DETAIL PROJECT REPORT

VISHWAKARMA YOJNA: VIII

AN APPROACH TOWARDS RURBANISATION

Palod Village

Surat District

PREPARED BY

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Asst. Prof. Dixit Chauhan

YEAR: 2020-21

GUJARAT TECHNOLOGICAL UNIVERSITY

Chandkheda, Ahmedabad – 382424 Gujarat

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Chandkheda, Ahmedabad – 382424 Gujarat

CERTIFICATE

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

Detail Project Report for,

VILLAGE _Palod_

DISTRICT _Surat_

Under

Vishwakarma Yojana: Phase-VIII

in partial fulfillment of the project offered by

GUJARAT TECHNOLOGICAL UNIVERSITY, CHANDKHEDA

during the academic year 2020-21.

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

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ABSTRACT

Vishwakarma Yojana is the project initiated by Government of Gujarat and Gujarat Technological University to develop the clusters/villages of Gujarat state."

It follows the vision of Development of a cluster of villages that preserve and nurture the essence of rural community life with specialize in equity and inclusiveness while not compromising with the facilities appeared to be basically urban in nature, therefore making a cluster of "urban Villages"

We were allotted Palod village of Mangrol taluka of Surat district. Palod is a small village having population of 7,698. It is located 30 km away from Surat. The total geographical area of village is 315.28 hectors. There are about 1,821 houses in Palod village.

Most of the people of Palod village relate to agricultural activity. Sugarcane, pigeon pea and Rice are the main crops of village. Village has a Panchayat building, Primary School, sub-center. Most of the houses of village have toilet. Nearly 60% of total houses of village are Kutchcha house.

There is no community hall in the Palod village so we going to design community hall for the village. There is no library in the village area so, we are going to design a library for the educational purpose.

There are people using the old method for the farming so we can give the design of the skill development center so villagers develop the skill through this center.

By providing library in the village, it will help students and researchers and other library users to overcome discouragement to information access. We also providing a biogas plant.

Key Words:

Vishwakarma Yojna Phase VIII, Rurbanisation, Rural Development, Sustainable Development

ACKNOWLEDGEMENT

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

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

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

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

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

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

An act of gratitude is expressed to our internal guide prof. **Dixit Chauhan** Nodal Officer prof. **Dixit Chauhan**, **Bhagwan Mahavir College of Engineering and Technology, Surat** for their invaluable guidance, constant inspiration and his actively involvement in our project work.

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

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

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

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ABBREVIATIONS

SHORT NAME / SYMBOL	FULL NAME
VY	Vishwakarma yojana
PHC	Primary health center
RCC	Reinforced cement concrete
WBM	Water Bound Macadam
BM	Brick Masonry
D	Door
W	Window
V	Ventilator
WC	Water Closet
URDPFI	Urban and Regional Development Plans Formulation and Implementation Guidelines
GDP	Gross Domestic Product
SAGY	Sansad Adarsh Gram Yojana
GHG	Green House Gas
NH	National Highway
SH	State Highway
ODR	Other district roads
MDR	Major district Road
SC	Schedule Cast
ST	Schedule tribe
NGO	Non-Governmental Organization
SWOT	Strength, Weakness, Opportunity, Threats

Chapter 1: Baben as Ideal village from Surat District of Gujarat State

1.1 Background

An ideal Indian village will be so constructed as to lend itself to perfect sanitation. It will have cottages with sufficient light and ventilation built of a material obtainable within a radius of five miles of it. The cottages will have courtyards enabling householders to plant vegetables for domestic use and to house their cattle. The village lanes and streets will be free of all avoidable dust.

It will have wells according to its needs and accessible to all. It will have houses of worship for all, also a common meeting place, a village common for grazing its cattle, a co-operative dairy, primary and secondary schools in which industrial education will be the central fact, and it will have Panchayats for settling disputes. It will produce its own grains, vegetables and fruit, and its own Khadi. This is roughly my idea of a model village.

Day by day increasing competition in every sector and people wants better living standards there are still so many peoples in India and world can't get some basic needs. Over 70% of the world's poorest people sleep in rural areas wherever basic human desires are not fulfill. Huge population still live in darkest corner and they do not get 24-hour electricity (1.2 billion people), clean water (more than 700 million people) and sanitation (2 billion people), basic healthcare, and education.

The Ideal Village program may be game changing plan for peoples who are living in village and they can't achieve those things that peoples living in city can get easily like better connectivity, healthcare facilities, better education, public amenities and high standard living.

Study area location: -

We visited Baben village as our ideal village visit. Baben is a village in a Bardoli Taluka of Surat District. It is situated 1 km away from Bardoli. It has population of 15610 as per census of 2011. Baben has received Best Gram Panchayat award. The Baben village marked by clean and RCC roads, standard education facilities, medical facilities, internet connectivity and modern amenities. Baben has surely come a long way to redefine what villages in the country must have and can be. Besides having achieved development on economic parameters, it has also developed socio economically. Falguniben Patel is the Sarpanch of the Baben village and Bhaveshbhai Patel is Deputy Sarpanch.

1.2 Concept: Ideal Village

1.2.1 Objectives of the ideal village

- Create a healthy and environmentally sustainable community.
- Encourage the provision of local business services within the village.

- Encourage slow and sustainable development that maintains the village's rural and historic character and identity.
- Develop new transportation infrastructure to make the village safe and accessible via all modes of transportation.
- Maintain an attractive heritage community.
- Develop new schools, recreation areas and shopping within the village.
- Promote the preservation of agricultural land.

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

KATHEWADI, MAHARASHTRA

Kathewadi is a small Indian village in the state of Maharashtra. Kathewadi is not at all different from any other small Indian villages. But now, Kathewadi has been transformed in to a model village, after it has been adopted by the Art of Living Foundation in Dec 2008.

This is the same village where once both rich and poor were addicted to alcohol. Surprisingly with the help of Art of Living, alcoholism plunged down to zero percentage. All the families in the village are associated with the Self Help Groups. They started a daanpeti (donation box) scheme which in turn let them to setup and maintain a shop without a shopkeeper. The money saved from alcoholism, SHGs and the daanpeti scheme gave them sufficient economic independence to build toilets for each of the 110 households.

Fig.1 Live Case Study of Ideal Village- Kathewadi

70% alcoholism to 0% alcoholism, a shop with no shopkeeper, Zero toilets to 110 toilets, a paved road and that too without any external funding!! Well, Kathewadi has transformed its image in many aspects; but all with an intention to change for good.

1.2.3 The idea of a model: -

As a model village, village should have balanced in every sector so that villagers can feel peaceful life and environment. There are some elements which is connected to the modal village and it is shown in figure:

Fig.2 Initiation of Model Village

An intervention under one of these areas could have an effect across other areas as well. For example, technology could be used to improve the quality and delivery of other services such as health and education, which in turn contributes to sustainable development. Similarly, the use of renewable energy, apart from meeting energy needs, also contributes towards environmental sustainability. Village tree plantation drives could encourage community participation, benefit the environment, prevent soil erosion and benefit agriculture, conserve water, and finally contribute to the aesthetics of the village.

1.2.4 Ancient Start history of civil concept from Indian Village/ foreign Countries perspective / Development

Mohenjo-Daro

Mohenjo-Daro was built in the 26th century BCE. It was one of the largest cities of the ancient Indus Valley Civilization, also known as the Harappan Civilization, which developed around 3,000 BCE from the prehistoric Indus culture. Mohenjo-Daro has a planned layout with rectilinear buildings arranged on a grid plan. Most were built of fired and mortared brick; some incorporated sun-dried mud-brick and wooden superstructures. The covered area of

Mohenjo-Daro is estimated at 300 hectares. The Oxford Handbook of Cities in World History offers a "weak" estimate of a peak population of around 40000.

The sheer size of the city, and its provision of public buildings and facilities, suggests a high level of social organization. The city is divided into two parts, the so-called Citadel and the Lower City. The Citadel – a mud-brick mound around 12 metres (39 ft) high – is known to have supported public baths, a large residential structure designed to house about 5000 citizens, and two large assembly halls. The city had a central marketplace, with a large central well. Individual households or groups of households obtained their water from smaller wells. Waste water was channel to covered drains that lined the major streets. Some houses, presumably those of more prestigious inhabitants, include rooms that appear to have been set aside for bathing, and one building had an underground furnace, possibly for heated bathing. Most houses had inner courtyards, with doors that opened onto side-lanes. Some buildings had two stories.

Fig.3 Mohenjo-Daro Street System

1.3 Detail study: -

➢ Physical and Demographic Growth

Baben village has a population 15610 in 2011 which was 8377 in 2001. In 15610 population of village, there are 8642 Males and 6968 Females. Total households are more than 4107. Physical growth of village is due to real estate developers, which is come by developing land and houses in the village and use that money to develop basic amenities for the residents of the village. The village panchayat collected ₹3 crores in the past five years from 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. The village also has a school, degree and diploma engineering college and a restaurant.

PHYSICAL GROWTH OF BABEN FROM 1972 TO 2019

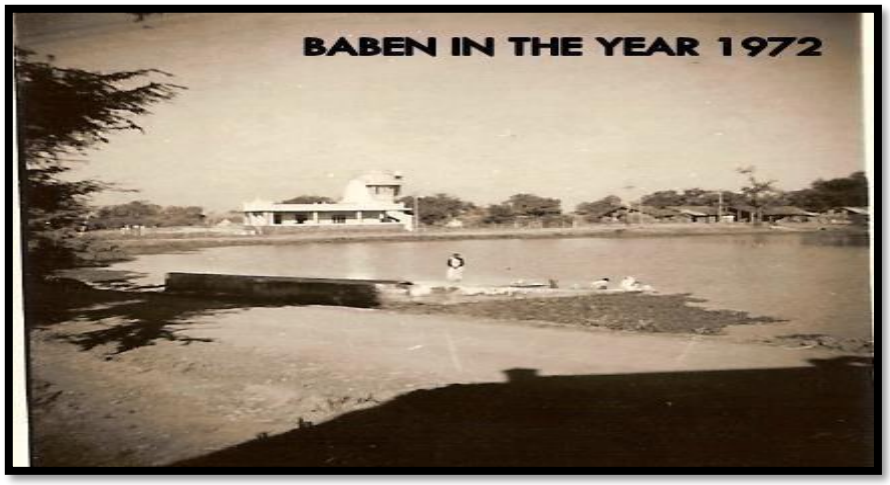


Fig.4 Baben in 1972

➢ Economic profile

Most of people in baben depends on agricultural activity. There is sugar mill also available which generates income throughout the year for people who doesn't have land for agriculture. MGNREGA scheme also available for people when water is not available for crops at that time people can earn money through this scheme. There is new development of houses also undertaking so that people can invest in real estate business.

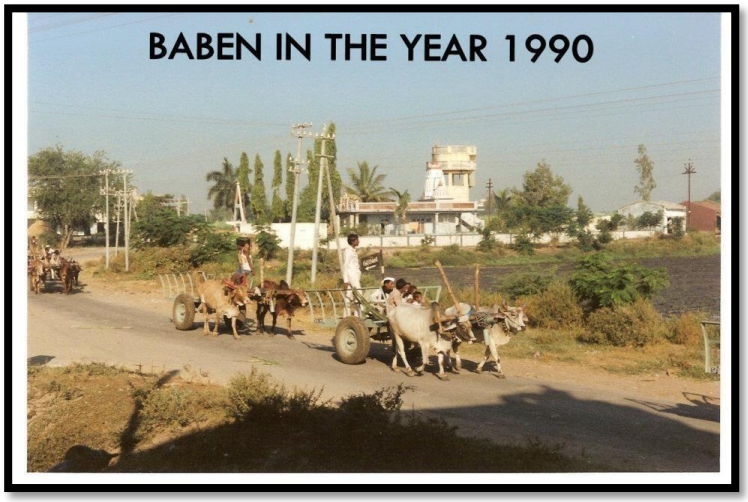


Fig.5 Baben in 1990

Baben has total administration over 3146 houses to which it supplies basic amenities like water and sewerage. It is also authorizing to build roads within Census Town limits and impose taxes on properties coming under its jurisdiction

Village has 2 sub centers, Government Hospital, Maternity Homes Also there are private hospitals within 1 km in Bardoli.

All the houses of village have private toilet blocks. Waste water from toilets is collected in Septic tank and disposed in Khadi. There are eight public toilets provided in the village. These public sanitation blocks also consist of bathrooms. All the blocks are in good condition.

The village panchayat collected ₹3 crores in the past five years from 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.

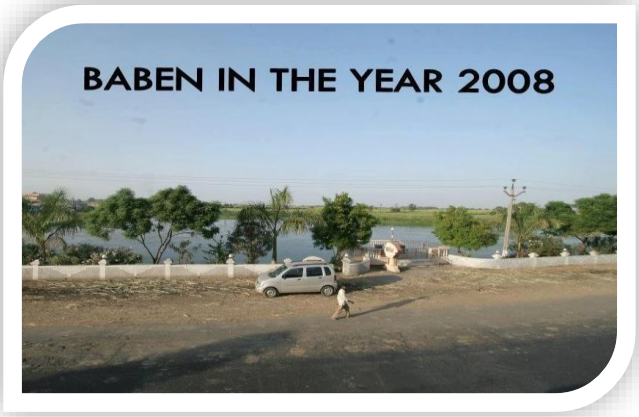


Fig.6 Baben in 2008

Fig.7 Baben in 2017

➢ Social scenario /profile

The Baben has population of 15610 of which 8642 are males while 6968 are females as per Census India 2011. Population of Children with age of 0-6 is 2121 which is 13.59 % of total population of Baben. Female Sex Ratio is of 806 against state average of 919. Moreover, Child Sex Ratio in Baben is around 822 compared to Gujarat state average of 890. Literacy rate of Baben city is 75.70 % lower than state average of78.03 %. Male literacy is around 82.55 % while female literacy rate is 67.18 %.

Fig.8 Baben in 2020

Baben has total administration over 3146 houses to which it supplies basic amenities like water and sewerage. It is also authorizing to build roads within Census Town limits and impose taxes on properties coming under its jurisdiction.

Out of total population, 6628 were engaged in work or business activity. Of this 5152 were males while 1476 were females. In census survey, worker is defined as person who does business, job, service, and cultivator and labour activity. Of total 6628 working population, 89.85 % were engaged in Main Work while 10.15 % of total workers were engaged in Marginal Work.

➢ Infrastructures facilities

Transport Facilities:

There are many public transportation facilities available nearby village. Like, Railway station is situated at 0.5 km away from village (Bardoli Railway Station). Bus station is also 1.5 km away. All the roads are RCC roads. And all the street and sub-street roads are of CC blocks. For local transportation there is facility of Auto rickshaws.

1.4 Social Infrastructural facilities:

Social Infrastructure facilities like Health, Education etc. are available in village.

Health Facility:

Village has 2 sub centers, Government Hospital, Maternity Homes Also there are private hospitals within 1 km in Bardoli.

Education Facilities:

Village has very good education facility. There is one Government primary school and four private primary schools, three secondary schools, two higher secondary schools with 6 play grounds. For higher education there is Diploma College, Engineering College, Medical College and Polytechnic College.

Drinking Water Facilities:

Main source of drinking water in Baben village is ground water. To treat the water RO plants and Chlorination process are used. To lift the water from ground water resources tube wells and wells are used. This water is supplied to nine overhead water tanks after treatment. Water is provided in households for 6 hours daily. All the houses have taps through which they utilize water.

Drainage Facility:

For the disposal of waste water there is a drainage system in the village. Waste water is disposed by closed conduit network. These conduits dispose water into Septic tanks. Each Faliya of village has separate Septic tank. After treatment of the water in septic tank it is disposed in Khadi.

Sanitation facilities:

All the houses of village have private toilet blocks. Waste water from toilets is collected in Septic tank and disposed in Khadi. There are eight public toilets provided in the village. These public sanitation blocks also consist of bathrooms. All the blocks are in good condition.

Electricity Distribution:

There is 24x7 electric power supply provided in village by DGVCL (Dakshin Gujarat Vij Company Limited). For agricultural use 8-hour power supply is provided. Village have street lights on each and every major and minor road, all street lights are LEDs.

Irrigation facilities:

Main source of irrigation in village is ground water. Farmers use tube wells to lift the water from ground.

Socio-cultural Facilities:

There are 4 community halls (without TV), 1 Public Library, 2 Gardens, Village pond, Recreation Centre, Post Office, General, Market, Panchayat Building, Medical shop, Bank & ATM Facility, Agricultural co-operative Society, Internet Café are also available in village. And they thinking about free Wi-Fi in the village of villagers

All above mention things are in Proper working condition and Regularly Repair and Maintenance was also carried out by Sarpanch and people of baben village.

Fig.9 Ideal Primary School in Baben

1.5 SWOT Analysis of ideal village

The SWOT Analysis of ideal village includes:

Strength:

- Water tank facility
- Drainage facility
- Transport facility
- Sanitation facility
- Irrigation facility
- Housing condition

- Education Facility
- Health Facility

Weakness:

Absence of renewable energy like:

- Solar power plant based street light
- Biogas plant
- Hydroelectric power
- Rain Water Harvesting System

Opportunities:

- As village has sufficient funds, more development works can be carried out.

Fig.9 Public Toilet in Baben

- Sugar factory of village can be expanded to such an extent that it can give more and more revenue and employment.
- As there is a lake in the middle of village, it can be developed as a tourist place. By expanding Sugar factory, we can generate more and more revenue and employment.
- As there is availability of higher education facilities in village high literacy rate can be achieved
- By use of renewable energy sources like Biogas Plant, Solar Street Lights, Roof Solar Panels etc. electricity can be produced locally.

Threats:

- As waste water is disposed in Khadis after partial treatment in septic tank there is chances of diseases nearby Khadi.
- As ground water is main source of water in village, ground water level may deplete and water scarcity may arise.

1.6 Future prospects of the Ideal Village

- Tenant in baben village mostly depend on agriculture activity and increasing facilities of irrigation system day by day so that revenue comes from that increasingly very fast and development of whole village can be possible.
- Sugar factory gives extra revenue to the village and it is the best example of

manufacturing unit in village.

- Solar energy can be generated so that every household will be independent and they will get 24-hour electricity.

1.7 Learnable Things / Benefits of the visits

By visiting the baben as ideal village, we saw that it is the perfect village as any villagers want and it has clean environment and there are all primary things available for villagers and peoples in baben are so helpful and it learns us that how can we help to unknown people and they are so peaceful people and peoples in baben are mostly independent in every aspect so it gives lesson us that we need to be independent. By visiting baben, it is almost pollution free village so it will teach us that we should use public transport as much as possible.

➢ Civil benefit available in ideal village:

- ✓ By constructing RCC roads people can reach easily anywhere and public transportation can be developing.
- ✓ By constructing sanitation facilities, village can be clean and pollution free
- ✓ Developing education facilities, new technology can be developing for anything and life of people can be more relax.
- ✓ Developing amenities, people will be less stressful and can spend time in holidays.
- ✓ Developing drainage system, mosquito nuisance can be controlled.

1.8 Civil aspect required in ideal village:

For converting village into ideal village we need to use civil concept or civil method for any type of construction. In baben, there are RCC roads, Pakka house, Drainage system, Panchayat office, Library, Schools, Lake, Garden and all this facility it requires civil concept.

Fig.10 Roads in Palod Village

Chapter 2: Literature Review

2.1 Introduction

Mawlynnong is a village in the East Khasi Hills district of the Meghalaya state in North East India. It is famous for its cleanliness and natural attraction. Mawlynnong is located 90 km from Shillong, along the India-Bangladesh border. As of June 2015 it had 500 residents. As of 2014, there are about 95 households in Mawlynnong. The literacy rate is 90%. Agriculture is the chief occupation of the local population, with betel nut being the main crop. The people residing in the community are Khasi people.The population is mostly Christian and the village has three churches. As is the tradition of the Khasi people, in Mawlynnong property and wealth are passed from the mother to the youngest of her daughters, who also keeps the mother's surname.

Fig.11 (Mawlynnong Village)

➢ Urban & Rural and Concept: -

REAL URBAN

An urban area or urban agglomeration is a human settlement with high population density and infrastructure of built environment. Urban areas are created through urbanization and are categorized by urban morphology as cities, towns, conurbations or suburbs. In urbanism, the term contrasts to rural areas such as villages and hamlets and in urban sociology or urban anthropology it contrasts with natural environment. The creation of early predecessors of urban areas during the urban revolution led to the creation of human civilization with modern urban

planning, which along with other human activities such as exploitation of natural resources leads to human impact on the environment.

The world's urban population in 1950 of just 746 million has increased to 3.9 billion in the decades since. In 2009, the number of people living in urban areas (3.42 billion) surpassed the number living in rural areas (3.41 billion) and since then the world has become more urban than rural. This was the first time that the majority of the world's population lived in a city. In 2014 there were 7.2 billion people living on the planet, of which the global urban population comprised 3.9 billion. The Population Division of the United Nations Department of Economic and Social Affairs at that time predicted the urban population would grow to 6.4 billion by 2050, with 37% of that growth to come from three countries: China, India and Nigeria.

Urban areas are created and further developed by the process of urbanization. Urban areas are measured for various purposes, including analyzing population density and urban sprawl.

Unlike an urban area, a metropolitan area includes not only the urban area, but also satellite cities plus intervening rural land that is socio-economically connected to the urban corecity, typically by employment ties through commuting, with the urban core city being the primary labor market.

REAL RURAL

A rural area or countryside is a geographic area that is located outside towns and cities. The Health Resources and Services Administration of the U.S. Department of Health and Human Services defines the word rural as encompassing "...all population, housing, and territory not included within an urban area. Whatever is not urban is considered rural."

Typical rural areas have a low population density and small settlements. Agricultural areas are commonly rural, as are other types of areas such as forest. Different countries have varying definitions of rural for statistical and administrative purposes.

Rural areas are also known as the 'countryside' or a 'village' in India. It has a very low population density. In rural areas, agriculture is the chief source of livelihood along with fishing, cottage industries, pottery etc.

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. In these areas the panchayat makes all the decisions. There are five persons in the panchayat. The National Sample Survey Organization (NSSO) defines 'rural' as follows:

- An area with a population density of up to 400 per square kilometer, Villages with clear surveyed boundaries but no municipal board,
- A minimum of 75% of male working population involved in agriculture and allied activities.
- RBI defines rural areas as those areas with a population of less than 49,000 (tier -3 to tier-6 cities).

- It is generally said that the rural areas house up to 70% of India's population. Rural India contributes a large chunk to India's GDP by way of agriculture, self-employment, services, construction etc. As per a strict measure used by the National Sample Survey in its 63rd round, called monthly per capita expenditure, rural expenditure accounts for 55% of total national monthly expenditure. The rural population currently accounts for one-third of the total Indian FMCG sales.

2.2Importance of the rural development: -

- To develop rural areas in terms of whole in terms of culture, society, economy, technology and health.
- To develop living standard of rural mass.
- To develop rural youth, students and women.
- To develop and empower human resource of rural area in terms of their psychology, skill, knowledge, attitude and their other abilities.
- To solve the problems, face by the rural mass for their development.
- To develop infrastructure facilities of rural area.
- To provide basic facilities in terms of drinking water, education, transport, electricity, sanitation and communication.
- To develop rural institution like panchayat, co-operative post, banking and credit.
- To develop entertainment and recreational facility for rural mass.
- To provide rural marketing facilities.
- To minimize urban and rural in terms of facilities and availed.
- For the sustainable development of rural area.

2.3Ancient Villages/ Different definition of rural area/ Villages

Criteria of defining rural settlements

Criterion	Main feature
Urban structure	lower building density, agricultural settlement, extensive public spaces, low ratio of built-up areas
Architectonic features	Low-rise buildings, integration of residential and other functions, absence of rental housing, individual buildings
Social features	Conservatism, traditionalism, neighborly relations, participation, cooperation, sharing common history.
Economic features	Commuting to work, agricultural employment, higher ratio of subsistence, DIY
Public administration.	Designation of the municipality, position of the municipalities in the public administration structure
Size features	Number of inhabitants, population density, area, ratio of built-up space

Table-1 Criteria of defining rural settlements

Definitions of rural area

In **Canada**, the Organization for Economic Co-operation and Development defines a "predominantly rural region" as having more than 50% of the population living in rural communities where a "rural community" has a population density less than 150 people per square kilometer.

United States Census Bureau: The Census Bureau definitions (new to the 2000 census), which are based on population density, defines rural areas as all territory outside Census Bureau-defined urbanized areas and urban clusters.

In **Brazil**, there are different notions of rural area and countryside. Rural areas are any place outside a municipality's urban development (buildings, streets) and it's carried by informal usage.

2.4 & 2.5 Scenario: Rural / Urban village & Gujarat as per census 2011 population growth

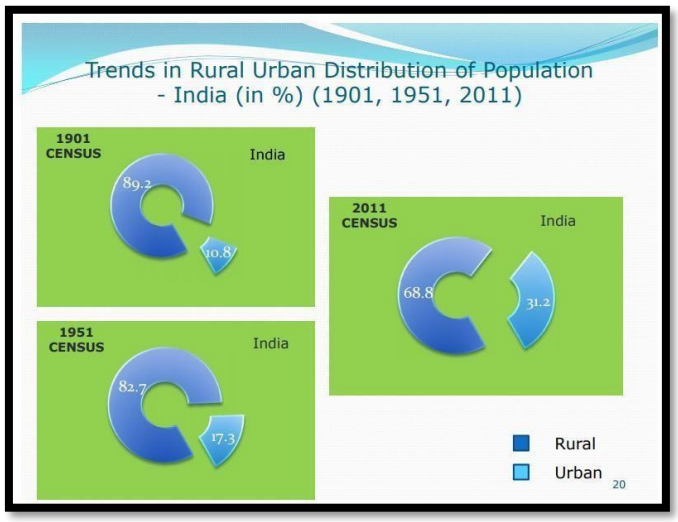
	2001	2011
India	102.9	121.0
Rural	74.3	83.3
Urban	28.6	37.7

Table-2 Population of India (in Crores)

- For the first time since Independence, the absolute increase in population is more in urban areas that in rural areasRural – Urban distribution: 68.84% & 31.16%.
- Level of urbanization increased from 27.81% in 2001 Census to 31.16% in 2011 Census.
- The proportion of rural population declined from 72.19% to 68.84%.
- 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**.**
- Literacy rate is increased to 74% in 2011 from 64.8% in 2001.
- The improvement in literacy rate in rural area is two times that in urban areas.
- The rural urban literacy gap which was 21.2 percentage points in 2001, has come down to 16.1 percentage points in 2011.
- Improvement in female literacy is more than males in both rural and urban areas
- The gender gap in literacy has come down from 24.6 in 2001 to 19.8 in 2011 in rural areas and from 13.4 in 2001 to 9.8 in 2011 in urban areas**.**

Urban Area (or Town):

- All places with a municipality, corporation, cantonment board or notified town area committee, etc. (known as Statutory Town)
- All other places which satisfied the following criteria (known as Census Town): A minimum population of 5,000;
- At least 75 per cent of the male main workers engaged in non-agricultural pursuits a density of population of at least 400 per sq. km. Image



(Source: censusindia.gov.in/2011-prov-results/paper2/data.../india/Rural_Urban_2011.pdf)

Fig.12 Trends in Rural Urban Distribution in India)

Table-3 Urban area

	2001	2011	Increase
Towns	5161	7935	2774
Statutory Towns	3799	4041	242
Census Towns	1362	3894	2532

Rural area (Village):

All areas which are not categorized as urban area are considered as Rural Area Number of Rural Units (or Villages) in India.

Table-4 Rural Area

	2001	2011	Increase
Villages	6,38,588	6,40,867	2,279

Scenario in Gujarat

Table-5 Population of Gujarat in Crores

	2001	2011	% Increase
Gujarat	50,671,017	60,439,692	19.28
Rural	31,740,767	34,694,609	9.30
Urban	18,930,250	25,745,083	36

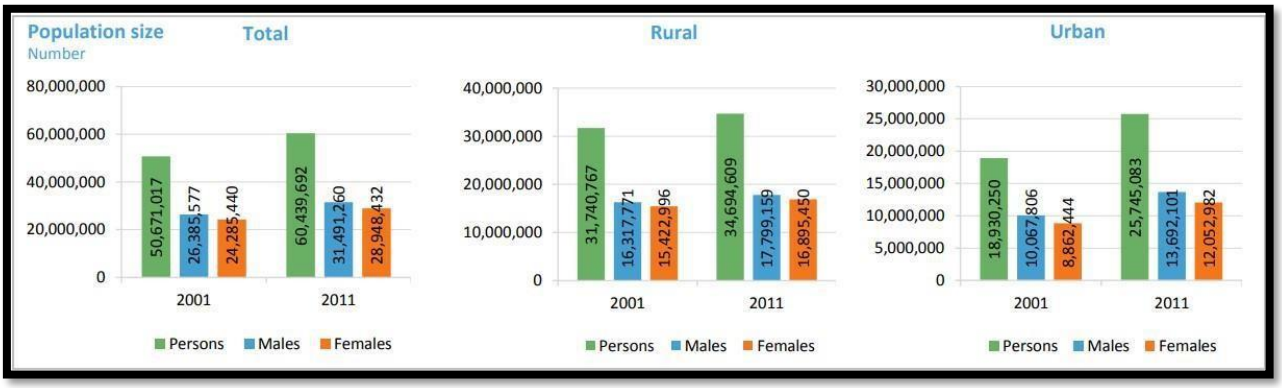


Fig.13 Population Comparison of Gujarat

- Rural – Urban distribution: 57.40% & 42.60%.
- Level of urbanization increased from 37.36% in 2001 Census to 42.60% in 2011 Census.
- The proportion of rural population declined from 62.64% to 57.40%.
- 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.
- Literacy rate is increased to 78.03% in 2011 from 58.86% in 2001.

2.6Rural development Issues – Concerns - measures

Rural areas have major issues like:

- Poverty
- Unemployment
- Inequality among people i.e. The upper caste people holds large lands and lower caste people have small lands or they work as a labour.
- Lower caste people holds Kutchcha houses and facilities they received are less than that received by upper caste people.
- Lack of facilities like drinking water, Sewage disposal, Solid waste management etc.
- Unavailability of public transportation.
- Lack of awareness in people regarding Government Schemes.
- Lack of health facilities.
- Lack of awareness in farmers regarding efficient methods in agriculture.
- Lack of education.

➢ Crime Free / Dispute Free

Peoples in villages are so helpful, mostly they are living with brotherhood feeling. Despite if any concerns come in village, there are beautiful system available. People in villages believe on panchayat's member if any dispute comes across people panchayat's member solve very wisely any matter and people of village follow instruction of them.

➢ Resources

Main resource in village is Land. Peoples are dependent on agriculture but main resource of farmer is hard work strength. They can work almost 14 hours. Land are available on very large scale so that any manufacturing unit can be installed. Clean air is also resource of their people so that average life period of their people is high. Rain water is also main resource for them.

➢ Literacy

Mawlynnong village has higher literacy rate compared to Meghalaya. In 2011, literacy rate of Mawlynnong village was 93.71 % compared to 74.43 % of Meghalaya. In Mawlynnong Male literacy stands at 92.99 % while female literacy rate was 94.35 %.

➢ Health / Hygiene

Mawlynnong is known for its cleanliness. The waste is collected in the dustbins made of bamboo, directed to a pit and then used as manure. A community initiative mandates that all residents should participate in cleaning up the village. Smoking and use of polythene is banned while rainwater harvesting is encouraged.

The travel magazine *Discover India* declared the village as the cleanest in Asia in 2003, and the cleanest in India in 2005. This reputation has boosted local tourism.

➢ Women Empowerment

Mawlynnong is mostly inhabited by the local Khasi tribe, which has its own way of life. One famous custom of the tribe is not practising the patriarchal rule of the society.

This "Women Empowerment" trait means after marriage, the man moves into the woman's house, the children carry their mother's surname, and the family's wealth is passed down from mother to youngest daughter.

First of all we have to do survey of a village for converting village into ideal village. In survey we have to check what is the basic need of their people and after then which type of facilities available in city for better life, connecting those things which is empty in village we can develop any village into ideal village.

➢ Various Measures of Rural Development

According to this measures we can say that rural development is happened,

- Quality schemes for agricultural products and foodstuffs.
- Investments in physical asset.
- Farm and business development.
- Agri-environment climate.
- Organic Farming.
- Support for LEADER local development.
- Investments in forest area development and improvement of the viability of forests.

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

➢ Various infrastructure

- **Facilities with types**

- **Types of Infrastructure:**

Broadly speaking infrastructure can be divided in two categories:

a) Economic Infrastructure
b) Social Infrastructure

(a) Economic Infrastructure:

Economic infrastructure means those basic facilities and services which directly benefit the process of production and distribution of an economy. Irrigation, power, transport and communication are the examples of economic infrastructure.

(b) Social Infrastructure:

Social infrastructure means those basic activities and services which, in addition to achieving certain social objectives, indirectly help various economic activities. For example, education does not directly affect economic activities like production and distribution but indirectly helps in the economic development of the country by producing scientists, technologists and engineers. So education, health service, sanitation and water supply etc. are the examples of social infrastructure.

Development of Economic Infrastructure in India

Development of sufficient and quality infrastructure helps in economic development by facilitating production and investment in any economy. More the infrastructure facilities, greater the opportunity for the producers to invest more. The shortage of these facilities in underdeveloped countries is the main cause of less economic development.

On the eve of Independence, Indian economy is totally backward. Economic planners gave top priority to infrastructure development. In the first plan 50% of the total plan expenditure

was devoted to infrastructure. In the First Plan 27% of the Plan. outlay was given to transport and communication. 13% of outlay was spent in power and 10% in irrigation and flood control.

All five year plans have generally spent around 50% of the total plan outlay on economic infrastructure. Due to heavy investment in infrastructure, Indian economy has become the most promising developing economies of the world. Now we will discuss three main components of economic infrastructure such as energy, transport and communication.

- **Importance in rural context at individual Home of village**

Infrastructure is the basic requirement of economic development. The developed countries have made a lot of progress due to tremendous growth of social and economic infrastructure. There has been revolutionary progress in transport and communication in these countries.

Large financial facilities are available due to the existence of well-organized banking and insurance. There is revolutionary progress in science and technology. These countries follow advanced technique of production. But in a less developed country like India, there is lack of qualitative infrastructure. Due to this, the level of economic development is low.

According to the World Development Report 2003, the position of India in infrastructure development among 47 industrialized countries of the world is the lowest. The inflow of foreign capital to our country has been affected to a great extent by the deficiency of sufficient and quality infrastructure.

Meaning of Infrastructure:

Infrastructure means those basic facilities and services which facilitates different economic activities and thereby help in economic development of the country, Education, Health, Transport and Communication, banking and insurance, irrigation and power and science and technology etc. are the examples of infrastructure. These are also called social over-head capital. These do not directly produce goods and services but induce production in agriculture, industry and trade by generating external economies. For example, an industry situated on or near the railway line or national highway will produce commodities at less cost. Here railway line or national highways are the examples of economic infrastructure. They generate external economies and thus induce investment.

➢ Various guidelines/Norms for Villages for the provisions of Different infrastructure facilities.

Guideline 1: Define community entry points such as major entranceways. Entry point features should reflect village character and may include elements such as landscaping, lighting, public art and signage.

Guideline 2: Ensure new development respects the natural topography of land, and integrates existing landforms such as hills, terraces, cliffs, valleys, rocky outcrops and watercourses. Avoid altering natural terrain to accommodate development.

Guideline 3: Avoid the development of looping, circuitous, suburban-style roadway patterns. New roadway patterns should be direct and reflect the traditional development pattern that exists in the village core. Patterns should also provide multiple pedestrian, bicycle and vehicular connections to adjacent and future development.

Guideline 4: If a direct connection is not possible, develop roadways that terminate onto adjacent open space and/or agricultural land to create attractive, natural view corridors. Ensure turnarounds provide sufficient space for maintenance vehicles.

Guideline 5: Establish a variety of lot sizes in residential developments. Creating a mix of lot sizes promotes a range in dwelling types and, in turn, creates housing options for residents. Explore innovative servicing methods where lot sizes may be restricted by servicing capabilities.

Guideline 6: Develop of mix of housing designs along neighborhood blocks to avoid a mass produced or "cookie cutter" appearance. Varied housing styles, colors and materials create a visually interesting streetscape and village atmosphere.

Guideline 7: Concentrate a mix of uses – commercial, residential, recreational and institutional – within the village core. Locating uses within walking distance of each other strengthens community interaction and viability. The development of "big-box" stores on the periphery of the village or just outside the village boundaries is discouraged.

Guideline 8: Focus multi-unit residential housing in, or very close to, village cores to create an active pedestrian environment where residents can support a mix of uses and activities. Historic buildings in the village core should not be demolished in favor of developing multi-unit residential housing. Vacant lots or underutilized buildings may offer good opportunities for residential infill or residential conversion.

Guideline 9: Provide direct pedestrian connections between adjacent uses within villages to ensure safe and convenient pedestrian movement.

Guideline 10: Ensure prominent buildings, open spaces, public art and/or other attractive features are developed at highly visible locations. Highly visible locations are corner sites, sites that terminate roadways and sites that frame community gathering places. Height, massing, architectural elements and landscaping should be used to create visual interest.

Guideline 11: Identify opportunities to site, stage or install public art in key locations within the community. Art selection should be done in collaboration with the community.

➢ Bachat Mandali

Palod village has not bachat mandali but there are women groups available who are met some period of time.

➢ Dudh Mandali

There are dudh mandala available in Palod village but it doesn't have any infrastructure so dudh mandali needs one office.

- **Any Other**

All available facilities are described above no other facilities are available in palod village.

2.9 Projects / Schemes by Govt. / Private. Sector

- **Government Schemes: -**

  - **Mission Antyodaya**

Mission Antyodaya is a convergence framework for measurable effective outcomes on parameters that transform lives and livelihoods. Real Difference comes about through Convergence as it alone simultaneously addresses multi dimensions of poverty. Professionals, Institutions and Enterprises make it possible.

- Evidence of convergence reducing poverty, raising incomes - IRMA Study.
- Commoditization' through Women SHGs improves education, health, nutrition indicators Saturation approach creates many more 'islands of success' - Only Hiware Bazaar?
- Leveraging Bank loans promotes an enterprise model.
- Many initiatives provide for universal coverage of the eligible beneficiaries - Ujwala, SBM, PMAY, Skills, Power, Roads, internet, Bank Accounts.
- Integral positive co-relation among infrastructure, human development and sustainable economic well-being.
- 5000 islands of successful Rural Clusters over 1000 days will be transformational.

  - **Prime Minister Rural Development Fellows Scheme (PMRDFS)**

- Work with institutions of the poor to build their capacity and help them access their rights and entitlements.
- Facilitate capacity building in Self-Help Groups (SHGs), and in institutions of local democracy, like panchayats.
- Conduct socio-economic analysis of the local areas at Block level and contribute in ascertaining the felt needs of the people.
- Help the district administration in local area planning.
- Assist in better implementation of poverty alleviation programmes, particularly MGNREGA, Swachh Bharat Abhiyan, Saansad Adarsh Gram Yojana, NRLM, NRDWP, IWMP, NSAP, ACA, ICDS, NRHM SSA/RMSA, etc.
- Undertake action-research to discover more appropriate ways of program delivery by the district administration.
- Design and implement innovative projects.
- Provide feedback on rural development initiatives.

- **Sampoorna Grameen Rozgar Yojana (SGRY)**

The primary objective of the Scheme is to provide additional wage employment in all rural areas and thereby provide food security and improve nutritional levels. The secondary objective is the creation of durable community, social and economic assets and infrastructural development in rural areas.

- **Deen Dayal Upadhyaya Grameen Kaushalya Yojana (DDU-GKY)**

The Ministry of Rural Development (MoRD) announced the Deen Dayal Upadhyaya Grameen Kaushalya Yojana (DDU-GKY) Antyodaya Diwas, on 25th September 2014. DDUGKY is a part of the National Rural Livelihood Mission (NRLM), tasked with the dual objectives of adding diversity to the incomes of rural poor families and cater to the career aspirations of rural youth.

DDU-GKY is uniquely focused on rural youth between the ages of 15 and 35 years from poor families. As a part of the Skill India campaign, it plays an instrumental role in supporting the social and economic programs of the government like the Make In India, Digital India, Smart Cities and Start-Up India, Stand-Up India campaigns. Over 180 million or 69% of the country's youth population between the ages of 18 and 34 years, live in its rural areas. Of these, the bottom of the pyramid youth from poor families with no or marginal employment number about 55 million.

- **Pradhan Mantri Awaas Yojana –Gramin (PMAY-G)**

PMAY-G aims at providing a pucca house, with basic amenities, to all houseless householder and those households living in kutcha and dilapidated house, by 2022. The immediate the objective is to cover 1.00 crore household living in kutcha house/dilapidated house in three years from 2016-17 to 2018- 19. The minimum size of the house has been increased to 25 sq.mt (from20sq.mt) with a hygienic cooking space. The unit assistance has been increased from Rs. 70000 to Rs. 1.20 lakh in plain and from Rs75000 to Rs 1.30 lakh in hilly states, difficult areas and IAP district. The beneficiary is entitled to 90.95-person day of unskilled labour from MGNREGS. The assistance for construction of toilet shall be leveraged though convergence with SBM- G, MGNREGS or any other dedicated the source of funding. Convergence for piped drinking water, electricity connection, LPG gas connection etc. different Government programmers are also to be attempted.

- **National Social Assistance Programme (NSAP)**

The National Social Assistance Programme (NSAP) which came into effect from 15th August, 1995 represents a significant step towards the fulfilment of the Directive Principles in Article 41 of the Constitution. The programme introduced a National Policy for Social Assistance for the poor and aims at ensuring minimum national standard for social assistance in addition to the benefits that states are currently providing or might provide in future. NSAP at present, comprises of Indira Gandhi National Old Age Pension Scheme (IGNOAPS), Indira Gandhi National Widow Pension Scheme (IGNWPS), Indira Gandhi National Disability Pension Scheme (IGNDPS), National Family Benefit Scheme (NFBS) and Annapurna.

- **Pradhan Mantri Gram Sadak Yojana (PMGSY)**

For building rural roads, the implementation of Pradhan Mantri Gram Sadak Yojana (PMGSY) launched since December 2000 has revolutionised the system of planning of road network for each District in due consultation with the Panchayati Raj Institutions (PRIs), Members of Legislative Assemby (MLAs) and Members of Parliament (MPs) and creating well engineered assets. The states are following similar standards for their won non-PMGSY rural roads.

- **Members of Parliament Local Area Development Scheme**

The Members of Parliament Local Area Development Division is entrusted with the responsibility of implementation of Members of Parliament Local Area Development Scheme (MPLADS). Under the scheme, each MP has the choice to suggest to the District Collector for works to the tune of Rs.5 Crores per annum to be taken up in his/her constituency.

The Rajya Sabha Members of Parliament can recommend works in one or more districts in the State from where he/she has been elected.

The Nominated Members of the Lok Sabha and Rajya Sabha may select any one or more Districts from any one State in the Country for implementation of their choice of work under the scheme. The Ministry has issued the guidelines on MPLADS Scheme including implementation and monitoring of the scheme. The Department has initiated all necessary steps to ensure that the scheme is successfully implemented in the field.

- **Pradhan Mantri Adarsh Gram Yojana (PMAGY)**

The Centrally Sponsored Scheme 'Pradhan Mantri Adarsh Gram Yojana' (PMAGY) is being implemented for integrated development of Scheduled Castes (SC) majority villages having SC Population concentration > 50%. Initially the scheme was launched on Pilot basis in 1000 villages in 5 States viz. Assam, Bihar, Himachal Pradesh, Rajasthan and Tamil Nadu. The Scheme was further revised on 22.01.2015 with expansion to another 1500 SC majority villages distributed in Assam, Uttar Pradesh, West Bengal, Madhya Pradesh, Karnataka, Punjab, Uttarakhand, Odisha, Jharkhand, Chhattisgarh, Andhra Pradesh, Telangana and Haryana.

- **Provision of Urban Amenities in Rural Areas (PURA)**

Holistic and accelerated development of compact areas around a potential growth center in a Gram Panchayat (or a group of Gram Panchayats) through Public Private Partnership (PPP) framework for providing livelihood opportunities and urban amenities to improve the quality of life in rural areas.

Chapter 3: Smart (Catties/Village) Concept Idea and Its Visit

3.1 Introduction

➢ ***Concept***

SMART CITY

Smart Cities focus on their most pressing needs and on the greatest opportunities to improve lives. They tap a range of approaches - digital and information technologies, urban planning best practices, public-private partnerships, and policy change - to make a difference. They always put people first.

In the approach to the Smart Cities Mission, the objective is to promote cities that provide core infrastructure and give a decent quality of life to its citizens, a clean and sustainable environment and application of 'Smart' Solutions. The focus is on sustainable and inclusive development and the idea is to look at compact areas, create a replicable model which will act like a light house to other aspiring cities. The Smart Cities Mission is meant to set examples that can be replicated both within and outside the Smart City, catalyzing the creation of similar Smart Cities in various regions and parts of the country.

SMART VILLAGE

In Smart Village access to sustainable energy services acts as a catalyst for development enabling the provision of good education and healthcare, access to clean water, sanitation and nutrition, the growth of productive enterprises to boost incomes, and enhanced security, gender equality and democratic engagement.

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

Table-6 Smart Village

➢ ***Definitions (Civil)***

Smart city means not only a digitally connected city but a revolution for engineering. City's first needs are met by Civil Engineering in the form of development of any type of structure like buildings, roads, water supply & sewer systems, bridges, flyovers, metro systems, airports, railways etc.

➢ ***Practices (Civil):***

"Smart Cities are all about practicality at the end of the day."

By providing best transportation system for all community and house for all people scheme and hospitals with latest infrastructure, connectivity between two cities or any place and for all type of development with using the latest technology, this is the best practices for all civil engineers.

➢ ***Practices (Any Other)***

A smart city is an urban area that uses different types of electronic data collection sensors to supply information which is used to manage assets and resources efficiently. This includes data collected from citizens, devices, and assets that is processed and analyzed to monitor and manage traffic and transportation systems, power plants, water supply networks, waste management, law enforcement, information systems, schools, libraries, hospitals, and other community services The smart city concept integrates information and communication technology (ICT), and various physical devices connected to the network (the Internet of things or IOT) to optimize the efficiency of city operations and services and connect to citizens Smart city technology allows city officials to interact directly with both community and city infrastructure and to monitor what is happening in the city and how the city is evolving.

ICT is used to enhance quality, performance and interactivity of urban services, to reduce costs and resource consumption and to increase contact between citizens and government. Smart city applications are developed to manage urban flows and allow for real- time responses. A smart city may therefore be more prepared to respond to challenges than one with a simple "transactional" relationship with its citizens. Yet, the term itself remains unclear to its specifics and therefore, open to many interpretations.

3.2 Vision- Goals, Standards and Performance Measurement Indicators

VISION: -

1. **Urban Automation:** -Automated transportation offers tremendous possibilities for enhancing safety, mobility, accessibility, equity, and the environment. Applicants are encouraged to propose innovative automation strategies that demonstrate safety, mobility, and/or environmental benefits in an urbanized area.

2. **Connected Vehicles: -**Connected vehicles use vehicle-to-vehicle (V2V) and vehicle-to-

infrastructure (V2I) communications to provide connectivity that will enable countless safety, mobility, and environmental applications. Connected vehicle technologies allow vehicles to send and receive information about their movements in the network – offering cities unprecedented opportunities to provide more responsive and efficient mobility solutions in real-time and in the long term.

3. **Intelligent, Sensor-Based Infrastructure: -**Smart cities contain and use a collective intelligent infrastructure that allow sensors to collect and report real-time data to inform every day transportation-related operations and performance and trends of a city. These data allow city operators to know how the city is operating and how the operation of facilities, systems, services, and information generated for the public can be enhanced.

4. **Urban Delivery and Logistics: -**This vision element includes innovative solutions supporting efficient goods movement in ways that use data or deploy technology to create opportunities for a more efficient supply chain approach that delivers safer logistics management, improved on-time pickups and delivery, improved travel time reliability, reduced fuel consumption, and reduced labor and vehicle maintenance costs.

5. **Connected, Involved Citizens: -**Connected citizens generate, share, and use data and information in new and useful ways. This vision element consists of strategies, local campaigns, and processes to proactively engage and inform citizens at the individual level by deploying hardware, software, and open data platforms in an effort to increase personal mobility.

GOAL: -

Specific goals of the Smart City Challenge include:

- Identify the transportation challenges and needs of the citizen and business community and demonstrate how advanced technologies can be used to address issues in safety, mobility, and climate change, now and into the future.

- Determine which technologies, strategies, applications, and institutional arrangements demonstrate the most potential to address and mitigate, if not solve, transportation challenges identified within a city.

- Support and encourage cities to take the evolutionary and revolutionary steps to integrate advanced technologies – including connected and automated vehicle technologies – into the management and operations of the city, consistent with the USDOT vision elements.

- Demonstrate, quantify, and evaluate the impact of these advanced technologies, strategies, and applications towards improved safety, efficiency, and sustainable movement of people and goods.

- Examine the technical, policy, and institutional mechanisms needed for realizing the potential of these strategies and applications – including identifying technical and policy gaps and issues – and work with partners to address them.

- Assess reproducibility and qualify successful smart city systems and services for technology and knowledge transfer to other cities facing similar challenges.

➢ Cities Standards and performance measurement indicators

Some typical Standards of comprehensive development in Smart Cities are described below:

1. Promoting mixed land use in area based developments–planning for 'unplanned areas 'containing a range of compatible activities and land uses close to one another in order to make land use more efficient. The States will enable some flexibility in land use and building bye-laws to adapt to change.

2. Housing and inclusiveness - expand housing opportunities for all.

3. Creating walkable localities –reduce congestion, air pollution and resource depletion, boost local economy, promote interactions and ensure security. The road network is created or refurbished not only for vehicles and public transport, but also for pedestrians and cyclists, and necessary administrative services are offered within walking or cycling distance.

4. Preserving and developing open spaces - parks, playgrounds, and recreational spaces in order to enhance the quality of life of citizens, reduce the urban heat effects in Areas and generally promote eco-balance.

5. Promoting a variety of transport options - Transit Oriented Development (TOD), public transport and last mile para-transport connectivity.

6. Making governance citizen-friendly and cost effective - increasingly rely on online services to bring about accountability and transparency, especially using mobiles to reduce cost of services and providing services without having to go to municipal offices. Forming e-groups to listen to people and obtain feedback and use online monitoring of programs and activities with the aid of cyber tour of worksites.

7. Giving an identity to the city - based on its main economic activity, such as local cuisine, health, education, arts and craft, culture, sports goods, furniture, hosiery, textile, dairy, etc.

8. Applying Smart Solutions to infrastructure and services in area-based development in order to make them better. For example, making Areas less vulnerable to disasters, using fewer resources, and providing cheaper services.

Performance Measure Indicator: -

Network and Access: -

It refers to the network layer in the Open Systems Interconnection (OSI) model, especially backbone and access networks, including optical broadband, wireless broadband and broadcasting network. Services and information platforms. It refers to ICT services and equipment above the network layer, including software services and private handsets.

Information security and privacy: -

It refers to the security parts including privacy protection.

Electromagnetic filed: -

application of exposure and guidelines, consistent planning, approval process and information for public should be considered with respect to Electromagnetic fields.

Environmental sustainability: -

Air quality, CO2 emissions, Energy, Indoor pollution, water, soil and noise.

Productivity: -

Capital investment, Employment, Inflation, Trade, Savings, Export/import, Household income/consumption, Innovation, Knowledge economy.

Quality of life: -

Education, Health, Safety/security public place, Convenience and comfort.

Equity and social inclusion: -

Inequity of income/consumption (A Gini coefficient of zero expresses perfect equality, where all values are the same (for example, where everyone has the same income), Social and

gender inequity of access to services and infrastructure, Openness and public participation, Governance.

Physical infrastructure: -

piped water, sewage system, electricity, waste management, knowledge infrastructure, transport, roads, building.

3.3 Technological options for smart cities

A Smart City depends on three basic processes:

- It needs to acquire information (data)
- It needs to make sense of that information (analysis)
- It needs to act on that information promptly (action)

➢ Civil Related Technology (Any)

Technology in construction: -

The use of smart technology in construction is essential to ensuring safety, sustainability, and efficiency. It's improving the way we do things in the construction industry from the office, to equipment and materials, and on the jobsite. From connected jobsites to BIM, technology is enabling engineers and contractors to optimize project schedules and streamline the building process from start to finish.

New apps are helping agencies and contractors keep data in order in the office by tracking everything from license bonds, to safety records, and inventory. Smart technology in the office is only the beginning. Although they are still making their way into worldwide markets, autonomous trucks are becoming a thing of the present. Safer work zones are becoming a reality with driverless vehicle technology as autonomous attenuator trucks and impact protection vehicles are hitting the roads and removing danger from drivers and vehicle controllers. Soon we should start seeing the use of autonomous concrete trucks, bulldozers, excavators, and more on and off the jobsite.

Smart concrete and sensors: -

Concrete structures make up a large portion of physical infrastructure around the world and concrete continues to be a building material of choice for civil and structural engineers. Although aging and deterioration of concrete leads to loss of structural integrity, it is still one of the most sustainable and long-lasting building materials in the construction industry. As we develop smart cities and technology continues to evolve, engineers are developing new ways to monitor the structural state of concrete during the curing period, which ultimately helps increase the lifespan and safety of concrete structures.

Smart concrete is being developed using conductive or semi-conductive fillers, such as carbon Fibers, steel slag, carbon black, or Nano-phase materials, which are added to cement- based materials and are able to provide higher strength and strain resistance than conventional concrete. Due to its conductivity, the use of smart concrete can aid in traffic monitoring, rebar corrosion monitoring, stress/strain or force/deformation monitoring of concrete components, and more.

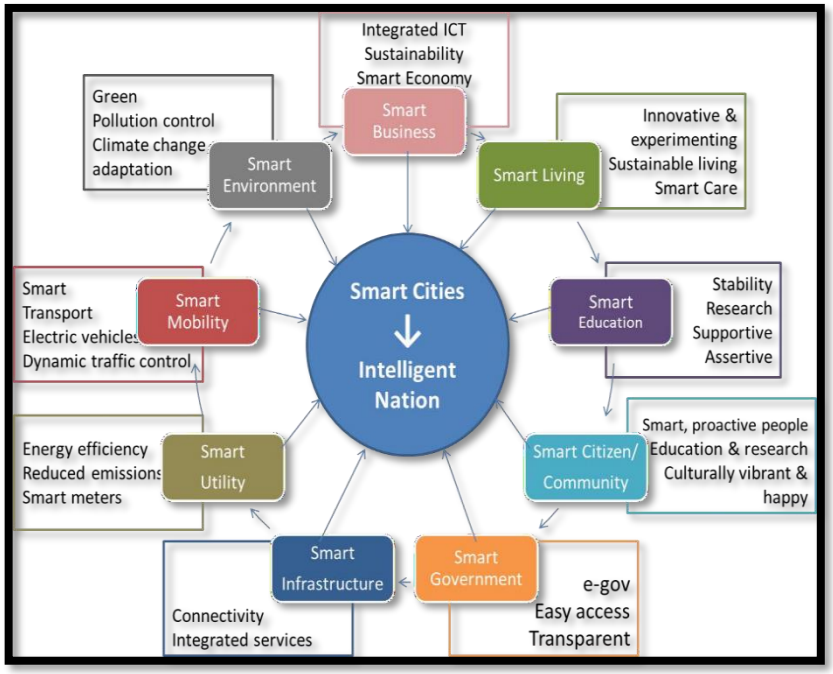


Fig.14 Technological options for smart village

3.4 Road Map and Safe Guards

This roadmap sets out the ten steps proposed by IE's Innovation of the Public Sector Center for dealing with the challenge of smart cities. It involves local government, private initiative and the general public.

Fig.15 Roadmap for smart cities

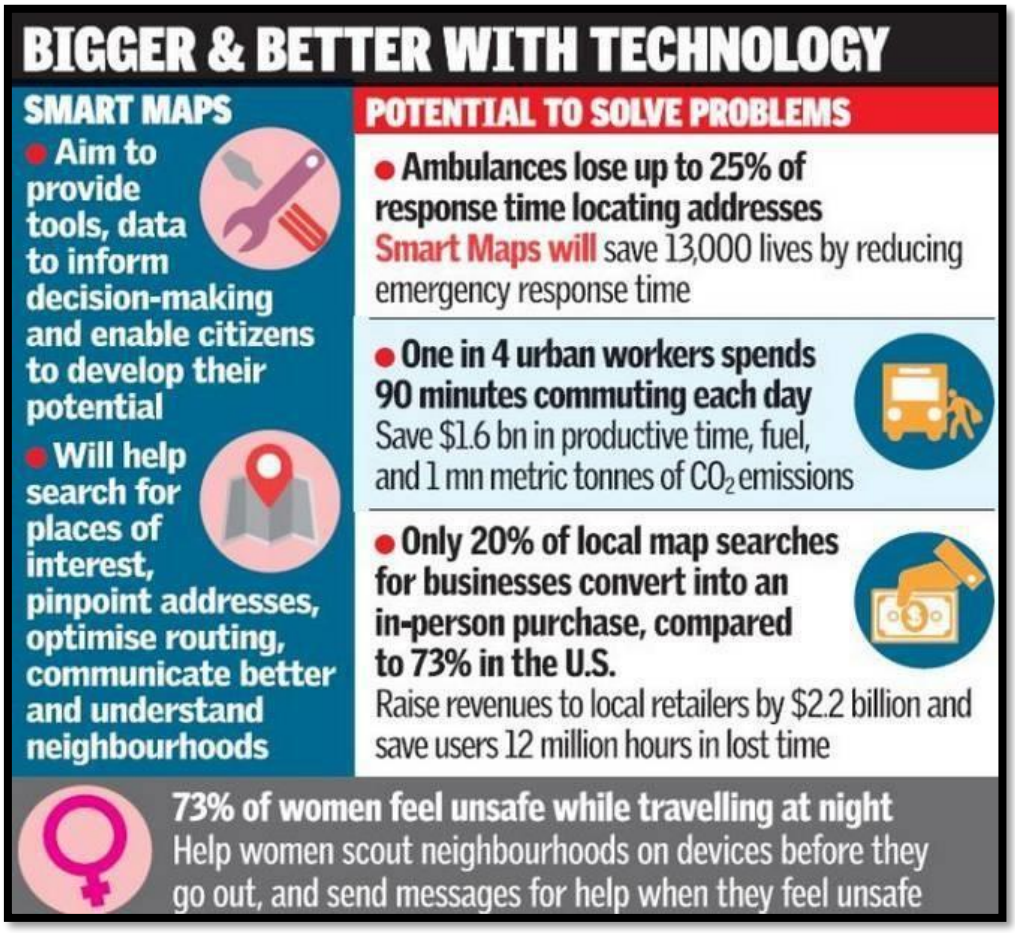


Fig.16 Safe guards for smart cities

3.5 India's smart cities: issues and challenges

➢ Key Issues in Development of Human Beings

- Most of human being thinks that they are right in all aspect, they never believe what other wants to say.
- This narrow type thinking major disturbance in development of human beings.
- Gender inequality is also main problem; men thinks that this type of work woman can't do.
- Old type of thinking also major disturbance in development of human beings.
- Literacy ratio in most of city is less so they don't want to change and they don't accept new thinking and new technologies.
- Learning something new isn't habit of them so this is also disturbance in development of human beings.

➢ Governmental Issues

India is vast country with 125 crore population and there are 29 states with separate Assembly with MLA and parliament with MP at Centrally. There are so many political parties and there are so many elections so that balance conditions are hard to find in city. For making and rules and regulations there are so many times spent for behind it and this is the main problem. Funds can't get regular interval for development in every sector. Poor management system is also big issue in developing smart city. Maintaining anything is quite difficult also big issue for smart city. Corruption is in blood of government is also big issue for creating smart cities. Collection of income tax system is also not good so it is big problem so that government can't get money for development.

3.6 Smart Infrastructure

Smart infrastructure provides the foundation for all of the key themes related to a smart city, including smart people, smart mobility, smart economy, smart living, smart governance and smart environment. The core characteristic that underlies most of these components is that they are connected and that they generate data, which may be used intelligently to ensure the optimal use of resources and improve performance. This section introduces some key components of smart city infrastructure and concludes by highlighting the need for an integrated approach in dealing with such infrastructure.

- **Smart Buildings: -**

A smart building integrates the different physical systems present in an intelligent way to ensure that all the systems act together in an optimized and efficient manner. Smart building management systems can improve building energy efficiency, reduce waste and ensure an optimum usage of water, with operational effectiveness and occupant satisfaction. It is estimated that implementing smart building solutions could save as much as 30 per cent of water usage and 40 per cent of energy usage and reduce overall building maintenance costs by 10 to 30 per cent. 10 For example, in Austria, plus-energy brook has is acclaimed as the first smart office building, feeding more energy into the grid than it uses.

For example, the bicycle-sharing system in Sao Paulo, Brazil, has saved 570 tons of carbon dioxide emissions since it began operations in 2012. New disruptive business models leveraging the concepts of sharing, convenience and use of technology are emerging (such as Uber and Ola taxicabs). Further research is required to quantify the impact of such models on traffic congestion and the frequency of vehicle use in cities. Intelligent transport systems integrate the entire array of multimodal transport options in a city, including both individual mobility and mass transit, in an efficient manner.

Modern intelligent transport systems normally comprise inter alia a network of sensors, global positioning system-tracked public transportation, dynamic traffic lights, passenger information panels, automatic vehicle registration plate readers, closed-circuit television systems, navigation facilities, Signal systems and, most importantly, the capability of integrating live data from most of these sources. This can lead to improvements in safety, network management, traffic congestion, environmental performance, accessibility, convenience and public perception.

For example, Poznan, Poland, is currently operating a modern intelligent transport system. Some challenges that arose in implementing this project included a shortage of skilled staff, issues related to interoperability and unexpected delays in the construction of hard infrastructure components.

- **Smart Water: -**

Cities are constantly trying to solve water scarcity problems with innovative technologies and the better management of water. Improved metering and flow management are key to a good water distribution system. A smart water management system uses digital technology to help save water, reduce costs and increase the reliability and transparency of water distribution.

Physical pipe networks are overlaid with data and information networks. The system typically analyses available flow and pressure data to determine anomalies (such as leaks) in real time to better manage water flow. Customers may be provided real-time information on the water situation and relevant information to help conserve water, leading to lower water bills. For example, Mumbai, India, as part of improvements to the water supply system, has installed smart water meters that may be controlled remotely, leading to a 50 per cent reduction in water leakage.

Smart waste management systems reduce waste and categorize the type of waste at the source, and develop methods for the proper handling of waste. Such systems may be used to convert waste into a resource and create closed-loop economies. Their primary benefits are in improving the efficiency of waste collection, pick up, separation, reuse and recycling. One of the primary inefficiencies of waste management is the inability to predict when waste is to be picked up; trucks are often sent to collect waste when bins are not full.

Sensors, connectivity and the Internet of Things offer ways to mitigate additional costs arising from such inefficiency. Smart waste management systems enable the movement of different kinds of waste to be monitored, and technology may be leveraged to better understand and manage the flow of waste from source to disposal. Such projects are currently being piloted in Santander, Spain and Sharjah, United Arab Emirates.

- **Smart health: -**

The health and well-being of urban residents are of particular concern with regard to the sustainability of urban areas and their supporting ecosystems. Smart cities can develop the capacity to use technology such as big data to develop predictions or identify hotspots of population health (such as epidemics or health impacts during extreme weather events). Smart health-care management converts health-related data into clinical and business insights, which include digital health records, home health services and remote diagnoses, treatment and patient monitoring systems.

It also facilitates the provision of health care using intelligent and networked technologies that help monitor the health conditions of citizens. It is enabling a shift in focus to prevention instead of cures, with a broader view of overall care, healthy living and wellness management. Smart health-care systems have a great potential in ageing societies in developed countries, and may lessen inequality in health care between high and low-income groups. Examples of smart health approaches include crowdsourcing to collect data on epidemics and predict epidemic outbreaks and take the necessary precautions, remotely collecting patient health

vitals and data for diagnostic purposes and establishing automated alerts for patients with regard to medications and health check-ups.

For example, in Africa, the Medic Mobile project in rural regions uses locally available mobile technology to help health workers report symptoms to the nearest clinic, receive treatment advice and emergency referrals and provide information about the prevalence of the disease burden in a village or community.

- **Smart digital layers: -**

Smart digital infrastructure helps to increase understanding and the control of operations and optimize the use of limited resources in a city. One of the key value propositions of ICT in a smart city is the ability to capture and share information in a timely manner. If the information is provided in real time and is accurate, cities can potentially take action before a problem begins to escalate. One way to consider digital infrastructure is in the form of different supporting digital layers, as follows:

Urban: The layer where physical and digital infrastructures meet. Examples include smart buildings, smart mobility, smart grids (for utilities such as water, electricity and gas) and smart waste management systems.

(a) Sensor: This layer includes smart devices that measure and monitor different parameters of the city and its environment.

(b) Connectivity: This layer involves the transport of data and information from the sensor level to storage and to data aggregators for further analysis.

(c) Data analytics: This layer involves the analysis of data collected by different smart infrastructure systems, to help predict some events (such as traffic congestion).

(d) Automation: The digital enabling interface layer that enables automation and scalability for a large number of devices across multiple domains and verticals. Implementing smart city technologies often requires a robust, reliable and affordable broadband network, an efficient ecosystem for the Internet of Things and the capacity to make use of the big data generated.

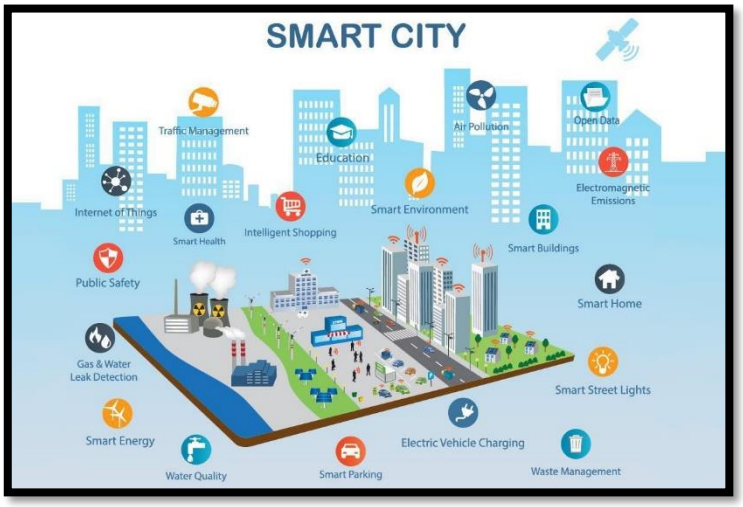


Fig.17 Smart City Infrastructure

3.7 Cyber Security or any other concept

The world is experiencing an evolution of Smart Cities. These emerge from innovations in information technology that, while they create new economic and social opportunities, pose

challenges to our security and expectations of privacy. Humans are already interconnected via smart phones and gadgets. Smart energy meters, security devices and smart appliances are being used in many cities. Homes, cars, public venues and other social systems are now on their path to the full connectivity known as the "Internet of Things." Standards are evolving for all of these potentially connected systems. They will lead to unprecedented improvements in the quality of life. To benefit from them, city infrastructures and services are changing with new interconnected systems for monitoring, control and automation. Intelligent transportation, public and private, will access a web of interconnected data from GPS location to weather and traffic updates. Integrated systems will aid public safety, emergency responders and in disaster recovery.

We examine two important and entangled challenges: security and privacy. Security includes illegal access to information and attacks causing physical disruptions in service availability. As digital citizens are more and more instrumented with data available about their location and activities, privacy seems to disappear. Privacy protecting systems that gather data and trigger emergency response when needed are technological challenges that go hand-in-hand with the continuous security challenges. Their implementation is essential for a Smart City in which we would wish to live. We also present a model representing the interactions between person, servers and things. Those are the major element in the Smart City and their interactions are what we need to protect.

➢ Green building (other concept)

Green building -or sustainable building- is the practice of increasing the efficiency with which buildings and their sites use energy, water, and materials, and of reducing impacts on human health and the environment for the entire life-cycle of a building. Green-building concepts extend beyond the walls of buildings and include site planning, community and land- use planning issues as well. Green buildings are designed to meet certain objectives such as protecting occupant health; improving employee productivity; using energy, water, and other resources more efficiently; and reducing the overall impact to the environment.

Pollution's devastating effects on the environment have become more obvious in recent years, sparking a movement to promote energy efficiency, less reliance on fossil fuels, and a reduction in air and water pollution. Most scientists agree that such changes are necessary to protect our environment from further harm. The construction industry consumes a large quantity of energy and resources and creates a huge amount of pollution. In the United States, building and development account for 39% of the country's total energy use, 12% of total water consumption, 68% of total electricity consumption, and 38% of carbon dioxide emissions, according to the Environment Protection Agency.

Fig.18 (Green Building)

3.8 Retrofitting

➢ retrofitting

Retrofitting is the process of modifying something after it has been manufactured.

Retrofitting a building involves changing its system or its initial construction and occupation. This work can improve amenities for building's occupants and improve the performance of the building. As technology develops building retrofits can significantly reduce energy and water usage.

There are a range of technologies applicable to energy and water efficiency. Not every technology will have suited to every building, so always get advice from a qualified building professional before undertaking any work.

Fig.19 Retrofitting

3.9 Strategic option for developing fast smart cities

The available components of area-based development in the Smart Cities Mission are city improvement (retrofitting), city renewal (redevelopment) and city extension (green-field Development) plus a Pan-city initiative in which Smart Solutions are applied covering larger parts of the city. Below are given three models of Area-based smart city development:

- Redevelopment will effect a replacement of the existing built-up environment and enable co-creation of a new layout with enhanced infrastructure using mixed land use and increased density. Redevelopment envisages an area of more than 50 acres, identified by Urban Local Bodies (ULBs) in consultation with citizens. For instance, a new layout plan of the identified area will be prepared with mixed land-use, higher FSI and high ground coverage. Two examples of the redevelopment model are the Saifee Burhani Upliftment Project in Mumbai (also called the Bhendi Bazaar Project) and the redevelopment of East Kidwai Nagar in New Delhi being undertaken by the National Building Construction Corporation.

- Retrofitting will introduce planning in an existing built-up area to achieve smart city objectives, along with other objectives, to make the existing area more efficient and liveable. In retrofitting, an area consisting of more than 500 acres will be identified by the city in consultation with citizens. Depending on the existing level of infrastructure services in the identified area and the vision of the residents, the cities will prepare a strategy to become smart. Since existing structures are largely to remain intact in this model, it is expected that more

intensive infrastructure service levels and a large number of smart applications will be packed into the retrofitted smart city. This strategy may also be completed in a shorter time frame, leading to its replication in another part of the city.

- Greenfield development will introduce most of the Smart Solutions in a previously vacant area (more than 250 acres) using innovative planning, plan financing and plan implementation tools (e.g. land pooling/ land reconstitution) with provision for affordable housing, especially for the poor. Greenfield developments are required around cities in order to address the needs of the expanding population. One well known example is the GIFT City in Gujarat. Unlike retrofitting and redevelopment.

- Greenfield developments could be located either within the limits of the ULB or within the limits of the local Urban Development Authority (UDA).

- Pan-city development envisages application of selected Smart Solutions to the existing city-wide infrastructure. Application of Smart Solutions will involve the use of technology, information and data to make infrastructure and services better. For example, applying Smart Solutions in the transport sector (intelligent traffic management system) and reducing average commute time or cost of citizens will have positive effects on productivity and quality of life of citizens. Another example can be waste water recycling and smart metering which can make a huge contribution to better water management in the city.

The smart city proposal of each shortlisted city is expected to encapsulate either a retrofitting or redevelopment or green field development model, or a mix thereof and a Pan-city feature with Smart Solution(s). It is important to note that pan-city is an additional feature to be provided. Since smart city is taking a compact area approach, it is necessary that all the city residents feel there is something in it for them also. Therefore, the additional requirement of some (at least one) city-wide smart solution has been put in the scheme to make it inclusive. For North Eastern and Himalayan States, the area proposed to be developed will be one-half of what is prescribed for any of the alternative models - retrofitting, redevelopment or Greenfield development.

3.10 India's Urban water and sanitation challenges and role of indigenous

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.

Are the Services Environmentally Sustainable?

Water quality has deteriorated in most receiving bodies and in shallow groundwater as a result of uncontrolled discharge of raw domestic and industrial waste-water. Are the Services Affordable? Most households, forced to cope with poor quality water supply and sanitation service, spend time and money on expensive and unsafe substitutes, costing much higher than their monthly water bills. The inefficiencies in services and costs are passed on to customers, with the poor suffering the most.

Poor managerial and financial autonomy, limited accountability, weak cost recovery, perverse incentives and limited capacity has led to poor services to customers across the country. Urban India is at the bottom of most international measures of performance. The major challenges are:

- **Creating consensus on sector governance and institutional arrangements;**
- **Developing and testing service provider models that have characteristics of well-run public companies for different market segments (large/small);**
- **Improving financial sustainability of providers (commercial, energy, Non-revenue Water);**
- **Professionalizing the WSS sector.**

Simply creating infrastructure (normally focusing on augmentation but neglecting the distribution network) and not addressing management of service does not lead to sustainable services. Further, the easy access to financing coupled with overlapping responsibility of policy making, planning, financing, implementation, maintenance and regulation, generally vested in the State Engineering Department, results in lack of incentive for accountable and efficient services. Hardly any State has a well-defined WSS Service Improvement Program supported by sound sector policies and institutional development plan.

Fig.20 Sanitation Challenges

- **Role of Indigenous Technologies**

Although universal access to safe and piped water is an important long-term solution, it is very expensive and challenging to implement in developing countries in the short term. Hence, improving both physicochemical and microbiological quality of drinking water at a household level is believed to be effective in preventing infectious diarrhea. There are a number of household water treatment technologies proven to be effective in coagulation and disinfection. At present, a number of effective coagulants and disinfectants have been identified of plant origin. Of the large number of plant materials that have been used over the years, the seeds from Moringa oleifera have been shown to be one of the most effective primary coagulants for water treatment, especially in rural communities.

In addition, indigenous knowledge indicates that there are several plant species that can be used as a coagulant and disinfectant. Out of which seeds of Prosopis juliflora, Dolichos lablab and leaves of Opuntia ficus indica showed effectiveness in coagulation. Although, plant species have enormous advantage in water treatment, they also have limitation. The major limitation is the release of organic matter and nutrients to apply at large scale. From these review, it can be concluded that plant species have the potential to serve as a complementary water treatment agent especially in rural areas.

3.11 Initiatives in village development by Local Self-government

- Town Panchayat and city corporations requires regular energy audit supports.
- Technical support staff need to be strengthen in each Urban Local Bodies (ULB) and a dedicated Energy Conservation Unit need to be placed at least in bigger urban local bodies.
- The ULBs are the competent authorities to enforce all energy saving measures in their jurisdiction, they need an enforcement unit with statutory powers.
- DPCs can initiate more proactive measures in energy conservation.
- ULBs are more efficient to organize massive Energy Conservation Campaigns.
- ULBs can sell/promote energy efficient appliances to urban and rural households.
- Kitchen ventilators and windows can be distributed to the poor rural households.
- Urban Local Bodies can take up plantation works in the vacant lands.
- ULBs can constitute energy watch committees.

3.12 Smart initiatives by district municipal corporation

- Municipal starts door to door garbage campaign.
- Municipal also starts Swachchha bharat abhiyan.
- District Municiple starts WI-FI facilities at railway station.
- They start movement house for all scheme.
- They start beti bachao beti padhao scheme in government school.
- Safety is first priority is their main slogan.

3.13 Any project contributed working by GOV/NGO/Other digital country concept

- **Initiation by Local people:**

  - People starts save environment initiatives and sowing trees in every monsoon season.
  - They start use of water in limitation so that everybody can get water.
  - Local public starts gender equality movement so that women can stand with man.
  - People starts movement of clean street so that city can be clean automatically.
  - Local public starts ban on crackers so that air will not get dirty and people can be healthy.

3.14 How to implement other Countries smart villages projects in Indian village context

The implementation of smart village for village development in Indonesia was depend on governance models that were able to implement planned strategies. The governance dimension had three (3) aspects, covering public service, transparency, and policy. Public services involved the use of ICT to provide services to the public. One of the utilizations of information technology in government was e-government, which aimed to improve the quality and quantity of public services provided to the public, so that the services provided were faster. In addition to public services, the governance dimension must be transparent. Public transparency refers to the openness of information accessed by the public. All information related to the village, resources, potential, budget, agenda, production results, tourism, etc. Public transparency included openness of information and financial transparency.

In village governance, an important role of the village head was needed as a decision maker. Leadership, chief of village played a role in encouraging community interaction and coordinating with various institutions. Community interaction was manifested in public participation in policy decision making at the village level.

Chapter 4: About Palod village

4.1 Introduction: -

4.1.1 Palod Village

We were allotted **Palod** village of **Mangrol** Taluka of **Surat** District. Palod village is located in Mangrol Tehsil of Surat district in Gujarat, India. It is situated 25 km away from sub-district headquarter Mangrol and 30 km away from district headquarter Surat. As per 2009 stats, Palod village is also a gram panchayat. The total geographical area of village is 315.28 hectares. Palod has a total population of 7,698 peoples. There are about 1821 houses in Palod village. Surat is the nearest town to palod which is approximately 30 km away.

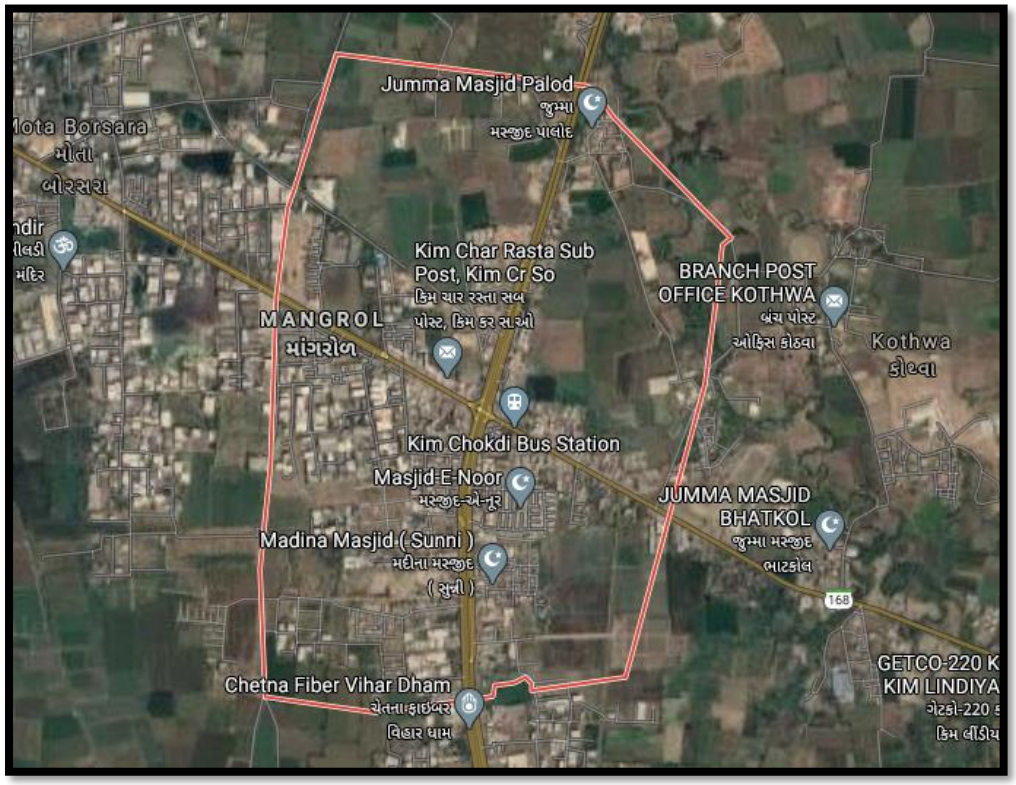


Fig.21 Palod Village Map

4.1.2 Study justification/ need of the study

Village studies have their own importance. These have enriched the knowledge of the Indian Society in general and rural India. These have given great encouragement to the growth of rural society.

After independence, planners in India realized that unless Indian villages were properly studied, no real progress could be made.

Scholars now began to pay more and more attention to village studies.

- Village studies help in planning rural reconstruction.

- Village studies provide useful information to other disciplines.
- Village studies provide useful knowledge about Indian social reality.

4.1.3 Study area

It is the study of political or geographical area including its history, geography, language, and general culture. As our project is related to development of a village, so our study area is the history of development of village, infrastructure facilities in village and existing condition of village.

4.1.4 Objectives of the study

- The objective of village study is to give idea about its layout, its design, the facilities available in village, requirement of people, things required to develop village.
- It helps in planning rural reconstruction, useful information related construction, requirements.
- It helps to getting information about needs of people, social reality.

4.1.5 Scope of the Study

The scope of the study is

- Analysis of study
- Problem identification
- Solution of the problem
- Designing new facilities

4.1.6 Methodology Frame Work for development of village.

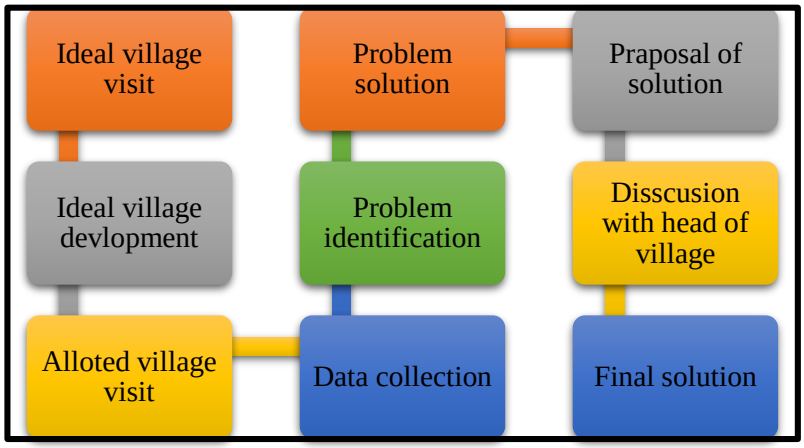


Fig.22 Study framework

4.1.7 Available Methodology for development of related to Civil

- Vishwakarma Yojana is all about the development of village in all aspect, however civil concept is necessary for development of village.
- Palod village has still so much development left with respect to civil methodology.
- Palod village has poor road system so road system can be developed by latest technology with less cost.
- Village has also panchayat office but with poor condition so it can be developed.
- Palod village has overhand tank but it is not available in some area so it can be improved so that people can use it and expand their life.
- Drainage facilities can be developed with civil methodology.

4.2 Palod Village Study Area Profile: -

4.2.1 Study Area Location

Palod is a large village located in Mangrol Taluka of Surat district, Gujarat with total 1,821 families residing. The Palod village has population of 7,698 of which 4,606 are males while 3,092 are females as per Population Census 2011.

particulars	Total	Male	Female
Total No. of Houses	1821	-	-
Population	7698	4606	3092
Child(0-6)	1238	668	570
Schedule Cast	190	101	89
Schedule Tribe	732	382	350
Literacy	84.43%	90.15%	75.50%
Total Workers	3232	3027	205
Main Workers	3140	2962	178
Marginal Workers	92	65	27

(https://www.census2011.co.in/data/village/523860-palod-gujarat.html)

Table-7 Population Data of Palod Village

4.2.2 Base Location map, Land Map, Gram Tal Map

Base location: -

Near Kim Chokdi, NH- 48

(https://goo.gl/maps/6sphxnYx6jo9Y9oeA)

Land map: -

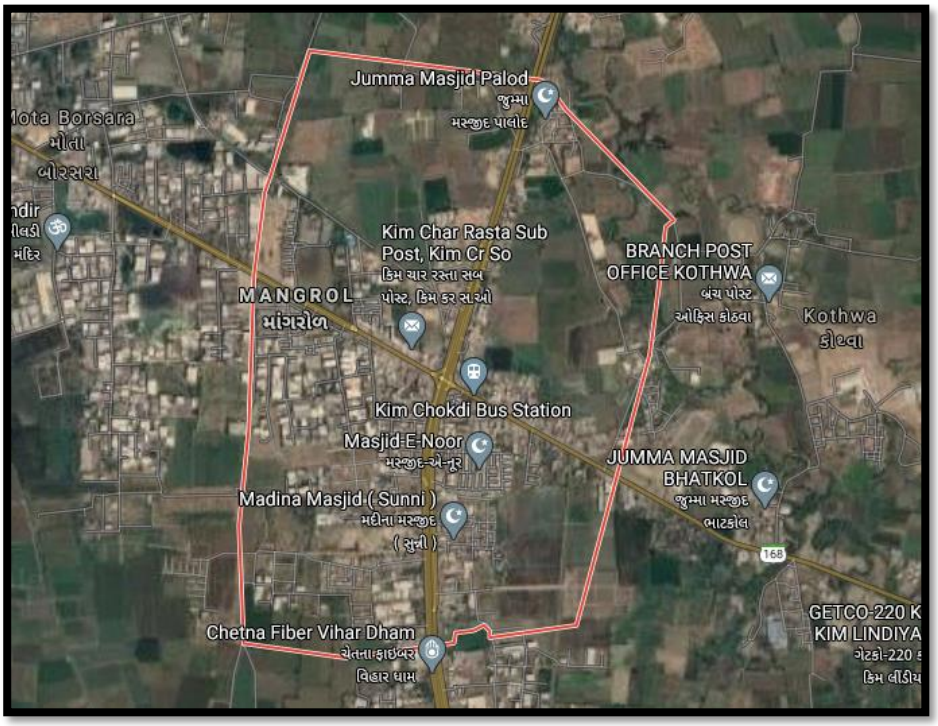


Fig.23 (Land Map of Palod village)

Gram Tal Map: -

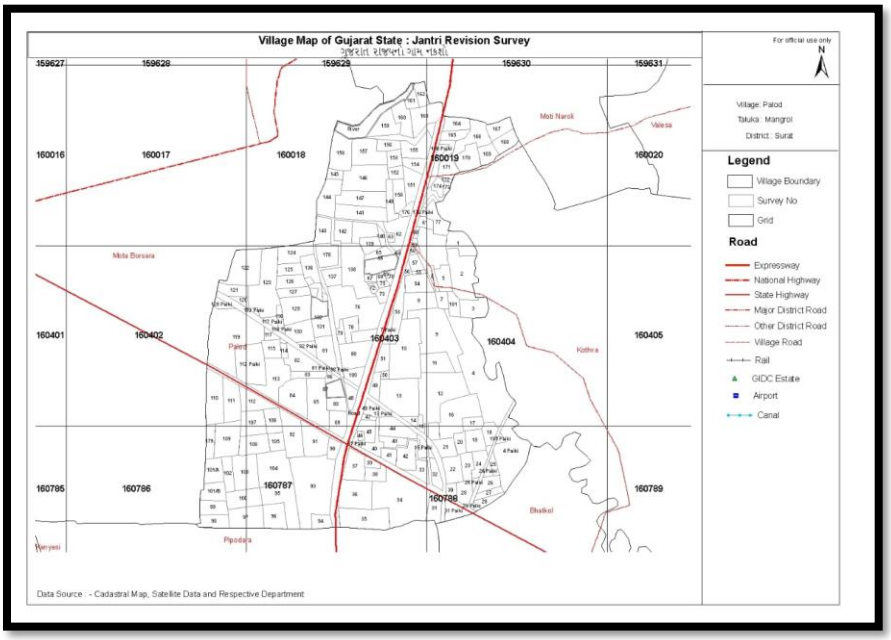


Fig.24 (Gram Tal Map of Palod village)

4.2.3 Physical & Demographical Growth

The village is home to 7698 people, among them 4606 (60%) are male and 3092 (40%) are female. 88% of the whole population are from general caste, 2% are from schedule caste and 10% are schedule tribes. Child (aged under 6 years) population of Palod village is 16%, among them 54% are boys and 46% are girls. There are 1821 households in the village and an average 4 persons live in every family.

4.2.4 Economic Generation Profile / Banks:

There are three banks in Palod village. And 2 ATMs.

- **Axis Bank**
  Address : Groundfloor,d2,d3,d4,sanjarsquareshoppin g Centre,kimcharrasta,village-palod, Taluka-mangrol,dist.-surat,pin-394111
  IFSC Code : Utib0002232
  Phone : 0
  District : Surat
  State : Gujarat
- **Baroda Gujarat Gramin Bank**
  Address :
  IFSC Code : Barb0bggbxx
  Phone : N/A
  District : Surat
  State : Gujarat
- **Bank Of India**
  Address : Palod, Gujarat 394110
  IFSC Code :0
  Phone : N/A
  District : Surat
  State : Gujarat

4.2.5 Actual Problem Faced by Villagers and Smart Solution:

Rural areas have major issues like:

- Poverty
- Unemployment

- Inequality among people i.e. The upper caste people holds large lands and lower caste people have small lands or they work as a labour
- Lower caste people holds Kutchcha houses and facilities they received are less than that received by upper caste people
- Lack of facilities like drinking water, Sewage disposal, Solid waste management etc.
- Unavailability of public transportation
- Lack of awareness in people regarding Government Schemes Lack of health facilities
- Lack of awareness in farmers regarding efficient methods in agriculture
- Lack of education.

➢ **Crime Free / Dispute Free**

Peoples in villages are so helpful, mostly they are living with brotherhood feeling. Despite if any concerns come in village, there are beautiful system available. People in villages believe on panchayat's member if any dispute comes across people panchayat's member solve very wisely any matter and people of village follow instruction of them.

➢ **Resources**

Main resource in village is Land. Peoples are dependent on agriculture but main resource of farmer is hard work strength. They can work almost 14 hours. Land are available on very large scale so that any manufacturing unit can be installed. Clean air is also resource of their people so that average life period of their people is high. Rain water is also main resource for them.

➢ **Literacy**

Mawlynnong village has higher literacy rate compared to Meghalaya. In 2011, literacy rate of Mawlynnong village was 93.71 % compared to 74.43 % of Meghalaya. In Mawlynnong Male literacy stands at 92.99 % while female literacy rate was 94.35 %.

➢ **Other Concept**

According to the Mawlynnong village rules, tourists are required to take plastic waste back with them if they bring any, and offenders will be charged heavily. Because cleanliness is the Khasi tribe's way of life, they are constantly cleaning the village all the time, every day, even stepping out to sweep the roads and plant trees.

The villagers also organise cleanliness drives to pick up the rare strays of plastic waste left behind by stubborn tourists.

Mawlynnong's strict garbage management affords the village its own manure which is converted from the garbage dug into a pit and it is not just the village's grounds that are kept spotless, the air too, as smoking anywhere in Mawlynnong is absolutely prohibited.

4.2.6 Social scenario -Preservation of traditions, Festivals, Cuisine:

- **Gujarat Social Scenario**

CULTURE: The Gujarati's are known for their diverse cultural heritage and rich traditions. It is a vibrant mix of Hinduism, Islam, Jainism and Buddhism and also a blend of different cultures of the Gujarat's like arts, beliefs, customs, traditions, institutions, inventions, language, technology and values. The culture of the people does not stop with one particular generation but instead the elders of the community see to that the future generations also practice it which automatically leads to the wisdom and appreciation of cultural traditions and lifestyles. They also as a part of their culture join hands to greet the guests and the elders. The lifestyle of the people of Gujarat is very balanced because of the fact that they have a perfect system of learning, religious practices and excellent forms of artistic expressions. The culture of the Gujarati's does not only prevails in Gujarat but it has been widespread to different parts of the world and now recognized as an international culture. There is not much of culture shock seen in the people of Gujarat and so it makes people bold and courageous with lot of energy to face different challenges raised by the global scenario.

CUSTOMS AND TRADITIONS: Though modern and sophisticated houses have come in Gujarat, still there are places which have their traditional homes and wooden houses. Most of these traditionally built houses have beautiful and intricately designed interiors but as a customary practice each house has a special "Chabutara" built for bird feeding. Pachchikam jewelry is one of the traditional jewelry of the people of Gujarat where instead of gold, the metal used in making of this ornament is silver. The Gujarati women as a part of their tradition carry a bunch of keys on their waist and the ring holder is usually made of silver. Some other jewelry which is worn by the ladies as part of their customs includes mangalsutra, earrings, necklace, rings and bangles. The Gujarati have lot of belief in various gods and goddesses. Cow is considered as mother God or "Gau-Mata" and the Gujarati's have lot of faith in them. Some of the ceremonies which are must to be celebrated by the people of Gujarat are birth, thread ceremony, marriage and death. In all these ceremonies the rituals and poojas are performed by the Brahmans. As a part of the Gujarati's custom and tradition they celebrate festivals like Navratri and Diwali.

CUISINE: Mostly Gujarati food is vegetarian because the state is dominated by Jains and the Vaishnavas. Most of their staple food includes wheat and millet varieties like jowar and bajri. No meal of Gujarati will miss roti along with a variety of vegetable curries and dishes. The food is generally served on a metal tray which is called as thali and 4-5 small bowls placed on it These thali mainly consists of roti, dal or kadhi, sabzi also known as shaak and rice. The Gujarati's are noted for their sweet tongue and every meal will be accompanied by a sweet dish. Sugar is also sometimes alternated by jaggery. Some of the other common food which is a must for the Gujarati's in their thali are dal, steamed vegetables, homemade pickles, buttermilk and salad. Vaghaar is Gujarat food a blend of spices, which is purified in hot oil and then added to the dal. Gujaratis generally use lot of salt, sugar, tomato and lemon in their cuisine. Desserts, which were in the ancient times offered only on festivityor some special occasions, have now found their way in the daily meals. Ghee is a must in the food of Gujarati's. Srikhand is a rich dessert made with curds

and spiced with saffron, cardamom, nuts, and fruit. The Gujaratis evening snack include bhakri-shak or khichdi kadhi.

OCCUPATION: The major occupation of the people of Gujarat is agriculture for at least one-half of the total land area is cultivable. Other area of economy and job sector includes dairy farming, primarily concerned with milk production. There are lot of industries which are involved in the production of fertilizers and petrochemicals.

4.2.7 Migration Reason:

Four Major Causes of Migration in India.

Marriage:

Marriage is a very important social factor of migration. Every girl has to migrate to her in-law's place of residence after marriage. Thus, the entire female population of India has to migrate over short or long distance. Among the people who shifted their resistance more than half (56.1%) moved due to marriage in 1991.

Employment:

People migrate in large number from rural to urban areas in search of employment. The agricultural base of rural areas does not provide employment to all the people living there. Even the small-scale and cottage industries of the villages fail to provide employment to the entire rural folk. Contrary to this, urban areas provide vast scope for employment in industries, trade, transport and services. About 8.8 per cent of migrants migrated for employment in 1991.

Education:

Rural areas, by and large, lack educational facilities, especially those of higher education and rural people have to migrate to the urban centres for this purpose. Many of them settle down in the cities for earning a livelihood after completing their education.

Lack of Security:

Political disturbances and interethnic conflicts drive people away from their homes. Large number of people has migrated out of Jammu and Kashmir and Assam during the last few years due to disturbed conditions there.

People also migrate on a short-term basis in search of better opportunities for recreation, health care facilities, and legal advices or for availing service which the nearby towns provide.

4.3 Data Collection of Palod Village: -

4.3.1 Methods for data collection: -

For this Vishwakarma Yojana, we were used so many methods. First of all, we were go at Palod village and we met household of Palod village and we talked about history of village,

what type of facilities available in village and how much time taken for this facilities to be developed. After then we talked sarpanch for all this from first to last. We talked about development of village. We were also meet Taluka Development Officer for future development and we discuss about future scope of Palod village.

We were used also internet (census website) for collecting some information. We were also talked with Nodal Officer for future scope of urbanization.

4.3.2 Primary survey details

- **Introduction of Village**

Palod village is located in Mangrol Tehsil of Surat district in Gujarat, India. It is situated 25km away from sub-district headquarter Mangrol and 30km away from district headquarter Surat. As per 2009 stats, Palod village is also a gram panchayat. The total geographical area of village is 315.28 hectares. Palod has a total population of 7,698 peoples. While male population has 4,606 and female 3,092.

4.3.3 Average size of the House- Geo-Tagging of House

Palod village has almost 1,821 houses and each house has average 5 peoples. Most of house has ground base house with roof.

The State government has decided to take up an ambitious program aimed at mapping and geo-tagging the existing infrastructural facilities in all the villages and wards across the State.

Being taken up as part of the Smart Village-Smart Ward initiative, program envisages geo-tagging of the assets of the 12,918 gram panchayats and 3,393 wards for integrating the details in the smart Andhra Pradesh program.

Accordingly, the government has decided to conduct a survey to assess the details of the Village Layers giving information pertaining to village boundaries, assets, infrastructure, irrigation sources, internal roads and other facilities available in each village.

The development comes after the Andhra Pradesh Space Applications Centre had furnished a detailed project proposal for geo-tagging of assets using mobile application in the implementation of the Smart Village-Smart Ward program.

The basic objective of the program is to map all the assets in the panchayats through mobile applications with necessary attributed information on GIS platform and to develop a centralized web-based GIS database by incorporating various stakeholder Government departments.

4.3.4 No of Human Being in One House

There are almost 1,821 houses in Palod village. Average number of human being in one house in Palod village is around 5.

4.3.5 Material Available Locally in The Village Material Out Sourced by The Villagers

Most of houses built in Palod village is brick and clay. Less of houses are made up with RCC and Concrete.

All the materials are out of sourced and supplied by outside contractors. There is no manufacturing plant for material in Palod village.

4.3.6 Geographical Detail

The total geographical area of village is 315.28 hectares. While forest area is 1.3 km^2 and it is around 13 % of the total area.

4.3.7 Demographical Detail – Cast Wise Details/ Which Id Proof Using by Villagers

The village is home to 7698 people, among them 4606 (60%) are male and 3092 (40%) are female. 88% of the whole population are from general caste, 2% are from schedule caste and 10% are schedule tribes. Child (aged under 6 years) population of Palod village is 16%, among them 54% are boys and 46% are girls. There are 1821 households in the village and an average 4 persons live in every family.

Aadhar card and voting card using by villagers for id proof.

4.3.8 Occupational Detail – Occupation Wise Details / Majority Business

	Total	General	Schedule Caste	Schedule Tribe	Child
Total	7,698	6,776	190	732	1,238
Male	4,606	4,123	101	382	668
Female	3,092	2,653	89	350	570

Table-9 Caste wise male female population 2011 in Palod Village

(https://indikosh.com/vill/551643/palod/amp)

Most of people in Palod village is engaged with agricultural business. It is main occupation of them. Palod has 40.8% (3232) population engaged in either main or marginal works. 93% male and 7% female population are working population. 78% of total male population are main (full time) workers and 22% are marginal (part time) workers. For women 86% of total female population are main and 14% are marginal workers.

	Worker	Main Worker	Marginal Worker	Non Worker
Total	3232(40.8%)	3140(97%)	92(3%)	4466
Male	3027(93%)	2962(78%)	65(22%)	1579
Female	205(7%)	178(86%)	27(14%)	2887

Table-10 % of working population in Palod Village

4.3.9 Agricultural Details / Organic Farming / Fishery

House holders in Palod village are connected to the agricultural activity. But they are sowing almost same crop every year because of lack of the sources of water. Peoples in Palod village are mostly depend on rain water and underground water. They are not doing Organic farming as well as fishery work.

4.3.10 Physical Infrastructure Facilities Manufacturing Hub/ Ware House

There is no Manufacturing hub in Palod village and ware houses and it is quite necessary for development of Palod village.

Fig25: Agricultural area in Palod Village

4.3.11 Tourism Development Available in The Village for Attracting the Tourist

Palod village have no place for tourism cluster. There is nothing like ancient history but there is opportunity to create tourism place because they told us there is small lake inside Palod boundary.

4.4 Infrastructure Details: -

4.4.1 Drinking Water/ Water Management Facility

There are three water tank 2 of them are overhead tank (30,000 lit & 50,000 lit) and one of them is underground water tank (50,000 lit) available but in some area there is no overhead tank or supply there for the people in Palod village are use hand pump. Ground water is main source for them. Treated Tap Water Supply all around the year and in summer also available. Uncovered Well and Hand Pump are other Drinking Water sources. There is no RO water treatment system is available.

Fig.26 Overhead water Tanks 30,000 lit / 50,000 lit

Fig.27 Hand Pump

Fig.28 Garbage Dumping Place

4.4.2 Drainage Network/ Sanitation Facilities

There is all drainage line is underground. And panchayat have their own waste collection system, but they don't have any kind of waste management system. They dump garbage on open land.

Almost all houses have toilet facilities and there is one public latrine in Palod village but not in working condition and 4 anganwadi also doesn't have toilet facilities so it is needed to be improve.

4.4.3 Transportation & Road Network

Public Bus service available in this village. There is no Railway Station in less than 5 km. Tractors Available in this Village. Animal Driven Carts are there in this Village. There is National highway 48 passing in to the village. District Road passes through this village. Pucca road, Kuccha Road and Foot Path are other Roads and Transportation within the village. Street roads are in bad condition but construction of road is in the process due to COVID-19 work has been stopped.

Fig.29 Road condition

Fig.30 construction in process

4.4.4 Housing Condition

There is almost half of houses are not pukka house and it is made up with bricks and clay and half of houses are made up with RCC and concrete.

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

There are 1 PHC which is in good conditions but they don't have their private building they pay rent for building. There is no Sub health center. There are 10 different type of school also available which is providing good facilities to students. There are 4 anganwadi available with good condition. There is 1 temple with good condition and 1 mosque with good condition. There is 1 community hall but it is not in working conditions. There is panchayat office with almost good conditions but small space.

Fig.31 Houses in Palod Village

➢ Health Facilities

There is 1 Primary health center (PHC) available in Palod village. 1 private clinic available in Palod village.

➢ Education Facilities

There is 4 anganwadi available in palod village and all are in working condition. There is 6 primary school where students of 1-8 std. are studying. There is 3 secondary school available.

There is 1 higher secondary school also available where girls and boys both are studying which is organizing by trust where students of around village also come.

➢ Community Hall

There is community hall available but with lowest working conditions.

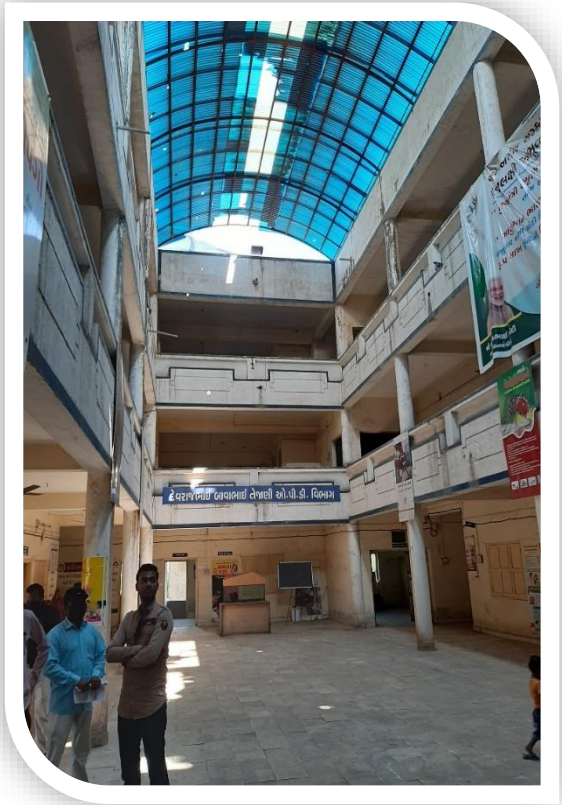


Fig.32 Primary Health Center in Palod Village

➢ Public Library

No Public Library available in Palod village. There are so many schools in Palod village so that public

Fig.33 Higher Secondary School in Palod Village

Fig.34 Primary School in Palod Village

4.4.6 Existing Condition of Public Building & Maintenance of Existing Public Infrastructure.

There is panchayat office but small working place but in good conditions. There is 1 school in bad condition. There is three overhead tank but one of this is not in working conditions. PHC and Sub health center are in good conditions but there is no personal building. Every school is in good conditions. All anganwadi is in bad conditions. There is 1 community hall with not working conditions.

4.4.7 Technology / Mobile / Wi-Fi / Internet Usage Details

Almost 70% people of village use basic phones. There is good connectivity of mobile signals. Wi-Fi is provided in only PHC for administration use. Except this there is not any public Wi-Fi provision. For mobile 4G service there is only JIO network available any other network is not available.

4.4.8 Sports Activity as Gram Panchayat

There are no sports facilities available in Palod village and no ground is available in this village. It is must needed facilities for Palod village.

4.4.9 Socio-Cultural Facilities, public garden/ park / Playground / other recreational facilities

There is 1 community hall available in Palod village but it is not in working conditions. No Public garden or Park or Playground is in palod village.

4.4.10 Other Facilities

Every facility is described above. No other facilities are left.

4.4.11 Any Other details

There is milk co-operative society available but building is not there. There is Anganwadi without toilet facilities.

4.5 Existing Institution Like – Village Administration – Detail Profile

4.5.1 Bachat Mandali

Bachat mandali is not available in Palod village.

4.5.2 Dudh Mandali

Dudh mandali is available but they don't have physical building or structure.

4.5.3 Mahila Forum

Mahila forum is not available in Palod village.

4.5.4 Plantation for Air Pollution

They doing it but not in such a large proportion.

4.5.5 Rain Water Harvesting – Waste Water Recycling

Not available in palod village but we planning to do that.

4.5.6 Agricultural development

They have farmer's group for monitoring and they doing well.

4.5.7 Any other

Every facility is described above. No other facilities are left.

Chapter 5: Technical Option with Case Study

5.1 Concept

5.1.1 Advance Sustainable construction techniques/ Practices and Quantity Surveying

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.

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:

- ✓ Planning, design and specifications based on performance and service life
- ✓ Construction Practices
- ✓ Material Conservation and Selection
- ✓ Demolition and recycling
- ✓ 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 aggregate.

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. This is not only more sustainable option but also most cost effective.

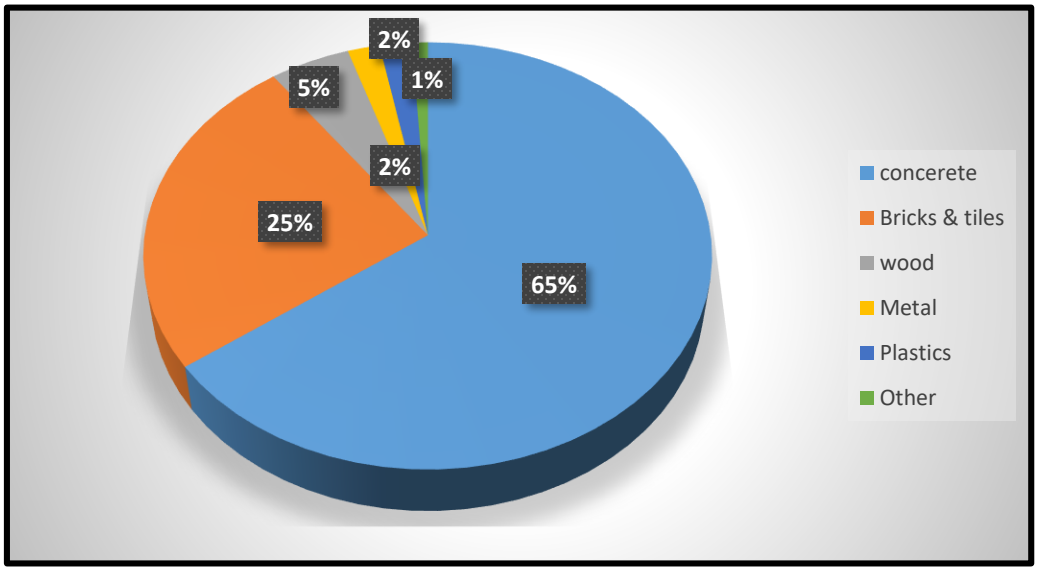


Fig.35 Construction materials chart of energy conservation

5.1.2 Soil Liquefaction:

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

In soil mechanics, the term "liquefied" was first used by Allen Hazen 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.

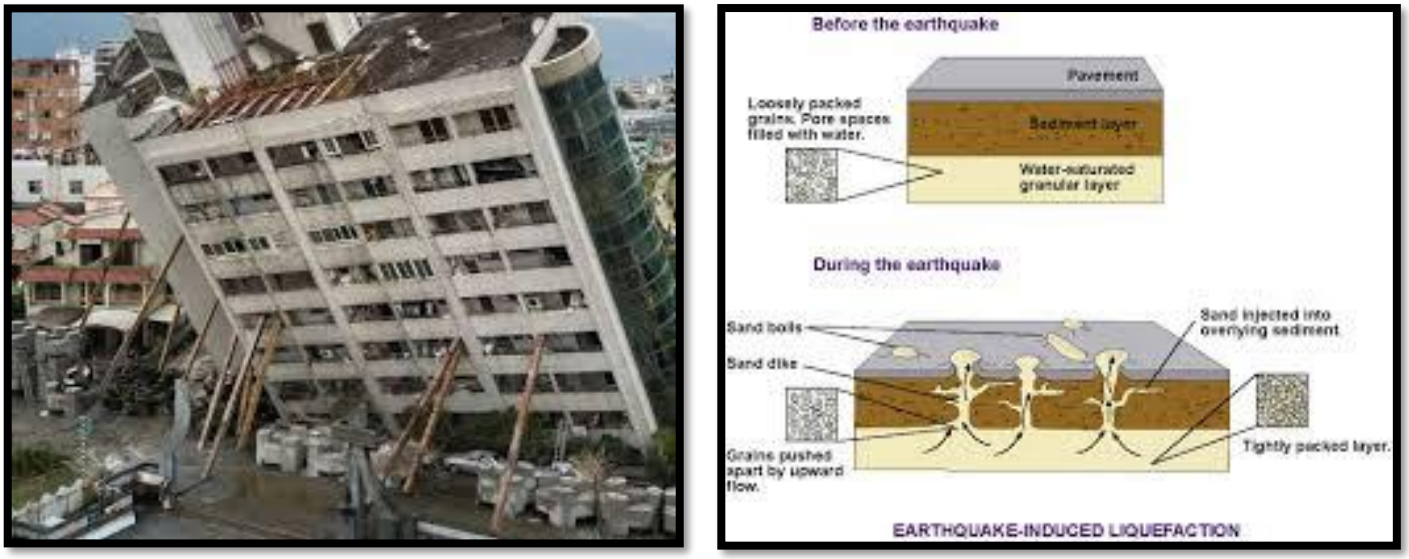


Fig.36 Soil liquefaction

5.1.3 Sustainable Sanitation

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

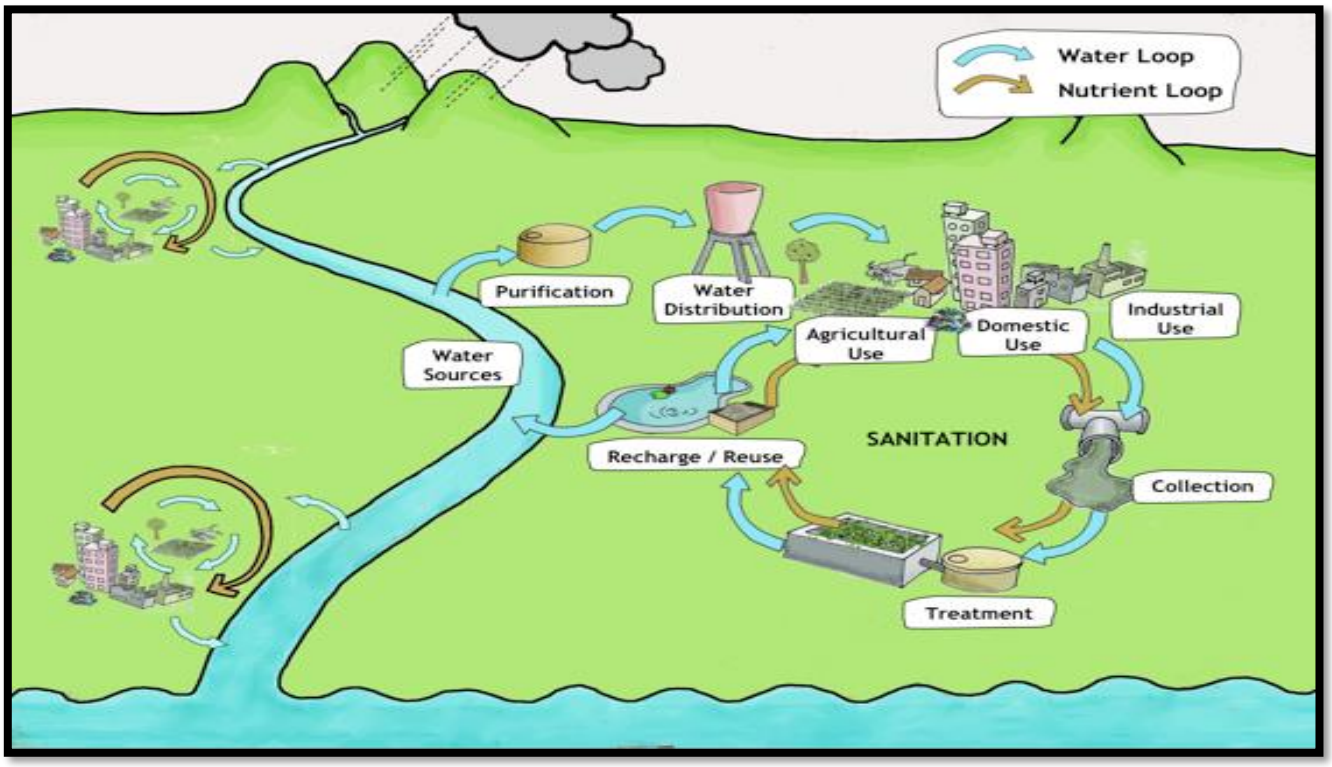


Fig.37 Sustainable Sanitation

5.1.4 Transport Infrastructure / system

Transport infrastructure consists of the fixed installations necessary for transport and includes roads, railways, airways, waterways, and terminals.

Fig.38 Transportation Infrastructure

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.

5.1.5 Vertical Farming

Vertical farming is the practice of growing crops in vertically stacked layers. It often incorporates controlled-environment agriculture, which aims to optimize plant growth, and soilless farming techniques such as hydroponics, aquaponics, and aeroponics. Some common choices of structures to house vertical farming systems include buildings, shipping containers, tunnels, and abandoned mine shafts. As of 2020, there is the equivalent of about 30 ha (74 acres) of operational vertical farmland in the world. The modern concept of vertical farming was proposed in 1999 by Dickson Despoiler, professor of Public and Environmental Health at Columbia University.

Fig.39 Vertical Farming)

Despoiler 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 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.

5.1.6 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 includes 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.

5.1.7 Sewage treatment plant

Solid Waste

In rural areas, examples of solid waste include wastes from kitchens, gardens, cattle sheds, agriculture, and materials such as metal, paper, plastic, cloth, and so on. They are organic and inorganic materials with no remaining economic value to the owner produced by homes, commercial and industrial establishments. Most household waste in rural areas is organic, with little inorganic material, and is non-toxic. Because of its environment-friendliness, composting is a highly suitable method of waste management in rural areas.

Liquid Waste

When water is used once and is no longer fit for human consumption or any other use, it is considered to be liquid waste. Wastewater can be sub categorized as industrial and domestic:

- Industrial wastewater is generated by manufacturing processes and is difficult to treat.

- Domestic wastewater includes water discharged from homes, commercial complexes, hotels & Educational institutions.

Table-11 Different type of support

Technical Support				Financial Support			Monitoring & Management			
State	**District**	**Block**	**Private**	**GP**	**Government**	**private**	**State**	**Division**	**District**	**Block**
➢ Technical Support from all possible levels ➢ State may develop/adopt/identify technologies that are suitable to the needs and requirement of the different geographical regions in the state. District and block level technical staff may ➢ provide direct support in preparing and implementing the SLWM plan. Expertise from market/private players may be mobilised.				➢ Different sources of finance to meet capital cost. O&M costs shall be mobilised from different ➢ sources Government grants (including finance commission grant), GPs own fund, user fee, private sector finance, etc. may be explored.			➢ State-overall monitoring and management framework should be established. Periodic monitoring by state level staff. ➢ Division, district and block – monitoring all aspects of SLWM interventions. ➢ Community- community monitoring may be explored and established where possible.			

➢ Various type of method for Transportation

Mode of transport is a term used to distinguish substantially different means of conveyance. The different modes of transport are air, water, and land transport, which includes rail, road and off-road transport. Other modes also exist, including pipelines, cable transport, and space transport. Human-powered transport and animal-powered transport are sometimes regarded as their own mode, but these normally also fall into the other categories. In general, transportation is used for the movement of people, animals, and other things. Each mode of transport has a fundamentally different technological solution, and some require a separate environment. Each mode has its own infrastructure, vehicles, and operations.

In Palod Village there are road transportation method is available like bus, auto rickshaw, Chhakdo Rickshaw, Private Bike, Car, Bullock cart. Rail Transportation mode can be developing in Palod village.

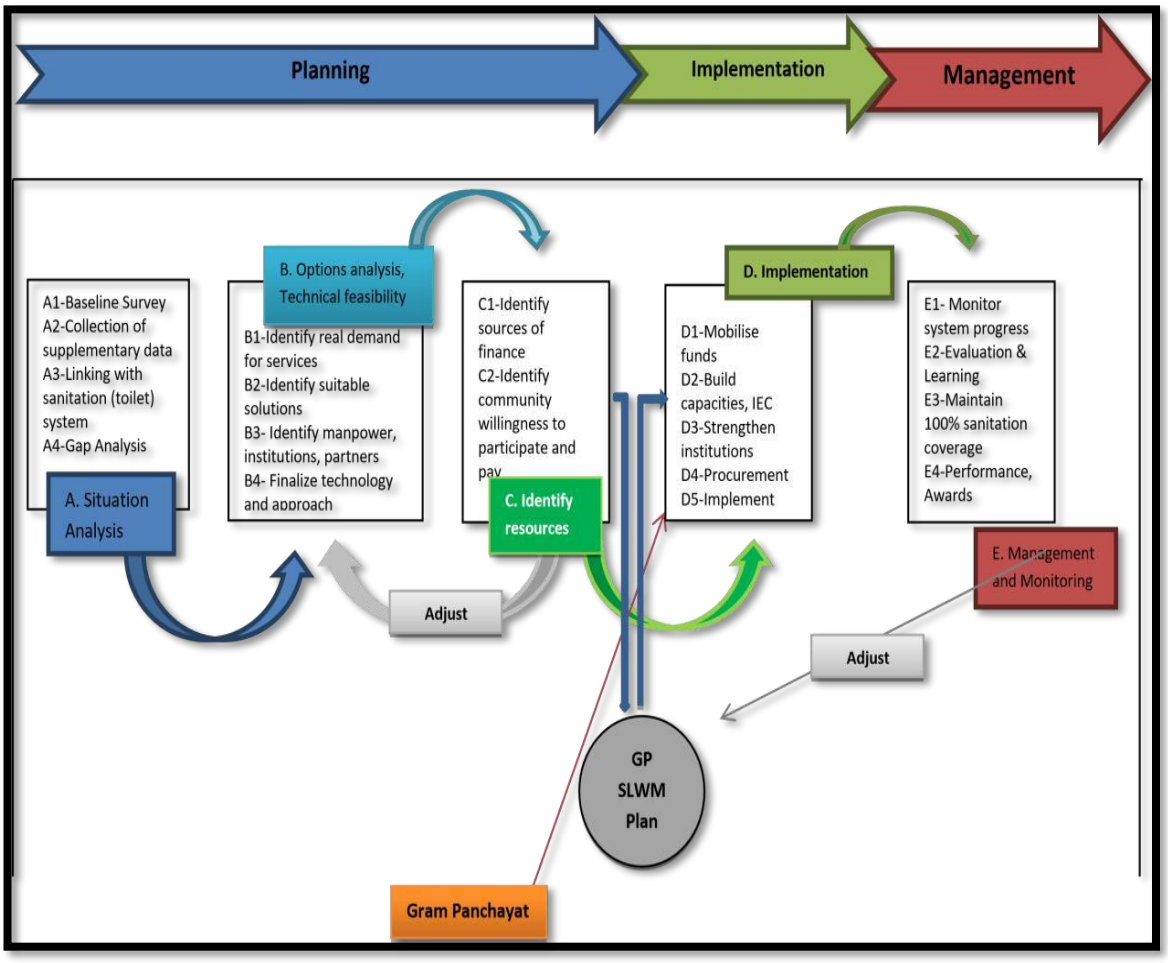


Fig.40 Implementing a GP level SLWM Plan

➢ Various type method for Drainage System

Types of Drainage Systems

Drainage is of two forms

1. Surface drainage and
2. Sub surface drainage or underground drainage

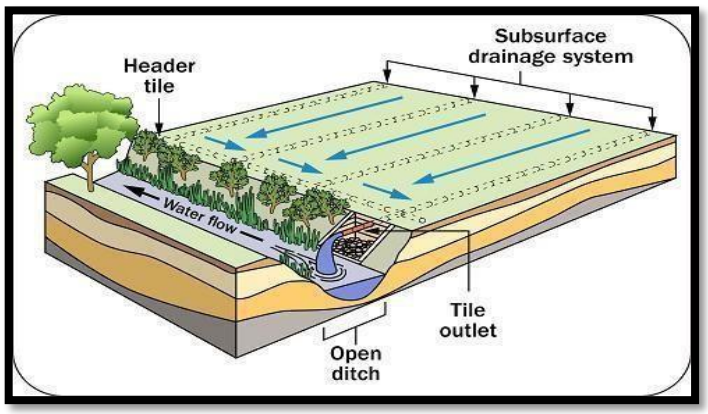


Fig.41 Open Ditch Drain

1. Surface drainage (Natural system of drainage):

It may consist of open ditches that are laid out by eye judgment, leading from one wet spot to another and finally into a nala or river. This is often called natural system.

Open ditch drains:

The pattern of ditches is regular. The method is adopted to land that has uniform slope.

Fig.42 Field Ditch Drain

Field ditches:

Field ditches for surface drains may be either narrow with nearly vertical sides or V shaped with flat side slopes. V shaped ditches have the advantages of being easier to cross with large machinery.

Narrow ditches:

Narrow ditches are most common where large farm machinery is not used. In level areas, a collecting ditch may need to be installed at one side of the field and shallow shaped ditches are constructed to discharge into the collecting ditch. The field ditches should be laid out parallel and spaced 15 to 45 meters or more apart as required by the soil surface conditions and crop to be grown. They should be 30 to 60 cm deep depending upon the depth of the collecting ditch.

Farming operations should be parallel to the field ditches. The care that a ditch will drain satisfactorily depends up on how quickly water runs into the ditch how much rain falls on the land, slope, and the condition of the soil and plant cover.

2. Sub surface or underground drainage:

A sub surface or underground drainage will remove excess soil water. It percolates in to themselves, just like open drains. These underground drains afford the great advantages that the surface of the field is not cut off, no wastage of lad and do not interfere with farm operations. On the other hand, they are costly to lie and are not effective in slowly permeable clay soils.

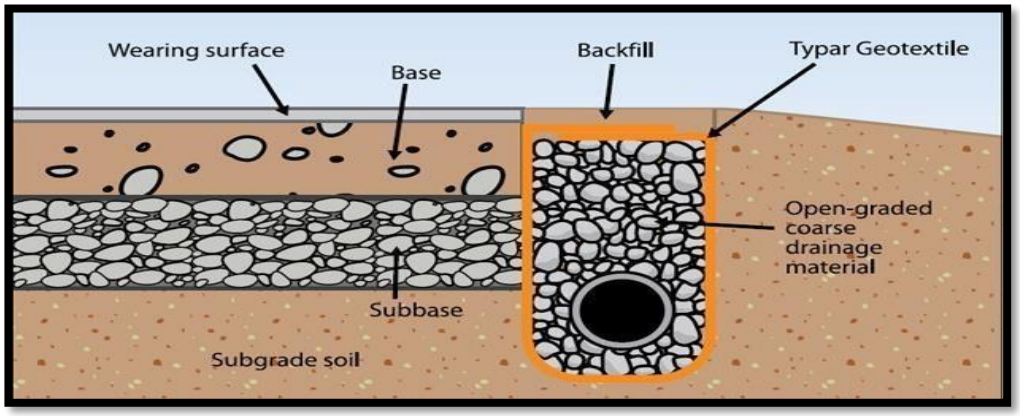


Fig.43 Subsurface drainage)

Underground drains may be classified as:

1. Tile or pipe drain
2. Box drains
3. Rubble (coarse stones or gravels filled) drains
4. Mole drains and
5. Use of pump for drainage

- **Tile drain:**

It consists of digging a narrow trench, placing short section of tiles at the bottom and covering the tiles with earth. The loose joints between two section of the tiles serve as a place where drainage water may enter into the drainage system. Water moves by gravity into the joins between tiles and through tile walls.

Porous tile gives no better drainage than tiles that water does not percolate and porous tile can easily break or crushed. The drains are two types of tiles in use. Tile should be always placed at least 75 cm deep to prevent breakage by heavy machinery.

- **Box drains:**

Instead of pipes, underground drains may be made in V shaped cut or trench, sides of which are reverted with soil, restoring the surface of the field. Depth may be 90 cm below ground.

- **Rubble drains:**

A somewhat equally substitute for tile drains is made by cutting narrow V shaped drains or rectangular in section, as for box drains, filling them up with rough stones large and small and then covering the whole up with soil level with surface field soil. Depth may be 90 cm.

- **Mole drains:**

They are often used in clay, clay loam soils. A moling machine is one that draws a bullet nosed cylinder; usually 10-15 cm in diameter is therefore formed. A mole drain should be at least 75 cm below the surface to prevent closing of the holes by compaction from farming operations. Mole drains are extremely used in Europe.

Use of pumps for drainage: The pumps are used in U.S.A. and many other countries for drainage. River bottoms, lakes and Costal plains, peat lands and irrigated lands are the main types of lands reclaimed by pump drainage. The subsequent must be sufficiently permeable for the ground water to move to the pipes enough for effective pumping.

Case Study 1:

Seechewal Model of Waste Management in Punjab Sant Balbir Singh, known for his tremendous efforts to safeguard the environment in Punjab, has been honoured by Parliament of Canada, Copenhagen Calendar in Denmark, Time Magazine Hero of the Environment, SAARC Environment 2010, etc.

A. Liquid Waste Management Kali Bein, a 160 km Iong tributary of the Beas River, which is the life-line of the Doaba region, got polluted due to population explosion and excessive urbanization. Sant Seechewal started work for the revival and renovation of the river on 29 July 2000. During Kar Sewa, a thick layer of silt was removed from the river as a result of which the underground water levels in Sultanpur Lodhi area rose by a metre. Treated water from Sultanpur Lodhi is used in agriculture which has augmented production. The river banks have been fixed with stones and boulders, old trees have been preserved while new one shave been planted on the sides of the roads.

B. Solid Waste Management Solid waste from the water treatment plant in Jalandhar city is being reused in preparation of plant nurseries. Plants from this nursery are distributed at no cost to nearby towns and villages. Through these efforts, the surroundings of Sultanpur Lodhi have turned into green belt area.

C. Eco-Friendly Sewerage System Seechewal also introduced a low-cost, an easy to install efficient sewerage system in many villages and towns of Punjab. Through the system, the dirty sewage water of a village or town is collected in one or more ponds. The collected municipal water, which is polluted but not toxic is treated by simple methods of screening, filtration, sedimentation, rotation, etc. and made environmentally acceptable and reusable for different purposes. A low-cost water treatment plant has been constructed at Dasuya town in Hoshiarpur district. In Chakar village, Seechewal with the help of funding from Non Resident Indians installed a sewerage system. The treated water supplied via underground pipelines is used for crop irrigation. This has given relief to farmers by reducing the cost of agriculture production and enhancing crop yield besides paving the way for the adoption of organic farming. These efforts have turned the dirty ponds in the village into beautiful lakes.

D. Awareness Campaigns There have been initiatives undertaken to generate awareness amongst people like organizing an Awareness March against toxic effluents polluting natural water resources in 2009, enlightening people on the fatal effects of toxic waters, leading a people’s movement against water polluting industrial units of central Punjab, use of mass and social media to create public awareness, etc.

Chapter 6: Swatchh Bharat Abhiyan (Clean India)

6.1 Swatchhta needed in allocated village – existing situation

To accelerate the efforts to achieve universal sanitation coverage and to put focus on safe sanitation, the Prime Minister of India launched the Swachh Bharat Mission on 2nd October, 2014. The Mission Coordinator shall be Secretary, Ministry of Drinking Water and Sanitation (MDWS) with two Sub-Missions, the Swachh Bharat Mission (Gramin) and the Swachh Bharat Mission (Urban), which aims to achieve Swachh Bharat by 2019, as a fitting tribute to the 150th Birth Anniversary of Mahatma Gandhi, which in rural areas shall mean improving the levels of cleanliness in rural areas through Solid and Liquid Waste Management activities and making Gram Panchayats Open Defecation Free (ODF), clean and sanitised. ODF would mean the termination of faecal-oral transmission, defined by, a) no visible faeces found in the environment/village and, b) every household as well as public/community institution(s) using safe technology option for disposal of faeces, as defined by the Ministry. The Mission shall strive for this by removing the bottlenecks that were hindering the progress, including partial funding for Individual Household Latrines from MGNREGS, and focusing on critical issues affecting outcomes.

Our allocated village Palod is almost clean village, but at some places like near of cow stable, water logging on broken road, garbage dumping yard and some slum areas need to be clean.

OBJECTIVES: -

To achieve “Swachh Bharat” by 2019, the main objectives of the SBM(G) are as under:

a) Bring about an improvement in the general quality of life in the rural areas, by promoting cleanliness, hygiene and eliminating open defecation
b) Accelerate sanitation coverage in rural areas to achieve the vision of Swachh Bharat by 2nd October 2019
c) Motivate communities and Panchayati Raj Institutions to adopt sustainable sanitationpractices and facilities through awareness creation and health education
d) Encourage cost effective and appropriate technologies for ecologically safe and sustainable sanitation
e) Develop, wherever required, community managed sanitation systems focusing on scientific Solid & Liquid Waste Management systems for overall cleanliness in the rural areas
f) Create significant positive impact on gender and promote social inclusion by improving sanitation especially in marginalized communities.

Fig.44 Dumping Yard of Palod Village

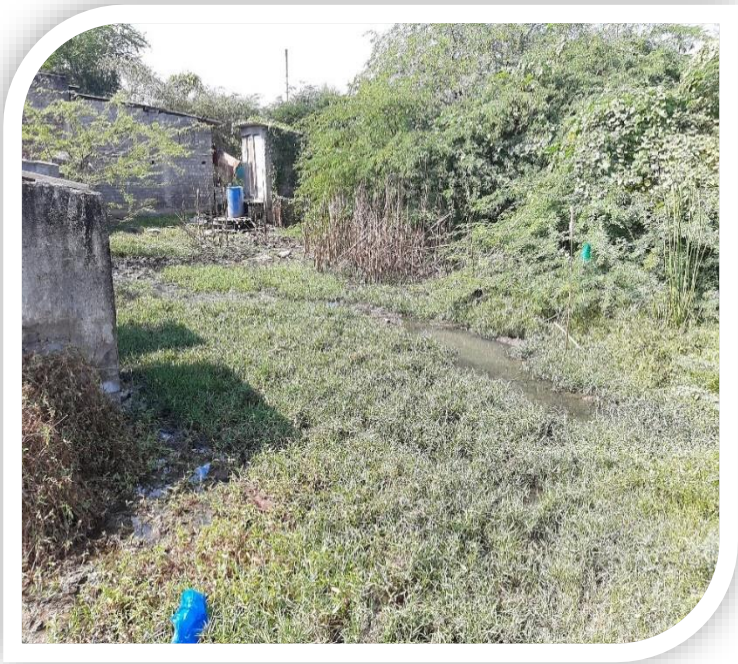


Fig.45 Slum Area Logged Water

Fig.46 Cow Dunk

Fig.47 water logging on broken road

6.2 Guidelines- Implementation in Allocated Village

During this phase, the role and responsibilities of the Swachhagrahi are:

Facilitating Toilet Construction:

- Assist the Gram Pradhan/Sarpanch and GP Secretary for ensuring the availability of sufficient number of trained masons and their effective deployment.
- Mobilise and support the community for the construction of Household toilets of good quality. Provide information on appropriate toilet technologies and support in supply chain management.
- Monitor the quality of construction of toilets and support in training and coordinating with masons.
- Ensure that the masons are adequately trained on the twin leach-pit technology toilet.
- Canvass for the construction and sustainable operation and maintenance of institutional toilets such as toilets in schools, AWCs and Health facilities.
- Facilitating sustained behavior change:
- Coordinate with local stakeholders, GP,Village Water and Sanitation Committees (VWSCs),ASHAs, AWWs, Teachers, etc. for effective implementation of SBM(G) activities.
- Interact with other locally available organisations like SHGs,youth organizations like Nehru Yuva Kendra Sangathan (NYKS),Mahila Sangathans etc.
- Assist in developing and implementing capacity building plans for strengthening Nigrani Samitis at village/GP level.
- Conduct community mobilisation events and public meetings with the Nigrani Samitis, community members and other key stakeholders including for events in schools and AWCs.
- Organise Prabhat Pheris (morning walks); evening follow-ups and Ratri Chaupals (Night meetings).
- Provides support to document best practices for replication in other villages.
- Assist the monitoring of the SBM(G) programme in his/her village as a support to block and district teams.

6.3 Activity Done by Students for Allocated Village

We unable to do anything because of COVID – 19 rules of them. They didn't allow to interact with any villagers without them permission specially child and old person.

Chapter 7: Village Condition Due to COVID – 19

7.1 Taken Steps in Allocated Village Related to Existing Situation

In starting phase of COVID-19 pandemic gram panchayat of Palod declared some guidelines to aware people:

Persons above 65 years of age, persons with comorbidities, pregnant women are advised to stay at home, except for essential and health purposes. Office management to facilitate the process.

Fig.48 Social Distancing Poster Outside Gram Panchayat

The generic preventive measures include simple public health measures that are to be followed to reduce the risk of infection with COVID-19. These measures need to be observed by all (employees and visitors) at all times. These include:

a) ndividuals must maintain a minimum distance of 6 feet in public places as far as feasible.
b) Use of face covers/masks to be mandatory.
c) Practice frequent hand washing with soap (for at least 40-60 seconds) even when hands are not visibly dirty. Use of alcohol-based hand sanitizers (for at least 20 seconds) can be made wherever feasible.
d) Respiratory etiquettes to be strictly followed. This involves strict practice of covering one's mouth and nose
e) while coughing/sneezing with a tissue/handkerchief/flexed elbow and disposing off used tissues properly.
f) Self-monitoring of health by all and reporting any illness at the earliest to the immediate supervisory officer.
g) Spitting shall be strictly prohibited.
h) Installation & use of Aarogya Setu App by employees.

In the village at many place they putted signs and boards of social distancing and ware mask etc. for awareness.

In the next phase of COVID – 19 (25th March – 31st May 2020) they also declared lockdown as per Indian government guidelines.

In this phase of lockdown, the whole villagers were stay home for that period without an argument.

In the next phase of COVID -19, after the lockdown Indian government declared unlock period (1st august – 30th November 2020)

Fig.48 poster for awareness on notice board of gram panchayat

In this period villagers of Palod followed night curfew (09:00 pm – 06:00 am) system very well. At night curfew time no villagers roaming outside without any reason.

There for the cases in Palod village is very less till now.

7.2 Activity Done by Students for Allocated Village

We unable to do anything because of COVID – 19 rules of them. They didn't allow to interact with any villagers without them permission specially child and old person.

7.3 Any Other Steps Taken by Students / Villagers

- **Steps taken by villagers for COVID – 19 condition**
  - They cooperate with gram panchayat and government of India in lockdown period.
  - In that phase, they didn't allow to enter people in village without permission.
  - In anyone entered in village they stayed home quarantine for at least 14 days.

Chapter 8: Sustainable Design Planning Proposal (Prototype Design) Part- I

1. Bus Stand

Developing bus station, it is very use-full for bus controller system as well as villager and who is coming to village and going to village. Bus station is use-full for bus stopping and resting for villagers and at that place 1 or 2 shop can be developed so that they can also earn by coming and going of people from the village.

2. Library

There is no library available in the village for the students of village, but they required at least one library for student therefore we gave design of library as social design. We also give E-corner in library for the good connectivity of new technologies for the growth of people of Palod village.

3. Community hall

The community hall is not in proper condition so we give its design.

- It is necessary to provide community hall in a village which enables social gatherings of villagers on the special occasions like marriages, festivals etc.
- Community hall are public locations where members of a village tend to gather for group activities, social support, public information, and other purposes.
- Community hall also be used for religious purpose.

4. Skill Development Center

Palod village have 4 anganwadi and there are 2 primary school, 1 secondary school and 1 higher secondary school and 1 ashram school. As there are so many schools and anganwadi, lots of children are going there in school days but in vacation days we suggest a “Skill development center” in Palod village. It is very useful for growth of children in early age. And Skill Development Center so many cultural and social activities are organized and by that it is easy for children to find their area of interest.

5. Public Garden

Public amenities are must important things for converting village into ideal village or smart village. In Palod village almost half of population is young and students. It is one type of Enjoyment Park as well as walking park and villagers can do YOGA in morning there and it can be tourism place also so that villagers can earn money from tourism and villagers can be stress-less by doing exercise and playing some sports at Lake Garden.

6. Village Gate

A heritage structure is make good appearance on the people and it preserve our culture and it will increase outer look of the village.

8.1 Design Proposals

8.1.1 Sustainable Design (Bus Stand)

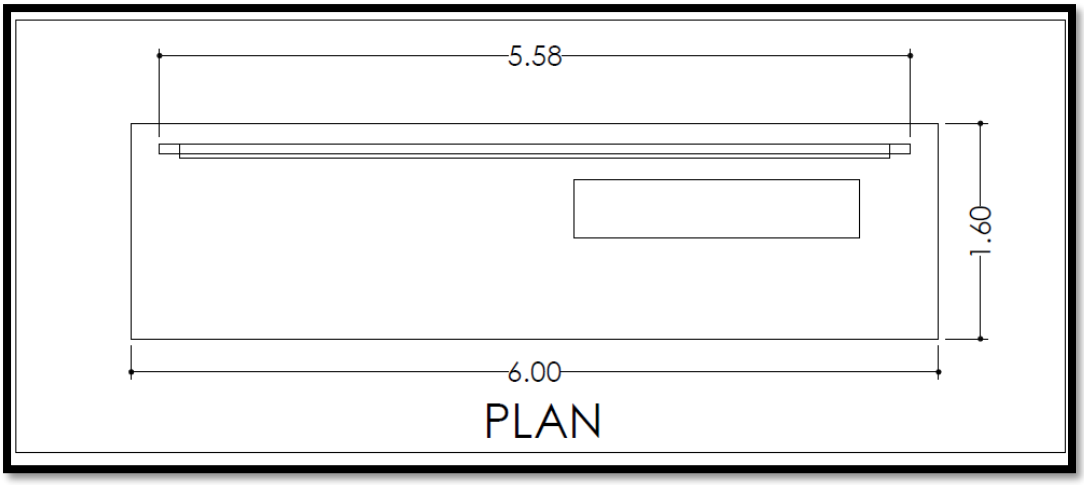


Fig.50 Top View

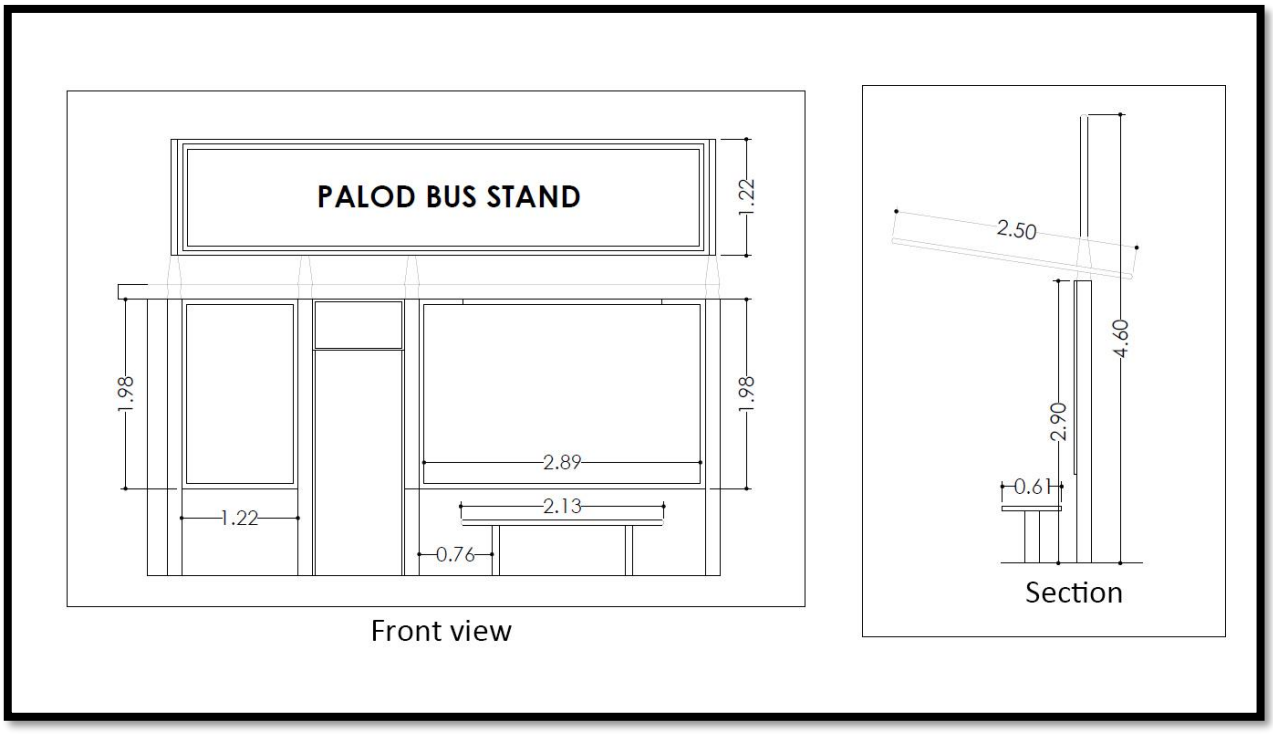


Fig.51 Front View and Side View

Why Bus Station?

- Developing bus station, it is very use-full for bus controller system as well as villager and who is coming to village and going to village. Bus station is use-full for bus stopping and resting for villagers and at that place 1 or 2 shop can be developed so that they can also earn by coming and going of people from the village.
- Also we suggest to provide solar grid power panel on the top of the bus stand attached with lights around the bus stop, so during the night time it provides better visibility and gives safety to the villagers. Costing:

Table-12 ESTIMATION OF BUS STAND

Sr. no.	Item Description	Unit price	QTY.	Amount (Rs.)
1.	SS Grade 304 Column, SS Grade 304 Rafter, SS Grade 304 Purlin, Roof sheet - Polycarbonate Sheet, SS Grade 304 Frame for Advertisement Board, SS Sheet for Advertisement Board, Acrylic Sheet for Route Board, SS Grade 304 Connectors for Advertisement Board.	15000	1	**15000**
2.	5KW, Single phase, Rooftop On grid Solar System	10000	1	**10000**
3.	Power cables, DC combiner & DC distribution box, Earthing of Solar system	12000	1	**12000**
4.	Bi-directional, Import/ Export KWh Metering system	18000	1	**18000**
5.	AC Distribution Box	18000	1	**18000**
				Total- 73000/-

8.1.2 Physical Design (Public Garden)

Why Lake garden?

Public amenities is must important things for converting village into ideal village or smart village. In Palod village almost half of population is young and students. It is one type of Enjoyment Park as well as walking park and villagers can do YOGA in morning there and it can be tourism place also so that villagers can earn money from tourism and villagers can be stress-less by doing exercise and playing some sports at Lake Garden.

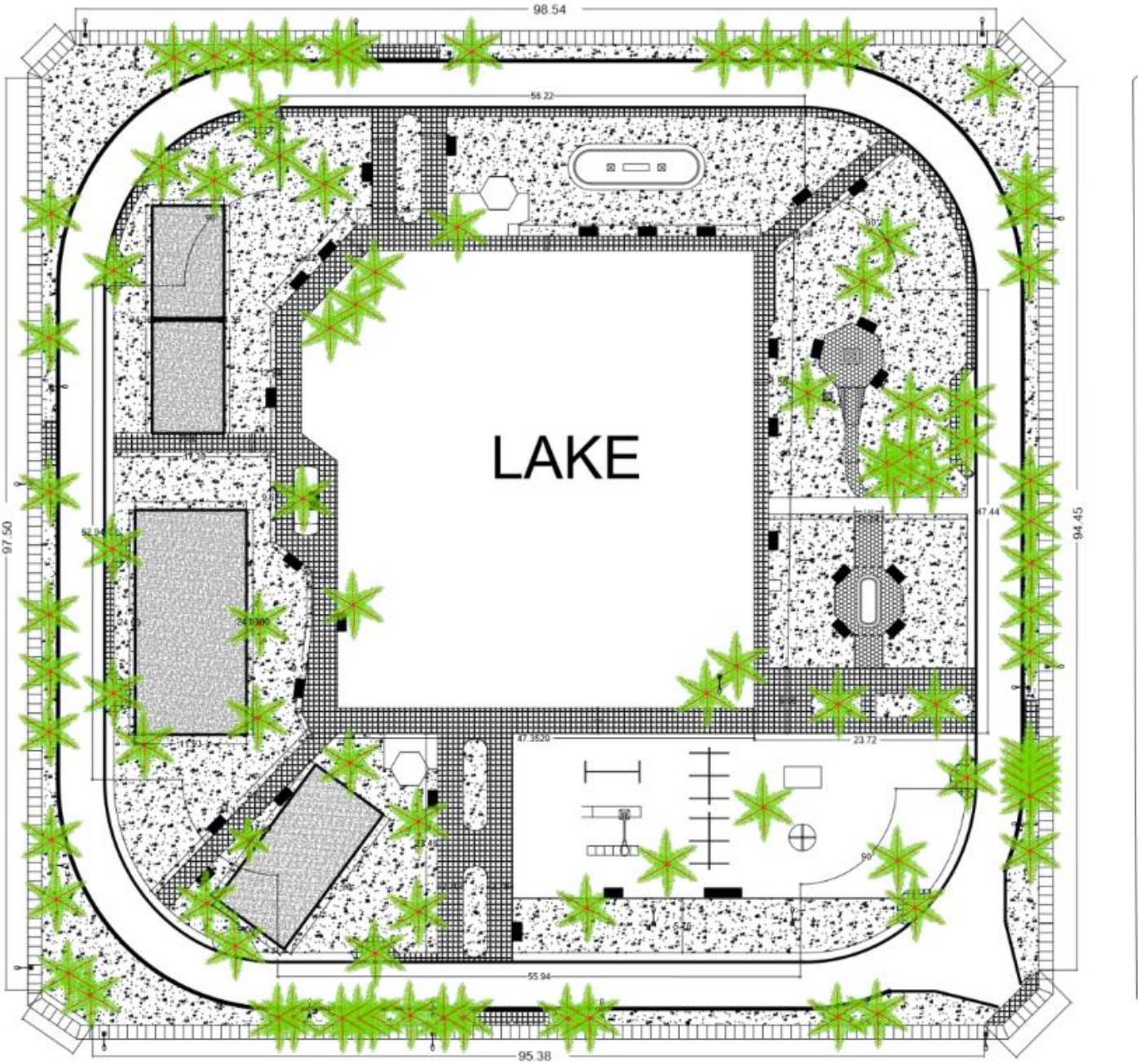


Fig.51 Public Garden

No.	description	Measurement	Price per m^2	Cost
1	Fountain circle	3m dia.		**38,200**
2	Walk way (bijolia stone)	50 sq.m	700	**35000**
3	Walk way (indianlaventomarbel)	6.5 sq.m	750	**4875**
4	seating arrangement (dark green marble flooring)	26.84 sq.m	1000	**26840**
5	Border of garden mad by grill only. Foundation cost Roof cost Lightning cost Water supply cost to fountain.			**160715**
	total			**266000 /-**

8.1.3 Social design (Library)

There is no library available in the village for the students of village, but they required at least one library for student therefore we gave design of library as social design. We also give E-corner in library for the good connectivity of new technologies for the growth of people of Palod village.

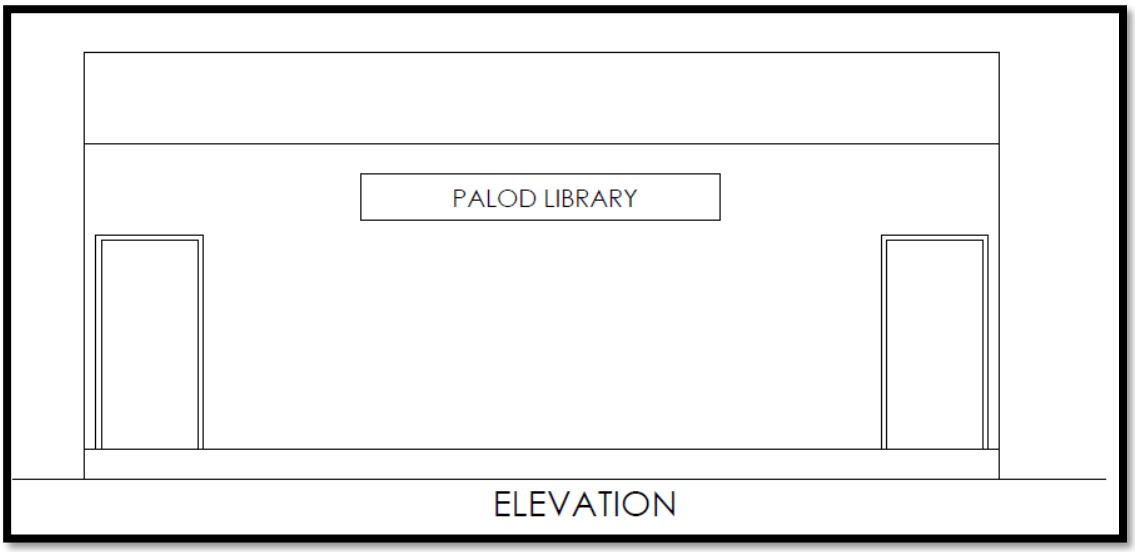


Fig.53 Elevation of library

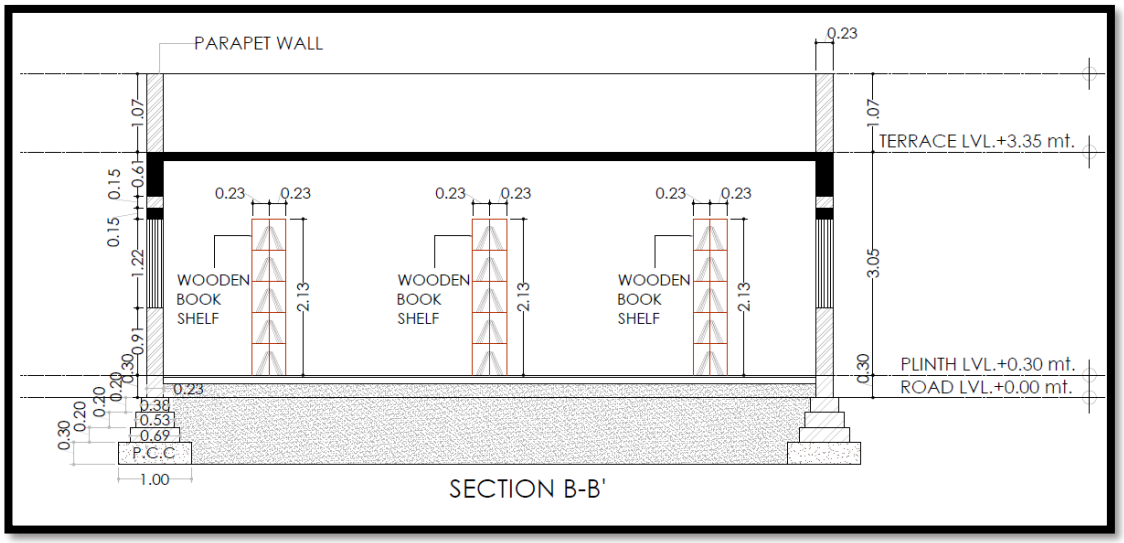


Fig.55 section of library

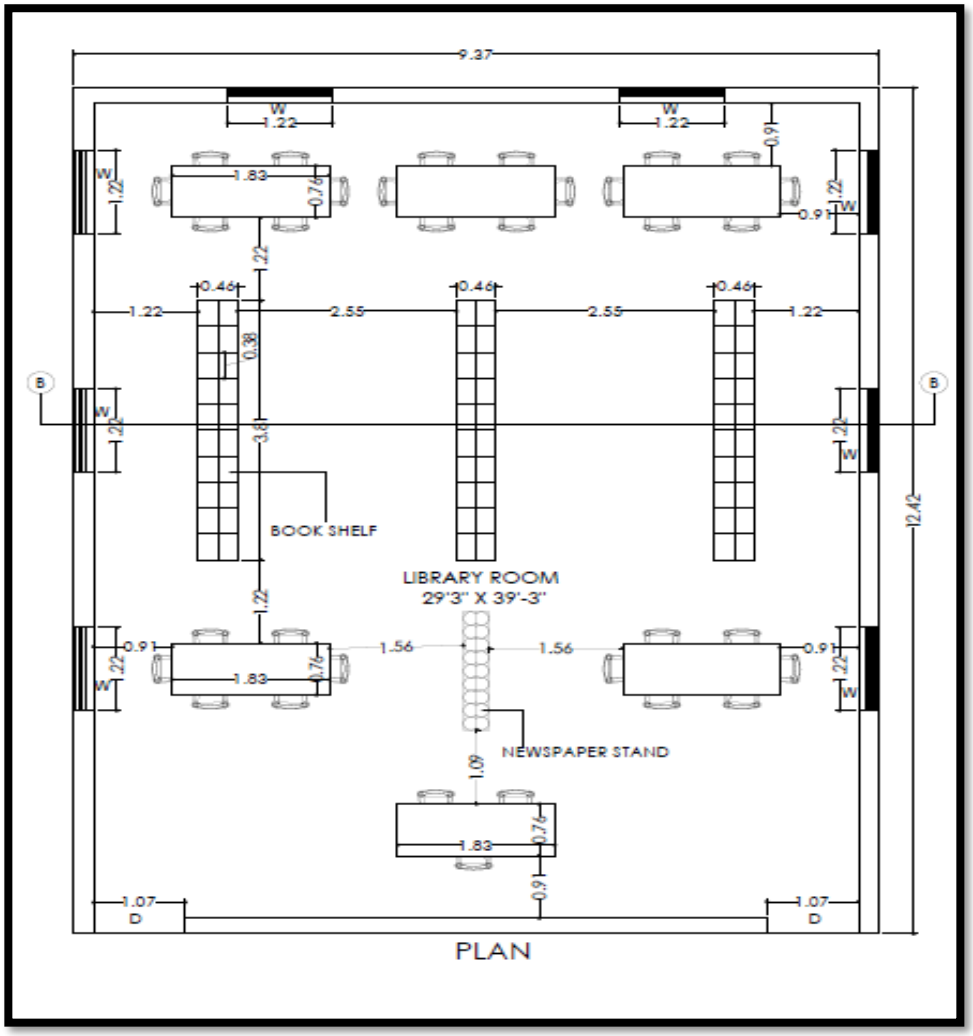


Fig.54 plan of library

Table-17 ESTIMATION OF LIBRARY

SR. NO	Description	Count (Nos.)	Length (m)	Width (m)	Height (m)	Total Quantity (m3)
1	**Excavation in Foundation**	-	42.66	1.0	0.9	**38.39**
2	**PCC in Foundation**	-	42.66	1.0	0.30	**12.80**
3	**Brick Work up to Plinth Level**	-				
	1St Level	-	42.66	0.69	0.2	**5.88**
	2nd Level	-	42.66	0.53	0.20	**4.52**
	3rd Level	-	42.66	0.38	0.20	**3.24**
	4th Level	-	42.66	0.23	0.30	**2.74**
	Total	-	-	-	-	29.38
4	**Earth Filling**	-	8.91	11.96	0.195	**20.77**
5	**Flooring**	-	8.91	11.96	-	**106.56**
6	**Brick Work in Super Structure**	-	42.66	0.23	2.74	**28.85**
	Deduction	-	-	-	-	**-4.18**
	Parapet wall	-	42.66	0.23	1.07	**10.49**
	Total	-	-	-	-	35.16
7	**Internal Plaster Work CM (1:4)**	-	-	-	-	**122.69**
	Deduction	-	-	-	-	**-8.22**
	External Plaster Work CM (1:3)	-	-	-	-	**192.170**
	Deduction	-	-	-	-	**-8.22**
	Total	-	-	-	-	298.42
8	RCC Work	-	**9.37**	**11.96**	**0.11**	**12.72**

Table 18 ABSTRACT SHEET FOR LIBRARY

SR. NO.	PARTICULARS	QUANTITY	RATE	PER	AMOUNT
1	**Excavation in Foundation**	42.66	90	m^3	**3839.4**
2	**Plain cement concrete (P.C.C) in Foundation (1:4:8)**	42.66	3000	m^3	**127980**
3	**Brickwork in Foundation up to Plinth level**	29.38	900	m^3	**26442**
4	**Earth filling in Excavation**	20.77	110	m^3	**2284.7**
5	**Brickwork in superstructure in cement mortar 1:6**	35.16	3600	m^3	**126576**
6	**RCC Work**	12.72	9000	m^3	**114480**
7	**Provide and fixing tile flooring**	106.56	700	m^2	**74592**
8	**Smooth plaster on inside walls and ceiling in cm (1:3)**	298.42	150	m^2	**44763**
	Total	**-**	**-**	**-**	**318513/-**

8.1.4 Socio-Cultural design (Community hall)

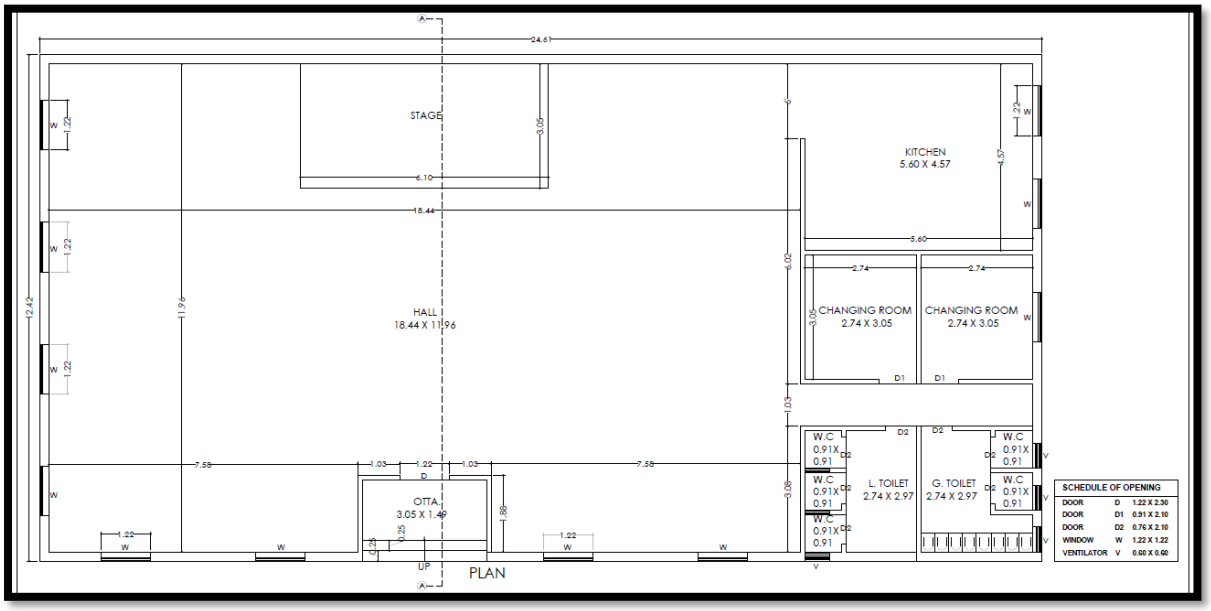


Fig.56 plan of community hall

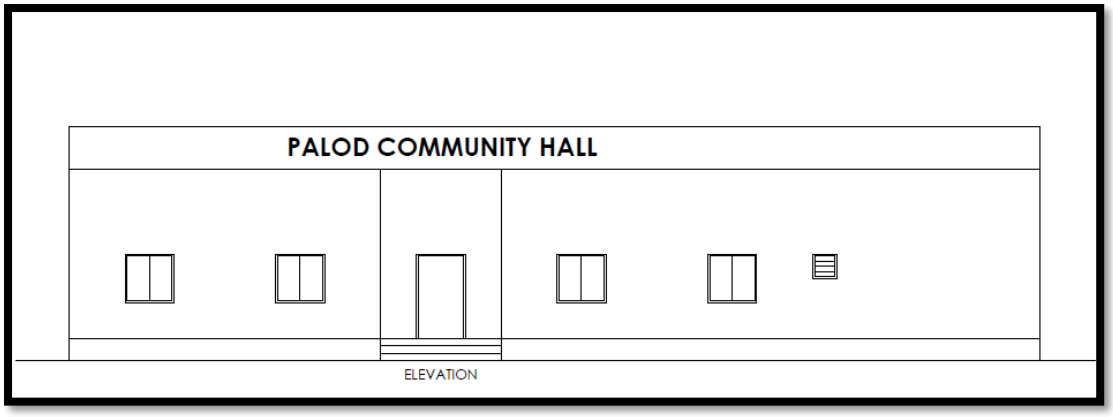


Fig.57 Elevation of community hall

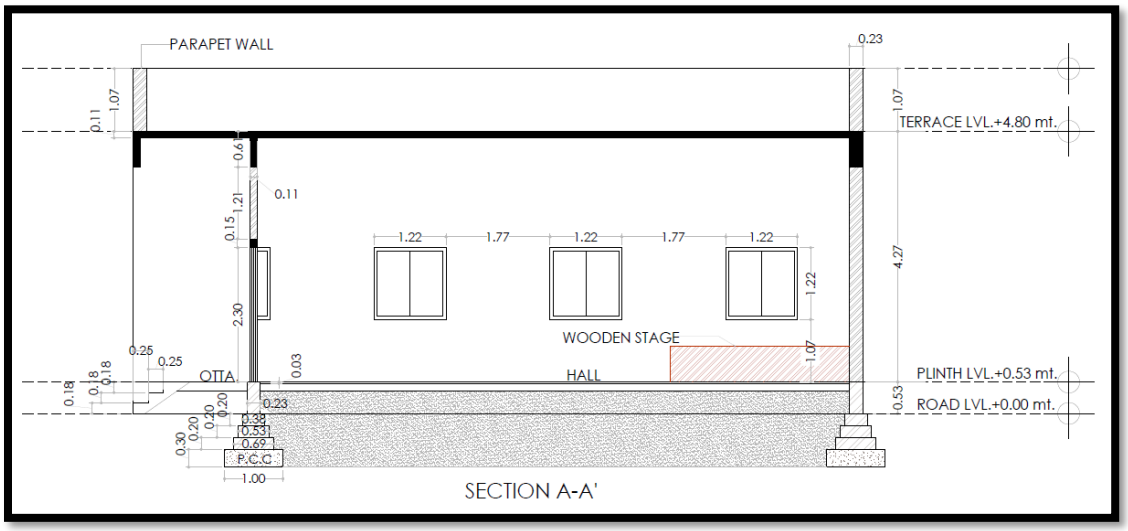


Fig.58 Cross Section of community hall

Table-19 ESTIMATION OF COMMUNITY HALL

SR. NO	Description	Count (Nos.)	Length (m)	Width (m)	Height (m)	Total Quantity (m3)
1	**Excavation in Foundation**	-	104.34	1.0	0.9	**93.90**
2	**PCC in Foundation**	-	104.34	1.0	0.3	**31.30**
3	**Brick Work up to Plinth Level**	-	-	-	-	-
	1St Level	-	107.75	0.69	0.20	**14.87**
	2nd Level	-	109.51	0.53	0.20	**11.60**
	3rd Level	-	111.16	0.38	0.20	**8.44**

	4th Level	-	112.81	0.23	0.53	**13.75**
	Total	**-**	**-**	**-**	**-**	49.47
4	**Earth Filling**	-	-	-	-	**111.15**
5	**Flooring**	-	-	-	-	**276.36**
6	**Brick Work in Super Structure**	-	112.81	0.23	4.01	**104.04**
	Deduction	-	-	-	-	**-6.71**
	Parapet wall	-	74.06	0.23	1.07	**18.226**
	Total					115.56
7	**Internal Plaster Work CM (1:4)**	-	-	-	-	**612.35**
	Deduction		-	-	-	**-50.63**
	External Plaster Work CM (1:3)	-	-	-	-	**355.48**
	Deduction	-	-	-	-	**-9.58**
	Total					907.62
8	RCC Work	-	-	-	-	**33.01**

Table- 20 ABSTRACT SHEET FOR COMMUNITY HALL

SR. NO.	PARTICULARS	QUANTITY	RATE	PER	AMOUNT
1	**Excavation in Foundation**	104.34	90	m^3	**9390.6**
2	**Plain cement concrete (P.C.C) in Foundation (1:4:8)**	104.34	3000	m^3	**313020**
3	**Brickwork in Foundation up to Plinth level**	115.56	900	m^3	**104004**
4	**Earth filling in Excavation**	111.15	110	m^3	**12226.5**
5	**Brickwork in superstructure in cement mortar 1:6**	115.56	3600	m^3	**416016**

6	**RCC Work**	33.01	9000	m^3	**297090**
7	**Provide and fixing tile flooring**	276.36	700	m^2	**18452**
8	**Smooth plaster on inside walls and ceiling in cm (1:3)**	907.62	150	m^2	**136143**
	Total				**1306342.1/-**

8.1.5 Smart Village Design (Skill Development Center)

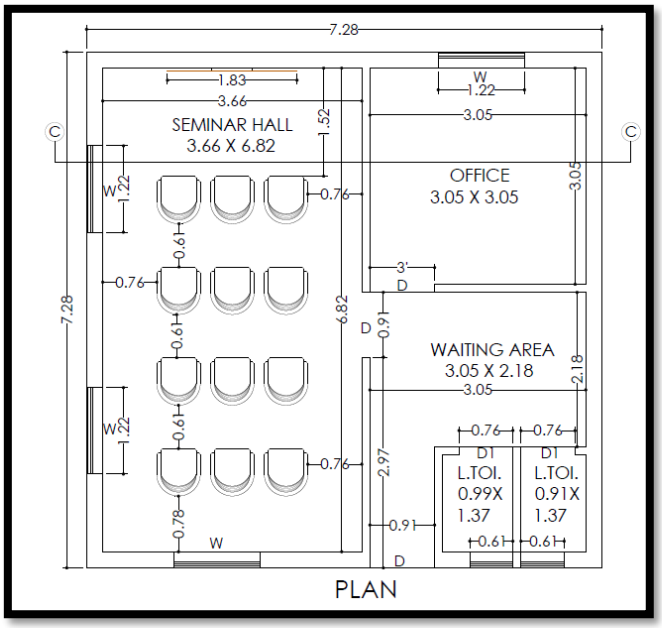


Fig.59 plan of Skill Development Center PALOD

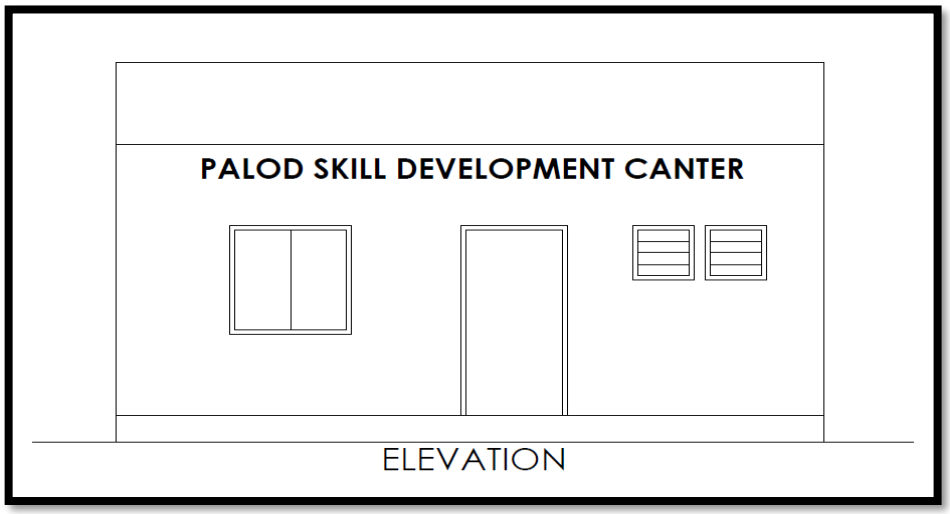


Fig.60 elevation of Skill Development Center PALOD

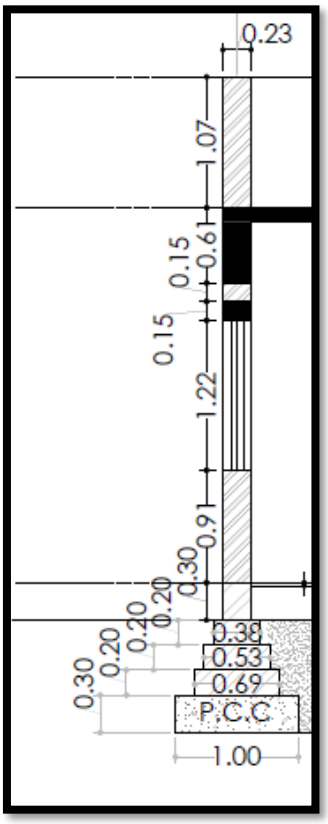


Fig.62 Cross section of footing of Skill Development Center PALOD

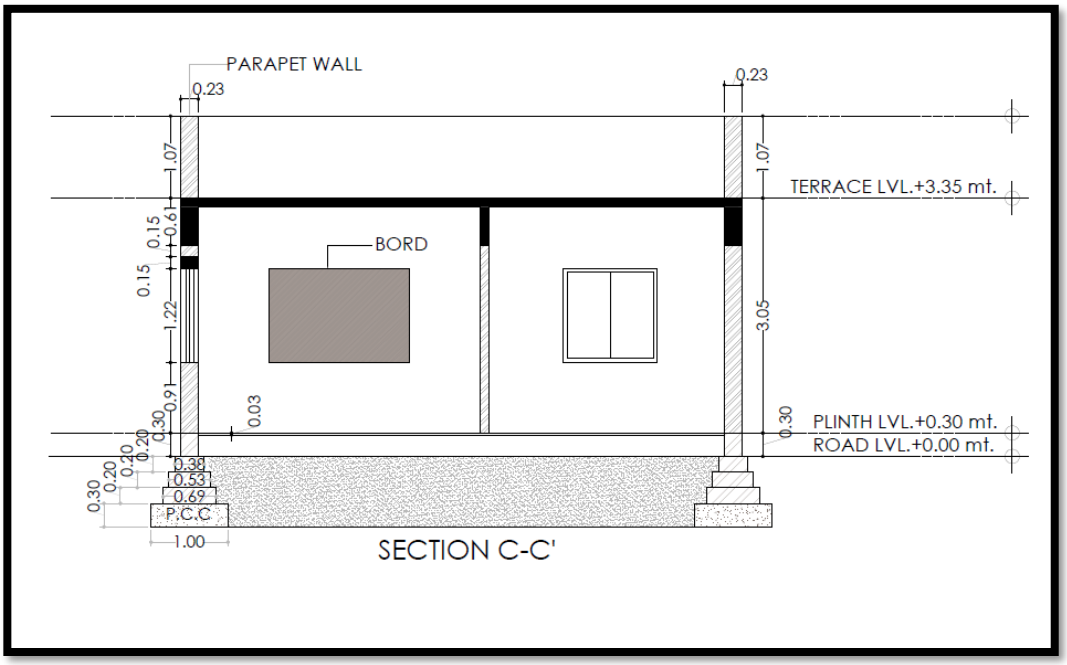


Fig.61 Cross section of Skill Development Center PALOD

Table-21 ESTIMATION OF SKILL DEVELOPMENT CENTER

SR. NO	Description	Count (Nos.)	Length (m)	Width (m)	Height (m)	Total Quantity (m3)
1	**Excavation in Foundation**	-	39.792	0.9	1.0	**35.81**
2	**PCC in Foundation**	-	39.792	0.9	0.9	**10.743**
3	**Brick Work up to Plinth Level**					
	1St Level		41.34	0.69	0.2	**5.705**
	2nd Level		42.14	0.53	0.2	**4.467**
	3rd Level		42.89	0.38	0.2	**3.26**

	4th Level		43.64	0.23	0.3	**3.011**
	Total	**-**	**-**	**-**	**-**	16.44
4	**Earth Filling**	-	-	-	-	**12.126**
5	**Flooring**	-	-	-	-	**45.867**
6	**Brick Work in Super Structure**	-	43.64	0.23	3.05	**30.613**
	Deduction	-	-	-	-	**-3.109**
	Parapet wall		28.2	0.23	1.07	**6.94**
	Total					34.44
7	**Internal Plaster Work CM (1:4)**	-	-	-	-	**203.735**
	Deduction					**-7.466**
	External Plaster Work CM (1:3)	-	-	-	-	**128.71**
	Deduction	-	-	-	-	**-3.936**
	Total	-	-	-	-	321.04
8	RCC Work	**-**	**7.28**	**7.28**	**0.11**	**5.83**

Table- 22 ABSTRACT SHEET FOR SKILL DEVELOPMENT CENTER

SR. NO.	PARTICULARS	QUANTITY	RATE	PER	AMOUNT
1	**Excavation in Foundation**	35.81	90	m^3	**3223**
2	**Plain cement concrete (P.C.C) in Foundation (1:4:8)**	10.743	3000	m^3	**32229**
3	**Brickwork in Foundation up to Plinth level**	16.44	900	m^3	**14796**
4	**Earth filling in Excavation**	12.126	110	m^3	**1333.86**

5	**Brickwork in superstructure in cement mortar 1:6**	34.44	3600	m^3	**123984**
6	**RCC Work**	5.83	9000	m^3	**52470**
7	**Provide and fixing tile flooring**	45.867	700	m^2	**32106.9**
8	**Smooth plaster on inside walls and ceiling in cm (1:3)**	321.04	150	m^2	**48210**
	Total				**340459/-**

8.1.6 Heritage Village Design (Village gate)

A heritage structure is make good appearance on the people and it preserve our culture and it will increase outer look of the village.

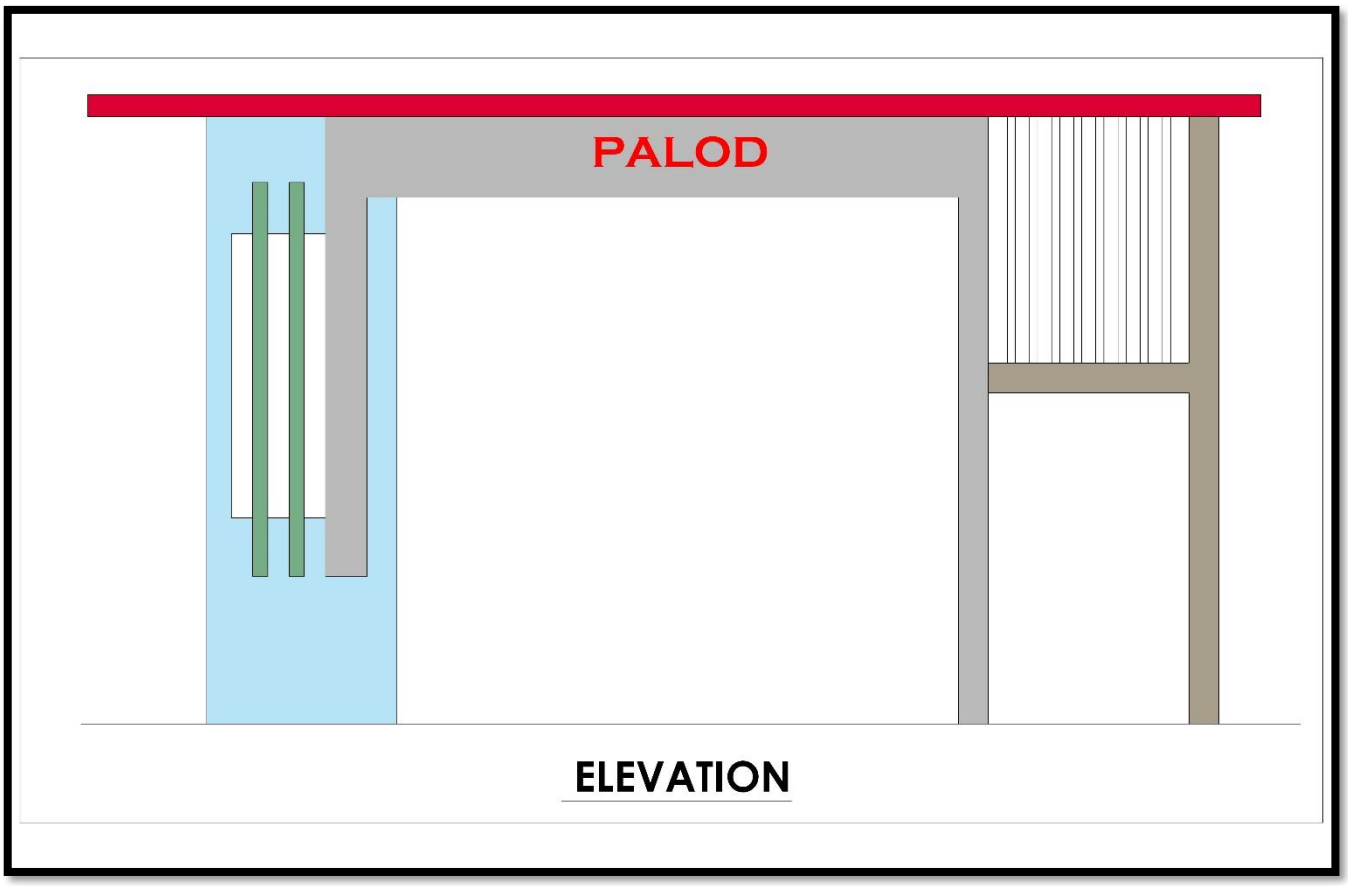


Fig.63 elevation and section of Village gate

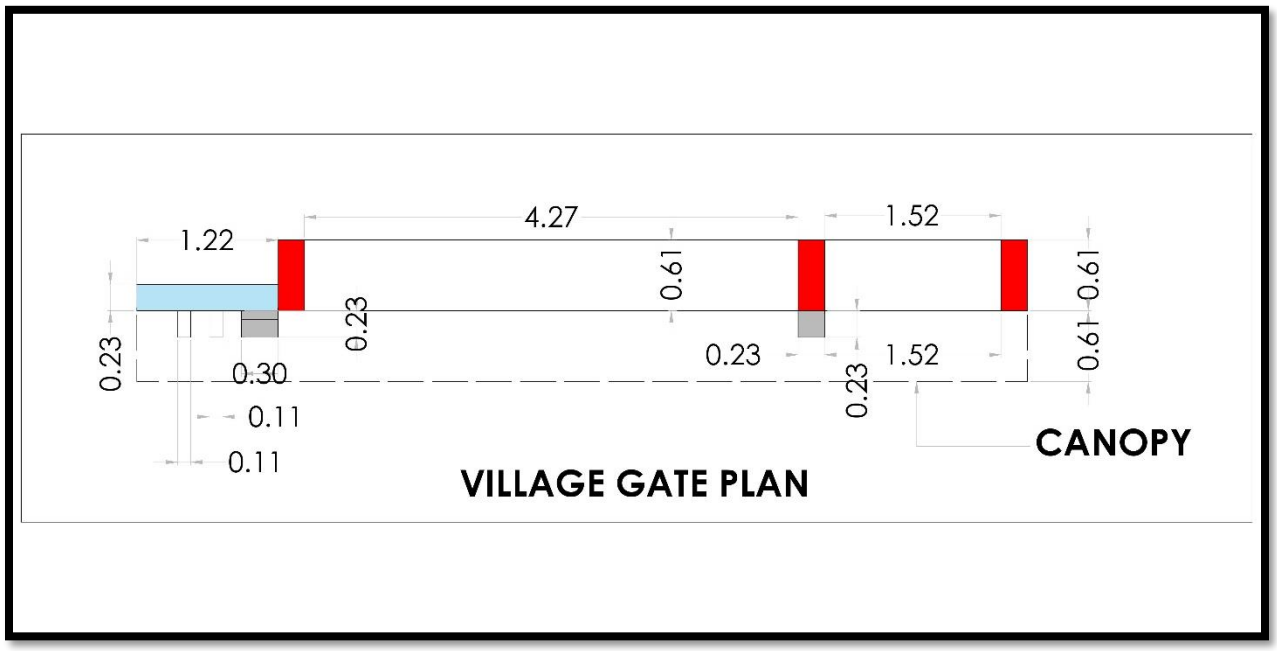


Fig.64 plan of Village gate

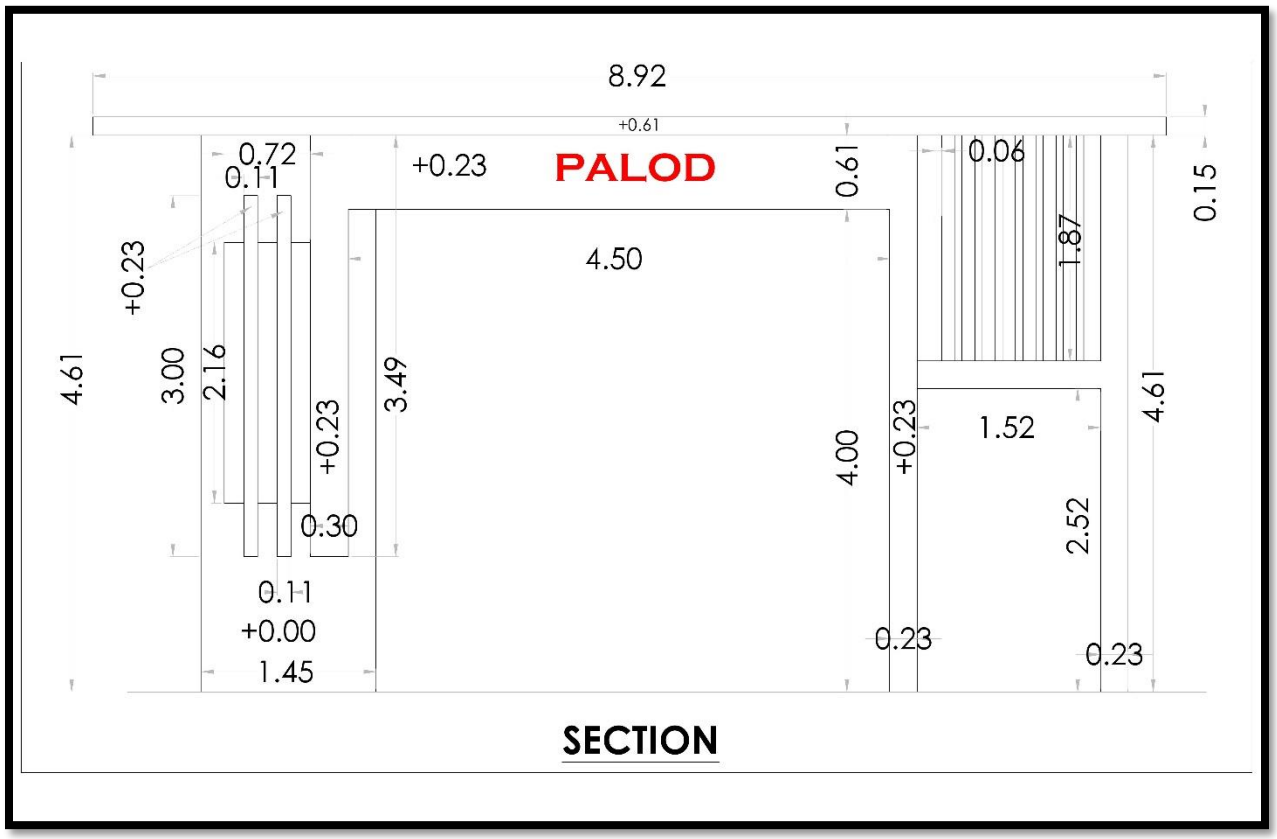


Fig.65 Cross section of village gate

Table-23 Estimation of Village gate

SR. NO	Description	Count (Nos.)	Length (m)	Width (m)	Height (m)	Total Quantity (m3)
1	**Excavation in Foundation**	3	1.00	0.61	0.50	0.915
2	**PCC in Foundation**	3	1.00	0.61	0.30	0.549
3	**Brick Work up to Plinth Level**	-	-	-	-	-
	Total	**3**	**0.53**	**0.61**	**0.235**	**0.23**
4	**Earth Filling**	-	4.27	0..61	0.50	1.30
		-	1.52	0.61	0.50	0.64
	Total	-	-	-	-	**1.67**
5	**Brick Work in Super Structure**	-	1.22	0.23	4.61	7.29
		3	0.23	0.61	4	1.68
	Deduction	-	2.72	0.23	2.16	-1.35
	Total	-	-	-	-	**7.62**
6	**RCC Work**	-	4.50	0.61	0.61	1.67
		-	4.50	0.61	0.23	0.21
		-	8.92	0.61	0.15	0.81
	Total	-	-	-	-	**2.67**
7	**Fabricate Finish**	2	0.11	0.23	3.00	0.15
		8	0.06	0.06	1.87	0.05
	Total	-	-	-	-	**0.20**
7	**Internal Plaster Work CM (1:4)**	-	-	-	-	25.76
	Deduction	2/2	0.72	-	3.00	2.16
	Total	-	-	-	-	**23.66**

Table-24 Abstract sheet

SR. NO.	PARTICULARS	QUANTITY	RATE	PER	AMOUNT
1	**Excavation in Foundation**	0.915	90	m^3	82.35
2	**Plain cement concrete (P.C.C) in Foundation (1:4:8)**	0.549	3000	m^3	16.47
3	**Brickwork in Foundation up to Plinth level**	0.23	900	m^3	207
4	**Earth filling in Excavation**	1.76	110	m^3	194
5	**Brickwork in superstructure in cement mortar 1:6**	2.97	3600	m^3	10692
6	**RCC Work**	2.69	9000	m^3	10760
7	**Fabricate**	0.20	160	-	32
8	**Smooth plaster on inside walls and ceiling in cm (1:3)**	23.60	150	m^2	3540
	Total				**27154.35/-**

8.2 Reason for Students Recommending this Design

We have proposed design of the basic things which is needed in daily life because in Palod village most of basic needs are not available so developing Bio-gas plant, Rain water harvesting, Library, Community Primary Health center and Chabutra will convert Palod village into ideal village and after this changes developing new things will convert into smart village. Life of Palod Village will also improve by developing this thing and this all things will help in development of village.

8.3 About designs Suggestions / Benefit of the villagers

Creating this design and using all this utilities, Life of villagers will be change. They will be independent and development of their whole life will be happen. They will contribute in development of nation. People will live their life more comfortable. Student of their village will be educated and they will help other in future.

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

The main scope of village is agriculture. But by providing proposed designs we can create scope in other fields also like due to skill development center so people from nearby villages will come in this village which results in more revenue and scope.

As the ground water is only source of water there is a requirement to recharge ground water resource and stop depleting ground water level. Also Waste water disposal is major issue of village, so village required proper treatment process for the waste water. Solid waste disposal system is also required to create hygienic condition in village.

Other requirements of village are:

- Socio Cultural facility like Primary Health center
- Low cost housing for poor people
- Recreational facilities i.e. garden, etc.
- Use of renewable resources like solar energy, Biomass etc.
- Smart data center
- Initiation of activities which can be done with agriculture like animal husbandry.
- Creating Employment for who has not land.

These projects will provide employment to villagers and increases wealth of people and improve living standards.

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

Palod village is an agricultural village with population of 7698. Most of the people of village are connected with agriculture. Main crops of village are Sugar cane and Bajra. Village has Primary health center (PHC) which provides very good health facilities but they giving rent for the building. Village has primary school, secondary school and good transportation facilities.

Main source of water of is ground water and also waste water is disposed in ground. There is provision of septic tank with soak pit for the treatment of waste water from toilets. Village has community hall but not in working condition. Palod village doesn't has public garden as well as public toilet and public library which shows lack of social infrastructure in village. People with different religious also live with brotherhood feelings.

As main source of income of villagers is agriculture care should be taken to improve quality of crops and production of crops to increase income of villagers. By provision of waste water treatment and reusing treated water we can reduce burden on ground water resource and restrict it to deplete. Also treated waste water if disposed in ground will not cause ground water pollution. Care should be taken of poor people of village who do not have proper houses and facilities. Their development is the development of village. Emphasis should be given to build social infrastructure like community hall and public garden so that people can gather and enjoy.

Use of renewable energy sources like solar panels on roof tops of public buildings, solar street lights, biogas plants, rain water harvesting leads to sustainability of village and also saves energy and money. Proper maintenance of public buildings and other facilities leads to longer life span of these structures

Benefits of all the facilities should be given to all the people of village equally. There should not be any partiality or injustice to anyone. This will eliminate social discrimination of caste, religion, class and leads to prosperity of village.

Chapter 11: References refereed for this project

- Census India (Government of India) www.censusindia.gov.in
- www.nationalgeographic.com/village
- www.smartvillages.org
- www.nptel.ac.in
- Journal published by Sociology laboratory of the University of Life Sciences in Binek 2007
- en.m.wikipedia.org/urbanarea
- en.m.wikipedia.org/ruralarea
- www.rural.nic.in
- www.panchayat.gov.in
- Benchmark for Smart Cities Governent www.c-smart.in
- General development control regulations - a
- Gujarat town planning and urban development act-1976 government of gujarat notification no:gh/v/127 of 2016/mis – 102016 – 1174 - l dated : 15/06/2016
- Guidelines for school infrastructure and strengthening (civil works)
- Ministry of Drinking Water and Sanitation
- Swachh Bharat Mission-Gramin guidelines for implementation of SBM
- Ministry of rural development (2007) government of India chap-7, rural development, pp: 88-99.
- Planning commission, Government of India, 12th five year plan (2012-2017) vol. 3, inclusive growth.

Chapter 12: Annexure attachment

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

Gujarat Technological University, Ahmedabad, Gujarat

Vishwakarma Yojana: Phase VIII
Techno Economic Survey

Techno Economic Survey

Vishwakarma Yojana: Phase VIII

SMART VILLAGE SURVEY

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

Name of District:	SURAT
Name of Taluka:	BARDOLI
Name of Village:	PABEN
Name of Institute:	BHAGWAN MAHARI College
Nodal Officer Name & Contact Detail:	Dixit Chauhan
Respondent Name: (Sarpanch/ Panchayat Member/ Teacher/ Gram Sevak/ Aaganwadi worker/Village dweller)	Bhavesh Patel (deputy sarpanch) સરપંચ FB Patel ગ્રામ પંચાયત બાબેન તા. બારડોલી, જી. સુરત.
Date of Survey:	૧૨-૧૦-૨૦૧૦

I. DEMOGRAPHICAL DETAIL:

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

II. GEOGRAPHICAL DETAIL:

Sr. No.	Description	Information/Detail
1.	Area of Village (Approx.) (In Hector)Coordinates for Location:	600 hectas
2.	Forest Area (In hect.)	
3.	Agricultural Land Area (In hect.)	300 hectas
4.	Residential Area (In hect.)	200 hectas
5.	Other Area (In hect.)	5 hectas (We Recreational)
6.	Distance to the nearest railway station (in kilometers):	BARDOLI Railway Station (1km)

7.	Name of Nearest Town with Distance:	BARDOLI (2.1 km)
8.	Distance to the nearest bus station (in kilometers):	Bardoli (1.2 km)
9.	Whether village is connected to all road for the any facility or town or City?	Yes

III. OCCUPATIONAL DETAILS:

Name of Three Major Occupation groups in Village	1.	Agriculture
	2.	self employed
	3.	Jobs
Major crops grown in the village:	1.	Sugar cane
	2.	vegetables
	3.	

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				
	Public Tap/Standpipe				
	Tube Well Or Bore Well				
2.	**DUG WELL**				
	Protected Well ✓		Yes		
	Un Protected Well				
3.	**WATER FROM SPRING**				
	Protected Spring				
	Unprotected Spring			No	
	Rainwater				
	Tanker Truck				
	Cart With Small Tank				
4.	**SURFACE WATER (RIVER/DAM/ LAKE/POND/STREAM/CANAL/**	Canal water	Yes		
	Irrigation Channel				
	Bottled Water				
	Hand Pump				
	Other(Specify)**Lake/ Pond**				

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Gujarat Technological University, Ahmedabad, Gujarat

Vishwakarma Yojana: Phase VIII
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Suggestions if any:						
B.	**Water Tank Facility**	1,25000 - 300000 ltrs				
	Overhead Tank 7	Capacity:	Yes			
	Underground Sump	Capacity:	Yes			80-ft (drinking)
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	B.T.P	Yes			
	Main road	B.T.P	Yes			
	Internal streets	All Weather	Yes			
	Nearest NH/SH/MDR/ODR Dist. in kms.	GSH 105 (0 km) NH 6 (3.2 km)				
Suggestions if any:						
E.	**Transport Facility**					
	Railway Station (Y/N) (If No than Nearest Rly Station---Kms)	No (1 km)				
	Bus station (Y/N) Condition: maintained (If No than Nearest Bus Station---Kms)	Yes				
	Local Transportation (Auto/ Jeep/Chhakda/ Private Vehicles/ Other)		Yes			
Suggestions if any:						
F.	**Electricity Distribution**					
	(Y/N) Govt./ Private (Less than 6 hrs./ More Than 6 hrs)	Yes (24 hrs)				DGVCL

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	Power supply for Domestic Use	24 hrs	Yes		
	Power supply for Agricultural Use	8 hrs	Yes		
	Power supply for Commercial Use	24 hrs	Yes		
	Road/ Street Lights		Yes		
	Electrification in Government Buildings/ Schools/ Hospitals	24 hrs	Yes		
	Renewable Energy Source Facilities (Y/ N)	Solar (private)	Yes		
	LED Facilities	Not using			

Suggestions if any: underground electricity line (in progress)

G.	**Sanitation Facility**				
	Public Latrine Blocks If available than Nos. 8 Nos.		Yes		
	Location Condition				
	Community Toilet (With bath/ without bath facilities) 8 Nos.				
	Solid & liquid waste Disposal system available	in coperation with pulica	Yes		village vehicle used
	Any facility for Waste collection from road	Panchayat employee	Yes		4 vehicles

Suggestions if any:

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

Suggestions if any:

I.	**Housing Condition:**				
	Kutchha/Pucca (Approx. ratio) 50%/100	Pucca	Yes		

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V. SOCIAL INFRASTRUCTURAL FACILITIES:

Sr. No.	Descriptions	Information/ Detail	Adequate	Inadequate	Remarks
J.	**Health Facilities:**				
	ICDS (Anganwadi)	7 Nos.	Yes		
	Sub-Centre	2 Nos.	Yes		
	PHC	(1) Umarakh			
	BLOCK PHC	Bardoli			
	CHC/RH	Bardoli			
	District/ Govt. Hospital	Bardoli			
	Govt. Dispensary				
	Private Clinic	approx 5 Nos.	Yes		
	Private Hospital/	Umarakh			
	Nursing Home	(Bardoli harike)	Yes		
	AYUSH Health Facility		No		
	sonography /ultrasound facility	Bardoli	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	7 Nos.	Yes		
	Primary School	3 Nos.	Yes		
	Secondary school	2 Nos.	Yes		
	Higher sec. School	2 Nos.	Yes		
	ITI college/ vocational Training Center	1 Nos.	Yes		Ten village
	Art, Commerce& Science /Polytechnic/ Engineering/ Medical/ Management/ other college facilities	1 Nos. (Vidhya bharti)	Yes		
	If any of the above Facility is not available in village than approx. distance from village: ....2....kms.				

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Suggestions if any:					
L.	**Socio- Culture Facilities**	Condition	Location	Available (YES)	Available (NO)
	Community Hall (With or without TV) ✓	maintained	Patel fal/yu	Yes	
	Public Library (With daily newspaper supply: Y/N)				NO
	Public Garden	maintained	"	Yes	
	Village Pond	well maintained	"	Yes	
	Recreation Center			NO	3 in progress
	Cinema/ Video Hall			NO	(private 60 seats)
	Assembly Polling Station	good	Yes		
	Birth & Death Registration	good	Yes		
If any of the above Facility is not available in village than approx. distance from village: ...2....kms.					
Suggestions if any:					

M.	**Other Facilities**	Condition	Location	Available (YES)	Available (NO)
	Post-office	good		Yes	
	Telecommunication Network/ STD booth	well maintained		Yes	
	General Market	good		yes	
	Shops (Public Distribution System)	good		Yes	
	Panchayat Building	maintained		Yes.	
	Pharmacy/Medical Shop	good		Yes	
	Bank & ATM Facility	good		Yes	
	Agriculture Co-operative Society 3	good		Yes	
	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	

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

Suggestions if any:

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

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VI. SUSTAINABLE /GREEN INFRASTRUCTURE FACILITIES:

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

VII. DATA COLLECTION FROM VILLAGE

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

VIII. ADDITIONAL INFORMATION/ REQUIREMENT:

Sr. No.	Descriptions	Information/ Detail	Remarks

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

IX. Smart Village / Heritage Details

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

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

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

F B Patel
સરપંચ
ગ્રામ પંચાયત બાબેન
તા. બારડોલી, જી. સુરત.

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

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Techno Economic Survey

Techno Economic Survey

For

Vishwakarma Yojana: Phase VIII

IDEAL VILLAGE SURVEY

An approach towards Rurbanisation for Village Development

Name of Village:	Ena
Name of Taluka:	Palsana
Name of District:	Surat
Name of Institute:	Bhagwan mahavir College of Eng. and Tech.
Nodal Officer Name & Contact Detail:	Dixit Chauhan
Respondent Name: (Sarpanch/ Panchayat Member/ Teacher/ Gram Sevak/ Aaganwadi worker/Village dweller)	જયનારાયણ પરશોત્તમદાસ અગ્રવાલ સરપંચ એના-ગોડીયા ગ્રુપ ગ્રામ પંચાયત તા. પલસાણા, જિ. સુરત
Date of Survey:	2-11-2020

1. **Demographical Detail:**

Sr. No.	Census	Population	Male	Female	Total House Holds
i)	2001				
ii)	2011	3771	1895	1882	888

2. **Geographical Detail:**

Sr. No.	Description	Information/Detail
i)	Area of Village (Approx.) (In Hector) Coordinates for Location:	621.93 hector
	Forest Area (In hect.)	
	Agricultural Land Area (In hect.)	
	Residential Area (In hect.)	
	Other Area (In hect.)	
	Water bodies	
	Nearest Town with Distance:	Bardoli (9 km)

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3. **Occupational Details:**

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

4. **Physical Infrastructure Facilities:**

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

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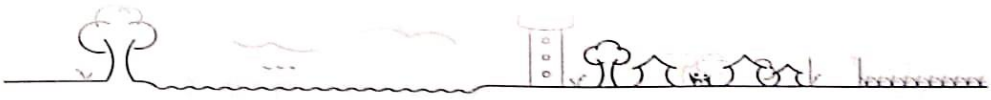
E.	Road Network :All Weather/ Kutchha (Gravel)/ Black Topped pucca/ WBM				
	Village approach road	All Weather			
	Main road				
	Internal streets				
	Nearest NH/SH/MDR/ODR Dist. in kms.	Yes			SH 53
Suggestions if any:					
F.	**Transport Facility**				
	Railway Station (Y/N) (If No than Nearest Rly Station---Kms)	No			5 km gangadhara
	Bus station (Y/N) Condition: (If No than Nearest Bus Station---Kms)	Yes			
	Local Transportation (Auto/ Jeep/Chhakda/ Private Vehicles/ Other)	Yes			all
Suggestions if any:					
G.	**Electricity Distribution**				
	(Y/N) Govt./ Private (Less than 6 hrs./ More Than 6 hrs)	Yes			DGVCL 24 hrs
	Power supply for Domestic Use	Yes			24 hrs
	Power supply for Agricultural Use	Yes			12 hrs
	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)	Yes			Solar Street Light
	LED Facilities	Yes			Street light
Suggestions if any:					
H.	**Sanitation Facility**				
	Public Latrine Blocks If available than Nos.	Yes			2 Nos
	Location Condition	Good			
	Community Toilet (With bath/ without bath facilities)	Yes			without bath
	Solid & liquid waste Disposal system available	No			
	Any facility for Waste collection from road	Yes			Door to Door.
Suggestions if any:					
I.	**Irrigation Facility:**				
	Main Source of Irrigation (Stream/River/ Canal/ Well/ Tube well/ Other)	Yes			canal & Bore hole
Suggestions if any:					
J.	**Housing Condition:**				
	Kutchha/Pucca (Approx. ratio)	Pucca			Major house has Pucca

5. **Social Infrastructural Facilities:**

Sr. No.	Descriptions	Information/ Detail	Adequate	Inadequate	Remarks



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K.	Health Facilities:				
	Sub center/ PHC/ CHC /Government Hospital/ Child welfare & Maternity Homes (If Yes than specify No. of Beds) Condition:	Yes			Sub center
	Private Clinic/Private Hospital/ Nursing Home	Yes			Private Clinic
	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			
	Primary School	Yes			
	Secondary school	Yes			
	Higher sec. School	Yes			
	ITI college/ vocational Training Center	No			
	Art, Commerce& Science /Polytechnic/ Engineering/ Medical/ Management/ other college facilities	No			
	If any of the above Facility is not available in village than approx. distance from village: ..4.....kms. Bardoli				
Suggestions if any:					

M.	Socio- Culture Facilities				
	Community Hall (With or without TV) Location:	Yes			

	Condition:				
	Public Library (With daily newspaper supply: Y/N) Location: Condition:	Yes			
	Public Garden Location: Condition:	Yes			
	Village Pond Location: Condition:	Yes			
	Recreation Center Location: Condition:	No			
	Cinema/ Video Hall Location: Condition:	NO			
	Assembly Polling Station Location: Condition:	Yes ~~NO~~			Ht School
	Birth & Death Registration Office Location: Condition:	Yes			Panchayat office
If any of the above Facility is not available in village than approx. distance from village: ...9.....kms. Bardoli					
Suggestions if any:					
N.	**Other Facilities**				
	Post-office	Yes			
	Telecommunication Network/ STD booth	NO			

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

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

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

7. **Data Collection From Village**

Village Base Map Available: Hard Copy/Soft Copy	

Recent Projects going on for Development of Village	Patidar Samaj trust hall
Any NGO working for village development	Yes (1)

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		

9. **Smart Village Proposal Design**

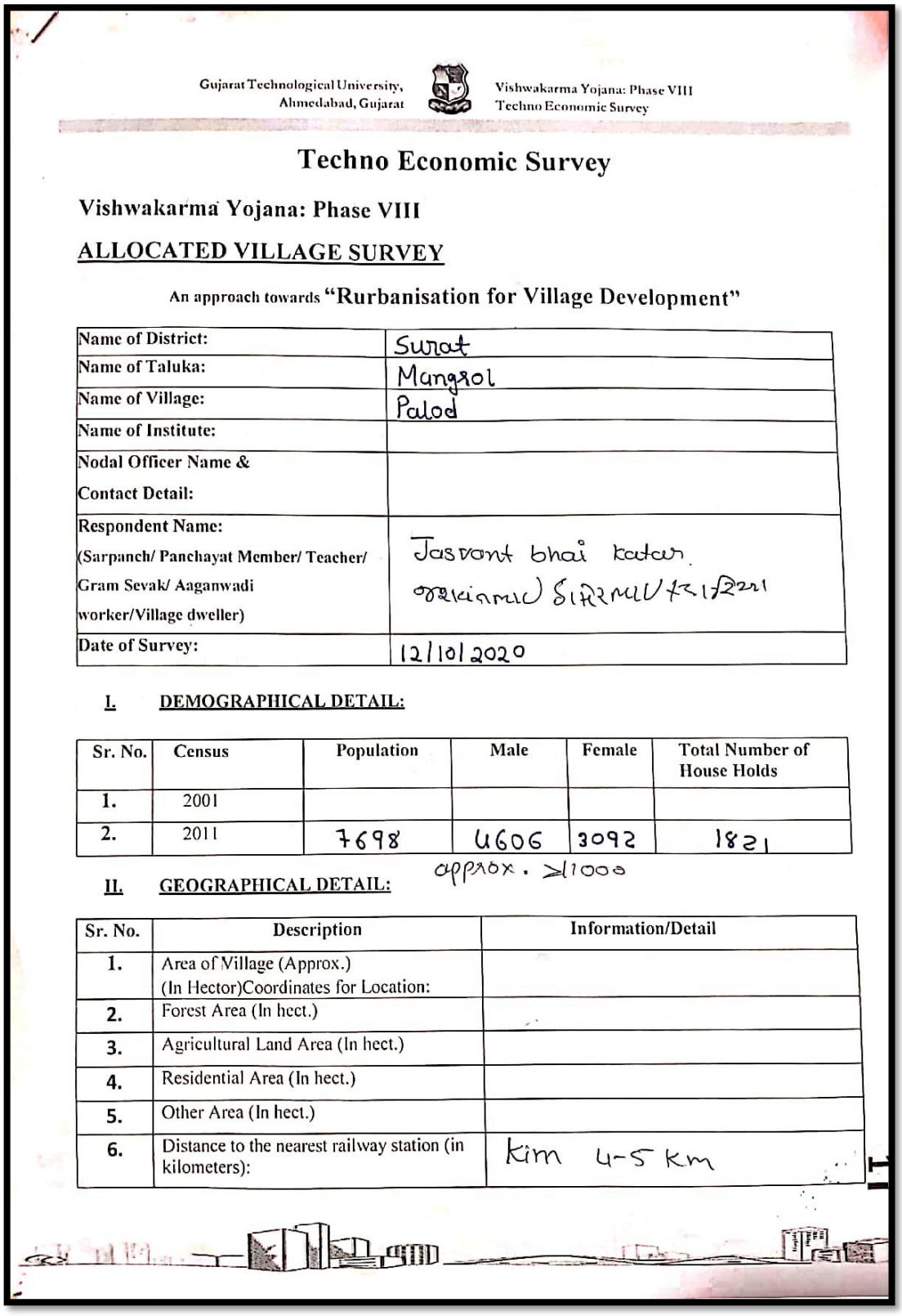
Sr. No.	Descriptions	Information/ Detail	Remarks
1.			

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

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

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



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:	Surat
Name of Taluka:	Mangrol
Name of Village:	Palod
Name of Institute:	
Nodal Officer Name & Contact Detail:	
Respondent Name: (Sarpanch/ Panchayat Member/ Teacher/ Gram Sevak/ Aaganwadi worker/Village dweller)	Jasvant bhai katar ગ્રામપંચાયત સભ્ય/તલાટી
Date of Survey:	12/10/2020

I. DEMOGRAPHICAL DETAIL:

Sr. No.	Census	Population	Male	Female	Total Number of House Holds
1.	2001				
2.	2011	7698	4606	3092	1821

approx. ≥1000

II. GEOGRAPHICAL DETAIL:

Sr. No.	Description	Information/Detail
1.	Area of Village (Approx.) (In Hector)Coordinates for Location:	
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):	Kim 4-5 km

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7.	Name of Nearest Town with Distance:	Kim 4-5 km
8.	Distance to the nearest bus station (in kilometers):	Kim chokdi 4-5 km
9.	Whether village is connected to all road for the any facility or town or City?	Yes.

III. OCCUPATIONAL DETAILS:

Name of Three Major Occupation groups in Village	1. Farmer.
	2. Job
	3. Animal Husbandry.

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

IV. PHYSICAL INFRASTRUCTURE FACILITIES:

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

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	Other(Specify) **Lake/ Pond** ✓ Not Usable	Clean			
Suggestions if any:					
B.	**Water Tank Facility**				
	Overhead Tank	Capacity: 30000, 50000,	2		
	Underground Sump	Capacity: 50000	1		
Suggestions if any:					
C.	**The Type of Drainage Facility**				
	A. UNDERGROUND DRAINAGE 1	Yes good condition			
Suggestions if any:					
D.	**Road Network :All Weather/ Kutchha (Gravel)/ Black Topped pucca/ WBM**				
	Village approach road	BTP			
	Main road				
	Internal streets				
	Nearest NH/SH/MDR/ODR Dist. in kms.	NH 48 (0 km)			
Suggestions if any:					
E.	**Transport Facility**				
	Railway Station (Y/N) (If No than Nearest Rly Station---Kms)	Kim ~~Surat~~ (22.4 km)			
	Bus station (Y/N) Condition: (If No than Nearest Bus Station---Kms)	Kim Chokdi (0.5 km)			
	Local Transportation (Auto/ Jeep/Chhakda/ Private Vehicles/ Other)	Yes			
Suggestions if any:					
F.	**Electricity Distribution**				
	(Y/N) Govt./ Private (Less than 6 hrs./ More Than 6 hrs) ✓	24 hrs.		Yes	

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Vishwakarma Yojana: Phase VIII
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	Power supply for Domestic Use	24 hrs			
	Power supply for Agricultural Use	8 hrs.			
	Power supply for Commercial Use	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:

G.	**Sanitation Facility**				
	Public Latrine Blocks If available than Nos. 1.	closed		No	
	Location Condition	kim chokdi			
	Community Toilet (With bath/ without bath facilities) 0			No	
	Solid & liquid waste Disposal system available	dumped in gauchar		Yes	tractor (panchayat)
	Any facility for Waste collection from road	Panchayat tractor.			

Suggestions if any:

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

Suggestions if any:

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

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V. SOCIAL INFRASTRUCTURAL FACILITIES:

Sr. No.	Descriptions	Information/ Detail	Adequate	Inadequate	Remarks
J.	**Health Facilities:**				
	ICDS (Anganwadi)	4	Yes		
	Sub-Centre				
	PHC	1	Yes		
	BLOCK PHC				
	CHC/RH				
	District/ Govt. Hospital	Kim			
	Govt. Dispensary				
	Private Clinic	5			
	Private Hospital/	2			
	Nursing Home				
	AYUSH Health Facility		No		
	sonography /ultrasound facility	1	Yes.		Private
	If any of the above Facility is not available in village than approx. distance from village: ....5...kms.				
Suggestions if any:					
K.	**Education Facilities:**				
	Aaganwadi/ Play group	4.			
	Primary School	6			
	Secondary school	3			
	Higher sec. School	1			
	ITI college/ vocational Training Center	-			
	Art, Commerce& Science /Polytechnic/ Engineering/ Medical/ Management/ other college facilities	-			1Km 5Km

If any of the above Facility is not available in village than approx. distance from village: ..5.....kms.

Suggestions if any:

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

If any of the above Facility is not available in village than approx. distance from village: ..5.....kms.

Suggestions if any:

M.	Other Facilities	Condition	Location	Available (YES)	Available (NO)
	Post-office (1)	closed..			No
	Telecommunication Network/ STD booth				Yes
	General Market				Yes
	Shops (Public Distribution System)	Good			Yes
	Panchayat Building	good			Yes
	Pharmacy/Medical Shop	good			Yes
	Bank & ATM Facility	Good			Yes
	Agriculture Co-operative Society				No
	Milk Co-operative Soc.				No
	Small Scale Industries				No
	Internet Cafes/ Common Service Center/Wi Fi				NO
	Youth Club				No
	Mahila Mandal	Good			Yes

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

Suggestions if any:

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

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VI. SUSTAINABLE /GREEN INFRASTRUCTURE FACILITIES:

Sr. No.	Descriptions	Information/ Details	Adequate	Inadequate	Remarks
1.	Adoption of Non-Conventional Energy Sources/ Renewable Energy Sources		No		
2.	Bio-Gas Plant Solar Street Lights Rain Water Harvesting System ✓	2-5 Person	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)	Kim nadi Tapi River full. heavy rain.			last year

8

Gujarat Technological University, Ahmedabad, Gujarat

Vishwakarma Yojana: Phase VIII
Techno Economic Survey

VIII. ADDITIONAL INFORMATION/ REQUIREMENT:

Sr. No.	Descriptions	Information/ Detail	Remarks
1.	Repair & Maintenance of Existing Public Infrastructure facilities, School Building Health Center Panchayat Building Public Toilets & any other		
2.	Additional Information/ Requirement		
3.	During the last six months how many times CLEANING .....2 times (daily...) FOGGING..... Drive was undertaken in the village?	Load daily 2 times (Vegetation)	

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

તા.૬/૧૧/૨૦ ગ્રામ પંચાયત પાલોદ તા.ઓલપાડ જિ.સુરત

ઉપ. સરપંચ
ગ્રામ પંચાયત પાલોદ
તા. ઓલપાડ, જિ. સુરત.

12.4 Gap Analysis of the Allocated Village

Table-25 Gap analysis of Palod village

Village Facilities	Planning Commission/UDPFI Norms	Village Name:	palod ,surat	
		Population:	7698 (as per 2011)	
		Existing	Required as per Norms	Smart Vilage
Social Infrastructure Facilities				
Education				
Anganwadi	Each or Per 2500 population	4	6	7
Primary School	Each Per 2500 population	6	6	3
Secondary School	Per 7,500 population	3	2	2
Higher Secondary School	Per 15,000 Population	1	1	2
College	Per 125,000 Population	-	-	1
Tech. Training Institute	Per 100000 Population	-	-	1
Health Facility				
Govt/Panchyat Dispensary or Sub PHC	Each Village	1	1	-
Child Welfare and Maternity Home	Per 10,000 population	1	1	1
Multispeciality Hospital	Per 100000 Population	1	-	1
Public Latrines	1 for 50 families (if toilet is not there in home, specially for slum pockets &	0	36	
Physical Infrastructure Facilities				
Transportation		**Adequate**		
Pucca Village Approach Road	Each village			
Drinking Water (Minimum 70 lpcd)		**Inadequate**		
Over Head Tank	1/3 of Total Demand			
U/G Sump	2/3 of Total Demand			
Drainage Network - Open		**Inadequate**		
Drainage Network - Cover		**inadequate**		
Waste Management System		**inadequate**		
Socio- Cultural Infrastructure Facilities				
Community Hall	Per 10000 Population	-	1	1
community hall and Public Library	Per 15000 Population	-	1	-
Post Office	Per 10,000 population	-	1	1
Gram Panchayat Building	Each individual/group panchayat	1	1	1
Public Garden	Per village	-	1	1

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

Table-25 Summary Details of All the Villages Designs

Sr. No.	Village	Discipline	DESIGN(Part-I)	DESIGN (Part-II)
1.	Palod, Mangrol	Civil	Bus Stand	Post Office
			Garden	Medical Store
			Library	Cyber Café
			Community hall	Public toilet
			Skill development center	Primary health center
			Village gate	Feast of Water
2	Vav, Kamrej	Civil	Post Office	Bio Gas Plant
			Public Garden	Maintenance of PHC
			Water Harvesting System	Sewage Treatment Plant
			Community Hall	Library
			Skill Development Center	Road(Internal Road)
			-	-
3	Ten, Bardoli	Civil	Bio Gas Plant	Internal Street Road
			Primary Health Center	Primary School
			Post Office	Public toilet
			Public Library	Maintenance of Overhead Water Tank
			Agricultural Research center	Maintenance of Village Pond
			Village Gate	Community Hall
4	Madhi	Civil	Library	Maintenance Of Police Station
			Hospital	Public Garden
			River Front	Waste Water Treatment
			Fire Station	Medical Shop
			Village gate	Solid Waste Treatment
			Community Hall	Pucca Vegetable Market
5	Nani Naroli, Mangrol	Civil	Bio Gas Plant	Tank Design For Water Harvesting
			High School	Road section
			Public toilet	Child Welfare And maternity Home
			Community Hall	Public Garden
			Bank	Common Service Center
			Village Gate	Chabutra
6	Vankaner	Civil	Library	Lake Garden
			Skill Development Center	Science Development
			Community Hall	Cyber Café

			AnganWadi	Child Welfare And maternity Home
			Public toilet	Overhead Tank
			Village Gate	Super Market
7	Kharach	Civil	Milk Collecting and Distributing Unit	Development Of Lake
			Design of Library	Primary School
			Design Of Clinic	Video Hall
			Design Of Overhead Water Tank	Medical Store
			Design Of Road	Youth Club
			Design Of Mahila Mndal	Public Garden
8	Ilav	Civil	Design Of AnganWadi	Public Garden
			Design Of Girl's Primary School	Community Hall
			Design of Agro Storage Unit	Public Library
			Design of Milk Dairy Unit	Post Office
			Design Of Animal Shelter	Aro-Water Plant
			Design Of Public Toilet	Mahila Mandal

12.6 Summary of Good Photograph in Table Format

Ideal village visit (Baben village)

Fig.66 Photo with the deputy Sarpanch of Baben village

Fig.67 Baben village visit

Allotted village visit (Palod village)

Fig.68 Photo with the deputy Sarpanch of Palod village

Fig.69 palod village visit

Fig.70 different view of Palod village

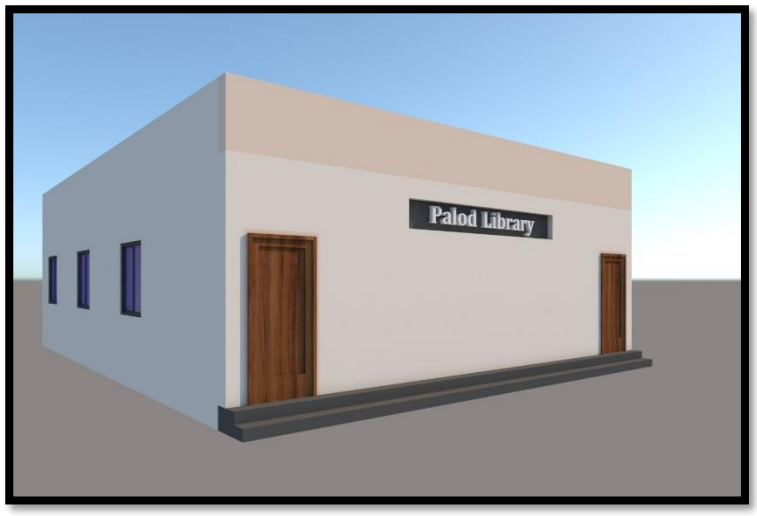


Fig .71 3D View of Design

12.7 Village Interaction with sarpanch Report with the photograph

As per the Vishwakarma Yojana Phase VIII guidelines, we have to present our work in village for the effective implementation of Vishwakarma Yojana. So we presented our work to Sarpanch and Talati of village. We discuss about current problems and possible solutions of these problems.

We discussed about implementation possibilities of our proposals and modification in our proposals. Also we discussed about sources of funding for implementation. Sarpanch Shri told us that main problem of village is housing and roads. Quoting Sarpanch's sentence "Villagers want basic needs like good house, road facility and electricity."

We also interacted with people of village. One of them told us that there is injustice to poor people of village, as these people do not have land and they have to leave in Katcha house also government is not providing any help to them. Some of them do not have basic needs and LPG facility so they have to depend on wood. Also Government helped them to build toilets but there is not water tap connection in toilets.

To overcome these problems, we will try our best to provide possible solutions in the 2nd part of Vishwakarma Yojana Phase VIII.

Fig.71 interaction with Sarpanch

卐 Shree Mahaveeray Namah 卐

Ph.: (0261) 2268083
(0261) 3247110
(0261) 3102713

BHAGWAN MAHAVIR EDUCATION FOUNDATION

Bhagwan Mahavir College of Engineering & Technology

Survey No. 149, Nr. Ashirwad Villa, B/h. Heena Bunglows, New City Light Road, Bharthana-Vesu, SURAT-395 017.

Reg. No. E 5108/Surat.

e-mail: bmef_1@rediffmail.com

Ref. No.: BMCET/Admin/2020/10/284 Date: 09/10/2020

To
The sarpanch of Palod Village
Surat

Subject: To Provide Information & Relevant Documents for Project Purpose

Respected Sir/Madam,

This is to certify that our student Ms. Fasiha Shaikh of civil department 7 sem with her group members are students of this institution BMCET, Surat affiliated with Gujarat technological University.

As the part of the study students has to undertake research work on selected rural planning issues. They have selected this Project on "Vishwakarma yojana phase VII" under the guidance of Professor Mr. Dixit Chauhan.

For the above research work you are requested to co-operate & provide necessary information and documents for study purpose. The information provided will be used for academic purpose only. This is final year project, so the visit is necessary for them.

So, I request you to co-operate or help them with the proper information and the data, hope for your positive response

They Should Maintain Proper guidelines of covid-19.

Thanking you,

Group Members

Swapnil Rana	180063106096
Vaishnav Sanket	180063106122
Rajput Dharmik	180063106094

Bhagwan Mahavir College Of Engg. & Technology Bharthana Vesu Surat

For, 9/10/2020
Director
Bhagwan Mahavir College
Of Engg. & Technology,
Bharthana Vesu, SURAT.

09/10/20

ગ્રામ પંચાયત પાલોદ
તા. ચોર્યાસી, જિ. સુરત.

Approval Letter for Proposed Design Approval

Vishwakarma Yojana Phase VIII

Palod Village, Mangrol Taluka, Surat Dist.

Pin code: 394110

Subject: Approval of design Proposal for Palod Village

I sarpanch/talati of Palod Village undersigned gives approval for following main design proposal given under Vishwakarma Yojna phase VIII- An approach towards rurbanisation by students of Bhagwan Mahavir Collage of Engineering and Technology, Surat named Rajput Dharmik (180063106094) And Rana Swapnil (180063106096).

- Approved main design proposal as of Part 1:
  1. Bus Stand
  2. Garden
  3. Library
  4. Community hall
  5. Skill development center
  6. Village Gate

Date:

Sign:

તલાટી કમ મંત્રી
પાલોદ ગ્રામ પંચાયત,
તા.માંગરોલ, જી.સુરત

તલાટી કમ મંત્રી
પાલોદ ગ્રામ પંચાયત,
તા.માંગરોલ, જી.સુરત

Seal of gram panchayat

Chapter 13: From the Chapter- 9 future designs of the aspects

13.1 Design Proposals

13.1.1 Post Office

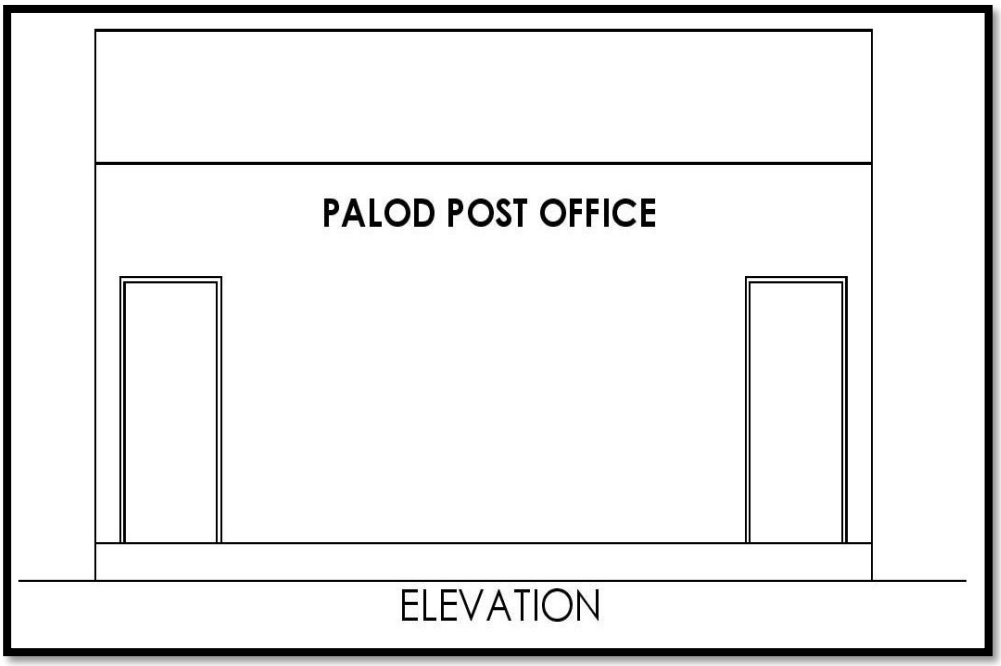


Fig.72 Elevation of Post Office

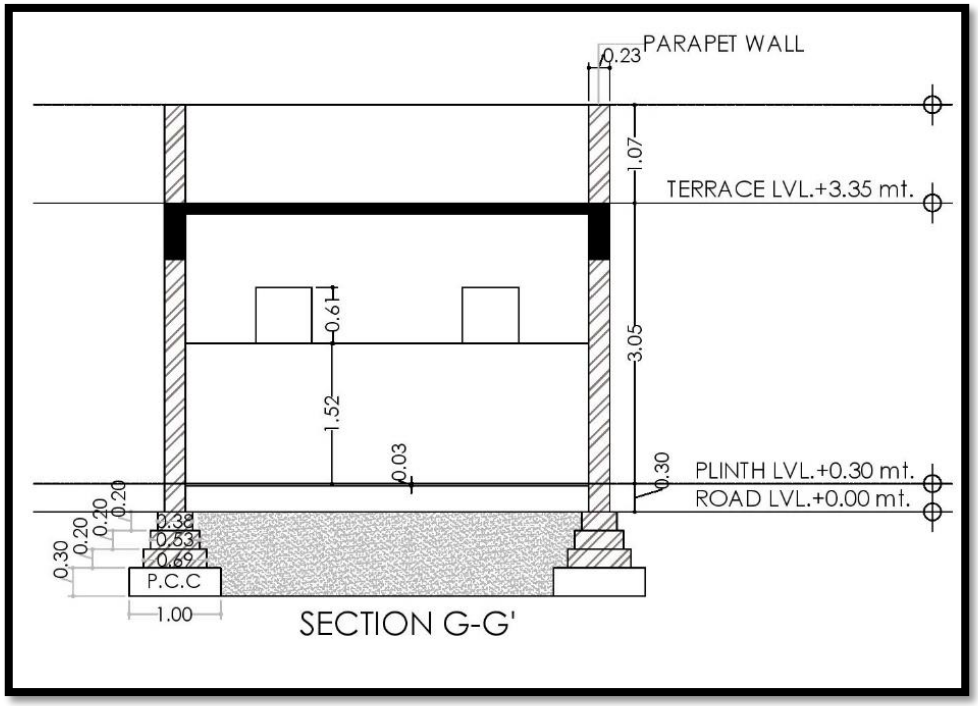


Fig.73 Section of Post Office

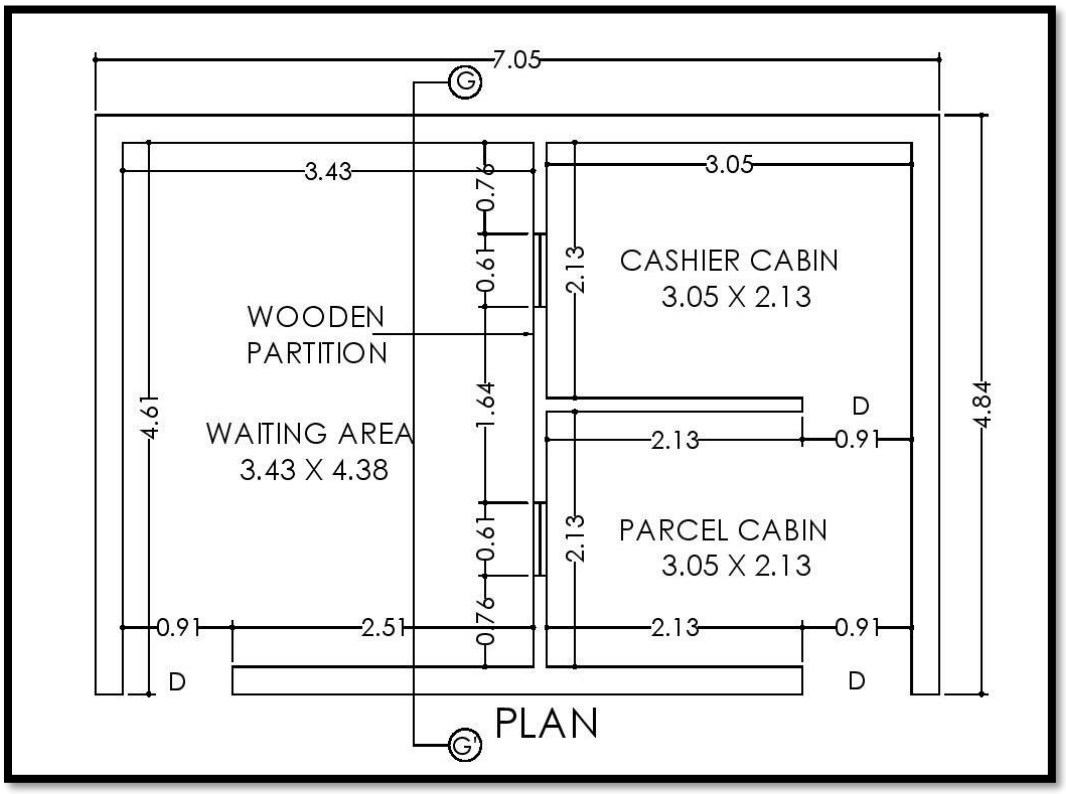


Fig.74 Plan of Post Office

Table-27 Estimation of Post Office

SR NO	DISCRIOTION	COUNT	LENGTH (m)	WIDTH (m)	HEIGHT (m)	TOTAL (m^3)
1	**excavation in foundation**		**23.78**	**1**	**0.9**	**27.4**
2	**PCC in foundation**		**23.78**	**1**	**0.3**	**7.13**
3	**brick work up to plinth level**					
	1St Level		23.78	0.69	0.2	3.28
	2nd level		23.78	0.53	0.2	2.52
	3rd level		23.78	0.38	0.2	1.8
	4th level		23.78	0.23	0.3	1.64
	total					**9.24**
4	**earth filling**		**6.82**	**4.64**	**0.075**	**2.37**
5	**flooring**		6.82	4.64	-	31.64
	deduction(door)	2	0.91	0.23	-	0.47
	Total					**32.05**
6	**DPC**		**23.78**	**0.23**	**-**	**5.46**
7	**brick work in super structure**		**23.78**	**0.23**	**2.94**	**10.08**
	deduction					

	Door	2	0.91	0.23	2.13	0.89
	Windows	4	1.22	0.23	1.22	1.36
	lintel (D)	2	1.06	0.23	0.15	0.07
	lintel (W)	4	1.25	0.23	0.15	1.36
	total					**13.59**
	parapet wall		23.78	0.23	1.07	5.85
	Total Brick Work					**19.44**
8	**internal plaster work cm (1:4)**					
	Room 1	2	6.82	-	2.94	40.1
		2	-	4.61	2.94	27.1
	ceiling	1	6.82	4.61	-	31.44
	Total					**98.64**
	deduction					
	Door	1	0.91		2.13	1.93
	Windows	2	1.22		1.22	2.97
	Total					**93.74**
9	**external plaster work cm (1:3)**					
	L= 7.07	2	7.07	-	4.42	62.32
	B= 4.84	2	4.84	-	4.42	42.78
	total					**105.1**
10	**rcc work**					
	Slab (7.05-4.61)		7.05	4.61	0.11	3.57
	lintel (W)	2	1.06	0.23	0.15	0.07
	lintel (D)	4	1.25	0.23	0.15	0.17
	Total					**3.81**

Table-28 Abstract Sheet of Post Office

SR NO	PARTICULAR	TOTAL (Q)	RATE	PER	AMOUNT
1	Excavation	30.63	90	m^3	2756.7
2	PCC	10.21	3000	m^3	30630
3	Brick work Up to Plinth	13.21	900	m^3	11889
4	Earth filling	5.2	110	m^3	552.2
5	Brick work in s.s	56.2	3600	m^3	202320
6	RCC work	8.04	4000	m^3	32160
7	Plaster 12mm	215.27	150	m^2	32290.5
8	Flooring	67.22	700	m^2	47054
9	DPC	7.82	90	m^2	703.8
Total Cost					**360356.2/-**

13.1.2 Medical Store

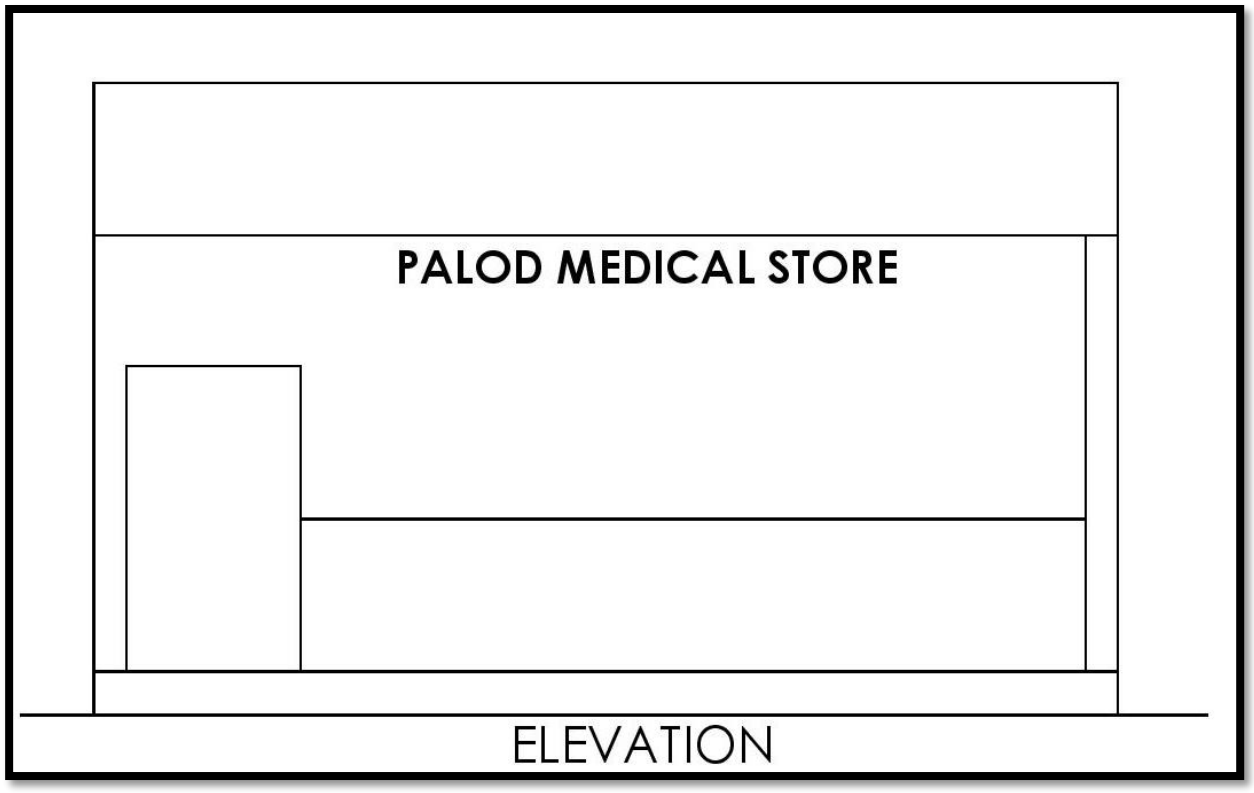


Fig.75 Elevation of Medical Store

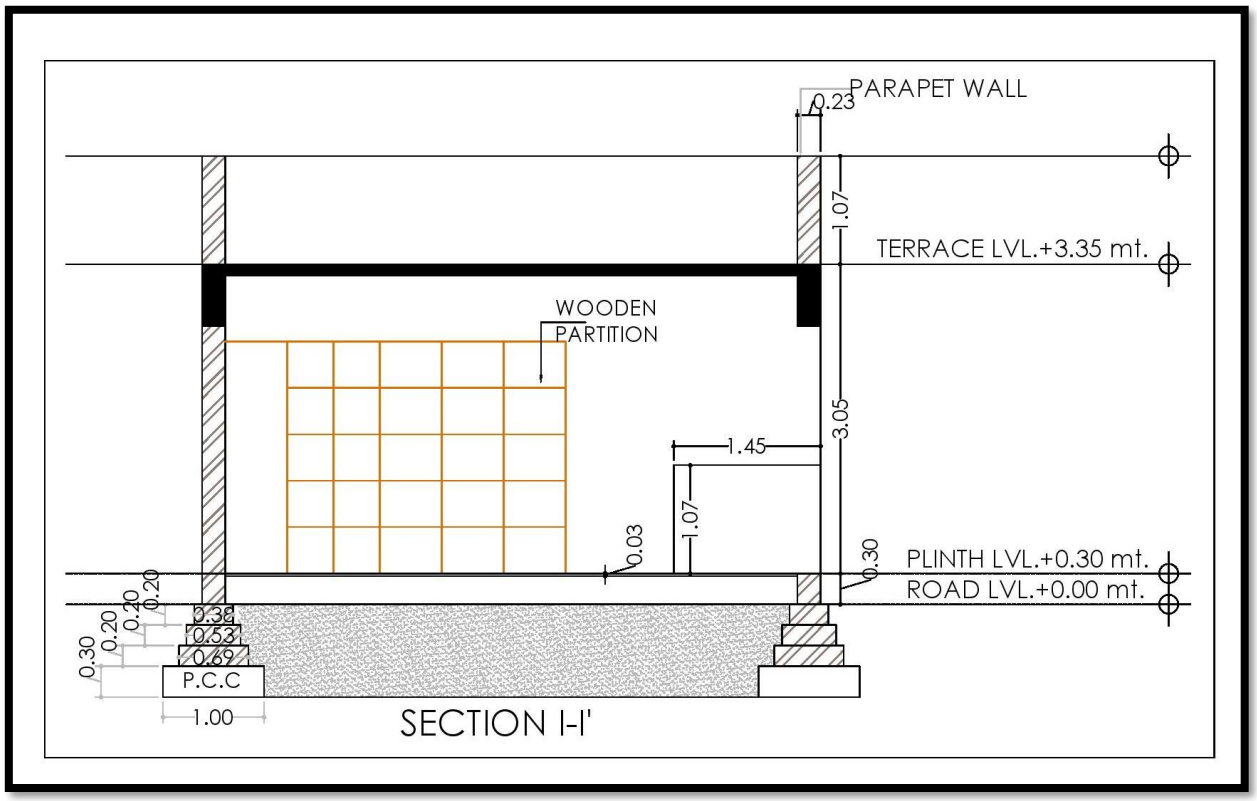


Fig.76 Section of Medical Store

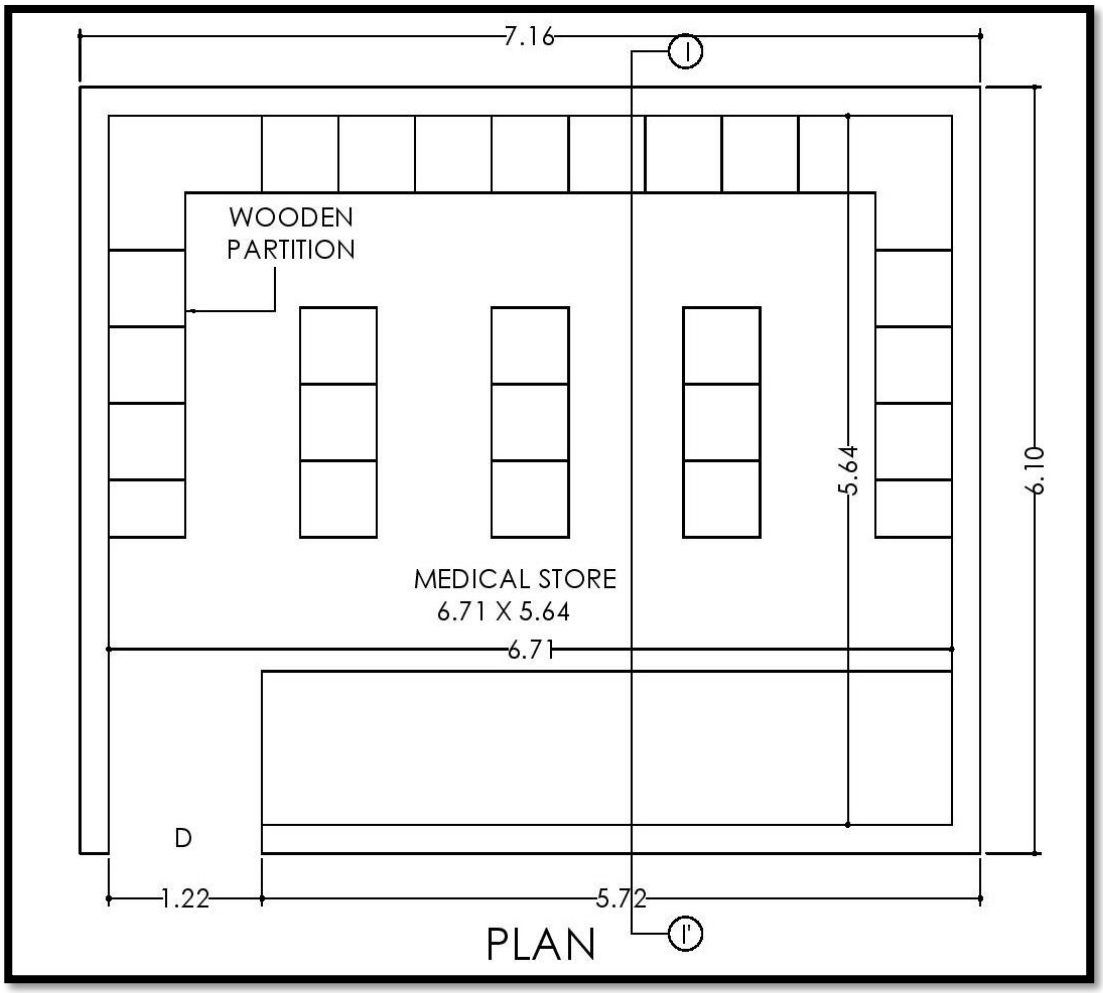


Fig.77 Plan of Medical Store

Table-29 Estimation of Medical Store

SR NO	Particular	count	length (m)	Width (m)	Height (m)	total Quantity (m3)
1	**excavation in foundation**		**25.62**	**1**	**0.9**	**23.05**
2	**pcc in foundation**		**25.62**	**1**	**0.3**	**7.68**
3	**brick work up to plinth level**					
	1St Level		25.62	0.69	0.2	3.53
	2nd level		25.62	0.52	0.2	2.71
	3rd level		25.62	0.38	0.2	1.94
	4th level		25.62	0.23	0.3	1.76
	total					**8.94**
4	**earth filling**		**6.71**	**5.64**	**0.075**	**2.83**

5	**flooring**		6.71	5.64		37.84
	deduction		1.22	0.23		0.28
	Total					**37.56**
6	**DPC**		**25.62**	**0.23**		**5.89**
7	**brick work in super structure**		**25.62**	**0.23**	**2.94**	**17.32**
	deduction					
	Door	1	1.22	0.23	2.13	0.59
	Platform		5.49	0.23	1.87	2.36
	lintel (D)		5.49	0.23	0.15	0.04
	total					**14.33**
	parapet wall		25.6	0.23	1.07	6.3
	Total Brick Work					**20.63**
8	**internal plaster work cm (1:4)**					
	Room 1	2	6.77		2.94	39.45
		2		5.64	2.94	33.16
	ceiling	1	6.77	5.64		38.18
	Total					**110.79**
	deduction					
	Door	0.5	1.22		2.13	1.29
	Platform	0.5	5.49		1.87	5.13
	Total					**104.37**
9	**external plaster work cm (1:3)**					
	L= 7.16	2	7.16		4.42	63.29
	B= 6.10	2		6.1	4.42	53.92
	deduction					
	Door	0.5	1.22		2.13	1.29
	Platform	0.5	5.49		1.87	5.13
	total					**110.79**
10	**rcc work**					
	Slab (7.16-6.10)		7.16	6.1	0.11	4.8
	lintel (D)		1.22	0.23	0.15	0.04
	Total					**4.84**

Table-30 Abstract Sheet of Medical Store

Sr no	Particular	Total (Q)	Rate	per	Amount
1	Excavation	23.5	90	m^3	2074.5
2	PCC	7.68	3000	m^3	23040
3	Brick work Up to Plinth	8.94	900	m^3	8046
4	Earth filling	2.83	110	m^3	311.3
5	Brick work in s.s	20.63	3600	m^3	74268
6	RCC work	4.84	4000	m^3	19360
7	Plaster 12mm	215.2	150	m^2	32274
8	Flooring	37.56	700	m^2	26292
9	DPC	5.89	90	m^2	530.1
Total Cost					**186195.9/-**

Fig.78 3D View of Medical Store

13.1.3 Cyber Café

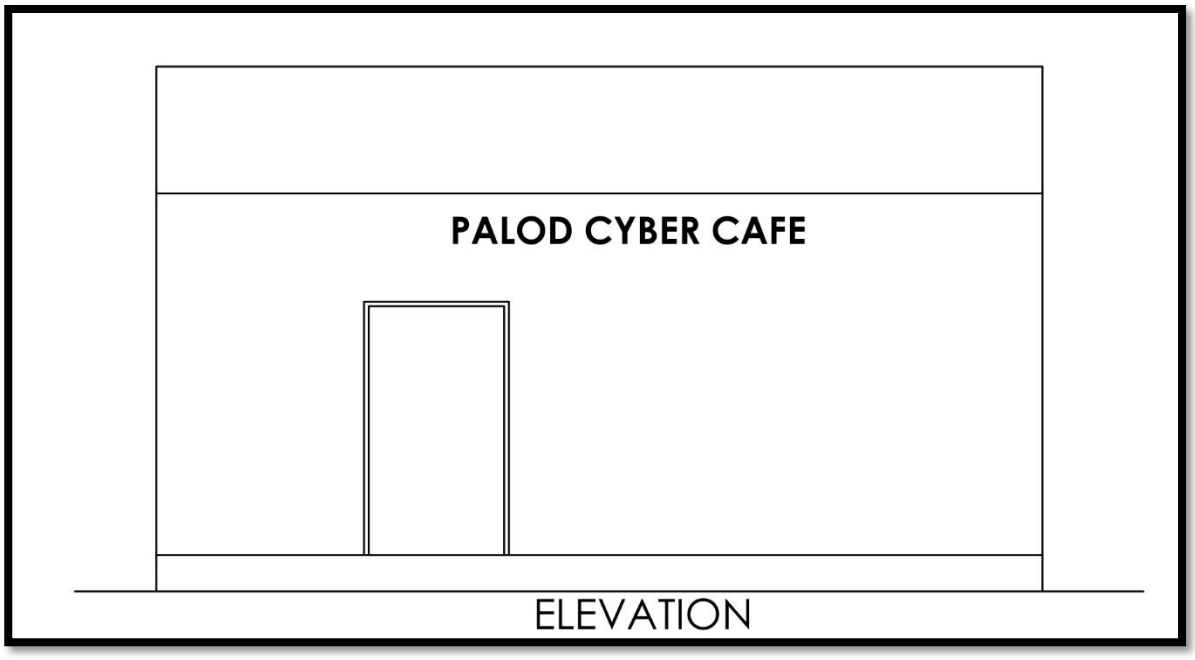


Fig.79 Elevation of Cyber Cafe

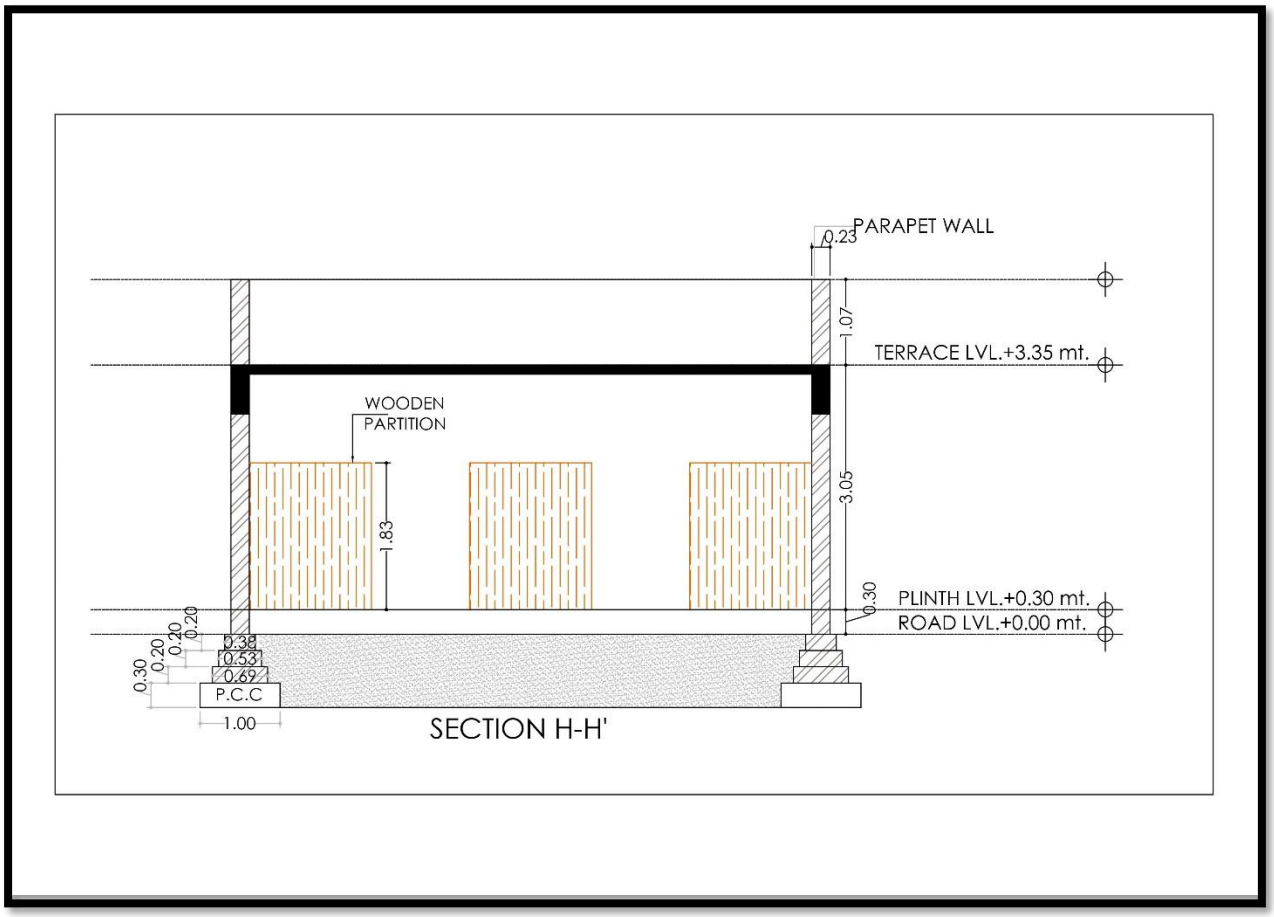


Fig.80 Section of Cyber Cafe

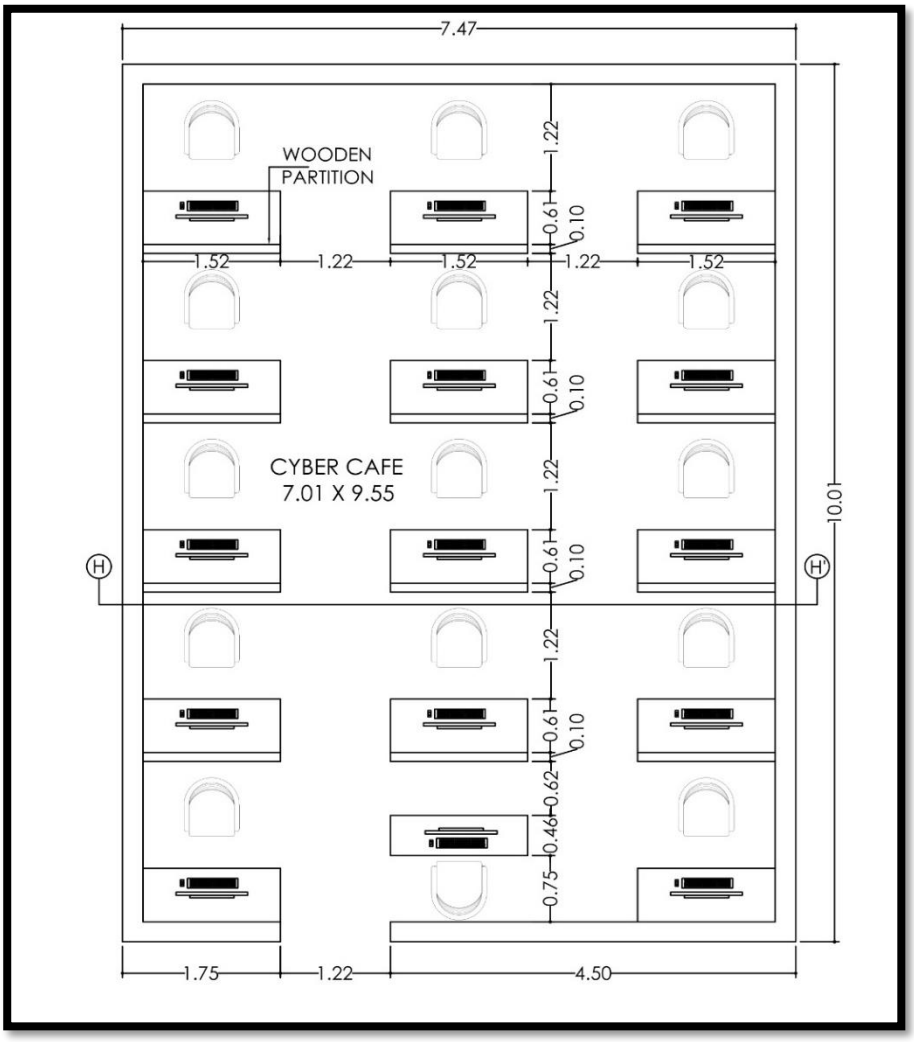


Fig.81 Plan of Cyber Cafe

Table-31 Estimation of Cyber Cafe

SR NO	Description	count	length (m)	Width (m)	Height (m)	total Quantity(m3)
1	**excavation in foundation**		**34.04**	**1**	**0.9**	**30.63**
2	**pcc in foundation**		**34.04**	**1**	**0.3**	**10.21**
3	**brick work up to plinth level**					
	1St Level		34.04	0.69	0.2	4.69
	2nd level		34.04	0.53	0.2	3.6
	3rd level		34.04	0.38	0.2	5.58
	4th level		34.04	0.23	0.3	2.34
	total					**13.21**
4	**earth filling**		**7.01**	**9.55**	**0.075**	**5.02**
5	**flooring**		7.01	9.5		66.94

	deduction	1	1.22	0.23		0.28
	Total					**67.22 m2**
6	**DPC**		**34.04**	**0.23**		**7.83 m2**
7	**brick work in super structure**		**34.04**	**0.23**	**2.94**	**23.01**
	deduction					
	Door	1	1.22	0.23	2.13	0.59
	Windows	4	1.22	0.23	1.22	1.36
	lintel (D)	1	1.25	0.23	0.15	0.17
	lintel (W)	4	1.1	0.23	0.15	0.03
	total					**20.86**
	parapet wall		34.04	0.23	1.07	35.34
	Total Brick Work					**56.2**
8	**internal plaster work cm (1:4)**					
	Room 1	2	7.01		2.94	41.27
		2		9.55	2.94	56.154
	ceiling	1	7.01	9.55		66.94
	Total					**164.364 m2**
	deduction					
	Door	0.5	1.22		2.1	1.29
	Windows	2	1.22		1.22	2.97
	Total					**160.134 m2**
9	**external plaster work cm (1:3)**					
	L= 7.47	2	7.47		4.42	66.03
	B= 10.01	2		10.01	4.42	88.48
	deduction					
	Door	0.5	1.22		2.13	1.29
	Windows	2	1.22		1.22	2.97
	total					**150.25 m2**
10	**rcc work**					
	Slab (7.47-9.55)		7.47	9.55	0.11	7.84
	lintel (W)	4	1.25	0.23	0.15	0.17
	lintel (D)	1	1.1	0.23	0.15	0.03
	Total					**8.04**

Table-32 Abstract Sheet of Cyber Cafe

Sr no	Particular	Total (Q)	Rate	per	Amount
1	Excavation	21.4	90	m^3	1926
2	PCC	7.13	3000	m^3	21390
3	Brick work Up to Plinth	9.24	900	m^3	8316
4	Earth filling	2.37	110	m^3	260.7
5	Brick work in s.s.	19.44	3600	m^3	69984
6	RCC work	381	4000	m^3	15240
7	Plaster 12mm	310.4	150	m^2	46557
8	Flooring	32.05	700	m^2	22435
9	DPC	5.46	90	m^2	491.4
Total Cost					**186600/-**

13.1.4 Public Toilet

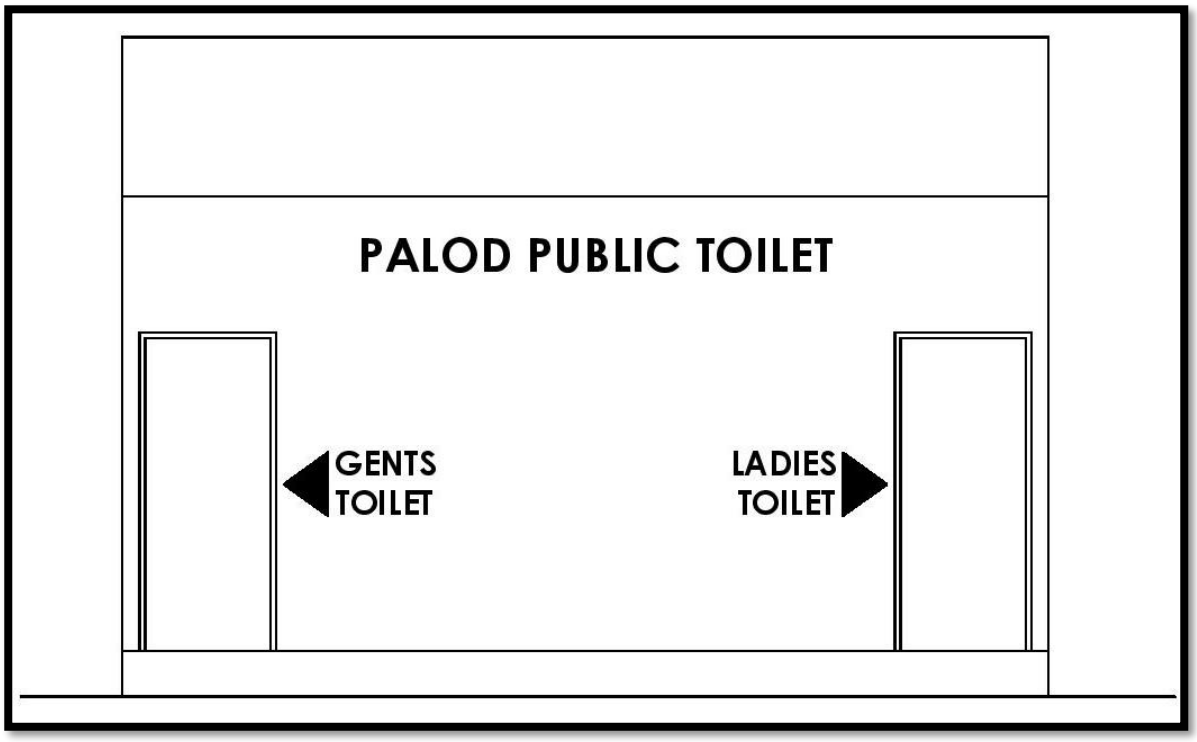


Fig.82 Elevation of Public toilet

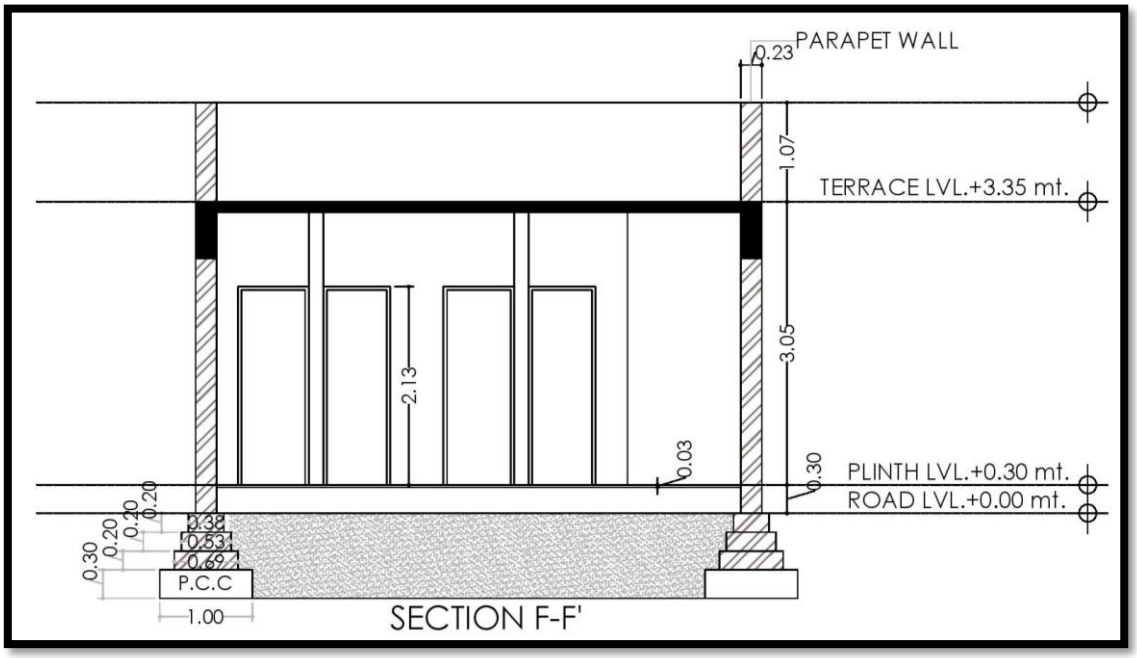


Fig.83 Section of Public toilet

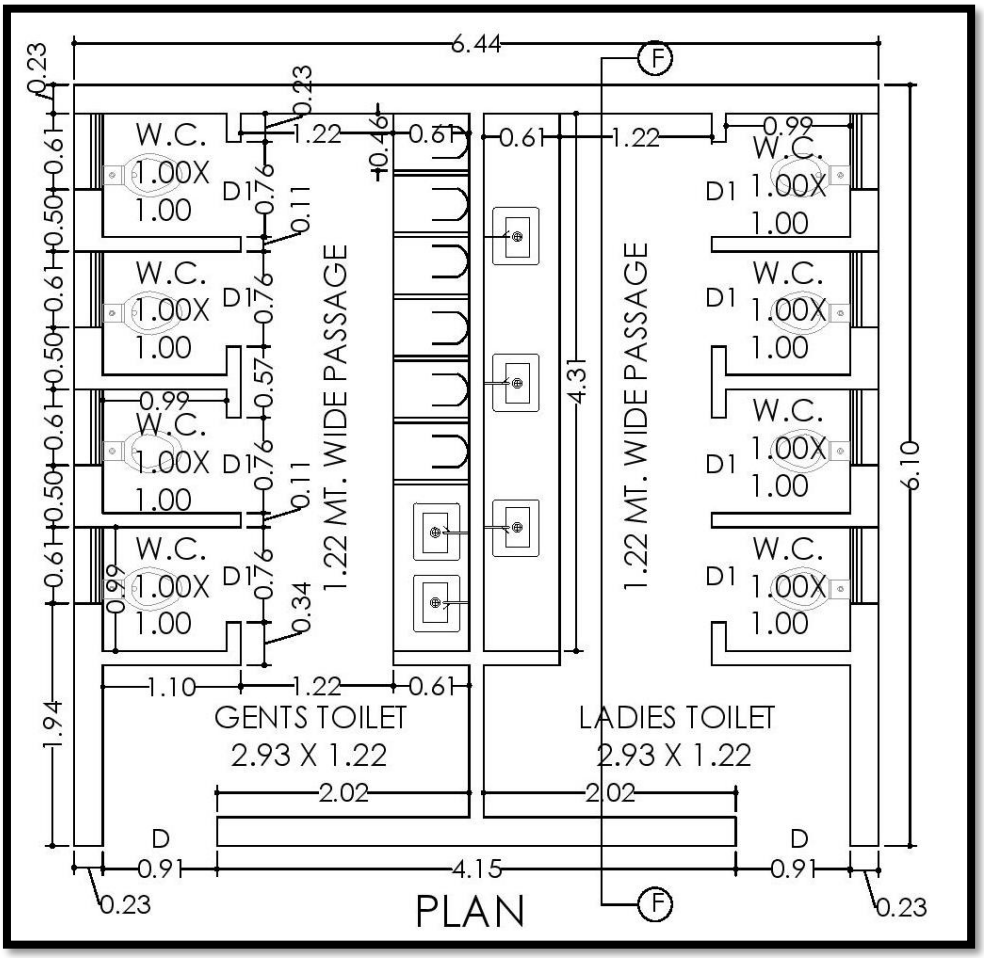


Fig.84 Plan of Public toilet

Table-33 Estimation of Public Toilet

SR NO	Description	count	length (m)	Width (m)	Height (m)	total Quantity (m3)
1	**excavation in foundation**		**37.45**	**1**	**0.9**	**33.7**
2	**pcc in foundation**		**37.45**	**1**	**0.3**	**11.23**
3	**brick work up to plinth level**					
	1St Level		30.55	0.69	0.2	4.21
	2nd level		32.15	0.53	0.2	3.4
	3rd level		33.35	0.38	0.2	2.55
	4th level		35.15	0.23	0.3	2.45
	total					**12.58**
4	**earth filling**					
	w/c	8	1	1	0.075	0.6
	passage	2	1.83	4.31	0.075	1.18
	passage	2	2.93	1.22	0.075	0.53
	Total					**2.31**
5	**flooring**					
	w/c	8	1	1		8
	passage	2	1.83	4.31		15.17
	passage	2	2.93	1.22		7.14
	deduction					
	D1	8	0.76	0.11		0.66
	D	2	0.91	0.23		0.41
	Total					**31.98**
6	**DPC**		**45.15**	**0.23**		**10.38**
7	**brick work in super structure**		**45.15**	**0.23**	**2.94**	**30.53**
	deduction					
	D1	2	0.91	0.23	2.13	0.89
	D	8	0.76	0.11	2.13	1.42
	V	8	0.61	0.23	0.61	0.68
	lintel (D)	2	0.06	0.23	0.15	0.31
	lintel (W)	8	0.91	0.11	0.15	0.12

	lintle (v)	8	0.76	0.23	0.15	0.2
	total					**26.91**
	perapet wall		24.15	0.23	1.07	5.94
	Total Brick Work					**32.85**
8	**internal plaster work cm (1:4)**					
	Room 1	16	1	1		
		4	1.83	4.31		
		4	2.93	1.22		
		16	1		2.94	47.04
		16	1		2.94	47.04
		2	1.89		2.94	10.76
		4	4.31		2.94	50.08
		4	1.22		2.94	14.34
		4	2.93		2.94	34.54
	Total					**203.8**
	deduction					
	D	1	0.91		2.13	1.93
	D1	8	0.76		2.13	12.95
	V	4	0.61		0.61	1.48
	Total					**187.95**
9	**external plaster work cm (1:3)**					
	L= 6.44	2	6.44		4.42	56.92
	B= 6.10	2	6.1		4.42	53.92
	deduction					
	Door	1	0.91		2.13	1.93
	Ventilation	4	0.61		0.61	1.48
	total					**107.43**
10	**rcc work**					
	Slab (6.44-5.64)		6.44	5.64	0.11	3.99
	lintel (W)	2	1.06	0.23	0.15	0.31
	lintel (D)	8	0.91	0.11	0.15	0.12
	lintel (V)	8	0.76	0.23	0.15	0.2
	Total					**4.64**

Table-34 Abstract Sheet of Public Toilet

Sr no	Particular	Total (Q)	Rate	per	Amount
1	Excavation	33.7	90	m^3	3033
2	PCC	11.23	3000	m^3	33690
3	Brick work Up to Plinth	12.58	900	m^3	11322
4	Earth filling	2.31	110	m^3	254.1
5	Brick work in s.s	26.91	3600	m^3	96876
6	RCC work	4.62	4000	m^3	18480
7	Plaster 12mm	295.4	150	m^2	44307
8	Flooring	31.98	700	m^2	22386
9	DPC	10.38	90	m^2	934.2
	Total Cost				**231282.3/-**

13.1.5 Primary Health Center

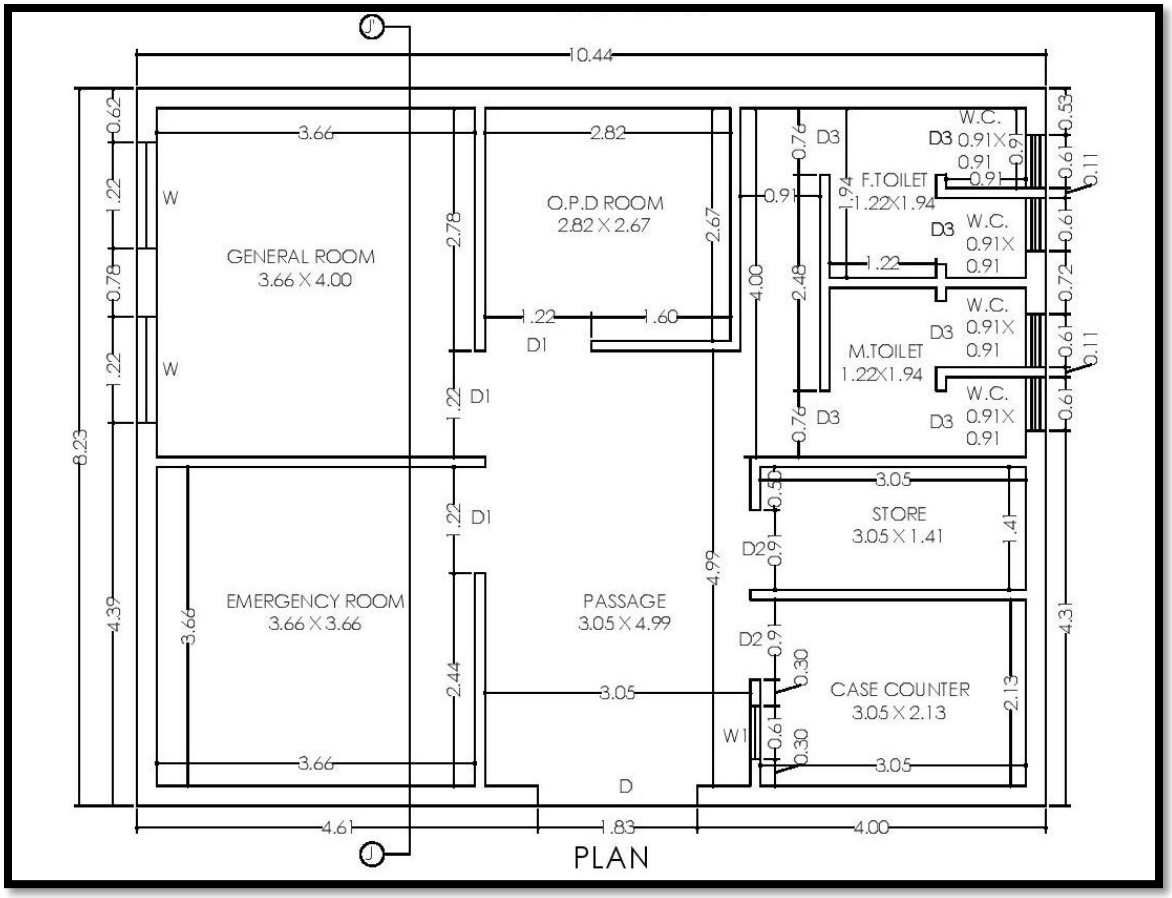


Fig.85 Plan of Primary Health Center

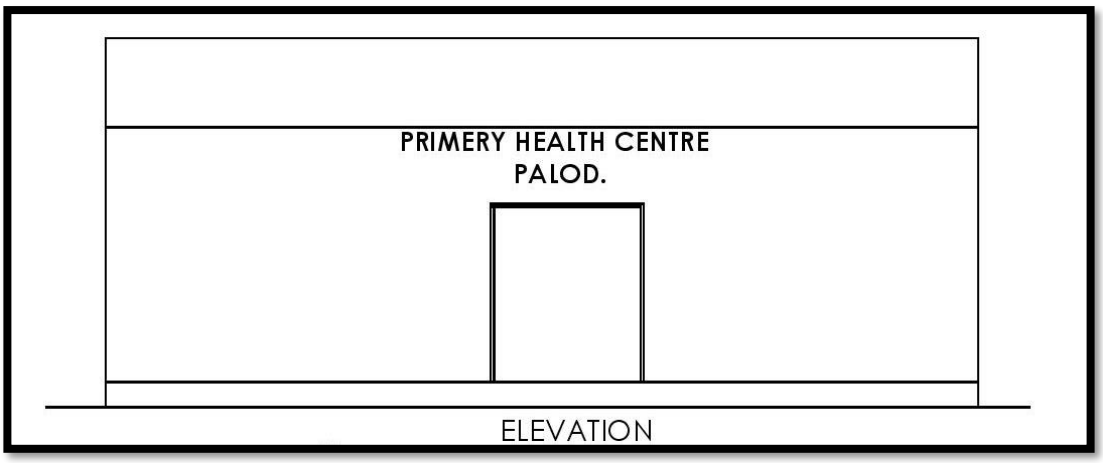


Fig.86 Elevation of Primary Health Center

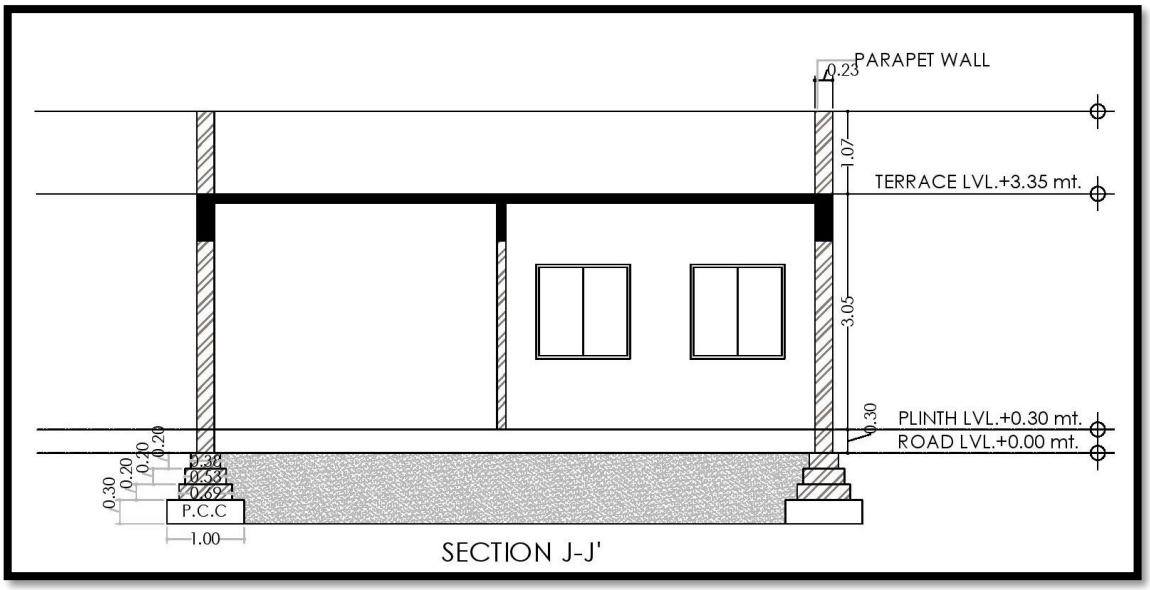


Fig.87 Section of Primary Health Center

Table-35 Estimation of Primary Health Center

SR NO	Discretion	count	length (m)	width(m)	Height(m)	total Quantity(m3)
1	**excavation in foundation**		**67.79**	**1**	**0.9**	**61.01**
2	**pcc in foundation**		**67.79**	**1**	**0.3**	**20.33**
3	**brick work upto plinth level**					
	1St Level		70.89	0.69	0.2	9.78
	2nd level		72.49	0.53	0.2	2.68
	3rd level		73.99	0.38	0.2	5.62
	4th level		75.49	0.23	0.3	5.2

	total					**28.28**
4	**earth filling**					
	Room 1		3.66	4	0.075	1.09
	Room 2		3.66	3.66	0.075	1
	Room 3		2.82	2.67	0.075	0.56
	Passage		3.05	4.99	0.075	1.14
	Toilet	2	1.94	1.22	0.075	0.35
	W.c.	4	0.91	0.91	0.075	0.24
	Store		3.05	1.41	0.075	0.32
	Cash Counter		3.05	2.73	0.075	0.48
	Passage		0.91	4	0.075	0.27
	Total					**5.45**
5	**flooring**					
	Room 1		3.66	4		14.64
	Room 2		3.66	3.66		13.39
	Room 3		2.82	2.67		7.52
	Passage		3.05	4.99		15.21
	Toilet	2	1.94	1.22		4.73
	W.c.	4	0.91	0.91		3.31
	Store		3.05	1.41		4.3
	Cash Counter		3.05	2.73		6.49
	Passage		0.91	4		3.64
	deduction					1.56
	Total					**71.67**
6	**DPC**		**77.76**	**0.23**		**17.88**
7	**brick work in super structure**		**77.76**	**0.23**	**2.94**	**52.58**
	deduction					
	Door	1	1.83	0.23	2.13	0.89
	Door 1	3	1.22	0.11	2.13	0.85
	Door 2	2	0.91	0.11	2.13	0.42
	Door 3	6	0.76	0.11	2.13	1.06
	Window	2	1.22	0.23	1.22	0.68
	Window 1	5	0.67	0.11	0.61	0.2
	lintel (D)	1	1.98	0.23	0.15	0.06

	lintel (D1)	3	1.37	0.11	0.15	0.06
	lintel (D2)	2	1.06	0.11	0.15	0.03
	lintel (D3)	6	0.99	0.11	0.15	0.09
	lintel (W)	2	1.37	0.23	0.15	0.09
	total					**4.43**
	parapet wall		36.42	0.23	1.07	8.96
	Total Brick Work					**57.11**
8	**internal plaster work cm (1:4)**					
	Room	6	3.66		2.94	64.56
	Room 1	2	4		2.94	23.52
	Room 2	2	2.82		2.94	16.58
	Room 3	2	2.67		2.94	15.69
	Passage	6	3.05		2.94	53.8
	Cash Counter	2	2.23		2.94	12.52
	Passage	2	4.99		2.94	29.34
	Store	2	1.41		2.94	8.29
	Toilet	4	1.22		2.94	14.34
	Toilet	4	1.94		2.94	22.81
	W.c.	16	0.91		2.94	42.8
	Passage	1	2.78		2.94	8.17
	Passage	1	4		2.94	11.76
	Total					**324.18**
	deduction					
	Door	0.5	1.83		2.13	1.94
	Door 1	3	1.22		2.13	7.79
	Door 2	2	0.91		2.13	3.87
	Door 3	6	0.76		2.13	9.71
	Windows	1	1.22		1.22	1.48
	Total					**299.39**
9	**external plaster work cm (1:3)**					
	L= 10.44	2	10.44		4.42	92.28
	B= 8.23	2		8.23	4.42	77.75
	deduction					

	Door	0.5	1.83		2.13	1.94
	Windows	1	1.22		2.13	2.29
	total					**160.5**
10	**rcc work**					
	Slab (10.44-8.23)		10.44	8.23	0.11	9.45
	lintel (W)					0.09
	lintel (D)					0.24
	Total					**9.78**

Table-36 Abstract Sheet of Primary Health Center

Sr no	Particular	Total (Q)	Rate	per	Amount
1	Excavation	61.01	90	m^3	5490.9
2	PCC	20.33	3000	m^3	60990
3	Brick work Up to Plinth	28.28	900	m^3	254.52
4	Earth filling	5.45	110	m^3	599.5
5	Brick work in s.s	57.11	3600	m^3	205596
6	RCC work	9.78	4000	m^3	39120
7	Plaster 12mm	459.9	150	m^2	68983
8	Flooring	74.79	700	m^2	52353
9	DPC	17.88	90	m^2	1609.2
Total Cost					**434996.12/-**

13.1.6 Feast of Water

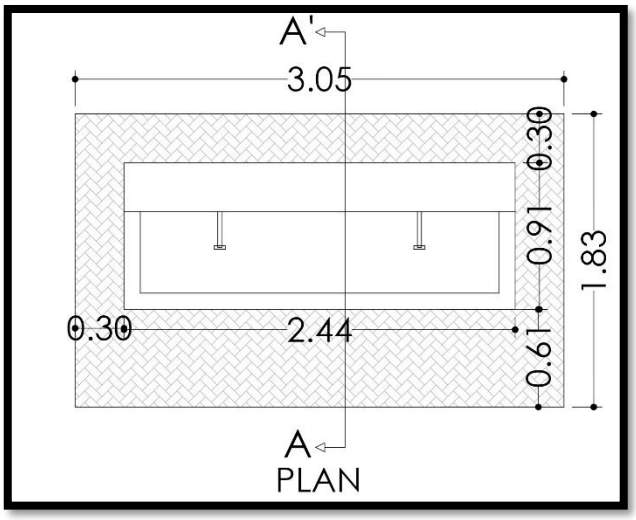


Fig.88 Plan of Feast of Water

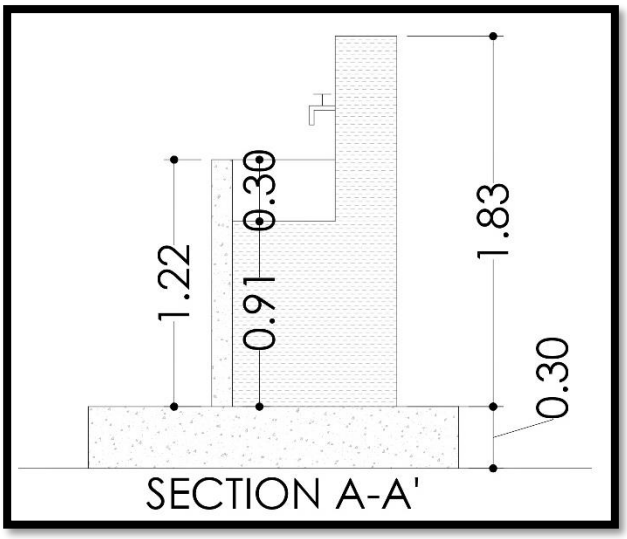


Fig.89 Section of Feast of Water

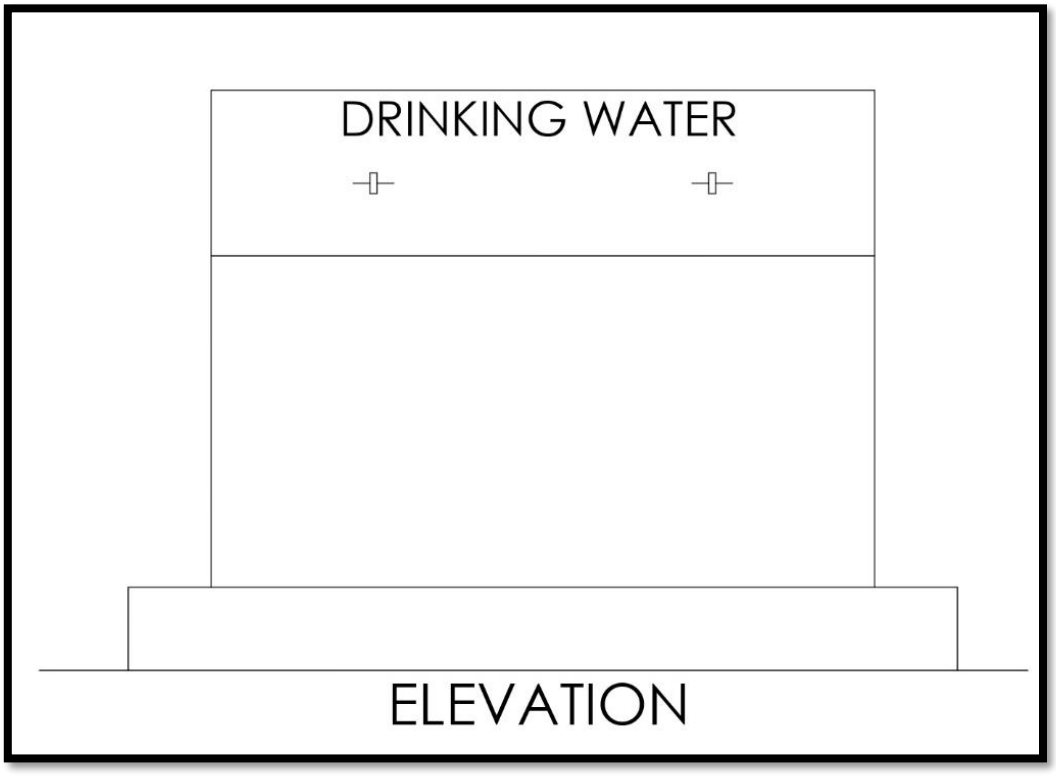


Fig.90 Elevation of Feast of Water

Table-37 Estimation of Feast of Water

SR NO	Description	count	length (m)	Width (m)	Height (m)	total Quantity (m3)
1	**pcc**		**9.76**	**1.83**	**0.3**	**5.35**
2	**flooring**		**3.05**	**1.83**		**5.58**
3	**DPC**		**3.05**	**1.83**		**5.58**
4	**brick work in super structure**		3.66	0.23	1.22	1.02
	deduction		1.98	0.38	0.91	0.68
	Door		2.44	0.3	1.83	1.33
	Total Brick Work					**3.03**
5	**plaster work cm (1:4)**					
	Room 1	2	3.66		1.22	8.92
		2		3.04	1.83	11.12
	Total					**20.04**

Table-38 Abstract Sheet of Feast of Water

Sr no	Particular	Total (Q)	Rate	per	Amount
1	PCC	5.35	3000	m^3	16050
2	Brick work in s.s	3.03	3600	m^3	10908
3	Plaster 12mm	20.04	150	m^2	3006
4	Flooring	5.58	700	m^2	3906
5	DPC	5.58	90	m^2	502.2
6	pipes and Fittings				2000
Total Cost					**36372.2/-**

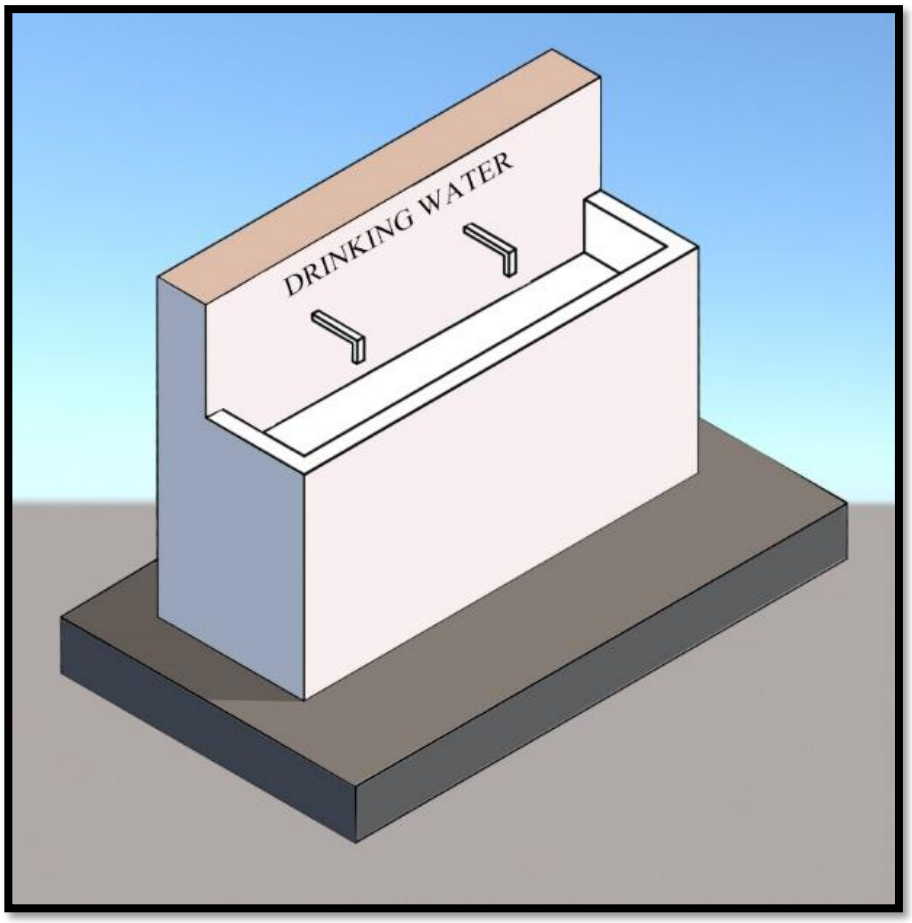


Fig.91 3D View of Feast of Water

13.2 Reason for Students Recommending this Design

1) Post Office:

Post offices are found in every city, town, and village. A post office is a very important place. It charges a nominal amount for carrying our letters and parcels from one place to the other. It helps us keep in touch with our friends and relatives, who stay in far off places. In our village the nearest post office is almost 7-10 km away from village.

2) Primary Health Center:

Primary Health Centre (PHCs), sometimes referred to as public health Centers, are state-owned rural health care facilities in India. They are essentially single-physician clinics usually with facilities for minor surgeries. In our village there is Primary health center, but the building where PHC situated they paying rent for that building.

3) Medical Store:

In our village there is no government operated medical store.

4) Cyber café:

To the community and passersby, the benefits of the internet café are to put users in touch with the global market and happenings in the world. The internet is also important these days to communication. Finally, the internet café is another economic benefit to the community. In Palod village most of house holders are poor. so, for education purpose we gave design of cyber café.

5) Public toilet:

In Palod village the public toilet is in very poor condition like there is no chance of Renovation therefor we gave that design.

6) Feast of Water:

Feast of water is a heritage structure category. And in Palod Village the hand pump not in working condition. There for we gave this design.

13.3 About designs Suggestions / Benefit of the villagers

Creating this design and using all this utilities, Life of villagers will be change. They will be independent and development of their whole life will be happen. They will contribute in development of nation. People will live their life more comfortable. Student of their village will be educated and they will help other in future.

Chapter 14: Technical Options with Case Studies

14.1 Civil Engineering

14.1.1 Advanced Earthquake Resistant:

Earthquake-resistant or aseismic structures are designed to protect buildings to some or greater extent from earthquakes. While no structure can be entirely immune to damage from earthquakes, the goal of earthquake-resistant construction is to erect structures that fare better during Seismic activity than their conventional counterparts. According to building codes, earthquake-resistant structures are intended to withstand the largest earthquake of a certain probability that is likely to occur at their location. This means the loss of life should be minimized by preventing collapse of the buildings for rare earthquakes while the loss of the functionality should be limited for more frequent ones.

To combat earthquake destruction, the only method available to ancient architects was to build their landmark structures to last, often by making them excessively stiff and strong.

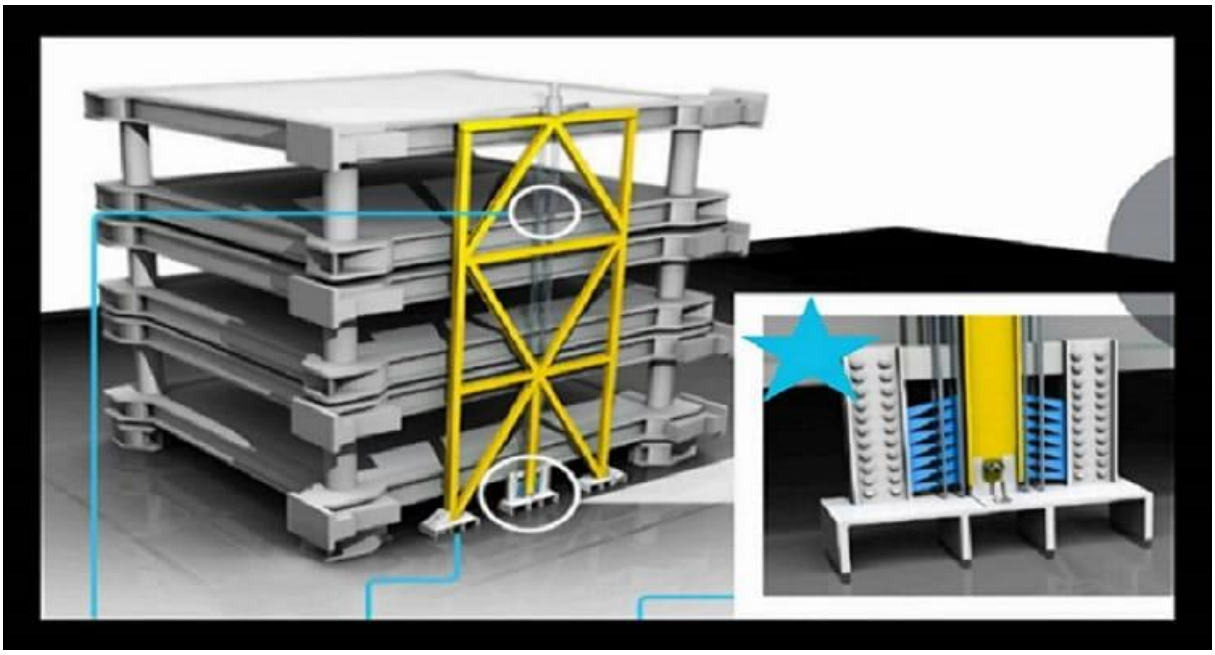


Fig.92 Advance Earthquake Resistant

Currently, there are several design philosophies in earthquake engineering, making use of experimental results, computer simulations and observations from past earthquakes to offer the required performance for the seismic threat at the site of interest. These range from appropriately sizing the structure to be strong and ductile enough to survive the shaking with an acceptable damage, to equipping it with base isolation or using structural vibration control technologies to minimize any forces and deformations. While the former is the method typically applied in most earthquake-resistant structures, important facilities, landmarks and cultural heritage buildings use the more advanced (and expensive) techniques of isolation or control to survive strong shaking with minimal damage. Examples of such applications are the Cathedral of Our Lady of the Angels and the Acropolis Museum.

14.1.2 Seismic Retrofitting of Buildings:

The purpose of retrofitting for earthquakes is to keep your home from being displaced from its foundation—making the building safer and less prone to major structural damage during an earthquake

Seismic retrofitting is the modification of existing structures to make them more resistant to seismic activity, ground motion, or soil failure due to earthquakes. With better understanding of seismic demand on structures and with our recent experiences with large earthquakes near urban centers, the need of seismic retrofitting is well acknowledged. Prior to the introduction of modern seismic codes in the late 1960s for developed countries (US, Japan etc.) and late 1970s for many other parts of the world (Turkey, China etc.), many structures were designed without adequate detailing and reinforcement for seismic protection. In view of the imminent problem, various research work has been carried out. State-of-the-art technical guidelines for seismic assessment, retrofit and rehabilitation have been published around the world – such as the ASCE-SEI 41 and the New Zealand Society for Earthquake Engineering (NZSEE)'s guidelines. These codes must be regularly updated; the 1994 Northridge earthquake brought to light the brittleness of welded steel frames.

Fig.93 Seismic retrofitting of Buildings

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

14.1.3 Advance Practices in Construction field in Modern Material, Techniques and Equipment's

The construction industry is repeatedly criticized for being inefficient and slow to innovate. The basic methods of construction, techniques and technologies have changed little since Roman times. But the application of innovation in the construction industry is not straight forward.

Every construction project is different, every site is a singular prototype, construction works are located in different places, and involve the constant movement of personnel and machinery. In addition, the weather and other factors can prevent the application of previous experience effectively.

The term 'advanced construction technology' covers a wide range of modern techniques and practices that encompass the latest developments in materials technology, design procedures, quantity surveying, facilities management, services, structural analysis and design, and management studies.

Incorporating advanced construction technology into practice can increase levels of quality, efficiency, safety, sustainability and value for money. However, there is often a conflict between traditional industry methods and innovative new practices, and this is often blamed for the relatively slow rate of technology transfer within the industry.

The adoption of advanced construction technology requires an appropriate design, commitment from the whole project team, suitable procurement strategies, good quality control, appropriate training and careful commissioning.

Building construction methods have experienced significant facelift in recent times with innovative technologies being harnessed optimally for improving the qualitative index of buildings.

This has spelled considerable advantages for end users like us who can remain immune from recurrent expenses on repairs and other incidental building-related jobs. Construction lead time has also been reduced and building costs have been rationalized.

This post takes you through 8 techniques that have given the much-needed fillip to the most primitive human pursuit that still exists i.e. construction.

1) 3D Volumetric Construction

Using this modular construction technology, 3D units are produced in controlled factory settings using needful construction and building materials.

Finished units are transported to site in various modules, basic structural blocks or final touched up units with all amenities installed, for assembly. Blocks can be erected rapidly at site and properties of concrete like fire retardant, sound resistivity, thermal mass etc. are retained.

Fig.94 3D Volumetric Construction

2) Precast Flat Panel Modules

These are primarily wall and floor modules which are manufactured away from the actual site and then transported to site for erection. Load bearing components like decorative cladding and insulation panels can also be produced.

Also called cross-wall construction, the technology has gained momentum due to seamless adherence to specifications and ease as well as swiftness of construction.

Fig.95 Precast Flat Panel Modules

3) Tunnel Formwork System

With this tunnel technique, construction is paced up for cellular structures of repetitive patterns through the building of monolithic walls or units in a single operation per day.

Expeditious work is achieved by deploying formwork and readily mixed concrete with the convenience and agility of factory conditions. Formworks in tunnel form are stacked and used at the site with cranes.

Fig.96 Tunnel Formwork System

4) Flat Slabbing Technology

This technique utilizes the simplicity of contemporary formwork for quickly building flat slabs to facilitate easy and swift placing of horizontal amenities and for partitioning.

Maximization of pre-fabricated services occurs as services can be carried out in an uninterrupted manner in zones underneath the floor slabs.

Every top-notch building Construction Company is using the same as internal layouts can be conveniently modified for accommodating alterations at a later date. Further, reinforcement needed is lesser which cuts down labor costs significantly.

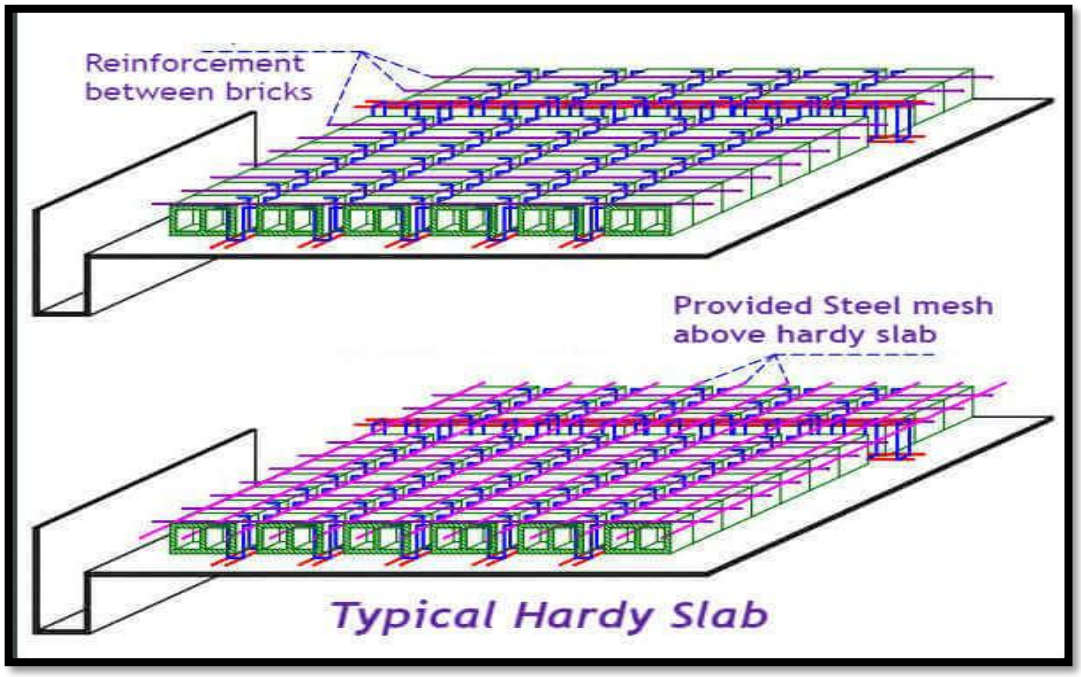


Fig.97 Flat Slabbing Technology

5) Pre-cast Foundation Technique

Foundations can be built swiftly with precast concrete units which are produced in a factory and are high on quality quotient. Strength is imparted to foundation related building construction materials through interconnected concrete piles.

This technique allows construction work to progress even in inclement weather and minimizes excavation activity.

Fig.98 Pre-Cast Foundation Technique

6) Hybrid Concrete Building Technique

This technique expedites construction turnaround time by blending the advantages of concrete pre-casting with the in-situ building. Quality improves, whereas the cost of construction plummets.

Hybrid concrete structures are easy to build, competitive in nature and perform consistently.

Fig.99 Hybrid Concrete Building Technique

7) Thin Joint Masonry Technique

Utilization of this technique leads to the reduction of the quantum of mortar applied by slashing it depth from 10mm to lesser than 3mm. Consequently, mortar can be laid swiftly with enhanced productivity on the longer wall panels.

With large sized concrete blocks, higher construction efficiency along with significant cost reduction can be achieved. Within a single day, the number of mortar courses laid is higher as curing of mortar takes place quickly without compromising on bonding strength resulting in the elimination of floating problem.

Fig.100 Thin Joint Masonry Technique

8) Insulating Concrete Formwork (ICF) Technique

ICF technique employs polystyrene blocks that feature twin walls and can be rapidly put together for creating building wall formwork. The formwork is then pumped in with high quality, ready mixed, factory-made concrete.

The building construction process becomes fool-proof and the resultant structure has a high level of sound and thermal insulation.

Fig.101 Insulting Concrete Formwork (ICF) Technique

14.1.4 Engineering Aspects of Soil mechanics - Environmental Impact Assessment

Soil mechanics is a branch of soil physics and applied mechanics that describes the behavior of soils. It differs from fluid mechanics and solid mechanics in the sense that soils consist of a heterogeneous mixture of fluids (usually air and water) and particles (usually clay, silt, sand, and gravel) but soil may also contain organic solids and other matter. Along with rock mechanics, soil mechanics provides the theoretical basis for analysis in geotechnical engineering, a sub discipline of civil engineering, and engineering geology, a sub discipline of geology.

Soil mechanics is used to analyze the deformations of and flow of fluids within natural and man-made structures that are supported on or made of soil, or structures that are buried in soils. Example applications are building and bridge foundations, retaining walls, dams, and buried pipeline systems. Principles of soil mechanics are also used in related disciplines such as geophysical engineering, coastal engineering, agricultural engineering, hydrology and soil physics.

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

UNEP defines Environmental Impact Assessment (EIA) as a tool used to identify the environmental, social and economic impacts of a project prior to decision-making. It aims to predict environmental impacts at an early stage in project planning and design, find ways and means to reduce adverse impacts, shape projects to suit the local environment and present the predictions and options to decision-makers.

Environment Impact Assessment in India is statutorily backed by the Environment Protection Act, 1986 which contains various provisions on EIA methodology and process.

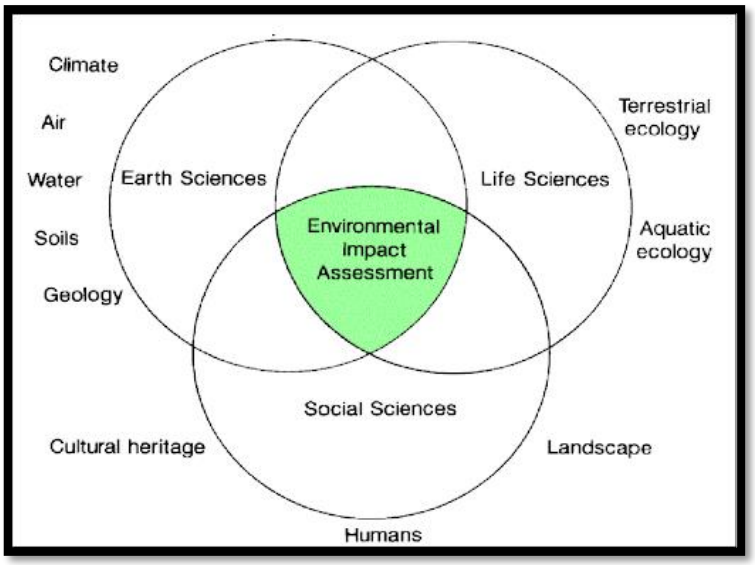


Fig.102 environment impact assessment (EIA) policy 2020

14.1.5 Water Supply-Sewerage System-Waste Water- Sustainable development techniques

Wastewater treatment is a process used to remove contaminants from wastewater and convert it into an effluent that can be returned to the water cycle. Once returned to the water cycle, the effluent creates an acceptable impact on the environment or is reused for various purposes (called water reclamation). The treatment process takes place in a wastewater treatment plant. There are several kinds of wastewater which are treated at the appropriate type of wastewater treatment plant. For domestic wastewater (also called municipal wastewater or sewage), the treatment plant is called a sewage treatment plant. For industrial wastewater, treatment either takes place in a separate industrial wastewater treatment plant, or in a sewage treatment plant (usually after some form of pre-treatment). Further types of wastewater treatment plants include agricultural wastewater treatment plants and leachate treatment plants.

Processes commonly used include phase separation (such as sedimentation), biological and chemical processes (such as oxidation) or polishing. The main by-product from wastewater treatment plants is a type of sludge which is usually treated in the same or another wastewater treatment plant. Biogas can be another by-product if anaerobic treatment processes are used.

Some wastewater may be highly treated and reused as reclaimed water. The main purpose of wastewater treatment is for the treated wastewater to be able to be disposed or reused safely. However, before it is treated, the options for disposal or reuse must be considered so the correct treatment process is used on the wastewater.

The term "wastewater treatment" is in the literature often used to mean "sewage treatment". Strictly speaking, wastewater treatment is broader than sewage treatment.

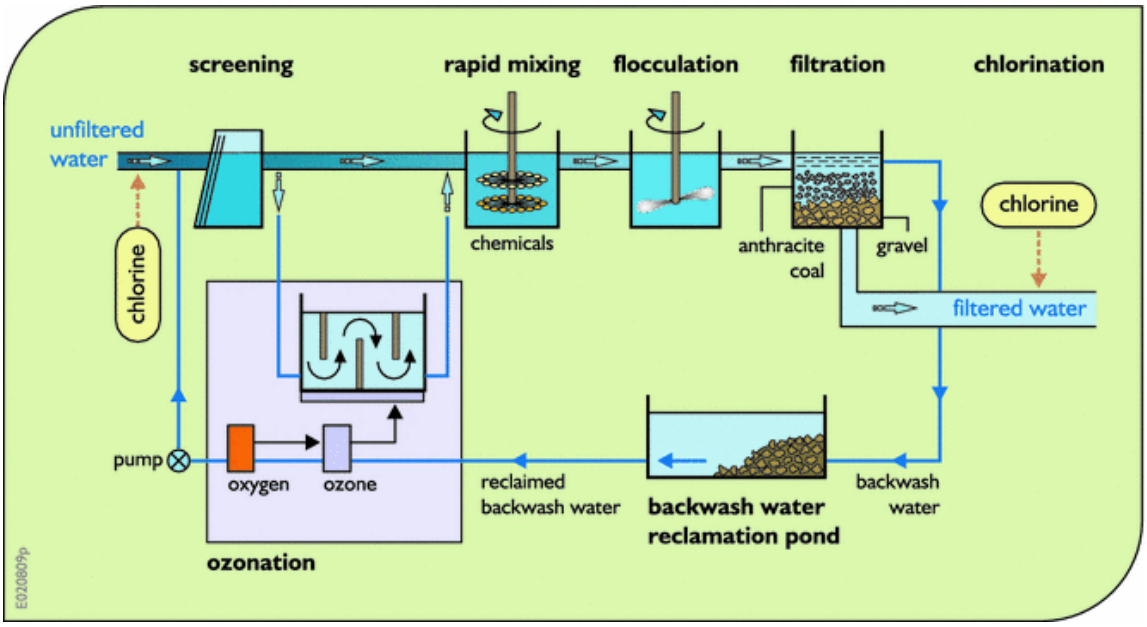


Fig.103 Water Treatment Plant Layout

Chapter 15: Smart and/or Sustainable features of Chapter 8 & 13 designs, Impact on society.

Table- 39 Design and Time

Sr. No.	Design Name	Period	Amount Expenditure	Benefit
8.1.1	Bus stand	Immediately	73000/-	For Waiting the bus and rest
8.1.2	Garden	Long term	266000/-	For recreational activity
8.1.3	Library	Immediately	318513/-	For reading and study
8.1.4	Community hall	Long term	1306342/-	Group Activity, Social support
8.1.5	Skill development center	Within 1 Year	340459/-	For development of student
8.1.6	Village gate	Immediately	27155/-	For esthetics of village
13.1.1	Post office	Within 1 Year	164418/-	Convenience for mail
13.1.2	Medical store	Within 1 Year	181760/-	For medicines
13.1.3	Cyber café	Immediately	360356/-	For internet connectivity
13.1.4	Public toilet	Immediately	231282	For clean village
13.1.5	Primary Health Center	Long term	460195/-	For health of villagers
13.1.6	Feast of water	Immediately	32367/-	For drinking water

Chapter 16: Survey by Interviewing with Talati or Sarpanch.

Gujarat Technological University, Ahmedabad, Gujarat

Vishwakarma Yojana: Phase VIII
Survey with Interviewing

SURVEY BY INTERVIEWING WITH TALATI AND/OR SARPANCH

Vishwakarma Yojana: Phase VIII

ALLOCATED VILLAGE SURVEY

An approach towards "Rurbanisation for Village Development"

CHAPTER- 16

Sr.	Questions	Yes/No	Remarks
1	What are the sources of income in village?	Yes	FARming
2	What are the chances of employment in village?	No	Near C.B.D
3	What are the special technical facilities in village?	Yes	Street Light, Drainage
4	Is any debt on village dwellers?	No	
5	Are village people getting agricultural help?	No	
6	Is women health awareness Program organized in village?	No	
7	Are women having opportunity to work and income?	Yes	Sewing Machine
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.	No	
18	Is village improvement is observed in comparative scenario from past to present?	Yes	Road Network
19	Is any unavoidable difficulty village people are facing? Any natural calamity is there?	No	
20	Life Living standard of girls and women is appreciated and uplifted in village?	Yes	For education

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

તલાટી (કમ) મંત્રી
પરબારે ગ્રામ પંચાયત,
તા.માંગરોલ, જી.સુરત

Chapter 17: Irrigation / Agriculture Activates and Agro Industry, Alternate Technics and Solution

Irrigation Technology

India where rain doesn't come regularly or when growing water-hungry crops, farmers are forced to get creative. Irrigation uses groundwater, surface water, and water delivered directly to farms to hydrate thirsty plants.

Evapotranspiration and wind are issues farmers face when trying to get water to plants while avoiding waste. General access to water and a diminished supply are also struggles for farmers in many parts of the country.

There are multiple ways to irrigate. Research has backed numerous effective application strategies, but each farmer has their own preference and budget.

DRIP IRRIGATION: WATER TO THE ROOTS

One approach to getting plants the moisture they need is by sending water directly to the roots with a drip irrigation system or a subsurface drip irrigation system. A drip system is made up of hoses with holes throughout that pump water directly to plant roots within the soil. While this irrigation method is more expensive, farmers see a reduction in water applied. Drip can also be beneficial to oddly shaped or sloped fields.

Fig.104 Drip Irrigation

Sprinkler Irrigation

An **Irrigation sprinkler** (also known as a **water sprinkler** or simply a **sprinkler**) is a device used to irrigate agricultural crops, lawns, landscapes and other areas. They are also used for cooling and for the control of airborne dust, Sprinkler irrigation is the method of applying water in a controlled manner in way similar to rainfall. The water is distributed through a network that may consist of pumps, valves, pipes, and sprinklers. Irrigation sprinklers can be used for residential, industrial, and agricultural usage. It is useful on uneven land where sufficient water is not available. It is useful for sandy soil. The perpendicular pipes, having rotating nozzles on top,

are joined to the main pipeline at regular intervals of time. When water is allowed to flow through the main pipe under pressure with the help of pump it, escapes from the rotating nozzles. It gets sprinkled on the crop.

Fig.105 Sprinkler Irrigation

Subsurface textile irrigation

Subsurface Textile Irrigation (SSTI) is a technology designed specifically for sub irrigation in all soil textures from desert sands to heavy clays. A typical subsurface textile irrigation system has an impermeable base layer (usually polyethylene or polypropylene), a drip line running along that base, a layer of geotextile on top of the drip line and, finally, a narrow impermeable layer on top of the geotextile (see diagram). Unlike standard drip irrigation, the spacing of emitters in the drip pipe is not critical as the geotextile moves the water along the fabric up to 2 m from the dripper. The impermeable layer effectively creates an artificial water table.

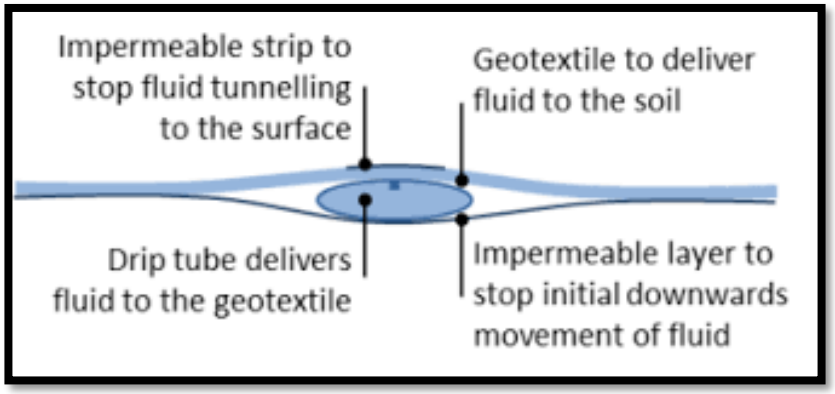


Fig.106 Subsurface Textile Irrigation)

Chapter 18: Social Activities – Any Activates Planned by Students

Respected ma'am

We hereby Swapnil Rana and Dharmik Rajput mark and apology for not visiting Palod village for social activities in current project work DPR, Part-II Due to Covid-19. As the second wave of novel corona virus was more fatal, we couldn't make it to visit the village. We tried many times to contest the village authority but the second wave of covid-19 spread in village much more times as expected. Due to this the gram panchayat decided to not let outsider enter in the village.

We planned to went school and do some kind of interactions but due to COVID-19, schools are shut downed. And they also didn't allow us to meet any body and social gatherings in village. Though, hope you understand our situation. We thank you for your invaluable support.

Chapter 19: Palod Village SAGY Questionnaire

SAANSAD ADARSH GRAM YOJANA (SAGY) Baseline Household Survey Questionnaire

Village: PALOD Gram Panchayat: PALOD Ward No.: ____

Block: ____ District: SURAT

State: Gujarat L S Constituency: MANDROL

1. Family Identity and Size

Name of Head of Household	MAHEDRABHAI LALJIBHAI CHAUHAN							Male/ ~~Female~~	M
SECC Survey ID		Family Size	3	Over 18	3	6 to 18	–	Under 6	–

2. Category & Entitlement Details (Tick as appropriate)

Social Category[1]		Life Insurance	1. All Adults ✓ 2. Some Adults ✗ 3. None ✗	AABY	1. Yes 2. No	Kisan Credit Card	~~Yes~~ / No
Poverty Status Year[2]	1. BPL ✓ 2. APL	Health Insurance	1. All Adults ✓ 2. Some Adults ✗ 3. None ✗	RSBY	1. Yes ✓ 2. No	MGNREGS Job Card Number	
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]
MAHEDRABHAI CHAUHAN	56	M	N	Y	10th	Y	Y	N
DAHABEN CHAUHAN	49	F	N	Y	12th	Y	Y	N
ROSHNI CHAUHAN	24	F	N	N	Nursing	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

4. Children below 6 years

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

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

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

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

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

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

SAANSAD ADARSH GRAM YOJANA (SAGY) Baseline Household Survey Questionnaire

5. Hand washing

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

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

7. Do members take Regular Physical Exercise

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

8. Consumption of Tobacco

	Smoking	Chewing
Adults	NO	
Children	NO	

9. House & Homestead Data

Own House: Yes / ~~No~~	No. of Rooms: 3
Type: Kutcha / Semi Pucca / Pucca ✓	
Toilet: Private / Community / Open Defecation	
Drainage linked to House: Covered / Open / None	
Waste Collection System	Door Step / Common Point / No Collection System ✓
Homestead Land: Yes / ~~No~~	Kitchen Garden : Yes / ~~No~~
Compost Pit: Individual/ Group/ None ✓	Biogas Plant: Individual/ Group/ None ✓

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

Source of Water		Distance
Piped Water at Home	Yes / ~~No~~	1.6 Km
Community Water Tap	Yes / ~~No~~	0.5 Km
Hand Pump (~~Public~~ / Private)	Yes / ~~No~~	
Open Well(~~Public~~ / Private)	Yes / ~~No~~	
Other (mention):		

11. Source of Lighting and Power

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

12. Landholding (Acres)

1. Total	3	2. Cultivable Area	3
3. Irrigated Area	0	4. Uncultivable Area	0

13. Principal Occupations in the Household

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

14. Migration Status
Does any member of the household migrate for Work: ~~Yes~~ / No. If Yes Entire Year / Seasonal
Does anyone below 18 years migrate for work: X/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~~/ Bore~~well~~/~~Other~~	
Drip or Sprinkler Irrigation: ~~Drip~~ /~~Sprinkler~~ / None	

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

Name	Unit	Quantity
Sugar Cane	Kg	2000
Sugar Cane	Kg	1500
Sugar Cane	Kg	3000

17. Livestock Numbers

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

18. What games do Children Play
Cricket , Running
Hide & Seek

19. Do children play musical instrument (mention)
NO

Schedule Filled By RAJPUT Dharmesh
Principal Respondent GAHEDRABHAI CHAUHAN
Date of Survey: 21-6-2021

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: PALOD

b. Block: _____

c. District: SURAT

d. State: GUJARAT

e. Lok Sabha Constituency: MANGROL

f. Number of Wards in the Gram Panchayat: _____

g. Number of Villages in the Gram Panchayat: 1

h. Names of Villages: PALOD

Demographic Information

Number of Households 1821 Total Population 7098 Male 4606 Female 3092

SC HHs 190 ST HHs 732 OBC HHs 489 Other HHs 410

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	N	
b.	Nearest Primary Health Centre (PHC)	Y	
c.	Nearest Community Health Centre (CHC)	N	7 km (Kim)
d.	Nearest Post Office	N	4.8 km (Kim SUB Post office)
e.	Nearest Bank Branch (Any)	Y	
f.	Nearest Bank with CBS Facility	Y	
g.	Nearest ATM	Y	
h.	Nearest Primary School	Y	
i.	Nearest Middle School	Y	
j.	Nearest Secondary School	Y	
k.	Nearest Higher Secondary School / +2 College	Y	
l.	Nearest Graduate College	N	5.5 km (Kim - Dhamnar)
m	Nearest ITI / Polytechnic Centre	N	5.5 km (Kim)
n	Kisan Seva Kendra	N	7 km (Kim)

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	0.0 km (kim)
p	Nearest Agro Service Centre	NO	13.0 km (KOSAMBA)
p	MSP based Government Procurement Centre	NO	11 km (KOSAMBA)
q	Milk Cooperative /Collection Centre	NO	5.1. km (kim)
r	Veterinary Care Centre	NO	5.6 km (kim)
s	Ayurveda Centre	NO	4.4 km (kim)
t	E – Seva Kendra	NO	4.0 km (kim)
u	Bus Stop	NO	0.5 km (kim Chok DE)
v	Railway Station	NO	4.2 km (kim)
w	Library	NO	5.5 km (kim - SMT)
x	Common Service Centre		

IV. Sports Facilities in the Gram Panchayat

a. Number of Play Grounds in the GP: Total 2 Public 1 Private 1

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

V. Education, ICDS

a. Number of Angan Wadi Centres: 4

b. Number of villages without Angan Wadi Centres –

Names of such villages: _____

c. Schools (Number)

Primary Private: 4 Primary Govt.: 2

Middle Private: 4 Middle Govt.: 1

Secondary Private: 2 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)	✓					at PALOD village	
b.	Kerosene	✓					at PALOD village	
c.	Other (mention)							

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	PALOD VILLAGE	
b.	Hand Pump Coverage in Villages:	Covered ✓ / Not Covered	PALOD VILLAGE	
c.	Coverage under Covered Drains:	Covered ✓(70.1.) / Not Covered ✓(30.1.)	70.1. of Covered under Drains	
d.	Coverage under Open Drains:	Covered 60.1. / Not Covered 40.1.	60.1. of Covered Open Drains	
e.	Villages with Household Electricity Connection (Numbers)	Connected 1821 / Not Connected		

VIII. Land and Irrigation

	Private Land	Area in Acres		Common Land	Area in Acres		Irrigation Structure	No.
a.	Cultivable Land	173	d.	Pasture / Grazing Land	49	g.	Check Dam	0
b.	Irrigated Land	202	e.	Forests/ Plantations	778	h.	Wells/Bore Wells	3
c.	Un-irrigated Land	197	f.	Other Common Land	827	i	Tanks /Ponds	3

[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)	213
b)	Number of Households receiving pension (old age, widow, disability)	189
c)	Number of eligible Households who are not receiving pension	24
d)	Number of Households eligible for Ration Card	1821
e)	Number of eligible HHs having ration cards	1821
f)	Number of households covered under RSBY (Rashtriya Swasthya Bima Yojana)	1332
g)	Number of HHs covered under AABY (Aam Aadmi Bima Yojana)	0
h)	Number of active Job Card holders under MGNREGA	998
i)	Number of Job Card holders who completed 100 days of work during 2013-14	783
j)	Number of shops selling alcohol	0
k)	Number of BPL families	1432
l)	Number of landless households	0
m)	Number of IAY beneficiaries	0
n)	Number of FRA[2] beneficiaries	0
o)	Number of Community Sanitary Complexes	0
p)	Number of Households headed by single women	144
q)	Number of Households headed by physically handicapped persons	31
r)	Total number of Persons with Disability in the village	3
s)	Number of SHGs	0
t)	Number of active SHGs	0
u)	Number of SHG Federations	0
v)	Number of Youth Clubs	0
w)	Number of Bharat Nirman Volunteers	0

Name and Signature of Surveyor and Respondent'

Surveyor	PRI Respondent (Preferably Gram Panchayat Chairperson)	Official Respondent (Preferably seniormost Government official in the Gram Panchayat)	Date of Survey
	તલાટી કમ મંત્રી (જુનિયર) પાલોદ ગ્રામ પંચાયત, તા.માંગરોલ, જી.સુરત	Mahendrabhai	21-6-2021

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

SAANSAD ADARSH GRAM YOJANA (SAGY) Village Details Survey Questionnaire

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

I. Basic Information

a. Village: PALOD

b. Ward Number: _____

c. Gram Panchayat: PALOD

d. Block: _____

e. District: SURAT

f. State: GUJARAT

g. Lok Sabha Constituency: CHANGROL

h. Number of Habitations / ~~Hamlets~~ in the Gram Panchayat: 1821 Household

i. Names of Habitations / ~~Hamlets~~:

1821 HouseHold

Demographic Information

Number of Households 1821 Total Population 7698 Male 4606 Female 3092

SC HHs 190 ST HHs 732 OBC HHs 489 Other HHs 410

II. Access to Infrastructure/Amenities etc.

i.	Access to Infrastructure / Facilities / Services	Located in the Village Yes (Y)/No(N)	If located elsewhere (N), distance in kms from the village
a.	Nearest Primary School	Y	
b.	Nearest Middle School	Y	
c.	Nearest Secondary School	Y	
d.	Kisan Seva Kendra	N	7 km (Kim)
e.	Milk Cooperative /Collection Centre	NO	5.2 km (Kim)
g.	Health Sub Centre	Y	
h.	Bank	Y	
i	ATM	Y	
j	Bus Stop	N	0.5 km (Kim - Chowdi)
k.	Railway Station	N	4.2 km (Kim)

[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	N	5.5 km (Kim)
m	Common Service Centre	N	
n	Veterinary Care Centre	N	

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: _____

iii. Drinking Water Facilities

a.Piped Water Supply Coverage to Habitations: 1532 *(1-All 2-None 3-Some)*

If 3 mention the name of the habitations not covered: 289 household

b.Hand Pump Coverage in Habitations: _____ *(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: 70 % *(1-All 2-None 3-Some)*

If 3 mention the name of the habitations not covered: 30 %

b. Coverage under Open Drains: 60 % *(1-All 2-None 3-Some)*

If 3 mention the name of the habitations not covered: 40 %

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

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

v. Coverage of Habitations under Electrification

a. Coverage under Household Connections: *(1-All 2-None 3-Some)*

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

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

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

vi. Sports Facilities in the Village

a.Number of Play Grounds in the Village (minimum size 200 square meters): 2

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

vii. Education, ICDS

a. Number of Anganwadi Centres: 4

c. Schools (Number)

Primary Private: 4 Primary Govt.: 2

Middle Private: 4 Middle Govt.: 1

Secondary Private: 2 Secondary Govt.: 1

Higher Secondary Private: 1 Higher Secondary Govt: 0

2

SAANSAD ADARSH GRAM YOJANA (SAGY) Village Details Survey Questionnaire

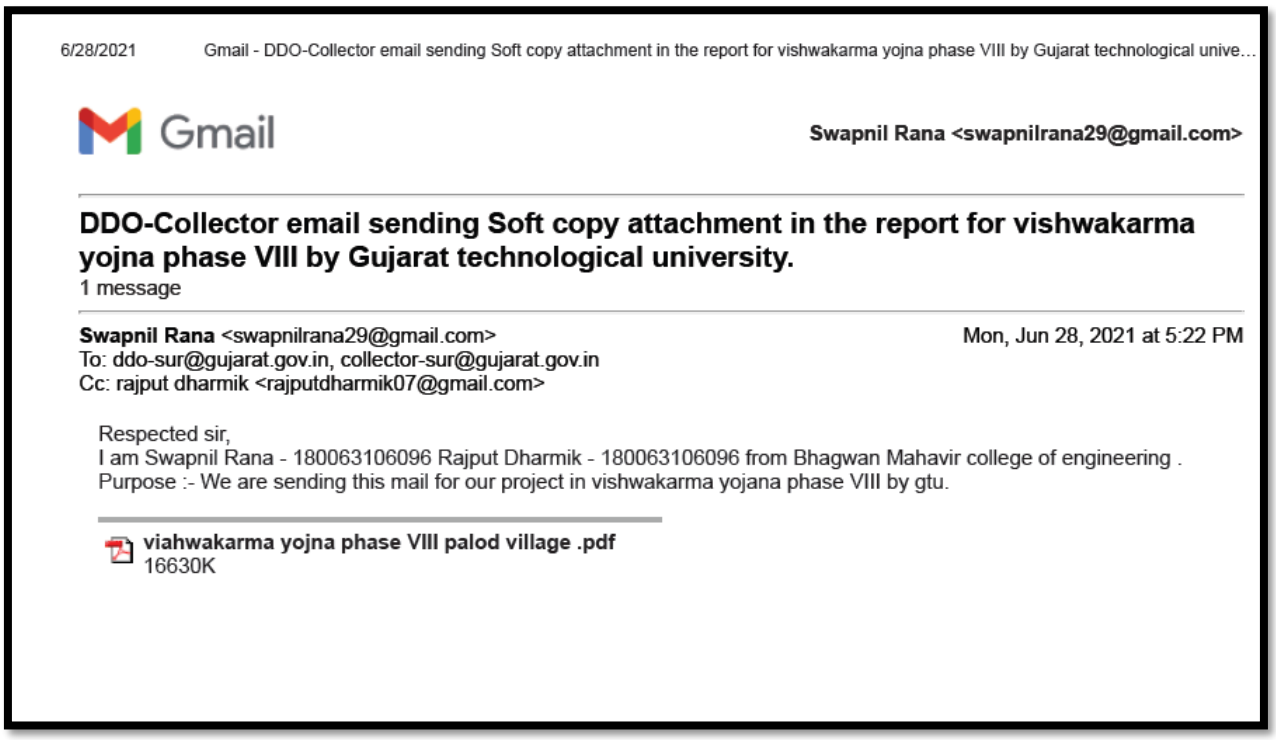
viii. Land Category		Area in Acres		Land Category	Area in Acres		Irrigation Structure	No.
a.	Cultivable Land	173	d.	Pasture / Grazing Land	49	g.	Check Dam	0
b.	Irrigated Land	202	e.	Forests/ Plnatations	778	h.	Wells/Bore Wells	3
c.	Un-irrigated Land	197	f.	Other Common Land	827	I	Tanks /Ponds	3

ix. Entitlement Related Parameters		
1	Number of active Job Card holders under MGNREGA	998
2	Number of active Job Card holders who have completed 100 days of work	783
3	Number of shops selling alcohol	0
4	Number of BPL families	1432
5	Number of landless households	0
6	Number of IAY beneficiaries	0
7	Number of FRA beneficiaries	0
8	Number of common sanitation complexes	0
9	Number of SHGs	0
10	Number of active SHGs	0
11	Existence of SHG Federation in the Village (Yes / No)	0
12	Number of Youth Clubs	0
13	Number of Bharat Nirman Volunteers	0

Name and Signature of Surveyor and Respondent'

Surveyor	PRI Respondent (Preferably a ward member from a ward that is fully or partially covered under the Village)	Official Respondent (Preferably seniormost Government official in the Gram Panchayat)	Date of Survey
	તલાટી કમ મંત્રી ગ્રામ પંચાયત, તા.માંગરોળ, જી.સુરત	Mahendrabhai	21-6-2021

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



6/28/2021 Gmail - DDO-Collector email sending Soft copy attachment in the report for vishwakarma yojna phase VIII by Gujarat technological unive...

Gmail

Swapnil Rana <swapnilrana29@gmail.com>

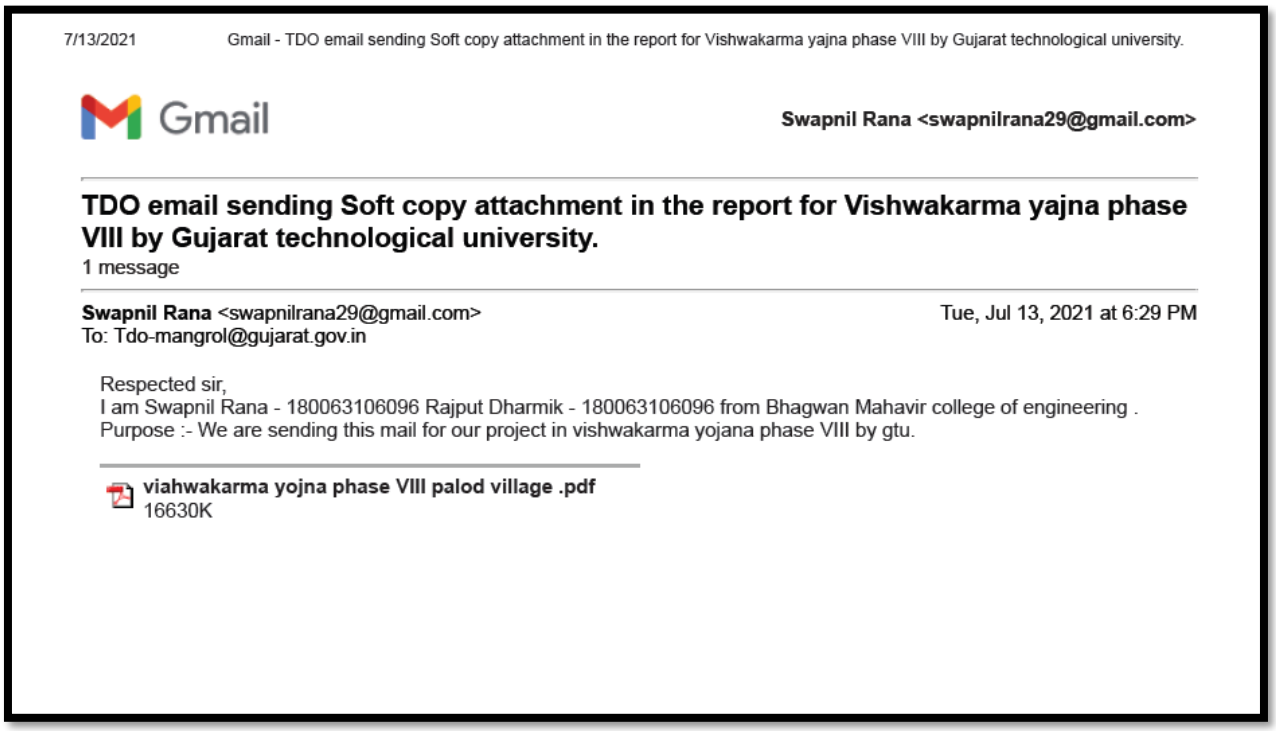
DDO-Collector email sending Soft copy attachment in the report for vishwakarma yojna phase VIII by Gujarat technological university.

1 message

Swapnil Rana <swapnilrana29@gmail.com> Mon, Jun 28, 2021 at 5:22 PM
To: ddo-sur@gujarat.gov.in, collector-sur@gujarat.gov.in
Cc: rajput dharmik <rajputdharmik07@gmail.com>

Respected sir,
I am Swapnil Rana - 180063106096 Rajput Dharmik - 180063106096 from Bhagwan Mahavir college of engineering .
Purpose :- We are sending this mail for our project in vishwakarma yojana phase VIII by gtu.

viahwakarma yojna phase VIII palod village .pdf
16630K



7/13/2021 Gmail - TDO email sending Soft copy attachment in the report for Vishwakarma yajna phase VIII by Gujarat technological university.

Gmail

Swapnil Rana <swapnilrana29@gmail.com>

TDO email sending Soft copy attachment in the report for Vishwakarma yajna phase VIII by Gujarat technological university.

1 message

Swapnil Rana <swapnilrana29@gmail.com> Tue, Jul 13, 2021 at 6:29 PM
To: Tdo-mangrol@gujarat.gov.in

Respected sir,
I am Swapnil Rana - 180063106096 Rajput Dharmik - 180063106096 from Bhagwan Mahavir college of engineering .
Purpose :- We are sending this mail for our project in vishwakarma yojana phase VIII by gtu.

viahwakarma yojna phase VIII palod village .pdf
16630K

Chapter 21: Comprehensive report for the entire village

We were allotted **Palod** village of **Mangrol** Taluka of **Surat** District. Palod village is located in Mangrol Tehsil of Surat district in Gujarat, India. It is situated 25 km away from sub-district headquarter Mangrol and 30 km away from district headquarter Surat. As per 2009 stats, Palod village is also a gram panchayat. The total geographical area of village is 315.28 hectares. Palod has a total population of 7,698 peoples. There are about 1821 houses in Palod village. Surat is the nearest town to Palod which is approximately 30 km away.

➢ Problem in Palod village

- Poverty.
- Unemployment.
- Inequality among people i.e. The upper caste people holds large lands and lower caste people have small lands or they work as a labor.
- Lower caste people holds Kuccha houses and facilities they received are less than that received by upper caste people.
- Lack of facilities like drinking water, Sewage disposal, Solid waste management etc.
- Unavailability of public transportation.
- Lack of awareness in people regarding Government Schemes Lack of health facilities.
- Lack of awareness in farmers regarding efficient methods in agriculture.
- Lack of education.

➢ Design Proposal

	DPR part -I		DPR Part-II	
SR NO	**Design name**	**Estimation cost**	**Design name**	**Estimation cost**
1	Bus Stand	73000/-	Post Office	164418/-
2	Garden	266000/-	Medical Store	181760/-
3	Library	318513/-	Cyber Café	360356/-
4	Community hall	1306342/-	Public toilet	231282
5	Skill development center	340459/-	Primary health center	460195/-
6	Village gate	27155/-	Feast of Water	32367/-

➢ 3D Drawings of Part II Designs