DETAIL PROJECT REPORT

VISHWAKARMA YOJNA: VIII

AN APPROACH TOWARDS RURBANISATION

VESMA - SADODRA Village
NAVSARI District

PREPARED BY

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PRIME INSTITUTE ENGINEERING & TECHNOLOGY

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 Engineering successfully submitted

Detail Project Report for,

VILLAGE:-VESMA - SADODRA

DISTRICT:-NAVSARI

Under

Vishwakarma Yojana: Phase-VIII

in partial fulfillment of the project offered by

GUJARAT TECHNOLOGICAL UNIVERSITY, CHANDKHEDA

during the academic year 2020-21.

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

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College Name:	**PRIME INSTITUTE ENGINEERING & TECHNOLOGY**
College Stamp:	

ABSTRACT

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

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

Due to lack of amenities peoples are moving from rural to urban area. The government of Gujrat lunched Vishwakarma yojana which work for help and provide better solution for development of village. Under this scheme villages are surveyed, from survey identifying the problems of villagers and give solution of problems. By providing RURBANISATION is done. Village are developing as urban areas.

Our project is about development of appropriate facility and suggestion for upgradation of vesma - sadodra Village.

Vesma- sadodra Village is located in navsari district, so it is essential to develop the village under the district for the growth of stat and also for the country. Population of village is 8833 and the area of village is 661.27 hector. Despite availability of many infrastructural facilities, the growth in population has outpaced all efforts of development so far. Slow pace development in village and pursuit of better life style has led to huge migration from village to cities.

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

Key Words:- Vishwakarma Yojana, Urbanization, Rurbanisation, Village Development, Infrastructures, Rural Development, Sustainable development

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

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ABBREVIATIONS

SHORT NAME / SYMBOL	FULL NAME
GIS	Geographic information system
PMGSY	Pradhan mantri gram sadak Yojna
VY	Vishwakarma Yojna
KM	Kilometer
DDO	District Development Officer
TDO	Taluka Development Officer
PHC	Primary health center
CHC	Community health center
RCC	Reinforced concrete structure
BM	Brick Masonry
D	Door
V	Ventilator
W	Window
GDP	Gross Domestic Product
NH	National Highway
SH	State Highway
ODR	Other district roads
NGO	Non-Governmental Organization
SWOT	Strength, Weakness, Opportunity, Threats

Chapter 1:-

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

1.1 Background & Study Area Location:-

Baben village which is located about 34 km from Surat city, typifies development. Here villagers enjoy all the facilities that one living in the city enjoys. The 2-km road from Bardoli to Baben gives a commuter the feeling of passing through a highway this is because the village road is S12 meter wide and is well lit with street lights. This road has not been constructed with government money but the fund for it was raised through various Ingenious schemes by the villagers. "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 Sarpanch Falguni ben Patel. The village Panchayat collected Rs 3 crore in the past five years from the real estate developers and used that money on roads, street lights, a lake, public toilets, drainage and water system for the 15,000 people of Baben village.

The village also has a degree and diploma engineering college, a school and number of restaurants. A developer is charged Rs 2,000 per plot. The buyer of the plot too is charged the same amount by the Panchayat. Baben village got the best gram panchayat of the year award in 2011 from the state government. Baben village is a Bench mark for the development of other villages in India. These Baben village had received swarnim gram award in the year 2012 and a cash prize of Rs 45000000/-. It had also received many such awards from the year 2007-2016.The number of occupied people of Baben town is 6628 yet 8982 are non-working. And out of 6628 occupied individual 131 individuals are fully dependent on agriculture. Baben is a village panchayat located in the Surat district of Gujarat state, India. The latitude 21.1378786 and longitude 73.0966019 are the geocoordinate of the Baben. Gandhinagar is the state capital for Baben village. It is located around 245.2 kilometer away from Baben. Baben village, which is located some 35 km from Surat city, typifies development. Here villagers enjoy all the facilities that one living in the city does.

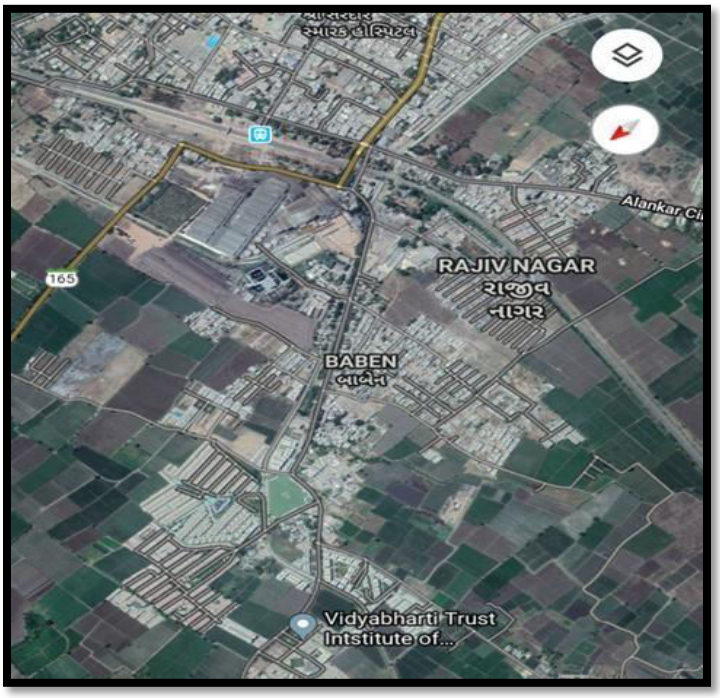

Fig.1 Map of Baben

1.2 Concept of ideal village:-

1.2.1 Objectives of Ideal Village:-

The Ideal Village Concept is a community village with a self-sustaining income producing projects, independent electrification system generated from non-fuel based device, clean water facility for drinking including water for irrigation, quality but affordable housings, school, medical facilitie for human beings and animals,proper sanitation system, information center, bank, police station, retail outlet for household and agriculture needs, phone facility, connecting roads to nearby villages and towns, legal councilor. Provide drinking water security through an integrated combination of pipe, local traditional water sources and multiple sources for alternative use. Conserve water through water resource management that includes rainwater harvesting and artificial recharge, conservation and renovation of traditional water sources Build effective community institutions at the local level by supporting capacity building and empowerment. Ensure that all community groups, including women, are able to participate in the decision-making processes and benefit from program improvements and Improve household and community environments with sanitation improvement and increased hygiene awareness in communities.

1.2.2 Case study of ideal village of india/Gujarat:

Urban or municipal infrastructure refers to hard infrastructure systems generally owned and operated by municipalities, such as streets, water distribution, and sewers. It may also include some of the facilities associated with soft infrastructure, such as parks, public pools and libraries. Green infrastructure is a concept that highlights the importance of the natural environment in decisions about land use planning. In particular there is an emphasis on the "life support" functions provided by a network of natural ecosystems, with an emphasis on interconnectivity to support long-term sustainability.

1.2.3 The idea of a model:-

1. Exposure visits are a very important training methodology as it enables the participants from a different setting to interact with and learn from each other, allowing them to view practical/real life situations of successful integration of sustainable practices in the said filed. During this meeting broader information exchanges took place between the two groups, beyond the core topic. It was observed that all the participants were enthusiastic for learning and implementing their learning's in their own village. This visit was a step forward in the project as it was a real time experience for the participants on the struggle and hard work that goes into building a remarkable ideal village.

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

PUNSARI VILLAGE:-

Punsari village is situated in sabarkantha Gujrat, Punsari is India's smartest village. The village is located 18km away from the GandhinagarPunsari village has followed Panchayati raj system. The villagers used new and advanced technology in education. The panchayat provided Wi-Fi system for all people of the village. Punsari panchayat provided the facilities of local mineral water supply, sewer and drainage project, Health care center, Banking facilities, toll free complaint reception service The village received award being the best gram panchayat of gujrat.

1.3 Detail Study:-

Socio economic:-

The baben panchayat collect around 1.5 crore rupees as various tax funds from privet as well as government sectors the economic status of baben gram panchayat is much better than others villages or rural areas. The various source of income is housing tax water tax, cleaning charge, Electricity bills, Taxes from bardoli factory of sugar etc. Various Taxes collected by the gram panchayat of baben.

Table no. 1 Various taxes collected by baben village

Sr no	Particular	Amount (Rs.)
1	Housing tax	30,65,820
2	Jilla panchayat tax	3,06,582
3	Electricity tax	82,700
4	Water tax	2,30,440
5	Cleaning tax	3,06,570

Physical, Demographic and infrastructures detail of ideal village:-

Baben is a village facilitated with bituminous and R.C.C. roads for main village roads as well as society streets. The roads are facilitated with sign boards, markings and signals for proper functioning of the vehicular traffic as well as pedestrian's traffic. The village is facilitated with 32 CCTV cameras for proper monitoring and protection from thefts, damages etc. to the village.

Education: -

They have hierarchy of educational facilities from pm-primary school to college. There are 7 pre-primary schools (Aganwadi), 1- primary school, 3- Schools and private college. Also, it is noted that there is 100% enrolment and 0% dropout ratio in schools. They have banned the tobacco, cigarette and other product in the 100-meter radius of school for better health of the student.

Facilities in government school:

- No. of students – 961, Teachers – 25, Ploy ground, Filtered drinking water, Computer lab

Demographical Detail: -

Table no. 2:- Population Detail

Year	**Population**
1991	4900
2001	8377
2011	15610
2021	20965
2031	26320

Fig. 2 Water Tank of baben

Fig. 3 Water Tank of baben

Fig. 4 Entrance Gate of baben

Fig. 5 Village road of baben

Fig. 6 Village road of baben

Fig. 7 Public toilet of baben

Fig. 8 Lake of baben

Fig. 9 Community Hall & sardar Patel Statute in baben lake

Fig. 10 Anganwadi of baben

Fig. 11 CNG Pump of Baben

Fig. 12 Primary School and Playgroups of Baben

1.4 SWOT ANALYSIS OF IDEAL VILLAGE:-

SWOT Analysis is a useful technique for understanding your Strengths and Weaknesses, and for identifying both the Opportunities open to you and the Threats you face.

1. Strengths:-

Ponds and sidewalks, Lake site, Local businesses, Schools and colleges, Religious places (temples/masjid), Excellent water quality, Easy access to highway, Parking facilities.

2. Weaknesses:-

No facility of clubs for adults and seniors, Need to upgrade village parks and playgrounds

3. Opportunities

Opportunity for more events in parks, ponds and open space, Construction of public library, Construction of movie theatre, Opportunities for local business, Redevelopment of vacant land, Entertainment parks

4. Threats

Algae in ponds, Accidents due to rough driving by college students, High commercial rents

1.5 Future prospects of the ideal village:-

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

Fig. 13 Collage Facilities: Vidhhyabharti Trust College

1.6 Benefits of the visits:-

Purpose: -

To study about the development as well as the infrastructure facilities of the villages which is an ideal village and can be considered as Benchmark for the development and growth of other villages which are developing or which needs development. By visiting such villages, we students of civil engineering can understand about the actual development that a rural area needs to satisfy its basic infrastructure facilities and to compete with urban area and can implement these techniques and facilities for the development of other villages which actually needs development and can implement the same for the development of the villages which are allotted to us in Vishwakarma Yojana Phase-VIII as our final year project. After visiting the village, we came to know about the various facilities that can be provided in a village for Reurbanization of village and to reduce the migration of people from villages to city areas. We also came to know about the various methodologies and techniques that can be used for the development of the villages. The sarpanch of Baben gram panchayat gave us a brief idea about the methods, techniques, strategies that muse be used for the development of any village and what plays an important role for the development of any village. As Baben has developed a lot during the year 2007 to 2020 we got a good knowledge related to rural development and general infrastructure facilities to be provided in a village. Baben can also be considered as bench mark for the development of other villages.

Fig. 14 Traffic Camera monitoring syste

Fig. 15 Bardoli Sugar Factory

Fig. 16 Baroda Gujarat Garmin Bank

Fig. 17 24×7 ATM

1.7 Civil aspects required in ideal village:

Civil engineering projects are increasingly complex and are associated with situations where robust decisions are required to be taken. These decisions are made in different stages of civil engineering projects. For example, decision making takes place during feasibility study stage prior to design, procurement, and construction stages in order to determine the viability of project undertaken by an investor. With the help of an interdisciplinary approach to problem-solving, however, many innovations are being made in an effort to bring practical, repeatable implementation to construction. Although the learning curve may be steep, the potential benefits are considerable. All the work of the village development are carried by the gram panchyat are in their presence and efforts to make their village world class and people will visit their village for their well known facilities which are provided by gram panchayat.

Chapter 2:
Literature Review

2.1 Introduction: Urban and Rural:-

The "Rural Area" means any place as per the "latest census" which meets the following criteria,
1. Area with population less than 5,000.
2. Density of population less than 400 per km².
3. More than "25 % of the male working population" is engaged in agricultural works.

The definition of urban area is as follows;
1. All places with a municipality, corporation or notified town area committee, etc.
2. All other places which satisfied the following criteria:
3. Area with minimum population of 5000.
4. At least 75% of the male working population is engaged in non-agricultural activities; and
5. A density of population of at least 400 persons per km².

2.2 Importance of the Rural Development:-

1. Rural development is a dynamic process, which is mainly concerned with therural areas.
2. Agriculture growth, putting up of economic and social infrastructure, fair wages as also housing and house sites for the landless, village planning, public health, education and functional literacy, communication etc.
3. Rural development is a national necessity and has considerable importance in India.
4. Religion- Faith in religion and universal power is found in the life of the village.
5. Agriculture- Main occupation is agriculture which involve dependence on nature. Nature give the livelihood to them. Farmer worship forces of nature.
6. Rural development is the process of improving the quality of life and economic well-being of people living in rural areas, often relatively isolated and sparsely populated areas like Education, entrepreneurship, physical and social infrastructure all play an important role in developing rural regions.
7. The main objective of the rural development program is to raise the economic and social level of the rural people.

2.3 Different definition of Rural area/ village:-

As urban markets saturate and companies spread their wings in search of new markets, everybody has the same question on their lips: what constitutes a 'rural' market? The quest to discover the real rural India still continues in great earnest. Almost every economic agency today has a definition of rural India. Here are a few definitions. According to the Planning Commission, a town with a maximum population of 15,000 is considered rural in nature.
The National Sample Survey Organization (NSSO) defines 'Rural' as follows:

1. An area with a population density of up to 400 per square kilometer,
2. Villages with clear surveyed boundaries but no municipal board,
3. A minimum of 75% of male working population involved in agriculture and allied activities.

RBI defines rural areas as those areas which has a population of less than 49,000. The Census of India 2001 defines Urban as:

1. All statutory places with municipality, corporation, cantonment board or notified town area committee
2. A place which satisfies following three Criteria's:
3. Minimum population of 5,00
4. Density of population of at least 400 per sq. km.
5. At least 75% of male working population engaged in non-agricultural activities.

2.5 Scenario: Rural / Urban India and Gujarat as per Census 2011 {Population Growth}:-

DATA HIGHLIGHTS – CENSUS 2011

Table no. 3 Population (in Crore)

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

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

1. Rural – Urban distribution: 68.84% and 31.16%
2. Level of urbanization increased from 27.81% in 2001 Census to 31.16% in 2011 Census
3. The proportion of rural population declined from 72.19% to 68.84%

DATA HIGHLIGHTS – CENSUS 2011

Table no. 4 Growth rate of population (in crore)

	1991-2001	2001-2011	Difference
Population in India	21.5	17.6	-3.9
Rural	18.1	12.2	-5.9
Urban	31.5	31.8	+0.3

The slowing down of the overall growth rate of population is due to the sharp decline in the growth rate in rural areas, while the growth rate in urban areas remains almost the same.

2.6 Rural issues and Concerns:-

The major three issues are Agriculture, Rural areas and farmers.

Issue of Agriculture:-

In general, the issue is how to increase agriculture in China. It includes:

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

Issue of Rural Areas:-

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

Issue of Farmers:-

It includes improving the income level of farmers, alleviating burdens of farmers, increasing the cultural qualities of farmers, and safeguarding the rights of farmer.

Various Measures for Rural development:-

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

1. To promote the rural economy by improving production and the employment situation and incomes of the rural population through:
2. The development of new non-agricultural rural activities, such as agro industries, support services, etc., which because of their scale may best be assisted through associative structures which will make higher levels of productivity and competitiveness possible;
3. The improvement of working, training and income conditions of rural workers; and
4. The rational occupation of new land on the agricultural frontier, taking into account the nature of the ecological systems, the possibility of economic returns, and physical and economic integration with the national market.
5. To promote the generation of savings and facilitate a higher level of investment in the rural area.
6. To strengthen the effectiveness of national and local institutions responsible for the formulation and implementation of rural development policies and projects, and to support effective participation of the population in the planning and implementation of local activities.
7. To help expand the access of the rural population to basic services, including, education, health care, etc.
8. To strengthen rural development planning as well as the adoption of measures for promoting better and more equitable integration of the rural sectors with the rest of the national economy.

2.7 Various infrastructure & guidelines/Norms for Villages for the provisions of different infrastructure facilities:-

Water supply:-

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

Various methods for water supply

1. Gravity-fed water supply systems in hilly areas
2. Dug well-based rural water supply systems
3. Borewell-based rural water supply systems (hand pump operated)
4. Pond-based rural water supply systems with appropriate treatment and rain water harvesting systems through surface storage
5. Groundwater recharging systems
6. Rooftop rainwater harvesting systems

Sanitation Facilities:-

Demand and supply of sanitation facilities and services should be addressed concurrently to ensure toilet adoption and sustained use and enable scale Adoption and sustained use of sanitation facilities requires construction of safe toilets and their sustained use. Access to a toilet does not mean it is used or used consistently by everyone at all times.

Hospital:-

National Rural Health Mission (NHM) was launched in the year 2005 to strengthen the Rural Public Health System and has since met many hopes and expectations. The Indian Public Health Standards (IPHS) for Sub-centers, Primary Health Centers (PHCs), Community Health Cen-tres (CHCs), Sub-District and District Hospitals were published in January/ February, 2007 and have been used as the reference point for public health care infrastructure planning and up-gradation in the States and UTs. These IPHS guidelines will act as the main driver for continuous improvement in quality and serve as the bench mark for assessing the functional status of health facilities.

Roads:-

The Union ministry of rural development has recently issued fresh guidelines under the 'Pradhan Mantri Gram Sadak Yojana' (pmgsy) to prevent construction of poor- quality roads and streamline the bidding process throughout India. pmgsy is the largest rural road connectivity program in the world. The new rules stipulate a standard procedure for road construction. They envisage a three-tier quality control system, with executive engineers at the lowest rung and national quality monitors at the top level. The contractor has to give a five-year guarantee for the work done. The state governments, too, have been made responsible for the maintenance of roads in rural areas for a period of five years.

Schools:-

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

Importance in rural context:-

The rural society is considered as the backbone of Indian society. Rural society is the fundamental basis of human civilization and culture. People who are living in urban areas they are mainly the migrants from the rural areas.So rural area or village is the well-spring of our culture and civilization. Thus, to know about the life of urban community it is essential to know their original place of living, that is rural community. 60% population of India still lives in rural area.

Sustainable Village Development concept:-

The concept of the village development is to provide better life Quality, in which all the necessary conditions to live in community respecting the environment, transition, education, Respecting the people and its value where every person really involved in the local

improvement of social aspect. In developed village the people share their ideas and solve the basic problems in community basis, because all the people are focused in doing their base to the sustainability and of their community and village.

2.9 Other Projects / Schemes:-

Projects / Schemes by Government sector:

1. IRDP(Integrated Rural Development Program)
2. SGSY(Swaranjayanti Gram Swarozgar Yojana)
3. NRUM(National Rurban Mission)
4. Pradhan Mantri Gram Sadak Yojana
5. Indira Aawas Yojana
6. Mahatma Gandhi National Rural Employment Guarantee Act-2005 DRDA(District Rural Development Agency)
7. PURA(Provision of Urban Amenities in Rural Areas)
8. PMGSY(Pradhan Mantri Gram Sadak Yojana)
9. NRDWP(National Rural Drinking Water Programme)
10. JNNURM(Jawaharlal Nehru National Urban Renewal Mission)
11. IWDP (Integrated Wasteland Development Programme

Projects / Schemes by Private sectors:

1. Intensive Agricultural Area Programme
2. Intensive Agricultural District Programme
3. High Yielding Varieties Programme
4. Rural Industries Project

Rural development is a process of improving quality of life and economic status of people living in villages. Education, entrepreneurship, physical infrastructure and social infrastructure also play a role in developing the rural regions. Rural development is characterized by its emphasis on locally produced economic development strategies. The main objective of the rural development is to remove poverty of the people and fill the widening gaps between rich and poor. Various policies and scheme by Government of India are:

1. Pradhan Mantri Gram Sadak Yojana.
2. Swarnjayanti Gram Swarozgar Yojana (SGSY)
3. Prime Minister Rural Development Fellows Scheme.
4. National Rural Employment Guarantee Act (NREGA).
5. Sampoorna Grameen Rozgar Yojana (SGRY).
6. Sarv Siksha Abhiyan.

Propagation of technology/schemes for rural development is slow and there is a lacking in wider participation of different stakeholders. An ideal approach may therefore, include the government, panchayats, village personals, researchers, industries, NGOs and private companies to not only help in reducing this imbalance, but also to have a multiplier effect on the overall economy.

Chapter 3:

Smart (Cities / Village) Concept Idea and its Visit (Civil & Electrical Concept):-

3.1 Concept, Definitions and practices:-

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

3.2 Vision-Goals, Standards and performance Measurement Indicators:-

The vision of smart cities is that the smart cities are the center of the future, secure environmentally green, made safe, efficient because of all structure- whether for water, power, Transportation. Are designed, constructed making use of integrated materials, sensors, and network which are interfaced computerized system of database, decision making algorithms. Calculation of the 79 different Livability indicators prescribed in the 'Livability Standards in Cities' requires data on a large number of aspects of urban infrastructure, governance, municipal finances, social infrastructure, economic aspects etc. Wherever such data is regularly compiled by the ULBs or other service providers such as DISCOMS, Water and Sewerage Utilities etc. it should be sourced from the records of such providers. In some cases, the data may require on field through physical surveys. For certain indicators such as pollution, modal split of urban transport, water quality etc. data will have to be obtained from physical surveys as per standards and prescribed survey and sampling techniques. Some indicators such as per capita availability of open spaces will require map-based analysis, and necessary maps may need to be prepared for cities where such information or maps are not available.

3.3 Technological Options for Smart Cities:-

Cities and communities across the Nation are today facing complex and persistent challenges stemming from changing populations and infrastructure. In particular, demands on city infrastructure, systems, and services are growing and changing, prompting important new needs, such as more effective use of limited space, greater walkability, and ways to support residents across all socioeconomic statuses. The need for improved resilience in the face of natural and man-made disasters adds to the challenges that cities and communities are facing. These challenges directly manifest for city residents as well. Being able to address these challenges is in and of itself difficult. Ongoing city operations are often dependent upon the very infrastructure, services, and systems that could benefit from innovation and finding the time, energy, and resources to improve city capabilities without adversely affecting these ongoing operations is not trivial. Consider, for example, routine roadway construction projects; cities and communities must often conduct these projects during limited nighttime and weekend hours, so as to minimize disruptions for residents who rely upon the roadways to commute to and from work. At the same time, advances in networking and information technology over the last several decades have transformed individuals' lives, rapidly altering how we live, work, and communicate. Integrating these digital technologies with physical infrastructure at the city level similarly enables innovative opportunities and solutions to the challenge's cities are facing. By working closely with cities to support this integration in ways described in this strategic plan, Federal agencies can help facilitate solutions to city challenges and catalyze the smart of the future.

3.4 Road Map and Safe Guards:-

The purpose of building smart cities is to make the lives of the people safer and easier. Technology can be used as an instrument to protect lives and improve services and, furthermore, it can be used to protect Personally Identifiable Information and cities critical infrastructures, such as water treatment systems, transportation, hospitals, and power plants. Technology can be used to reduce crimes by geographically spotting areas with high crime rates, identifying specific crime patterns, and reporting it to law enforcement instantly, many of these services are achieved. Sensors are small measurement devices that can be integrated with electronics to detect certain smells, sound, or levels of variations. Sensors can be passive or active. Passive sensors do not necessarily take action; they simply collect data, and they are used mainly to measure weather conditions, such as Ozone levels, wind speed, or the sun's ultraviolet levels. Active sensor devices, on the other hand, use electronics to process data and take action.

3.5 Issues & Challenges:

1. Retrofitting existing legacy city: infrastructure to make it smart, there are a number of issues to consider when reviewing a smart city concept. The most important is to determine the existing cities weak areas that need utmost consideration, e.g. 100-per-cent distribution of water supply and sanitation. The integration of formerly isolated legacy systems to achieve citywide efficiencies can be a significant challenge.

2. Financings of smart cities: The High-Power Expert Committee on Investment Estimates in Urban Infrastructure has assessed a per-capita investment cost of Rs 43,386 for a 20year period. Using an average figure of 1 million people in each of the 100 smart cities, the total estimate of investment requirements for the smart city comes to Rs 7 lakh crore over 20 years. This translates into an annual requirement of Rs 35,000 crore. One needs to see how these projects will be financed as the majority of project need would move through complete private investment or through PPPs (public-private partnership).

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

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

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

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

7. Providing clearances in a timely manner: For timely completion of the project, all clearances should use online processes and be cleared in a time-bound manner. A regulatory body should be set up for all utility services so that a level playing field is made available to the private sector and tariffs are set in a manner that balances financial sustainability with quality

8. Dealing with a multivendor environment: Another major challenge in the smart city space is that software infrastructure in cities contains components supplied by different vendors. Hence, the ability to handle complex combinations of smart city solutions developed by multiple technology vendors becomes very significant.

9. Capacity building program: Building capacity for 100 smart cities is not an easy task and most ambitious projects are delayed owing to lack of quality machinery and manpower, both at the center and state levels. In terms of funds, only around 5 per cent of the central allocation may be allocated for capacity building programs that focus on training, contextual research, knowledge exchange and a rich database. Investments in capacity building programs have a multiplier effect as they help in time-bound completion of projects and in designing programs, developing faculty, building databases as well as designing tool kits and decision support systems. As all these have a lag time, capacity building needs to be strengthened right at the starting.

10. Reliability of utility services: For any smart city in the world, the focus is on reliability of utility services, whether it is water, telephone, electricity, broadband services. Smart cities should have to provide electricity 24 Hours.

3.6 Smart Infrastructure:-

Smart Information and Communications Technology has the potential to transform the way we plan and manage infrastructure. New developments in computer hardware, new applications and software are changing the face of the infrastructure sector, and society more generally; driving greater efficiency, increasing productivity, and greatly simplifying construction processes and life-of-asset maintenance. Australia has generally been proactive in adopting these new technologies for the planning, design and ongoing maintenance of infrastructure, the fast pace of new developments means that there is much more that needs to be done.

3.7 Cyber Security:-

Cyber security is the body of technologies, processes and practices designed to protect networks, computers, programs and data from attack, damage or unauthorized access. In a computing context, security includes both cyber security and physical security. Ensuring cyber security requires coordinated efforts throughout an information system.

Elements of cyber security include:

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

3.8 District Cooling and Heating / Green building:-

District cooling systems produce chilled water, steam or hot water at a central plant and then pipe that energy out (either underground or over rooftops) to buildings for air conditioning, space heating and water heating. As a result, these buildings don't require their own chillers, air conditioners, boilers or furnaces. District cooling systems are a highly efficient way for many owners and manufacturers to effectively address each of these challenges while meeting their comfort and process cooling and heating needs. Heat sources in use for various district heating systems include, power plants designed for combined heat and power including both combustion and nuclear power plants; and simple combustion of a fossil fuel or biomass; geothermal heat; solar heat; industrial heat pumps which extract heat from, river or lake water, seawater, sewage, and waste heat from industrial processes.

3.9 Strategic Option for Fast Development:-

Smart Infrastructure involves applying this to economic infrastructure for the benefit of all stakeholders. It will allow owners and operators to get more out of what they already have, increasing capacity, efficiency and resilience and improving services. It brings better performance at lower cost. Gaining more from existing assets is the key to enhancing service provision despite constrained finance and growing resource scarcity. It will often be more cost-effective to add to the overall value of mature infrastructure via digital enhancements than by physical enhancements – physical enhancements add `more of the same', whereas digital enhancements can transform the existing as well. Smart Infrastructure will shape a better future. Greater understanding of the performance of our infrastructure will allow new infrastructure to be designed and delivered more efficiently and to provide better whole life value.

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

More than 90% of the urban population has access to drinking water, and more than 60% of the population has access to basic sanitation. However, access to reliable, sustainable, and affordable water supply and sanitation (WSS) service is lagging behind. Are the Services Reliable? No Indian city receives piped water 24 hours a day, 7 days a week. Piped water is never distributed for more than a few hours per day, regardless of the quantity available. Raw sewage often overflows into open drains. Are the Services Technically and Financially Sustainable? Less than 50% urban population has access to piped water. The Non-Revenue Water (NRW: due to leakages, unauthorized connections, billing and collection inefficiencies, etc.) is huge, estimated between 40-70% of the water distributed. Operations and maintenance cost recovery through user charges is hardly 30-40%. Most urban operations survive on large operating subsidies and capital grants.

3.11 Initiatives in village development by local self-Government:-

Rural Local Governments (or Panchayat Raj Institutions)

Zilla Panchayat, Mandal or Taluka Panchayat, Gram Panchayat

Initiation by Local People:-

1. Organizing programme for increase literacy for peoples of village.
2. Providing enough information regarding to using of various facilities.
3. Peoples have to learn various things regarding how to keep facilities in good condition.

3.12 Smart Initiatives by district Municipal corporation:-

Solid waste management, Selvedge water disposal, Effective road transportation, Maintained street light facilities, Agriculture awakening centre.

3.13 Any projects contributed working by government:-

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

group of villages, a tehsil level council, and a zilla panchayat at the district level.

3.14 How to implement other countries smart villages project in Indian Village context:-

Smart Environment

Smart villages can be stewards of the environment aided by technologies to monitor key environmental indicators such as forest health, water quality, soil conditions and changes to the landscape. They can also reduce pressure on deforestation using efficient cook stoves to decrease the need for traditional biomass energy sources such as charcoal and wood a key driver of unsustainable forest use. Smart villages can host community-run recycling facilities ranging from those equipped to recycle wastewater and organic waste from agro -processing, to next-generation facilities for the recycling of e-waste, including energy-storage and generation technologies such as batteries and solar panels. Depending on geographical endowments, some smart villages will be able to operate as regional ecotourism hubs, an activity that can improve the welfare and connectivity of rural and urban communities. The aforementioned Villages have all emerged as Smart Villages but only in a particular domain. It's not holistic in nature. However, the pressing need of hour is to have a Smart Village with all sorts of comprehensiveness in it.

Smart cities revolution to boost employment in India

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.

Chapter 4:
Introduction of Vesma-Sadodra Village

4.1 Introduction:-

4.1.1 Introduction About Vesma-sadodra Village details:-

In this chapter, we discuss about study area location, broadly define as study area. We collected information from allotment of village by Vishwakarma Yojana which is conducted by GTU. Further we collected information from village by techno economic survey form. From the collected information, we find out gap analysis and introduce many sustainable infrastructure facilities require in village and will give proper design for that. In village, we collected all information which is required for our project progress to help in future action plan.

4.1.2 Justification/ need of the study:-

The study will focus the development trend, intensity of growth of the village and find out the problems related to the physical development of the area and infrastructure services of the village. The project proposal and sustainability aspect is not considered in micro level, it is only guiding way. From the gap analysis, development strategies for village development will be proposed and planning proposals for Physical infrastructure, Social Infrastructure and Renewable energy Source will be suggested for the village. The study will focus the development trend, growth of the village, and find out the problems related to the physical development of the area and infrastructure services of the village.

4.1.3 Study Area:-

Vesma-sadodra is a Village in Jalalpore Taluka in Navsari District of Gujarat State, India. It is located 5 KM towards west from District head quarters Navsari. 296 KM from State capital Gandhinagar. Vesma-sadodra Pin code is 396475 and postal head office is Vesma . Vesma-sadodra is surrounded by Navsari Taluka towards East , Chorasi Taluka towards North , Gandevi Taluka towards South , Palsana Taluka towards North . Navsari , Surat , Valsad , Pardi are the near by Cities to Vesma-sadodra. It is near to arabian sea. There is a chance of humidity in the weather. The Vesma Village located in Jalalpore Taluka, 8833 People are living in this Village, 4541 are males and 4292 are females as per 2011 census. Expected Vesma population 2019/2020 is between 8833 and 10,600. Literate people are 6807 out of 3631 are male and 3176 are female. People living in Vesma depend on multiple skills, total workers are 3720 out of which men are 2662 and women are 1058. Total 358 Cultivators are depended on agriculture farming out of 297 are cultivated by men and 61 are women. 1222 people works in agricultural land as a labour in Vesma, men are 625 and 597 are women. Vesma-sadodra is located in plain region with beautiful view of nature. The people of vesma-sadodra are hardworking. The people are dependent on rain for farming in summer season. Farming, shops, selling vegetable and labour work is the main source of income. After the rainy season is over people goes to city for search of livelihood and earn money doing some labour work for their family. Village has two primary and one high secondary schools and 10 anganwadi. Post office and Panchayat house facility is also available. There are total 14 members in gram panchayat from which 13 are male and 1 are female. Mobile tower are also there for connectivity. From the view of area and population, Vesam-sadodra is a small village with no advance technology and various facilities but its primary need is roads, water, electricity facilities.

4.1.4 Objectives of the study:-

The key objectives of the study area are as follows:

1. To study the existing growth, characteristics and development of villages.
2. To study the existing infrastructure facilities and its management issues phasing by villages.
3. To analyze all feasibility parameters and relevant factors for sustainable development of villages.
4. To evolve strategic planning proposal in the form of physical, social, and renewable infrastructure facilities for the development of villages, channelizing urban growth and to sustain future.
5. Basic physical infrastructure - water supply, transport, sewerage and solid waste management should be the priority focus and be provided.
6. Basic social infrastructure - health and education facilities should be provided ensure proper delivery of facilities to village dwellers.
7. Electricity connection like street lighting that is energy efficient and eco - friendly.
8. Refurbishing of village lakes, water tanks and well, construction of rain water harvesting structure for sustainable development.
9. Promote integrated development of rural area with provision of quality housing. Better connectivity, employment opportunities and supporting physical and social infrastructure. Repair and maintenance of the existing infrastructure facilities.

4.1.5 Scope of the Study:-

1. Many people migrate from village to nearest city for job, business, employment etc. From guideline by Vishwakarma Yojana we will study about village and will carry out various surveys from village.
2. In village, we carried out techno economic survey and collected all information from village like Socio-economic infrastructure, sustainable infrastructure etc. According to survey we know about their problems, existing condition, requirement of other facilities etc. From this we find out gap analysis as per census 2011 and we carried out future action plan of village.
3. From all the information, we try to provide best work for village development as per guideline of smart village development. We provide many design report and maintenance work for village to better efficiency usage.

4.1.6 METHODOLOGY FRAMEWORK FOR DEVELOPMENT OF YOUR VILLAGE:-

In Vishwakarma Yojana we collected data and analyse it in appropriate Method. The methodology of the total work process as shown below:-

1. The whole work is done after proper study & appropriate guidance in Vesma-sadodra village.
2. All data & analysis are made as per formats & appropriate study methods.
3. The whole project is made as per the requirement of Vesma-sadodra Village.
4. In Vesma-sadodra, there are basic Water, Road, Drainage and Street Light & Solid waste management. In this project, it has been conducted Problem identification, Problem involution, Infrastructure feasibility Study & Design preparation for solving them.

LIST OF OBJECTS AVAILABLE REALTED TO CIVIL METHODOLOGY:-

Aaganwadi, Panchayat office, Overhead rectangular water tank, Primary school Drainage system Underground water tank, General store

4.2 STUDY AREA PROFILE:-

4.2.1 STUDY AREA LOCATION:-

Vesma-sadodra is a Village in Jalalpore Taluka in Navsari District of Gujarat State, India. It is located 5 KM towards west from District head quarters Navsari. 296 KM from State capital Gandhinagar Vesma-sadodra Pin code is 396475 and postal head office is Vesma. Vesma-sadodra is surrounded by Navsari Taluka towards East , Chorasi Taluka towards North , Gandevi Taluka towards South , Palsana Taluka towards North Navsari , Surat , Valsad , Pardi are the near by Cities to Vesma-sadodra It is near to arabian sea. There is a chance of humidity in the weather.

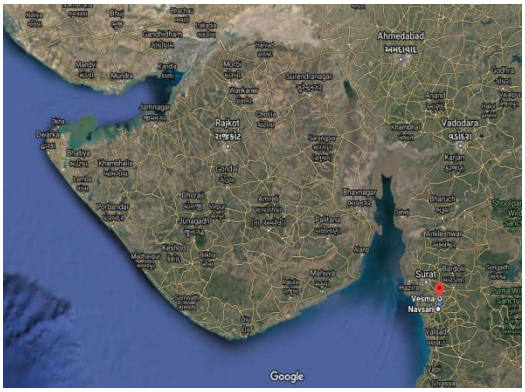

Fig. 18 Map of Gujarat

Vesma-sadodra is a large village located in the district of Navsari in the state of Gujarat in India. It has total population of 8833 persons living in village. The national highway N 8 is passing through this village. The village consists of kuchha and pucca house. The people are occupied in different occupations like farming, hand luming and animal husbandry. The village approach road is bituminous road but after the entrance at some place in village the road conditions are in worst conditions. There is some place where no drainage facility in village. Education facility is good in village. It consists of 9 anganwadi, 2 primary, secondary, higher secondary school and college. The information on all various transport facilities whether public/private transport like Bus, Taxi, Van, Tractors etc. available in the village.

4.2.2 Base location map, Land map, Gram tal map:-

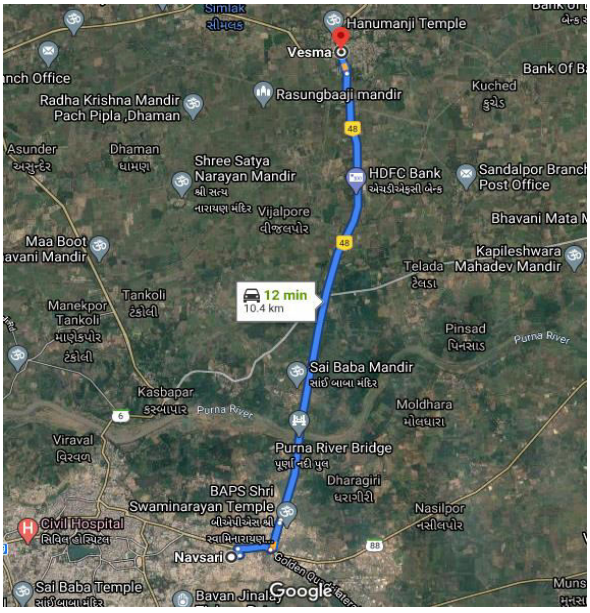

Fig. 19 Map of distance between navsari and vesma-sadodra

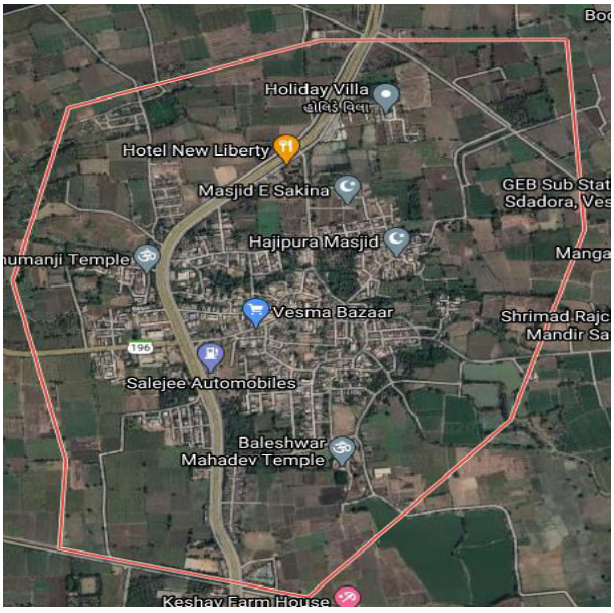

Fig. 20 Vesma-sadodra Village

4.2.3 Physical & Demographical growth:-

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

- As per constitution of India and Panchyati Raaj Act, Vesma-sadodra village is administrated by Sarpanch (Head of Village) who is elected representative of village.

Demographical details of vesma-sadodra village are as follow :-

Name of village is Vesma-Sadodra
State : Gujarat
District : Navsari
Taluka : Jalalpore
Village code of Vesma-Sadodra is *522934*.
vesma-sadodra Pin Code is 396475.
The vesma-sadodra Geographical area is 661.27 Hectares.
Latitude : 21.02644
Longitude : 72.962
It has total 1889 Households with total population of 8833.
Out of total population of Astol 52.8% is male population and 48.2% is female population.
Male population : 4541
Female population : 4292

Table 5 Caste wise male female population 2011 – Vesma-sadodra

	Total	General	Schedule Caste	Schedule Tribe	Child
Total	8833	5865	224	1855	889
Male	4541	3064	127	933	417
Female	4292	2855	97	922	418

4.2.4 Economic profile:-

The people of this village are occupied with many different types of works like farming, own shops, animal husbandry, and working in school as teacher and also there are small and big stores of food in with village people works in complex stores and some people works as seller of vegetable and fruits. Some people go from village to city in search of livelihood and do some labour and officially work in city and earn money for their family. Schedule Tribe (ST) constitutes 21.00 % while Schedule Caste (SC) were 2.54 % of total population in Vesma village.
In Vesma village out of total population, 3720 were engaged in work activities. 95.35 % of workers describe their work as Main Work (Employment or Earning more than 6 Months) while 4.65 % were involved in Marginal activity providing livelihood for less than 6 months. Of 3720 workers engaged. In Main Work, 358 were cultivators (owner or co-owner) while 1222 were Agricultural labourer.

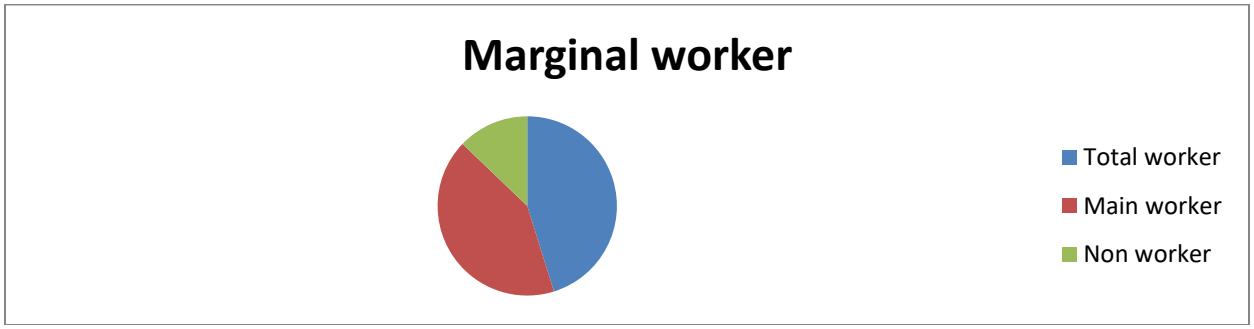

Fig. 21 Marginal percentage of worker

4.2.5 Actual problem faced by villagers and smart solution:-

People related problem:-

Traditional way of thinking, Lack of education, Lack of confidence, Poor understanding

Agriculture related problem:-

Lack of knowledge, Skill & attitude, Unavailability of input

Infrastructure related problem:-

Lack of safe drinking water, Street light, Connectivity, Education, Health facilities

Administrative problems:-

Political interference, Lack of motivation & interest, Better credit facilities, No proper monetary of programs

Smart solution:-

Creation of job:

By developing infrastructure in frame in tandem with local, it is possible to create local work opportunities in the region.

Contribution to the global environment:

The system can reduce reliance on fossil fuel and contribute to the reduction of green house gases such as CO2.

Better education:

Working with communities to improve the education system Based on our work at Gramin Shiksha Kendra (GSK) – an organisation which works with communities to enhance the quality of education in government schools – over the last 14 years, here are some suggestions on how this can b done.

Give them positions of seniority/power:

Include members of the local community in your organisation board and involve them in the decision making. For example, at GSK we have people from the community on our board – some of them are parents who missed the opportunities of a quality education for their children, and two of them have never been to school but bring in their insights, wisdom and understanding of the local context.

Farmer center:

Village Knowledge Centres serve as information dissemination centre providing instant access to farmers to latest information/ knowledge available in the field of agriculture, starting from crop production to marketing. Every VKC is manned by a "VKC In-charge" who looks after the operations of the VKC.

Improving Agriculture. Imparting knowledge on new developments, improved methods of cultivation /technologies in the field of agriculture. Dissemination of weather data and agro climatic conditions, latest information on prices of agriculture produce to farmers. Imparting knowledge on diversification of Agriculture and developing Farm-based Enterprises. Community Development. Formation of Self Help Groups and Farmers Clubs. Disseminating information about various government sponsored schemes. Coordinating with various Govt. departments for developmental activities. Financial Inclusion. Financial counselling to the rural people for better management of their financial need.

Improving Agriculture:

1. Impart knowledge on new developments, improved methods of cultivation /technologies in the field of agriculture and dissemination of weather data and agro climatic conditions, latest information on prices of agriculture produce to farmers.
2. Imparting knowledge on diversification of Agriculture and developing at least 2 Farm-based Enterprises in a village per year.
3. Bring in positive change in the livelihood of at least 300 farmers in a year in the command area of a VKC by increased income levels and higher standards of living.

Community Development:

1. Form at least 5 Self Help Groups per village in the command area of VKC.
2. Provide constant support to the SHGs to ensure that at least 75% sustain beyond 6 months to become eligible for bank linkage.
3. Enable the group to graduate economically for taking up income generating activities and increasing their credit absorption capacity.
4. Form at least 1-2 Farmers Clubs per village in the command area of VKC.
5. Create awareness in the command area villages about various government sponsored schemes to take benefit of subsidy/grants.
6. Coordinating with Govt. departments to ensure flow of allocated funds under various developmental schemes to the villages.

Financial Inclusion:

1. Ensure that every family in the command area villages has at least 1 active bank account.
2. Provide financial counselling and inform about various schemes /products of our Bank to at least 5 people in a day.

4.2.6 Social Scenario:-

Festivals:

The Village folk Culture is dance including garba, dandiya, raas, tipani, etc.

Traditional wear:

They wear traditional cloths like chaniyacholi, kediyo, dhoti, kachhado, gujrati sadi etc.

Cuisine:

The regular food is Gujrati thali, Indian food, the villagers prefers the vegetables to eat which is they grow in their farm.

4.2.7 Migration Reasons/ Trends

Nowadays, many people decide to migrate to have a better life. Employment opportunities are the most common reason due to which people migrate. Except this, lack of opportunities, better education, construction of dams, globalization, natural disaster (flood and drought) and sometimes crop failure forced villagers to migrate to cities.

In Vesma-sadodra Village people are migrate because of better opportunity for jobs, Business, High living standard. People are migrate to surat because Surat is the biggest economic hub of Gujrat. People earn more in the city rather than village that's why people migrate from village to city. In vesma-sadodra the people mostly dependent on agriculture and small shops and sell vegetables.

4.3 Data Collection:-

4.3.1 Methods for Data collection:-

The main methods include:-

By filling of survey forms, By interaction with the villagers, By interaction with the sarpanch/panchayat members, By observing the current condition of the village, Visiting different locations of the village

4.3.2 Primary details of survey:-

Primary details Of Vesma-sadodra village attached with report in the form of Techeo Economic Survey form. Primary survey details are collected by interacting with the village dwellers and questioning them about the facilities available and require. They were asked to give suggestions about the works required to be carried out for the development of the village and to promote Rurbanization

4.3.3 Average size of the house and Geo tagging of house:-

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

4.3.4 No of human being in one house:-

As per population and house hold number the average Human being in the one House is 4. Average 4-6 members live in one house.

4.3.5 Material available locally in the village and material out sourced by the villager:-

Which material used locally:-

The most common building materials used in construction are:

Wood, Cement, Bricks, Blocks, Concrete

Out sourced Material:-

The most common building materials used in construction are :

Metal, Glass, Plastic, Fly Ash

labor work doing:-

Labor works in the Farm

Any costing:-

Costing is Low compared to city

4.3.6 Geographical Detail:-

Table no. 6 Geographical Detail

Sr. no.	Description	Information details
1	Area of Village	661.27 hector
2	Forest area	-
3	Residential area	221.21 hector
4	Other area	-
5	New area	-
6	Distance from Nearest railway station	13KM Navsari
7	Nearest town with distance	7KM Maroli

4.3.7 demographical detail:-

Table No 7 Demographical Detail

Sr.no	Population	Male	Female	Total house hold
1	8833	4541	4292	1889

4.3.8 occupational detail:-

Table No. 8 Occupational Detail

Percentage of worker	Occupation
50%	Farming
20%	Work in farm as labor
10%	Jobs

4.3.9 Agricultural detail:-

Most of Farmer Lived in Vesma-sadodra Village has Cultivate sugarcane, banana, mango tree and cash crops like Lady Finger, Cabbage, Coli flower, Bringel Etc.

4.3.10 Physical infrastructure facilities:-

Physical Infrastructure Available in Vesma-sadodra village are as given below

Main Sources Of water, Tap Water, Well, Hand pumps, Water Tank Facility, Drainage facility Road Network, Transportation Facility, Housing Scheme

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

- No tourism Site of village.

4.4 Infrastructures Details:-

4.4.1 Drinking water:-

There are 2 Mediums of Drinking water available in Vesma-sadodra Village

1. Hand pump
2. Well

Water Management System in Palsod Village

1. Underground Water Tank
2. Overhead Water Tank

Fig. 22 water tank and pump

4.4.2 Drainage network:-

Vesma-sadodra village Has Under Ground drainage system And all the house hold has provided Drainage system. There is no Public Sanitation facility Available. In village there is a open drainage network.

Fig. 23 Drainage network

4.4.3 Transportation & road network:-

There is Availability of Mode of Transport Facility

State Transport Bus, Auto rickshaw, Chakda, Private vehicles

Fig. 24 Block bituminous road

4.4.4 Housing condition:-

Village house hold has good condition, almost villagers has Paccca and kuccha Makan (House).

Fig. 25 Pacca House

Fig. 26 kuccha House

4.4.5 Social Infrastructure facilities Health, Education, Community Hall, Library:-

The List of Social Infrastructure Facility Available in vesma-sadodra Village.
Primary Health centre, Primary School, Aangadwadi (Play Group)

Fig. 27 Primary Health centre

fig. 28 Primary School

Fig. 29 Aanganwadi

4.4.6 Technology Mobile / Wi-Fi / Internet usage details in Percentage:-

Table 9 usage of Technology in Persentage

Technology	Percentage of uses
Mobile	70%
Wi-Fi	0%
Internet	20%

4.4.7 Sports Activity as Gram Panchayat:-

Sports activity conduct as Khel-MahaKumbh at Primary school

4.4.8 Socio-Cultural facility, Public Garden, / Park / Play ground / Pond / Other Recreational facility:-

Pond is available in Vesma-sadodra Village. Private community hall also available but for not lower cast. In Vesma-sadodra village has no public garden no parks and no playground. Village has undeveloped pond.

Fig. 30 Pond

fig. 31 community hall

4.4.9 Other facilities:-

Other facilities in Village Like

Post office, General Market,

Fig. 32 Post office

Fig. 33 General Market

4.6 Existing Institution Like Village Administration Detail profile:-

A village is a clustered human settlement or community, larger than a hamlet but smaller than a town, with a population ranging from a few hundred to a few thousand. Though villages are often located in rural areas, the term urban village is also applied to certain urban neighborhoods. Villages are normally permanent, with fixed dwellings; however, transient villages can occur. Further, the dwellings of a village are fairly close to one another, not scattered broadly over the landscape, as a dispersed settlement.

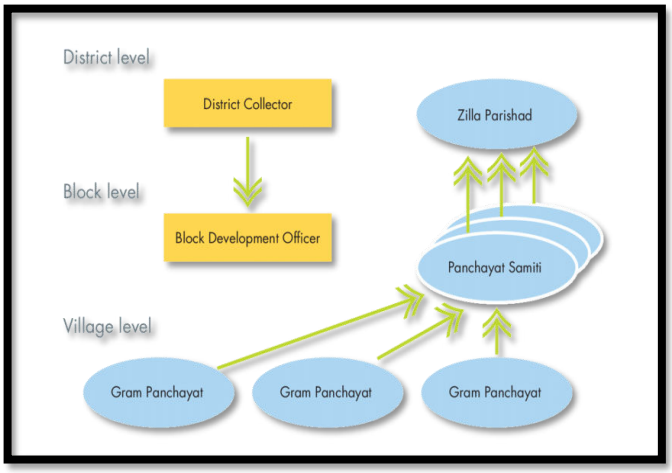

Fig. 34 Administration in Village

4.6.1 Bachat Mandli:-

The group of women's is working in different activities like production & marketing of Vermi Compost (active since 6 years) and Bio pesticide, spices packing, grading & marking etc. They are running Bachat Mandli for their group members in which members deposit money as savings and if needed, they can take loan from mandli. In the Vesma-sadodra Village there is one Bachat Mandli which handles by Youth of that Village.

4.6.2 Dudh Mandli:-

No Dudh Mandali.

4.6.3 Mahila Forums:-

The concept of Mahila Mandal come into existence in 1955 at the time of the first five years plan was about to be over. The women were organized into Mahila Mandals during the second five year plan with stress on women education, health services for the mother and child, supplementary feeding for the children and women's economic development. The sixth five-year plan basically adopted their pronged strategy, which included thrust on thrust, education and employment. As per our Interaction Survey We found active Mahila Mandal forum Currently in Vesma-sadodra village.

4.6.4 Plantation For the Air Pollution:-

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

4.6.5 Rain water harvesting:-

Rainwater harvesting describes processes in which precipitation that falls on a site is diverted, captured, and stored for use on-site, as opposed to allowing it to run off, evaporate, or infiltrate into the soil. Depending on its intended use, the captured precipitation may require treatment. In a broad sense, rainwater harvesting can also include capture from surface water runoff; however, in the U.S., runoff is subject to surface water regulations. This document will confine discussion of rainwater harvesting to roof-top capture. As per our Techno-economic Survey We found this system on Some Houses of NRI owners.

4.6.6 Agricultural development:-

As per Interaction survey the farmers are adopting new methods for Farming and other agricultural activity.

Chapter: 5
Sustainable Technical Options with Case Study of the Existing Village:-

5.1 Concept (Civil):-

5.1.1 Advance construction techniques:

India's construction sector is assessed at Rs.4000 billion or $100 billion. As a result of government spending, private investments as well as foreign direct investment, has made India number one of the top ten spending nations on construction in the world. We manufacture more than 250 million tons of cement and are second only to China. A recent report "Global Construction 2020", estimates that India will be the third largest global construction market after China and USA. In order to improve the standard of living of her population, one of the key hurdles that faces today's India is to overcome the challenge of infrastructure bottlenecks. Consequently the federal government has announced our 11th five years plan which allocates 9% of the GDP to infrastructure projects. The National Planning commission - an apex federal body has estimated an allocation of $515 billion which is equivalent to Rs.23 trillion to infrastructure sectors over the next five years. This includes construction of Roads, Highways, Airports, Bridges, Ports, Railways as well as water supply and sanitation amongst few others. The 12th five years plan projects an investment of 10% of the national GDP into infrastructure which equates to a staggering $1 trillion or equivalently Rs.45 trillion.

5.1.2 Drivers for Sustainability :

While India is preparing to tackle these growth plans with enthusiasm, it is imperative that the country should analysis and take into account the price that the future populations of the world and here will have to pay and the world in turn will have to pay, should this unprecedented growth take place without adequate thought to sustainability. Should we consume all our energy, materials, water resources without considering for the needs of our children and grandchildren, the future of the world and our nation is at peril. Obviously GHG emissions, climate change and sustainability are at stake. It is estimated that GHG emissions would increase from 2 billion tons to 6-7 billion tons of CO_2 in 2030.

Some of us may question why India must slow down her pace of development and pay for the sins of already developed and industrialized Western nations. Clearly, the OECD or the industrialized countries must take the lead in mitigating climate change, reducing greenhouse gas emissions, but also large developing countries such as India and China will also have to start to reduce their emissions over the next 20 to 30 years if we truly want to give our children a chance at a future. Developing countries with large emissions should have some responsibility, although differentiated and different from the industrialized world. While sustainable practices and products may be slightly unintuitive and perceived as counterproductive to the growth of GDP in the short-term, in the long- term, the future growth of the country depends on it. Growth that is not sustainable is not true growth.

Recommendations :

In mapping out sustainable practices that India must adopt a "cradle to grave" analysis is required. And for this we need to have a total approach than a patch work point system or a grade based certification system. In order to have a comprehensive plan for sustainable construction, every structure may be thought about based on the following parameters:

1. Planning, design and specifications based on performance and service life
2. Construction Practices
3. Material Conservation and Selection
4. Demolition and recycling
5. Energy Conservation

1. Planning, Design and Specifications :

Structures in India are designed well however so far in most specifications, there is no reference to any service life or calculations thereof. To this effect, deeper study of various service life prediction models and calculations are essential. Specifications must to be performance based as opposed to their present form of being prescription based.

2. Construction Practices :

It is acknowledged that wastage in the construction industry is as high as 30%. That means at current valuation, we are talking about wastage to the tune of Rs.1200 billion or $27 billion in India. This is in itself a large, yet relatively simple and straight forward challenge to tackle. These wastages are activities that absorb resources, man hours and materials but create no value. Most developed countries have different forums / institutes / researchers / academic institutions for seeking solutions to mitigate these wastages and lean construction practices that emerged have yielded encouraging. Lean construction is a "way to design production systems to minimize waste of materials, time and efforts in order to generate the maximum possible value". While some novel initiatives are being taken in some parts of India to adopt leaner construction practices, India does not have a fully focused lean construction forum. Creation of an industry consortium or lean construction forum may be a good beginning.

3. Material Conservation and Selection :

Concrete is the largest synthesized material which has a per capita consumption of 1.5 tons per annum in India. Presence of concrete is all pervading simply because it has the capacity to utilize locally available ingredients, develop adequate engineering properties for a variety of applications, easily adapt to any shape and size and has comparatively low initial and maintenance costs. While concrete not be as big of an energy consumer as structural steel, aluminum and glass; concrete and particularly cement still remains a major energy 'sink' due to its sheer volume of production and also environmentally unsustainable due to large quantities of CO_2 evolution associated with its manufacture. Raw materials for cement manufacture include non-renewable natural resources like lime stone, aggregates, manufactured sands (fine aggregates), and so on. Hence the Indian concrete Industry needs to take a fresh look at these challenges. Some of the problems faced by Indian concrete industry towards achieving sustainability in concrete utilization are as follows: Increase the use of fly ash and other cement substitutes ; Use of manufactured sand ; Use of lightweight aggregates

4. Demolition and Recycling :

In India, the use of recycled aggregates has not been adequately explored. Reportedly, the construction and demolition waste has substantially increased as new super structures are being built on land after tearing down the smaller structures that previously existed. It is estimated that the construction industry in India generates about 10-12 million tons of waste annually. Projections for building materials requirement of the housing sector indicate a shortage of aggregates of about 55,000 million cu. m. An additional 750 million cu.m. of aggregates would be required for achieving the targets of the road sector. Recycling of aggregate material from construction and demolition waste may reduce the demand-supply gap in both these sectors. There is also an increasing-acute shortage of dumping grounds and landfills particularly in metropolitan cities. SERC, Ghaziabad had taken up a pilot R&D project on Recycling and Reuse of Demolition and Construction Wastes in Concrete for Low Rise and Low Cost Buildings in mid-nineties with the aim of developing techniques/methodologies for use of recycled aggregate concrete in construction. The experimental investigations were carried out in Mat Science laboratory and Institutes around Delhi/GZB to evaluate the mechanical properties and durability parameters of recycled aggregate concrete made with recycled coarse aggregate collected from different sources. Also, the suitability in construction of buildings has been studied.

5. Energy Conservation :

Since sources of good quality, aggregates are fast depleting, the concrete industry in India needs to prepare itself to use locally available 'marginal' aggregates. The use of local materials helps reduce the carbon footprint associated with transport. Thus, from sustainability angle, the emphasis should be placed on using locally-available aggregates, even if there are small deficiencies in their quality. It has been amply demonstrated that desired properties of concrete can be obtained by intelligent blending of available aggregates with crushed sand, inert fillers, supplementary cementitious materials and chemical admixtures. Another important issue is that river sand and other construction materials are usually transported by road. India has a well-developed and efficient rail and water transport system that need to be leveraged by the construction industry.

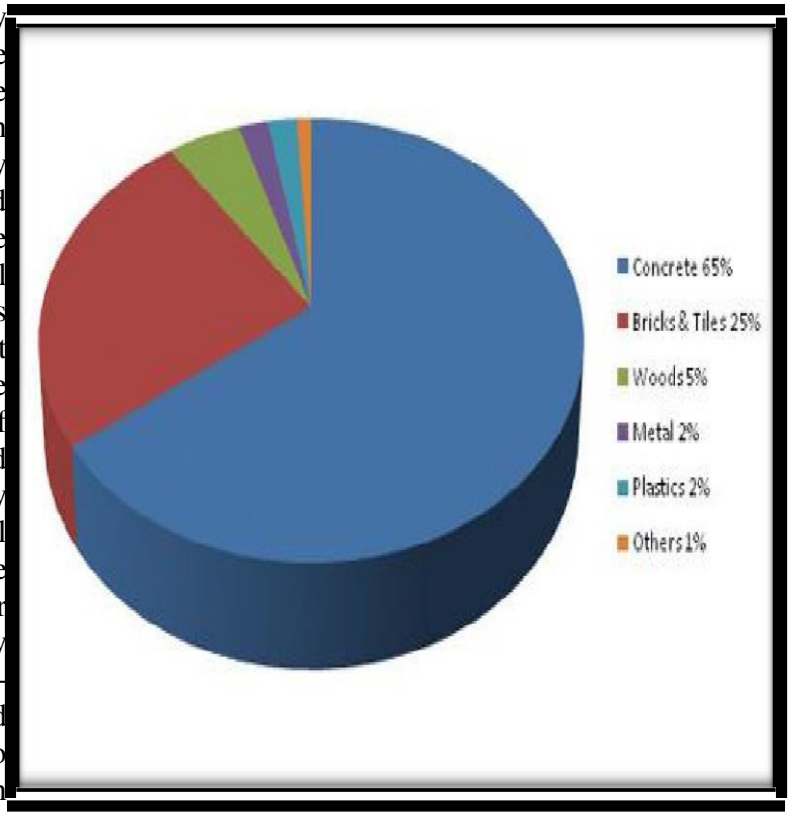

Fig. 35 Consruction materials chart of energy conservation

Conclusion :

1. India is an astoundingly growing economy and hence the pressure on the use of natural resources is very heavy.
2. There is an awakening about the words durability and then sustainability.
3. Though the durability is understood to a point the real meaning and importance of sustainability is not fully comprehended by engineering fraternity as well as planners.
4. Some sporadic efforts are carried out in the form of very repetitive academic experimentation; however, these efforts are in extreme primitive conditions.
5. Industry has not opened to this "Sustainability aspect" proactively as they are busy joining the band wagon of growth machine.
6. Federal authorities also are not well informed and hence not equipped to adopt 'Sustainability initiative'.
7. Also use of renewable energy and resources is not much sought after option and not given due importance as the initial costs are high.
8. At the same time, there is definite internal feeling in all that something is definitely needed to be done for next generation. Typically not to leave them with depleted resources.
9. At the behest of ACI international – India Chapter of ACI has organized couple of international conferences on sustainability along with the help of other organizations and Institutions.
10. But this effort to create and spread awareness should be all pervasive. The proactive participation of all the institutions, professional bodies, academicians, industry as well as firm patronage and participation of government is extremely essential.
11. 'Lean Concrete' and 'Reduce Wastage' initiatives in the industry are very necessary.
12. India chapter of ACI has decided to take the lead role in this initiative by forming "JSI" like efforts in India. It was suggested by late President Dick Stehly to the chapter after he witnessed the capability of chapter to galvanize the support and participation of many in the recent international conference on "Sustainability".

5.1.3 Soil Liquefaction :

Soil liquefaction occurs when a saturated or partially saturated soil substantially loses strength and stiffness in response to an applied stress such as shaking during an earthquake or other sudden change in stress condition, in which material that is ordinarily a solid behaves like a liquid.

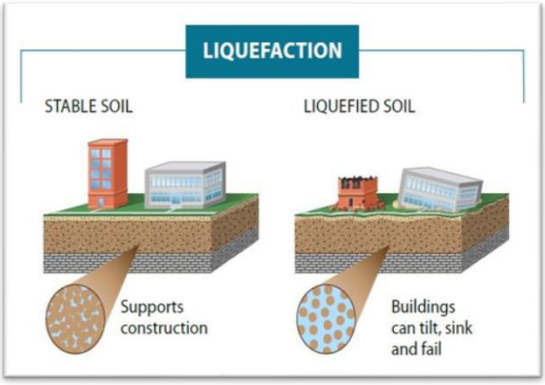

Fig. 36 Soil Liquefaction

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.

Type of soil causes liquefaction : Poorly drained fine-grained soils such as sandy, silty, and gravelly soils are the most susceptible to liquefaction.

5.1.4 Sustainable Sanitation :

Sustainable sanitation is a sanitation system designed to meet certain criteria and to work well over the long-term. Sustainable sanitation systems consider the entire "sanitation value chain", from the experience of the user, excreta and wastewater collection methods, transportation or conveyance of waste, treatment, and reuse or disposal. The Sustainable Sanitation Alliance (SuSanA) includes five features (or criteria) in its definition of "sustainable sanitation": Systems need to be economically and socially acceptable, technically and institutionally appropriate and protect the environment and

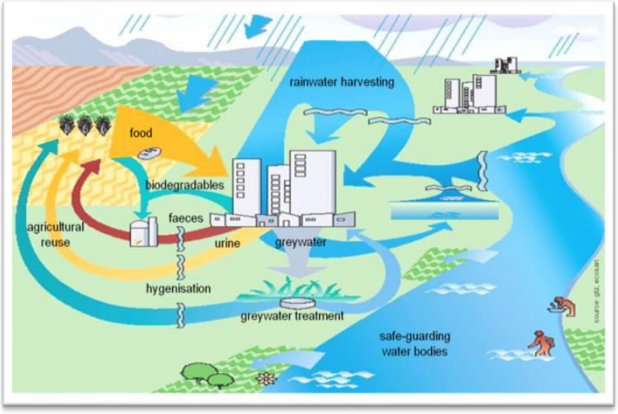

Fig.37 sustainable sanitation

natural resources. The purpose of sustainable sanitation is the same as sanitation in general: to protect human health. However, "sustainable sanitation" attends to all processes of the system: This includes methods of collecting, transporting, treating and the disposal (or reuse) of waste.

5.1.5 Transport Infrastructure / system :

Transport infrastructure consists of the fixed installations necessary for transport and includes roads, railways, airways, waterways, and terminals. Transport is vital to the well-functioning of economic activities and a key to ensuring social well-being and cohesion of populations. Transport ensures everyday mobility of people and is crucial to the production and distribution of goods. Adequate infrastructure is a fundamental precondition for transport systems. In their endeavour to facilitate transport, however, decision-makers in governments and international organizations face difficult challenges. These include the existence of physical barriers or hindrances, such as insufficient or inadequate transport infrastructures, bottlenecks and missing links, as well as lack of funds to remove them. Solving these problems is not an easy task. It requires action on the part of the governments concerned, actions that are coordinated with other governments at international level.

5.1.6 Vertical Farming :

Vertical farming is the practice of growing crops in vertically stacked layers. It often incorporates controlled-environment agriculture, which aims to optimize plant growth, and soilless farming techniques such as hydroponics, aquaponics, and aeroponics. Some common choices of structures to house vertical farming systems include buildings, shipping containers, tunnels, and abandoned mine shafts. As of 2020, there is the equivalent

of about 30 ha (74 acres) of operational vertical farmland in the world. The modern concept of vertical farming was proposed in 1999 by Dickson Despommier, professor of Public and Environmental Health at Columbia University. Despommier and his students came up with a

design of a skyscraper farm that could feed 50,000 people. Although the design has not yet been built, it successfully popularized the idea of vertical farming. Current applications of vertical farming 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

FIG.38 Vertical Farming

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 cubic 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.

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

Mechanism :

In the case of Reinforced concrete structure the ingress of moisture or air may lead to corrosion of steel, cracking and spalling of the concrete cover thereby reducing durability of the concrete structure . Repair has been suggested as the protective solution for damaged structure due to corrosion. Corrosion of reinforcing steel is a significant economic and safety problem, preventing many buildings from attaining their design life. It is now a must look into field as corrosion of reinforcing steel is seen almost in every 10 out of 100 constructions within a life of 10 years. Nowadays the increase content of pollutants in the city atmosphere has very much affected the lifespan of RCC structures. The increased content of pollutants include a very high rates of Sulphates and Chlorides which when these mixes with rain water and falls over these structures and damages the visible parts.

Prevention :

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

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

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

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

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

Sewage treatment plant :

Sewage treatment plant is a plant where waste water is treated. **Sewage treatment** is the process of removing contaminants from municipal wastewater, containing mainly household sewage plus some industrial wastewater. Physical, chemical, and biological processes are used to remove contaminants and produce treated wastewater (or treated effluent) that is safe enough for release into the environment. A by-product of sewage treatment is a semi-solid waste or slurry, called sewage sludge. The sludge has to undergo further treatment before being suitable for disposal or application to land. Sewage treatment may also be referred to as wastewater treatment. However, the latter is a broader term that can also refer to industrial wastewater. For most cities, the sewer system will also carry a proportion of industrial effluent to the sewage treatment plant that has usually received pre-treatment at the factories to reduce the pollutant load. If the sewer system is a combined sewer, then it will also carry urban runoff (stormwater) to the sewage treatment plant. Sewage water can travel towards treatment plants via piping and in a flow aided by gravity and pumps. The first part of the filtration of sewage typically includes a bar screen to filter solids and large objects that are then collected in dumpsters and disposed of in landfills.

5.1.8 Technical Case Study On Cable Bridge, Surat:-

Background:-

The construction of a new bridge over the Tapti River at Athwa was proposed in 2006. S. N. Bhobe and Associates, Navi Mumbai, was selected as the designer for both of the bridges in 2008. S. N. Bhobe and Associates has been designing projects for the Surat Municipal Corporation (SMC) since 2006. The same company previously designed the Fly Over Bridge at Nana Varachha junction, Fly Over Bridge at Kapodra Fire Station junction, Hajira - Adajan Flyover bridge and Shri Swami Dayanand Saraswati

Fig.39 Cable Bridge, Surat

bridge across the Tapti River for SMC. Construction work for the cable-stayed bridge started in 2010. The construction this portion of the bridge (River-Bridge) was contracted to Gammon India and the connected 3-way interchange flyover bridge on the Athwa side of the main river bridge was contracted to Rachana Construction. Spectrum Techno Consultant Private Limited was appointed as Project Manager Consultant to supervise the entire construction work and to ensure that the construction was taking place as per standards. Incident:- On 25 May 2014 concrete slab work was being carried out at the sharp turning portion of the 3-way interchange flyover bridge. On 10 June 2014 workers started removing the staging plates (formwork) from the slab, whose concrete was poured 15 days earlier on 25 May. Around 8 a.m. the whole slab weighing

650 tonnes, and of 35 metres in length, collapsed from 40 feet high. 16 workers were buried under the slab, 10 workers died on-the-spot and 6 sustained major or minor injuries.

Investigation:- Gujarat Engineering Research Institution in Vadodara was appointed to investigate the site, debris and material used for construction. Based on their report, the material used for construction was judged poor quality. The design documents were sent to Sardar Vallabhbhai National Institute of Technology, Surat for verification. Their report said there were major flaws in the design of the sharply curved part of the bridge.

Aftermath:-

Based on investigations, the Police Inspector of Umra Police Station lodged a first information report on 3 July 2014 against 18 accused under section 304 Part II, 337, 338 and 114 of the Indian Penal Code. This included three employees of 'S. N. Bhobe and Associates, Navi Mumbai', five engineers from 'Spectrum Techno Consultant Private Limited,' four directors and three others of 'Rachana Constructions', and three engineers from 'SMC Bridge Cell. SMC Blacklisted 'S. N. Bhobe and Associates, Navi Mumbai' and transferred the design contract to 'L & T Infrastructure Eng. Ltd'.

Fig.40 Cable Bridge, Surat

'Rachana Construction' was also blacklisted. Subsequently 'Gammon India' was also blacklisted due to them abandoning the incomplete work in November 2014. The remaining bridge construction contract of the Bridge was issued to 'Unique Construction, Surat'. The initial plan was to complete the construction in 30 months, but the collapse of one portion of the 3-Way Interchange Flyover Bridge during construction delayed the project. The bridge was inaugurated by the Chief Minister of Gujarat, Vijay Rupani, on 2 October 2018, 8 years after starting the construction.

Description:-

Location: Athwa side: (Near Panch pandav bunglow,Agri university on Surat – Dumas Road) Adajan side: (Near Dr.V.S.Marg on Surat-Hajira road) Year of Construction 2018 Details of Cable Stayed portion Length 300 mt. Width (Avg.) 23.50 mt. Area 7050 Sq. Mt.(avg.) Pylon Two nos. each 35 mt. height Details of RCC portion Length 411.63 mt. Width (Avg.) 15.30 mt. to 29.00 mt. Details of Approach Length Athwa Side 122.25 mt. Adajan Side 84.33 mt. Width Athwa Side 15.30 mt. Adajan Side 21 mt. (Varing) Total Length of bridge 918.21 mt. Total Bridge Area 20430.50 Sq. mt. Nos of span 15 Nos Span Length12.788+12.643+16.506+50x3+42.5+50+75+150+75+50+27.60+22.40+2 7.60 =712.037 mt Carriage Way 7.50 mt. + 7.50 mt. (Two Lane up & Two Lane Down) Footpath 2 mt. (both side) Type of Foundation Pile Foundation Other details (i) Design Discharge (ii) Design H.F.L. 9.2 mt (iii) Type of Bridge High level cable stayed river bridge (iv) Finished Road Top Level 15.5 mt Sub Structure R.C.C. Pier Super Structure Segmental Multi cell Box Girder/ PSC Box Girder / Solid Slab type Bearing POT / PTFE type Expansion Joint STRIP SEAL / MODULAR Type Approach Reinforced Earth Wall Type & RC Wall Tender Cost Balance Work 63.80 Crore Name of Contractor Unique Construction, Surat Design Consultant L & T Infra Engineering Proof Check Consultant Design (R &B) Circle, Gandhinagar Project Management Consultancy Bridge was inagurated by Hon'ble Chief Minister shri Vijaybhai Rupani on Dt.02.10.2018

Chapter-6
Swachchh Bharat Abhiyan (Clean India):-

1. Our village is facing problems regarding the Swachchhta as there are not any facilities available in village for excretion of waste.
2. There are no facilities given by government for management of waste.
3. No facility is available for the management of solid waste as well.

6.1 Types of Swachchhta needed in Vesma-sadodra village:-

1. Biogas plant is required for the treatment of biological waste.
2. Dustbins should be distributed in whole village so the villagers throw garbage in dustbins.
3. Government should provide facilities like garbage vans like urban areas so that waste is deposited and directly treated in treatment plants.
4. Water treatment plant is also necessary for the treatment of waste water from houses and agricultural fields.

Fig. 41 Real Scenario of Village About Swachchhta

6.2 Guidelines implementation in your village:-

1. The Swachh Bharat Mission is split into two sub Missions Swachh Bharat Mission (Gramin) and Swachh Bharat Mission (Urban).

2. Swachh Bharat Mission (Gramin), Gram Panchayats and Jilla Parishads 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.

3. Implementation of SBM (G) is proposed with 'District's the base unit, with the goal of creating ODF GPs. The District Collectors/Magistrates/CEOs of Zilla Panchayat are expected to lead the Mission themselves, so as to facilitate district wide planning of the Mission and optimum utilization of resources. The Baseline Survey data of 2013 collected by States and entered on the IMIS of MDWS by 31.1.2015 will be considered as the base for States where the survey is complete. For other States the data entered on completion of the Survey will be taken as the base data.

4. 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 merge into 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.

5. Funds are to be made available for these preliminary IEC works including for triggering behavior change. This will endeavor 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.

6.3Activity Done by Students for your village Clean:-

1. In vesma-sadodra village there are no facilities for the excretion of waste as there is no bio gas plant or treatment plants.
2. Vesma-sadodra village due to its incapability of waste excretion is not as pleasing to see but after some considerable steps it might be possible to eject waste from the village.
3. We have suggested measures to vesma-sadodra gram panchayat for the excretion of waste by telling them about garbage vans which are used in urban areas for collection of waste.

Fig. 42 Waste Collection of village About Swachchhta

4. We told them to contact Municipal Corporation and said steps which will help them bring garbage vans.
5. We also suggested them to use different dustbins such as green coloured bin for wet garbage and blue colour bins for dry garbage.

Chapter- 7
Village condition due to Covid-19:-

7.1 Taken steps in allocated village related to existing situation:-

With respect to COVID 19 pandemic, Ministry of Panchayati Raj, Government of India in close collaboration with State Governments has taken various initiatives. Close consultation and guidance of the State as well as District authorities is being maintained to ensure that lock down conditions are not violated and norms of social distancing are scrupulously followed to contain the spread of the disease. Total infected patients are 10 in Vesma-sadodra Navsari District and total population of Navsari District is 8833.

Fig. 43 Village condition due to Covid-19

- The panchayat of vesma-sadodra help to people by giving mask, sanitizers etc.
- The panchayat member pramukh also help the villages people by giving foods, vegetable etc
- The sarpanch also give a awareness to all people to wear mask and make social distance.
- Rural students in the PMKVY program created some hand-made artwork promoting safety and awareness for their communities.

7.2 Activities Done by Student for allocated village:-

COVID-19 affects different people in different ways. Most infected people will develop mild to moderate illness and recover without hospitalization. Field team members shifted their priorities from their normal work to making efforts to spread awareness and education on taking precautions agains the spread of COVID-19. They shared verified informational videos and explained preventative measures like proper hand-washing to the members of the village communities. In village places, cloth masks were made and distributed as well.

7.3 Any other steps taken by the students/villagers:-

Awareness:-

Most common symptoms: fever, dry cough, tiredness,
Less common symptoms:
aches and pains, sore throat, diarrhea, conjunctivitis, headache, loss of taste or smell

Self-care:-

Fig. 44 Village condition due to Covid-19

If you feel sick you should rest, drink plenty of fluid, and eat nutritious food. Stay in a separate room from other family members, and use a dedicated bathroom if possible. Clean and disinfect frequently touched surfaces. In village every should keep a healthy lifestyle at home. Maintain a healthy diet, sleep, stay active, and make social contact with loved ones through the phone or internet. Children need extra love and attention from adults during difficult times. Keep to regular routines and schedules as much as possible.

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

8.1 Design Proposals:-

In Tachometric survey done by us, we observed that the basic facilities required in a village are Physical infrastructure, Social infrastructure, Socio-cultural infrastructure. Physical infrastructure includes sources of drinking water, Water Tanks, Drainage systems, Road networks, Electricity distribution, Sanitation facilities and irrigation system. Social infrastructure includes Schools, colleges, Aanganwadi, Hospitals, sub centers, Clinics. Sociocultural facilities include Community halls, public library, public garden, pond, recreation centre, cinema hall, Assembly polling station, Birth and death registration office, etc

8.2 Recommendations of the Design:-

In Vesma-sadodra Village, all types of basic facilities like physical and social infrastructures, as mentioned above, are already available. But some of the socio-cultural facilities are missing. So in our report we have suggested some of the designs of the building as follow;

- library
- Public toilet
- Skill development center
- Bus stand
- Bio gas plant
- Maintenance of anganwadi

8.3 Suggestions / Benefit of the Villagers:-

Vesma-sadodra village is a mini-hub of Education as it has many schools and colleges in it. So, by providing the facilities like Public library and Play ground, it can be proved very useful to the students living in the village. Also these facilities can be useful for other villagers. The Senior citizens living in the village can also use public library and Small children can use public play ground.

To the extent that the introduction of biogas technology generates jobs and higher income while improving living conditions, it may be assumed that fewer rural inhabitants will be drawn away to urban centers in search of employment. While, as mentioned above, no accurate quantification is as yet possible concerning the effects of biogas technology on rural-urban migration.

The permanent availability of cooking energy in a household with a well functioning biogas plant can have effects on nutritional patterns for the villagers. With easy access to energy, the number of warm meals may increase. Whole grain and beans may be cooked longer, increasing their digestibility, especially for children. Water may be boiled more regularly, thus reducing water-borne diseases and the people have good health.

8.1.1 Socio-Cultural designs:-

Public Library:-

There is no limit for the size of the building of Public library. But according to the requirement of villagers and keeping in mind the Economical aspects, we have designed a small Library of size 11.22m x 11m. The measurement sheets, abstract sheet and autocad design are given below

Population	Seat/1000 population
Up to 10,000	5
10,000 to 25,000	4.5

For 15,000 population,

No of seat per 1000 population = (5+4.5)/2 = 4.75 Total no of seat required = 4.75x15 = 72

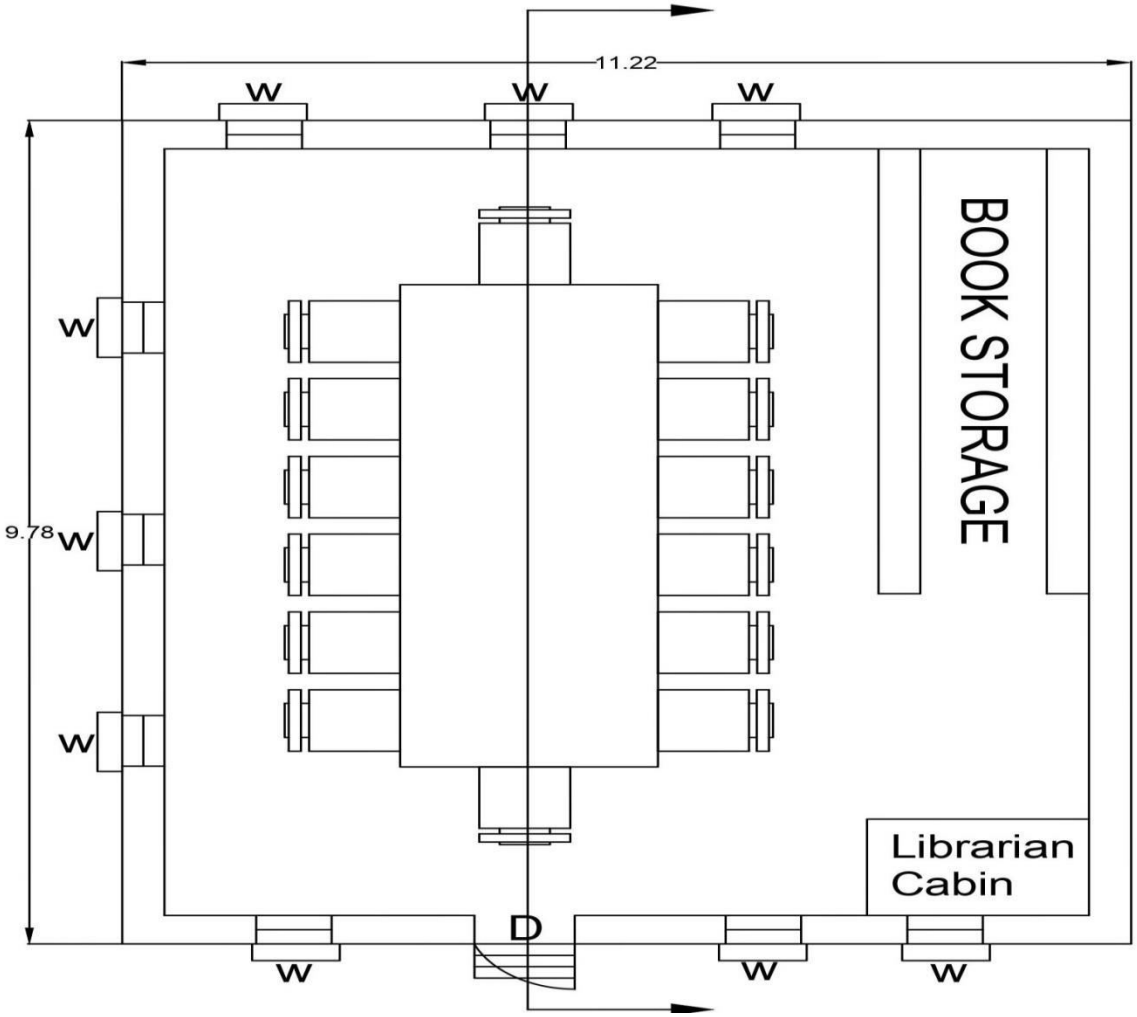

Fig. 45 Plan of Library

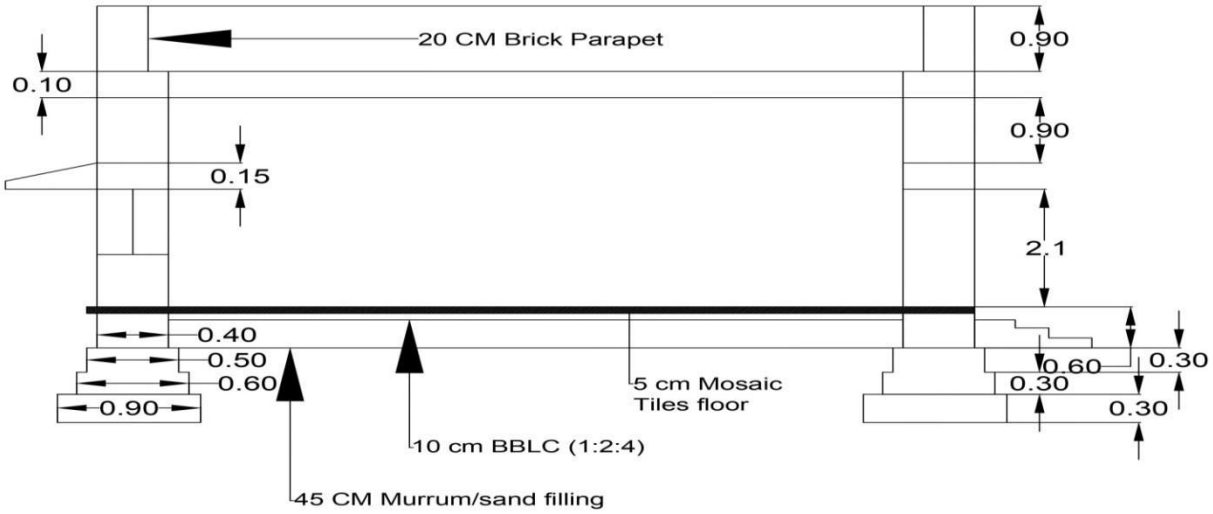

Fig. 46 Section of Library

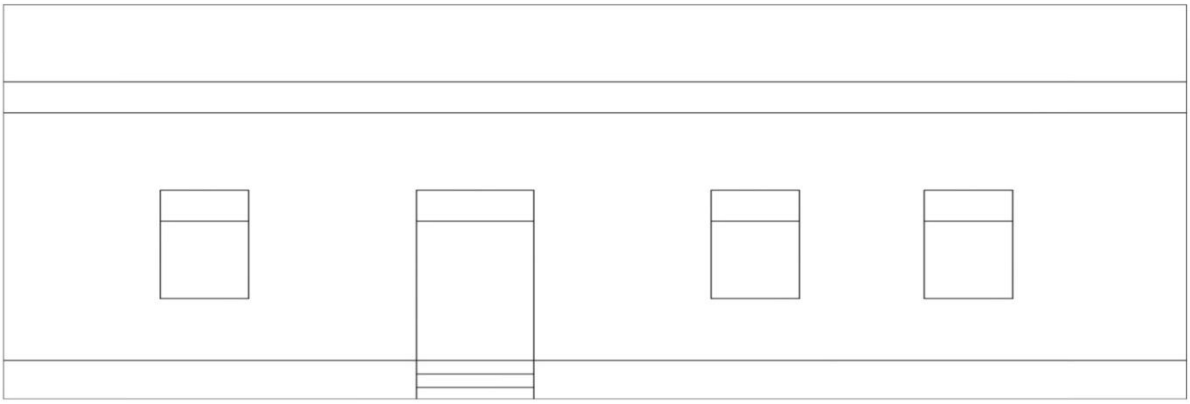

Fig. 47 Elevation of Library

SHEDUAL OF OPENING		
DETAILS	SYMBOLS	SIZE
DOOR	D	1.2X2.1
WINDOW	W	0.9X1.2
CUPBOARD		0.3X0.8
TABLES		2.44X1.45

Fig. 48 Shedual Of Opening

Table 10 measurement sheet of library

Measurement Sheet of LIBRARY						
SR. NO	**DESCRIPTION**	**NO.**	**L**	**B**	**H**	**QUANTIY**
	Total Centre line=2x10.92+3x9.48= 50.28m No. Of T-junction=2					
1.	Excavation for foundation up to 1.5 depth					
	Length=total centerline-(numberofteajunction×width÷2)					
	=50.28-(2×0.9÷2)=49.38	1	49.28	0.9	0.9	39.92m3
	For steps:-					
	L=1.2+0.15=1.5m	1	1.5	0.6	0.15	0.135m3
					Total:	40.055m3
2.	Providing and laying PCC(1:4:8) for foundation	1	49.28	0.9	0.3	13.30m^3
	Steps	1	1.5	0.9	0.15	0.236m3
					Total:-	13.5m^3
3.	First class brick masonry C:M(1:6) for foundation					
	Step:-1(60cm)					
	L=49.68m	1	49.68	0.6	0.3	8.94m^3
	Step:-2(50cm)					
	L=49.78m	1	49.78	0.5	0.3	7.46m^3
					Total:-	16.40m^3
4.	Back filling in foundation					
	=39.92-8.94=30.98m^3				Total:-	30.98m^3
5.	First class brick masonary G.L to P.L					
	L=49.88m	1	49.88	0.4	0.575	11.47m^3
	Step1.	1	1.2	0.3	0.15	0.054
	Step2.	1	1.2	0.3	0.30	0.108
	Step3.	1	1.2	0.3	0.45	0.162
					Total:-	11.79m^3
6.	DPC(2.5cmthick)	1	49.88	0.4		19.95m^2
	Deduction:-					
	D	1	1.2	0.4		0.48
					Net total:-	19.47m^2
7.	First class brick masonary for superstructure					

	L=49.98m	1	49.98	0.3	3	44.98m^3
	Deduction					
	(1)Lintel	1	49.98	0.3	0.15	2.25
	(2)Door					
	(a)D	1	1.2	0.3	2.1	0.756
	(a)W	9	0.9	0.3	1.2	2.92
8	Brickwork for parapet, 0.2m					
	LW = 11.22	2	11.22	0.2	0.9	4.04
	SW_1= 9.38	2	9.38	0.2	0.9	3.37
					Net total:-	74.672m^3
9.	Providing and laying RCC(1:2:4) for slab, lintel, chhajja					
	(1)Lintel L=49.98m	1	49.98	0.3	0.15	2.25
	(2)Chhajja					
	(a)W	9	1.2	0.45	0.1	0.486
	(3)RCC slab	1	11.22	9.78	0.1	10.97
					Total:-	13.76m^3
10.	Providing mild steel reinforcement in RCC work					
	Quantity=1%ofvolumeofconcrete					
	=13.76×78.54=1080.79kg					
					Total:-	1080.79kg
11.	12cmthickplaster					
	(A)Internal plaster					
	(1)ceiling	1	10.62	9.18		97.49
	Wall					
	LW=10.62m	2	10.62		3	63.72
	SW_1= 9.18m	2	9.18		3	55.08
	SW_2= 7m	2	7		3	42
					Total	258.29m^2
11	External plaster up to parapet					
	Lw	2	11.22		4.6	103.23
	Sw	2	9.78		4.6	89.98
	Parapet inside					
	Lw	2	10.82		0.9	19.44
	Sw	2	9.38		0.9	16.88
	Chajja (window)					
	Face	9	1.2		0.1	1.08
	Side	2x9	0.45		0.1	0.81
	Top	9	0.45		0.1	0.405

	Bottom	9	0.45		0.1	0.405
					Total	232.23m2
	Deduction					
	D	1	1.2		2.1	2.52
	W	9	0.9		1.2	9.72
					Total	12.24m2
					Net total	478.28m2
12.	5cmthickmosictilesflooring					
	LW= 10.62					
	SW=9.18	1	10.62	9.18		97.49
	Deduction	1	7	0.3		2.1
					Net Total	95.39m2
13.	10cmBBLC(1:2:4)					
	LW= 10.61					
	SW=9.17	1	10.61	9.17	0.1	9.72
	Deduction	1	7	0.3	0.1	0.21
					Total	9.51m3
14.	Sand filling/murum					
		1	10.61	9.17	0.45	43.78
	Deduction	1	7	0.3	0.45	0.945
					Total	42.83m3
15.	Providing and laying skirting of mosaic tiles	2	10.62			21.24
		2	9.18			18.36
		2x1	7			14
	Deduction	1	1.2			1.2
					Total	**52.4m**

Table 11 abstract sheet of library

ABSTRACT SHEET					
SR. NO	**DESCRIPTION**	**QUANTITY**	**RATE**	**PER**	**AMOUNT(RS)**
1.	Excavation for foundation up to 1.5 m depth	40.05 m^3	100	m^3	4005
2.	Providing and laying PCC (1:4:8) for foundation	13.5 m^3	1500	m^3	20250
3.	First class brick masonry CM (1:6) for foundation	16.40 m^3	1600	m^3	26240
4.	Back filling in foundation	30.98 m^3	70	m^3	2168.6
5.	First class brick masonry GL to PL	11.79m^3	1600	m^3	18864
6.	DPC (2.5 cm thick)	19.47 m^2	200	m^2	3894
7.	First class brick masonry for super structure	74.67 m^3	1500	m^3	112005
8	Providing and laying RCC (1:2:4)	13.76m^3	2500	m^3	34400
9	Providing mild steel reinforcement for RCC work including binding and bending and placing in position	1080.79 kg	45	Kg	48635.55
10.	12 mm thick plaster	478.28 m^2	150	m^2	71742
11.	5 cm thick mosaic tiles flooring	95.39 m^2	200	m^2	19078
12.	10 cm BBLC (1:2:4)	9.51 m^3	1000	m^3	9510
13.	Sand filling / murrum	42.83m^3	60	m^3	2569.8
14.	Providing and laying skirting of mosaic tiles	52.4m	250	M	13100
		TOTAL :-			386461.95
		3 % CONTIGENCY :-			11593.85
		2 % WORKCHARGE ESTABLISHMENT :-			7729.23
		TOTAL :-			405785.03
		10 % CONTRACTOR PROFIT :-			40578.5
		GRAND TOTAL :-			446363

Design of Public toilet:-

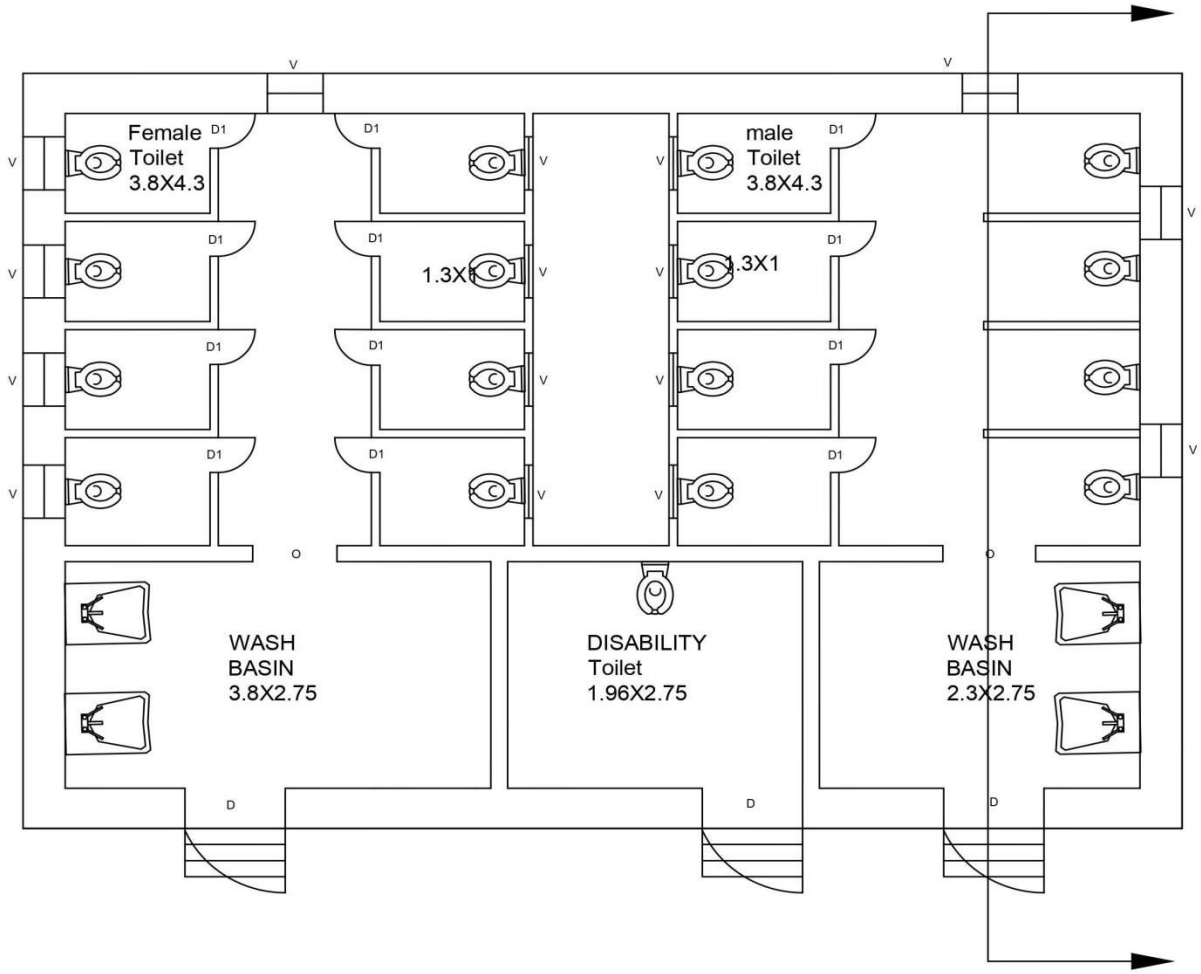

Fig. 49 Plan of Toilet

All dimension in meter

SHEDUAL OF OPENING		
DETAILS	SYMBOLS	SIZE
DOOR	D	1X2.1
DOOR	D1	0.5X2.1
OPENING	O	1X2.1
VENTILATION	V	0.60X0.60

Fig. 50 Shedual Of Opening

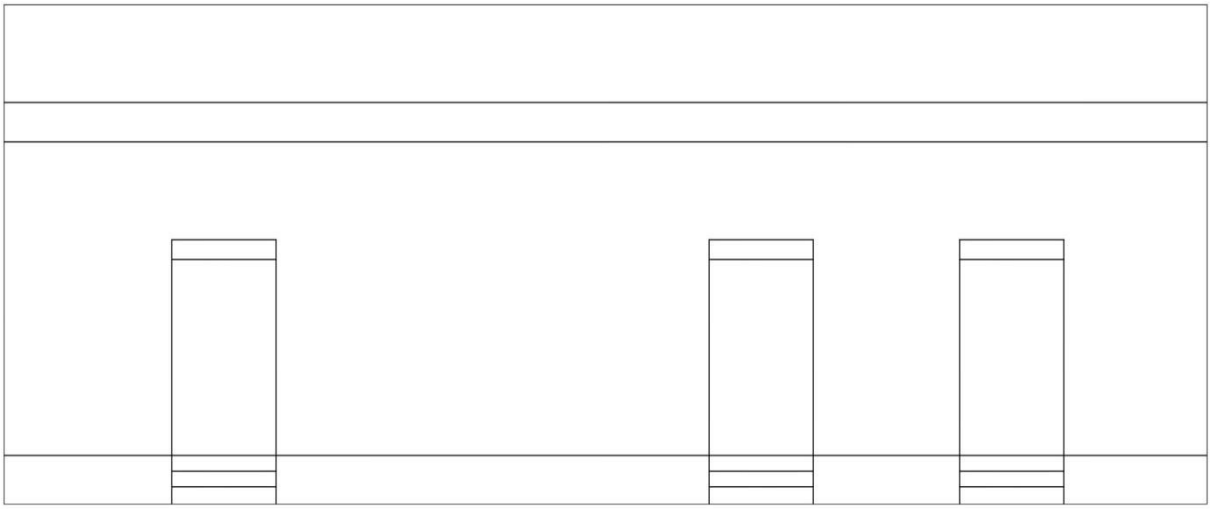

Fig. 51 Elevation of Toilet

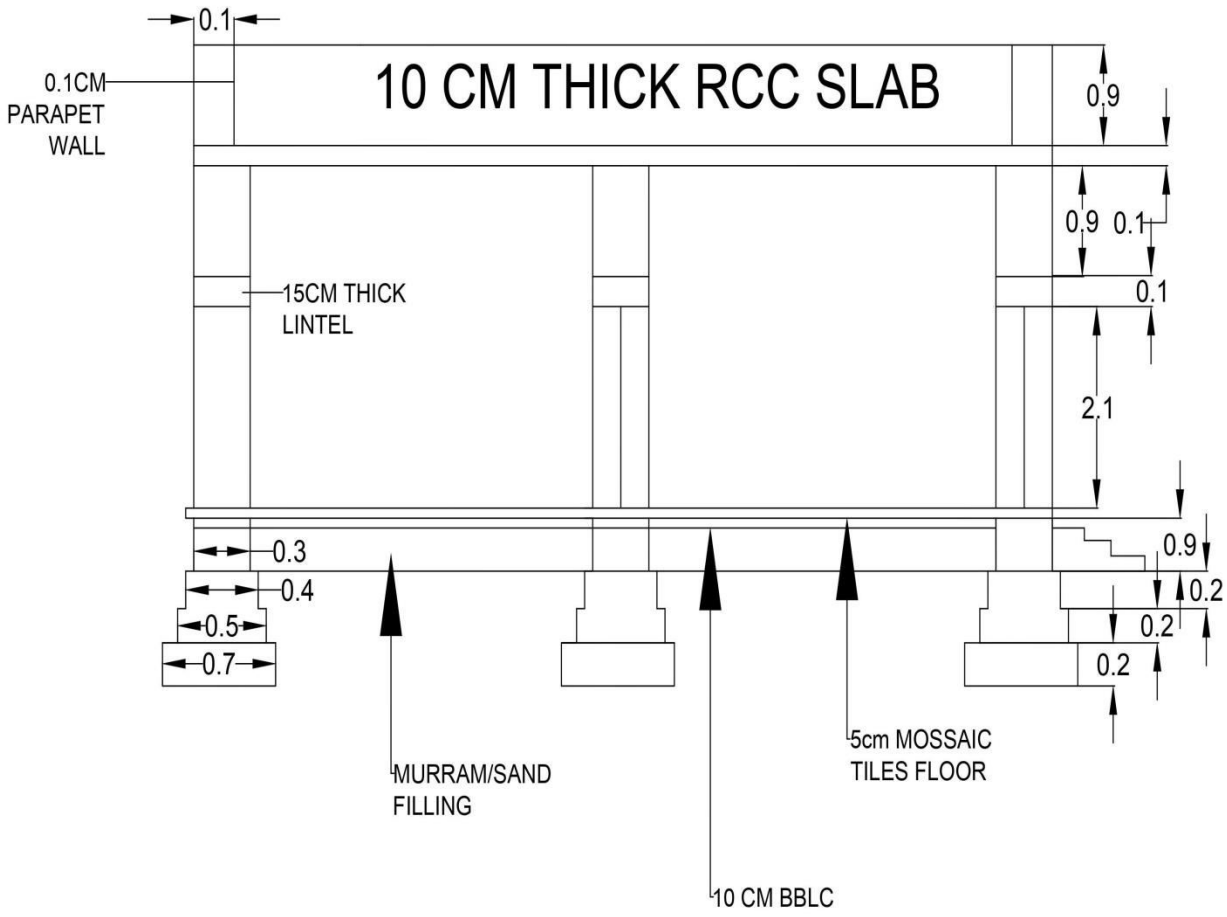

Fig. 52 Section of Toilet

Table 12 measurement sheet of public toilet

Measurement Sheet of public toilet						
Sr. no	**DESCRIPTION**	**NO.**	**L**	**B**	**H**	**QUANTITY**
	Total centre length=(8.7*3)+(7.65*2)+(3.05*2)=47.5m					
	No. of T junction= 6					
1	Excavation for foundation up to 1.5m depth					
	L=47.5-6*0.7/2=45.5	1	45.5	0.7	0.85	27.013cu.m
	Steps:					
	L=0.9+0.15+0.15=1.2m	3	1.2	0.7	0.15	0.378cu.m
					Total=	27.391cu.m
2	Providing and lying PCC for foundation					
	L=47.5-6*0.7/2= 45.4m	1	45.4	0.7	0.15	4.767
	Steps:					
	L=0.9+0.15+0.15=1.2m	3	1.2	1.05	0.15	0.567
					Total=	5.334cu.m
3	2nd class brick masonry CM(1:6) for					
	Foundation					
	1st step, 50cm					
	L=47.5-6*0.5/2= 46m	1	46	0.5	0.2	4.6
	2nd step, 40cm					
	L=47.5-6*0.4/2= 46.3m	1	46.3	0.4	0.2	3.704
	3rd step, 30cm					
	L=47.5-6*0.3/2= 46.6m	1	46.6	0.3	0.3	4.194
					Total=	11.898cu.m
4	Backfilling in foundation trench					
	Q=27.013-11.898-0.378=14.737cu.m					14.737cu,m
5	1st class brick masonry from G.L to P.L					
	L=47.5-6*0.3/2= 46.6m	1	46.6	0.3	0.575	8.0385
	Steps:					
	1st step	3	0.9	0.9	0.15	0.3645
	2nd step	3	0.9	0.6	0.15	0.243
	3rd step	3	0.9	0.3	0.15	0.1215
					Total=	8.767cu.m
6	Providing and lying DPC					
	L=47.5-6*0.3/2= 46.6m	1	46.6	0.3		13.98sq.m
	Deduction:					
	Door (D)	3	0.9	0.3		0.81
	Opening(O)	2	1.2	0.3		0.72
					Total=	1.53sq.m
					Net total	12.45sq.m
7	1st class brick masonry CM(1:6) for					
	Super structure					
	L=47.5-6*0.2/2= 46.9m	1	46.9	0.2	3	28.14
	20cm parapet wall					
	L_w=8.7+0.3=9m	2	9	0.2	0.9	3.24
	S_w= 7.95+0.4=7.55m	2	7.55	0.2	0.9	2.718

					Total=	34.098cu.m
	Deduction:					
	Back side wall	1	0.8	0.2	3	0.48
	D	3	0.9	0.2	2.1	1.134
	O	2	1.2	0.2	2.1	1.008
	V	5	0.6	0.2	0.6	0.36
	Lintel					
	L=47.5-6*0.2/2= 46.9m	1	46.9	0.2	0.15	1.407
					Total=	4.389
					Net total=	29.709cu.m
8	Half brick partition wall CM(1:3)					
	Wall between male and female toilet	2	4.3		3	25.8
	Wall between toilet	10	1.5		3	45
					Total=	70.8sq.m
	Deduction:					
	D_1	14	0.75		2.1	22.05
	V	8	0.6		0.6	28.8
					Total=	24.93
						70.8
						-24.93
					Net total=	45.87sq.m
9	Providing and lying RCC (1:2:4)					
	Lintel					
	L=47.5-6*0.2/2= 46.9m	1	46.9	0.2	0.15	1.407
	Chajja:					
	L=9m	1	9	1	0.1	0.9
	RCC slab	1	9	7.65	0.1	7.155
	Deduction in slab	1	0.8	4.5	0.1	-0.36
					Total=	9.102cu.m
10	Providing mild steel reinforcement for					
	RCC work					
	Q=1% of volume of concrete					
	=9.102*0.01*7850=714.50kg					
11	12mm thick internal cement plaster					
	Ceiling:					
	Male toilet	1	3.7	4.3		15.91
	female toilet	1	3.7	4.3		15.91
	Wash basin	2	3.8	2.75		20.9
	Disable toilet	1	1.9	2.75		5.225
	Wall:					
	Male toilet	1	3.7		3	11.1
		1	4.3		3	12.9
	female toilet	1	3.7		3	11.1
		1	4.3		3	12.9
	Wash basin	2	3.8		3	11.4
		2	2.75		3	8.25
	Disable toilet	1	1.9		3	5.7
		1	2.75		3	8.25

					Total=	139.54sq.m
	External wall:					
	Plaster up to parapet					
	L_w=9m	2	9		4.6	82.8
	S_w= 7.95	2	7.65		4.6	73.14
	Plaster for parapet top					
	L_w=8.7+0.3=9	2	9	0.2		3.6
	S_w=7.95-0.4=7.55	2	7.55	0.2		3.02
	Parapet inside:					
	L_w=8.7+0.3=9	2	9		0.9	16.2
	S_w=7.95-0.4=7.55	2	7.65		0.9	13.59
	Chajja					
	L=9m (top-- bottom)	2	9	1		18
	Front facing	1	9		0.1	0.9
	Side	2		1	0.1	0.2
					Total=	211.45
						139.54
				Total plaster=		351sq.m
	Deduction					
	D	3	0.9		2.1	5.67
	D_1	14	0.75		2.1	22.05
	O	2	1.2		2.1	5.04
	V	13	0.6		0.6	4.68
					Total=	37.44sq.m
						351
						-37.44
					Net total=	313.56sq.m
12	5cm thick mosaic tiles floor					
	Male toilet	1	0.7	4.3		3.01
	female toilet	1	2.2	4.3		9.46
	Wash basin	2	3.8	2.75		20.9
	Disable toilet	1	1.9	1.25		2.375
					Total=	35.745sq.m
13	10cm thick BBLC(1:2:4)					
	Male toilet	1	0.6	4.2	0.1	0.252
	female toilet	1	2.1	4.2	0.1	0.882
	Wash basin	2	3.7	2.65	0.1	1.961
	Disable toilet	1	1.8	1.15	0.1	0.207
					Total=	3.302cu.m
14	Sand filling/murrum filling					
	Male toilet	1	0.6	4.2	0.45	1.134
	female toilet	1	2.1	4.2	0.45	3.969
	Wash basin	2	3.7	2.65	0.45	8.82
	Disable toilet	1	1.8	1.15	0.45	0.93
					Total=	14.85cu.m
15	Providing and lying white glazed tiles at					
	Toilet floor	12	1.4	1		16.8sq.m
					Total=	**16.8sq.m**

Table 13 abstract sheet of public toilet

ABSTRACT SHEET					
Sr.no	**Description**	**Quantity**	**Rate**	**Per**	**Amount(Rs)**
1	Excavation for foundation up to 1.5m depth in ordinary soil	27.391cu.m	85	M^3	2328.23
2	Providing and lying PCC for foundation	5.334cu.m	1500	M^3	8001
3	2^{nd} class brick masonry CM(1:6) for				
	Foundation	11.898cu.m	1600	M^3	19036.8
4	Backfilling in foundation	14.737cu,m	50	M^3	736.85
5	1^{st} class brick masonry from G.L to P.L	8.767cu.m	1600	M^3	14027.2
6	Providing and lying DPC	12.45sq.m	150	M^2	1867.5
7	1^{st} class brick masonry CM(1:6) for				
	Super structure	29.709cu.m	1500	M^3	44563.5
8	Half brick partition wall CM(1:3)	45.87sq.m	1500	M^2	68805
9	Providing and lying RCC (1:2:4)	9.102cu.m	2500	M^3	22755
10	Providing mild steel reinforcement for				
	RCC work	714.50kg	35	KG	25007.5
11	12mm thick cement plaster	313.56sq.m	150	M^2	47034
12	5cm thick mosaic tiles floor	35.745sq.m	200	M^2	7149
13	10cm thick BBLC(1:2:4)	3.302cu.m	1000	M^3	3302
14	Sand filling/murrum filling	14.85cu.m	50	M^3	742.5
15	Providing and lying white glazed tiles at				
	Toilet floor	16.8sq.m	200	M^2	3360
				Total=	268716.08
				3%contingency:-	8016.48
				2% workcharge establishment :-	5374.32
				Total :-	282106.88
				10% contractor profit	28210.688
				GRAND TOTAL=	310317.56

DESIGN OF SKILL DEVELOPMENT CENTER:-

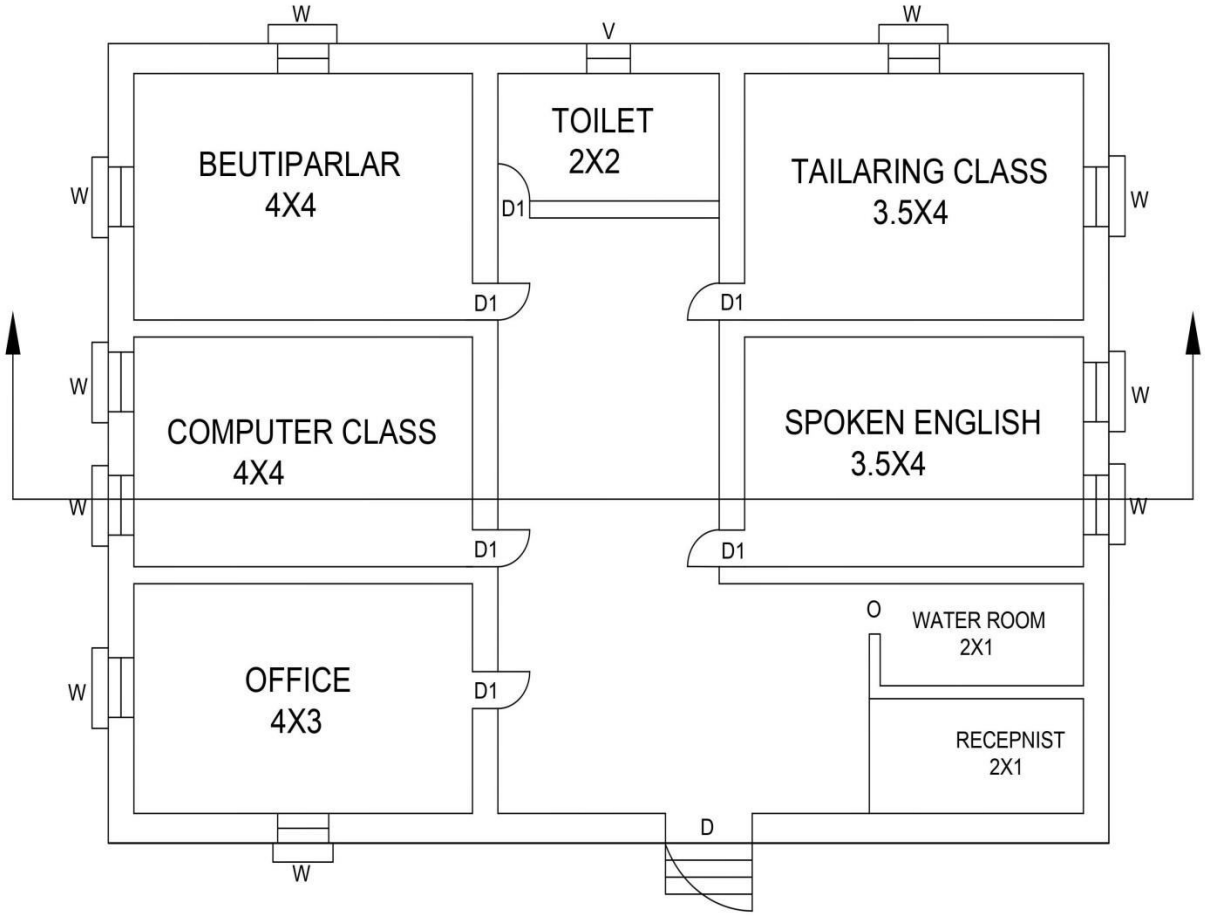

Fig. 53 Plan of Center

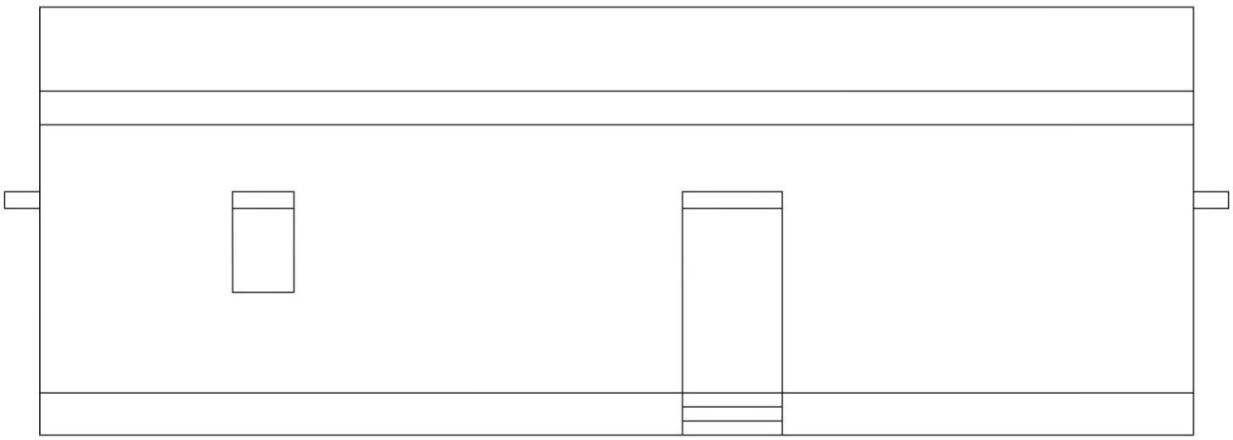

Fig. 54 Elevation of Center

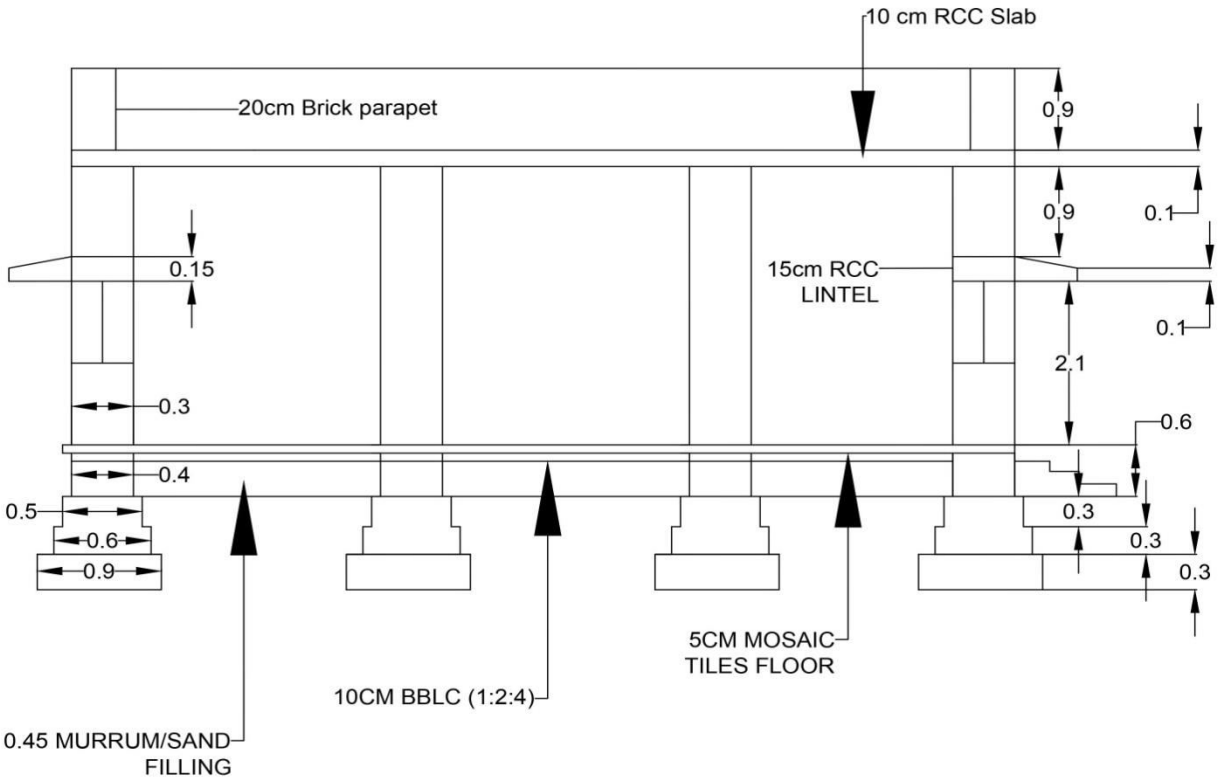

Fig. 55 Section of Center

SHEDUAL OF OPENING		
DETAILS	SYMBOLS	SIZE
DOOR	D	1X2.1
DOOR	D1	0.5X2.1
DOOR	D2	0.75X2.1
OPENING	O	0.5X2.1
WINDOW	W	0.9X1.2
VENTILATION	V	0.6X0.6

Fig. 56 Shedual Of Opening

Table 14 measurement sheet of skill development center

Measurement Sheet of skill development center						
Sr. No	**DESCRIPTION**	**NO.**	**L**	**B**	**H**	**QUANTY**
	Total Centre line=4x10.4+4x11.9= 89.2m No. Of T-junction=16					
1.	Excavation for foundation up to 1.5 depth					
	Length=total centerline-(numberofteajunction×width÷2)					
	=89.2-(16×0.9÷2)=82	1	82	0.9	0.9	66.42m3
	For steps:-					
	L=1.2+0.15=1.5m	1	1.5	0.6	0.15	0.135m3
					Total:-	66.55m3
2.	Providing and laying PCC(1:4:8) for foundation	1	82	0.9	0.3	22.14m^3
	Steps	1	1.5	0.9	0.15	0.236m3
					Total:-	22.376m^3
3.	First class brick masonry C:M(1:6) for foundation					
	Step:-1(60cm)					
	L=84.4m	1	84.4	0.6	0.3	15.192m^3
	Step:-2(50cm)					
	L=85.2m	1	85.2	0.5	0.3	12.78m^3
					Total:-	27.97m^3
4.	Back filling in foundation					
	=66.42-27.97=38.45m^3				Total:-	38.45m^3
5.	First class brick masonary G.L to P.L					
	L=86m	1	86	0.4	0.575	19.78m^3
	Step1.	1	1.2	0.3	0.15	0.054
	Step2.	1	1.2	0.3	0.30	0.108
	Step3.	1	1.2	0.3	0.45	0.162
					Total:-	20.104m^3
6.	DPC(2.5cmthick)	1	86	0.4		34.4m^2
	Deduction:-					
	D	1	1.2	0.4		0.48
	D1	5	0.9	0.4		1.8
					Total:-	2.28m2
					Net total:-	32.12m^2
7.	First class brick masonary for superstructure					
	L=86.8m	1	86.8	0.3	3	78.12m^3
	Deduction					
	(1)Lintel	1	86.8	0.3	0.15	3.906
	(2)Door					
	(a)D	1	1.2	0.3	2.1	0.756
	(b)D1	5	0.9	0.3	2.1	2.835

	(a)W	8	0.9	0.3	1.2	2.592
	(5)ventilation	1	0.6	0.3	0.6	0.108
					Net total:-	67.923m^3
8.	Half brick partition wall in C:M (1:6)					
	PLW	1	1		3	3
	PSW	1	2		3	6
	For toilet					
	Lw	1	2		3	6
	Sw	1	2		3	6
	Deduction:-					
	O	1	0.5		2.1	1.05
	D3	1	0.75		2.1	1.575
					Net total:-	18.375m^3
9.	Providing and laying RCC(1:2:4) for slab, lintel, chhajja					
	(1)Lintel L=86.8m	1	86.8	0.3	0.15	3.906
	(2)Chhajja					
	(a)W	8	1.2	0.6	0.1	0.576
	(3)RCC slab	1	12.2	10.7	0.1	13.054
					Total:-	17.608m^3
10.	Providing mild steel reinforcement in RCC work					
	Quantity=1%ofvolumeofconcrete					
	=17.608×78.54=1382kg					
					Total:	1382kg
11.	12cmthickplaster					
	(A)Internal plaster					
	(1)ceiling					
	Beutiparlar class	1	4	4		16
	Computer class	1	4	4		16
	Tailoring class	1	3.5	4		14
	Spoken English class	1	3.5	4		14
	Passage	1	2	8.3		16.6
	Open space	1	3.5	3		10.5
	Office	1	4	3		12
	Reception and water room	1	2	3		6
	Wall					
	Beutiparlar class	4	4		3	48
	Computer class	4	4		3	48
	Tailoring class	2	3.5		3	21

		2	4		3	24
	Spoken English class	2	3.5		3	21
		2	4		3	24
	Passage	1	1.5		3	4.5
		1	11.6		3	34.8
		1	8.6		3	25.8
		1	3.5		3	25.8
	Office	2	4		3	24
		2	3		3	12
	Reception and water room	2	2		3	12
					Total	429.5m2
11	External plaster up to parapet					
	Lw	2	12.2	0.2		4.88
	Sw	2	10.3	0.2		4.12
	Parapet inside					
	Lw	2	11.8		0.9	21.24
	Sw	2	10.3		0.9	18.54
	Chajja (window)					
	Face	8	1.2		0.1	0.96
	Side	2x8	0.6		0.1	0.96
	Top	8	0.6		0.1	5.76
	Bottom	8	0.6		0.1	5.76
					Total	272.9m2
	Deduction					
	D	1	1.2		2.1	2.52
	D1	5	0.9		2.1	9.45
	D2	1	0.75		2.1	1.575
	W	8	0.9		1.2	8.64
	V	1	0.6		0.6	0.36
	O	1	0.5		2.1	1.05
					Total	23.595m2
					Net total	678.805m2
12.	5cmthickmosictilesflooring					
	Beutiparlar class	1	4	4		16
	Computer class	1	4	4		16
	Tailoring class	1	3.5	4		14
	Spoken English class	1	3.5	4		14
	Passage	1	2	6.6		13.2
	Open space	1	3.5	3		10.5
	Office	1	4	3		12
	Reception and water room	1	2	2		4
					Total	99.7m2
13.	10cmBBLC(1:2:4)					

	Beutiparlar class	1	3.9	3.9	0.1	1.521
	Computer class	1	3.9	3.9	0.1	1.521
	Tailoring class	1	3.4	3.9	0.1	1.326
	Spoken English class	1	3.4	3.9	0.1	1.326
	Passage	1	1.9	8.5	0.1	1.615
	Open space	1	3.4	2.9	0.1	0.986
	Office	1	3.9	2.9	0.1	1.131
	Reception and water room	1	1.9	2.9	0.1	0.551
					Total	9.977m3
14.	Sand filling/murum					
	Beutiparlar class	1	3.9	3.9	0.45	6.84
	Computer class	1	3.9	3.9	0.45	6.84
	Tailoring class	1	3.4	3.9	0.45	5.967
	Spoken English class	1	3.4	3.9	0.45	5.967
	Passage	1	1.9	8.5	0.45	7.267
	Open space	1	3.4	2.9	0.45	5.08
	Office	1	3.9	2.9	0.45	2.47
	Reception and water room	1	1.9	2.9	0.45	4.437
					Total	44.868m3
15.	Providing and laying skirting of mosaic tiles					
	Beutiparlar class	4	4			16
	Computer class	4	4			16
	Tailoring class	2	3.5			7
		2	4			8
	Spoken English class	2	3.5			7
		2	4			8
	Passage	2	11.2			22.4
	Office	2	4			8
		2	3			6
	Reception and water room	4	2			8
	Deduction					
	D	1	1.2			1.2
	D1	5	0.9			4.5
	D2	1	0.75			0.75
	O	1	0.5			0.5
					Total	**99.45m**

Table 15 abstract sheet of skill development center

ABSTRACT SHEET					
Sr. no	**description**	**Quantity**	**Rate**	**Per**	**Amount (Rs)**
1	Excavationforfoundationupto1.5mdepth inordinarysoil	66.55	85	M^3	5656.75
2	Providing and lying PCC for foundation	22.376	1500	M^3	33564
3	1st class brick masonry CM(1:6) for				
	Foundation	27.97	1600	M^3	44752
4	Back filling in foundation	38.45	50	M^3	1922.5
5	1st classbrickmasonryfromG.LtoP.L	20.104	1600	M^3	32166.4
6	Providing and lying DPC	32.12	150	M^2	4818
7	1st classbrickmasonryCM(1:6)for				
	Superstructure	67.923	1500	M^3	101884.5
8	Half brick partition wall CM(1:3)	3.675	1500	M^2	5512.5
9	Providing and lying RCC(1:2:4)	17.608	2500	M^3	44020
10	Providing mild steel reinforcement for				
	RCC work	1382	35	KG	48370
11	12mmthickcementplaster	678.80	150	M^2	101820
12	5cmthickmosaictilesfloor	99.7	200	M^2	19940
13	10cmthickBBLC(1:2:4)	9.977	1000	M^3	9977
14	Sand filling/murrumfilling	44.868	50	M^3	2243.4
15.	Providing and laying skirting of mosaic tiles	99.45	250	M	24862.5
				Total=	472530.25
				3% contingency	14175.90
				2% work charge establishment:	9450.6
				Total =	483398.75
				10%contractor profit :-	48339.875
				GRAND TOTAL=	531738.638

DESIGN OF BUS STAND:-

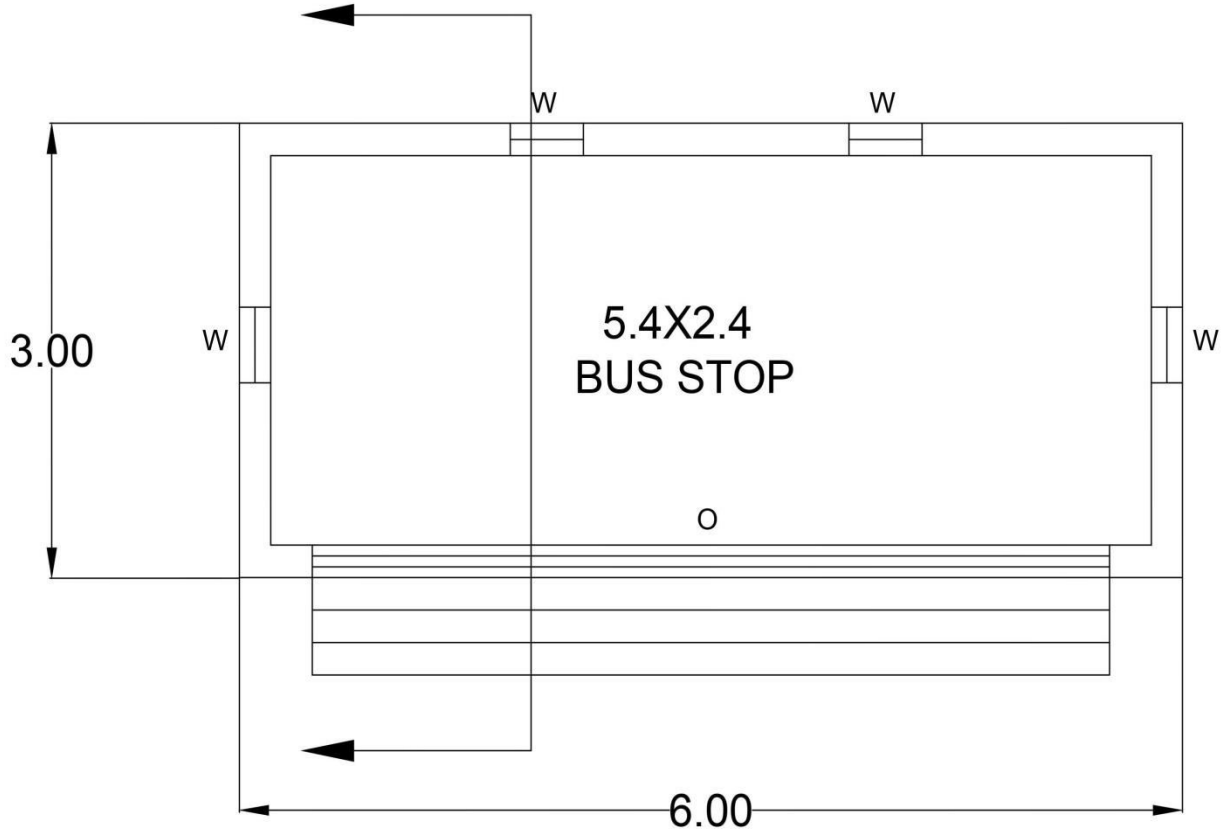

Fig. 57 Plan of Bus stand

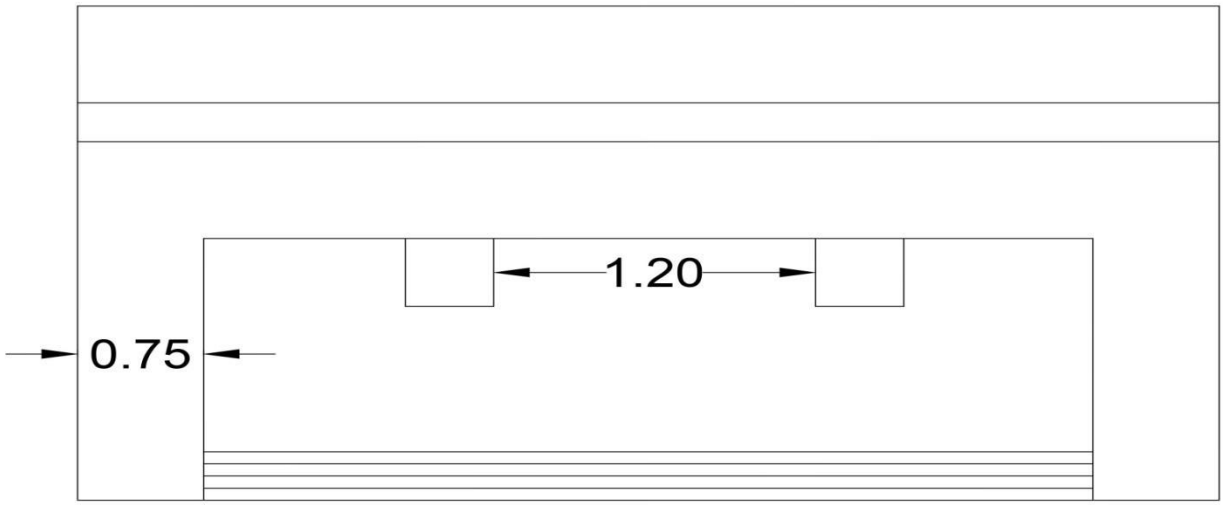

Fig. 58 Elevation of Bus Stand

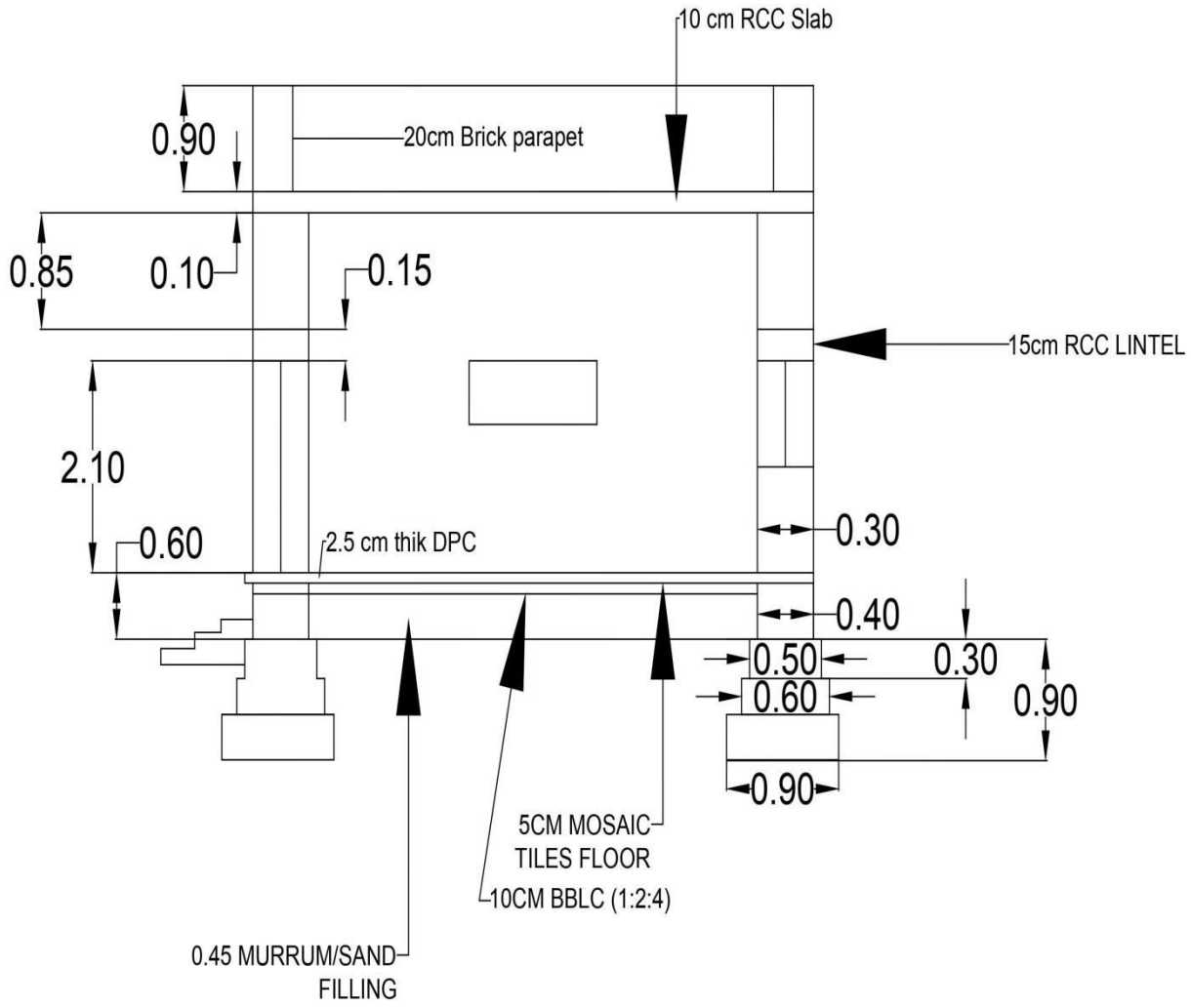

Fig. 59 Section of Bus Stand

SHEDUAL OF OPENING		
DETAILS	SYMBOLS	SIZE
OPENING	O	4.5X2.1
WINDOW	W	0.9X1.2

Fig. 60 Shedual Of Opening

Table 16 measurement sheet of bus station

Measurement Sheet of Bus station						
SR. NO	**DESCRIPTION**	**NO.**	**L**	**B**	**H**	**QUANTITY**
	Total Centre line=(5.7 X 2) + (2.7 X 2)					
1.	Excavation for foundation up to 1.5 depth	1	16.8	0.9	0.9	13.61
	For steps:-					
	L=1.2+0.15=1.5m	1	1.5	0.6	0.15	0.13
					Total:-	13.745m
2.	Providing and laying PCC(1:4:8) for foundation	1	16.8	0.9	0.3	4.536m^3
	Steps	1	1.5	0.9	0.15	0.20m^3
					Total:-	4.736m^3
3.	First class brick masonry C:M(1:6) for foundation					
	Step:-1(60cm)	1	16.8	0.6	0.3	3.024
	Step:-2(50cm)	1	16.8	0.5	0.3	2.52
					Total:-	5.544m^3
4.	Back filling in foundation					
	=13.61-5.544=8.07m^3				Total:-	8.07m^3
5.	First class brick masonary G.L to P.L					
	L=16.8m	1	16.8	0.4	0.575	3.864m^3
	Step1.	1	1.2	0.3	0.15	0.054
	Step2.	1	1.2	0.3	0.30	0.108
	Step3.	1	1.2	0.3	0.45	0.162
					Total:-	4.19m^3
6.	DPC(2.5cmthick)	1	16.8	0.4		6.72m^2
	Deduction:-					
	O	1	4.5	0.4		1.8
					Net total:-	4.92m^2
7.	First class brick masonary for superstructure					
	L=16.8m	1	16.8	0.3	3	15.12m^3
	Deduction					
	(1)Lintel	1	16.8	0.3	0.15	0.756
	(2)Opening (O)	1	4.5	0.3	2.1	2.84
	(3)Window (W)	4	0.9	0.3	1.2	1.3
					Net total:-	10.224m^3
8.	Providing and laying RCC(1:2:4) for slab, lintel					

	(1)Lintel L=16.8m	1	16.8	0.3	0.15	0.756
	(2)RCC slab	1	6	3	0.1	1.8
					Total:-	2.56m^3
9.	Providing mild steel reinforcement for RCC work including binding and bending and placing in position					
	Quantity=1%of volume of concrete					
	=2.56×78.54=201.06kg					
	Say=202kg				Total:-	202kg
10.	12cm thick plaster					
	(A)Internal plaster					
	(1)ceiling	1	5.4	2.4		12.96
	(2)Wall					
	(i)	2	5.4		3	32.4
	(ii)	2	2.4		3	14.4
					Total:-	59.76m^2
	(B)External wall up to parapet top					
	Lw	2	6		4.6	55.2
	Sw	2	3		4.6	27.6
	(1)Parapet top					
	Lw	2	6	0.2		2.4
	Sw	2	2.6	0.2		1.04
	(2)Parapet inside					
	Lw	2	5.6		0.9	10.1
	Sw	2	2.6		0.9	4.68
					Total:-	101.02m^2
	Deduction:-					
	(a)Opening (O)	1	4.5		2.1	9.45
	(b)Window (W)	1	0.9		1.2	1.08
					Total:-	10.53
					Net total:-	150.25m^2
11.	5cm thick mosaic tiles flooring					
	(i)	1	5.4	2.4		12.96m^2
12.	10cmBBLC(1:2:4)					
	(i)	1	5.3	2.3	0.1	1.22m^3
13.	Sand filling/murum					
	(i)	1	5.3	2.3	0.45	5.49m^3

Table 17 abstrac sheet of bus station

ABSTRAC SHEET					
Sr. no	**Description**	**Quantity**	**Rate**	**Per**	**Amount (Rs)**
1	Excavationforfoundationupto1.5mdepthinordinary soil	13.745	85	M^3	1168.33
2	Providing and lying PCC for foundation	4.736	1500	M^3	7104
3	1^{st}class brick masonry CM(1:6) for				
	Foundation	5.544	1600	M^3	8870.4
4	Back filling in foundation	8.07	50	M^3	403.5
5	1^{st}classbrickmasonryfromG.LtoP.L	4.19	1600	M^3	6704
6	Providing and lying DPC	4.92	150	M^2	738
7	1^{st}classbrickmasonryCM(1:6)for				
	Superstructure	10.224	1500	M^3	15336
8	Providing and lying RCC(1:2:4)	2.56	2500	M^3	6400
9	Providing mild steel reinforcement for				
	RCC work	202	35	KG	7070
10	12mmthickcementplaster	150.25	150	M^2	2253.75
11	5cmthickmosaictilesfloor	12.96	200	M^2	2592
12	10cmthickBBLC(1:2:4)	1.22	1000	M^3	1220
13	Sand filling/murrumfilling	5.49	50	M^3	274.5
				Total=	60134.5
				3% contingency	1804.035
				2% work charge establishment:	1202.69
				Total =	63141.22
				10%contraor profit :-	6314.12
				GRAND TOTAL=	69455.35

DESIGN OF BIO-GAS PLANT

Total no of animal = 400
As per standard data assume per day dung of animal = 10.5kg So,
total dung per day = 400x 10.5 = 4200kg/day

1) design of digester:

Assume retention period = 70 days
Now total amount of slurry per day = total dung/day + water amount
= 4200 + 2(4200)
= 12.60m^3/day
Digester volume = S XR
= 12.60 x 70 = 882m^3
Assume cylindrical shape biogas plant, Total
volume of digester = $\pi r^2 h$
882 = πr^2x 10 R = 5.3m
So , dimension is h = 10m , r = 5.3m

2) design of gas holder:

Assume digester temp = 26.28^0
Now ,specific gas production = 37 lit/day
Daily gas production = Gd x feed volume
= 37 x 12600 = 466m^3
Assume gas haolder capacity = 60%
Gas holder volume = daily gas production x capacity of holder
= 466 x 0.6 = 280m^3
Volume = $\pi r^2 h$
280 = r^2x 1
R = 5.6m
H = 1m

3) design of inlet and outlet tank:

total volume of slurry mix deposit = 12.60m^3/day
assume two time filling operation in plant
so,take total volume for slurry = 12.6/2 = 6.3m^3/day
provide rectangular tank, so total volume for one time mixing of slurry
= L X B X H
8= L X BX 1

L =4m , B = 8 , H = 1m
6.3m^3/day $\leq$ 8 m^3/day Hence OK.
Provide same size outlet.

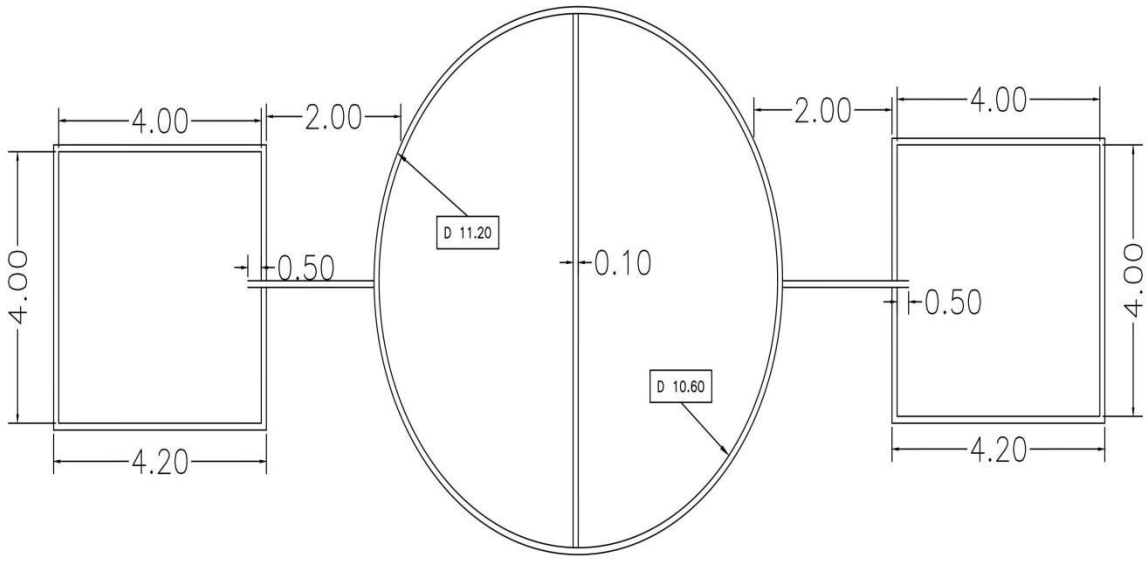

Fig. 61 Plan of Bio Gas Plant

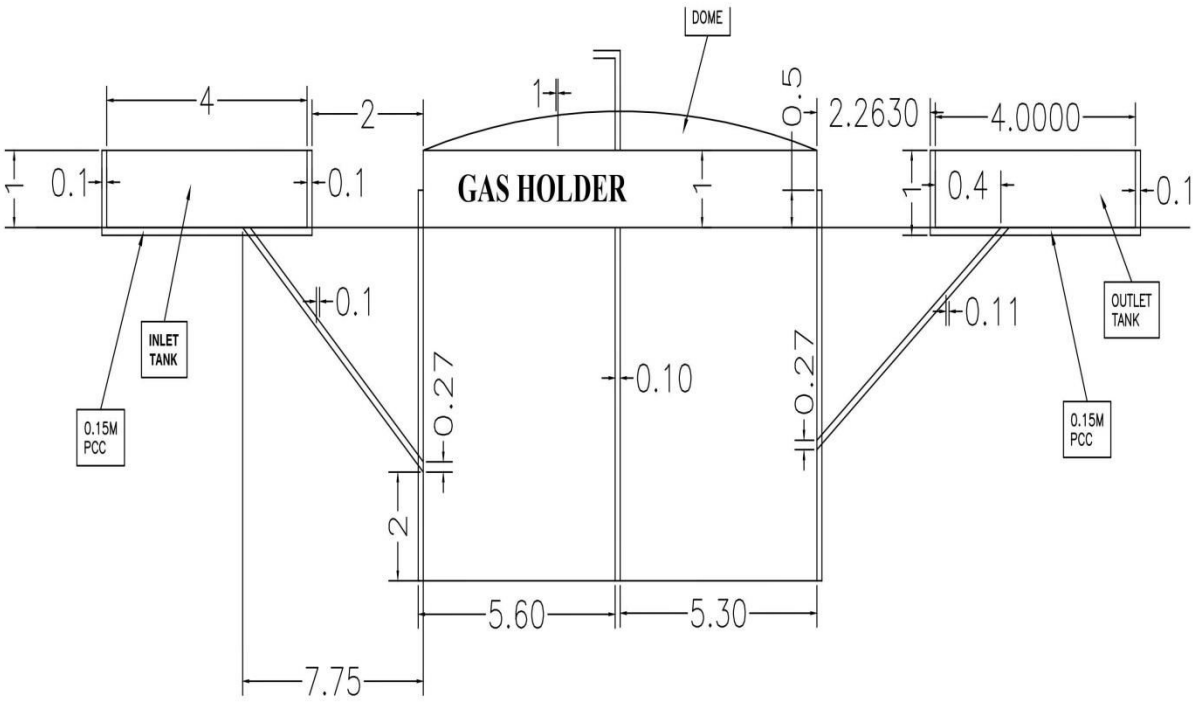

Fig. 62 Section of Bio Gas Plant

Table 18 measurement sheet of biogas plant

Measurement Sheet of biogas plant						
SR. NO	**DESCRIPTION**	**NO.**	**L**	**B**	**H**	**QUANTIY**
1.	Excavation for biogas plant digester					
a	Exaction up to 1.5m					
	H= 1.5m					
	R= 5.6m					
	volume= $\pi r^2h=\pi x5.6^2x1.5= 147.78m^3$	1			1.5	$147.78m^3$
b	Excavation up to 1.5 to 3m	1			1.5	$147.78m^3$
c	Excavation up to 3 to 9.5m					
	H= 6.5m					
	R= 5.6m					
	volume= $\pi r^2h=\pi x5.6^2x6.5= 640.38m^3$	1			6.5	$640.38m^3$
2	Providing and laying PCC, d =11.2m					
	$A = \pi d^2/4= \pi x11.2^2/4 = 98.52m^2$	1	$98.52m^2$		0.15	$14.77m^3$
	PCC at inlet/outlet tank					
	L = 4+0.2+0.2 = 4.4m	2	4.4	4.4	0.15	$5.808m^3$
					Total	$20.57m^3$
3	First class brick masonry C:M(1:6) for digester ,0.3m					
	H = 10.5m					
	$A = \pi(D^2- d^2)/4=(11.2^2- 10.6^2)/4= 10.27m^2$	1	10.27		10.5	$107.83m^3$
4	For inlet/outlet tank, 0.1m					
	Lw = 4.2m	2	4.2		1	$8.4m^2$
	Sw = 3.6m	2	3.6		1	$7.2m^2$
	Center wall in digester	1	10.6		7.5	$79.5m^2$
					Total	$95.1m^2$
5	RCC work of dome of gas holder dome					
	$H_1 = 1.2m , h_2 = 1m$					
	$R_2= 5.4m$					
	B= 0.2m					
	$R_1 = 5.6m$					
	Volume = $\Pi h_1^2(3R_1-h_1)/3 – \pi h_2^2(3R_2 – h_2)/3$					
	$= \Pi x1.2^2(3x5.6-1.2)/3 – \pi x1^2(3x5.4 – 1)/3$					
	$=23.52 – 15.91= 7.61m^3$	1				$7.61m^3$
6	Providing mild steel reinforcement in RCC work					
	Quantity=1%ofvolumeofconcrete					
	=7.61×78.54= 597.68kg					597.68kg

Table 19 abstract sheet of biogas plant

ABSTRACT SHEET					
SR. NO	**DESCRIPTION**	**QUANTITY**	**RATE**	**PER**	**AMOUNT(RS)**
1.	Excavation for biogas plant digester				
a	Exaction up to 1.5m	147.78	65	M^3	9605.7
b	Excavation up to 1.5 to 3m	147.78	100	M^3	14778
c	Excavation up to 3 to 9.5m	640.38	120	M^3	76845.6
2	Providing and laying PCC, d =11.2m	20.57	1500	M^3	30855
3	First class brick masonry C:M(1:6) for digester ,0.3m	107.83	1600	M^3	172528
4	Brick work for inlet and outlet tank,0.1m	95.1	1500	M^2	142650
5	RCC work of dome of gas holder dome	7.61	2500	M^3	19025
6	Providing mild steel reinforcement in RCC work	597.68	45	Kg	26895.6
		TOTAL :-			474176.55
		3 % CONTIGENCY :-			14225.29
		2 % WORKCHARGE ESTABLISHMENT :-			9483.53
		TOTAL :-			497884
		10 % CONTRACTOR PROFIT :-			49788
		GRAND TOTAL :-			**547672**

8.1.5 Maintenance of Anganwadi:-

For 1 m length 12 mm wide and 6 mm deep
including 12 mm thick plaster in wall of 100 sq.m

- Wet quantity of mortar= area * thickness
  =100*0.012
  =1.20cum

- Adding 30% for filling up joint, uneven surface etc. the quantity of mortar
  =1.2+(1.2*0.3)
  =1.2+0.36
  =1.56 cum

- Increasing by 25% for dry volume, the total quantity of dry material
  =1.56+ (0.25*1.56)
  =1.56+0.39
  =2cum

For proportion of cement mortar (1:3)
Cement= 0.5 cum
Considering volume of 1 bag cement as 0.035m^3
Cement bags required= (0.5/0.035)
=14.28
= 15 bags Quantity of sand required = 1.5cumec Now as per the S.O.R census

Considering cost of 1 m^3 cement mortar (1:3) = 4200 Rs Thus total cost for 2 m^3 can be considered as =8400 Rs

DESCRIPTION	TOTAL COST
2m^3 OF cement mortar (1:3) (with 15 begs cement and 1.5 m^3 sand)	8400 rs

Table 20 Crack Filling Coast

Chapter 9.
Future development of village:-

For future development of the Vesma-sadodra village we are proposing the designs for Part II design in which following points should be considered,

1. Design of Public Garden:-

They're a place where people can spend time and socialize in a relaxingenvironment.

2. Design of ATM Center:-

The population of vesma-sadodra village as per 2011 census is 8833. So ideally, atleast one ATM machine should be provided in the village to serve the inhabitants.

3. Design of Entrance Gate:-

The village Sarpanch has also insisted on constructing an Entrance Gate. So, by extension, villagers are also keen to have an Entrance Gate at vesma-sadodra.

4. Design of Panchyat Building:-

This village panchayat bulding structure is corrupted, so the workers doesn‘t feel and work in good environment so we are giving a new panchayat building structure to give workers best environment for the better work.

5. Design of Medical Shop:-

To accomplish basic medical necessity of villagers and provide first stage medical consultancy during emergency timings so we designed medical shop which will be constructed in central area of the village.

5. Design of water station:-

we observed that in our village there is no public drinking water facility available at zero cost due to this reasons in summer times number of medical health issues happens regarding water shortage in villagers

These are the proposed designs for the future development of Vesma-sadodra village for Vishwakarma Yojana phase VIII , Part 2 design.

Chapter: 10
Conclusion (Entire Village Project):-

For India's economy to be strong, the rural economy needs to grow. Rural areas are still plagued by problems of malnourishment, illiteracy, unemployment and lack of basic infrastructure like schools, hospitals, sanitation, etc. Our villages need to grow in tandem with cities and standard of life has to improve there for inclusive growth to happen. If rural India is poor. With help Gap Analysis we conclude that some of different Smart Village facilities are required as basic or primary level which still lack in village. So according to Gap Analysis of Vesma-sadodra village, we observed condition of existing infrastructure facilities in village such as Primary school, Water tank, Road network, Drainage network, etc. Smart Village can solve their problem itself can become a smart village example to other village too. According to UDPFI norms, lacking in basic amenities and Smart Amenities can be provided as-

- library
- public toilet
- skill development center
- bus stand
- bio – gas plant
- maintenance of anganwadi

By providing required amenities to village, development of village can be possible. So ultimately migration to the city from village will be reduced and livelihood of villagers will increase. So healthy and prosperous life can be possible for the villagers.Ultimate growth of village and people is base step for the development of country. India is developing country and GDP is highly depended on farming. As the development of village would be possible, farming techniques will increase and percentage of GDP will increase. Vishwakarma yojana aims to procure development in villages without losing essence. After all the way to uplift our country is through developing the villages. The scheme would reinforce- wellbeing of people and further quality of living standard.

Chapter 11: - Reference

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2) G.B. Deshpandey, J.P. Nayak (2014) Nirali prakasan "Quantity surveying book"
3) National Building Code of india (2016)
4) S.S. Bhavikatt, M.V. Chltawadagi (2014) I.K. International Pvt. Ltd. "Building planning and drawing"
5) The Hindu news (15 October 2013) "The 15 must have basic amenities in Villages."

Web sites:-

- www.Sciencedirect.com
- www.smartvillage.gujrat.gov.in
- https://www.census2011.co.in/
- Gujrat Village Directory @ VList.in- India
- Swachhbharat.mygov.in
- https://bis.gov.in
- developments-every-small-town-needs/story/239305.html
- rehabilitation/maintenance/
- www.onefivenine.com/india/villages/vesma-sadodra

Chapter 12:- Annexure

12.1 Scanned copy (for Part-I), Original (for–Part-II) Ideal Village Survey Form:-

Gujarat Technological University, Ahmedabad, Gujarat

Vishwakarma Yojana: Phase VIII
Techno Economic Survey

Techno Economic Survey

For

Vishwakarma Yojana: Phase VIII

IDEAL VILLAGE SURVEY

An approach towards Rurbanisation for Village Development

Name of Village:	Baben
Name of Taluka:	Bardoli
Name of District:	Surat
Name of Institute:	P.I.E & T Navsari
Nodal Officer Name & Contact Detail:	Prof. Bhavesh Patel 7573899468
Respondent Name: (Sarpanch/ Panchayat Member/ Teacher/ Gram Sevak/ Aaganwadi worker/Village dweller)	Falguniben Bhavesh Bhai patel
Date of Survey:	

1. **Demographical Detail:**

Sr. No.	Census	Population	Male	Female	Total House Holds
i)	2001	8377	4576	3801	1599
ii)	2011	15610	8642	6968	5278

2. **Geographical Detail:**

Sr. No.	Description	Information/Detail
i)	Area of Village (Approx.) (In Hector) Coordinates for Location:	466 Hector
	Forest Area (In hect.)	-
	Agricultural Land Area (In hect.)	282 Hector
	Residential Area (In hect.)	140 hector
	Other Area (In hect.)	41 Hect
	Water bodies	-
	Nearest Town with Distance:	Bardoli 1 km

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	 NO Bore hole Yes	 — — Yes	 — — —	 — — 1 lake
Suggestions if any:					
B.	**Water Tank Facility**				
	Overhead Tank	Capacity:	40000	80000 l	
	Underground Sump	Capacity:	—	—	
Suggestions if any:					
C.	**Drainage Facility**				
	Available (Yes/ No)	Yes	Yes	—	Under ground
Suggestions if any:					
D.	**Type of Drainage**				
	Closed/ Open				
	If Open than Pucca / Kutchcha				
	Whether drain water is discharged directly in to Water bodies/ Sewer plants				
Suggestions if any:					

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 5km
Suggestions if any:					
F.	**Transport Facility**				
	Railway Station (Y/N) (If No than Nearest Rly Station---Kms)	Yes	–	–	1Km Bardoli
	Bus station (Y/N) Condition: (If No than Nearest Bus Station---Kms)	Yes	–	–	Baben
	Local Transportation (Auto/ Jeep/Chhakda/ Private Vehicles/ Other)	Yes	–	–	Auto Private Vehicle
Suggestions if any:					
G.	**Electricity Distribution**				
	(Y/N) Govt./ Private (Less than 6 hrs./ More Than 6 hrs)	Yes	–	–	Govt 24 Hrs DCVCL
	Power supply for Domestic Use	Yes	–	–	24 hrs
	Power supply for Agricultural Use	Yes	–	–	Fixed hour
	Power supply for Commercial Use	Yes	–	–	24 hrs
	Road/ Street Lights	Yes	–	–	–

	Electrification in Government Buildings/ Schools/ Hospitals	Yes	–	–	–
	Renewable Energy Source Facilities (Y/ N)	No	–	–	–
	LED Facilities	Yes	–	–	–
Suggestions if any:					
H.	**Sanitation Facility**				
	Public Latrine Blocks If available than Nos.	Yes	–	–	8 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	Yes	–	–	4 Vehicles
Suggestions if any:					
I.	**Irrigation Facility:**				
	Main Source of Irrigation (Stream/River/ Canal/ Well/ Tube well/ Other)	Yes	–	–	Private Borewell and from canal
Suggestions if any:					
J.	**Housing Condition:**				
	Kutchha/Pucca (Approx. ratio)	Pucca	–	–	Minor house are Kuccha

5. **Social Infrastructural Facilities:**

Sr. No.	Descriptions	Information/ Detail	Adequate	Inadequate	Remarks

Gujarat Technological University, Ahmedabad, Gujarat

Vishwakarma Yojana: Phase VIII
Techno Economic Survey

K.	**Health Facilities:**				
	Sub center/ PHC/ CHC /Government Hospital/ Child welfare & Maternity Homes (If Yes than specify No. of Beds) Condition:	Yes	–	–	Sub-center PHC
	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	Yes	Yes	–	8Nos
	Primary School	Yes	Yes	–	1
	Secondary school	Yes	Yes	–	1
	Higher sec. School	Yes	Yes	–	1
	ITI college/ vocational Training Center	–	–	–	
	Art, Commerce& Science /Polytechnic/ Engineering/ Medical/ Management/ other college facilities	Yes	Yes	–	1 Engineering
	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:	Yes	Yes	–	–

	Condition:				
	Public Library (With daily newspaper supply: Y/N) Location: Condition:	Yes – good	Yes	–	
	Public Garden Location: Condition:	Yes 2Nos Good	–	–	
	Village Pond Location: Condition:	Yes 1Nos good	–	–	
	Recreation Center Location: Condition:	Yes 4 Good	–	–	
	Cinema/ Video Hall Location: Condition:	–	–	–	
	Assembly Polling Station Location: Condition:	–	–	–	
	Birth & Death Registration Office Location: Condition:	Panchayat – Good	–	–	
If any of the above Facility is not available in village than approx. distance from village: .....kms.					
Suggestions if any:					
N.	**Other Facilities**				
	Post-office	Yes	–	–	
	Telecommunication Network/ STD booth	Yes			

K.	**Health Facilities:**				
	Sub center/ PHC/ CHC /Government Hospital/ Child welfare & Maternity Homes (If Yes than specify No. of Beds) Condition:	Yes	–	–	Sub-center PHC
	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	Yes	Yes	–	8Nos
	Primary School	Yes	Yes	–	1
	Secondary school	Yes	Yes	–	1
	Higher sec. School	Yes	Yes	–	1
	ITI college/ vocational Training Center	–	–	–	
	Art, Commerce& Science /Polytechnic/ Engineering/ Medical/ Management/ other college facilities	Yes	Yes	–	1 Engineering
	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:	Yes	Yes	–	–

	Condition:				
	Public Library (With daily newspaper supply: Y/N) Location: Condition:	Yes – good	Yes	–	
	Public Garden Location: Condition:	Yes 2Nos Good	–	–	
	Village Pond Location: Condition:	Yes 1Nos good	–	–	
	Recreation Center Location: Condition:	Yes 4 Good	–	–	
	Cinema/ Video Hall Location: Condition:	–	–	–	
	Assembly Polling Station Location: Condition:	–	–	–	
	Birth & Death Registration Office Location: Condition:	Panchayat – Good	–	–	
If any of the above Facility is not available in village than approx. distance from village: .....kms.					
Suggestions if any:					
N.	**Other Facilities**				
	Post-office	Yes	–	–	
	Telecommunication Network/ STD booth	Yes			

K.	Health Facilities:				
	Sub center/ PHC/ CHC /Government Hospital/ Child welfare & Maternity Homes (If Yes than specify No. of Beds) Condition:	Yes	–	–	Sub-center PHC
	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	Yes	Yes	–	8Nos
	Primary School	Yes	Yes	–	1
	Secondary school	Yes	Yes	–	1
	Higher sec. School	Yes	Yes	–	1
	ITI college/ vocational Training Center	–	–	–	
	Art, Commerce& Science /Polytechnic/ Engineering/ Medical/ Management/ other college facilities	Yes	Yes	–	1 Engineering
	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:	Yes	Yes	–	–

	General Market	Small	Yes	-	-
	Shops (Public Distribution System)	-	-	-	
	Panchayat Building	Yes	INOS	-	good
	Pharmacy/Medical Shop	Yes	2-3	-	good
	Bank & ATM Facility	Yes	3-4	-	good
	Agriculture Co-operative Society	Yes	1 NOS	-	good
	Milk Co-operative Soc.	-			
	Small Scale Industries	-			
	Internet Cafes/ Common Service Center/Wi Fi	-			
	Other Facility	NO			
Suggestions if any:					

6. **Sustainable /Green Infrastructure Facilities:**

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

7. **Data Collection From Village**

Village Base Map Available: Hard Copy/Soft Copy	Yes

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

8. Additional Information/ Requirement:

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

9. Smart Village Proposal Design

Sr. No.	Descriptions	Information/ Detail	Remarks
1.			

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

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

FB Patel
સરપંચ
ગ્રામ પંચાયત બાબેન
તા. બારડોલી, જી. સુરત.

12.2 Scanned copy (for Part-I), Original (for–Part-II) Smart Village Survey details:-

Gujarat Technological University, Ahmedabad, Gujarat

Vishwakarma Yojana: Phase VIII Techno Economic Survey

Techno Economic Survey

For

Vishwakarma Yojana: Phase VIII

IDEAL VILLAGE SURVEY

An approach towards Rurbanisation for Village Development

Name of Village:	Surat
Name of Taluka:	Palsana
Name of District:	Ena
Name of Institute:	P.I.E.&T Navsari
Nodal Officer Name & Contact Detail:	Prof. Bhavesh Patel 7573599468
Respondent Name: (Sarpanch/ Panchayat Member/ Teacher/ Gram Sevak/ Aaganwadi worker/Village dweller)	Nihara ben Ahir (Sarpanch)
Date of Survey:	

1. **Demographical Detail:**

Sr. No.	Census	Population	Male	Female	Total House Holds
i)	2001				
ii)	2011	3777	1895	1882	888

2. **Geographical Detail:**

Sr. No.	Description	Information/Detail
i)	Area of Village (Approx.) (In Hector) Coordinates for Location:	628.93 hect
	Forest Area (In hect)	7.6 hect
	Agricultural Land Area (In hect.)	16.4 hect
	Residential Area (In hect.)	585.4 hect
	Other Area (In hect.)	12.7 hect
	Water bodies	-
	Nearest Town with Distance:	Bardoli 7.2 km

ઓળા-ગોટીસા ગ્રુપ ગ્રામ પંચાયત

તા. પલસાણા, જિ.

7.	Name of Nearest Town with Distance:	Bardoli 7.2 km
8.	Distance to the nearest bus station (in kilometers):	Bardoli 8km
9.	Whether village is connected to all road for the any facility or town or City?	NH 53

III. OCCUPATIONAL DETAILS:

Name of Three Major Occupation groups in Village	1.	Farming
	2.	Job
	3.	Auto-Rickshaw driver
Major crops grown in the village:	1.	Sugar cane crop
	2.	Banana plant
	3.	Mango tree

IV. PHYSICAL INFRASTRUCTURE FACILITIES:

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

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Suggestions if any:					
B.	**Water Tank Facility**				
	Overhead Tank	Capacity:	✓		45000
	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	✓		
Suggestions if any:					
D.	**Road Network :All Weather/ Kutchha (Gravel)/ Black Topped pucca/ WBM**				
	Village approach road	yes	✓		Black topped pucca
	Main road	Yes	✓		Black topped pucca
	Internal streets	yes	✓		R.C.C Road
	Nearest NH/SH/MDR/ODR Dist. in kms.	yes	✓		Black Pave Road NH53
Suggestions if any:					
E.	**Transport Facility**				
	Railway Station (Y/N) (If No than Nearest Rly Station---Kms)	NO	✓		Bardoli 10km
	Bus station (Y/N) Condition: (If No than Nearest Bus Station---Kms)	yes	✓		Ena Bus stand - Near major Bardoli 8km
	Local Transportation (Auto/ Jeep/Chhakda/ Private Vehicles/ Other)	Auto, chagda private vechide	✓		
Suggestions if any:					
F.	**Electricity Distribution**				
	(Y/N) Govt./ Private (Less than 6 hrs./ More Than 6 hrs)	Yes	✓		Govt 04hrs DAVCL

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Gujarat Technological University, Ahmedabad, Gujarat

Vishwakarma Yojana: Phase VIII
Techno Economic Survey

	Power supply for Domestic Use	Yes	—		
	Power supply for Agricultural Use	Yes	—		
	Power supply for Commercial Use	Yes	—		
	Road/ Street Lights	Yes	—		
	Electrification in Government Buildings/ Schools/ Hospitals	Yes	—		
	Renewable Energy Source Facilities (Y/ N)	Yes	—		
	LED Facilities	Yes	—		
Suggestions if any:					
G.	**Sanitation Facility**				
	Public Latrine Blocks If available than Nos.	Yes	—		
	Location Condition	good	—		
	Community Toilet (With bath/ without bath facilities)	yes	.		
	Solid & liquid waste Disposal system available	Yes	—		
	Any facility for Waste collection from road	Yes	—		
Suggestions if any:					
H.	**Main Source of Irrigation Facility:**				
	TANK/POND	—	—		
	STREAM/RIVER				
	CANAL	—	—		
	WELL	—	—		
	TUBE WELL.	—			
	OTHER (SPECIFY)		—		
Suggestions if any:					
I.	**Housing Condition:**				
	Kutchha/Pucca (Approx. ratio)	yes	—		90% Pucca 10% Kuchha

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V. SOCIAL INFRASTRUCTURAL FACILITIES:

Sr. No.	Descriptions	Information/ Detail	Adequate	Inadequate	Remarks
J.	**Health Facilities:**				
	ICDS (Anganwadi)	yes	✓		
	Sub-Centre	yes	✓		
	PHC	yes	✓		
	BLOCK PHC	yes	✓		
	CHC/RH				
	District/ Govt. Hospital				
	Govt. Dispensary	yes	✓		
	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	yes 3	✓		
	Primary School	yes 2	✓		
	Secondary school	yes 1	✓		
	Higher sec. School	yes 1	✓		
	ITI college/ vocational Training Center	No			
	Art, Commerce& Science /Polytechnic/ Engineering/ Medical/ Management/ other college facilities	No			
	If any of the above Facility is not available in village than approx. distance from village: .....kms.				

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Suggestions if any:

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

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

Suggestions if any:

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

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

Suggestions if any:

N.	Other Facilities	Condition		Available (YES)	Available (NO)
	1. Have these programme implemented the village?			Yes	
	2. Are there any beneficiaries in the village from the following programme'?	Good			
	3. Janani Suraksha Yojana	working		—	
	4. Kishori Shakti Yojana	working		—	
	5. Balika Samriddhi Yojana	working		—	
	6. Mid-day Meal Programme	working		—	
	7. Intergrated Child Development Scheme (ICDS)			—	
	8. Mahila Mandal Protsahan Yojana (MMPY)				
	9. National Food for work Programme (NFFWP)				
	10. National Social Assistance Programme	working		—	
	11. Sanitation Programme (SP)	working		—	
	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)	working		—	
	18. Jawahar Rozgar Yojana (JRY)	working		—	
	19. Indira Awas Yaojna (IAY)				
	20. Samagra Awas Yojana (SAY)				
	21. Sanjay Gandhi Niradhar Yojana (SGNY)				
	22. Jawahar Gram Samridhi Yojana (JGSY)	working		—	
	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	Solar energy source			
2.	Bio-Gas Plant Solar Street Lights Rain Water Harvesting System	Yes	✓		Some working
3.	Any Other				

VII. DATA COLLECTION FROM VILLAGE

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

VIII. ADDITIONAL INFORMATION/ REQUIREMENT:

Sr. No.	Descriptions	Information/ Detail	Remarks

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Gujarat Technological University, Ahmedabad, Gujarat

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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?	cleaning daily Fogging done in month.	

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

નયનાબેન ધરેશભાઈ આહિર.

સરપંચ
એના-ગોટીયા ગૃપ ગ્રામ પંચાયત
તા. પલસાણા, જિ. સુરત

12.3 Scanned copy (for Part-I), Original (for–Part-II) Allocated Village Survey Form:-

Gujarat Technological University, Ahmedabad, Gujarat

Vishwakarma Yojana: Phase VIII
Techno Economic Survey

Techno Economic Survey

Vishwakarma Yojana: Phase VIII

ALLOCATED VILLAGE SURVEY

An approach towards "Rurbanisation for Village Development"

Name of District:	Navsari
Name of Taluka:	Jalapore
Name of Village:	Vesma-Sadodra
Name of Institute:	P.I.E.&T Navsari
Nodal Officer Name & Contact Detail:	Prof Bhavesh patel 7573899468
Respondent Name: (Sarpanch/ Panchayat Member/ Teacher/ Gram Sevak/ Aaganwadi worker/Village dweller)	1] Kushumben Rathod 2] Ashish Bhai Solanki [Gram Sevak] 3] Kushum ben Suman bhai patel
Date of Survey:	7-9-20

I. DEMOGRAPHICAL DETAIL:

Sr. No.	Census	Population	Male	Female	Total Number of House Holds
1.	2001				
2.	2011	9187	4292	4541	3500

II. GEOGRAPHICAL DETAIL:

Sr. No.	Description	Information/Detail
1.	Area of Village (Approx.) (In Hector)Coordinates for Location:	661.27 hect
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):	

7.	Name of Nearest Town with Distance:	Navsari · 12Km
8.	Distance to the nearest bus station (in kilometers):	Navsari - 10Km
9.	Whether village is connected to all road for the any facility or town or City?	NH-8

III. OCCUPATIONAL DETAILS:

Name of Three Major Occupation groups in Village	1.	Farming (Agriculture)
	2.	Small shops
	3.	Labour work

Major crops grown in the village:	1.	Rice
	2.	Mango
	3.	Sugar cane, Vegetable

IV. PHYSICAL INFRASTRUCTURE FACILITIES:

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

	Other(Specify)**Lake/ Pond**	Yes	✓		
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	Yes	✓		
Suggestions if any:					
D.	**Road Network :All Weather/ Kutchha (Gravel)/ Black Topped pucca/ WBM**				
	Village approach road	yes	✓		Bituminos Road
	Main road	yes	✓		Bituminos Road
	Internal streets	yes	✓		Block, Concrete Bituminos road
	Nearest NH/SH/MDR/ODR Dist. in kms.	0Kms	✓		Bituminos road
Suggestions if any:					
E.	**Transport Facility**				
	Railway Station (Y/N) (If No than Nearest Rly Station---Kms)	NO	—		8km (maroli)
	Bus station (Y/N) Condition: (If No than Nearest Bus Station---Kms)	NO	—		Navsari 10km
	Local Transportation (Auto/ Jeep/Chhakda/ Private Vehicles/ Other)	Private Vehicle Auto	✓		
Suggestions if any:					
F.	**Electricity Distribution**				
	(Y/N) Govt./ Private (Less than 6 hrs./ More Than 6 hrs)	Govt (24 hrs)	—		DGVCL

3

Gujarat Technological University, Ahmedabad, Gujarat

Vishwakarma Yojana: Phase VIII
Techno Economic Survey

	Power supply for Domestic Use	Yes	✓		
	Power supply for Agricultural Use	Yes	✓		8 hours day/ only night
	Power supply for Commercial Use	Yes	✓		
	Road/ Street Lights	Yes	✓		
	Electrification in Government Buildings/ Schools/ Hospitals	Yes	✓		
	Renewable Energy Source Facilities (Y/ N)	NO			There is no Facilities.
	LED Facilities	NO			Led light should provide for low consumption of electricity
Suggestions if any:					
G.	**Sanitation Facility**				
	Public Latrine Blocks If available than Nos.	NO	—		
	Location Condition	-			
	Community Toilet (With bath/ without bath facilities)	Yes	✓		All are private as provide by Panchayat
	Solid & liquid waste Disposal system available	Yes	✓		
	Any facility for Waste collection from road	Yes	✓		
Suggestions if any:					
H.	**Main Source of Irrigation Facility:**				
	TANK/POND	—			
	STREAM/RIVER	—			
	CANAL	Yes	✓		
	WELL	Yes	✓		
	TUBE WELL.	Yes	✓		
	OTHER (SPECIFY)	Yes	✓		
Suggestions if any:					
I.	**Housing Condition:**				
	Kutchha/Pucca (Approx. ratio)	yes.	✓		70% Pucca 30% Kucchha

V. SOCIAL INFRASTRUCTURAL FACILITIES:

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

51

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

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

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

Suggestions if any:

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

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

Suggestions if any:

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

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 NO			
3.	Any Other				

VII. DATA COLLECTION FROM VILLAGE

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

8

VIII. ADDITIONAL INFORMATION/ REQUIREMENT:

Sr. No.	Descriptions	Information/ Detail	Remarks
1.	**Repair & Maintenance of Existing**		
	Public Infrastructure facilities,		
	School Building	Repair work - slab leakage in rainy season	
	Health Center	It is in good condition	
	Panchayat Building	New panchayat Building	
	Public Toilets & any other	No Public Toilet	
2.	**Additional Information/ Requirement**		
3.	**During the last six months how many times CLEANING …………………………….. FOGGING……………………………….. Drive was undertaken in the village?**	Cleaning daily door to door Fogging done in month.	

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

કુસુમબેન- જી.- રાઠોડ
સરપંચ
વેસ્મા-સડોદરા
ગ્રુ_ગ્રા.પં. વેસ્મા.

12.4. Gap Analysis:-

VILLAGE GAP Analysis					
Village Facilities	**Planning Commission/UDPFI Norms**	**Village Name:**		Vesma-Sadodra	
		Population:			8833
		Existing	**Required as per Norms**	**Smart Village / Cities / Heritage Future Projection Design**	**Gap**
Social Infrastructure Facilities					
Education					
Anganwadi	Each or Per 2500 population	10	4	-	6
Primary School	Each Per 2500 population	2	4	-	-2
Secondary School	Per 7,500 population	1	1	-	0
Higher Secondary School	Per 15,000 Population	1	0	-	1
College	Per 125,000 Population	-	-	-	-
Tech. Training Institute	Per 100000 Population	-	-	-	-
Agriculture Research Centre	Per 100000 Population	-	-	-	-
Skill Development Center	Per 10000 Population	-	1	-	-1
Health Facility					
Govt/Panchyat Dispensary or Sub PHC or Health Centre	Each Village	0	1	-	-1
Primary Health & Child Health Center	Per 20,000 population	1	1	-	0
Child Welfare and Maternity Home	Per 10,000 population	0	1	-	-1
Multispeciality Hospital	Per 100000 Population	-	-	-	-
Public Latrines	1 for 50 families (if toilet is not there in home, especially for slum pockets &kutccha house)	0	1	-	-1
Physical Infrastructure Facilities					
Transportation		**Adequate / Inadequate**			
Pucca Village Approach Road	Each village	Adequate			
Bus/Auto Stand provision	All Villages connected by PT (ST Bus or Auto)	Adequate			
Drinking Water (Minimum 70 lpcd)		**Adequate / Inadequate**	Inadequate		
Over Head Tank	1 /3 of Total Demand	Adequate			
U/G Sump	2 /3 of Total Demand	Adequate			
Drainage Network - Open			Inadequate		
Drainage Network - Cover			Inadequate		
Waste Management System			Inadequate		
Socio- Cultural Infrastructure Facilities					
Community Hall	Per 10000 Population	Adequate			1
community hall and Public Library	Per 15000 Population	0	1		-1
Cremation Ground	Per 20,000 population	-	-		
Post Office	Per 10,000 population	Adequate			
Gram Panchayat Building	Each individual/group panchayat		Inadequate		1
APMC	Per 100000 Population	-	-		
Fire Station	Per 100000 Population	NO	Not require		1
Public Garden	Per village	NO	require		1
Police post	Per 40,000 Population	Adequate	-		
Shopping Mall	-	-	-	-	-

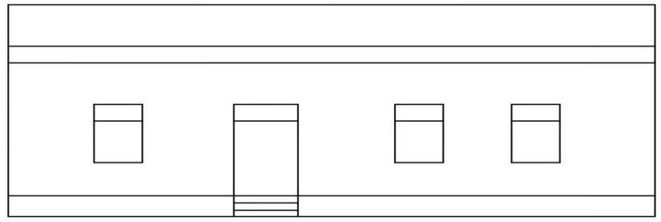
12.5 Summary Details of all the villages designs in table form part-I and part-II:-

NO.	VILLAGE	BRANCH	DESIGNS	
1	VESMA-SADODRA	Civil	**PART-I**	**PART-II**
			library	Public garden
			Public toilet	ATM center
			Skill development center	Entrance Gate
			Bus stand	Panchyat building
			Bio-gas plant	Medical shop
			Maintenance of anganwadi	Drinking water center

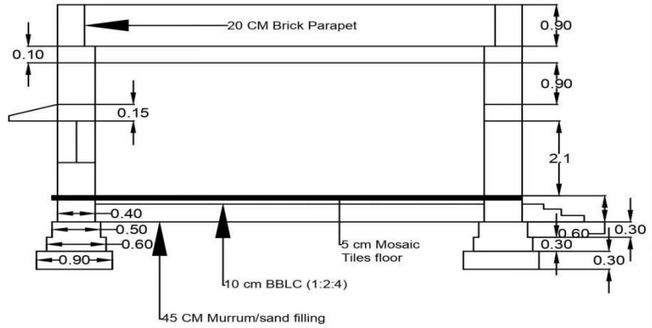
Table 22 summary details village designs

12.6 DESIGN A3:-

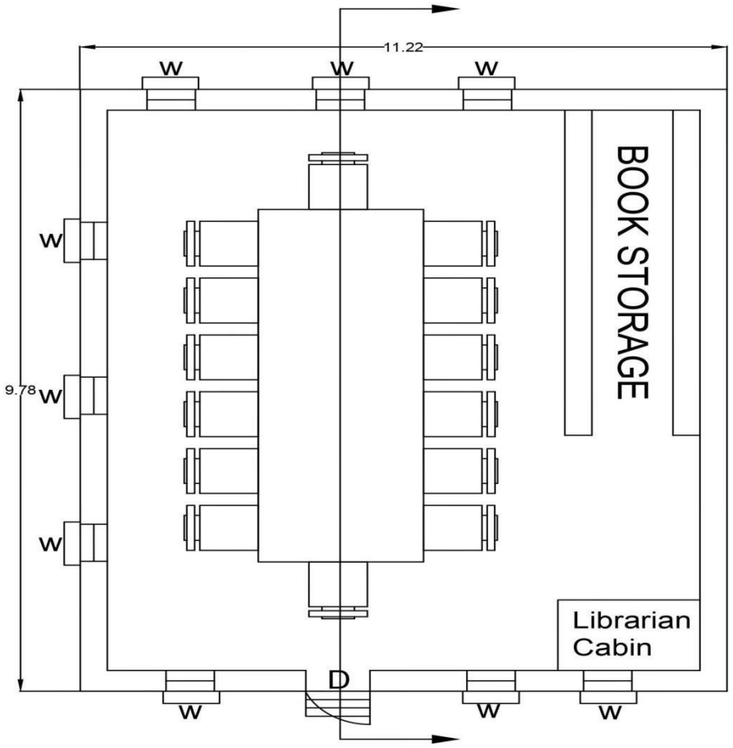
ELEVATION OF LIBRARY



SECTION OF LIBRARY



PLAN OF LIBRARY

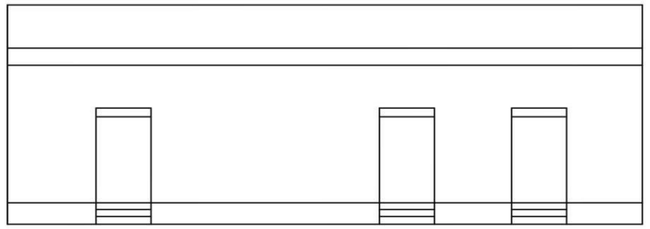


SHEDUAL OF OPENING		
DETAILS	SYMBOLS	SIZE
DOOR	D	1.2X2.1
WINDOW	W	0.9X1.2
CUPBOARD		0.3X0.8
TABLES		2.44X1.45

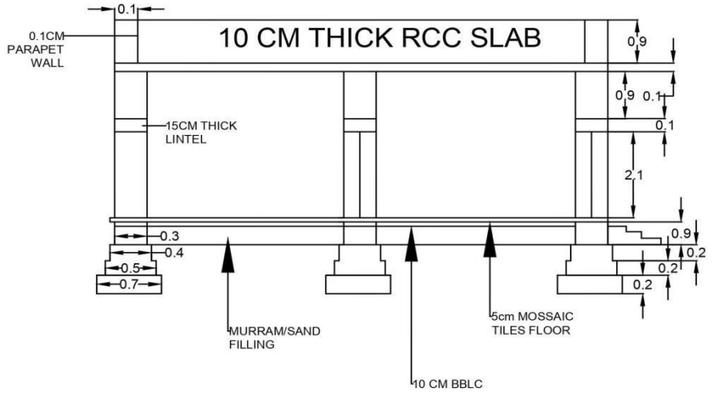
Gujarat Technological University	
All dimension are in metre antil stated.	
Drawing should be read not for scale.	
Design is prepared only for educational purpose all data must be check before use.	
Design is not responsible for any kind of wrong data.	
Check first the plot dimensions.	
Design by:-	Yadav Manish R. Rathod Praful B.
PUBLIC LIBRARY	
SHEET NO.	01
DATE	
GUIDE BY:-	BHAVESH PATEL
VISHWAKARMA YOJANA:- PHASE VIII	
SCALE	AS INDICATED

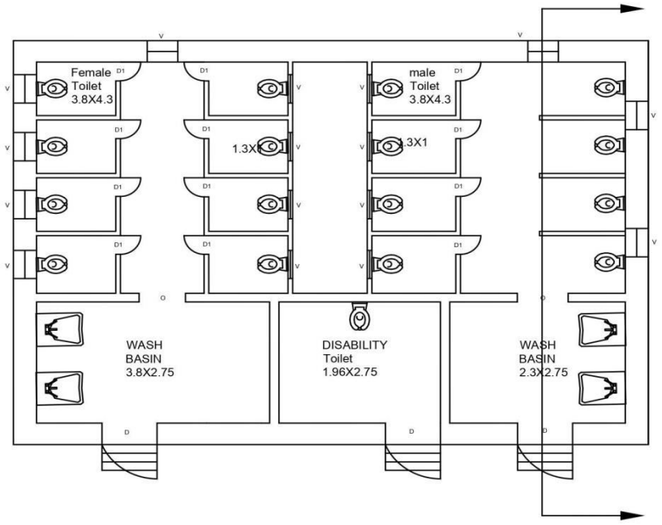
PUBLIC LIBRARY

ELEVATION OF PUBLIC TOILET



SECTION OF PUBLIC TOILET





PLAN OF PUBLIC TOILET

SHEDUAL OF OPENING		
DETAILS	SYMBOLS	SIZE
DOOR	D	1X2.1
DOOR	D1	0.5X2.1
OPENING	O	1X2.1
VENTILATION	V	0.60X0.60

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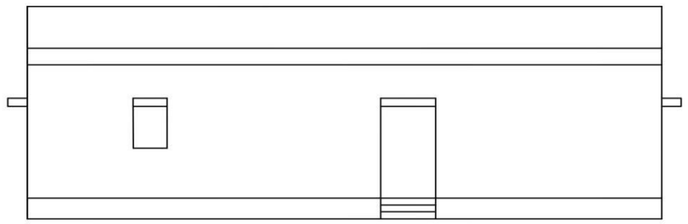
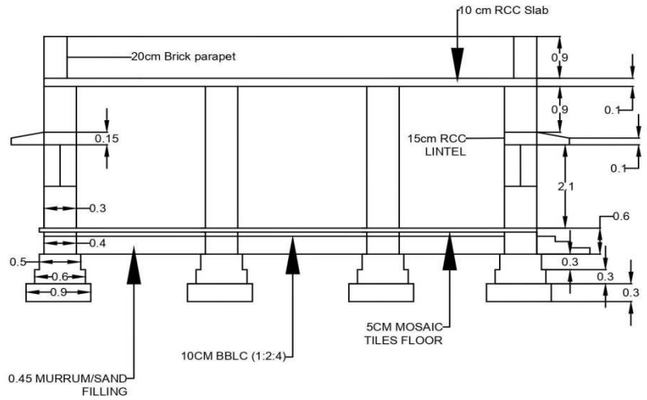
Design by:-	Yadav Manish R. Rathod Praful B.
PUBLIC TOILET	
SHEET NO.	02
DATE	
GUIDE BY:-	BHAVESH PATEL
VISHWAKARMA YOJANA:- PHASE VIII	
SCALE	AS INDICATED

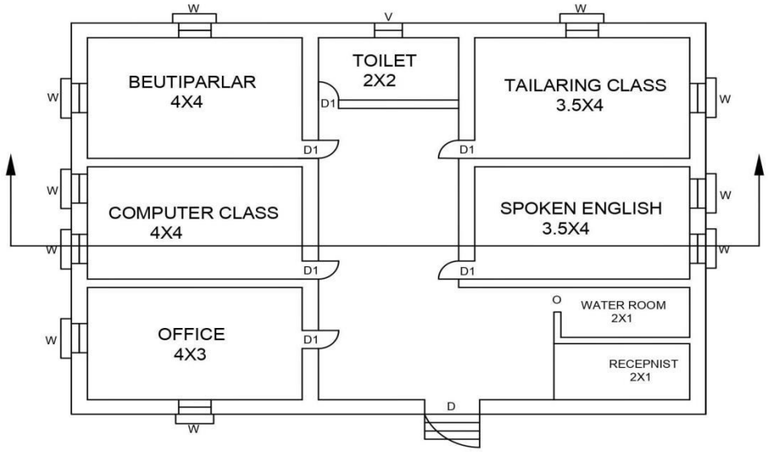
PUBLIC TOILET

Elevation Of Skill Development Center



Section Of Skill Development Center





Plan Of Skill Development Center

SHEDUAL OF OPENING		
DETAILS	SYMBOLS	SIZE
DOOR	D	1X2.1
DOOR	D1	0.5X2.1
DOOR	D2	0.75X2.1
OPENING	O	0.5X2.1
WINDOW	W	0.9X1.2
VENTILATION	V	0.6X0.6

Gujarat Technological University

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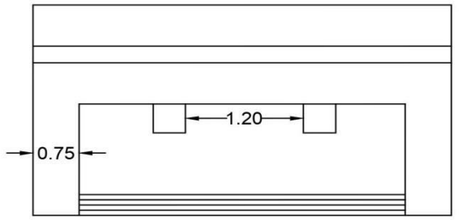
Check first the plot dimensions.

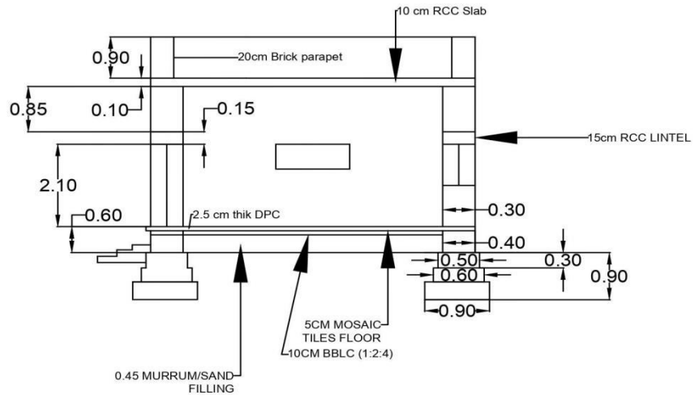
Design by:-	Yadav Manish R. Rathod Praful B.
Design of Skill Development Center	
SHEET NO.	03
DATE	
GUIDE BY:-	BHAVESH PATEL
VISHWAKARMA YOJANA:- PHASE VIII	
SCALE	AS INDICATED

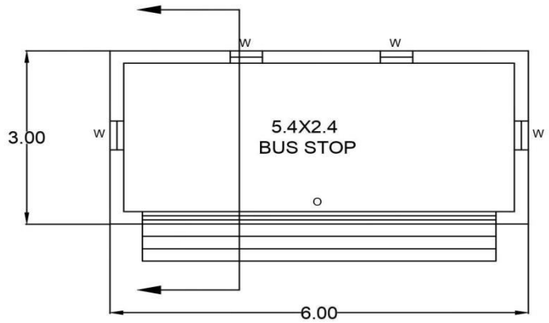
SKILL DEVELOPMENT CENTER

Elevation Of Bus stand



Section Of Bus stand





PLAN OF BUS STAND

SHEDUAL OF OPENING		
DETAILS	SYMBOLS	SIZE
OPENING	O	4.5X2.1
WINDOW	W	0.9X1.2

Gujarat Technological University

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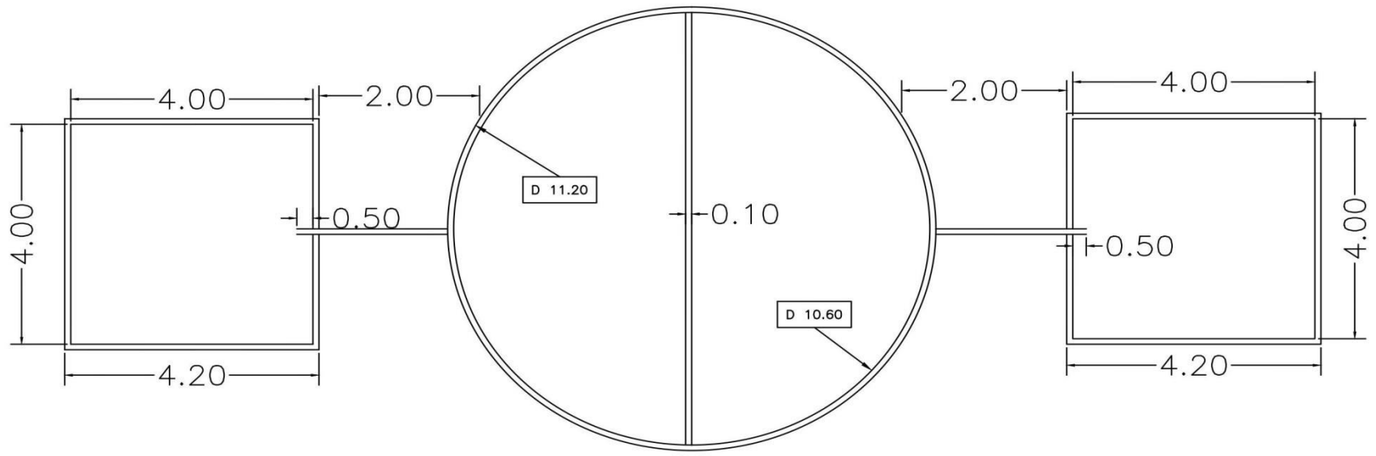
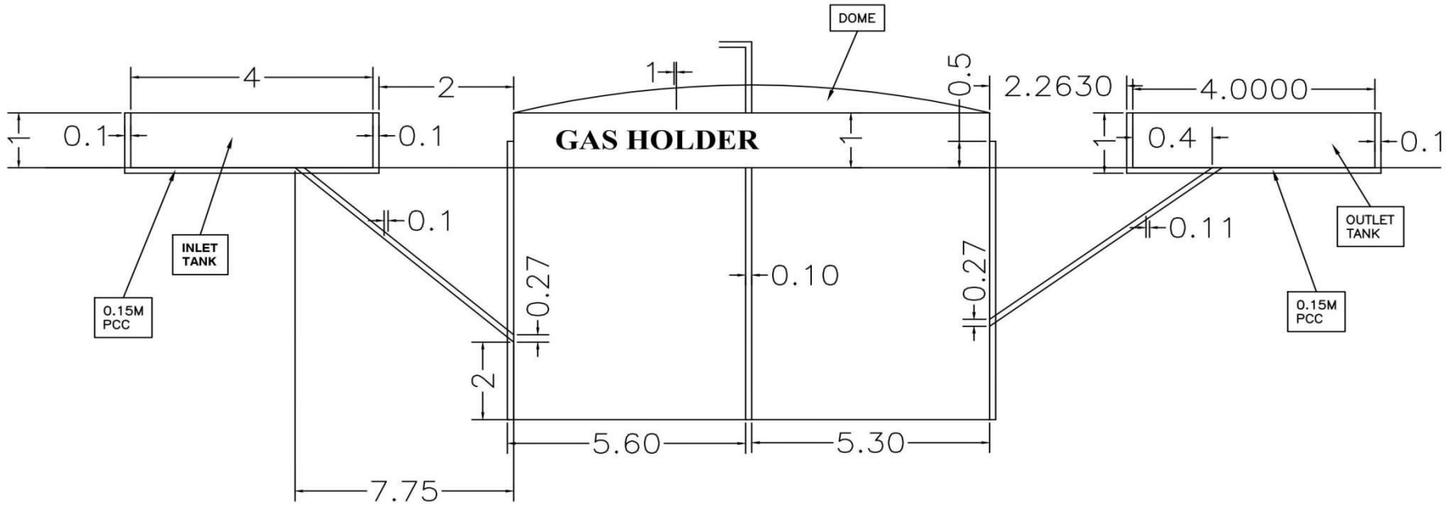
Design by:-	Yadav Manish R. Rathod Praful B.
BUS STAND	
SHEET NO.	04
DATE	
GUIDE BY:-	BHAVESH PATEL
VISHWAKARMA YOJANA:- PHASE VIII	
SCALE	AS INDICATED

BUS STAND

PLAN OF BIO-GAS



SECTION OF BIO-GAS



Gujarat Technological University	
All dimension are in metre antil stated	
Drawing should be read not for scale	
Design is prepared only for education Purpose all data must be check before use	
Design is not responsible for any kind of wrong data	
Check first the plot dimensions	
Design by:-	Yadav Manish Rathod Prafull
BIO-GAS PLANT	
Sheet No.	06
Date	
Guide by:-	bhavesh patel
Vishwakarma yojana:- phase VIII	
SCALE	AS INDICATED

BIO-GAS PLANT

12.7 Summary of Good Photographs in Table format (Village visit, ideal, Smart Village or any):-

Ideal Village Baben

Map of Baben

Sugar Facotry of baben

Solid waste disposal of Baben Village

Public toilet of baben

Water Tank of baben

Primary School and Playgroups of Baben

Entrance Gate of baben

Village road of baben

Smart Village Ena

Main gate of Ena village

Google map of Ena village

Ena village water tank

Solid waste & road cleaning

Health care & panchayat ghar

Banking

Education facility

Allocated Village

Water Tank

Drainage Network

Road

Primary school

Aanganwadi

Pacca house

Kuccha house

Primary health centre

Pond

Community Hall

Post Office

General Store

Grocery Store

12.8 Village interaction with sarpanch with the photograph:-

Fig. 63 Interaction with sarpanch

Fig. 64 Interaction with panchayat sabhya

12.9 sarpanch letter:-

VILLAGE INTERACTION REPORT

7 OCTOBER 2020 Vesma-Sadodra Navsari: We have visited the allocated village many times and interacted with the various village users. Firstly, we had a small meeting with Sarpanch (Kushumben Patel). with the help of him and positive co – operation we collected the data related to the various schemes and yojana implemented in the village and their existing conditions. Then we get to meet with sabhya of panchayat (Dhirubhai Patel) he was too nice to have conversation about local people and their issues. Transportation conditions and various grants and their values used for the construction and maintenance purpose. Various Irrigation facilities exist in the village, whether they were adequate or not & all other modes like tube well, canal, lake. About educational facilities, health care centers, socio – cultural infrastructures and they gives us village map and various locations of the infrastructure facilities in village. We had also interacted with various villagers, farmers to know the real condition of the village and problems faced by them and their wishes to have various

Reported by:-

Manish Yadav

Praful Rathod

સરપચ
વેસ્મા-સડોદરા
જુથ ગ્રા.પ. વેસ્મા.

PART - II

Chapter: 13
Future Designs of The Aspects.

13.1Design Proposals

13.1.1 Design of Public Garden:-

Scenario:

Public gardens are resources for recreation, as well as education and research opportunities. Public gardens can play very significant roles in sustainable community development. They're a place where people can spend time and socialize in a relaxing natural environment. This is good for both physical and mental health.

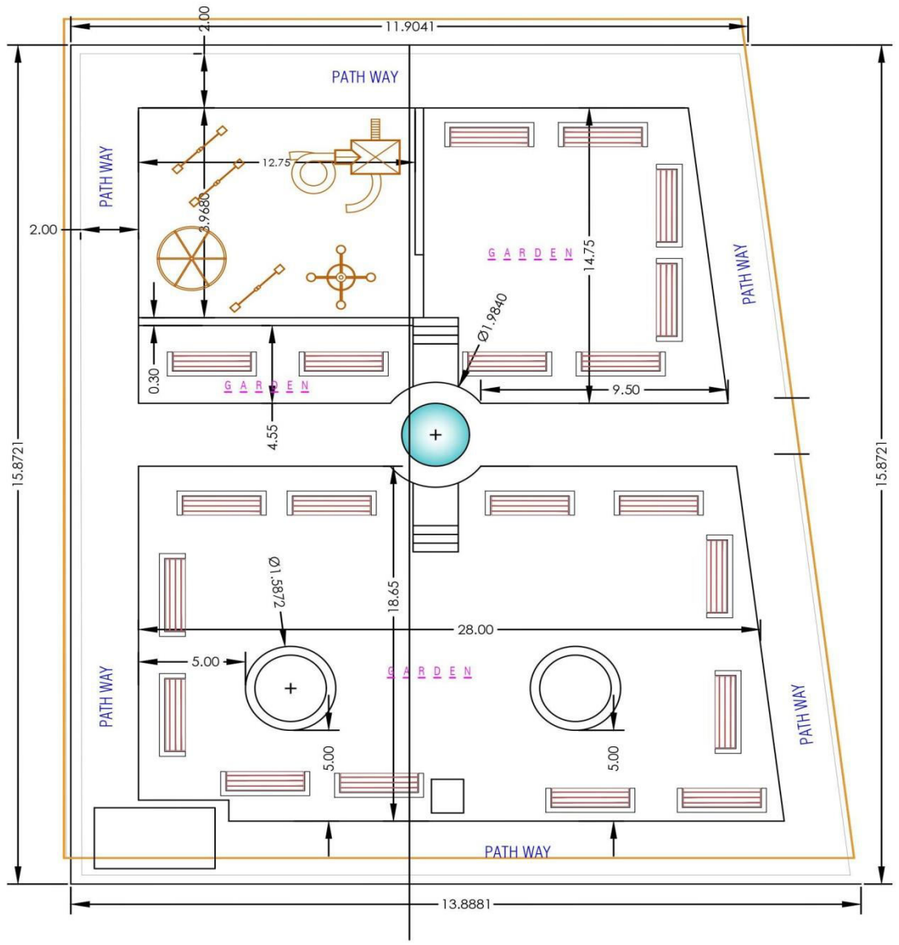
Existing situation of Vesma-sadodra village:

There is no Public Garden at present in Vesma-sadodra village. The nearest public garden is approximately 10 km away.

Sustainability of design proposal:

We were surveying of Vesma-sadodra village. Public garden is not available in this village. Consequently, we have made design of public Garden.

Design Summary:



DESIGN OF PUBLIC GARDEN

Gujarat Technological University	
All dimension are in metre antil stated	
Drawing should be read not for scale	
Design is prepared only for education Purpose all data must be check before use	
Design is not responsible for any kind of wrong data	
Check first the plot dimensions	
Design by:-	Yadav Manish Rathod Prafull
PUBLIC GARDEN	
Sheet No.	07
Date	
Guide by:-	bhavesh patel
Vishwakarma yojana:- phase VIII	
SCALE	AS INDICATED

Fig. 65 PUBLIC GARDEN

Recuperation Sheet

Total Cost of Civil Work (A):		**14,87,237.20 ₹**
1	Add 5 % Contingency Charges:	74,361.86 ₹
2	Add 2 % Work Establishment Charges:	29,744.74 ₹
3	Add 1.5 % Water Charges:	22,308.55 ₹
4	Add 5 % Sanitary & Plumbing Charge:	74,361.86 ₹
Total (B):		**16,88,014.21 ₹**
5	Add 5 % of (B):	84,400.71 ₹
Grand Total:		**17,72,414.92 ₹**

Measurement sheet

Table 23 Measurement sheet of Public Garden

Sr.no	Description	No	Length L (m)	Width B (m)	Height H (m)	Quantity	Total Quantity
1	**Excavation for Compound wall**						
	Long wall -1	1	40	0.9	0.3	10.8	
	Long wall -2	1	40	0.9	0.3	10.8	
	Short wall -1	1	30	0.9	0.3	8.1	
	Short wall -1	1	35	0.9	0.3	9.45	**39.15 m^3**
2	**P.C.C for Compound Wall**						
	Long wall -1	1	40	0.9	0.15	5.4	
	Long wall -2	1	40	0.9	0.15	5.4	
	Short wall -1	1	30	0.9	0.15	4.05	
	Short wall -1	1	35	0.9	0.15	4.725	**19.575 m^3**
3	**Brick Masonry for compound Wall**						
	Long wall -1	1	40	0.3	1.5	18	
	Long wall -2	1	40	0.3	1.5	18	
	Short wall -1	1	30	0.3	1.5	13.5	
	Short wall -1	1	35	0.3	1.5	15.75	**65.25 m^3**

4	**Soil Filling between compound wall**						
	Long wall -1	1	40	0.5	0.4	8	
	Long wall -2	1	40	0.5	0.4	8	
	Short wall -1	1	30	0.5	0.4	6	
	Short wall -1	1	35	0.5	0.4	7	**29 m^3**
5	**Paver Block Area**						
A	Excavation						
	Long wall -1&2	2	40	2	0.3	24	
	Long wall -2	1	35	2	0.3	21	
	Short wall -1	1	30	2	0.3	18	
	Short wall -1	1	18.65	2	0.3	11.19	
	Around Pond Area	1	43.98	-	0.3	13.194	**87.38 m^3**
B	**P.C.C**						
	Long wall -1&2	2	40	2	0.1	8	
	Short wall-1	1	35	2	0.1	7	
	Short wall-2	1	30	2	0.1	6	
	Central Area	1	18.65	2	0.1	3.73	
	Around Pond Area	1	43.98	-	0.1	4.398	**29.12 m^3**
C	**Yellow Soil Filling**						
	Long wall -1&2	2	40	2	0.05	4	
	Short wall-1	1	35	2	0.05	3.5	
	Short wall-2	1	30	2	0.05	3	
	Central Area	1	18.65	2	0.05	1.865	
	Around Pond Area	1	43.98	-	0.05	2.199	**14.56 m^3**
D	**Paved Block**						
	Long wall -1&2	2	40	2	-	160	

	Short wall-1	1	35	2	-	70	
	Short wall-2	1	30	2	-	60	
	Central Area	1	18.65	2	-	37.3	
	Around Pond Area	1	43.98	-	-	43.98	**371.28 m^3**
6	**Yellow Soil in Children Area**						
	Excavation	1	12.75	10	0.3	38.25	**38.25 m^3**
	Yellow soil Filling	1	12.75	10	0.3	38.25	**38.25 m^3**
7	**Lawn in Children Area**						
	Excavation	1	8.82	15.6	0.3	40.955	**40.955 m^3**
	Soil Filling	1	8.82	15.6	0.3	40.955	**40.955 m^3**
	Lawn Spreading	1	8.82	15.6	-	136.51	**136.51 m^3**
8	**Lawn in Common Area**						
	Excavation	1	28.84	18.65	0.3	149.38	**149.38 m^3**
	Soil Filling	1	28.84	18.65	0.3	149.38	**149.38 m^3**
	Land Spreading	1	28.84	18.65	-	497.95	**497.95 m^3**
9	**Lawn in Besides Children Area**						
	Excavation	1	12.25	4.25	0.3	15.62	**15.62 m^3**
	Soil Filling	1	12.25	4.25	0.3	15.62	**15.62 m^3**
	Land Spreading	1	12.25	4.25	-	52.06	**52.06 m^3**
10	**Central Pond Area**						
	Excavation	1	19.63	-	2	39.26	**39.26 m^3**
11	**Fountain Area**						
	Excavation	2	12.57	-	0.5	12.57	**12.57 m^3**
	P.C.C	2	12.57	-	0.1	2.514	**2.514 m^3**
	Brickwork	2	12.57	0.3	0.5	1.88	**1.88 m^3**

	Tiles at outside wall	2	12.57	-	0.5	12.57	
	Tiles at inside wall	2	12.57	-	1.0	25.14	
	Tiles at Flooring	2	12.57	-	-	25.14	
12	**Flowers in Lawn Area**						
	Plumeria Alba	22	-	-	-	22	**22**
	Pisonia Alba	20	-	-	-	20	**20**
	Royal Palm	22	-	-	-	22	**22**
	Fan Palm	25	-	-	-	25	**25**
	Lalbhaji around Chidren Play Area	1800	-	-	-	1800	**1800**
13	**Benches**	31	-	-	-	31	**31**
14	**Electric Pole with lamp**	35	-	-	-	35	**35**
15	**Fountain**	2	-	-	-	2	**2**

Abstract Sheet:

Table 24 Abstract sheet of Public Garden

Sr.no	Description	Total Quantity	Rate	Per Unit	Total Amount
1	Excavation For Foundation depth From 1.5 to 3.0 m including sorting out and stacking of useful material and disposing off the excavated stuff up to 50, meter lead. (B) Dense or Hard soil. (Navsari District S.O.R. year: 2015-16, Item Code: 04001B, Item No. As per NBO: 0, page No. 35)	383.305	85.90	m^3	32,959.9
2	Excavation for foundation for depth from 1.5 to 3.0 m including sorting out and stacking of useful material and disposing off the excavated stuff up to 50 ,meter lead. (B) Dense or Hard soil. (Navsari District S.O.R. year: 2015-16, Item Code: 04002B, Item No. As per NBO: 0, page No. 35)	39.26	93.20	m^3	3,659.03
3	Providing and laying cement concrete 1:4:8 (1-cement: 4-coarse sand: 8-	51.209	2324.00	m^3	1,19,009.72

	hand broken stone aggregates 40 mm normal size and curing complete excluding cost of formwork in (A) Foundation and Plinth (up to 10 ton). (Navsari District S.O.R. year: 2015-16, Item Code: 5004, Item No. As per NBO: 5.3.3, page No. 41)				
4	Brick work using common burnt clay building bricks having crushing strength not less than 35 kg./Sq.Cm. in foundation and plinth in cement mortar 1:6 (1-cement : 6-fine sand)(B) Conventional (up to 10 ton). (Navsari District S.O.R. year: 2015- 16, Item Code: 06002B, Item No. As per NBO: 6.13, page No. 63) & (Navsari District S.O.R. year: 2015-16, Item Code: 06006B, Item No. Asper NBO: 6.19, page No. 65)	67.13	2926 + 165 = 3091.00	m^3	2,07,498.83
5	Filling soil under for plantation around paved block and for lawn area(up to 10 ton). (Navsari District S.O.R. year: 2015- 16, Item Code: 4008, Item No. As per NBO: 0, page No. 37)	234.95	482.00	m^3	1,13,245.90
6	Providing and fixing pre-cast Rubber Dye inter locking concrete block 60mm thick with grade of concrete M250 pneumatic compressed by mechanically pressed and as per approved design including 75mm Sand layer for levelling and filling thejoint with sand in proper line and leveletc. complete. (Navsari District S.O.R. year: 2015- 16, Item Code: 14034, Item No. As per NBO: 0, page No. 143)	371.28	674.00	m^3	25,0242.72
7	Filling yellow soil in selected soil inlayers of 20cm. thickness includingwatering, ramming and consolidatingetc. complete. For paved block area &children play area (up to 10 ton) (Navsari District S.O.R. year: 2015-16, Item Code: 4008, Item No. As per NBO: 0, page No. 37)	52.8	314.00	m^3	16,579.20
8	Providing & Laying Lawn in garden area with fixing it on soil.	686.52	15.00	m^2	10,297.80
9	Providing and laying white glazedtiles 6mm thick in flooring treads of steps and landing laid on a bed of	50.28	636.00	m^2	31,978.08

	12mm thick cement mortar 1:3 (1-cement : 3-coarse sand) finishing with flush pointing in white cement. (up to 10 ton) (Navsari District S.O.R. year: 2015-16, Item Code: 14008A, Item No. As per NBO: 14.29, page No. 136)				
10	Providing and Fixing Plumeria Alba plant in garden area	22	750	Nos.	16,800
11	Providing and Fixing Pisonia Alba plant in garden area	20	600	Nos.	12,000
12	Providing and Fixing Royal Alba plant in garden area	22	450	Nos.	9,900
13	Providing and Fixing Fan Alba plant in garden area	25	200	Nos.	5,000
14	Providing and Fixing Lal Bhaji Around Children Play	1800	5	Nos.	9,000
15	Providing 2 m length, 50 mm in height & 60 mm width Benches with M20 grade with china mosaic finishing	31	2,400	Nos.	74,400
16	Providing and fixing Electric Pole With Lamp at 5m interval at the jogging track	35	5,000	Nos.	1,75,000
17	Providing and fixing Fountain at the mid of fountain area with slotted nozzle double valve.	2	2,00,000	Nos.	4,00,000
				Total Cost	**14,87,237.20₹**

TOTAL COST = ₹ 17,72,414.92/-

13.1.2 Design of ATM center

Scenario:

Apart from cash withdrawal and checking account balance, ATMs today offer multiple facilities for the convenience of bank customers. As India is turning digital, it is imperative that rural communities are also benefitted from this wave and not left behind.

Existing situation of Vesma-sadodra village:

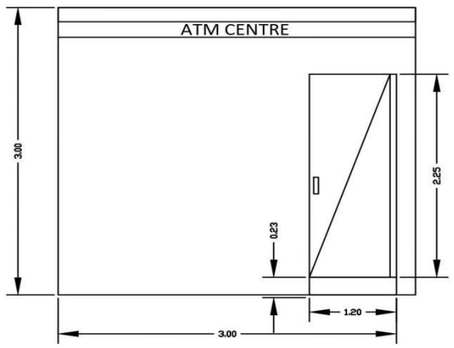
Currently, the nearest ATM is 11 km away from the village.

Sustainability of design proposal:

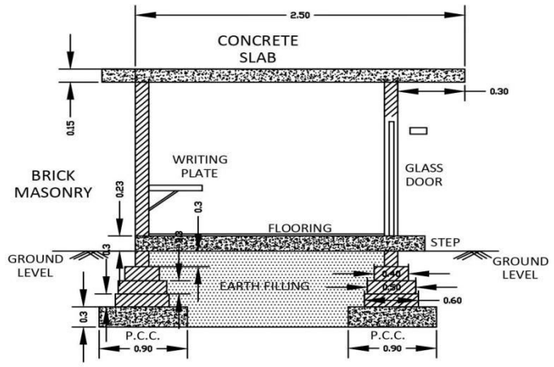
The population of Vesma-sadodra village as per 2011 census is 8833. So ideally, at least one ATM machine should be provided in the village to serve the inhabitants.

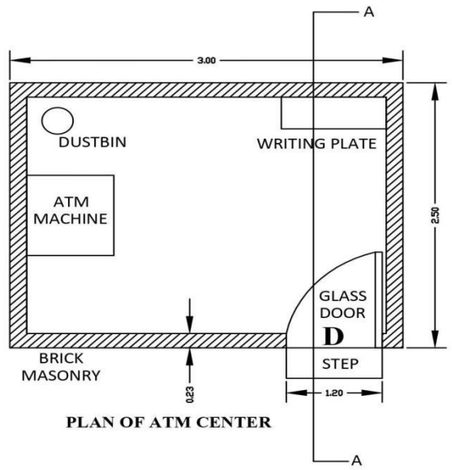
Design summary:

ELEVATION OF ATM CENTER



SECTION OF ATM CENTER





PLAN OF ATM CENTER

SHEDUAL OF OPENING		
DETAILS	SYMBOLS	SIZE
DOOR	D	1.20X2.25

Gujarat Technological University	
All dimension are in metre antil stated	
Drawing should be read not for scale	
Design is prepared only for education Purpose all data must be check before use	
Design is not responsible for any kind of wrong data	
Check first the plot dimensions	
Design by:-	Yadav Manish Rathod Prafull
ATM CENTER	
Sheet No.	07
Date	
Guide by:-	bhavesh patel
Vishwakarma yojana:- phase VIII	
SCALE	AS INDICATED

Fig. 66 ATM CENTER

Measurement Sheet

Table 25 Measurement sheet of ATM

Sr.No	Description (by Center line Method)	No	Length L (m)	Width B (m)	Height H (m)	Quantity	Total Quantity
1	**Excavation**	1	11	0.90	1.5	14.85	**14.85 m^3**
2	**P.C.C. 1:4:8**	1	11	0.90	0.30	2.97	**2.97 m^3**
3	**Brick Work up to GL**						
	For step 0.60 m	1	10.7	0.60	0.30	1.92	
	For step 0.50 m	1	10.45	0.50	0.30	1.56	
	For step 0.40 m	1	10.25	0.40	0.30	1.23	
	For step 0.23 m	1	10.14	0.23	0.30	0.70	**5.41 m^3**
4	**Earth filling in GL**	1	2.5	2.0	1.5	7.5	**7.5 m^3**
5	**Cement concrete for flooring**	1	3.00	2.80	0.23	1.93	**1.93 m^3**
6	**Brick Work up to Slab**	1	10.14	0.23	2.62	**6.11**	
	Deduction for Door and frame	1	1.30	0.23	2.35	**-0.71**	**5.4 m^3**
7	**RCC work for Slab**	1	3.00	2.80	0.15	1.26	**1.26 m^3**
8	**Tiles Flooring**	1	2.54	2.34		5.94	
	Door	1	1.30	0.23		0.30	**6.24 m^2**
A	**Skirting**	3	3.0 m^2			9.0	
		2	2.5 m^2			5.0	
	Deduction for Door	1	1.30 m^2			-1.30	**12.7 m^2**
9	**Glass Door with Aluminum Frame**	1	1.30		2.35	3.05	**3.05 m^2**
10	**Smooth plaster 12cm thick inside and ceilings in C.M. 1:3**						
	Cabin	2	2.54			5.08	

		2	2.04			4.08	
	Ceiling	1	2.54	2.54		6.54	
	Deduction for door	1	1.30		2.35	-3.05	**12.65 m^2**
11	**Rough plaster outside 15cm thick**	2	3.00		3.0	18	
		2	2.50		3.0	15	
	Deduction for door	1	1.30		2.35	-3.05	**29.95 m^2**

Abstract Sheet

Table 26 Abstract sheet of ATM

Sr. no	Description	Total Quantity	Rate	Per Unit	Total Amount
1	Excavation in foundation	14.85	85.90	m^3	1,275.60
2	P.C.C. 1:4:8	2.97	2324.00	m^3	6,902.30
3	Brick Work up to GL	5.41	3000	m^3	16,230.00
4	Earth filling in GL	7.5	50	m^3	375.00
5	Cement concrete for flooring	1.93	4250	m^3	8,202.50
6	Brick Work up to Slab	5.4	3500	m^3	18,900.00
7	RCC work for Slab	1.26	7800	m^3	9,828.00
8	Tiles Flooring and skirting	18.94	636	m^2	12,054.80
9	Glass Door with Aluminum Frame	3.05	3000	m^2	9,150.00
10	Smooth plaster 12cm thick	12.65	230	m^2	2,910.00
11	Rough plaster 15cm thick	29.95	300	m^2	8,895.00
12	Painting	42.6	250	m^2	10,650.00
				Total :	**1,05,372.40 ₹**
				Add 5 % Contingency Charges:	5,268.60 ₹
				Add 2 % Work Establishment Charges:	2,107.50 ₹
				Add 3 % Electric Charges:	3,161.20 ₹
				Grand Total :	**1,15,909.70 ₹**

TOTAL COST = ₹ 1,15,909.70 /-

13.1.3 Heritage Village Design (Civil) : Entrance Gate:-

Scenario:

Entrance gates were traditionally built to provide a point of controlled access to and departurefrom a walled city or village for people, vehicles, goods and animals.

Depending on their historical context they filled functions relating to defense, security, health, trade, taxation, and representation, and were correspondingly staffed by military or municipal authorities.

These gates were also commonly used to display diverse kinds of public information such as announcements, tax and toll schedules, standards of local measures, and legal texts.

It could beheavily fortified, ornamented with heraldic shields, sculpture or inscriptions, or used as a location for warning or intimidation, for example by displaying the heads of beheaded criminals or public enemies.

In modern times, these gates are helpful for the identification of aparticular place by providing them a distinct identity.

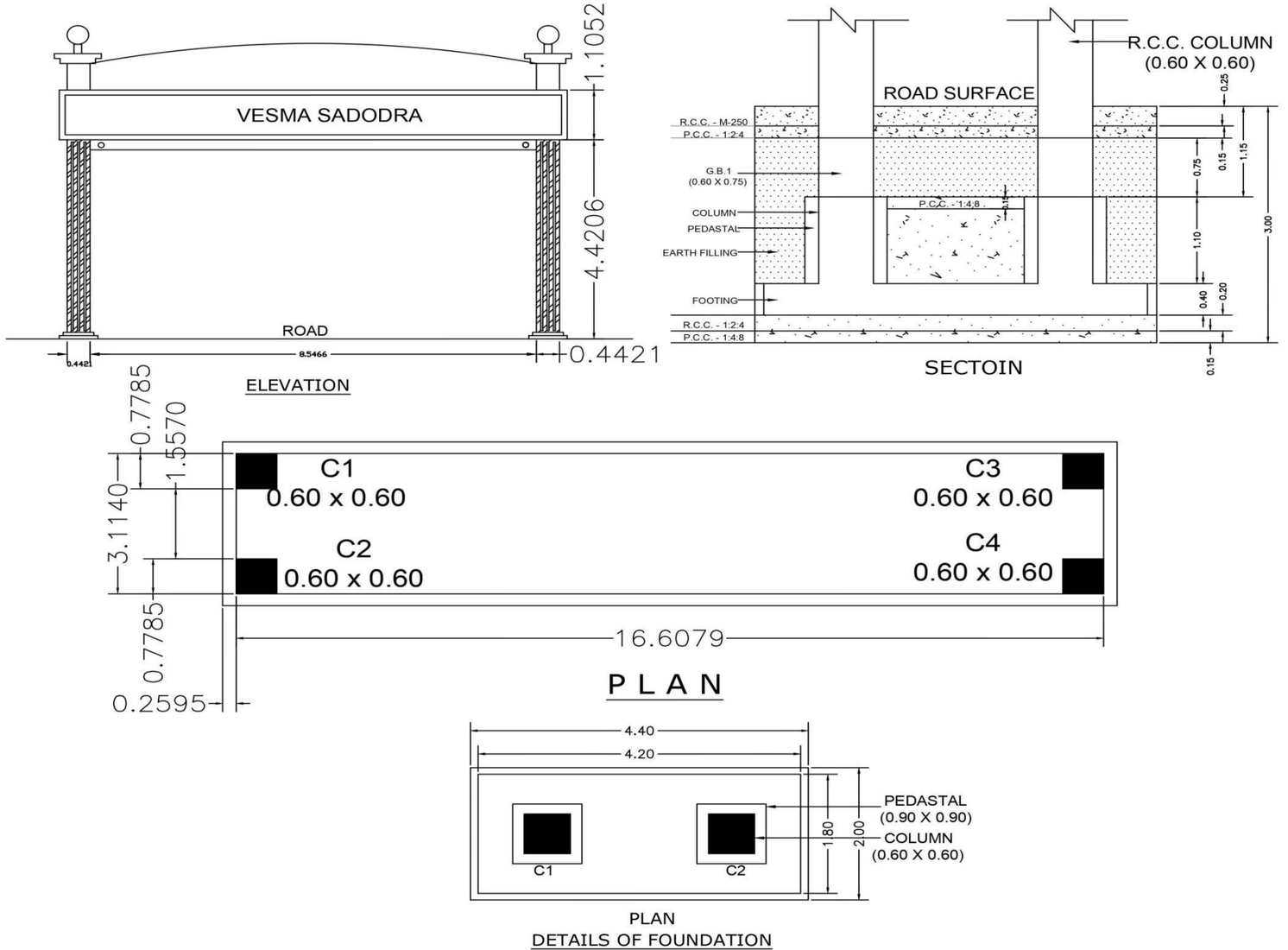
Existing Situation of Vesma-sadodra Village:

Currently, there is no Entrance Gate in the village.

Sustainability of Design Proposal:

The village Sarpanch has also insisted on constructing an Entrance Gate. So, by extension, villagers are also keen to have an Entrance Gate at Vesma-sadodra.

Design Summary:



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All dimension are in metre antil stated	
Drawing should be read not for scale	
Design is prepared only for education Purpose all data must be check before use	
Design is not responsible for any kind of wrong data	
Check first the plot dimensions	
Design by:-	Yadav Manish Rathod Prafull
ENTRANCE GATE	
Sheet No.	08
Date	
Guide by:-	bhavesh patel
Vishwakarma yojana:- phase VIII	
SCALE	AS INDICATED

Fig. 67 ENTRANCE GATE

Measurement Sheet

Table 27 Measurement sheet of Entrance Gate

Sr. no	Description	No	Length L (m)	Width B (m)	Height H (m)	Quantity	Total Quantity
1	**Excavation**						
	For Columns Foundation	2	4.40	2.00	1.50	26.40	**26.40 m^3**
2	**P.C.C. 1:4:8**						
	For Columns Foundation	2	4.40	2.00	0.15	2.64	**2.64 m^3**
3	**Cement Concrete**						
A	**For Footings**	2	4.20	1.80	0.40	**6.04**	**6.04 m^3**
B	**For Column up to plinth**	2x2	1.10	0.90	0.90	3.56	
	W=0.75 + 0.15 + 0.25 = 1.15	2x2	1.15	0.60	0.60	1.65	**5.21 m^3**
C	**For Ground Beams**						
	GB	2x2	10.00	0.60	0.75	18.00	**18.00 m^3**
D	**For Column**	2x2	2.00	0.90	0.90	**6.48**	**6.48 m^3**
E	**For Beams on Top of the gate** 25.00 + 0.20 + 0.20 = 25.40	1	25.40	0.60	1.00	15.24	**15.24 m^3**
F	**For Slab Joining Beam**	1	22.70	1.20	0.20	**5.45**	**5.45 m^3**
G	**For Top Projections**	1	1.20	0.50	0.20	0.12	
	Average = 0.60 M	2	10.00	0.50	0.20	2	
		2	10.00	0.60	0.20	2.4	**4.52 m^3**
H	**For Bottom Projections**	2	10.00	0.30	0.20	1.20	**1.20 m^3**
I	**For Column On Top**	2	1.00	0.60	0.60	0.72	**0.72 m^3**
4	**Providing Bar FE 415 Reinforcement for R.C.C. work**						
	(a) For Footings	6.04 cm x 30 kg/cm				181.20	
	(b) For Columns up to plinth	5.21 cm x 250 kg/cm				1302.50	
	(c) For Ground Beams	18.0 cm x 120 kg/cm				2160.00	
	(d) For Square Columns in superstructure	6.48 cm x 250 kg/cm				1620.00	

	(e) For Beams on top	15.24 cm x 160 kg/cm				2438.40	
	(f) For slab	5.45 cm x 70 kg/cm				381.50	
	(g) For Top Projection	4.52 cm x 50 kg/cm				226.00	
	(h) For Bottom Projection	1.20 cm x 50 kg/cm				60.00	
	(i) For Pillars on Top	0.72 cm x 100 kg/cm				72.00	**8441.60 kg**
5	**Providing cement plaster**						
A	**Column**	2x2x4	2.00	0.90		28.8	**28.8 m²**
B	**Beam on top of thegate**	1x2	23.10	1.00		46.2	
		1x2	1.20	1.00		2.4	**48.6 m²**
C	**Slab joining Beam**	1x2	22.70	1.20		54.48	**54.48 m²**
D	**Top projection side**	1x2	1.20	0.50		1.2	
	Top	1	1.20	0.20		0.24	
	Side	2x2	10.00	0.50		20	
	Top	1x2	10.00	0.20		4	**25.44 m²**
E	**Bottom Projections**	2x2	10.00	0.30		12	**12 m²**
F	**Column pillar on top**	2x2x4	0.50	0.60		4.8	
		2x2	0.60	0.60		1.44	**6.91 m²**
						Total Quantity=	**176.23 m²**
6	**Providing and laying tiles 8 to 10 mm thick in skrting**						
	Square Column	2x2x4	2.00	0.90		28.8	**28.8 m²**

Abstract Sheet:-

Table 28 Abstract Sheet of Entrance Gate

Sr.no	Description	Total Quantity	Rate	Per Unit	Total Amount
1	**Excavation**	26.40	85.90	m^3	2,244.00
2	**P.C.C. 1:4:8**	2.64	2324	m^3	6,135.36
3	**Cement concrete at below-**				
A	For Footings	6.04	4039.22	m^3	24,396.90
B	For Column up to plinth	5.21	4910.88	m^3	25,585.60
C	For Ground Beams	18.00	4436.71	m^3	79,860.60
D	For Column	6.48	4910.87	m^3	3,18,224.44
F	For Slab joining Beam	5.45	4875.75	m^3	26,572.84

G	For Top Projections	4.52	6473.90	m3	29,262.00
H	For Bottom projections	1.20	7242.00	m3	8,690.40
I	For column on top	0.72	9618.00	m3	6,924.96
4	Providing Bar FE 415 reinforcement for R.C.C. work	8441.60	44.30	Kg	3,73,962.88
5	Providing cement plaster	176.23	150	m2	26,434.50
6	Providing and laying tiles 8 to 10 mm thick in skrting	28.8	90	m2	2,592.00
7	Painting	176.23	120	m2	21,147.60
				Total=	**9,52,034.00 ₹**
				Add 5 % Contingency Charges:	47,602.00 ₹
				Add 2 % Work Establishment Charges:	19,040.60 ₹
				Add 1.5 % Electric Charges:	14,280.50 ₹
				Grand Total :	**10,33,496.70 ₹**

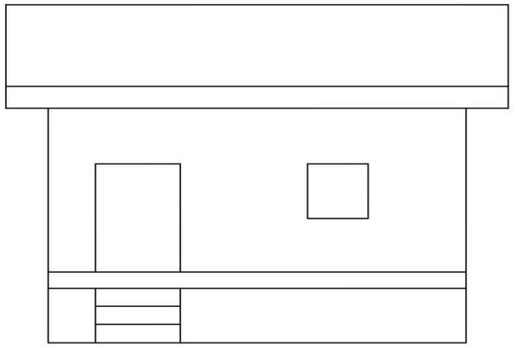
TOTAL COST = ₹ 10,33,496.70/-

13.1.4 Design of panchayat building:-

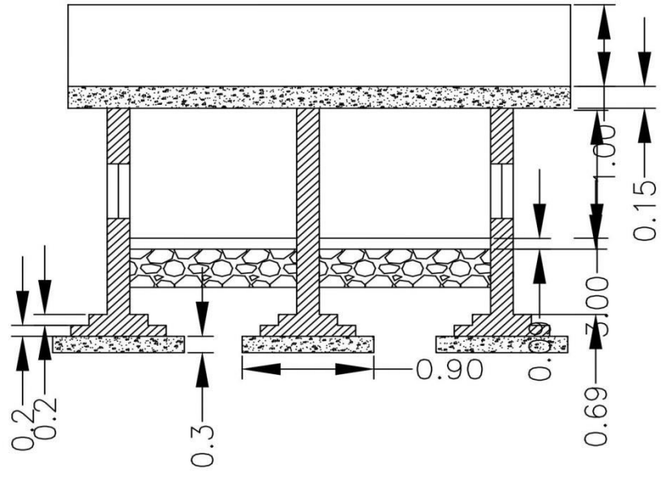
This village panchayat bulding structure is corrupted, so the workers doesn‘t feel and work in good environment so we are giving a new panchayat building structure to give workers best environment for the better work.

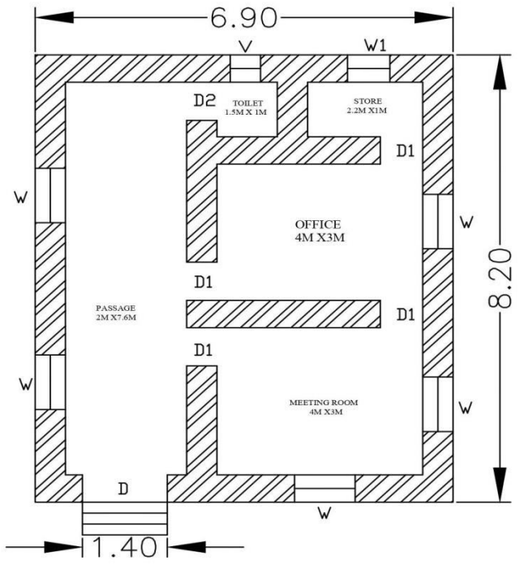
13.1.4 Design of panchayat building:-

ELEVATION OF PANCHAYAT BUILDING



SECTION OF PANCHAYAT BUILDING





PLAN OF PANCHAYAT BUILDING

SHEDUAL OF OPENING		
DETAILS	SYMBOLS	SIZE
DOOR	D	0.23X2.1
DOOR	D1	0.23X2.1
DOOR	D3	0.23X2.1
WINDOW	W	0.23X0.15
WINDOW	W1	0.23X0.15
VENTILATION	V	0.23X0.15

Gujarat Technological University	
All dimension are in metre antil stated	
Drawing should be read not for scale	
Design is prepared only for education Purpose all data must be check before use	
Design is not responsible for any kind of wrong data	
Check first the plot dimensions	
Design by:-	Yadav Manish Rathod Prafull
Panchayat Building	
Sheet No.	09
Date	
Guide by:-	bhavesh patel
Vishwakarma yojana:- phase VIII	
SCALE	AS INDICATED

Fig. 68 PANCHAYAT BUILDING

Measurement Sheet:-

Table 29 measurement sheet of panchayat building

Sr.No	Description	No	L	B	D/H	Q'ty
1	Excavation for foundation up to 1.5 mt. depth including sorting out and stacking of useful materials and disposing off the excavated stuff up to 50 Meter lead (A) loose or soft soil					
	Vertical Wall					
	8.20 o/o-0.23=7.97 C/C +0.90=8.87	3	8.87	0.9	0.7	16.76
	Toilet Wall 1.00+.23 =1.23 c/c -0.45-0.45=0.33	1	0.33	0.9	0.7	0.21
	Horizontal wall					
	6.90 o/o-0.23=6.67 c/c-0.45-0.45=5.77	2	5.77	0.9	0.7	7.27
	4.00i/i+0.23= 4.23c/c-0.45-.45=3.33	2	3.33	0.9	0.7	4.20
	step	1	1.4	0.9	0.3	0.38
					Cmt.	28.82
2	Providing & laying plain cement concrete 1:4:8 (1 cement : 4 coarse sand : 8 stone aggregate) and curing complete excluding cost of form work in (A) foundation and plinth					
	Foundation PCC	3	8.87	0.9	0.3	7.18
		1	0.33	0.9	0.3	0.09
		2	5.77	0.9	0.3	3.12
		2	3.33	0.9	0.3	1.80
		1	1.4	0.9	0.15	0.19
	Floor PCC					
	Passage	1	2.00	7.00	0.10	1.40
	Meeting Room	1	4.00	3.00	0.10	1.20
	Office	1	4.00	3.00	0.10	1.20
	Toilet	1	1.5	1.00	0.10	0.15
	Store	1	2.2	1.00	0.10	0.22
					Cmt.	16.55
3	Brick work using common Brunt clay building bricks having crushing strength not less than 35 Kg. /Sqcm. In foundation and plinth in cement mortar 1:6 (1cement : 6 fine sand)(B) conventional					
	7.97c/c +0.30+0.30=8.57	3	8.57	0.6	0.2	3.09
	1.23 c/c-0.60=0.63	1	0.63	0.6	0.2	0.08
	H wall 6.67c/c-.-0.6=6.07	2	6.07	0.6	0.2	1.46
	4.23c/c-0.60=3.63	2	3.63	0.6	0.2	0.87
	2nd					
	7.97 c/c+0.15+.-0.15=8.27	3	8.27	0.3	0.2	1.49
	H wall 6.67c/c-.-0.3=6.37	2	6.37	0.3	0.2	0.76

	4.23c/c-0.30=3.93	2	3.93	0.3	0.2	0.47
					A	8.27
	0.23 thick wall					
	7.97+0.23=8.20	3	8.2	0.23	0.77	4.36
	1.23-0.23=1.00	1	1	0.23	0.77	0.18
	H wall 6.67c/c-.-0.23=6.44	2	6.44	0.23	0.77	2.28
	4.23c/c-0.23=4.00	2	4	0.23	0.77	1.42
	step	1	1.4	0.9	0.23	0.29
		1	1.4	0.6	0.23	0.19
		1	1.4	0.3	0.23	0.10
					B	8.81
				A+B	Cmt.	17.08
4	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20 cm in depth consolidating each deposited layer by ramming and watering					
	Excavation	As per it-1		A	28.82	
	Deduct					
	PCC	As per it-2			16.55	
	B.M. in Foundation	As per it-3A			8.27	
				B	24.82	
				A-B	4.00	
					Cmt.	4.00
5	Add extra for disposing off the excavated stuff with all lead and lift upto 300-400 m					
	Excavation	As per it-1		A	28.82	
		As per it-4			-8.17	
				Cmt.	20.65	20.65
6	Filling in foundation and plinth with murrum or selected soil in layers of 20 cm. thickness including watering, ramming and consolidating etc. complete					
	Passage	1	2.00	7.00	0.59	8.26
	Meeting Room	1	4.00	3.00	0.59	7.08
	Office	1	4.00	3.00	0.59	7.08
	Toilet	1	1.5	1.00	0.59	0.89
	Store	1	2.2	1.00	0.59	1.30
					Cmt.	24.60

7	Brick work using common burnt clay conventional building bricks for super structure having crushing strength not less than 35 Kg./Sq. Cm. in cement mortar 1:6 (1 cement : 6 fine sand) in super structure above plinth level up to floor two level (conventional) (A) Ground Floor					
	0.23 thick wall					
	7.97+0.23=8.20	3	8.20	0.23	3.00	16.97
	1.23-0.23=1.00	1	1.00	0.23	3.00	0.69
	H wall 6.67c/c-.-0.23=6.44	2	6.44	0.23	3.00	8.89
	4.23c/c-0.23=4.00	2	4.00	0.23	3.00	5.52
					A	32.07
	Deduct opening					
	D	1	1.4	0.23	2.1	0.68
	D1	4	1	0.23	2.1	1.93
	D2	1	0.8	0.23	2.1	0.39
	W	5	1.2	0.23	1.2	1.66
	W1	1	0.8	0.23	1.2	0.22
	v	1	0.6	0.23	0.3	0.04
					B	4.91
	Net Qty.				A-B	27.16
					Cmt.	27.16
8	Providing & laying controlled cement concrete M-200 with curing etc. complete including the cost of form work but excluding the cost of reinforcement for R.C.C. work at Ground Floor for (i) Beam, **Lintel,** Chajja					
	Lintel					
	D	1	2.1	0.23	0.15	0.07
	D1	4	1.7	0.23	0.15	0.23
	D2	1	1.5	0.23	0.15	0.05
	W	5	1.9	0.23	0.15	0.33
	W1	1	1.5	0.23	0.15	0.05
	v	1	1.1	0.23	0.15	0.04
					Cmt.	0.78
9	Providing & laying controlled cement concrete M-200 with curing etc. complete including the cost of form work but excluding the cost of reinforcement for R.C.C. work at Ground Floor for (i) Slab, Shelves. For ground floor					
		1	8.20	6.90	0.125	7.07
					Cmt.	7.07
10	Half brick masonry in common burnt clay conventional building bricks having crushing strength not less than 35 Kg./Sq. Cm. in cement mortar 1:4 (1 Cement : 4 coarse sand) in super structure above plinth level up to floor two level (conventional) (A) Ground Floor					
	Parapet	2	8.2		1.2	19.68

		2	6.67		1.2	16.008
					Smt.	35.688
11	Providing 15 mm thick Mala cement plaster in single coat on fair side of brick / concrete wall for interior plastering upto floor two level & finished even and smooth : (ii) C M 1:4 (1 cement 4 sand) (A) Ground Floor					
	Passage	2	2.00		3.00	12.00
		2	7.00		3.00	42.00
	Meeting Room	2	4.00		3.00	24.00
		2	3.00		3.00	18.00
	Office	2	4.00		3.00	24.00
		2	3.00		3.00	18.00
	Toilet	2	1.50		3.00	9.00
		2	1.00		3.00	6.00
	Store	2	2.20		3.00	13.20
		2	1.00		3.00	6.00
	Parapet in side	2	7.97		1.32	21.04
		2	6.67		1.32	17.61
					A	210.85
	Deduct opening					
	D	1	1.4		2.1	2.94
	D1	4	1		2.1	8.4
	D2	1	0.8		2.1	1.68
	W	5	1.2		1.2	7.2
	W1	1	0.8		1.2	0.96
	v	1	0.6		0.3	0.18
						21.36
				Smt.	**A-B**	**189.49**
12	Providing 10 mm thick Mala cement plaster on ceiling and soffits of stairs up to floor two level, in cement mortar (1:3) (1 cement : 3 sand) & finished even and smooth : (A) Ground Floor					
	Passage	1	2.00	7.00		14.00
	Meeting Room	1	4.00	3.00		12.00
	Office	1	4.00	3.00		12.00
	Toilet	1	1.5	1.00		1.50
	Store	1	2.2	1.00		2.20
					Cmt.	41.70
13	20 mm thick sand faced cement plaster (Gutaka) on walls up to height 10 meters above ground level consisting of 12 mm thick backing coat of CM 1:3 (1 cement : 3 sand) and 8 mm thick finishing coat of CM 1:1 (1 cement : 1 sand) etc. complete.					
		2	8.2		4.92	80.69
		2	6.9		4.92	67.90

					A	148.58
	D	1	1.4		2.1	2.94
	W	5	1.2		1.2	7.2
	W1	1	0.8		1.2	0.96
	v	1	0.6		0.3	0.18
					B	11.28
	Net Qty			Smt.	A-B	137.30
14	Providing and laying 24" x 24" double charge Vitrified 8mm thick tile flooring over 20mm (average) base of cement mortar 1:6 (1 cement : 6 coarse sand) on new surface or fixing on existing flooring by adhesive material including dismantling of existing flooring and jointed with colour cement slurry including finished with flush pointing and cleaning the surface etc.					
	Passage	1	2.00	7.00		14.00
	Meeting Room	1	4.00	3.00		12.00
	Office	1	4.00	3.00		12.00
	Toilet	1	1.5	1.00		1.50
	Store	1	2.2	1.00		2.20
					Smt.	41.70

ABSTRACT SHEET:-

Table 30 abstract sheet of panchayat building

ITEM No	Item Description	QTY	UNIT	S.O.R 13-14	
				Rate	Amount ₹
1	Excavation for foundation up to 1.5 mt. depth including sorting out and stacking of useful materials and disposing off the excavated stuff upto 50 Meter lead (A) loose or soft soil	28.82	Cmt.	83.00	2391.74
2	Providing & laying plain cement concrete 1:4:8 (1 cement : 4 coarse sand : 8 stone aggregate) and curing complete excluding cost of form work in (A) foundation and plinth	16.55	Cmt.	2573.00	42574.92
3	Brick work using common Brunt clay building bricks having crushing strength not less than 35 Kg./Sq cm. In foundation and plinth in cement mortar 1:6 (1cement : 6 fine sand)(B) conventional	17.08	Cmt.	3362.00	57424.33

4	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20 cm in depth consolidating each deposited layer by ramming and watering	4.00	Cmt.	53.30	213.21
5	Add extra for disposing off the excavated stuff with all lead and lift up to 300-400 m	20.65	Cmt.	43.10	889.85
6	Filling in foundation and plinth with murrum or selected soil in layers of 20 cm. thickness including watering, ramming and consolidating etc. complete	24.60	Cmt.	306.00	7528.52
7	Brick work using common burnt clay conventional building bricks for super structure having crushing strength not less than 35 Kg./Sq.Cm. in cement mortar 1:6 (1 cement : 6 fine sand) in super structure above plinth level upto floor two level (conventional) (A) Ground Floor	27.16	Cmt.	3475.00	94375.44
8	Providing & laying controlled cement concrete M-200 with curing etc. complete including the cost of form work but excluding the cost of reinforcement for R.C.C. work at Ground Floor for (i) Beam, Lintel, Chajja	0.78	Cmt.	5758.00	4469.65
9	Providing & laying controlled cement concrete M-200 with curing etc. complete including the cost of form work but excluding the cost of reinforcement for R.C.C. work at Ground Floor for (i) Slab, Shelves. For ground floor	7.07	Cmt.	6025.00	42611.81
10	Half brick masonry in common burnt clay conventional building bricks having crushing strength not less than 35 Kg./Sq. Cm. in cement mortar 1:4 (1 Cement : 4 coarse sand) in super structure above plinth level up to floor two level (conventional) (A) Ground Floor	35.688	Cmt.	484.80	17301.54

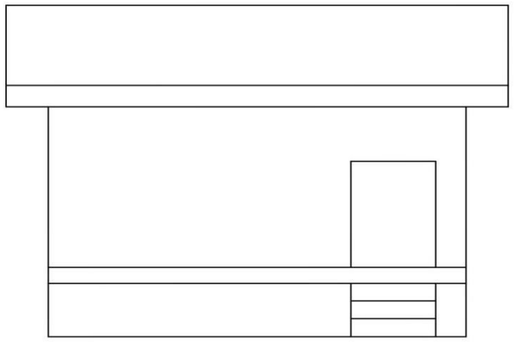
11	Providing 15 mm thick Mala cement plaster in single coat on fair side of brick / concrete wall for interior plastering up to floor two level & finished even and smooth : (ii) C M 1:4 (1 cement 4 sand) (A) Ground Floor	189.49	Smt.	143.40	27172.81
12	Providing 10 mm thick Mala cement plaster on ceiling and soffits of stairs up to floor two level, in cement mortar (1:3) (1 cement : 3 sand) & finished even and smooth : (A) Ground Floor	41.70	Smt.	126.80	5287.56
13	20 mm thick sand faced cement plaster (Gutaka) on walls up to height 10 meters above ground level consisting of 12 mm thick backing coat of CM 1:3 (1 cement : 3 sand) and 8 mm thick finishing coat of CM 1:1 (1 cement : 1 sand) etc. complete.	137.30	Smt.	216.00	29657.66
14	Providing and laying 24" x 24" double charge Vitrified 8mm thick tile flooring over 20mm (average) base of cement mortar 1:6 (1 cement : 6 coarse sand) on new surface or fixing on existing flooring by adhesive material including dismantling of existing flooring and jointed with colour cement slurry including finished with flush pointing and cleaning the surface etc.	41.70	Smt.	1197.00	49914.90
				TOTAL	**381813.95**

13.1.5 Design Medical Shop:

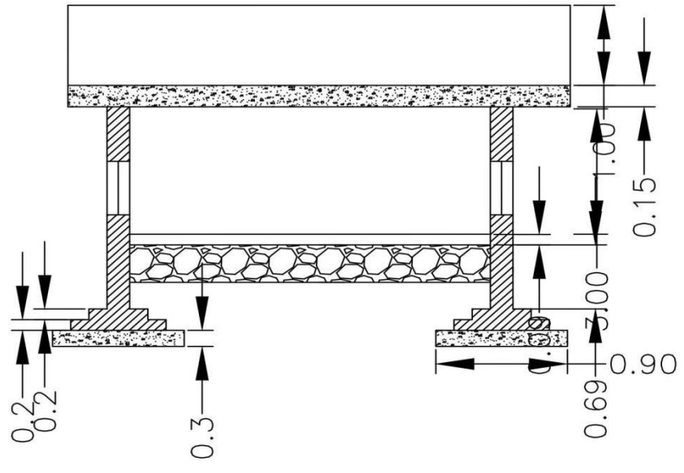
To accomplish basic medical necessity of villagers and provide first stage medical consultancy during emergency timings so we designed medical shop which will be constructed in central area of the village.

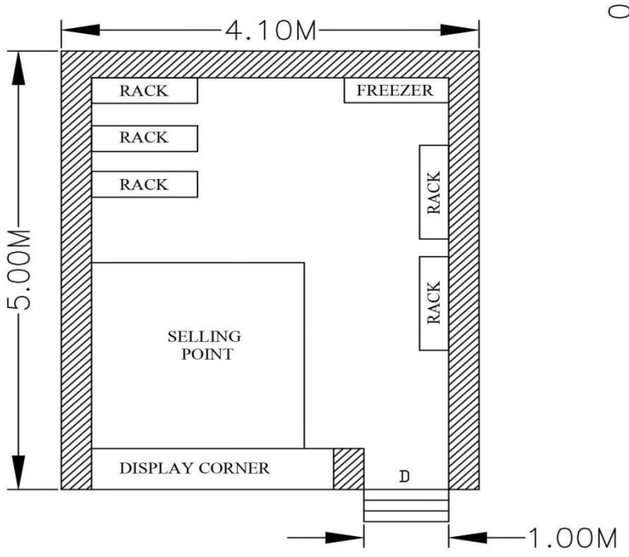
13.1.5 Design : Medical Shop:-

ELEVATION OF MEDICAL SHOP



SECTION OF MEDICAL SHOP





PLAN OF MEDICAL SHOP

SHEDUAL OF OPENING		
DETAILS	SYMBOLS	SIZE
DOOR	D	0.23X0.15

Gujarat Technological University	
All dimension are in metre antil stated	
Drawing should be read not for scale	
Design is prepared only for education Purpose all data must be check before use	
Design is not responsible for any kind of wrong data	
Check first the plot dimensions	
Design by:-	Yadav Manish Rathod Prafull
Medical shop	
Sheet No.	10
Date	
Guide by:-	bhavesh patel
Vishwakarma yojana:- phase VIII	
SCALE	AS INDICATED

Fig. 69 MEDICAL SHOP

MEASUREMENT SHEET

Table 31 measurement sheet of medical shop

Sr.No	Description	No	L	B	D/H	Q'ty
1	Excavation for foundation up to 1.5 mt. depth including sorting out and stacking of useful materials and disposing off the excavated stuff up to 50 Meter lead (A) loose or soft soil					
	Vertical Wall					
	5 o/o-0.23=4.77 C/C +0.90=5.67	2	5.67	0.9	0.7	7.14
	Horizontal wall					
	4.10 o/o-0.23=3.87 c/c-0.45-0.45=2.97	2	2.97	0.9	0.7	3.74
	step	1	1	0.9	0.2	0.18
					Cmt.	11.07
2	Providing & laying plain cement concrete 1:4:8 (1 cement : 4 coarse sand : 8 stone aggregate) and curing complete excluding cost of form work in (A) foundation and plinth					
	Foundation PCC	2	5.67	0.9	0.3	3.06
		2	2.97	0.9	0.3	1.60
		1	1	0.9	0.3	0.27
	Floor PCC					
		1	4.50	3.60	0.10	1.62
					Cmt.	6.56
3	Brick work using common Brunt clay building bricks having crushing strength not less than 35 Kg. /Sq cm. In foundation and plinth in cement mortar 1:6 (1cement : 6 fine sand)(B) conventional					
	1st Step					
	V wall 4.77 c/c +0.30+0.30=5.37	2	5.37	0.6	0.2	1.29
	H wall 3.87c/c-.-0.6=3.27	2	3.27	0.6	0.2	0.78
	2nd Step					
	V Hall 4.77 c/c+0.15+.-0.15=5.07	2	5.07	0.3	0.2	0.61
	H wall 3.87c/c-.-0.3=3.57	2	3.57	0.3	0.2	0.43
					A	**3.11**
	0.23 thick wall					
	V wall 4.77c/c+0.23=5	2	5	0.23	0.77	1.77
	H wall 3.87c/c-.-0.23=3.64	2	3.64	0.23	0.77	1.29
					B	**3.06**
				A+B	Cmt.	6.17
4	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20 cm in depth consolidating each deposited layer by ramming and watering					
	Excavation	As per		A	11.07	

		it-1				
	Deduct					
	PCC	As per it-2			6.56	
	B.M. in Foundation	As per it-3A			3.11	
				B	9.67	
				A-B	1.40	
					Cmt.	1.40
5	Add extra for disposing off the excavated stuff with all lead and lift up to 300-400 m					
	Excavation	As per it-1		A	11.06	
		As per it-4			-3.11	
				Cmt.	7.95	7.95
6	Filling in foundation and plinth with murrum or selected soil in layers of 20 cm. thickness including watering, ramming and consolidating etc. complete					
		1	4.50	3.60	0.59	9.56
					Cmt.	9.56
7	Brick work using common burnt clay conventional building bricks for super structure having crushing strength not less than 35 Kg./Sq. Cm. in cement mortar 1:6 (1 cement : 6 fine sand) in super structure above plinth level up to floor two level (conventional) (A) Ground Floor					
	0.23 thick wall					
	V wall 4.77+0.23=5	2	5.00	0.23	3.00	6.90
	H wall 3.87c/c-.-0.23=3.64	2	3.64	0.23	3.00	5.02
					A	11.92
	Deduct opening					
	D	1	1	0.23	2.1	0.48
	W	1	2.5	0.23	3	1.73
					B	2.21
	Net Qty.				A-B	9.72
					Cmt.	9.72
8	Providing & laying controlled cement concrete M-200 with curing etc. complete including the cost of form work but excluding the cost of reinforcement for R.C.C. work at Ground Floor for (i) Beam, **Lintel,** Chajja					
	Lintel					
	D	1	1.7	0.23	0.15	0.06
	W	1	2.5	0.23	0.15	0.09
					Cmt.	0.14

9	Providing & laying controlled cement concrete M-200 with curing etc. complete including the cost of form work but excluding the cost of reinforcement for R.C.C. work at Ground Floor for (i) Slab, Shelves. For ground floor					
		1	5.00	4.10	0.125	2.56
					Cmt.	2.56
10	Half brick masonry in common burnt clay conventional building bricks having crushing strength not less than 35 Kg./Sq. Cm. in cement mortar 1:4 (1 Cement : 4 coarse sand) in super structure above plinth level up to floor two level (conventional) (A) Ground Floor					
	Parapet	2	5		1.2	12
		2	3.87		1.2	9.288
					Smt.	21.288
11	Providing 15 mm thick Mala cement plaster in single coat on fair side of brick / concrete wall for interior plastering upto floor two level & finished even and smooth : (ii) C M 1:4 (1 cement 4 sand) (A) Ground Floor					
		2	4.50		3.00	27.00
		2	3.60		3.00	21.60
	Parapet in side	2	4.77		1.32	12.59
		2	3.87		1.32	10.22
					A	71.41
	Deduct opening					
	D	1	1		2.1	2.1
	W	1	2.5		3	7.5
						9.6
				Smt.	**A-B**	**61.81**
12	Providing 10 mm thick Mala cement plaster on ceiling and soffits of stairs up to floor two level, in cement mortar (1:3) (1 cement : 3 sand) & finished even and smooth : (A) Ground Floor					
		1	4.50	3.60		16.20
					Cmt.	16.20
13	20 mm thick sand faced cement plaster (Gutaka) on walls up to height 10 meters above ground level consisting of 12 mm thick backing coat of CM 1:3 (1 cement : 3 sand) and 8 mm thick finishing coat of CM 1:1 (1 cement : 1 sand) etc. complete.					
		2	5		4.92	49.20
		2	4.1		4.92	40.34
					A	89.54
	D	1	1		2.1	2.1
	W	1	2.5		3	7.5
					B	9.6
	Net Qty			Smt.	A-B	79.94

14	Providing and laying 24" x 24" double charge Vitrified 8mm thick tile flooring over 20mm (average) base of cement mortar 1:6 (1 cement : 6 coarse sand) on new surface or fixing on existing flooring by adhesive material including dismantling of existing flooring and jointed with colour cement slurry including finished with flush pointing and cleaning the surface etc.					
		1	4.50	3.60		16.20
					smt	16.20

ABSTRACT SHEET

Table 32 abstract sheet of medical shop

ITEM No	Item Description	QTY	UNIT	S.O.R 13-14	
				Rate	Amount ₹
1	Excavation for foundation up to 1.5 mt.depth including sorting out and stacking of useful materials and disposing off the excavated stuff upto 50 Meter lead (A) loose or soft soil	11.07	Cmt.	83.00	918.51
2	Providing & laying plain cement concrete 1:4:8 (1 cement : 4 coarse sand : 8 stone aggregate) and curing complete excluding cost of form work in (A) foundation and plinth	6.56	Cmt.	2573.00	16867.56
3	Brick work using common Brunt clay building bricks having crushing strength not less than 35 Kg./Sqcm. In foundation and plinth in cement mortar 1:6 (1cement : 6 fine sand)(B) conventional	6.17	Cmt.	3362.00	20745.85
4	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20 cm in depth consolidating each deposited layer by ramming and watering	1.40	Cmt.	53.30	74.64
5	Add extra for disposing off the excavated stuff with all lead and lift upto 300-400 m	7.95	Cmt.	43.10	342.65
6	Filling in foundation and plinth with murrum or selected soil in layers of 20 cm. thickness including watering, ramming and consolidating etc. complete	9.56	Cmt.	306.00	2924.75

7	Brick work using common burnt clay conventional building bricks for super structure having crushing strength not less than 35 Kg./Sq.Cm. in cement mortar 1:6 (1 cement : 6 fine sand) in super structure above plinth level upto floor two level (conventional) (A) Ground Floor	9.72	Cmt.	3475.00	33760.32
8	Providing & laying controlled cement concrete M-200 with curing etc. complete including the cost of form work but excluding the cost of reinforcement for R.C.C. work at Ground Floor for (i) Beam, Lintel, Chajja	0.14	Cmt.	5758.00	834.33
9	Providing & laying controlled cement concrete M-200 with curing etc. complete including the cost of form work but excluding the cost of reinforcement for R.C.C. work at Ground Floor for (i) Slab, Shelves. For ground floor	2.56	Cmt.	6025.00	15439.06
10	Half brick masonary in common burnt clay conventional building bricks having crushing strength not less than 35 Kg./Sq.Cm. in cement mortar 1:4 (1 Cement : 4 coarse sand) in super structure above plinth level upto floor two level (conventional) (A) Ground Floor	21.288	Cmt.	484.80	10320.42
11	Providing 15 mm thick Mala cement plaster in single coat on fair side of brick / concrete wall for interior plastering upto floor two level & finished even and smooth : (ii) C M 1:4 (1 cement 4 sand) (A) Ground Floor	61.81	Smt.	143.40	8863.50
12	Providing 10 mm thick Mala cement plaster on ceiling and soffits of stairs upto floor two level, in cement mortar (1:3) (1 cement : 3 sand) & finished even and smooth : (A) Ground Floor	16.20	Smt.	126.80	2054.16

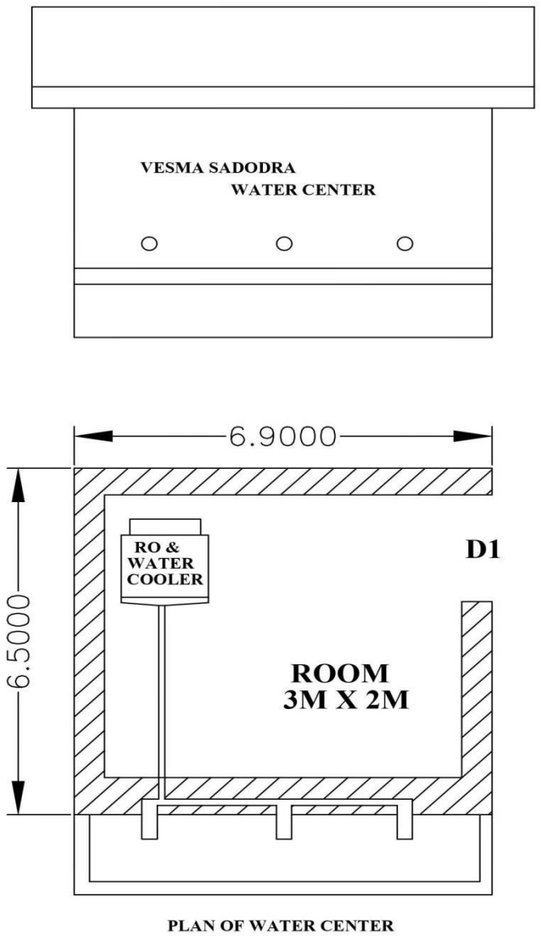
13	20 mm thick sand faced cement plaster (Gutaka) on walls up to height 10 meters above ground level consisting of 12 mm thick backing coat of CM 1:3 (1 cement : 3 sand) and 8 mm thick finishing coat of CM 1:1 (1 cement : 1 sand) etc. complete.	79.94	Smt.	216.00	17267.90
14	Providing and laying 24" x 24" double charge Vitrified 8mm thick tile flooring over 20mm (average) base ofcement mortar 1:6 (1 cement : 6 coarse sand) on new surface or fixing on existing flooring by adhesive material including dismantaling of existing flooring and jointed with colour cement slurry including finished with flush pointing and cleaning the surface etc. compl.	16.20	Smt.	1197.00	19391.40
				TOTAL	**149805.06**

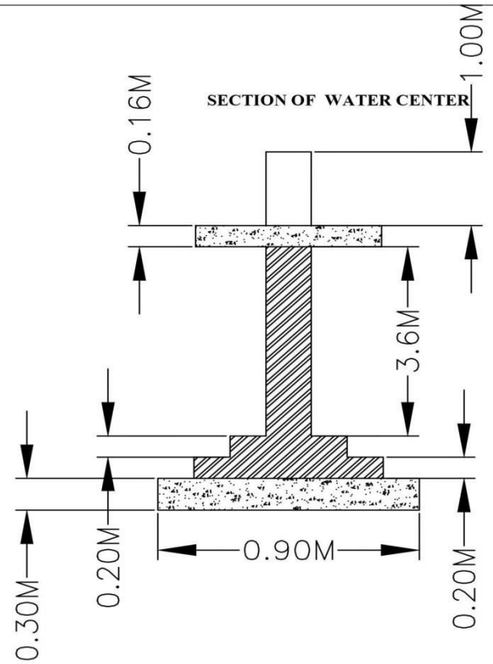
13.1.6 Socio-cultural Design: Drinking Water Station:-

- **Eco Friendly and Economic**, Having access to a drinking fountain is both beneficial to your well-being, the environment and to your pocket. Reducing our reliance to bottled water will ensure less plastic waste polluting our environment as well as reducing the CO2 emissions resulting from its production and transportation. Not to mention the monetary savings users will gain from not purchasing bottled water.

- When drinking fountains are situated at pivotal points in a private/public space, end users have the convenience of staying hydrated while engaging in activities such as running errands, physical activity such as exercise or sport, or simply walking through. Drinking fountains are low maintenance and are generally accessible 24/7 which make them convenient (and healthy) alternatives to any other drinks.

13.1.6 Design: Drinking Water Station:-





SHEDUAL OF OPENING		
DETAILS	SYMBOLS	SIZE
DOOR	D1	0.23X2.1

Gujarat Technological University	
All dimension are in metre antil stated	
Drawing should be read not for scale	
Design is prepared only for education Purpose all data must be check before use	
Design is not responsible for any kind of wrong data	
Check first the plot dimensions	
Design by:-	Yadav Manish Rathod Prafull
WATER CENTER	
Sheet No.	11
Date	
Guide by:-	bhavesh patel
Vishwakarma yojana:- phase VIII	
SCALE	AS INDICATED

Fig. 70 DRINKING WATER STATION

Measurement Sheet

Table 33 measurement sheet of water center

Sr.No	Description	No	L	B	D/H	Q'ty
1	Excavation for foundation up to 1.5 mt.depth including sorting out and stacking of useful materials and disposing off the excavated stuff upto 50 Meter lead (A) loose or soft soil					
	Vertical Wall					
	(1) 2.46 o/o-0.23=2.23 C/C +0.90=3.13	2	3.13	0.9	0.7	3.94
	Horizontal wali					
	(2) 3.46 o/o-0.23=3.23 c/c-0.45-0.45=2.33	2	2.33	0.9	0.7	2.94
					Cmt.	6.88
	Providing & laying plain cement concrete 1:4:8 (1 cement : 4 coarse sand : 8 stone aggregate) and curing complete excluding cost of form work in (A) foundation and plinth					
2	Foundation pcc	2	3.13	0.9	0.3	1.69
		2	2.33	0.9	0.3	1.26
	Floor pcc					
	Room	1	3.00	2.00	0.10	0.60
					Cmt.	3.55
	Brick work using common Brunt clay building bricks having crushing strength not less than 35 Kg. /Sqcm. In foundation and plinth in cement mortar 1:6 (1cement : 6 fine sand)(B) conventional					
3	1st Step					
	(1) 2.23 c/c+0.30+0.30=2.83	2	2.83	0.6	0.2	0.68
	(2) 3.23 c/c-0.60=2.63	2	2.63	0.6	0.2	0.63
	2nd Step					
	(1) 2.23 c/c+0.15+0.15=2.53	2	2.53	0.3	0.2	0.30
	(2) 3.23 c/c-0.30=2.93	2	2.93	0.3	0.2	0.35
					A	**1.97**
	0.23 thick wall					
	(1) 2.23 c/c+0.23=2.46	2	2.46	0.23	0.77	0.87
	(2) 3.23 c/c-0.23=3	2	3	0.23	0.77	1.06
					B	**1.93**
				A+B	Cmt.	3.90
	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20 cm in depth consolidating each deposited layer by ramming and watering					
4	Excavation	As per it-1		A	6.88	
	Deduct					
	PCC	As per it-2			3.55	

	B.M. in Foundation	As per it-3A			1.97	
				B	5.51	
				A-B	1.37	
					Cmt.	1.37
	Add extra for disposing off the excavated stuff with all lead and lift upto 300-400 m					
5	Excavation	As per it-1		A	6.88	
		As per it-4			1.37	
				Cmt.	8.25	8.25
	Filling in foundation and plinth with murrum or selected soil in layers of 20 cm. thickness including watering, ramming and consolidating etc. complete					
6	Room	1	3.00	2.00	0.59	3.54
					Cmt.	3.54
	Brick work using common burnt clay conventional building bricks for super structure having crushing strength not less than 35 Kg./Sq.Cm. in cement mortar 1:6 (1 cement : 6 fine sand) in super structure above plinth level upto floor two level (conventional) (A) Ground Floor					
7	0.23 thick wall					
	(1) 2.23 c/c+0.23=2.46	2	2.46	0.23	3.00	3.39
	(2) 3.23 c/c-0.23=3	2	3	0.23	3.00	4.14
					A	7.53
	Deduct opening					
	D1	1	1	0.23	2.1	0.48
					B	0.48
	Net Qty.				A-B	7.05
					Cmt.	7.05
	Providing & laying controlled cement concrete M-200 with curing etc. complete including the cost of form work but excluding the cost of reinforcement for R.C.C. work at Ground Floor for (i) Beam, Lintel, Chajja					
8	Lintel					
	D1	1	1	0.23	0.15	0.03
					Cmt.	0.03
	Providing & laying controlled cement concrete M-200 with curing etc. complete including the cost of form work but excluding the cost of reinforcement for R.C.C. work at Ground Floor for (i) Slab, Shelves. For ground floor					
9		1	2.46	3.00	0.125	0.92
					Cmt.	0.92
	Half brick masonary in common burnt clay conventional building bricks having crushing strength not less than 35 Kg./Sq.Cm. in cement mortar 1:4 (1 Cement : 4 coarse sand) in super structure above plinth level upto floor two level (conventional) (A) Ground Floor					
10	Perapet	2	2.46		1.2	5.904
		2	3		1.2	7.2
					Smt.	13.104

	Providing 15 mm thick Mala cement plaster in single coat on fair side of brick / concrete wall for interior plastering upto floor two level & finished even and smooth : (ii) C M 1:4 (1 cement 4 sand) (A) Ground Floor					
11	Room	2	2.00		3.00	12.00
		2	3.00		3.00	18.00
	Perapet in side	2	2.46		1.32	6.49
		2	3.00		1.32	7.92
					A	44.41
	Deduct opening					
	D1	1	1		2.1	2.1
						2.1
				Smt.	**A-B**	**42.31**
	Providing 10 mm thick Mala cement plaster on ceiling and soffits of stairs upto floor two level, in cement mortar (1:3) (1 cement : 3 sand) & finished even and smooth : (A) Ground Floor					
12	Room	1	3.00	2.00		6.00
					Cmt.	6.00
	20 mm thick sand faced cement plaster (Gutaka) on walls up to height 10 meters above ground level consisting of 12 mm thick backing coat of CM 1:3 (1 cement : 3 sand) and 8 mm thick finishing coat of CM 1:1 (1 cement : 1 sand) etc. complete.					
13		2	2.46		4.92	24.21
		2	3		4.92	29.52
					A	53.73
	D1	1	1		2.1	2.1
					B	2.1
	Net Qty			Smt.	A-B	51.63
	Providing and laying 24" x 24" double charge Vitrified 8mm thick tile flooring over 20mm (average) base ofcement mortar 1:6 (1 cement : 6 coarse sand) on new surface or fixing on existing flooring by adhesive material including dismantaling of existing flooring and jointed with colour cement slurry including finished with flush pointing and cleaning the surface etc. compl.					
14	Room	1	3.00	2.00		6.00
					smt	6.00

Abstract Sheet

Table 34 abstract sheet of water center

ITEM No	Item Description	QTY	UNIT	S.O.R 13-14	
				Rate	Amount
1	Excavation for foundation up to 1.5 mt.depth including sorting out and stacking of useful materials and disposing off the excavated stuff upto 50 Meter lead (A) loose or soft soil	6.88	Cmt.	205.00	1410.32
2	Providing & laying plain cement concrete 1:4:8 (1 cement : 4 coarse sand : 8 stone aggregate) and curing complete excluding cost of form work in (A) foundation and plinth	3.55	Cmt.	2604.00	9240.03
3	Brick work using common Brunt clay building bricks having crushing strength not less than 35 Kg./Sqcm. In foundation and plinth in cement mortar 1:6 (1cement : 6 fine sand)(B) conventional	3.90	Cmt.	3362.00	13110.23
4	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20 cm in depth consolidating each deposited layer by ramming and watering	1.37	Cmt.	53.30	72.79
5	Add extra for disposing off the excavated stuff with all lead and lift upto 300-400 m	8.25	Cmt.	43.10	355.58
6	Filling in foundation and plinth with murrum or selected soil in layers of 20 cm. thickness including watering, ramming and consolidating etc. complete	3.54	Cmt.	306.00	1083.24
7	Brick work using common burnt clay conventional building bricks for super structure having crushing strength not less than 35 Kg./Sq.Cm. in cement mortar 1:6 (1 cement : 6 fine sand) in super structure above plinth level upto floor two level (conventional) (A) Ground Floor	7.05	Cmt.	3475.00	24505.01
8	Providing & laying controlled cement concrete M-200 with curing etc. complete including the cost of form work but excluding the cost of reinforcement for R.C.C. work at Ground Floor for (i) Beam, Lintel, Chajja	0.03	Cmt.	5758.00	198.65
9	Providing & laying controlled cement concrete M-200 with curing etc. complete including the cost of form work but excluding the cost of reinforcement for R.C.C. work at Ground	0.92	Cmt.	6025.00	5558.06

	Floor for (i) Slab, Shelves. For ground floor				
10	Half brick masonary in common burnt clay conventional building bricks having crushing strength not less than 35 Kg./Sq.Cm. in cement mortar 1:4 (1 Cement : 4 coarse sand) in super structure above plinth level upto floor two level (conventional) (A) Ground Floor	13.104	Cmt.	484.80	6352.82
11	Providing 15 mm thick Mala cement plaster in single coat on fair side of brick / concrete wall for interior plastering upto floor two level & finished even and smooth : (ii) C M 1:4 (1 cement 4 sand) (A) Ground Floor	42.31	Smt.	143.40	6067.88
12	Providing 10 mm thick Mala cement plaster on ceiling and soffits of stairs upto floor two level, in cement mortar (1:3) (1 cement : 3 sand) & finished even and smooth : (A) Ground Floor	6.00	Smt.	126.80	760.80
13	20 mm thick sand faced cement plaster (Gutaka) on walls up to height 10 meters above ground level consisting of 12 mm thick backing coat of CM 1:3 (1 cement : 3 sand) and 8 mm thick finishing coat of CM 1:1 (1 cement : 1 sand) etc. complete.	51.63	Smt.	216.00	11151.30
14	Providing and laying 24" x 24" double charge Vitrified 8mm thick tile flooring over 20mm (average) base ofcement mortar 1:6 (1 cement : 6 coarse sand) on new surface or fixing on existing flooring by adhesive material including dismantaling of existing flooring and jointed with colour cement slurry including finished with flush pointing and cleaning the surface etc. compl.	6.00	Smt.	1197.00	7182.00
					87048.70
15	Water Cooler 80Ltr				26790
16	Minaral Plant				30000
				Total	143838.7

Chapter: 14

Technical Options with Case Studies

14.1 Civil Engineering:-

14.1.1 Advanced Earthquake Resistant :-

An Earthquake is Earth's Shaking or in other words release of energy due to the movement of tectonic plates. This can be destructive enough to kill thousands of people and bring huge economic loss. This natural disaster has many adverse effects on earth like ground shaking, landslides, rock falls from cliffs, liquefaction, fire, tsunami etc. Buildings are highly affected by an earthquake, and in some cases they are shattered down to the ground level. Whenthe ground shaking occurs beneath the building's foundations they vibrate in an analogous manner with that of the surrounding ground. The inertia force of a structure can develop shearing effect on it which in turn causes stress concentration on the connections in structure and on the fragile walls. This results in partial or full failure of structure. The excitement and prevalence of shaking depends on the orientation of the building. High rise structures have the tendency to magnify the magnitude of long time periodic motions when comparing to the smaller one. Every construction has a resonant prevalence which are the characteristics of structure. Taller buildings have a tendency for long time periods than shorter one which makethem relatively more susceptible to damage. Hence, one has to be careful while performing theanalysis of a tall structure. In order to analyze a tall structure many analysis procedures are valid like a) Equivalent static analysis, b) Response spectrum analysis, c) Linear dynamic analysis, d) Nonlinear static analysis or nonlinear pushover analysis and e) Nonlinear dynamic analysis. Soil structure interaction analysis is also essential to be considered. After identifying the soil type, analyzing procedure is selected to do the detailed analysis of the interaction between soil and structure. To reduce the seismic effects on tall buildings several equipment is used like dampers or base isolation process. In dampers viscous damper, friction damper, yielding damper, magneto rheological fluid dampers tuned mass damper or harmonic absorber can be used. In base isolator magneto rheological elastomer, elastomeric bearing system, sliding system can be used.

14.1.2 Seismic Retrofitting of Buildings:-

In recent times, reinforced concrete buildings have become common in India, particularly in towns and cities. Reinforced concrete (or simply *RC*) consists of two primary materials, namely concrete with reinforcing steel bar*s*. Concrete is made of sand, crushed stone(called aggregates) and cement, all mixed with pre-determined amount of water. Concrete canbe moulded into any desired shape, and steel bars can be bent into many shapes. Thus, structures of complex shapes are possible with RC.A typical RC building is made of horizontal members (beams and slabs) and vertical members (columns and walls), and supported by foundations that rest on ground. The system comprising of RC columns and connecting beams is called a RC Frame. The RC frame participates in resisting the earthquake forces. Earthquake shaking generates inertia forces in the building, which are proportional to the building mass. Since most of the building mass is present at floor levels, earthquake-induced inertia forces primarily develop at the floor levels. These forces travel downwards – through slab and beams to columns and walls, and then to the foundations from where they are dispersed to the ground. As inertia forces accumulate downwards from the top of the building, the columns and walls at lower storeys experience higher earthquake-induced forces and are therefore designed to bestronger than those in storeys above.

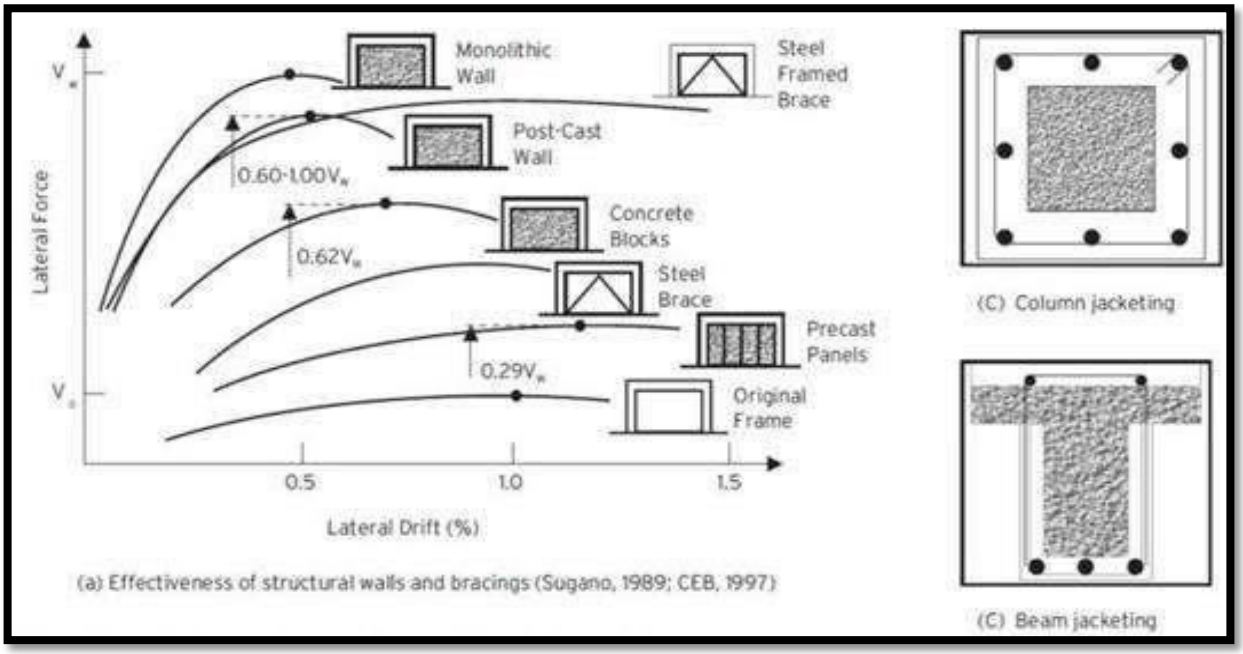


Fig. 71 CONVENTIONALSTRENGTHENING METHODS USEDFOR SEISMIC RETROFITTING

Addition of shear walls and bracings shown in Fig. 14.1 (a) is the most popular strengthening method due to its effectiveness, relative ease, and lower overall project cost compared to column and beam jacketing shown in Fig. 14.1(b) and (c), respectively. Relative effectiveness of various wall and bracing configurations are compared in Fig. 14.1(a). From this figure, it is seen that post-cast shear walls and steel braced frames are the most effective strengthening techniques.

14.1.3Advance Practices in Construction field in Modern Material,Techniques:-

To understand all how and about of super performing construction materials we must study materials according to their use from very root to tip. By that way we can easily conclude and infer about the application, implementation and feasibility of that particular construction material. Elements of construction where these smart materials and techniques shall be implemented are: Foundation, Plinth, Beam, Column, Wall, Sill, Window, Door, Roof, Parapet, Skylights and Finishing Works. Construction materials are said to be super performingwhen they

- ✓ Save overall building energy
- ✓ Make building esthetically pleasing
- ✓ Cut cost of construction
- ✓ Easily available
- ✓ Increase life span of building
- ✓ Upgrade building quality
- ✓ Make the building safe for living

Some Super Performing Safe materials:-

a) Collapse preventing Structure
b) Bombproof fiber material
c) High pressure metal laminates
d) Stratified wood panels
e) Metafloor

Super Performing Materials:-

Advancements in Concrete

a) High Performance Concrete

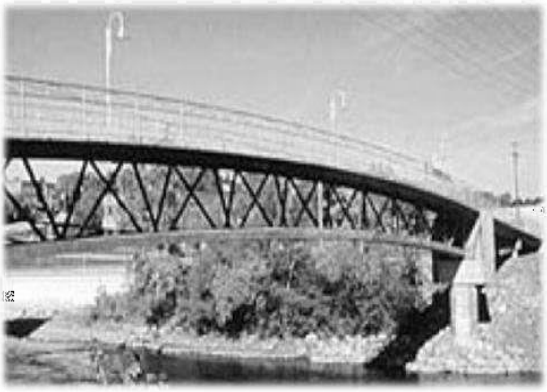


Fig. 72 BRIDGE MADE OF HIGH PERFORMANCE CONCRETE

b) Light Transmitting Concrete

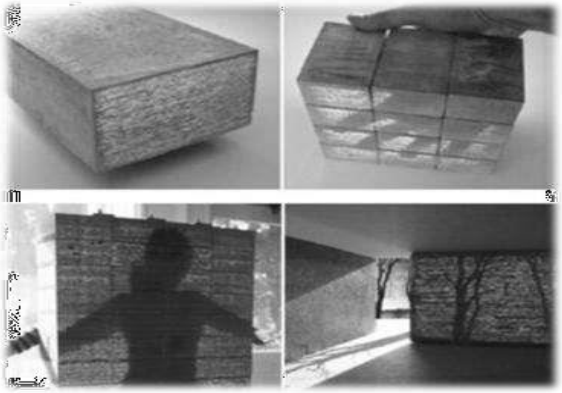


Fig. 73 TRANSLUCENT CONCRETE IN USE

c) Pervious Concrete

Fig. 74 USE OF WATER PERMEABLE CONCRETE

d) Aerated Concrete

Fig. 75 LIGHT WEIGHT CONCRETE

14.1.4 Engineering Aspects of Soil mechanics - Environmental Impact Assessment:-

Our daily life environment in Nigeria relates to air, noise, sunlight, geological features, fauna, flora, landscape and etcetera. All these affect the economy of the country: if the environment is abused, daily life style (living and working conditions, etc.) will be affected; and this will in turn affect the economy. As there is need to protect the environment in every possible way, it must also be noted that the need for the existence of infrastructure as an indispensable part of any economy cannot be over emphasized. As those infrastructures come into existence, there are resulting positive effects as well as adverse effects, which in many cases tend to out-number the positive effects; and yet not usually noticed. The impact ofthese projects on the environment range from cumulative to long term and short term impacts; and include impacts on human beings and man-made features, agriculture, effects on flora,

fauna and geology, effects on land, effects on water, air and climate and, of course, the indirect and secondary impacts associated with the project. Environmental impact assessment may be said to be one of the vital steps required for careful planning and management of natural resources resulting from pressures placed on virtually all areas of the earth from the need to provide food, water, minerals, fuel, and other necessities for such increasing number of people.In other to properly assess environmental impact of civil engineering infrastructural development projects, it is necessary to perceive the environment from the point of the view of the entire physical setting, experiencing a complex array of interrelationships compassing life and development. Since the environment itself is multi-dimensional in nature, it means that the circumstances that create (adverse) impacts on it are multi-dimensional; and therefore require some sort of multidimensional or multidisciplinary handling. It is therefore very necessary to involve as many disciplines as should be interested or connected to the environment as possible. These professionals will carry out comprehensive investigations prior to the actual project execution. These investigations are usually geared towards the matching of ecological and technological requirements of land use with the qualities of land and the effect of the proposeduse of such land on the environment.

14.1.5 Water Supply - Sewerage system - Waste Water - Sustainable development techniques:-

a) Water Supply Development Techniques :

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

Challenges – As of 2010, only two cities in India — Thiruvananthapuram and Kota — get continuous water supply. In 2005 none of the 35 Indian cities with a population of more than one million distributed water for more than a few hours per day, despite generally sufficient infrastructure. Owing to inadequate pressure people struggle to collect water even when it is available. According to the World Bank, none have performance indicators that compare with average international standards] A 2007 study by the Asian Development Bank showed that in20 cities the average duration of supply was only 4.3 hours per day.

Achievements –Navi Mumbai, a planned city with more than 1m inhabitants, has achieved continuous supply for about half its population as of January 2009. Badlapur, another city in the Mumbai Conurbation with a population of 140,000, has achieved continuous supply in 3 out of 10 operating zones, covering 30% of its population. Trivandrum, the capital of Kerala state with a population of 1,645,000 in 2011, is the largest Indian city and the only Million agglomeration that enjoys uninterrupted hygienic water supply. Malkapur, a town in Satara District of Maharashtra, is the first Indian town to provide 24*7 water supply with 100 percentcoverage. The program started in 2008 as a pilot project and soon covered the entire city. Theconnection is 100 percent metered with telescopic tariff.

Innovative approaches – A number of innovative approaches to improve water supply and sanitation have been tested in India, in particular in the early 2000s. These include community-led total sanitation, demand-driven approaches in rural water supply and a public-private partnerships to improve the continuity of urban water supply in Karnataka, and the use of microcredits in water supply and sanitation to women in order to improve access to water.

b) Sewerage System Development Techniques :

The United Nations has recognized 19 of the world's biggest megacities with apopulation of 10 million and above. From India, five of Delhi, Mumbai, Kolkata, Bangalore and Chennai are in the list. The historic city of Hyderabad is on the way to step into megacity family with a population of 9.5 million. The city is known for its rivers and lakes from the early 19th century. The prominent among them is the river Musi, a tributary to river Krishna, originating from Ananthagiri Hills. The river travels 70 km upstream before entering Hyderabad near Rajendranagar, flowing west to east, bifurcate the old and new city on south and north of river Musi. The river traverses about 28km within the city limits and flows downstream, about 158km before joining the river Krishna, near Wazeerabad, Nalgonda District.

Status of Sewerage System – The first sewerage system with Sewage Treatment Plant (STP) facility for Hyderabad city dates back to 1931, covering an area of 54 sq. km with a populationof 4, 68, 000, under the technical guidance of Sir Mokshagundam Visvesvaraiah. The system was meant to serve an area of 54 Sq.kms with 53 MLD capacity STP having a primary treatment facility. At that time Secunderabad had a sewerage system which was originally a combined system. Both the systems of Hyderabad and Secunderabad were amalgamated in the year 1964. Later in a phased manner, the sewerage system was upgraded during 1984, 1994 and 2004 with major interventions, particularly by laying certain trunk sewer mains network and construction of Sewage Treatment Plants (STPs).After transfer to HMWSSB, subsequently many improvements to the sewerage network were carried out, keeping in pace with the population growth and expansion of the city. The existing sewerage system covers approximately 90% of the erstwhile core MCH area of 169.3 sq.km.

Proposed NRCD Project Phase-II – Under phase-II the NRCD covers an area 574.59 Sqkm;it is divided into 10 catchments for locating the STPs and it is proposed for 610 MLD capacitySTP. The GoAP has forwarded the DPR proposals with the consent of 30% state share and requested the NRCD, MoEF, GoI to accord sanction to the project with 70% grant of GOI. The technical appraisal was completed. The final sanction was deferred stating that the adequate budget allocation was not available with NRCD, MoEF, GoI.

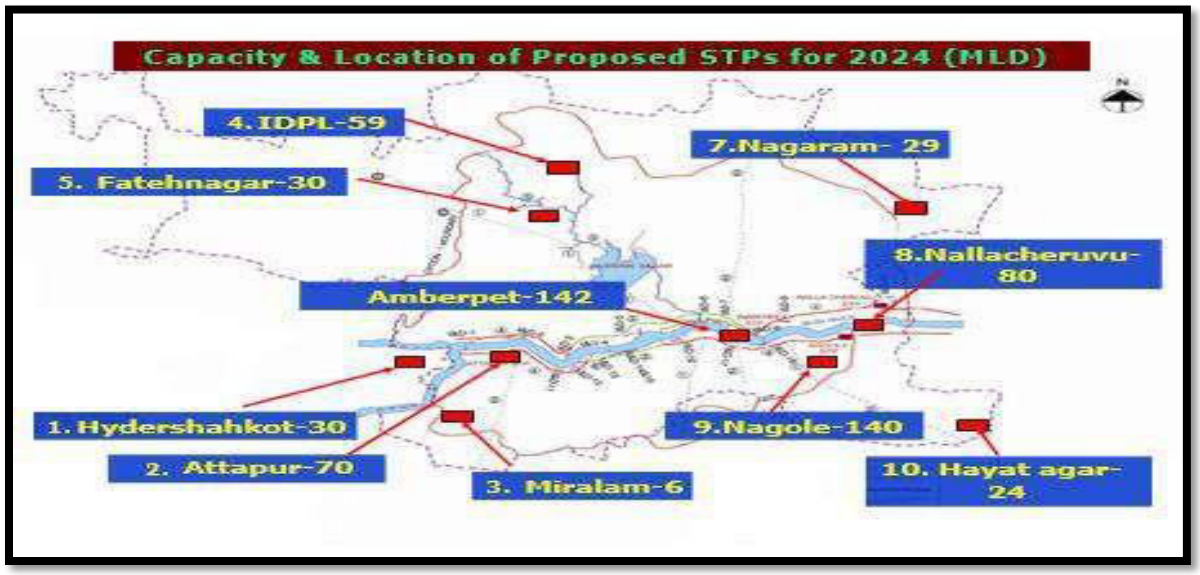


Fig. 76 PROPOSED SEWAGE TREATMENT PLANT (STP) UNDER NRCP PHASE-II

c) Waste Water Development Techniques :

Water is an essential resource that is required to sustain life. Its availability has to be adequate, safe and easily accessible. Current trends in climate change and rise in human population has compromised water adequacy, availability and safety. Wastewater managers around the world have the responsibility to ensure that the effluent that is eventually released into the environment does not degrade the quality of the recipient water bodies. Attaining sustainability in wastewater management is top in the of Sustainable Development Goals' Agenda. All in all, the realization of a more sustainable wastewater management will require a highly holistic and balanced approach in evaluating a particular management strategy's overall sustainability.

Wastewater Treatment Techniques – Treatment of wastewater can be undertaken in three stages: primary, secondary, and tertiary (or advanced). Primary or mechanical stage is designedto remove gross, suspended and floating solids from raw sewage that is direct from the source. It includes screening to trap solid objects and sedimentation by gravity to remove suspended solids that come from the catchment (Mannie and Bower 2014). Secondary stage is designed to remove the dissolved organic matter that escapes primary treatment. This stage comprises of microbes consuming the organic matter as food, and converting it to carbon dioxide, water,and energy for their own growth and reproduction (Tilley, 2014; Benammar et al., 2015; Dharmender et al., 2016). Generally, high-rate biological processes are normally characterized by relatively small reactor volumes and high concentrations of microorganisms compared with low rate processes (Mang and Li, 2010; Jeon et al., 2014; Sanjeev et al., 2014).

Advancement in Wastewater Treatment for Environmental Sustainability – To increase the efficiency of wastewater treatment, an additional stage has always been incorporated. The tertiary wastewater treatment stage can remove more than 99 percent of all the impurities from sewage, producing an effluent of almost drinking-water quality status (Vymazal, 2009; Francisca et al., 2016). An application of a typical tertiary treatment process is the modification of a conventional secondary treatment plant to remove additional nutrients such as phosphorus and nitrogen.

d) Sustainable Development Techniques :

Sustainable development is the organizing principle for meeting human development goals while simultaneously sustaining the ability of natural systems to provide the natural resourcesand ecosystem services on which the economy and society depend. The desired result is a state of society where living conditions and resources are used to continue to meet human needs without undermining the integrity and stability of the natural system. Sustainable development can be defined as development that meets the needs of the present without compromising the ability of future generations to meet their own needs. Sustainability goals, such as the current UN-level Sustainable Development Goals, address the global challenges, including poverty, inequality, climate change, environmental degradation, peace, and justice.

Development of the concept – Under the principles of the United Nations Charter the Millennium Declaration identified principles and treaties on sustainable development, including economic development, social development and environmental protection. Broadly defined, sustainable development is a systems approach to growth and development and to manage natural, produced, and social capital for the welfare of their own and future generations.

The term sustainable development as used by the United Nations incorporates both issues associated with land development and broader issues of human development such as education, public health, and standard of living.

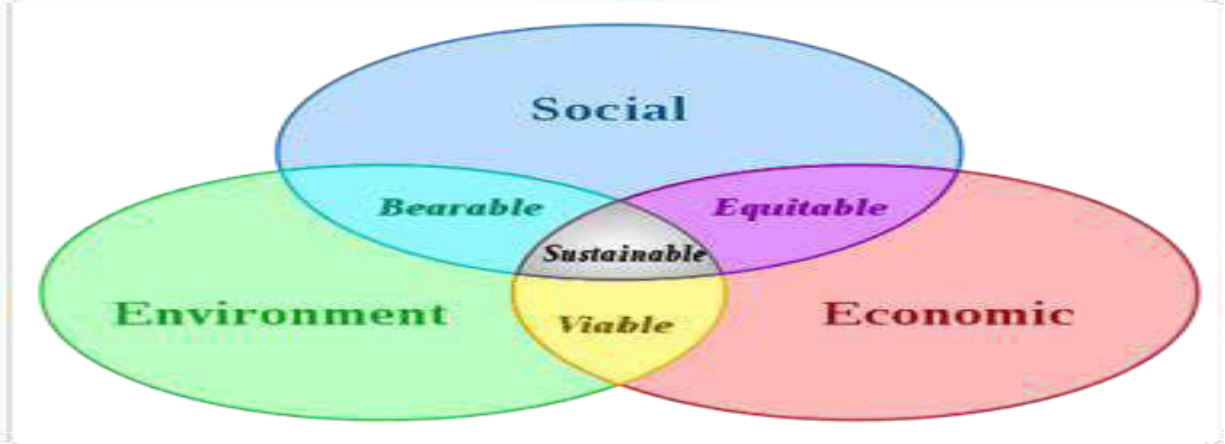


Fig. 77 SCHEME OF SUSTAINABLE DEVELOPMENTOF THREE CONSTITUENT PARTS

Environmental – Environmental sustainability concerns the natural environment and how it endures and remains diverse and productive. Since natural resources are derived from the environment, the state of air, water, and the climate is of particular concern. The IPCC Fifth Assessment Report outlines current knowledge about scientific, technical and socio-economic information concerning climate change, and lists options for adaptation and mitigation. Environmental sustainability requires society to design activities to meet human needs while preserving the life support systems of the planet. This, for example, entails using water sustainably, using renewable energy, and sustainable material supplies (e.g. harvesting wood from forests at a rate that maintains the biomass and biodiversity).

Economics – It has been suggested that because of rural poverty and overexploitation, environmental resources should be treated as important economic assets, called natural capital. Economic development has traditionally required a growth in the gross domestic product. This model of unlimited personal and GDP growth may be over. Sustainable development may involve improvements in the quality of life for many but may necessitate a decrease in resource consumption. According to ecological economist Malt Faber, ecological economics is definedby its focus on nature, justice, and time. Issues of intergenerational equity, irreversibility of environmental change, uncertainty of long-term outcomes, and sustainable development guide ecological economic analysis and valuation.

Case Study On "SEISMIC RETROFITTING ON A 4-STOREYEXISTING RC BUILDING" :

The current structure, which were plan and developed by early coral arrangements, don't fulfil necessities of current seismic code and configuration rehearses. It is perceived that the best strategy for diminishing the danger of harming structure is seismic retrofitting. Lately, there isa critical improvement of retrofitting methods. This examination features the standards of surveying and retrofitting of construction against seismic occasions. A three dimensional R.C.

outline planned with direct versatile unique examination utilizing reaction range technique. The PC programming bundle STAAD Pro is utilized for elements examination strategy is utilized to evaluate the presentation of a built up solid structure.

Reason Behind This Case Study :-

According to the Seismic Zoning Map of IS 1893:2002, India is divided into five seismic zones, in ascending order of a certain zone factor which is assigned to them on the basis of their seismic intensity. The 4-storey RC Structure being analyzed in this particular project is the main institute building of NIT Rourkela, which is located in the least susceptible zone i.e. zone

II. However, considering that the primary structural system of the building is at least 50 years old, it was not designed according to the design provisions given in IS 1893:2002. Hence, it may fail in the event of any moderately strong tectonic activity in its vicinity. Studying the performance of the structure and suggesting suitable retrofit measures for the building would therefore be a necessity. Seismic retrofitting is the modification of existing structures to makethem more resistant to seismic activity, ground motion, or soil failure due to earthquakes. This goal maybe achieved by adopting one of the following strategies-

1. By reducing the seismic demands on members and the structures as a whole
2. By increasing the member capacities.

Problem Formulation –

For performing the seismic analysis, an existing four- storey building is been considered. The existing structures consist of eight bays (rooms) spanning 3.5 meters . A projected slab cantilevered for 1.2 meters is provided in the structure. Floor height of existing structure is considered as 3.3 meters (clear span). The structure is situated in Seismic Zone II, as specifiedin IS 1893:2002 Seismic zones classifications, which has the seismic intensity of 0.10. The structure is considered as Ordinary Moment Resisting Frame (OMRF). Also, the structure is built on medium soil. The structure is then analyzed under seismic loading and the failing members are then retrofit using FRP Jacketing.

FIRST STOREY

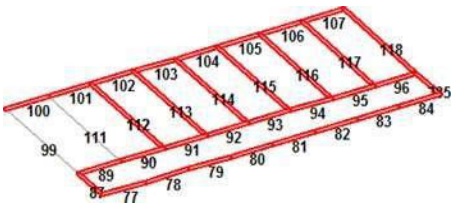


Fig. 78 FIRST STOREY BEAMS

SECOND STOREY

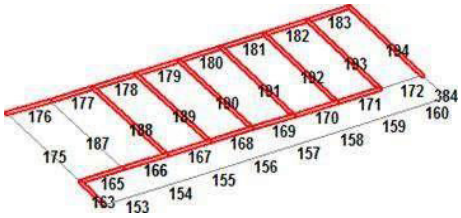


Fig. 79 SECOND STOREY BEAMS

THIRD STOREY

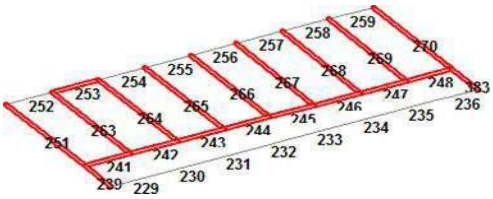


Fig. 80 THIRD STOREY BEAMS

FIRST STOREY

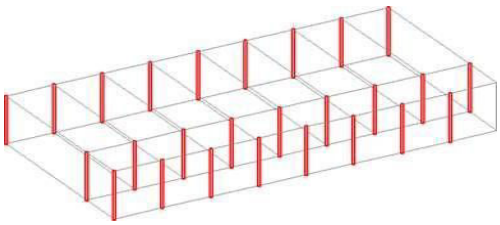


Fig. 81 FIRST STOREY COLUMNS

Second, Third and Fourth Storey Columns –

The objective of this study is the evaluation (seismic) of a four-storey RC framed structure, built about fifty years ago, on medium soil, in seismic zone-II, with seismic intensity 0.10 , using commercially used software STAADPRO V8i and retrofit the failing members using FRP jacketing. The existing structure is located in zone II and is not designed to resist earthquakes. The construction of the structure is not based according to the specifications mentioned in IS 1893:2002.

What They Did In This Project –

The existing structure is modeled in commercial software STAADPRO V8i and is subjected to seismic loading. The seismic performance of the structure is then analysed. Also, the Demandto capacity ration DCR is obtained for all the storey. The piles used for jacketing of failing members with FRP are then calculated. The failing members' efficiency is recalculated basedon Demand-to-capacity ratio for maximum shear force generated under seismic loading. DCR= Demand/Capacity. The member is said to be passing if the demand to capacity ratio does not exceeds unity (one). Conversely, the member is said to be failed if the demand to capacity ratio exceeds unity (one). The demand to capacity ratio is proved to be an important and key featurein determining whether the structural element is passed or failed under given loading exposure. In this project, flexure and shear checks are performed for all the structural members for which demand to capacity ratio is exceeding unity (ONE).

Results and Conclusion –

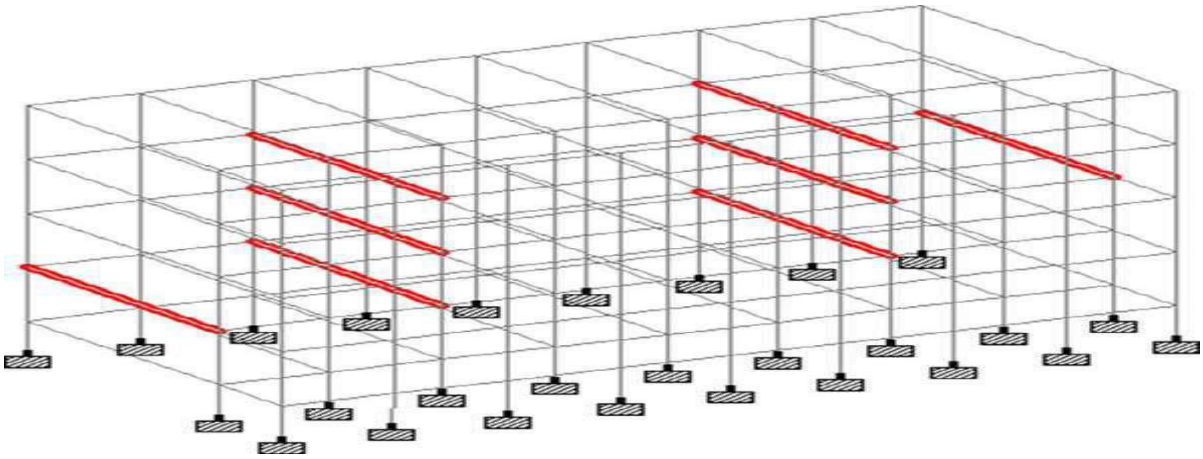


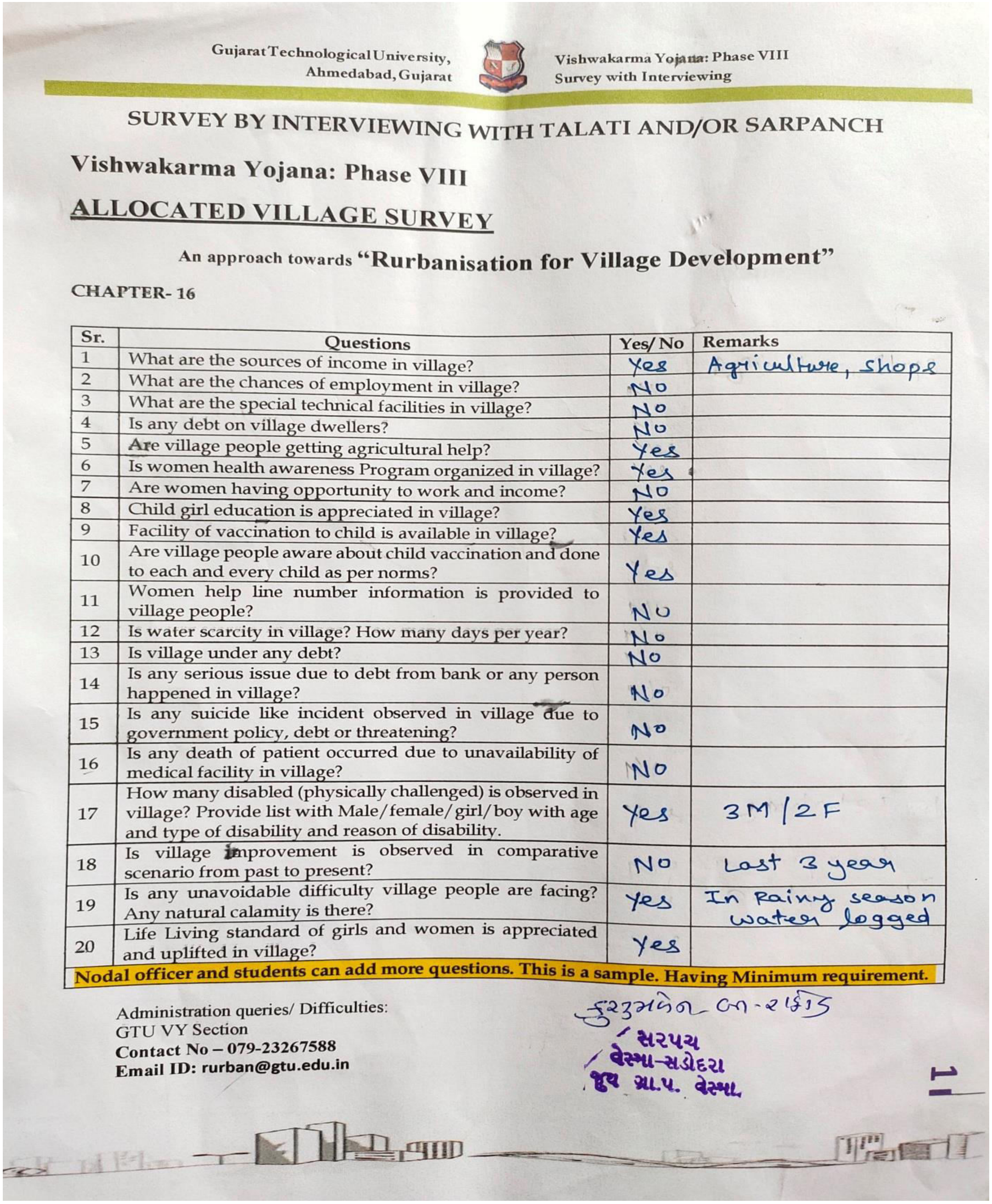
Fig. 82 BEAMS FAILING IN SHEAR CAPACITY

The analysis of beams by Equivalent Static Method revealed that most of the beams failed in capacity. The number of failing beams decreased with increasing storeys. However, the number of beams failing in shear capacity were very less i.e. beams 23, 36, 40 in 1st storey; 112, 116, 118 in 2nd storey; 188, 192 in 3rd storey. For columns too, the analysis revealed that most of them failed in flexural capacity but were safe in shear. Based on the above observations, the immediate need to counter deficiency in flexural capacitywas identified and the FRP

Chapter: 15
Sustainable features of Chapter 8 & 13 designs, Impact on society.

Sr no	Design Name	Estimated Cost	Duration (months)	Requirement	Benefits
1	Public library	4,46,363 ₹	2-3	Within 1 year	- Education
2	Public toilet	3,10,317.56 ₹	2-3	Immediately	- Sanitation
3	Skill development center	5,31,738.63 ₹	1-2	Immediately	-improved performance -improved accuracy -quality improved
4	Bus Stand	69,455.35 ₹	1-2	Within 1 year	- For easier transportation
5	Bio-gas plant	5,47,672 ₹	2-3	Immediately	-Most ecological electricity generation processes
6	Maintenance Aganwadi	8,400 ₹	3	Within 1 year	- Education and supplementation, as well as pre-school activities
7	Public Garden	17,72,414.92₹	3-4	Long term (3-5 years)	- Recreational facility
8	ATM	1,15,909.70 ₹	1	Immediately	- Emergencies that require monetary exchange
9	Entrance Gate	10,33,496.70₹	1-2	Long term (3-5 years)	- Aesthetic and heritage
10	Panchayat Building	3,81,813.95 ₹	2	Within 1 year	- aspiraons with respect to development of the village.
11	Medical shop	1,49,805.06 ₹	2-3	Within 1 year	- availability of a variety of drugs
12	Drinking Water center	1,43,838.7 ₹	6-7	Long term (3-5 years)	- Basically to overcome thirstiness of villagers in summers by providing cold RO water

Chapter: 16
Survey By Interviewing With Talati And Sarpanch



Gujarat Technological University, Ahmedabad, Gujarat

Vishwakarma Yojana: Phase VIII
Survey with Interviewing

SURVEY BY INTERVIEWING WITH TALATI AND/OR SARPANCH

Vishwakarma Yojana: Phase VIII

ALLOCATED VILLAGE SURVEY

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

CHAPTER- 16

Sr.	Questions	Yes/ No	Remarks
1	What are the sources of income in village?	Yes	Agriculture, shops
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	
6	Is women health awareness Program organized in village?	Yes	
7	Are women having opportunity to work and income?	No	
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?	No	
12	Is water scarcity in village? How many days per year?	No	
13	Is village under any debt?	No	
14	Is any serious issue due to debt from bank or any person happened in village?	No	
15	Is any suicide like incident observed in village due to government policy, debt or threatening?	No	
16	Is any death of patient occurred due to unavailability of medical facility in village?	No	
17	How many disabled (physically challenged) is observed in village? Provide list with Male/female/girl/boy with age and type of disability and reason of disability.	Yes	3M/2F
18	Is village improvement is observed in comparative scenario from past to present?	No	Last 3 year
19	Is any unavoidable difficulty village people are facing? Any natural calamity is there?	Yes	In Rainy season water logged
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

સરપચ
વેસ્મા-સડોદરા
જુથ ગ્રા.પ. વેસ્મા.

Chapter: 17
Irrigation/Agriculture Activites And Agro Industry, Altenate Technics And Solution

INTRODUCTION:

Irrigation is the process of applying water to the crops artificially to fulfil their water requirements. Nutrients may also be provided to the crops through irrigation. The various sources of water for irrigation are wells, ponds, lakes, canals, tube- wells and even dams. Irrigation offers moisture required for growth and development, germination and other related functions. The frequency, rate, amount and time of irrigation are different for different crops and also vary according to the types of soil and seasons. For example, summer crops require a higher amount of water as compared to winter crops.

Types of Irrigation:

There are different types of irrigation practised for improving crop yield. These types of irrigation systems are practised based on the different types of soils, climates, crops and resources. The main types of irrigation followed by farmers include

Surface Irrigation:

In this system, no irrigation pump is involved. Here, water is distributed across the land by gravity.

Localized Irrigation:

In this system, water is applied to each plant through a network of pipes under low pressure.

Sprinkler Irrigation:

Water is distributed from a central location by overhead high-pressure sprinklers or from sprinklers from the moving platform.

Drip Irrigation:

In this type, drops of water are delivered near the roots of the plants. This type of irrigation is rarely used as it requires more maintenance.

Centre Pivot Irrigation:

In this, the water is distributed by a sprinkler system moving in a circular pattern.

Sub Irrigation:

Water is distributed through a system of pumping stations gates, ditches and canals by raising the water table.

Manual Irrigation:

This a labour intensive and time-consuming system of irrigation. Here, the water is distributed through watering cans by manual labour.

Irrigation mathods or techniques:

1. Traditional Irrigation techniques

   (1) Check Basin Method (2) Furrow Irrigation Method (3) Strip Irrigation Method

   (4) Basin Irrigation Method.

2. Modern Irrigation techniques

   (1) Sprinkler Irrigation Method (2) Drip Irrigation Method (3) Pot Irrigation Method.

1. Traditional Irrigation Methods/techniques:

(a)Check Basin Method:

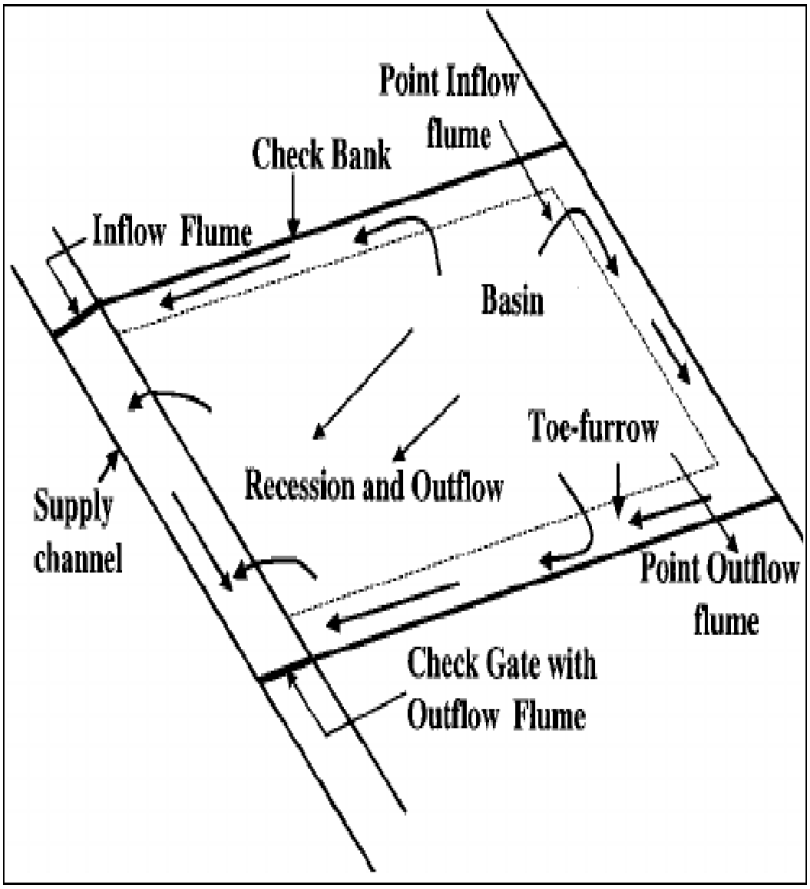


Fig. 83 Check Basin Method

In this method, the whole field is divided into basins according to the capacity of water. Basins are connected through a 'Dhora' (A small drain type flow way), which has raised earthen walls on both sides. 'Dhora' is of two types, one is the main 'Dhora' and the other 'Dhora' is connected to basins. Size of basins are made according to the inflow of water. These basins are surrounded by small furrows. Branch 'Dhora' flows towards the slope from the main 'Dhora'. If the slope of branch 'Dhora' is steep, 'mooonja' or polythene is spread in it to prevent erosion of sides. The main source of water is located at the highest place in the field.

The width of drains is affected by factors like flow of water, percentage, slope and structure of the ground etc. The length of 'Dhora'is different depending on the basis of slope and formation of the fields. This method is also prevalent in India as it does not cause any burden on the farmer.

Advantages:

1. It is the best method of irrigation for leveled fields. 2. It does not require any technical knowledge. 3. This method is more useful in soils having lesser infiltration. 4. In this method, rain water stays in basins, hence soil erosion is not caused. 5. It has lesser economic investment.

Disadvantages:

1. Due to seepage in drains, wastage of water is caused. 2. Machines cannot be used m this method because during spray of insecticides or fertilizers, the earthen walls of basins are damaged. 3. There IS imbalance in distribution of labour. After growth of crops, water reaches the basins in disproportionate quantity thereby causing wastage of water. 4. Creation of problem of water logging.

(b) Furrow Irrigation Method:

Furrow irrigation method is resorted to where crops are one grown in rows. Along the side of rows of crops, 'Dol'is formed, and in between two such 'Dols', a furrow is formed in which water flows for irrigation. The quantity of flow of water depends on demand of water by plants and the rate of infiltration.

Furrow Irrigation Method:- In different situations, different furrow methods are used (Surajbhan 1978). They are mainly of five types:

1. Slopy Furrow 2. Leveled Furrow 3. Contour Furrow 4. Serial Furrow 5.Corrugated Furrow

Advantages:

1. Large areas can be irrigated at a time. 2. It saves labour since once the furrow is filled, it is not necessary to give water a second time. 3. It is a comparatively cheaper method. 4. Plants gets suitable quantity of water by this method.

Disadvantages:

1. Due to imbalance in flow of water, wastage of water is caused in it. 2. It is not suitable in all types of crops. 3. Making 'Dol' for drains requires more labour information.

(c) Strip Irrigation Method:

In strip irrigation method, fields are divided into strips of different size. A boundary called 'Med' is formed to separate the strips. These strips are constructed according to the slope. The source of water is situated at the highest place in the field from where the whole field can get the flow of water. The width of strips is decided as per quantity of water. More wastage of water is caused if strips are wider. Length of strip is decided by the slope of land and its structure.

Advantages:

1. It is possible to irrigate more area at a lesser expenditure. 2. It requires less labour.
3. Method of irrigation is easy and it causes lesser erosion.

Disadvantages:

1. It is not suitable for all types of crops. 2. It is not possible to get balanced supply of water.
3. It is not suitable for all soil compositions.

(d) Basin Irrigation Method:

This irrigation method is more suited for horticulture development. In this method, a raised platform called 'Thanvla' is formed around trees or bushes and they are connected with each other through drains and the water reaches from one tree to the other. This method is not suitable for crops.

Advantages:

1. It saves time. Once the water is opened, it reaches other trees automatically. 2. Its economic investment is less. 3. It is beneficial for more trees.

Disadvantages:

1. It is not useful for all crops. 2. Diseases spread in trees. 3. Wastage of water is caused in it.

2. Modern Irrigation techniques:

(a) Sprinkler Irrigation Method:

In present times, when water crisis is developing very fast everywhere, we should adopt improved techniques of irrigation to encourage suitable water management. Sprinkler irrigation method is an easy and simple method of irrigation in present times.

Fig. 84 Sprinkler Irrigation Method

The whole land becomes available for cultivation of crops, whereas in traditional irrigation methods, 15 to 20 per cent land remains vacant in depres-sions and boundaries. Modern equipment's can also be used in it due to absence of depressions and boundaries. Rate of infiltration is higher in sandy soils where frequency of watering is more. Hence, sprinkler irrigation method is more suited to sandy soils. In sprinkler irrigation method, water is taken from source to the fields through pipes, whereas in surface irrigation methods only 30-45 per cent water reaches the crops. Such loss of water is avoided in sprinkler irrigation method. The problem of water logging or 'kallar' may be caused in case of excess water from surface irrigation, whereas no such problem is caused in sprinkler irrigation method. The balance of groundwater is also maintained.

For development of sprinkler irrigation method, the following circumstances are essential:

1. It is done in areas having scarcity of water. 2. Uneven ground level where irrigation is not possible by other irrigation methods. 3. Places having maximum temperature where crops might get destroyed, sprinkler irrigation method maintains humid environment for the crops. 4. Where soil textures may be of different nature, for example, sandy soil at some places and stony soil at others places. 5. It requires lesser number of labourers hence, it can be developed even where there are less workers. 6. Irrigation may be required in large areas. 7. There should be average technical knowledge. In areas where change in temperature of earth, environment and humidity is required for growth of crops, sprinkler irrigation method is possible to a certain extent. Due to continuous spray of water, there IS improvement in physical conditions of earth and composition of soil. In kallar or reh soils, land can be improved by sprinkler irrigation, whereas surface irrigation needs much more water for it. Thus, it is a suitable irrigation method for sustainable development of water resources in present times. It is installed in fields by three methods:

1. Permanent:

In this method, the main line and branch pipelines are permanently installed in the field. After that it is not possible to shift its place. In this system, labour involved in shifting of lines from time to time is saved but it is quite expensive. The pipeline remains safe being underground, whereas in case it is outside, the breakages are more by frequent changing. Such an arrangement is suitable for canal irrigated areas having 'barabandi' where water becomes available for a very limited time.

2. Semi-permanent:

In this method, the main pipeline is perma-nently fixed under the ground level but branch pipelines are kept outside temporarily so that by changing their places, the whole of the land might be irrigated.

3. Temporary:

In this case, the whole arrangement is temporary and their places can be transferred as per requirement. In this method, more irrigation is possible with lesser investment. It of course needs more labour. Due to different surface levels, location of tube wells and size of farm lands are different, hence sprinkler irrigation method has not been considered as a suitable method in all cases.

Advantages:

1. There is increase in production and compactness. 2. It is helpful in soil conservation and stabilization of sand dunes in desert areas. 3. Sprinkler system is considered more suitable in areas where slit is coagulated on surface of soil after rains, prevents growth of crop. 4. This system saves the crop from extreme frost or temperature. 5. Fertilizer application as well as insecticide spray can be done by sprinkler system. Waste land can be improved by less water. Physical condition and composition of soil can be maintained in a balanced condition by continuous sprinkling.

Disadvantages/Defects:

1. Sprinkler irrigation method is expensive. 2. It requires technical knowledge. 3. Sprinkler irrigation method cannot be used in all crops. 4. Crop is damaged by changing sprinkler system again and again. 5. Water to be used in sprinkler method should be clean. In spite of the above defects, sprinkler irrigation method is being adopted with great speed due to increasing water crisis.

(b)Drip Irrigation:

A newly developed irrigation system known as drip irrigation or trickle irrigation, originally developed in Israel, is becoming popular in areas of water scarcity. In this irrigation system, a small amount of water is applied at frequent intervals in the form of water droplets through perforations in plastic pipes or through nozzles attached to tubes spread over the soil to irrigate a limited area around the plant.

Fig. 85 Drip Irrigation

This system of irrigation is established on the basis of type of crop, distance between plants, requirement of water for crops and distance of water source from the field. A precise amount of water equal to the daily consumptive use or the depleted soil water needs to be applied. The soil water can be maintained at the field capacity during the crop growing period. Deep percolation losses can be completely prevented and the evaporation loss is also reduced. The application of water and piping systems needs to be designed according to the type of crops, topography and weather conditions typical to the geographical area. The basic equipment for drip irrigation consists of a water supply head, a main pipe, lateral pipes and drippers. The water flow in the pipe system is controlled with control valves and fertilizers can be applied at the water source. As water passes through the very small outlets of drippers, it is filtered before h is distributed in the pipe system. Structure of Drip Irrigation Method:

The following are the main organs of drip irrigation method:

water pump, main PVC, pipeline, branch PVC pipeline connected to main line, plastic pipes connected to branch line, drippers connected with plastic pipes, fertilizer tank for application of fertilizers, valve, water measure, pressure controller, filter etc. Internal radius of side pipe is from 10 to 32 mm. Side pipelines are fitted with drippers from where water falls in drops. Efficiency of drip irrigation method depends on suitable operation of drippers. Flow rate of drippers is 2 to 10 litres per hour.

Advantages:

1. In this method, water directly reaches the roots of the plants, which take water to plants in balanced quantities. 2. Drip irrigation method saves 30 to 70 per cent water and it is possible to irrigate three times more area with the same amount of water. 3. In this method, weeds do not spread because water reaches only near plants and does not spread in the whole field. 4. Fertilizers and insecticides can also reach the plant directly by solution in the water and it saves 30 to 60 per cent chemical fertilizers as well as 40 to 50 per cent pesticides along with saving of water. 5. Even in case of uneven lands, drip irrigation method can do balanced irrigation. 6. Cultivation in saline and alkaline soil also can be done by this method of irrigation. 7. Crop production is higher by 20 to 40 per cent in drip irrigation method. 8. Lesser labourers are required for irrigation work. 9. Bacteria causing diseases in crops do not grow because of dry atmosphere near plants.

Disadvantages:

1. Drip irrigation method is expensive. 2. It requires special technical knowledge for successful operation of this method. 3. In heavy soils, it creates problems of flow and water blockages. 4. Plants are able to get nutritive elements in a very limited area. 5. It is not suitable for every crop. 6. Utmost care has to be taken for holes of drippers, because soil may come along with water at any time, which will prevent water dripping smoothing from holes. 7. Animals may cause damage to branch pipelines and dripper pipelines. 8. Most of the drippers work on pressure. Wherever land is sloppy, pressure on valves increases by 50 to 10 per cent, which results in stoppage of working of valves on the upper side.

(c) Pot Irrigation Method:

Pot irrigation method is more suitable for areas having scanty rainfall. In saline areas where flow irrigation is not suited, pot irrigation method is successful. An earthen pitcher is used in this method. The pitcher is fixed in the ground up to neck. Holes are made in the pitcher and water is filled in it so that seepage of water through the holes keeps the nearby soil moist. Water is filled in these pitchers at regular intervals. This method can be considered as an alternative of drip irrigation method.

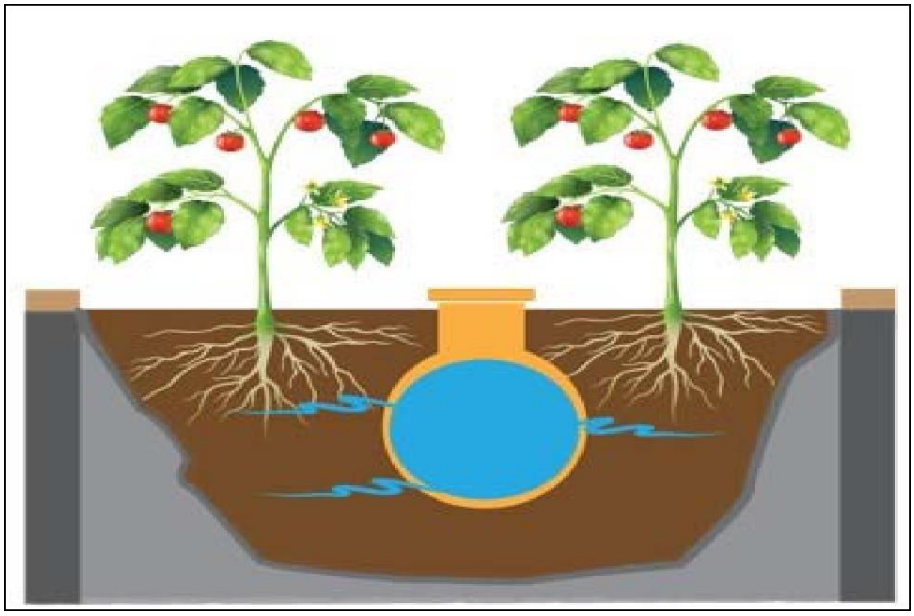


Fig. 86 Pot Irrigation Method

Pot irrigation method can be adopted in the following conditions:

1. Unlevelled land which is uneven. 2. Area having maximum shortage of water. 3. Such difficult areas where supply of fruits and vegetables is difficult and they are costly. 4. Where there is saline water, making surface irrigation difficult. In this method, distribution of humidity around sides of pitcher is affected by many factors, mainly size of the pitcher, seepage of water per unit of area and type of soil. Humidity is spread in the same proportion as the size of the pitcher. Distance of pitcher also affects the moist area. Normally, distance between two pitchers should be kept so much that the humid area between them does not overlap.

Advantages:

1. In this method, only the area near the pot gets irrigated and not the whole area. 2. Evaporation of water is minimum in this method. 3. Water seepage below the ground is also in minimum quantity. 4. It is the best method for horticulture crops and vegetables. 5. Once the pitchers are fixed, irrigation can be done for six years, which reduces expenditure. 6. It needs minimum technical knowledge.

Defects:

1. Irrigation in this method is possible in a limited area. 2. This method requires clean water because unclean water would cause blockage of minor holes, which would not be able to provide moisture any longer. 3. It is costly to draw out pitchers again and again and re-fix them. 4. It is not suitable for every crop.

Chapter: 18
Social Activities – Any Activates Planned By Students

With respect to COVID 19 pandemic, Ministry of Panchayati Raj, Government of India in close collaboration with State Governments has taken various initiatives. Close consultation and guidance of the State as well as District authorities is being maintained to ensure that lock down conditions are not violated and norms of social distancing are scrupulously followed to contain the spread of the disease. Total infected patients are 10 in Vesma-sadodra Navsari District and total population of Navsari District is 8833.

- The panchayat of vesma-sadodra help to people by giving mask, sanitizers etc.
- The panchayat member pramukh also help the villages people by giving foods, vegetable etc
- The sarpanch also give a awareness to all people to wear mask and make social distance.
- Rural students in the PMKVY program created some hand-made artwork promoting safety and awareness for their communities.



Awareness:-

Most common symptoms: fever, dry cough, tiredness, aches and pains, sore throat, diarrhea, conjunctivitis, headache, loss of taste or smell **Self-care:-** If you feel sick you should rest, drink plenty of fluid, and eat nutritious food. Stay in a separate room from other family members, and use a dedicated bathroom if possible. Clean and disinfect frequently touched surfaces. In village every should keep a healthy lifestyle at home. Maintain a healthy diet, sleep, stay active, and make social contact with loved ones through the phone or internet. Children need extra love and attention from adults during difficult times. Keep to regular routines and schedules as much as possible.

Chapter: 19
Vesma-sadodra Village SAGY Questionnaire

SAANSAD ADARSH GRAM YOJANA (SAGY) Baseline Household Survey Questionnaire

Village: Vesma-Sadodra Gram Panchayat: Vesma - Sadodra Ward No. -

Block: Jalapore District: Navsari

State: Gujarat L S Constituency:

1. Family Identity and Size

Name of Head of Household	Vijaybhai Rathod							Male/ Female	M
SECC Survey ID:		Family Size	5	Over 18	3	6 to 18	2	Under 6	0

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	NO 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	
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]
Chena bhai Rathod	38	M	N	yes	SSC	y	y	N
Krishna bhai Rathod	40	M	N	yes	HSC	y	y	N
Asha ben Rathod	27	F	N	yes	12th	y	y	N
Bhan M Rathod	29	F	N	yes	HSC	y	y	N

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
Sanjana D Rathod	15	F	N	N	School	Yes	9th	yes
Vansika S Rathod	16	F	N	N	School	yes	10th	yes
Piyush U Rathod	12	M	N	N	School	Yes	8th	yes

4. Children below 6 years

Name	Age	Sex M/F/ O	Disability Yes/No	Going to School (Y/N)	Going to AWC Y/N	De-worming Done	Fully Immu-nised Y/N	Mother's Age at the time of Child's Birth
Pinkal R Patel	5	F	NO	Y	N		Y	24

[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	yes	yes
Children	No	No

9. House & Homestead Data

Own House: ~~Yes~~ / No	No. of Rooms: 50
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	~~200m~~
Community Water Tap	~~Yes~~ / No	
Hand Pump (Public / Private)	~~Yes~~ / No	
Open Well(Public / Private)	Yes / No	
Other (mention): Boring		

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	661.27 hectar	2. Cultivable Area	
3. Irrigated Area		4. Uncultivable Area	

13. Principal Occupations in the Household

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

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

15. Agriculture Inputs

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

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

Name	Unit	Quantity
Wheat		
Rice		

17. Livestock Numbers

Cows: 5	Bullocks: 3	Calves: 0
Female Buffalo: 4	Male Buffalo: 6	Buffalo Calves: 0
Goats/ Sheep: 0	Poultry/ Ducks: 0	Pigs: 0
Any other: Type _____		No. _____
Shelter for Livestock: Pucca / Kutcha / None		
Average Daily Production of Milk(Litres): 201		

18. What games do Children Play
- Cricket
- Mobile game
- Volyball

19. Do children play musical instrument (mention)
- Guitar

Schedule Filled By:
Principal Respondent:
Date of Survey:

SAGY Panchayat Details Survey Questionnaire:-

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: Vesma – sadodra

b. Block: Jalapore

c. District: Navsari

d. State: Gujarat

e. Lok Sabha Constituency: _____

f. Number of Wards in the Gram Panchayat: 1

g. Number of Villages in the Gram Panchayat: 1

h. Names of Villages: Vesma - sadodra

Demographic Information

Number of Households 1889 Total Population 8833 Male 4541 Female 4292

SC HHs 10% ST HHs 5% OBC HHs 50% Other HHs 25%

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	Yes	500m
b.	Nearest Primary Health Centre (PHC)	Yes	less than 1km
c.	Nearest Community Health Centre (CHC)	No	10km
d.	Nearest Post Office	Yes	inside village
e.	Nearest Bank Branch (Any)	Yes	inside village
f.	Nearest Bank with CBS Facility	Yes	inside village
g.	Nearest ATM	Yes	inside village
h.	Nearest Primary School	Yes	200m
i.	Nearest Middle School	Yes	500m
j.	Nearest Secondary School	Yes	500m
k.	Nearest Higher Secondary School / +2 College	No	10km
l.	Nearest Graduate College	No	12km
m	Nearest ITI / Polytechnic Centre	Yes	Nearest village
n	Kisan Seva Kendra	No	12km

1

Saansad Adarsh Gram Yojana (SAGY) Panchayat Details Survey Questionnaire

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

	Infrastructure Facilities / Services	Located within the GP Yes (Y)/No (N)	If located elsewhere (N), distance from the GP office
o	Agriculture Credit Cooperative Society	NO	12 km
p	Nearest Agro Service Centre	NO	14 km
p	MSP based Government Procurement Centre	NO	16 km
q	Milk Cooperative /Collection Centre	NO	20 km
r	Veterinary Care Centre	NO	12 km
s	Ayurveda Centre	NO	10 km
t	E – Seva Kendra	Yes	inside village
u	Bus Stop	Yes	Nearest village
v	Railway Station	NO	8 km Manoli
w	Library	NO	12 km Sachin
x	Common Service Centre	NO	15 km Navsari

IV. Sports Facilities in the Gram Panchayat

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

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

V. Education, ICDS

a. Number of Angan Wadi Centres: 10

b. Number of villages without Angan Wadi Centres –

Names of such villages: No

c. Schools (Number)

Primary Private: 1 Primary Govt.: 1

Middle Private: Middle Govt.: 1

Secondary Private: Secondary Govt.: 1

Higher Secondary Private: 1 Higher Secondary Govt: –

VI. Public Distribution System

	Item	Private Contractor	Women's SHG	Gram Panchayat	Cooperative	Other (Mention)	Location in GP (mention Location)	If outside GP, Location & distance from GP HQrs)
a.	Cereal (Rice/ Wheat/ Millets)	Rice					1 km	
b.	Kerosene	NO						
c.	Other (mention)	4- Mandir 2- Masjid					Inside village	

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 _____	Vesma-Sadodra	
b.	Hand Pump Coverage in Villages:	Covered _____ Not Covered _____	Not Covered	
c.	Coverage under Covered Drains:	Covered _____ Not Covered _____	Vesma-Sadodra	
d.	Coverage under Open Drains:	Covered _____ Not Covered _____	Not Covered	Machivada Faliya
e.	Villages with Household Electricity Connection (Numbers)	Connected _____ Not Connected _____	Connected Mostly house electricity supply DGVCL	

VIII. Land and Irrigation

	Private Land	Area in Acres		Common Land	Area in Acres		Irrigation Structure	No.
a.	Cultivable Land	No data	d.	Pasture / Grazing Land	No data	g.	Check Dam	0
b.	Irrigated Land	No data	e.	Forests/ Plantations	No data	h.	Wells/Bore Wells	3 W 5 B
c.	Un-irrigated Land	No data	f.	Other Common Land	No data	i	Tanks /Ponds	3 T 2 P

[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)	
b)	Number of Households receiving pension (old age, widow, disability)	
c)	Number of eligible Households who are not receiving pension	
d)	Number of Households eligible for Ration Card	All
e)	Number of eligible HHs having ration cards	All
f)	Number of households covered under RSBY (Rashtriya Swasthya Bima Yojana)	0
g)	Number of HHs covered under AABY (Aam Aadmi Bima Yojana)	0
h)	Number of active Job Card holders under MGNREGA	0
i)	Number of Job Card holders who completed 100 days of work during 2013-14	0
j)	Number of shops selling alcohol	0
k)	Number of BPL families	
l)	Number of landless households	0
m)	Number of IAY beneficiaries	
n)	Number of FRA[2] beneficiaries	
o)	Number of Community Sanitary Complexes	
p)	Number of Households headed by single women	8
q)	Number of Households headed by physically handicapped persons	
r)	Total number of Persons with Disability in the village	
s)	Number of SHGs	
t)	Number of active SHGs	
u)	Number of SHG Federations	
v)	Number of Youth Clubs	0
w)	Number of Bharat Nirman Volunteers	0

Name and Signature of Surveyor and Respondent'

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

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

4

SAGY Baseline Village Details Survey Questionnaire:-

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: Vesma – Sadodra
b. Ward Number: _____
c. Gram Panchayat: Vesma – sadodra
d. Block: Jalapore
e. District: Navsari
f. State: Gujarat
g. Lok Sabha Constituency: _____
h. Number of Habitations / Hamlets in the Gram Panchayat: _____
i. Names of Habitations / Hamlets: Vesma – Sadodra

Demographic Information

Number of Households 1889 Total Population 8833 Male 4541 Female 4292

SC HHs 20 % ST HHs 5 % OBC HHs 50 % Other HHs 25 %

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	Inside village
b.	Nearest Middle School	yes	Inside village
c.	Nearest Secondary School	yes	Inside village
d.	Kisan Seva Kendra	No	15 Km
e.	Milk Cooperative /Collection Centre	NO	18 Km
g.	Health Sub Centre	yes	500 m
h.	Bank	yes	inside village
i.	ATM	yes	inside village
j.	Bus Stop	yes	Nearest village
k.	Railway Station	NO	8 Km mahuli

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

1

SAANSAD ADARSH GRAM YOJANA (SAGY) Village Details Survey Questionnaire

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	8KM sachin
m	Common Service Centre	NO	12Km Navsari
n	Veterinary Care Centre	NO	12Km

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: 1

iii. Drinking Water Facilities

a.Piped Water Supply Coverage to Habitations: 1 *(1-All 2-None 3-Some)*

If 3 mention the name of the habitations not covered: _____

b.Hand Pump Coverage in Habitations: 2 *(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: 2 *(1-All 2-None 3-Some)*

If 3 mention the name of the habitations not covered: _____

b. Coverage under Open Drains: 1 *(1-All 2-None 3-Some)*

If 3 mention the name of the habitations not covered: _____

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

If 3 mention the name of the habitations not covered: 2

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: 1

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

If 3 mention the name of the habitations not covered: 1

vi. Sports Facilities in the Village

a.Number of Play Grounds in the Village (minimum size 200 square meters): 0

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

vii. Education, ICDS

a. Number of Anganwadi Centres: 10

c. Schools (Number)

Primary Private: 1 Primary Govt.: 1

Middle Private: _____ Middle Govt.: 1

Secondary Private: 1 Secondary Govt.: _____

Higher Secondary Private: _____ Higher Secondary Govt: [half semi]

2

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	No data	d.	Pasture / Grazing Land	No data	g.	Check Dam	0
b.	Irrigated Land	No data	e.	Forests/ Plnatations	No data	h.	Wells/Bore Wells	0
c.	Un-irrigated Land	No data	f.	Other Common Land	No data	I	Tanks /Ponds	4

ix. Entitlement Related Parameters		
1	Number of active Job Card holders under MGNREGA	20
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	30%
5	Number of landless households	0
6	Number of IAY beneficiaries	
7	Number of FRA beneficiaries	
8	Number of common sanitation complexes	0
9	Number of SHGs	
10	Number of active SHGs	
11	Existence of SHG Federation in the Village (Yes / No)	
12	Number of Youth Clubs	0
13	Number of Bharat Nirman Volunteers	0

Name and Signature of Surveyor and Respondent'

Manish Yadav Manish Surveyor	PRI Respondent (Preferably a ward member from a ward that is fully or partially covered under the Village)	કુરમુલેન. ગ્રા.પંચાયત સરપંચ વેસ્મા-સડોદરા મુખ ગ્રા.પ. વેસ્મા. કુરમુલેન. ગ્રા.રોકડ Official Respondent (Preferably seniormost Government official in the Gram Panchayat)	Date of Survey

3

CHAPTER-20

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

Gmail

Rathod Praful <rathodpraful312@gmail.com>

(no subject)

1 message

Rathod Praful <rathodpraful312@gmail.com> 5 July 2021 at 14:48
To: ddo-nav@gujarat.gov.in
Cc: rurban@gtu.edu.in

respected sir/madam
we are the student of prime institute of technological of engineering maroli affiliated to gujarat technological university GTU. GTU has been assigned to vishwakarma yojana-vy. as a part of vishwakarma yojana's guidelines we have been asked to inform all the respected officers about the our project.
Development scenario brief introduction
Vesma-sadodra-PITE MAROLI-DPR_VY_PHASE8

NO.	VILLAGE	BRANCH	DESIGNS	
1	VESMA-SADODRA	Civil	PART-I	PART-II
			library	Public garden
			Public toilet	ATM center
			Skill development center	Entrance Gate
			Bus stand	Panchyat building
			Bio-gas plant	Medical shop
			Maintenance of anganwadi	Drinking water center

Vesma-sadodra Village VY Phase VIII Sem 8 DPR.pdf
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CHAPTER-21
Comprehensive Report for the Entire Village

Overview of Vishwakama Yojana:-

Vishwakarma yojana project is a unique project of the B.E /Diploma Students of the Civil & Electrical students. It is proposed to frame "Vishwakarma Yojana" to provide the benefit of real work experience to engineering students and simultaneously apply their technical knowledge in the development of infrastructure in rural development. Creation of infrastructure - connectivity, civic and social infrastructure along with provision of alternativelivelihood generation are the key pillars. Vishwakarma Yojana provides an opportunity to the students of B.E in have a practical exposure of the engineering applications in the real world. It also develops the sense of helplessness in the students and become a part of development ofIndian villages.

Project work flow:-

The project work started with the help of Vishwakarma Yojana Project Guidelines. In guidelines VY provided scenario of work. Which data are requires! Where can be collect that data and etc. other information. Then We Visit Allocated village which is Vesma-sadodra on the date of 06/10/2020. First meets with Sarpanch and talked about village population, area and etc. other information about village and visit Govt. Infrastructures. Data collection like photographs of existing infrastructures facilities, Govt. Yojanas and etc. and filled Techno Economic Survey form which is given by VY Yojana. We learned from literature reviews. Then we select Baben as Ideal Village and visit the village. We repeat same procedure from pervious Allocated Village visit. Then we collect some more information by online researching about Baben Village to understand about rural development. By performing SWOT analysis, Gap analysis, discussion with Surpanch and villagers we decided to propose some designs for the Vesma-sadodra Village. We proposed designs are as follows- Public library, Public toilet, Skill development center, bus stand, bio gas plant, maintenance of anganvadi, in 7th semester. Then we visit Ena Village as Smart village inspiration for Know about latest technology which help to develop rural area. We following same procedure from allocated village visit. This work is done in 7th Semester. We planned some designs for Future scope to do in 8th sem. And we started next part of project with the help of nodal officer. We suggest some designs are as follows- Public garden, ATM, Entrance gate, panchyat building, Medical shop and Drinking water station. We re visited Vesma-sadodra Village for the data collection for SAGY form and Techno Economic Survey form. And some other activities which are mentioned in VY guidelines. We discuss with sarpanch and talati for the proposals what we are planning for the village. They gives some suggestion for the project. We visited Baben village and Ena village too.

About Allocated Village:-

Vesma-sadodra is a Village in Jalalpore Taluka in Navsari District of Gujarat State, India. It is located 5 KM towards west from District head quarters Navsari. 296 KM from State capital Gandhinagar Vesma-sadodra Pin code is 396475 and postal head office is Vesma. Vesma-sadodra is surrounded by Navsari Taluka towards East , Chorasi Taluka towards North , Gandevi Taluka towards South , Palsana Taluka towards North Navsari , Surat , Valsad , Pardi are the near by Cities to Vesma-sadodra It is near to arabian sea. There is a chance of humidity in the weather.

Vesma-sadodra is a large village located in the district of Navsari in the state of Gujarat in India. It has total population of 8833 persons living in village. The national highway N 8 is passing through this village. The village consists of kuchha and pucca house. The people are occupied in different occupations like farming, hand luming and animal husbandry. The village approach road is bituminous road but after the entrance at some place in village the road conditions are in worst conditions. There is some place where no drainage facility in village. Education facility is good in village. It consists of 9 anganwadi, 2 primary, secondary, higher secondary school and college. The information on all various transport facilities whether public/private transport like Bus, Taxi, Van, Tractors etc. available in the village.

Problems in Village:-

- Currently there is no proper Bus stand in vesma-sadodra village. Require one more bus stand.
- As per Gap analysis, vesma-sadodra village requires a proper Anganwadi as the existing one Number of Anganwadi is not sufficient given the population of the village.
- There is no Public Garden at present in vesma-sadodra village. The nearest public garden is approximately 10 km away.
- Currently, the nearest ATM is 11 km away from the village.
- There is Post office is in Bad Condition in vesma-sadodra village. It can't be repair. Require new construction of Post Office.
- In the vesma-sadodra village there is no any community hall so that according to the village population there should be requires one community hall in village.
- Water storage capacity is not enough to household for commerce daily needs, water can't be bored due to salinity of ground water. As the population increase demand also increased.
- Community hall is a public location where members of a community gather for group activities, events, festivals and social purpose. They may sometimes be open for whole community or for a specialized group example Mahila mandal hall.

Design Proposal for the Village:-

Sr no	Design Name	Estimated Cost	Benefits
1	Public library	4,46,363 ₹	- Education
2	Public toilet	3,10,317.56 ₹	- Sanitation
3	Skill development center	5,31,738.63 ₹	-improved performance -improved accuracy -quality improved
4	Bus Stand	69,455.35 ₹	- For easier transportation
5	Bio-gas plant	5,47,672 ₹	-Most ecological electricity generation processes

6	Maintenance Aganwadi	8,400 ₹	- Education and supplementation, aswell as pre-school activities
7	Public Garden	17,72,414.92₹	- Recreational facility
8	ATM	1,15,909.70 ₹	- Emergencies that require monetary exchange
9	Entrance Gate	10,33,496.70₹	- Aesthetic and heritage
10	Panchayat Building	3,81,813.95 ₹	- aspiraons with respect to development of the village.
11	Medical shop	1,49,805.06 ₹	- availability of a variety of drugs
12	Drinking Water center	1,43,838.7 ₹	- Basically to overcome thirstiness of villagers in summers by providing cold RO water

All the designs work done by used reference books for structural design, IS codes for standard checks. We have used SOR (Schedule of Rates of Navsari District) for estimation and costing, and we have used Auto Cad software for Drawing. All this design work is done under Vishwakarma Project in keeping in mind that, people of Vesma sadodra village get basic amenities, thereby improving their life style. By providing required amenities to village, development of village can be possible. So ultimately migration to the city from village will be reduced and livelihood of villagers will increase. This can cause reduce the load on urban areas. And this amenities designed by us is helpful for better development of village as physically as well as socially, which improves the overall lifestyle of people.