DETAIL PROJECT REPORT

VISHWAKARMA YOJNA: VIII
AN APPROACH TOWARDS RURBANISATION
MADHI Village

SURAT District

PREPARED BY

STUDENT NAME	BRANCH NAME	ENROLLMENT NO
Ramani Mitul Arvindbhai	Civil Engineering	170060106063
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NODAL OFFICER

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BHAGWAN MAHAVIR EDUCATIONFOUNDATION

YEAR:2020-21

GUJARAT TECHNOLOGICAL UNIVERSITY
Chandkheda,Ahmedabad– 382424 Gujarat

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CERTIFICATE

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

Detail Project Report for,

VILLAGE MADHI

DISTRICT SURAT

Under

VishwakarmaYojana: Phase-VIII

In partial fulfillment of the project offered by
GUJARAT TECHNOLOGICAL UNIVERSITY, CHANDKHEDA

During the academic year 2020-21.

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

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VY-Nodal Officer Name and Signature:	Assistant prof.Dixit Chauhan
Internal(Evaluator) Guide Name and Signature:	Assistant prof.Dixit Chauhan
College Name:	BHAGWAN MAHAVIR COLLAGE OF ENGINEERING AND TECHNOLOGY
College Stamp:	

ABSTRACT

VishwakarmaYojana project and how you do your vision project: Mainly the VishwakarmaYojana project is proposed to develop rural area like urban and provide basic amenities to rural peoples ,make sure that connects with nearest town or city so that they can get any extra facilities as soon as in short distance.

About your village description: my selected village is madhi, which situated near Bardoli. It has geographical area about 828 hectares, and population of 7650. Madhi has basic facilities like water,electricity, and most roads are also good.

About existing village condition**:** current condition of madhi is like more development needed because it has huge population but some facilities are not there like solid and liquid waste system ,they directly release liquid waste in to the river so it pollute the river water also and there are construction running to make road in some part of village

About your proposed designs your view for village development**:** in the village development there is more important to provide basic amenities like public toilets, libraries, road conditions, transportation and the latest technology equipment. so we decided for the design library, hospital, forestation also one public gardens needed so we decided to develop riverfront , attractive village entrance gate and

About future scope of the village development:By introducing above mentioned amenities all the facilities can be made available to villager'swhich May reduce the migration. This will sustain the culture of cooperative living. Socioeconomic Development will occur giving a sense of livelihood to the dwellers yet maintaining the essence of a Village. And in part 2 we have decided some designs for future scope of the village development as, Rain water harvesting, Bank, Public garden, solid waste management, Skill development center and Solar street lights and dustbins.

Key Words:Rurbanization, sustainable development,ruraldevelopment, urban development, socioeconomic Development.

ACKNOWLEDGEMENT

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

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

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

We express our sincere thanks to **Commissioner ate 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.

Especially our thanks are to all villagers and stake holders for their support during Survey.

We are also thankful to our**Dr.VineetgoelPrincipal**, faculties of our colleges for their encouragement and support to complete this project work.

An act of gratitude is expressed to our internal guide / Evaluator / Nodal Officer,**Assistant prof. Dixit Chauhan from collegeBHAGWANMAHAVIR**for their invaluable guidance, constant inspiration and active involvement in our project work.

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

We are also thankful to **Ms. Darshana Chauhan, VishwakarmrmaYojana**, for all support during our work. We therefore, take this opportunity for this Project work expressing our deep gratitude and sincere thanks for her cooperation to produce this project work in the present form.

Above all we would like to thank our Parents, family members and Friends for their encouragement and support rendered in completion of the present this work.

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ABBREVIATIONS

SHORT NAME / SYMBOL	FULL NAME
VY	Vishvakarmayojana
AS	Abstract Sheet
MS	Measurement Sheet
RP	Riverfront Park
Hos	Hospital
PL	Public Library
CM	Community hall
FS	Fire Station
EG	Entrance Gate
PHC	Primary health centre

PMAY	Pradhan Mantri Awas Yojna
SC	Sub centre
PT	Police station
VM	Vegetable market
Med S	Medical shop
SDC	Skill development centre
ER	Earth resistant

CHAPTER 1.ideal village visit from district of Gujrat state

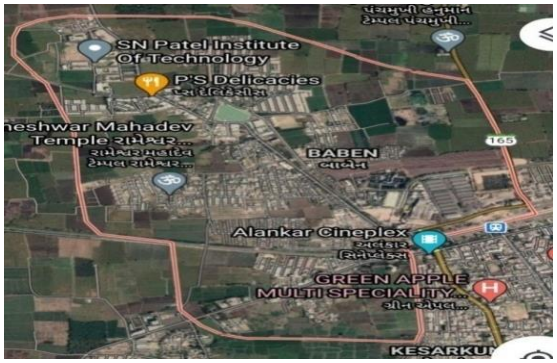


FIG1.1A-baben village map

FIG 1.1.B - conversation with madhi sarpanch

1.1 Background & study area location

We (RAMANI MITULARVINDBHAI, NISHABAHEN SONAWALA) have visited the ideal Village BABEN. The town is situated in northern part of the municipality, right near the main Bardoli railway station. It is located 31 KM towards East from District head quartersSurat. Here villagers enjoy all the facilities that one living in that one living in the city does.

The 2-km road from Bardoli to Baben gives a commuter the feeling of passing through a highway.Baben is a Census Town city in district of Surat, Gujarat. The Baben Census Town has population of 15,610 of which 8,642 are males while 6,968 are females as per report releasedbyCensusIndia2011.

Population of Children with age of 0-6 is 2121 which is 13.59 % of total population of Baben (CT). In Baben Census Town, Female Sex Ratio is of 806 against state average of 919. Moreover Child Sex Ratio in Baben is around 822 compared to Gujarat state average of 890. Literacy rate of Baben city is 75.70 % lower than state average of 78.03 %. In Baben, Male literacy is around 82.55 % while female literacy rate is 67.18 %.

Baben Census Town has total administration over 3,146 houses to which it supplies basic amenities like water and sewerage. It is also authorize to build roads within Census Town limits and impose taxes on properties coming under its jurisdiction.

We take contributions from real estate developers, who come to develop land and houses in the village and use that money to develop basic amenities for the residents of the village," said Baben gram panchayat president BhaveshPatel.

Different real estate agent are invested in Baben for development.Dilip Patel who developed avadh lake he said “we wantedto develop farmhouses scheme.

Study area location:-BABEN is situated near the Bardoli which is ideal Village .there is 1634hectors. Agricultural area is 400 hectors.

Number of Households	3146

Population	15,610
Male Population	8,642
Female Population	6,968
Child sex-ratio	822
Sex-ratio	806
Literacy	75.70 %
Male Literacy	82.55 %
Female Literacy	67.18 %
Scheduled Tribes(ST)	2260
Scheduled Caste(SC)	1892

TABLE 1.1 A– Baben population data

1.2Concept: idealVillage, Normal village

Smart Village is a concept adopted by national, state and local governments of India, as an Initiative focused on holistic rural development, derived from Mahatma Gandhi's KvisionofAdarsh Gram (Ideal Village) and Swaraj (Self Reliance). Almost 70 percent of the Indian Population lives in villages. Therefore it is natural that for inclusive development, the Government must focus on them preserving the sustainability of villages will positively impact Cities in the long run.

A village is a small settlement usually found in a rural setting. It is generally larger than a "hamlet" but smaller than a "town". Some geographers specifically define a village as having between 500 and 2,500 inhabitants. In most parts of the world, villages are settlements of people clustered around a central point.

The concept of SMART Village is as defined below:

S	Social, Skilled and Simple	Zero Tolerance for Caste and Creed or better no caste & creed and no discrimination on Gender and Religion Everyone is Literate and skilled Simple living and high thinking
M	Moral, Methodical and Modern	Moral values of Gandhi, Swami Vivekananda etc Methodical using Total Literacy and latest techniques Modern like cities
A	Aware, Adaptive and Adjusting	Highest level of awareness on global social & economic issues Adaptive and adjusting to fast changing environments
R	Responsive and Ready	Responsive to collective wisdom, cooperative movement & larger social issues Ready to generate own resources for self-sufficiency and self-reliance
T	Techno-Savvy and Transparent	Techno-savvy for IT and Mobile usage Transparent in harmonic relations and delivery of services

TABLE 1.2 A-definition of smart village

1.2.1Objective

- India lives in its village. Villages are the food basket of the nation. The concept of "Smart Village" will address the multiple challenges faced for sustainable development of rural India.

- To provide an institutional mechanism for the community to be informed of health programmes and government initiatives and to participate in the planning and implementation of these programmes, leading to better outcomes.
- To provide a platform for convergent action on social determinants and all public services directly or indirectly related to health.
- To provide an institutional mechanism for the community to voice health needs, experiences and issues with access to health services, so that the institutions of local government and public health service providers can take note and respond appropriately.
- In to empower Panchayat with the understanding and mechanisms required for them to play their role in governance of health and other public services and to enable communities through their leadership to take collective action for the attainment of better health status in the village.
- To provide support and facilitation to the community health workers – ASHA and other frontline health care providers who have to interface with the community and provide services.
- A ‘‘Smart Village” will Encompass a sustainable and inclusive development of all sections of the village community, so as they enjoy a high Standard of living.

1.2.2Example / live case study of ideal Village of India /Gujarat

“Swarajya (self-governance) to Surajya (good governance)” has been hailed as the mantra for rural development in the state of Gujarat. Thegood governance model of this prosperous state from western part of India has been a matter of study for quite some time now. A number of Schemes have been launched in the past decade, such as AdarshGram,Smaras Gram, Tirth Gram, SardarAwas, and Paawan Gram, to develop rural areas in Gujarat. The present paper adopts a constructive approach and aims to explore and understand the successful experiment of BABEN Village. The official document of the state government of Gujarat on smart and model village defines a model village as “a village which has foresight for the development and proper planning to keep the village clean, healthy ,green, pollution free, crime free, and disease free withco-ordination of various community development and welfare schemes of Government. Smart village means a village which wishes to increase facilities for the citizen by taking decisions democratically. Smart village meansavillage in which the youth, women, farmers, village artisans, backward,and deprived people may get equal opportunity for development.” (Sengupta, 2014). These guidelines aim to offer a design of rural development that focuses not only on improving economic indicators of development but also on bettering the social indicators of development such as health, sanitation, education, women’s empowerment, inclusiveness, etc. In this process, the Gram Panchayat has to play a pivotal role.

1.2.3 The idea of model / Smart Village

The definition of Smart Village as think that it must be all the basic amenities like public toilets, public health centers, cleanroads, sanitation facilities, water distribution system and electric connection are very necessary.

FIG.1.2.3.A-apart of smart village

1.2.4 Ancient History Civil / Electrical concept about Indian Village / other Countries Perspective about village and its new Development

There is sufficient evidence to suggest that the village was one of the important settlements in ancient India. The Rig Veda talks about the gram to which various families owed their allegiance. Valmiki's Ramayana talks of two types of villages the ghosh and the gram. The ghosh was smaller than the gram and was also known as vraja, or brij (signifying a cattle farm). Both types of villages had their officials, called the mahattar. There is also a reference to a senior official called gramani or gramik.

The Mahabharata talks of different types of settlements, for example, ghosh or brij (cattle farm), palli (small hutments), gram (villages around the forts or durgs), kharvata or pattan (towns), and pur, puri, nagar (cities of different types). The villages were linked with one another, culturally, socially and administratively.

The administrator of ten villages was called dashi; of 20 villages, vinshati; of 100 villages, shati, and of over 1,000 villages, sahasragramadhipati. This is a clear indication of the interlink-ages between the villages. Kautilya'sArthashastra suggests that river, hill, forests, ditches, tanks, bunds or trees demarcated village boundaries. He prescribed that villages should be situated at distances of one or two krosha (in Rajasthan, it is spelt as koss, which is the equivalent of two miles or 3.219 km) from each other so that in times of need, one village could go to the help of the other.

Rural development is the process of improving the quality of life and economic well-being of people living in rural areas rural development has traditionally centered on the exploitation of land-intensive natural resources such as agriculture and forestry

1.3 Detail study (Socio economic, physical, demographic and infrastructure details) of Ideal village / Smart Village with photograph

Demographic:-

There is the population of BABEN in 2011 is 15,610 and total households is 5278.Population of male in 2001 is 4576 and 2011 is 8642, female population of 2001 and 2011 is respectively 3801 and 6968.

Nsus Town, Female Sex Ratio is of 806 against state average of 919. Moreover Child Sex Ratio in Baben is around 822 compared to Gujarat state average of 890. Literacy rate of Baben city is 75.70 % lower than state average of 78.03 %. In Baben, Male literacy is around 82.55 % while female literacy rate is 67.18 %.

Following pie chart is shown that the percentage of people and religion which they belong to.

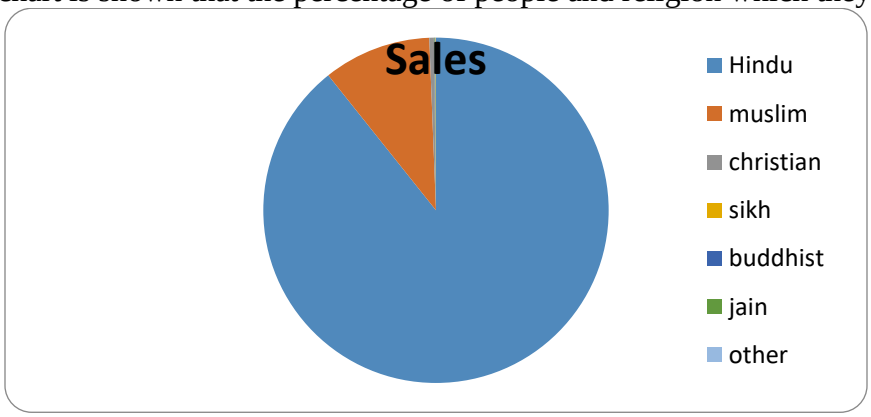


FIG1.3A-percentage of people by various religions

	Total	Male	Female
Total worker	6628	5152	1476

Main worker	5955	4727	1228
Main workers cultivators	131	125	6
Agriculture labourer	1071	638	433
Household industries	65	56	9
Other workers	4688	3908	780
Marginal Workers	673	425	248
Non Working Persons	8982	3490	3490

TABLE1.3A-worker details

Education:-

FIG1.3 B-primary school baben

FIG1.3C-primary school baben

FIG1.3D-secondary school baben

FIG1.3E-secondary school baben

Primary school of BABEN which is shown above in pictures. there is Adarshprimary school is situated in BABEN we can see there are 4 floor in school and the school is big enough .and they have also higher secondary school name that VashishthaVidhyalay.

Water supply: BABEN have overhead water supply tank which has different capacities are between 20000 to 50000 liters. They are using bore wall and hand pumps also for water supply. They have 5 hand pumps and 3 boreholes in village. They have drainage facilities in both way open and closed drainage. They have 3 puccadrainage and 4 kutchcha drainage.

FIG1.3F- overhead tank

FIG1.3G-roads of baben

Roads:-Baben is smart village so the roads are wide and clean. The roads are almost 12 m wide. we can see the roads in figure.Thereis all weather approach roads available. For railways transportation the railway station is only 2km far from BABEN. Bus station is available in baben.there is also available local transportations.

FIG1.3H-baben's road

1.4 SWOT analysis of Ideal village / Smart Village

Strength	Weakness	Opportunities
Wide roads, Easy transportation, Tourists attraction, Good water supply, Water supply for crops, Garbage disposal, Cleanliness,	Socio-cultural facilities are not enough,	Renewable energy sources

TABLE1.4A-swot analysis

1.5 Future prospects of Development of the Ideal village / Smart Village

It is clear that the situations and challenges in developing urban and rural area are different due to the constraints and Opportunities. The components taken in to notice will alter from region to region for villages, founded on the available Resources and opportunities. Some generalized guidelines for the development of Smart Villages Based on various programs Undertaken taken by Central and state governments along with advanced technological initiatives, the Smart Village can Achieve SMART infrastructure, SMART service delivery, SMART technology and innovation, SMART institutions along With optimal mobilization and utilization of available resources, leading a head to faster and more inclusive growth. Economic, Environmental, social components will encircle a sustainable and inclusive development of all sections of the Village community, so as they enjoy a high standard of living.

1.6 Benefits of the visits of Ideal village / Smart Village

Benefits to visit of ideal Village is we can know that how is smart village work and how it is build. What are the facilities available in the Smart Village so we can clear of thought that how a smart village development has been done.

Benefits of visit to ideal Village is that because we can take a smart village as a reference and develop normal village so we can give all facilities as much as possible like ideal Village.

From visit we can know that which facilities are available in the ideal Village, from visit we can also imagine that which facilities or basic amenities are need to village and what the situation of villages' infrastructure is so we can develop it as like ideal Village.

So many benefits of ideal village visitwerethere, like we can know the all facilities about like Water supply network, Pucca roads, LED Street lights, Drainage network, Waste disposal, Water storage tanks and so on that all facilities we were seen over there.

1.7Civil aspects required in Ideal village / Smart Village

A literature review is a survey and critical analysis of what has been written on a particular topic, theory, question or method.

- Purpose of literature review:
- Justify your research
- Provide context of your research
- Highlight flaws in previous research
- Show where your research fits into the existing literature

  The literature reviews guide detailed information on the process of searching for and producing literature reviews.

  The Baben village reviews the research literature related to the importance of consumer awareness activities in encouraging the adoption of electrical vehicles. Based on the literature, we identify specific actions implemented around the world to promote consumer awareness and understanding. Finally, this section provides an initial catalogue of the various outreach activities that are in place in leading electrical vehicle markets.
- Ideal Village have all the basic facilities what there is most of percentage of House is pucca

- There is available all type of working opportunity and they have advance equipments for working in civil or also for agricultural use
- An ideal Village has all morden facilities like education facilities, security system and transportation system.

CHAPTER 2.Literature Review – (Civil)

2.1 Introduction: Urban & Rural village concept

Urban village concept:-

In urban planning and design, an urban village is an urban development typically characterized by medium-density housing, mixed use zoning, good public transit and an emphasis on pedestrianization and public space. Urban village we can say which has population over 5000, moreover it has to be population density of 500 person per sqkmor more than that. Lastly, most population, 75% people who are workingwithnon-agricultural activities that is known as urban village.

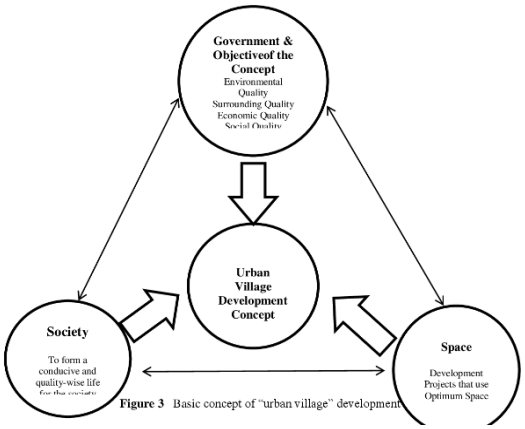


Figure 3 Basic concept of "urban village" development

Urban villages are seen to provide an alternative to recent patterns of urban development in many cities, especially decentralization and urban sprawl. FIG2.1A-basic concept of urban development

Contemporary urban village ideas are closely related to New Urbanism and smart growth ideas initiated in the United State.

Rural village concept:-

A rural area or countryside is a geographic area that is located outside towns and cities.

The Health Resources and Services Administration of the U.S. Department of Health and Human Services defines the word rural as encompassing "all population, housing, and territory not included within an urban area. Whatever is not urban is considered rural. there is some key to know the rural village properly that in that type of village the population density will be always less than 400 persons prsqkm,in addition which type of village is not considered in municipal co-operation moreover, the agricultural activities or parallel actives which consider in agriculture had been done by most male power which should be at least 75%. rural area is also known as which area is far from the centre of city and which has not even noticeable population that is the rural area.

Typical rural areas have a low population density and small settlements. Agricultural areas are commonly rural, as are other types of areas such as forests.

2.2 Importance of the ruraldevelopment

The development of all aspects within rural communities is vital for the effective development of the country. To provide basic need to then who are in rural India and after all India's about 2/3 population is living in rural Indial so it is needed to develop rural area to develop India.

These include, education, employment opportunities, infrastructure, housing, civic amenities and the environmental conditions.

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

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

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

2.3 Ancient Villages / Different Definition of: Rural Urban Villages

Designing effective policies for economic development often entails categorizing populations by their rural or urban status. Yet there exists no universal definition of what constitutes an "urban" area, and countries alternately apply criteria related to settlement size, population density, or economic advancement.

In this study, we explore the implications of applying different urban definitions, focusing on Tanzania for illustrative purposes.

Designing effective policies for economic development and sustainable rural transformation, and monitoring progress toward the associated policy goals, often entails categorizing populations by their rural or urban status.

We can define rural area by some factors like it has less literacy rate, it doesn't have basic amenities like primary education ,unemployment, unavailability of health resources ,standard of living people is low ,lack of advance facilities, less population density.

- **Size of the Community:** The village communities are smaller in area than the urban communities. As the village communities are small, the population is also low.
- **Density of Population:** As the density of population is low, the people have intimate relationships and face-to-face contacts with each other. In a village, everyone knows everyone.
- **Agriculture is the Main Occupation:** Agriculture is the fundamental occupation of the rural people and forms the basis of rural economy. A farmer has to perform various agricultural activities for which he needs the cooperation of other members. Usually, these members are from his family. Thus, the members of the entire family share agricultural activities. That is the reason why Lowry Nelson has mentioned that farming is a family enterprise.
- **Close Contact withNature:**The rural people are in close contact with nature as most of their daily activities revolve around the natural environment. This is the reason why a retaliate is more influenced by nature than an urbanite. The villagers consider land as their real mother as they depend on it for their food, clothing and shelter.
- **Homogeneity of Population:** The village communities are homogenous in nature. Most of their inhabitants are connected with agriculture and its allied occupations, though there are people belonging to different castes, religions and classes.
- **Social Stratification:**In rural society, social stratification is a traditional characteristic, based on caste. The rural society is divided into various strata on the basis of caste.
- **Social Interaction:**The frequency of social interaction in rural areas is comparatively lower than in urban areas. However, the interaction level possesses more stability and continuity. The relationships and interactions in the primary groups are intimate. The family fulfills the needs of the members and exercises control over them.

It is the family, which introduces the members to the customs, traditions and culture of the society. Due to limited contacts, they do not develop individuality and their viewpoint towards the outside world is very narrow, which makes them oppose any kind of violent change.

- Social Mobility:In rural areas, mobility is rigid as all the occupations are based on caste. Shifting from one occupation to another is difficult as caste is determined by birth. Thus, caste hierarchy determines the social status of the rural people.
- Social Solidarity:The degree of social solidarity is greater in villages as compared to urban areas. Common experience, purposes, customs and traditions form the basis of unity in the villages.
- Joint Family: Another characteristic feature of the rural society is the joint family system. The family controls the behavior of the individuals. Generally, the father is the head of the family and is also responsible for maintaining the discipline among members. He manages the affairs of the family.

2.4 Scenario: Rural / Urban village of India population Growth

The urban population of India has seen a rise from 17.1 per cent to 29.2 per cent between 1950 and 2015. Meanwhile, the rural population declined from 82.9 per cent (in 1915) to 2015's 67.2 per cent. The speculation for the year 2050 suggests that the urban-rural segregation will be 52.8 and 47.2 with a difference of 5.6 per cent. The population growth rates in both urban and rural areas suggest a similar story. The urban rate has consistently overpowered the total population growth rate over the last seventy years. This trend is set to continue for the next 30 years. There was a clear increase in the population growth rate from 1950 to 1975. But, the growth rate took a hit as a result of the forced sterilization program under the Indira Gandhi government. The urban population saw a steep decline following the implementation of the sterilization program with the growth rate decreasing to 3.35 from 3.84 in the year 1975.The report suggests that the rural population growth rate will turn negative in the next fifteen years. Thus, in 2050, it is expected to be 1.06, in contrast to the urban growth rate of 1.54.The report suggests that the rate of urbanization, which has been increasing since 1950, is expected rise further till 2035. It is supposed to start decreasing slightly in the next few years. Within a decade of globalization, the rate of urbanization increased by one-third of its previous growth. This has resulted in stress on the country's urban conglomerations; Delhi, Chennai, Kolkata, and Mumbai being four among them. The swelling of the population in the cities has been a result of labor migrations that have taken place in the past decade because of industrial growth. This created millions of employment opportunities for the rural poor. The national capital, Delhi, especially has seen an explosion of population. It saw a 26-time increase since 1950 when the population was just a million people. The current population of the national capital is 28 million, which equals to half of the population of all the ten ASEAN country capitals combined. Kolkata has seen a three-time increase in the urban population while Mumbai's population has increased by over six-fold since 1950. Bangalore, the new entrant on the list, in 2015 crossed the 10 million-mark, ten times the number of people in 1950s. All these cities will see a further rise in the population in the next fifteen years.

Population	Total	1,210,854,977
	Males	623,724,568
	Females	586,469,294

Literacy	total	74%
	males	82.10%
	females	65.46%
Density of population	Per sq km	382
Sex ratio	Per 1000 males	940 females
Child sex ratio(0-6 age ratio)	Per 1000 males	914 females

TABLE2.5A-census detail of India in 2011

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

Description	Rural	Urban
Population	57.40%	42.60%
Total population	34,694,609	25,745,083
Male population	17,799,159	13,692,101
Female population	16,895,450	12,052,982
Population growth	9.31%	36.00%
Sex ratio	949	880
Child sex ratio (0-6)	914	852
Child population (0-6)	4,824,903	2,952,359
Child population (0-6)	13.91%	11.47%
Literates	21,420,842	19,672,516
Average literacy	71.71%	86.31%
Male literacy	81.61%	90.98%
Female literacy	57.78%	70.26%

TABLE2.5B-census details of rural and urban population

2.6 Rural Development Issues – Concerns – Measures

PROBLEMS IN RURALDEVELOPMENT

- following problems in rural development:

1. PEOPLE RELATED PROBLEMS

• Traditional way of thinking,Poor understanding, Low level of education to understand developmental efforts and new technology, Lack of confidence,Poor awareness, Low level of education.

2. AGRICULTURE RELATED PROBLEM

• Lack of expected awareness, knowledge, skill and attitude.

• Poor marketing facility.

• Insufficient extension staff and services.

• Multidimensional tasks to extension personnel

• Small size of landholding.

3. INFRASTRUCTURAL RELATED PROBLEM

Poor infrastructure facilities like: water, electricity, transport, educational institutions, communication, health, employment, storage facility etc.

4. ECONOMIC PROBLEMS

• Unfavorable economic condition to adopt high cost technology.

• High cost of inputs.

Under privileged rural industries

5. LEADERSHIP RELATED PROBLEM

• Leadership among the hands of inactive and incompetent people.

• Self interest of leaders.

6. ADMINISTRATIVE PROBLEMS

• Political interference, Lack of motivation and interest, Unwillingness to work in villages, Improper utilization of budget, No proper monitoring of programs and lack in their implementation in urban area problem.

Rural development

The people of India live mostly in rural areas (villages). Therefore, it is in the heart ofthe villages that the nation lives. Indeed, “the soul of India is in the toil of the rural areas”.

The welfare of India depends upon the prosperity of the villages.

Ways and Means of Rural Development:

After our independence, the conditions of the villages have been improved. TheProblems of our villages are many and various. For their solution, intelligent guidance of boththe government and the people is needed.

The ways and means of rural development:

1. Education of the masses

2. Establishment of night schools for adults

3. Improvement of sanitation

4. Provisions for cheap medical aid

5. Construction of good roads

6. Establishment of co-operative credit societies

Educated people should go to the villages and settle there. Mass education should beintroduced to remove the ignorance of the villagers. It should be made both compulsory and free. Night schools should be set up for the adults to teach them elementary Hygiene and Scientific methods of cultivation.

For the improvement of sanitation, jungles should be cut down. Arrangements should be made for supply of pure drinking water on a large scale. Tube-wells should be sunk, new well and ponds should be dug, every village should be equipped with a hospital and a charitable dispensary for providing proper medical aid to the villagers.

Roads and other means of communication in the rural areas should be improved. The Government should teach the farmers scientific methods of cultivation and supply themwithImplements of agriculture.

Co-operative Credit Societies should be set up to advance loans to the peasants. Arbitration boards should settle disputes and differences. Cottage industries should receiveEncouragement Educational films should be exhibited.

Good libraries should be provided in every village. In this way, each village should be developed into a self-sufficient unit. It is a happy sign that our government is doing its best to improve the condition of the villages through various schemes of rural uplift. It's the progress Hitherto made has not been up to the mark.School and college students can do a lot of work for rural development.

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

Importance of infrastructure facilities:-

It needs to be emphasized that good quality infrastructure is important not only for faster economic growth but also to ensure inclusive growth. By inclusive growth we mean that benefits of growth are shared by the majority of the people of a country. Thus the inclusive growth will lead to the alleviation of poverty and reduction in income inequality in the country.
For example, micro, small and medium enterprises (MSME) are dispersed throughout the economy and production by them and their growth require access to quality and reliable infrastructure services to compete efficiently with large-scale enterprises which can often build some of their own infrastructure such as installing their own small power plants or generators.

Besides, large-scale firms can even locate themselves near ports and near transport hubs where required infrastructure is available.
Small enterprises, on the other hand, are dispersed widely in the economy and have to rely on the availability of the general infrastructure facilities. Thus, by building up general infrastructure facilities helps the small enterprises to compete successfully with large-scale industries and being labor-intensive generate large employment opportunities for the workers. This will help to alleviate the poverty in developing countries.

scope of infrastructure facilities in rural /India

Infrastructure is the backbone of any country. It plays a very important role in supporting nation's economic growth and the same is the case with India. If we talk about rural infrastructure in the country, then it is crucial for agriculture, agro-industries and poverty alleviation in the rural areas. Typically, rural infrastructure in the country encompasses rural roads, major dams and canal works for irrigation and drainage, rural housing, rural water supply, rural electrification and rural telecommunication connectivity.

2.9Other Projects / Schemes of Gujarat / Indian Government

- Central Government Sponsored programmes
- Prime Minister Employment Generation Scheme (PMEGP)
- DeendayalAntyodayYojana-National Rural Livelihood Mission (DAY-NRLM)
- DeendayalAntyodayYojana-National Urban Livelihood Mission (DAY-NULM)
- Pradhan Mantri Mudra Yojana (PMMY)
- Pradhan MantriAwasYojana (PMAY)
- Stand-up India Scheme

1. DeenDayalUpadhyayGrameenKaushalYojna:

I. This is a placement linked skill development scheme for rural poor youth.
II. It was launched by on 25 September 2014 by Union Ministers Nitin Gadkari and Venkaiah Naidu on the occasion of 98th birth anniversary of PanditDeendayalUpadhyay. III. It aims to target youth, under the age group of 15–35 years.
III. A total of 52000 candidates have been skilled under this programme till 2014-15.

2. PradhanMantri Gram SadakYojana

Rural Road Connectivity is not only a key component of Rural Development by promoting access to economic and social services and thereby generating increased agricultural incomes and productive employment opportunities in India, it is also as a result, a key ingredient in ensuring sustainable poverty reduction.
Hence, Government launched the Pradhan Mantri Gram SadakYojana on 25th December, 2000 to provide all-weather access to unconnected habitations. The Ministry of Rural Development along with state governments is responsible for the implementation of PMGSY.

3. PradhanMantriAwasYojana (Gramin)

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

In pursuance to the goal - Housing for all by 2022, the rural housing scheme Indira AwasYojana has been revamped to Pradhan MantriAwasYojana – Gramin and approved during March 2016. Under the scheme, financial assistance is provided for construction of pucca house to all houseless and households living in dilapidated houses. The scheme would be implemented in rural areas throughout India except Delhi and Chandigarh. The cost of houses would be shared between Centre and States.

CHAPTER 3. Smart (Cities / Village) Concept Idea and its Visit

3.1 Introduction: Concepts, Definitions and Practices

Concept:-

Smart Village is a concept adopted by national, state and local governments of India, as an initiative focused on holistic rural development, derived from Mahatma Gandhi's vision of AdarshGram (Ideal Village) and Swaraj (Self Reliance).

Smart Village was one of concepts for the developed villages in India. This concept was developed by Viswanadham and Vedula in their book entitled “Design of Smart Village”. A smart village model followed a model from smart city as an effect of integrated technology changes to be implemented in the remote areas. The aim of smart village was to help it solve all problems through the implementation of ICT (Information and Communications Technology) and GIS (Geographic Information System). Nowadays, Indonesia has implemented the concept of “nawacita” for regional development; this program prioritized the development in rural area. Smart village concept focused on the role of technology in building governance and public services. Technology used by Muke and Nilesh in their research was able to be used by people lived in rural area in order to improve their quality of life. The use of technology utilized by villagers was able to make them become more responsive. Smart village model based on the concept of “Access to Information for Everybody” in which ICT (Information and Communications Technology) service was reached easily by villagers through IIIC program. Smart village model developed by N. Viswanadham and S. Vedula was called as smart village ecosystem covering 4 aspects; 1) Institution, 2) Resources, 2) Service Chain and 4) Service delivery technologies & mechanism. Besides, there were 7 focus areas in smart villageincluding economy, ICT, people, governance, environment, living and energy . Smart village existed because of ICT awareness that was able to be utilized as the instrument as the efforts of local economic development. The use of technology became a main factor in creating smart village. Materials Science and Engineering technology in smart village had important roles such as investing in the infrastructures, business development, human resources, potential and community building.

Definitions and practices:-

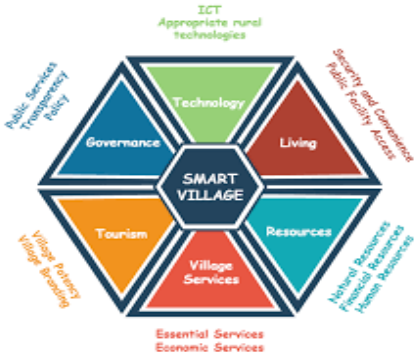
Abstract Smart Village refers to a concept developed in rural area that provides solutions to problems occurred and improves the quality of life. ... This research created a smart village model that was capable to be a guide for each village to develop towards better future.

It has already been noted that the implementation of smart concepts into regional, both rural and urban contexts has to be adapted to socio-cultural and environmental circumstances. Thus, in theCities, different issues need to be tackled than in rural areas, where the main challenge is to bridge the Distances among relatively small number of people. In the context of digital transformation that is at the forefront of our interest, this means that also digitalization requires adapted concepts, business models and solutions that have to strive to generally improve the well-being of the rural population.

3.2 Vision-Goals, Standards and Performance Measurement Indicators

The vision of smart village is that modern energy access can act as catalyst for development in education,health, productive enterprise, clean water,sanitation, environmental

sustainability and participatory democracy which helps to support further improvement in access to energy.



Vision goals:-

India's dynamic Prime Minister Mr. Narendra Modi, is a man driven by the vision of establishing India Inc. as a global economic power. Digital India, E-governance and 'Make in India' initiatives have brought the necessary impetus to the industry and economic growth. As a result India is witnessing a andmassive shift towards urbanisation. Today, nearly40% of India's populationis living inthe cities is on a rise due to constant influx. FIG3.2A-components of smartvillage The severity of the situation is such that by 2022 it is ,

estimated that shortage of urban housing will reach nearly 34.1 million units. Realisingtheirreparable drain it would cause on the natural resources and the long-term danger of unplanned expansiontheHon'bleprimeminister has laid his vision of smart cities and sustainable urban development across India

The key to this vision is the contribution of the citizens of urban India in formulation the development vision of their cities. This is a great step towards people-centric development for urban areas in India. Pressing the urgent need for efficient use of available resources to enhance the quality of life within urban India, Mr.Modi urges to see urban development in India as an opportunity and urban centres as engines of growth for the nation. Therefore, a holistic development approach of the nation's urban areas is a step towards better outcomes.

3.3Technological options

1. Smart energy

Both residential and commercial buildings in smart cities are more efficient, using less energy, and the energy used is analyzed and data collected. Smart grids are part of the development of a smart city, and smart streetlights are an easy entry point for many cities, since LED lights save money and pay for themselves within a few years, as reported previously by TechRepublic."Lighting is ubiquitous--it's everywhere that people work, travel, shop, dine, and relax. Digital communications and energy-efficient LED lighting are revolutionizing urban FIG3.3A-solar energy lighting infrastructures already in place, transforming them into information pathways with the capacity to collect and share data and offer new insights that enable, and really drive, the smart city," said Susanne Seitinger, PhD., Philips Lighting, professional systems.

2. Smart transportation

A smart city supports multi-modal transportation, smart traffic lights and smart parking."One of the key areas that we have seen a lot of activity on has to do with mobility. Anything around

FIG3.3B-smart transportation

transportation, traffic monitoring, parking," said Sanjay Khatri, director of product marketing and IoT services for Jasper. "These are areas where cities are seeing a very fast return
on investment. It not only helps to reduce the cost of monitoring parking and making sure that they are collecting fines, it's also reducing congestion."

3. Smart data

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

4. Smart infrastructure

Cities will be able to plan better with a smart city's ability to analyze large amounts of data. This will allow for pro-active maintenance and better planning for future demand. Being able to test for lead content in water in real time when the data shows a problem is emerging could prevent public health issues, Chandisaid. Having a smart infrastructure means that a city can move forward with other technologies and use the data collected to make meaningful changes in future city plans.

5. Smart mobility

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

6. Smart IoT devices

And finally, one of the key components that ties everything together in a smart city is IoTdevices."Whether we like it or not, sensors and actuators in our cities are here to stay. Fusing sensor information into our daily life and integrating it all with third party social networks will knit the fabric of society closer together, while leaving city leaders to grapple with serious privacy and security challenges," said Carl Piva, vice presidentstrategic programs at Forum. Sensors are essential in a smart city, said Scott Allen, CMO of Free Wave Technologies. Allen said that a smart city has "a wide range of reporting devices such as sensors, visibility devices and other end points that create the data that makes a smart city work."

3.4 Road map and safe gaurds

This morning some 300 million Indians woke up to a day without basic access to electricity or other energy resources. This deprives them of education, opportunity and participation as full citizens. The Smart Village Roadmap 2017 conference on Rural Energy Independence in Atlanta, Georgia, USA, on March 17, 2017 brought together a unique set of dedicated experts

in technology, marketing, education and logistics, businesspeople, industrialists, volunteers for Non Governmental Organizations, medical doctors, and social workers from around the world. Hosted by Georgia State University's J. Mack Robinson College of Business and organized by the Global
Indian Business Council, the conference was sponsored by commercial and private entities all over the USA, with crucial support from the Consulate General of India in Atlanta. This report discusses a roadmap to bring full energy independence ('UrjaSvavalambi') to the 660,000-plus villages where over 70 percent of India lives.

3.5 Issues & Challenges

Similarly, the latest study in 2019 found out that 57% urban dwellers in Dhaka, Bangladesh would prefer living in villages. But, provided that they get employment opportunities and basic public facilities like good healthcare and education. This is as per a study revealed by the Bangladesh Institute of Development Studies (BIDS). A total of 12,000 people from 3,100 households were picked randomly as participants. The study revealed that traffic congestion, air pollution, unsafe drinking water and water logging were some of the biggest issues faced by the people and over 44% of them suffered from health-related problems.

Challenges:-

1. **Insufficient funds**
2. **Lack of experienced professionals**
3. **Inconsistent network connectivity**
4. **Cyber security risk**

1. **Insufficient funds: -** A report by SmartCitiesWorld reveals that funding is the biggest challenge to implementing a smart city strategy. Making cities smart means deploying smart, complex infrastructure for implementing digital technologies. Besides, tons and tons of smart devices have to be integrated for data collection. In addition, to ensure smart city success, governments have to hire enough tech experts and city planners. Further, network requirements have to be rightly met. Moreover, the hardware installed has to be audited frequently for maintenance. All of these eat up a lot of money. Governments should consider devising a strategy to create appropriate revenue models for their smart city initiatives.
2. **Lack of experienced professionals:-**Another most-pressing challenge for smart cities is the lack of skilled professionals. For preparing a strategy to achieve smart city project success, identifying areas for implementation of technologies, and operating these tools, tech experts are required. The government and the concerned stakeholders should take the count of professionals required and hire them before they start with their project plans.
3. **Inconsistent network connectivity**:-For the smart management of a municipality, several sensors, cameras, and actuators are installed everywhere. These sensors gather and send large volumes of data in real time. Analysis and processing of the collected data should happen almost instantaneously for efficient management of city operations. And for instant processing, high-speed Internet connectivity is mandatory. Currently, 4G mobile coverage systems are available, which aren't

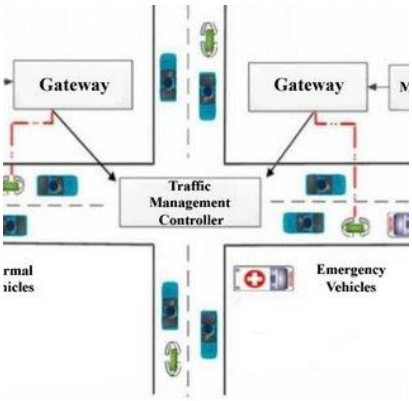
effective enough for high-speed data transfer. This issue should, therefore, be mandatorily taken into account.

4. **Cyber security risks**:-Smart city devices are estimated to top 1 billion units by 2025, according to the IHS report. These Internet-connected devices will transmit huge chunks of data in real time. Though this data help in providing efficiency at municipality functions, it presents serious security risks that can't be ignored. Data from parking lots, CCTV cameras, EV charging stations, and GPS systems contains confidential information of citizens. Not every connected device is cyber-resilient, as of now. If that's the case, criminals can easily gain access to the data and use it for illegal intent. Hence, governments and IT professionals should strengthen the security borders of smart devices and the supporting infrastructure. Identifying and solving the challenges for smart cities is a collaborative approach. Not only governments but also IT specialists, private organizations, and citizens should come together to work for a common goal - smart city success.

3.6 Smart Infrastructure – Intelligent Traffic Management

Smart infrastructure is provide with facilities with all domains like education facilities,helth facilities ,transport facilities which is using one connector for providing data.
The traffic is increasing day by day and that is affecting people's routine life so that traffic management for users apply for better experience of travel,
It is safer, more co-ordinate, andsmarter.

Intelligent traffic management:-Intelligent Traffic Management is designed to detect and track vehicles and pedestrians and estimate a safety metric for an intersection. Object tracking recognizes the same object across successive frames, giving the ability to estimate trajectories, speeds of the objects. The reference implementation also detects collisions and near miss collisions. A real-time dashboard visualizes the intelligence extracted from the traffic intersection along with annotated video stream(s).
This collected intelligence can be used to adjust traffic lights to optimize the traffic flow of the intersection, or to evaluate and enhance the safety of the intersection by allowing Emergency services notifications, i.e., 911 calls, to be triggered by collision detection, reducing emergency response times.



F3.6A- Intelligent traffic management

3.7 Cyber Security or any other concept as per the

The inclusion of each of the four themes (Theme 1: Physical Security, Theme 2: Malware and Malware Countermeasures, Theme 3: Safe Surfing and Theme 4: Social Aspects of Cyber Security) were carefully calculated to ensure a balanced programme. Basic security measures are selected to ensure that even the person with very limited access to technology can enjoy some level of cyber security. Broad guidelines are included pertaining to safe surfing and safe email practices. This is all supplemented by an eminent emphasis on personal information protection and vigilance against online frauds, scams and tricks. Users should understand that the information provided, is shared with a diverse group of people.

FIG3.7A:-security camera 1

FIG3.7B:-security camera 2

These people have different intentions with the information provided. Some individuals could use this information to perform a physical attack when the users provide physical location information. Information provided on social networking sites is permanent. Information is collected by the site and by other collection mechanisms which impedes on the process to remove the information shared by the users.

3.8 Retrofitting- Redevelopment- Greenfield Development District Cooling

Retrofitting:-

Retrofitting refers to the addition of new technology or features to older systems, for example:

⇒ power plant retrofit, improving power plant efficiency / increasing output / reducing emissions

⇒ home energy retrofit, the improving of existing buildings with energy efficiency equipment

⇒ seismic retrofit, the process of strengthening older buildings in order to make them earthquake-resistant

⇒ Naval vessels often undergo retrofitting in dry dock to incorporate new technologies, change their operational designation, or compensate for perceived weaknesses in their design or gun plan.

⇒ Redevelopment: - Redevelopment is any new construction on a site that has pre-existing uses. It represents a process of land development uses to revitalize the physical, economic and social fabric of urban space.

Variations on redevelopment include:

⇒ Urban infill on vacant parcels that have no existing activity but were previously developed, especially on Brownfield land, such as the redevelopment of an industrial site into a mixed-use development.

⇒ Constructing with a denser land usage, such as the redevelopment of a block of townhouses into a large apartment building.

⇒ Adaptive reuse, where older structures are converted for improved current market use, such as an industrial mill into housing lofts

Greenfield development district cooling:-
Greenfield development concept is like grow more trees for environmental repair and get heal to environment.
Over 10% of global electricity consumption today is used for cooling, and demand for cooling continues to increase. District cooling (centralized cooling) is a modern approach that uses increased efficiency, local sources and multi-generation to deliver more cooling capacity while reducing electricity consumption, peak load and environmental impacts. A district cooling business is easy to start and delivers multiple benefits to the customer.

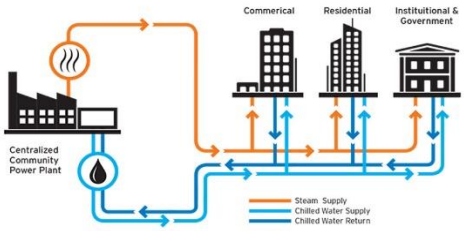


FIG3.8A-district cooling process

3.9 Strategic Options for Fast Development:-

The following perspectives have been adopted:
1. Supply-side policy of Keynesian nature, with a pronounced interest in public spending in less privileged regions (it includes investment in agriculture, soil improvement, supply of bank credit, making available raw materials for industrialization, subsidy on the capital goods, etc.).
2. Infrastructure policy, with an aim to create necessary physical conditions in order to enhance competitive capability of a region (it includes development of irrigation system, road transport networks, railways, telecommunication sector, health sector, etc.).
3. Growth pole strategies, with a clear emphasis on a concentrated growth impulse in few designated places or areas (it includes attempt to create hierarchy of growth centers from state to mandi / tehsil levels).
4. The superstructure policy in which regions have been provided with favorable research and development (R&D) conditions, educational facilities, knowledge centers, and the like in order to create the conditions for a self-sustained development (it includes development of research and extension centers).
5. Self-organizing policy where regions are encouraged to get their acts together on the basis of indigenous strength, with a limited role of the government (especially this policy has been adopted since the liberalization of the economy in early 1990s).

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

India's urban water supply:-
At present, 163 million people do not have access to safe drinking-water and 210 million people lack access to improved basic sanitation in India. In urban areas, 96% have access to an improved water source and 54% to improved sanitation. … More than 100 million people in urban areas exposed to poor water quality.

In 2001, urban population was 285 million and assuming water supply of 135 liters per capita per day, the domestic water demand is estimated at around 38,475 million liters per day (MLD), whereas as in 2011 urban population was 377 million with a domestic water demand of 50,895 MLD. It shows that growth in urban population leads to additional water demand of 12,420 MLD in urban areas. The water supply of 135 liters per capita per day (LPCD).However,

currently as per Central Public Health and Environmental Engineering Organization (CPHEEO), an average water supply in urban local bodies is 69.25 LPCD.

Indigenous Technologies:-

Understanding "indigenous technology" begins with defining *indigenous*. The possible definitions are many. The term is used in reference to plants, animals, or people that naturally belong to a particular place .It can be defined as "native," as in something not introduced directly or indirectly according to historical record or scientific analysis into a particular land or region or environment from the outside. *Indigenous* is associated with people originating or developing naturally in a particular land, region, or environment. *Indigenous* is a term used to describe people *who* are *the* original *inhabitants* of a particular geographical area.

3.11 Initiatives in village development by local self-government

In line with the described global initiatives and tendencies towards smarter and more sustainablecommunities, the European Union has also taken a holistic and integrative approach towardsthoseobjectives. The first step specifically connected to Smart Villages was made in 2016 when the Cork Declaration2.0 has been proposed (Cork, Ireland), under the name A Better Life in Rural Areas [29]. The declaration has very openly addressed some concerns about the state of the rural areas, specifically rural exodus and youth drain and thus paved the way for further orientations of future policies, including Smart Villages agenda. Through the ten points of addressing problematic of rural spaces, one of the main Conclusions was that investment in rural areas is necessary, especially in the sense of encouraging of their identification processes, acknowledging their potentials for (economic) growth and ensuring that they will become attractive places for people of all ages to live in and work at. Particular attention has also been paid to overcome the digital divide between rural and urban spaces and developing the Potential of digitalization in rural areas.

3.12 Smart Initiatives by District Municipal Corporation

Smart city Mission was launched by Prime Minister Shri Narendra Modi on 25 June, 2015. Surat city was selected among 100 cities to be developed as smart city in India due to various achievements, initiatives and all inclusive approach. Accordingly Surat city had submitted "Smart City Proposal" (SCP) for Surat City in the given format on 15 December, 2015 to Ministry of Urban Development, Government of India with required consent of Government of Gujarat and statutory authority of Surat Municipal Corporation. Till deadline for submission total 97 cities had submitted their smart city proposal to Government of India. As per the already given plan, 20 cities were to be selected in round-1 (current year) on merit of their submitted proposal. Government of India had constituted 3 teams with expert members of World Bank, ADB and other independent members for evaluation and marking of all thesubmitted smart city proposals from 97 smart cities and to select final list of top 20 cities based on marking.

On 28 January, Shri M.Venkaiah Naidu, Minister of Urban Development Government of India announced the much awaited 20 winners of the Smart City Challenge competition for round-1 in current financial year at a press conference. It is a matter of pride for citizens of Surat that our city is selected among 20 winning cities at Rank No.4. Shri M.Venkaiah Naidu said that the winners were from 11 States and the Union Territory of Delhi and the selection was totally

objective and transparent based on standardized processes. Shri Naidu further said that Smart City Mission marks a paradigm shift towards urban development in the country since it is based on 'bottom up' approach with the involvement of citizens in formulation of city vision and smart city plans and the Urban Local Bodies and State Governments piloting the mission with little say for the Ministry of Urban Development. He also observed that it was for the first time in the country and even in the world that investments in urban sector are being made based on competition based selection of cities. Informing that 1.52 crore citizens participated in shaping smart city plans of 97 cities and towns in the first round of competition, Shri Naidu said that this enthusiastic participation of people is a major positive outcome.

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

1. Digi Locker
The service was launched as an important facility to store crucial documents like Voter ID Card, Pan Card, BPL Card, Driving License, education certificates, etc. in the cloud.
2. MyGov.in
The portal works as an online platform to engage citizens in governance through a "Discuss", "Do" and "Disseminate" approach.
3. ESign Framework
This initiative would enable users to digitally sign a document online using Aadhaar authentication.
4. Swach Bharat Mission mobile app
The app will enable organizations and citizens to access information regarding the cleanliness drive and achieve the goals of the mission.
5. National Scholarship Portal
This initiative aims at making the scholarship process easy. From submitting the application, verification, sanction and disbursal to end beneficiary, everything related to government scholarships can be done on this single portal online.

FIG3.13A-innovation for schoolership

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

Smart village environment:-Smart city technologies have a high, and largely unrealized, potential to improve quality of life. The idea behind smart cities is to use technology and data purposefully to make better decisions and deliver a better quality of life. Beyond benefits in terms of safety, time, health, connectedness, jobs, and cost of living, huge improvements can be realized in the environmental sector. Smart-city solutions such as air quality monitoring, energy use optimization, and electricity, water, and waste tracking can produce results such as 10-15% fewer GHG emissions, 30-130 fewer kilograms of solid waste per person per year, and 25-80 litres of water saved per person per day.

To achieve such benefits, three layers of smartness are required in a city, building on traditional physical and social infrastructure. First, the technology base includes networks of connected devices and sensors, such as smart phones connected by high-speed communication networks. Next, smart applications and data analysis capabilities are used to translate raw data into alerts, insights, and actions. Finally, wide adoption of applications and usage by cities, companies, and the public, together with the effective management of data, inspire better decisions and behaviour change.

Smart applications contributing most to environmental improvements include (but are not limited to) those focused on mobility, water, energy, and waste. For example, real time public transit information and building automation systems can lead to fewer GHG emissions, better air quality can be realized as a secondary benefit of many energy saving and mobility applications, leakage detection and control can support water conservation, and digital tracking and payment for waste disposal can lead to solid waste reduction.

Smart cities revolution to boost employment in India

Smart cities have emerged as a potential job creator in the past few months. Many new-age profiles are likely to witness potential growth especially in the areas of ICT (Information Communication Technology), Data Management & Analytics and e-Governance.

Government of India's 'smart cities mission', a flagship initiative, is aimed at developing 100 sustainable and citizen friendly cities across the country. Each of these smart cities will be a key driver of economic growth boosting the GDP of the country and creating multiple new-age employment opportunities. With increased urbanization, urban areas are expected to house 40 per cent of India's population and contribute to over 75 per cent of India's GDP by 2030. This calls for large scale infrastructural development which is not just physical and institutional but also social and economic infrastructure. Only then would these cities will attract investments leading to continuous growth and development. A key way of developing smart cities is by enabling using smart evolved technology for local area development in the cities. Such development will generate employment for a large segment of local population. Application of smart solutions will enable cities to use technology, information and data to improve their services. Integration of technology is a major challenge and implementation of technology across smart cities needs a lot of hand holding at the moment. To understand the dynamics of smart cities and to create a strong eco-system it is important that the workforce has advanced skill sets.

Smart cities have emerged as a potential job creator in the past few months. Many new-age profiles are likely to witness potential growth especially in the areas of ICT (Information Communication Technology), Data Management & Analytics and e-Governance. As there is a large pool of data being used in the building and management of smart cities, data monitoring and surveillance will become a crucial aspect. Whether the data is used for intelligence gathering, prevention of crime, public health, investigation or surveys; surveillance will hold a lot of importance for citizens. It is important for us to understand that the existing workforce and the new workforce entering the labor market need to align their skill sets basis the requirements of smart cities. Each and every sector and job roles will need enhancement of knowledge, specialized skills training and continuous up skilling. People with varied skill sets will be needed to manage and monitor data across smart cities. Data Skills, Communication skills, Business Intelligence and Analytics, Visualization, Data Modeling, Numerical skills, Quantitative Analysis, Product Development are few key skills that will be required for continuous surveillance at smart cities.

CHAPTER 4. ABOUTMADHI

4.1 Introduction

4.1.1 Introductionaboutmadhi Village details

According to Census 2011 information the location code or village code of Madhi village is 524311. Madhi village is located inBardoli Tehsil of Surat district in Gujarat, India. It is situated 20km away from sub-district headquarter Bardoli and 60km away from district headquarter Surat. As per 2009 stats, Madhi village is also a gram panchayat.

The total geographical area of village is 827.57 hectares. Madhi has a total population of 7,650 peoples. There are about 1,695 houses in Madhi village. Bardoli is nearest town to Madhi which is approximately 20km away.

Madhi is a large village located in BardoliTaluka of Surat district, Gujarat with total 1695 families residing. The Madhi village has population of 7650 of which 3887 are males while 3763 are females as per Population Census 2011.In Madhi village population of children with age 0-6 is 737 which makes up 9.63 % of total population of village. Average Sex Ratio of Madhi village is 968 which is higher than Gujarat state average of 919. Child Sex Ratio for the Madhi as per census is 955, higher than Gujarat average of 890.Madhi village has higher literacy rate compared to Gujarat. In 2011, literacy rate of Madhi village was 85.26 % compared to 78.03 % of Gujarat. In Madhi Male literacy stands at 89.60 % while female literacy rate was 80.78 %.As per constitution of India and PanchyatiRaaj Act, Madhi village is administrated by Sarpanch (Head of Village) who is elected representative of village. Our website, don't have information about schools and hospital in Madhi village.

Information About madhi	
Gram panchayat	Madhi
Block/tehsil	Bardoli
District	Surat
State	Gujarat
Pincode	394340
Area	827.57 hectares
Population	7650
Households	1695
Nearest town	Bardoli(20km)

TABLE4.1.1A-information about madhi

4.1.2Justification/ need of the study

The developmental work in villages that could under taken as per the need of the village inparticular includes, Physical infrastructure facilities (Water, Drainage, Road, Electricity, Solid waste Management, Storm Water Network, Telecommunication & other),Social infrastructure facilities (Education, Health, Sanitation) Socio- Cultural Facilities(Community Hall, Library, Recreation Facilities & other) and Sustainable Infrastructures(Rain water harvesting, Biogas plant, Eco Toilets, Solar Street lights & other) for effectivedevelopment of Villages.“VishwakarmaYojana” has provided the platform for real world experience to engineeringstudents and simultaneously apply their technical knowledge in the rural infrastructuredevelopment.

4.1.3Study Area (Broadly define)

Present status and techno-economic survey of villages in given District of the state in termsof basic and public amenities, essential commodities, other infrastructural facilities for theneed of people and on the adequacy of the available resource with reference to the population of the village and growth of the area with the consultation of Local revenue authorities, TDO and DDO the future need of the village keeping to mind the need of days, future targeted population growth, growth of surrounding town or Taluka places etc. According to Census 2011 information the location code or village code of Madhi village is 524311. Madhi village is located inBardoli Tehsil of Surat district in Gujarat, India. It is situated 20km away from sub-district headquarter Bardoli and 60km away from district headquarter Surat. As per 2009 stats, Madhi village is also a gram panchayat. The total geographical area of village is 827.57 hectares. Madhi has a total population of 7,650 peoples. There are about 1,695 houses in Madhi village. Bardoli is nearest town to Madhi which is approximately 20km away.

4.1.4Objectives of the study

- Creation of infrastructure - connectivity, civic and social infrastructure along with Provision of alternative livelihood generation is the key pillars.
- Basic Physical Infrastructure – Water Supply, Transport, Sewerage and Solid Waste Management should be the priority focus and be provided.
- Basic Social Infrastructure – Health and Education facilities should be provided and ensure proper delivery of facilities to village dwellers.
- Promote integrated development of rural areas with provision of quality housing, better connectivity, employment opportunities and supporting physical and social infrastructure. Reduce migration from rural to urban areas due to lack of basic services and sufficient economic activities in rural areas.
- Internal roads within village settlement, Efficient Mass Transportation systems to improve connectivity between urban and rural areas, Public transportation facilities that need to be developed like bus stops, transport depot etc.
- Identification of sanitation facilities that need improvement – sewerage and drainage line for household connection, door to door solid waste collection & dumping facilities Refurbishing of village lakes, water tanks and wells, construction of rain water harvesting structures for sustainable Development.
- Development of socio culture facilities like community hall, public library, recreational activities and repairing of existing amenities
- Repair & maintenance of Existing Public Buildings like Gram Panchayat, Public Library, School Buildings, Health Center, Public Toilet Block & Other.

4.1.5Scope of the Study

To provide an urban amenities to a village without affecting the soul of village. Wehave to survey madhi village and give that facilities which is basic need for every person like sanitation facilities, health facility, education facilities, increase their standard of living.

4.1.6Methodology Frame Work for development of your village

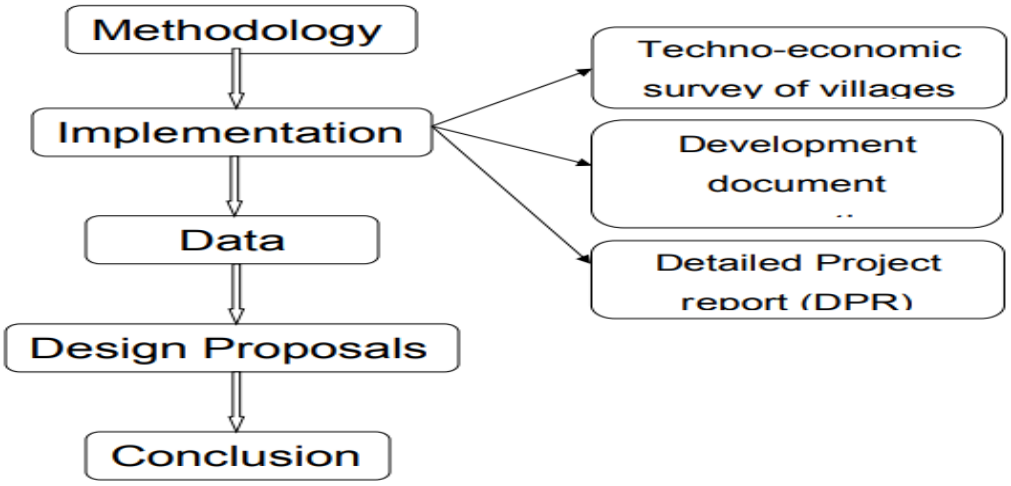


FIG4.1.6A-Methodology

(A)Methodology-Implementation: The techno-economic survey of villages has been conducted in different districts of the Gujarat state in terms of basic and public amenities, other infrastructural facilities.

The project had been divided into three parts:

(I) Techno-economic survey of villages: Collected all essential information from village such as: Household data, Occupational detail, Water facilities, Drainage facilities, Sanitation availability, Storm water network, Solid waste Management facilities, Electricity Networks, Recreation facilities, Education facilities, Health Facilities, Transportation facilities, Road network, Irrigation system, Use of nonconventional energy sources, Migration rate, Literacy rate and other necessary data.
(ii) Development document preparation: Plan and estimate of proposed development by assessing gap analysis Methodology Techno economic survey of villages mic survey of villages methodology Data Analysis Detailed Project report (DPR) Techno-economic survey of villages Development document preparation Design Proposals Conclusion Implementation VishwakarmaYojana: Phase-VIII.
(iii)Detailed Project report (DPR): Preparation of development strategies and action plan (B) Data Analysis: GAP analysis for all the selected villages were performed by comparing existing with the required facilities. Rural Planning Norms and UDPFI (Urban Development Plans, Formulation and

Implementation) guidelines were taken as a reference for providing infrastructure facilities. (C) Design Proposals: As per the gap analysis the proposed development and planning Strategies have been designed as per all the regulations and norms along with the consultation of concerned Government Officials (TDO, DDO &Sarpanch). Students of all respective villages have prepared design proposals for essential infrastructure facilities, prepared ready to execute documents, Detail estimates with abstract sheet, Measurement sheets, Recapitulation Sheet and Detail Drawings

4.1.7Available Methodology for development of related to Civil

Methodology to develop village related civil:-

- ⇒ Design objectives
- ⇒ Technical approach
- ⇒ Proposed sustainability features
- ⇒ Identify customer needs
- ⇒ Identify local/state/federal engineering and construction specifications
- ⇒ Project management structure
- ⇒ Budget
- ⇒ Gantt chart of project schedule
- ⇒ Résumés of team members

	Total	Male	Female
Total no.of households	1695	-	-
Population	7650	3887	3763
Child(0-6)	737	377	360
Schedule caste	97	51	46
Schedule tribe	4147	2065	2082
Literacy	85.26%	89.60%	80.78%
Total workers	3188	2250	938
Main worker	2989	-	-
Marginal worker	199	142	57

TABLE4.1.7A-madhi population data

4.2madhi village Study Area Profile

According to Census 2011 information the location code or village code of Madhi village is 524311. Madhi village is located inBardoli Tehsil of Surat district in Gujarat, India. It is situated 20km away from sub-district headquarter Bardoli and 60km away from district headquarter Surat. As per 2009 stats, Madhi village is also a gram panchayat. The total geographical area of village is 827.57 hectares. Madhi has a total population of 7,650 peoples. There are about 1,695 houses in Madhi village. Bardoli is nearest town to Madhi which is approximately 20km away.

4.2.1 Study Area Location with brief History land use details

Madhi village is located inBardoli Tehsil of Surat district in Gujarat, India. It is situated 20km away from sub-district headquarter Bardoli and 60km away from district headquarter Surat.

4.2.2 Base Location map, Land Map, Gram Tal Map

FIG4.2.2A-satelite view of madhi

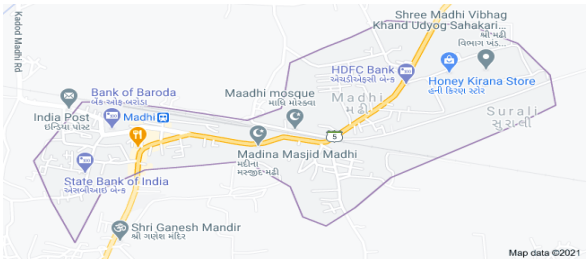


FIG4.2.2B-madhi map

4.2.3 Physical& Demographical Growth

Demographic details:-

Madhi is a large village located in BardoliTaluka of Surat district, Gujarat with total 1695 families residing. The Madhi village has population of 7650 of which 3887 are males while 3763 are females as per Population Census 2011.

In Madhi village population of children with age 0-6 is 737 which make up 9.63 % of total population of village. Average Sex Ratio of Madhi village is 968 which is higher than Gujarat state average of 919. Child Sex Ratio for the Madhi as per census is 955, higher than Gujarat average of 890.Madhi village has higher literacy rate compared to Gujarat. In 2011, literacy rate of Madhi village was 85.26 % compared to 78.03 % of Gujarat. In Madhi Male literacy stands at 89.60 % while female literacy rate was 80.78 %.As per constitution of India and PanchyatiRaaj Act, Madhi village is administrated by Sarpanch (Head of Village) who is elected representative of village. Our website, don't have information about schools and hospital in Madhi village

4.2.4 Economic generation profile / Banks

- Village has all type of banking services and there are 4 banks available which namely is:

BANK OF BARODA
HDFC BANK
STATE BANK OF INDIA
THE SURAT DISTRICT COOPERATIVE BANK LIMITED

FIG4.2.4A-bank photos

4.2.5 Actual Problem faced by Villagers and smart solution

We noticed that there are some basic amenities are not provided:

- Road are not that much good enough as well as in some area of village doesn't have road to pass one big vehicle like bus or truck
- There are some facilities available but it also need to renovate like police station .
- Also the common problem is westedesposal system is missing over there and needed extra cultural activities area like community hall.

So as we saw some problem which faced by the village that have also solution which is shown below.

- Public library
- Recreation area

- Village gate
- Community hall
- Hospital
- Fire station
- Rain water harvesting
- Waste disposal system
- Solar street light
- Medical store
- Public garden
- Pucca vegetable market

FIG4.2.5A-dumping area of madhi

FIG4.2.5B-river side dumping

FIG4.2.5C-some underdevelop roads

FIG4.2.5D-damaged bridge

4.2.6 Social scenario -Preservation of traditions, Festivals, Cuisine

Tradition:-

Every festival are celebrated by madhialso they catch up some of tradition of our culture and celebrate that also with respect and enjoy. In many Gujarati communities, the engagement ceremony is known as 'Goad Dhana' which does not include ring ceremony. (In Gujarati script, □□□-□□□□), which literally means "Jaggery and Coriander seeds "and refers to the practice of distributing a small amount of jaggery mixed with coriander seeds.

Festivals:-

MakarSankranti and Kite Flying Festival (14 January)

The Kite Flying Festival takes place in mid-January and marks the time when the sun's direct rays reach the Tropic of Capricorn after the winter solstice. It is celebrated with much folk music, dance and kite flying. People of Gujarat gather on terraces to fly kites of various colours

to celebrate MakarSakranti or Uttrayana, the welcome to the sun after the cold winter months. Glass-strengthened threads of the Indian fighter kites are matched against each other in the air — the kite fighter who cuts the other thread is the victor. At night, kites with Chinese lanterns are flown and held aloft. Food such as Undhiya, sugar cane juice and local sweets is typically served to celebrate the day.

Dance Festival — Modhera (January)

Resting on a knoll in the village of Modhera are the ruins of the 11th-century Sun Temple. The outer walls of the temple are covered with sculptures in which the figures of Surya, the sun god, are prominent. The Sun Temple is the site of an annual festival of Indian classical dances organized by the Tourism Corporation of Gujarat. The idea is to present classical dance forms in the atmosphere they were originally presented in.

The Kutch Mahotsav (February–March)

The 'Kutch Festival' or the 'Rann festival' is celebrated at the time of the Shiv Ratri in February/ March. The centre of the festival is Bhuj in Kutch. It has crafts, fairs and folk dances and music and cultural shows, all organized by the Gujarat Tourism. Tours are also conducted out to the ruins of Dhola Vera, a city that was once a part of the Indus Valley civilization.

Cuisine:-

Madhi is a village so major villagers are here from long time and the old people do not like to eat junk food or else so they were kept to our simple Guajarati cuisine The typical *Gujarati thali* consists of *rotli*, *dal* or *kadhi*, rice, and *shaak* (a dish made up of several different combinations of vegetables and spices, which may be either spicy or sweet). The *thali* will also include preparations made from pulses or whole beans (called kathor in Gujarati) such as moong, black eyed beans etc., a snack item (*farsaan*) like dhokla, pathra, samosa, fafda, etc. and a sweet (*mishthaan*) like mohanthal, jalebi, doodhpak etc. Gujarati cuisine varies widely in flavour and heat, depending on a family's tastes as well as the region of Gujarat to which they belong. North Gujarat, Kathiawad, Kachchh, Central Gujarat and South Gujarat are the five major regions of Gujarat that contribute their unique touch to Gujarati cuisine. Many Gujarati dishes are distinctively sweet, salty, and spicy simultaneously. Despite having an extensive coastline providing wholesome seafood, Gujarat is primarily a vegetarian state due to the influence of Jain vegetarianism. Many communities, however, do include seafood, chicken and mutton in their diet.

4.2.7 Migration Reasons / Trends

- The number of internal migrants in India was 450 million as per the most recent 2011 census.
- This is an increase of 45% over the 309 million recorded in 2001.
- Internal migrants as a percentage of population increased from 30% in 2001 to 37% in 2011.
- However, the nature of movement has remained relatively unchanged since 2001.
- Bulk of the movement (62%) is within the same district.
- Another 26% is between districts within the same state.
- Inter-state migrants represented only 4% of the population in India in 2011, a rate almost unchanged since 2001.
- According to a research paper, India has the lowest rate of internal migration in a sample of 80 countries.

4.3. Data Collection madhi village Photograph/Graphs/Charts/Table)

4.3.1 Describe Methods for data collection

1. Primary data collection

Primary data collection by definition is the gathering of raw data collected at the source. It is a process of collecting the original data collected by a researcherfor a specific research purpose. It couldbe further analyzed into two segments ;qualitativeresearch and quantitative data collectionmethods.

FIG.4.3.A-intrection with madhi Sarpanch and talati

Secondary Data Collection:-

Secondary data collection, on the other hand, is referred to as the gathering of second-hand data collected by an individual who is not the original user.

It is theprocess of collecting data that already exists, be it already published books, journals and/or online portals. In terms of ease, it is much less expensive and easier to collect.

FIG4.3.1A-data collection tools

4.3.1.1Importance of data collection:-There are a bunch of underlying reasons for collecting data, especially for a researcher. Walking you through them, here are a few reasons;

Integrity of the Research: - A key reason for collecting data be it through quantitative or qualitative methods is to ensure that the integrity of the research question is indeed maintained.

Reduce the likelihood of errors: - The correct use of appropriate data collection of methods reduces the likelihood of errors consistent with the results.

Decision Making:-To minimize the risk of errors in decision making, it is important that accurate data is collected so that the researcher doesn't make uninformed decisions.

Save Cost and Time:- Data collection saves the researcher time and funds that would otherwise be misspent without a deeper understanding of the topic or subject matter.

To support a need for a new idea, change and/or innovation:-To prove the need for a change in the norm or the introduction of new information that will be widely accepted, it is important to collect data as evidence to support these claims.

4.3.2 Primary details of survey details

Madhi is a Village in BardoliTaluka in Surat District of Gujarat State, India. It islocated 46 KM towards East from District head quarters Surat. 6 KM from. 279 KM from State capital Gandhinagar. Madhi Pin code is 394340 and postal head office is Madhi. NaniBhatlav(2 KM) , Karachaka (3 KM) , Mangrolia (3 KM) , Orgam (3 KM) , Bhensudla(3 KM) are the nearby Villages to Madhi. Madhi is surrounded by ValodTaluka towards South ,MandviTaluka towards North , VyaraTaluka towards East , MahuvaTalukatowards South .Vyara , Songadh , Navsari , Surat are the near by Cities to Madhi.Madhi is surrounded by ValodTaluka towards west , SongadhTaluka towards North , MahuvaTaluka towards west , BardoliTaluka towards west .Vyara , Songadh , Navsari , Dharampur, India are the nearby Cities to Madhi. The total geographical area of village is 827.57 hectares. Madhi has a total population of 7,650

peoples. There are about 1,695 houses in Madhivillage. InMadhi village population of children with age 0-6 is 737 which makes up 9.63 % of total population of village. Average Sex Ratio of Madhi village is 968 which is higher than Gujarat state average of 919. Child Sex Ratio for the Madhi as per census is 955, higher than Gujarat average of 890.Madhi village has higher literacy rate compared to Gujarat. In 2011, literacy rate of Madhi village was 85.26 % compared to 78.03 % of Gujarat. In Madhi Male literacy stands at 89.60 % while female literacy rate was 80.78 %.As per constitution of India and PanchyatiRaaj Act, Madhi village is administrated by Sarpanch (Head of Village) who is elected representative of village.

4.3.3 Average size of the House - Geo-Tagging of Houseaverage size of house: -

Average size of the house in the village is 40sq feet.

Geo-Tagging:-

Geotagging is the process of adding geographical identification metadata to various media such as a photograph, video, or SMS messages. That means the technology "tags" images and other media with information such as latitude and longitude, but it can even be a city name. For example, when you post a picture on Face book, that social media site might ask "Add City, State as the location?" because your smart phone or camera geotagged the photo when you took it, capturing that data in addition to the image.

4.3.4 No of Human being in One House

Total number of population in kamrol is 2097 as per 2011 census. There are different numbers of people in each house as there are nuclear families as well as joint families, but the average no of human beings in one house is 5.

4.3.5 Material available locally in the village and Material out Sourced by the villagers

Generally in madhi village they have all material in the village hardly they have to bring it from town. There available all type of material like grocery ,helthrealated ,all type of crops like wheat, bajari,sugar as well as all type of vegetables are also available within it. There is sugar factory available in madhi so it can be exported by madhi villagers.

4.3.6 Geographical Detail

The Madhi village is located in the state Gujarat having state code 24 and having the village code 524311. The Surat is the district of this village with district code 492. The total geographical area in which this village is expanded in 827.57 hectares / 8.2757 Square Kilometers (km2) / 2044.9700054079 acres.

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

- Normally they are using adhaar as I'd proof or voter id also .

1. Total population of sc:- 97
2. Male:-51
3. Female:-46

4. Total population of st:-4147
5. Male:-2065
6. Female:-2082
7. Other population:-3406
8. Total population:-7650

4.3.8 Occupational Detail - Occupation wise Details / Majority business

- Farm labor
- Major industries like agarbati and masala package
- Small business like soap making, steel factory.
- Labor of sugar factory
- Small business of shops like grocery store, electric shop etc.

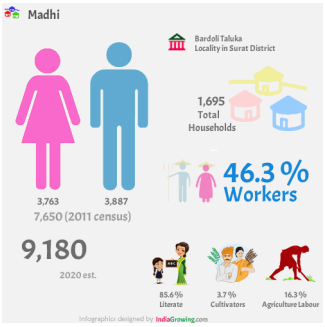


FIG.4.3.8A-occupation details

4.3.9 Agricultural Details / Organic Farming / Fishery

Villages nearby surat are majorly growing sugarcane, vegetable or bajari that the major 3 crops or in addition there are some people also have farming of banana. It is not nearby any lake or river so and also the villagers are mostly veg in surat district so no fish farming available.

4.3.10 Physical Infrastructure Facilities - Manufacturing HUB / Ware Houses

Transportation facilities are Government bus service is available within village. Madhi Rail Way Station,Bardoli railway station are the very nearby railway stations to madhi. Local transportations are auto rickshaw, chagdaa, private vehicles are available in madhi village. The village approach road is nearbytosub district highway. It has overhead tanks which provide water to whole madhi. There are some manufacturing industries like small one which produce shop, agarbatti and so on. There is available one warehouse which is using to preserve crops of madhi village.

4.3.11 Tourism development available in the village for attracting the tourist

There is not such kind of activities done by village to attracting tourist rather than that here is development done by them such kind of.

4.4Infrastructure Details (With Exiting Village Photograph)

4.4.1 Drinking Water / Water Management Facilities

For drinking and other water uses there is available overhead tanks there is also available tap water and hand pumps. There are around 5 to 6 overhead tank and most of them are in good condition also we see hand pumps in working condition in madhi village.

FIG4.4.1A-handpump

FIG4.4.1B-Overhead tank

4.4.2 Drainage Network / Sanitation Facilities

There is not available of waste water treatment plant, they have underground drainage system so they release waste water in river directly. There is not available of solid waste disposal plant so they dumping all garbage and other solid waste on riverside.

FIG4.4.2A garbage dumping site

FIG4.4.2B garbage collecting by tractor

4.4.3 Transportation & Road Network

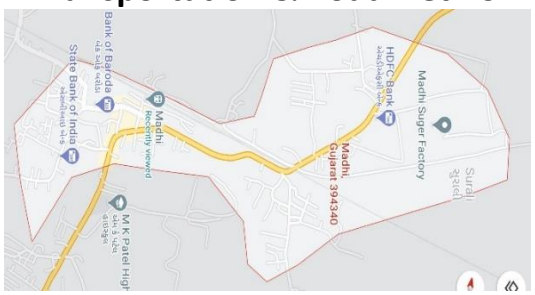


FIG4.4.3A main road and other

FIG.4.4.3B roads of madhi

4.4.4condition

Housing condition of madhi is almost 90% house is pucca in madhi village& the kacha house picture is given below

FIG4.4.4A kacha house

FIG4.4.4B-pucca house

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

Social infrastructures:-In madhi village there are 1 anganwadi , 1 primary school , 5-6 temples , 1 Post office , 1Panchayat building . There are secondary and higher secondary schools. Village does have community helthcentre, public latrine but on the other side recreational area or public garden are not present there.

Health: -there is available only CHC and it is also need to maintenance and there is not available any hospital. for emergencies the villagers have to go for Bardoli or vyara.

Education details:-madhi village has one anganwadi and 8to 9 schools in differently with education like some of them are only primary some are primary and secondary and some are high secondary also as we noticed that the school is very nit and clean and also have much amount of space. The school has electric connections and it has also drinking water point in school.

Community hall: -there is available one chokhawalasmarak hall but for huge amount of people there will be need of large community hall which can be developed

Public Library:-public library is not available in madhi village so it has to be develop by in future time because it helps those who has no some education materials so they can use library to achieve some knowledge.

FIG4.4.5A- high secondary school

FIG4.4.5B-temple of madhi

FIG4.4.5C-primary school

FIG4.4.5D-grampanchayat office

FIG4.4.5E-chokhawala memorial hall

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

In the madhi village as per the condition of river the maintenance is required in the river . Water tank is present but not in impressive condition and village officials have said that new water tank will be constructed with higher capacity. Panchayat building, Anganwadi, and primary school are also in good working condition. So the estimate of proper maintenance of Village River is required. Dairy is operated under a good pucca condition building. required maintenance of police station it is in very weak condition.

4.4.7 Technology Mobile/ WIFI / Internet Usage Details

- Almost all type of mobile networks and mobile are available in madhi
- There are all internet facilities like broadband or wireless wifi available.

4.4.8 Sports Activity as Gram Panchayat

- There is no sports activities held by gram panchayat

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

Madhi have not any kind of public garden or like playgrounds or pond is has river which is polluted, and no other recreation areas there in madhi so for the socio-cultural activities development of very needed to be on the other hand there is available of some places which are somehow not used by villagers like river side so we can develop over there like riverfront which consists different type of recreation facilities.

4.4.10 Other Facilities (e.g. like foot path development-Smart toilets-Coin operated entry, self-cleansing, waterless, public building)

In the extra facilities there are need to renovate police station which is not in good condition, however there is public toilets but that is not operates entry by coin it is totally open to users .

4.5. Existing Institution like - Village Administration – Detail Profile

4.5.1 Bachatmandali

Madhi has Bachatmandali ,but that is combined mandali with suraliGrampanchayat We can see the photo of madhisuraliBachatmandali

FIG4.5.1A-bachat mandali

4.5.2 DudhMandali:- there is available dudhmandali in the madhi village.

4.5.3 Mahila forum :-yes ,mahilamandal is also present in madhi village .

4.5.4 Plantation for the Air Pollution: - There is no such activity done of tree plantation for the air pollution in the madhi village. But that kind of activities are done in the primary as well as secondary school by the students of the madhi village.

4.5.5 Rain Water Harvesting -Waste Water Recycling:-in present there is no rain water harvesting system used by any villager or gram panchayat so currently there is no such kind of system available .there is also not available waste water treatment process at present.

4.5.6 Agricultural Development:-there is available agricultural co-corporative building present over there.whcih helps villagers to give agricultural product in much more less price as compare to market rate.

4.5.7 Anyother:-there no any other institution in madhi other than gram panchayat .there is available anganwadi, primary, secondary and high secondary school also it has some different temples and etc.

CHAPTER 5. Technical options with case studies (for any one topic design, prototpe model with actual costing)

5.1 Concept (Civil)

5.1.1 Advance Sustainable Construction Techniques / practices and Quantity Surveying.

Advance construction technology covers of latest techniques and the latest developments in materials technology, design, quantity, Surveying, facilities management, services, structural analysis and design, and management studies.

Advance construction madhi village like a, bulldozer, truck, tempo, crein, tractor,etc available in during construction, maintenance, road problem and other.Consruction equipment transport to Bardoli village. Smaller construction techniques available in madhi village.

- Construction techniques like a one place to another place material transport.(i.e., tractor, truck).

5.1.2. SOIL LIQUEFACTION

Soil liquefaction occurs when a saturated or partially saturated soilsubstantially loses strength and stiffness in response to an applied stress such as shaking during an earthquake or other sudden

FIG5.1.2A-Soil Liquefaction

change in stress conditions, in which material that is ordinarily a solid behaves like a liquid.

In soil mechanics, the term "liquefied" was first used by Allen Hazen in reference to the 1918 failure of the Calaveras Dam in California. He described the mechanism of flow liquefaction of the embankment dam as: If the pressure of the water in the pores is great enough to carry all the load, it will have the effect of holding the particles apart and of producing a condition that is practically equivalent to that of quicksand… the initial movement of some part of the material might result in accumulating pressure, first on one point, and then on another, successively, as the early points of concentration were liquefied.

- **Technical Definitions**

Soil liquefaction occurs when the effective stress of soil is reduced to essentially zero. Liquefaction is more likely to occur in sandy or non plastic silty soils, but may in rare cases occur in gravels and Clays.

- **Effect**

The effects of soil liquefaction on the built environment can be extremely damaging. Buildings whose foundations bear directly on sand which liquefies will experience a sudden loss of support, which will result in drastic and irregular settlement of the building causing structural

damage, including cracking of foundations and damage to the bundling structure, or leaving the structure serviceable without structural damage.

- **Mitigation methods**

Mitigation methods have been devised by earthquake engineers and include various soil compaction techniques such as vibro compaction, dynamic compaction, and vibro stone columns. These methods density soil and enable
buildings to avoid soil liquefaction.

FIG5.1.2B- Effect of Soil Liquefaction

5.1.3. SUSTAINABLE SANITATION

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

Sustainable criteria:

The main objective of a sanitation system is to protect and promote human health by providing a clean environment and breaking the cycle of disease. In order to be sustainable a sanitation system has to be not only economically viable, socially acceptable, and technically and institutionally appropriate, but it should also protect the environment and the natural resources.

FIG5.1.3A-Sustainable sanitation

Health:

The main objective of a sanitation system is to protect and promote human health by providing a clean environment and breaking the cycle of disease. In order to be sustainable a sanitation system has to be not only economically viable, socially acceptable, and technically and institutionally appropriate, but it should also protect the environment and the
natural resources.

- **Environment:**

Environment and natural resources aspects involve the required energy, water and other natural resources for construction, operation and maintenance of the system, as well as the potential emissions to the environment resulting from use. It also includes the degree of recycling and reuse of excreta practiced and the effects of these, for example reusing the wastewater, returning nutrients and organic material to agriculture, and the protecting of other non-renewable resources, for example through the production of renewable energy (e.g. biogas or fuel wood).

- **Finance**:

Financial and economic issues relate to the capacity of households and communities to pay for sanitation, including the construction, maintenance and depreciation of the system.

- Planning for sustainability sanitation

Most sanitation systems have been designed with the five aspects in mind, but in practice they are failing far too often because some of the criteria are not met. Since there is no one-for-all sanitation solution which fulfils the sustainability criteria, evaluation will depend on the local framework and will have to take into consideration the existing environmental, technical, socio-cultural and economic conditions.

Human dignity, quality of life and environmental security at household level should be at the centre of any sanitation approach.

In line with good governance principles, decision-making should involve participation of all stakeholders, especially the consumers and providers of services.

Waste should be considered a resource, and its management should be holistic and form part of integrated water resource, nutrient flow and waste management processes.

The domain in which environmental sanitation problems are resolved should be kept to the minimum practicable size (household, community, town, district, catchment, city)

5.1.4. Transport Infrastructure / system

Transport in India consists of transport by land, water and air. Public transport is the primary mode of road transport for most of the Indian citizens, and India's public transport systems are among the most heavily used in the world.

India's road network is the second-largest and one of the busiest in the world, transporting 8.225 billion passengers and over 980 million tonnes of cargo annually, as of 2015. India's rail network is the fourth largest and second busiest in the world, transporting 8.44 billion passengers and 1.23 billion tonnes of freight annually, as of 2019. Aviation in India is broadly divided into military and civil aviation which is the fastest-growing aviation market in the world (IATA data) and Bangalore with 65% national share is the largest aviation manufacturing hub of India. India's waterways network, in the form of rivers, canals, backwaters and creeks, is the ninth largest waterway network in the world. Freight transport by waterways is highly under-utilised in India with the total cargo moved (in tonne kilometres) by inland waterways being 0.1 percent of the total inland traffic in India.

In total, about 21 percent of households have two wheelers whereas 4.7 percent of households in India have cars or vans as per the Census. Theautomobile industry in India is currently rapidly growing with an annual production of over 4.6 million vehicles, with an annual growth rate of 10.5% and vehicle volume is expected to rise greatly in the future.

Transportation infrastructure may include roads, bridges, bus stations, train tracks, airports, sidewalks, or ferry terminals. Transportation plays a critical role in the livability of a community – the factors that influence a community's quality of life. Transportation allows for access to food, healthcare, educational opportunities, and employment. Additionally, access to transportation increases rural residents' ability to access recreation, entertainment, and other activities that promote community engagement. Efficient and affordable transportation is an important driver in economic growth in rural areas and helps ensure that people can obtain services and participate in public life.

FIG5.1.4A-transportation in india

- Types of Transportation

⇒Rural community members primarily use six types of transportation to move around their environment. Depending on the community, some types of transportation may be more commonly available than others. These include:

⇒Buses, including those that operate within and between communities

⇒Passenger train service, including Amtrak or commuter rail lines

⇒Passenger air service, which can be commercial, private, or semi-private

⇒Personal vehicles like automobiles, including vans and cars for hire like taxis or ride-sharing services, and golf carts or all-terrain vehicles (ATVs)

⇒Pedestrian transportation, which includes walking and bicycling

⇒Boats, which may be personally owned or operated as a ferry service.

- Buses

Many rural communities use buses as the primary vehicle for their public transportation systems, operating fixed-route service on a regular schedule. Unlike rail systems that can require large investments in infrastructure, local or city bus systems use existing roads and lower-cost bus stops. This allows for more flexibility when designing, scheduling, and changing service routes. The intercity bus system, which often operates larger charter or coach buses, has historically served as a significant form of transportation in rural areas. Intercity buses can provide critically important links between rural communities as well as transportation to larger, regional transit hubs like airports. However, transportation systems are increasingly focusing on expanding routes between large urban centres instead of smaller rural areas. In addition, many transportation carriers that formerly served smaller communities are reducing services because of low ridership and decreased profitability.

- Train Services

Like intercity buses, passenger trains provide vital transportation links between rural communities. The National Railroad Passenger Corporation, also known as Amtrak, is the primary provider of this service in the continental United States. The state of Alaska also owns

the Alaska Railroad, which provides intercity passenger and freight service. While the majority of passenger train riders livein metropolitan areas like the
urban Northeast Corridor, trains can provide affordable, accessible transportation for rural residents traveling into cities for medical care, business, employment, and other services.

FIG5.1.4B-train

5.1.5. Vertical Farming

Vertical farming often falls in line with ‘indoor farming’, ‘urban agriculture’ and ‘controlled-environment agriculture’. Vertical farming is allocted village is not provided. Vertical farming is the practice of growing crops in vertically stacked layers. It often incorporates controlled-environment agriculture, which aims to optimize plant growth, and soilless farming techniques such as hydroponics, aquaponics, and aeroponics. Some common choices of structures to house vertical farming systems include buildings, shipping containers, tunnels, and abandoned mine shafts. As of 2020, there is the equivalent of about 30 ha (74 acres) of operational vertical farmland in the world.The modern concept of vertical farming was proposed in 1999 by Dickson Despommier, professor of Public and Environmental Health at Columbia University. Despommier and his students came up with a design of a skyscraper farm that could feed 50,000 people.Although the design has not yet been built, it successfully popularized the idea of vertical farming. Current applications of vertical farmings coupled with other state-of-the-art technologies, such as specialized LED lights, have resulted in over 10 times the crop yield than would receive through traditional farming methods. The main advantage of utilizing vertical farming technologies is the increased crop yield that comes with a smaller unit area of land requirement. The increased ability to cultivate a larger variety of crops at once because crops do not share the same plots of land while growing is another sought-after advantage. Additionally, crops are resistant to weather disruptions because of their placement indoors, meaning less crops lost to extreme or unexpected weather occurrences. Because of its limited land usage, vertical farming is less disruptive to the native plants and animals, leading to further conservation of the local flora and fauna.Vertical farming technologies face economic challenges with large start-up costs compared to traditional farms. In Victoria, Australia, a “hypothetical 10 level vertical farm” would cost over 850 times more per square meter of arable land than a traditional farm in rural Victoria. Vertical farms also face large energy demands due to the use of supplementary light like LEDs. Moreover, if non-renewable energy is used to meet these energy demands, vertical farms could produce more pollution than traditional farms or greenhouses.

FIG5.1.5A-vertical farming

5.1.6. Corrosion Mechanism, prevention & Repair Measures of RCC structure.

Corrosion of mechanism for RCC structure:

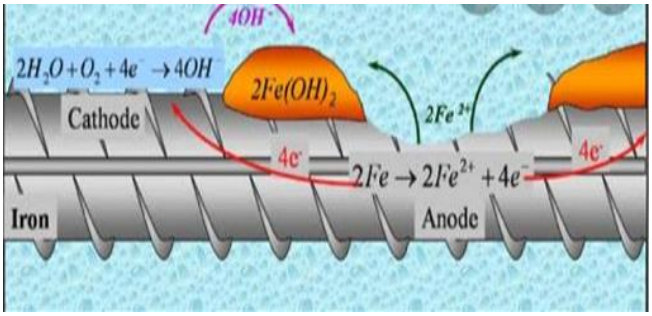


FIG5.1.6A-corrosion process

Corrosion of steel reinforcement inside concrete can be initiated by two different mechanisms. If there are no chlorides in the pore water, corrosion can be initiated when the carbonation front in the concrete cover over reinforcement hasreached the steel bars. When the alkalinity in the pore water near reinforcement has decreased to the value of pH 9, the protective passivity oxide layer of γ Fe2O3 on the surface of the steel bars is broken and corrosion begins if water and oxygen are available on the surface of the reinforcement. Rusting of the

reinforcement is a chemical reaction and,

therefore, also a temperature-related phenomenon. In low sub-zero temperatures, the corrosion rate is considerably slower compared with the situation when the temperature is high (+ 20–40 °C). After the initiation period, corrosion is an electrochemical process in which electrons and OH−-ions are transported between anode and cathode parts of the reinforcement and an electric circuit is formed.

FIG.5.1.6B-corrosion of reinforcement

At the anode, positive metal ions Fe2 + are dissolved into the pore water and electrons move to the cathode via reinforcement. At the cathode, a chemical reaction takes place between electrons, oxygen, and water to form hydroxyl ions which move to the anode through pore water. At the anode, hydroxyl ions react with iron ions and Fe (OH) 2 or rust forms. There has to exist a difference in electrical potential between the anode and cathode as a driving force to sustain the reaction. Corrosion takes place only at the anode and, if the reaction can proceed freely, ferric hydroxide Fe(OH) 3 will formas the end product. The volume of the corrosion products can

increase by a factor of over five which causes tensile stresses around the reinforcement bar. Eventually, in low-strength concretes, this can cause cracking, spelling, or even delaminating of the concrete cover over the reinforcement. Cracks in the concrete cover have only a small influence on the service lifespan of the structure if there are no chlorides present and if the cracks are generated in a perpendicular direction to the reinforcement bars. This holds even if the crack width is relatively large. Corrosion products and re-alkalization in the crack over the reinforcement effectively hinder the advancement of corrosion. Concrete produced by a low water/cement ratio is, of course, more advantageous in this respect compared with concretes in which the water/cement ratio is high. If occasional mechanical loads are so severe that there is change in the crack width or if flowing water rinses the cracked surface, cracks will decrease the service lifespan of the structure.

Prevention of RCC structure:-

Concrete is one of the most widely used construction materials in the world, with many key advantages such as formability and durability. Concrete also has high compressive strength, which is defined as the maximum compressive load a body can bear prior to failure. However, concrete is actually quite weak in tensile strength, meaning that concrete is not an ideal material if the structure is subjected to tension. Due to this inherent weakness in concrete, another material is needed to strengthen the tensile strength and avoid unacceptable cracking and even failure. Steal reinforcing bars can be added to resist the tension a load could cause for the structure. However, with the added material, new problems arise, such as corrosion of the steel rebar, which can cause a new set of issues for a construction project.

Traditional methods to prevent corrosion :-

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

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

Unfortunately, these traditional methods meant for tackling concrete corrosion have proven to be less effective than desired considering the current state of deteriorating infrastructure. Thick or dense concrete cover over reinforcing steel will help, but still leaves the concrete vulnerable to cracking and a whole new set of issues. Corrosion inhibitors provide only temporary protection. Cathodic protection is expensive and has its own downsides, and repair procedures often have short service lives and may be continuously reinstalled.

The constant repair of reinforced concrete infrastructure results in high lifecycle costs over the structure’s required service life. Overall, the shortfall of traditional corrosion preventative measures is they do not adequately prevent or counteract the development of corrosive conditions in the concrete.

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

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

5.1.7. SEWAGE TREATMENT PLANT:

Sewage treatment is the process of removing contaminants from municipal wastewater, containing mainly household sewage plus some industrial wastewater. Physical, chemical, and biological processes are used to remove contaminants and produce treated wastewater (or treated effluent) that is safe enough for release into the environment.

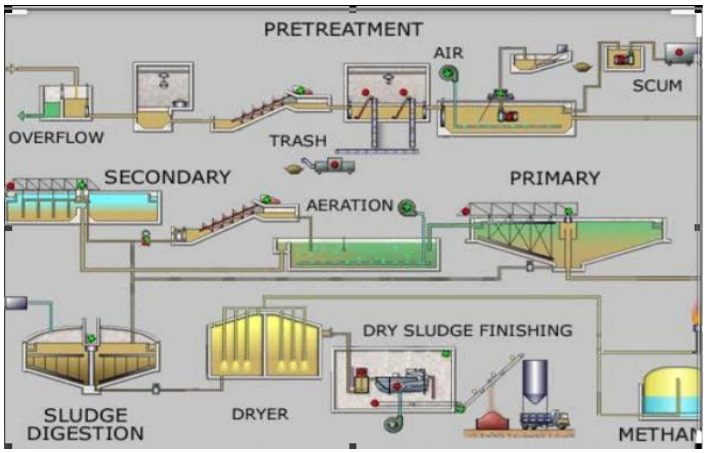


FIG5.1.7A-sewage treatment plant

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

- Three types of sewage treatment plant:
    1. Primary treatment plant
    2. Secondary treatment plant
    3. Tertiary treatment plant

1. Primary treatment plant

In the primary sedimentation stage, sewage flows through large tanks, commonly called "pre-settling basins", "primary sedimentation tanks" or "primary clarifiers". The tanks are used to settle sludge while grease and oils rise to the surface and are skimmed off. Primary settling tanks are usually equipped with mechanically driven scrapers that continually drive the collected sludge towards a hopper in the base of the tank where it is pumped to sludge treatment

facilities.Grease and oil from the floating material can sometimes be recovered for saponification (soap making).

2. Secondary treatment plant

Secondary treatment is designed to substantially degrade the biological content of the sewage which are derived from human waste, food waste, soaps and detergent. The majority of municipal plants treat the settled sewage liquor using aerobic biological processes. To be effective, the biota require both oxygen and food to live. The bacteria and protozoa consume biodegradable soluble organic contaminants (e.g. sugars, fats, organic short-chain carbon molecules) and bind much of the less soluble fractions into floc.

3. Secondary treatment systems are classified as fixed-film or suspended-growth systems.

Fixed-film or attached growth systems include trickling filters, constructed wetlands, bio-towers, and rotating biological contactors, where the biomass grows on media and the sewage passes over its surface. The fixed-film principle has further developed into moving bed bio film reactors (MBBR). and Integrated Fixed-Film Activated Sludge (IFAS) processes. An MBBR system typically requires a smaller footprint than suspended-growth systems.

Suspended-growth systems include activated sludge, where the biomass is mixed with the sewage and can be operated in a smaller space than trickling filters that treat the same amount of water. However, fixed-film systems are more able to cope with drastic changes in the amount of biological material and can provide higher removal rates for organic material and suspended solids than suspended growth systems.

Tertiary treatment plant

The purpose of tertiary treatment is to provide a final treatment stage to further improve the effluent quality before it is discharged to the receiving environment (sea, river, lake, wet lands, ground, etc.). More than one tertiary treatment process may be used at any treatment plant. If disinfection is practised, it is always the final process. It is also called "effluent polishing".

Function of sewage treatment plant:

HYGIENE –

Avoid sanitary nuisances, e.g. bad odour

Infectious disease control, i.e. the effluent is either bathing water quality or excluded from direct exposure to humans until it has achieved bathing water quality.

RECIPIENT –

Phosphorus: reduced >90% (general requirement). In Vadsbro at most 0.1 kg/pers annual discharge and <0.1mg/l.

Nitrogent: reduced> 50% (general requirement). In Vadsbro at most 2.5 kg/pers annual discharge. Discharged in the form of nitrate.

BOD: reduced >95%.

Recycling of nutrients or organic matter

phosphorurs:.75%, recycled.

other resources valuable for agriculture.

- **POSSIBLE SOLUTIONS IN THE SYSTEM**

ALTERNATIVES AT THE SOURCE

1. Mixed wastewater, septic tank, and further treatment in a sand filter with high phosphorus sorption capability.

2. Composting toilet. Gray water treated locally or centrally.

3. Backwater separation, very low-flush toilet, and collection in tank, with transport to agriculture. Gray water treated locally or centrally.

4. Urine separation in a double-flushing toilet. Collection in tank, with transport to agriculture. Faeces and gray water to a septic tank and further treatment in a sand filter.

B. ALTERNATIVES AT THE END OF THE PIP

1. Primary treatment, storage, and forest irrigation.

2. Stabilisation ponds with chemical (calcium hydroxide) precipitation

3. Primary treatment, trickling filter, and bio filter ditch.

4. Primary treatment, trickling filter, and crop/wetland rotation.

5. Primary treatment, sand filter, and biofilterditch/wetland

6. Package treatment plant (sequence batch reactor, SBR) including nitrification, followed by a biofilterditch or wetland.

CASE STUDY OF SEWAGE TREATMENT PlAN IN RURAL AREA (MADHI VIILAGE)

Madhi village is under bardoli region of gujrat state. The population per information of authority a gram panchayat of madhi village is 7650. The total solid waste approximately502.43Kg par day in madhi village. The activity management of solid waster center point generation of five function elements.1). Waster generation, 2). Collection, 3).Transportation, 4).Proccecing and 5). Disposal. The material which from various human activities and which is normally useless or unwanted is know as a solid waste material. And it is a also define as a non liquid .

Solid waste include like a , plastic waster, paper waste, glass, wood , cotton waste, silt waste, etc..

Solid waste generation in madhi village:

In madhi village, waste is serving threat to public hea6and cleaning. It is estimated that, the large quantity of solid waste generation is due to biodegradable material. As per our collection data and analysis the average solid waste generation is 502.43 kg/day.

Sr.No	Types of waste	Collection (kg/day)	%composition
1	Plastic	26.91	2.92
2	Paper	19.43	3.53
3	Glass	19.51	3.73
4	Wood	23.91	1.33
5	Metallic	13.5	3.05
6	Cotton	21.71	2.22
7	Vegetable	358.07	78.66
8	Silt	19.40	3.70

Table:5: collection data and analysis of solid waste.

During this generation of solid waste problem:

- Improper collection and disposal system
- Unhygeienic conditions are produced within the area.

How can you management solid waste in madhi village:

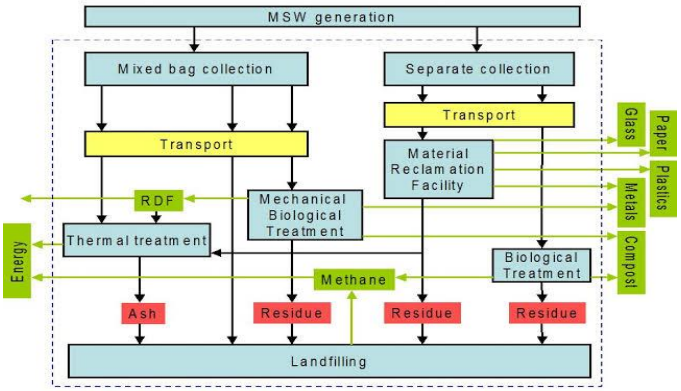
1) At household level:

This Is to be done by generating awareness to sort out waste at the household level by keeping biodegradable and non biodegradable waste in separate colour bins of 5 to 10 liters capacity each.

Household level in this method of pit method. Pit method form of dimension 1meter ×1meter×1meter depending on availability of land. By which the manual while from with help of cow dun kand earth.

Community level: The estimated h and every individual household should adopt etlist two collect bins. The namely collection biodegradable waste and a blue colour is a non biodegradable waste.The number of pairs of sanitation connection, workers along with modern recycle having a separate chamber should bi adopted. The each vehicle may be responsible for collection of waste for about 100 to 120 household approximately in madhi village. From the community bins, collection workers will collect the waste and transfer to treatment site.

Recycle and reuse:



A effort are made to segregate the biodegradable and non biodegradable solid waste in to two portion of madhi village treatment recycle and reuse. Solid waste need to packed and stored ghe safe place and a suggestion for a madhi sarpanch .

We are a divided the village a recycling of paper waste can be done and making waste paper a old art. The process has been refined and this sarpanch rules in this treatment. The articles are so study that they can been alternatives to wood to some. Segregated plastic waste need to be packed and stored in a safe place and sell to the local recycle this treatment.

Calculation of estimate and calculation of this treatment:

Coast required for the construction work of four vermitanks along with shed.

1. Cost of four vermitanks = Rs.30,300.
2. Coast of shed = Rs 30,300
3. Coast of community bins = 16,900
4. Labours required:
    - Fortricycles = 3×200 per year = Rs. 2,19,000
    - For disposal site = 2×200per year = Rs. 1,46,000

5.Total cost = Rs. 3,65,000 per year.

Conclusion of solid waste management :

The madhi village has wealth in terms of crop residues , animals excretion and domestic refuge normally waste. A system management and utilization approach applying the innovation will only help in maintain rural area clean but will also provide sufficient energy raw material for many industries. The waste management technologies have about a positive thinking and positive changes in the madhi village people. But we can present a level of maturity in the area of waste management in the madhi village .

CHAPTER 6. Swatchhbharatabhiyan (clean india)

6.1 Swatchhta needed in allocated village -existing situation with photograph

Water is essential for human life.variouswater source include ,river ,rain,lakes ,ponds ,wells etc.evryhousehold needs water for a number of purposes like a cooking ,drinking ,cleaning of the house ,bathing, washing of cloths ,personal sanitation for household animals and watering plants around the house. the purpose so that the quality of life is impressed.
The critical issue in water and sanitation Is that of its usage for most purpose to further of the remaining water. care and careful measures are required to avoid this .
As part of swachhbharatabhiyan lot of activities are undertaken to ensure of clean India .freedom from the goal for all village of clean India.

- **Needed to facilities**

1. irrigation method
2. participate local communities improving water and sanitation management.
3. water supply schemes
4. environment management
5 facilities for solid and liquid waste management.

FIG.6.1.A-unclean roads

FIG6.1.B-garbage collector and public toilet

6.2 Guidelines-implementation in allocated village with photograph

The guidelines talk about building more toilets or community toilet complexes to not leave anybody out .they also mention availability of adequate water or storage facilities of water for these toilet.
Grampanchayatshould converge village action plans (VAP) for SBM and Jal jeevan mission according to the guidelines.
The Swachh Bharat Mission is split into two sub Missions Swachh Bharat Mission (Gramin) and Swachh Bharat Mission (Urban).

⇒ Swachh Bharat Mission (Gramin), Gram Panchayats and ZillaParishads will work on war footing to make sure that all households in all villages have functional water supply and toilet facilities. Productive use of night soil as bio-fertilizers is also on the cards.

⇒ A project proposal shall be prepared by the District, scrutinized and consolidated by the State Government into a State Plan. The State Plan with district wise details will be shared with the Government of India (Swachh Bharat Mission-Ministry of Drinking Water and Sanitation). This Plan will include a 5-year Plan along with 5 independent Annual Plans which mergeinto the 5-year Plan. These plans shall be approved by the Ministry each year.

⇒ On the basis of formative research and consultation rounds, the State shall develop a tailor made Communication Strategy, a Communication Plan, and material and will train community mobilisers to use these tools. Funds are to be made available for these preliminary IEC works including for triggering behaviour change. This will endeavour to reach every household in every community and shall disseminate information regarding the need for safe sanitation, the ill effects of open defecation, and getting the population oriented towards satisfying their felt-needs.

⇒ The provision of Incentives for individual household latrine units to the rural households is available to States that wish to provide the same. This may also be used to maximize coverage so as to attain community outcomes.

6.3 Activities done by students for allocated village with photograph

Improvement in the general quality of life in the rural area by promoting cleanliness

Develop managed sanitation system focusing in solid and liquid waste management System for overall cleanliness.

Solid waste management

1. maximaum reuse of organic solid waste as manure should be adopted .such technology may be included composting method ,individual and any other biogas plants.
2. solidliquid waste management may be used to implement safe disposal solution for used sanitary cloths (pads) and setting up incinerator in schools, women communities sanitarycomplex ,primary health centers or any other place in village and collection mechanism etc.can be taken up.

Liquid waste management

1. Method adopted for management of liquid wastes may focus maximum reuse such waste of agricultural purpose with least operation and maintenance cost.
2. Collection of waste water, low cost drainage/small bore system, leakage pit may be adopted.

Our main purpose of this project is to clean the village and using the method of separate garbage. Divided the parts of dry and wet waste. We want to reuse this waste for ecofriendly manner. We want to make the people of the village and cleaning the area.

- Following the rules three are:

1. Reduce
2. Reuse
3. Recycle

Grampanchayat should coverage village action plan and Jal Jeevan Mission according to the guidelines.

CHAPTER 7. Village condition due to covid– 19

Sothis at least from the covid – 19 scene in India.
According to this report, two part of nationwide survey conducted by the India Council For Medical Research (ICMR) reveals that corona virus spread in the rural village of India likely approximate 44.4 lakh people living in rural India by May.
The report suggest that the amount of testing that was done was about 74.15% in rural villages , 9% was done in urban slums and 16.84% urban non slum areas the report says.

- **5 major problem rural facing because of covid -19**

1. Sharp dip in crop prices business loss.
2. Increase farmers suicide
3. Rise in child marriage
4. Job crunch , failure of village schemes
5. Shortage of doctors , health workers in villages

7.1 Taken steps in madhi villages related to existing situation with photograph

- Limit your daily salt approximate less than 5gm and use iodized salt.
- When cooking and preparing food, limit the amount of salt and high sodium condiments.
- Choose fresh fruits instead of sweet snacks such as cookies , chocolate, etc..
- Limit your intake a soft drinks or sodas and other drinks that are high in sugar (I.e. fruit juice)
- The aid promised by the government has yet to reach many households
- Most rural communities relay on untrained health workers over two – third rural health providers have no formal medical training but remain the only option of medical support for most of the rural population.
- Senior citizen and children can not go during that situation of lockdown.
- Social distancing. (1 ft this distance).
- Mass compulsory and sanitize this hand or use this hand wash.

7.2 Activities Done by Students for allocated village with photograph

Allocated village is madhi village district Bardoli. We are a group research is village during this corona covid -19 times and this time is a danger and after a lockdown a going madhivillage. So, different activities in covid -19.

- Following activities in covid -19:
- Follow this guideline of corona covid.

There are rooting vegetable in some regions of madhiBardoli result of the transport system.

FIG7.2A-mask distribution

-
- Read in all detail how to rural public health infrastructure in its current state is not ready to deal with this padenic.
- Learn more issues faced by migrant workers in this period, and the long term impact it can possibility have on the migrant economy.

7.3 Any other steps taken by Students/ villages

- First of all we should keep clean every places .
- We should the follow rules and regulation during covid-19.
- To wear mask, keep social distances, stay home and stay safe.
- If you find any coivd – 19 symtance called help line number,
- Social distance is every place
- Mask and sanitizer any shope, mall k everything place is available.
- Donate this corona patient in money other this patient helpful..
- And any main centre check this temperature and rapid hardening test
- Any work go out of home again come to home so without fresh is not touch to everything home.

7.3.A-social distancing

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

(Scenario / Existing Situation / Proposed Design in Auto cad / Recapitulation Sheet/ Measurement Sheet / Abstract Sheet / Sustainability of Proposal / Any other software)

8.1Design Proposals

8.1.1 Sustainable Design (Civil) : Riverfront park

Scenario: some area which is far from all facilities of cities. in which ,one of them is public gardens. Public gardens are place therechildren plays and also it is place where senior citizen meet and can pass time. So as we know rural area are not considered at under the city municipality so maybe so many village doesn't have such kind of facilities. Which is now coming out and developing by government with some requirement of village.

Existing situation of madhi:formadhi we have designed one riverfront park .the population of madhi is 7650 as per census of 2011.so it need to develop one recreation area that we design as riverfront park.

Riverfront park as important infrastructure:
Design utilized by:childrens ,villagers and also visiters of village;etc
Needs:basic children play equipments,exercise equipment ,security,maintenance;etc
Design brief:A garden is a planned space, usually outdoors, set aside for the display, cultivation, or enjoyment of plants and other forms of nature, as an ideal setting for social or solitary human life
Common repair and maintenance of the structure: first and for most step which should be taken is to gardening regularly, also mowing the lawn area of park, garden wall should be contain some amazing design paint so there no one can damage it also garden needs common security ,in last is should maintain by regularly inspection like monthly, or yearly like: plastering and painting ; gardening and landscaping ;paving repairs ;etc.

Autocad plan of riverfront park: -

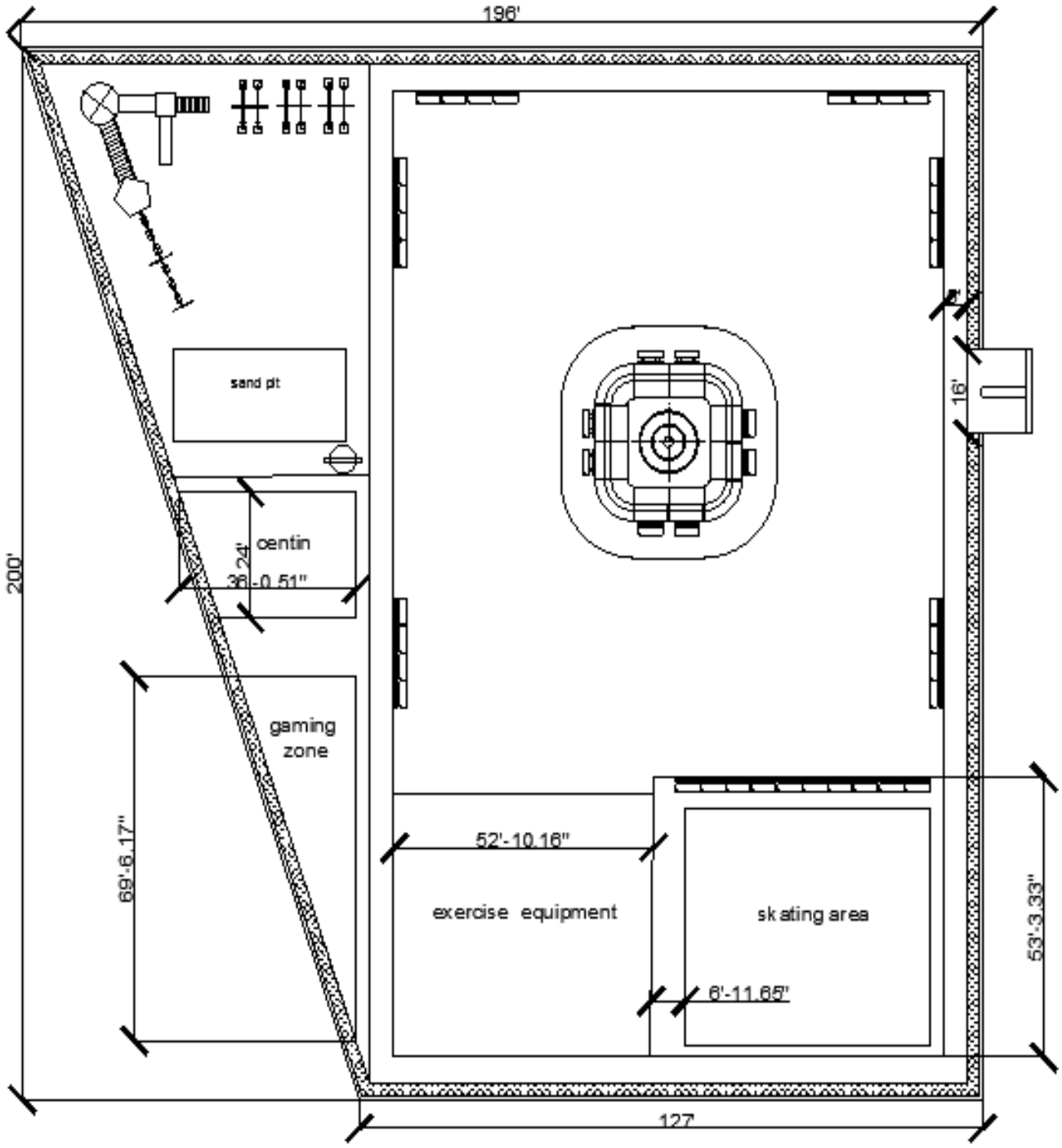


FIG8.1.1A-riverfront Park

Measurement sheet of riverfront park:-

SR NO	DISCRIPTION	LENTH (FT)	WIDTH (FT)	HEIGHT (FT)	COUNT(NOS)	TOTAL QUANTITY(FT^3)
1	LONG WALL(9")	395.5	.75	8	1	2373
2	SHORT WALL	323	.75	8	1	1938
3	PCC	49.75	45.1	.5	1	1121.8
4	GRASS	139.7	111.85	.5	1	7812.7
5	GRASS IN DEVIDER	408.4	319.98	.5	1	65339.9
6	DEDUCTION IN GRASS OF DEVIDER	399	310.58	.5	1	61845
7	PAVING BLOCK	194	121.83	.5	1	11817.5
8	ADDITION IN PAVING BLOCK	16	12.83	.5	1	102.6

TABLE8.1.1A-MS of RP

Abstract sheet of riverfrontpark:-

SR NO	DISCRIPTION	QUANTITY(FT^3)	RATE	PER	AMOUNT
1	LONG WALL(9")	2373	130	Ft^2	4,11,320
2	SHORT WALL	1938	130	Ft^2	3,35,920
3	PCC	1121.8	80	Ft^3	89,744
4	GRASS	7812.7	5	Ft^2	78,127
5	GRASS IN DEVIDER	65339.9	5	Ft^2	6,53,399
6	DEDUCTION IN GRASS OF DEVIDER	61845	5	Ft^2	6,19,607
7	PAVING BLOCK	11817.5	60	Ft^2	14,18,101
8	ADDITION IN PAVING BLOCK	102.6	60	Ft^2	12,316.6
				Total	23,79,320.6

TABLE8.1.1B-AS of RP

It is an approximate estimate of works which have shown in abstract sheet of riverfront park along with quantities are inclusive cost of water uses ,steel in rcc,labour cost, finishing of stairs.

Total cost:-23, 79,320.6

8.1.2 Physical design (Civil): Hospital

Scenario: a hospital is considered as a health care place which can be private or government. Which government has works on to not let anyone's health down and also it has advance equipment for various treatments in government healthcenters.Government hospital plays wider roll like situation of condition like corona.

Existing situation in Madhi :in a Madhi village there is no PHC however there is some private clinics available and SC which needed renovation and clinics does not have all equipment of treatment when emergency occurs, so for seeing future scope it would need one advance government hospital which have all treatment equipments.

Hospital as a important infrastructure :
Design utilized by: all the villagers and also nearby village which does not have such kind of facilities they will use is for normal health conditions or emergency situation.

Needs: first and for mostreason, in emergency situation of madhi or nearby village they will able to direct access hospital in madhi or other use by regular checkup of health ;etc.

Design brief: hospital is an important infrastructure which use to maintain our health at good condition, and in emergencies there will always available doctors before hospital they have to go for nearest taluka like Bardoli but after development of hospital in madhi they will access all the medical facilities over there.

Common repair and maintenance of hospital: some common repair and maintenance as shown below:extrior and plastering; landscaping and gardening;pavingrepairs;carpenting and andflooring;plumbing;repairing cracking or leaning walles;etc.firstof all there is some steps should taken like cyclical maintenance. on the other hand it should be maintain by maintained of monthly or yearly programme.

Autocad plan of hospital: -

FIG8.1.2A hospital ground floor plan

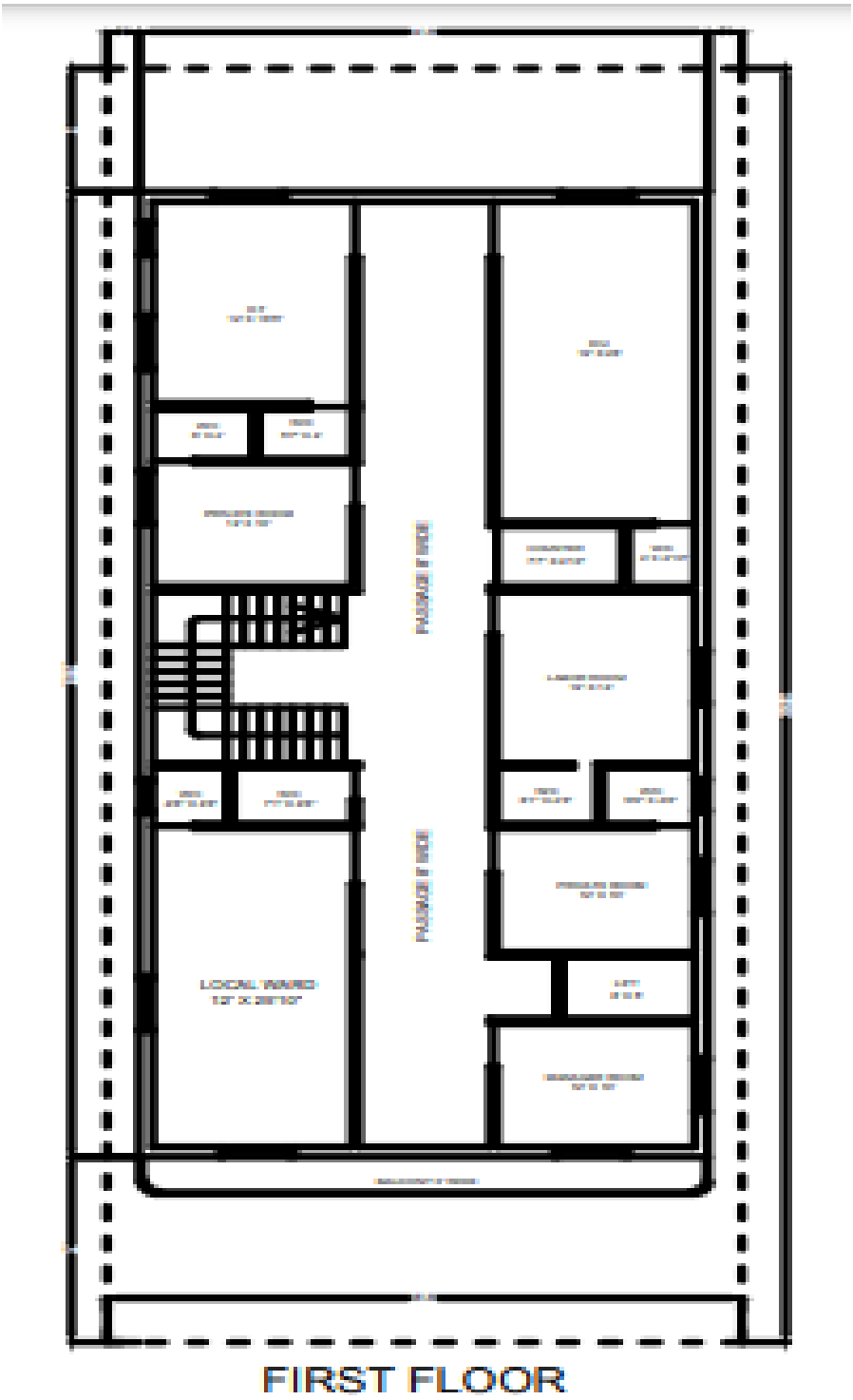
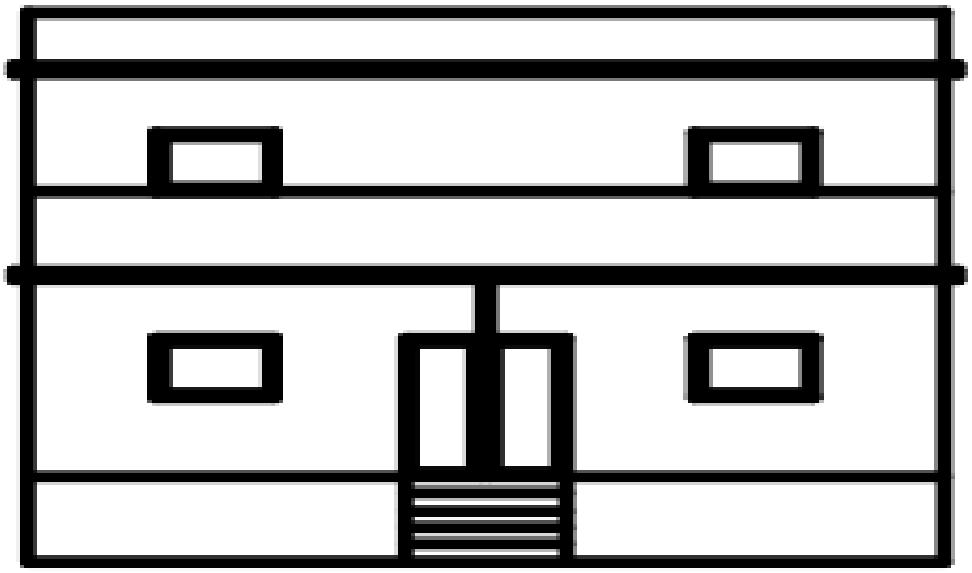


FIG8.1.2 B hospital firstfloor plan



ELEVATION

FIG8.1.2C-hospital elevation plan

Measurement sheet of hospital:-

SR NO	DISCRIPTION	LENTH (FT)	WIDTH (FT)	HEIGHT (FT)	COUNT(NOS)	TOTAL QUANTITY(FT^3)
1	LONG WALL 10”	78.5	.83	10	4	2606
2	SHORT WALL	34.5	.83	10	4	1145
3	INTERNAL WALL 5”	318.495	.41	10	2	2611.7
4	INNTRNAL STAIR	4.5	1	.5	19	42.75
5	OUTER STAIR	6	.83	7.5	5	186.75
6	EXCAVATION	2	2	5	6	120
7	RCC	2	2	5	6	120
8	PAEAPET WALL	226	.83	3	1	562.74
9	SLAB	80.5	34	.5	2	2737
10	SLAB IN DEDUCTION	14	11.5	.5	2	161
	TOTAL SLAB					2576

TABLE8.1.2A-MS of Hospital

Abstract sheet of hospital:-

SR NO	DISCRIPTION	QUANTITY(FT^3)	RATE	PER	AMOUNT
1	LONG WALL 10”	2606	130	Ft^2	4,08,168
2	SHORT WALL	1145	130	Ft^2	1,79,337
3	INTERNAL WALL 5”	2611.7	90	Ft^2	5,73,300
4	INNTRNAL STAIR	42.75	500	Ft^3	21,375

5	OUTER STAIR	186.75	500	Ft^3	93,375
6	EXCAVATION	120	10	Ft^3	1,200
7	PCC IN FOOTING	120	80	Ft^2	4,800
8	PAEAPET WALL	562.74	80	Ft^3	45,019
9	SLAB	2737	150	Ft^2	8,21,100
10	SLAB IN DEDUCTION	161	150	Ft^2	48,300
11	TOTAL SLAB	2576	150	Ft^2	7,72,800
12	DESUCTION	700	130	Ft^2	1,56,000
				TOTAL COST	19,43,374

TABLE8.1.2B-AS of Hos

It is an approximate estimate of works which have shown in absract sheet of hospital along with quantities are inclusive cost of water uses ,steel in rcc,labour cost, finishing of stairs
.Total cost:-19, 43,374

8.1.3 Social design (Civil): Public library

Scenario: public library is generally use as to gather some information or improve knowledge.user can borrow book or materials whatever they need .mainly library consist plethora of books. Which can be used by library users in which library provides space for readers with peace.

Existing situation in madhi:in the madhi village there is no any public library as well as population of madhi is around 8000 so village needed one public library to gather knowlede.it is public location where people can rather read books or material in libarary or they can borrow it.

Public library as an important infrastructure:

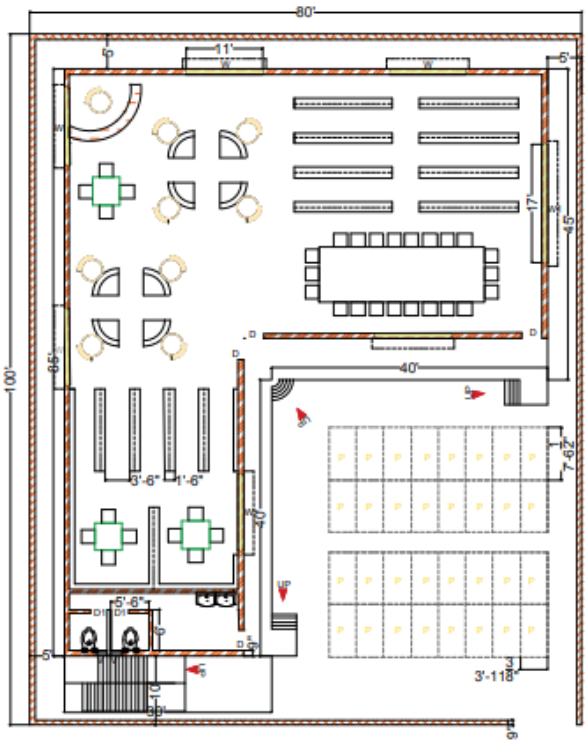
Desgn utilized by:all villagers can use this infrastructure. However, majorly students use library most or whoever desire to gain knowledge, library have been used by them.

Needs:where people can sit in peace and gain some knowledge or else if anyone not afford material they can borrow from library.

Design brief:public library plays vital rolles to them who don't have much material to improve their knowledge they can borrow material from library and also it will improve education index of country .public library is the right place where anyone can feel peace which need for focus of mind in whatever we reading consequantly it will helpful for needy people who doesn't have such kind of facilities at their place.

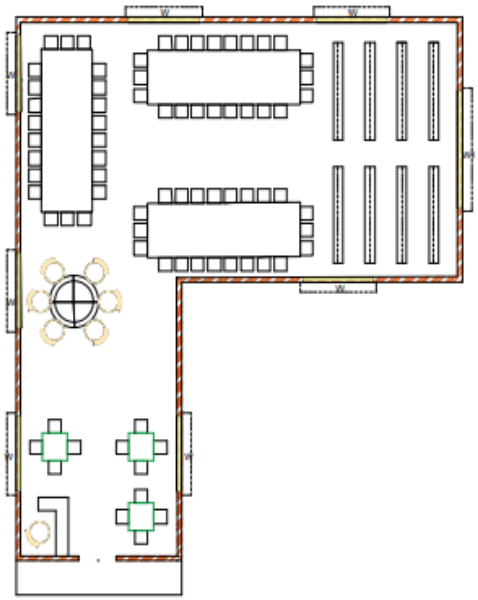
Common repair and maintenanceof structure: library needs to maintain material ,novels and other reading material very carefully and also keep updating library material with new one. In addition to that ,some steps should be taken for maintenance of public library is to maintain structure in good condition ,pumbing and repairing of cracks .library has to be maintain by several maintenance programme like monthly or yearly pogramme.

Autocad plan of public library: -



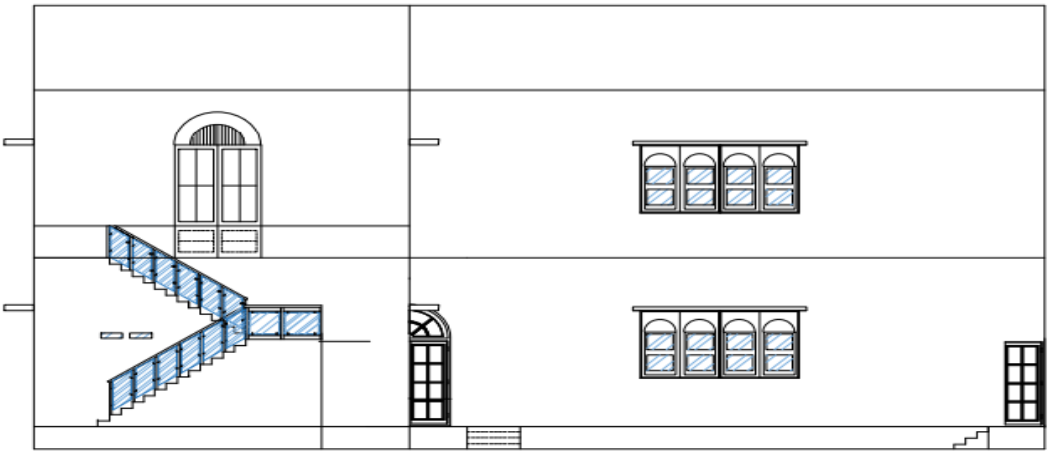
GROUND FLOOR PLAN

FIG.8.1.3A-ground floor plan



FIRST FLOOR PLAN

FIG8.1.4B-first floor plan



ELEVATION

FIG.8.1.3C-elevation

Measurement sheet of public library:-

SR NO	DISCRIPTION	LENTH (FT)	WIDTH (FT)	HEIGHT (FT)	COUNT(NOS)	TOTAL QUANTITY (FT^3)
1	LONG WALL 9”	170	.75	15	2	3825
2	SHORT WALL	140	.75	15	2	3150
3	INTERNAL WALL 6”	25	.5	15	1	187.5
4	PARTATION WALL IN TOILET	15	.5	10	1	75
5	OUTER STAIR 1	4	.83	.58	29	55.84
6	OUTER STAIR 2	3.67	.83	.5	8	12.18
7	EXCAVATION	2	2	3	7	84
8	RCC	2	2	3	7	84
9	PAEAPET WALL					
10	SLAB	85	70	.5	2	5950
11	SLAB IN DEDUCTION	40	40	.5	2	1600
			TOTAL SLAB			4350

TABLE8.1.3A-MS of PL

Abstract sheet of public library:-

SR NO	DISCRIPTION	QUANTITY(FT^3)	RATE	PER	AMOUNT
1	LONG WALL 9”	3825	130	Ft^2	6,63,000
2	SHORT WALL	3150	130	Ft^2	5,46,000
3	INTERNAL WALL 6”	187.5	90	Ft^2	33,750
4	PARTATION WALL IN TOILET	75	90	Ft^2	13,500
5	OUTER STAIR 1	55.84	500	Ft^3	27,920

6	OUTER STAIR 2	12.18	500	Ft^3	6,090
7	EXCAVATION	84	70	Ft^2	2,940
8	RCC	84	80	Ft^3	2,940
9	SLAB (INCLUDING STEEL, SHUTTERING AND CENTERING)	4350	150	Ft^2	1,305,000
10		675	130	Ft^2	87,750
				TOTAL	25,13,390

TABLE8.1.3 B-AS of PL

It is an approximate estimate of works which have shown in abstract sheet of public library along with quantities are inclusive cost of water uses ,steel in rcc,labour cost, finishing of stairs.
Total cost:-25, 13,390

8.1.4 Socio-Cultural design (Civil): Community hall

Scenario: community hall is public location where members of a community gather for group activities like marriage, engagement ceremonies so on. They may sometimes be open for whole community or for specialized group example mahila Mandal hall.

Existing situation in Madhi: in the Madhi village there is chokhawalasmarak hall available but it is to small for some events like marriage, ring ceremony and Sneh Milan samaroh etc., so we decide to develop one community hall for village. they may sometimes be open for whole community or for specialized group example mahila Mandal hall.

Community hall as an important infrastructure:

Design utilized by: villagers of Madhi village can use, even outside from nearby villages and relatives of the villagers can use it for their different uses with permission of sarpanch ,Talati and some authorized people of the village.

Needs: where members of a community gather for group activities,events,festivals and social purpose;etc

Design brief: community hall is an important building in a prominent location. Village and community halls are smallest building that can accommodate a sports programme alongside the customary social and arts pursuits. there are a wide variety of types and sizes, all with the following in common. a main activity assembly space together with ancillary accommodation that might include additional small halls. the place has a strong or special association with a particular community or community hall design.
Common repair and maintenance of structure: community hall needs to maintain main hall because if hall not used from long time, then maybe tile will dull. In addition to that, some steps should be taken for maintenance of community hall is to maintain structure in good condition,

plumbing and repairing of cracks. Community hall has to be maintained by several maintenance programme like monthly or yearly pogramme.

Autocad plan of community hall: -

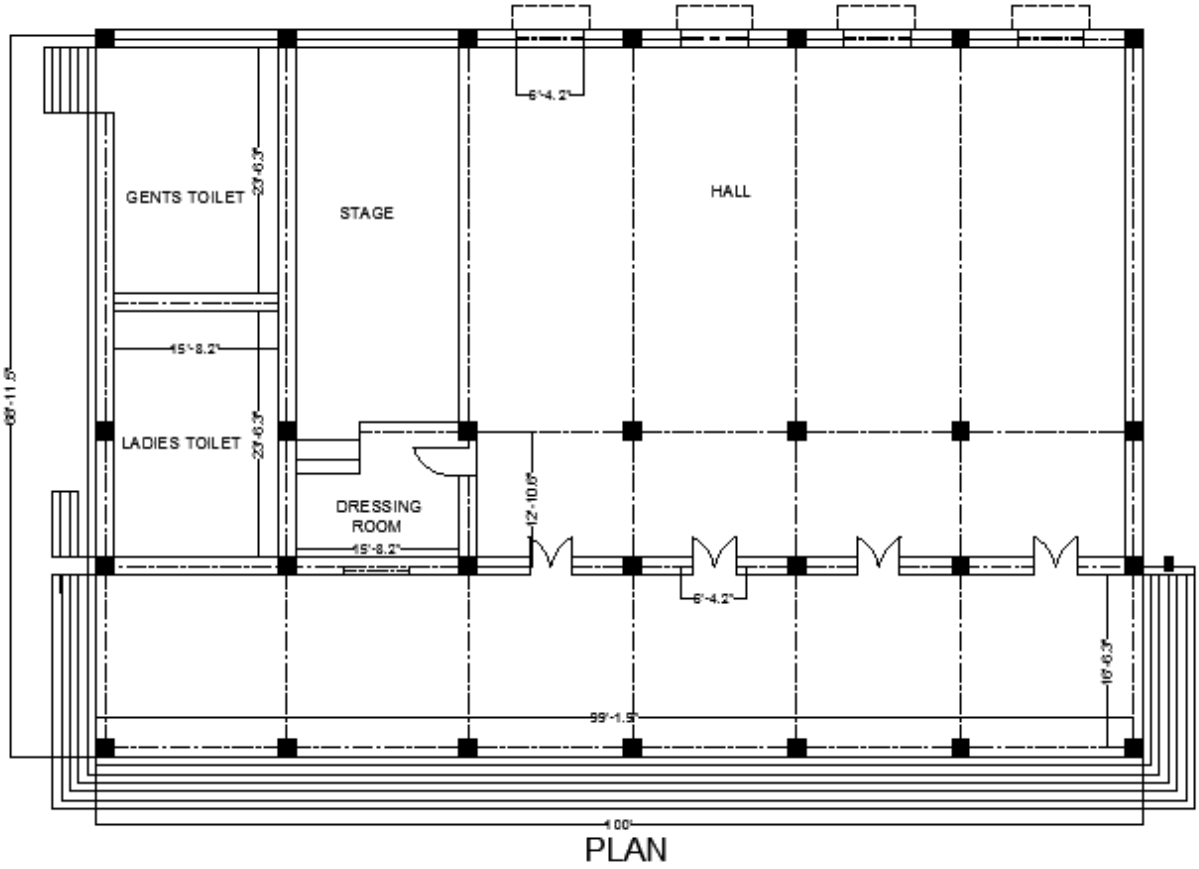


FIG8.1.4A-community hall plan

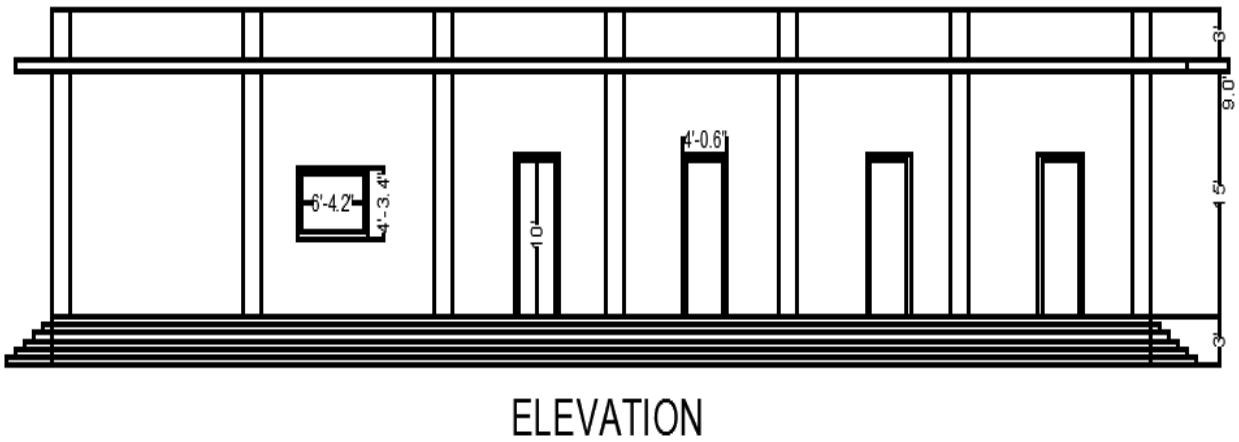


FIG8.1.4B-elevation of community hall

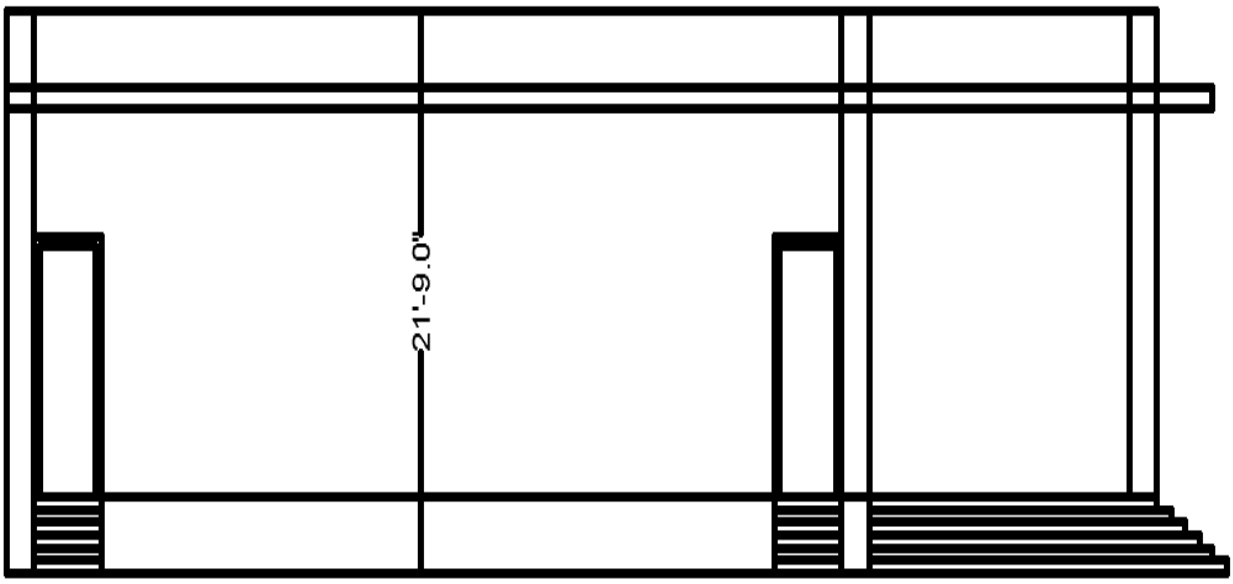


FIG8.1.4C-section of community hall

Measurement sheet of community hall:-

SR NO	DISCRIPTION	LENTH (FT)	WIDTH (FT)	HEIGHT (FT)	COUNT(NOS)	TOTAL QUANTITY(FT^3)
1	LONG WALL (1.68")	100	1.68	15	2	5040
2	SHORT WALL	52.1	1.68	15	2	2625.8
3	INTERNAL WALL (1.68")	75.58	1.68	15	1	1904.6
4	EXCAVATION	2	2	3	28	336
5	RCC	2	2	3	28	336
6	STAIR	153.42	.83	.5	6	382
7	SLAB	100	68.9	.5	1	3445
8	DEDUCTION	73.1	6.35	7	1	3249

TABLE8.1.4A-MS of CM

Abstract sheet of community hall:-

SR NO	DISCRIPTION	QUANTITY(FT^3)	RATE	PER	AMOUNT
1	LONG WALL (1.68")	5040	290	Ft^2	8,70,000
2	SHORT WALL	2625.8	290	Ft^2	4,53,270
3	INTERNAL WALL (1.68")	1904.6	290	Ft^2	3,29,208
4	EXCAVATION	336	70	Ft^2	11,760
5	RCC	336	80	Ft^3	26,880

6	STAIR	382	500	Ft^3	1,91,000
7	SLAB	3445	150	Ft^2	10,33,500
	DEDUCTION	3249	130	Ft^2	66,521
				TOTAL	29,09,097

TABLE8.1.4B-AS of CM

It is an approximate estimate of works which have shown in abstract sheet of community hall along with quantities are inclusive cost of water uses ,steel in rcc,labour cost, finishing of stairs.
Total cost:-29, 09,097

8.1.5 Smart Village Design (Civil): Fire station

Scenario: fire station is providing safety from fire. There is no fire station in Madhi and nearest fire station is approx. 20km far so it should develop in Madhi, which help in nearby area of Madhi village. also if we considered future scope there is approx. population is 8000 so in future it is needed to develop in Madhi.

Existing situation in Madhi: in the Madhi village currently not available any fire station it is available in nearby area of 20 km sometimes on emergency situation maybe it is possible that it will not reach on time if we call it from 20 km so better to develop fire station in Madhi.

Fire station as an important infrastructure:

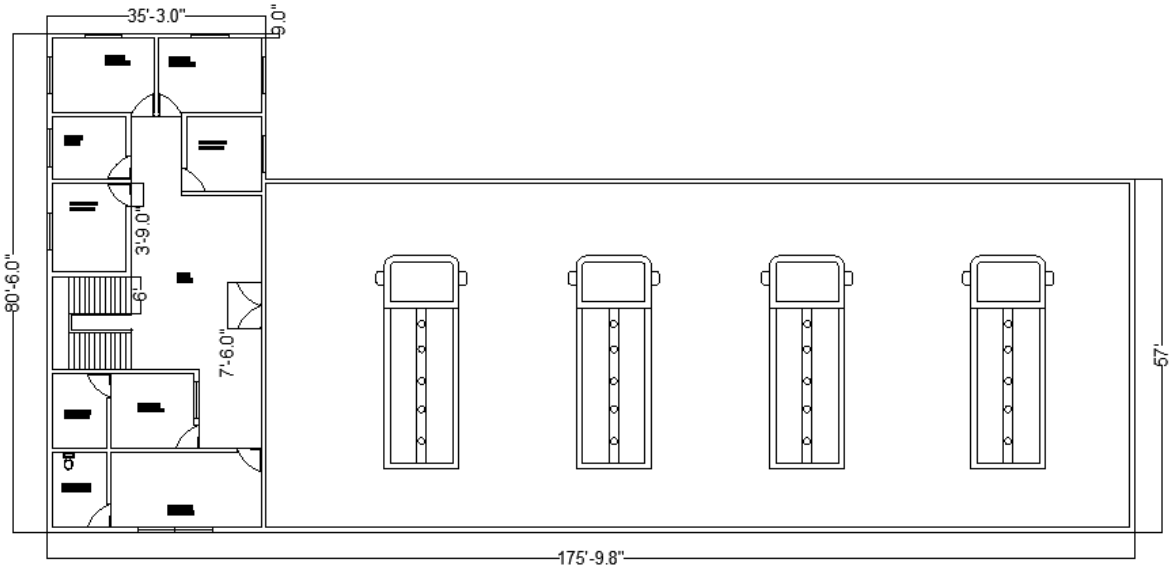
Design utilized by: Madhi village and also nearby village of Madhi there is some factories around Madhi so if any incident will occur there, they can use Madhi fire station to help out them.

Needs: maintenance of fire station,much amount of water resource and cottages to accommodate fire fighters.

Design brief: fire station is an important infrastructure as we know there are lots of accidents occurs so that fire station will be needed much. in fire station ,their service available 24*7. Which needed more firefighter for 2 shifts of duties?

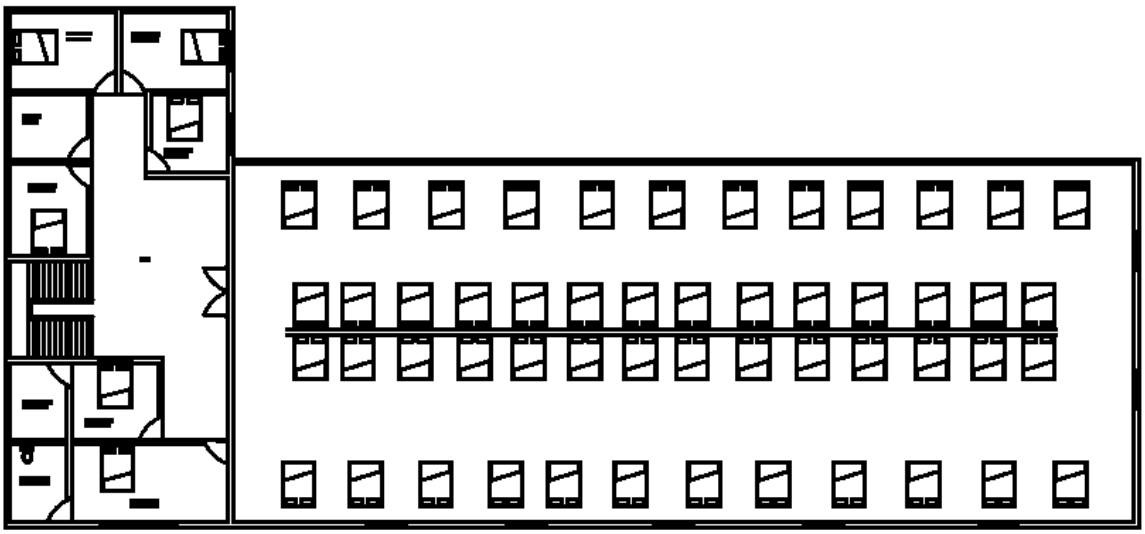
Common repair and maintenance of structure: fire station is important infrastructure as it need maintenance also like to inspection of building. In addition to that, some steps should be taken for maintenance of fire station is to maintain structure in good condition, plumbing and repairing of cracks. Fire station has to be maintained by several maintenance programme like monthly or yearly pogramme.

Autocad plan of fire station: -



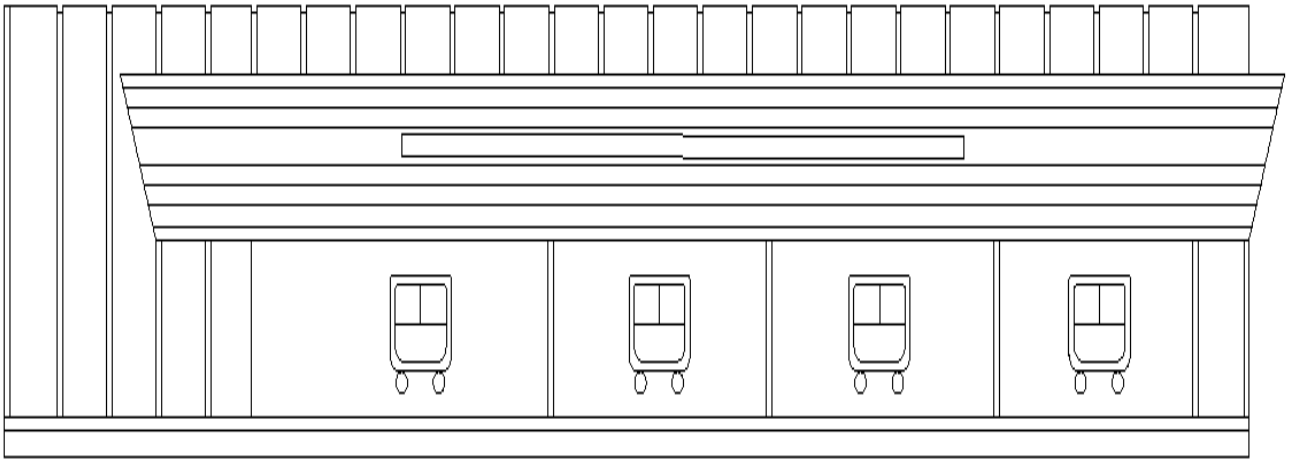
GROUND FLOOR

FIG8.1.5A-fire station plan



FIRST FLOOR

FIG8.1.5B-first floor plan of fire station



ELEVATION

FIG8.1.4C-elevation of fire station

Measurement sheet of fire station:-

SR NO	DISCRIPTION	LENTH (FT)	WIDTH (FT)	HEIGHT (FT)	COUNT(NOS)	TOTAL QUANTITY(FT^3)
1	LONGWALL(9")	351.62	.75	15	2	7911.45
2	SHORTWALL	161	.75	15	2	3622.5
3	INTERNAL WALL(9")	261	.75	15	2	5872.5
4	STAIR	6	.83	.58	24	69.3
5	EXCAVATION	2	2	3	7	84
6	RCC	2	2	3	7	84
7	SLAB	351.62	161	.5	2	5661.82
8	DEDUCTION IN SLAB	140.5	23.5	.5	2	3301.75
					Total slab	2360.07

TABLE8.1.5A-MS of FS

Abstract sheet of firestation:-

SR NO	DISCRIPTION	QUANTITY(FT^3)	RATE	PER	AMOUNT
1	LONGWALL(9")	7911.45	130	Ft^2	13,71,318
2	SHORTWALL	3622.5	130	Ft^2	6,27,00
3	INTERNAL WALL(9")	5872.5	130	Ft^2	10,17,900
4	STAIR	69.3	500	Ft^3	34,650
5	EXCAVATION	84	70	Ft^2	2,940
6	RCC	84	80	Ft^3	6,720
7	SLAB	5661.82	150	Ft^2	84,91,623

8	DEDUCTION IN SLAB	3301.75	150	Ft^2	4,95,262.5
	DEDUCTION	1518.7	130	Ft^2	2,63,250
				total	1,02,29,338.5

TABLE8.1.5B-AS of FS

It is an approximate estimate of works which have shown in abstract sheet of public fire station along with quantities are inclusive cost of water uses ,steel in rcc, Labour cost, finishing of stairs.
Total cost:-1, 02,29,338.5

8.1.6 Heritage Village Design (Civil) : Entrance gate

Scenario: village gate as a heritage village design that is the entry or exit way of village. gates enhance the impression of village. the word is derived from old Norse "gat" meaning road, and originally referred to the gap in wall or fence, rather than the barrier which closed it.the moving part considered as a doors of gate, as they are fixed at one side whist opening and closing.
Existing situation in Madhi: in present there is no any entrance gate of village exist.as every village have gate so after thinking that we decided to make an entrance gate design to give heritage gate .

Entrance gate as an important infrastructure:
Design utilized by: village's villagers and outsider who come to visit for village or the villages nearby Madhi can utilize it.
Needs: good and reliable design of gate which looks aesthetic ,as well as easy to use and approach road to the entrance gate also should be good;etc.
Design brief: entrance gate design as a heritage design for village which gives impressive look to village entry and gate should be look aesthetic which will enhance the beauty of entrance gate.

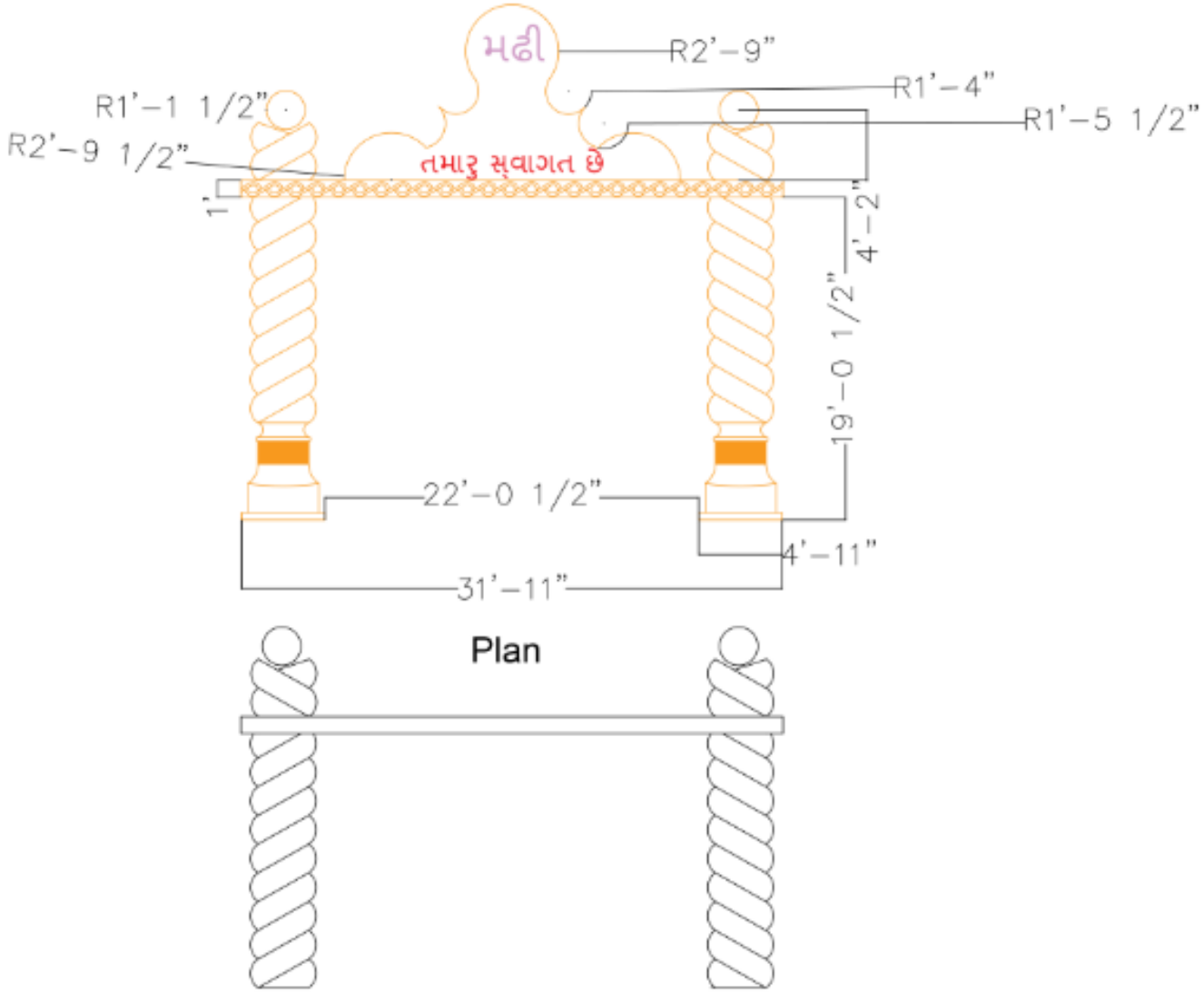
Common repair and maintenance of structure: there should some step be taken as: exterior painting and plastring;pavingrepair;carpenting and flooring; repairing cracks or leaning walls so on.

Measurement sheet of entrance gate:-

SR NO	DISCRIPTION	LENTH (FT)	WIDTH (FT)	HEIGHT (FT)	COUNT(NOS)	TOTAL QUANTITY(FT^3)
1	PILLER 1	4.9	4.9	8.67	2	416
2	PILLER 2	3.75	3.75	17.67	2	496.97
3	SLAB	32	4.9	1	1	156.8
4	UPPER TOP	15	1	5	1	75
5	FOOTING	4.9	4.9	2	2	96
6	EXCAVATION	4.9	4.9	2	2	96

TABLE8.1.6A-MS of EG

Autocad plan of entrance gate: -



Abstract sheet of entrance gate:-

SR NO	DISCRIPTION	QUANTITY(FT^3)	RATE	PER	AMOUNT
1	PILLER 1	416	150	FT^3	62,400
2	PILLER 2	496.97	150	FT^3	74,547
3	SLAB	156.8	150	FT^3	23,520
4	UPPER TOP	75	150	FT^3	11,250
5	FOOTING	96	150	FT^3	14400
6	EXCAVATION	96	10	FT^3	9600
				TOTAL	1,95,717

TABLE8.1.6B-AS of EG

It is an approximate estimate of works which have shown in abstract sheet of entrance gate along with quantities are inclusive cost of water uses ,steel in rcc, Labour cost, finishing of stairs.

Total cost:-1,95,717

8.2Reason for Students Recommending this Design

Library: -to provide extra knowledge to the villagers or materials

Hospital: -to take care health of villagers or nearby village

Riverfront park: - to provide recreational activities to villagers

Fire station:-to prevent fire accidents or get help in fire accidents

Village gate: - to enhance the entry of village and provide entry or exit

Community hall: -to gathering for community events and other purpose

8.3About designs Suggestions / Benefit of the villagers

Public Library:-There is no public library in madhi village. Public library is a public location where villagers of village use it for to gain knowledge from different type of sources like digital and physical, villager can borrow book or material from library who cannot afford it to buy

Hospital: -

A hospital is considered as a health care place which can be private or government. Which government has works on to not let anyone's health down and also it has advance equipment for various treatments in government healthcenters.Government hospital plays wider roll like situation of condition like corona.

Riverfront park: -

Public gardens are place therechildren plays and also it is place where senior citizen meet and can pass time. So as we know rural area are not considered at under the city municipality so maybe so many villages doesn't have such kind of facilities. Which is now coming out and developing by government with some requirement of village.

Fire station:-

fire station is providing safety from fire .there is no fire station in Madhi and nearest fire station is approx. 20km far so it should develop in Madhi, which help in nearby area of Madhivillage .also if we considered future scope there is approx. population is 8000 so in future it is needed to develop in Madhi.

community hall:-

There is no Community hall in the kamrol village. Community hall is a public location where members of a community gather for group activities, events, festivals and social purpose. A community hall of village generally consists of a hall , storage or kitchen area and washroom.

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

In future the design we will propose is given below:

Maintenance of policestation: police station of madhi village damage so much it needed fully infrastructure detailing again which is base of village peace because of police station there is minor chance of occurring crime.

Skill development centre :in the madhi village, major population of madhi does labour work or agricultural work because they don't know the other work so anyhow they have to do that works for fulfill their requirement so after notice that point we decide to give design of skillDevelopmentcentre.

Waste water treatment plant :major problem of village is there is no any system to reuse waste water or filter for treatment of waste water like to release in river or nearest natural resource so one waste water treatment plant needed.

Solid waste treatment plant: inmadhi village currently they are using dumping site as river side area which makes river polluted and also there is no solid waste disposal system present in madhi village that is needed to develop in mdhi.

Medical shop: in madhi village we have design proposal of government medical which has cheaper then other medical because every person cannot afford such costly medicine so they will not take it and resulted as occur serious emergency to prevent that we are proposing this medical design.

Pucca vegetable market: when we went to village visit I saw so many vegetable seller on road side who are selling it from road it affect on traffic of road where roads are no so wider there will offenly traffic occurs .so one pucca vegetable market should develop .

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

We have visited the ideal village Baben and that visit helped us to know about the type of infrastructure needed by the village. With help of techno-economic survey and gap analysis and also studying / surveying our ideal village Baben, we were able to broadly define requirements of development for people of Madhi village. We have visited the smart village Baben and by that visit we better understood the smart technologies and concepts as smart development of our allocated village Madhi.

In the madhi village, the basic requirements like community hall, any recreational area, public library, etc. did not exist. By implanting given design proposals, all the missing amenities can be provided which will stop the migration of rural people towards the urban area which will in reduce pressure on cities.

The amenities designed under this Vishwakarma project phase viii will be helpful for better development of the village as physically as well as socially, which improves the overall lifestyle of people along with nation with preserving nature bit by bit. This will help in developing Smart villages in sustainable manner, reduce migration from villages and prevent the cities from the urban pressure. This should lead to some rethinking about the meaning of efficiency beyond the usual conceptions of economic or technical efficiency. Indeed, employment expansion is at least as important as growth in productivity. In a sense, both represent the utilization of labor as a resource. Why, then, does thinking about efficiency focus on one and neglect the other It is important to reflect on this question. The answer, which calls for change in both economics and politics, could make a real difference.

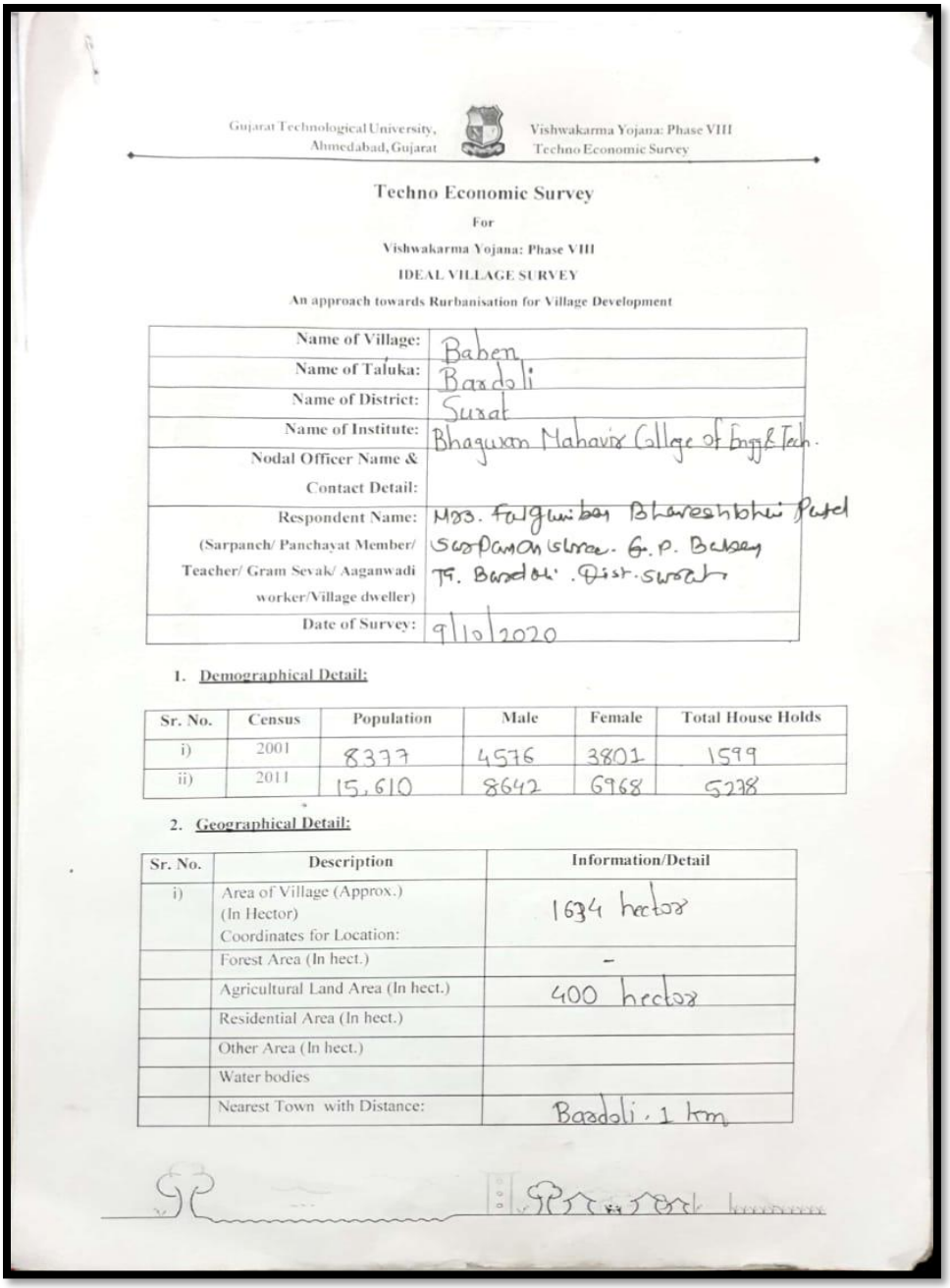
Students who want to work towards preservation of rural soul of country can do many things for our own good and environment. By implanting given design proposals, we can say that all the missing amenities are provided will stop the migration of rural people towards the urban area. This can cause reduce the load on urban areas as well as pollution in both sectors can be minimized gradually.

CHAPTER 11. References refereed for this project

- WWW.Vyojana.gtu.ac.in
- WWW.Wikipedia.com
- WWW.Gujaratnews.com
- WWW.research.com
- WWW.developed village.com
- https://elevationmap.net
- WWW.smartcities.gov.in
- https://villageinfor.in
- www.onefivenine.com
- www.censusgujarat.gov.in
- www.census2011.com
- www.indikosh.com
- www.wikipedia.com
- GTU guidelines and briefings
- www.censusindia.gov.in
- https://sarkariyojana.com/gujarat/
- https://www.indianmirror.com/culture/states-culture/gujarat.html
- https://india.smartcitiescouncil.com/article/see-how-district-cooling-system-willmake-raiya-coolest-smart-city
- https://www.eurekalert.org/pub_releases/2014-06/uosf-iti061814.php
- http://ijaerd.com/papers/special_papers/NCAN09.pdf
- https://freeprojectsforall.com/civil-project-on-corrosion-mechanismpreventionrepair-measures-of-rcc-structure/

CHAPTER 12. Annexure attachment

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



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Vishwakarma Yojana: Phase VIII
Techno Economic Survey

Techno Economic Survey

For

Vishwakarma Yojana: Phase VIII

IDEAL VILLAGE SURVEY

An approach towards Rurbanisation for Village Development

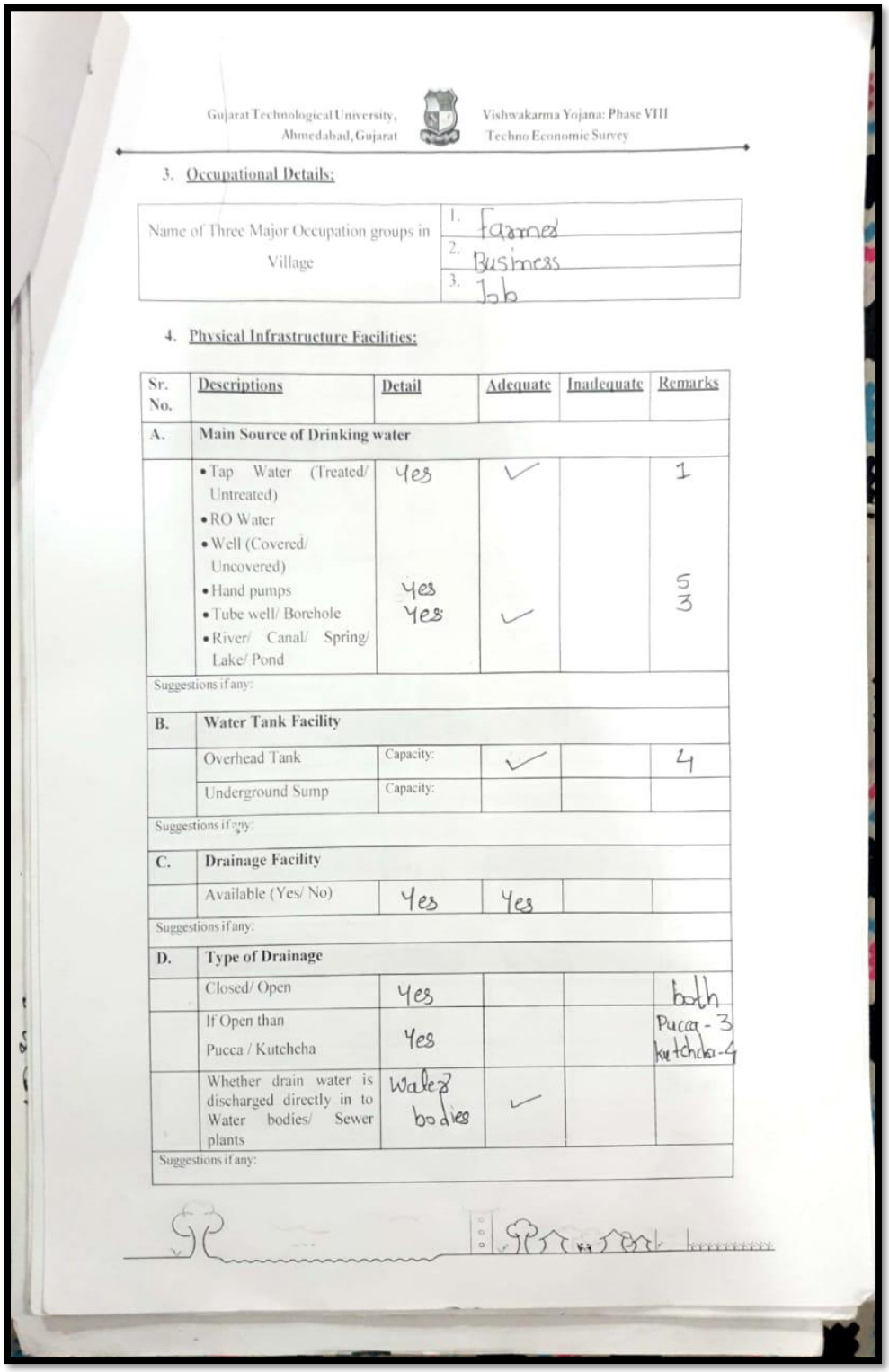
Name of Village:	Baben
Name of Taluka:	Bardoli
Name of District:	Surat
Name of Institute:	Bhagwan Mahavir College of Engg & Tech.
Nodal Officer Name & Contact Detail:	
Respondent Name: (Sarpanch/ Panchayat Member/ Teacher/ Gram Sevak/ Aaganwadi worker/Village dweller)	Mrs. Falguniben Bhareshbhai Patel Sarpanch Gloria. G.P. Baben TA. Bardoli. Dist. Surat.
Date of Survey:	9/10/2020

1. Demographical Detail:

Sr. No.	Census	Population	Male	Female	Total House Holds
i)	2001	8377	4576	3801	1599
ii)	2011	15,610	8642	6968	5278

2. Geographical Detail:

Sr. No.	Description	Information/Detail
i)	Area of Village (Approx.) (In Hector) Coordinates for Location:	1634 hector
	Forest Area (In hect.)	-
	Agricultural Land Area (In hect.)	400 hector
	Residential Area (In hect.)	
	Other Area (In hect.)	
	Water bodies	
	Nearest Town with Distance:	Bardoli. 1 km



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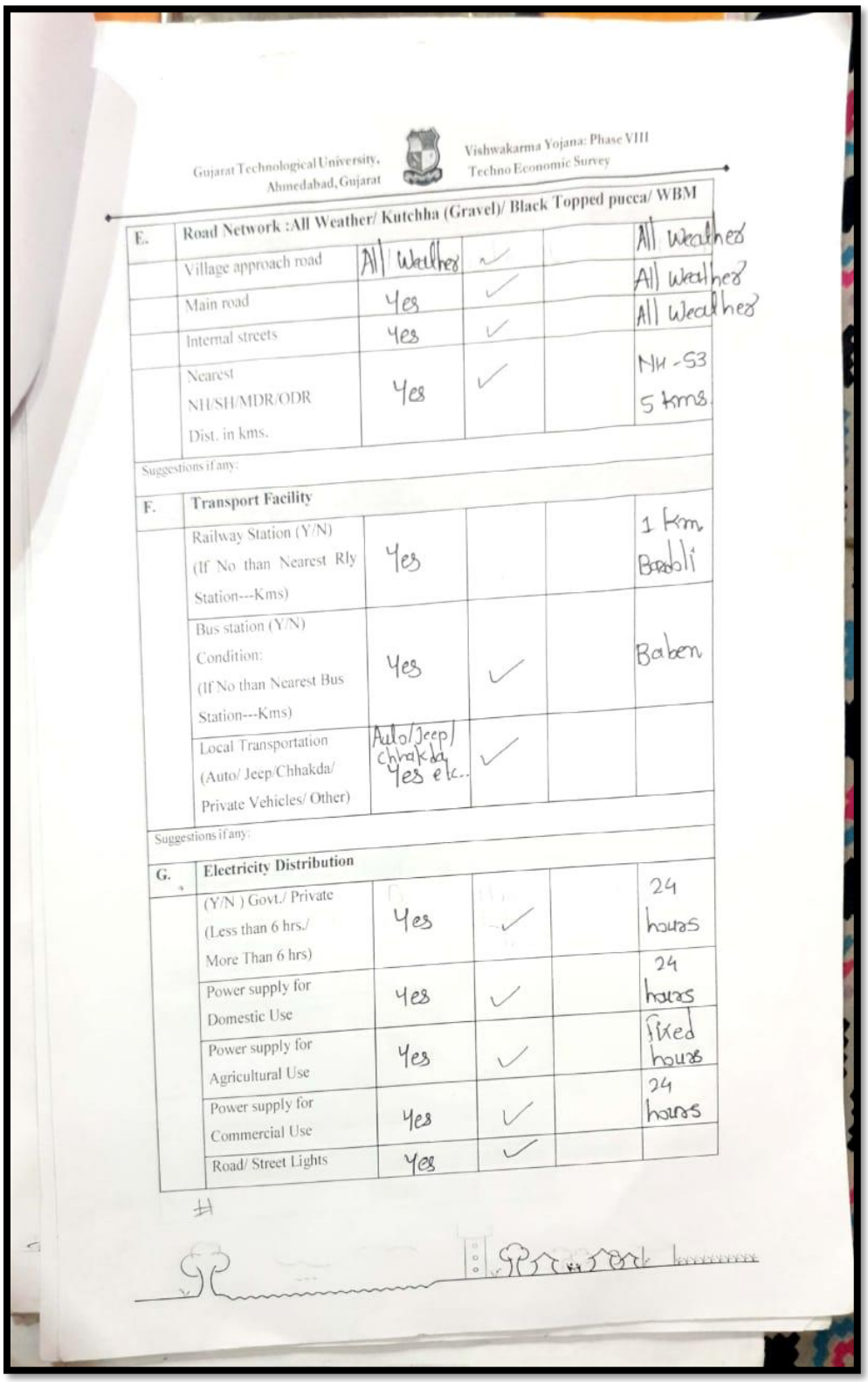
3. Occupational Details:

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

4. Physical Infrastructure Facilities:

Sr. No.	Descriptions	Detail	Adequate	Inadequate	Remarks
A.	**Main Source of Drinking water**				
	• Tap Water (Treated/ Untreated) • RO Water • Well (Covered/ Uncovered) • Hand pumps • Tube well/ Borehole • River/ Canal/ Spring/ Lake/ Pond	Yes Yes Yes	✓ ✓		1 5 3
	Suggestions if any:				
B.	**Water Tank Facility**				
	Overhead Tank	Capacity:	✓		4
	Underground Sump	Capacity:			
	Suggestions if any:				
C.	**Drainage Facility**				
	Available (Yes/ No)	Yes	Yes		
	Suggestions if any:				
D.	**Type of Drainage**				
	Closed/ Open	Yes			both
	If Open than Pucca / Kutchcha	Yes			Pucca - 3 kutchcha - 4
	Whether drain water is discharged directly in to Water bodies/ Sewer plants	Water bodies	✓		
	Suggestions if any:				



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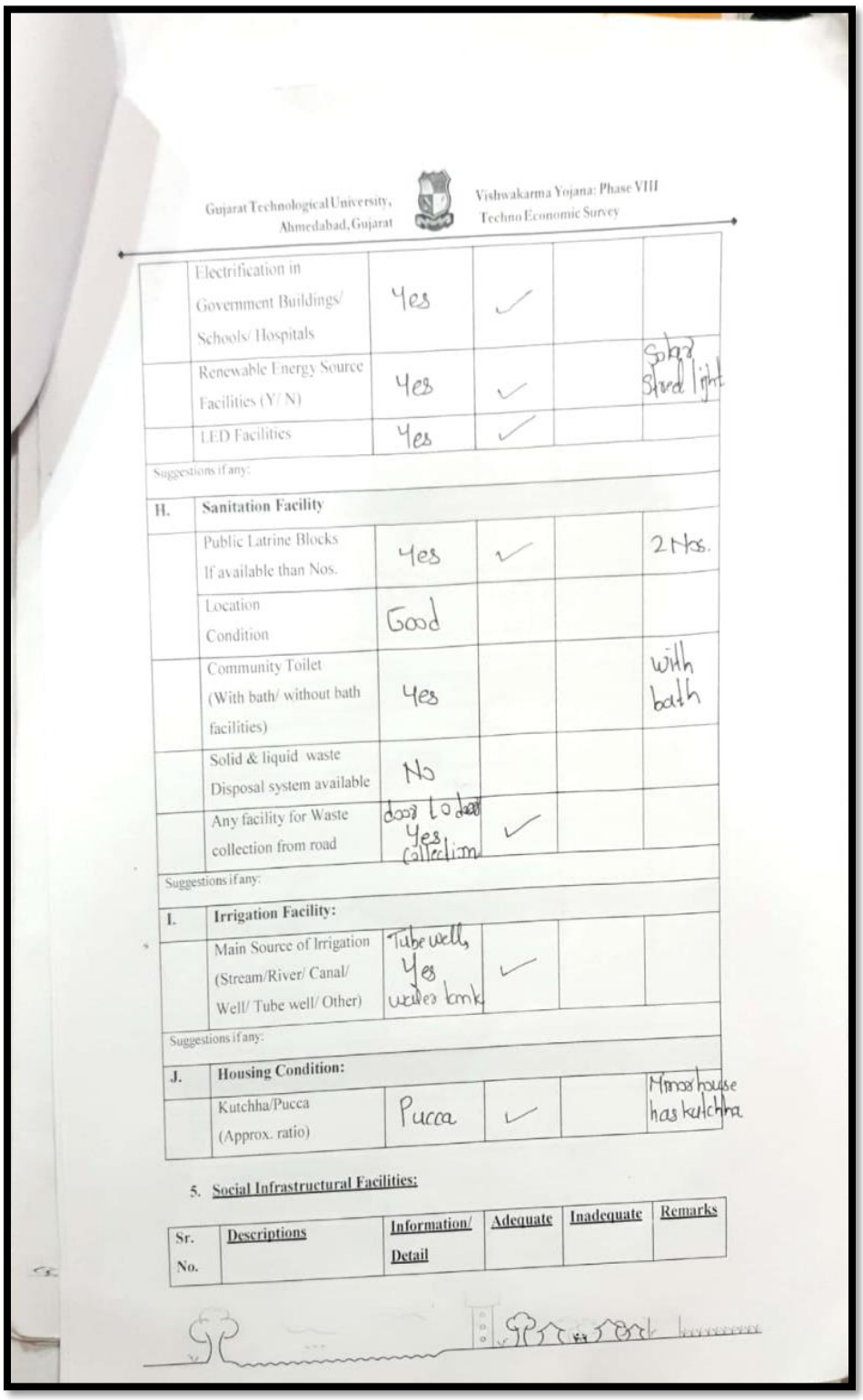
E.	Road Network :All Weather/ Kutchha (Gravel)/ Black Topped pucca/ WBM				
	Village approach road	All Weather	✓		All Weather
	Main road	Yes	✓		All Weather
	Internal streets	Yes	✓		All Weather
	Nearest NH/SH/MDR/ODR Dist. in kms.	Yes	✓		NH-53 5 kms

Suggestions if any:

F.	Transport Facility				
	Railway Station (Y/N) (If No than Nearest Rly Station---Kms)	Yes			1 Km. Bardoli
	Bus station (Y/N) Condition: (If No than Nearest Bus Station---Kms)	Yes	✓		Baben
	Local Transportation (Auto/ Jeep/Chhakda/ Private Vehicles/ Other)	Auto/Jeep/ Chhakda Yes etc..	✓		

Suggestions if any:

G.	Electricity Distribution				
	(Y/N) Govt./ Private (Less than 6 hrs./ More Than 6 hrs)	Yes	✓		24 hours
	Power supply for Domestic Use	Yes	✓		24 hours
	Power supply for Agricultural Use	Yes	✓		fixed hours
	Power supply for Commercial Use	Yes	✓		24 hours
	Road/ Street Lights	Yes	✓		



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	Electrification in Government Buildings/ Schools/ Hospitals	Yes	✓		
	Renewable Energy Source Facilities (Y/ N)	Yes	✓		Solar Street light
	LED Facilities	Yes	✓		

Suggestions if any:

H.	Sanitation Facility				
	Public Latrine Blocks If available than Nos.	Yes	✓		2 Nos.
	Location Condition	Good			
	Community Toilet (With bath/ without bath facilities)	Yes			with bath
	Solid & liquid waste Disposal system available	No			
	Any facility for Waste collection from road	door to door Yes collection	✓		

Suggestions if any:

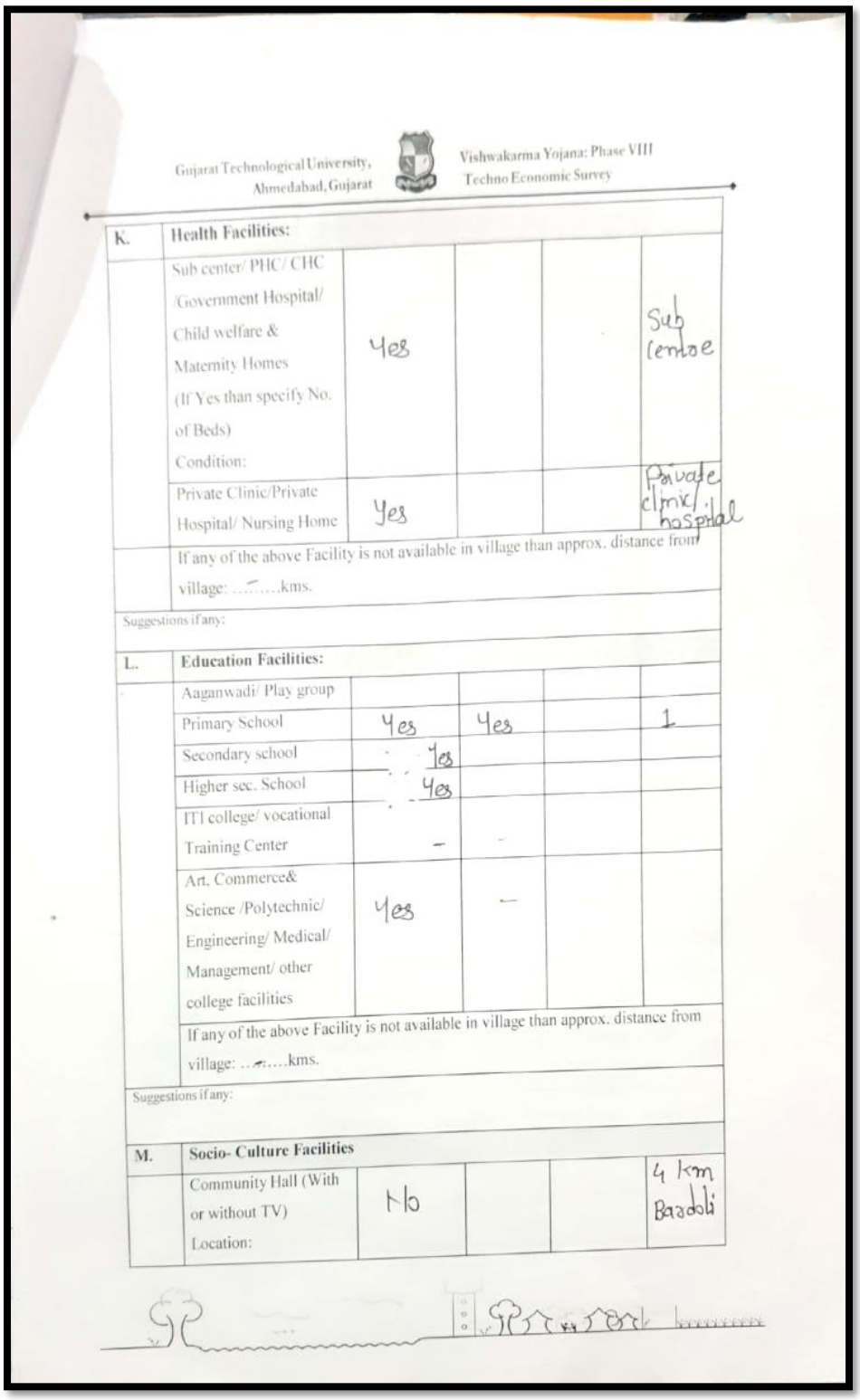
I.	Irrigation Facility:				
	Main Source of Irrigation (Stream/River/ Canal/ Well/ Tube well/ Other)	Tube well, Yes water tank	✓		

Suggestions if any:

J.	Housing Condition:				
	Kutchha/Pucca (Approx. ratio)	Pucca	✓		Minor house has kutchha

5. Social Infrastructural Facilities:

Sr. No.	Descriptions	Information/ Detail	Adequate	Inadequate	Remarks



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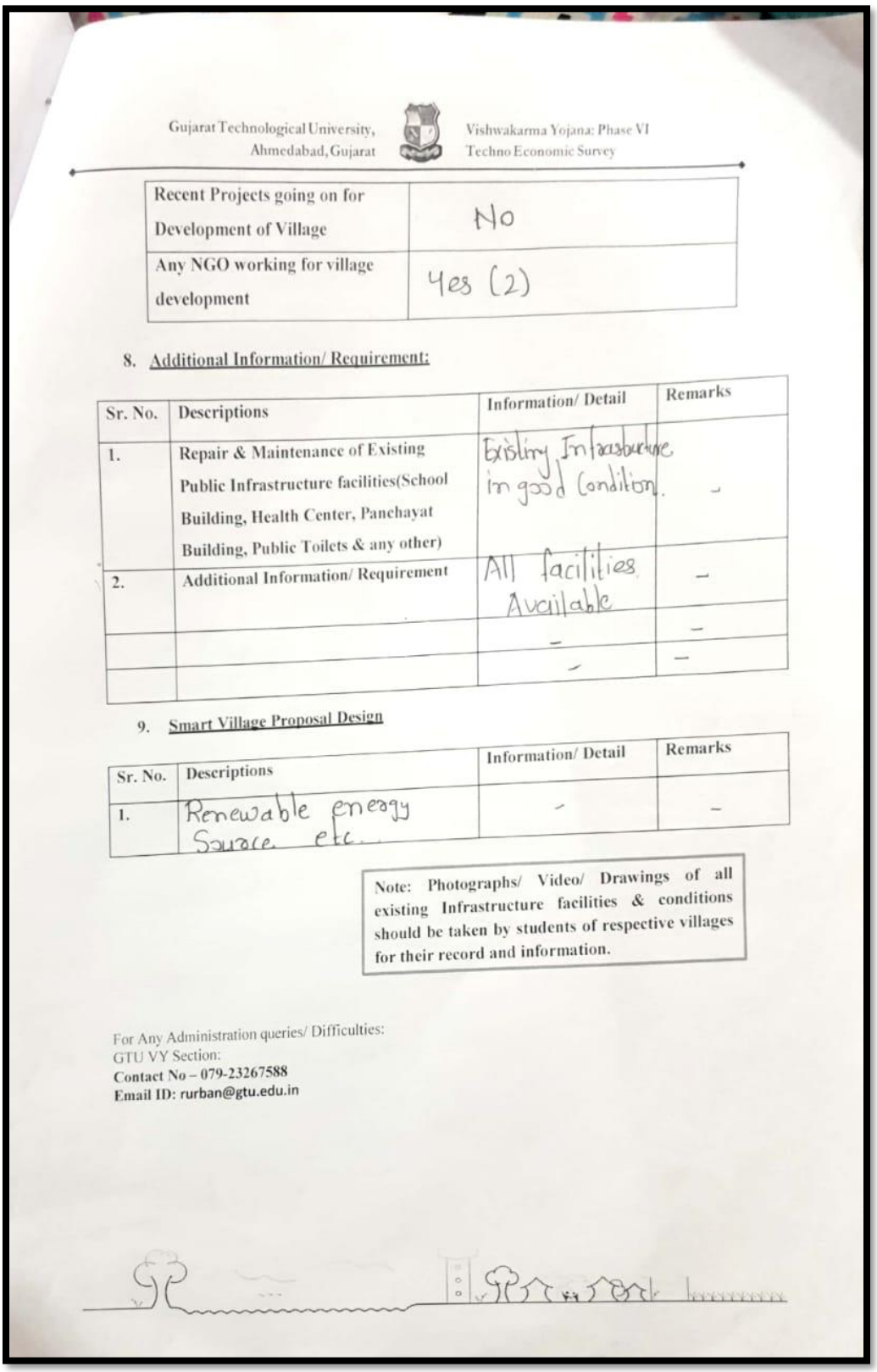
K.	Health Facilities:				
	Sub center/ PHC/ CHC /Government Hospital/ Child welfare & Maternity Homes (If Yes than specify No. of Beds) Condition:	Yes			Sub centre
	Private Clinic/Private Hospital/ Nursing Home	Yes			Private clinic/ hospital
	If any of the above Facility is not available in village than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

L.	Education Facilities:				
	Aaganwadi/ Play group				
	Primary School	Yes	Yes		1
	Secondary school	Yes			
	Higher sec. School	Yes			
	ITI college/ vocational Training Center	-	-		
	Art, Commerce& Science /Polytechnic/ Engineering/ Medical/ Management/ other college facilities	Yes	-		
	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:	No			4 km Bardoli



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Vishwakarma Yojana: Phase VI
Techno Economic Survey

Recent Projects going on for Development of Village	No
Any NGO working for village development	Yes (2)

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)	Existing Infrastructure in good condition.	-
2.	Additional Information/ Requirement	All facilities Available	-
		-	-
		-	-

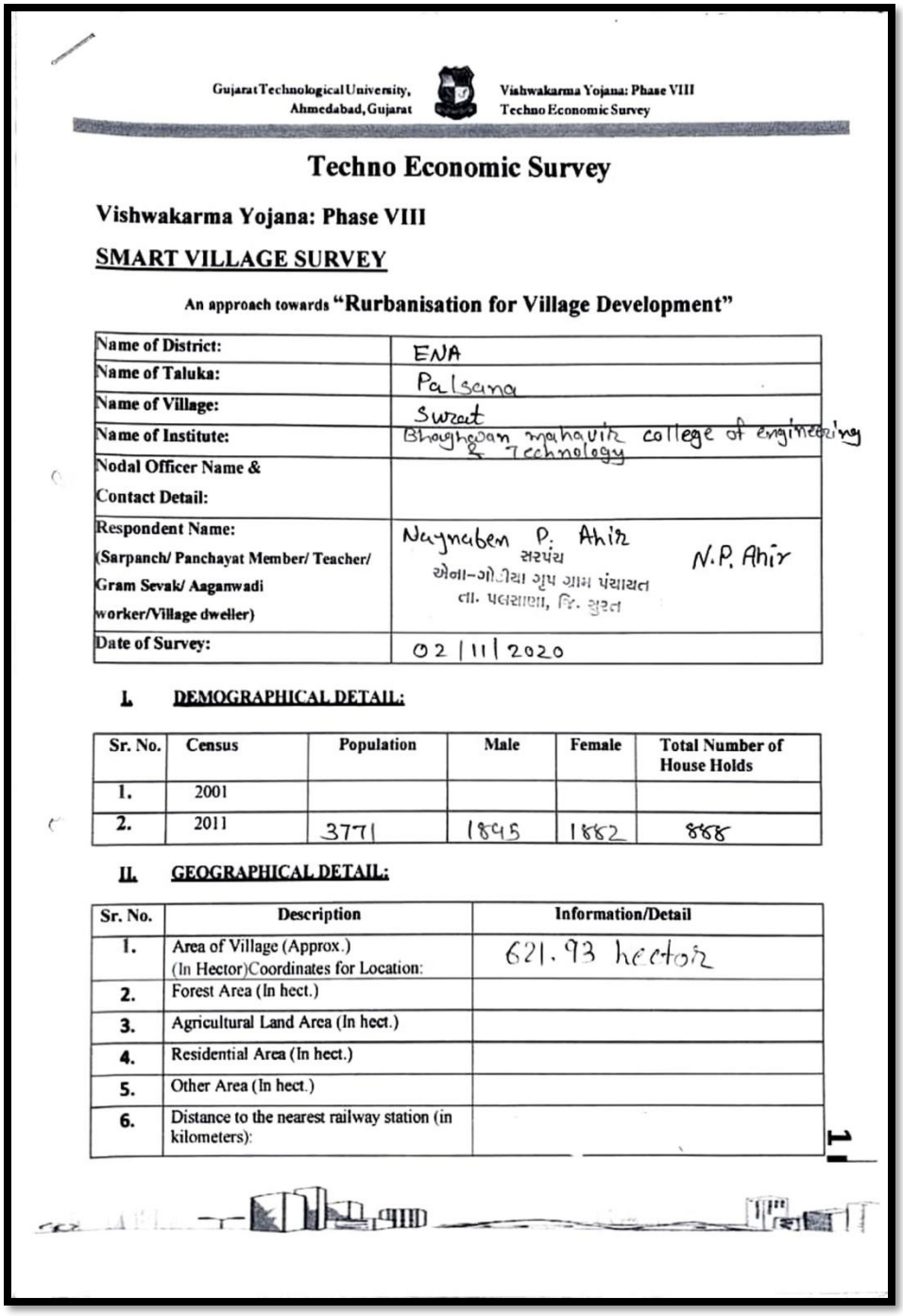
9. Smart Village Proposal Design

Sr. No.	Descriptions	Information/ Detail	Remarks
1.	Renewable energy Source etc.	-	-

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

12.2Survey form of Smart Village Scanned copy attachment in the report for Part-ISurvey form of Smart Village Original copy attachment in the report for part-II



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Techno Economic Survey

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Vishwakarma Yojana: Phase VIII

SMART VILLAGE SURVEY

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

Name of District:	ENA
Name of Taluka:	Palsana
Name of Village:	Surat
Name of Institute:	Bhagwan mahavir college of engineering & Technology
Nodal Officer Name & Contact Detail:	
Respondent Name: (Sarpanch/ Panchayat Member/ Teacher/ Gram Sevak/ Aaganwadi worker/Village dweller)	Naynaben P. Ahir સરપંચ એના-ગોડીયા ગ્રુપ ગામ પંચાયત તા. પલસાણા, જિ. સુરત N.P. Ahir
Date of Survey:	02/11/2020

I. DEMOGRAPHICAL DETAIL:

Sr. No.	Census	Population	Male	Female	Total Number of House Holds
1.	2001				
2.	2011	3771	1845	1882	888

II. GEOGRAPHICAL DETAIL:

Sr. No.	Description	Information/Detail
1.	Area of Village (Approx.) (In Hector)Coordinates for Location:	621.93 hector
2.	Forest Area (In hect.)	
3.	Agricultural Land Area (In hect.)	
4.	Residential Area (In hect.)	
5.	Other Area (In hect.)	
6.	Distance to the nearest railway station (in kilometers):	

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7.	Name of Nearest Town with Distance:	Bardoli
8.	Distance to the nearest bus station (in kilometers):	Yes
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. Farmer 2. Jobs 3. Business
Major crops grown in the village:	1. Vegetable 2. Banan 3. Sugar

IV. PHYSICAL INFRASTRUCTURE FACILITIES:

Sr. No.	Descriptions	Detail	Adequate	Inadequate	Remarks
A.	**Main Source of Drinking water**				
1.	**PIPED WATER** Piped Into Dwelling Piped To Yard/Plot Public Tap/Standpipe Tube Well Or Bore Well	Yes			Tap water
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**	Yes			Canal

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Suggestions if any:					
B.	**Water Tank Facility**				
	Overhead Tank	Capacity:			
	Underground Sump	Capacity:			
Suggestions if any:					
C.	**The Type of Drainage Facility**				
	A. UNDERGROUND DRAINAGE 1 2 B. OPEN WITH OUTLET C. OPEN WITHOUT OUTLET	Yes			Underground drainage
Suggestions if any:					
D.	**Road Network :All Weather/ Kutchha (Gravel)/ Black Topped pucca/ WBM**				
	Village approach road	All Weather			
	Main road	All Weather			
	Internal streets	All Weather			
	Nearest NH/SH/MDR/ODR Dist. in kms.	Yes			SH-53
Suggestions if any:					
E.	**Transport Facility**				
	Railway Station (Y/N) (If No than Nearest Rly Station—Kms)	No			8km gangadhara
	Bus station (Y/N) Condition: (If No than Nearest Bus Station—Kms)	Yes			
	Local Transportation (Auto/ Jeep/Chhakda/ Private Vehicles/ Other)	Yes			All
Suggestions if any:					
F.	**Electricity Distribution**				
	(Y/N) Govt./ Private (Less than 6 hrs./ More Than 6 hrs)	Yes			DGVCL 24hours

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	Power supply for Domestic Use	Yes			24hours
	Power supply for Agricultural Use	Yes			12hours
	Power supply for Commercial Use	Yes			24hours
	Road/ Street Lights	Yes			
	Electrification in Government Buildings/ Schools/ Hospitals	Yes			
	Renewable Energy Source Facilities (Y/ N)	Yes			Solar street lights
	LED Facilities	Yes			
Suggestions if any:					
G.	**Sanitation Facility**				
	Public Latrine Blocks If available than Nos.	Yes			2 Nos.
	Location Condition	good			
	Community Toilet (With bath/ without bath facilities)	Yes			without bath
	Solid & liquid waste Disposal system available	No			
	Any facility for Waste collection from road	Yes			Door to Door
Suggestions if any:					
H.	**Main Source of Irrigation Facility:**				
	TANK/POND STREAM/RIVER CANAL WELL TUBE WELL. OTHER (SPECIFY)	Yes			Canal & Borehole
Suggestions if any:					
I.	**Housing Condition:**				
	Kutchha/Pucca (Approx. ratio)	Pucca			Major house are pucca

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V. SOCIAL INFRASTRUCTURAL FACILITIES:

Sr. No.	Descriptions	Information/ Detail	Adequate	Inadequate	Remarks
J.	**Health Facilities:**				
	ICDS (Anganwadi) Sub-Centre PHC BLOCK PHC CHC/RH District/ Govt. Hospital Govt. Dispensary Private Clinic Private Hospital/ Nursing Home AYUSH Health Facility sonography /ultrasound facility	Yes			-sub centre -Private clinic
	If any of the above Facility is not available in village than approx. distance from village: .....kms.				
Suggestions if any:					
K.	**Education Facilities:**				
	Aaganwadi/ Play group	Yes			
	Primary School	Yes			
	Secondary school	Yes			
	Higher sec. School	Yes			
	ITI college/ vocational Training Center	No			
	Art, Commerce& Science /Polytechnic/ Engineering/ Medical/ Management/ other college facilities	No			
	If any of the above Facility is not available in village than approx. distance from village: 9.....kms. (Bardoli)				

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Suggestions if any:

L.	Socio- Culture Facilities	Condition	Location	Available (YES)	Available (NO)
	Community Hall (With or without TV)			Yes	
	Public Library (With daily newspaper supply: Y/N)			Yes	
	Public Garden			Yes	
	Village Pond			Yes	
	Recreation Center				NO
	Cinema/ Video Hall				NO
	Assembly Polling Station			Yes (school)	
	Birth & Death Registration			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			✓	
	Telecommunication Network/ STD booth				✓
	General Market			✓	
	Shops (Public Distribution System)			✓	
	Panchayat Building			✓	
	Pharmacy/Medical Shop				✓
	Bank & ATM Facility			✓	
	Agriculture Co-operative Society			✓	
	Milk Co-operative Soc.			✓	
	Small Scale Industries			✓	
	Internet Cafes/ Common Service Center/Wi Fi				✓
	Youth Club			✓	
	Mahila Mandal			✓	

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

Suggestions if any:

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

VI. SUSTAINABLE /GREEN INFRASTRUCTURE FACILITIES:

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

VII. DATA COLLECTION FROM VILLAGE

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

VIII. ADDITIONAL INFORMATION/ REQUIREMENT:

Sr. No.	Descriptions	Information/ Detail	Remarks

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

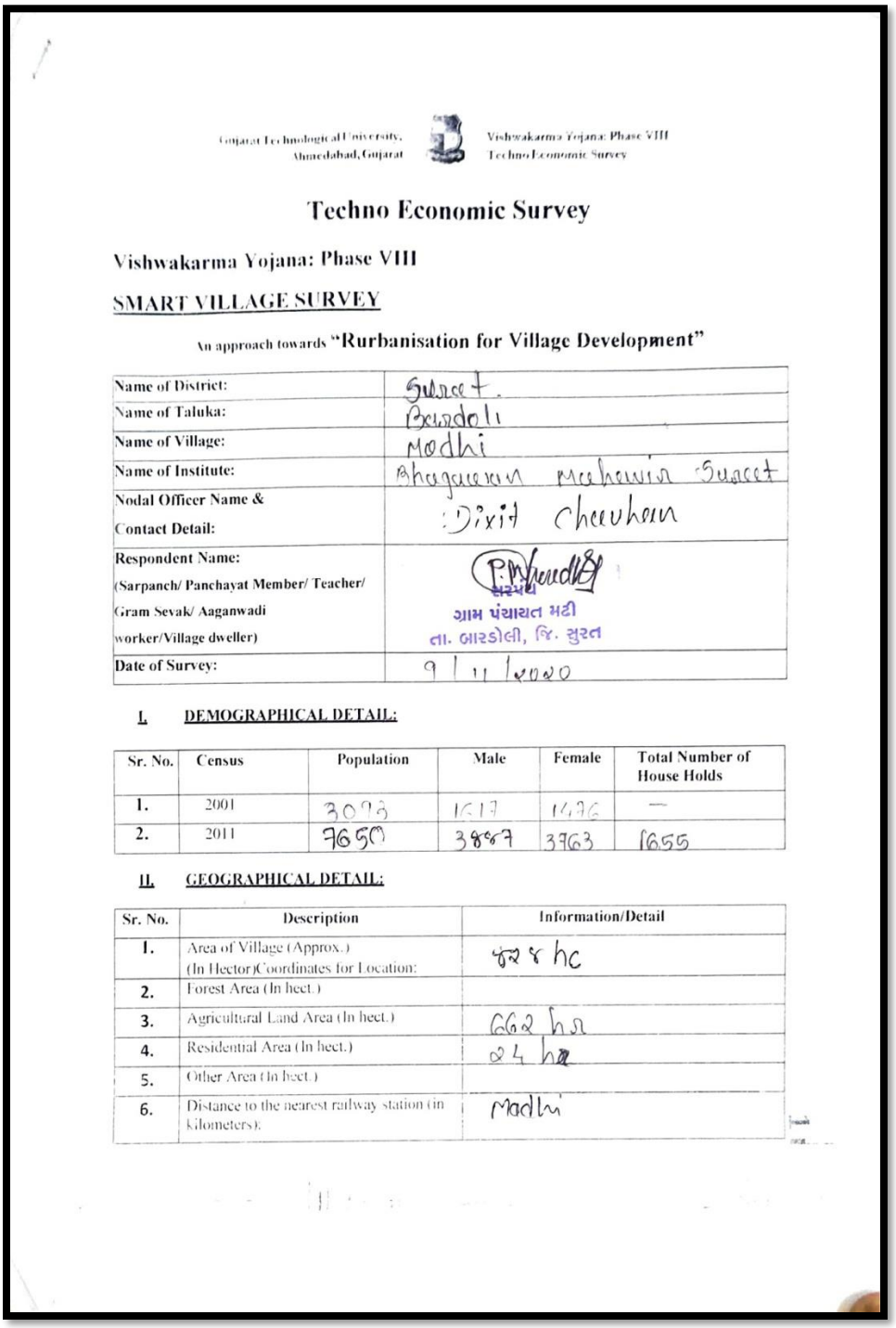
IX. Smart Village / Heritage Details

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

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

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

12.3Survey form of madhi Village Scanned copy attachment in the report for Part-I Survey form of madhi Village Original copy attachment in the report for Part-II



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Vishwakarma Yojana: Phase VIII
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Vishwakarma Yojana: Phase VIII

SMART VILLAGE SURVEY

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

Name of District:	Surat.
Name of Taluka:	Bardoli
Name of Village:	Madhi
Name of Institute:	Bhagwan Mahavir Surat
Nodal Officer Name & Contact Detail:	Dixit Chauhan
Respondent Name: (Sarpanch/ Panchayat Member/ Teacher/ Gram Sevak/ Aaganwadi worker/Village dweller)	સરપંચ ગ્રામ પંચાયત મઢી તા. બારડોલી, જિ. સુરત
Date of Survey:	9/11/2020

I. DEMOGRAPHICAL DETAIL:

Sr. No.	Census	Population	Male	Female	Total Number of House Holds
1.	2001	3093	1617	1476	—
2.	2011	7650	3887	3763	1655

II. GEOGRAPHICAL DETAIL:

Sr. No.	Description	Information/Detail
1.	Area of Village (Approx.) (In Hector)Coordinates for Location:	952 hc
2.	Forest Area (In hect.)	
3.	Agricultural Land Area (In hect.)	662 hc
4.	Residential Area (In hect.)	24 hc
5.	Other Area (In hect.)	
6.	Distance to the nearest railway station (in Kilometers):	Madhi

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7.	Name of Nearest Town with Distance:	Pardoli
8.	Distance to the nearest bus station (in kilometers):	Madhi
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.	ખેડૂત
	2.	ખેતી
	3.	ખેત મજૂર
Major crops grown in the village:	1.	શેરડી
	2.	ડાંગર
	3.	કઠોળ વગેરે

IV. PHYSICAL INFRASTRUCTURE FACILITIES:

Sr. No.	Descriptions	Detail	Adequate	Inadequate	Remarks
A.	**Main Source of Drinking water**				
1.	**PIPED WATER**				
	Piped Into Dwelling	Piped	✓	✗	—
	Piped To Yard/Plot				
	Public Tap/Standpipe				
	Tube Well Or Bore Well	yes			—
2.	**DUG WELL**				
	Protected Well	12			
	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/**	Canal Main Branch	✓		—
	Irrigation Channel				
	Bottled Water				
	Hand Pump				
	Other(Specify)**Lake/ Pond**				

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Vishwakarma Yojana: Phase VIII
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Suggestions if any:					
B.	**Water Tank Facility**				
	Overhead Tank (6)	Capacity:	MAX 50000		Total 6
	Underground Sump	Capacity:	—	—	—
Suggestions if any:					
C.	**The Type of Drainage Facility**				
	A. UNDERGROUND DRAINAGE	NO septic tank		✗	
	1				
	2	70 %	✓		—
	B. OPEN WITH OUTLET				
	C. OPEN WITHOUT OUTLET				
Suggestions if any:					
D.	**Road Network :All Weather/ Kutchha (Gravel)/ Black Topped pucca/ WBM**				
	Village approach road	7 KM + (SH)	✓		—
	Main road	✓			—
	Internal streets	✓		✓	—
	Nearest NH/SH/MDR/ODR Dist. in kms.	approx 24.7 km NH			—
Suggestions if any:					
E.	**Transport Facility**				
	Railway Station (Y/N) (If No than Nearest Rly Station---Kms)	Y	✓		—
	Bus station (Y/N) Condition: (If No than Nearest Bus Station---Kms)	Y	✓		—
	Local Transportation (Auto/ Jeep/Chhakda/ Private Vehicles/ Other)	Auto chakda			—
Suggestions if any:					
F.	**Electricity Distribution**				
	(Y/N) Govt./ Private (Less than 6 hrs./ More Than 6 hrs)	GEB			

3

Gujarat Technological University, Ahmedabad, Gujarat

Vishwakarma Yojana: Phase VIII
Techno Economic Survey

	Power supply for Domestic Use	24hr	✓		—
	Power supply for Agricultural Use	8hr	✓		—
	Power supply for Commercial Use				
	Road/ Street Lights	Yes		✓	—
	Electrification in Government Buildings/ Schools/ Hospitals				
	Renewable Energy Source Facilities (Y/ N)	NO		✓	—
	LED Facilities				
Suggestions if any:					
G.	**Sanitation Facility**				
	Public Latrine Blocks If available than Nos.	7			—
	Location Condition				
	Community Toilet (With bath/ without bath facilities)				
	Solid & liquid waste Disposal system available	NO		✓	Needed Waste disposal System
	Any facility for Waste collection from road	Tractor To Collect		✓	—
Suggestions if any:					
H.	**Main Source of Irrigation Facility:**				
	TANK/POND STREAM/RIVER CANAL WELL TUBE WELL OTHER (SPECIFY)	✓ ✓			
Suggestions if any:					
I.	**Housing Condition:**				
	Kutchha/Pucca (Approx. ratio)	Pucca 90%	✓		—

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)				
	Sub-Centre	✓		✓	—
	PHC				
	BLOCK PHC				
	CHC/RH				
	District/ Govt. Hospital				
	Govt. Dispensary				
	Private Clinic	✓	✓		—
	Private Hospital/ Nursing Home				
	AYUSH Health Facility				
	sonography /ultrasound facility				
	If any of the above Facility is not available in village than approx. distance from village: .....kms.				
Suggestions if any:					
K.	**Education Facilities:**				
	Aaganwadi/ Play group	✓		✓	Need to develop in town
	Primary School	✓	✓		—
	Secondary school	✓	✓		—
	Higher sec. School	1 (English)			
	ITI college/ vocational Training Center				
	Art, Commerce& Science /Polytechnic/ Engineering/ Medical/ Management/ other college facilities				20 km Means to Nadhi
	If any of the above Facility is not available in village than approx. distance from village: .....kms.				

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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)	1 (need more)		✓	
	Public Library (With daily newspaper supply: Y/N)	—			✓
	Public Garden	—			✓
	Village Pond	—			✓
	Recreation Center	—			✓
	Cinema/ Video Hall				
	Assembly Polling Station			✓	
	Birth & Death Registration			✓	
If any of the above Facility is not available in village than approx. distance from village: .....kms.					
Suggestions if any:					
M.	**Other Facilities**	Condition	Location	Available (YES)	Available (NO)
	Post-office	working		✓	
	Telecommunication Network/ STD booth			✓	
	General Market				
	Shops (Public Distribution System)			✓	
	Panchayat Building			✓	
	Pharmacy/Medical Shop			✓	
	Bank & ATM Facility			✓	
	Agriculture Co-operative Society			✓	
	Milk Co-operative Soc.			✓	
	Small Scale Industries			✓	
	Internet Cafes/ Common Service Center/Wi Fi	Need proper structure		✓	
	Youth Club				✓
	Mahila Mandal			✓	

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				
	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)			PMAY	

Gujarat Technological University, Ahmedabad, Gujarat

Vishwakarma Yojana: Phase VIII
Techno Economic Survey

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 Yes		✓	—
3.	Any Other				

VII. DATA COLLECTION FROM VILLAGE

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

VIII. ADDITIONAL INFORMATION/ REQUIREMENT:

Sr. No.	Descriptions	Information/ Detail	Remarks

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Techno Economic Survey

1.	Repair & Maintenance of Existing Public Infrastructure facilities,	—	—
	School Building	yes	—
	Health Center	NO	—
	Panchayat Building	yes	—
	Public Toilets & any other Sub centre	NO	—
2.	Additional Information/ Requirement		
3.	During the last six months how many times CLEANING ..... FOGGING..... Drive was undertaken in the village?		—

IX. Smart Village / Heritage Details

Sr. No.	Descriptions	Information/ Detail	Remarks
1.	IS THEIR ANY THING FOR THE VILLAGE ENHANCEMENT POSSIBLE ?	develop sewerage treatment plant maintain develop library	—

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

12.4Gap Analysis of the madhi Village

	VILLAGE GAP Analysis				
Village Facilities	**Planning Commission/UDPFI Norms**	**Village Name:**	madhi		
		Population:			7650
		Existing	**Required as per Norms**	**Smart Vilage / Cities / Heritage Future Projection Design**	**Gap**
	Social Infrastructure Facilities				
Education					
Anganwadi	Each or Per 2500 population	1	1	-	0
Primary School	Each Per 2500 population	4	1	-	+3
Secondary School	Per 7,500 population	1	0	-	+1
Higher Secondary School	Per 15,000 Population	1	0	-	+1
College	Per 125,000 Population	0	0	-	0
Tech. Training Institute	Per 100000 Population	0	0	-	0
Agriculture Research Centre	Per 100000 Population	0	0	-	0
Skill Development Center	Per 100000 Population	0	0	-	0
Health Facility					
Govt/Panchyat Dispensary or Sub	Each Village	3	1	-	+2

PHC or Health Centre					
Primary Health & Child Health Center	Per 20,000 population	0	0	-	0
Child Welfare and Maternity Home	Per 10,000 population	0	0	-	0
Multispeciality Hospital	Per 100000 Population	0	0	-	0
Public Latrines	1 for 50 families (if toilet is not there in home, specially for slum pockets &kutcha house)	7	1	-	+6
Physical Infrastructure Facilities					
Transportation		**Adequate / Inadequate**			
Pucca Village Approach Road	Each village		7km to approach SH		
Bus/Auto Stand provision	All Villages connected by PT (ST Bus or Auto)		Pickup stand in madhi		
Drinking Water (Minimum 70 lpcd)		**Adequate / Inadequate**			
Over Head Tank	1/3 of Total Demand		5(1 proposed)		
U/G Sump	2/3 of Total Demand				
Drainage Network - Open		**Adequate / Inadequate**	30%		
Drainage Network - Cover			70%		

Waste Management System		**Adequate / Inadequate**			
Socio- Cultural Infrastructure Facilities					
Community Hall	Per 10000 Population	1	1	-	0
community hall and Public Library	Per 15000 Population	0	0	-	0
Cremation Ground	Per 20,000 population	1	1	-	0
Post Office	Per 10,000 population	1	1	-	0
Gram Panchayat Building	Each individual/group panchayat	1	1	-	0
APMC	Per 100000 Population	1	0	-	+1
Fire Station	Per 100000 Population	0	0	-	0
Public Garden	Per village	0	1	-	-1
Police post	Per 40,000Population	1(need renovation)	0	-	+1
Shopping Mall					
Electrical Design					
Electricity Network		**Adequate / Inadequate**			
Any Smart Village Facility					
Technology					
		ESR cap	0		
		Sump cap	0		
		Lat	0		

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

Sr. no	Village name	Discipline	Part-I	Part-II
1.	Madhi	civil	Library	Maintenance of police station
			Hospital	Skill development centre
			Riverfront park	Waste water treatment plant
			Fire station	Solid waste treatment plant
			Village gate	Medical shop
			Community hall	Pucca vegetable market
2.	Kharach	Civil	Milk collecting and distributing unit	Development of lake
			Design of library	Primary school
			Design of clinic	Video hall
			Design of overhead water tank	Medical store
			Design of road	Youth club
			Design of mahilamandal	Public garden
3.	Ilav	Civil	Design of anganwadi	Design of public garden
			Design of girl's primary school	Community hall
			Design of agro storage unit	Public library
			Design if milk dairy unit	Post office
			Design of animal shelter	Aro-water plant
			Design of public toilet	Mahilamandal
4.	Vav kamrej	Civil	Post office	Bio gas plant
			Public garden	Maintenance of phc
			Water harvesting system	Sewage treatment plant
			Community hall	Library
			Skill development center	Road(internal road)
			hospital	Village gate

5.	Palod	Civil	Bio-gas plant	Post office
			Rain water harvesting	Garden
			Library	Overhead water tank
			Community hall	Low cost house
			Skill development center	Primary health center
			Village gate	Chabutra
6.	Ten	Civil	Bio gas plant	Internal street road
			Primary health centre	Primary school
			Post office	Public toilet
			Pulic library	Community hall
			Agriculture research center	Maintenance of overhead water tank
			Village gate	Maintenance of village pond

12.6Drawings (If, required,A1, A2, A3 design is not visible then Only)

Sheets of drawing are attached at last portion of report

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

Summary of Photographs Of baben – ideal Village:

Summary Of Photographs Of madhi – allocated Village:

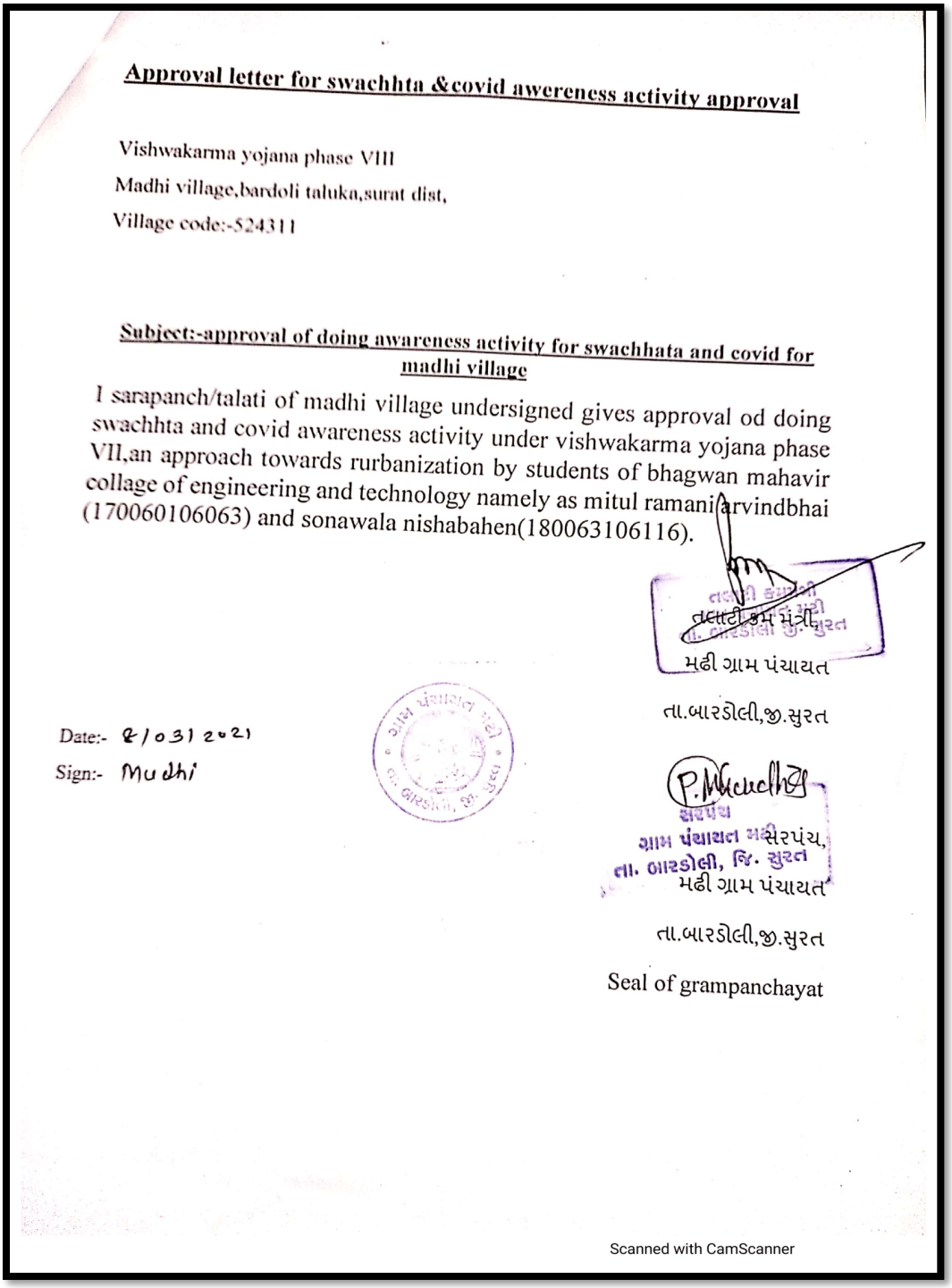

ગ્રામ પંચાયત ભવન
મઢી


HDFC BANK
SBI


ટેલર્સ
Micro ATM


ATM
24 X 7

12.8Village Interaction with Sarpanch Report with the photograph



Approval letter for swachhta &covid awereness activity approval

Vishwakarma yojana phase VIII
Madhi village,bardoli taluka,surat dist,
Village code:-524311

Subject:-approval of doing awareness activity for swachhata and covid for madhi village

I sarapanch/talati of madhi village undersigned gives approval od doing swachhta and covid awareness activity under vishwakarma yojana phase VII,an approach towards rurbanization by students of bhagwan mahavir collage of engineering and technology namely as mitul ramani(arvindbhai (170060106063) and sonawala nishabahen(180063106116).

તલાટી કમ મંત્રી,
મઢી ગ્રામ પંચાયત
તા.બારડોલી,જી.સુરત

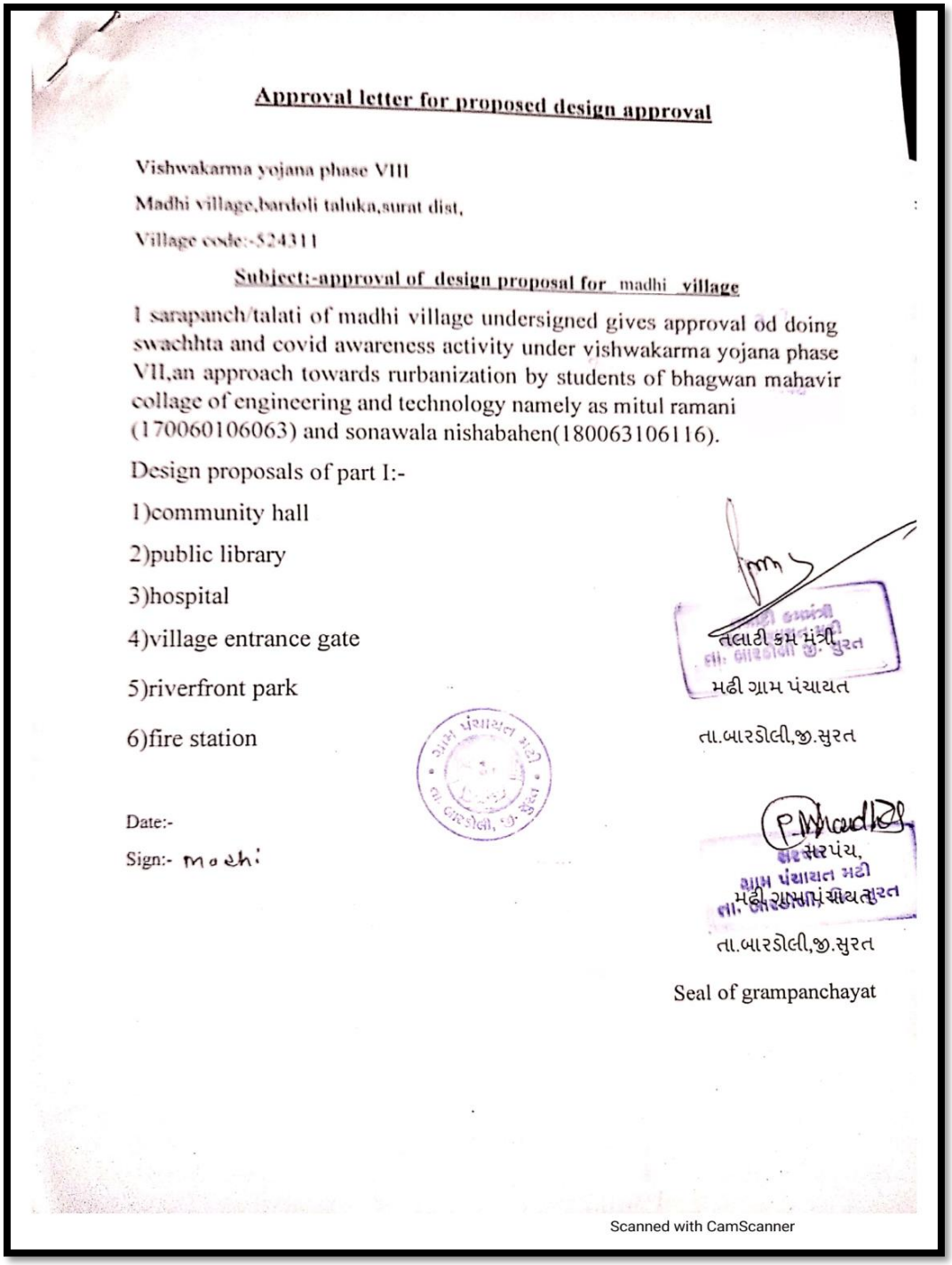
Date:- 8/03/2021
Sign:- Madhi

સરપંચ
ગ્રામ પંચાયત મઢી
તા. બારડોલી, જિ. સુરત
મઢી ગ્રામ પંચાયત
તા.બારડોલી,જી.સુરત

Seal of grampanchayat

Scanned with CamScanner

12.9Sarpanch Letter giving information about the village development



Approval letter for proposed design approval

Vishwakarma yojana phase VIII

Madhi village,bardoli taluka,surat dist,

Village code:-524311

Subject:-approval of design proposal for madhi village

I sarapanch/talati of madhi village undersigned gives approval od doing swachhta and covid awareness activity under vishwakarma yojana phase VII,an approach towards rurbanization by students of bhagwan mahavir collage of engineering and technology namely as mitul ramani (170060106063) and sonawala nishabahen(180063106116).

Design proposals of part I:-

1)community hall

2)public library

3)hospital

4)village entrance gate

5)riverfront park

6)fire station

Date:-

Sign:- Madhi

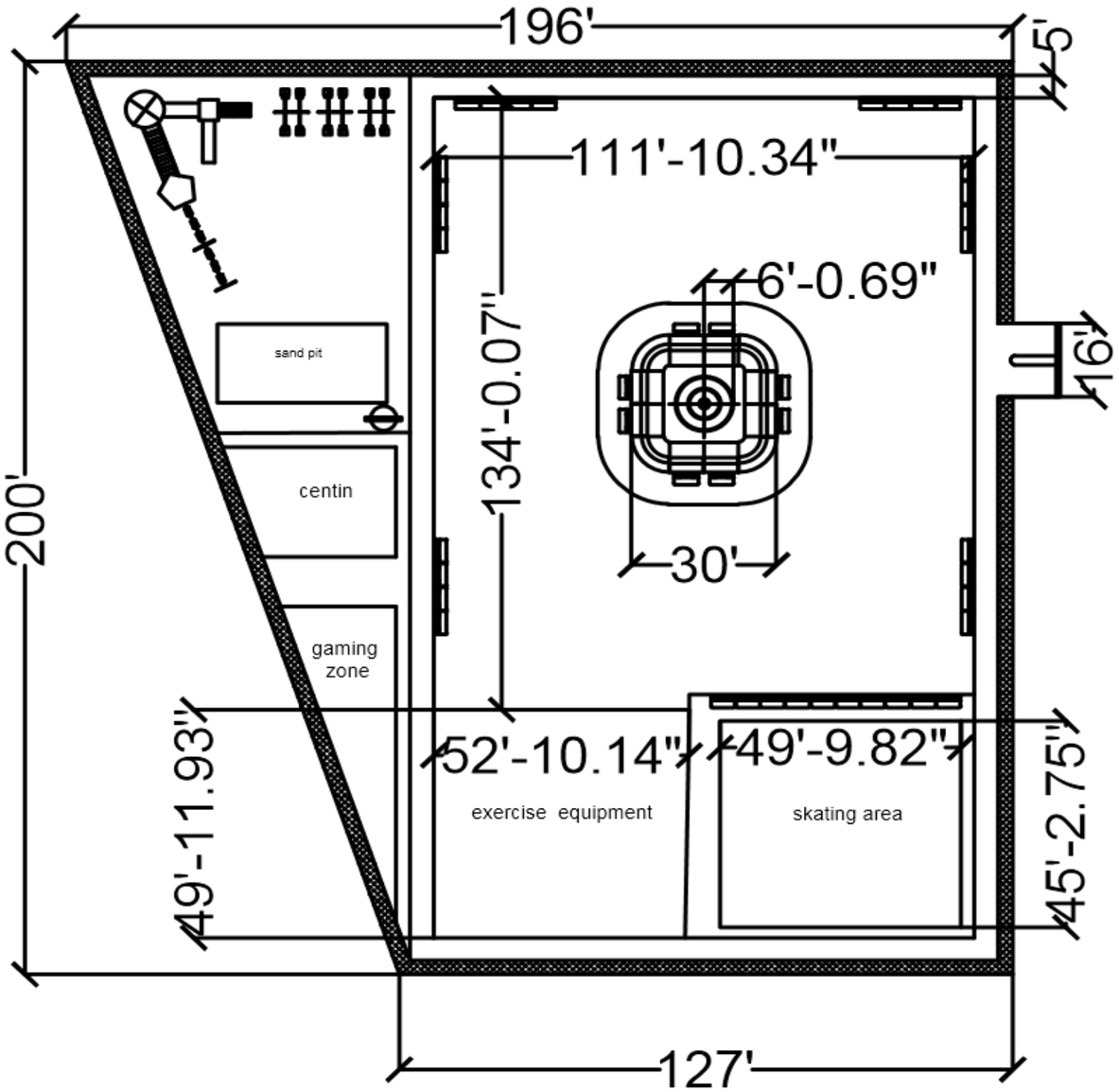
તલાટી કમ મંત્રી
મઢી ગ્રામ પંચાયત
તા.બારડોલી,જી.સુરત

સરપંચ,
ગ્રામ પંચાયત મઢી
મઢી ગામના સરપંચ
તા.બારડોલી,જી.સુરત

Seal of grampanchayat

Scanned with CamScanner

River Front Park



Plan

SCHEDILE OF OPENING		
NAME	SIZE	QUANTITY
D	16'-0" X 8'-0"	1

-All dimension are in feet unless stated otherwise

-Drawings should be read not for scale

-Design is prepared only for educational purpose and correction of all data must be check before use.

-Design is not responsible for any kind of wrong data.

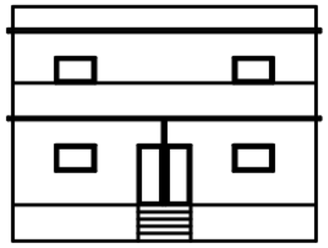
-minimum grade of concrete is M20 and all steel grade is Fe500.

-Check first the plot dimension.

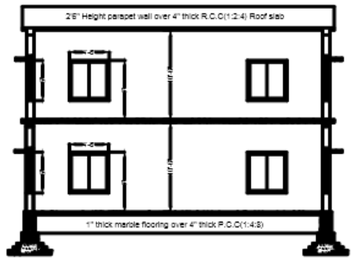
Design by: Mitul Ramani
Sonawala nishabahen

RIVERFRONT PARK

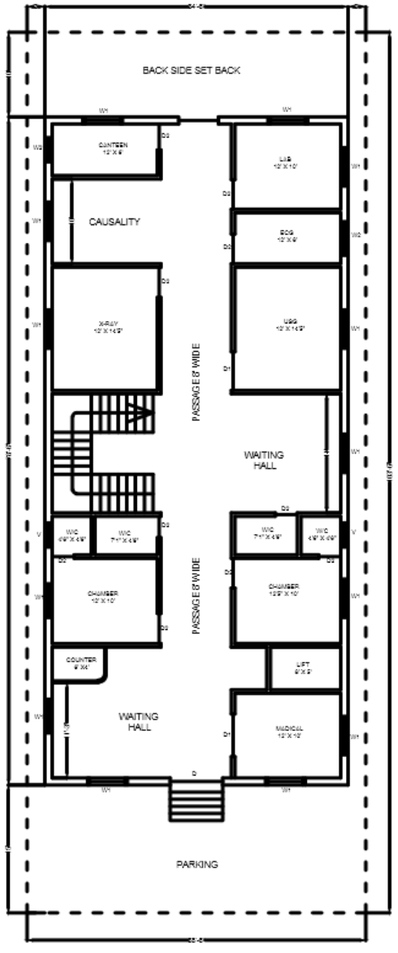
Project no:	05
Date	20/02/2021
Guide by	Dixit chauhan



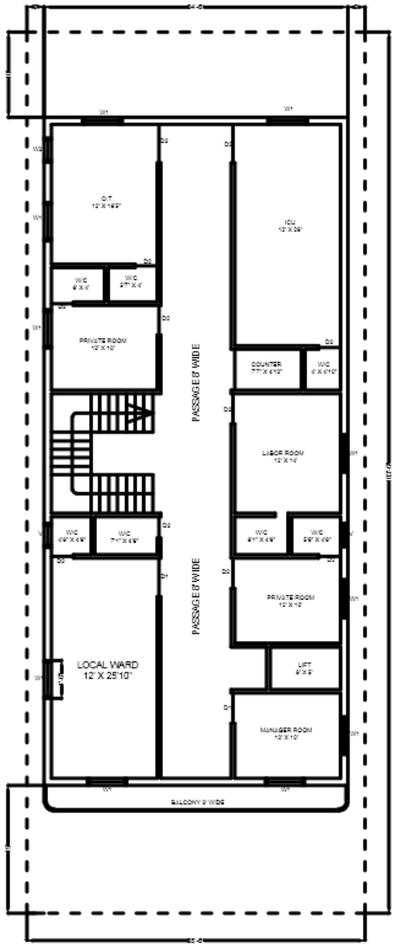
ELEVATION



SECTION



GROUND FLOOR



FIRST FLOOR

SCHEDULE OF OPENING

NAME	SIZE	QUANTITY
D	6' X 7'	1
D1	5' X 7'	4
D2	3'6" X 7'	21
W1	4' X 3'	23
W2	4'6" X 3'	3
V	2' X 2'	4

- All dimension are in feet unless stated otherwise.
- Drawings should be read not for scale.
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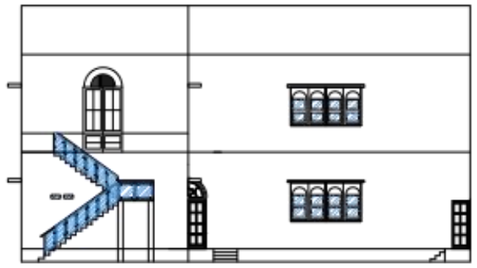
- Design is not responsible for any kind of wrong data.
- minimun grade of concrete is M20 and all steel grade is Fe500.
- Check first the plot dimension.

Design by: Mitul Ramani
Sonawala Nisha

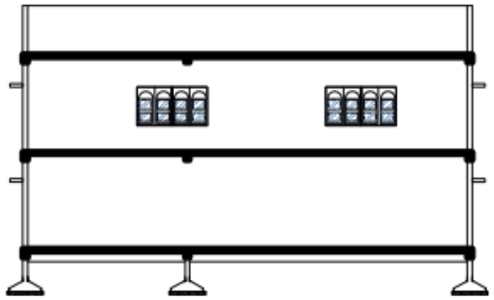
HOSPITAL

Project No :	02
Date:	20/02/2021
Guide by:	Dixit Chauhan

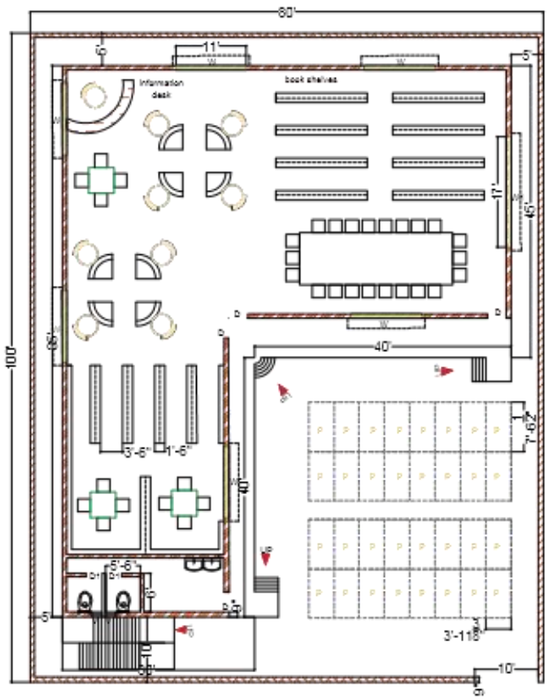
Public Library



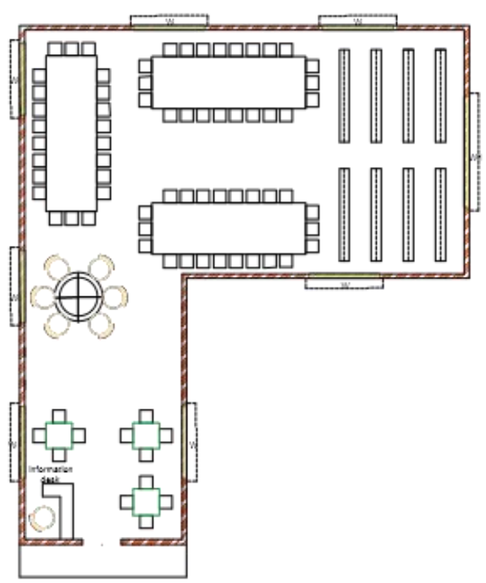
ELEVATION



A-A' SECTION



GROUND FLOOR PLAN



FIRST FLOOR PLAN

SCHEDILE OF OPENING

NAME	SIZE	QUANTITY
D	3'-0" X 7'-6"	4
D1	2'-6" X 7'-6"	2
W	11' X 6'	9
W1	17' X 6'	2
V	1'-6" X 6"	2

-All dimension are in feet unless stated otherwise

-Drawings should be read not for scale

-Design is prepared only for educational purpose and correction of all data must be check before use.

-Design is not responsible for any kind of wrong data.

-minimum grade of concrete is M20 and all steel grade is Fe500.

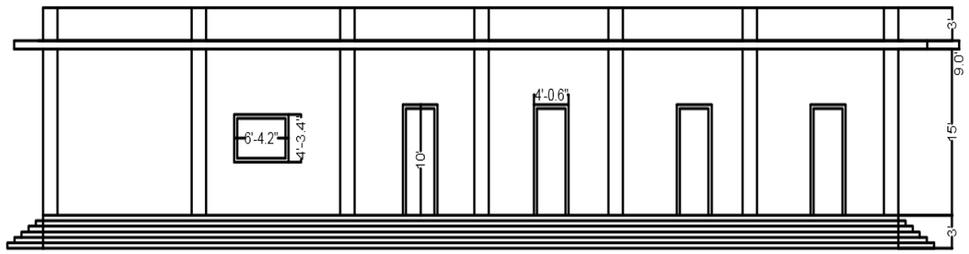
-Check first the plot dimension.

Design by :– Mitul Ramani

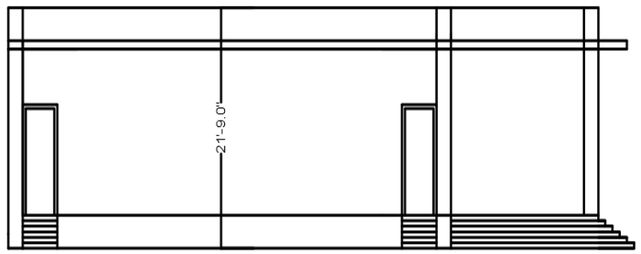
Sonawala Nisha

Public Library

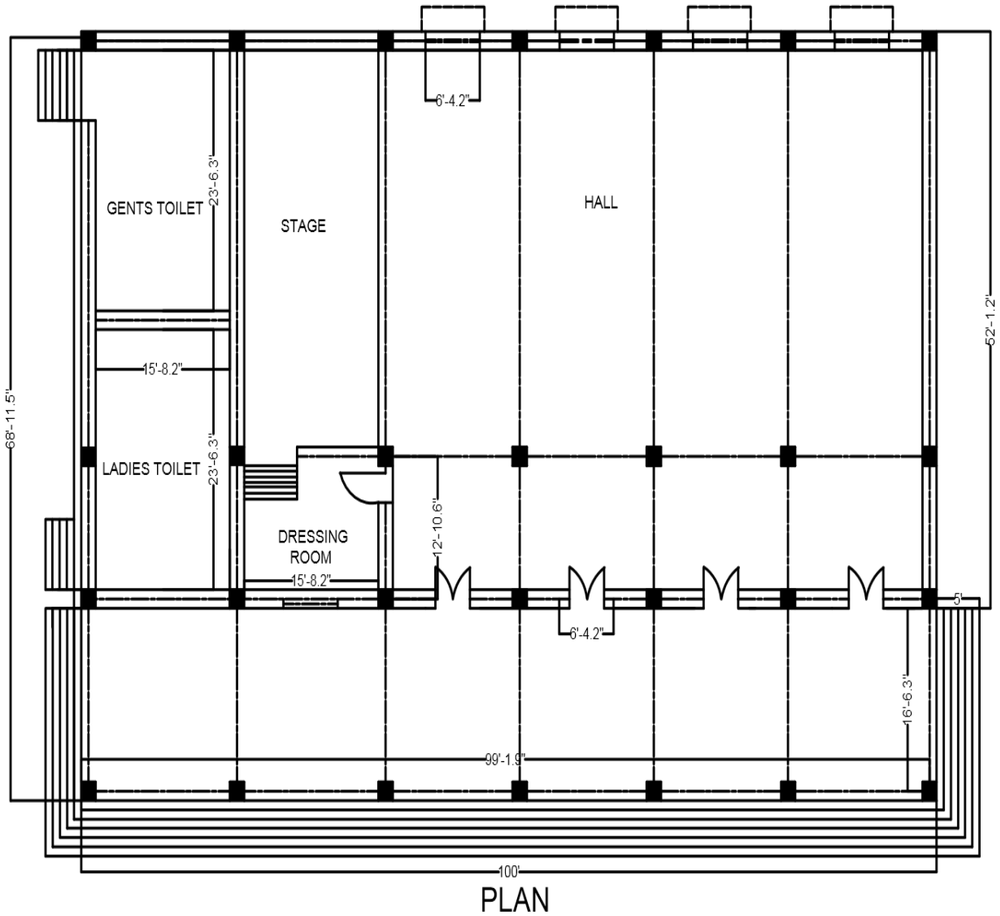
Project no:	03
Date	20/02/2021
Guide by	Dixit Chauhan



ELEVATION



SECTION



PLAN

SCHEDULE OF OPENING		
NAME	SIZE	QUANTITY
W1	2'10" X 3'	4
D	2'9" X 7'	1
D1	3' X 7'	1
D2	2'10" X 7'	4

-All dimension are in feet unless stated otherwise

-Drawings should be read not for scale

-Design is prepared only for educational purpose and correction of all data must be check before use.

-Design is not responsible for any kind of wrong data.

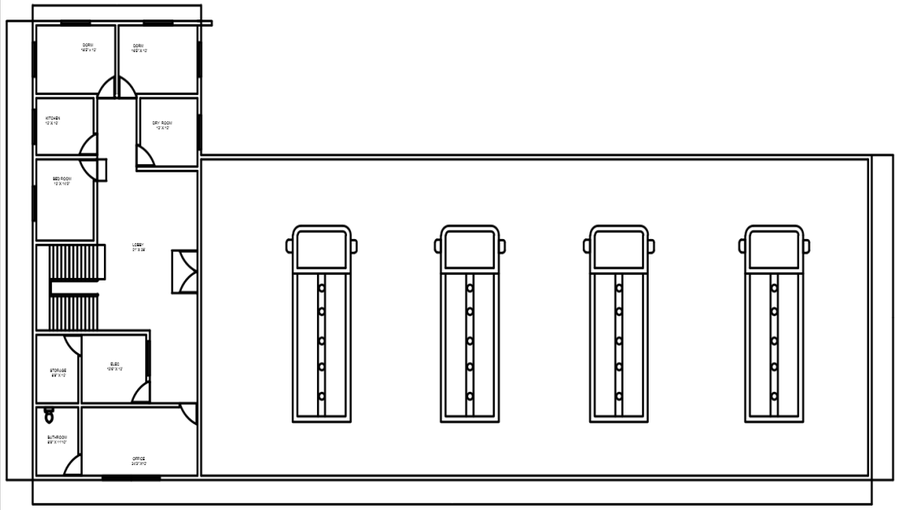
-minimum grade of concrete is M20 and all steel grade is Fe500.

-Check first the plot dimension.

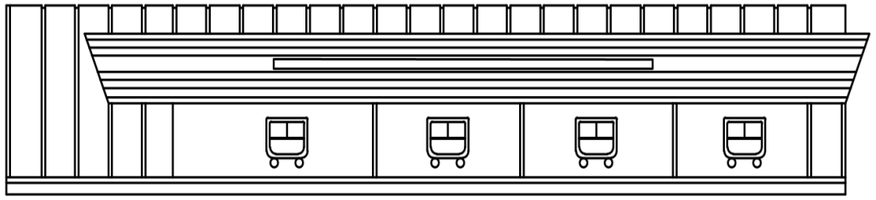
Design by: Mitul Ramani
Sonawala nishabahen

COMMUNITY HALL

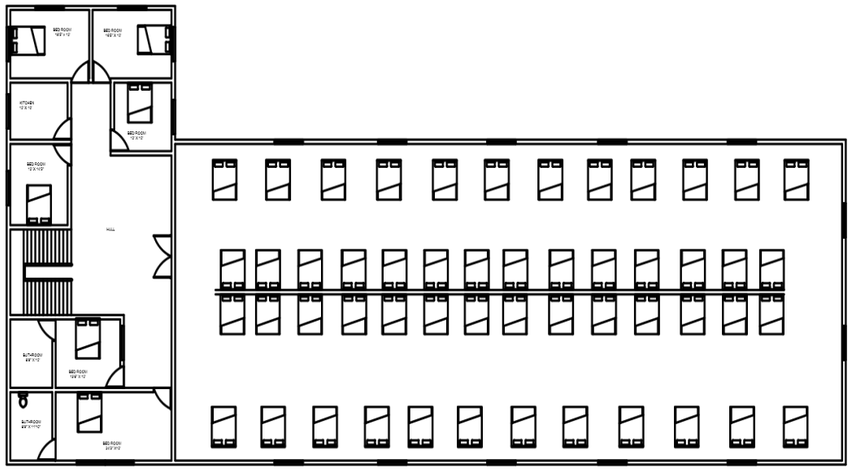
Project no:	05
Date	20/02/2021
Guide by	Dixit chauhan



GROUND FLOOR



ELEVATION



FIRST FLOOR

SCHEDULE OF OPENING		
NAME	SIZE	QUANTITY
W	6' X 5'6"	28
W1	12' X 5'6"	2
D1	3'9" X 7'	18
D2	7'2" X 7'	2

FIRE STATION

-All dimension are in feet unless stated otherwise

-Drawings should be read not for scale

-Design is prepared only for educational purpose and correction of all data must be check before use.

-Design is not responsible for any kind of wrong data.

-minimum grade of concrete is M20 and all steel grade is Fe500.

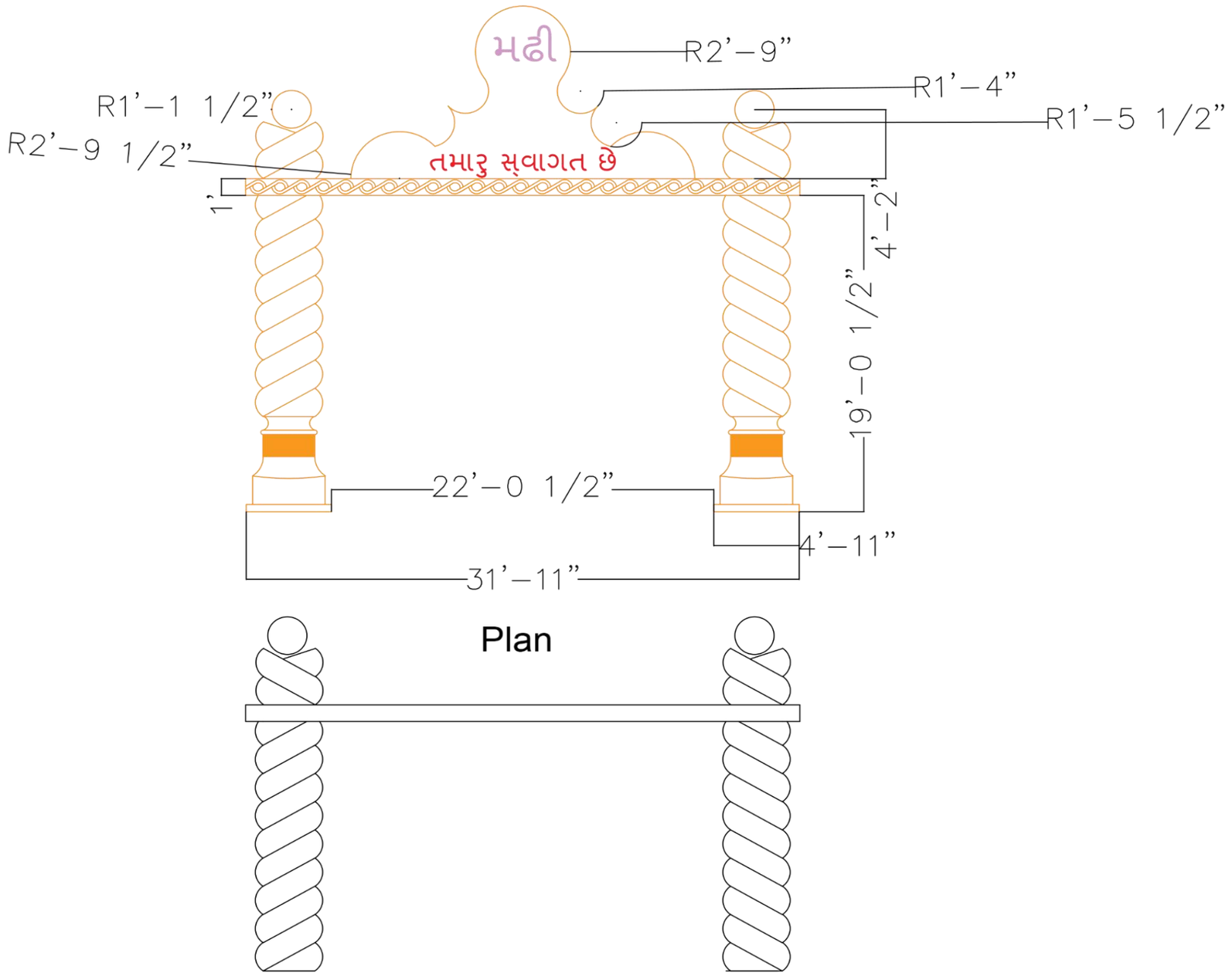
-Check first the plot dimension.

Design by: Mitul Ramani
Sonawala nishabahen

FIRE STATION

Project no:	05
Date	20/02/2021
Guide by	Dixit chauhan

Entrance Gate



Plan

-All dimension are in feet unless stated otherwise

-Drawings should be read not for scale

-Design is prepared only for educational purpose and correction of all data must be check before use.

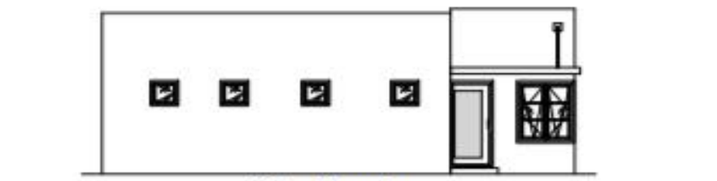
-Design is not responsible for any kind of wrong data.

-minimum grade of concrete is M20 and all steel grade is Fe500.

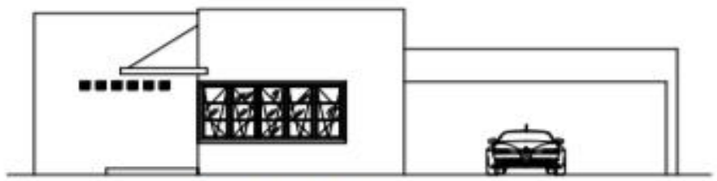
-Check first the plot dimension.

Design by :-	Mitul Ramani Sonawala Nisha
	Entrance Gate
Project no:	06
Date	20/02/2021
Guide by	Dixit Chauhan

Police Station

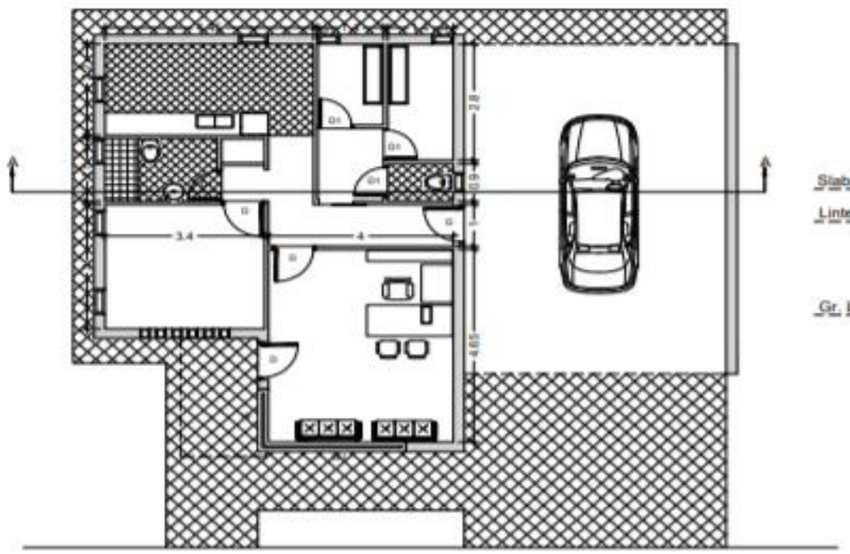


Side Elevation

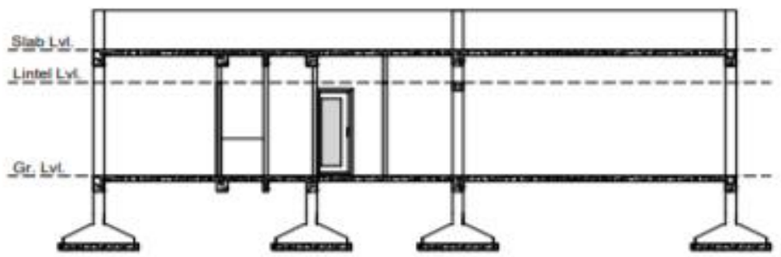


Front Elavation

SCHEDILE OF OPENING		
NAME	SIZE	QUANTITY
D	0.91 X 2.13	3
D1	0.76 X 2.13	4
W	1.28 X 1.21	1
W1	2.93 X 1.21	1
V	0.60 X 0.60	5
V1	0.45 X 0.45	3



GROUND FLOOR PLAN



Section A-A

-All dimension are in Meter unless stated otherwise

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-Design is prepared only for educational purpose and correction of all data must be check before use.

-Design is not responsible for any kind of wrong data.

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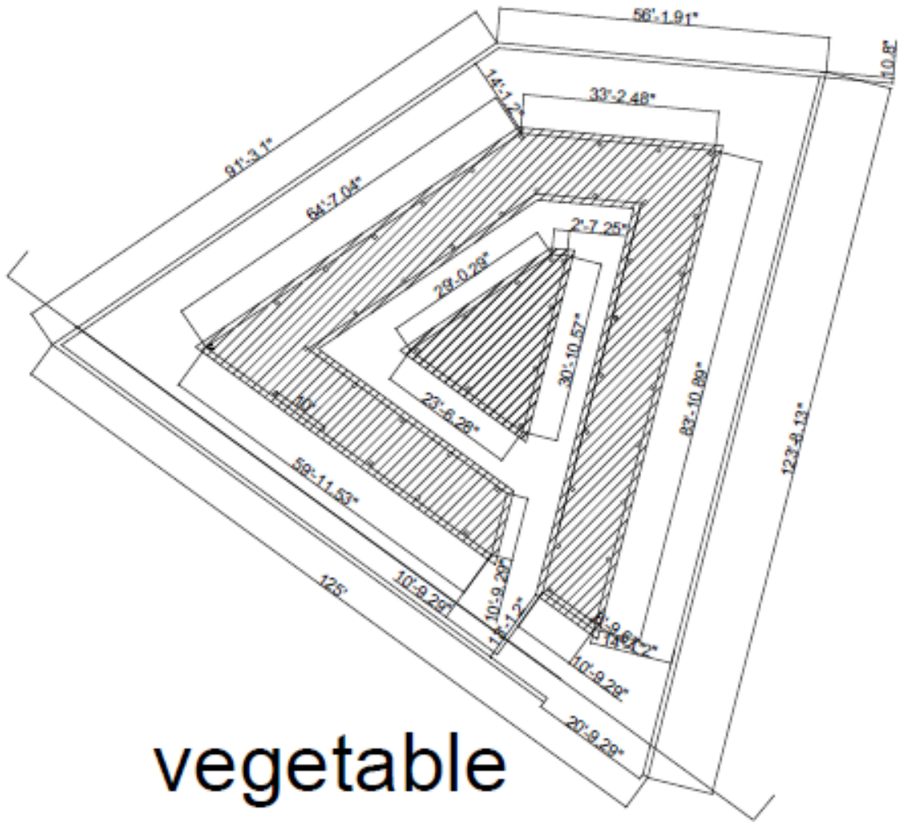
-Check first the plot dimension.

Design by :- Mitul Ramani
Sonawala Nisha

Police Station

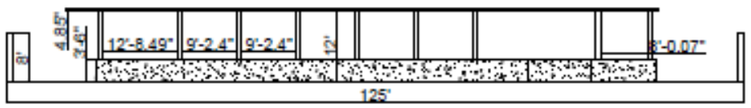
Project no:	07
Date	20/02/2021
Guide by	Dixit Chauhan

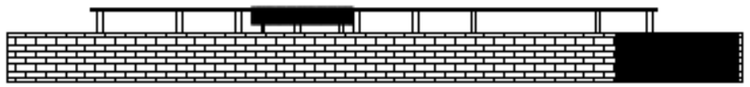
A



vegetable market plan

A'





SCHEDILE OF OPENING		
NAME	SIZE	QUANTITY
D	20'-9.29"x8'	1

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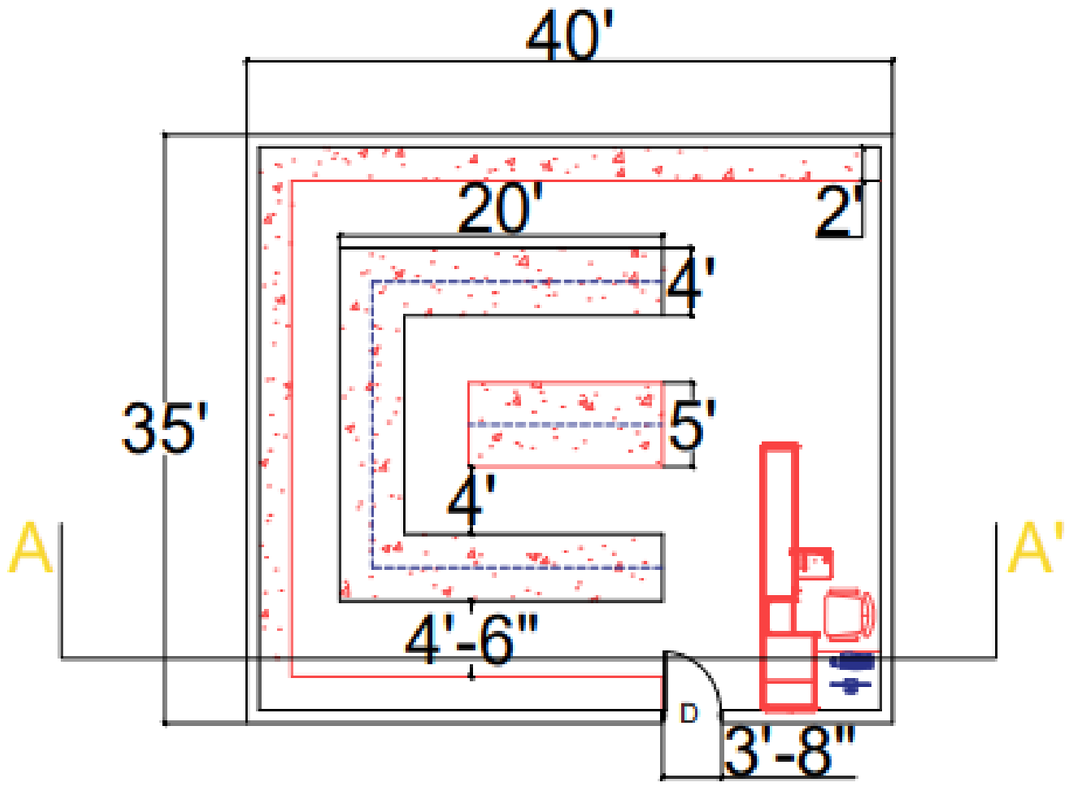
-Check first the plot dimension.

Design by :- Mitul Ramani
Sonawala nisha

vegetable market

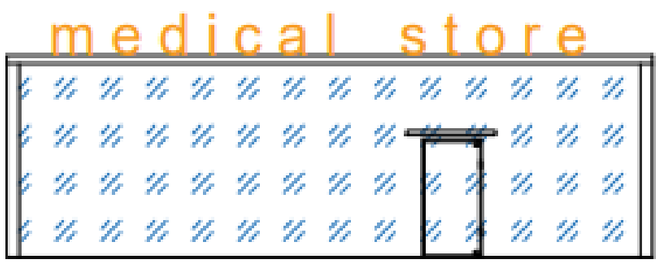
Project no:	08
Date	20/02/2021
Guide by	Dixit Chauhan



floor plan

medical shop

SCHEDILE OF OPENING		
NAME	SIZE	QUANTITY
D	3' 5 1/2" x 1 7/16"	1



Elevation

section plan

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- Design is prepared only for educational purpose and correction of all data must be check before use.
- Design is not responsible for any kind of wrong data.
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- Check first the plot dimension.

Design by :- Mitul Ramani
Sonawala nisha

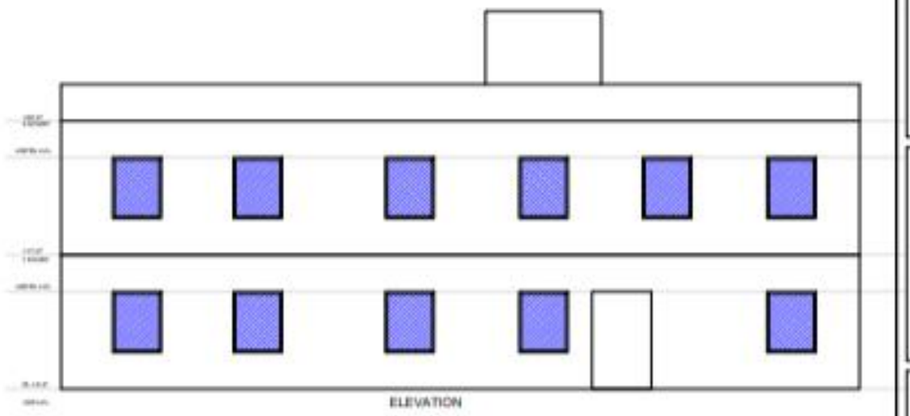
medical store	
Project no:	09
Date	20/02/2021
Guide by	Dixit Chauhan

Skill Development Center Plan

FIRST FLOOR PLAN

SCHEDILE OF OPENING		
NAME	SIZE	QUANTITY
D	3'-0" X 7'-0"	7
D1	2'-6" X 7'-0"	10
D2	3'-6" X 7'-0"	4
W	4'-0" X 3'-0"	39
V	2'-0" X 2'-0"	4

GROUND FLOOR PLAN



ELEVATION

-All dimension are in feet unless stated otherwise

-Drawings should be read not for scale

-Design is prepared only for educational purpose and correction of all data must be check before use.

-Design is not responsible for any kind of wrong data.

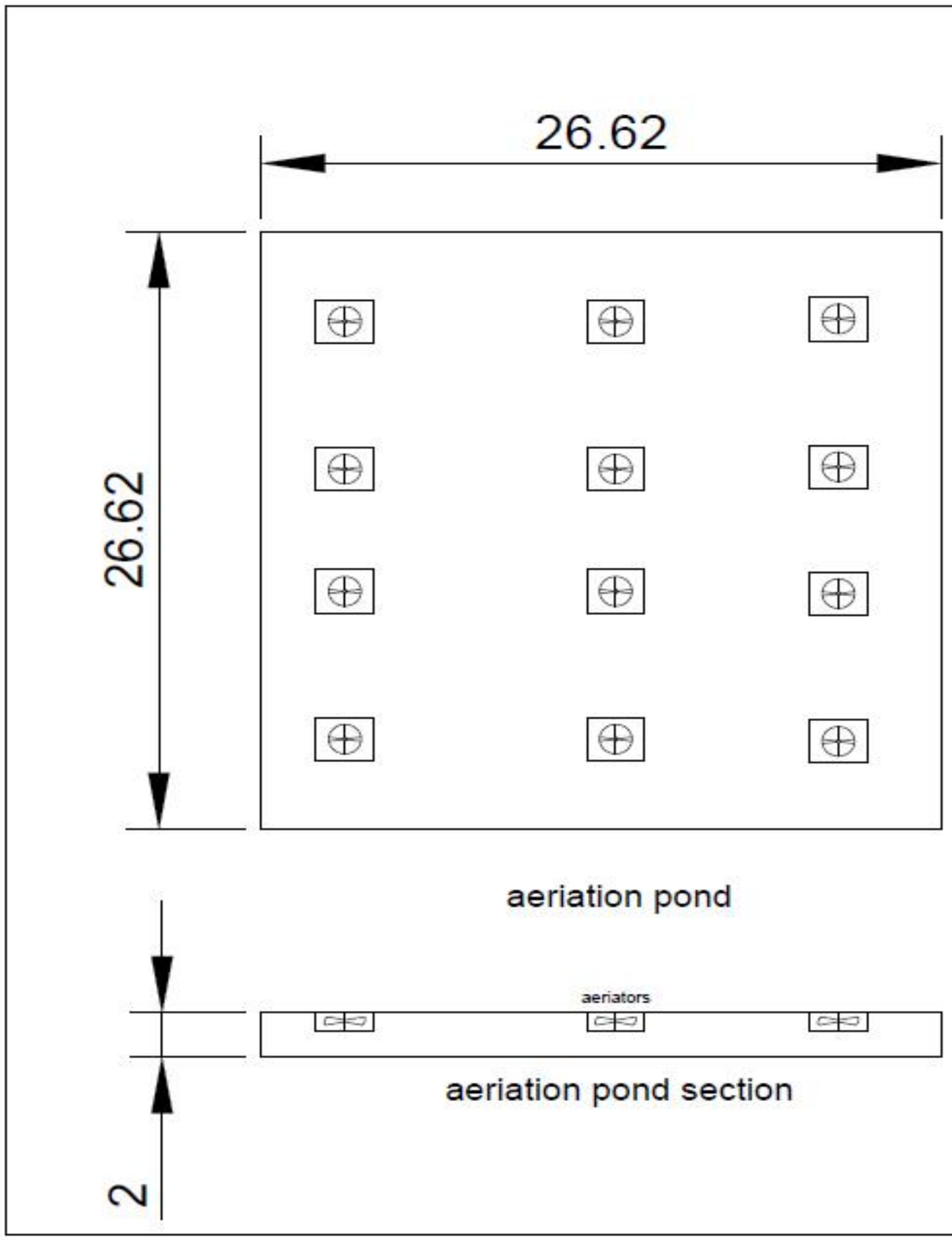
-minimum grade of concrete is M20 and all steel grade is Fe500.

-Check first the plot dimension.

Design by :- Mitul Ramani
Sonawala Nisha

Skill Development Center Plan

Project no:	10
Date	04/03/2021
Guide by	Dixit Chauhan



-All dimension are in Meter unless stated otherwise

-Drawings should be read not for scale

-Design is prepared only for educational purpose and correction of all data must be check before use.

-Design is not responsible for any kind of wrong data.

-minimum grade of concrete is M20 and all steel grade is Fe500.

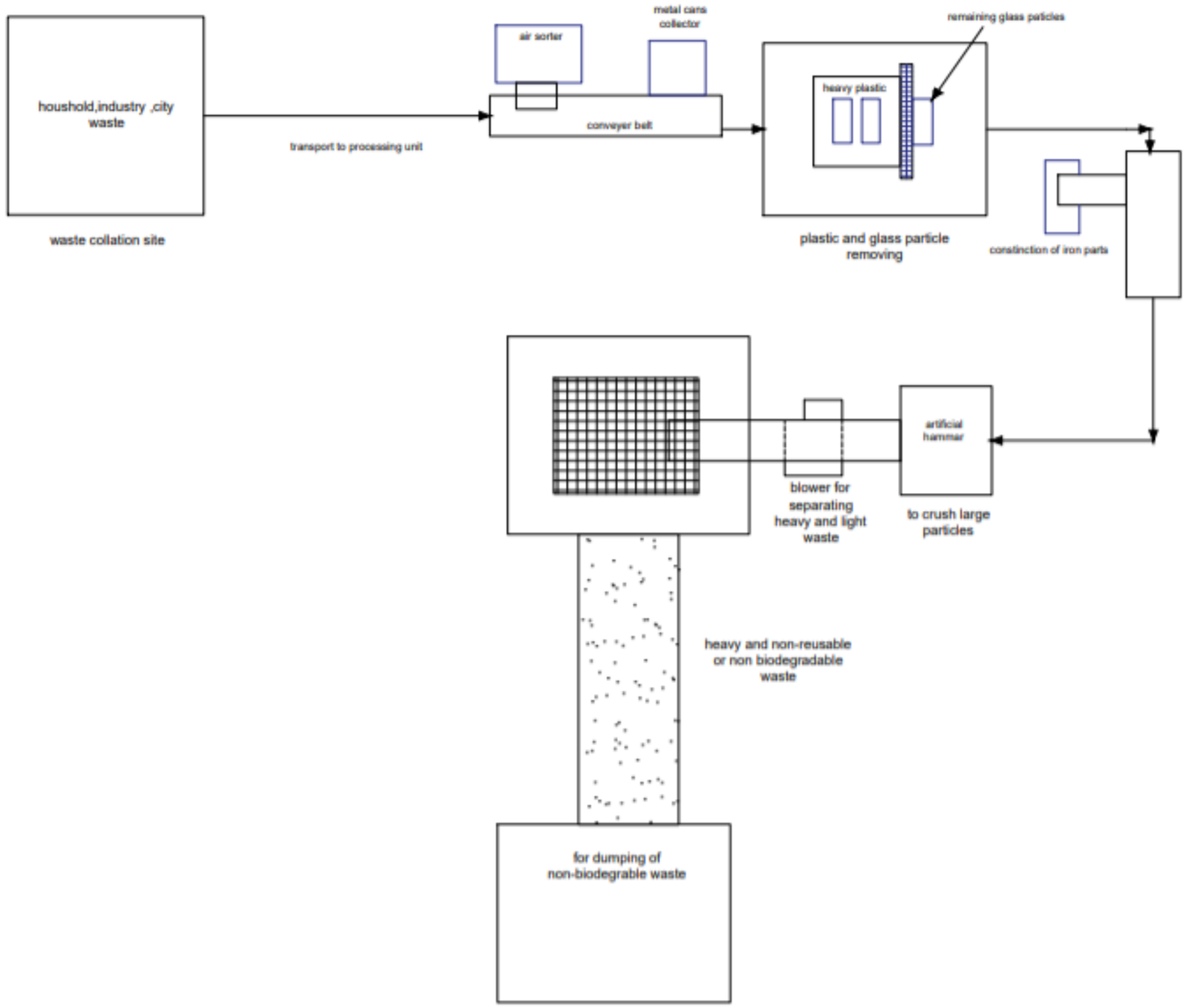
-Check first the plot dimension.

Design by :- Mitul Ramani
Sonawala nisha

aeriation pond(WWT)

Project no:	11
Date	20/02/2021
Guide by	Dixit Chauhan

solid waste treatment plant



-All dimension are in Meter unless stated otherwise

-Drawings should be read not for scale

-Design is prepared only for educational purpose and correction of all data must be check before use.

-Design is not responsible for any kind of wrong data.

-minimum grade of concrete is M20 and all steel grade is Fe500.

-Check first the plot dimension.

Design by :- Mitul Ramani
Sonawala nisha

solid waste	treatment plant
Project no:	12
Date	04/03/2021
Guide by	Dixit Chauhan

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

13.1.1 Civil Design 1:-Police station :design

Scenario :-

In the madhi village police station is in very damaged condition so that is why we decided to make plan for new police station .

Existing situation in madhi:-

For madhi police has been designd by us howeverin needs good and sustainable police station instead of it is have now.

Police station as important infrastructure:-

Design utilized by:-whole village can utilize this structure and also it can provide conveniency to worker

Needs:-basically it does not any extra equipment but waiting chair and similar item can be needed to utilize structure perfectly.

Design brief:-police station is used by people when they have faced any community problem or sufferd from violence.

Common repair and maintenance of the structure:-

First and formost step is to maintain garden area of it, moreover, police station wall should be contain some amazing design paint so there no one can damage it also it needs common security.in the last it should maintain by regularly inspection like monthly or yearly as well as need to maintain paiting frequently.

Measurement sheet of police station:-

SR NO	DISCRIPTION	LENTH (FT)	WIDTH (FT)	HEIGHT (FT)	COUNT(NOS)	TOTAL QUANTITY(FT^3)
1	LONG WALL(9")	83.312	.75	10	1	624.84
2	SHORT WALL	35.6	.75	10	1	267
3	INTERNAL WALL(6")	23.93	.5	10	1	119.69
4	EXCAVATION	2	2	3	8	96
5	RCC	2	2	3	8	96
6	SLAB	44.97	33.06	.5	1	743.35
7	DEDUCTION IN SLAB	11.45	9	.5	2	103.05
8	DEDUCTION IN WALL	31.35	.75	5	1	117.6

13.1 TA :- MS OF PT

Abstract sheet of police station:-

SR	DISCRIPTION	QUANTITY	RATE	PER	AMOUNT

NO		(FT^3)			
1	LONG WALL(9")	624.84	130	Ft2	108305.6
2	SHORT WALL	267	130	Ft2	46280
3	INTERNAL WALL(6")	119.69	90	Ft2	21537
4	EXCAVATION	96	70	Ft2	3360
5	RCC	96	80	Ft3	7680
6	SLAB	743.35	150	Ft2	223006.23
7	DEDUCTION IN SLAB	103.05	150	Ft2	30915
8	DEDUCTION IN WALL	117.6	130	Ft2	20377.5
				TOTAL AMOUNT	318121.33

13.1 TB:-AS OF PT

It is an approximate estimate of works which have shown in abstract sheet of entrance gate along with quantities are inclusive cost of water uses ,steel in rcc, Labour cost, finishing of stairs.

Total cost:-318121.33

13.1.2 Civil Design 2:-Vagetable market :design

Scenario:-in the village we seen that vendors are spoting their stalls on road ,which can be influence of traffic in particular area, so one particular provided area is the best solution for that to stop traffic and also villagers can buy vegetable from one specific point and it also influence the goods supply.

Existing situation in madhi:-as a mentioned vendors are selling their goods at the road side which leads to major traffic.

Vagetable marketas important infrastructure:-

Design utilized by:-villagers of madhi , villages which situated around madhi

Needs:- it does not demand any extra equipments

Design brief:-it is planned and sheded structure with aim of fully supply goods in perfect wayit is an important structure because if in future there is chance for that the vegetable market will grow more and everyone will come to madhi vegetable market,ultimately, it will rise the local business of madhi.

Common repair and maintenance of the structure:fortunately it does not need any extra decoration however painted wall can be able to stay away the spoilers as well as inspection of shed could be prevent the accident which will possible happen, lastly, cleaning of market daily can allow people to use it daily.

Measurement sheet of Vagetable market:-

SR NO	DISCRIPTION	LENTH (FT)	WIDTH (FT)	HEIGHT (FT)	COUNT(NOS)	TOTAL QUANTITY(FT^3)
1	LONG WALL	214.937	.83	8	1	1427.18
2	SHORT WALL	181.159	.83	8	1	1202.9
3	SHED	272.045	12.937	-	1	3519.446
4	DEDUCTION IN	170.045	8	-	1	1360.36

	SHED					
5	EXCAVATION	2	2	3	12	144
6	RCC	2	2	3	12	144
7	WALL DEDUCTION	20.774	.83	8	1	137.94
8	BRICK MASONARY	523	.83	3.5	1	1519.315

13.1 TC :- MS OF VM

Abstract sheet of Vagetable market:-

SR NO	DISCRIPTION	QUANTITY(FT^3)	RATE	PER	AMOUNT
1	LONG WALL	1427.18	130	Ft2	223534.48
2	SHORT WALL	1202.9	130	Ft2	188405.36
3	SHED	3519.446	245	Ft2	1040100.95
4	DEDUCTION IN SHED	1360.36	245	Ft2	333288.2
5	EXCAVATION	144	70	Ft2	3360
6	RCC	144	80	Ft3	11520
7	WALL DEDUCTION	137.94	130	Ft2	21604.96
8	BRICK MASONARY	1519.3	130	Ft2	237965
				TOTAL AMOUNT	1349992.63

13.1 TD:- AS OF VM

It is an approximate estimate of works which have shown in abstract sheet of entrance gate along with quantities are inclusive cost of water uses ,steel in rcc, Labour cost, finishing of stairs.

Total cost:-1349992.63

13.1.3 Civil Design 3:-Medical shop :design

Scenario:-madhi needs to be a advance medical shop if hospital development held moreover each madicine will be available within this medical shop so who are not able to travel long , this can be boon for them.

Existing situation in madhi:-in todays condition they have travel for bardoli which is more than 20 km from madhi so it is very difficult to fine every medicine within the village , however ,some medicine needs refregement so this medical if perfect solution for all this .

Madical shop as important infrastructure:-

Design utilized by:-who needs basic medicine or even medicine which could hard to find today it will avaible in this medical so it will use by each and every villager as well as nearest village

Needs:-it needs basic amenities as well as some high fecilities like instrument for maintain temperature and cash desh and so on.

Design brief:-it is an planned structure which will have enough equipment to store health precautionsit will be the first choise for helth care products.fortunately it will boost the local business of madhi as well as provide adance facility for madhi and village around madhi.

Common repair and maintenance of the structure:first and formost step which should be taken is cleaning regularly also medical wall should contain some amazing design paint so there no one can ruin it moreover regularly inspection can enhance durability of structure.

Measurement sheet of medical shop:-

SR NO	DISCRIPTION	LENTH (FT)	WIDTH (FT)	HEIGHT (FT)	COUNT(NOS)	TOTAL QUANTITY(FT^3)
1	LONG WALL(9")	35	.75	12	2	630
2	SHORT WALL	40	.75	12	2	720
3	EXCAVATION	2	2	3	4	48
4	RCC	2	2	3	4	48
5	SLAB	34	40	.5	1	700
6	EXTERIOR GLASS	40	.003	12	1	1.44

13.1 TE :-MS OF Med S

Abstract sheet of medical shop:-

SR NO	DISCRIPTION	QUANTITY (FT^3)	RATE	PER	AMOUNT
1	LONG WALL(9")	630	130	Ft2	109200
2	SHORT WALL	720	130	Ft2	124800
3	EXCAVATION	48	70	Ft2	1120
4	RCC	48	80	Ft3	3840
5	SLAB	700	150	Ft2	210000
6	EXTERIOR GLASS	1.44	350	Ft2	168000
				TOTAL AMOUNT	616960

13.1 TF :-AS OF Med S

It is an approximate estimate of works which have shown in abstract sheet of entrance gate along with quantities are inclusive cost of water uses ,steel in rcc, Labour cost, finishing of stairs.

Total cost:-616960

13.1.4 Civil Design 4:-Skill development centre:design

Scenario:-in villages rarely someone can focus on their inner arts or creativity and implement that , therefore, for being middle man we are introducing skill development centre which have many space to arrange workshops as well as daily classes to aknowledge .buy acquiring pefect way we can enhance ability of individuals.

Existing situation in madhi:-well currently it has not such kind of any institution or strcture so every one can not afford to travel for nearest sector.

Skill development centre as important infrastructure:-

Design utilized by:-each and every person of village , they can learn sewing as well as how to drive tractor moreover,skill like dancing and painting can be also enhanced by villagers .

Needs:-it needs equipment as per the classes or workshops helding in

Design brief:-basically it is an planned space which can utilize for various purposes mainly for influence the talent of villagers here they can met people like them so it is also one way to socialize .the reason is if someone have talent to do something but they didn't get guidance then there is a chance we can lose such kind of talent .

Common repair and maintenance of the structure:first and foremost step which should be taken to maintain cleanliness moreover time to time inspection can make structure durable and we can implement good painting on wall which can prevent masses from spoiling it.

Measurement sheet of skill development centre

SR NO	DISCRIPTION	LENTH (FT)	WIDTH (FT)	HEIGHT (FT)	COUNT(NOS)	TOTAL QUANTITY(FT^3)
1	LONG WALL(9")	70	.75	11	2	1155
2	SHORT WALL	45	.75	11	2	742.5
3	INTERNAL WALL	469	.5	11	1	2579.5
4	STAIR CASE	4	.83	.6	18	35.856
5	EXCAVATION	2	2	3	8	96
6	RCC	2	2	3	8	96
7	SLAB	70	45	.5	2	3150
8	SLAB DEDUCTION	8	15.37	.5	1	61.48
9	WALL DESUCTION	144	.75	6	1	648
10	INTERNAL WALL DEDUCTION	58.22	.5	11	1	320.21

13.1 TG :-MS OF SDC

Abstract sheet of skill development structure:-

SR NO	DISCRIPTION	QUANTITY (FT^3)	RATE	PER	AMOUNT
1	LONG WALL(9")	1155	130	Ft2	200200
2	SHORT WALL	742.5	130	Ft2	214500
3	INTERNAL WALL	2579.3	90	Ft2	464310
4	STAIR CASE	35.856	500	Ft3	17928
5	EXCAVATION	96	70	Ft2	2240
6	RCC	96	80	Ft3	7680
7	SLAB	3150	150	Ft2	945000
8	SLAB DEDUCTION	61.48	150	Ft2	18444
9	WALL DEDUCTION	648	130	Ft2	112320
10	INTERNAL WALL DEDUCTION	320.21	90	Ft2	57637.8

				TOTAL AMOUNT	1663456.2

13.1 TH:-AS OF SDC

It is an approximate estimate of works which have shown in abstract sheet of entrance gate along with quantities are inclusive cost of water uses ,steel in rcc, Labour cost, finishing of stairs.

Total cost:-1663456.2

13.1.5 Civil Design 5:- Waste water treatment plant(aeriation pond):design

Scenario:-we got evidence showed that wasted water village is directly releasing in nearest river as a result the water of that river is also spoiling . for converting I good outcome aeriation pond will provide perfect and practical solution.

Existing situation in madhi:-madhivillage's rivar is whole spoiled it smells bad so that there is chance to spread heath related dieases from that water .

Waste water treatment plant(aeriation pond) as important infrastructure:-

Design utilized by:-waste water will be released where aeriation pound will be implemented which will be far from village .

Needs:-it is a simple way to filter water like we have to excavate till 2 metre and have to put material which is used in organic filtration of water

Design brief:-it is excavated area which is measured and excavated after perfectly measuring the total water consumption and wastage so it only needed spare land **.**

Common repair and maintenance of the structure:to maintain it we have to remove sludge or other wastage after water evaporation like as water will evaporate and impurities will last in solid substance, so once in while we have to remove it .

DESCRIPTION:- well basically this implementation needs not exclusive things just need one portion of land in that land we excavate it till 2m depth where as the total area is around 708 m2 to be dig out , however, Backhoe Excavate charges 350 per cubic metre whereas the cost of tractor or dumper is varies but only excavating cost can be 495125 Rs,to add on that, if we want to apply any algea of chemical to make process Faster can be increse the investment it takes.

- Detention time is inbetween 20to 30 days.
- To increase algea growth we have to add sodium nitrate.
- The slump will stayed at the surface and that has to be clear once in several years.

Well population of madhi has been predicted to 15000 in upcoming year and according to per capita demand per person needs 135 litre so by assuming this factor we can calculate the water in million litre which is around 1417500litre ,which is equal to 1417.5 m3. So that we got 708.75 area and L=26.62m .

13.1.6 Civil Design 6:-Solid Waste treatment plant design

Scenario:-when we visited madhi we saw one side which is using for dumping of garbage by the solid waste of village and honestly it was also connected to river somehow and damage water as well as they were burning that garbage which also pollute the environment.

Existing situation in madhi:-one particular side besides the river of madhi has been used as dumping side as it contains all type of material it is currently harming the air as well as water.
Solid Waste treatment plant as important infrastructure:-
Design utilized by:-village can treat they solid waste and also they can capitalise it differently.
Needs:-basically it needs particular land which is non usable a part of this ,it needs some equipment related to process
Design brief:-the Design is planned to saprategarbage which is recyclable or reusable.
Common repair and maintenance of the structure:to maintain structure it is important to have often inspected by experts as well as will have to apply lubricant frequently .
Waste Generation and Composition in Onggomertan
The measurement results of solid waste generation in Onggomertan for 8 consecutive days showed That the average solid waste generation was 0.706 kg/capita/day with volume 0.026 m3/capita/day andA density of 97.839 kg/m3. In Asian countries, one of the factors that influence waste generation is per Capita income. The research shows that in developed countries generates more than 1 kg/capita/day While in developing countries with low income generates less than 1 kg/capita/day.Based on the calculation, the waste composition categorized into 5 types, namely organic, plastic,
Paper, metal, and other.

Type of waste	**Percent by weight (%)**
Organic	22.850
Plastic	21.859
Paper	14.101
Metal	3.889
Other	37.302
Total	**100**

13.1 TI :- Waste Composition in Onggomertan

In the surat city ,solid waste treatment plant has been funded almost 52.5cr on the population of approx 69lakh ,therefore,madhi has 7650 approx population and if we design a solid waste treatment plant it will cost approximately 578999.541 Rs.

13.2Reason for Students Recommending this Design
This design is desparately needed by village which is also somehow basic infrastructure which should be there to improve village development however all the villager can utilise this designs as well as village can also get attracted by this upgrade.Local business also can be face increment and helth and recreational facilities are essential so this is the enough reason to design this.

13.3About designs Suggestions / Benefit of the villagers

- Village will be the spot more visitors
- Helth ratio will be increased within village and surrounded village
- Local business will boomed
- Village will join the race of to be smart village
- Aim will be fullfiled to provide basic amenities to everyone

14. Technical operations with case studies

14.1. Civil Engineering

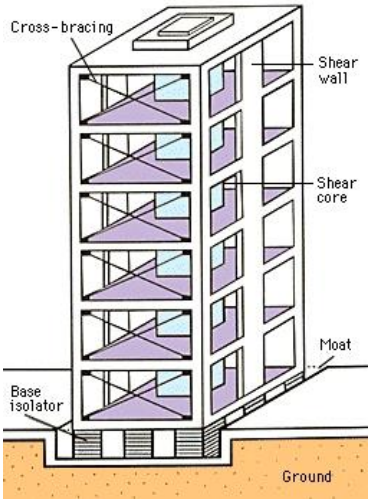
14.1.1. Advanced earthquake resistant

Earthquake resistant design includes the evaluation of seismic stimuli and the structural response to these stimuli at a particular location, to provide a structural system that will not break, which can prevent loss of life and limit economic loss during an earthquake.

1. Follow this IS code13828 and Is code4326:1993.
2. According to this Is code of earthquake resistant design and construction of building.

- General principal of earthquake resistant:(Is code: 13828)

1. Lightness: The earthquake force is a function of mass the building should as light as possible consistent with structure safety and functional requirement.
2. Continuity of construction: All part of the building should be tied together in such a manner that the building acts as one unit.
3. Suspended parts: In the form of walls, slabs etc. should be checked by increasing the weight of the projecting part keeping in view the stability of showing the parts against the protrusion through the counterweight, and by reducing the weight of the fixed mass. IS 1893: Seismic coefficient specified in 1984.
4. Shape of building: To minimize torsion, the building should have a simple rectangular plan and be sim metric in terms of both mass and stiffness so that the mass and stiffness centers of the building are compatible with each other. It would be especially desirable to use separate blocks of seismic zone V and rectangular shape.



14.1.1FIG:-ER BUILDING

5. Fire safety: This is a most important principle of earthquake resistant. Previous safety of the Is code preferred in this earthquake resistant.

- Three stages of design earthquake resistant:

1. Conceptual
2. Analysis
3. Dimensioning verification

14.1.2. Seismic Retrofitting of Building:

Retrofitting is the seismic strength of exist damaged or undamaged structure. It is the improvement of all overall original strength evaluation the building indicates the strength available before damage was

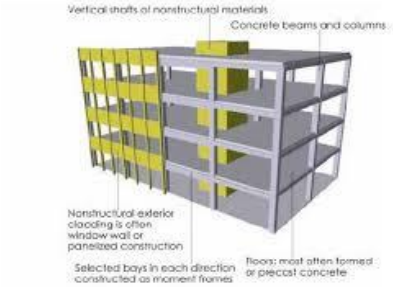
insufficient and restoration alone will not be adequate in future earthquake. Seismic retrofitting is the modification of existing structures to make them more resistant to seismic activity, ground motion, or soil failure due to earthquakes. With better understanding of seismic demand on structures and with our recent experiences with large earthquakes near urban centers, the need of seismic retrofitting is well acknowledged.

The retrofit techniques outlined here are also applicable for other natural hazards such as tropical cyclones, tornadoes, and severe winds from thunderstorms. Whilst current practice of seismic retrofitting is predominantly concerned with structural improvements to reduce the seismic hazard of using the structures, it is similarly essential to reduce the hazards and losses from non-structural elements. It is also important to keep in mind that there is no such thing as an earthquake-proof structure, although seismic performance can be greatly enhanced through proper initial design or subsequent modifications.

14.1.2 FIG:- Seismic Retrofitting Of Building

- **Objective of seismic Retrofitting building:**

1. Lateral strength increase a one or both direction.
2. Jacketing is a technique used a increase the strength of structural members like a beam, column etc..
3. Retrofitting reduced the weakness of damaged of an existing structure during a near feature seismic Retrofitting activity.
4. Do not increase a ductility structure.
5. Giving unity to the structure by providing a proper connection between its resisting elements



14.1.3 FIG :- construction techniques

14.1.3. Advance practices in construction field in modern material, Techniques

The Indian advanced construction techniques industry is experiencing a period of fast growth. Aim to overcome the housing problem, it also face the challenge of fulfilling ne of the client and maintain the quality standards.

- Various techniques, equipments and their advantages in bundling construction

Sr no	Use of techniques/equipment	Work activity	Advantages
1	Small capacity concrete mixers	Concreting	Speed, rpm and quality is mainted without extra consumption cement.
2	From vibrator	Casting of slab	Good compaction, less honey

			combing of concrete. And no air voids.
3	Travel bleu conveyer	Slab concreting	Labour required to transport we converted is reduced, quality increased, time decreased.
4	Hoist bucket	Transportation materials like a cement, sand , aggregate, etc.	Shift the material vertically with speed
5	Admixture and plasticizers	Concerting and water proofing	Increased workability strength and curing time reduced.
6	Dumpers	Transportation building material	Speed increased, operations easy.
7	Bull-dozer	Excavating	Excavated stuff as and when required
8	Excavators	Excavations and leveling	Excavates and levels the soft strata as desired.
9	Sand screening machines	Masonry	Time saving and less wastage of sand

14.1.3 TA :- various techniques

14 1.4. Engineering Aspects of soil mechanics – Environmental Impact Assessment

Engineering Aspects of Soil Mechanics: Soil consists of three phase solid particles, water and air. This fundamental unique Engineering properties, and description of mechanical behavior requires of the principal of Engineering mechanics.

Soil mechanics is the branch of civil Engineering the application principle of hydraulic, mechanics and chemistry to engg problems related to soil.

- **Classification of soil:**

1. Classification based on particle size distribution :

(i) Indian standard classification :

➢ Depending upon is code size

- Boulder= Greater than 300mm
- Gravel = 4.75 – 80 mm
- Sand = 75 micron -4.75 mm
- Silt = 2 micron – 75 micron

(ii) Clay = Less than 2 micron

(iii) International classification:
- Gravel = greater than 2 mm
- Sand = 0.1 to 2 mm
- Silt = 0.002 to 0.02 mm
- Clay = 0.0002 to 0.002 mm

(iv) M.I.T. classification (Massachusetts Institute of Technology)
- Gravel = greater than 2mm
- Sand = 0.06mm to 2mm
- Silt =0.002 mm to 0.06mm
- Clay = less than 0.002mm

(v) U.S. Bureau classification:
- Gravel = greater than 2mm
- Sand = 0.05 to 1mm
- Silt = 0.005 to 0.05 mm
- Clay = less than 0.005mm

2. Classification based on unified soil:

➢ Two types of Soil sample passing 75 micron sieve

1. 75 micron sieve on retained sample

➢ Coarser grained soil

➢ Passing from 4.75 mm sieve (Two types)

1. Retained >50% 2. Retained <50%

- 75 micron sieve on passing sample

14.1.4 FIG :- soil classification

➢ Fine grained soil

➢ Classification based on Liquid Limit (Two types)

1. L.L <50% (Low compressible soil) 2. L.L>50% (High compressible)

3 Classification based on Indian standard classification:

Indian standard classification same classification of unified soil classification. But basic difference is fine grained soil two types is not but three types is available for the classification.

- Three types of classification:

1. L.L <35 % = Low compressible soil
2. 35% < LL< 50% = Medium compressible soil
3. LL >50% = High compressible soil

4. Classification based on Textural classification:

This classification soil is depend on mixed soil. This soil classification based on particle side distribution. Suitable for this classification of coarse grained soil.

5. Classification based on H.R.B. (Highway Research Board) :

This classification second name is American Association of State Highway and Transportation Officials(AASHTO). This classification

Based on particle side distribution and plasticity characteristic of soil. H.R.B classification indicated the soul 8 group A-1 to A-8. And A-8 is indicate of organic soil like muck etc. Then increase soil group and group index value increased.

- **Environmental Impact Assessment:**

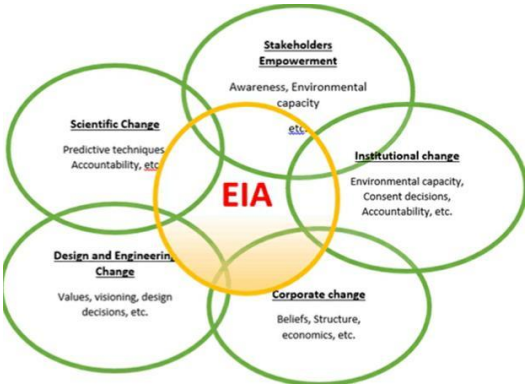
Environmental Impact Assessment is a process of evaluating the likely, environmental impacts of a proposed project or development, talking in to account, social economic, culture and health impact, both beneficial and advice. The environment impact are include as:

- Climate change include global warming.
- Acid rains, and other form of pollution
- Forest, water and food
- Displacement of wild life

The basic components environment are soil, rock, water and living components of the environments and soil rock water component is a organisms or solar energy.

- Following the environments impact Assessment:

- Transparency
- Certainty
- Participation
- Practicability
- Flexibility
- Cost effectiveness
- Credibility
- Accountability



14.1.4FIG:- environments impact Assessment

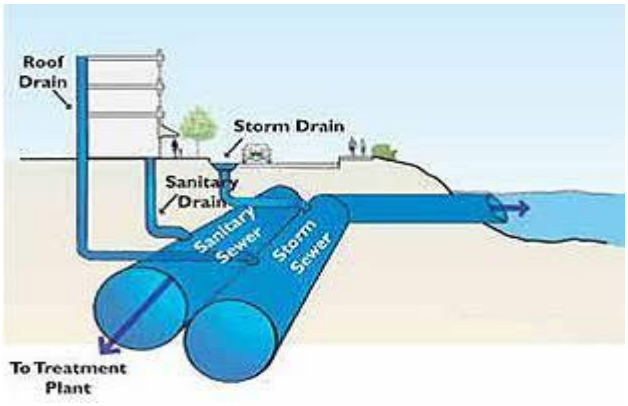
14.1.5. Water supply- sewage system- waste water- sustainable development and techniques:

Water supply system for the collection, transmission, treatment, storage and distribution of water source.

The attached either pump main water supply pumps water into pipe line it move pipe through the water into home. A storage system, wastewater collect a network pipes, pumping stations that covey sewage of origin point if treatment.

Sewage system

A Sewage system, collect a wastewater system, a network of pipe and pumping station convey system of origin to point of treatment. Three types of sewage system. Primary system:
Use a single pipe to both wastewater and runoff water for wastewater plant. They are not used anymore because when rains lot of system can not handled both the surface of wastewater.

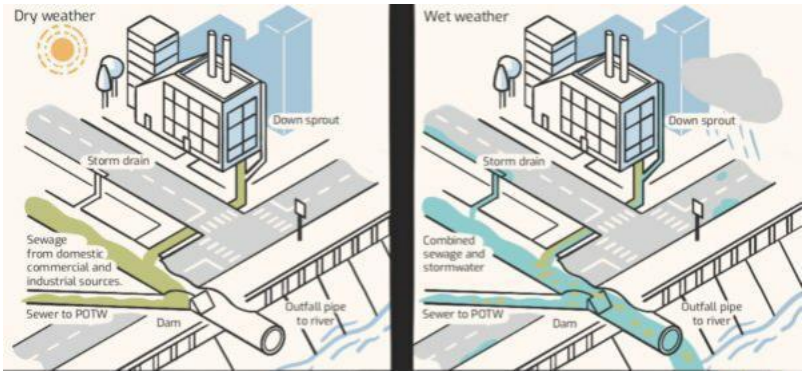


Above seen the image wastewater and runoff of same pipe supply water. During dry weather the combined wastewater and runoff water flow toward the wastewater treatment plant and not the flow of river.

14.1.5 FIG:-water supply and sewage

1. Separate system:

In this system of two sewers provided industrial sewage and sanitary sewage. Sanitary sewage of sewers carried to the treatment plant, and rain water. Industrial sewage of sewers directly discharge into natural river without any other treatment.

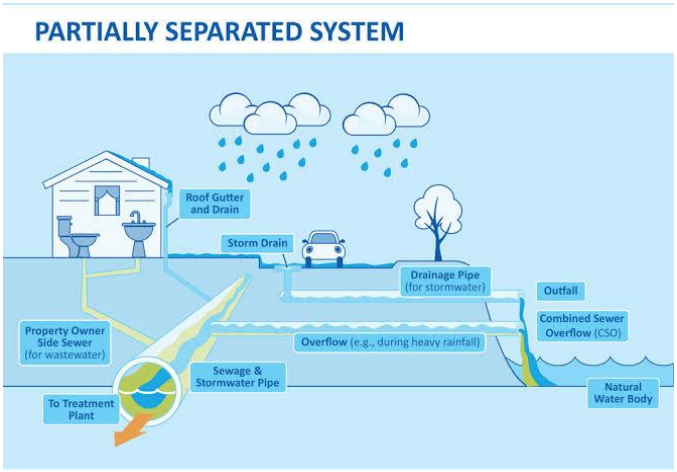


14.1.5.AFIG:-primary system

The separate system is following conditions:

- Uneven rainfall
- Separate outlets for sewage and rain water
- Requirement of pumping
- Subsoil condition
- Time of laying sewers
- Convert of exist sewers

2. Partially separate system:



14.1.5.BFIG:-water supply and sewage

In this system industrial sewage and sanitary sewage, and rain water
Which is drained from back yards and roofs houses are carried in the same sets of sewers the rain water drained from house as well as from road is collected and separate sets open drains.

Partially combined system required careful maintenance and skilled staff. Another portion of rainwater by the sanitary sewage system and wastewater treatment plant.

Case study of pradhan mantri avas yojna in India:

Rural developments hold key to a sustainableeconomic growth and human development India'a emergence as a global power depends on its ability to tackle the challenge of rural poverty and development effectively. It is for this reason that the government accordance the utmost importance to the transformation of rural people through livelihoods l. The tasks of providing housing supposed as a significant policy objective of all succeeding governments in india –both at central and state levels. Pradhan Mantri Awas Yojna is scheme introduced by the the government of India for the realization of the goal of housing for all by 2022.

Statement of the problem:

Housing is considered at one of basic necessities of human beings, considering the importance of providing shelter to homeless steel poor, the government had come out with various programes and projects. The PMAY is a recently introduced scheme by the ministry of rural development to mitigate the rural housing problem, while the ministry is already implementing schemes like the IAY, amedkar housing scheme etc.

Objective of the study:

●To find out the implementation process of this scheme and its impact on beneficiaries in the selected back panchayat.

● To analyze the progress of PMAY.

Relevance of the study:

The nearly introduced 'PMAY' mainly aims to provide provisions of housing to the rural households especially to the helpless women old age people persons with disabilities and those who belongs to the backward caste as well as economically weaker sections. There are loopholes in the selection of beneficiaries. Moreover this scheme is mainly based on the 2011 socio economic caste census. This necessitates a study in this area.

Methodology of the study:

In order to carry out the reach, a separate interview schedule carried out to collect primary data from the government officials, questionnaire was also used to collect details from the beneficiaries of the targeted block panchayat. The beneficiaries include the entire population of the beneficiaries of Mallapally block panchayat, pathanmthiha district, kerala. Hence the sample size include forty seven respondents secondary sources such as journals, government office etcused.

Data Analysis:

1. Sex of Respondents:

Sex of Respondents	No of Respondents	Percentage (%)
Male	11	23.4

Female	36	76.6
Total	47	100

Table 14.A. sex respondents

The above table shows that among the total forty seven respondents thirty six were female and eleven of them were male. According to the rules of this particular scheme, it there is a widow or a single unmarried woman then there is greater possibility for them to get benefits. This is mainly to empower the women in the society. The men will be able to get the ownership right in cases such as there is no natured female in his family. This also reveals thay there exists gender discrimination.

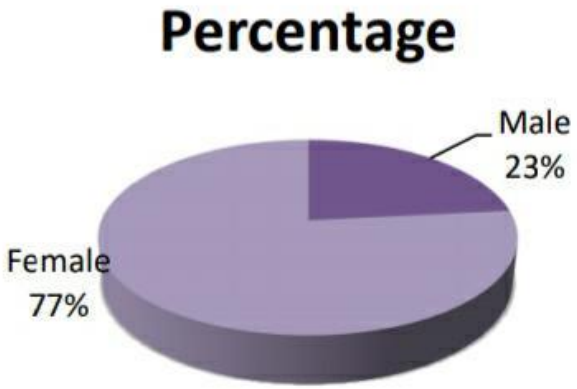


Fig.14. A.sex respondents

2. Age of Respondents

From the below table we can see that about 509.57% of the total population comes under the age of group of 40-50. So we can say most of the people who comes under the list of beneficiaries belongs to the working age group. About 25.54% comes under the category of 50-60. Those who belongs to the age group of above 60 constitute around 10.64% of the total number if respondents. The respondents under the age group of 30-40 are very low when compared to the other group(4.25).

Age of group	No of respondents	Percentage
30-40	2	4.25
40-50	28	59 27
50-60	12	25.54
Above 60	5	10.64
Total	47	100

Table 14.B. Age of respondents

3. Size of family

The number if family members of most of the respondent is in between 2-4. Those who have above six members of families having members in between four to six constitutes around 25.53% of the total percentage from the graph it is evident the most of the beneficiaries have small families. A very

few of them belongs to joint family system is very small we can conclude that the family size doesn't play a significant role in the selection of beneficiaries.

4.Income level of the respondents

The beneficiaries whose monthly income comes below two hundred as well above Rs. 2000 are 14.89% and 10.64% respectively. These are the lowest percentages. The highest percentage constitute the people whose monthly income is in between 200,800 1400 Rs. Around 17.02% people come under the category of monthly income in between Rs. 1400. So it is very clear that almost the entire beneficiaries come under the category of below poverty line.

5.caste based Analysis

Here most of the respondents who got benefits under the scheme belong to the general category followed by those who belong to OBC, OEC etc. The respondents belonging to the SC/ST constitute the least percentage I.e.19.15% while those belonging to the General and other constitute 57.56% and 23.40% respectively. Most of the beneficiaries in this block panchayat belongs to the general category especially Christian's and the preference for those who belongs to the backward classes not happening in reality. So most of the eligible people as per this list either already got benefit or otherwise they don't possess land in their own name.

Number of houses sanctioned

The number of houses that were constructed under the schemes PMAY and IAY during the period 2010-3018 in the respective block can be also traced using following graph from the table it is clear that the no of housed sanctioned is decreasing year by year. During the year 2010-2011 we can see that under the scheme IAY, the number if houses constructed was 286 but, when we lack into the number houses constructed under PMAY in the year 2017-2018.

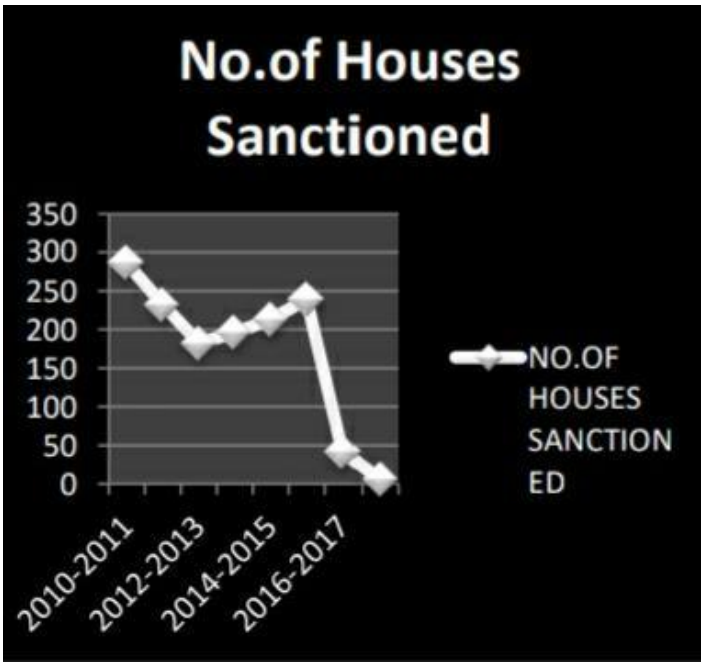


Fig. 14.B.Number Of houses sanctioned

The impact of PMAY on beneficiaries

1. Employment opportunities

This scheme is very helpful in providing job opportunities to the beneficiaries through the convergence with Mahatma Gandhi National Rural Employment Scheme. The beneficiaries will be offered a ninety days employment programme by utilising the effective labour force for the construction purposes. Among forty seven beneficiaries in the respective lock I.e.68% of them were

enjoyed this benefit and majority of them are highly satisfied with the provisions provided by the government.

Fig. 14.C.Model of PMAY

2. Beneficiaries opinion on satisfaction
Since most if the families are small in size, the provisions provided by the government are quite enough to meet the requirements of them. From the above table it is clear that majority of beneficiaries I.e. about 90% are satisfied with that received. Some of them pointed out that it is better, if there are provisions for drinking water as well as sanitary requirements together with the scheme. The political influences, lags in getting installments on time etc. Are some of the reasons for dissatisfaction among the rest of 11%.

Conclusion

Despite the effort made by the government, the problem of housing especially rural housing remains unsolved. Form the above study we can conclude that:

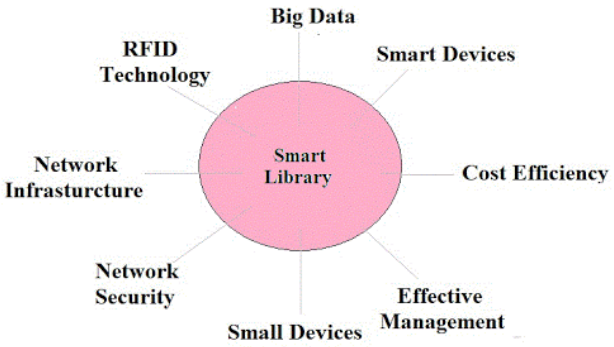
- There exists a greater preference for women which implies that, the scheme gives emphasis to women empowerment.
- Among the beneficiaries, there is a predominance of small family size. So it can be concluded that they can lead a comfortable life with the given facilities.
- Even through the senior citizens have preferences, the number of them among the beneficiaries is comparatively very low.
- Form this study, we can find that most of the beneficiaries, who comes under the list, belongs to below poverty line.
- The study also shows a decreasing trend in the number of houses allotted despite an increase in the allocation of fund. The main reason for this is the procedure of implementation of PMAY on the basis of socio-economic caste census(2011). Most of the eligible persons as per this hand already git such benefits through various other schemes like IAY.

Therefore the effective implementation of PMAY requires formulation and execution of sound land policy and a comprehensive yearly survey at the local levels in order to identify the truly deserved ones. It would be better if the Government incorporates the provisions for drinking water and sanitation facilities together with the scheme. Along with ensuring the services of voluntary organizations, regular inspection and follow up activities should be carried out. Then only we can accomplish the mission of " Housing for all".

15.smart and /or sustainable features of chapter 8 & 13 designs, impact on society.

Smart &sustainable features of designs:-for the library we can consider an environment protection as its first positive point like as we can use blocks which was made by the waste material for instance plastic.

Secondaly,for the garden,we can utilize the plastic waste as a material to made creative outcomes ,like wise., plastic bottles can be used as flower pot ,moreover ,the paver block should be used from made buy garbage waste, which is collected from village's solid waste. add on that ,the hospital we are likely to developing in this village ,it will attract the more visitors whatever the reasons it will definitely increase the local businesses also.



15 FIG :- smart feature of library

Smart or sustainable feature of hospital:-

Electronic Patients Health Records

Data and Voice Network

Biometric system for Doors & Medical Cabinets

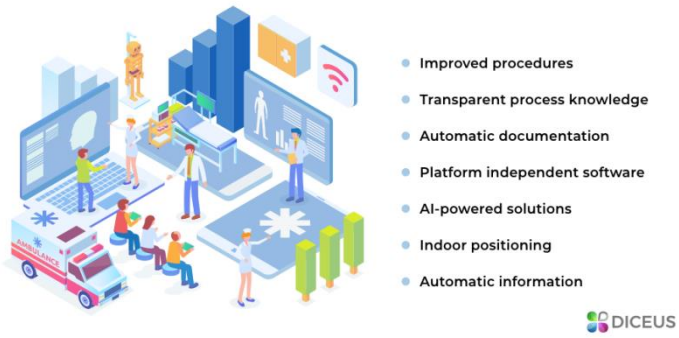
Medicine Electronic Database and Inventory

Patient's Safety through CCTV and Video Surveillance

Smart Lighting Systems

Hospital Facilities Monitoring

HVAC Control and Energy Monitoring



15.A FIG :- smart feature of hospital

Fire Alarms and Leakage Detection Systems

Digital Media Signages and Parking Systems

impact on society:-In total, hospitals provide employment for more than 5.7 million Americans, with tens of thousands of new healthcare jobs added each month. Additionally, hospitals spend over $852 billion on goods and services annually and generate greater than $2.8 trillion of economic activity.

Smart or sustainable feature of community hall:-The current accumulation of global experiences shows that any community, regardless of income level, can work toward a sustainable development vision. At the very basic level, sustainable community design and practices can focus on:

- Providing, rectifying and/or improving the physical built environment, sanitary and infrastructural services,andmaximising the renewable resources available at the local context – e.g., sun, wind, rain, and vegetation.
- Offering alternative means to generate incomes from the environment-friendly economy, such as ecotourism, local food production, waste recycling, etc.
- Enhancing social conditions and community ties through joint-community projects and educational programmes.
- This model, termed a low income sustainable community model, is the most suitable one for lower income communities with a vision for sustainable development.

For mid- to higher-income level communities, sustainable community design and practices include the above plus the following areas of focus:

- High quality of life, such as sporting facilities, sustainable transportation facilities, local availability of organic food, and accessibility within walking distance to amenities such as retail stores, schools, parks, etc.
- Community coherence and a low crime environment.
- Community pride and identity, achievable by making community projects, such as renewable energy technologies, a landmark for a carbon neutral community.

Smart or sustainable feature of fire station:-Wet barrel hydrants are used in warm Climates on pressurized water distribution Systems.

Water remains in the barrel of The hydrant at all times. Each hose outlet Is individually valved, and can therefore be Operated one at a time. A wet barrel fire hydrant. The Operating nut for the small hose outlet is on the Right. The operating nut for the large outlet is on The rear of the hydrant. Dry barrel hydrants are used on Pressurized water distribution systems in Climates subject to freezing. A valve below The frost line is activated by an operating Nut on the top. When the valve is opened, Water fills the hydrant body (or barrel) above It. All hose outlets on the hydrant are then Pressurized concurrently. A drain is provided To allow gravity to empty the barrel of water When the valve is off. Clogged drains and Poor valve seals are common reasons for Hydrants to freeze and become inoperable.Dry hydrants are used on static water supply Sources. They facilitate pumpers drafting water From the static source .

Smart or sustainable feature of village gate:-The village gate is a type of architecture and culture that was very popular in the delta and Northern midlands in the old day. The village gate appeared very early on that it has associated with the formation and development of the village. In the beginning, they were probably just primitive gates built of bamboo. People added some thorn vines to prevent the villagers and their cattle from wild animals. Later, with the development, people used laterites, together with bricks, tiles, lime and mortar and other materials in rural construction. The village gate was also built more sustainably and carried architectural, artistic values.

Impact on society:- it will enhance the profile of the village as well as it will reflect the culture and the name of v

16.Survey By Interviewing With TalatiAnd/orSarpanch

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	M property tax, Professional tax
2	What are the chances of employment in village?	NO	
3	What are the special technical facilities in village?	NO	
4	Is any debt on village dwellers?	NO	
5	Are village people getting agricultural help?	Yes	gram sevak
6	Is women health awareness Program organized in village?	Yes	fluoride in mouth
7	Are women having opportunity to work and income?	Yes	
8	Child girl education is appreciated in village?	Yes	
9	Facility of vaccination to child is available in village?	Yes	
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?	Yes	
12	Is water scarcity in village? How many days per year?	Yes	due to canal isst.
13	Is village under any debt?	NO	
14	Is any serious issue due to debt from bank or any person happened in village?	Yes	person steal the money from bank
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	approx 10 person
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?	Yes	

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

17.Irrigation/Agriculture Activities And Agro Industry, Alternate Techniques And Solution:

Irrigation: Artificially process of applying controlled amount of water to land to assist in production of crops.irrigation helps to grow agricultural crops, maintain landscapes, and vegetable disturbed soils in dry area and during periods of less than average rainfall.

When you have a professional installed irrigation method your landscaper will take other factors into account when designing your method. Saving you dragging the hose around the yard and constantly tweaking the output of your system.

17 FIG :- Agriculture activity

Agriculture activity:-

Agricultural production is the use of cultivated plants or animals to produce products for sustainable human life. Agricultural crops turned into products fall into one of four groups for fuels, fibers, or raw materials. Roughly 11% of the planets land is dedicated to crop production and close to 26% is used for animal pastures.

Land is used to grow crops that have an intended use in one of the four categories. The crops are purchased by businesses that specialize in processing them for their expected purposes and then sold to manufacture or distributors.

Agro industry:

Agro based industry would mean any activity involved in cultivation, under controlled conditions of agricultural and horticultural crop s, including floriculture and cultivation of vegetables and post harvest operation on all fruits and vegetables. Different types of agro industry include textile industry, sugar industry, vegetable oil industry, tea industry, coffee industry, leather goods industry.

Alternate techniques and solutions:
Alternate techniques following systems of drip irrigation, manual sprinkler, manual watering.

- Drip irrigation:

Drip irrigation is a popular way to water plants and crops. You can set up a drip irrigation system along the border of a garden to water the plants little by little thought the day.

- Manual sprinkler:

zzManual sprinkler are an affordable and easy alternative to underground sprinkler systems. Just be sure to not run over your sprinklers with the lawnmower.

- Manual watering: Manual watering can be hit or miss, through, when it comes to ensuring your entire lawn gets the right amount of water and time. All you need for manual watering is a hose and time. If you are not sure which irrigation system is best for your needs, contact the landscaping irrigation design experts t Piedmont landscape management.

17.A FIG :-techniques of irrigation

18. Social activities

Following activity do in madhi village

1.covid
At the time of Corona, in MadhiVillag, we people gave mass for the guard of Corona and explained the importance of Sanitizer in the village. Corona's team didn't have enough rations so we requested you to give us as much regular rations as you can.

2. Education
Let the little ones learn that education is good.To learn how to reach the goal and reach out to all the little boys in madhi Village. Help the elders, but don't do child labor, grow up, be educated, be proud of your mum, dad, and Madhi Village, to fulfill your dream.

3. Clean
We have cleaned the road in Madhi village and have suggested to the people of the village that you also keep clean, it is good for your health and for our Surat.We have instructed the people of the village to separate dry waste from wet waste so that there is no dirt.

4. Discuss requirement of madhi village
That we have discussed with the Sarpanch and others in Madhi Village are solid and liquid waste management, safe drinking water facilities, rain water drainage system, improving sanitation conditions, efficient public transportation system, use of modern technology and improvement locality, improvement women empowerment etc..

5. Agricultural education
Arrangements should be made for agricultural education and extension services to guide and advise farmers on the adoption of new technologies. It will help farmers to take proper crop care, which will increase crop productivity, That is to say we have to play a part in the crop of Aloko one day so that we can help someone.

6. Dr. Ambedkar naweenikaran yojna
If 20 years old in AmbekdarYojana benefit home, then you should take advantage of that scheme so that you can benefit in your condition.

19. MADHI SAGY Questionnaire Survey form with the Sarpanch Signature

SAANSAD ADARSH GRAM YOJANA (SAGY) Baseline Household Survey Questionnaire

Village: Madhi Gram Panchayat: Madhi Ward No.:

Block: Bardoli District: Surat

State: Gujarat L S Constituency: 190 Mahuva

1. Family Identity and Size

Name of Head of Household	[illegible]							Male/ Female	M
SECC Survey ID:		Family Size	9	Over 18	5	6 to 18	-	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	Job card
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]
[illegible]	50	M	N	Yes	5	Y	Y	-
[illegible]	50	F	N	Yes	10	Y	Y	-
[illegible]	26	F	N	NO	8	Y	N	-
[illegible]	23	M	N	NO	10	Y	Y	-
[illegible]	19	M	N	NO	10	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

.. Children below 6 years

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

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

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

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

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

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

SAANSAD ADARSH GRAM YOJANA (SAGY) Baseline Household Survey Questionnaire

5. Hand washing

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

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

7. Do members take Regular Physical Exercise

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

8. Consumption of Tobacco

	Smoking	Chewing
Adults	NO	NO
Children	NO	NO

9. House & Homestead Data

Own House: Yes / No	No. of Rooms: 1 BHK
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	Yes
Community Water Tap	Yes / No	Yes
Hand Pump (Public / Private)	Yes / No	NO
Open Well(Public / Private)	Yes / No	NO
Other (mention):		

11. Source of Lighting and Power

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

12. Landholding (Acres)

1. Total	1 Acre	2. Cultivable Area	
3. Irrigated Area		4. Uncultivable Area	None

13. Principal Occupations in the Household

Livelihood	Tick if applicable
Farming on own Land	NO
Sharecropping /Farming Leased Land	
Animal Husbandry	
Pisciculture	
Fishing	
Skilled Wage Worker	
Unskilled Wage Worker	
Salaried Employment in Government	Yes
Salaried Employment - Private Sector	
Weaving	Yes (peacock)
Other Artisan(mention)	
Other Trade & Business (mention)	

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

15. Agriculture Inputs

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

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

Name	Unit	Quantity

17. Livestock Numbers

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

18. What games do Children Play

19. Do children play musical instrument (mention)

Schedule Filled By:
Principal Respondent:
Date of Survey:

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: Madhi

b. Block: Bardoli

c. District: Surat

d. State: Gujarat

e. Lok Sabha Constituency: 170 mahuva

f. Number of Wards in the Gram Panchayat: 12

g. Number of Villages in the Gram Panchayat: 1

h. Names of Villages:

Demographic Information

Number of Households 1655 Total Population 7650 Male 3887 Female 3763

SC HHs 97 ST HHs 4147 OBC HHs 1236 Other HHs 2150

I. Access to Infrastructure / Facilities / Services

	Infrastructure Facilities / Services	Located within the GP Yes (Y)/No (N)	If located elsewhere (N), distance from the GP office
a.	ANM/ Health Sub Centre	NO	
b.	Nearest Primary Health Centre (PHC)	NO	1 KM
c.	Nearest Community Health Centre (CHC)	Yes	
d.	Nearest Post Office	YES	
e.	Nearest Bank Branch (Any)	Yes	
f.	Nearest Bank with CBS Facility	Yes	
g.	Nearest ATM	Yes	
h.	Nearest Primary School	Yes	
i.	Nearest Middle School	Yes	
j.	Nearest Secondary School	Yes	
k.	Nearest Higher Secondary School / +2 College	NO	
l.	Nearest Graduate College	NO	20 KM Average
m	Nearest ITI / Polytechnic Centre	NO	
n	Kisan Seva Kendra	Yes	APMC, Gin

Saansad Adarsh Gram Yojana (SAGY) Panchayat Details Survey Questionnaire

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

	Infrastructure Facilities / Services	Located within the GP Yes (Y)/No (N)	If located elsewhere (N), distance from the GP office
o	Agriculture Credit Cooperative Society	YES	
p	Nearest Agro Service Centre	YES	
p	MSP based Government Procurement Centre	NO	
q	Milk Cooperative /Collection Centre	YES	
r	Veterinary Care Centre	YES	weekly
s	Ayurveda Centre	NO	
t	E – Seva Kendra	YES	[illegible]
u	Bus Stop	YES	
v	Railway Station	YES	
w	Library	NO	10 km
x	Common Service Centre	YES	

IV. Sports Facilities in the Gram Panchayat

a. Number of Play Grounds in the GP: Total 1 Public ✓ Private _____

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

V. Education, ICDS

a. Number of Angan Wadi Centres: 7

b. Number of villages without Angan Wadi Centres _____

Names of such villages: _____

c. Schools (Number)

Primary Private: 1 Primary Govt.: 3

Middle Private: 1 Middle Govt.: 1

Secondary Private: 0 Secondary Govt.: 1

Higher Secondary Private: 1 Higher Secondary Govt: 1

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)	✓						
b.	Kerosene							
c.	Other (mention)	[illegible]						

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		
b.	Hand Pump Coverage in Villages:	Covered ✓ / Not Covered		
c.	Coverage under Covered Drains:	Covered / Not Covered ✓		
d.	Coverage under Open Drains:	Covered ✓ / Not Covered		
e.	Villages with Household Electricity Connection (Numbers)	Connected ✓ / Not Connected		

VIII. Land and Irrigation

	Private Land	Area in Acres		Common Land	Area in Acres		Irrigation Structure	No.
a.	Cultivable Land	664	d.	Pasture / Grazing Land		g.	Check Dam	✓
b.	Irrigated Land	600	e.	Forests/ Plantations		h.	Wells/Bore Wells	✓
c.	Un-irrigated Land	64	f.	Other Common Land	5	i	Tanks /Ponds	✓

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

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)	344 Approx
b)	Number of Households receiving pension (old age, widow, disability)	344
c)	Number of eligible Households who are not receiving pension	5
d)	Number of Households eligible for Ration Card	90%.
e)	Number of eligible HHs having ration cards	1084 NAFC
f)	Number of households covered under RSBY (Rashtriya Swasthya Bima Yojana)	2044
g)	Number of HHs covered under AABY (Aam Aadmi Bima Yojana)	647
h)	Number of active Job Card holders under MGNREGA	
i)	Number of Job Card holders who completed 100 days of work during 2013-14	6
j)	Number of shops selling alcohol	0
k)	Number of BPL families	647
l)	Number of landless households	300 to 400
m)	Number of IAY beneficiaries	647
n)	Number of FRA[2] beneficiaries	
o)	Number of Community Sanitary Complexes	0
p)	Number of Households headed by single women	225
q)	Number of Households headed by physically handicapped persons	
r)	Total number of Persons with Disability in the village	
s)	Number of SHGs	44
t)	Number of active SHGs	24
u)	Number of SHG Federations	1
v)	Number of Youth Clubs	1
w)	Number of Bharat Nirman Volunteers	1-2

Name and Signature of Surveyor and Respondent'

Surveyor	PRI Respondent (Preferably Gram Panchayat Chairperson)	Official Respondent (Preferably seniormost Government official in the Gram Panchayat)	Date of Survey

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: Madhi

b. Ward Number: ~~Bardoli~~

c. Gram Panchayat: Madhi

d. Block: ~~170 Mahuva~~ Bardoli

e. District: Surat

f. State: Gujarat

g. Lok Sabha Constituency: 170 Mahuva

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

i. Names of Habitations / Hamlets:

Demographic Information

Number of Households	1655	Total Population	7690	Male	3887	Female	3803
SC HHs	97	ST HHs	4147	OBC HHs	1236	Other HHs	1150

II. Access to Infrastructure/Amenities etc.

i.	Access to Infrastructure / Facilities / Services	Located in the Village Yes (Y)/No(N)	If located elsewhere (N), distance in kms from the village
a.	Nearest Primary School	Yes	
b.	Nearest Middle School	Yes	
c.	Nearest Secondary School	Yes	
d.	Kisan Seva Kendra	Yes	
e.	Milk Cooperative /Collection Centre	Yes	
g.	Health Sub Centre	No	4 km
h.	Bank	Yes	
i.	ATM	Yes	
j.	Bus Stop	Yes	
k.	Railway Station	Yes	

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

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	NO	10 km
m	Common Service Centre	Yes	
n	Veterinary Care Centre	Yes	

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: Gelwath nagar

c. Coverage under Doorstep Waste Collection: (1-All 2-None 3-Some)

If 3 mention the name of the habitations not covered:

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:

b.Coverage under Street Lighting: All(1-All 2-None 3-Some)

If 3 mention the name of the habitations not covered:

vi. Sports Facilities in the Village

a.Number of Play Grounds in the Village (minimum size 200 square meters): 1

b.Mini Stadium : N Yes(Y) /No (N)

vii. Education, ICDS

a. Number of Anganwadi Centres: 9

c. Schools (Number)

Primary Private: 1 Primary Govt.: 3

Middle Private: 1 Middle Govt.: 1

Secondary Private: ____ Secondary Govt.: 1

Higher Secondary Private: 1 Higher Secondary Govt: 1

SAANSAD ADARSH GRAM YOJANA (SAGY) Village Details Survey Questionnaire

viii. Land Category		Area in Acres		Land Category	Area in Acres		Irrigation Structure	No.
a.	Cultivable Land	664	d.	Pasture / Grazing Land		g.	Check Dam	✓
b.	Irrigated Land	600	e.	Forests/ Plnatations		h.	Wells/Bore Wells	✓
c.	Un-irrigated Land	64	f.	Other Common Land	5	I	Tanks /Ponds	✓

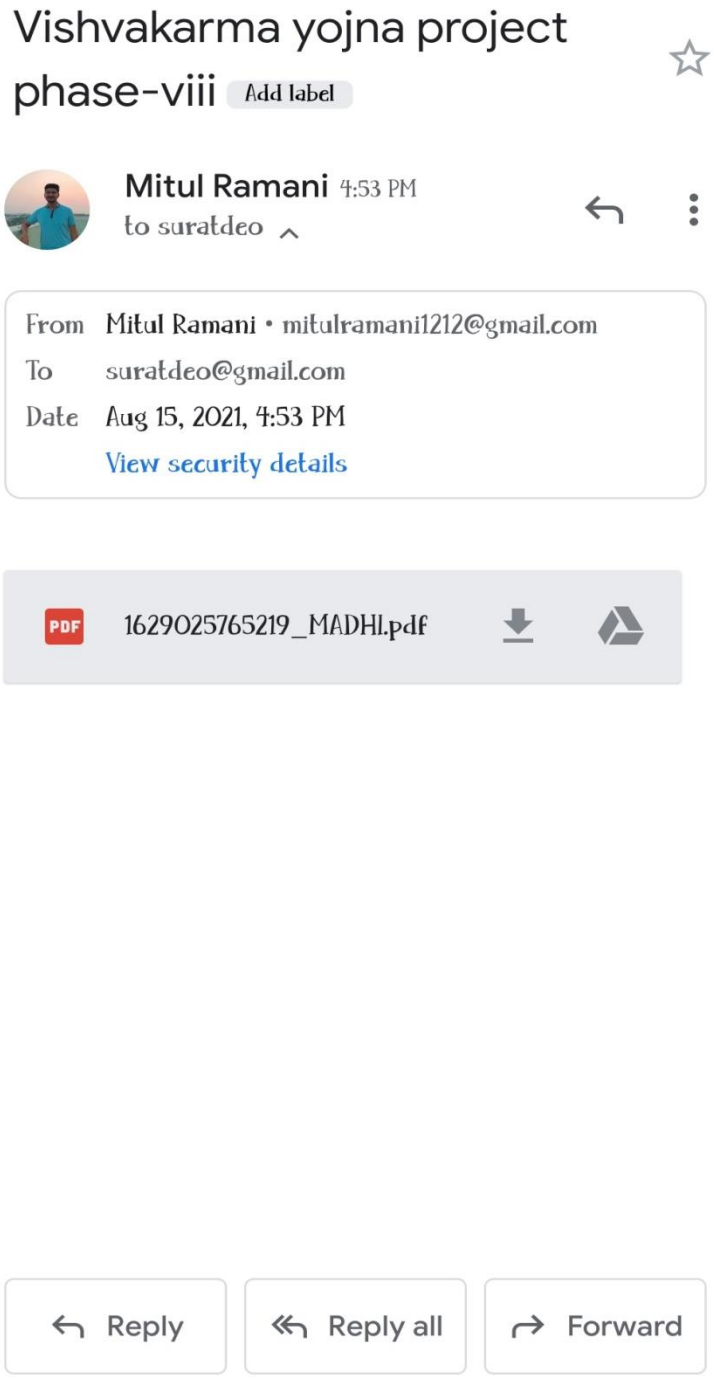
ix. Entitlement Related Parameters		
1	Number of active Job Card holders under MGNREGA	
2	Number of active Job Card holders who have completed 100 days of work	0
3	Number of shops selling alcohol	0
4	Number of BPL families	647
5	Number of landless households	300 to 400
6	Number of IAY beneficiaries	647
7	Number of FRA beneficiaries	
8	Number of common sanitation complexes	
9	Number of SHGs	
10	Number of active SHGs	44
11	Existence of SHG Federation in the Village (Yes / No)	24
12	Number of Youth Clubs	1
13	Number of Bharat Nirman Volunteers	1-2

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

20.TDO-DDO-Collector email sending Soft copy attachment in the report

Send this mail in vishvakarm yojna project a soft copy attachment in madhi village.



21. Comprehensive report for the entire village

Vishvakarma project in different collage include different village participated are all village selected in a not a smart village and all the purposed a smart village and smart facility provided in this entire a village. We are village is a madhi village and a this village is a district at a bardoli. This village is not more than facilities like a police stations, library, and a other facility is not puted. We are a goal and a we are request this vishvakarma project is madhi village is goal in development and improved facilities a village.

These amenities designed under this project will be helpful for better development of village as physically as well as socially, which improves the overall lifestyle of people along with nation with preserving nature bit by village.

In the village which is madhi for us was way far from our hometown however we reached over there anyhow and did survey smoothly with the help of talati jignesh bhai and sarpanch .this survey helped use in many ways as we wnet out and explore our region add on that we also meet some people and got know about village in deep ultimately this was fruitfull project has been for us.

All village is different plan, design, model, and different problem, and smart solution is puted but this madhi village not a developed area only famous is a madhi khamni but this village a all facilities smart deserves in this village a famously.Madhi village past time police station available but this present time is not available and a police station is import of village because of any problem in the police station so I lend request is police station made in magi village.

These amenities designed under this project will be helpful for better development of village as physically as well as socially, which improves the overall lifestyle of people along with nation with preserving nature bit by village.

Vankaner, kharach, nani bartoli, vav, ilav,etc. This village is a BMCET collage student in project this village. Many factors health within rural communities, including individuals health, behaviours, community, environmental factors, health care services, and the type of service deliverd by governmental agencies or private and not for profit organizations. The issues faced by residence of rural communities are very different than those in urban areas . All of these affect health and wellness in rural communities.