in Vishwakarma project.
- After village selected, arrange techno economic survey of devda village. Then, we compered our facilities with smart and ideal village by gap analysis.
- After the gap analysis we know about problem of villagers & lake of basic facilities.
- Here, we are given some basic infrastructure facilities as solution of people's problem & lake of infrastructures.
- Bank with ATM
- Anganwadi
- Medical store
- Bio gas plant, etc.
- Here, we are given all design with its cost & estimation with specific construction time.

Chapter 13 Design from chapter 9 future design of aspect

13.1 Design proposals

- We Visited Devda village and observed various infrastructure facilities like physical infrastructure facility, social infrastructure facility, sustainable infrastructure facility, etc.
- In social infrastructure facility we observed public toilet.
- In physical infrastructure facility we observed main sources of drinking water, drainage facility, village approach road, transportation facility, housing facility etc.

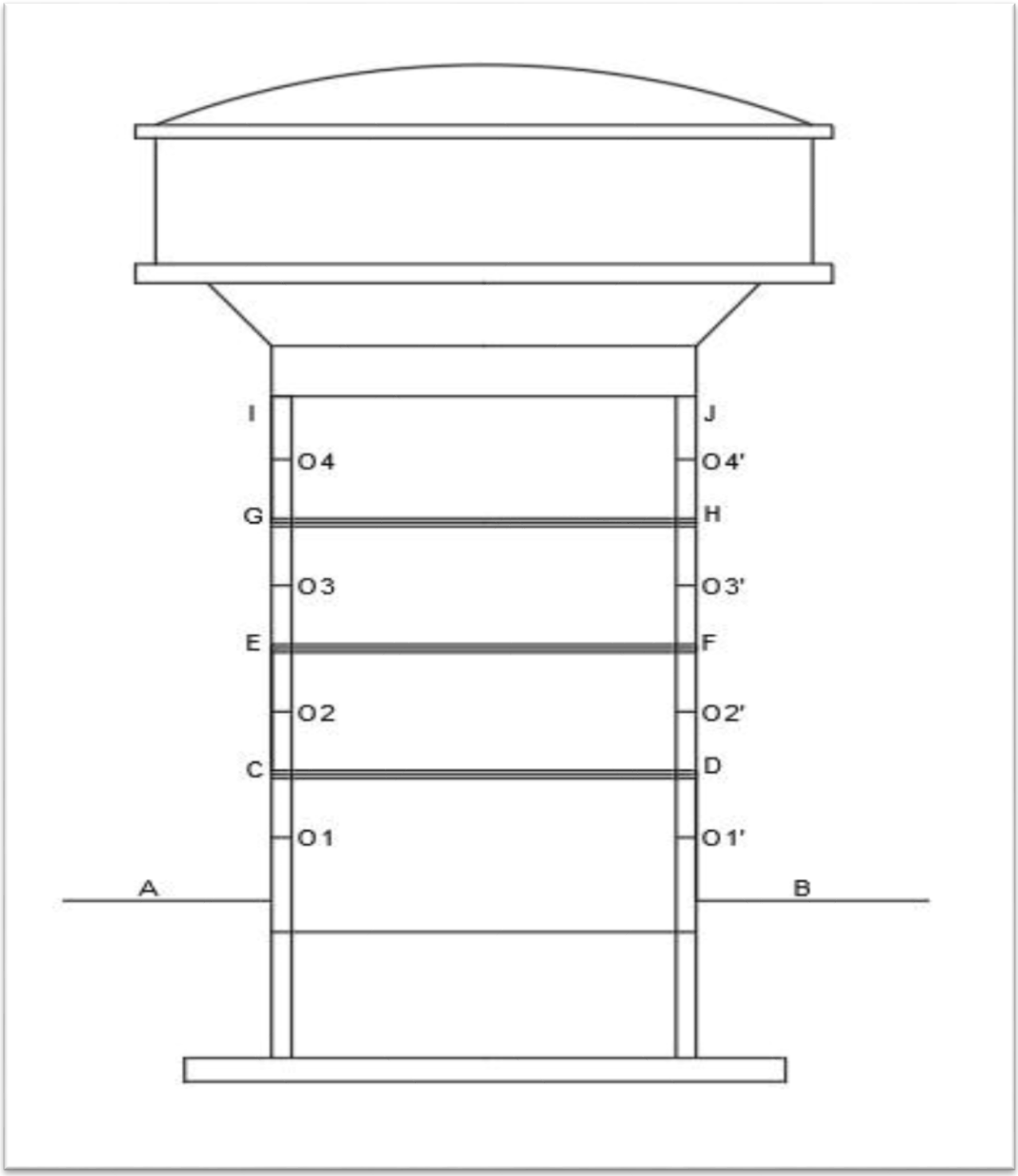
13.2 Reason for student recommending this design

- There are no any facilities of Post office in village.
- Bus Stand of Devda village has very poor condition as per construction strength aspect so, we give new design of bus stand.
- There is poor condition of public toilet.
- There is no any facility of feast of water (drinking water) in village.

13.3 About design suggestion / benefit of the villagers

- Easily provided a drinking water.
- We are provided post office to easily send or receive message.

13.1.1 Water tank



13.1 Water tank

Estimate of Overhead Water Tank: -

1 P.C.C Work: -

- Take Average Diameter of Tank,

$$D_1 = \frac{16.4 + 13.8}{2}$$
$$D_1 = 15.0\ m$$
$$D_2 = 15 + 2(0.15) + 2(0.10)$$
$$D_2 = 15.5\ m$$
$$T = 0.1\ m$$

So,

$$Q = \frac{\pi}{4} * D_2^2 * T$$
$$Q = \frac{\pi}{4} * 15.5^2 * 0.1$$
$$Q = 18.87\ m^3$$

2 R.C.C Work: -

- **Segment 1**

$$D_1 = 15 = 2(0.15)$$
$$D_1 = 15.3\ m$$
$$T = 0.15\ m$$
$$Q = \frac{\pi}{4} * D_1^2 * T$$
$$Q = \frac{\pi}{4} * 15.3^2 * 0.15$$

$Q = 27.60\ m^3$..... **1**

- **Segment 2 (In Heist)**

h = 8.5 m (depth)

$$D_1 = 15.3\ m$$
$$D_2 = 15\ m$$
$$Q = \frac{\pi}{4} * (D_1^2 - D_2^2) * h$$
$$Q = \frac{\pi}{4} * (15.3^2 - 15^2) * 8.5$$

$Q = 60.68\ m^3$..... **2**

- **RCC Work in Slab**

D = 15.3 m

$T = 0.1$ m

$$Q = \frac{\pi}{4} * 15.3^2 * 0.1$$

$$Q = 18.38\ m^3 \ldots\ldots\ldots\ldots . \ \mathbf{3}$$

Total R.C.C Work = 27.60+60.68+18.38 = 106.7 m^3

3 Steel Work: -

Assume 1% Steel,

$Steel = 106.7 * 1\%$

$Steel = 1.067\ m^3$

$Density\ of\ M.S = 7850\ bag/m^3$

$So,$

$Steel = 1.067 * 7850$

$Steel = 8774\ bag$

4 Net P.C.C Work: -

$Net\ P.C.C\ Work = 106.7 - 1.067$

$Net\ P.C.C\ Work = 105.603\ m^3$

$Total\ P.C.C\ Work = 105.603 + 18.87$

$Total\ P.C.C\ Work = 124.47\ m^3$

5 Cement:-

$$Material = \frac{Ratio}{Sum\ of\ Ratio} * Dry\ Volume$$

$Ratio\ C:S:A$

$Ratio\ 1:2:4$

$Sum\ of\ Ratio = 1 + 2 + 4 = 7$

$$Dry\ Volume = Wet\ Volume * 1.50$$

$$Dry\ Volume = 124.47 * 1.54$$

$$Dry\ Volume = 191.69\ m^3$$

$$1\ bag = 0.035 m^3$$

$$C = \frac{1}{7} * Dry\ Volume$$

$$C = \frac{191.69}{7}$$

$$C = 27.384\ m^3$$

$$C = \frac{27.384}{0.035}$$

$$C = 783\ m^3$$

6 Sand:-

$S = 27.384 * 2$ sssss

$S = 54.768\ m^3$ **7**

Aggregate:-

$A = 27.384 * 4$

$A = 109.536\ m^3$

8 Cantering & Shuttering: -

- **R.C.C Segment 1**

$$A = \frac{\pi}{4} * 15.3^2$$

$A = 183.85\ m^2$ **1**

- **R.C.C Segment 2**

$$A = \frac{\pi}{4} * (D_1^2 + D_2^2)$$

$$A = \frac{\pi}{4} * (15.3^2 + 5^2)$$

$$A = 7.14\ m^2 \ldots\ldots\ldots\ldots \mathbf{2}$$

- **R.C.C Slab:-**

$$A = \frac{\pi}{4} * 15.3^2$$

$$A = 183.85\ m^3 \ldots\ldots\ldots\ldots \mathbf{1}$$

Total Centering & Shuttering = 183.85+7.14+183.85 = 374.84 m^2

9 Inside Plaster:-

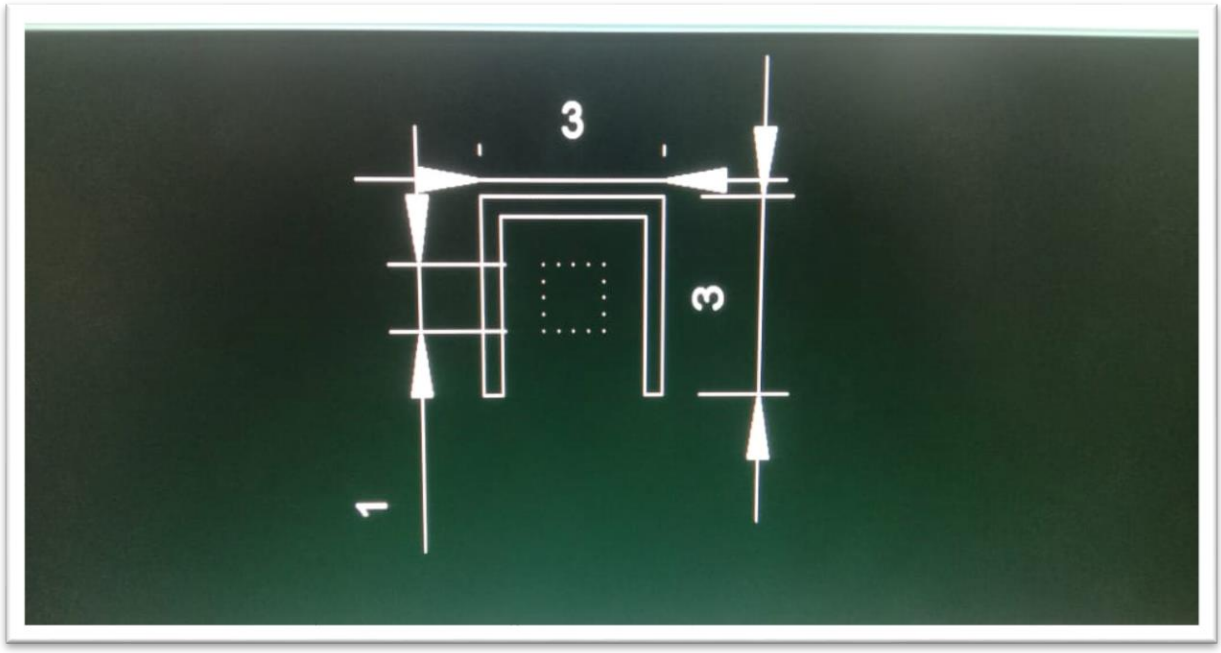
$$A = \frac{\pi}{4} * 15^2 = 176.71\ m^2$$

10 Outside Plaster:-

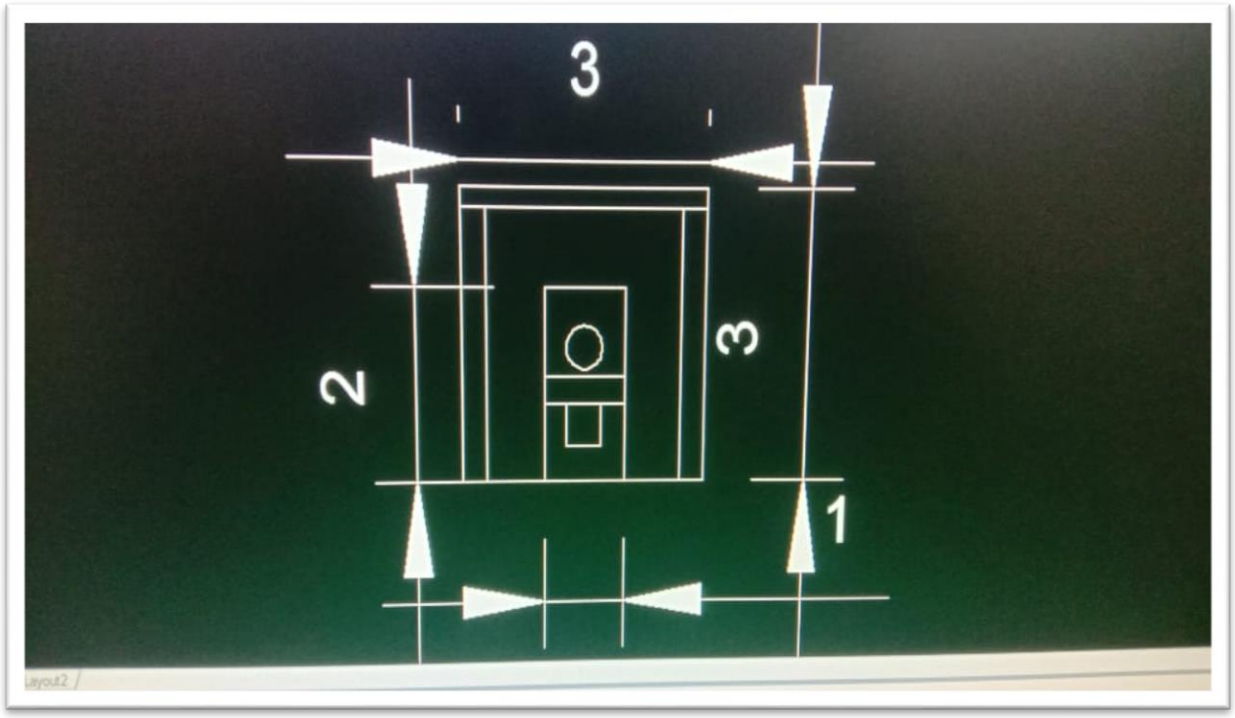
$$A = \frac{\pi}{4} * 15.5^2 = 188.72\ m^2$$

No	Item	Qty.	Rate	Per	Amount Rs.
1	P.C.C Work	124.47	965	m^3	1,20,114
2	Cantering	374.84	130	m^2	48,430
3	Steel work	374.84	200	m^2	74,968
4	Cement	783	320	Bag	2,50,560
5	Sand	54.77	900	m^3	49,293
6	Coarse aggregate	109.53	1000	m^3	1,09,530
7	Shuttering	374.84	70	m^2	26,238
8	Steel	8374	55	Kg	4,60,570
9	Binding wire(1% of steel)	83.74	60	Kg	5,024
10	Inside plaster	176.71	150	m^2	26,507
11	Outside plaster	188.7	250	m^2	47,175
	Total Rs.				**12,18,711**
	1.3% water charge				**18,280.665**

13.1.2 Plastic bottle crusher machine



Plan



Elevation

13.2 Plastic bottle crusher machine

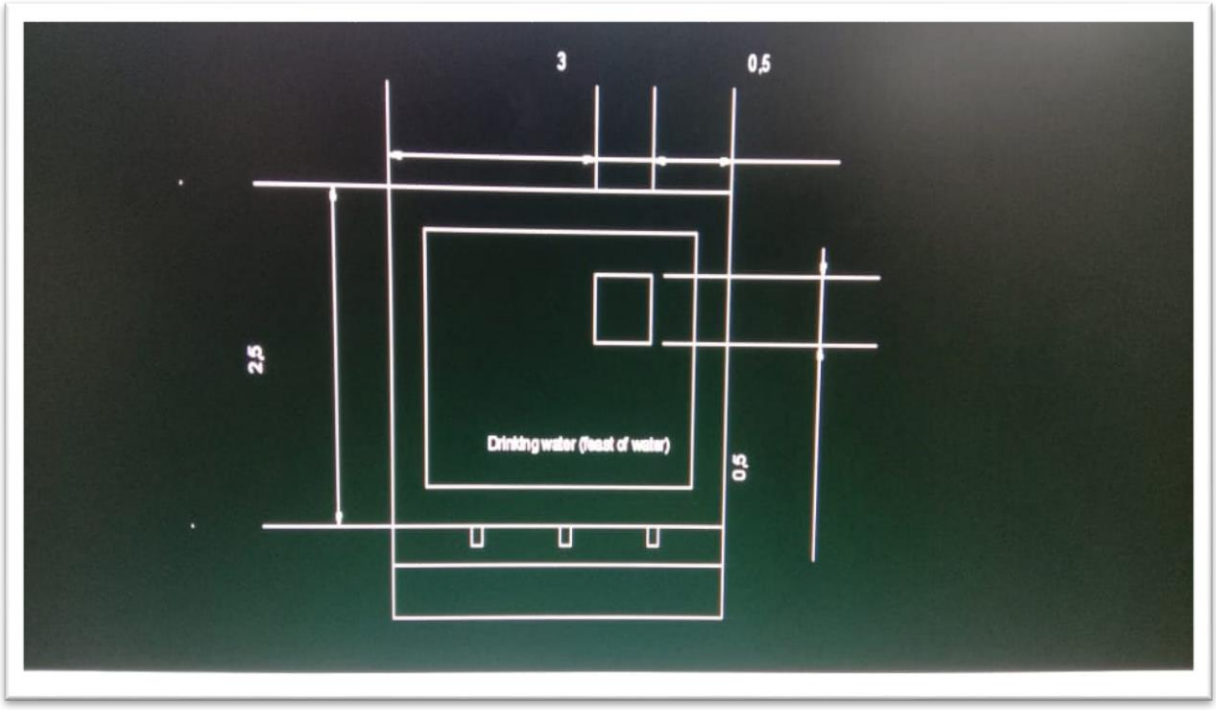
Estimate of plastic bottle crusher machine

Sr no	Item	No	Length	Breadth	Depth	Quantity
1	Excavation in foundation					
	Footing size=1.2*1.2					
	Number of column=4	4	1.2	1.2	1.2	6.912
2	PCC for foundation	4	1.2	1.2	0.1	0.576
3	Concreting in footing					
	Part-1(rectangle)	1	1.2	1.2	0.25	$0.36m^3$
	Part-2(slop)					
	Area-1 top surface	1	0.5	0.3	-	0.15
	Area-2 bottom surface					
	Height of surface(H)					
	Edge of footing	1	1.2	1.2	-	1.44
	0.5+0.25+0.25					
	Volume					**Total for 1 column =$0.171m^3$**
						Total for 4 column =$0.684m^3$
4	Concreting for column in foundation					
	=1.2-0.10-0.5=0.6	4	0.5	0.3	0.6	$0.36m^3$
5	Concreting in column	6	0.5	0.3	3	$2.7m^3$
6	Concreting in slab	1	3	3	0.15	$1.35m^3$
7	Plaster					
	Column					
	0.5m side	8	0.5	-	3	$12m^2$
	0.3m side	8	0.3	-	3	$7.2m^2$
	Slab	1	3	3	-	$9m^2$
						Total =$28.2m^2$

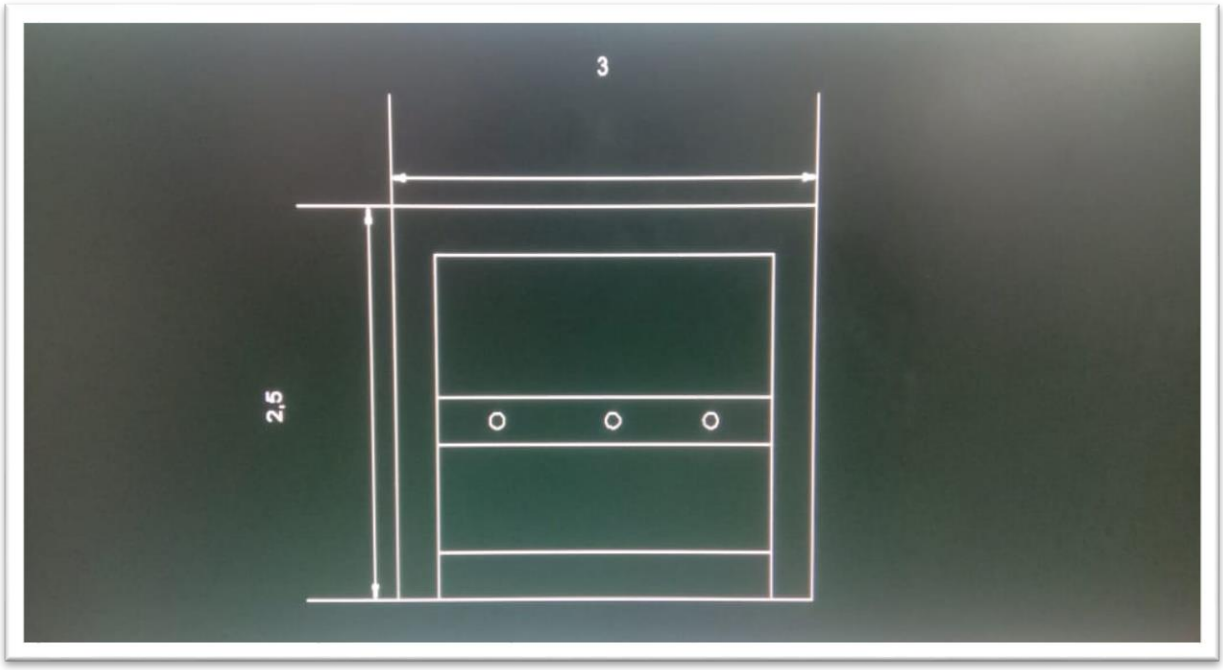
Abstract sheet

Sr no	Item	Quantities	Rate	Per	Amount
1	Excavation	6.912	180	Cu.m	1244.16
2	P.C.C work	0.576	4300	Cu.m	2476.8
3	Concrete in footing	0.684	3400	Cu.m	2325.6
4	Concrete column	2.7	2500	Cu.m	6750
5	Concrete slab work	1.35	3400	Cu.m	4590
6	Plaster work	28.2	350	Sq.m	9870
				Total Rs =27256.56	
		ADD 5% contingencies =1362.828			
				Total Rs =28619.38	
				Say total Rs =286650	

13.1.3 Feast of water (drinking water)



Plan



Elevation

13.3 Feast of water

Estimate of feast of water (drinking water)

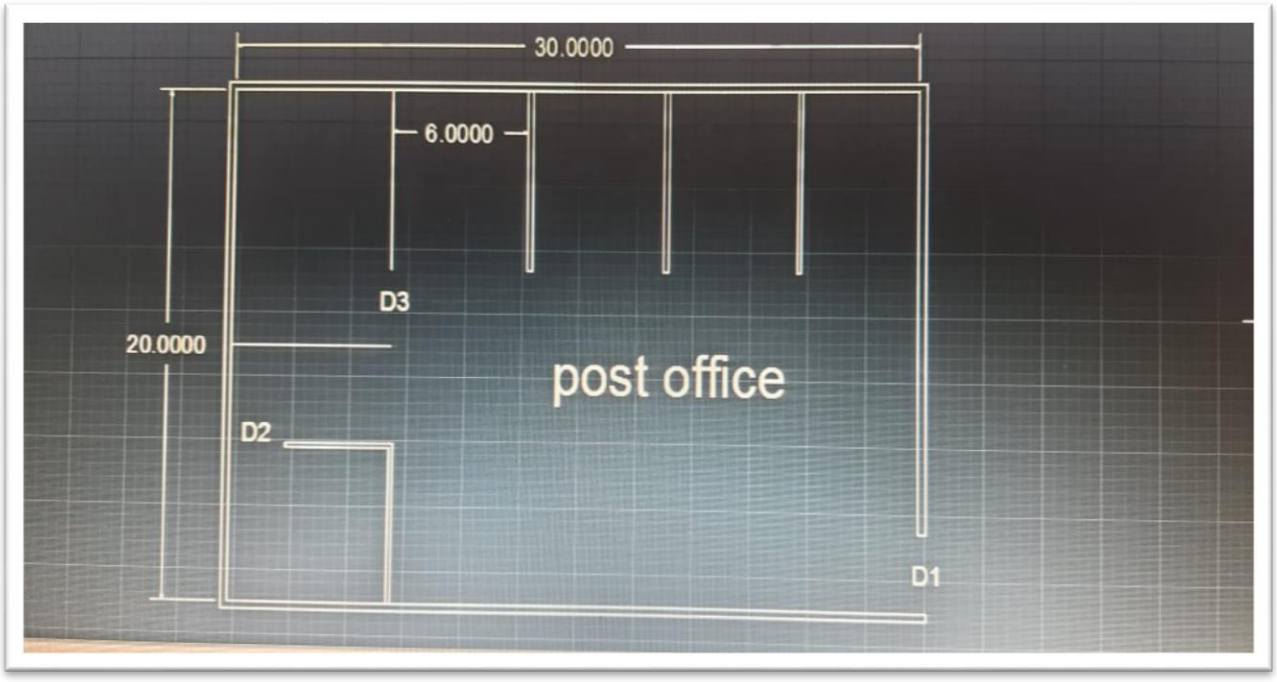
Sr no	Item	No	Length	Breadth	Depth	Quantity
1	Excavation					
	L.W=3m	2	3	0.9	1.5	8.1m^3
	S.W=2.5m	2	2.5	0.9	1.5	6.75m^3
						14.85m^3
2	P.C.C Work					
	L.W=3+0.9=3.9m	2	3.9	0.9	0.3	2.106m^3
	S.W=2.5-0.9=1.6m	2	1.6	0.9	0.3	0.846m^3
						2.967m^3
3	Brick work in foundation					
	Step-1(0.6)					
	L.W=3+0.6=3.6	2	3.6	0.6	0.2	0.864m^3
	S.W=2.5-0.6=1.9	2	1.9	0.6	0.2	0.456m^3
						1.320m^3

	Step-2(0.5)					
	L.W=3+0.5=3.5	2	3.5	0.5	0.2	0.7m
	S.W=2.5-0.5=2	2	2	0.5	0.2	$0.4m^3$
						$1.1m^3$
	Step-3(0.4)					
	L.W=3+0.4=3.4	2	3.4	0.4	0.2	$0.544m^3$
	S.W=2.5-0.4=2.1	2	2.1	0.4	0.2	$0.36m^3$
						$0.88m^3$
	Step-4(0.3)					
	L.W=3+0.3=3.3	2	3.3	0.3	0.2	$0.396m^3$
	S.W=2.5-0.3=2.2	2	2.2	0.3	0.2	$0.264m^3$
						$0.66m^3$
					Total =$3.96m^3$	
4	Brick work for super structure (2.5)					
	L.W=3+0.3=3.3	2	3.3	0.3	2.5	$4.95m^3$
	S.W=2.5-0.3=2.2	2	2.2	0.3	2.5	$3.3m^3$
						$8.25m^3$
5	Slab work	1	7.25	-	0.10	$0.725m^2$
6	Plastering work					
	Silling plater	1	3	2.5	-	$7.5m^2$
	Inside plaster					
	Room	2	2.7	-	2.5	$13.5m^2$
		2	2.2	-	2.5	$11m^2$
						$24.5m^2$
	Outside plaster					
	Room	2	3	-	2.5	$15m^2$
		2	2.5	-	2.5	$12.5m^2$
						$27.5m^2$
					Total =$49.5m^2$	

Abstract sheet

Sr no	Item	Quantities	Rate	Per	Amount
1	Excavation	14.85	180	Cu.m	2673
2	P.C.C Work	2.967	4300	Cu.m	12758.1
3	Brick work in foundation	3.96	3500	Cu.m	13860
4	Brick work In super structure	8.25	3800	Cu.m	31350
5	Inside plater	24.5	350	Sq.m	8575
6	Outside plaster	27.5	350	Sq.m	9625
7	Silling	7.5	350	Sq.m	2625
					Total =81466.1
					ADD 5% contingencies Rs =4073.3
					Total =85540

13.1.4 Post Office



Post office

13.4 Post office

Estimate of post office

Sr no	Item	No	Length	Breadth	Depth	Quantity
	L.W=30+0.3	2	30.3			
	S.W=20+0.3	2	20.3			
1	Excavation					
	L.W=30.3+0.9	2	31.2	0.9	1.5	84.24m^3
	S.W=20.3-0.9	2	19.4	0.9	1.5	52.38m^3
						136.62m^3
2	P.C.C work					
	L.W=30.3+0.9	2	31.2	0.9	0.3	16.848m^3
	S.W=20.3-0.9	2	19.4	0.9	0.3	10.076m^3
						27.32m^3
3	Brick work in foundation					
	Step-1(0.60)					
	L.W=30.3+0.6	2	30.9	0.6	0.2	7.476m^3
	S.W=20.3-0.6	2	19.7	0.6	0.2	4.728m^3
						12.204m^3
	Step-2(0.5)					
	L.W=30.3+0.5	2	30.8	0.5	0.2	6.16m^3
	S.W=20.3-0.5	2	19.8	0.5	0.2	3.96m^3
						10.12m^3
	Step-3(0.4)					
	L.W=30.3+0.4	2	30.7	0.4	0.2	4.912m^3
	S.W=20.3-0.4	2	19.9	0.4	0.2	3.184m^3
						8.096m^3
	Step-4(0.3)					
	L.W=30.3+0.3	2	30.6	0.3	0.2	3.672m^3
	S.W=20.3-0.3	2	20	0.3	0.2	2.40m^3
						6.072m^3
		Brick work in foundation total =36.492m^3				
4	Brick work in super structure					

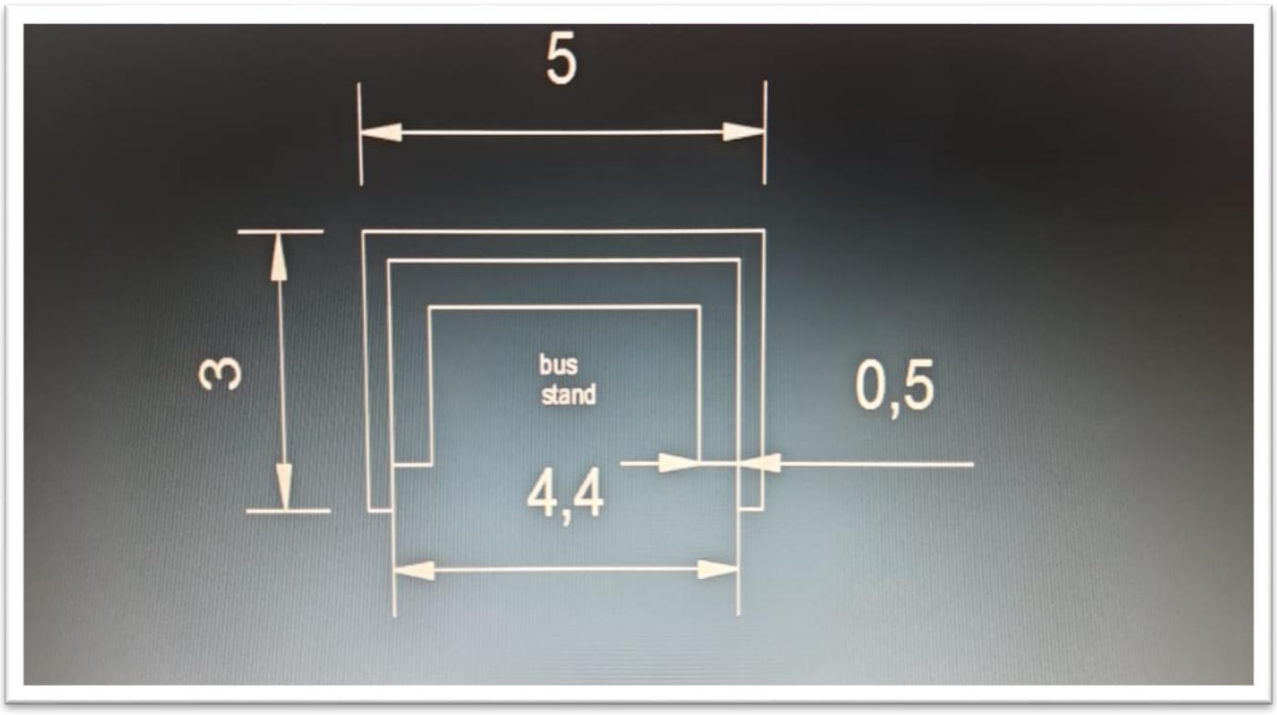
	(height=3.78)					
	L.W=30.3+0.3	2	30.6	0.3	3.78	69.40m^3
	S.W=20.3-0.3	2	20	0.3	3.78	45.36m^3
						114.76m^3
	Deduction of door and lintel (0.3)					
	D_1	1	3	0.3	2.1	1.89m^3
	Lintel	1	3	0.3	0.12	0.108m^3
	Deduction of door and lintel total=114.76-1.89-0.180=112.76m^3					
5	Flooring work					
	Room	1	30	20	-	600m^2
6	Slab work					
	L.W=30.6					
	S.W=20.6	1	30.6	20.6	-	63.036m^2
7	Plastering work					
	Siling plaster	1	30	20	-	600m^2
	Inside plaster					
	L.W=30	2	30	-	3	180m^2
	S.W=20	2	20	-	3	120m^2
						300m^2
	Outside plater					
	L.W=30.6	2	30.6	-	3.78	231.33m^2
	S.W=20.6	2	20.6	-	3.78	185.73m^2
					Total =387.0.72m^2	

Abstract sheet

Sr no	Item	Quantities	Rate	Per	Amount
1	Excavation	136.62	180	Cu.m	24591.6
2	P.C.C work	27.32	4300	Cu.m	117476

3	Brick work for foundation	36.492	3500	Cu.m	127722
4	Brick work for super structure	112.76	3800	Cu.m	428488
5	Flooring work	600	700	Sq.m	420000
6	Slling plaster	600	350	Sq.m	210000
7	Inside plaster	300	350	Sq.m	105000
8	Outside plater	387.072	350	Sq.m	1365475.2
9	Door	1	3500	Nos.	3500
					1572252.8
		ADD 5% contingencies Rs = 78612.64			
			Total Rs =1650865.44		
			Say Total Rs =1650866		

13.1.5 Bus Stand



Bus Stand

13.5 Bus stand

Estimate of bus stand

Sr no	Item	No	Length	Breadth	Depth	Quantities
	L.W=5+0.3	1	5.3			
	S.W=3-0.3	2	2.7			
1	Excavation					
	L.W=5.3+0.9	1	6.2	0.9	1.10	$6.138m^3$
	S.W=2.7-9	2	1.8	0.9	1.10	$3.564m^3$
						$9.702m^3$
2	P.C.C work					
	L.W=5.3+0.9	1	6.2	0.9	0.3	$1.074m^3$
	S.W=2.7-0.9	2	1.8	0.9	0.3	$0.972m^3$
						$2.646m^3$
3	Brick work for foundation					
	Step-1(0.6)					
	L.W=5.3+0.6	1	5.9	0.9	0.2	$0.708m^3$
	S.W=2.7-0.6	2	2.1	0.9	0.2	$0.504m^3$
						$1.212m^3$
	Step-2(0.5)					
	L.W=5.3+0.5	1	5.8	0.5	0.2	$0.58m^3$
	S.W=2.7-0.5	2	2.2	0.5	0.2	$0.44m^3$
						$1.02m^3$
	Step-3(0.4)					
	L.W=5.3+0.4	1	5.7	0.4	0.2	$0.456m^3$
	S.W=2.7-0.4	2	2.3	0.4	0.2	$0.368m^3$
						$0.824m^3$
	Step-4(0.3)					
	L.W=5.3+0.3	1	5.6	0.3	0.2	$0.336m^3$
	S.W=2.7-0.3	2	2.4	0.3	0.2	$0.288m^3$
						$0.624m^3$
		Brick work for foundation total =$3.68m^3$				
4	Brick work for super structure (height=2.4)					

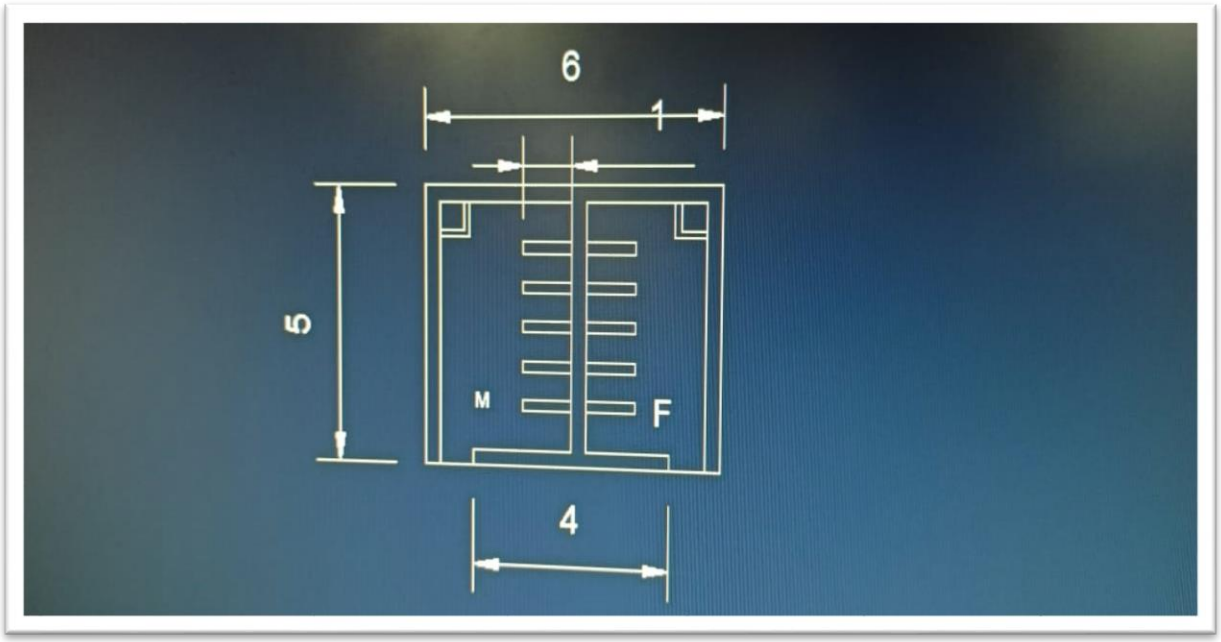
	L.W=5.3+0.3	1	5.6	0.3	2.4	4.032m^3
	S.W=2.7-0.3	2	2.4	0.3	2.4	3.456m^3
						7.488m^3
5	Slab work	1	5	3	0.10	1.5m^3
6	Flooring work	1	5	3	0.10	1.5m^3
7	Plastering work					
	Inside plater					
	L.W=4.4	1	4.4	-	2.4	10.56m^2
	S.W=2.7	2	2.7	-	2.4	6.48m^2
						17.04m^2
	Outside plater					
	L.W=5	1	5	-	2.4	12m^2
	S.W=3	2	3	-	2.4	14.4m^2
						26.4m^2

Abstract sheet

Sr no	Item	Quantities	Rate	Per	Amount
1	Excavation	9.702	180	Cu.m	1746.36
2	P.C.C work	2.646	4300	Cu.m	11377.8
3	Brick work for foundation	3.68	3500	Cu.m	12880
4	Brick work for super structure	7.488	3800	Cu.m	28454.4
5	Slab work	1.5	6300	Cu.m	9450
6	Flooring work	1.5	700	Cu.m	1050
7	Inside plaster	17.04	350	Sq.m	5964
8	Outside plaster	26.4	350	Sq.m	9240
				Total Rs =80162.56	
		ADD 5% contingencies =4008.128			

			Total Rs =84170.688
			Say total Rs =84200

13.1.6 Public toilet



Public toilet

13.6 Public toilet

Estimate of public toilet

Sr no	Item	No	Length	Breadth	Depth	Quantities
1	Excavation					
	L.W=6+0.9	2	6.9	0.9	1.1	13.662m^3
	S.W=5-0.9	2	4.1	0.9	1.1	8.118m^3
						21.788m^3
2	P.C.C work					
	L.W=6+0.9	2	6.9	0.9	0.3	3.726m^3
	S.W=5-0.9	2	4.1	0.9	0.3	2.214m^3
						5.94m^3
3	Brick work for foundation					
	Step-1(0.6)					
	L.W=6+0.6	2	6.6	0.6	0.2	1.584m^3

	S.W=5-0.6	2	4.4	0.6	0.2	1.056m^3
						2.64m^3
	Step-2(0.5)					
	L.W=6+0.5	2	6.5	0.5	0.2	1.3m^3
	S.W=5-0.5	2	4.5	0.5	0.2	0.9m^3
						2.2m^3
	Step-3(0.4)					
	L.W=6+0.4	2	6.4	0.4	0.2	1.024m^3
	S.W=5-0.4	2	4.6	0.4	0.2	0.736m^3
						1.76m^3
	Step-4(0.3)					
	L.W=6+0.3	2	6.3	0.3	0.2	0.736m^3
	S.W=5-0.3	2	4.7	0.3	0.2	0.564m^3
						1.30m^3
	Deduction door & lintel					
	D1	2	1	0.3	2.1	1.26m^3
	Lintel	2	1	0.3	0.12	0.072m^3
						1.332m^3
5	Slab work	1	6	5	0.10	3m^3
						3.072m^3
6	Flooring work	1	6	5	-	30m^2
	Wash basin	2	4.8	0.9	-	3.24m^2
						33.24m^2
7	Plastering work					
	Inside plaster					
	L.W=5.4	2	5.4	-	2.7	19.16m^2
	S.W=4.4	2	4.4	-	2.7	23.76m^2
						52.92m^2
	Toilet					
	L.W=1	20	1	-	1.5	30m^2
	SW.=0.2	10	0.2	-	1.5	3m^2

						33m^2
						85.92m^2
		Total inside plaster =85.92-4.2=81.72m^2				
	Outside plaster					
	L.W=6	2	6	-	3	36m^2
	S.W=5	2	5	-	3	30m^2
						66m^2
	Deduction door					
	D1	2	1	-	2.1	4.2m^2
		Total outside plaster =66-4.2 =61.8m^2				

Abstract sheet

Sr no	Item	Quantities	Rate	Per	Amount
1	Excavation	21.78	180	Cu.m	3920.4
2	P.C.C work	5.94	4300	Cu.m	25542
3	Brick work for foundation	7.9	3500	Cu.m	27650
4	Brick work for super structure	18.468	3800	Cu.m	70178.4
5	Slab work	3.072	6300	Cu.m	19353.6
6	Flooring work	33.24	700	Sq.m	23268
7	Inside plaster	81.72	350	Sq.m	28602
8	Outside plaster	61.8	350	Sq.m	21630
9	Door	2	2000	nos.	4000
				Total Rs =225144.4	
				ADD 5% contingencies =11257.22	
				Total Rs =23640.16	
				Say total Rs =237000	

Chapter 14 Technical options with case studies

14.1 Civil engineering

14.1.1 Advanced Earthquake Resistant

- There are many known and practiced measures to protect against seismic threats. Let's take a look at some of the earthquake resistant techniques used by the engineer's world over to minimize the damage to structures due to earthquakes

Floating foundation

- The levitating or floating foundation separates the substructure of a building from its superstructure.
- One way of doing this is by floating a building above its foundation on lead-rubber bearings that comprise a solid lead core covered in alternating layers of rubber and steel. The bearings are attached to the building and its foundation with the help of steel plates. So, when an earthquake occurs, the floating foundation can move without moving the structure above it.
- In Japan this base isolation system works at a whole new level. Their design allows buildings to float mid-air. The system levitates, keeping the building on a cushion of air. The system has in-built sensors for detection of seismic activity and these sensors communicate with the air compressor that creates the layer of air between the building and its base.

Shock absorption

- Similar to the shock absorbers used in vehicles, buildings also make use of this technology. This earthquake resistant technology helps buildings slow down and reduce the magnitude of vibratory motions. Ideally shock absorbers should be placed at each level of the building – one end attached to the beam and the other end to the column. Each comprises a piston head that moves inside a cylinder full of silicone oil. During earthquakes, the horizontal motion of building will make the piston push against the oil, transforming mechanical energy from the quake to heat.

Rocking core-wall

- Modern high-rise buildings use this technique to improve seismic resistance at a low cost. To make this work, a reinforced concrete core is set through the heart of the structure, surrounded by elevator banks. Many modern high-rise buildings use this technique to increase seismic resistance in an affordable way. It works most effectively when used together with base isolation. For base isolation, elastomeric bearings are built with alternating layers of steel and natural rubber/neoprene. The bearing thus created has low

horizontal stiffness and vertical rigidity. The combination is highly effective, cost-friendly and simple to implement.

Pendulum power

- The pendulum power technique works by suspending a huge mass near the top of the structure. This mass is supported by steel cables and viscous fluid dampers are placed between the mass and the building that it protects. In case of any seismic activity, the pendulum moves in the opposite direction to balance the energy. Each of the pendulums are tuned to sync with the natural frequency of the structure and these systems are called tuned mas' dampers. Their goal is to counter resonance and reduce the structure's dynamic response.

Symmetry, Diaphragms and Cross-Bracing

- Generally, one common criterion for seismic designs is symmetry. Seismic risks of asymmetrical designs are higher. L-Shaped, T-Shaped and split-level structures may be more visually appealing but they are also prone to torsion. Thus, engineers design symmetrical structures to keep the forces equally distributed through the structure and limit ornamental elements like cornices, cantilever projections etc.
- An earthquake has a significant lateral force. Seismic designing counteracts these forces in both horizontal and vertical structural systems. Diaphragms are integral to horizontal structures – such as floors of a building or roof. Engineers design each diaphragm on its own deck and strengthen it horizontally so it can distribute sideways forces with vertical structure parts.
- With vertical structures, engineers have several approaches. Braced frames are often used in building walls. Braced frames rely on trusses for resisting sideways motion. Cross-bracing is a technique that uses two diagonal members in an X-shape to build wall trusses and it is a popular technique to build earthquake resistant structures.

Finally

- Seismic Engineering is a very complex and constantly evolving. Seismic structural assessment is a powerful tool in Earthquake Engineering that uses detailed modeling of the structure in conjunction with structural analysis to get a better understanding of the building's resistance. Retrofitting older structures with enhanced designs or materials is as important as rebuilding new structures from scratch. The ultimate goal of Earthquake Civil Engineering is to save lives so that the buildings don't collapse and allow inhabitants to escape in a timely manner.

Importance

- Among the most important advanced techniques of earthquake resistant design and construction are:
  - Base Isolation
  - Energy Dissipation Devices

Base isolation method

- A base isolated structure is supported by a series of bearing pads which are placed between the building and the building's foundation. A variety of different types of base isolation bearing pads have now been developed.
- The bearing is very stiff and strong in the vertical direction, but flexible in the horizontal direction.

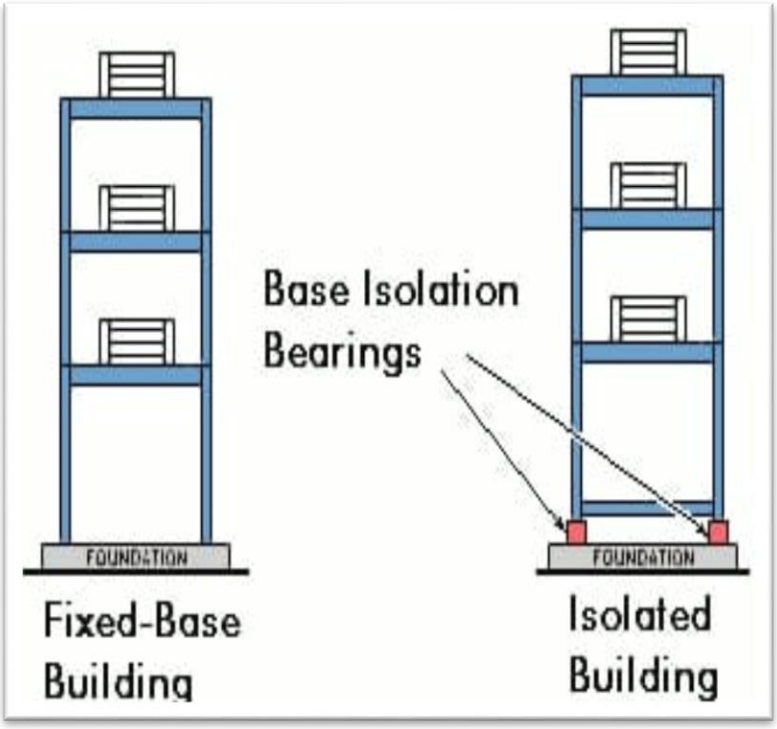


Figure 14.1 Base isolation bearings

Earthquake Generated Forces

- To get a basic idea of how base isolation works, examine Figure 2. This shows an earthquake acting on both a base isolated building and a conventional, fixed-base, building. As a result of an earthquake, the ground beneath each building begins to move. In Figure 2, it is shown moving to the left.
- Each building responds with movement which tends toward the right. The building undergoes displacement towards the right. The building's displacement in the direction

opposite the ground motion is actually due to inertia. The inertial forces acting on a building are the most important of all those generated during an earthquake.

- It is important to know that the inertial forces which the building undergoes are proportional to the building's acceleration during ground motion.
- It is also important to realize that buildings don't actually shift in only one direction. Because of the complex nature of earthquake ground motion, the building actually tends to vibrate back and forth in varying directions.

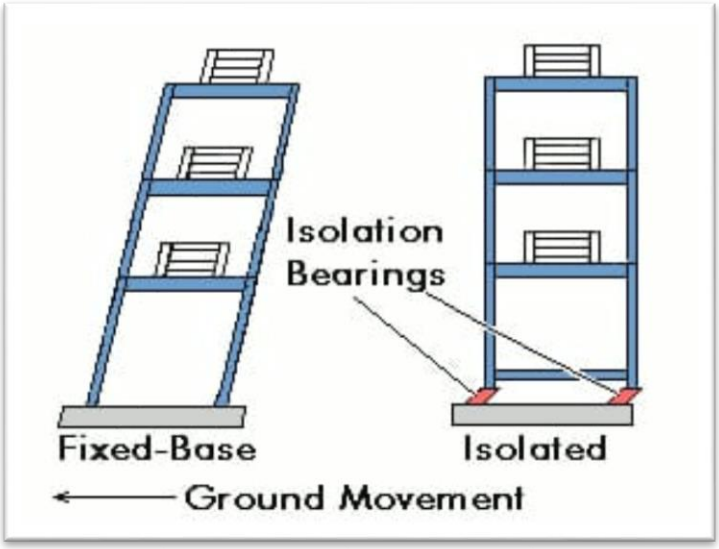


Figure 14.2 Ground movement

14.1.2 Seismic retrofitting of building

- Seismic retrofitting is the modification of existing structures to make them more resistant to seismic activity, ground motion, or soil failure due to earthquakes. With better understanding of seismic demand on structures and with our recent experiences with large earthquakes near urban centers, the need of seismic retrofitting is well acknowledged. Prior to the introduction of modern seismic codes in the late 1960s for developed countries (US, Japan etc.) and late 1970s for many other parts of the world (Turkey, China etc.),[1] many structures were designed without adequate detailing and reinforcement for seismic protection. In view of the imminent problem, various research work has been carried out.

14.1.3 Advance practices in construction field in modern material, techniques and equipment's

14.1.4 Engineering aspects of soil mechanics – Environmental impact assessment

Soil composition

- Soil mineralogy.
- Grain size distribution.
- Mass-volume relations.
- Classification of sands and gravels.
- Atterberg limits.
- Classification of silts and clays.
- Liquidity index.
- Relative density.

- Soil mechanics is a branch of soil physics and applied mechanics that describes the behavior of soils. It differs from fluid mechanics and solid mechanics in the sense that soils consist of a heterogeneous mixture of fluids (usually air and water) and particles (usually clay, silt, sand, and gravel) but soil may also contain organic solids and other matter.
- Along with rock mechanics, soil mechanics provides the theoretical basis for analysis in geotechnical engineering, a subdiscipline of civil engineering, and engineering geology, a subdiscipline of geology.
- Soil mechanics is used to analyze the deformations of and flow of fluids within natural and man-made structures that are supported on or made of soil, or structures that are buried in soils. Example applications are building and bridge foundations, retaining walls, dams, and buried pipeline systems.
- Principles of soil mechanics are also used in related disciplines such as geophysical engineering, coastal engineering, agricultural engineering, hydrology and soil physics.
- An environmental impact assessment (EIA) is a process to predict the environmental consequences of a project's development. By evaluating the project through the EIA, we can assess the environmental effects of each plan and select the plan that will suit our needs the most.
- Since nature's well-being is a key aspect in maintaining the world balance, the EIA has gained prominence, especially in the petroleum industry [1], for helping limit the human footprint on the natural world.
- Well planned developments aided by the EIA will greatly reduce risks associated with the petroleum industry, helping to avoid disasters such as the BP oil spill that contaminated much of the Gulf of Mexico and the surrounding coastlines in 2010.
- In decades, oil slicks could become one of the world's worst environmental disasters. Due to such factors as oxygen reduction and petroleum toxicity, oil spills threaten hundreds of species of fish, birds, any living beings including humans.
- A lot of species of wildlife have been threatened by the spills, including three basic elements: land, water, and air. Birds become easy prey, as their feathers, matted by oil, make them less able to fly away. Marine mammals lose body weight when they cannot feed due to contamination of their environment by oil.

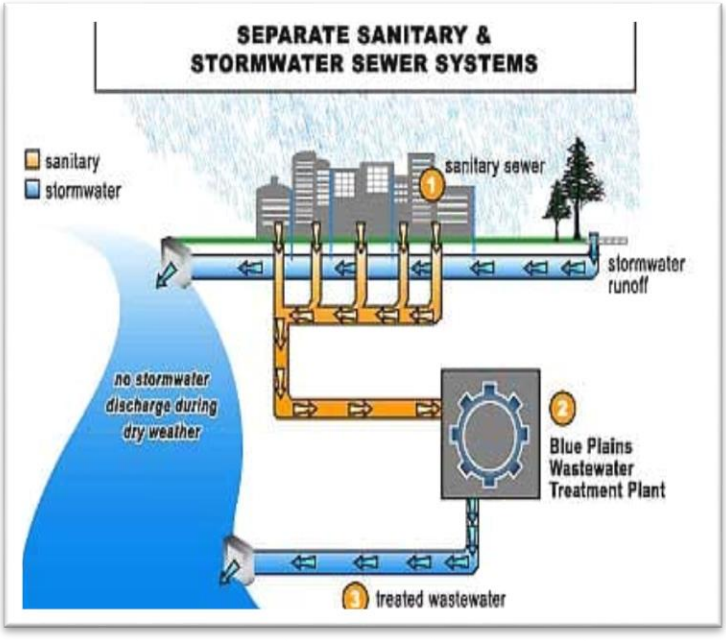
14.1.5 Water supply-sewerage system waste-water- sustainable development techniques

Water supply

- Sustainable water systems should provide adequate water quantity and appropriate water quality for a given need, without compromising the future ability to provide this capacity and quality.
- Water systems in the realm of sustainable development may not literally include the use of water, but include systems where the use of water has traditionally been required. Examples include waterless toilets and waterless car washes, whose use helps to alleviate water stress and secure a sustainable water supply.
- Accessing the sustainability features in water supply, that is to say, the three-fold goals of economic feasibility, social responsibility and environmental integrity, is linked to the purpose of water use. Sometimes, these purposes compete when resources are limited; for example, water needed to meet the demands of an increasingly urban population and those needs of rural agriculture.

Sewerage system, Waste water

- A sewerage system, or wastewater collection system, is a network of pipes, pumping stations, and appurtenances that convey sewage from its points of origin to a point of treatment and disposal.
- The predominant method of wastewater disposal in large cities and towns is discharge into a body of surface water. Suburban and rural areas rely more on subsurface disposal. In either case, wastewater must be purified or treated to some degree in order to protect both public health and water quality.
- The size and capacity of wastewater treatment systems are determined by the estimated volume of sewage generated from residences, businesses, and industries connected to sewer systems as well as the anticipated inflows and infiltration (I&I).



14.3 Sewerage system

- The selection of specific on-lot, clustered, or centralized treatment plant configurations depends upon factors such as the number of customers being served, the geographical scenario, site constraints, sewer connections, average and peak flows, influent wastewater characteristics, regulatory effluent limits, technological feasibility, energy consumption, and the operations and maintenance costs involved.
- The predominant method of wastewater disposal in large cities and towns is discharge into a body of surface water. Suburban and rural areas rely more on subsurface disposal. In either case, wastewater must be purified or treated to some degree in order to protect both public health and water quality.

Chapter 15 Smart and/or sustainable features of chapter 8 and chapter 13 designs, impact on society

In the phase-1 we given the below design

Bank with ATM: -

- There is no bank with ATM in village, by provide convenience to customers, customers are able to do financial transactions conveniently with the use of ATMs.

Medical store: -

- There is no medical store in village, by provide easy and emergency medicines.

Internet café

- There is no internet café in village, to the community and passers by the benefits of the internet café are to put users in touch with the global market and happenings in the word. The internet is also important these days to communication. Finally, the internet café is another economic benefit to the community.

In the phase-2 we given the below design,

Plastic bottle crusher machine: -

- There is no plastic bottle crusher machine in village, the plastic crusher machines can able to recycle the used and scrap materials. The plastic recycling process is used for recycling plastic materials for useful products in the form of granules.

Feast of water (drinking water): -

- Drinking water, also known as potable water, is water that is safe to drink or use for food preparation. The amount of drinking water required to maintain good health varies, and depends on physical activity level, age, health-related issues, and environmental.

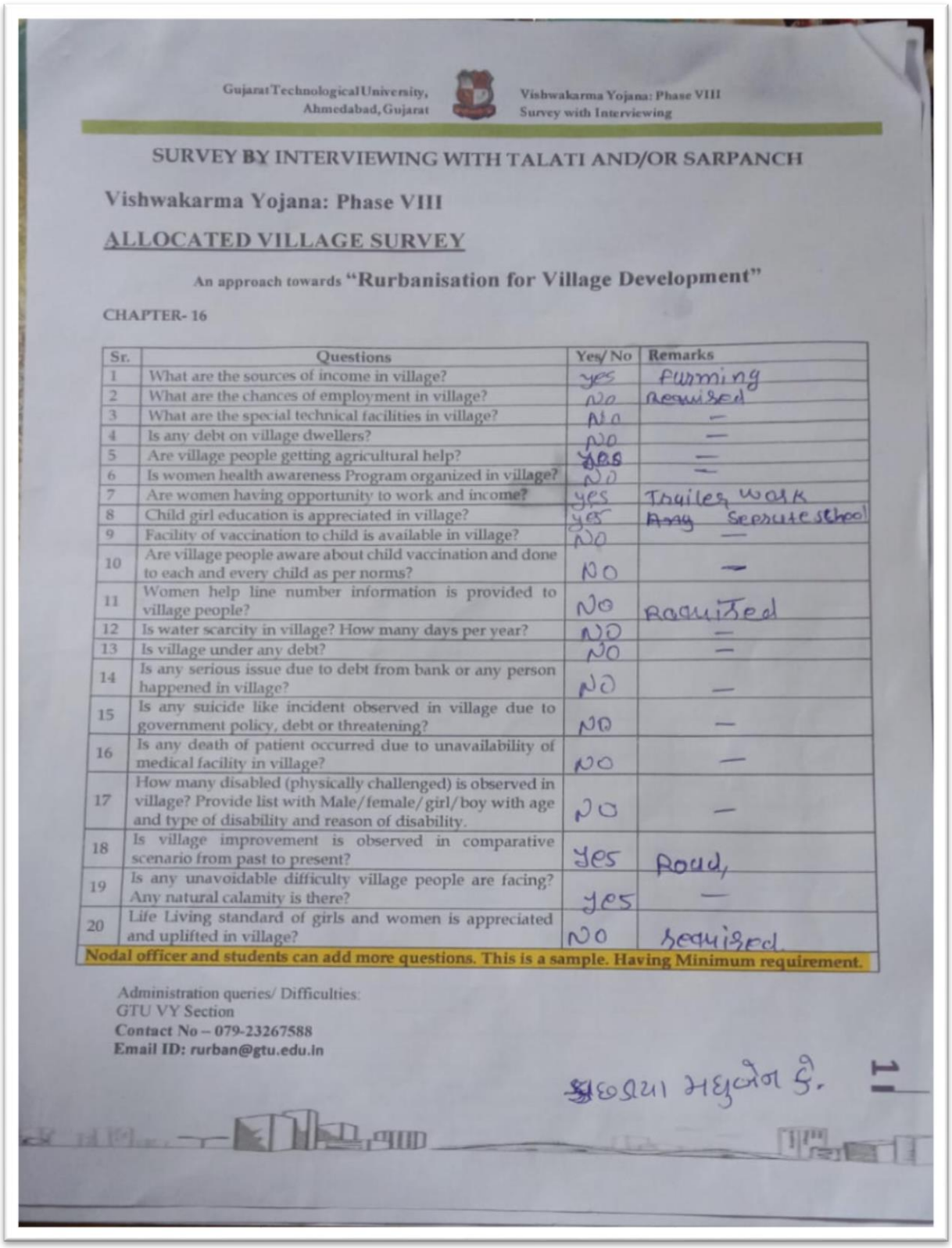
Sr No.	Design name	Period	Amount Expenditure	Benefits of village
1	Bank with ATM	Long term	727400	We are provided bank to easily send or receive money.
2	Anganwadi	Long term	427600	A typical Anganwadi center provides basic health care in a village. It is a part of the Indian public health care system. Basic health care activities include contraceptive counseling and supply, nutrition education and

				supplementation, as well as pre-school activities.
3	Medical store	1 year	183100	Improve village condition and villagers don't need to go outside for medicines.
4	Internet café	Immediately	247000	To the community and passersby, the benefits of the internet café are to put users in touch with the global market and happenings in the world. The internet is also important these days to communication. Finally, the internet café is another economic benefit to the community.
5	Bio gas plant	Long term	68200	Biogas is a renewable, as well as a clean, source of energy. Gas generated through bio digestion is Biogas is a renewable, as well as a clean, source of energy. Gas generated through bio digestion is non-polluting; it actually reduces greenhouse emissions (i.e., reduces the greenhouse effect).
6	Chabutra	1 year	131740	Chabutra is useful for bird to feeding and eating easily.
7	Water tank	Immediately	1218711	Apart from providing water for agriculture, water was also used for domestic purpose such as washing of cloths, drinking water for cattle, etc. … Tanks provide water for command area (an area around a water source) farmers whereas the catchment area farmers also derived benefits in the form of fertile silt from the tank.
8	Bus stand	1 year	84200	It gives best waiting area for bus.
9	Feast of water	1 year	85540	Easily provided a drinking water.
10	Public toilet	1 year	237000	Purposes. As an "away-from-home" toilet room, a public toilet can provide far more than access

				to the toilet for urination and defecation. People also wash their hands, attend to menstrual hygiene needs, and use the waste bins.
11	Plastic bottle crusher machine	Immediately	286650	Village become smart and support recycling and environment.
12	Post office	Long term	1650866	We are provided post office to easily send or receive message.

Table 15.1 Design name

Chapter 16 Survey by interviewing with Talati and /or sarpanch



Gujarat Technological University, Ahmedabad, Gujarat

Vishwakarma Yojana: Phase VIII
Survey with Interviewing

SURVEY BY INTERVIEWING WITH TALATI AND/OR SARPANCH

Vishwakarma Yojana: Phase VIII

ALLOCATED VILLAGE SURVEY

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

CHAPTER- 16

Sr.	Questions	Yes/ No	Remarks
1	What are the sources of income in village?	yes	farming
2	What are the chances of employment in village?	No	Required
3	What are the special technical facilities in village?	No	—
4	Is any debt on village dwellers?	No	—
5	Are village people getting agricultural help?	~~Yes~~	—
6	Is women health awareness Program organized in village?	No	—
7	Are women having opportunity to work and income?	yes	Tailer, work
8	Child girl education is appreciated in village?	yes	Any Seprate school
9	Facility of vaccination to child is available in village?	No	—
10	Are village people aware about child vaccination and done to each and every child as per norms?	No	—
11	Women help line number information is provided to village people?	No	Required
12	Is water scarcity in village? How many days per year?	No	—
13	Is village under any debt?	No	—
14	Is any serious issue due to debt from bank or any person happened in village?	No	—
15	Is any suicide like incident observed in village due to government policy, debt or threatening?	No	—
16	Is any death of patient occurred due to unavailability of medical facility in village?	No	—
17	How many disabled (physically challenged) is observed in village? Provide list with Male/female/girl/boy with age and type of disability and reason of disability.	No	—
18	Is village improvement is observed in comparative scenario from past to present?	yes	Road,
19	Is any unavoidable difficulty village people are facing? Any natural calamity is there?	yes	—
20	Life Living standard of girls and women is appreciated and uplifted in village?	No	Required.

Nodal officer and students can add more questions. This is a sample. Having Minimum requirement.

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

~~સરપંચ~~ તલાટી મંત્રી

Chapter 17 Irrigation / agriculture activates and Agro industry, alternate technics and solution

Irrigation activates: -

- Irrigation is the artificial process of applying controlled amounts of water to land to assist in production of crops. Irrigation also has other uses in crop production, including frost protection, suppressing weed growth in grain fields and preventing soil consolidation.
- Activated irrigation may be defined as using a method to agitate and improve the flow of irrigates to the intricacies of root canal system by mechanical or other energy forms.

Agro industry: -

- Agro-industries are the enterprises, activities. and institutions that deliver material inputs to the farming sector and transform, distribute and otherwise add value to agricultural and food products targeting an identified market demand. Benefits of agro-industries include pro- viding.
- **Major agro-based industries in India:**
  - Textile industry
  - Sugar industry
  - Vegetable oil industry
  - Tea industry
  - Coffee industry
  - Leather industry

Alternate technics and solution

- **Crop rotation:** is one of the most powerful techniques of sustainable agriculture. Its purpose is to avoid the consequences that come with planting the same crops in the same soil for years in a row.
- **Permaculture:** is a food production system with intention, design and smart farming to reduce waste of resources and create increased production efficiency.
- **Cover crops:** many farmers choose to have crops planted in a field at all times and never leave it barren this can cause unintended consequences.
- **Soil enrichment:** soil is a central component of agriculture ecosystems. Healthy soil full of life, which can often be killed by the overuse of pesticides. Good soils can increase yields as well as help create more robust crops.
- **Natural pest predators:** in order to maintain effective control over pests, it is important to view the farm as an ecosystem as opposed to a factory. For example, many birds and other animals are, in fact, natural predators of agricultural pests.

Chapter 18 Social activities – any activities planned by students

Covid-19 awareness activities: -

We provided covid-19 advice to the villagers

We visited the devda village and give advice for covid-19.

- Clean hands regularly
- Keep at least 1 meter apart
- Avoid touting your face
- Wear a mask
- Stay home when you are sick

18.1 Covid 19 advice poster

18.2 With villagers

Chapter 19 SAGY questionnaire survey form with the sarpanch signature

Saansad Adarsh Gram Yojana (SAGY) Panchayat Details Survey Questionnaire

(Note: Please aggregate information from village level questionnaires wherever relevant)

I. Basic Information

a. Gram Panchayat: DEVDA

b. Block: —

c. District: RAJKOT

d. State: GUJRAT

e. Lok Sabha Constituency: RAJKOT

f. Number of Wards in the Gram Panchayat: 1

g. Number of Villages in the Gram Panchayat: 1

h. Names of Villages: DEVDA

Demographic Information

Number of Households 176 Total Population 776 Male 380 Female 396

SC HHs 60 ST HHs — OBC HHs 60 Other HHs 500

I. Access to Infrastructure / Facilities / Services

	Infrastructure Facilities / Services	Located within the GP Yes (Y)/No (N)	If located elsewhere (N), distance from the GP office
a.	ANM/ Health Sub Centre	NO	—
b.	Nearest Primary Health Centre (PHC)	yes	6 km
c.	Nearest Community Health Centre (CHC)	NO	26 km
d.	Nearest Post Office	NO	4 km
e.	Nearest Bank Branch (Any)	NO	8 km
f.	Nearest Bank with CBS Facility	NO	—
g.	Nearest ATM	NO	—
h.	Nearest Primary School	yes	In village
i.	Nearest Middle School	yes	In village
j.	Nearest Secondary School	NO	26 km
k.	Nearest Higher Secondary School / +2 College	NO	26 km
l.	Nearest Graduate College	NO	26 km
m	Nearest ITI / Polytechnic Centre	NO	26 km
n	Kisan Seva Kendra	NO	26 km

1

Saansad Adarsh Gram Yojana (SAGY) Panchayat Details Survey Questionnaire

(Note: Please aggregate information from village level questionnaires wherever relevant)

	Infrastructure Facilities / Services	Located within the GP Yes (Y)/No (N)	If located elsewhere (N), distance from the GP office
o	Agriculture Credit Cooperative Society	Yes	–
p	Nearest Agro Service Centre	Yes	In village
p	MSP based Government Procurement Centre	NO	–
q	Milk Cooperative /Collection Centre	Yes	In village
r	Veterinary Care Centre	NO	–
s	Ayurveda Centre	NO	–
t	E – Seva Kendra	NO.	–
u	Bus Stop	Yes	2 km
v	Railway Station	NO	26 km
w	Library	NO	–
x	Common Service Centre	NO	26 km

IV. Sports Facilities in the Gram Panchayat

a. Number of Play Grounds in the GP: Total 0 Public 0 Private 0

b. Mini Stadium : NO Yes(Y) /No (N) *(Playground with equipment and sitting arrangement)*

V. Education, ICDS

a. Number of Angan Wadi Centres: 1

b. Number of villages without Angan Wadi Centres 0

Names of such villages: —

c. Schools (Number)

Primary Private: — Primary Govt.: 1

Middle Private: — Middle Govt.: 1

Secondary Private: 1 Secondary Govt.: —

Higher Secondary Private: — Higher Secondary Govt: —

VI. Public Distribution System

	Item	Private Contractor	Women's SHG	Gram Panchayat	Cooperative	Other (Mention)	Location in GP (mention Location)	If outside GP, Location & distance from GP HQrs)
a.	Cereal (Rice/ Wheat/ Millets)	–	–	–	–	Govt.	–	–
b.	Kerosene	–	–	–	–	Govt.	–	–
c.	Other (mention)	–	–	–	–	Govt.	–	–

2

Saansad Adarsh Gram Yojana (SAGY) Panchayat Details Survey Questionnaire

(Note: Please aggregate information from village level questionnaires wherever relevant)

VII. Coverage of Villages under different Facilities & Services

	Parameter	Villages Status[1]	Names of Villages Covered	Names of Villages not Covered
a.	Piped Water Supply Coverage to Villages	Covered ✓ / Not Covered	DEVDA	–
b.	Hand Pump Coverage in Villages:	Covered ✓ / Not Covered	DEVDA	–
c.	Coverage under Covered Drains:	Covered ✓ / Not Covered	DEVDA	–
d.	Coverage under Open Drains:	Covered ✓ / Not Covered	DEVDA	–
e.	Villages with Household Electricity Connection (Numbers)	Connected ✓ / Not Connected	DEVDA	–

VIII. Land and Irrigation

	Private Land	Area in Acres		Common Land	Area in Acres		Irrigation Structure	No.
a.	Cultivable Land	2361.31 Hectare	d.	Pasture / Grazing Land	–	g.	Check Dam	2
b.	Irrigated Land	2000 Hectare	e.	Forests/ Plantations	–	h.	Wells/Bore Wells	1
c.	Un-irrigated Land	-	f.	Other Common Land	–	i	Tanks /Ponds	1

[1] Mention the number of Villages Covered and Not Covered

3

Saansad Adarsh Gram Yojana (SAGY) Panchayat Details Survey Questionnaire

(Note: Please aggregate information from village level questionnaires wherever relevant)

IX. Parameters relating to Households & Institutions

		Number
a)	Number of eligible Households for pension (old age, widow, disability)	—
b)	Number of Households receiving pension (old age, widow, disability)	—
c)	Number of eligible Households who are not receiving pension	776
d)	Number of Households eligible for Ration Card	776
e)	Number of eligible HHs having ration cards	—
f)	Number of households covered under RSBY (Rashtriya Swasthya Bima Yojana)	—
g)	Number of HHs covered under AABY (Aam Aadmi Bima Yojana)	—
h)	Number of active Job Card holders under MGNREGA	—
i)	Number of Job Card holders who completed 100 days of work during 2013-14	200
j)	Number of shops selling alcohol	
k)	Number of BPL families	6
l)	Number of landless households	25
m)	Number of IAY beneficiaries	—
n)	Number of FRA[2] beneficiaries	—
o)	Number of Community Sanitary Complexes	—
p)	Number of Households headed by single women	6
q)	Number of Households headed by physically handicapped persons	—
r)	Total number of Persons with Disability in the village	—
s)	Number of SHGs	—
t)	Number of active SHGs	—
u)	Number of SHG Federations	—
v)	Number of Youth Clubs	—
w)	Number of Bharat Nirman Volunteers	—

Name and Signature of Surveyor and Respondent'

Thakkar Ashwin A.N. Thakkar Surveyor	PRI Respondent (Preferably Gram Panchayat Chairperson)	Official Respondent (Preferably seniormost Government official in the Gram Panchayat)	25/07/2021 Date of Survey

[2] The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006

4

SAANSAD ADARSH GRAM YOJANA (SAGY) Village Details Survey Questionnaire

This questionnaire should be filled for each of the villages in the selected Gram Panchayat[1]

I. Basic Information

a. Village: DEVDA
b. Ward Number: –
c. Gram Panchayat: DEVDA
d. Block: –
e. District: RAJKOT
f. State: GUJRAT
g. Lok Sabha Constituency: RAJKOT
h. Number of Habitations / Hamlets in the Gram Panchayat: –
i. Names of Habitations / Hamlets:

Demographic Information

Number of Households 176 Total Population 776 Male 380 Female 396

SC HHs 60 ST HHs – OBC HHs 60 Other HHs 500

II. Access to Infrastructure/Amenities etc.

i.	Access to Infrastructure / Facilities / Services	Located in the Village Yes (Y)/No(N)	If located elsewhere (N), distance in kms from the village
a.	Nearest Primary School	YES	IN VILLAGE
b.	Nearest Middle School	YES	IN VILLAGE
c.	Nearest Secondary School	NO	1 KM
d.	Kisan Seva Kendra	NO	–
e.	Milk Cooperative /Collection Centre	YES	IN VILLAGE
g.	Health Sub Centre	NO	–
h.	Bank	NO	–
i.	ATM	NO	–
j.	Bus Stop	YES	2 KM
k.	Railway Station	NO	26 KM

[1] While filling this the surveyor must collect the information from the Ward Member/s and relevant government officials

1

SAANSAD ADARSH GRAM YOJANA (SAGY) Village Details Survey Questionnaire

viii. Land Category		Area in Acres		Land Category	Area in Acres		Irrigation Structure	No.
a.	Cultivable Land	2.41	d.	Pasture / Grazing Land	–	g.	Check Dam	2
b.	Irrigated Land	3.41	e.	Forests/ Plnatations	–	h.	Wells/Bore Wells	1
c.	Un-irrigated Land	–	f.	Other Common Land	–	I	Tanks /Ponds	1

ix. Entitlement Related Parameters		
1	Number of active Job Card holders under MGNREGA	–
2	Number of active Job Card holders who have completed 100 days of work	200
3	Number of shops selling alcohol	–
4	Number of BPL families	6
5	Number of landless households	25
6	Number of IAY beneficiaries	–
7	Number of FRA beneficiaries	–
8	Number of common sanitation complexes	–
9	Number of SHGs	–
10	Number of active SHGs	–
11	Existence of SHG Federation in the Village (Yes / No)	–
12	Number of Youth Clubs	–
13	Number of Bharat Nirman Volunteers	–

Name and Signature of Surveyor and Respondent'

Makwana Naim M. Surveyor	PRI Respondent (Preferably a ward member from a ward that is fully or partially covered under the Village)	Official Respondent (Preferably seniormost Government official in the Gram Panchayat)	25/07/2021 Date of Survey

3

SAANSAD ADARSH GRAM YOJANA (SAGY) Baseline Household Survey Questionnaire

Village: DEVADA Gram Panchayat: DEVADA Ward No. ____

Block: — District: RAJKOT

State: GUJRAT L S Constituency: RAJKOT

1. Family Identity and Size

Name of Head of Household	LALJIBHAI NATHABHAI KACHHADIYA							Male/ Female	M
SECC Survey ID:		Family Size	2	Over 18	2	6 to 18		Under 6	

2. Category & Entitlement Details (Tick as appropriate)

Social Category[1]	GENERAL	Life Insurance	1. All Adults 2. Some Adults 3. None	AABY	1. Yes 2. No	Kisan Credit Card	~~Yes~~ / No
Poverty Status Year[2]:	1. BPL 2. APL	Health Insurance	1. All Adults 2. Some Adults 3. None	RSBY	1. Yes 2. No	MGNREGS Job Card Number	NO
PDS (If NFSA is not implemented)	Annapurna	Antyodaya	BPL	APL	Is any woman in the family member of an SHG? Yes / ~~No~~		
PDS (If NFSA is implemented)	Annapurna	Antyodaya	Priority	Other			

2. Adults (above 18 years)

Name	Age	Sex M/F / O	Disability Status Y/N	Marital Status[3]	Education Status[4]	Adhaar Card (Y/ N)	Bank A/C (Y/N)	Social Security Pension[5]
LALJIBHAI	65	M	NO		4	YES	YES	—
MUKTABEN	64	F	NO		3	YES	YES	—

3. Children from 6 years and up to 18 years

Name	Age	Sex M/F/O	Disability Y/N	Marital Code*	Level of Education: Code#	Going to School /College (Y/N)	Current Class	Computer Literate Y/N

4. Children below 6 years

Name	Age	Sex M/F/ O	Disability Yes/No	Going to School (Y/N)	Going to AWC Y/N	De-worming Done	Fully Immu-nised Y/N	Mother's Age at the time of Child's Birth

[1] Scheduled Caste 1, Scheduled Tribe 2, Other Backward Castes 3, Other 4

[2] Enter the BPL Survey round being used in the Gram Panchayat for identification of BPL Families (e.g. 1997/2002/2011)

[3] Marital Status: Not Married – 1, Married – 2, Widowed – 3, Divorced/Separated – 4

[4] Level of Education: Not Literate – 01, Literate – 02, Completed Class 5 - 03, Class 8th – 04, Class 10th -05, Class 12th -06, ITI Diploma-07, Graduate-08, Post Graduate/Professional – 09 (write the highest level applicable)

[5] No Pension – 0, Old Age Pension – 1, Widow Pension – 2, Disability Pension – 3, Other Pension – 4 (mention)

SAANSAD ADARSH GRAM YOJANA (SAGY) Baseline Household Survey Questionnaire

5. Hand washing

	Always		Sometimes		Never
After use of Toilet	Soap ✓	Other	Soap ✓	Other	
Before Eating	Soap	Other ✓	Soap	Other ✓	

6. Use of Mosquito Net
Children: Yes / No Adults: Yes / No

7. Do members take Regular Physical Exercise

	Yoga	Games	Other Exercises
Adults	Yes / No	Yes / No	Yes / No
Children	Yes / No	Yes / No	Yes / No

8. Consumption of Tobacco

	Smoking	Chewing
Adults	—	—
Children	—	—

9. House & Homestead Data

Own House: Yes / No	No. of Rooms: 2
Type: Kutcha / Semi Pucca / Pucca	
Toilet: Private / Community / Open Defecation	
Drainage linked to House: Covered / Open / None	
Waste Collection System	Door Step / Common Point / No Collection System
Homestead Land: Yes / No	Kitchen Garden : Yes / No
Compost Pit: Individual/ Group/ None	Biogas Plant: Individual/ Group/ None

10. Source of Water (Distance from source in KMs)

Source of Water		Distance
Piped Water at Home	Yes / No	1KM
Community Water Tap	Yes / No	
Hand Pump (Public / Private)	Yes / No	
Open Well(Public / Private)	Yes / No	
Other (mention):		

11. Source of Lighting and Power

Electricity Connection to Household: Yes / No
Lighting: Electricity/Kerosene/Solar Power
Mention if Any Other: _____
Cooking: LPG/Biogas/Kerosene/Wood/Electricity
Mention if Any Other: _____
If cooking in Chullah: Normal/ Smokeless

12. Landholding (Acres)

1. Total	1.41	2. Cultivable Area	1.41
3. Irrigated Area	1.41	4. Uncultivable Area	—

13. Principal Occupations in the Household

Livelihood	Tick if applicable
Farming on own Land	
Sharecropping /Farming Leased Land	
Animal Husbandry	
Pisciculture	
Fishing	
Skilled Wage Worker	
Unskilled Wage Worker	
Salaried Employment in Government	
Salaried Employment - Private Sector	✓
Weaving	
Other Artisan(mention)	
Other Trade & Business (mention)	

14. Migration Status
Does any member of the household migrate for Work: Yes / No. If Yes Entire Year / Seasonal
Does anyone below 18 years migrate for work: Y/N

15. Agriculture Inputs

Do you use Chemical Fertilisers	Yes/No
Do you use Chemical Insecticides	Yes/No
Do you use Chemical Weedicide	Yes/No
Do you have Soil Health Card	Yes/No
Irrigation: None/ Canal/ Tank/ Borewell/Other	
Drip or Sprinkler Irrigation: Drip /Sprinkler / None	

16. Agricultural Produce in a normal year (Top 3)

Name	Unit	Quantity
ઘઉં	મણ	100
મગફળી	મણ	425

17. Livestock Numbers

Cows: —	Bullocks: —	Galves: —
Female Buffalo: —	Male Buffalo: —	Buffalo Calves: —
Goats/ Sheep: —	Poultry/ Ducks: —	Pigs: —
Any other: Type —		No. —
Shelter for Livestock: Pucca / Kutcha / None		
Average Daily Production of Milk(Litres): —		

18. What games do Children Play

—

19. Do children play musical instrument (mention)

—

Schedule Filled By: ASHWIN THAKKAR
Principal Respondent: K.R. DATTANI
Date of Survey: 25/07/21

Chapter 20 TDO-DDO- Collector email sending soft copy attachment in the report

Development scenario of Devda Village, Rajkot District

Ashwin Thakker <ashwinthacker22150@gmail.com> 1:57 PM (0 minutes ago)
to ddo-raj, rurban, AITSDS

Respected Sir/Madam,

We are students of Atmiya Institute of Technology & Science, Rajkot affiliated to Gujarat Technological University(GTU). GTU has been assigned to Vishwakarma Yojana-VIII in which students survey various village facilities and Design various amenities to deliver it to them ideal for living a better life as per requirements and village problem statements.

As a part of Vishwakarma Yojana's guidelines, we have been asked to inform all the respected officers about the our project in which we will shortly notify about design work for Devda Village with its benefit and estimated cost, which is as below,

Sr No.	Design name	Period	Amount Expenditure	Benefits of village
1	Bank with ATM	Long term	727400	We are provided bank to easily send or receive money.
2	Anganwadi	Long term	427600	A typical Anganwadi center provides basic health care in a village. It is a part of the Indian public health care system. Basic health care activities include

Please find herewith attached,

1. Detailed Project Report of Devda Village

Thanks & Regards,
Thakkar Ashwin & Naim Makwana
Diploma Civil Engineering
Atmiya Institute of Technology & Science for Diploma Studies, Rajkot
Gujarat Technological University.

Chapter 21 Comprehensive report the entire village.

- In Vishwakarma yojna we need to select one allocated village for project, we select allocated village, Devda village located at lodhika taluka in Rajkot district.
- This village is small and want to be development so we selected this village and visit this village for our project.
- In 1st phase of project, we visit Devda village for understand village condition, village people, village basic amenities, infrastructure availability and understand to what's basic needs of villagers.
- We conduct techno economic survey for more details and we also compare our details and we also compare our allocated village basic facilities with smart and ideal village.
- In project basis of this survey, we decided basis of this survey we decided 6 designs for first phase for project like.
    1. Bank whit ATM
    2. Anganwadi
    3. Medical store
    4. Internet café
    5. Bio-gas plant
    6. Chabutra
- After give this 6 deigns and their estimate our first phase complete.
- In Vishwakarma yojna project phase-2 we again visit village for SAGY questionnaire survey and for decided our phase-2 designs for village development.
- We talk with sarpanch and particular houses for SAGY survey and we decided our phase-2 designs.
- We also click lots of pictures of village condition and facilities.
- In phase-2 we decided design like.
    1. Water tank
    2. Public toilet
    3. Feast of water (drinking water)
    4. Bus stand
    5. Plastic bottle crusher machine
    6. Post office
- This are some basics designs of phase-1 and phase-2 of our Vishwakarma yojana project so these designs fulfil some level needs and migration rate will be decreased.
- The aim of Vishwakarma yojna is decreased migration rate and village become smart and ideal to fulfil villager's basic needs, we think this project gave us lost of Experience and knowledge and very useful to village