DETAIL PROJECT REPORT

VISHWAKARMA YOJNA: VIII
AN APPROACH TOWARDS RURBANISATION
KOLAT Village

AHMEDABAD District

PREPARED BY

STUDENT NAME	BRANCH NAME	ENROLLMENT NO
Chudasama Jahal J.	Civil Engineering	180323106503
Sheth Khushi P.	Civil Engineering	180323106023

L.J.INSTITUTE ENGINEERING
ENGINEERING AND TECHNOLOGY

NODAL OFFICERS NAME
PROF. PARTH SINROZA

YEAR: 2020-21

GUJARAT TECHNOLOGICAL UNIVERSITY
Chandkheda, Ahmedabad – 382424 Gujarat

DETAIL PROJECT REPORT

ON

VishwakarmaYojana: Phase VIII

AN APPROACH TOWARDS RURBANISATION
KOLAT Village

AHMEDABAD District

Prepared By

STUDENT NAME	BRANCH NAME	ENROLLMENT NO
ChudasamaJahal	Civil Engineering	180323106503
Shethkhushi	Civil Engineering	180323106023

NODAL OFFICERS NAME

PROF. PARTH SINROZA

L.J.INSTITUTE ENGINEERING
ENGINEERING AND TECHNOLOGY

Year: 2020-21

Gujarat Technological University,
Chandkheda, Ahmedabad– 382424 Gujarat

CERTIFICATE

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

Detail Project Report for,

VILLAGE KOLAT
DISTRICT AHMEDABAD

Under

Vishwakarma Yojana: Phase-VIII

in partial fulfillment of the project offered by

GUJARAT TECHNOLOGICAL UNIVERSITY, CHANDKHEDA

during the academic year 2020-21.

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

STUDENT NAME	BRANCH NAME	ENROLLMENT NO
Chudasama Jahal	Civil Engineering	180323106503
Sheth Khushi	Civil Engineering	180323106023

Date of Report Submission:	
Principal Name and Signature:	Dr. A. C. Suthar
VY-Nodal Officer Name and Signature:	Prof. Parth Sinroza
Internal(Evaluator) Guide Name and Signature:	Prof. Parth Sinroza
College Name:	L.J. Institute of Engineering & Technology
College Stamp:	

ABSTRACT

Our vision for the county is to urbanize village with all those smart amenities that a city has our goal is to fulfill that in the village too. This will help in improving living standard of the villagers and also reduce migration of the villagers. The future scenery for the urbanization can be sustainable by improving rural India.

The aim of Vishwakarma yojana is to develop the rural areas of the country for this it is mandatory to study the present scenario & the techno-economic is necessary in terms to provide basic amenities for the development of the village. Vishwakarma yojana is one of the initiatives towards Rurbanization by government of Gujarat. Vishwakarma yojana also provide the benefits to engineering students by providing them real work experience. Students through their technical knowledge contribute towards the development of rural areas.

Our allocated village is KOLAT, KOLAT is situated in Ahmedabad district of Sanand Tehsil in Gujarat. It is located 5km from Sanand Sub-district headquarters and 22km from the Ahmedabad district Headquarters. The area of the Kolat village is around 1009.33 hectares having population of 4327.

By visiting village and by doing Techno-economic survey we got to know the present scenario of the village. In the village cleanliness was not preserved, kitchen waste, cow dung & other wastes were seen on the streets. There was no proper management for solid waste management. Many infrastructure facilities are not accessible, such as post office, community hall, phc. There is no medical facility available in the village, no PHC, no private clinic not even medical store.

We decided to propose design of PHC, community hall, septic tank, vegetable market , Common service center because as per survey & gap analysis we conclude that this basic infrastructure is important for increasing living standard & create a healthy atmosphere for the villagers.

By developing the above mentioned amenities all the facilities will be available to the villagers & migration will reduce & villagers need can live a good lifestyle in the village itself.

In the part-2 after proposing the basic amenities we will suggest certain designs like maternity home, Cremation centre, Smart sanitation System, Recreation Park, Pharmacy store for the future development of the village.

Key Words:

Rurbanization, Sustainable, Infrastructure, Migration, lifestyle, health, modernization, Amenities, Rural development

ACKNOWLEDGEMENT

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

We wish to express our deep sense of gratitude to **Prof.(Dr.) Navin Sheth**, **Hon'ble Vice Chancellor,GujaratTechnologicalUniversity-Ahmedabad**,forhisencouragementand giving us the wonderful project.

We also express our gratitude to **Dr. K.N. Kher**, **Registrar, Gujarat Technological University-Ahmedabad** 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, Talati and staff members of Ahmadabad** District for providing us with requisite data whenever we approached them. Especiallyourthanksaretoallvillagersandstakeholdersfortheirsupportduring Survey.

We are also thankful tour **Principal Dr. A.C. SUTHAR**, facultiesofourcollegesfortheirencouragementandsupporttocompletethisprojectwork.

An act of gratitude is expressed to our internal guide / Evaluator / Nodal Officer, **Prof. Parth Sinroza** fromcollege **L.J. Institute of Engineering & Technology**. For their invaluable guidance, constant inspiration and active involvement in our projectwork.

We are also thankful to all the experts who provided us their valuable guidance duringthe 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.) JigarSevalia**, Professor, SCET, Surat, **Prof .K.L.Timani,** Associate Professor, VGEC, **Prof. Rena Shukla**, Associate Professor,LDEngineeringCollege,**Prof.Y.B.Bhavsar,**AssociateProfessor,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 expressingourdeepgratitudeandsincerethanksforhercooperationtoproducethisproject 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.

CONTENT

LIST OF TABLES

ABBREVIATIONS

SHORT NAME / SYMBOL	FULL NAME
PHC	Primary Health Center
CSC	Common service Center
UDPFI	Urban & Regional Development Plans formulations & Implementation
TDO	Taluka Development Officer
DDO	District Development Officer
SAGY	SaansadAdarsh Gram Yojana
JSY	JananiSurakshaYojana
BSY	BalikaSamriddhiYojana
IAY	Indira AawasYojana
NSAP	National Social Assistance Program
ICU	Intensive Care Unt
GDP	Gross Domestic Product

LIST OF FIGURES

Chapter 1
Ideal Village Visit from District Of Gujarat State (Civil Concept)

1.1 Background & Study Area Location

- Punsari is a village in the state of Gujarat, India, in the district of Sabarkantha. Punsari is considered the smartest village in India. The village is situated about 80km from the capital of the state, Gandhinagar. Punsari is 20km from the hills of Parvati. Parvati Hills is India's biggest table- top region. The village follows the system of the Panchayati raj. The extent of the village is around 65 km. The land used for cultivation is 6hectares.
- The application of modern and emerging technologies has been used in education. For all residents, this village has a wifi connection. Efforts have been made to empower women and to increase the village's stability. Some of the services offered by the panchayat include the supply of local mineral water, a sewage and drainage scheme, a health centre, banking facilities and a toll-free reception service for complaints. Consequently, Punsari won the award for being Gujarat's best GramPanchayat.
- The panchayat in this village has made efforts to provide the best possible facilities to students. Air-conditioners and CCTV cameras are installed in the primary school. Apart from that 25 CCTVs are installed in prime junction of village so that the litterbugs can be spotted and punished.

District – Sabarkantha Pin code - 383307

Language- Gujarati, Hindi, English

STD Code- 0277686

Fig 1.1 Map of Punsari village

1.2 Concept: ideal village, Normal village

- Ideal village are those villages which have successful technologies available, which have been implemented in urban areas. There is tremendous pressure on urban landscapes due to migration of rural people for livelihood.

1.2.1Objectives of ideal village:

- Prevention of rural-to-urban migration.
- Make the model village a hub that would draw capital for other villages to create.·
- Providing local needs with global means·
- Enhancing social empowerment·
- Study of villages at the micro and macro level on various socio-economic parameters.
- Offering quicker, faster and cheaper access to urban agricultural produce markets.
- Improving the village literacy rate by reducing the drop out rate.
- To boost the economic situation.

1.2.2 Examples / Live cases studies of ideal village of India

1) Punsari (Gujarat): The village of Punsari is located in the district of Sabarkantha in Gujarat state, India. The village is located about 80 km from the capital of the state, Gandhinagar. New &sophisticated technology has been used in education. All the people in this village have a Wifi connection.

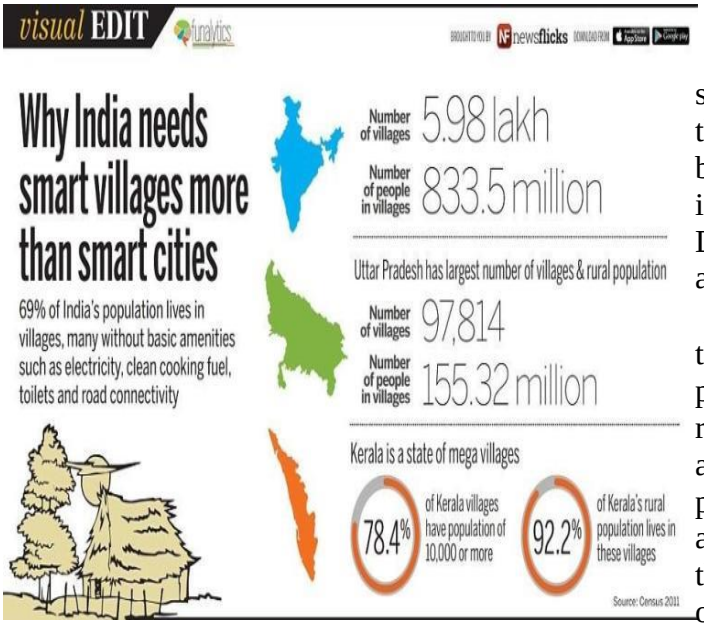
2) Pothnikkad (Kerala): Pothnikkad village, located in Kerala, is the first to achieve a literacy rate of 100 percent in the Indian village. St Mary's high school is the oldest high school in the village from where many prominent people in society have been educated. There were 17,563 residents in the village in the year 2011 & all were educated.

1.2.3 The Idea of a model/ Smart village

- Access to sustainable energy services in Smart Village serves as a catalyst for development, enabling the provision of good education and health care, access to clean water, sanitation and nutrition, the growth of productive businesses to raise incomes, and improved security, gender equality and democratic participation.
- Apart from that there must be well established roads & proper drainage facilities.
- Smart village concept plays a crucial role in maintaining the balance between the development of rural & urban areas.
- A "Smart village" will encompass a sustainable and inclusive development of all section of the village community, so as they enjoy a high standard of living.

1.2.4 Ancient History Civil concept about Indian village

Indus valley Civilization



- In accordance with some planning, the cities of the Indus valley seem to have been planned. The streets pass in straight lines at Mohenjo-Daro and are crossed at right angles by others.
- This indicates that there was planning and the presence of some authority to regulate the growth of the area. As the greatest precaution was taken to avoid any structure from invading the streets, town-planning was often followed by strict implementation of building regulations. It seems that the citizens were extremely rich.
- The great public bath was made of burnt brick and measured thirty-nine feet three inches in length and twenty-three feet two inches in width. One can enter it at either end by means of a staircase
- A paved walk surrounded the top of the bath. The openings in the wall gave access to a cloistered walk continuing right round the bath.
- There was a vertical manhole at the western end that made it made it possible to inspect and clear the passage. The water passed out through a culvert. To the east of the bath there is a large well which is accessible to the main street outside.
- An annex to the Great Bath suggests arrangements for hot air bathing with a hypocaust system of heating.
- There were group of bath rooms with staircases for upper story. No door exactly faces the other which made it impossible for anyone to see into room from outside. Bathing was probably an essential ritual of people of Indus valley.

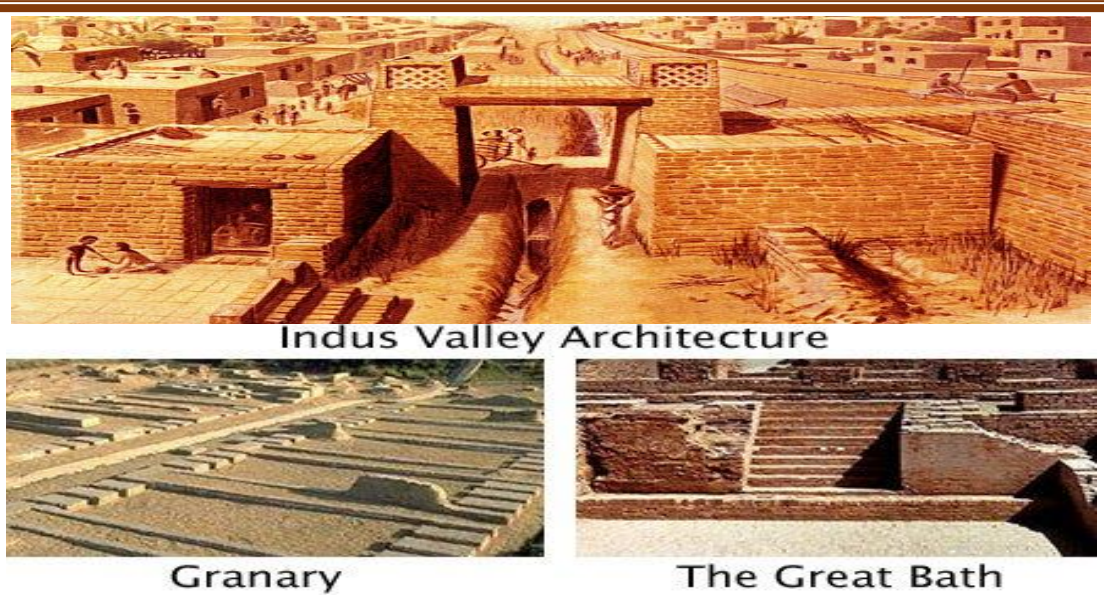


Fig 1.3 Architecture of Indus Valley Civilization

1.3 Detail study (Socio economic, physical, demographic & infrastructure details of ideal village/ smart village with photographs)

- Provision of electricity for domestic use is available.
- 24 hr sportable drinking water is available.
- Reinforced Cement Concrete makes up the entire road network in the village.
- For travel, private cars, auto rickshaws and buses are used.
- There are 8 Aanganwadi, 2 Primary schools, 2 secondary, 1 higher Secondary school & 1 ITI mini College.

Demographical detail:

Sr. no	Census	Population	Male	Female	Total households
1	2001	4,375	2,456	2,279	-
2	2011	5,100	2,653	2,447	1,109

Table 1.1 Demographical detail

Geographical detail:

Sr.no	Description	Area (approx)
1	Area of village	1395.65 hectare
2	Agriculture area	1015.63hectare
3	Residential area	18.51 hectare
4	Waste land	142.06 hectare

5	other	219.45 hectare

Table 1.2 Geographical detail

Images of punsari village Gujarat

Fig 1.4 Location Board

Fig 1.5 Panchayat house of Punsari

Fig 1.6 Bank of Punsari

Fig 1.7 Gate of Punsari

1.4 SWOT analysis of ideal village

Strengths:

- Advance infrastructure

- Better education
- Availability of enough agricultural land
- Banks & ATM facilities
- Bus stops
- PHC
- Post office

Weakness:

- Funding

Opportunities:

- Road Connectivity
- Government Schemes

Threats

- Unemployment
- Superstations

1.5 Future prospects of Development of Ideal village

- They are going through development of Biogas plant which will help in reducing soil & water pollution.
- Biogas generation also produce organic fertilizer which will help in growing plants.
- Biogas plant is a simple &low cost technology that encourages in increasing economy of the Punsari village.
- They are going to develop solar street lighting in the entire village.
- They are also planning to develop with proper rainwater harvesting techniques.
- They are also planning to develop advanced drainage techniques.

1.6 Benefits of the visit of ideal Village/ Smart village

- We can get to know all civil benefits, such as LED street lighting, housing facilities, well-established pucca roads, water networks, from the Ideal Village comparison.
- We will also know about the appropriate drainage supply system and the proper sanitation system adopted in the Ideal Village.
- In addition, we can also obtain information on infrastructure facilities such as good road networks, schools, public health centers, police stations, Community Hall, Aanganwadi, with the Ideal Village reference post office.
- Apart from this we can also get to know, the culture & lifestyle of the villagers. We can also know the socioeconomic conditions of village.

1.7 Civil Aspects required in Ideal village

- Proper infrastructure services were available in the ideal village.
- Even though proper water supply & drainage lines were available.
- The thing that was missing was that there was no center for the learning of skills to help the young generation start up new ventures.

Chapter 2
KOLAT VILLAGE LITERATURE REVIEW

2.1 Introduction: Urban and Rural

- An urban area is a region surrounding a city. Most of the inhabitants of urban areas have non agriculture jobs. In urban areas there is a density of human structures such as houses, commercial buildings, roads bridges and railways
- "Urban areas" can refer to cities, towns and suburbs. According to Census of India 2011, the definition of urban area can be described as,
- Urban area is a place having minimum population of 5000 of density 400 persons per square kilometer or higher.
- At least 75% of male population is employed in non-agriculture activities.
- Rural area is an open swath of land that has few homes or other buildings, and rural areas are not as crowded as the urban ones. The population is quite less. Unlike those in urban cities, houses in rural areas are widely spaced with ample space for fields.
- "Rural areas" can be termed as the area having low population density and large amount of undeveloped land. According to Census of India 2011, the definition of rural area can be described as,
- A region of up to 400 per sq.km population density.
- Villages with simple borders, but no municipal board.
- A minimum of 75% of male workers which are involved in agricultural activities.
- In general, a geographical area that is located outside the cities is called as rural area.

Fig 2.1 Rural and Urban Area of India

2.2 Importance of the rural development

- The method of improving the quality of life and financial well-being of a person who specifically lives in populated and remote areas is typically linked to rural growth.
- Traditionally rural development is centered on the misuse of land-intensive natural resources such as forestry and agriculture. But today, increasing urbanization and change in global production, networks have transformed the nature of rural areas.
- Rural growth also remains at the center of the country's overall development today. More than two- thirds of the country's citizens have become dependent on farming for their livelihoods, and one-third of rural India remains below the poverty line. It is therefore necessary for the government to be efficient and provide adequate facilities to upgrade the standard of living.
- Rural development is a descriptive concept that focuses on measures taken to boost the village economy for the development of rural areas.
- Nevertheless, there are few fields that need more concentrated attention and new initiatives.

1) Education
2) Public Health and Sanitation
3) Women Empowerment
4) Infrastructure Development (e.g. electricity, irrigation, etc.)
5) Facilities for agriculture extension and research
6) Availability of Credit
7) Employment opportunity

2.3 Ancient Villages / Different definitions of rural area /Villages

- Rural area is also termed as countryside or village.
- Rural land is an area of land outside a town or city's heavily populated urban areas.
- In comparison to urban areas that have larger areas, rural areas are historically not included in the urban concept and are typically broad, open areas with few houses and few people.
- In other words, it can be also stated as a settlement usually larger than hamlet and smaller than a town.
- In rural areas, 75% male workers are engaged with agriculture activities.
- As per census 2011 the population of village is between 2000 to 20000.
- The living standard of people living in village is low as compared to urban area.

2.4 Scenario: Rural / Urban India as per census 2011 (Population growth)

- After independence, it is observed that there is absolute increase in population in urban areas than that in rural area. The utter rise in for the first time since Independence,
- The population in urban areas is greater than in rural areas. Rural-Urban allocation: 68.84 percent & 31.16 percent.
- The number of rural citizens decreased from 72.19% to 68.84%. Rural population is about 68.84%

- And Urban population is about 31.16%
- The proportion of rural reduced from 72.19% to 68.84%

2.5 Scenario: Rural / Urban India as per census 2011 (Population growth)

- As per Census 2011 data, Gujarat has a population of 6.04 Crores, a rise from 5.07 Crores in the 2001 census. As per the 2011 census, Gujarat's total population is 60,439,692, of which 31,491,260 and 28,948,432 are male and female, respectively. In2001, the total population was 50,671,017, with 26,385,577 males and 24,285,440 females. In this decade, the overall population growth was 19.28 percent, while it was 22.48 percent in the previous decade.

- Gujarat's urban population is now 42.6%or2.57crore, of the state's total, accordingtothe2011 census figures. No doubt, urbanization in Gujarat has been on the rise ever since Gujarat founded 50 years ago. However, the latest figures suggest the state's urbanization is the highest ever.

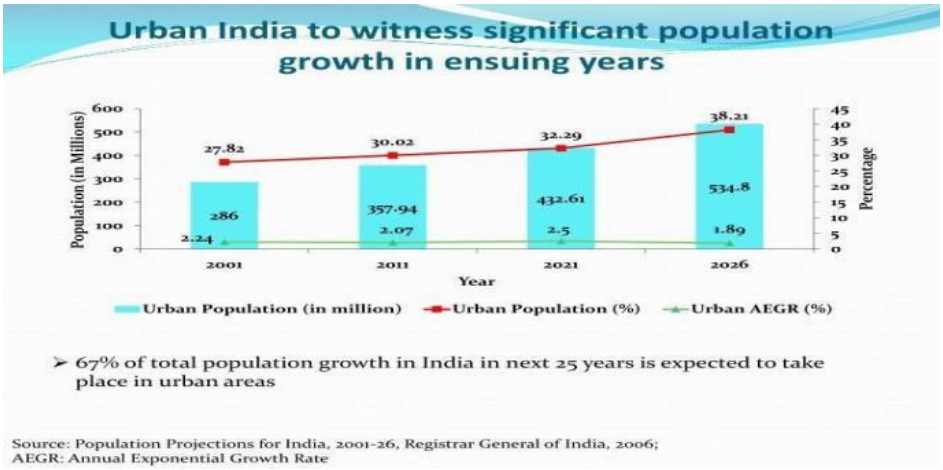


Fig 2.3 Growth Chart

Following table gives percentage of population lives in urban area in Gujarat

Year	Population lives in urban area in Gujarat
1971	28.80 %
1981	31.1%
1991	34.49%
2001	37.36%
2011	42.6%

Table 2.1 Population of Gujarat

Only two states Tamil Nadu & Maharashtra are more urbanized than Gujarat.

2.6 Rural Development Issues- Concerns- Measures

- In today's world, there are many challenges affecting rural areas.
- Migration of young people who will leave the area in question with an ageing population which, in turn, may benefit the area because without the participation of new generations, the area will deteriorate.
- The villagers are poor, ignorant and superstitious. There are no basic facilities in most villages, such as good roads, schools and hospitals. It is not satisfactory for the state of village schools. In addition, the villagers don't grasp the value of schooling.
- Lack of sanitation facilities is one of the major problem of villagers.
- The problems of malnutrition, illiteracy, unemployment and lack of basic infrastructure, such as schools, colleges, hospitals, sanitation, etc., still plague rural areas. This has forced young people to migrate out of villages to live in towns.

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

- The process of improving the quality of life and economic well-being of people in rural areas, mostly relatively remote and sparsely populated areas, is rural development.
- A healthy and dynamic agricultural sector is an important foundation of rural development, generating strong linkages to other economic sectors.
- Education, entrepreneurship, physical infrastructure and social infrastructure plays a vital role in developing rural regions.
- By maintaining culture heritage, landscapes, ancient monuments attract the tourism and leads to overall development of village.
- By spreading awareness of education to villagers because education also exposes the masses to information and helps prevent information from being misinterpreted.

Scope of rural development

Rural development is a subject that is simple to grasp but difficult to put into practice. It focuses on the upliftment and growth of rural economies that are suffering from severe poverty and effectively aims to increase their productivity. It also emphasizes the importance of addressing various pressing issues that impede village economies' growth and improvement.

Some areas that need urgent repair for the rural development.

- Public health & sanitation
- Literacy
- Female Empowerment
- Eradication of poverty
- Enforcement of Law & order
- Availability of funds
- Development of irrigation schemes
- Electricity

Need of rural Development of India

- An agriculture - based economy is exemplified by the rural economy. Despite the fact that farming and agriculture are two of the most important primary activities, the issue is that their share of the agriculture sector's GDP is steadily declining. At the same time, agriculture employs roughly two-thirds of India's population.
- Furthermore, public spending has decreased since 1991, owing to a lack of sufficient infrastructure, credit, transportation, and job opportunities, among other factors. From 2007 to 2011, agricultural production grew at a rate of just 3.2 percent. Both of these factors have hampered the production process. As a result, rural development, not just urban development, must be prioritized.

2.8 Other Projects/ Schemes of Gujarat/Indian Government

- **Janani Suraksha Yojna:**

Under the National Rural Health Mission (NRHM), Janani Suraksha Yojana is a Motherhood Action. And the Central Government of India is introducing it. And the primary aim of this scheme is the healthy involvement of motherhood.

- **Balika Samriddhi Yojna:**

The program introduced by the Central Government (Ministry of Women and Child Development) in 1997 is the Balika Samridhi Yojana. The Balika Samridhi Yojana is a major government initiative to increase the status of a child.

- **Indira Awas Yojna:**

Cash Assistance for Institutional Delivery (in Rs.)

Category	Rural Area		Urban Area	
	Mother's package	ASHA's package*	Mother's package	ASHA's package**
LPS	All pregnant women delivering in government health centres 1400	600	1000	400
HPS	All BPL/Scheduled Caste/Scheduled Tribe (SC/ST) women delivering in a government health centre 700	600	600	400

Fig 2.4 Janani Package

Indira Awas Yojna (IAY) is the flagship rural housing scheme that the Government of India is introducing to provide shelter for the poor below the poverty line. The Government of India has agreed that the allocation of IAY (Indira Awas Yojana) funds would be based on the poverty ratio and the scarcity of accommodation.

- **National Social assistance Programme:**

The National Social Assistance Program (NSAP) is a Government of India Centrally Funded Scheme that offers financial assistance in the form of social pensions to the aged, widows and persons with disabilities. Five sub-schemes consist of the National Assistance Program: Indira Gandhi National Old Age Pension Scheme (IGNOAPS)

- **Prime Minister Rojghar Yojna:**

PMRY has been running since 1993. During the 8th Plan phase, the Scheme is intended to Build and provide sustainable opportunities for self-employment to one million educated unemployed youth in the country.

Chapter 3
Smart (Cities / Village) Concept Idea and its Visit (Civil Concept)

3.1 Introduction: Concepts, Definitions and Practices

- Smart villages are communities in rural areas that use innovative solutions to improve their resilience, building on local strengths and opportunities.
- To Develop and implement their strategy to improve their economic, social and environmental Conditions by use of Digital Technologies.
- The main challenges facing rural areas are cover poverty, low level of education, And restricted access to technology.
- Definition of smart village Because of certain distinct features between rural and urban areas, they arose.
- The model of the village has been classified into 6 dimensions, including
    i. governance
    ii. technology
    iii. Resources
    iv. Service of the Village
    v. Living
    vi. Tourism
- It is expected that this research will be applied to villages in other regions by the modification of the characteristics of each region.

3.2 Vision-Goals, Standards and Performance Measurement

Indicators Goal-

- Empowering and linking rural communities towards sustainable socioeconomic development through science and technology.
- The idea of Smart Villages aims to encourage local actors to look beyond elements, analyses, prepare and take action on how current assets and potential opportunities can come together and connect the dots for more balanced rural development in the future.

Standards-

- Self-reliant-food, water and Energy for Human, Agricultural should be generated from local Resources and Supplied.
- Man Power – youths in village should educated and work, No Child should be deprived of education and nutrition food.
- Adopt Rural Technologies-Sustainable Technology to improve agriculture, cattle farming, water shed management etc.

3.1 Smart Village

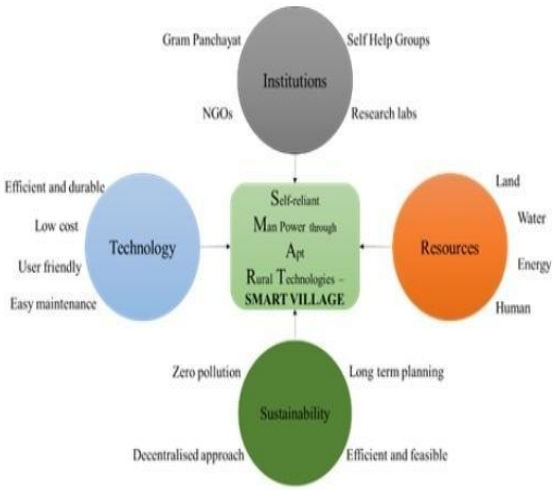


Fig 3.2 smart village Goals

Indicators

People	Planet	Prosperity	Governance
• Health • Safety, • Access to Service • Education • Diversity &Social Cohesion, • Quality of Housing &the built • Environment	• Energy &Mitigation • Material • Water And land • Climate Resilience • Population &waste • Ecosystem	• Employment • Equity • Green Economy • Economic Performance • Innovation • Attractiveness • Competitive -ness	• Organization • Community involvement • Multi-level Governance

Table 3.1 Indicators of Smart Villages

3.3 Technological Options

- Solar LED Street Lighting and Systems for Solar Home Lighting.

- Creation of health center, highways, school labs and playgrounds for children Foundations.
- Effective schemes for public transit, Renewable Energy Usage.
- Facility for Healthy Drinking Water- RO Water Plants, Managing solid and liquid waste, improving standards for sanitation.

3.4 Road Map and Safe Guards

- A smart city is described as a city that involves its people and it electronically links the infrastructure. A clever city has the potential to in a safe manner, to incorporate multiple technical solutions to Manage the assets of the town-the assets of the town include, but are not limited to, local assets.
- Information networks from agencies, colleges, libraries, transportation Systems, clinics, power stations, law enforcement, and other Services for neighborhoods.
- Systems of Road in Smart Village They are built around, the needs of their families, People, the provision of Data they want in a Format available.

1. Citizen Centric approach
2. Dynamic Updating

3.5 Issues & Challenges

- Education: Smart learning is an essential support for bridging educational systems and the experience of citizenship. Building smart learning environments for citizens will provide people with more opportunities for simple, engaged and productive learning, and thus provide insight into the innovation of the entire community.
- A smart city's future is based on human talent and expertise, making job development one of the main advantages. Obviously, these positions would be smart and concentrate on skills like data analytics, programming, high-end consulting, and integration of systems and networks. IT practitioners will definitely be in higher demand because IT infrastructure is the backbone of every smart city.
- Governmental Issues: Three-tier governance: Effective horizontal and vertical cooperation between different entities providing different urban services and effective coordination between central government (MoUD), state government and local government agencies on various issues related to funding and sharing of best practices and service delivery needs to be effectively implemented in smart city solutions.

3.6 Smart Infrastructure - Intelligent Traffic Management

- Smart infrastructure provides the basis for all key smart city-related subjects, including smart individuals, smart mobility, smart economy, smart living, smart governance, and smart climate. The key feature underlying most of these elements is that they are related and that they produce information that can be used intelligently to ensure the best use of resources and improve performance.

Smart infrastructure Included:

1. Smart building
2. Smart mobility

3. Smart energy
4. Smart waste management
5. Smart health

- Intelligent Traffic Management's framework aims to use machine learning algorithms to predict optimal routes based on patterns of traffic mobilization, categorization of vehicles, incidents of accidents and levels of precipitation.

3.7 Cyber Security or any other concept as per the

- Smart city technologies collect data on all types of privacy and dramatically increase the volume, range and granularity of information generated about individuals and locations. A variety of activities that are usually viewed as inappropriate, but are part of operations in a smart city eco system, may endanger and violate privacy.
- Smart city technologies have broad attack surfaces that have a number of vulnerabilities, as stated previously, especially in systems that include legacy components using old software that has not been patched regularly. To minimize these risks, technology solutions tend to use best practices.
- The goal is to reduce the attack surface to the maximum extent possible and to make the visible surface as solid and robust as possible.

3.8 Retrofitting- Redevelopment-Greenfield Development District Cooling

- Retrofitting would implement planning to achieve smart city targets in an already built-up area, along with other targets, in order to make the already area more efficient and livable. In retrofitting, in consultation with residents, an area consisting of more than 500 acres will be identified by the city.
- Redevelopment: Lack of services such as water, health, education, economic conditions, jobs, job opportunities and other infrastructure facilities etc. Rural villages are today like this. Rural growth is a process of improving the quality of life of the people living in rural villages and their economic conditions.
- A heating network, using one or more generating units, produces and distributes heat in the form of hot water and superheated steam. Generally, a number of different primary energy sources are used to produce heat, including natural gas, locally produced energy and renewable energy in the form of incineration of household waste, biomass (wood, etc.), biogas, solar , geothermal and waste water heat.

3.9 Strategic Options for Fast Development

- Community renovation (retrofitting), community regeneration (redevelopment) and city expansion (Greenfield growth) are the strategic components of area-based growth in the Smart Cities Mission, plus a Pan-city programmed in which Smart Technologies are extended to broader sections of the city.
- Retrofitting would implement planning to achieve smart city targets in an already built-up area, along with other targets, in order to make the already area more efficient and livable.
- Green field development will use creative planning, planning funding and planning

implementation tools with provision for affordable housing, particularly for the poor, to incorporate most smart solutions in a previously vacant area.

- Pan-city planning envisages applying the chosen smart solution to the current infrastructure of the city. The use of technology, information and data to enhance infrastructure and services would require the implementation of smart solutions.

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

- An overview of the current urban water supply situation in India is given in this section. This study is presented in three parts: households, systems of water delivery and treatment.

Urban Groundwater Management in India: Framework for Action

- Stakeholder profiling, including customers, tanker owners, drilling agencies, and production of Water source registration mechanisms could be introduced as part of the database on Groundwater for urban use.
- Mainstreaming is only after the first three measures-at least part of the private. It is possible to consider the procurement of groundwater into the public water supply system. As an instruction Development, quantitative and quality-related groundwater protection must be assessed; they are part of the plans for urban water protection. This must involve suitable methods as well, via the public groundwater recharge programmed, which is linked to security, Conservation and preservation of bodies of water.

Sanitation Challenges

- Urban sanitation in India faces multiple problems. For almost 60 million residents in urban areas, there is a shortage of access to better sanitation arrangements and more than two thirds of waste water is released untreated into the environment, polluting land and water bodies. The complete sanitation cycle, i.e. universal access to toilets, with secure collection, transmission and treatment of human excreta, would need to be resolved by Urban India in order to respond to these environmental and public health challenges.
- The sewerage schemes, where they exist, are troubled by numerous issues. The sewers in the majority of Indian towns are poorly run. Frequent blockages, siltation, the manhole missing gully pits & covers.
- Usually in the case of emergencies is there hardly any preventive maintenance with repairs being made. Improper solid waste disposal appears to block sewage lines as well.
- Sometimes, storm water enters the sewerage network, leading to inflow in excess of the capacity of the system, and hence sewer lines cannot function.
- In urban India, universal access to both water and sanitation still remains a problem. The mere existence of infrastructure, as shown, is not an indication of service levels.

While 40 percent do not have access to the public supply of piped water, the remaining households do not obtain adequate quantities of water or daily supplies of water.

- Households rely on several sources of water, procuring water from private players or some form of provisioning, in the absence of public service. Moreover, almost one-third of urban households do not have a source of water within their premises, and almost one- third rely on shared facilities. It is possible that water quality will be a problem. The high distribution losses, and high non-revenue sewage, remain the biggest problem at the city level.

3.11 Initiatives in village development by local self-government

- The facilities that which is provide by local government a village has to enrich a human life and maintain the ecosystem around it may represent growth at the level of a village. Water, sanitation, housing, poverty, electricity, health, climate, education, employment, etc. represent how a village is created. When we think about the growth of villages, we think about justice for all, the sustainability of our eco-friendly structures and gender equality.
- Case study:

1. Name of the MP :Ms. Smriti Jubin Irani
2. Name of the GP : Maghrol
3. Name of the District : Anand
4. Name of the State : Gujarat

- Smriti Jubin Irani after adopting Maghrol under Saansad Adarsh Gram Yojana had discussions with the villagers and Panch of the village, and found out that the village is lacking in quality health services. Intensive efforts were initiated by Member of Parliament to augment the Health services in the SAGY Gram Panchayat.

Fig 3.3 Village development by Local Self- Government

- An Intensive Care Unit (ICU) van was provided to the Dharmaj Jalaram Trust and an ambulance was also given to the local Government primary health care Centre involving total investment of ₹ 1.28 crore. Further, 500 health cards were issued to the

villagers that will facilitate cashless medical service to the patients getting treated in the empanelled hospitals.

- The Health card beneficiaries will also get cost of transportation incurred during the travel. She also inaugurated "Doctor on Call Project" for the Panchayat.

3.12 Smart Initiatives by District Municipal Corporation

- For the economy of every country, including India, cities are engines of growth. Almost 31 percent of the present population of India resides in urban areas, contributing 63% of India's GDP (Census 2011). With rising urbanization, it is expected that urban areas will house 40 percent of India's population and By 2030, they will contribute 75% of India's GDP. This calls for systematic physical growth, Infrastructure in structural, social and economic terms.

- Smart City is the Ministry of Housing and Urban Affairs' urban renewal and retrofitting initiative. It was unveiled by India's government on June 25, 2015. The mission targets over 100 cities and promotes mixed land use in area-based developments, housing and inclusiveness, creating walk able locations, maintaining and improving open spaces, promoting a range of transport choices, making citizen-friendly and cost-effective governance, implementing Smart Solutions to area-based infrastructure and services to make them safer and more cost-effective.

Fig 3.4 Smart Initiative

3.12 Any Projects contributed working by Government / NGO / Other Digital Country concept

Smart City Mission

- The Smart Cities Mission is an ambitious and new initiative by the Government of India to drive economic growth and enhance people's quality of life by enabling local development and technology to be used as a medium for citizens to build smart outcomes.
- The Shyama Prasad Mukherji Rurban Mission (SPMRM) was launched by the Government of India in 2016 with the objective of stimulating social, economic and infrastructural growth in rural areas. The mission aims to make villages the nation's

smart and development centers. In its first step, the goal was to build a nationwide cluster of 300 Smart Villages over the next three years.

Sansad Adarsh Gram Yojna

- It was launched on 11 October 2014 to translate Mahatma Gandhi's comprehensive vision of an ideal Indian village into reality, taking the present context into account. Each Member of Parliament adopts a Gram Panchayat under SAGY and guides its holistic growth, which puts emphasis on social development at the same level as infrastructure. The 'Adarsh Grams' are to become local development and Administration College, inspiring other Gram Panchayats.
- An Adarsh Gram should grow out of the common vision of citizens, making the best possible use of their skills and available resources, properly supported by the MP, the Gram Panchayat, civil society and government machinery. The components of an Adarsh Gram will of course, be contextually precise. However the important activities can still be narrowly defined.

Digital Concept

- Accelerating the real effect on people in rural areas of the Sustainable Development Goals. The Smart Village model, based on an integrated approach to digital growth allows for an increased effect on multiple SDGs, such as health, trade, education and agriculture, by increasing access to the last mile and ensuring that the right digital solutions reach people.
- The introduction of a common integrated SDG framework comprising a select number of reusable ICT Building Blocks enables numerous digital solutions to be deployed in high-priority growth areas across various industries, addressing country and user needs, to be integrated. In areas such as health, education, agriculture, finance and commerce, this may include the development of digital services.

3.14 How to implement other Countries smart villages projects in Indian village context (Regarding Environment, Employment)

- Over recent decades, there have been various social communities (rural and urban) facing people .Changes and problems, and economic ones. Any of these challenges have been discussed more and more via the lenses of digitalization and technical advances.
- In this post, we have generated a review of best activities thus concentrating on the existing Smart implementations. Definition of the village and the value of digital transformation for rural areas.
- A Smart City is an urban, developed or upgraded/renovated living environment to allow the best Potential coordination and facilitation of daily life for otherwise fractured urban sub-systems Inhabitants, making towns more prosperous and live able.
- A very limited description that has been proposed that "smart cities are using information and communication technologies (ICT) to become more intelligent."Intelligent and effective resource usage, resulting in cost and energy savings, increased cost and energy savings.

The Climate-Smart Village Approach

- The CSV approach is an AR4D approach for the testing of technical and institutional options for coping with climate change in agriculture by participatory methods. It aims to produce local-level evidence of what climate-smart agricultural options work best, where, why, and how, and use this evidence to draw lessons from local to global levels for policymakers, agricultural growth practitioners, and investors.
- The research is carried out at CSV sites through a multi stakeholder collaborative network.
- A cluster of towns, small landscapes, or grids of 10 km2 are the locations. To ensure that it is compatible with policies and behavior across various scales, each CSV site has its own theory of change (ToC; a narrative explanation of the logical causal chain from research activities to impact) related to national objectives.
- The mechanism builds on the climate-smart agriculture (CSA) theory of Lipper et al. (2014).

Employment

- Smart villages will act as complementary economic growth drivers for smart cities that produce goods and Services for local rural markets as well as high-value-added products from the agricultural and rural industries for both national and national markets. International markets and. And they will act as environmental stewards and in some instances, function as well. As hubs of ecotourism.
- Sustainable energy supplies are main enablers of these growth benefits in smart villages. And the availability of clean and reliable cooking appliances. Efficient businesses and facilities with higher levels of Energy demands tend to be in the hub villages supplied by the national grid whether they are sufficiently nearby or sufficient for the Many more remote communities are powered by local mini-grids from renewable energy sources, likely in hybrid form with diesel generators.

Chapter 4
About Kolat Village

4.1 Introduction

4.1.1 Introduction about Kolat Village

- We visited KOLAT village which is allotted to us**.** The village of Kolat is situated in the Ahmedabad district of Sanand Tehsil in Gujarat, India. It is 5 km from the Sanand sub-district headquarters and 22 km from the Ahmedabad district headquarters.
- Many problems were faced by the villagers. Lack of facilities like poor roads, bus stands, no medical stores, sewage disposal etc. Maintenance of panchayat building should be done as soon as possible.

4.1.2 Study Justification/ need of the study

- The aim of this study is to determine the problems faced by the villagers and to provide facilities in the villages for the development of village. The area to be studied includes,
- Physical infrastructures facilities (Drainage system, road networks, solid waste management, storm water network, Telecommunication &other)
- Sustainable infrastructures like (Rain water harvesting, Biogas plant, Eco toilets , solar street lights etc)
- Socio-culture infrastructure (Community halls, public library, recreation facilities)
- Social infrastructure facilities (Education, health, sanitation) for effective development of villages.

4.1.3 Study Area (Broadly define)

- The aim of Vishwakarma yojna is to develop the rural areas of the country. For this it is mandatory to study the present scenario & the techno-economic survey of villages in given district of the state in terms of basic and public amenities, essential commodities & the other infrastructure facilities needed for the villagers and on the adequacy of the available resources with the reference to the population of the village & the growth of the area with the consultation of local revenue authorities, TDO and DDO the future need of the village keeping in mind the future population growth, growth of surrounding town or taluka places.
- In the village lack of facilities like PHC, public garden, poor conditions of roads, sewage treatment plant. Maintenance of panchayat office and bus stop is also required.
- There were 3 Anganwadi & one primary school in the village, but there was no provision for higher secondary school.
- There was lack of cleanliness in the village garbage was seen in the streets of the village.
- Cattles & cow dung were observed in the streets, this affects the cleanliness of village.

4.1.4 Objectives of Study

- The main objective of village segment
- To get insight into the socio-economic and cultural realities of rural life.
- To provide all the basic facilities to the villagers, in order to minimize the migration of people from rural to urban areas.
- To understand the dynamics of social structure, infrastructure, resources and various intervention on the villagers and how it affects them.
- To understand the status of women, their contribution and the role played by them in developing rural entrepreneurship.
- To study the existing infrastructures facilities & to proposed the proper solutions for maintaining and developing infrastructure.

4.1.5 Scope of study

- The analysis will concentrate on the development pattern, the village's growth intensity and identify issues related to the physical development of the region and village infrastructure services.
- The aim is to provide urban amenities to a village without affecting the culture soul of village.
- Development strategies for the village will be proposed from the gap study and plans will be suggested for physical infrastructure, social infrastructure and renewable energy sources.

4.1.6 Methodology / study framework

Concept
Objectives
Literature review
Visit of village
Collection of data of the allotted village
Find out problems of the allotted village

Physical Design
Sustainable Design
Village Development Plan

Table.4.1 Frame Work

4.2 Kolat Village Study Area profile

4.2.1 Study area Location with brief history land use details

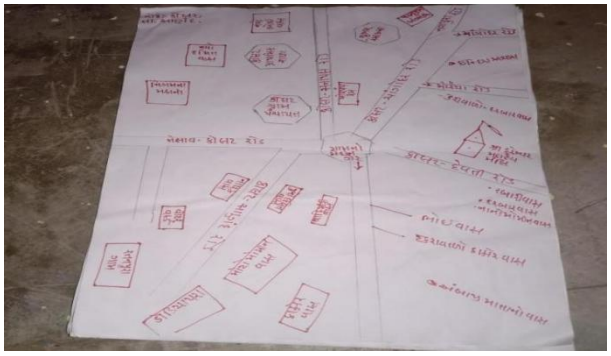
Village: Kolat
Taluka : Sanand
District: Ahmedabad
State: Gujarat
Pin code: 382210
Geographical Area: 1009.33 hectares
Population: 4327
Houses: 813

- We visited Kolat village which is allotted to us, the village of Kolat is situated in the Ahmadabad district of Sanad Tehsil in Gujarat, India. It is located 5 km from the Sanad sub-district headquarters and 22 km from the Ahmedabad district headquarters.

Fig 4.1 Kolat Map

- The village's total geographical area is 1009.33 hectares. Kolat has a population of 4,327 people in total. In Kolat village, there are approximately 813 houses. Kolat villages fall under the parliamentary constituency of Sanand Assembly & Gandhinagar, as per 2019 stats. Sanand is Kolat's nearest town, which is about 5km away.

4.2.2 Base Location map, Land Map, Gram Tal map



The above shown map is gram Tal map of Kolat village shows some important places of Kolat village.

Fig 4.2 Kolat Road Hand Map

4.2.3 Physical &demographicgrowth

Physical growth

Sr no.	Census	Population	Male	Female	Total House holds
1	2001	3356			
2	2011	4327	2215	2112	813

Table 4.2 Physical Growth

Demographic growth

Sr.no	Description	Information/ Detail
1.	Area of village	1009 hectares (approx.)
2.	Agriculture land	886 hectares (approx.)
3.	Residential area	118 hectares (approx.)
4.	Waste land	5.2 hectares (approx.)

Table 4.3 Demographic Growth

4.2.4 Economic generation profile /Banks

- Near the village, there is an HDFC bank and ATM facilities are also available.
- Through which villagers can easily deposit & withdraw the money.

4.2.5 Actual Problems faced by the villagers & smart solution

- It was found that no sewage control service was available and cleanliness was not maintained throughout the village.
- Significant crops such as Brinjal, Lady's Finger and Peas were cultivated there.
- Also, the public garden there was not maintained.
- The education is limited to higher secondary only.

4.2.6 Social scenario - Preservation of traditional, festivals, cuisine

- With plenty of fun & happiness, all religious, social & national festivals are celebrated together.
- With great care, all the ancient temples and mosques are preserved.

4.2.7 Migration reasons and trends

- One of the major reasons for people to transfer from the village is lack of higher education.
- Villagers migrate also for employment opportunities.
- Lack of medical facilities is also one major reason for migration.
- Lack of higher education & advanced infrastructure facilities.

4.3 Data Collection of KOLAT VILLAGE photographs/graphs / Charts / tables

4.3.1 Describe methods of data collection

Generally, there are two methods for data collection

1. Primary data collection
2. Secondary data collection

1. Primary data collection

By visiting the designated village, primary data collection is carried out, taking an overview of the entire village. By analyzing the map of the village, the village topography, the village population. Interacting with the Sarpanch & Talati to ask them about the rural problems faced by the villagers

2. Secondary data collection

Secondary collection includes techno economic survey. Questions are put to the sarpanch, panchayat representatives, school principal, and villagers in techno economic survey. We have

been able to recognize the issues related to the drinking water supply system, drainage sewage system, and sanitation facilities through the techno economic survey & visit of KOLAT village. There is no PHC for the villagers and there is a lack of sewage treatment arrangements.

4.3.2 Primary survey details.

- By techno economic survey of KOLAT village we collected various details about the village regarding basic amenities which are available, which need to be improved for the welfare of the villagers.

4.3.3 Average size of house/ Geo-tagging of house

- KOLAT village is located in Sanand taluka in Ahmedabad district in Gujarat state. Agriculture is the main occupation of the villagers. Still there is lack of basic amenities in the village. No medical facilities are available in the village.

4.3.4 No of Human being in one house

- Average 4-5 persons lived in the village per house. As per census 2011 there are total 813 houses.

4.3.5 Materials available locally in the village and materials out sourced by the villagers

- Grocery items like sugar, grains, edible oil, pulses, stationary items, vegetables, fruits are locally available in the village.
- Major occupation of the village is farming so materials like clothes, bricks, aggregates, reinforcement are not available, so this material is brought from the nearest village.

4.3.6 Geographical detail

Sr.no	Description	Information/ Detail
1.	Area of village	1009 hectares (approx)
2.	Agriculture land	886 hectares (approx)
3.	Residential area	118 hectares (approx)
4.	Waste land	5.2 hectares (approx)

Table 4.4 Geographical detail

4.3.7 Demographical detail

Sr no.	Census	Population	Male	Female	Total House holds
1	2001	3356			
2	2011	4327	2215	2112	813

Table 4.5 Demographical detail

4.3.8 Occupational detail- Occupation wise details/ majoritybusiness

- Mostly the people of villagers are engaged in farming.
- Plenty of Rice and wheat are grown here.
- Crops like brinjal, ladyfinger, and peas, maize are cultivated here and also supplied to few places of Sanad & Ahmedabad.
- Rest of the villagers do labour work in parts of Ahmedabad & Gandhinagar on daily wages.
- Some people are also engaged in Animal husbandry also.
- 7% of the people get employment by working in milk dairy.

4.3.9 Agricultural Details/ Organic Farming/Fishery

- Crops like brinjal, ladyfinger, peas, maize are cultivated here and also supplied to few places of Sanad & Ahmedabad.
- Here the villagers use drip irrigation method for growing crops.
- Wheat, rice & maize are also grown here & supplied in cities like Ahmedabad.

4.3.10 Physical infrastructure facilities manufacturing hub/warehouses

- Aanganwadi
- Primary School
- Secondary School.
- Lake
- Temples
- Bus Stop
- RCC roads
- Gravel roads
- Overhead Tank
- Water Supply Network
- Milk dairy (Uttam Milk Dairy)
- Mosques

4.3.11 Tourism development available in the village for attracting the tourist

- No tourism spot available in this village.

Few photographs of KOLAT village

Fig 4.3 Primary School

Fig 4.4 Temple

Fig 4.5 Cowshed of Kolat Village

Fig 4.6 Open Drain in Kolat Village

Fig 4.6 Open Sewage

Fig 4.9 Kutcha House of Kolat Village

Fig 4.7 Lake of kolat Village

Fig 4.10 Pakka House of Kolat Village

4.4 Infrastructure facilities

4.4.1 Drinking facilities

- Water can be accessed via the Narmada Canal
- Also underground sumps are used was supply of water.

4.4.2Drainage network / Sanitation facilities

- Drainage facilities in village are of mixed type, mostly the entire village drain is opened & remaining is closed.
- No common pubic latrine mostly the villagers has individual latrine system.
- No service for solid waste control.

4.4.3 Transportation & road network

- The approach road of the village is made up of bitumen & the other internal streets were of RCC.
- Paved block was provided on both side of the internal street.
- For the transportation purpose people generally used private vehicles like two-wheelers and few cars were also seen.
- There was a bus stop but frequency of buses was almost negligible as villagers prefer private vehicles instead of public transport.
- The bus stop was in worst condition and requires repairing work as soon as possible.

4.4.4 Housing condition

- Both kutcha & pucca houses were seen in the villagers.
- Majority of the houses are pucca.
- The condition of pucca houses was comparatively good.

4.4.5 Social infrastructure facilities, Health, Education, Community halland library

- There is no primary health center in Kolat village.
- Even there is no medical store nearby village.
- There are 4 Aaganwadi & one primary school available in the village.
- Total there are 390 students in primary school, in which 173 are boys & 217 are girls.
- There is lack of facilities for higher education.

4.4.6 Existing Condition of public building &maintenance of infrastructure

- Condition of the primary school is quite fair.
- The condition of the panchayat building is bad and needs maintenance immediately.
- The conditions of the internal streets require street lighting for night time & few internals streets also require some maintenance work.

4.4.7 Technology Mobile/ WIFI/ Internet usage Details

- WIFI connection is not available in the village
- Additional networks like bsnl, jio are mostly available throughout the village.
- For tv network, major villages have a gtpl connection.

4.4.8 Sports Activity as gram panchayat

- There is no proper ground for playing, but mostly children use to play cricket and other games in the wasteland.
- Proper playground is required for sports in the village.

4.4.9 Socio-cultural facilities, Public garden / Park/ playground/pond

- Social cultural facilities include Community hall, Public library, Public garden, Ponds, Recreation Centers, Cinema ,etc
- In the village there is no community hall, villagers told us during the survey that they willingly need community hall so that they can easily celebrate functions.
- For recreation there is a water park near the village name SPLASH, i.e 1.2 km from village.

4.4.10 Other facilities

- Solar panels are installed in few puccua houses.
- Villagers are developing rain water harvesting system soon.
- Concrete Block both side of street.

4.4.11 Any other details

- There is no proper service for sewage disposal and due to this it affects the cleanliness & aesthetic view of the village.

4.5 Existing institution like village administration – Detail profile

4.5.1 Bachat Mandali

- There is a small bachat mandali run by the village women.
- In this firm, women save only a few monthly amount and invest in that firm.
- As per the survey, they use a small amount of 100 rupees to save.

4.5.2 Dudh Mandali

- The dairy cooperative has had a positive effect on people's social and economic lives in the villages.
- In this village, the name of the Dudh mandali is UTTAM Milk Dairy.
- This milk organization manages them to boost the economic lives of villagers.

4.5.3 Mahila Forum

- There is no Mahila forum in the village.

4.5.4 Plantation for the Air pollution

- There are no any amenities regarding it.

4.5.5 Rain water harvesting- Waste water recycling

- The technique of rain water harvesting is adopted in the village, but as per the survey we found that this system is not very successful and does not operate properly and maintenance is needed immediately.

4.5.6 Agricultural development

- Agriculture land covers about 866 hectares of the village.
- Many crops such as brinjal, ladyfinger, and peas, maize are cultivated here and also supplied to few places of Sanad & Ahmedabad.

4.5.7 Any Other

- Apart from the above mention firms, the Seva Sarkari Mandal also works in the village.
- Any other institution like Mahila forum, plantation for the air pollution is not developed in the village.

Chapter 5
Technical option with case study

5.1.1 Advanced Sustainable Construction Techniques / Practices & Quantity Surveying

- Green technology makes buildings sustainable and more energy-efficient. They therefore have a smaller carbon footprint and a decreased environmental impact. In any step of growth, green building design plays a role in new buildings. Every element of the building is chosen to be as sustainable and energy-efficient as possible, including venue, layout, construction materials, and the systems used to operate and maintain operations.

1. Solar power

- In green construction, the resistive solar power and the other is passive solar power. Active solar power is the use of functional solar systems that absorb the sun's radiation to cater for heating and electricity provision. It reduces the need for the use of electricity or gas.

2. Biodegradable Materials

- The use of biodegradable materials is an eco-friendly means of making construction sustainable. Most traditional construction methods lead to the accumulation of waste products and toxic chemicals, the majority of which take hundreds of years to degrade. Biodegradable materials such as organic paints, therefore, aid to limit the negative impacts on the environment as they easily breakdown without the release of toxins. The use of biodegradable materials for building foundation, walls and insulators are also part of sustainable construction technologies.

3. Green Insulation

- When it comes to the design of buildings and houses, insulation is among the main concerns. A sit removes the need for high-end finishes made from non-renewable materials, the use of green insulation has proved to be a sustainable construction technology. By making use of old and recycled materials such as denim and newspaper, green insulation provides absolution.

4. The use of smart Appliances

- Installation of energy saving and self-sufficient appliances is emphasized by sustainable building technologies. Examples of such sustainable technologies include Smart Grid dishwashers, refrigerators and washing machines. The software is geared towards constructing zero-energy homes as well as commercial buildings.

5. Cool roofs

- Cool roofs are sustainable green design technologies which aim at reflecting heat and sunlight away. It aids in keeping homes and buildings at the standard room temperatures by lowering heat absorption and thermal emetine. Cool roofs can reduce temperatures by more the 50 degree Celsius during summer.

5.1.2 Soil Liquefaction

- Soilliquefactionoccurswheninreactiontoanappliedstresssuchasshakingduringanearthquake or other sudden change in stress condition, a saturated or partially saturated soil significantly loses strength and stiffness in which material that is normally a solid behaves like a liquid.
- In saturated, loose (low density or un compacted), sandy soils, the phenomenon is most commonly observed. This is because when loose sand is added to a load, it tends to compass.
- Triggered earthquake liquefaction, which shows fluid-like characteristics in the soil caused by a continuous rise in pore water pressure and a decrease in effective stress, may damage existing building foundations and other structures, resulting in significant economic losses.
- In order to pose some important questions and facilitate more analysis and discussions, this study discusses research on the recently developed methods of liquefaction mitigation. First of all, the analysis examined and addressed the features of the newly established approaches, including the mitigating process, efficacy and potential executive problems for the construction of adequate understatement.

5.1.3 Sustainable sanitation

- Sustainable sanitation is a method of sanitation designed to meet certain specifications and to operate well over the long term. The whole 'sanitation value chain' is taken into account by sustainable sanitation schemes, from the perspective of the consumer, methods of gathering excreta and wastewater, transportation or transfer of waste, treatment and reuse or disposal.
- Sustainable sanitation has the same function as sanitation in general: to safeguard human health. Sustainable sanitation, however, encompasses all the system's processes: this includes strategies for the collection, transport, treatment and disposal.

5.1.4 Transport Infrastructure/system

- The transport system consists of fixed facilities, such as canals, waterways, airways, bridges, highways and terminals, as well as pipelines, such as seaports, refueling stations, trucking terminals, warehouses, bus stations, train stations and airports.
- Infrastructure is the fixed facilities that enable the running of a car. It consists of a roadway, a terminal, and parking and maintenance facilities. The entire way the vehicle moves must be built for rail, pipeline, and road and cable transportation. This can be avoided by air and watercraft, since there is no need to create airways and seaways.

5.1.5 Vertical Farming

- The practice of growing crops in vertically stacked layers is vertical farming. Controlled-environment agriculture, which seeks to maximize plant growth, and soil farming techniques such as hydroponics, aquarobics, and geopolitics a real so included .Buildings ,shipping containers, tunnels, and abandoned mine shafts are some common choices of structures to house vertical farming systems.
- Crops are grown indoors in vertical farming, under artificial conditions of light and temperature. Indoors, under artificial conditions of light and temperature, crops are grown. This target higher efficiency in smaller spaces.

- A creative way of sustaining our agricultural practices is vertical agriculture. Vertical agriculture is predominantly poly house-based farming in India. Poly-house farming is a safe method that provides higher vegetable and fruit productivity and yield across India.

- The main advantages of utilizing the vertical farming technologies is the increased crop yield that comes with a smaller unit area of land requirement .

Fig- 5.1 Vertical Farming

5.1.6 Corrosion Mechanism, Prevention& Repair Measures of RCC structures

- The construction of reinforced concrete structures for durability has recently been adopted by national and international regulations. Structures must be built to retain their characteristics throughout service life, to prevent premature failure and to require outstanding maintenance and restoration work.
- The aim of concrete cracks repairing is to restore and increase the strength and stiffness of the cracked concrete components. To improve functional performance of the structural member and prevent liquid/water penetration i.e. leakage. To improve the appearance and durability of the concrete surface. The repairing of concrete cracks also helps to prevent the development of corrosion of reinforcement.

5.1.7 Sewage Treatment Plant

- The Sewage Treatment Plant is a plant or facility that is used to purify contaminated substances. Solids, liquids and semi-solids may be such substances. In the oil and gas industry and in other manufacturing industries, waste treatment is one of the treatments that a waste treatment plant operates on. Treatment plants are named, for instance, after their treated substances:

- Residential, residential, commercial land manufacturing facilities produce sewage. It involves liquid house hold waste from bathrooms, pools, showers, kitchens, and dumping sinks into sewers. Sewage also covers liquid waste from manufacturing and trade in many regions. In the developing world, the separation and disposal of household waste into grey water and black water is becoming more widespread, with treated grey water approved for use for watering plants or recycled for toilet flushing.

5.1.8 Case Study – Golden Quadrilateral

What is golden Quadrilateral?

- The Golden Quadrilateral is a highway network connecting many of the major industrial, agricultural and cultural centers of India. A quadrilateral of sorts is formed by connecting Chennai, Kolkata, Delhi and Mumbai, and hence its name. Other metropolises also connected by the network are **Ahmedabad, Bengaluru, Bhubaneswar, Jaipur, Kanpur, Pune, Surat, Nellore, Vijayawada** and **Vishakhapatnam.**
- The largest highway project in India and the **fifth longest** in the world, started by NDA Government led by Prime Minister Atal Bihari Vajpayee it is the first phase of the National Highways Development Project (NHDP), and consists of building 5,846 km (3,633 mi)four/six lane express highways at a cost of **₹600 billion** (US$9.3 billion). The project was launched in 2001 by **Atal Bihari Vajpayee** under the NDA government, and was completed in2012.
- The Golden Quadrilateral represents approximately 15% of the total length of India's National Highways. Before the construction of this project, along with the North-South Corridor and East- West Corridor, only 3% of the National Highways were four lanes.

Phases of NHDP under Golden Quadrilateral Project

- As National Highways comprise about 2% of the total road lengths in the country and yet
- carry over 40% of total traffic, the first and the foremost task mandated to the NHAI is the
- implementation of NHDP – comprising of the Golden Quadrilateral and North-South &East-
- West Corridors. There are in total seven phases which discussed briefly below:

Phase I: **This** project connecting four metro cities would be 5,846 km. Total cost of the project is 300 billion Rupees (US$6.8billion).

Phase II: Total length of the network is 7,300 km connecting major cities. Total cost of the project is 350 billion Rupees (US$8 billion).

Phase III: The government approved NHDP-III to upgrade12, 109 km of national highways on a Build, Operate and Transfer (BOT) basis.

Phase IV: The government considered widening 20,000 km of road that were not part of Phase I, II, or III.

Phase V: A number of four-lane highways needed to be upgraded/expanded to six lanes due to

increasing in traffic over time. Phase VI: Expressways connecting major commercial and industrial townships has been identified 400 km of Baroda-Mumbai section that would connect to the existing Baroda- Ahmedabad section.

Phase VI: This phase called for improvements to city road networks by adding ring roads to enable easier connectivity with national highways to major cities.

Length of Golden Quadrilateral in each State

The completed Golden Quadrilateral passes through 13 states:

- Andhra Pradesh – 1,014 km (630 mi)
- Uttar Pradesh – 756 km (470 mi)
- Rajasthan – 725 km (450mi)
- Karnataka – 623 km (387mi)
- Maharashtra – 487 km (303 mi)
- Gujarat – 485 km (301 mi)
- Odisha – 440 km (270 mi)
- West Bengal – 406 km (252 mi)
- Tamil Nadu – 342 km (213 mi)
- Bihar – 204 km (127mi)
- Jharkhand – 192 km (119 mi)
- Haryana – 152 km (94 mi)
- Delhi – 25 km (16 mi)
- Total – 5,846 km (3,633 mi)

Cost of Golden Quadrilateral

- In January 2012, India announced the four-lane GQ highway network as complete. India's government had initially estimated that the Golden Quadrilateral project would cost **₹600 billion (US$9.3 billion)** at 1999 prices. However, the highway has been built under-budget.

Major highlight of the Golden Quadrilateral

- It is the largest highway project completed in India.
- It is the fifth longest highway project in the world.
- The overall length of the Golden quadrilateral is5, 846 km.
- The Golden Quadrilateral passes through 13 states of India.
- The Golden Quadrilateral constitutes only the national highways of the country and not state highways and rural-urban roadways.
- The project was estimated to cost INR600bn but was one such project which was completed at about half of the estimated costs atINR308.58bn.

Benefits for the Country

- Provides faster transport networks between major cities and ports
- Provides connectivity to major agricultural, industrial, and cultural centers of India
- Provides smoother movement of goods and people within the country
- Enables industrial development and job creation in smaller towns through access to varied markets
- Farmers are able to transport their produce to major cities and towns for sale and export, and there is less wastage and spoils.
- More economic growth through construction and indirect demand for steel, cement, and other construction materials.
- Giving an impetus to truck transport.

Impact of Golden Quadrilateral Project

- Adequate transportation infrastructure is an essential ingredient for economic development and growth. Beyond simply facilitating cheaper and more efficient movements of goods, people, and ideas across places, transportation infrastructure impacts the distribution of economic activity and development across regions.

The road network in India has three categories:

(i) National highways that serve interstate long-distance traffic;

(ii) State highways and major district roads that carry mainly intrastate traffic;

(iii) District and rural roads that carry mainly intra-district traffic.

- As of January 2012, India possessed 71,972 km of national highways and expressways and 3.25 million km of secondary and tertiary roads.

A. Manufacturing Sector

- The impact of the Golden Quadrilateral highway upgrades on the organization and performance of the organized manufacturing sector for India. Several studies evaluate the performance of Indian manufacturing, especially after the liberalization reforms.
- The study is done for proximity to Golden Quadrilateral in non-nodal districts affected the organization of manufacturing activity using establishment counts, employment, and output levels, especially among newly entering plants that are making location choice decisions before or after the upgrades.

- The effect of Golden Quadrilateral project is done through surveys before and after the upgrades, which allows to develop pre-post variation for the Golden Quadrilateral upgrades. Secondly, use GIS software to code how far districts are from the network.
- In order to check the impact of the project, compare non- nodal districts 0-10 km from the Golden Quadrilateral network to districts 10-50 km away (and in some specifications with additional concentric rings to 200 km away).

B. Economic Sector

- The Golden Quadrilateral project contributes to the economic impacts of transportation networks in developing economies.
- Thus, an evaluation of the impact of Golden Quadrilateral upgrades was done by using inventory management questions contained in the World Bank's Enterprise Surveys for India in the years 2002 and 2005.
- It was found that firms located in non-nodal districts along the Golden Quadrilateral network witnessed a larger decline in the average input inventory (measured in terms of the number of days of production for which the inventory held was sufficient) relative to those

located on other highways while the firms in districts closer to the Golden Quadrilateral network were more likely to switch their primary input suppliers in comparison with firms farther away.

- These results suggest improved efficiency and sourcing for establishments on the Golden Quadrilateral network after its upgrade.

Conclusion

- There are many advantages, hypotheses and the growth of revenue behind the establishment of Project Golden Quadrilateral. The interconnection of this highway would several big towns and ports. It provides truck traffic in India with movement.

- With the help of golden Quadrilateral goods can be easily transfer from cities to villages.

- It also holds an important part in supplying grains grown in villages to be easily transported in cities.

- Thus, with the help of Golden Quadrilateral network there is easily mobility of passenger & goods.

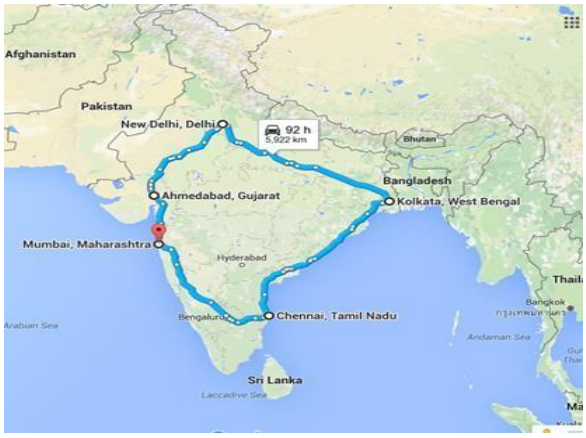


Fig 5.2 Top View of golden quadrilateral

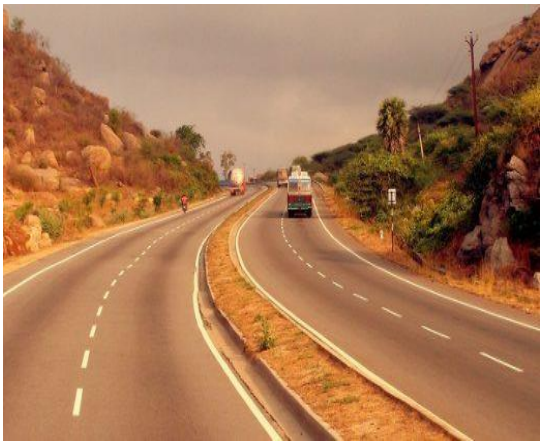


Fig 5.3 Roads of golden Quadrilateral

Chapter 6
Swatchh Bharat Abhiyan (clean India)

6.1 Swatchh needed in allocated village- Existing Situation with photographs

- Swatchh Bharat Abhiyan was launched on 2 October 2014 on Gandhi Jayanti, the Swachh Bharat Abhiyan movement aims to eliminate open defecation by 2 October 2019, the 150th anniversary of Mahatma Gandhi's birth, by building 90 million toilets in rural India at a projected cost of 1.96 lakh crore.
- Through the efforts of all the people living in the India, Swachh Bharat Abhiyan began to make India a clean India. The Prime Minister, Narendra Modi, has explicitly mentioned that anyone can actively participate in the event at any time.
- In our allocated village, there's no consciousness of Swachhta. The cleanliness of the village of Kolat was not preserved at all. There were no dustbins, and there was no suitable place for waste disposal. On the streets of the village, household waste was noticeable. Cow dung was spottedin the streets of the village as cattle were held open.

Fig 6.1 No Place for Cow Shed

Fig 6.2 Cow dung in the streets

- Many diseases develop due to lack of cleanliness. Parasites, worm's scabies, sores, tooth decay, diarrhea and dysentery are caused due to lack of personal hygiene. All these diseases can be prevented by practicing cleanliness.

- There were open drains in the village, Open drains need to be check regularly, if the open drains are left unchecked, they become a health hazard to the villagers. They become a breeding for diseases causing parasites and other microorganism.When the rainy season

begins, these open drains spread water- borne diseases and infections and villagers face lot o

6.2 Guidelines – For the process of implementation of Swatchh Bharat Abhiyan

- Construction of installations for manufacturing.
- Compost production and development of the same sector.
- Provision of Inert Municipal Landfill Facilities.

- Providing a basic action plan for the collection, segregation, transport, processing & reuse/disposal of waste from door to door in each ULB.
- Addressing all the necessary procurement issues for each level, such as providing primary and secondary waste collection tools, equipment and vehicles.
- Fostering SakhiMandals and Self Support Groups (SHG)
- When the rainy season begins, these open drains spread water- borne diseases and infections and villagers face lot of health issues.

.

6.3 Activities done by the students for allocated village with Photographs

- By calling a small meeting, we spread awareness of Swatchh Bharat Abhiyan. We clarified the significance of cleanliness in the village, why it is important to its advantage.
- We also interact with them and have proposed some steps in the village to ensure cleanliness.

Several measures to maintain cleanliness in the village are;

- Keeping dustbins all over the streets.
- Cleaning of all the open drainage lines in the village periodically.
- Sweeping the village streets every day.
- To develop bio-gas plant in the village for biodegradable wastes.
- Proper public toilets are to be made and they should be maintained regularly.
- Proper waste containers should be kept in every area.
- Avoid use of plastic bag, and use paper bags.
- Avoid chewing of pan masala, and tobacco.

Fig 6.4 Discuss on Swachta

Chapter 7
Village condition due tocovid-19

7.1 Taken steps in allocated village related to existing situation

- Grains were distributed among the villagers from the Gujarat government during covid19.
- As instructed by Gujarat government there was complete lockdown in the village.
- Schools, panchayat office & other shops were completely shutdown
- The worst hit were skilled workers and manual (unskilled laborers) for 60% of skilled workers and 64% of manual workers, work is completely shut down.
- Due to lack of technology, online education turns to be a big struggle for the students living in the village. Many children are still facing such problems & due to that many left educations which leads to a great loss for our nation.
- The extension of the lockdown is a burden on the agriculture sector. Even with the bumper crop, farmers are facing problems because of different constraints.
- Crops were grown but due to lack of transport facilities due to lockdown, farmers are unable to sell in the market.

Fig 7.1 Steps taken during COVID-19

7.2Activities done by students for allocated villages with photographs

- We explained how covid-19 spread to the villagers, we explained not to be panic but to be attentive and we can control corona by taking few precautions such as washing our hands regularly, using mandatory mask. We also advised them to maintain distance during such a pandemic, and to do gatherings.
- In order to avoid corona, we also instructed them to use hand wash and hand sanitizer.
- We also advised them to use Ayurvedic home-remedies in order to increase immunity by eating tulsi, ginger, black mint, and peppermint.

7.3 Any other steps taken by the students &villagers

- Villagers maintain completely lockdown throughout covid-19. They sanitized the whole village three times as well,
- Kits were also distributed by the villagers to poor farmers.
- We also handed out masks to the few villagers and asked them to wear them regularly.

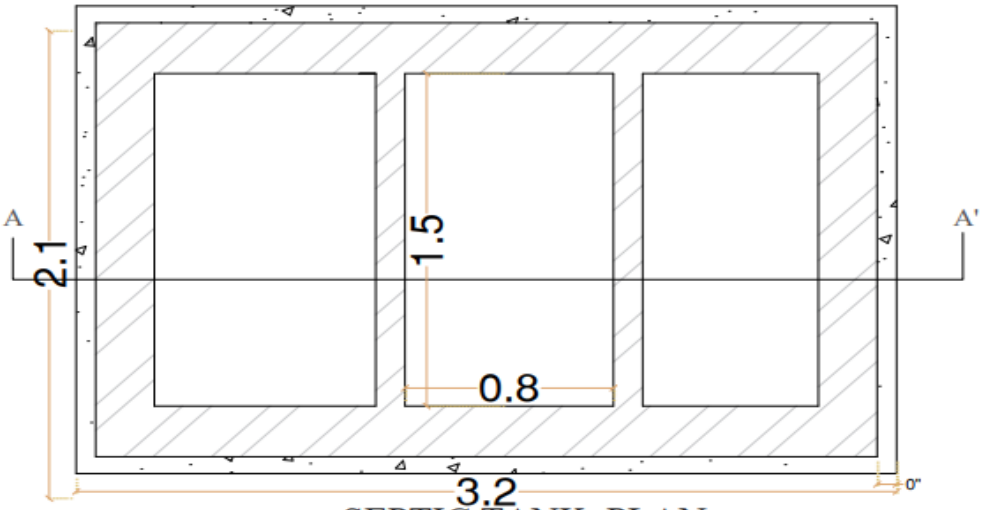
Fig 7.2 Spreading Awareness during Covid-19

Chapter 8
Sustainable design planning proposal

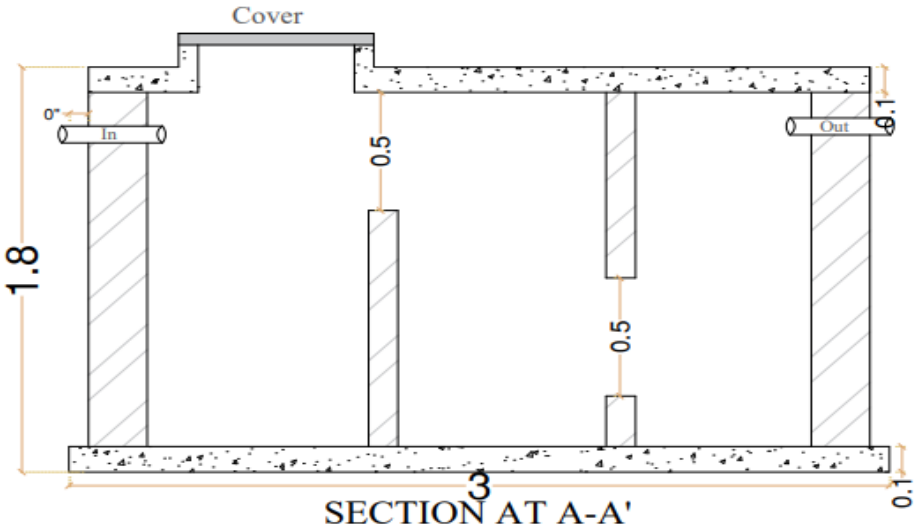
8.1Design Proposals

8.1.1 Sustainable design

SEPTIC TANK



SEPTIC TANK PLAN



SECTION AT A-A'

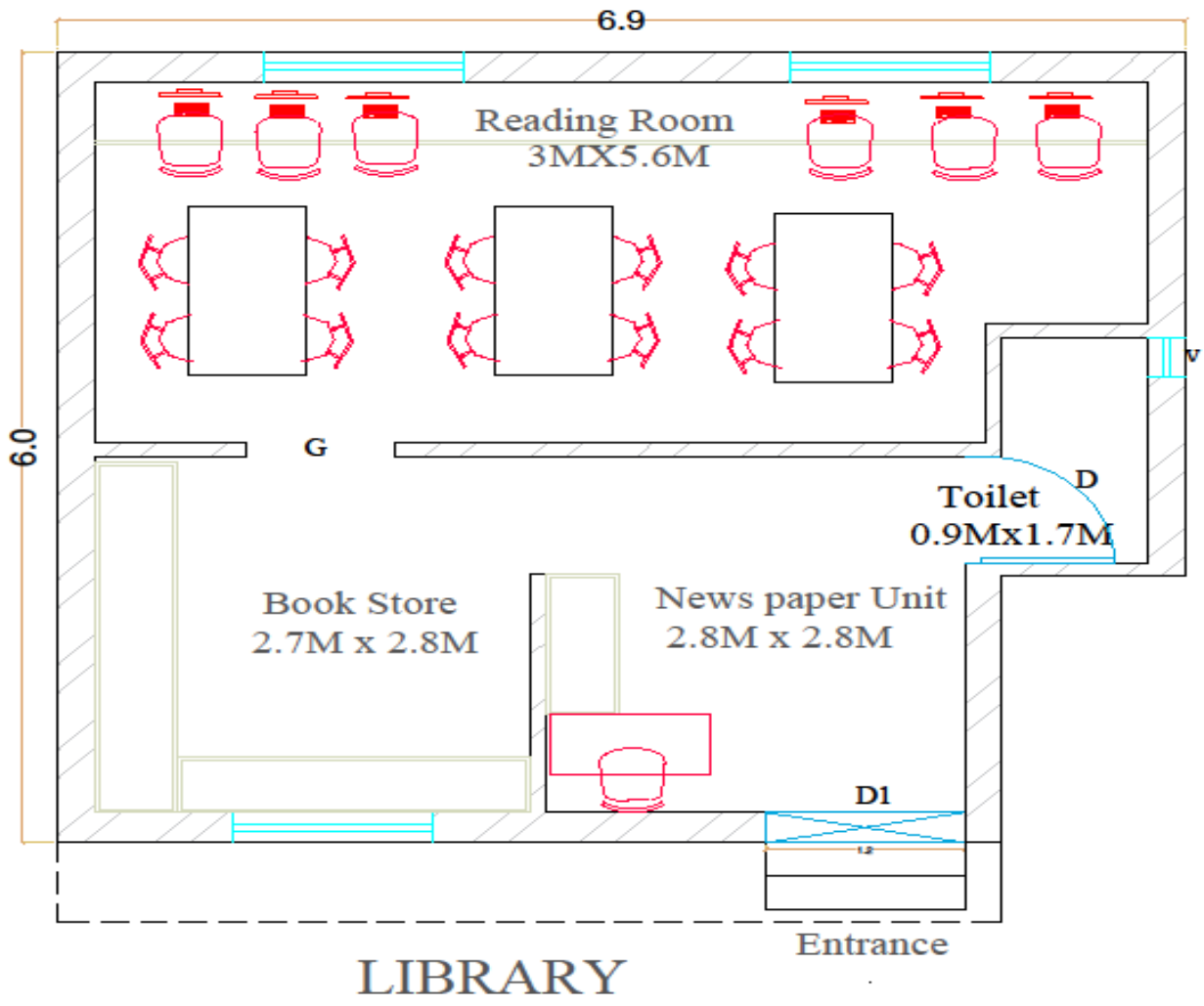
ABSTRACT SHEET

NO.	ITEMS	UNIT	QTY.	RATE	AMOUNT
1	EXCAVATION FOR SEPTIC TANK	CU.M	10.80	150.00	1620.00
	IN SOFT SOIL				0.00
2	P.C.C (1:2:4)	CU.M	0.90	3900.00	3510.00
3	BRICK MASONRY INTERNAL	CU.M	3.96	4900.00	19404.00
	WALLS				0.00
4	BRICK MASONRY EXTERNAL	CU.M	0.28	4900.00	1372.00
	WALLS				0.00
5	R.C.C SLAB (1:2:4)	CU.M	0.14	8800.00	1196.80
6	INTERNAL PLASTER	SQ.M	16.20	260.00	4212.00
7	CENTERING & SHUTTERING SLAB	SQ.M	27.36	150.00	4104.00
8	REINFORCEMENT AT 1.5% FOR	KG	164.85	45.00	7418.25
	SLAB				
					42837.05
ADD 5% CONTINGENCY					2141.8525
ALL ABOVE RATE FILLED MAY VARY DUE TO MARKET INFLATION				**TOTAL**	**44978.9025**

MEASUREMENT SHEET SEPTIC TANK

NO.	ITEAMS	NO.	L	B	H	QTY.
1	EXCAVATION FOR SEPTIC TANK IN	1.00	3.00	2.00	1.80	**10.80**
	SOFT SOIL					
2	P.C.C (1:2:4)	1.00	3.00	2.00	0.15	**0.90**
3	BRICK MASONRY FOR EXTERNAL	1.00	8.80	0.30	1.50	**3.96**
	WALLS					
4	BRICK MASONRY FOR INTERNAL	2.00	1.40	0.10	1.00	**0.28**
	WALLS					
5	R.C.C SLAB (1:2:4)	1.00	3.00	2.00	0.15	**0.14**
6	INTERNAL PLASTER	2.00	1.40	1.00	1.50	**4.20**
		2.00	1.40	1.00	1.50	**4.20**
		4.00	1.40	1.00	1.50	**8.40**
		4.00	-0.10	1.00	1.50	**-0.60**
7	CENTERING & SHUTTERING					
	BOTTOM	1.00	2.40	1.40	1.00	**3.36**
	SIDES	4.00	3.00	2.00	1.00	**24.00**
8	REINFORCEMENT AT 1.5% for slab					**164.85**

8.1.1 Physical Design- Library



3 D view-1

3D view -2

ABSTRACT SHEET					
NO.	**ITEMS**	**UNIT**	**QTY.**	**RATE**	**AMOUNT**
1	EXCAVATION IN FOUNDATION	CU.M.	26.568	150.00	3985.20
2	P.C.C. IN FOUNDATION (1:4:8)	CU.M.	6.642	3900.00	25903.80
3	MASONRY WORK IN FOUNDATION	CU.M.	11.97	4900.00	58653.00
4	EARTH BACK FIILLING	CU.M.	7.956	120.00	954.72
5	5MM THICK DPC	SQ.M.	14.22	4700.00	66834.00
6	MASONRY WORK IN SUPER STRUCTURE	CU.M.	18.516	4900.00	90728.40
7	SMOOTH INSIDE PLASTER	SQ.M.	129.018	260.00	33544.68
8	OUT SIDE ROUGH PLASTER	SQ.M.	69.684	310.00	21602.04
9	R.C.C. SLAB	CU.M.	6.21	8800.00	54648.00

10	R.C.C. CHAJJA AND LINTEL	CU.M.	8.811	8000.00	70488.00
11	2' X 2' FLOORING	CU.M.	45.45	635.00	28860.75
12	DOORS IN WOOD	SQ.M.	6.3	1600.00	10080.00
13	WINDOOW IN WOOD	SQ.M.	6.912	1550.00	10713.60
14	VENTILATION IN ALUMINIUM	SQ.M.	0.18	1550.00	279.00
15	WHITE WASH(IN SIDE)	CU.M.	198.702	18.00	3576.64
					480851.83
	ADD 5% CONTINGENCY				24042.59
	ALL ABOVE RATE FILLED MAY VARY DUE TO MARKET INFLATION			**TOTAL**	**504894.42**

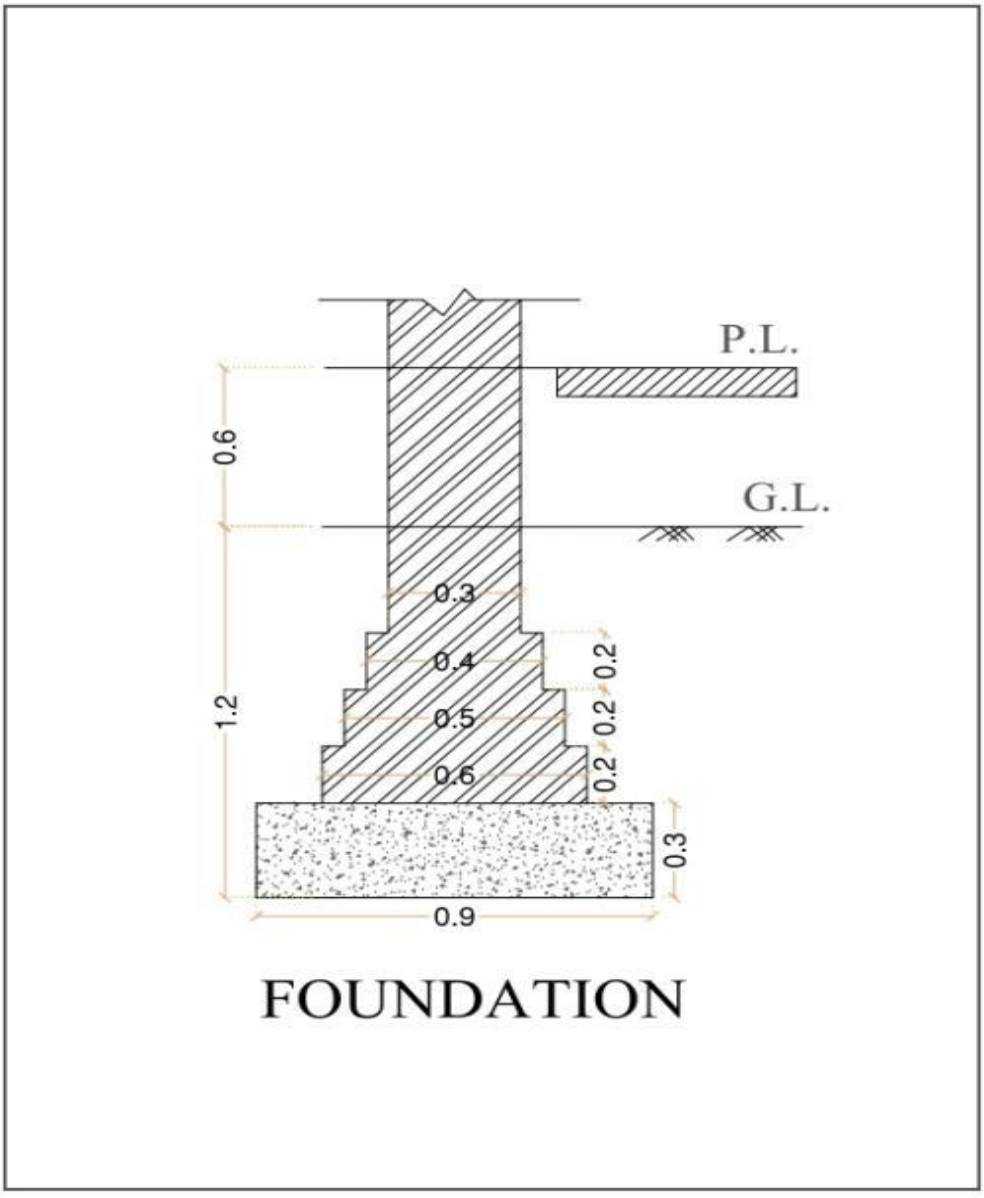
MEASURMENT SHEET LIBRARY

NO.	ITEMS	NO.	L	B	H	QTY.	TOTAL QTY.
1	EXCAVATION IN FOUNDATION(L.W.)	2.00	6.30	0.90	1.20	13.61	
	(S.W.)	2.00	6.00	0.90	1.20	12.96	**26.57**
2	P.C.C.	2.00	6.30	0.90	0.30	3.40	
		2.00	6.00	0.90	0.30	3.24	**6.64**
3	MASONRY WORK IN FOUNDATION						
	STEP 1	2.00	6.30	0.60	0.20	1.51	
		2.00	6.00	0.60	0.20	1.44	
	STEP 2	2.00	6.30	0.50	0.20	1.26	
		2.00	6.00	0.50	0.20	1.20	

	STEP 3	2.00	6.30	0.40	0.20	1.01	
		2.00	6.00	0.40	0.20	0.96	
	MASONRY WORK UP TO P.L.	2.00	6.30	0.30	0.60	2.27	
		2.00	6.00	0.30	0.60	2.16	
	STEP						
		1.00	1.20	0.60	0.15	0.11	
		1.00	1.20	0.30	0.15	0.05	**11.97**
4	BACK FIILLING	1.00	1.00	1.00	1.00	7.96	**7.96**
	EXCAVATION-P.C.C.-MASONARY IN						
	FOUNDATION						
5	5MM THICK DPC	1.00	12.00	0.30	1.00	3.60	**14.22**
6	MASONRY WORK IN	2.00	6.30	0.30	3.00	11.34	
	SUPER STRUCTURE	2.00	6.00	0.30	3.00	10.80	
	INSIDE PARTITION WALL	1.00	5.40	0.30	0.15	0.24	
		1.00	2.30	0.30	0.15	0.10	
		1.00	1.00	0.30	0.15	0.05	
		1.00	1.70	0.30	0.15	0.08	
	DEDUCTION D1	-1.00	1.20	0.30	2.10	-0.76	
	D	-2.00	0.9	0.30	2.10	-1.13	
	G	-1.00	1.2	0.30	2.10	-0.76	
	W	-4.00	0.9	0.30	1.20	-1.30	
	V	-2.00	0.50	0.30	0.50	-0.15	**18.52**
7	SMOOTH INSIDE PLASTER	2.00	6.30	1.00	3.00	37.80	
		2.00	6.00	1.00	3.00	36.00	

	INSIDE PARTITION WALL	2.00	5.40	1.00	3.00	32.40	
		2.00	2.10	1.00	3.00	12.60	
		2.00	1.00	1.00	3.00	6.00	
		2.00	1.70	1.00	3.00	10.20	
	DEDUCTION D1	-1.00	1.20	0.30	2.10	-0.76	
	D	-4.00	0.9	0.30	2.10	-2.27	
	G	-2.00	1.2	0.30	2.10	-1.51	
	W	-4.00	0.9	0.30	1.20	-1.30	
	V	-2.00	0.50	0.30	0.50	-0.15	**129.02**
8	OUT SIDE ROUGH PLASTER	2.00	6.30	1.00	3.00	37.80	
		2.00	6.00	1.00	3.00	36.00	
	DEDUCTION D1	-1.00	1.20	1.00	2.10	-2.52	
	V	-2.00	0.30	1.00	0.50	-0.30	
	W	-4.00	0.9	0.30	1.20	-1.30	
							69.68
9	R.C.C. SLAB	1.00	6.00	6.90	0.15	6.21	**6.21**
10	LINTEL AND CHHAJJAS						
	LINTELS						
	D1	1.00	1.20	0.30	0.10	0.04	
	D	2.00	0.90	0.15	0.10	0.03	
	G	1.00	1.20	0.15	0.10	0.02	
	W	4.00	1.20	0.30	0.10	0.14	
	V	2.00	0.60	0.30	0.10	0.04	
	CHHAJJAS						

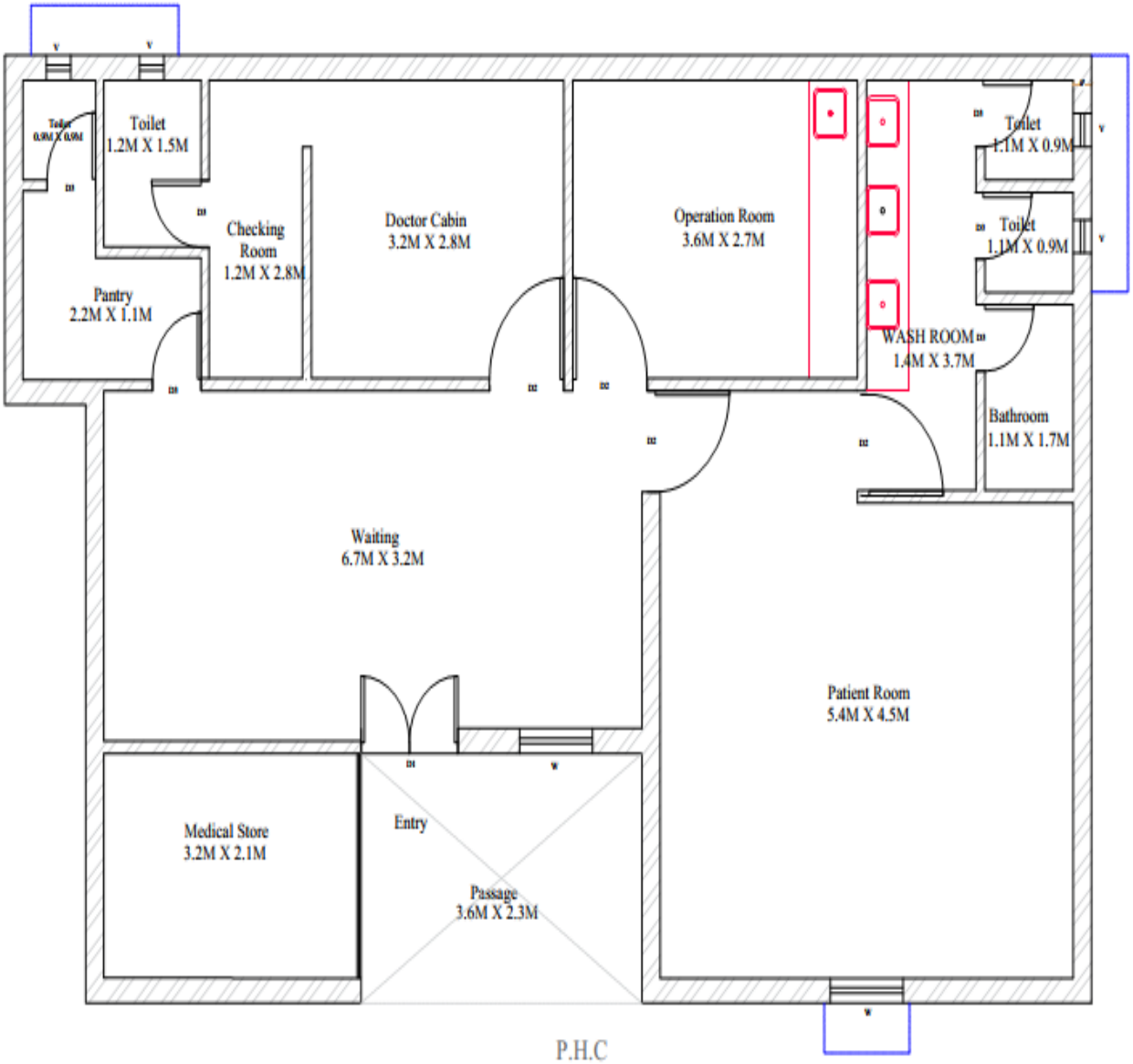
	D1	1.00	1.20	0.60	0.10	0.07	
	W	3.00	0.90	0.60	0.10	0.16	
	V	2.00	0.30	0.60	0.10	0.04	
	FRONT CHHAJJAS	1.00	6.90	2.00	0.60	8.28	**8.81**
11	2' X 2' FLOORING						
	WAITING AREA	1.00	2.30	1.80	1.00	4.14	
	PASSAGE	1.00	2.20	0.90	1.00	1.98	
	BOOK SHELVES	2.00	3.30	2.80	1.00	18.48	
	READING ROOM	1.00	3.00	5.60	1.00	16.80	
	TOILET	1.00	0.90	1.70	1.00	1.53	
	GAP BETWEEN DOORS	2.00	0.90	1.00	1.00	1.80	
		2.00	1.20	0.30	1.00	0.72	**45.45**
12	DOORS IN WOOD WITH FRAME						
	D 1	1.00	1.20	1.00	2.10	2.52	
	D	2.00	0.90	1.00	2.10	3.78	**6.30**
13	WINDOOW IN WOOD	4.00	1.20	1.20	1.20	6.91	**6.91**
14	VENTILATION IN ALUMINIUM	2.00	0.30	0.30	1.00	0.18	**0.18**
15	WHITE WASH(IN SIDE)	1.00	1.00	1.00	1.00	198.70	**198.70**
	IS EQUAL TO						
	TOTAL QUANTITY OF PLASTER						



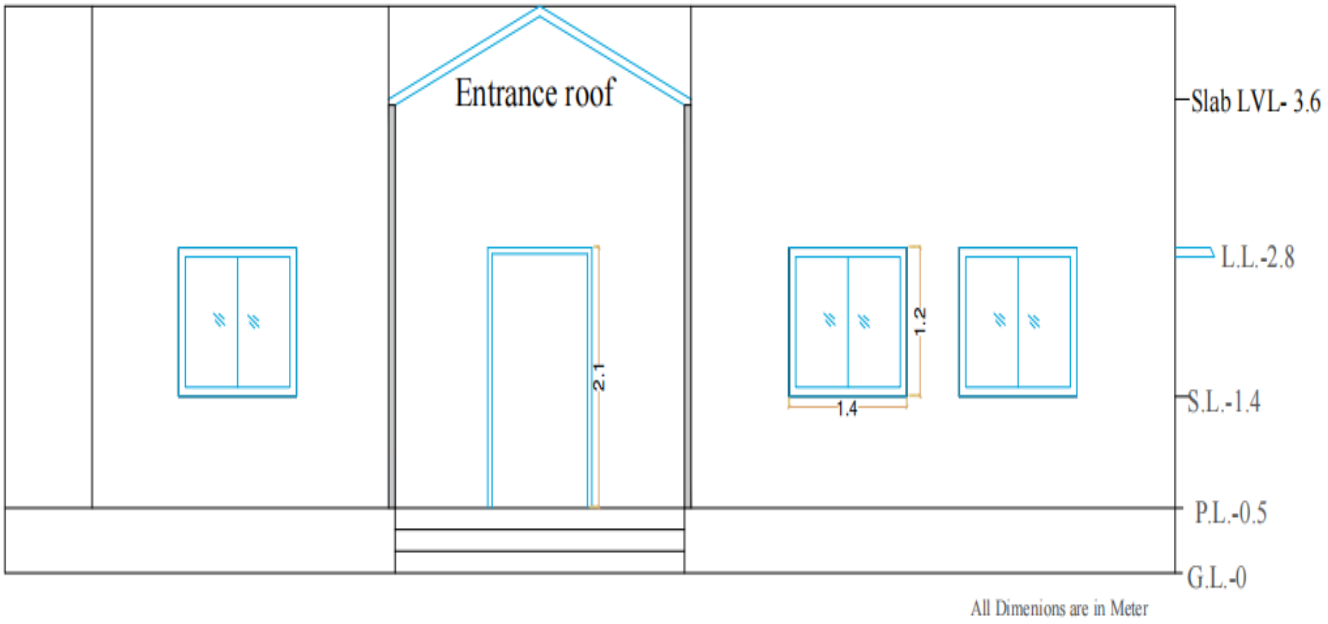
Foundation Details for all design

8.1.2 Social Design

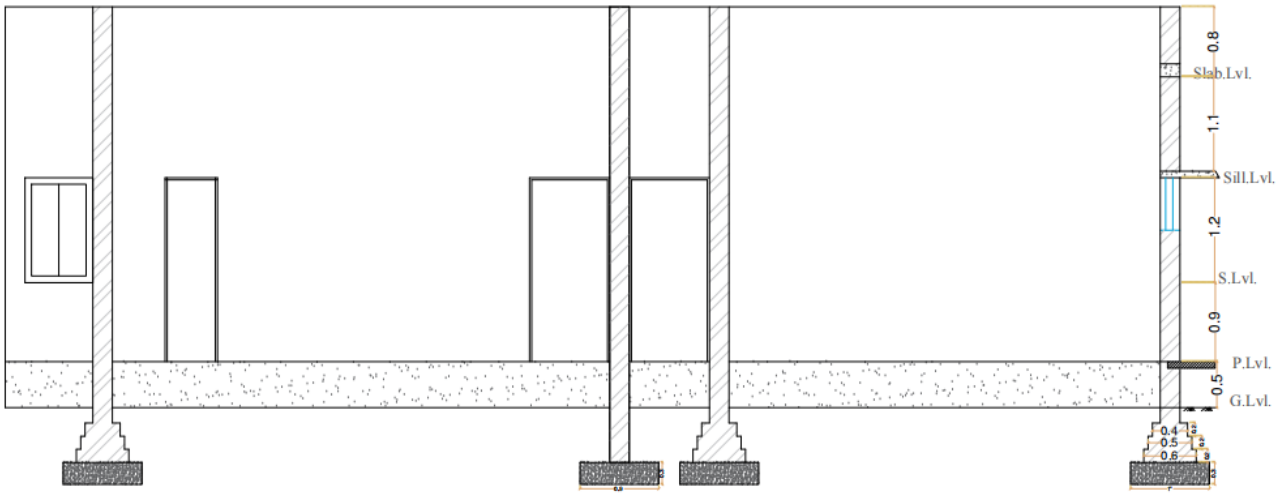
PUBLIC HELTH CENTER



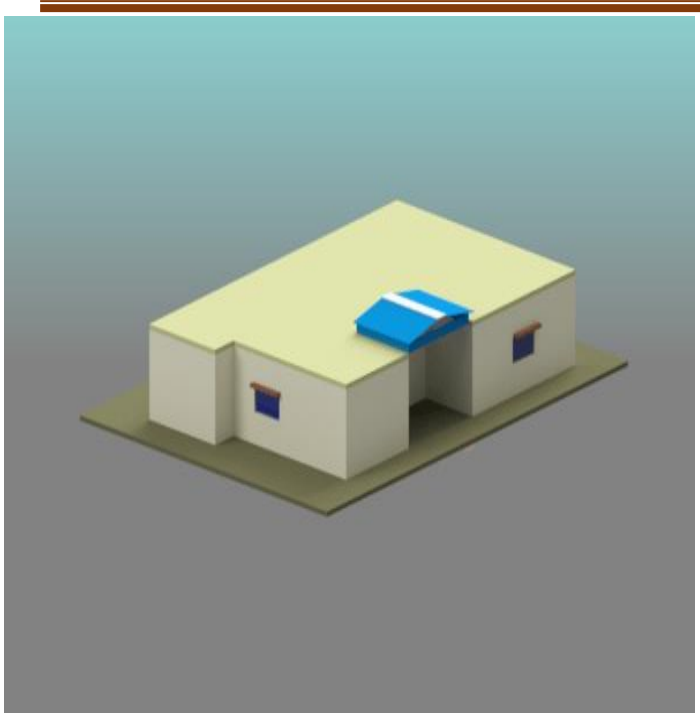
PLAN



ELEVATION OF P.H.C



SECTION OF P.H.C



3D View -1

3D View -2

ABSTRACT SHEET					
NO.	**ITEMS**	**UNIT**	**QTY.**	**RATE**	**AMOUNT**
1	EXCAVATION IN FOUNDATION	CU.M.	52.16	150.00	7824.60
2	P.C.C. IN FOUNDATION (1:4:8)	CU.M.	13.04	3900.00	50859.90
3	MASONRY WORK IN FOUNDATION	CU.M.	69.47	4900.00	340407.90
4	EARTH BACK FIILLING	CU.M.	141.33	120.00	16959.60
5	5MM THICK DPC	SQ.M.	69.47	4700.00	326513.70
6	MASONRY WORK IN SUPER STRUCTURE	CU.M.	69.47	4900.00	340407.90
7	SMOOTH INSIDE PLASTER	SQ.M.	141.33	260.00	36745.80
8	OUT SIDE ROUGH PLASTER	SQ.M.	69.47	310.00	21536.01
9	R.C.C. SLAB	CU.M.	17.75	8800.00	156182.40

10	R.C.C. CHAJJA AND LINTEL	CU.M.	0.47	8000.00	3768.00
11	2' X 2' FLOORING	CU.M.	89.38	635.00	56756.30
12	DOORS IN WOOD	SQ.M.	17.64	1600.00	28224.00
13	WINDOOW IN WOOD	SQ.M.	2.16	1550.00	3348.00
14	VENTILATION IN ALUMINIUM	SQ.M.	0.18	1550.00	279.00
15	WHITE WASH(IN SIDE)	CU.M.	210.80	18.00	3794.42
					1393607.53
ADD 5% CONTINGENCY					69680.3764
ALL ABOVE RATE FILLED MAY VARY DUE TO MARKET INFLATION				**TOTAL**	**1463288**

MEASUREMENT SHEET PHC

NO.	ITEMS	NO.	L	B	H	QTY.	TOTAL QTY.
1	EXCAVATION IN FOUNDATION(L.W.)	2.00	13.20	0.90	1.20	28.51	
	(S.W.)	2.00	8.70	0.90	1.20	18.79	
		1.00	4.50	0.90	1.20	4.86	**52.16**
2	P.C.C.	2.00	13.20	0.90	0.30	7.13	
		2.00	8.70	0.90	0.30	4.70	
		1.00	4.50	0.90	0.30	1.22	**13.04**
3	MASONRY WORK IN FOUNDATION						
	STEP 1	2.00	13.20	0.60	0.20	3.17	
		2.00	8.70	0.60	0.20	2.09	

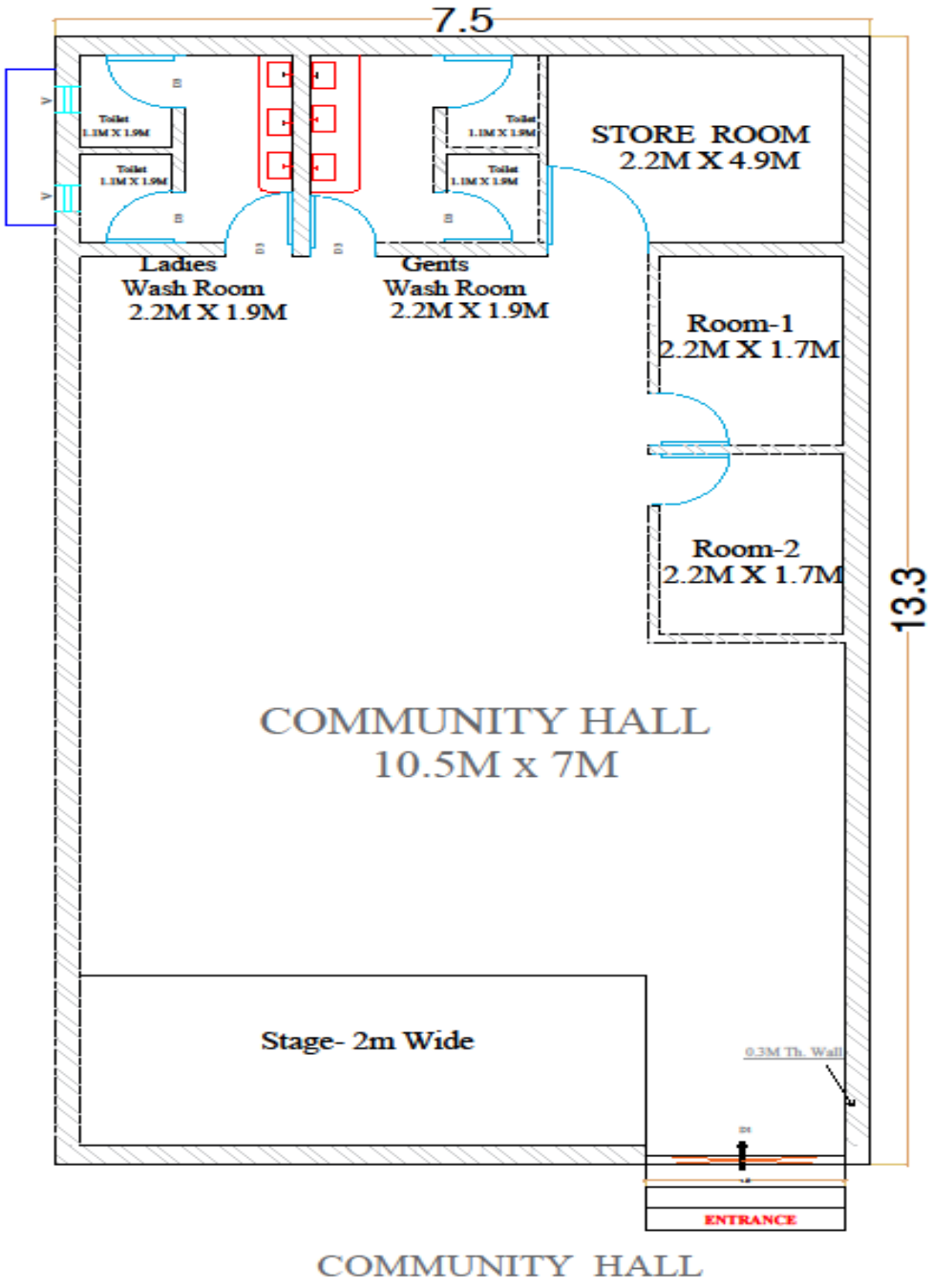
		1.00	4.50	0.60	0.20	0.54	
	STEP 2	2.00	13.20	0.50	0.20	2.64	
		2.00	8.70	0.50	0.20	1.74	
		1.00	4.50	0.50	0.20	0.45	
	STEP 3	2.00	13.20	0.40	0.20	2.11	
		2.00	8.70	0.40	0.20	1.39	
		1.00	4.50	0.40	0.20	0.36	
	MASONRY WORK UP TO P.L.	2.00	13.20	0.30	0.60	4.75	
		2.00	8.70	0.30	0.60	3.13	
		1.00	4.50	0.30	0.60	0.81	
	STEP	1.00	1.20	0.90	0.15	0.16	
		1.00	1.20	0.60	0.15	0.11	
		1.00	1.20	0.30	0.15	0.05	**23.51**
4	BACK FIILLING	1.00	1.00	1.00	1.00	15.62	**15.62**
	EXCAVATION-P.C.C.-MASONARY IN						
	FOUNDATION						
5	5MM THICK DPC	1.00	27.00	0.30	1.00	8.10	**8.10**
6	MASONRY WORK IN	2.00	13.20	0.30	3.00	23.76	
	SUPER STRUCTURE	2.00	8.70	0.30	3.00	15.66	
		1.00	4.50	0.30	3.00	4.05	
	INSIDE PARTITION WALL	1.00	3.20	0.30	3.00	2.88	
		2.00	2.80	0.30	3.00	5.04	
	PANTRY WALL	1.00	1.50	0.30	3.00	1.35	
		1.00	1.30	0.30	3.00	1.17	

		1.00	0.90	0.30	3.00	0.81	
	TOILET WALL	1.00	2.40	0.30	3.00	2.16	
		1.00	3.80	0.30	3.00	3.42	
		1.00	4.4	0.30	3.00	3.96	
		1.00	3.6	0.30	3.00	3.24	
		1.00	2.8	0.30	3.00	2.52	
		1.00	2.2	0.30	3.00	1.98	
	D1	-1.00	1.20	0.30	2.10	-0.76	
	D2	-4.00	0.90	0.10	2.10	-0.76	
	D3	-6.00	0.60	0.10	2.10	-0.76	
	W	-2.00	0.9	0.10	1.20	-0.22	
	V	-1.00	0.30	0.30	0.50	-0.05	**69.47**
7	SMOOTH INSIDE PLASTER	1.00	8.2	1.00	3.00	24.60	
		1.00	13.2	1.00	3.00	39.60	
		2.00	3.20	1.00	3.00	19.20	
		4.00	2.80	1.00	3.00	33.60	
		2.00	1.50	1.00	3.00	9.00	
		2.00	1.30	1.00	3.00	7.80	
		2.00	0.90	1.00	3.00	5.40	
		2.00	2.40	1.00	3.00	14.40	
		2.00	3.80	1.00	3.00	22.80	
	D1	-1.00	1.20	1.00	2.10	-2.52	
	D2	-8.00	0.90	1.00	2.10	-15.12	
	D3	-12.00	0.60	1.00	2.10	-15.12	
	W	-2.00	0.90	1.00	1.20	-2.16	

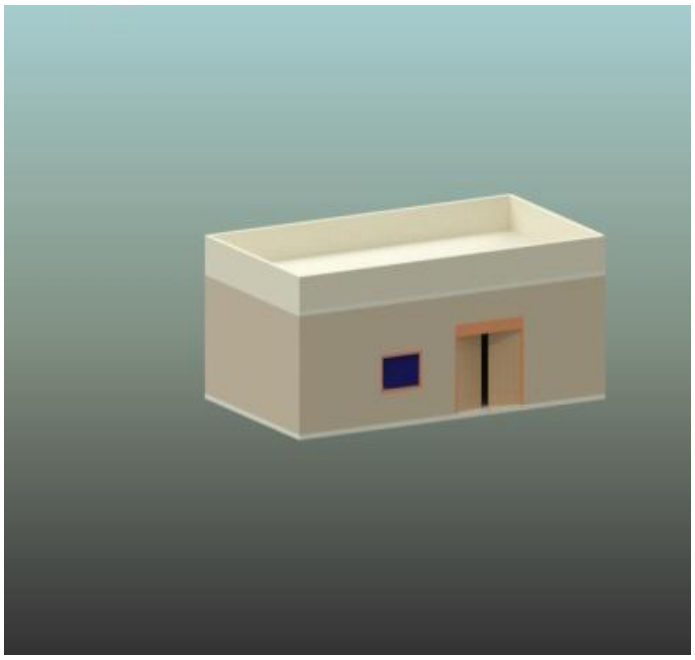
	V	-1.00	0.30	1.00	0.50	-0.15	**141.33**
8	OUT SIDE ROUGH PLASTER	2.00	13.6	1.00	3.90	106.08	
		2.00	8.70	1.00	3.90	67.86	
	D1	-1.00	1.20	1.00	2.10	-2.52	
	W	-2.00	0.90	1.00	1.2	-2.16	
	V	-1.00	0.30	1.00	0.50	-0.15	**69.47**
9	R.C.C. SLAB	1.00	8.70	13.60	0.15	17.75	**17.75**
10	LINTEL AND CHHAJJAS						
	LINTELS						
	D1	1.00	1.50	0.30	0.10	0.05	
	D2	4.00	1.20	0.10	0.10	0.05	
	D3	6.00	0.90	0.10	0.10	0.05	
	W	3.00	1.20	0.30	0.10	0.11	
	V	2.00	0.30	0.30	0.10	0.02	
	CHHAJJAS						
	W	3.00	0.90	0.60	0.10	0.16	
	V	2.00	0.30	0.60	0.10	0.04	**0.47**
11	2' X 2' FLOORING						
	WAITING AREA	1.00	6.70	3.20	1.00	21.44	
	MEDICAL STORE	1.00	3.20	2.10	1.00	6.72	
	PANTRY	1.00	2.20	1.10	1.00	2.42	
	TOILET	1.00	0.90	1.60	1.00	1.44	

	DOCTOR ROOM TOILET	1.00	1.20	1.50	1.00	1.80	
	DOCTOR CABIN	1.00	4.40	2.80	1.00	12.32	
	OPERATION ROOM	1.00	3.30	2.80	1.00	9.24	
	PATIENT ROOM	1.00	5.20	4.50	1.00	23.40	
	TOILET	1.00	2.60	3.80	1.00	9.88	
	GAP BETWEEN DOORS	1.00	1.20	0.30	1.00	0.36	
		4.00	0.90	0.10	1.00	0.36	**89.38**
12	DOORS & WINDOW						
	IN WOOD WITH FRAME						
	D 1	1.00	1.20	1.00	2.10	2.52	
	D 2	4.00	0.90	1.00	2.10	7.56	
	D 3	6.00	0.60	1.00	2.10	7.56	**17.64**
13	WINDOOW IN WOOD	2.00	0.90	1.00	1.20	2.16	**2.16**
14	VENTILATION IN ALUMINIUM	2.00	0.30	0.30	1.00	0.18	**0.18**
15	WHITE WASH(IN SIDE)	1.00	1.00	1.00	1.00	210.80	**210.80**
	IS EQUAL TO						
	TOTAL QUANTITY OF PLASTER						

8.1.3 Socio-Cultural Design
COMMUNITY HALL



PLAN



3D View-1

3D View-2

ABSTRACT SHEET					
NO.	**ITEMS**	**UNIT**	**QTY.**	**RATE**	**AMOUNT**
1	EXCAVATION IN FOUNDATION	CU.M.	42.77	150.00	6415.20
2	P.C.C. IN FOUNDATION (1:4:8)	CU.M.	10.69	3900.00	41698.80
3	MASONRY WORK IN FOUNDATION	CU.M.	19.31	4900.00	94594.50
4	EARTH BACK FIILLING	CU.M.	12.77	120.00	1532.52
5	5MM THICK DPC	SQ.M.	11.88	4700.00	55836.00
6	MASONRY WORK IN SUPER STRUCTURE	CU.M.	59.33	4900.00	290717.00
7	SMOOTH INSIDE PLASTER	SQ.M.	339.04	260.00	88149.88

8	OUT SIDE ROUGH PLASTER	SQ.M.	208.15	310.00	64525.88
9	R.C.C. SLAB	CU.M.	14.96	8800.00	131670.00
10	R.C.C. CHAJJA AND LINTEL	CU.M.	0.50	8000.00	4008.00
11	2' X 2' FLOORING	CU.M.	90.48	450.00	40716.00
12	DOORS IN WOOD	SQ.M.	10.08	1600.00	16128.00
13	WINDOOW IN WOOD	SQ.M.	2.16	1550.00	3348.00
14	VENTILATION IN ALUMINIUM	SQ.M.	0.50	1550.00	775.00
15	WHITE WASH(IN SIDE)	SQ.M.	257.81	18.00	4640.54
					844755.324
	ADD 5% CONTINGENCY				42237.7662
	ALL ABOVE RATE FILLED MAY VARY DUE TO MARKET INFLATION			**TOTAL**	**886993.1**

MEASUREMENT SHEET COMMUNITY HALL							
NO.	**ITEMS**	**NO.**	**L**	**B**	**H**	**QTY.**	**TOTAL QTY.**
1	EXCAVATION IN FOUNDATION(L.W.)	2.00	6.50	0.90	1.20	14.04	
	(S.W.)	2.00	13.30	0.90	1.20	28.73	**42.77**
2	P.C.C.	2.00	6.50	0.90	0.30	3.51	
		2.00	13.30	0.90	0.30	7.18	**10.69**
3	MASONRY WORK IN FOUNDATION						
	STEP 1	2.00	6.50	0.60	0.20	1.56	
		2.00	13.30	0.60	0.20	3.19	
	STEP 2	2.00	6.50	0.50	0.20	1.30	
		2.00	13.30	0.50	0.20	2.66	

	STEP 3	2.00	6.50	0.40	0.20	1.04	
		2.00	13.30	0.40	0.20	2.13	
	MASONRY WORK UP TO P.L.	2.00	6.50	0.30	0.60	2.34	
		2.00	13.30	0.30	0.60	4.79	
	STEPS						
	STEP 1	1.00	1.10	0.90	0.15	0.15	
		1.00	1.10	0.60	0.15	0.10	
		1.00	1.10	0.30	0.15	0.05	**19.31**
4	BACK FIILLING	1.00	1.00	1.00	1.00	12.77	**12.77**
	EXCAVATION-P.C.C.-MASONARY IN						
	FOUNDATION						
5	5MM THICK DPC	1.00	39.60	0.30	1.00	11.88	**11.88**
6	MASONRY WORK IN SUPER STRUCTURE	2.00	6.50	0.30	4.00	15.60	
		2.00	13.30	0.30	4.00	31.92	
	PARTITION WALL	1.00	3.70	0.10	4.00	1.48	
		1.00	2.40	0.10	4.00	0.96	
	TOILET PARTIRION WALL	1.00	1.30	0.10	4.00	0.52	
		1.00	0.80	0.10	4.00	0.32	
		1.00	1.00	0.10	4.00	0.40	
	PARAPET WALL	2.00	6.50	0.30	0.90	3.51	
		2.00	13.30	0.30	0.90	7.18	
	W	-1.00	1.80	0.30	1.20	-0.65	
	D 1	-1.00	1.80	0.30	2.10	-1.13	
	D 2	-1.00	1.20	0.10	2.10	-0.25	
	D 3	-3.00	0.60	0.10	2.10	-0.38	

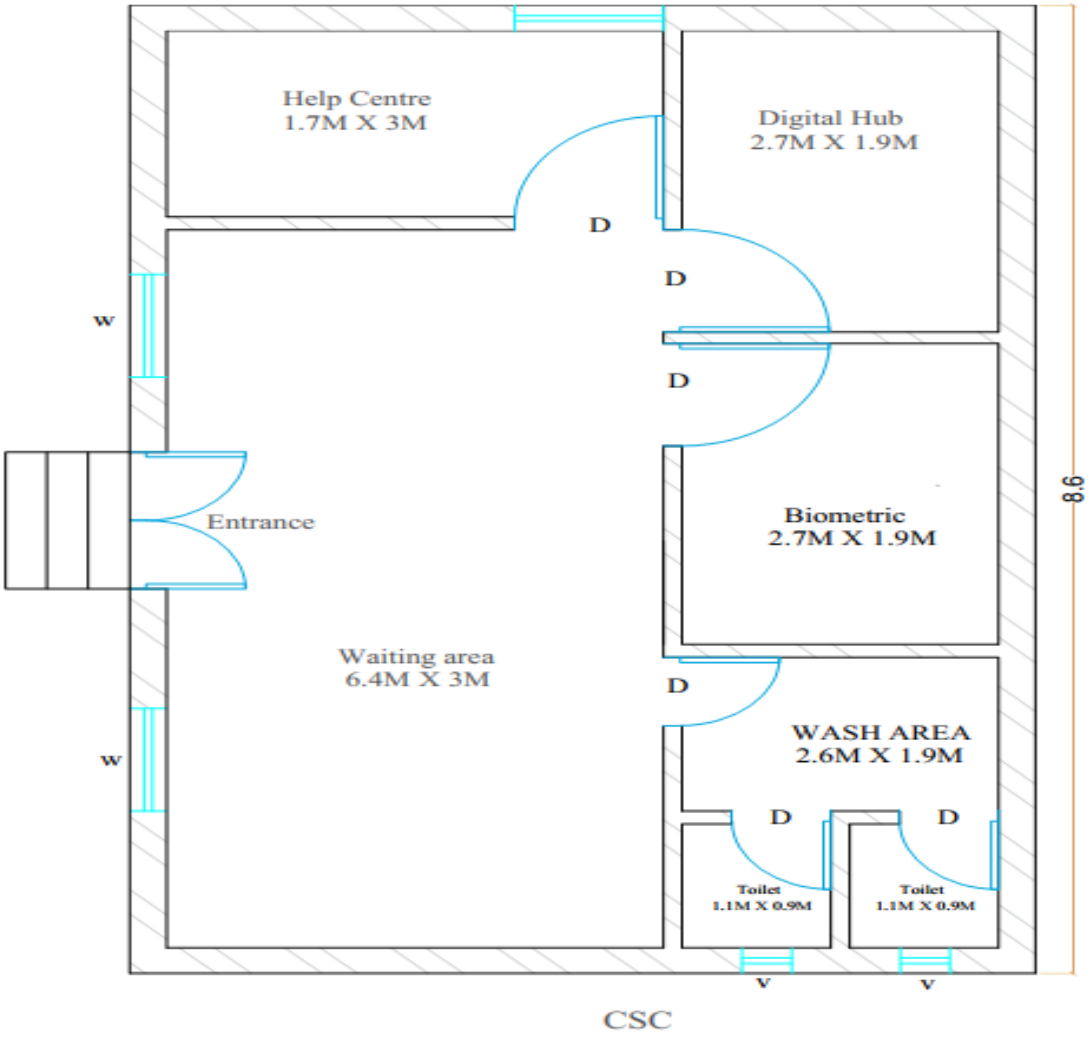
	V	-2.00	0.50	0.30	0.50	-0.15	**59.33**
7	SMOOTH INSIDE PLASTER	2.00	6.50	1.00	4.00	52.00	
		2.00	13.30	1.00	4.00	106.40	
		2.00	1.30	1.00	4.00	10.40	
		2.00	0.80	1.00	4.00	6.40	
		2.00	1.00	1.00	4.00	8.00	
		2.00	6.50	1.00	4.00	52.00	
		2.00	13.30	1.00	4.00	106.40	
	W	-1.00	1.80	0.30	1.20	-0.65	
	D 1	-1.00	1.80	0.30	2.10	-1.13	
	D 2	-1.00	1.20	0.10	2.10	-0.25	
	D 3	-3.00	0.60	0.10	2.10	-0.38	
	V	-2.00	0.50	0.30	0.50	-0.15	**339.04**
8	OUT SIDE ROUGH PLASTER	2.00	7.50	1.00	5.05	75.75	
		2.00	13.30	1.00	5.05	134.33	
	W	-1.00	1.80	0.30	1.20	-0.65	
	D 1	-1.00	1.80	0.30	2.10	-1.13	
	V	-2.00	0.50	0.30	0.50	-0.15	**208.15**
9	R.C.C. SLAB	1.00	7.50	13.30	0.15	14.96	**14.96**
10	LINTEL AND CHHAJJAS						
	W	1.00	2.10	0.30	0.10	0.06	
	D 1	1.00	2.10	0.30	0.10	0.06	
	D 2	1.00	1.50	0.10	0.10	0.02	
	D 3	3.00	0.90	0.10	0.10	0.03	
	V	2.00	0.80	0.30	0.10	0.05	
	W CHAJJAS	1.00	2.10	0.60	0.10	0.13	

	D 1	1.00	2.10	0.30	0.10	0.06	
	V	2.00	0.80	0.60	0.10	0.10	**0.50**
11	2' X 2' FLOORING	1.00	10.50	7.00	1.00	73.50	
	STORE	1.00	2.40	4.90	1.00	11.76	
	TOILET	1.00	2.40	1.90	1.00	4.56	
	GAP BETWEEN DOOR	1.00	1.80	0.30	1.00	0.54	
		1.00	1.20	0.10	1.00	0.12	
		1.00	0.60	0.10	1.00	0.06	**90.48**
12	DOORS IN WOOD WITH FRAME						
	D 1	1.00	1.80	1.00	2.10	3.78	
	D 2	1.00	1.20	1.00	2.10	2.52	
	D 3	3.00	0.60	1.00	2.10	3.78	**10.08**
13	WINDOOW IN WOOD	1.00	1.80	1.20	1.00	2.16	**2.16**
14	VENTILATION IN ALUMINIUM	2.00	0.50	0.50	1.00	0.50	**0.50**
15	WHITE WASH(IN SIDE)	1.00	10.50	4.00	1.00	42.00	
		1.00	7.00	4.00	1.00	28.00	
		2.00	4.90	4.00	1.00	39.20	
		3.00	2.40	4.00	1.00	28.80	
		2.00	1.90	4.00	1.00	15.20	
	OUTER SIDE	1.00	13.30	5.05	1.00	67.17	
		1.00	7.50	5.05	1.00	37.88	
	W	-2.00	2.10	0.30	0.10	-0.13	
	D 1	-2.00	2.10	0.30	0.10	-0.13	
	D 2	-2.00	1.50	0.10	0.10	-0.03	
	D 3	-6.00	0.90	0.10	0.10	-0.05	
	V	-4.00	0.80	0.30	0.10	-0.10	**257.81**

8.1.4 Smart Village Design

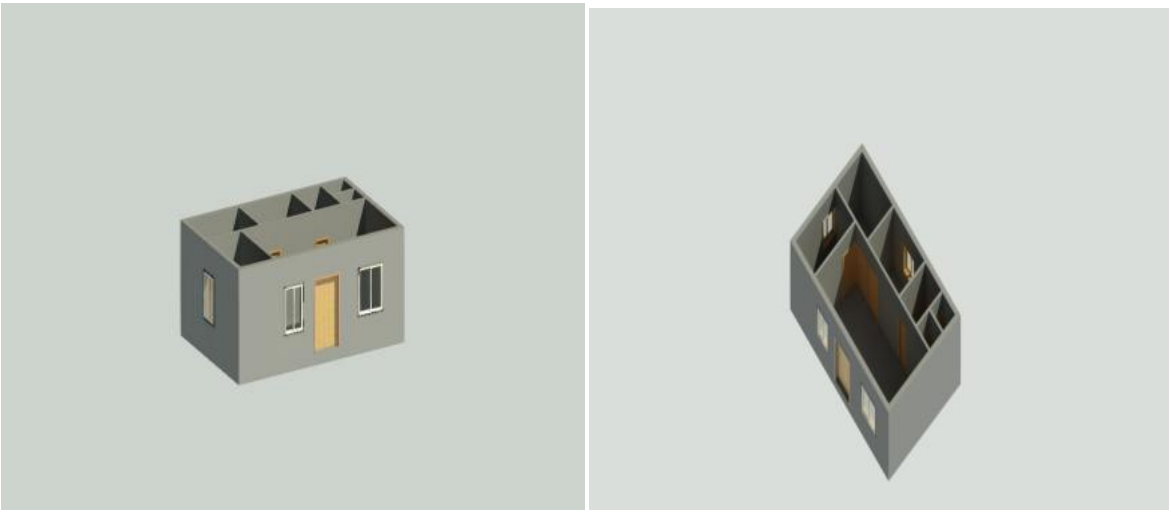
COMMON SERVICE CENTRE

CSC provides e-service to rural areas. This service is start by government. They are multiple service single point model for providing facilities for multiple transactions



CSC

PLAN



3D Images

ABSTRACT SHEET					
NO.	**ITEMS**	**UNIT**	**QTY.**	**RATE**	**AMOUNT**
1	EXCAVATION IN FOUNDATION	CU.M.	29.81	150.00	4471.20
2	P.C.C. IN FOUNDATION (1:4:8)	CU.M.	7.45	3900.00	29062.80
3	MASONRY WORK IN FOUNDATION	CU.M.	13.57	4900.00	66502.80
4	EARTH BACK FIILLING	CU.M.	8.78	120.00	1054.08
5	5MM THICK DPC	SQ.M.	14.22	4700.00	66834.00
6	MASONRY WORK IN SUPER STRUCTURE	CU.M.	20.85	4900.00	102150.30
7	SMOOTH INSIDE PLASTER	SQ.M.	153.84	260.00	39998.40
8	OUT SIDE ROUGH PLASTER	SQ.M.	82.38	310.00	25537.80
9	R.C.C. SLAB	CU.M.	7.22	8800.00	63571.20

10	R.C.C. CHAJJA AND LINTEL	CU.M.	0.55	8000.00	4428.00
11	2' X 2' FLOORING	CU.M.	41.21	635.00	26168.35
12	DOORS IN WOOD	SQ.M.	11.97	1600.00	19152.00
13	WINDOOW IN WOOD	SQ.M.	3.89	1550.00	6026.40
14	VENTILATION IN ALUMINIUM	SQ.M.	0.18	1550.00	279.00
15	WHITE WASH(IN SIDE)	CU.M.	236.22	18.00	4251.96
					459488.29
ADD 5% CONTINGENCY					22974.4145
ALL ABOVE RATE FILLED MAY VARY DUE TO MARKET INFLATION				**TOTAL**	**482462.7**

MEASUREMENT SHEET COMMON SERVICE CENTRE

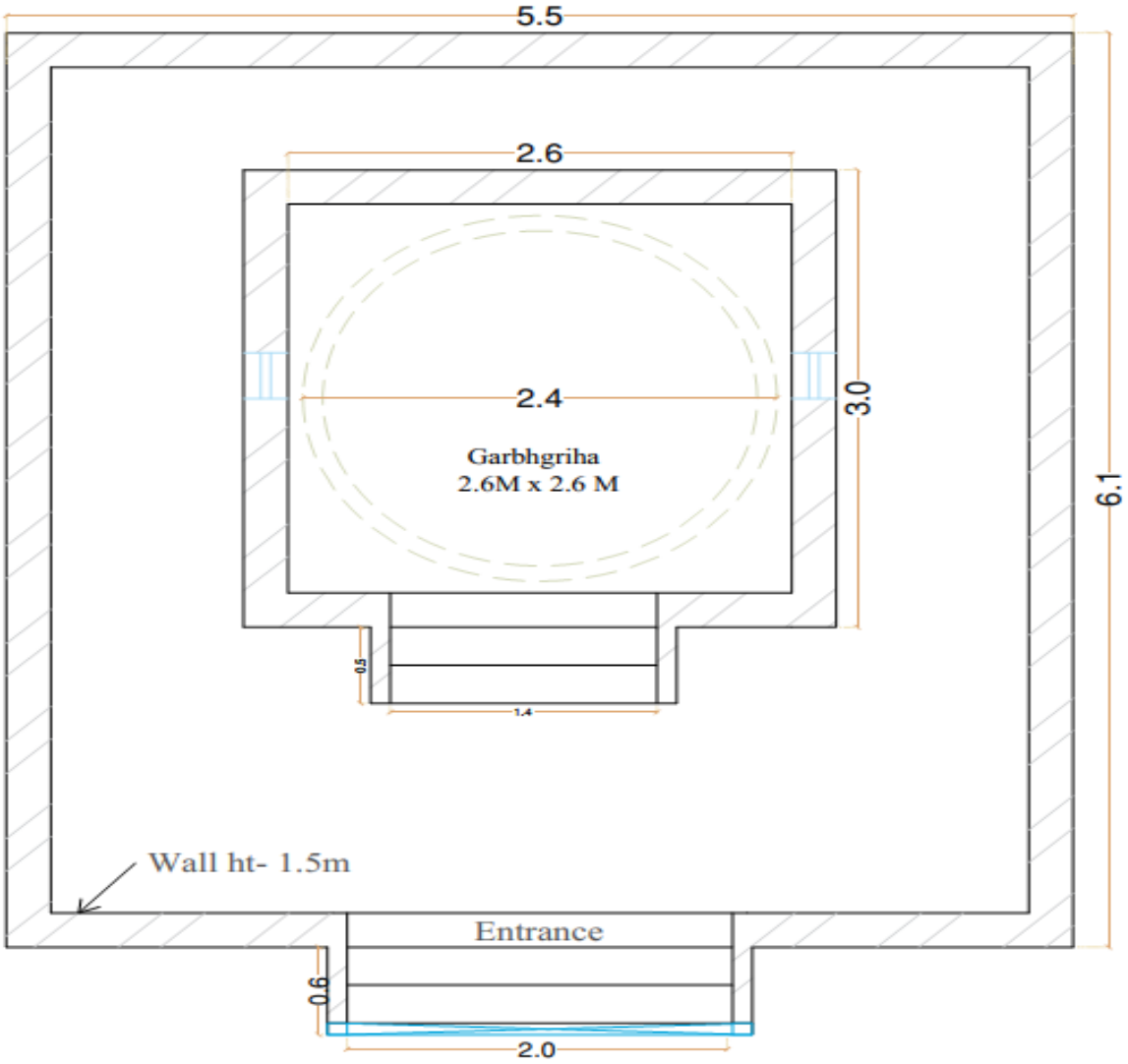
NO.	ITEMS	NO.	L	B	H	QTY.	TOTAL QTY.
1	EXCAVATION IN FOUNDATION(L.W.)	2.00	8.20	0.90	1.20	17.71	
	(S.W.)	2.00	5.60	0.90	1.20	12.10	**29.81**
2	P.C.C.	2.00	8.20	0.90	0.30	4.43	
		2.00	5.60	0.90	0.30	3.02	**7.45**
3	MASONRY WORK IN FOUNDATION						
	STEP 1	2.00	8.20	0.60	0.20	1.97	
		2.00	5.60	0.60	0.20		`
						1.34	
	STEP 2	2.00	8.20	0.50	0.20	1.64	

		2.00	5.60	0.50	0.20	1.12	
	STEP 3	2.00	8.20	0.40	0.20	1.31	
		2.00	5.60	0.40	0.20	0.90	
	MASONRY WORK UP TO P.L.	2.00	8.20	0.30	0.60	2.95	
		2.00	5.60	0.30	0.60	2.02	
	STEP	1.00	1.20	0.90	0.15	0.16	
		1.00	1.20	0.60	0.15	0.11	
		1.00	1.20	0.30	0.15	0.05	**13.57**
4	BACK FIILLING	1.00	1.00	1.00	1.00	8.78	**8.78**
	EXCAVATION-P.C.C.-MASONARY IN						
	FOUNDATION						
5	5MM THICK DPC	1.00	27.60	0.30	1.00	8.28	**14.22**
6	MASONRY WORK IN	2.00	8.20	0.30	3.00	14.76	
	SUPER STRUCTURE	2.00	5.60	0.30	3.00	10.08	
	INSIDE PARTITION WALL	1.00	2.10	0.30	0.15	0.09	
		1.00	8.20	0.30	0.15	0.37	
		3.00	1.90	0.30	0.15	0.26	
	DEDUCTION D1	-1.00	1.20	0.30	2.10	-0.76	
	D2	-3.00	0.9	0.30	2.10	-1.70	
	D3	-3.00	0.6	0.30	2.10	-1.13	
	W	-3.00	0.9	0.30	1.2	-0.97	

	V	-2.00	0.50	0.30	0.50	-0.15	**20.85**
7	SMOOTH INSIDE PLASTER	4.00	8.20	1.00	3.00	98.40	
		2.00	5.60	1.00	3.00	33.60	
	INSIDE PARTITION WALL	2.00	2.10	1.00	3.00	12.60	
		6.00	1.90	1.00	3.00	34.20	
	DEDUCTION D1	-1.00	1.20	1.00	2.10	-2.52	
	D2	-6.00	0.9	1.00	2.10	-11.34	
	D3	-6.00	0.6	1.00	2.10	-7.56	
	W	-3.00	0.9	1.00	1.2	-3.24	
	V	-2.00	0.30	1.00	0.50	-0.30	**153.84**
8	OUT SIDE ROUGH PLASTER	2.00	8.60	1.00	3.00	51.60	
		2.00	5.60	1.00	3.00	33.60	
	DEDUCTION D1	-1.00	1.20	1.00	2.10	-2.52	
	V	-2.00	0.30	1.00	0.50	-0.30	**82.38**
9	R.C.C. SLAB	1.00	8.60	5.60	0.15	7.22	**7.22**
10	LINTEL AND CHHAJJAS						
	LINTELS						
	D1	1.00	1.50	0.30	0.10	0.05	
	D2	3.00	1.20	0.15	0.10	0.05	
	D3	3.00	0.90	0.15	0.10	0.04	
	W	3.00	1.20	0.30	0.10	0.11	

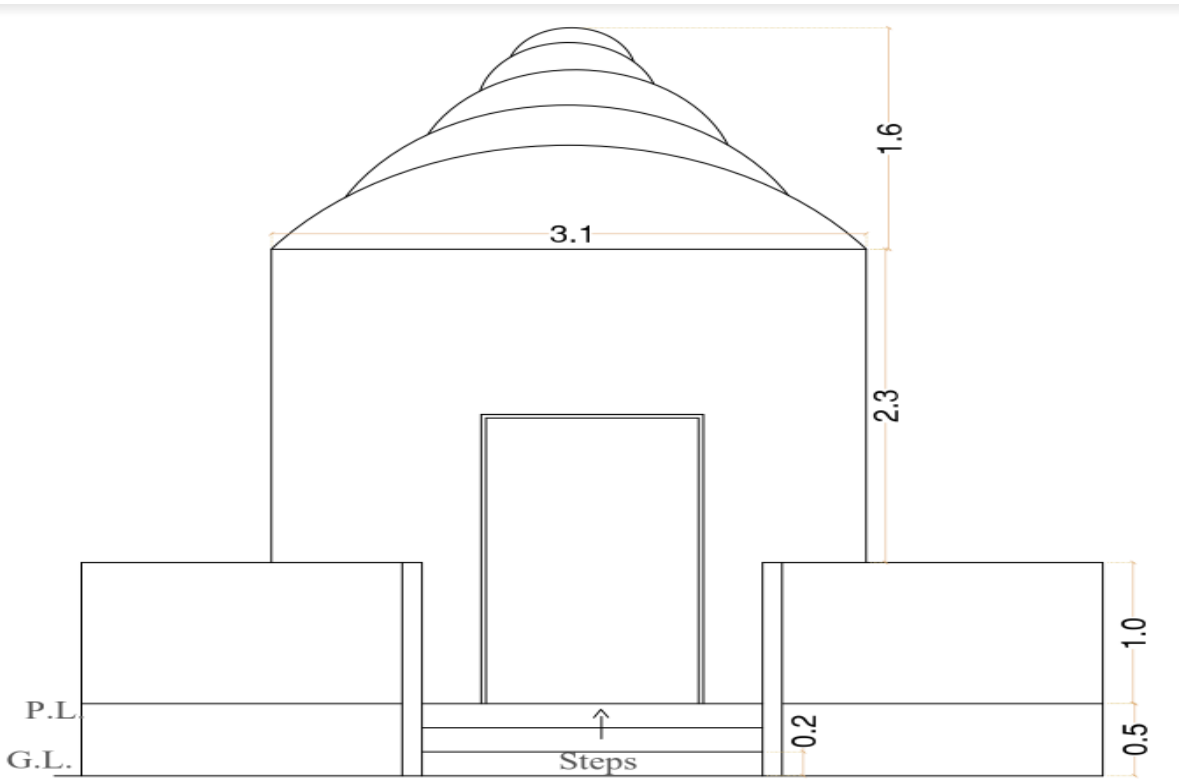
	V	2.00	0.60	0.30	0.10	0.04	
	CHHAJJAS						
	D1	1.00	1.20	0.60	0.10	0.07	
	W	3.00	0.90	0.60	0.10	0.16	
	V	2.00	0.30	0.60	0.10	0.04	**0.55**
11	2' X 2' FLOORING						
	WAITING AREA	1.00	6.40	3.00	1.00	19.20	
	HELP CENTRE	1.00	1.70	3.00	1.00	5.10	
	DIGITAL HUB & BIOMETRIC	2.00	2.70	1.90	1.00	10.26	
	TOILET	1.00	2.60	1.90	1.00	4.94	
	GAP BETWEEN	1.00	1.20	0.3	1.0	0.36	
	DOORS			0	0		
		3.00	0.90	0.30	1.00	0.81	
		3.00	0.60	0.30	1.00	0.54	**41.21**
12	DOORS IN WOOD WITH FRAME						
	D 1	1.00	1.20	1.00	2.10	2.52	
	D 2	3.00	0.90	1.00	2.10	5.67	
	D 3	3.00	0.60	1.00	2.10	3.78	**11.97**
13	WINDOOW IN WOOD	3.00	0.90	1.20	1.20	3.89	**3.89**
14	VENTILATION IN ALUMINIUM	2.00	0.30	0.30	1.00	0.18	**0.18**
15	WHITE WASH(IN SIDE)	1.00	1.00	1.00	1.00	236.22	**236.22**
	IS EQUAL TO						
	TOTAL QUANTITY OF PLASTER						

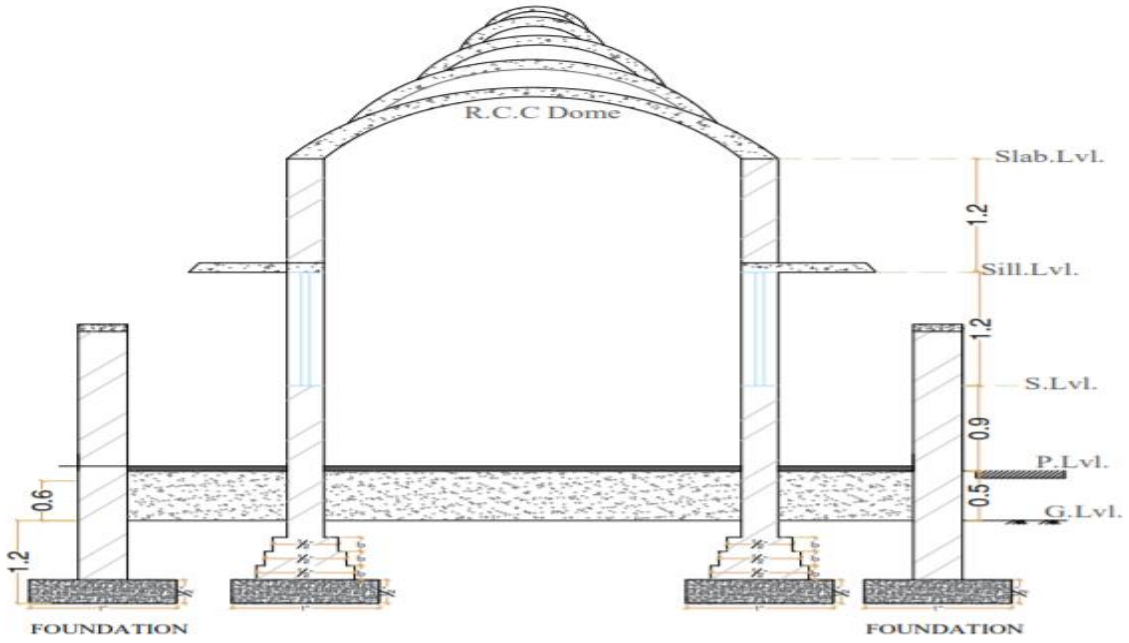
8.1.5 Heritage Village Design- Temple



TEMPLE

PLAN


1.6
3.1
2.3
1.0
P.L
G.L.
Steps
0.2
0.5


R.C.C Dome
Slab.Lvl.
1.2
Sill.Lvl.
1.2
S.Lvl.
0.9
P.Lvl.
0.5
G.Lvl.
0.6
1.2
FOUNDATION
FOUNDATION

Calculation for Dome

Half spherical dome of concrete 1:2:4 & steel 1.5% Dome of concrete

$= (4*\pi*(1.2^3 - 1.1^3)/ (3*2)$

= 0.831 cu.m.

Assume 1.5 % steel, (1.5/100) * 0.831
= 0.0124*7850 (7850 is unit wt. of mildsteel)
= 9.734 kg

Total Net RCC = 0.834-0.00124
= 0.8297 cu.m.

ABSTRACT SHEET					
NO.	**ITEMS**	**UNIT**	**QTY.**	**RATE**	**AMOUNT**
1	EXCAVATION IN FOUNDATION	CU.M.	36.07	150.00	5410.80
2	P.C.C. IN FOUNDATION (1:4:8)	CU.M.	9.02	3900.00	35170.20
3	MASONRY WORK IN FOUNDATION	CU.M.	14.56	4900.00	71324.40
4	EARTH BACK FIILLING	CU.M.	12.50	120.00	1499.76
5	5MM THICK DPC	SQ.M.	5.01	4700.00	23547.00
6	MASONRY WORK IN SUPER STRUCTURE	CU.M.	23.47	4900.00	115003.00
7	SMOOTH INSIDE PLASTER	SQ.M.	76.30	260.00	19838.00
8	OUT SIDE ROUGH PLASTER	SQ.M.	175.96	310.00	54547.60
9	R.C.C. SLAB	CU.M.	0.68	8800.00	5940.00
10	R.C.C. CHAJJA AND LINTEL	CU.M.	0.03	8000.00	216.00
11	2' X 2' FLOORING	CU.M.	27.94	450.00	12573.00
12	DOORS IN STEEL JALI WITH FRAME	SQ.M.	0.54	12000.00	6480.00

13	R.C.C IN TOP DOME	SQ.M.	0.83	8800.00	7304.00
14	WHITE WASH(IN SIDE)	SQ.M.	257.81	18.00	4640.54
					363494.304
	ADD 5% CONTINGENCY				18174.7152
	ALL ABOVE RATE FILLED MAY VARY DUE TO MARKET INFLATION			**TOTAL**	**381669.0192**

MEASURMENT SHEET TAMPLE

NO.	ITEMS	NO.	L	B	H	QTY.	T. QTY.
1	EXCAVATION IN FOUNDATION(L.W.)	2.00	6.10	0.90	1.20	13.18	
	(S.W.)	2.00	5.00	0.90	1.20	10.80	
		2.00	2.60	0.90	1.20	5.62	
		2.00	3.00	0.90	1.20	6.48	**36.07**
2	P.C.C.	2.00	6.10	0.90	0.30	3.29	
		2.00	5.00	0.90	0.30	2.70	
		2.00	2.60	0.90	0.30	1.40	
		2.00	3.00	0.90	0.30	1.62	**9.02**
3	MASONRY WORK IN FOUNDATION						
	STEP 1	2.00	6.10	0.60	0.20	1.46	
		2.00	5.00	0.60	0.20	1.20	
		2.00	2.60	0.60	0.20	0.62	
		2.00	3.00	0.60	0.20	0.72	
	STEP 2	2.00	6.10	0.50	0.20	1.22	

		2.00	5.00	0.50	0.20	1.00	
		2.00	2.60	0.50	0.20	0.52	
		2.00	3.00	0.50	0.20	0.60	
	STEP 3	2.00	6.10	0.40	0.20	0.98	
		2.00	5.00	0.40	0.20	0.80	
		2.00	2.60	0.40	0.20	0.42	
		2.00	3.00	0.40	0.20	0.48	
	MASONRY WORK UP TO P.L.	2.00	6.10	0.30	0.60	2.20	
		2.00	5.00	0.30	0.60	1.80	
	STEP 1	1.00	2.00	0.90	0.15	0.27	
		1.00	2.00	0.60	0.15	0.18	
		1.00	2.00	0.30	0.15	0.09	**14.56**
4	BACK FIILLING						
	EXCAVATION-P.C.C.-MASONARY IN	1.00	1.00	1.00	1.00	12.50	**12.50**
	FOUNDATION						
5	5MM THICK DPC	1.00	16.70	0.30	1.00	5.01	**5.01**
6	MASONRY WORK IN	2.00	6.10	0.30	1.50	5.49	
	SUPER STRUCTURE	2.00	5.00	0.30	1.50	4.50	
		2.00	2.60	0.30	4.00	6.24	
		2.00	3.00	0.30	4.00	7.20	
	PARTITION WALL	2.00	0.5	0.1	4.00	0.40	
		2.00	0.6	0.1	1.50	0.18	
	DEDUCTION						
	W	-2.00	0.30	0.30	1.30	-0.23	
	G 1	-1.00	0.30	0.30	1.40	-0.13	

	G 2	-1.00	0.30	0.30	2.00	-0.18	**23.47**
7	SMOOTH INSIDE PLASTER	2.00	6.10	1.00	1.50	18.30	
		2.00	5.00	1.00	1.50	15.00	
		2.00	2.60	1.00	4.00	20.80	
		2.00	3.00	1.00	4.00	24.00	
	DEDUCTION					0.00	
	W	-2.00	0.30	1.00	1.30	-0.78	
	G 1	-1.00	0.30	1.00	1.40	-0.42	
	G 2	-1.00	0.30	1.00	2.00	-0.60	**76.30**
8	OUT SIDE ROUGH PLASTER	2.00	5.50	1.00	5.05	55.55	
		2.00	6.10	1.00	5.05	61.61	
		2.00	3.00	1.00	5.05	30.30	
		2.00	3.00	1.00	5.05	30.30	
	DEDUCTION						
	W	-2.00	0.30	1.00	1.30	-0.78	
	G 1	-1.00	0.30	1.00	1.40	-0.42	
	G 2	-1.00	0.30	1.00	2.00	-0.60	**175.96**
9	R.C.C. SLAB WITH DEDUCTING	1.00	4.50	1.00	0.15	0.68	**0.68**
	TOP DOME						
10	LINTEL AND CHHAJJAS						
	LINTELS						
	W	1.00	0.30	0.30	0.10	0.01	
	CHAJJAS						
	W	1.00	0.30	0.60	0.10	0.02	**0.03**
11	2' X 2' FLOORING	1.00	2.60	2.60	1.00	6.76	

		1.00	1.40	0.70	1.00	0.98	
		1.00	5.00	0.70	1.00	3.50	
		1.00	5.00	1.90	1.00	9.50	
		1.00	1.00	5.60	1.00	5.60	
		1.00	2.00	0.80	1.00	1.60	**27.94**
12	DOORS IN STEEL JALI WITH FRAME						
	W	2.00	0.30	0.30	1.30	0.23	
	G 1	1.00	0.30	0.30	1.40	0.13	
	G 2	1.00	0.30	0.30	2.00	0.18	**0.54**
13	R.C.C IN TOP DOME	1.00	1.00	1.00	1.00	0.83	**0.83**
14	WHITE WASH(IN SIDE)	2.00	6.10	1.00	1.50	18.30	
		2.00	5.00	1.00	1.50	15.00	
		2.00	2.60	1.00	4.00	20.80	
		2.00	3.00	1.00	4.00	24.00	
	W	-2.00	0.30	1.00	1.30	-0.78	
	G 1	-1.00	0.30	1.00	1.40	-0.42	
	G 2	-1.00	0.30	1.00	2.00	-0.60	
	OUT SIDE	2.00	5.50	1.00	5.05	55.55	
		2.00	6.10	1.00	5.05	61.61	
		2.00	3.00	1.00	5.05	30.30	
		2.00	3.00	1.00	5.05	30.30	
	DEDUCTION						
	W	-2.00	0.30	1.00	1.30	-0.78	
	G 1	-1.00	0.30	1.00	1.40	-0.42	
	G 2	-1.00	0.30	1.00	2.00	-0.60	**252.26**

8.2 Reasons for the students recommending this design

- We have suggested different designs after visiting the village and after analyzing the village extensively, which will help the villagers, improve their lifestyle. From visiting the villages and providing proper design, we have tried to build sustainable & economic design according to our knowledge & hard work.
- In reference to the ideal village, our own goal is to grow the allotted village. Based on our survey, knowledge & gap analysis, we have proposed few designs for its development.

The designs we proposed for the village are below.

- **Sustainable design (Septic Tank) -** We came to know that the village does not have proper solid waste management while visiting the village, household waste was seen on the street. This waste contributes to dangerous pathogens and affects the health of villagers.

- **Physical design (Vegetable Market)** - More than 70% villagers are involved in agriculture for their livelihood. If the appropriate vegetable market is established, it is possible to buy vegetables properly and this will also enable individuals from the nearby village to come to buy vegetables.

- **Social infrastructure (PHC) -** There was a lack of medical services in the village and there are many health concerns in the villages. There was not a single medical store there either.Villagers need to go to the city for treatment for any health problems. So we proposed a PHC to enable the villagers within the village itself to get basic medical facilities.

- **Socio- Culture infrastructure (Community Hall) -** We came to understand after interacting with the villagers that there is no community hall in the village. Villagers will easily celebrate the festival, birthdays, marriage ceremony in the village itself by suggesting the community hall. It was also the villagers' wish to have a community hall in the village to celebrate each and every festival with fun and happiness.

- **Smart Infrastructure (CSC) -** The technology in the village was missing. Villagers need to go beyond the village for some computer-related work. Owing to the lack of technology, even students face difficulties. If CSC is provided, villagers can become somewhat attached to the new technologies that improve the village's living standards.

8.3 About design suggestions/ benefit of the villagers

- A septic tank is a concrete, fiberglass, or plastic underground chamber in which domestic waste water (sewage) flows for basic treatment. Settling and anaerobic processes eliminate solids and organics, but the quality of treatment is only moderate (referred to as 'primary treatment').Septic tank systems are a type of simple on-site sewage facility (OSSF). They can be used in areas not linked to the drainage system, such as rural areas. By providing septic tank all the biodegradable waste can be managed & breeding of mosquitoes

- For their livelihood, more than 70 percent of villagers are active in agriculture. It is possible to buy vegetables properly if the required vegetable market is created, and this will also encourage individuals from the nearby village to come to buy vegetables.

- Primary Health Centers (PHCs) are state-owned rural health care facilities in India, also referred to as public health centers. They are basically single-physician clinics that typically have minor surgical services, too. They are part of the public health system sponsored by the government in India and are the most fundamental units of this system. There are 23673 PHCs currently in India.

- Public places where members of a community appear to meet for group events, social service, public information, and other purposes are community centers or community halls.

- By Suggesting the community hall, villagers can easily celebrate the festival, birthdays, and marriage ceremony in the village itself. It was also the wish of the villagers to have a community hall in the village to celebrate fun and happiness at each and every festival.

- A Common Service Center (CSC) is an access point for information and communication technology (ICT) built under the Indian government's National e-Governance Project. The project plan involves the construction throughout the country of a network of over 100,000 CSCs. The aim of the project is to provide underserved Indians in rural areas with much-neededknowledge and services.

- By providing CSC in our allotted village it will help the villagers to gain some knowledge of the new technologies.

Chapter -9.

Proposing designs for Future Development of the village part-II

- We got to know the current situation of the village and the lack of infrastructure facilities in the village after completing the visit & taking techno economic survey & interacting with villagers & sarpanch.

- We have proposed PHC design this semester, as there were no medical facilities in the village. This will address the issue that farmers & villagers do not have to go to the basic medical facilities outside the village.

- In the village, cleanliness was not preserved, waste was seen on the streets of the village, so we have suggested septic tank design. Septic tanks are commonly used by many individuals who because of their many benefits, do not have access to a public sewage system or choose to use a septic tank. When selecting an appropriate water treatment solution, septic tanks can be a perfect solution.

- We have also suggested a market for vegetables, as agriculture is the village's main occupation. We also suggested a community hall design so that villagers can celebrate birthdays, festivals and marriage ceremonies with plenty of fun and joy.

- Many infrastructure services in the village are also lacking. We will compare all the amentias with the ideal village in the second phase and suggest more infrastructure designs required for the village's growth.

- We may suggest the construction of higher secondary schools, public libraries, bio-gas plant. We would also look for the maintenance of existing infrastructures, such as road & bus stops.

Chapter 10.

Conclusion of the entire village

- Vishwakarma yojana is preparing for Gujarat's future, and students of engineering like us have an opportunity to take real work experience and improve rural areas at economic cost with good workability and productivity during use. The goal of Vishwakarma yojana is to develop the villagers' living standard, the project tends to improve the villagers' physical, social and socio- cultural aspects by economically implementing and improving infrastructure facilities in the village.

- In particular, the development work in villages that could be carried out as required by the village includes physical infrastructure facilities (Water, Drainage, Road, Electricity, Solid Waste Management, Storm Water Network, Telecommunications & Other), social infrastructure facilities (Education, Health, Community Hall, Library, Recreation Facilities & Other and renewable energy (Rain water harvesting, Biogas plant) for sustainable development.

- We conducted techno-economic surveys of the village of Kolat. The Panchayat Office, bus-stand, we observe bad conditions. There is no medical facility such as the private clinic of PHC&. There isn't even a medical store there.

- There was a lack of cleanliness in the village. There were no adequate facilities for solid waste management on the streets of the village. We also proposed constructing a septic tank to decompose biodegradable waste. This will also help to preserve the village's cleanliness and so cleanliness will help the villagers live a happy and healthy life style.

- In the village, there was no community hall. We have suggested the construction of a community hall to help villagers celebrate festivals, birthdays and marriage ceremonies with lots of fun and happiness.

- With all the smart amenities that a city has, our goal is to grow our village. This will help to grow the village in a sustainable way by reducing villagers' migration and avoiding urban pressure from the cities. The future scenery for urbanization can be sustainable by improving Rural India.

Chapter 11.

References

- Schedule of rates 2020
- Google maps
- www.censusindia.gov.in
- www.wikipedia.in
- www.googleearth.com
- www.vyojana.gtu.ac.in
- www.researchgate.net
- www.villagemaps.in
- https://ahmedabadcity.gov.in/portal/jsp/Static_pages/pi_smartcity.jsp
- https://en.wikipedia.org/wiki/Rural_development
- https://en.wikipedia.org/wiki/Golden_Quadrilateral
- https://villageinfo.in/gujarat/ahmadabad/sanand/kolat.html
- https://rural.nic.in/
- PPV edition 2018-19 by R.P rethaliya
- Estimating, costing and valuation by Rangwala edition 2016-2017

Other sources

- Subhana Momin (Sarpanch ofKolat)
- Sandip patel (Talati ofKolat)
- Pravin Bhai (works as a social worker in Kolat Village)

Chapter 12.

Annexure attachment

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

Gujarat Technological University, Ahmedabad, Gujarat — Vishwakarma Yojana: Phase VIII, Techno Economic Survey

Techno Economic Survey

For

Vishwakarma Yojana: Phase VIII

IDEAL VILLAGE SURVEY

An approach towards Rurbanisation for Village Development

Name of Village:	Punsari
Name of Taluka:	Talod
Name of District:	Sabarkantha
Name of Institute:	L.J Institue of Engg & Tech
Nodal Officer Name & Contact Detail:	Parth Sinroza 9601408487
Respondent Name: (Sarpanch/ Panchayat Member/ Teacher/ Gram Sevak/ Aaganwadi worker/Village dweller)	SUNDANDABEN PATEL
Date of Survey:	

1. **Demographical Detail:**

Sr. No.	Census	Population	Male	Female	Total House Holds
i)	2001	4375	2456	2279	
ii)	2011	5700	2653	2447	1109

2. **Geographical Detail:**

Sr. No.	Description	Information/Detail
i)	Area of Village (Approx.) (In Hector) Coordinates for Location:	1395.65
	Forest Area (In hect.)	
	Agricultural Land Area (In hect.)	1015.63
	Residential Area (In hect.)	18.54
	Other Area (In hect.)	219.60
	Water bodies	
	Nearest Town with Distance:	28 km Modasa

Gujarat Technological University, Ahmedabad, Gujarat

Vishwakarma Yojana: Phase VIII
Techno Economic Survey

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

	Electrification in Government Buildings/ Schools Hospitals	Fair	yes		
	Renewable Energy Source Facilities (Y/ N)	Fair	yes		
	LED Facilities	Fair	yes		
Suggestions if any					
H.	**Sanitation Facility**				
	Public Latrine Blocks If available than Nos.		yes		8-Nos
	Location Condition	Fair			
	Community Toilet (With bath/ without bath facilities)	No			
	Solid & liquid waste Disposal system available	Fair			Dump 2 Kms from Village
	Any facility for Waste collection from road	Fair	yes		
Suggestions if any:					
I.	**Irrigation Facility:**				
	Main Source of Irrigation (Stream/River/ Canal/ Well/ Tube well/ Other)	Tube Well	yes		
Suggestions if any:					
J.	**Housing Condition:**				
	Kutchha/Pucca (Approx. ratio)	Mostly Pucca			

5. **Social Infrastructural Facilities:**

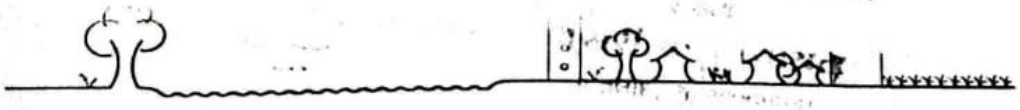
Sr. No.	Descriptions	Information/ Detail	Adequate	Inadequate	Remarks

Gujarat Technological University, Ahmedabad, Gujarat — Vishwakarma Yojana: Phase VIII — Techno Economic Survey

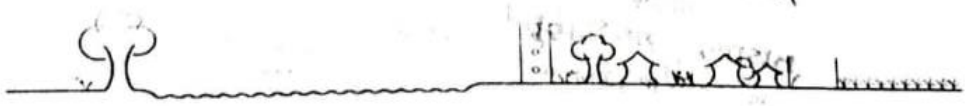
K.	Health Facilities:				
	Sub center/ PHC/ CHC/ Government Hospital/ Child welfare & Maternity Homes (If Yes than specify No. of Beds) Condition:	PHC (24 hrs open)	yes		
	Private Clinic/Private Hospital/ Nursing Home		yes		
	If any of the above Facility is not available in village than approx. distance from village: .....kms.				
Suggestions if any:					

L.	Education Facilities:				
	Aaganwadi/ Play group	8 Nos			
	Primary School	2 Nos			
	Secondary school	2 Nos			
	Higher sec. School	1 No			
	ITI college/ vocational Training Center	1 ITI 1 M.			
	Art, Commerce& Science /Polytechnic/ Engineering/ Medical/ Management/ other college facilities	No			
	If any of the above Facility is not available in village than approx. distance from village: .....kms.				
Suggestions if any:					

M.	Socio- Culture Facilities				
	Community Hall (With or without TV) Location:	Good with T.V	0.5 km from Busstop	yes	



	Condition				
	Public Library (With daily newspaper supply Y N) Location Condition	Fair	yes		
	Public Garden Location Condition	Fair	yes		
	Village Pond Location: Condition:	Fair	yes		
	Recreation Center Location: Condition:	good	yes		
	Cinema/ Video Hall Location: Condition:	Fair	yes		
	Assembly Polling Station Location: Condition:	Fair	yes		
	Birth & Death Registration Office Location: Condition:	Fair	yes		
If any of the above Facility is not available in village than approx. distance from village: .....kms.					
Suggestions if any:					
N.	**Other Facilities**				
	Post-office		yes		
	Telecommunication Network/ STD booth		yes		



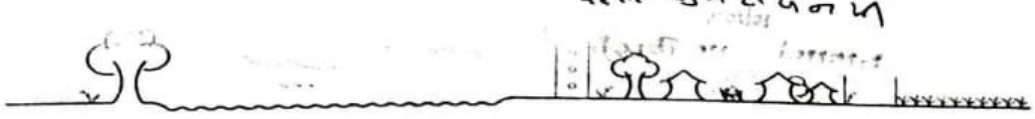
	General Market	good	Yes		
	Shops (Public Distribution System)	Fair	Yes		
	Panchayat Building	Fair	Yes		
	Pharmacy/Medical Shop	Fair	Yes		-
	Bank & ATM Facility	good	Yes		2 Nos
	Agriculture Co-operative Society	Fair	Yes		
	Milk Co-operative Soc.	Fair	Yes		
	Small Scale Industries				
	Internet Cafes/ Common Service Center/Wi Fi	WIFI [Fair]	Yes	WIFI	
	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		Yes		
P.	Bio-Gas Plant Solar Street Lights Rain Water Harvesting System	BIO-gas	yes		
Q.	Any Other	Green Building			

7. **Data Collection From Village**

Village Base Map Available: Hard Copy/Soft Copy	



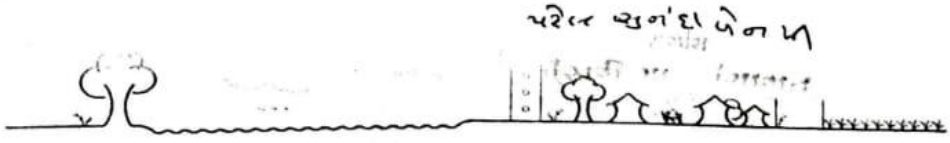
	General Market	good	Yes		
	Shops (Public Distribution System)	Fair	Yes		
	Panchayat Building	Fair	Yes		
	Pharmacy/Medical Shop	Fair	Yes		-
	Bank & ATM Facility	good	Yes		2 Nos
	Agriculture Co-operative Society	Fair	Yes		
	Milk Co-operative Soc.	Fair	Yes		
	Small Scale Industries				
	Internet Cafes/ Common Service Center/Wi Fi	WIFI [Fair]	Yes	WIFI	
	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		Yes		
P.	Bio-Gas Plant Solar Street Lights Rain Water Harvesting System	BIO-gas	yes		
Q.	Any Other	Green Building			

7. **Data Collection From Village**

Village Base Map Available: Hard Copy/Soft Copy	



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

8. Additional Information/ Requirement:

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

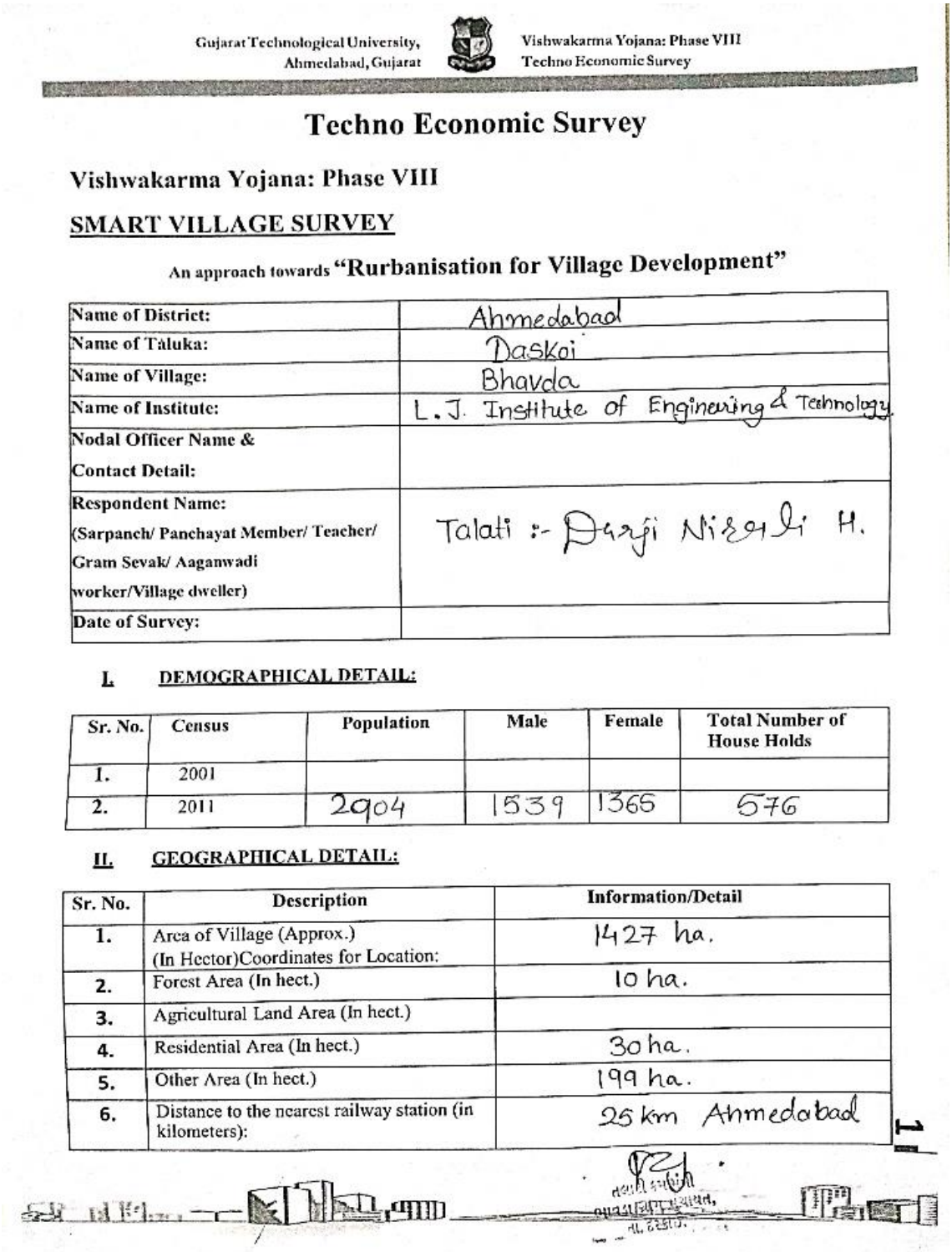
9. Smart Village Proposal Design

Sr. No.	Descriptions	Information/ Detail	Remarks
1.			

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

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

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



Gujarat Technological University, Ahmedabad, Gujarat

Vishwakarma Yojana: Phase VIII
Techno Economic Survey

Techno Economic Survey

Vishwakarma Yojana: Phase VIII

SMART VILLAGE SURVEY

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

Name of District:	Ahmedabad
Name of Taluka:	Daskoi
Name of Village:	Bhavda
Name of Institute:	L.J. Institute of Engineering & Technology
Nodal Officer Name & Contact Detail:	
Respondent Name: (Sarpanch/ Panchayat Member/ Teacher/ Gram Sevak/ Aaganwadi worker/Village dweller)	Talati :- Darji Nisha H.
Date of Survey:	

I. DEMOGRAPHICAL DETAIL:

Sr. No.	Census	Population	Male	Female	Total Number of House Holds
1.	2001				
2.	2011	2904	1539	1365	576

II. GEOGRAPHICAL DETAIL:

Sr. No.	Description	Information/Detail
1.	Area of Village (Approx.) (In Hector)Coordinates for Location:	1427 ha.
2.	Forest Area (In hect.)	10 ha.
3.	Agricultural Land Area (In hect.)	
4.	Residential Area (In hect.)	30 ha.
5.	Other Area (In hect.)	199 ha.
6.	Distance to the nearest railway station (in kilometers):	25 km Ahmedabad

Gujarat Technological University, Ahmedabad, Gujarat

Vishwakarma Yojana: Phase VIII
Techno Economic Survey

7.	Name of Nearest Town with Distance:	Ahemdabad
8.	Distance to the nearest bus station (in kilometers):	Yes 1Km.
9.	Whether village is connected to all road for the any facility or town or City?	Yes Ahmedabad city

III. OCCUPATIONAL DETAILS:

Name of Three Major Occupation groups in Village	1. farmers
	2. Labour farmers
	3. House Production

Major crops grown in the village:	1. Wheat
	2. Rice
	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	Tank/ Tube well-1/ well	adequate		24 hrs
2.	**DUG WELL** Protected Well Un Protected Well	-			
3.	**WATER FROM SPRING** Protected Spring Unprotected Spring				
	Rainwater Tanker Truck Cart With Small Tank				
4.	**SURFACE WATER (RIVER/DAM/ LAKE/POND/STREAM/CANAL/** Irrigation Channel Bottled Water Hand Pump Other(Specify)Lake/ Pond				

2

Gujarat Technological University, Ahmedabad, Gujarat

Vishwakarma Yojana: Phase VIII
Techno Economic Survey

Suggestions if any:					
B.	**Water Tank Facility**				
	Overhead Tank	Capacity:	1		
	Underground Sump	Capacity:			
Suggestions if any:					
C.	**The Type of Drainage Facility**				
	A. UNDERGROUND DRAINAGE 1 2 B. OPEN WITH OUTLET C. OPEN WITHOUT OUTLET	underground drainage			
Suggestions if any:					
D.	**Road Network :All Weather/ Kutchha (Gravel)/ Black Topped pucca/ WBM**				
	Village approach road				
	Main road				
	Internal streets				
	Nearest NH/SH/MDR/ODR Dist. in kms.	State Highway			
Suggestions if any:					
E.	**Transport Facility**				
	Railway Station (Y/N) (If No than Nearest Rly Station---Kms)	N	25km		
	Bus station (Y/N) Condition: (If No than Nearest Bus Station---Kms)	Y			
	Local Transportation (Auto/ Jeep/Chhakda/ Private Vehicles/ Other)	MY	Bus	Auto/ Private	
Suggestions if any:					
F.	**Electricity Distribution**				
	(Y/N) Govt./ Private (Less than 6 hrs./ More Than 6 hrs)	Yes	More than 6hrs		

3

.

Gujarat Technological University, Ahmedabad, Gujarat

Vishwakarma Yojana: Phase VIII
Techno Economic Survey

	Power supply for Domestic Use	867 (House)	adequate		
	Power supply for Agricultural Use	120			
	Power supply for Commercial Use	Yes	adequate		
	Road/ Street Lights	Yes	adequate		
	Electrification in Government Buildings/ Schools/ Hospitals	Yes	adequate		
	Renewable Energy Source Facilities (Y/ N)	N			
	LED Facilities	N			

Suggestions if any:

G.	**Sanitation Facility**				
	Public Latrine Blocks If available than Nos.	867 Houses			
	Location Condition	Good			
	Community Toilet (With bath/ without bath facilities)	1 with bath			
	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)	766 ha 400 ha 26 ha			

Suggestions if any:

I.	**Housing Condition:**				
	Kutchha/Pucca (Approx. ratio)	Pucca 867			

Gujarat Technological University, Ahmedabad, Gujarat

Vishwakarma Yojana: Phase VIII
Techno Economic Survey

V. SOCIAL INFRASTRUCTURAL FACILITIES:

Sr. No.	Descriptions	Information/ Detail	Adequate	Inadequate	Remarks
J.	**Health Facilities:**				
	ICDS (Anganwadi)	4 Nos	adequate		
	Sub-Centre	NO	7km		Kuha
	PHC	NO	7km		kuha
	BLOCK PHC	Yes	adequate		
	CHC/RH	NO			
	District/ Govt. Hospital	NO	12km		Ahmedabad
	Govt. Dispensary	No	12km		Ahmedabad
	Private Clinic	NO	12 km		Ahmedabad
	Private Hospital/	No	12km		Ahmedabad
	Nursing Home	No	12 km		Ahmedabad
	AYUSH Health Facility				
	sonography /ultrasound facility	NO	18km		Ahmedabad city
	If any of the above Facility is not available in village than approx. distance from village: .....kms.				
Suggestions if any:					
K.	**Education Facilities:**				
	Aaganwadi/ Play group	4 Nos			
	Primary School	Yes-2			Government
	Secondary school	Yes-1			Private/Granted
	Higher sec. School	NO			-
	ITI college/ vocational Training Center	NO			18km
	Art, Commerce& Science /Polytechnic/ Engineering/ Medical/ Management/ other college facilities	NO			18km
	If any of the above Facility is not available in village than approx. distance from village: .....kms.				

51

Gujarat Technological University, Ahmedabad, Gujarat

Vishwakarma Yojana: Phase VIII
Techno Economic Survey

Suggestions if any:

L.	Socio- Culture Facilities	Condition	Location	Available (YES)	Available (NO)
	Community Hall (With or without TV)		4km		No
	Public Library (With daily newspaper supply: Y/N)		4km		No
	Public Garden				No
	Village Pond				No
	Recreation Center				No
	Cinema/ Video Hall				No
	Assembly Polling Station				
	Birth & Death Registration		In Panchayat		Yes

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

Suggestions if any:

M.	Other Facilities	Condition	Location	Available (YES)	Available (NO)
	Post-office	Not Good		Yes	~~No~~
	Telecommunication Network/ STD booth				No
	General Market				No
	Shops (Public Distribution System)			Yes	
	Panchayat Building	Not Good		Yes.	
	Pharmacy/Medical Shop				No
	Bank & ATM Facility		4km		No
	Agriculture Co-operative Society			Yes	~~No~~
	Milk Co-operative Soc.				Yes
	Small Scale Industries				No
	Internet Cafes/ Common Service Center/Wi Fi				No
	Youth Club				No
	Mahila Mandal			Yes	

9

Gujarat Technological University, Ahmedabad, Gujarat — Vishwakarma Yojana: Phase VIII Techno Economic Survey

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

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	Good		Yes	
	4. Kishori Shakti Yojana	Good		Yes	
	5. Balika Samriddhi Yojana	Good		Yes	
	6. Mid-day Meal Programme	Good		Yes	
	7. Intergrated Child Development Scheme (ICDS)	Good		Yes	
	8. Mahila Mandal Protsahan Yojana (MMPY)				
	9. National Food for work Programme (NFFWP)				
	10. National Social Assistance Programme				
	11. Sanitation Programme (SP)	Good		Yes	
	12. Rajiv Gandhi National Drinking Water Mission				
	13. Swarnjayanti Gram Swarozgar Yojana				
	14. Minimum Needs Programme (MNP)				
	15. National Rural Employment Programme				
	16. Employee Guarantee Scheme (EGS)				
	17. Prime Minister Rojgar Yojana (PMRY)				
	18. Jawahar Rozgar Yojana (JRY)				
	19. Indira Awas Yaojna (IAY)				
	20. Samagra Awas Yojana (SAY)				
	21. Sanjay Gandhi Niradhar Yojana (SGNY)				
	22. Jawahar Gram Samridhi Yojana (JGSY)				
	23. Other (SPECIFY)				

7

.

VI. SUSTAINABLE /GREEN INFRASTRUCTURE FACILITIES:

Sr. No.	Descriptions	Information/ Details	Adequate	Inadequate	Remarks
1.	Adoption of Non-Conventional Energy Sources/ Renewable Energy Sources			No	
2.	Bio-Gas Plant Solar Street Lights Rain Water Harvesting System	No No Canal/Tube well Sprinkler			 340 400 5
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				
3.	Any NGO working for village development				
4.	Any natural calamity in the village during the last one year: EARTHQUAKES FLOODS CYCLONE DROUGHT LANDSLIDES AVALANCHE OTHER (SPECIFY)	No			

VIII. ADDITIONAL INFORMATION/ REQUIREMENT:

Sr. No.	Descriptions	Information/ Detail	Remarks

8

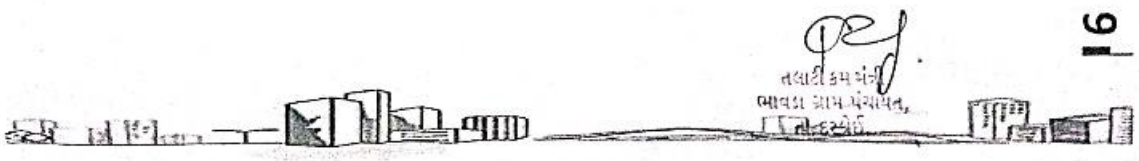
1.	**Repair & Maintenance of Existing Public Infrastructure facilities,** **School Building** **Health Center** **Panchayat Building** **Public Toilets & any other**	Yes - No -	Good Condition - Not in Good condition -
2.	**Additional Information/ Requirement**		
3.	**During the last six months how many times** **CLEANING .....** **FOGGING.....** **Drive was undertaken in the village?**	Yes 6 times	

IX. Smart Village / Heritage Details

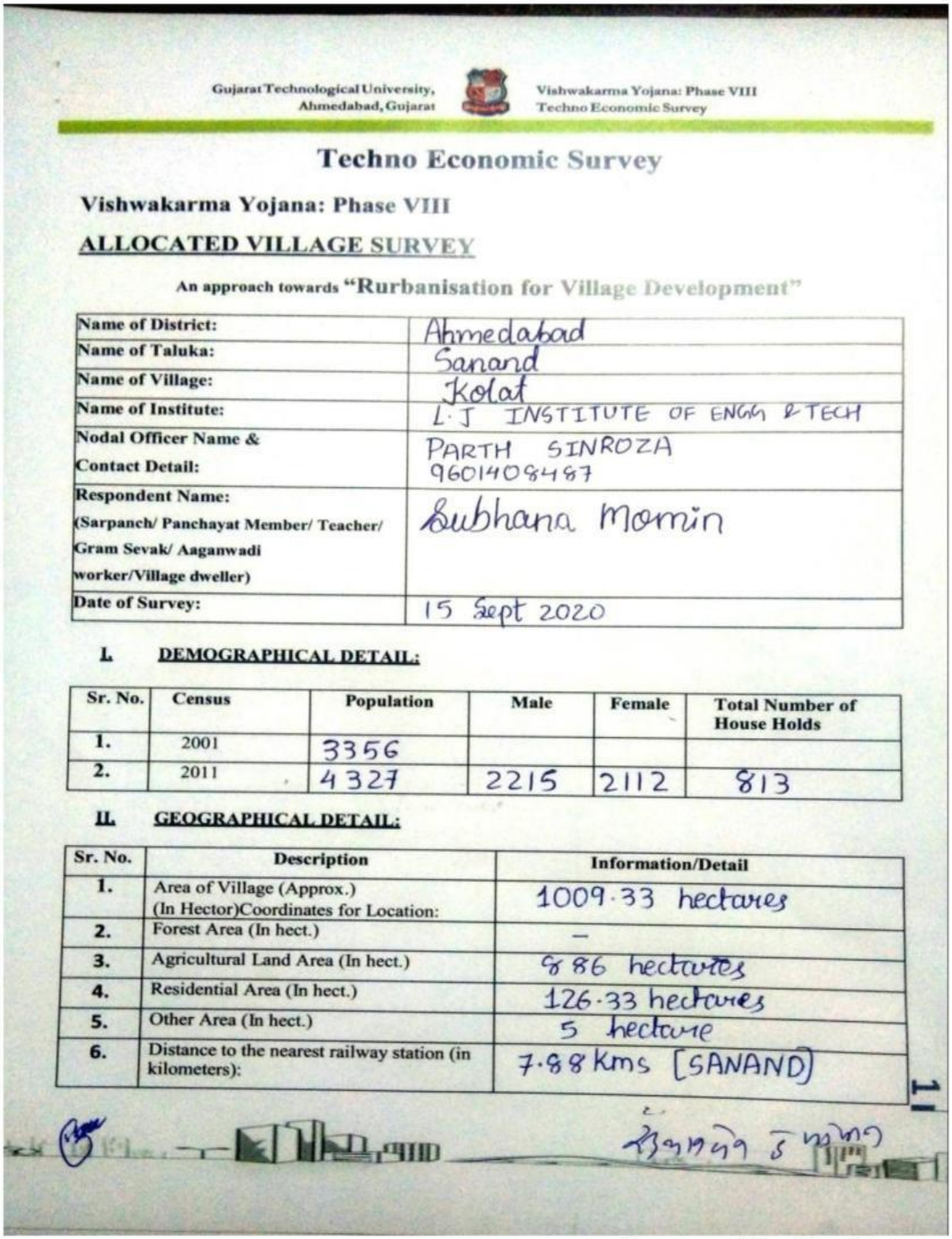
Sr. No.	Descriptions	Information/ Detail	Remarks
1.	IS THEIR ANY THING FOR THE VILLAGE ENHANCEMENT POSSIBLE ?		

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

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



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



Gujarat Technological University, Ahmedabad, Gujarat

Vishwakarma Yojana: Phase VIII
Techno Economic Survey

Techno Economic Survey

Vishwakarma Yojana: Phase VIII

ALLOCATED VILLAGE SURVEY

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

Name of District:	Ahmedabad
Name of Taluka:	Sanand
Name of Village:	Kolat
Name of Institute:	L.J INSTITUTE OF ENGG & TECH
Nodal Officer Name & Contact Detail:	PARTH SINROZA 9601408487
Respondent Name: (Sarpanch/ Panchayat Member/ Teacher/ Gram Sevak/ Aaganwadi worker/Village dweller)	Subhana Momin
Date of Survey:	15 Sept 2020

I. DEMOGRAPHICAL DETAIL:

Sr. No.	Census	Population	Male	Female	Total Number of House Holds
1.	2001	3356			
2.	2011	4327	2215	2112	813

II. GEOGRAPHICAL DETAIL:

Sr. No.	Description	Information/Detail
1.	Area of Village (Approx.) (In Hector)Coordinates for Location:	1009.33 hectares
2.	Forest Area (In hect.)	–
3.	Agricultural Land Area (In hect.)	886 hectares
4.	Residential Area (In hect.)	126.33 hectares
5.	Other Area (In hect.)	5 hectare
6.	Distance to the nearest railway station (in kilometers):	7.88 kms [SANAND]

Scanned by TapScanner

Gujarat Technological University, Ahmedabad, Gujarat

Vishwakarma Yojana: Phase VIII
Techno Economic Survey

7.	Name of Nearest Town with Distance:	A'bad & Sanand
8.	Distance to the nearest bus station (in kilometers):	[Not Available]
9.	Whether village is connected to all road for the any facility or town or City?	Yes

III. OCCUPATIONAL DETAILS:

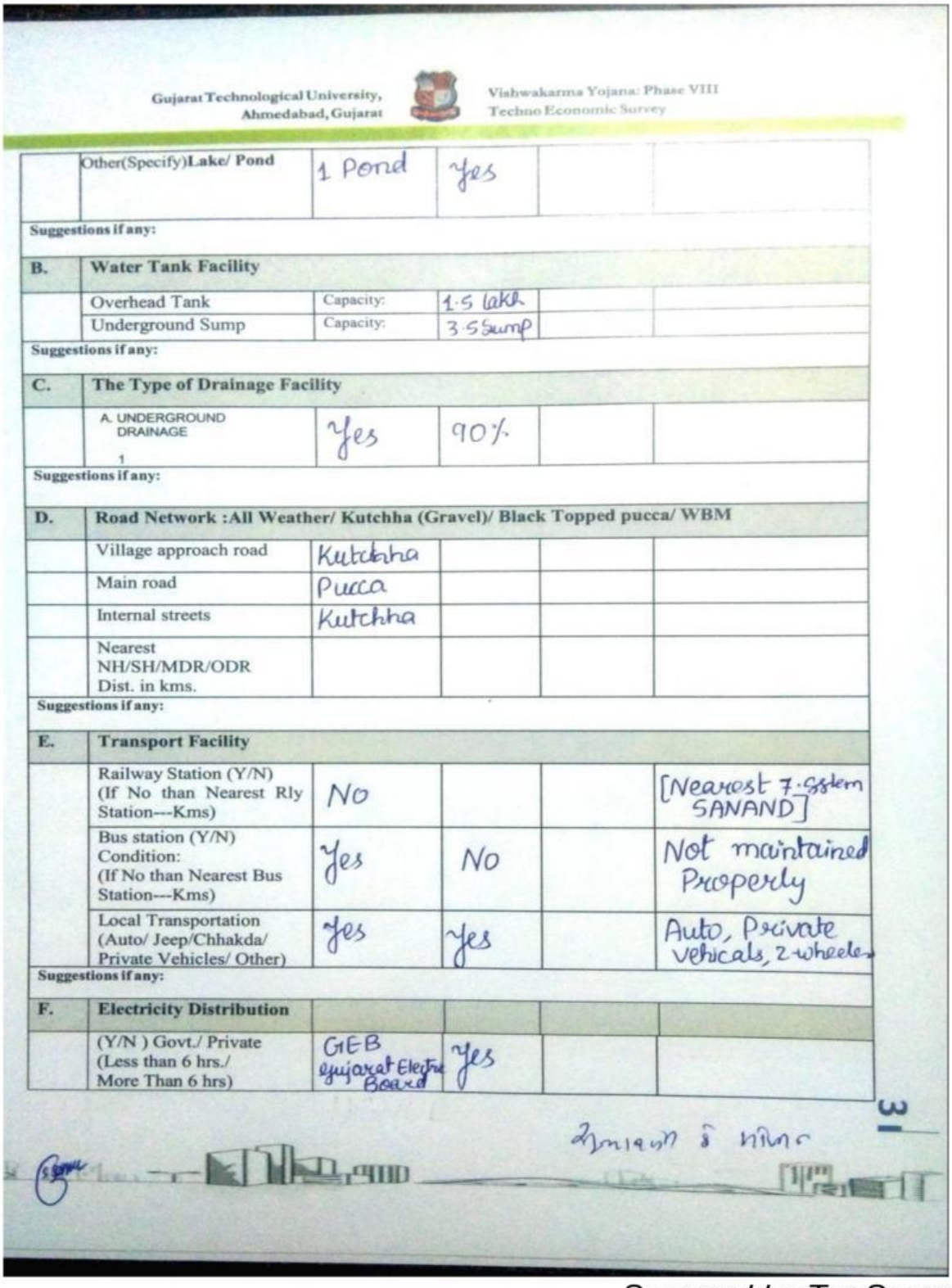
Name of Three Major Occupation groups in Village	1. Agriculture 2. Poultry 3. Labours [25%]

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

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	[TDS is more in water, not favourable for drinking Bore Well	No		TDS is more & not favourable for drinking
2.	**DUG WELL** Protected Well Un Protected Well				
3.	**WATER FROM SPRING** Protected Spring Unprotected Spring Rainwater Tanker Truck Cart With Small Tank				
4.	**SURFACE WATER (RIVER/DAM/ LAKE/POND/STREAM/CANAL/** Irrigation Channel Bottled Water Hand Pump	1 Canal [Fathewadi] 1 POND			

21



Gujarat Technological University, Ahmedabad, Gujarat

Vishwakarma Yojana: Phase VIII
Techno Economic Survey

	Other(Specify)Lake/ Pond	1 Pond	yes		

Suggestions if any:

B.	Water Tank Facility				
	Overhead Tank	Capacity:	1.5 lakh		
	Underground Sump	Capacity:	3.5 sump		

Suggestions if any:

C.	The Type of Drainage Facility				
	A. UNDERGROUND DRAINAGE 1	yes	90%		

Suggestions if any:

D.	Road Network :All Weather/ Kutchha (Gravel)/ Black Topped pucca/ WBM				
	Village approach road	Kutchha			
	Main road	Pucca			
	Internal streets	Kutchha			
	Nearest NH/SH/MDR/ODR Dist. in kms.				

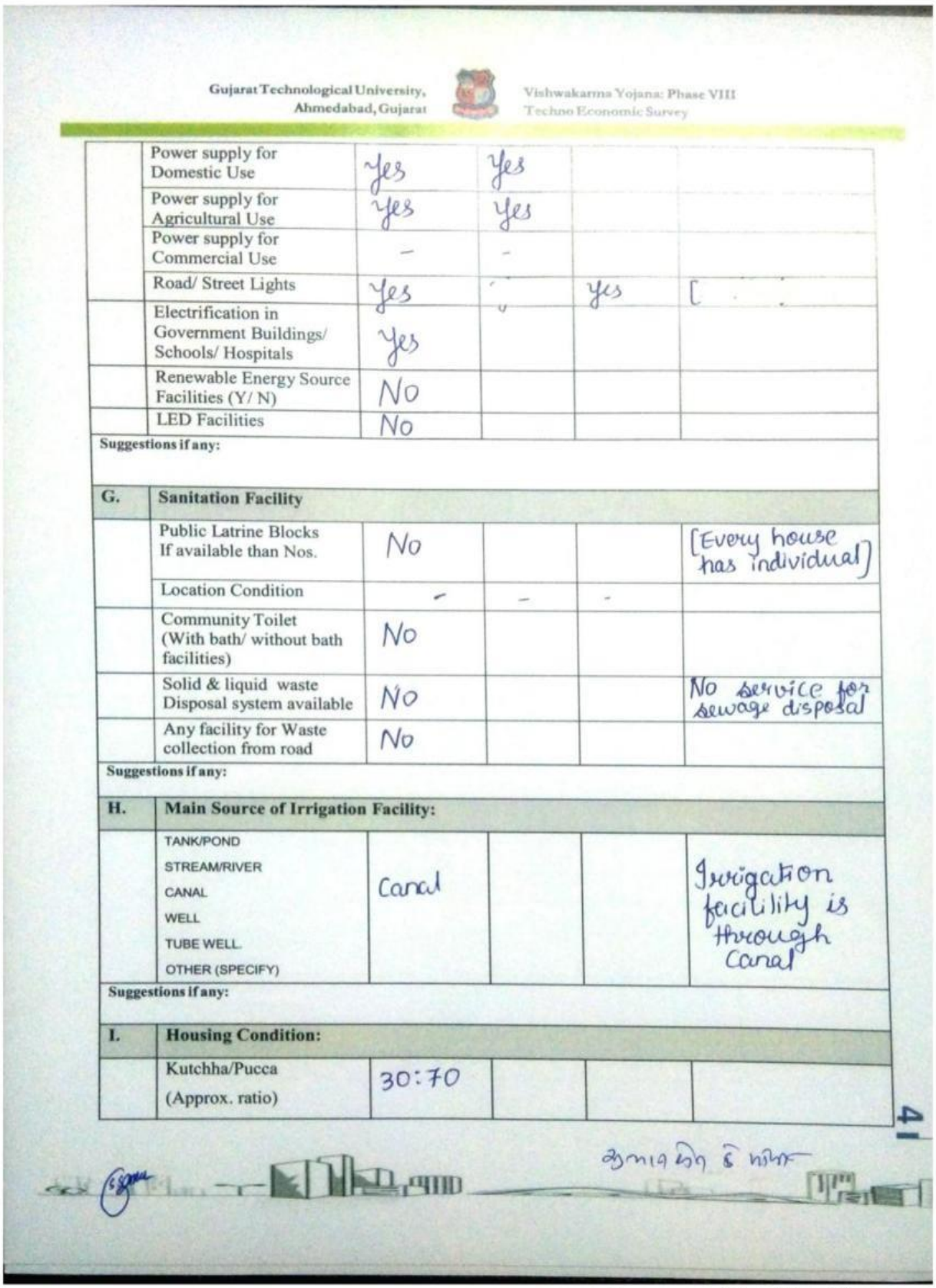
Suggestions if any:

E.	Transport Facility				
	Railway Station (Y/N) (If No than Nearest Rly Station---Kms)	No			[Nearest 7. System SANAND]
	Bus station (Y/N) Condition: (If No than Nearest Bus Station---Kms)	yes	No		Not maintained Properly
	Local Transportation (Auto/ Jeep/Chhakda/ Private Vehicles/ Other)	yes	yes		Auto, Private vehicals, 2 wheeler

Suggestions if any:

F.	Electricity Distribution				
	(Y/N) Govt./ Private (Less than 6 hrs./ More Than 6 hrs)	GEB Gujarat Electric Board	yes		

3

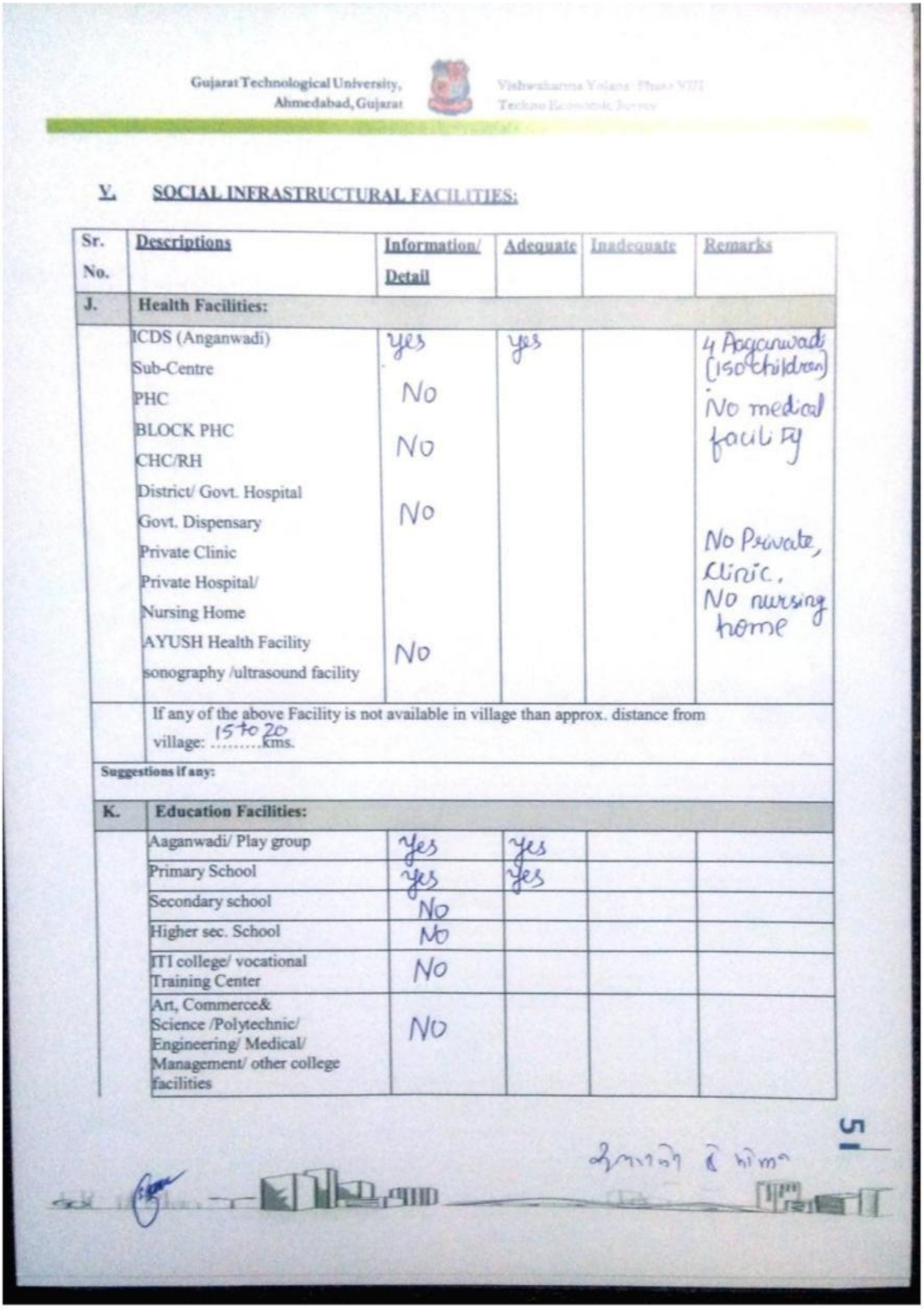


Gujarat Technological University, Ahmedabad, Gujarat

Vishwakarma Yojana: Phase VIII
Techno Economic Survey

	Power supply for Domestic Use	Yes	Yes		
	Power supply for Agricultural Use	Yes	Yes		
	Power supply for Commercial Use	-	-		
	Road/ Street Lights	Yes		Yes	[
	Electrification in Government Buildings/ Schools/ Hospitals	Yes			
	Renewable Energy Source Facilities (Y/ N)	No			
	LED Facilities	No			
Suggestions if any:					
G.	**Sanitation Facility**				
	Public Latrine Blocks If available than Nos.	No			[Every house has individual]
	Location Condition	-	-	-	
	Community Toilet (With bath/ without bath facilities)	No			
	Solid & liquid waste Disposal system available	No			No service for sewage disposal
	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)	Canal			Irrigation facility is through Canal
Suggestions if any:					
I.	**Housing Condition:**				
	Kutchha/Pucca (Approx. ratio)	30:70			

4



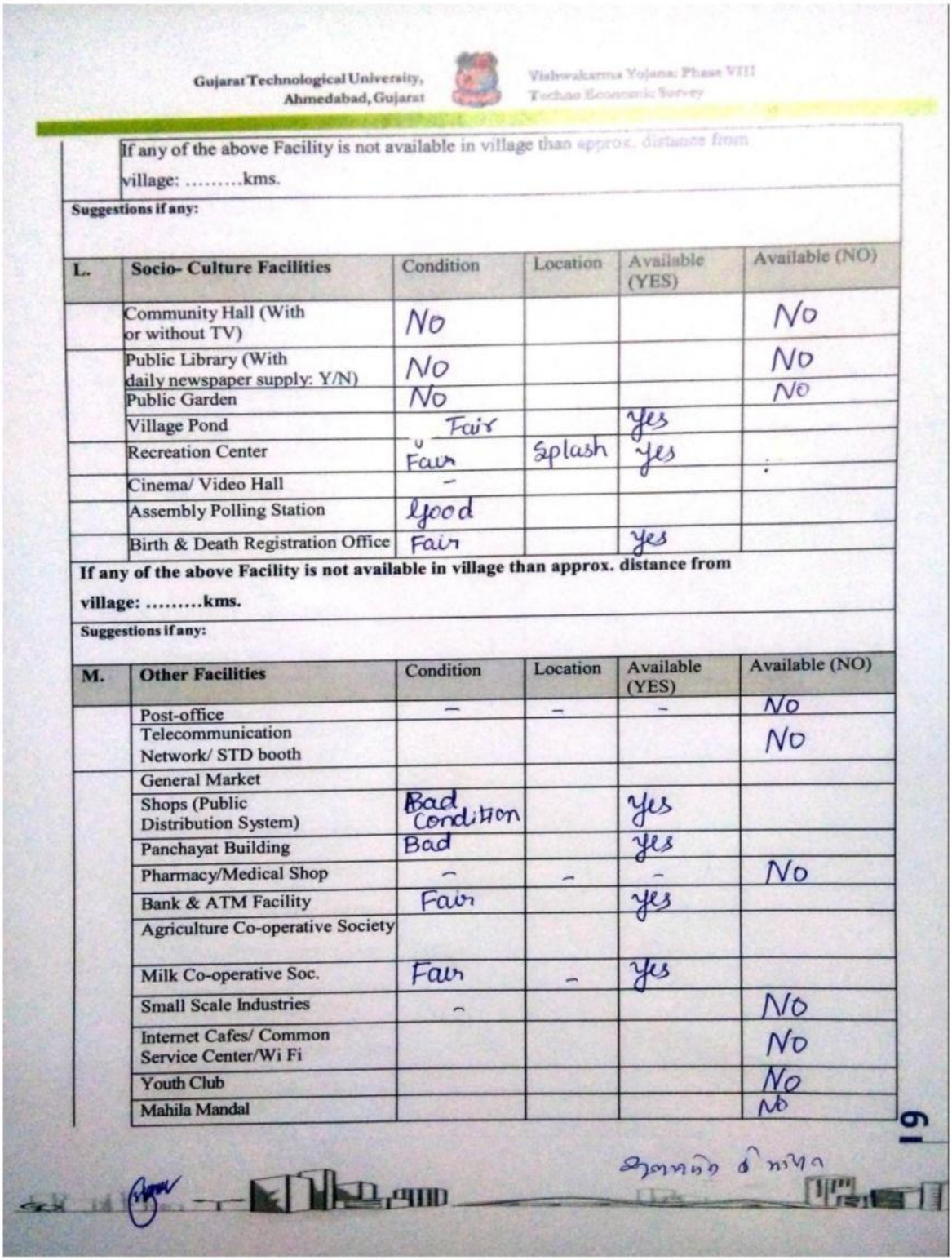
Gujarat Technological University,
Ahmedabad, Gujarat

Vishwakarma Yojana - Phase VIII
Techno Economic Survey

V. SOCIAL INFRASTRUCTURAL FACILITIES:

Sr. No.	Descriptions	Information/ Detail	Adequate	Inadequate	Remarks
J.	**Health Facilities:**				
	ICDS (Anganwadi)	yes	yes		4 Aaganwadi (150 children)
	Sub-Centre				
	PHC	No			No medical facility
	BLOCK PHC				
	CHC/RH	No			
	District/ Govt. Hospital				
	Govt. Dispensary	No			
	Private Clinic				No Private, Clinic, No nursing home
	Private Hospital/				
	Nursing Home				
	AYUSH Health Facility				
	sonography /ultrasound facility	No			
	If any of the above Facility is not available in village than approx. distance from village: 15 to 20 kms.				
Suggestions if any:					
K.	**Education Facilities:**				
	Aaganwadi/ Play group	yes	yes		
	Primary School	yes	yes		
	Secondary school	No			
	Higher sec. School	No			
	ITI college/ vocational Training Center	No			
	Art, Commerce& Science /Polytechnic/ Engineering/ Medical/ Management/ other college facilities	No			

5

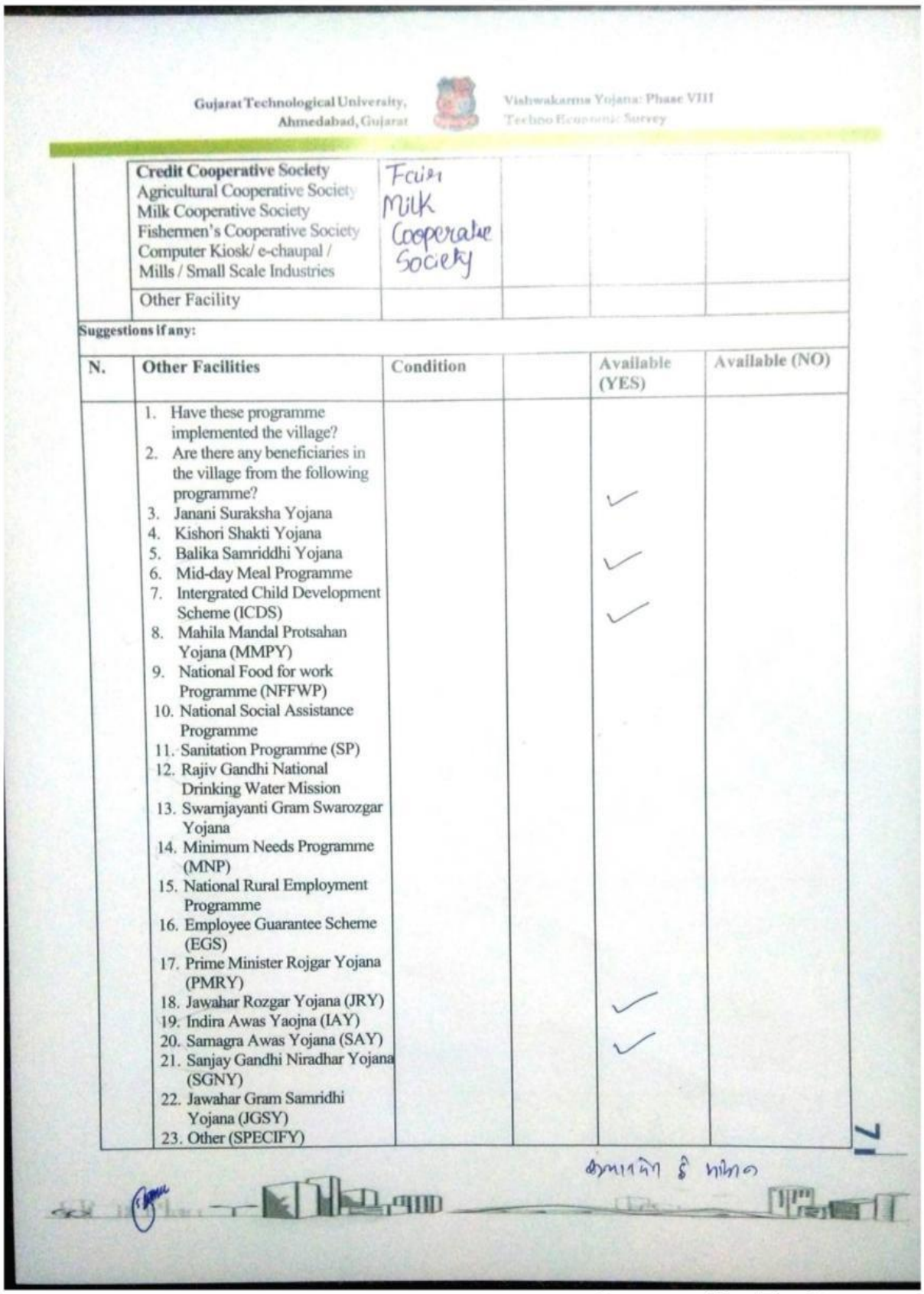


Gujarat Technological University,
Ahmedabad, Gujarat

Vishwakarma Yojana: Phase VIII
Techno Economic Survey

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

19



Gujarat Technological University, Ahmedabad, Gujarat

Vishwakarma Yojana: Phase VIII
Techno Economic Survey

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

Suggestions if any:

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

17

Scanned by TapScanner

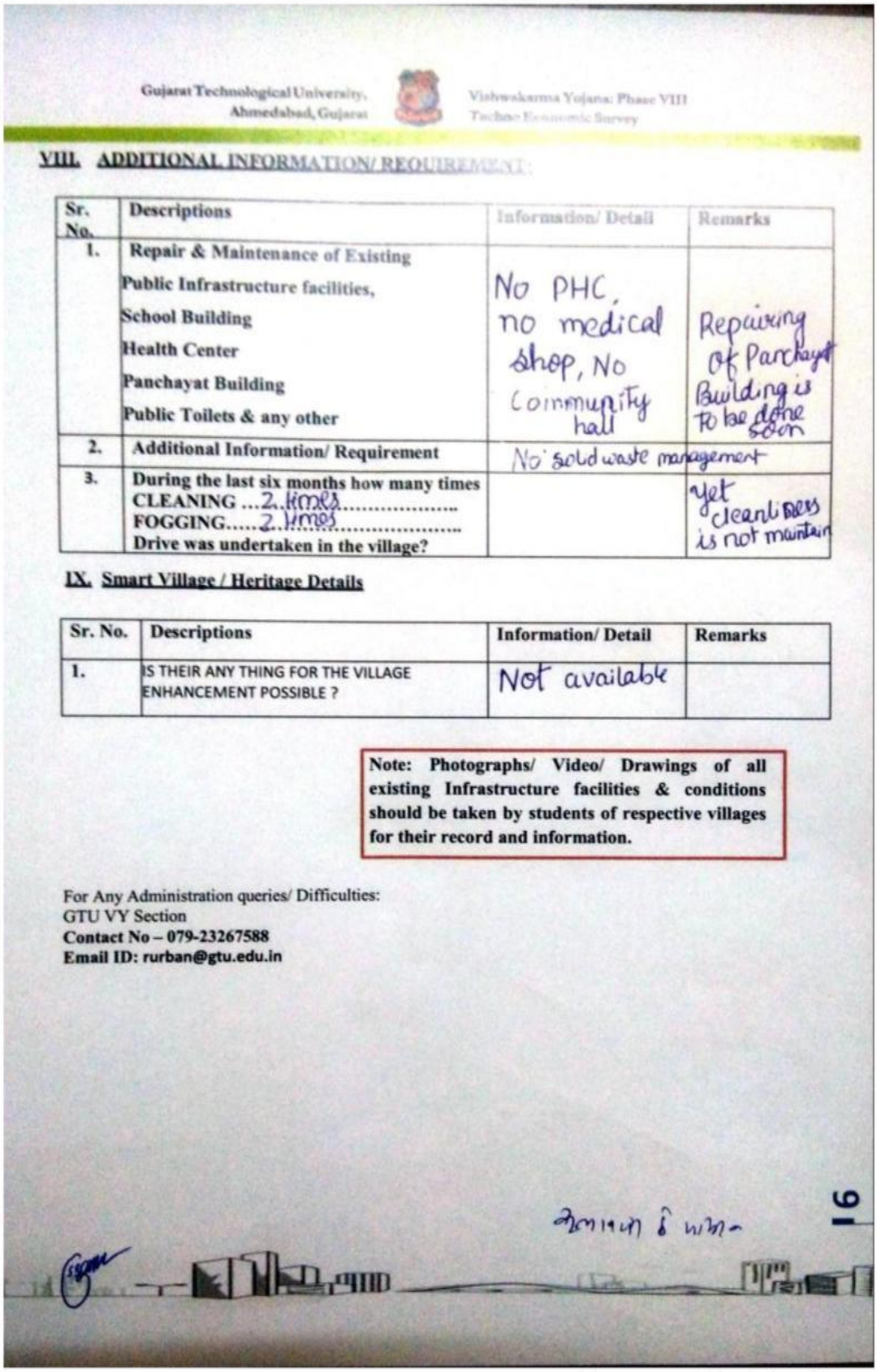
VI. SUSTAINABLE /GREEN INFRASTRUCTURE FACILITIES:

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

VII. DATA COLLECTION FROM VILLAGE

Sr. No.	Descriptions	Information/ Details	Adequate	Inadequate	Remarks
1.	Village Base Map Available: Hard Copy/Soft Copy				We got a hand drawn map
2.	Recent Projects going on for Development of Village				Construction of Panchayat Building is on
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)	None from natural calamity			During COVID-19, villagers suffer a lot especially farmers

18



Gujarat Technological University, Ahmedabad, Gujarat

Vishwakarma Yojana: Phase VIII
Techno-Economic Survey

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	No PHC, no medical shop, No Community hall	Repairing of Panchayat Building is To be done soon
2.	Additional Information/ Requirement	No solid waste management	
3.	During the last six months how many times CLEANING ...2 times..... FOGGING.....2 times..... Drive was undertaken in the village?		yet cleanliness is not maintain

IX. Smart Village / Heritage Details

Sr. No.	Descriptions	Information/ Detail	Remarks
1.	IS THEIR ANY THING FOR THE VILLAGE ENHANCEMENT POSSIBLE ?	Not available	

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

16

Scanned by TapScanner

12.4 Gap Analysis of the Allocated Village

VILLAGE GAP Analysis					
		Village Name:	Kolat		
		Population: 4327			
Village Facilities	**Planning Commission/UDPFI Norms**	**Existing**	**Required as per Norms**	**Smart Vilage / Cities / Heritage FutureProjection Design**	**Gap**
Social Infrastructure Facilities					
Education					
Anganwadi	Each or Per 2500 population	Y(3)		Y	NA
Primary School	Each Per 2500 population	Y		Y	NA
Secondary School	Per 7,500 population	Y		Y	NA
Higher Secondary School	Per 15,000 Population	N		N	NA
College	Per 125,000 Population	N		N	NA
Tech. Training Institute	Per 100000 Population	N		N	NA
Agriculture Research Centre	Per 100000 Population	N		N	NA
Skill Development Center	Per 100000 Population	Y		Y	NA
Health Facility					
Govt/Panchyat Dispensary or Sub PHC or Health Centre	Each Village	N		N	NA
Primary Health & Child Health Center	Per 20,000 population	N		N	NA (need)
Child Welfare and Maternity Home	Per 10,000 population	N		N	NA
Multispeciality Hospital	Per 100000 Population	N		N	NA
Public Latrines	1 for 50 families (if toilet is not there in home, especially for slum pockets &kutcha house)	Y		Y	NA
Physical Infrastructure Facilities					
Transportation		**Inadequate**			
Pucca Village Approach Road	Each village	Y(poor)		Y	
Bus/Auto Stand provision	All Villages connected by PT (ST Bus or Auto)	N		Y	1
Drinking Water (Minimum 70 lpcd)		**Adequate**		Adequate	NA
Over Head Tank	1/3 of Total Demand	N		Y	1
U/G Sump	2/3 of Total Demand	Y(3)		Y	NA
Drainage Network - Open		**Adequate**		Adequate	NA
Drainage Network - Cover		**Adequate**		Adequate	

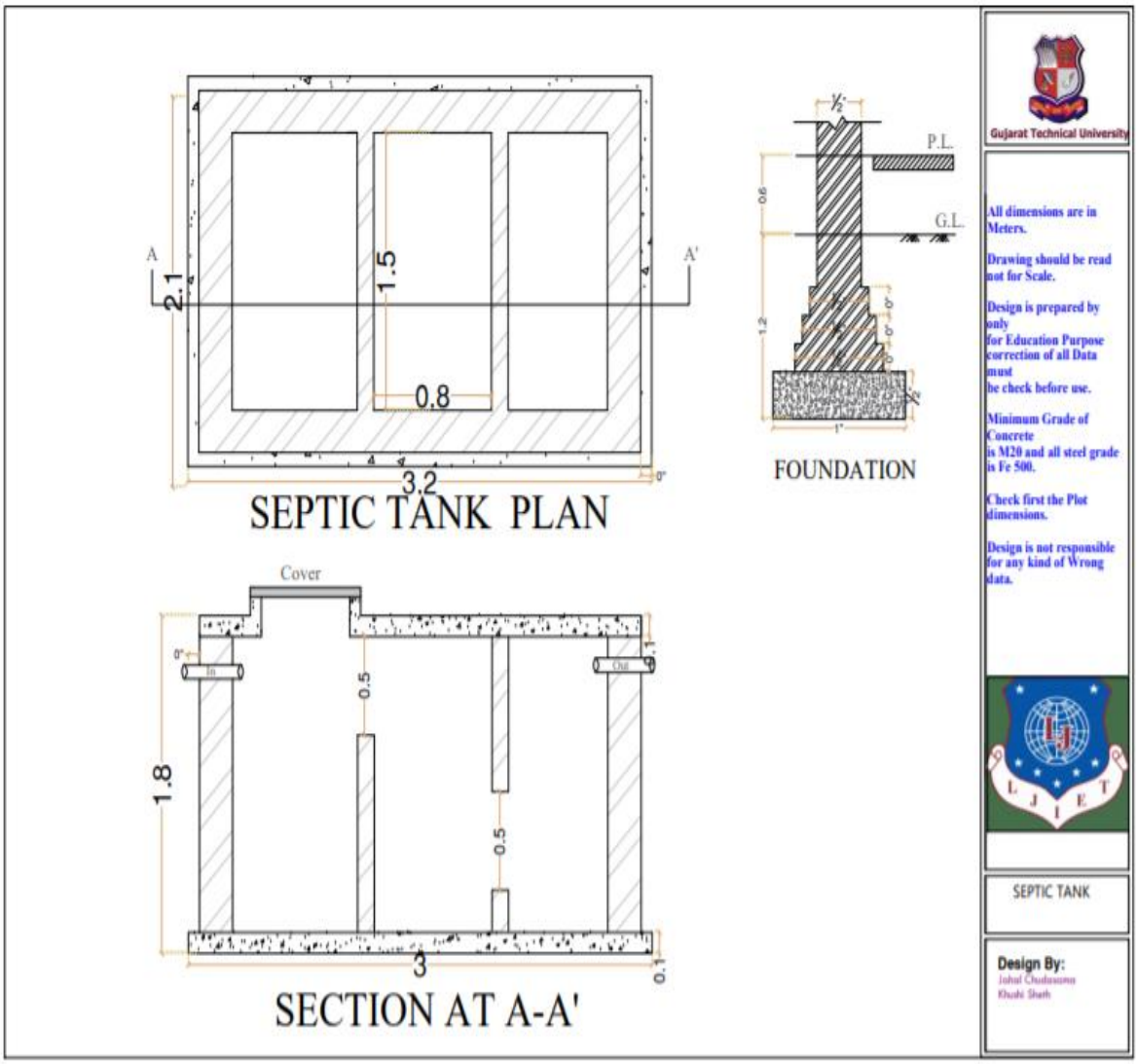
Waste Management System		Inadequate		Adequate	Required
Socio- Cultural Infrastructure Facilities					
Community Hall	Per 10000 Population	N		Y	1
community hall and Public Library	Per 15000 Population	N		N	1
Cremation Ground	Per 20,000 population	Y(POOR)		N	required
Post Office	Per 10,000 population	N		Y	1
Gram Panchayat Building	Each individual/group panchayat	Y(POOR)		Y(FAIR)	Maintenance required
APMC	Per 100000 Population	N		Y	1
Fire Station	Per 100000 Population	N		N	NA
Public Garden	Per village	N		N	NA
Police post	Per 40,000Population	N		N	NA
Electrical Design					
Electricity Network		Adequate		Adequate	
Any Smart Village Facility					
				milk producing centres	
				park & pond facilities	
				sprinkling irrigation system	
		ESR cap	0		
		sump cap	0		
		Lat	0		

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

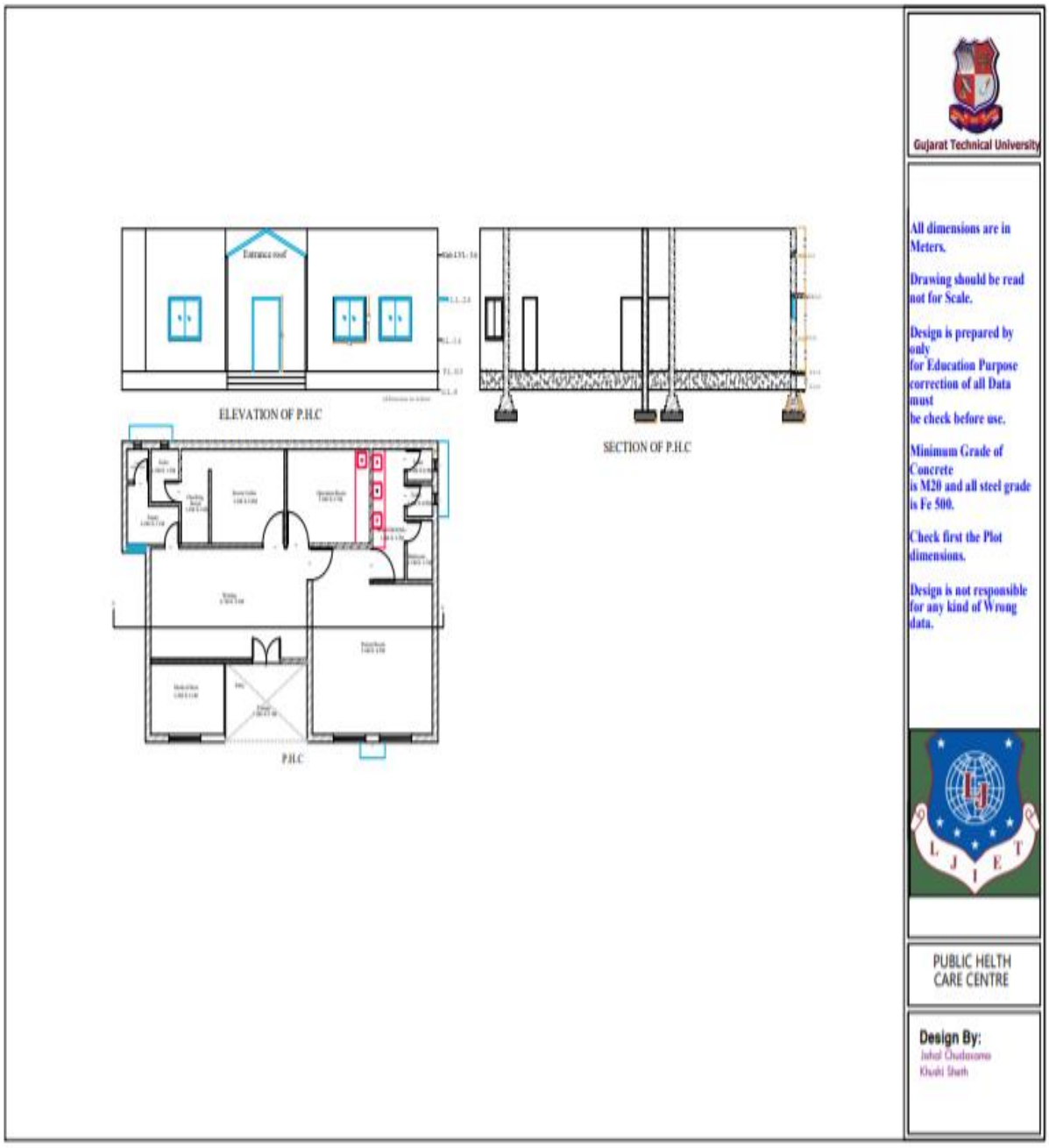
Sr.no	Village Name	Discipline	Part-1	Part-2
1.	**Kolat**	**Civil**	**Septic Tank**	**Sports club**
			Vegetable Market	**Maternity Home**
			PHC	**Cremation Center**
			Community Hall	**Recreation Park**
			Common service Center (CHC)	**Smart sanitation System**
			Temple	**Kolat lake spot**
2.	MotiDevati	Civil	Public Toilet	**Entrance gate**
			SevaSahkari Mandali	**Bank**
			Post office	**Aanganwadi**
			Auditorium & garbaChowk	**Public libraray**
			Prayer hall cum meditation Center	**Cyber café**
			Chabutro	**Gram panchayat Building**
3.	Navapura	Civil	Biogas Plant	**PHC**
			Panchayat building	**Post Office**
			Bank	**Public toilet**
			Small Library	**Mini market**
			Learning Hub & smart play center	**Public garden**
			Navapura Lake	**R-O water**

12.6 Drawings

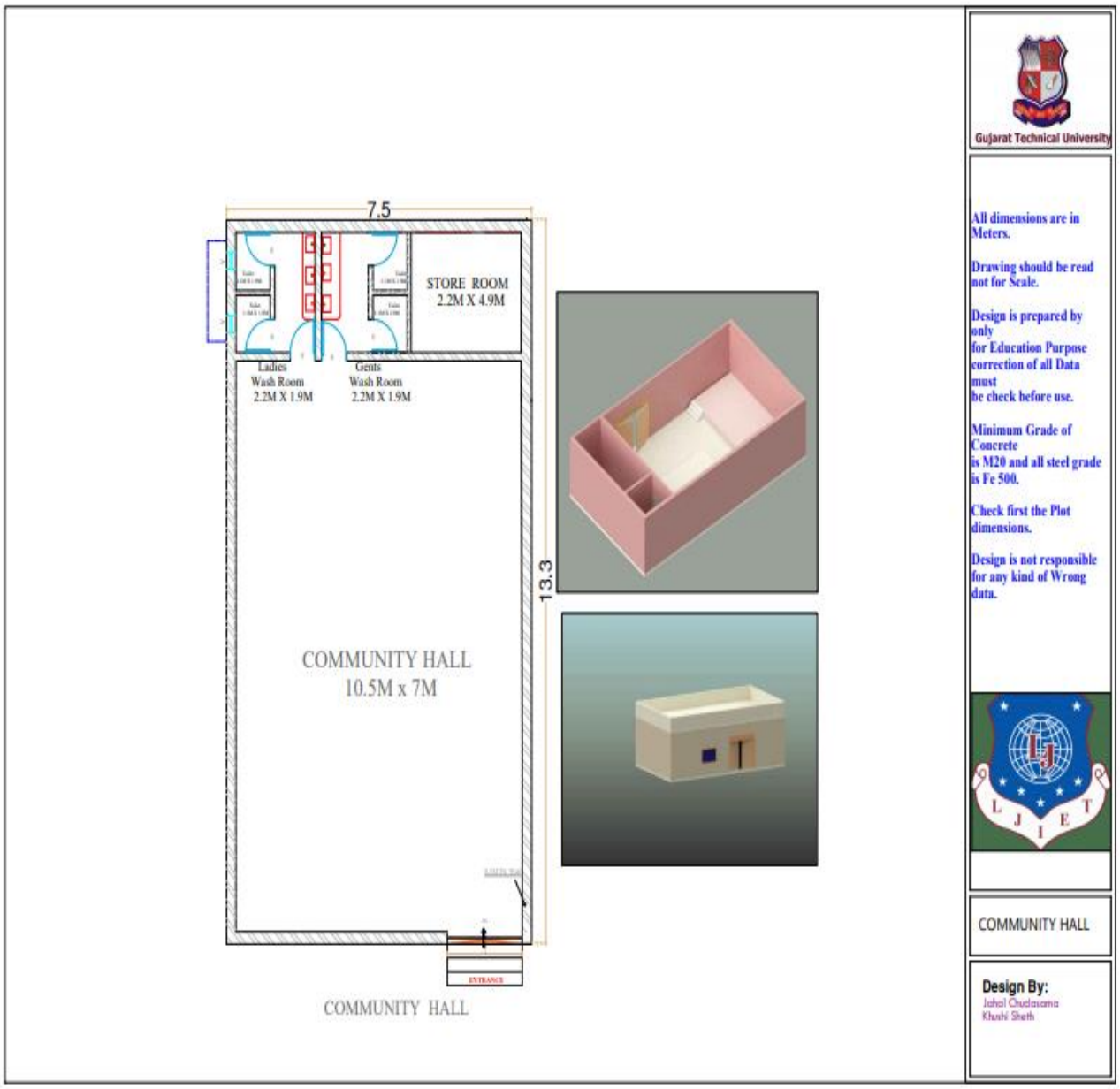
SEPTIC TANK



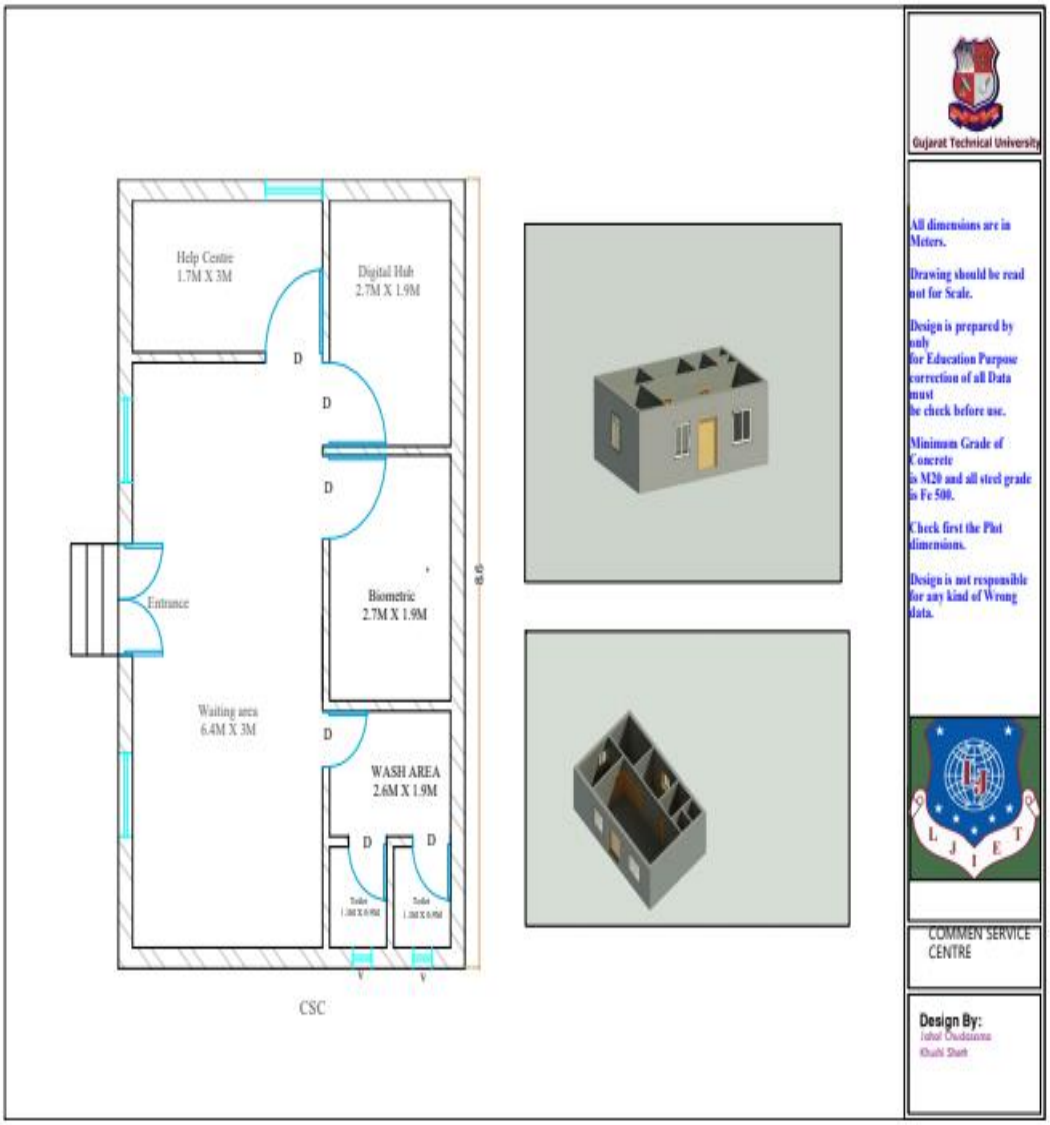
PUBLIC HELTH CENTER



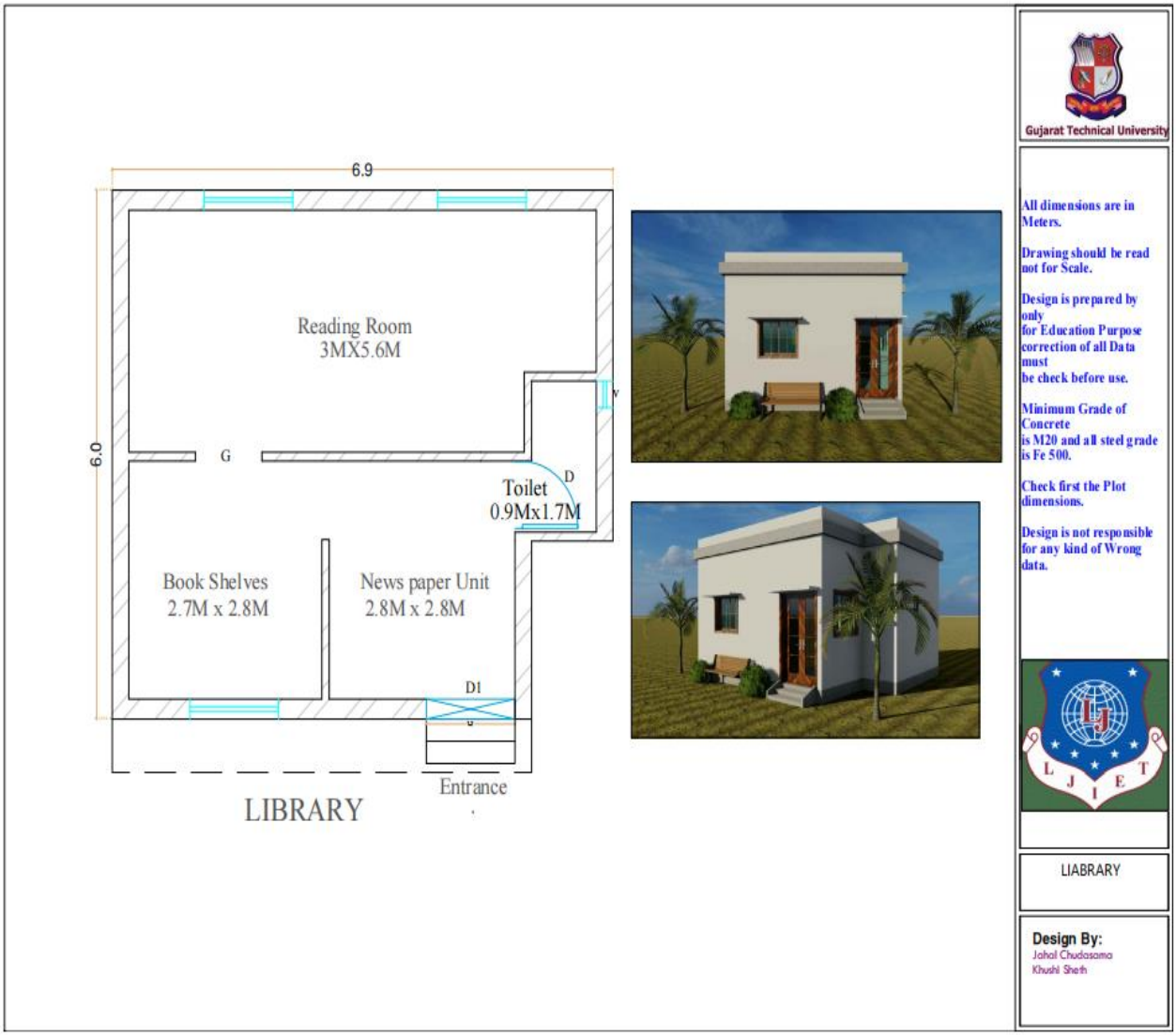
COMMUNITY HALL



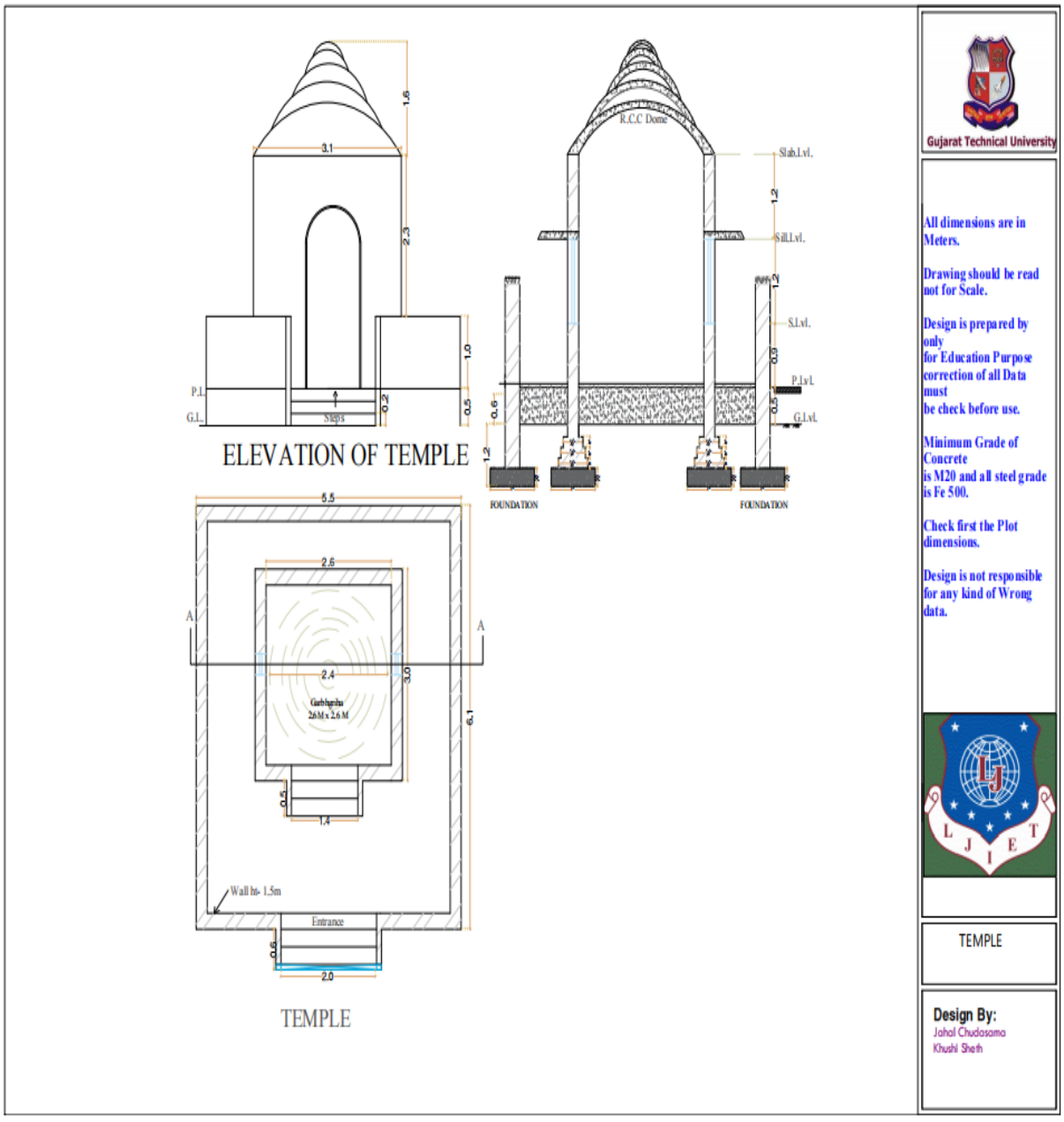
COMMON SERVICE CENTER



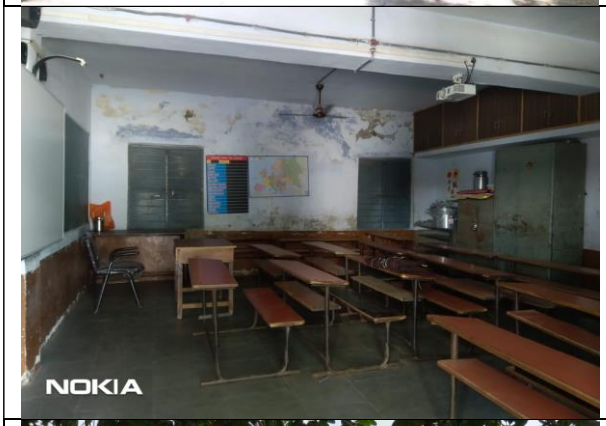
LIBRARY

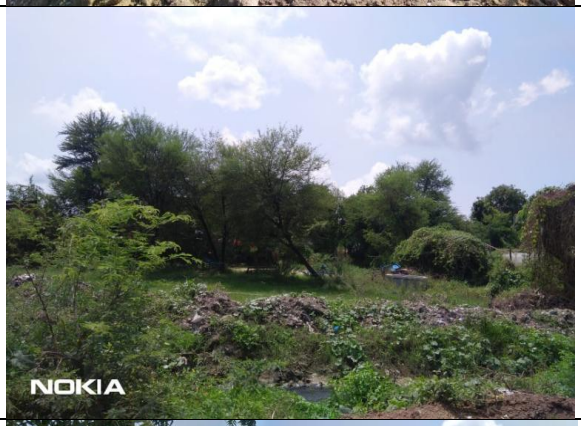

6.9
6.0
Reading Room
3MX5.6M
G
Toilet
0.9Mx1.7M
D
V
Book Shelves
2.7M x 2.8M
News paper Unit
2.8M x 2.8M
D1
Entrance
LIBRARY
Gujarat Technical University
All dimensions are in Meters.
Drawing should be read not for Scale.
Design is prepared by only for Education Purpose correction of all Data must be check before use.
Minimum Grade of Concrete is M20 and all steel grade is Fe 500.
Check first the Plot dimensions.
Design is not responsible for any kind of Wrong data.
LIABRARY
Design By:
Jahal Chudasama
Khushi Sheth

TEMPLE


ELEVATION OF TEMPLE
R.C.C Dome
Slab Lvl.
Sill Lvl.
S.L.vl.
P.Lvl.
G.Lvl.
FOUNDATION
FOUNDATION
Steps
P.L
G.L
Garbhgruha
2.6 M x 2.6 M
Wall ht- 1.5m
Entrance
TEMPLE
Gujarat Technical University
All dimensions are in Meters.
Drawing should be read not for Scale.
Design is prepared by only for Education Purpose correction of all Data must be check before use.
Minimum Grade of Concrete is M20 and all steel grade is Fe 500.
Check first the Plot dimensions.
Design is not responsible for any kind of Wrong data.
TEMPLE
Design By:
Jahal Chudasama
Khushi Sheth

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





12.8 Village Interaction with sarpanch Report with the photograph

A report on Interactive presentation (Vishwakarma Yojana phase VIII) at KOLAT Village, Sanand Taluka, Ahmedabad District
As per the circular GTU guideline we were informed about all the terms & conditions of Vishwakarma Yojana for the implementation in our allocated village. We visited allocated village on 20/9/2020 we meet the sarpanch and explained about the Vishwakarma Yojana& how it will benefit to them.

We also visited the entire village & techno-economic survey was also taken by us to know the actual conditions of the village. We also interacted with the Sarpanch& the villagers asked their problems that they faced, So that we can provide essential solution in terms of infrastructure. We also took some photographs of the village conditions like their houses, road networks, drainage system, primary school etc.

We proposed few designs according to the condition of the village after analyzing the entire village & to eradicate the problems encountered by the villagers. We explained Vishwakarma Yojana importance and feedback of villagers and sarpanch.

We also explained various designs under Physical infrastructure, Social infrastructure and socio-cultural infrastructural facilities such as repair & maintenance and smart and sustainable etc.
We proposed designs like PHC, Community hall, CSC, vegetable market as per the requirements & needs of villagers. We also proposed design of Septic Tank in order to treat biodegradable waste & to maintain cleanliness in the village.

We are thankful to Vishwakarma Team & also to our Sarpanch Mrs Subhan Momin ,talati Mr sandip Gamara& nodal officer Parth Sinroza for supporting & helping us in achieving our goal.
Through Vishwakarma yojana we can get real work experience in our field, we can contribute towards development of our country. Our aim is to urbanize Kolat village, whatever is there in city it must we in village too so that villagers need not face difficulties & migration of villagers can be eliminated.

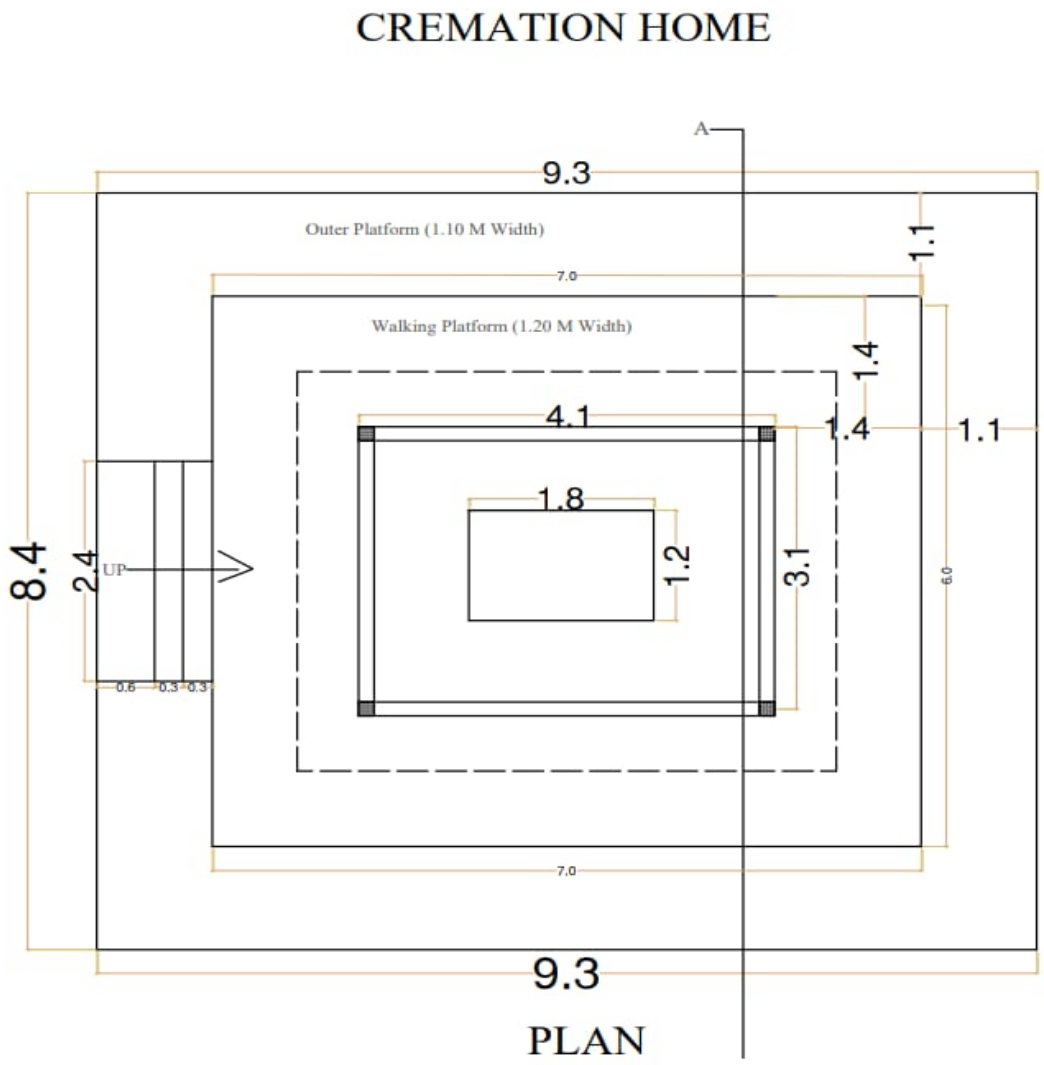
Fig 12.1 Photograph with sarpanch

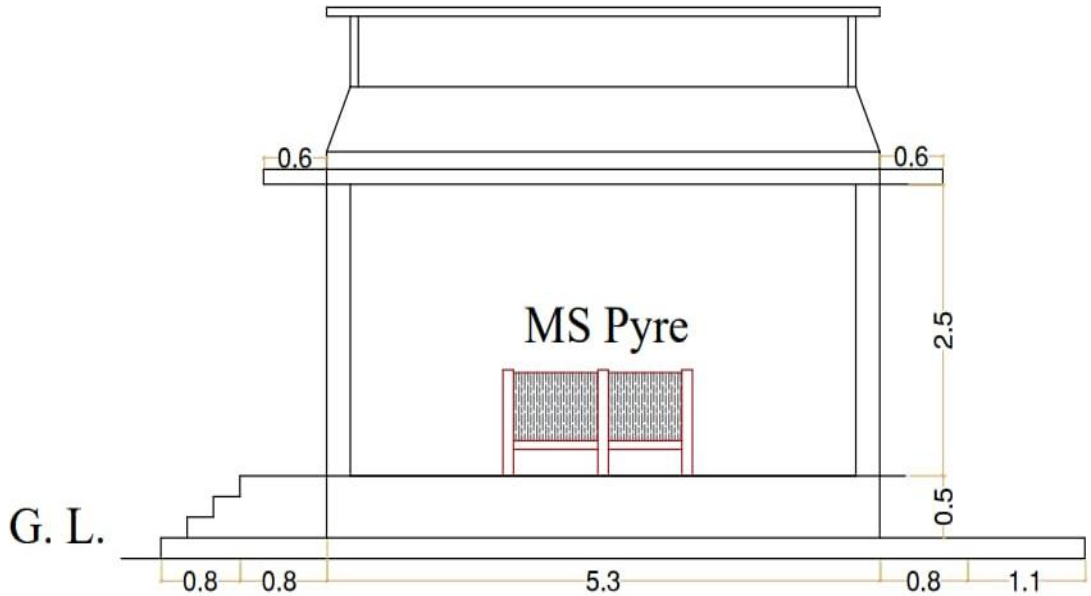
Chapter-13

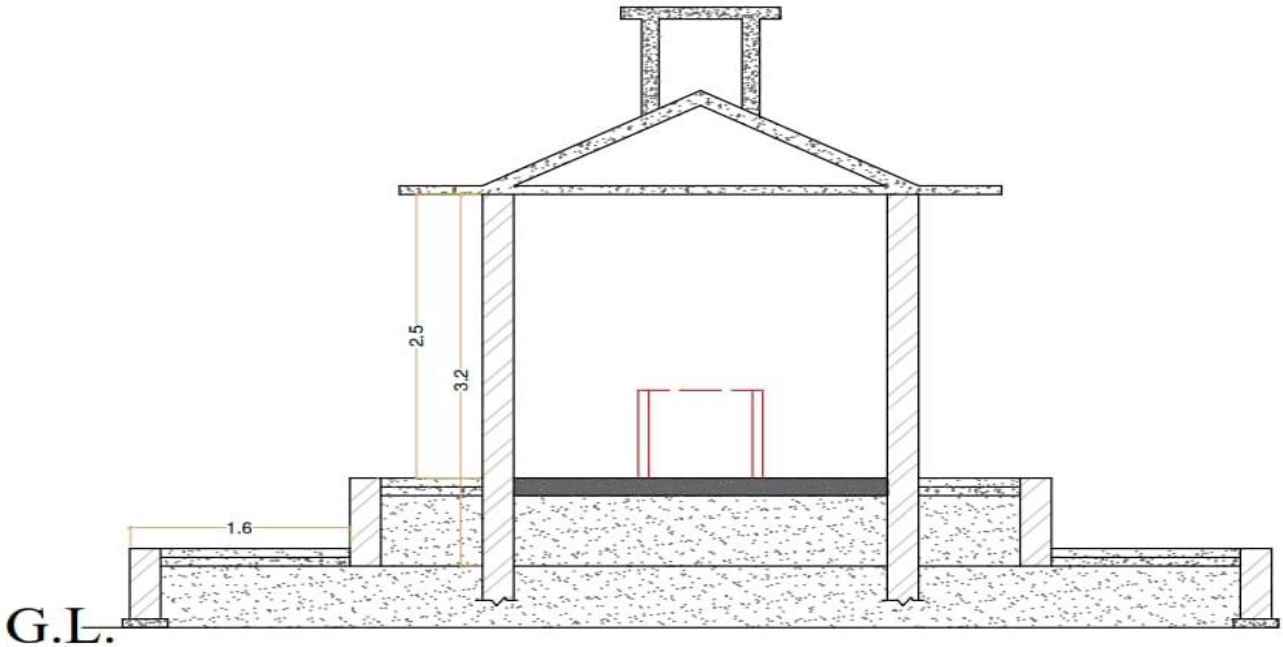
From the Chapter 9 , future designs of the aspects (Feasibility, Construction, Operation and maintenance of various design options in Rural Areas along with cost with AutoCAD designs / planning with any software

13.1 Design Proposals

13.1.1 Civil Design 1







Section A-A

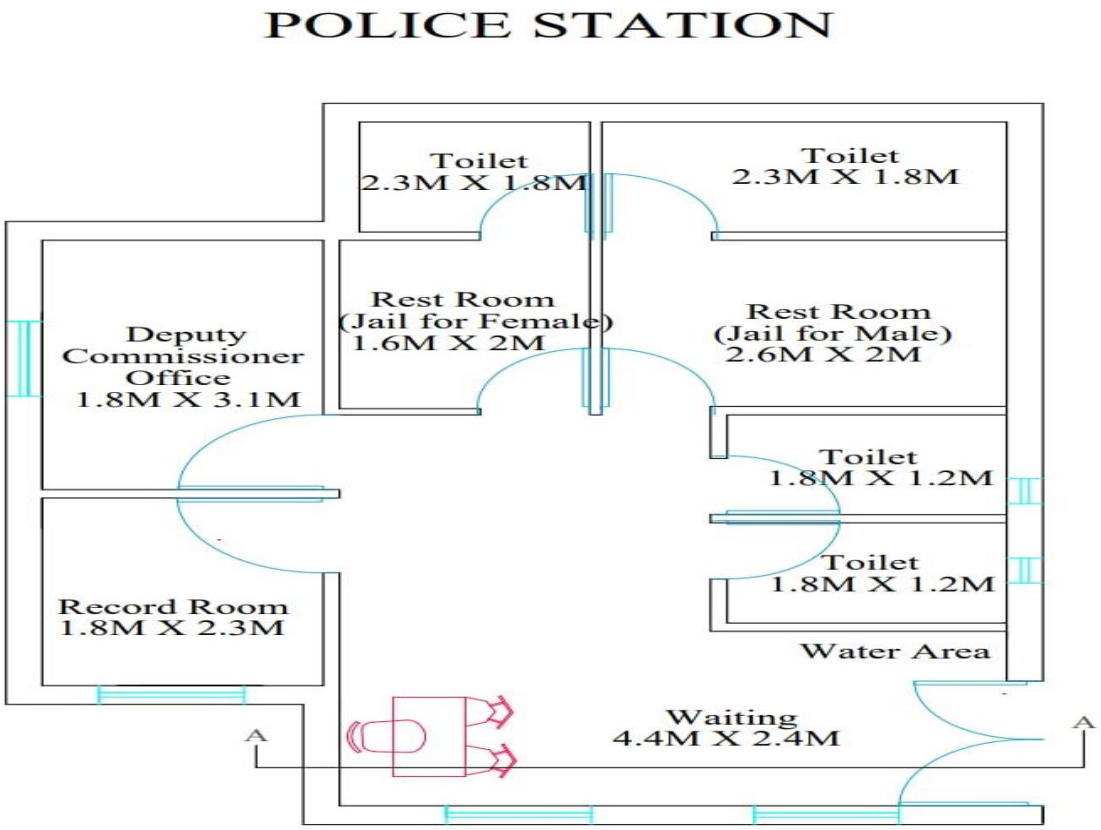
ABSTRACT SHEET					
NO.	**ITEMS**	**UNIT**	**QTY.**	**RATE**	**AMOUNT**
1	EXCAVATION IN FOUNDATION	CU.M.	66.31	150.00	9946.80
2	P.C.C. IN FOUNDATION (1:4:8)	CU.M.	16.58	3900.00	64654.20
3	MASONRY WORK IN FOUNDATION	CU.M.	18.72	4900.00	91713.30
4	EARTH BACK FIILLING	CU.M.	49.73	120.00	5968.08
5	5MM THICK DPC	SQ.M.	7.10	4700.00	33370.00
6	MASONRY WORK IN SUPER STRUCTURE	CU.M.	26.72	4900.00	130918.20
7	SMOOTH INSIDE PLASTER	SQ.M.	19.81	260.00	5149.56
8	OUT SIDE ROUGH PLASTER	SQ.M.	6.91	310.00	2142.72
9	R.C.C. SLAB	CU.M.	12.71	8800.00	111848.00
10	FLOORING	CU.M.	12.71	450.00	5719.50
11	M.S. STEEL PLATFORM	NO.	1.00	15000.00	15000.00
12	WHITE WASH(IN SIDE)	SQ.M.	12.89	18.00	232.09
13	CHIMNEY	NO.	1.00	25000.00	25000.00
					501662.45
ADD 5% CONTINGENCY					25083.1226
ALL ABOVE RATE FILLED MAY VARY DUE TO MARKET INFLATION				**TOTAL**	**526745.5746**

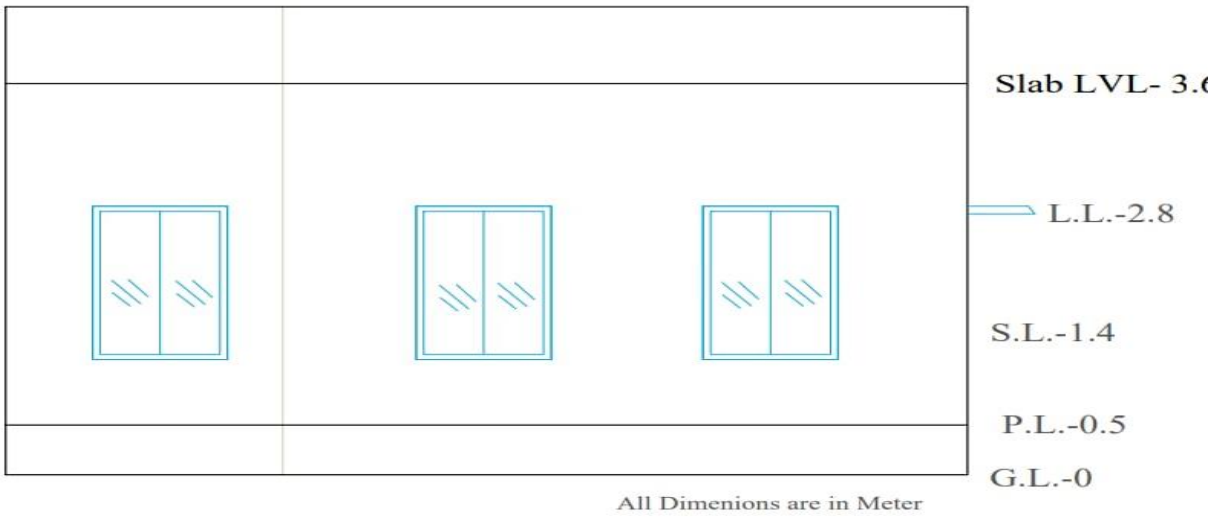
MEASURMENT SHEET CREMATION HOME							
NO.	**ITEMS**	**NO.**	**L**	**B**	**H**	**QTY.**	**TOTAL QTY.**
1	EXCAVATION IN FOUNDATION(L.W.)	2.00	9.30	0.90	1.20	20.09	
	(S.W.)	2.00	8.40	0.90	1.20	18.14	
		2.00	6.00	0.90	1.20	12.96	
		2.00	7.00	0.90	1.20	15.12	**66.31**
2	P.C.C.	2.00	9.30	0.90	0.30	5.02	
		2.00	8.40	0.90	0.30	4.54	
		2.00	6.00	0.90	0.30	3.24	
		2.00	7.00	0.90	0.30	3.78	**16.58**
3	MASONRY WORK IN FOUNDATION						

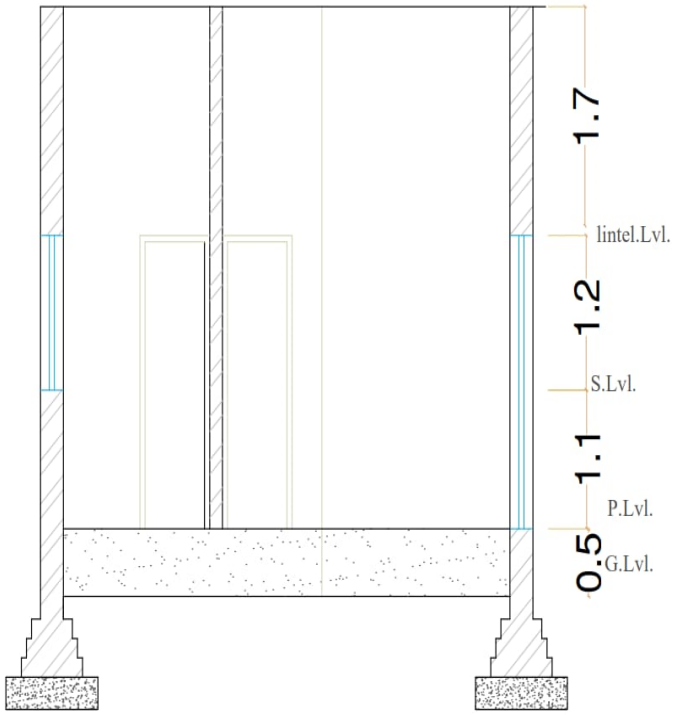
	STEP 1	2.00	9.30	0.60	0.20	2.23	
		2.00	8.40	0.60	0.20	2.02	
		2.00	6.00	0.60	0.20	1.44	
		2.00	7.00	0.60	0.20	1.68	
	STEP 2	2.00	9.30	0.50	0.20	1.86	
		2.00	8.40	0.50	0.20	1.68	
		2.00	6.00	0.50	0.20	1.20	
		2.00	7.00	0.50	0.20	1.40	
	STEP 3	2.00	9.30	0.40	0.20	1.49	
		2.00	8.40	0.40	0.20	1.34	
		2.00	6.00	0.40	0.20	0.96	
		2.00	7.00	0.40	0.20	1.12	
	STEPS						
	STEP 1	1.00	1.10	0.90	0.15	0.15	
		1.00	1.10	0.60	0.15	0.10	
		1.00	1.10	0.30	0.15	0.05	**18.72**
4	BACK FIILLING	1.00	1.00	1.00	1.00	49.73	**49.73**
	EXCAVATION-P.C.C.-MASONARY IN						
	FOUNDATION						
5	5MM THICK DPC	1.00	1.00	1.00	1.00	7.10	**7.10**
6	MASONRY WORK IN SUPER STRUCTURE	2.00	9.30	0.30	0.70	3.91	
		2.00	8.40	0.30	0.70	3.53	
		2.00	6.00	0.30	0.70	2.52	
		2.00	7.00	0.30	0.70	2.94	
		2.00	3.10	0.30	3.20	5.95	
		2.00	4.10	0.30	3.20	7.87	**26.72**
7	SMOOTH INSIDE PLASTER	2.00	9.30	0.30	0.70	3.91	
		2.00	8.40	0.30	0.70	3.53	
		2.00	6.00	0.30	0.70	2.52	
		2.00	7.00	0.30	0.70	2.94	
		1.00	3.10	0.30	3.20	2.98	
		1.00	4.10	0.30	3.20	3.94	**19.81**
8	OUT SIDE ROUGH PLASTER	1.00	3.10	0.30	3.20	2.98	
		1.00	4.10	0.30	3.20	3.94	**6.91**
9	R.C.C. SLAB	1.00	4.10	3.10	1.00	12.71	**12.71**

10	FLOORING	1.00	4.10	3.10	1.00	12.71	**12.71**
11	M.S. STEEL PLATFORM	1.00	1.00	1.00	1.00	1.00	**1.00**
12	WHITE WASH	2.00	9.30	0.30	0.70	3.91	
		2.00	8.40	0.30	0.70	3.53	
		2.00	6.00	0.30	0.70	2.52	
		2.00	7.00	0.30	0.70	2.94	**12.89**
13	CHIMNEY	1	1	1	1	1	**1**

13.1.2 Civil Design 2




Slab LVL- 3.6
L.L.-2.8
S.L.-1.4
P.L.-0.5
G.L.-0
All Dimenions are in Meter


1.7
lintel.Lvl.
1.2
S.Lvl.
1.1
P.Lvl.
0.5
G.Lvl.

SECTION A-A

ABSTRACT SHEET

NO.	ITEMS	UNIT	QTY.	RATE	AMOUNT
1	EXCAVATION IN FOUNDATION	CU.M.	33.26	150.00	4989.60
2	P.C.C. IN FOUNDATION (1:4:8)	CU.M.	8.32	3900.00	32432.40
3	MASONRY WORK IN FOUNDATION	CU.M.	15.33	4900.00	75122.88
4	EARTH BACK FIILLING	CU.M.	9.62	120.00	1154.02
5	5MM THICK DPC	SQ.M.	6.83	4700.00	32119.80
6	MASONRY WORK IN SUPER STRUCTURE	CU.M.	39.49	4900.00	193491.20
7	SMOOTH INSIDE PLASTER	SQ.M.	202.48	260.00	52645.58
8	OUT SIDE ROUGH PLASTER	SQ.M.	176.56	310.00	54733.60
9	R.C.C. SLAB	CU.M.	84.20	8800.00	740929.20
10	R.C.C. CHAJJA AND LINTEL	CU.M.	0.23	8000.00	1872.00
11	2' X 2' FLOORING	CU.M.	39.84	450.00	17928.00
12	DOORS IN WOOD	SQ.M.	14.00	1600.00	22400.00
13	WINDOOW IN WOOD	SQ.M.	3.00	1550.00	4650.00
14	VENTILATION IN ALUMINIUM	SQ.M.	12.00	1550.00	18600.00
15	WHITE WASH(IN SIDE)	SQ.M.	202.48	18.00	3644.69
					1256712.97
ADD 5% CONTINGENCY					62835.6485
ALL ABOVE RATE FILLED MAY VARY DUE TO MARKET INFLATION				**TOTAL**	**1319548.619**

MEASURMENT SHEET POLICE STATION

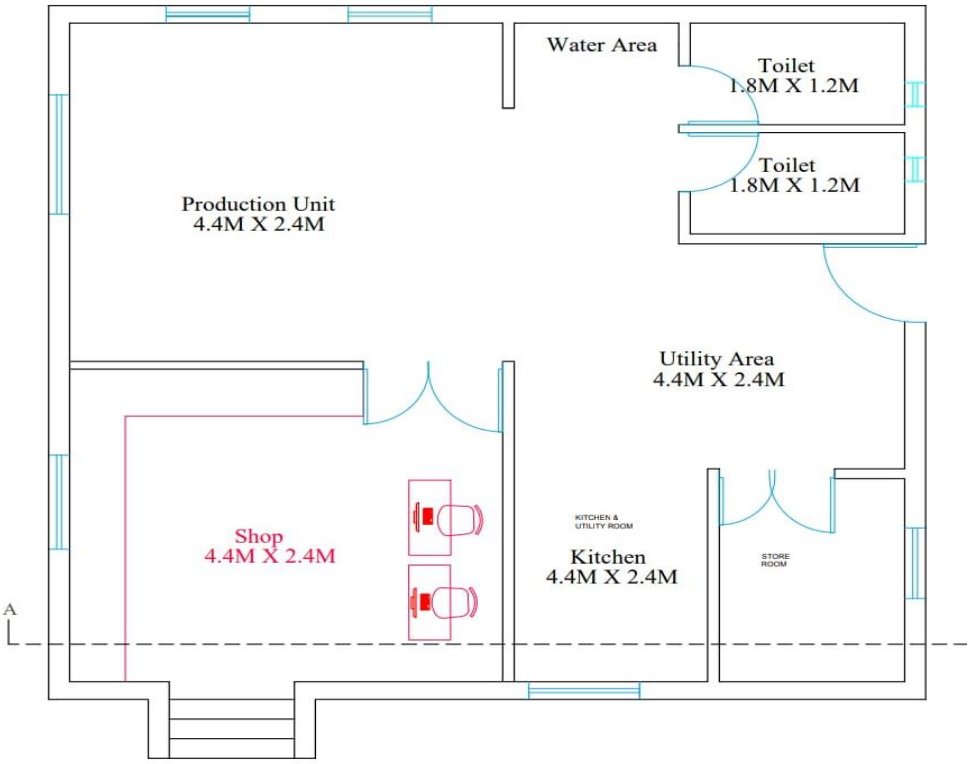
NO.	ITEMS	NO.	L	B	H	QTY.	T. QTY.
1	EXCAVATION IN FOUNDATION(L.W.)	2.00	2.01	0.90	1.20	4.34	
	(S.W.)	2.00	4.56	0.90	1.20	9.85	
		1.00	5.94	0.90	1.20	6.42	
		2.00	1.45	0.90	1.20	3.13	
		1.00	8.82	0.90	1.20	9.53	**33.26**
2	P.C.C.	2.00	2.01	0.90	0.30	1.09	
		2.00	4.56	0.90	0.30	2.46	
		1.00	5.94	0.90	0.30	1.60	
		2.00	1.45	0.90	0.30	0.78	
		1.00	8.82	0.90	0.30	2.38	**8.32**
3	MASONRY WORK IN FOUNDATION						
	STEP 1	2.00	2.01	0.60	0.20	0.48	
		2.00	4.56	0.60	0.20	1.09	
		1.00	5.94	0.60	0.20	0.71	

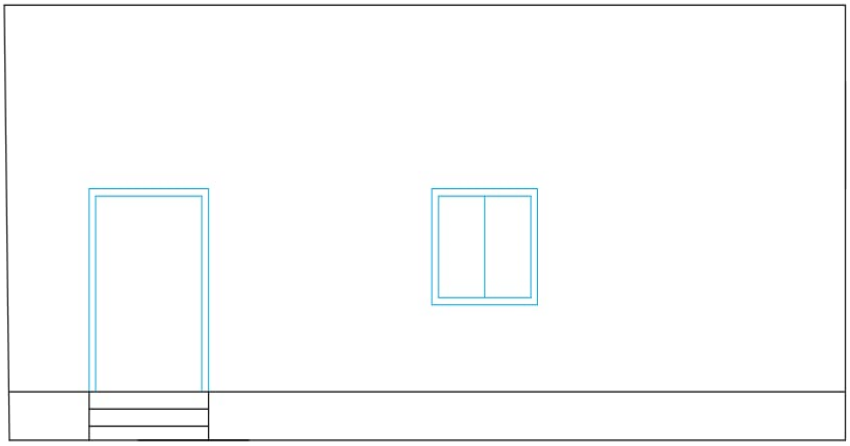
		2.00	1.45	0.60	0.20	0.35	
		1.00	8.82	0.60	0.20	1.06	
	STEP 2	2.00	2.01	0.50	0.20	0.40	
		2.00	4.56	0.50	0.20	0.91	
		1.00	5.94	0.50	0.20	0.59	
		2.00	1.45	0.50	0.20	0.29	
		1.00	8.82	0.50	0.20	0.88	
	STEP 3	2.00	2.01	0.40	0.20	0.32	
		2.00	4.56	0.40	0.20	0.73	
		1.00	5.94	0.40	0.20	0.48	
		2.00	1.45	0.40	0.20	0.23	
		1.00	8.82	0.40	0.20	0.71	
	MASONRY WORK UP TO P.L.	2.00	2.01	0.30	0.60	0.72	
		2.00	4.56	0.30	0.60	1.64	
		1.00	5.94	0.30	0.60	1.07	
		2.00	1.45	0.30	0.60	0.52	
		1.00	8.82	0.30	0.60	1.59	
	STEP 1	1.00	1.52	0.90	0.15	0.21	
		2.00	1.52	0.60	0.15	0.27	
		1.00	1.52	0.30	0.15	0.07	**15.33**
4	BACK FIILLING						
	EXCAVATION-P.C.C.-MASONARY IN	1.00	1.00	1.00	1.00	9.62	**9.62**
	FOUNDATION						
5	5MM THICK DPC	1.00	22.78	0.30	1.00	6.83	**6.83**
6	MASONRY WORK IN	2.00	2.01	0.30	3.50	4.22	
	SUPER STRUCTURE	2.00	4.56	0.30	3.50	9.58	
		1.00	5.94	0.30	3.50	6.24	
		2.00	1.45	0.30	3.50	3.05	
		1.00	8.82	0.30	3.50	9.26	
	PARTITION WALL	1.00	5.4	0.1	3.50	1.89	
		1.00	3.8	0.1	3.50	1.33	
		1.00	2.7	0.1	3.50	0.95	
		1.00	4.1	0.1	3.50	1.44	
		1.00	6.1	0.1	3.50	2.14	
		2.00	1.9	0.1	3.50	1.33	
	DEDUCTION						
	W	-3.00	0.30	0.30	1.30	-0.35	
	D1	-1.00	0.30	0.30	1.40	-0.13	
	D2	-8.00	0.30	0.30	2.00	-1.44	**39.49**
7	SMOOTH INSIDE PLASTER	2.00	4.40	1.00	3.50	30.80	
		2.00	2.40	1.00	3.50	16.80	
		2.00	1.80	1.00	3.50	12.60	
		2.00	2.30	1.00	3.50	16.10	
		4.00	1.80	1.00	3.50	25.20	
		4.00	1.20	1.00	3.50	16.80	
		2.00	1.60	1.00	3.50	11.20	
		4.00	2.00	1.00	3.50	28.00	
		2.00	2.60	1.00	3.50	18.20	
		2.00	2.30	1.00	3.50	16.10	
		2.00	1.80	1.00	3.50	12.60	

	DEDUCTION						
	W	-3.00	0.30	0.30	1.30	-0.35	
	D1	-1.00	0.30	0.30	1.40	-0.13	
	D2	-8.00	0.30	0.30	2.00	-1.44	**202.48**
8	OUT SIDE ROUGH PLASTER	2.00	5.50	1.00	5.05	55.55	
		2.00	6.10	1.00	5.05	61.61	
		2.00	3.00	1.00	5.05	30.30	
		2.00	3.00	1.00	5.05	30.30	
	DEDUCTION						
	W	-2.00	0.30	1.00	1.30	-0.78	
	G 1	-1.00	0.30	1.00	1.40	-0.42	**176.56**
9	R.C.C. SLAB	561.31	1.00	0.15	1.00	84.20	**84.20**
10	LINTEL AND CHHAJJAS						
	LINTELS						
	W	3.00	0.30	1.30	0.10	0.12	
	CHAJJAS						
	W	3.00	0.30	1.30	0.10	0.12	**0.23**
11	2' X 2' FLOORING	1.00	4.40	2.40	1.00	10.56	
		1.00	1.80	2.30	1.00	4.14	
		2.00	1.80	1.20	1.00	4.32	
		1.00	1.80	3.10	1.00	5.58	
		1.00	1.60	2.00	1.00	3.20	
		1.00	2.60	2.00	1.00	5.20	
		1.00	1.50	1.80	1.00	2.70	
		1.00	2.30	1.80	1.00	4.14	**39.84**
12	DOORS IN WOOD	14.00	1.00	1.00	1.00	14.00	**14.00**
13	WINDOOW IN WOOD	3.00	1.00	1.00	1.00	3.00	**3.00**
14	VENTILATION IN ALUMINIUM	6.00	1.00	2.00	1.00	12.00	**12.00**
15	WHITE WASH(IN SIDE)	1.00	1.00	1.00	1.00	202.48	**202.48**

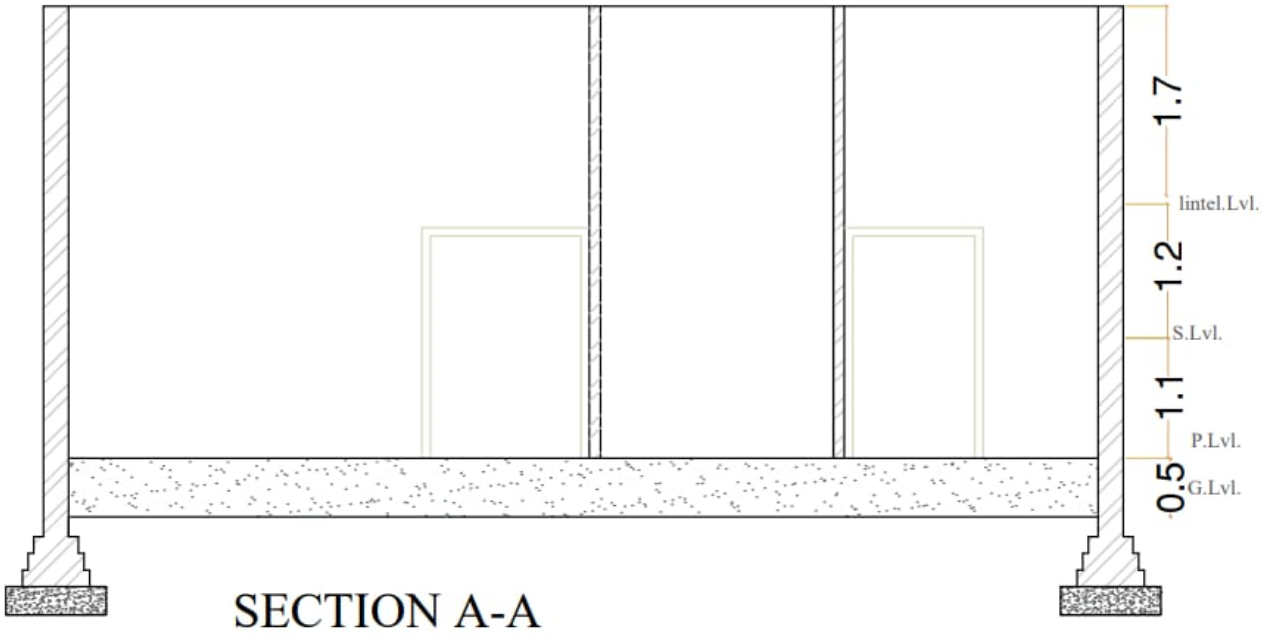
13.1.3 Civil Design 3

BAKERY





ELEVATION



SECTION A-A

ABSTRACT SHEET					
NO.	**ITEMS**	**UNIT**	**QTY.**	**RATE**	**AMOUNT**
1	EXCAVATION IN FOUNDATION	CU.M.	40.54	150.00	6080.40
2	P.C.C. IN FOUNDATION (1:4:8)	CU.M.	10.21	3900.00	39803.40
3	MASONRY WORK IN FOUNDATION	CU.M.	22.24	4900.00	108971.10
4	EARTH BACK FIILLING	CU.M.	8.09	120.00	970.92
5	5MM THICK DPC	SQ.M.	6.83	4700.00	32119.80
6	MASONRY WORK IN SUPER STRUCTURE	CU.M.	16.12	4900.00	78988.00
7	SMOOTH INSIDE PLASTER	SQ.M.	290.90	260.00	75632.96
8	OUT SIDE ROUGH PLASTER	SQ.M.	184.04	310.00	57053.64
9	R.C.C. SLAB	CU.M.	84.20	8800.00	740929.20
10	R.C.C. CHAJJA AND LINTEL	CU.M.	0.47	8000.00	3744.00
11	2' X 2' FLOORING	CU.M.	76.66	450.00	34497.00
12	DOORS IN WOOD	SQ.M.	14.00	1600.00	22400.00
13	WINDOOW IN WOOD	SQ.M.	3.00	1550.00	4650.00
14	VENTILATION IN ALUMINIUM	SQ.M.	12.00	1550.00	18600.00

15	WHITE WASH(IN SIDE)	SQ.M.	290.90	18.00	5236.13
					1229676.548
ADD 5% CONTINGENCY					61483.8274
ALL ABOVE RATE FILLED MAY VARY DUE TO MARKET INFLATION				**TOTAL**	**1291160.375**

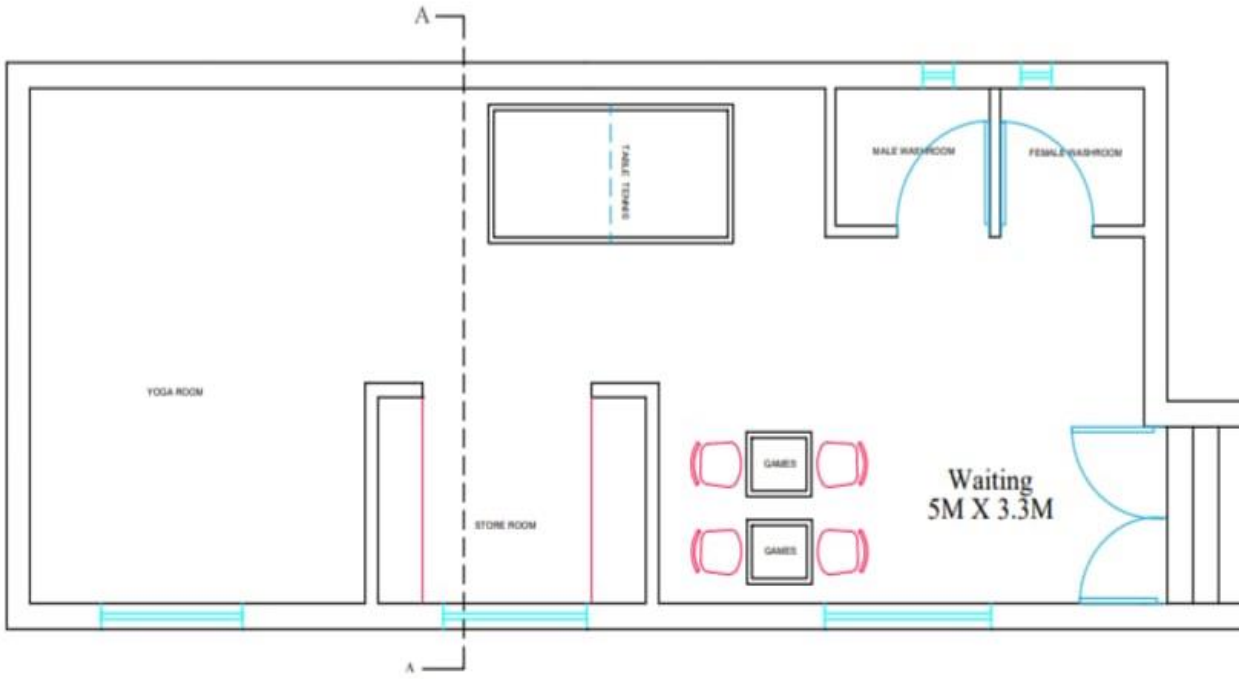
MEASURMENT SHEET BAKERY

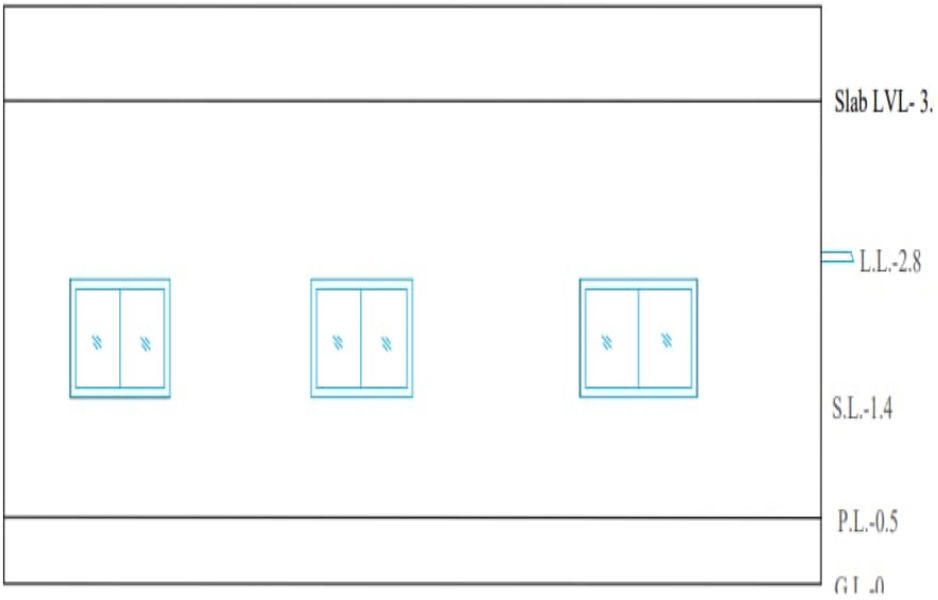
NO.	ITEMS	NO.	L	B	H	QTY.	T. QTY.
1	EXCAVATION IN FOUNDATION(L.W.)	2.00	8.50	0.90	1.20	18.36	
	(S.W.)	2.00	9.60	0.90	1.20	20.74	
		2.00	0.80	0.90	1.00	1.44	**40.54**
2	P.C.C.	2.00	8.50	0.90	0.30	4.59	
		2.00	9.60	0.90	0.30	5.18	
		2.00	0.80	0.90	0.30	0.43	**10.21**
3	MASONRY WORK IN FOUNDATION						
	STEP 1	2.00	8.50	0.60	0.20	2.04	
		2.00	9.60	0.60	0.20	2.30	
		2.00	0.80	0.60	0.20	0.19	
	STEP 2	2.00	8.50	0.50	0.20	1.70	
		2.00	9.60	0.50	0.20	1.92	
		2.00	0.80	0.50	0.20	0.16	
	STEP 3	2.00	8.50	0.40	0.20	1.36	
		2.00	9.60	0.40	0.20	1.54	
		2.00	0.80	0.40	0.20	0.13	
	MASONRY WORK UP TO P.L.	2.00	8.50	0.30	0.60	3.06	
		2.00	9.60	0.30	0.60	3.46	
		2.00	0.80	0.30	0.60	0.29	
	STEP 1	2.00	8.50	0.90	0.15	2.30	
		2.00	9.60	0.60	0.15	1.73	
		2.00	0.80	0.30	0.15	0.07	**22.24**
4	BACK FIILLING						
	EXCAVATION-P.C.C.-MASONARY IN	1.00	1.00	1.00	1.00	8.09	**8.09**
	FOUNDATION						
5	5MM THICK DPC	1.00	22.78	0.30	1.00	6.83	**6.83**
6	MASONRY WORK IN	2.00	2.01	0.30	3.50	4.22	
	SUPER STRUCTURE	2.00	4.56	0.30	3.50	9.58	
		1.00	5.94	0.30	3.50	6.24	
		1.00	4.70	0.10	1.00	0.47	
		1.00	4.10	0.10	1.00	0.41	
		1.00	2.60	0.10	1.00	0.26	
		1.00	2.00	0.10	1.00	0.20	
		1.00	2.50	0.10	1.00	0.25	
		1.00	2.90	0.10	1.00	0.29	

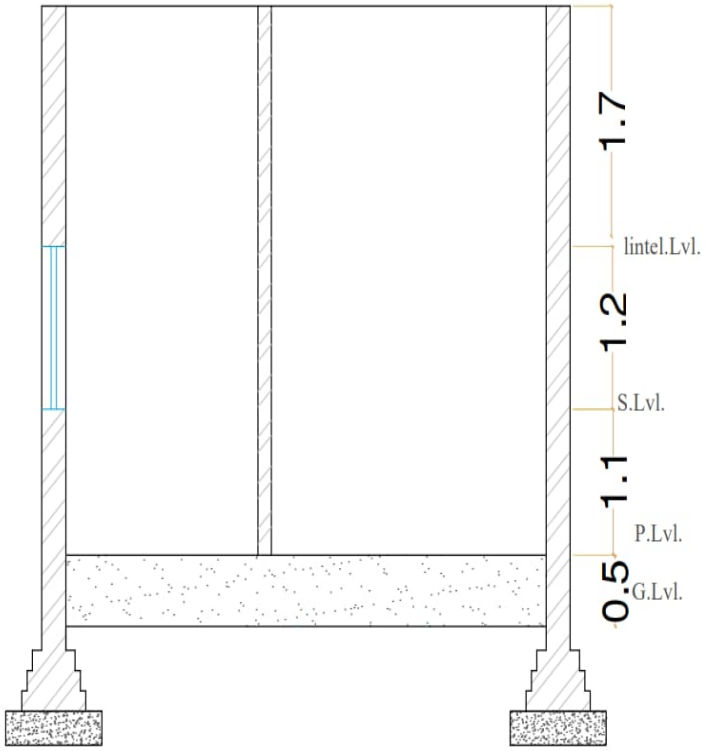
		1.00	1.10	0.10	1.00	0.11	
	DEDUCTION						
	W	-6.00	1.20	0.30	1.30	-2.81	
	D1	-4.00	1.20	0.30	1.40	-2.02	
	D2	-2.00	0.90	0.30	2.00	-1.08	**16.12**
7	SMOOTH INSIDE PLASTER	2.00	4.40	1.00	3.50	30.80	
		2.00	2.40	1.00	3.50	16.80	
		2.00	2.10	1.00	3.50	14.70	
		2.00	4.10	1.00	3.50	28.70	
		2.00	4.30	1.00	3.50	30.10	
		2.00	2.90	1.00	3.50	20.30	
		2.00	6.70	1.00	3.50	46.90	
		2.00	4.90	1.00	3.50	34.30	
		4.00	1.80	1.00	3.50	25.20	
		4.00	1.20	1.00	3.50	16.80	
		2.00	2.00	1.00	3.50	14.00	
		2.00	2.60	1.00	3.50	18.20	
	DEDUCTION						
	W	-6.00	1.20	0.30	1.30	-2.81	
	D1	-4.00	1.20	0.30	1.40	-2.02	
	D2	-2.00	0.90	0.30	2.00	-1.08	**290.90**
8	OUT SIDE ROUGH PLASTER	2.00	9.60	1.00	5.05	96.96	
		2.00	9.00	1.00	5.05	90.90	
	DEDUCTION						
	W	-6.00	1.20	0.30	1.30	-2.81	
	D1	-2.00	1.20	0.30	1.40	-1.01	**184.04**
9	R.C.C. SLAB	561.31	1.00	0.15	1.00	84.20	**84.20**
10	LINTEL AND CHHAJJAS						
	LINTELS						
	W	6.00	0.30	1.30	0.10	0.23	
	CHAJJAS						
	W	6.00	0.30	1.30	0.10	0.23	**0.47**
11	2' X 2' FLOORING	1.00	4.40	2.40	1.00	10.56	
		1.00	2.10	4.10	1.00	8.61	
		2.00	4.30	2.90	1.00	24.94	
		1.00	2.00	2.60	1.00	5.20	
		1.00	4.90	4.70	1.00	23.03	
		2.00	1.80	1.20	1.00	4.32	**76.66**
12	DOORS IN WOOD	14.00	1.00	1.00	1.00	14.00	**14.00**
13	WINDOOW IN WOOD	3.00	1.00	1.00	1.00	3.00	**3.00**
14	VENTILATION IN ALUMINIUM	6.00	1.00	2.00	1.00	12.00	**12.00**
15	WHITE WASH(IN SIDE)	1.00	1.00	1.00	1.00	290.90	**290.90**

13.1.4 Civil Design 4

SPORTS ROOM







SECTION A-A

ABSTRACT SHEET					
NO.	**ITEMS**	**UNIT**	**QTY.**	**RATE**	**AMOUNT**
1	EXCAVATION IN FOUNDATION	CU.M.	34.56	150.00	5184.00
2	P.C.C. IN FOUNDATION (1:4:8)	CU.M.	8.64	3900.00	33696.00
3	MASONRY WORK IN FOUNDATION	CU.M.	18.78	4900.00	92022.00
4	EARTH BACK FIILLING	CU.M.	7.14	120.00	856.80
5	5MM THICK DPC	SQ.M.	4.80	4700.00	22560.00
6	MASONRY WORK IN SUPER STRUCTURE	CU.M.	35.64	4900.00	174645.80
7	SMOOTH INSIDE PLASTER	SQ.M.	230.11	260.00	59829.12
8	OUT SIDE ROUGH PLASTER	SQ.M.	170.73	310.00	52926.92
9	R.C.C. SLAB	CU.M.	61.00	8800.00	536800.00
10	R.C.C. CHAJJA AND LINTEL	CU.M.	0.23	8000.00	1872.00
11	2' X 2' FLOORING	CU.M.	68.56	450.00	30852.00
12	DOORS IN WOOD	SQ.M.	3.00	1600.00	4800.00
13	WINDOOW IN WOOD	SQ.M.	3.00	1550.00	4650.00

14	VENTILATION IN ALUMINIUM	SQ.M.	4.00	1550.00	6200.00
15	WHITE WASH(IN SIDE)	SQ.M.	230.11	18.00	4142.02
					1031036.656
	ADD 5% CONTINGENCY				51551.8328
	`ALL ABOVE RATE FILLED MAY VARY DUE TO MARKET INFLATION			**TOTAL**	**1082588.489**

MEASURMENT SHEET SPORTS ROOM

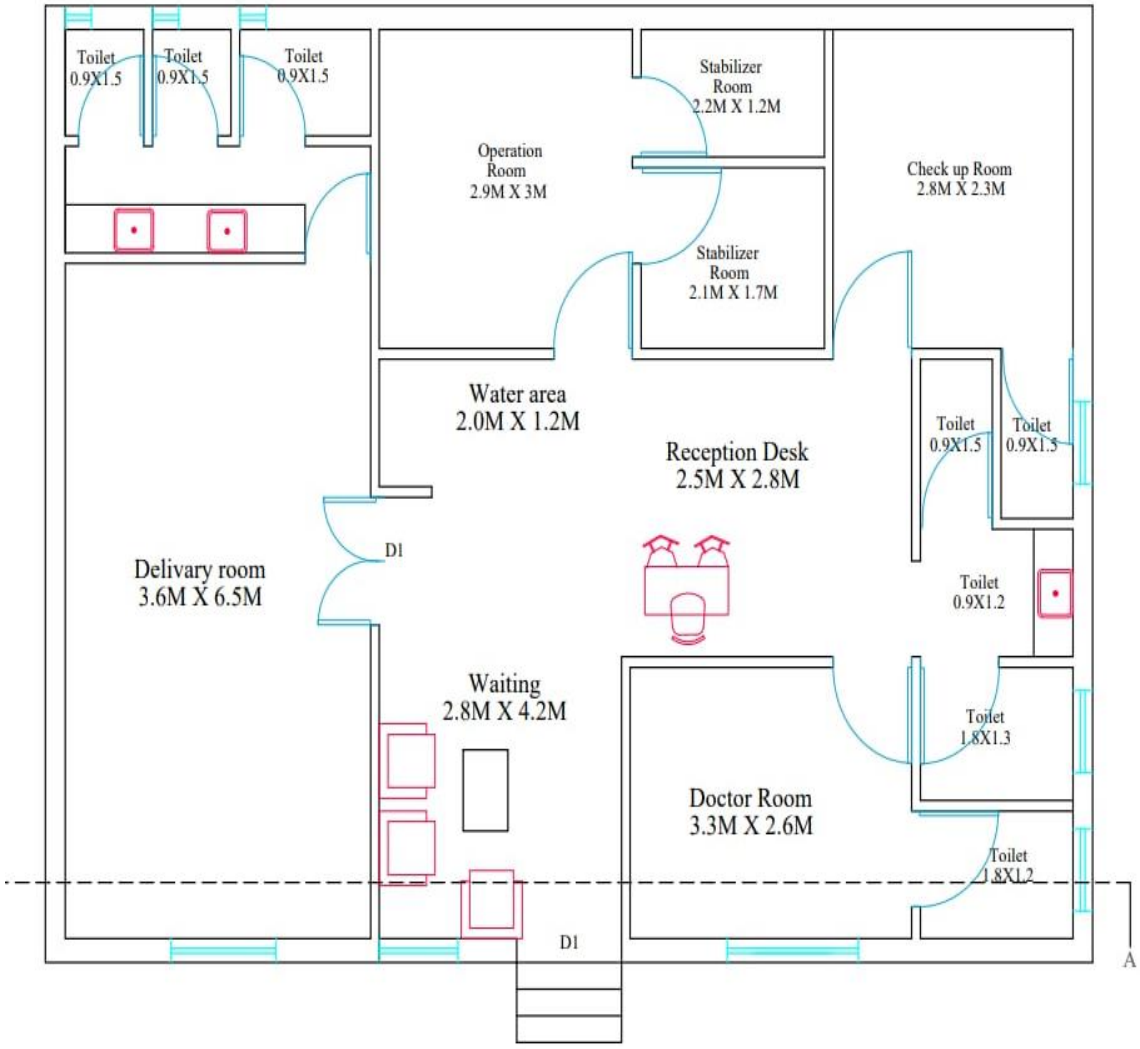
NO.	ITEMS	NO.	L	B	H	QTY.	T. QTY.
1	EXCAVATION IN FOUNDATION(L.W.)	2.00	11.00	0.90	1.20	23.76	
	(S.W.)	2.00	5.00	0.90	1.20	10.80	**34.56**
2	P.C.C.	2.00	11.00	0.90	0.30	5.94	
		2.00	5.00	0.90	0.30	2.70	**8.64**
3	MASONRY WORK IN FOUNDATION						
	STEP 1	2.00	11.00	0.60	0.20	2.64	
		2.00	5.00	0.60	0.20	1.20	
	STEP 2	2.00	11.00	0.50	0.20	2.20	
		2.00	5.00	0.50	0.20	1.00	
	STEP 3	2.00	11.00	0.40	0.20	1.76	
		2.00	5.00	0.40	0.20	0.80	
	MASONRY WORK UP TO P.L.	2.00	11.00	0.30	0.60	3.96	
		2.00	5.00	0.30	0.60	1.80	
	STEP 1	2.00	11.00	0.90	0.15	2.97	
		2.00	5.00	0.30	0.15	0.45	**18.78**
4	BACK FIILLING						
	EXCAVATION-P.C.C.-MASONARY IN	1.00	1.00	1.00	1.00	7.14	**7.14**
	FOUNDATION						
5	5MM THICK DPC	1.00	16.00	0.30	1.00	4.80	**4.80**
6	MASONRY WORK IN	2.00	11.00	0.30	3.50	23.10	
	SUPER STRUCTURE	2.00	5.00	0.30	3.50	10.50	
		2.00	2.00	0.30	3.50	4.20	
		3.00	0.90	0.10	1.00	0.27	

		2.00	1.30	0.10	1.00	0.26	
		1.00	3.00	0.10	1.00	0.30	
	DEDUCTION						
	W	-3.00	1.20	0.30	1.30	-1.40	
	D1	-1.00	1.20	0.30	1.40	-0.50	
	D2	-2.00	0.90	0.30	2.00	-1.08	**35.64**
7	SMOOTH INSIDE PLASTER	2.00	5.00	1.00	3.50	35.00	
		2.00	3.30	1.00	3.50	23.10	
		2.00	2.60	1.00	3.50	18.20	
		2.00	1.80	1.00	3.50	12.60	
		2.00	3.30	1.00	3.50	23.10	
		2.00	4.60	1.00	3.50	32.20	
		2.00	4.70	1.00	3.50	32.90	
		2.00	2.60	1.00	3.50	18.20	
		4.00	1.50	1.00	3.50	21.00	
		2.00	1.20	2.00	3.50	16.80	
	DEDUCTION						
	W	-3.00	1.20	0.30	1.30	-1.40	
	D1	-1.00	1.20	0.30	1.40	-0.50	
	D2	-2.00	0.90	0.30	2.00	-1.08	**230.11**
8	OUT SIDE ROUGH PLASTER	2.00	12.20	1.00	5.05	123.22	
		2.00	5.00	1.00	5.05	50.50	
	DEDUCTION						
	W	-3.00	1.20	0.30	1.30	-1.40	
	D1	-1.00	1.20	0.30	1.40	-0.50	
	D2	-2.00	0.90	0.30	2.00	-1.08	**170.73**
9	R.C.C. SLAB	1.00	12.20	5.00	1.00	61.00	**61.00**
10	LINTEL AND CHHAJJAS						
	LINTELS						
	W	3.00	0.30	1.30	0.10	0.12	
	CHAJJAS						
	W	3.00	0.30	1.30	0.10	0.12	**0.23**
11	2' X 2' FLOORING	1.00	5.00	3.30	1.00	16.50	
		1.00	2.60	1.80	1.00	4.68	
		2.00	3.30	4.60	1.00	30.36	

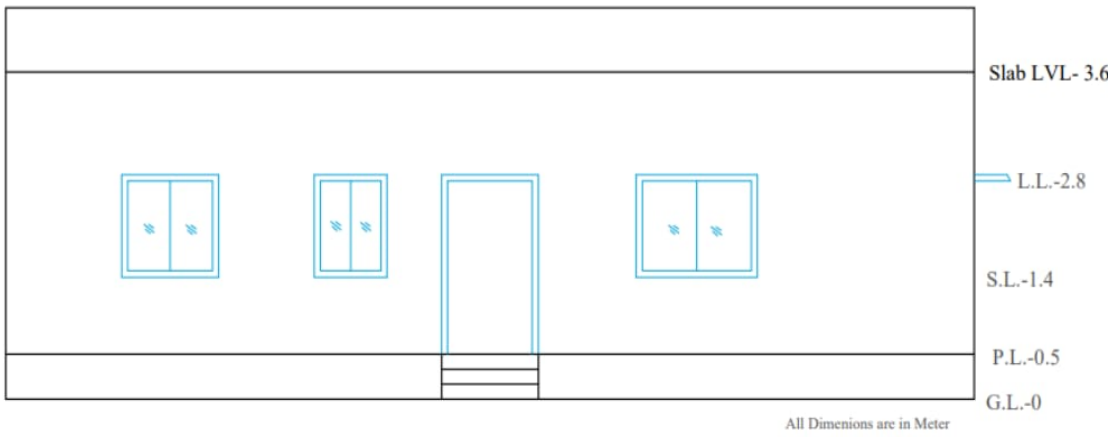
		1.00	1.50	1.20	1.00	1.80	
		1.00	4.70	2.60	1.00	12.22	**68.56**
12	DOORS IN WOOD	3.00	1.00	1.00	1.00	3.00	**3.00**
13	WINDOOW IN WOOD	3.00	1.00	1.00	1.00	3.00	**3.00**
14	VENTILATION IN ALUMINIUM	2.00	1.00	2.00	1.00	4.00	**4.00**
15	WHITE WASH(IN SIDE)	1.00	1.00	1.00	1.00	230.11	**230.11**

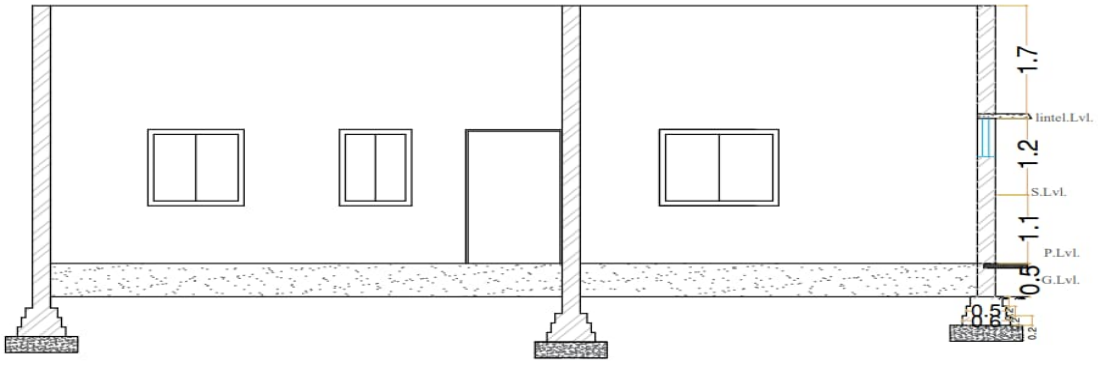
13.1.5 Civil Design 5

MATERNITY HALL



PLAN





SECTION A-A

ABSTRACT SHEET

NO.	ITEMS	UNIT	QTY.	RATE	AMOUNT
1	EXCAVATION IN FOUNDATION	CU.M.	44.93	150.00	6739.20
2	P.C.C. IN FOUNDATION (1:4:8)	CU.M.	11.23	3900.00	43804.80
3	MASONRY WORK IN FOUNDATION	CU.M.	33.28	4900.00	163057.10
4	EARTH BACK FIILLING	CU.M.	0.42	120.00	50.28
5	5MM THICK DPC	SQ.M.	6.24	4700.00	29328.00
6	MASONRY WORK IN SUPER STRUCTURE	CU.M.	63.20	4900.00	309699.60
7	SMOOTH INSIDE PLASTER	SQ.M.	255.60	260.00	66456.00
8	OUT SIDE ROUGH PLASTER	SQ.M.	205.42	310.00	63679.58
9	R.C.C. SLAB	CU.M.	16.65	8800.00	146546.40
10	R.C.C. CHAJJA AND LINTEL	CU.M.	0.08	8000.00	648.00
11	2' X 2' FLOORING	CU.M.	90.51	450.00	40729.50
12	DOORS IN WOOD	SQ.M.	14.00	1600.00	22400.00

13	WINDOOW IN WOOD	SQ.M.	3.00	1550.00	4650.00
14	VENTILATION IN ALUMINIUM	SQ.M.	12.00	1550.00	18600.00
15	WHITE WASH(IN SIDE)	SQ.M.	255.60	18.00	4600.80
					920989.2688
ADD 5% CONTINGENCY					46049.46344
ALL ABOVE RATE FILLED MAY VARY DUE TO MARKET INFLATION				**TOTAL**	**967038.7322**

MEASURMENT SHEET MATERNITY

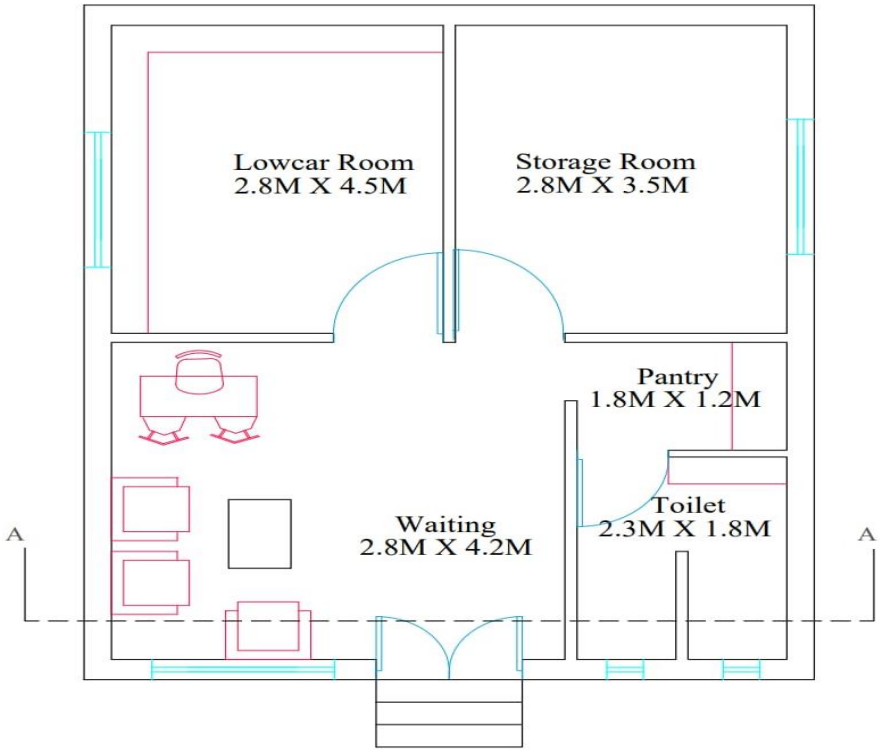
NO.	ITEMS	NO.	L	B	H	QTY.	T.QTY.
1	EXCAVATION IN FOUNDATION(L.W.)	2.00	9.10	0.90	1.20	19.66	
	(S.W.)	2.00	11.70	0.90	1.20	25.27	**44.93**
2	P.C.C.	2.00	9.10	0.90	0.30	4.91	
		2.00	11.70	0.90	0.30	6.32	**11.23**
3	MASONRY WORK IN FOUNDATION						
	STEP 1	2.00	63.20	0.60	0.20	15.17	
		2.00	11.70	0.60	0.20	2.81	
	STEP 2	2.00	9.10	0.50	0.20	1.82	
		2.00	11.70	0.50	0.20	2.34	
	STEP 3	2.00	9.10	0.40	0.20	1.46	
		2.00	11.70	0.40	0.20	1.87	
	MASONRY WORK UP TO P.L.	2.00	9.10	0.30	0.60	3.28	
		2.00	11.70	0.30	0.60	4.21	
	STEPS						
	STEP 1	1.00	1.20	0.90	0.15	0.16	
		1.00	1.20	0.60	0.15	0.11	
		1.00	1.20	0.30	0.15	0.05	**33.28**
4	BACK FIILLING						
	EXCAVATION-P.C.C.-MASONARY IN						
	FOUNDATION	1.00	1.00	1.00	1.00	0.42	**0.42**
5	5MM THICK DPC	1.00	20.80	0.30	1.00	6.24	**6.24**

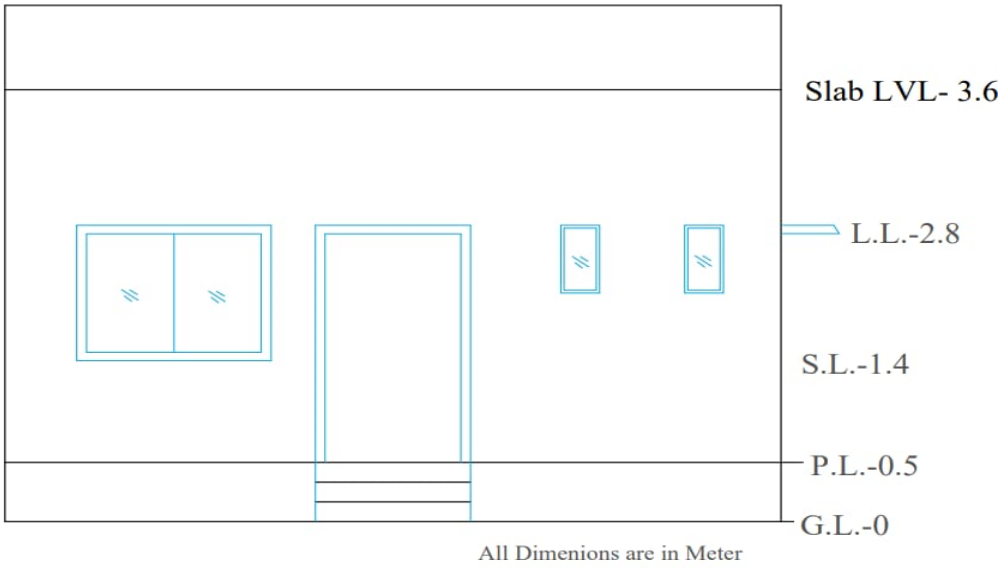
6	MASONRY WORK IN SUPER STRUCTURE	2.00	9.10	0.30	4.00	21.84	
		2.00	11.70	0.30	4.00	28.08	
		1.00	8.70	0.10	4.00	3.48	
		2.00	3.10	0.10	4.00	2.48	
		2.00	2.90	0.10	4.00	2.32	
		2.00	2.80	0.10	4.00	2.24	
		2.00	1.10	0.10	4.00	0.88	
		2.00	3.60	0.10	4.00	2.88	
		2.00	2.20	0.10	4.00	1.76	
		1.00	2.90	0.10	4.00	1.16	
		1.00	5.30	0.10	4.00	2.12	
		1.00	1.80	0.10	4.00	0.72	
	DEDUCTION						
	W	-3.00	1.80	0.30	1.20	-1.94	
	D 1	-2.00	1.80	0.30	2.10	-2.27	
	D 2	-7.00	1.20	0.10	2.10	-1.76	
	D 3	-5.00	0.60	0.10	2.10	-0.63	
	V	-2.00	0.50	0.30	0.50	-0.15	**63.20**
7	INSIDE SMOOTH PLASTER	1.00	63.90	4.00	1.00	255.60	**255.60**
8	OUT SIDE ROUGH PLASTER	2.00	9.10	1.00	5.05	91.91	
		2.00	11.70	1.00	5.05	118.17	
	DEDUCTION						
	W	-3.00	1.80	0.30	1.20	-1.94	
	D 1	-2.00	1.80	0.30	2.10	-2.27	
	V	-6.00	0.50	0.30	0.50	-0.45	**205.42**
9	R.C.C. SLAB	1.00	9.10	12.20	0.15	16.65	**16.65**
10	LINTEL AND CHHAJJAS						
	LINTELS						
	W	3.00	0.30	0.30	0.10	0.03	
	CHAJJAS						
	W	3.00	0.30	0.60	0.10	0.05	**0.08**
11	2' X 2' FLOORING	1.00	2.80	4.20	1.00	11.76	
		1.00	2.00	1.20	1.00	2.40	
		1.00	2.50	2.80	1.00	7.00	
		1.00	3.60	6.50	1.00	23.40	
		1.00	3.60	2.10	1.00	7.56	

		1.00	2.90	3.00	1.00	8.70	
		1.00	2.20	1.20	1.00	2.64	
		1.00	2.10	1.70	1.00	3.57	
		1.00	2.80	2.30	1.00	6.44	
		1.00	0.90	1.20	1.00	1.08	
		2.00	0.90	1.50	1.00	2.70	
		1.00	3.30	2.60	1.00	8.58	
		2.00	1.80	1.30	1.00	4.68	**90.51**
12	DOORS IN WOOD	14.00	1.00	1.00	1.00	14.00	**14.00**
13	WINDOOW IN WOOD	3.00	1.00	1.00	1.00	3.00	**3.00**
14	VENTILATION IN ALUMINIUM	6.00	1.00	2.00	1.00	12.00	**12.00**
15	WHITE WASH(IN SIDE)	1.00	63.90	4.00	1.00	255.60	**255.60**

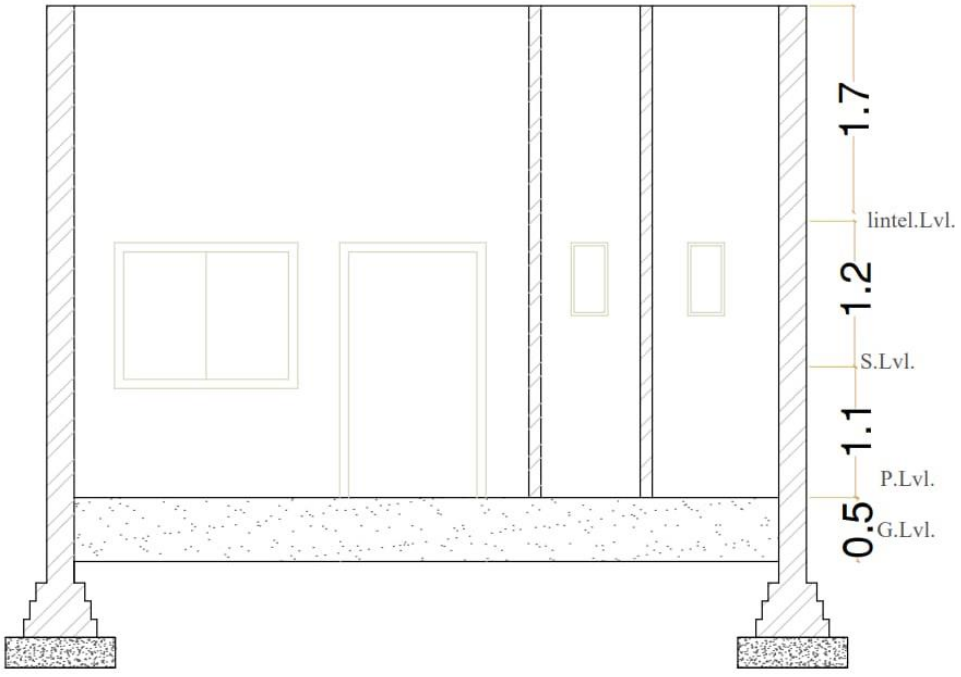
13.1.5 Civil Design 6

POST OFFICE




Slab LVL- 3.6
L.L.-2.8
S.L.-1.4
P.L.-0.5
G.L.-0
All Dimenions are in Meter

ELEVATION


1.7
lintel.Lvl.
1.2
S.Lvl.
1.1
P.Lvl.
0.5
G.Lvl.

ABSTRACT SHEET

NO.	ITEMS	UNIT	QTY.	RATE	AMOUNT
1	EXCAVATION IN FOUNDATION	CU.M.	28.51	150.00	4276.80
2	P.C.C. IN FOUNDATION (1:4:8)	CU.M.	7.13	3900.00	27799.20
3	MASONRY WORK IN FOUNDATION	CU.M.	13.00	4900.00	63680.40
4	EARTH BACK FIILLING	CU.M.	8.39	120.00	1006.56
5	5MM THICK DPC	SQ.M.	3.90	4700.00	18330.00
6	MASONRY WORK IN SUPER STRUCTURE	CU.M.	47.93	4900.00	234832.50
7	SMOOTH INSIDE PLASTER	SQ.M.	202.56	260.00	52665.60
8	OUT SIDE ROUGH PLASTER	SQ.M.	133.01	310.00	41232.79
9	R.C.C. SLAB	CU.M.	84.84	8800.00	746581.44
10	R.C.C. CHAJJA AND LINTEL	CU.M.	0.08	8000.00	648.00
11	2' X 2' FLOORING	CU.M.	40.46	450.00	18207.00
12	DOORS IN WOOD	SQ.M.	4.00	1600.00	6400.00
13	WINDOOW IN WOOD	SQ.M.	3.00	1550.00	4650.00
14	VENTILATION IN ALUMINIUM	SQ.M.	4.00	1550.00	6200.00
15	WHITE WASH(IN SIDE)	SQ.M.	810.24	18.00	14584.32
					1241094.61
	ADD 5% CONTINGENCY				62054.7305
	ALL ABOVE RATE FILLED MAY VARY DUE TO MARKET INFLATION			**TOTAL**	**1303149.341**

MEASURMENT SHEET POST OFFICE

NO.	ITEMS	NO.	L	B	H	QTY.	T. QTY.
1	EXCAVATION IN FOUNDATION(L.W.)	2.00	7.60	0.90	1.20	16.42	
	(S.W.)	2.00	5.60	0.90	1.20	12.10	**28.51**
2	P.C.C.	2.00	7.60	0.90	0.30	4.10	
		2.00	5.60	0.90	0.30	3.02	**7.13**
3	MASONRY WORK IN FOUNDATION						
	STEP 1	2.00	7.60	0.60	0.20	1.82	
		2.00	5.60	0.60	0.20	1.34	
	STEP 2	2.00	7.60	0.50	0.20	1.52	
		2.00	5.60	0.50	0.20	1.12	
	STEP 3	2.00	7.60	0.40	0.20	1.22	
		2.00	5.60	0.40	0.20	0.90	
	MASONRY WORK UP TO P.L.	2.00	7.60	0.30	0.60	2.74	
		2.00	5.60	0.30	0.60	2.02	

	STEPS						
	STEP 1	1.00	1.20	0.90	0.15	0.16	
		1.00	1.20	0.60	0.15	0.11	
		1.00	1.20	0.30	0.15	0.05	**13.00**
4	BACK FIILLING						
	EXCAVATION-P.C.C.-MASONARY IN						
	FOUNDATION	1.00	1.00	1.00	1.00	8.39	**8.39**
5	5MM THICK DPC	1.00	13.00	0.30	1.00	3.90	**3.90**
6	MASONRY WORK IN SUPER STRUCTURE	2.00	7.60	0.30	4.00	18.24	
		2.00	5.60	0.30	4.00	13.44	
		1.00	5.60	0.30	4.00	6.72	
		1.00	1.80	0.30	4.00	2.16	
		1.00	7.20	0.30	4.00	8.64	
		1.00	1.20	0.30	4.00	1.44	
	DEDUCTION						
	W	-3.00	1.50	0.30	1.20	-1.62	
	D 1	-2.00	1.80	0.30	2.10	-2.27	
	D 2	-7.00	-0.90	0.10	2.10	1.32	
	V	-2.00	0.50	0.30	0.50	-0.15	**47.93**
7	INSIDE SMOOTH PLASTER	1.00	50.64	4.00	1.00	202.56	**202.56**
8	OUT SIDE ROUGH PLASTER	2.00	7.60	1.00	5.05	76.76	
		2.00	6.10	1.00	5.05	61.61	
	DEDUCTION						
	W	-3.00	1.50	0.30	1.20	-1.62	
	D 1	-2.00	1.80	0.30	2.10	-2.27	
	D 2	-7.00	0.90	0.10	2.10	-1.32	
	V	-2.00	0.50	0.30	0.50	-0.15	**133.01**
9	R.C.C. SLAB	1.00	46.36	12.20	0.15	84.84	**84.84**
10	LINTEL AND CHHAJJAS						
	LINTELS						
	W	3.00	0.30	0.30	0.10	0.03	
	CHAJJAS						
	W	3.00	0.30	0.60	0.10	0.05	**0.08**
11	2' X 2' FLOORING	1.00	2.80	4.20	1.00	11.76	
		1.00	2.30	1.80	1.00	4.14	
		1.00	1.80	1.20	1.00	2.16	

		1.00	2.80	4.50	1.00	12.60	
		1.00	2.80	3.50	1.00	9.80	**40.46**
12	DOORS IN WOOD	4.00	1.00	1.00	1.00	4.00	**4.00**
13	WINDOOW IN WOOD	3.00	1.00	1.00	1.00	3.00	**3.00**
14	VENTILATION IN ALUMINIUM	2.00	1.00	2.00	1.00	4.00	**4.00**
15	WHITE WASH(IN SIDE)	1.00	202.56	4.00	1.00	810.24	**810.24**

13.2 Reasons for recommending this Designs

The aim of the Vishwakarma Yojana is to develop the country's rural areas, which necessitates an analysis of the current situation as well as the techno-economic aspects of providing basic amenities for village growth. The Gujarat government's Vishwakarma Yojana is one of its Rurbanization initiatives.

After doing Techno-economic survey, we get to know the whole scenario of our village. Along with the survey we also talked with the villagers & sarpanch about the difficulties they faced in the village. After analysing it we proposed few basics designs which will help villagers in improving their lifestyle & migration will reduce to minimum.

Many infrastructure services in the village are also lacking. We have proposed certain designs like police station , medical store, Cremation center, Bakery store, post office, Sports & yoga center as village was lacking such facilities.

There were no police station, no post office facilities, no cremation center facilities in the village. Due to these the villagers were facing many difficulties, by providing such facilities difficulties will be minimized & villagers need not to go outside for performing such activities.

Along with this, we also want to do something for women empowerment, this can be done by giving one chance to cottage industries, so we decided to provide a bakery store so that women can be involved in making bread, biscuits, sweets this will help women to empower themselves, show their skills & to be independent. By providing a bakery shop they can sell their items in the village & may be outside the village in nearby future.

We have tried to build sustainable & economic design according to our knowledge & hard work. In reference to the ideal village, our own goal is to grow the allotted village. Based on our survey, knowledge & gap analysis, we have proposed few designs for its development.

Our vision for the county is to urbanize village with all those smart amenities that a city has our goal is to fulfill that in the village too. This will help in improving living standard of the villagers and also reduce migration of the villagers. The future scenery for the urbanization can be sustainable by improving rural India.

13.3 About Designs Suggestion / Benefits of the proposed designs to the villagers

We got to know the current situation of the village and the lack of infrastructure facilities in the village after completing the visit & taking techno economic survey & interacting with villagers & sarpanch.

Previously in part-I, we have proposed few designs like PHC, Library, common service Center, Septic tank, Community Hall as they were lacking in the village & all these are basic amenities which are important to improve living standard of the villagers.

In Part-II, we have design to propose more infrastructure facilities which were not there in the village. We proposed few designs like:

a. Maternity Home
b. Post Office
c. Police station
d. Cremation Center
e. Sports & Yoga center
f. Bakery shop

By providing a maternity home, also known as a maternity housing program, is a type of supportive housing for pregnant women. Maternity housing services today assist a woman in search of a safe home atmosphere in achieving her goals in a variety of areas other than pregnancy.

A post office is a public facility that accepts letters and packages, offers post office boxes, and sells postage stamps, packaging, and stationery, among other facilities. As there were no such facility in the village it was necessary to provide a Post office in the village, so that villagers need not to go out for getting such services

A police station is a building where police officers work. Other members of the law enforcement may work there as well. These buildings often contain offices and accommodation for staff. As no such police station was there in the village, we decided to propose one.

After talking with the villagers we get to know that there was no facilities like Cremation center in the village & due to this many difficulties were faced by the villagers so we decided to propose design of it.

We have proposed design for sports & Yoga center, this consists of a room where villagers can perform yoga & along with that there will be certain games like table tennis, carrom board & other board games so that children & adults can play happily.

Along with this, we also want to do something for women empowerment, this can be done by giving one chance to cottage industries, so we decided to provide a bakery store so that women can be involved in making bread, biscuits, sweets this will help women to empower themselves, show their skills & to be independent.

Chapter-14

Technical Options with case studies

14.1.1 Advanced Earthquake Resistant

Structures designed to withstand earthquakes are known as earthquake-resistant structures. While no structure can be completely safe from earthquake damage, earthquake-resistant architecture aims to build structures that perform better than their conventional counterparts during seismic activity.

Among the most important advanced techniques of earthquake resistant design and construction are:

1.Base Isolation

2.Energy Dissipation Devices

1. Base Isolation Method of Earthquake Resistant Design

A set of bearing pads are mounted between the building and the building's foundation to support a base isolated structure. There are now several different forms of base isolation bearing pads available. In the vertical direction, the bearing is rigid and solid, but it is flexible in the horizontal direction.

.Base-isolation are designed in buildings . It is a building designed to reduce amount of energy that reaches the building during earthquake. It is possible to add flexible joints and automatic shutoff valves. Prepare a global Seismic Risk Map that identifies rock types, liquefaction potential, and landslide potential to protect against earthquake damage. To identify all active faults, including hidden faults, extensive geological surveying is needed.

Earthquake Resistant Design of Structures Enact building codes to design and build earthquake-resistant structures in high seismic risk areas. wood, steel and reinforced concrete are preferred as they tend to move with the shaking ground (unreinforced concrete and heavy masonry tend to move independently and in opposition to the shaking, battering one another until the structure collapses.

2. Energy Dissipation Devices

The second major new technique for enhancing building earthquake resistance relies on damping and energy dissipation as well, but it greatly expands the damping and energy dissipation offered by lead-rubber bearings. As previously stated, earthquake ground motion transfers a certain amount of vibration energy to the house.

Buildings have the potential to dissipate, or dampen, this energy on their own. Buildings, on the other hand, have a finite capacity to dissipate energy before deformation and damage occur. The building can dissipate energy either by large-scale movement or increased internal stresses in structural elements such as columns and beams.

Accordingly, a wide range of energy dissipation devices have been developed and are now being installed in real buildings. Energy dissipation devices are also often called damping devices. The large number of damping devices that have been developed can be grouped into three broad categories: Friction Dampers: these utilize frictional forces to dissipate energy Metallic Dampers : utilize the deformation of metal elements within the damper Viscoelastic Dampers : utilize the controlled shearing of solids Viscous Dampers: utilized the forced movement (orificing) of fluids within the damp.

14.1.2 Seismic Retrofitting of Building

The alteration of existing structures to make them more resistant to seismic activity, ground motion, or soil failure due to earthquakes is known as seismic retrofitting. The need for seismic retrofitting is well recognized, thanks to a greater understanding of seismic demand on structures and our recent experiences with major earthquakes near urban centers.

The most common form of seismic retrofit to lower buildings is adding strength to the existing structure to resist seismic forces. The strengthening may be limited to connections between existing building elements or it may involve adding primary resisting elements such as walls or frames, particularly in the lower stories.

Why do we need to retrofit building for earthquake?

It is the modification of existing structures to make them more resistant to seismic activity, ground motion, or soil failure due to earthquakes. The retrofit techniques are also applicable for other natural hazards such as tropical cyclones, tornadoes, and severe winds from thunderstorms.

14.1.3 Advance practices in construction field in Modern Material, techniques & equipment's

Few recent developments in construction are stated below

Durable Concrete

Concrete Design and Construction Practices today are strength driven. Concrete grades up to M80 are now being used for highrise buildings in India. However, due to escalation in the repair and replacement costs, more attention is now being paid to durability issues. There are compelling reasons why the concrete construction practice during the next decades should be driven by durability in addition to strength.

A holistic view needs to be taken about concrete durability. In this context, there are a large number of materials in the market which facilitate durable construction. Apart from the materials, the construction processes have also undergone changes with a view to improving the durability of the finished structure.

High performance Concrete

In the United States, in response to widespread cracking of concrete bridge decks, the construction process moved towards the use of High Performance Concrete (HPC) mixes. Four types of HPC were developed[1]:

- Very High Early Strength Concrete – 17.5 mPa in 6 hours
- High Early Strength Concrete – 42.5 mPa in 24 hours
- A Very High Strength – 86 mPa in 28 days
- High Early Strength with Fiber Reinforcement
- High Performance Concrete was introduced in India initially for the reconstruction of the pre-stressed concrete dome of the Kaiga Atomic Power Project, followed for parts of the Reactors at Tarapur and Rajasthan. Subsequently, a number of bridges and flyovers have introduced HPC up to M75 grade in different parts of India.

Self–compacting Concrete (SCC)

SCC was developed by the Japanese initially as a Quality Assurance measure, but now is being widely used for concrete structures worldwide. In India, one of the earliest uses of SCC was for some components of structures at Kaiga Atomic Power Project. Many components of the structures were very heavily reinforced and the field engineers found it difficult to place and compact normal concrete without honeycombs and weaker concrete. SCC was successfully used.

14.1 Building by Self compacted concrete

14.2 Construction By self Compacted Concrete

The above figure shows the building which was made through self compacting concrete

14.1.4 Engineering Aspects Of soil Mechanics- Environmental Impact Assessment

Prior to deciding to proceed with a planned action, an environmental evaluation (EA) evaluates the environmental impacts (both positive and negative) of a proposal, policy, program, or actual project.

Environmental Impact Assessment is a process of evaluating the likely environmental impacts of a proposed project or development, taking into account inter-related socio-economic, cultural and human-health impacts, both beneficial and adverse.

Environmental Impact Assessment (EIA) is the process of examining the anticipated environmental effects of a proposed project - from consideration of environmental aspects at design stage, through consultation and preparation of an Environmental Impact Assessment Report (EIAR), evaluation of the EIAR by a competent authority, the subsequent decision as to whether the project should be permitted to proceed, encompassing public response to that decision.

14.1.5 Water Supply Sewerage System Waste Water Sustainable Development Techniques

The water supply and sanitation in India has increased greatly from 1980 to present. Still, many people lack access to clean water, toilets, and sewage infrastructure. Various government programs at national, state, and community level have brought rapid improvements in sanitation and the drinking water supply. Some of these programs are ongoing.

In 1980 rural sanitation coverage was estimated at 1% and it reached 95% in 2018. The share of Indians with access to improved sources of water has increased significantly from 72% in 1990 to 88% in 2008.

There are many ways water can become contaminated; by natural disasters such as floods, hurricanes and tornados or by man-made disasters and industrial pollution. This article looks at wastewater impurities and sustainable treatments that can eliminate those impurities.

Re-used wastewater is also known as recycled or reclaimed water and is a sustainable and economic practice. Wastewater treatment is beneficial for both small and large-scale industries and the re-used waster can irrigate farms, golf course and parks.

There are several types of water impurities and many different sustainable wastewater treatment processes.

These treatments eliminate impurities through 100% recycling and water re-use. Some of the impurities include the following:

Micro-particles which are particles of paper, food particles, pharmaceutical waste and industrial waste.

Polymer product industrial waste which consists of cosmetic micro-beads and micro-plastics, which require plastic recycling.

Organic chemical waste which includes medicines, petroleum, herbicides, insecticides, cleaner and detergents. Residual traces of a banned chemical known as MTBE are still found in water and it will take some years before it is entirely removed from water.


14.3 Waste water treatment Plant in India

Wastewater treatment processes

There are many types of sustainable wastewater treatment processes which allow wastewater to be re-used and they are described below.

Biological treatment is a natural process triggered by the use of microorganisms. Natural cleaning of water has been used to clean water since the 19th century and is one of the most sustainable methods of wastewater treatment.

Desalination is primarily used to make seawater usable and potable. It removes salt and other minerals from water.

Clarification is a method used as pre-treatment before other water purification methods to clear small solid particles from water.

Evaporation & crystallisation is a wastewater treatment process used to recover and recycle water from brine and waste streams. It is a popular industrial process and is also sometimes used to clean seawater.

Oxidation and disinfection treatment disinfects water through physical and chemical methods, which destroys disease-causing microorganisms, to prevent their spread.

Filtration is process which happens after water clarification treatment and removes any physical or biological solids' particles left behind.

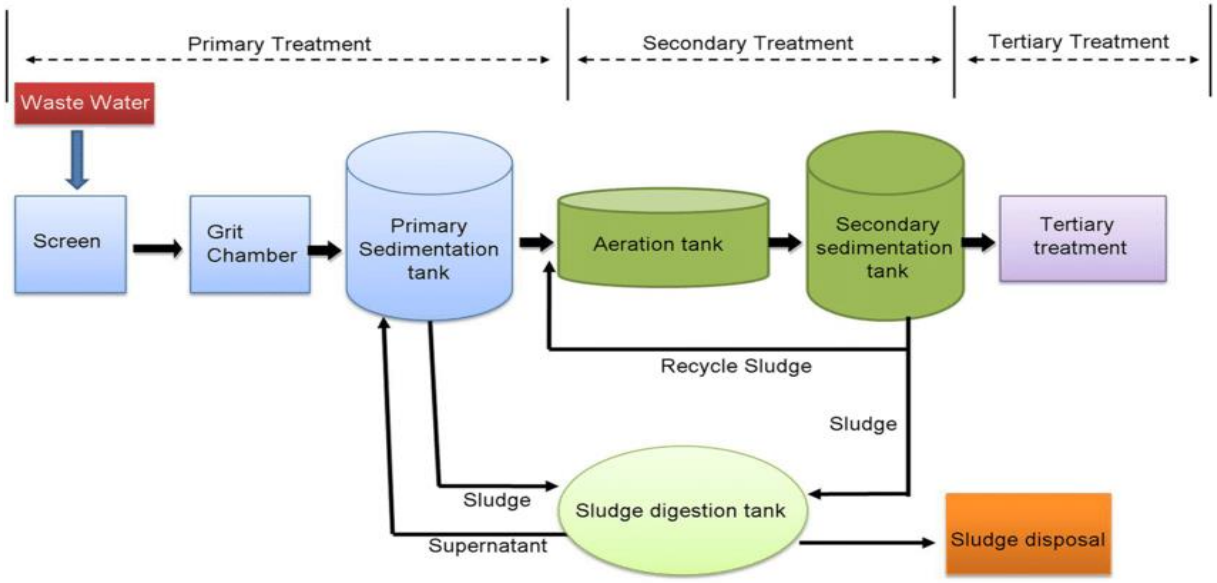
Ion exchange a wastewater treatment which is carried out by exchange between a solution and an ion exchange resin. The resin can be cationic or anionic and is reusable. The impurity and the exchange ions are both mixed in the same type of solution (positive or negative) for the treatment. This is mainly used for water softening in industrial and residential sectors. It removes unwanted substances as well as toxic metals from the water.

Membrane technology. During membrane separation, feed water flows through a semi-permeable membrane which separates unwanted materials from the water.

Water purification plants use high-end machinery to recycle and restore water.

Sewage sludge treatment is the process of disposing of sewage sludge mixed in with water. Sewage sludge treatment is used mainly in the industrial sector and can reduce both sludge and solid material mixed in water.

Zero liquid discharge. As the name suggests, this process of wastewater treatment leaves zero liquid waste in the water. It purifies water through advanced desalination and various treatment techniques including ultrafiltration, reverse osmosis and evaporation and crystallisation.



A study of Advance Earthquake Resistant Building

Introduction

Earthquakes are one of nature's most dangerous threats on our planet, with a long history of claiming human lives and property. The earthquake's sudden and unpredictable existence makes it even worse on a psychological level, shaking people's morale.

Since earthquakes are so far unpreventable and unpredictable, the only option with us is to design and build the structures which are earthquake resistant. Accordingly attempts have been made in this direction all over the world. Results of such attempts are very encouraging in developed countries but miserably poor in developing countries including our country India.

If buildings are built earthquake resistant at its first place (as is being done in developed countries like USA, Japan etc) the devastation caused by earthquakes will be mitigated most effectively. The professionals involved in the design/construction of such structures are structural/civil engineers, who are responsible for building earthquake resistant structures and keep the society at large in a safe environment.

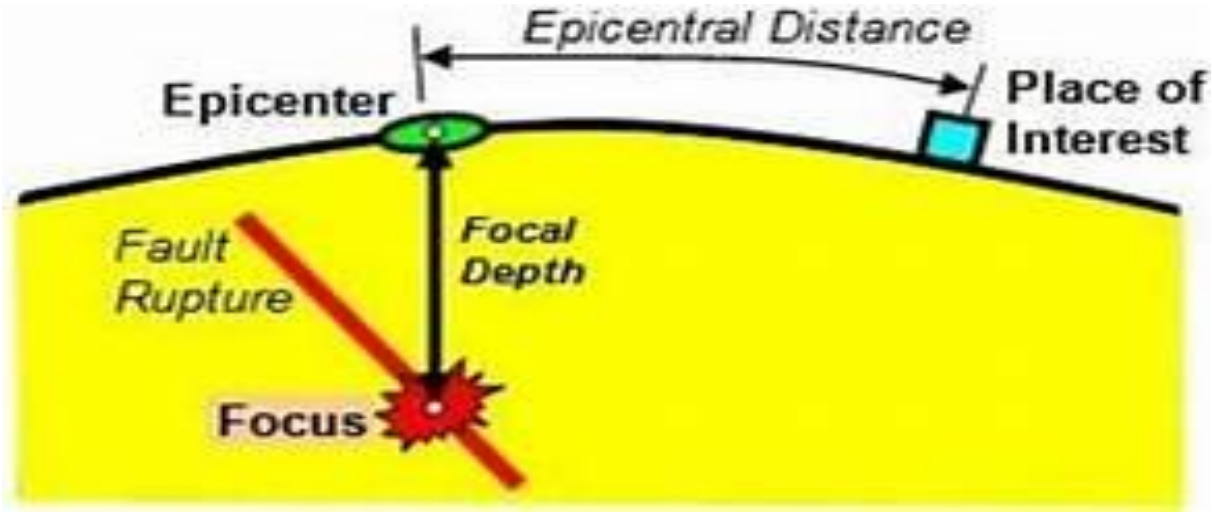
Understanding of earthquake and Basic Terminology

Earthquake is defined as a sudden ground shaking caused by the release of huge stored strain energy at the interface of the tectonic plates

Epicentre:-It is the point on the free surface of the earth vertically above the place of origin of an earthquake.

Focus:-It is the point within the earth from where the seismic waves originate.

Focal Depth:- It is the vertical distance between the Focus and the epicentre.



14.1 Terminology of earthquake

14.2 Earthquake of Bhuj 2001

14.3 Collapsing a Building

Role & responsibility of Civil engineers

It is not the earthquake which kills the people but it is the unsafe buildings which is responsible for the devastation. Keeping in view the huge loss of life and property in recent earthquakes, it has become a hot topic and worldwide lot of research is going on to understand the reasons of such failures and learning useful lessons to mitigate the repetition of such devastation. If buildings are built earthquake resistant at its first place (as is being done in developed countries like USA, Japan etc) we will be most effectively mitigating the earthquake disasters. The professionals involved in the design and construction of such structures are civil engineers. Who are responsible for building earthquake resistant structures and keep the society at large in a safe environment? It is we the civil engineers who shoulder this responsibility for noble and social cause.

Guidelines for Earthquake Resistant Building

In addition to the main earthquake design code 1893 the BIS(Bureau of Indian Standards)has published other relevant earthquake design codes for earthquake resistant construction Masonry structures (IS-13828 1993)

- Horizontal bands should be provided at plinth ,lintel and roof levels as per code
- Providing vertical reinforcement at important locations such as corners, internal and external wall junctions as per code.
- Grade of mortar should be as per codes specified for different earthquake zones. • Irregular shapes should be avoided both in plan and vertical configuration
- Quality assurance and proper workmanship must be ensured at all cost without any compromise. In RCC framed structures (IS-13920)
- In RCC framed structures the spacing of lateral ties should be kept closer as per the code • The hook in the ties should be at 135 degree instead of 90 degree for better anchoragement.
- The arrangement of lateral ties in the columns should be as per code and must be continued through the joint as well.
- Whenever laps are to be provided, the lateral ties (stirrups for beams) should be at closer spacing as per code.

Advanced Methods For earthquake resistant Building

Two main Techniques

1) **Base isolation Method**
2) **Energy Dissipation Devices**

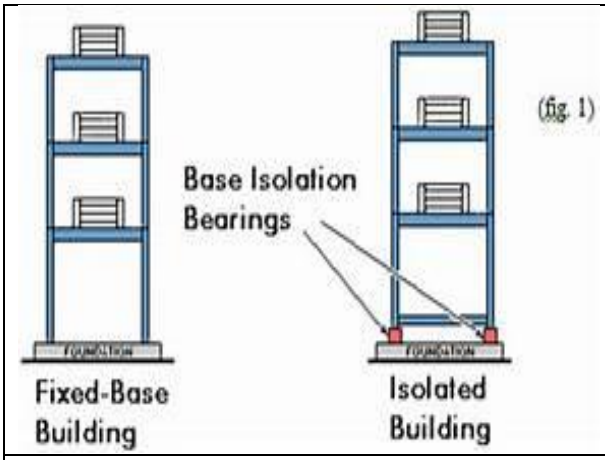
1) Base Isolation Method

Base isolation is one of the most powerful tools of earthquake engineering pertaining to the passive structural vibration control technologies. The isolation can be obtained by the use of various techniques like rubber bearings, friction bearings, ball bearings, spring systems and other means.

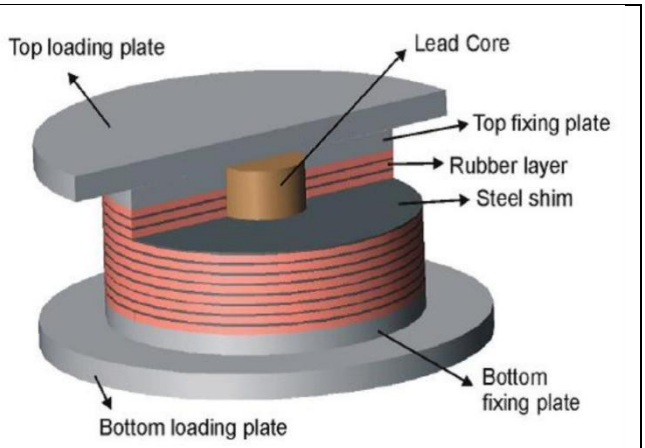
Type of Base Isolation devices

There are Six major types of base isolation devices which are widely adopted-

- Elastomeric Bearings.
- High Damping Bearings
- Lead Rubber Bearings.
- Flat Slider Bearings
- Curved Slider Bearings or Pendulum Bearings.
- Ball & Roller Bearings.



14.4 Base Isolation Method



14.5 Sesmic Isolation Devices

2) Energy Dissipation Devices

The second significant new technique for improving earthquake resistance in buildings still relies on damping and energy dissipation, but it significantly extends the damping and energy dissipation provided by lead-rubber bearings. As previously mentioned, earthquake ground motion causes some vibration energy to be transferred to the tower.

Energy dissipation devices are also often called damping devices.

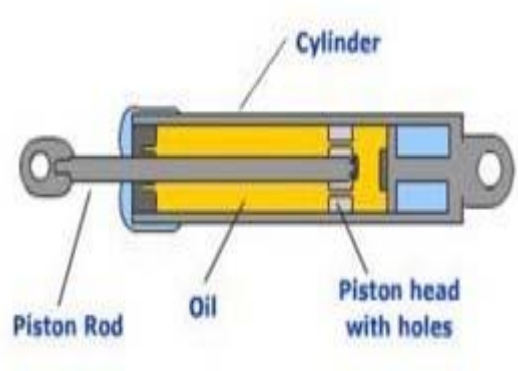
Dampers are classified as the following categories;

Friction Dampers: these utilize frictional forces to dissipate energy

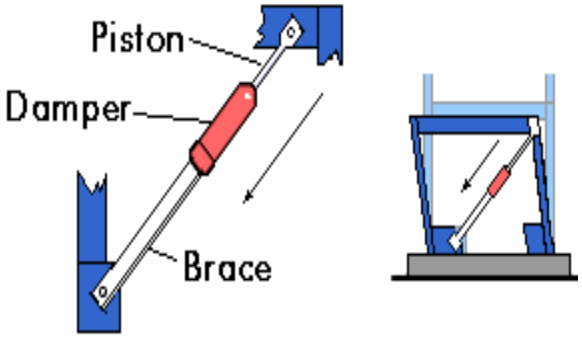
Metallic Dampers : utilize the deformation of metal elements within the damper

Viscoelastic Dampers : utilize the controlled shearing of solids

Viscous Dampers: utilized the forced movement (orificing) of fluids within the dampe.



14.6 Viscous Damper



14.7 Energy Dissipation Devices

Conclusion

Technology is available to drastically mitigate the earthquake related disasters. This is confirmed by minimal damage generally without any loss of life when moderate to severe earthquake strikes developed countries, where even a moderate earthquake cause's huge devastation in developing countries as has been observed in recent earthquakes.

Earthquake-resistant structures are structures designed to protect buildings from earthquakes. While no structure can be entirely immune to damage from earthquakes, the goal of earthquake-resistant construction is to erect structures that fare better during seismic activity than their conventional counterparts.

The reason being that earthquake resistant measures are strictly followed in these countries where as such guidelines are miserably violated in developing countries

. The administration system is efficient and effective in developed countries, and its not the same in developing countries – so the government should ensure the implementation of earthquake resistant design guidelines.

So it is here that civil engineers in general and structural engineers in particular have a great role to play in mitigating the sufferings caused by earthquake related disasters.

Chapter-15

15. Smart or Sustainable features of Designs, Impact on society with small changes period a) Immediately b) within 1 month c) long Term (3-5 years) along with cost estimation and drawing

Sr. No	Design Name	Period	Amount Expenditure	Benefit
1.	Septic Tank	5 months	44978	This will solve the problem of disposing Biodegradable waste & villagers will be safe from diseases
2.	Library	3 months	504895	This will surely motivate & inspire students of the village to achieve their goals.
3.	PHC	8 months	1463288	This will provide basic medical facilities & villagers will get the treatment immediately.
4.	Community Hall	Within 1 year	886993	There was no such facilities in the village, due to community hall villagers will be able to host ceremony in the village itself.
5.	CSC	1-2 year	482462	If CSC is provided villagers can become somewhat attached to the new technologies that improve the living standard of the villagers.
6.	Temple	2 years	381669	For the purpose of heritage aesthetic view of the village
7.	Cremation center	6 months	526745	Villagers were deprived of such facility
8.	Maternity Home	9 months		For the welfare of the women & their children
9.	Police Station	1 year		For solving criminal disputes f the village
10.	Post Office	4 months		Villagers were deprived of such facilities
11.	Sports and Yoga center	6 months		For recreation purpose & for good health
12.	Bakery shop	5 months		For employment opportunities

Chapter-16

16. 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, Labourer, Shapes
2	What are the chances of employment in village?	yes	only Farming
3	What are the special technical facilities in village?	No	
4	Is any debt on village dwellers?	Yes	Co-operative
5	Are village people getting agricultural help?	yes	
6	Is women health awareness Program organized in village?	Yes	
7	Are women having opportunity to work and income?	Yes	House Keeping
8	Child girl education is appreciated in village?	No	
9	Facility of vaccination to child is available in village?	yes	polio
10	Are village people aware about child vaccination and done to each and every child as per norms?	yes	
11	Women help line number information is provided to village people?	No	
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.	Yes	30 to 40 yrs. Walking, Blind Disability
18	Is village improvement is observed in comparative scenario from past to present?	yes	
19	Is any unavoidable difficulty village people are facing? Any natural calamity is there?	No	
20	Life Living standard of girls and women is appreciated and uplifted in village?	NO	

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

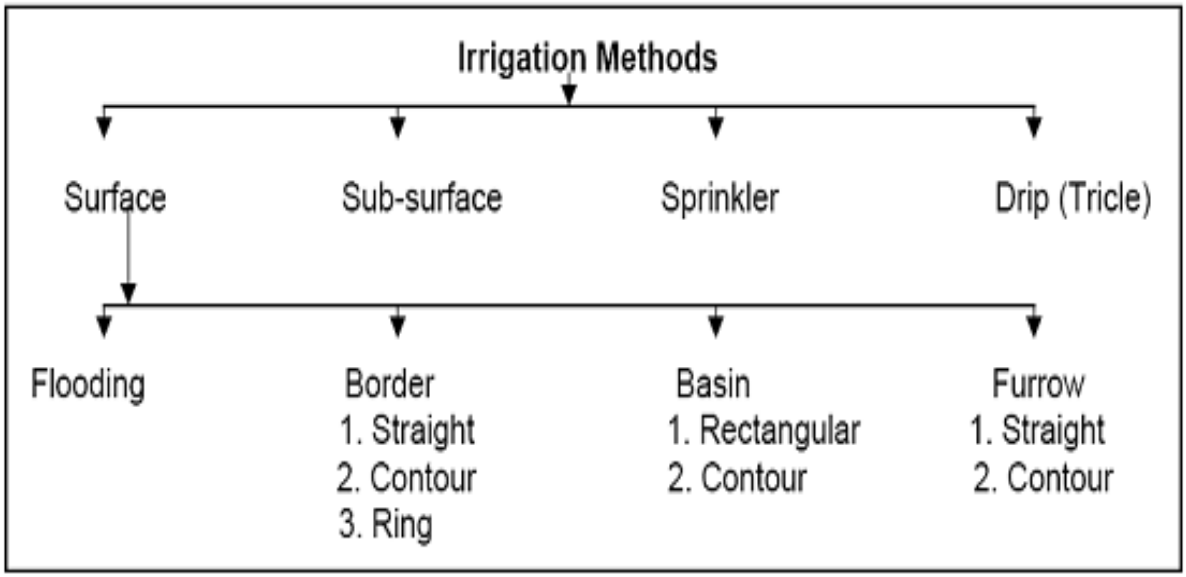
સુભાનબેન કે. મોમીન
સરપંચશ્રી કોલટ ગ્રામ પંચાયત
સુભાનબેન કે. મોમીન

Chapter-17

17. Irrigation/ Agriculture activities and Agro industry, Alternate techniques & Solution

Since India is a country with an important agricultural sector, and over 55% of population is dependent on agriculture, many state governments are offering incentives to ensure availability of water for irrigation purposes, such as: State government of Punjab (Northern India) are offering free electricity for ground water pumping. Moreover, states of Gujarat and Maharashtra (Western India) offer high subsidy for solar pumps. Variations in irrigation intensity are due to among others varied geographical conditions in different parts of the country.
Irrigation water can be applied to the crops by three basic method:

1. Surface Irrigation Methods
2. Sprinkler Irrigation Methods
3. Sub-Surface Irrigation Methods
4. Drip Irrigation



Method of irrigation used in our allocated village

In our allocated village KOLAT, free flooding Method was used. Free flooding method consists of dividing the entire land to be irrigated into small strips by number of field channels or leeves, known as laterals
This method can be used both for flat lands as well as for relatively steep lands. The alignment & spacing of the laterals depends upon the type of soil & topography of the land.

If the slopes are steeper closer spacing of laterals is required. For flat land & for relatively less pervious soils, the spacing of laterals may increased. Normally the spacing of the laterals may vary from 10 to 50 meter.

Chapter-18

18. Social Activities Planned by Students

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

Basically, what we need is to empower the rural people by providing them education and proper health care. They need to have infrastructure like electricity and water so that they are free from the cycle of droughts and floods. We need to give them self-employment so that they want to stay in villages instead of migrating in cities**.** During the survey of our allocated village, we spread awareness about social aspects like women empowerment, cleanliness, importance of education in one's life.

India lives in many generations, and visiting rural areas very easily shows that they lag behind cities by decades. While we have latest services and products available in our cities now, villagers are still coping with age old products.

We also spread awareness regarding Covid 19, we explained them what precautions to be taken to protect themselves from coronavirus. We asked them to use mask mandatory, wash their hands regularly, use hand sanitizer, wear hand gloves & to maintain social distancing everywhere.

We also talked to students of the village, we explain them the importance of the studies, we motivated them to learn new technology & to worked hard to gain more knowledge for their bright future. We also asked them to participate in other activities like painting, creative writing, sports activities.

One more step was to encourage women empowerment by giving importance to cottage industries. We motivated them to start their business of food packets like papad, namkeen, achar & to sell them in the village. So that from this they can achieve some amount of money which will be the initiative in providing women empowerment. This will build confidence in women and will change mindset towards the society. By this they will get opportunity to gain money and from money they can invest in some other activities. We also suggested them different methods to expand their business.

18.1 Discussing about education

18.2 Discussing about women empowerment

Chapter-19

19. KOLAT SAGY Questionnaire Survey form with the Sarpanch Signature

SAANSAD ADARSH GRAM YOJANA (SAGY) Baseline Household Survey Questionnaire

Village: Kolat Gram Panchayat: Kolat Grampanchayat Ward No. —

Block: — District: Ahmedabad

State: Gujarat LS Constituency: 40- Sanand

1. Family Identity and Size

Name of Head of Household	Parekh Pravinbhai gandabhai							Male/ ~~Female~~	M
SECC Survey ID:	SEBC	Family Size	7	Over 18	5	6 to 18	2	Under 6	—

2. Category & Entitlement Details (Tick as appropriate)

Social Category[1]		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	N
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]
Parekh Pravinbhai gandabhai	52	M	N	U	HSC	U	Y	—
Parekh Ilaben Pravinbhai	52	F	N	U	SSC	Y	Y	—
Parekh [illegible] Pravinbhai	30	M	N	Y	SSC	Y	Y	—
Parekh [illegible] [illegible]	22	F	N	Y	SSC	U	U	—
Parekh Rahul Pravin 3	M	N	Y	HSC	Y	Y	—	

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
Parekh Jivanshi Kalpesh	5	MF	N	N	—	—	—	—
Parekh Shivath Rohit bhai	2	M	N	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) X

[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)

સરપંચશ્રી કોલટ ગામ પંચાયત

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	X	✓
Children	—	—

9. House & Homestead Data

Own House: Yes / No	No. of Rooms: 3
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	1
Community Water Tap	Yes / No	
Hand Pump (Public / Private)	Yes / No	
Open Well(Public / Private)	Yes / No	(Not use)
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	0-57-0 (1.50)	2. Cultivable Area	1.40
3. Irrigated Area	—	4. Uncultivable Area	0.10

(5702 m²)

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	X
Salaried Employment - Private Sector	✓
Weaving	X
Other Artisan(mention)	Job
Other Trade & Business (mention)	X

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
Wheat	2 Kg	30
Rice		60
Jowar		100

17. Livestock Numbers

Cows: N	Bullocks: N	Calves: N
Female Buffalo: N	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)

N

Schedule Filled By:
Principal Respondent:
Date of Survey:

23.01.2021

સરપંચશ્રી કોલટ ગ્રામ પંચાયત
સુભાનબેન કે. મોમીન 2

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: Kolat

b. Block: –

c. District: A'bad

d. State: Gujarat

e. Lok Sabha Constituency: 40 - Sanand

f. Number of Wards in the Gram Panchayat: 10

g. Number of Villages in the Gram Panchayat: 1

h. Names of Villages: Kolat

Demographic Information

Number of Households 858 Total Population 5645 Male 3195 Female 2450

SC HHs – ST HHs – OBC HHs – Other HHs –

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	4 km
b.	Nearest Primary Health Centre (PHC)	–	Sanalthal [4 Kms]
c.	Nearest Community Health Centre (CHC)		Sanand [6km]
d.	Nearest Post Office	Branch P.O	Inside
e.	Nearest Bank Branch (Any)	HDFC	2 km
f.	Nearest Bank with CBS Facility	–	–
g.	Nearest ATM	HDFC	2 km
h.	Nearest Primary School	Yes	Inside
i.	Nearest Middle School	No	4 km
j.	Nearest Secondary School	No	6 km
k.	Nearest Higher Secondary School / +2 College	No	6km
l.	Nearest Graduate College	No	12 km
m	Nearest ITI / Polytechnic Centre	No	7km
n	Kisan Seva Kendra	Yes	Inside

સરપંચશ્રી કોલટ ગ્રામ પંચાયત
સુભાનબેન કે. મોમીન

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	Inside
p	Nearest Agro Service Centre	NO	Sanad 6 km
p	MSP based Government Procurement Centre	No	Sanand 6 km
q	Milk Cooperative /Collection Centre	yes	Ins
r	Veterinary Care Centre	N/O	Sanand 6 km
s	Ayurveda Centre	NO	–
t	E – Seva Kendra	NO	Sanand 6 km
u	Bus Stop	yes	–
v	Railway Station	NO	4 km
w	Library	NO	6 km
x	Common Service Centre	yes	6 km

IV. Sports Facilities in the Gram Panchayat

a. Number of Play Grounds in the GP: Total NO Public – Private –

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

V. Education, ICDS

a. Number of Angan Wadi Centres: 4

b. Number of villages without Angan Wadi Centres NO

Names of such villages: –

c. Schools (Number)

Primary Private: 1 Primary Govt.: 1

Middle Private: X Middle Govt.: X

Secondary Private: X Secondary Govt.: ✓

Higher Secondary Private: X 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)	✓	–	–	–	Grocery Shop	–	–
b.	Kerosene	–	–	–	–	–	–	–
c.	Other (mention)	–	–	–	–	–	–	–

ગુલાબબેન કે મોમીન

સરપંચશ્રી કોલટ ગ્રામ પંચાયત

અમીનાબેન કે મોમીન

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	Kolat, Motidevati, Telav	
b.	Hand Pump Coverage in Villages:	Covered ✓ / Not Covered	Kolat, Motidevati	
c.	Coverage under Covered Drains:	Covered ✓ / Not Covered	Semi covered, Kolat, Motidevati	
d.	Coverage under Open Drains:	Covered ✓ / Not Covered	Kolat, Motidevati, Telav	
e.	Villages with Household Electricity Connection (Numbers)	Connected ✓ / Not Connected	Kolad, Motidevati, Telav	

VIII. Land and Irrigation

	Private Land	Area in Acres		Common Land	Area in Acres		Irrigation Structure	No.
a.	Cultivable Land	280 ha	d.	Pasture / Grazing Land	–	g.	Check Dam	–
b.	Irrigated Land	526 ha	e.	Forests/ Plantations	–	h.	Wells/Bore Wells	4
c.	Un-irrigated Land	360 ha	f.	Other Common Land	–	i	Tanks /Ponds	1

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

3

સુભાનભેન કે. મોમીન
સરપંચશ્રી કોલટ ગ્રામ પંચાયત

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)	526 (old)
c)	Number of eligible Households who are not receiving pension	4000
d)	Number of Households eligible for Ration Card	4526
e)	Number of eligible HHs having ration cards	-
f)	Number of households covered under RSBY (Rashtriya Swasthya Bima Yojana)	0
g)	Number of HHs covered under AABY (Aam Aadmi Bima Yojana)	0
h)	Number of active Job Card holders under MGNREGA	0
i)	Number of Job Card holders who completed 100 days of work during 2013-14	0
j)	Number of shops selling alcohol	0
k)	Number of BPL families	3212
l)	Number of landless households	0
m)	Number of IAY beneficiaries	0
n)	Number of FRA[2] beneficiaries	0
o)	Number of Community Sanitary Complexes	0
p)	Number of Households headed by single women	32
q)	Number of Households headed by physically handicapped persons	7
r)	Total number of Persons with Disability in the village	12
s)	Number of SHGs	0
t)	Number of active SHGs	0
u)	Number of SHG Federations	0
v)	Number of Youth Clubs	4
w)	Number of Bharat Nirman Volunteers	6

Name and Signature of Surveyor and Respondent'

Surveyor	PRI Respondent (Preferably Gram Panchayat Chairperson)	Official (Preferably senior most Government official in the Gram Panchayat)	Date of Survey
		તલાટી કમ મંત્રી કોલટ ગ્રામ પંચાયત તા: સાણંદ	

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

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: Kolat

b. Ward Number: -

c. Gram Panchayat: Kolat Gram panchayat

d. Block: -

e. District: Ahmedabad.

f. State: Gujarat

g. Lok Sabha Constituency: -

h. Number of Habitations / Hamlets in the Gram Panchayat: -

i. Names of Habitations / Hamlets:

- NO

Demographic Information

Number of Households 858 Total Population 5645 Male 3195 Female 2450

SC HHs - ST HHs - OBC HHs - Other HHs -

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	Y	2km
b.	Nearest Middle School	Y	0
c.	Nearest Secondary School	Y	0
d.	Kisan Seva Kendra	-	
e.	Milk Cooperative /Collection Centre	Y	0
g.	Health Sub Centre	Y	0
h.	Bank	-	-
i.	ATM	Y	4km
j.	Bus Stop	1	0
k.	Railway Station	Y	6 km

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

1

સરપંચશ્રી કોલટ ગ્રામ પંચાયત
સુભાનભેન કે. મોમીન

7/9

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: Kolat

b. Ward Number: -

c. Gram Panchayat: Kolat Grampanchayat

d. Block: -

e. District: Ahmedabad

f. State: Gujarat

g. Lok Sabha Constituency: -

h. Number of Habitations / Hamlets in the Gram Panchayat: -

i. Names of Habitations / Hamlets:

- NO

Demographic Information

Number of Households 858 Total Population 5645 Male 3195 Female 2450

SC HHs - ST HHs - OBC HHs - Other HHs -

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	Y	2km
b.	Nearest Middle School	Y	0
c.	Nearest Secondary School	Y	0
d.	Kisan Seva Kendra	-	
e.	Milk Cooperative /Collection Centre	Y	0
g.	Health Sub Centre	Y	0
h.	Bank	-	-
i.	ATM	Y	4km
j.	Bus Stop	1	0
k.	Railway Station	Y	6km

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

1

સુભાનભેન કે. મોમીન
સરપંચશ્રી કોલટ ગ્રામ પંચાયત
સુભાનભેન કે. મોમીન

SAANSAD ADARSH GRAM YOJANA (SAGY) Village Details Survey Questionnaire

i.	Access to Infrastructure / Facilities / Services	Located in the Village Yes (Y)/No(N)	If located elsewhere (N), distance in kms from the village
l	Library	N	6 km
m	Common Service Centre	N	6 km
n	Veterinary Care Centre	N	6 km

ii. Road Connectivity

a. Habitations connected by All-weather Roads *(1-All 2-None 3-Some)*
If 3 mention the name of the habitations where not available: All

iii. Drinking Water Facilities

a. Piped Water Supply Coverage to Habitations: All *(1-All 2-None 3-Some)*
If 3 mention the name of the habitations not covered: _____

b. Hand Pump Coverage in Habitations: All *(1-All 2-None 3-Some)*
If 3 mention the name of the habitations not covered: _____

iv. Coverage of Habitations under Waste Management System

a. Coverage under Covered Drains: None *(1-All 2-None 3-Some)*
If 3 mention the name of the habitations not covered: _____

b. Coverage under Open Drains: Some *(1-All 2-None 3-Some)*
If 3 mention the name of the habitations not covered: _____

c. Coverage under Doorstep Waste Collection: *(1-All 2-None 3-Some)*
If 3 mention the name of the habitations not covered: None

v. Coverage of Habitations under Electrification

a. Coverage under Household Connections: *(1-All 2-None 3-Some)*
If 3 mention the name of the habitations not covered: Some

b. Coverage under Street Lighting: All *(1-All 2-None 3-Some)*
If 3 mention the name of the habitations not covered: Some

vi. Sports Facilities in the Village

a. Number of Play Grounds in the Village (minimum size 200 square meters): _____
b. Mini Stadium : N Yes(Y) /No (N)

vii. Education, ICDS

a. Number of Anganwadi Centres: 4

c. Schools (Number)

Primary Private: – Primary Govt.: 1
Middle Private: – Middle Govt.: –
Secondary Private: – Secondary Govt.: 1
Higher Secondary Private: – Higher Secondary Govt: –

2

સુભાનબેન કે મોમીન
સરપંચશ્રી કોલટ ગ્રામ પંચાયત
સુભાનબેન કે. મોમીન 4

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	886	d.	Pasture / Grazing Land	-	g.	Check Dam	-
b.	Irrigated Land	526	e.	Forests/ Plnatations	-	h.	Wells/Bore Wells	4
c.	Un-irrigated Land	360	f.	Other Common Land	-	I	Tanks /Ponds	1

ix. Entitlement Related Parameters		
1	Number of active Job Card holders under MGNREGA	0
2	Number of active Job Card holders who have completed 100 days of work	0
3	Number of shops selling alcohol	0
4	Number of BPL families	3215
5	Number of landless households	0
6	Number of IAY beneficiaries	0
7	Number of FRA beneficiaries	0
8	Number of common sanitation complexes	0
9	Number of SHGs	0
10	Number of active SHGs	0
11	Existence of SHG Federation in the Village (Yes / No)	0
12	Number of Youth Clubs	2
13	Number of Bharat Nirman Volunteers	6

Name and Signature of Surveyor and Respondent'

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)	Date of Survey
		તલાટી કમ મંત્રી કોલટ ગ્રામ પંચાયત	

3

સરપંચશ્રી કોલટ ગ્રામ પંચાયત
સુમનબેન કે. મોમીન

Chapter-20

TDO-DDO-Collector email sending Soft copy attachment

Khushi Sheth<khushisheth99@gmail.com>
To: tdo-ahd@gujarat.gov.in, ddo-ahd@gujarat.gov.in
Cc: parth.sinroza@ljinstitues.edu.in

Gujarat Technological University

Development scenario of Kolat Village, Sanand, A'bad

Respected Sir/Madam,

We are the students of L.J Institute of Engineering & Technology,Sanand Ahmedabad affiliated to Gujarat Technological University-GTU. GTU has been assigned to Vishwakarma Yojanaa- VY in which students survey various village and ***Designs vArious AMENities To Deliver*** **it to** them making them ideal for living better life as per requirements & 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 Kolat Village profile of issues for development and our design work for them which is as below.

Village : Kolat		**Population: 4327(As of Census 2011)**
Key Issue	**Remark**	**Design Given**
Medical Facilities	There were no basic medical facility available in the village, and due to this villagers need to go to city for any treatment during emergencies. In order to get basic medical facilities	· Public Health Care (PHC) · Maternity Home
Network & Technology	Giving priorities to internet facilities for the students & villages for the purpose of studies & work.	· Common service Centre (CSC) · Library
Solid Waste Management	For the disposal of biodegradable waste & use them as fertilizer for farming.	- Septic Tank
Heritage Purpose	To attract tourists we have proposed design of Temple.	· Temple
Public facilities	Few things were lacking in the village, there is no provision for post office, police station.	· Post Office · Police Station · Cremation centre
To enhance cottage Industries	To increase women empowerment & to increase employment opportunities inside the village.	· Bakery Shop
Recreational Area	Currently villagers are not having any place for social gatherings, even there is no facility for any sports activities	· Community Hall · Sports & yoga centre

Sr.No	Design Name	Period (Months)	Amount Expenditure	Benefit
1	Septic Tank	5	Rs.44,978	This will solve problem of disposing Biodegradable waste.
2	Library	3	Rs. 5,04,895	For students to achieve their goals
3	PHC	8	Rs.14,63,288	For Medical Purpose
4	Community Hall	Within 1 year	8,86,993	For social gatherings & to celebrate ceremonies
5	CSC	1-2 year	Rs. 4,82,462	For Betterment of students & villagers regarding any internet work.
6	Temple	2 years	Rs.381669	Heritage Spot for tourist
7	Cremation center	6	Rs.5,26,745	Villagers were deprived of such facility.
8	Maternity home	9	Rs.9,67,038	For medical purpose
9	Police Station	1 year	Rs.13,19,548	For solving criminal & social disputes of the village.
10	Post Office	4	Rs.13,03,150	Villagers were deprived of such facilities.
11	Sports & Yoga center	6	Rs.10,82,588	For recreation purpose
12	Bakery Shop	5	Rs.12,91,160	To enhance women empowerment

- ***Please find here with attached***,

1. Detailed Project Report Of Kolat Village

Best REGARDS,
Khushi Sheth,
Jahal Chudasama,
U.G. Civil Engineering
L.J Institute of Engineering & Technology, Sanand Ahmedabad.
Gujarat Technological University
Gmail – khushisheth99@gmail.com
Gmail – jahalchudasama416@gmail.com

Chapter-21

21. Comprehensive report for the entire Village

Vishwakarma Yojana is one of the initatives by Gujarat Government to urbanize rural areas of the country. Through Vishwakarma Yojana, we can get real work experience in our field, we can be a part to contribute towards development of our country.

Our aim is to urbanize Indian Village, whatever is there in the city it must be in the village too, so that villagers need not to face any difficulties & migration of villagers can be eliminated.

We visited our allocated village KOLAT which was 5 km away from Sanand headquarters & 22kms away from Ahmedabad headquarters. The area of the village was around 1009 hectares. The population of the village is approximate 4327.

Firstly we did techno-economic survey to know present scenario of the village. We interact with the villagers & sarpanch they were very co-operative, they help us in giving various details about the village, problems faced by the villagers in terms of infrastructure, & difficulties arises due to lack of basic amenities

In particular, the development work in villages that could be carried out as required by the village includes physical infrastructure facilities (Water, Drainage, Road, Electricity, Solid Waste Management, Storm Water Network, Telecommunications & Other), social infrastructure facilities (Education, Health, Community Hall, Library, Recreation Facilities & Other and renewable energy (Rain water harvesting, Biogas plant) for sustainable development.

There was a lack of cleanliness in the village. There were no adequate facilities for solid waste management on the streets of the village. We also proposed constructing a septic tank to decompose biodegradable waste.

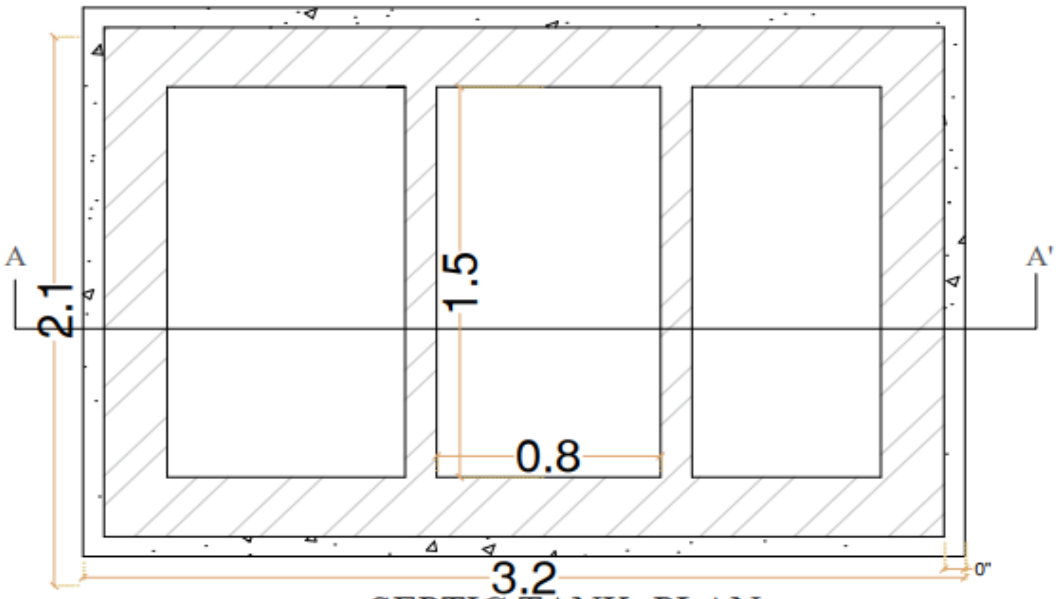
In the village, there was no community hall. We have suggested the construction of a community hall to help villagers celebrate festivals, birthdays and marriage ceremonies with lots of fun and happiness.

There were no police station, no post office facilities, no cremation center facilities in the village. Due to these the villagers were facing many difficulties, by providing such facilities difficulties will be minimized & villagers need not to go outside for performing such activities.

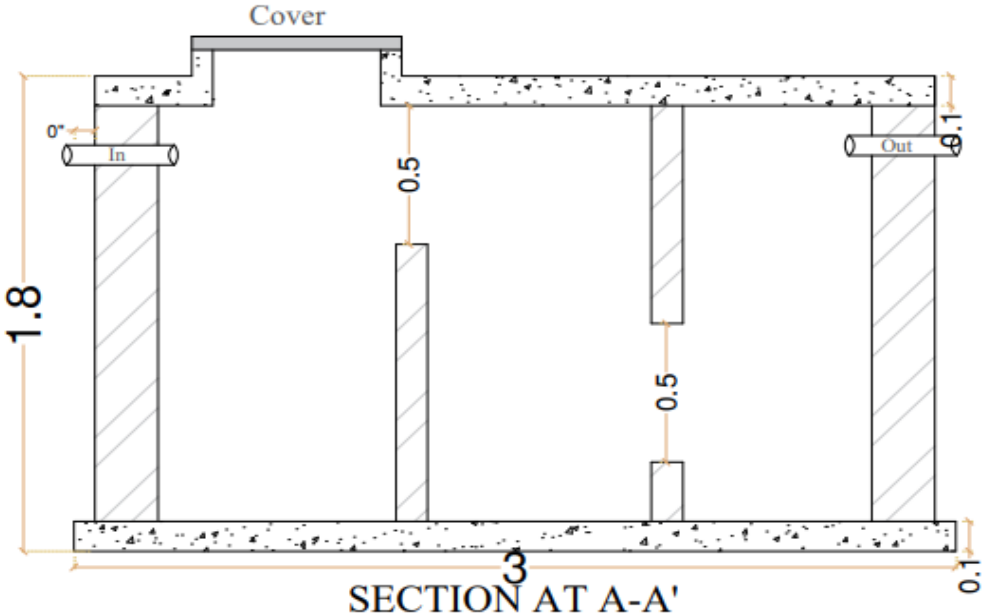
Along with this, we also want to do something for women empowerment, this can be done by giving one chance to cottage industries, so we decided to provide a bakery store so that women can be involved in making bread, biscuits, sweets this will help women to empower themselves, show their skills & to be independent.

With all the smart amenities that a city has, our goal is to grow our village. This will help to grow the village in a sustainable way by reducing villagers' migration and avoiding urban pressure from the cities. The future scenery for urbanization can be sustainable by improving Rural India.

1. SEPTIC TANK

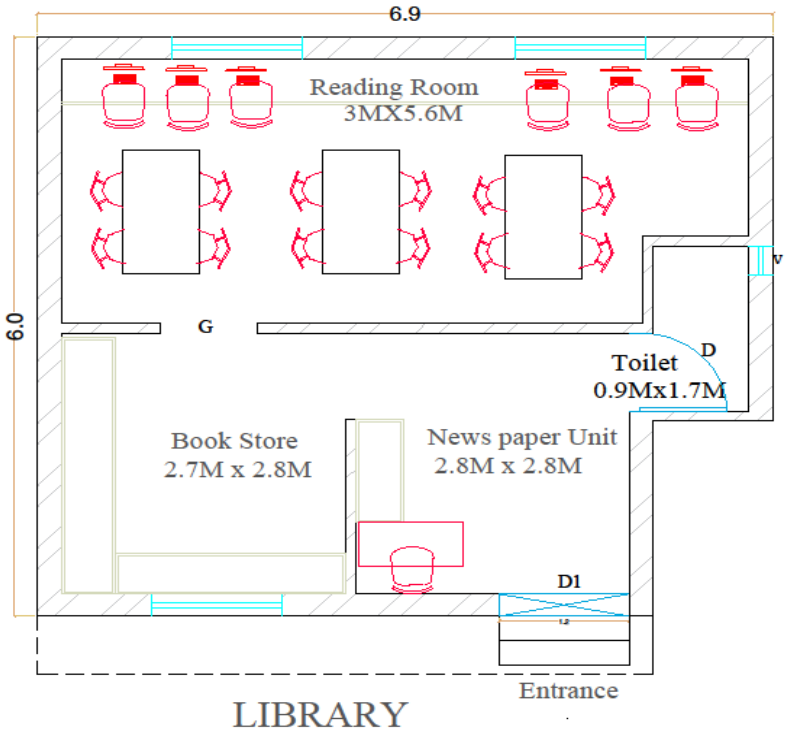


SEPTIC TANK PLAN

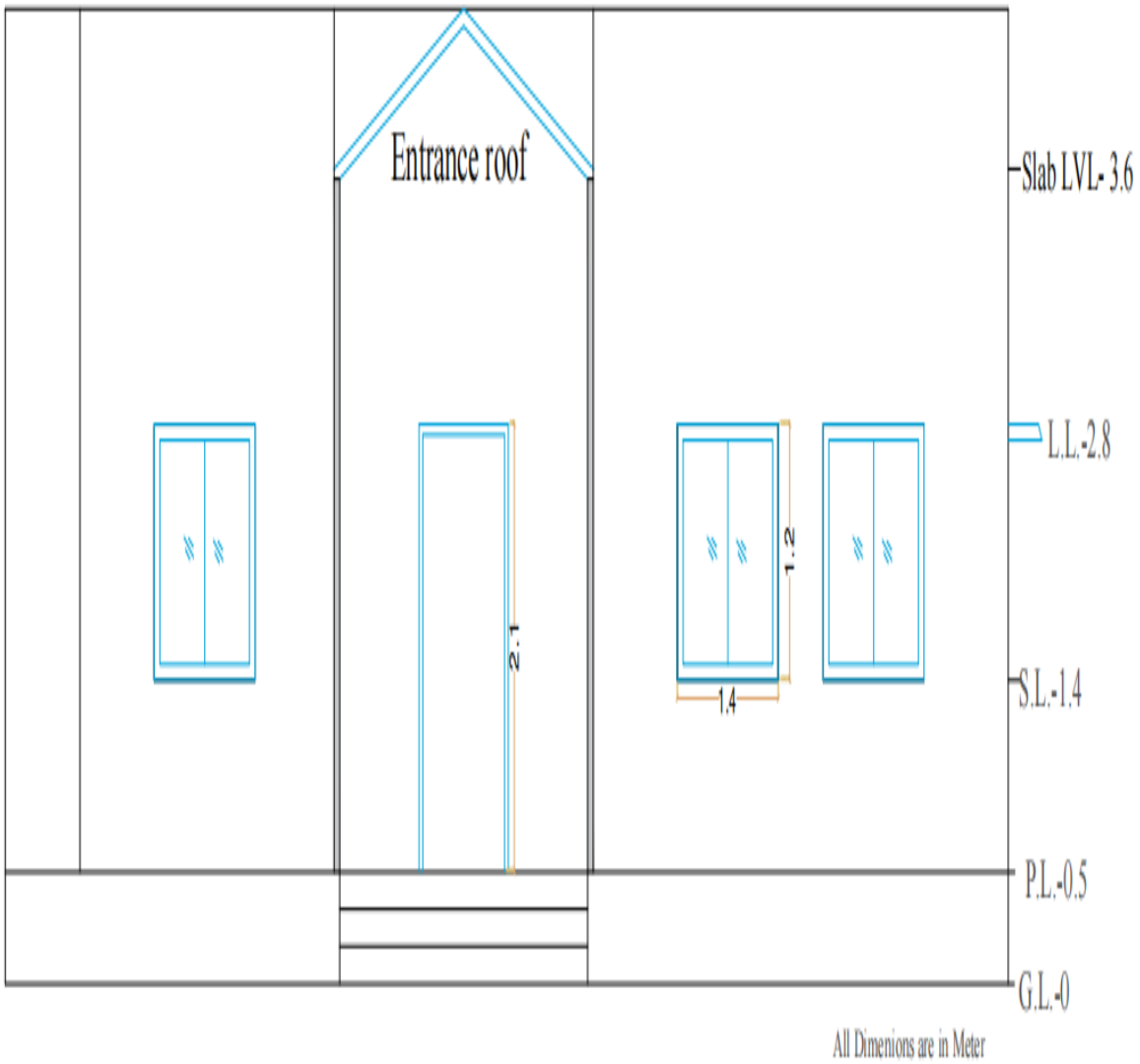


SECTION AT A-A'

2. LIBRARY

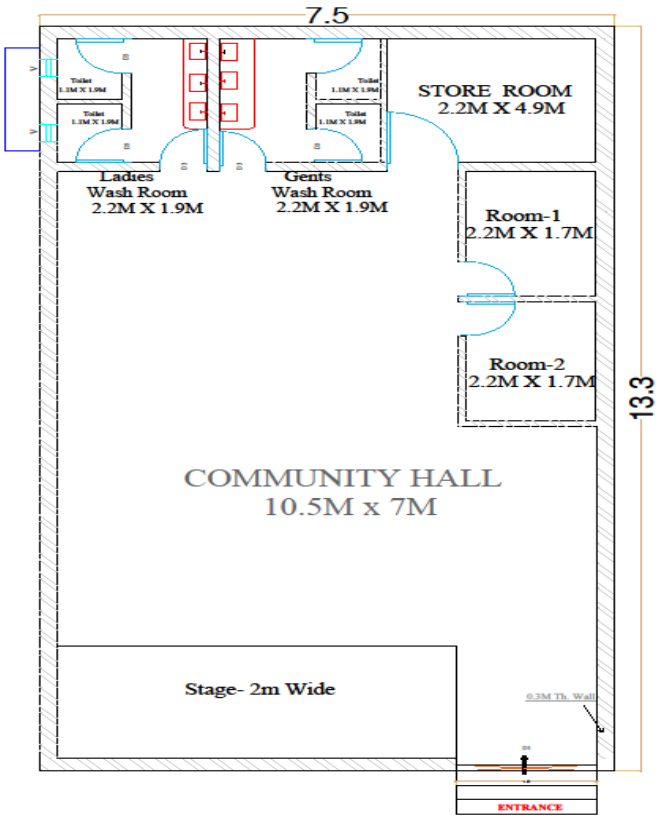

6.9
Reading Room
3MX5.6M
6.0
G
Toilet
0.9Mx1.7M
D
Book Store
2.7M x 2.8M
News paper Unit
2.8M x 2.8M
D1
Entrance
LIBRARY

3. PHC



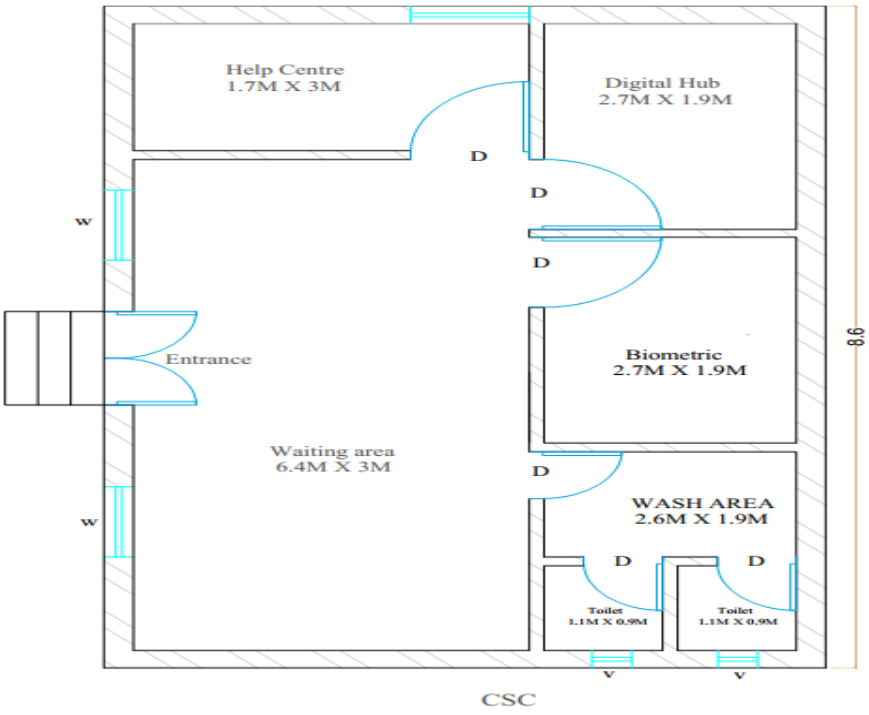
ELEVATION OF P.H.C

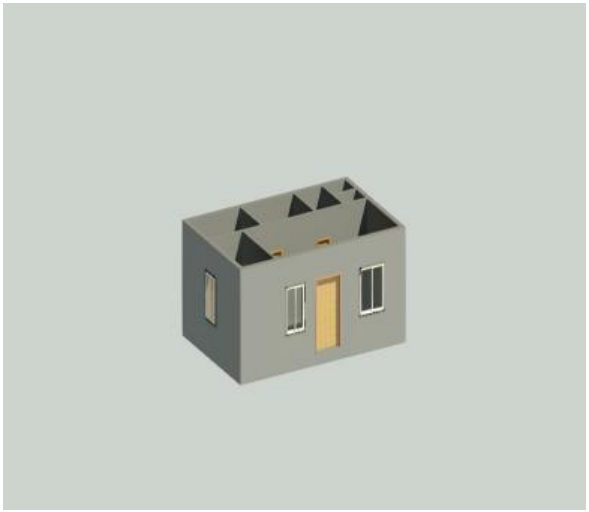
4. COMMUNITY HALL



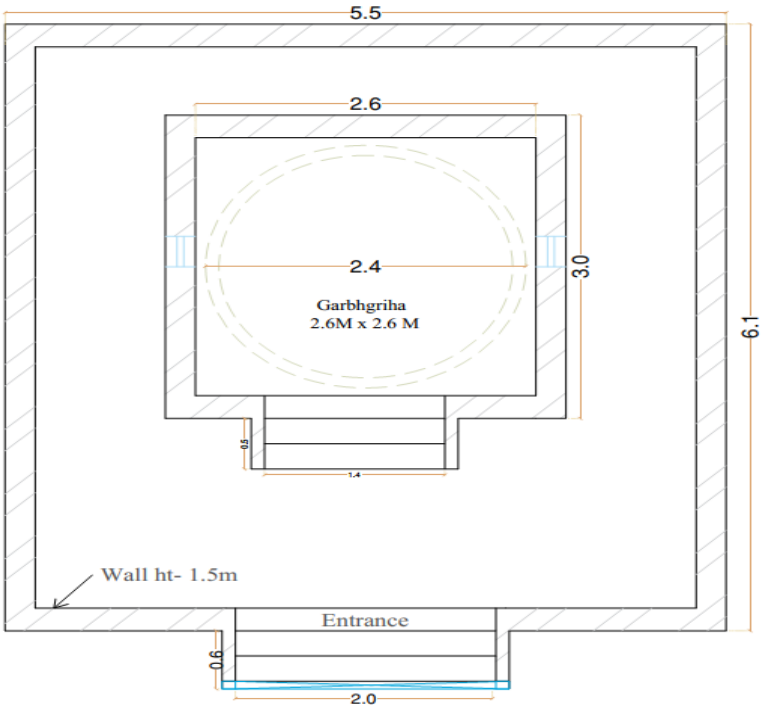
COMMUNITY HALL

5. CSC

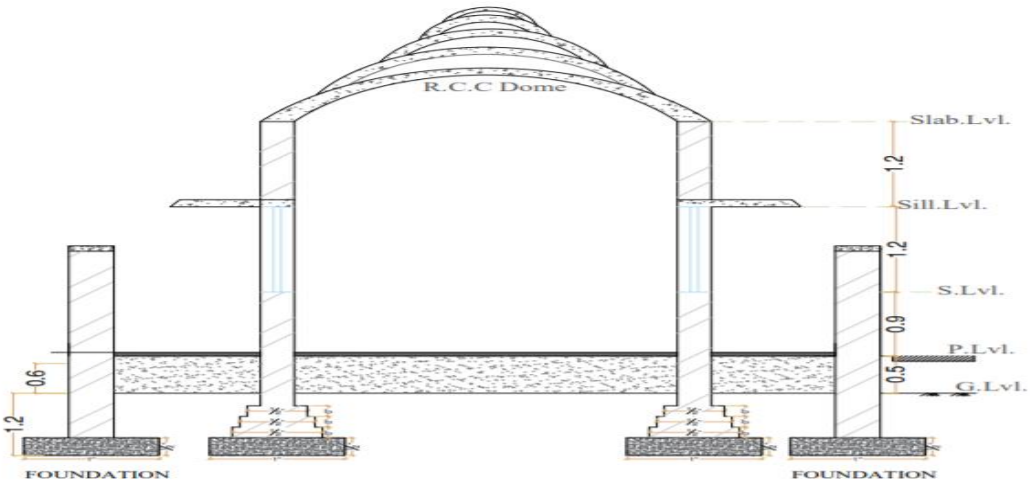

Help Centre
1.7M X 3M
Digital Hub
2.7M X 1.9M
D
D
D
W
Entrance
Biometric
2.7M X 1.9M
8.6
Waiting area
6.4M X 3M
D
WASH AREA
2.6M X 1.9M
W
D
D
Toilet
1.1M X 0.9M
Toilet
1.1M X 0.9M
V
V
CSC



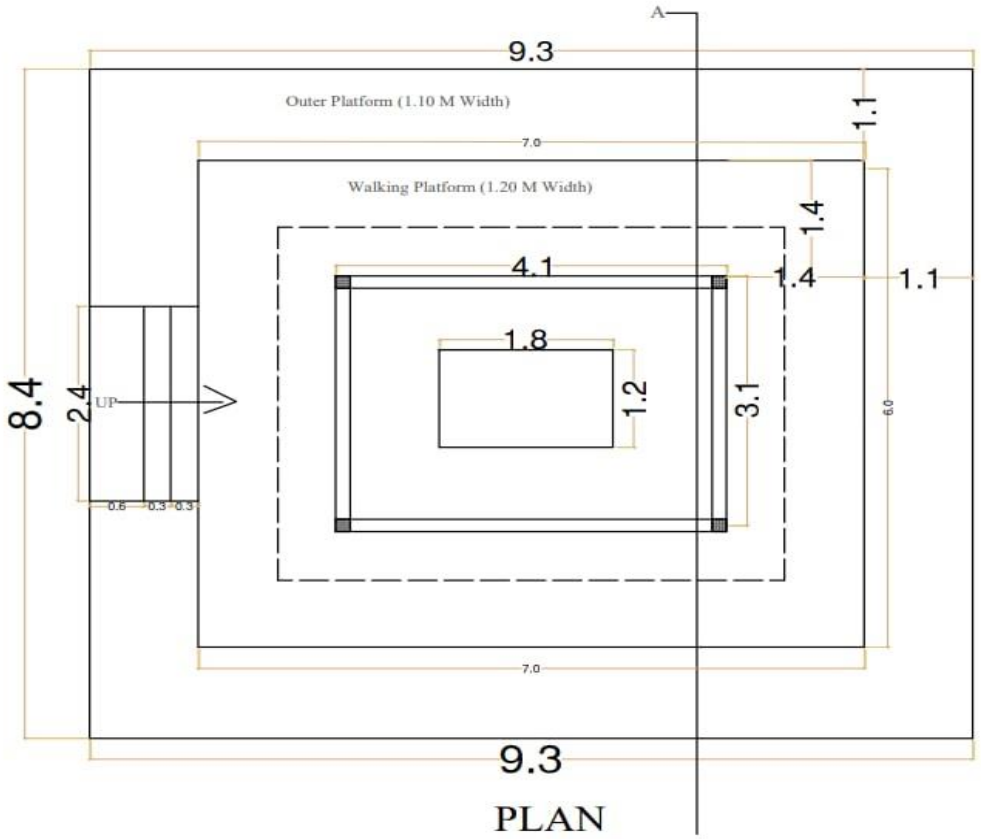
6. TEMPLE



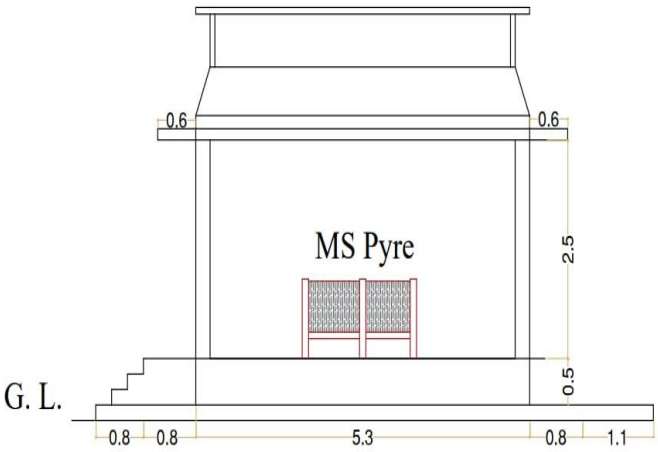
TEMPLE

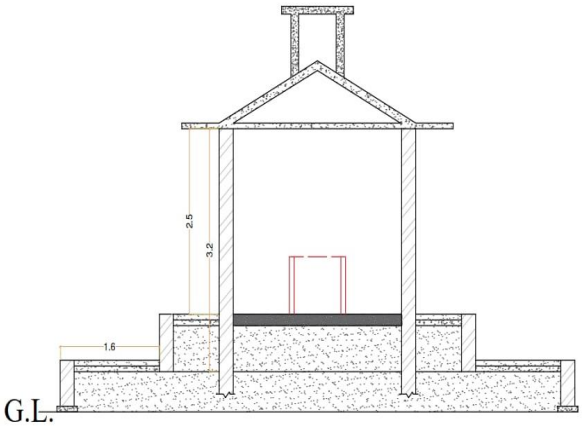


7. CREMEATION CENTRE



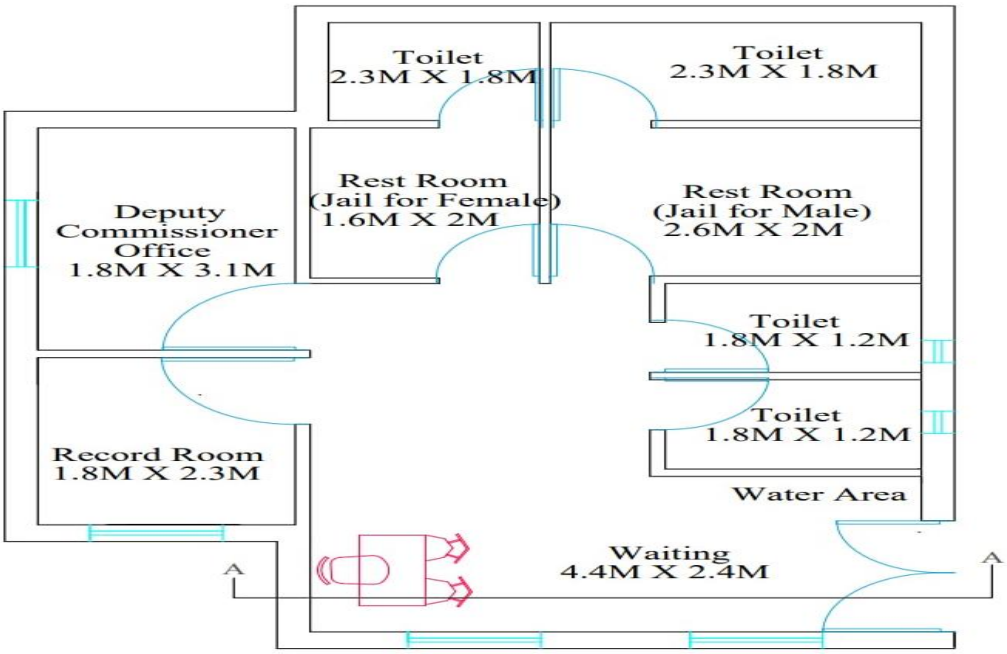
PLAN

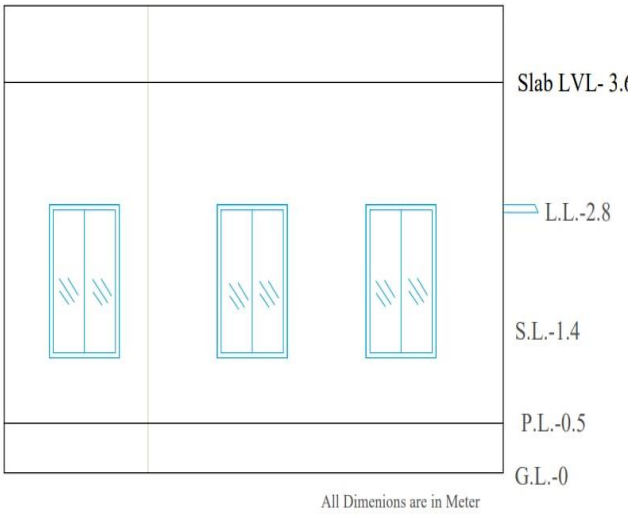


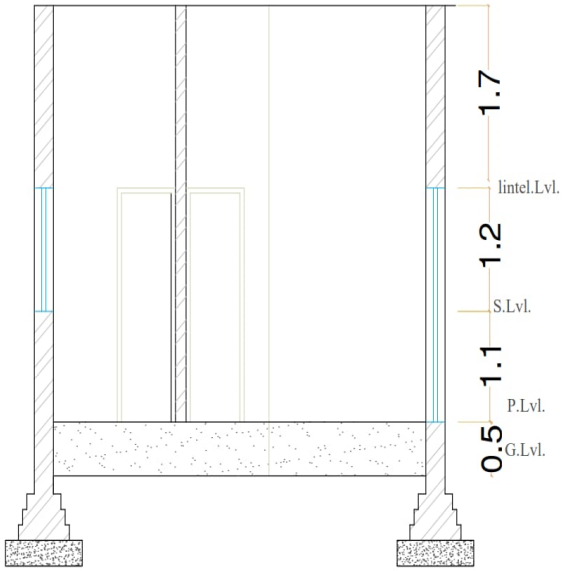


Section A-A

8 .POLICE STATION

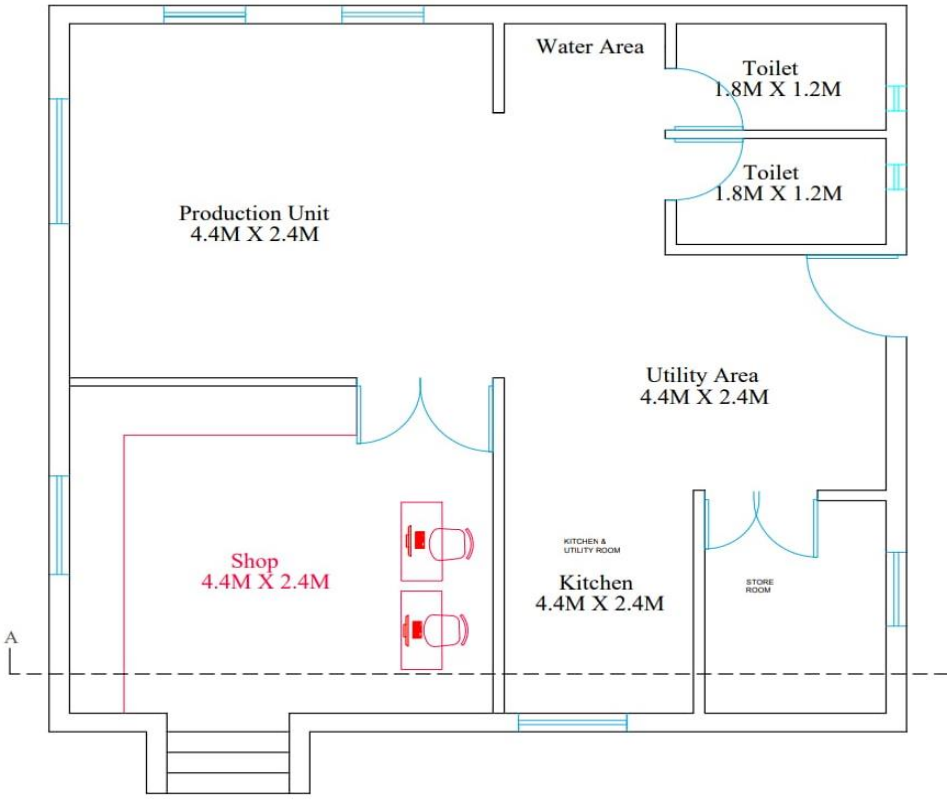


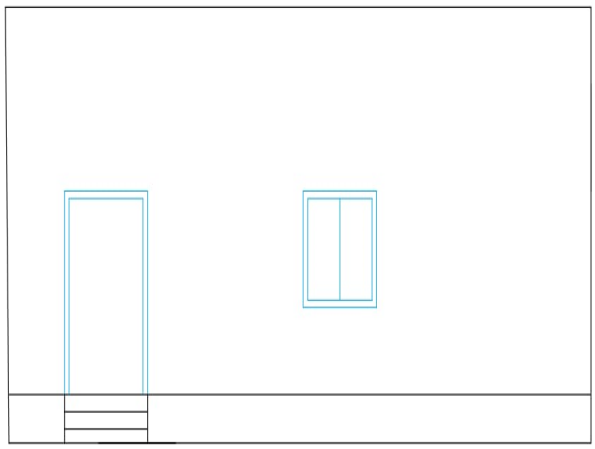




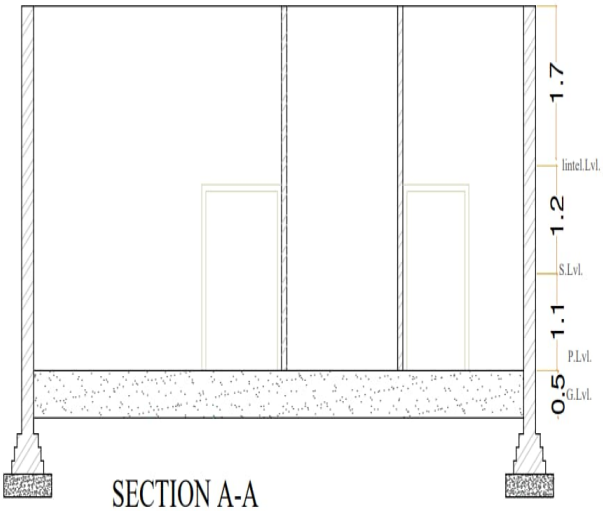
SECTION A-A

9 .BAKERY



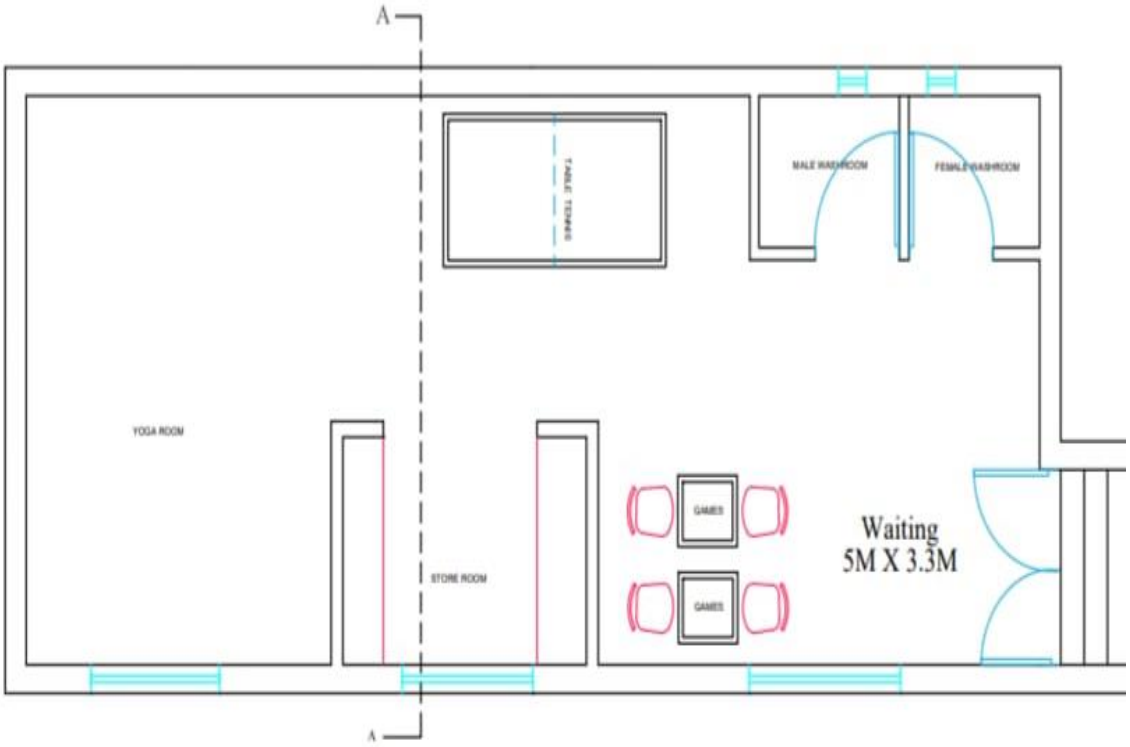


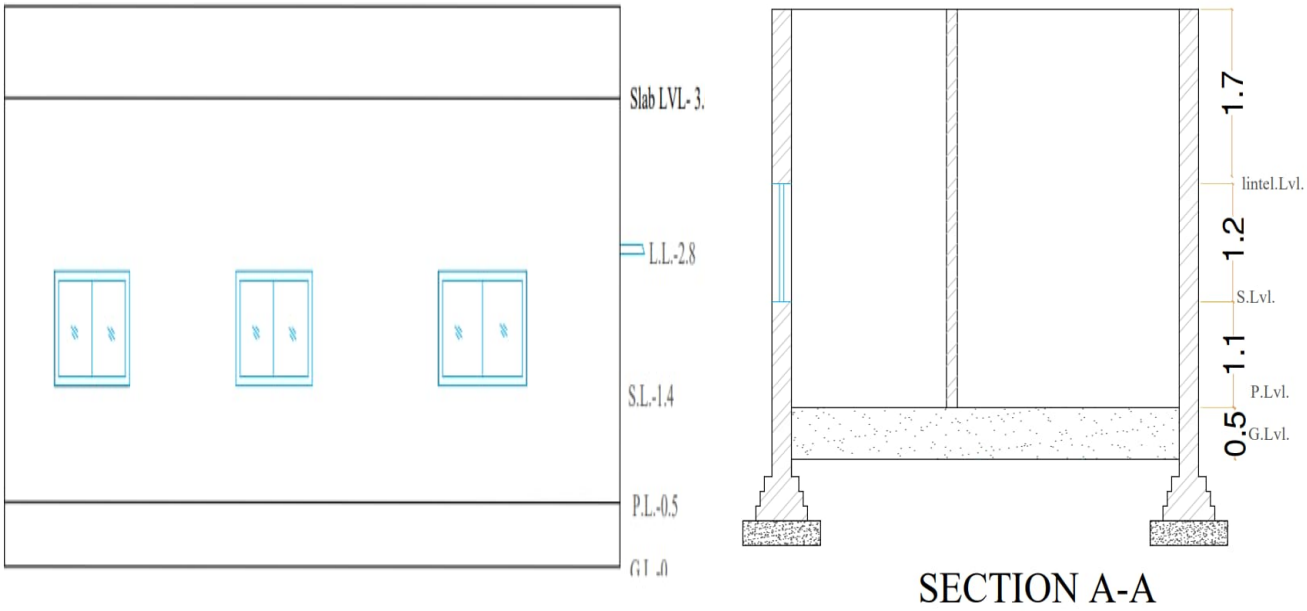
ELEVATION



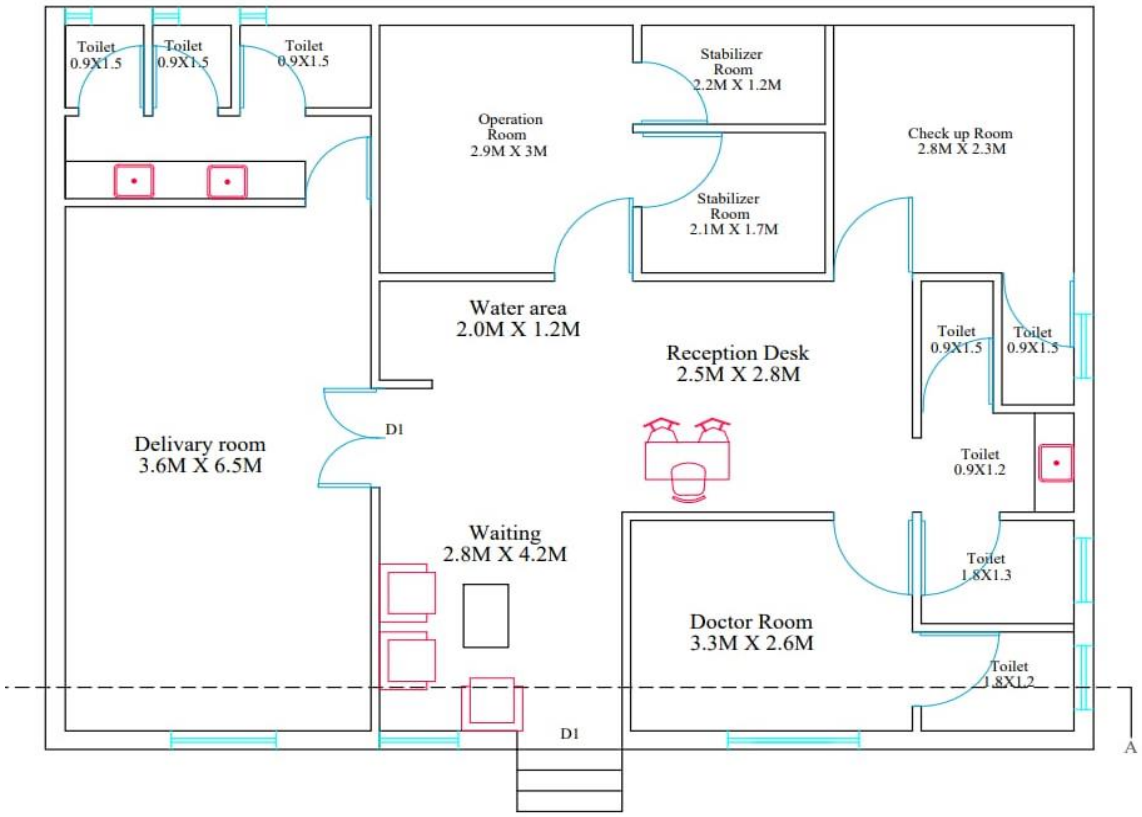
SECTION A-A

10. SPORTS ROOM

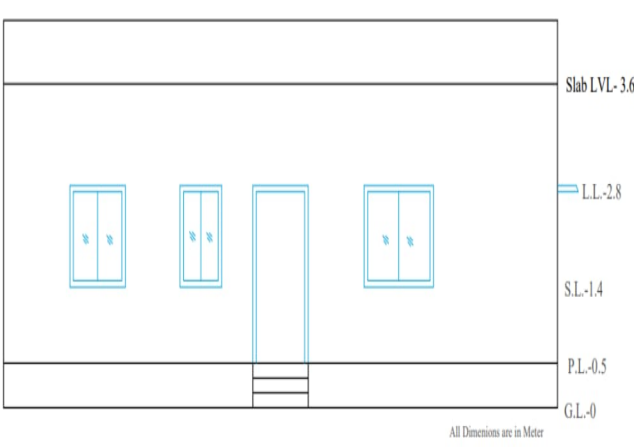


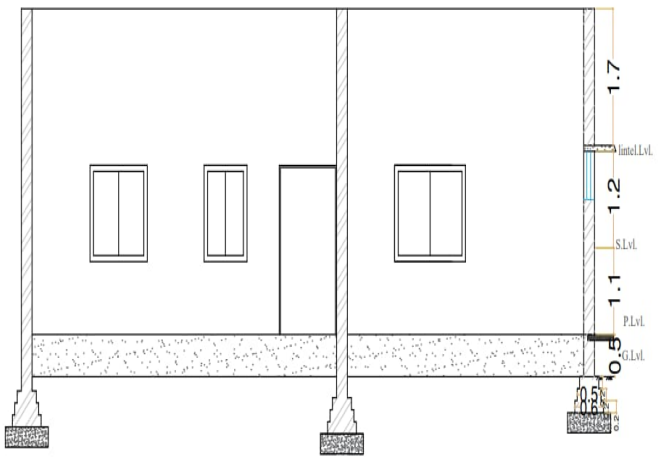


11 .MATERNITY HOME



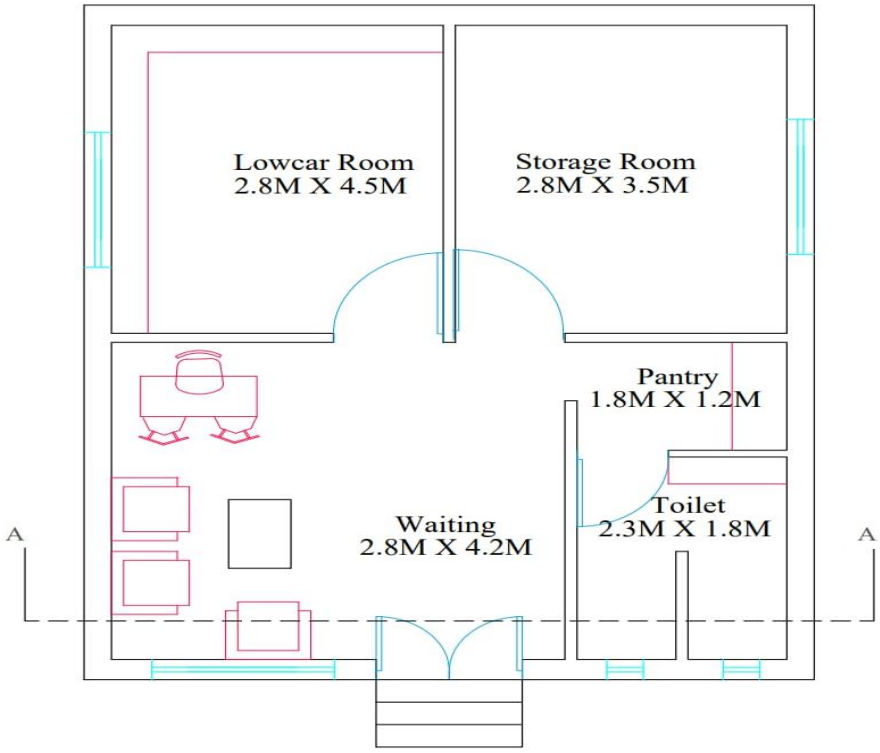
PLAN

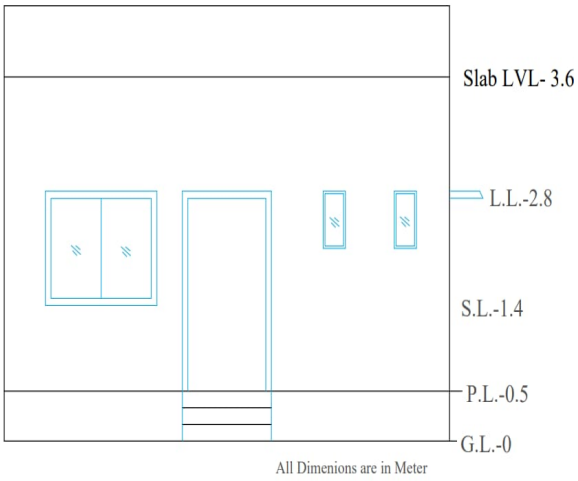




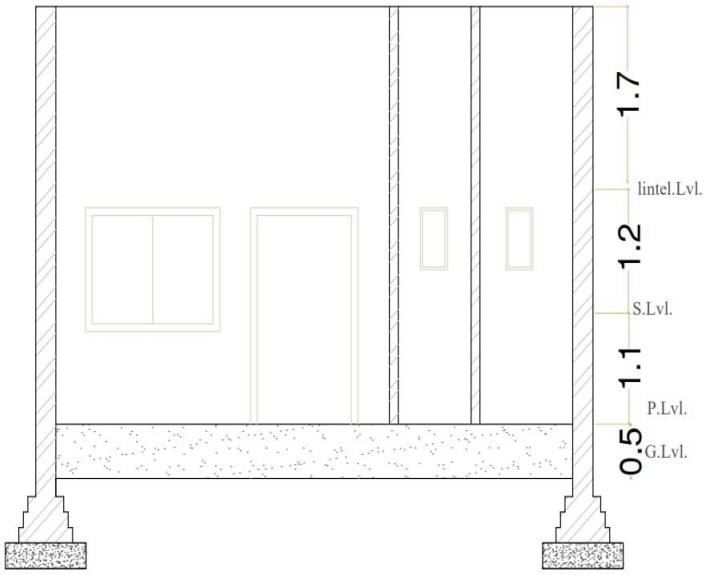
SECTION A-A

12 .POLICE STATION


Lowcar Room
2.8M X 4.5M
Storage Room
2.8M X 3.5M
Pantry
1.8M X 1.2M
Toilet
2.3M X 1.8M
Waiting
2.8M X 4.2M
A
A


Slab LVL- 3.6
L.L.-2.8
S.L.-1.4
P.L.-0.5
G.L.-0
All Dimenions are in Meter

ELEVATION


1.7
lintel.Lvl.
1.2
S.Lvl.
1.1
P.Lvl.
0.5
G.Lvl.