DETAIL PROJECT REPORT

VISHWAKARMA YOJNA:
PHASE XI

(DEGREE)

AN APPROACH TOWARDS RURBANISATION

Pasuniya Village Gandhinagar District

PREPARED BY

STUDENT NAME	BRANCH NAME	ENROLLMENT NO
SAHIL PATEL	CIVIL	200320106036
NIPURNANKSINH CHAVDA	CIVIL	210320106545

COLLEGE NAME & LOGO

NODAL OFFICERS NAME

PROF. JANKI ADHVARYU

Academic Year: 2023-24

GUJARAT TECHNOLOGICAL UNIVERSITY
Chandkheda, Ahmedabad – 382424 Gujarat

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CERTIFICATE

This is to certify that the following students

Diploma Engineering successfully submitted

Detail Project Report for,

VILLAGE PASUNIYA

DISTRICT DEHGAM

Under

Vishwakarma Yojana: PHASE-XI

in partial fulfillment of the project offered by

GUJARAT TECHNOLOGICAL UNIVERSITY, CHANDKHEDA

during the academic year 2023-24.

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

STUDENT NAME	BRANCH NAME	ENROLLMENT NO
SAHIL PATEL	CIVIL	200320106036
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Date of Report Submission:	**___/___/2023-24**
Principal Name and Signature:	**Dr./Prof.**
VY-Nodal Officer Name and Signature:	**Dr./Prof. JANKI ADHVARYU**
Internal(Evaluator) Guide Name and Signature:	**Dr./Prof.**
College Name:	
College Stamp:	

ABSTRACT

Gujarat Technological University is allocated important and prestigious project of Vishwakarma Yojna by the Government of Gujarat for the year 2023-24. The program has already completed 10 years and this is 11th year.

Vishwakarma Yojana Scheme is an initiative of the **Government of Gujarat** for the systematic development of rural areas or villages by identifying the problems in villages and solving them by a methodical development approach. This scheme has been proposed to provide the benefit of real work experience to engineering students and apply their technical knowledge from a practical point of view especially in the planning, development, and managing the infrastructure facilities of rural areas.

It is in direction to the **Rurbanization** which means the development of rural areas as urban area. i.e. urbanization and providing urban amenities in rural souls. Under this scheme, students meet all the stakeholders in a village and survey the existing facilities then they re-imagine & re-design the social, renewable and physical infrastructures of village like water supply, electricity, essential services, road network, etc. and by that students can practice real world problems.

Vishwakarma Yojana scheme is one of the approaches to mitigate the migration from rural areas and to overcome the urban city pressure by developing a rural soul with urban amenities provision in rural areas itself. This scheme would provide a **'Design to Delivery'** solution for the development of villages in **'Rurban'** areas. This initiative of the Government of Gujarat was allotted as a pilot project to **Gujarat Technological University**.
For this project we have selected **Pasuniya** village of Dehgam Taluka of Gujarat District Gandhinagar. Pasuniya is one of those villages which is facing the problem of Road connectivity, Hospital, Higher education.

Our allotted village is **Pasuniya**. Pasuniya village is located 21 km away from the sub-district headquarter Dehgam and 43km away from the district headquarter Gandhinagar. The total geographical area of village is **295.48** hectares. Mother tongue is **Gujarati**. The main occupation of the village is **Agriculture**. As per 2011 census, the total population of the village is **852,** out of which male population is **436** while female population is **416**. Literacy rate of Pasuniya village is **66.55%** out of which **77.29%** males and **55.29%** females are literate. The village is divided by **Meswo** river which is called a **Nana Pasuniya** and **Mota Pasuniya**. The village has **primary** schools with basic amenities.

Key-words : *Rural soul, Sustainable development, Reduce Migration, Rapid development, Rurbanization*

ACKNOWLEDGEMENT

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

We express our deep gratitude to **Prof.(Dr.) Rajul K. Gajjar, Hon'ble Vice Chancellor, Gujarat Technological University-Ahmedabad**, for his encouragement and for giving us the project.

We also thank **Dr. K.N. Kher**, Registrar, Gujarat Technological University Ahmedabad, for supporting us.

We sincerely thank the **Commissioner of Technical Education, Gujarat State** for appreciating and acknowledging our work.

We express our sincere thanks to, **Dr. Jayesh Deshkar, Honorary Director of Vishwakarma Yojana.**

We express our sincere thanks to **DDO, TDO, Sarpanch, Talati, and staff members of Mahesana** District for providing us with requisite data whenever we approached them especially our thanks to all villagers and stakeholders for their support during the survey.

We are also thankful to **the principal sir** and **Prof. TUSHAR THAKKAR (HOD),** Civil Engineering of our college for their encouragement and support in completing this project work.

An act of gratitude is expressed to our **Prof. JANKI ADHVARYU (Civil)** for their invaluable guidance, constant inspiration, and active involvement in our project work. We are also thankful to all the experts who provided us with their valuable guidance during the work.

We express our sincere thanks to, the **Core Committee member of the 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; **Prof. Mridul Seth;** and **Ms. Darshna Chauhan** for providing us with technical knowledge of this project work.

We, therefore, take this opportunity for this Project work expressing our deep gratitude and sincere thanks for her cooperation in producing this project work in its present form.

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

GUJARAT TECHNOLOGICAL UNIVERSITY

CERTIFICATE FOR COMPLETION OF ALL ACTIVITIES AT ONLINE PROJECT PORTAL

B.E. SEMESTER VIII, ACADEMIC YEAR 2023-2024

Date of certificate generation : 29 April 2024 (14:35:01)

This is to certify that, ***Patel Sahil Dasharathbhai*** (Enrolment Number - 200320106036) working on project entitled with ***Vishwakarma Yojna*** from ***Civil Engineering*** department of ***L. J. INSTITUTE OF ENGINEERING AND TECHNOLOGY, AHMEDABAD*** had submitted following details at online project portal.

Internship Project Report	**Completed**

Name of Student : Patel Sahil Dasharathbhai

Name of Guide : Miss. JANKI MUKESHBHAI ADHVARYU

H.O.D. SIGN.

Signature of Student :

*Signature of Guide :

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Internship Project Report	**Completed**

Name of Student : Chavada Nipurnanksinh Kalpeshsinh

Name of Guide : Miss. JANKI MUKESHBHAI ADHVARYU

H.O.D. SIGN.

Signature of Student :

*Signature of Guide :

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CHAPTER:1 – INTRODUCTION AND LITERATURE REVIEW OF RURAL URBAN VILLAGE

1.1 Introduction : Urbanization

- Urbanization, the process by which large numbers of people become permanently concentrated in relatively small areas, forming cities. This process involves a population shift from rural to urban areas and the ways which societies adapt to this change. Before understanding urbanization it is necessary to know the following terms.

1.1.1 Urban Area

- "Urban area" can refer to towns, cities, and suburbs. An urban area includes the city itself, as well as the surrounding areas. It is the region surrounding a city. It 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. urban areas have non-agricultural jobs.

Fig. 1.1 Urban Area

1.1.2 Rural Area

- Rural area or countryside is a geographic area that is located outside towns and cities. It has a very low population density. In rural areas, agriculture is the chief source of livelihood along with fishing, cottage industries, pottery etc.
- Rural development has traditionally centered on the exploitation of land-intensive natural resources such as agriculture and forestry.

Fig. 1.2 Rural Area

1.1.3 Causes of Urbanization

- **Natural increase of population:** It occurs when the number of births exceeds the number of deaths.
- **Rural to urban migration:** It is driven by **pull factors** (that attract people to urban areas) and **push factors** (that drive people away from the rural areas).

- Employment opportunities, educational institutions and urban lifestyle are the main **pull factors.**
- Poor living conditions, lack of educational and economic opportunities and poor health care facilities are the main **push factors.**

1.1.4 Urbanization Prospects:

- The **World Urbanization Prospects, 2018** report
- produced by the **UN Department of Economic and Social Affairs (UN DESA)** notes that future increases in the size of the world's urban population are expected to be highly concentrated in just a few countries.
- Together, India, China and Nigeria will account for 35% of the projected growth of the world's urban population between 2018 and 2050.
- By 2050, it is projected that India will have added 416 million urban dwellers.
- Currently, India's population stood at **1210 million in 2011,** with an urbanisation level of **31.1% (Census of India 2011).**

1.2 State wise scenario of Urban Population:

- **Number of Persons Living in Urban Areas:**
- Over 75% of the urban population of the country is in 10 States: Maharashtra, Uttar Pradesh, Tamil Nadu, West Bengal, Andhra Pradesh, Gujarat, Karnataka, Madhya Pradesh, Rajasthan, and Kerala.
- Maharashtra leads with 50.8 million persons (13.5% of the total urban population of the country).
- Uttar Pradesh accounts for about 44.4 million, followed by Tamil Nadu at 34.9 million.
- High-Scoring States: Goa is the most urbanised State with 62.2% urban population.
- Tamil Nadu, Kerala, Maharashtra, and
- Gujarat have attained over 40% urbanisation.

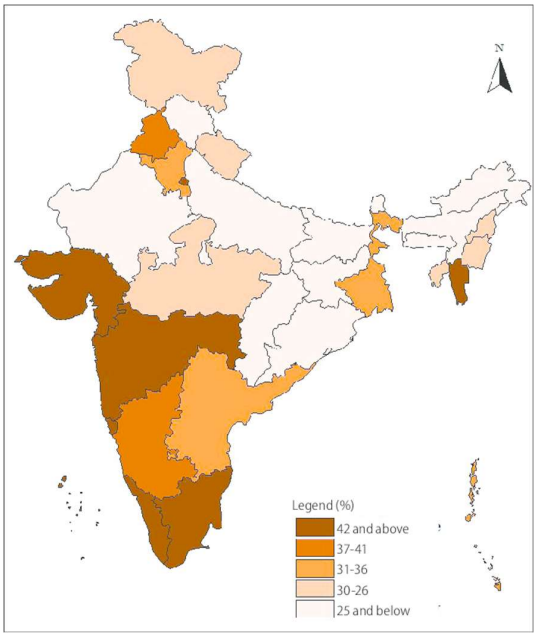


Fig. 1.3 Urban Population

- Among the North-Eastern States, Mizoram is the most urbanised with 51.5% urban population.
- Low-Scoring States: Bihar, Odisha, Assam, and Uttar Pradesh continue to be at a lower level of urbanisation than the national average.

- Union Territories: The NCT of Delhi and the UT of Chandigarh are most urbanized with 97.5% and 97.25% urban population respectively, followed by Daman and Diu and Lakshadweep (both above 75% urbanisation).

1.3 Rurbanization

- **Rurban = Rural + Urban**
- Rurbanization **in villages refers to the process of integrating urban features and amenities into rural areas.**

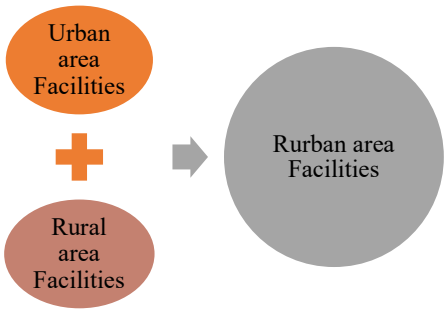


Fig. 1.5 Rurbanization

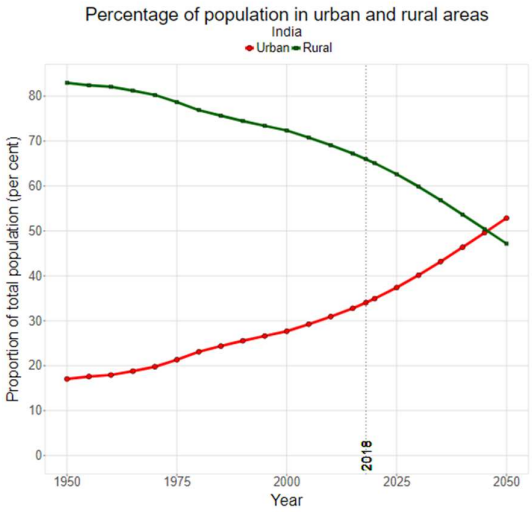


Fig. 1.4 Population In Urban and Rural

- Here are some key aspects of rurbanization:
  - Integrated Development
  - Agriculture and Beyond
  - Quality of Life
  - Environmental Sustainability
  - Preserving Culture

- **Integrated Development:**
  - Rurbanization aims to create self-sustaining communities that combine the best of both rural and urban lifestyles.
  - It involves upgrading infrastructure, improving services, and fostering economic diversification while preserving local culture.

- **Agriculture and Beyond:**

1. Villages engage in integrated farming, combining traditional agriculture with modern practices.
2. Cottage industries, handicrafts, and small businesses coexist alongside farming activities.

- **Quality of Life:**

➢ Access to clean water, electricity, healthcare, and education is enhanced.
➢ Digital connectivity enables villagers to access information and markets.

- **Environmental Sustainability:**

  ➢ Villages adopt eco-friendly practices such as rainwater harvesting and waste management.
  ➢ Green spaces contribute to a healthier environment.

- **Preserving Culture:**

  ➢ Rurbanization emphasizes heritage preservation, showcasing indigenous crafts, music, and festivals.

1.4 History of Indian villages:

➢ The history of Indian villages, in fact, goes back to the Vedic era when the kingdoms comprised a major city and several villages. The villages were a cluster of houses and the surrounding land was cultivated by the villagers. The concept of villages in India flourished during the late Vedic era or during the reign of the Mauryas. The Maurya Dynasty was founded by Chandragupta Maurya during 323 BC and the villages were a predominant part of the Indian social system at that time. The villages were administered in a structured way, through a Gram Sabha during the Maurya Dynasty. The religious and cultural scenario of the villages was primarily dominated by the Hindus, especially the Brahmans. The caste system of Hinduism was strictly maintained during that period.

1.4.1 Structure of the Indian Village System

➢ However, the social structure of the Indian villages changed drastically during the reign of Muslim emperors like the Mughals or Afghans. This period in the history of Indian villages saw the villagers being influenced by Islam and the equality for religious practice, among all parts of the society was also maintained.
➢ During the British period, the Indian villagers got influenced by the Christian religious culture and a rich diversity of several religions was seen during that period. The social structure in the Indian villages also changed accordingly with the change of religious and cultural scenarios.

1.4.2 Political Scenario of the Indian Village System :

➢ The political scenario in the Indian villages has witnessed interesting changes from the ancient period to medieval period to the contemporary period. In the ancient period, the

Indian villagers were not inclined to politics and they blindly followed the rules of their kings.

- This tradition of political unawareness among the Indian villagers continued during the medieval period also. However, the Indian villagers started to be politically aware during the British period.
- In the contemporary period, the Indian villagers are very much inclined to political activities and they also take active part in all kinds of political decision making process in independent India.
- The political scenario of the Indian villages has probably seen the most significant changes, so far. While the Indian villagers were politically unaware for most parts of the ancient and medieval period, they have now become very much politically active. They are actively participating in the democratic political system of India by casting their votes during general elections.
- They also actively take part in the local governance system in India. The history of Indian villages has also seen drastic changes in transport system. The Indian villagers can now avail almost all the modern means of transport.

1.4.3 Transport System of the Indian Village System :

- Walking was the only way of transport in ancient Indian villages. There was no alternative transport system for the villagers, until the vehicles like Bullock Carts, or Palkis, or Horse Carts, Boats, Ships, etc. came into existence.
- These continued to be the principal means of transportation for a long period, till the end of the medieval period. However, the British rulers brought about a huge change in the transport system of Indian villages by introducing the busses, trains and other automobiles.

1.4.4 Education System of the Indian Village System :

- The educational scenario has also seen significant changes in the history of Indian villages. In the ancient period, the Indian villagers used to be taught the Vedic and other Hindu scriptures by the Brahmans.
- These scriptures were the only means of education in the ancient period. The women also used to get education during that period. However, the scenario changed during the medieval period, when the Muslim rulers put on restrictions on women education.
- The Indian villagers also started to learn about the Buddhist, Jains or Muslim scriptures during that period. The British era brought about a sea of change in the entire educational system of Indian villages.
- They introduced English language to the Indian people and the missionaries started to propagate Christianity, through the numerous schools established by the British rulers.
- The British rulers also introduced different streams of education like medical education, engineering education, technological education, etc. This period witnessed a diverse educational scenario in the Indian villages.

1.4.5 Agriculture during the Indian Village System :

- The history of Indian villages presents an interesting occupation scenario, which has changed with time. Agriculture and farming were the prominent occupations of the Indian villagers during the ancient period and the other occupations included doing clerical jobs in king's courts or working as soldiers for the emperors. The Indian villagers remained dependent on agriculture for several centuries till the British period. However, the scenario changed during the British rule with the introduction of several industries.
- The villagers started to move to the urban areas, leaving their traditional occupation of agriculture. They joined different industrial organisations as workers or labourers and found alternate occupation. However, agriculture is still the principal occupation in most villages in India.

Fig. 1.6 Agriculture scenario

- The scope of getting proper education has increased in the modern times and the literacy rate in the Indian villages has also increased remarkably. The women in Indian villages are also getting enough scope to get educated in the contemporary period.
- The scope for getting into different occupations has increased for the Indian villagers in the contemporary period as well. Many villagers have changed their occupation from agriculture to industry and have moved to the rural areas for getting into alternate occupation.
- Apart from all these factors, the general condition of the Indian villages has improved a lot in the contemporary period. The electricity has already reached in most of the Indian villages and the villagers are enjoying the other modern technological advancements, as well.
- As a whole, it can be said that most of the changes that occurred in the history of Indian villages have yielded positive results for the villagers. They have also aided India to become more and more civilised and developed.

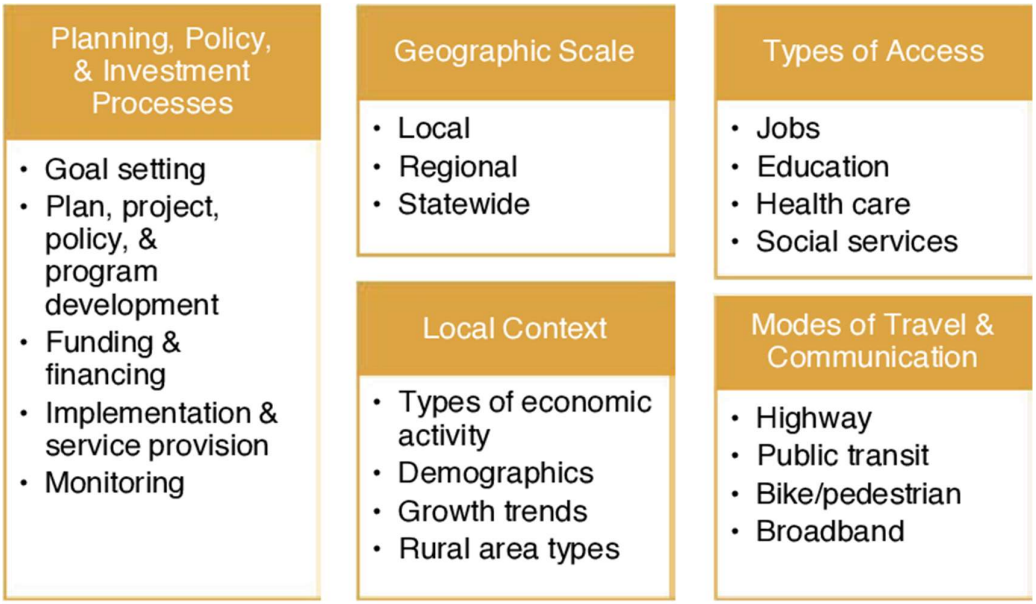
1.5 Importance of the village development :

- The development of villages is of paramount importance for several reasons:
- **Economic Growth:** Villages are often the backbone of a country's econo. Agriculture, which predominantly takes place in rural areas, provides food and raw materials for urban centre's. Developing villages can lead to increased agricultural productivity, better income for farmers, and reduced poverty in rural areas.
- **Poverty Alleviation:** Many of the world's poorest people live in villages. Rural development can alleviate poverty by creating job opportunities, improving access to basic services, and boosting income levels in rural households.
- **Rural-Urban Migration:** Adequate village development can help reduce the pressure on urban areas due to rural-urban migration. When rural areas offer better living standards,

employment opportunities, and access to education and healthcare, people are less inclined to move to already crowded cities.

- **Infrastructure and Services:** Villages need infrastructure and services such as roads, schools, healthcare facilities, and clean drinking water. Developing these services in rural areas is essential to improve the quality of life and bridge the urban-rural divide.

Table 1 Village development



- **Preservation of Culture:** Many rural areas hold rich cultural traditions and heritage. Supporting village development can help preserve these cultural aspects, ensuring they are not lost in the process of urbanization.
- **Environmental Conservation:** Sustainable village development can help protect the environment.
- Promoting eco-friendly agricultural practices, afforestation, and waste management in villages can have a positive impact on the environment.
- **Education and Healthcare:** Access to education and healthcare is often limited in rural areas. Village development should prioritize the establishment of schools, vocational training centers, and healthcare facilities to improve the well-being of residents.
- **Gender Equality:** Village development can play a significant role in promoting gender equality by empowering women in rural areas through education, vocational training, and opportunities for entrepreneurship.

1 **Social Harmony:** Rural development can enhance social cohesion and harmony by addressing issues related to land distribution, access to resources, and basic services. It can reduce social inequalities and conflicts within communities.

2 **Agricultural Innovation:** Village development can promote innovation in agriculture, such as the adoption of modern farming techniques and technologies. This can lead to increased agricultural productivity and food security.

3 **Tourism and Cultural Exchange:** Developing villages can make them attractive destinations for tourists, promoting cultural exchange and boosting the local econo through tourism-related activities.

4 **Resource Management:** Sustainable practices in village development, including water resource management and waste disposal, are essential to ensure the long-term well-being of both rural and urban areas.

- In summary, the development of villages is crucial not only for the well-being of rural populations but also for the overall economic, social, and environmental health of a nation. It can help reduce poverty, bridge urban-rural gaps, and create a more balanced and sustainable society.

1.6 Gujarat population growth :

- As per the report of the Technical Group by the National Commission, the population of Gujarat is projected to be 72,653,000, or 72.65 million, or 7.27 crore, as of July 1, 2024. Gujarat is the eighth-most populous state in India. Gujarat's population is projected to reach 8.15 crore in 2036.
- The size of the population of Gujarat is equivalent to that of Thailand, the 20th most populous country in the world. Only one country in South America, two in Europe, two in North America, and four in Africa have more people than Gujarat.
- In 2024, the sex ratio of the total population in Gujarat will be 110.591 males per 100 females. There are 38,154,000, or 38.15 million, or 3.81 crore, males and 34,500,000, or 34.5 million, or 3.45 crore, females in Gujarat. Gujarat has 3,654,000, or 3.65 million, more males than females.
- Gujarat accounts for 5.17 percent of the Indian population, which is the highest since 1901. The population growth rate in 2024 is projected at 1.20%, the 4th highest among states. Gujarat will add 859,000 more people in 2024.
- According to the Census of India 2011, the population of the state of Gujarat was 6.04 crore, increasing from 5.07 crore in 2001. There were 31,491,260 males and 28,948,432 females, with a sex ratio of 108.784 males per 100 females. The percentage of decadal growth during 2001–2011 was 19.28%, 3.38% lower than the 1991–2001 period. The population of Gujarat increased by 9.77 million during the decade 2001–2011.
- The population of Gujarat, which at the turn of the twentieth century was around 9.09 million, increased by approximately eight times in 123 years to reach 72.65 million in 2024. In 1901, Gujarat was the 11th most populous state, but as of 2024, it has overtaken three states: Andhra Pradesh, Karnataka, and Odisha.

Table 2 Religion wise Population by percent

Religion	Count	Percentage
Hindu	5,35,33,988	88.57%
Muslim	58,46,761	9.67%
Jain	5,79,654	0.96%
Christian	3,16,178	0.52%
Sikh	58,246	0.1%
Religion not stated	57,902	0.1%

Buddhist	30,483	0.05%
Other religions and persuasions	16,480	0.03%

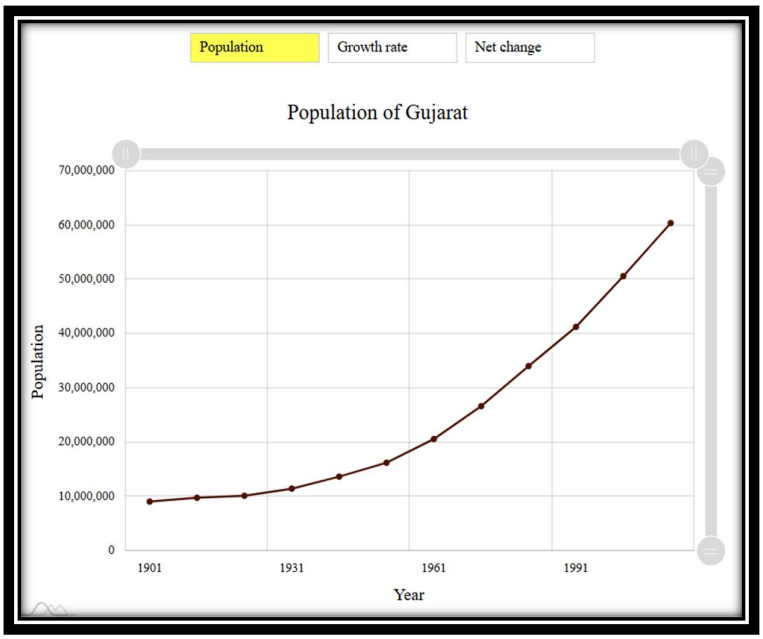


Fig. 1.7 Population of Gujarat

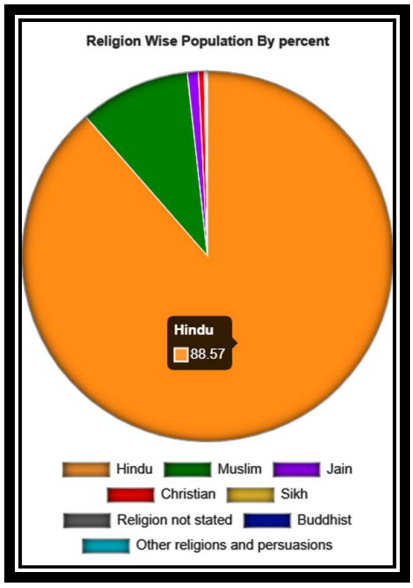


Fig. 1.8 Religion wise Population

- The Urban population of Gujarat State is 2.57 Cr (2,57,45,083), with 1.37 Cr (1,36,92,101) being males and 1.21 Cr (1,20,52,982) being females, making up 42.6% of the Gujarat total population, The sex ratio in urban population is 881 females for every 1000 males.

- The Rural population of Gujarat State is 3.47 Cr (3,46,94,609), with 1.78 Cr (1,77,99,159) being males and 1.69 Cr (1,68,95,450) being females, making up 57.4% of the Gujarat total population, The sex ratio in rural population is 950 females for every 1000 males.
- Gujarat State has a literacy rate of 78.03% which is higher than national average of 72.98%, The Male literacy rate of Gujarat State is 85.75 higher than national average of 80.88%, The Female literacy rate of Gujarat State is 69.68 higher than national average of 64.63%. In Gujarat State's urban areas, the literacy rate is approximately 86.31%, while in the rural regions of Gujarat State, it is around 71.71%.

Table 3 Literacy Rate

Category	Average Literacy Rate	Male Literacy Rate	Female Literacy Rate
Total Population	78.03	85.75	69.68
Urban Area	86.31	90.98	81.03
Rural Area	71.71	81.61	61.36

- Projected estimates indicate that Gujarat State's population in 2036 is expected to reach around 8.10 Cr (8,09,73,729), with a male population of 4.26 Cr (4,26,04,133) and a female population of 3.84 Cr (3,83,69,215). This reflects a total growth of 33.97% from Gujarat State's population in the 2011 census, with an average yearly growth rate of 1.36%.

Table 4 Gujarat - Estimated Population: Yearly Projections Up to 2036

Year	Estimated Population	Total Growth Since 2011	Annual Growth
2024	7.22 Cr (7,22,10,518)	19.48%	↑
2025	7.31 Cr (7,30,62,758)	20.89%	1.41 % ↑
2026	7.39 Cr (7,38,62,477)	22.21%	1.32 % ↑
2027	7.46 Cr (7,46,24,538)	23.47%	1.26 % ↑
2028	7.54 Cr (7,53,86,600)	24.73%	1.26 % ↑
2029	7.61 Cr (7,61,48,661)	25.99%	1.26 % ↑
2030	7.69 Cr (7,69,10,723)	27.25%	1.26 % ↑

2031	7.76 Cr (7,76,19,271)	28.42%	1.17 % ↑
2032	7.83 Cr (7,82,90,163)	29.53%	1.11 % ↑
2033	7.90 Cr (7,89,61,054)	30.64%	1.11 % ↑
2034	7.96 Cr (7,96,31,946)	31.75%	1.11 % ↑
2035	8.03 Cr (8,03,02,837)	32.86%	1.11 % ↑
2036	8.10 Cr (8,09,73,729)	33.97%	1.11 ↑

1.7 Rural Urban Village Development Issues - Concerns - Measures :

- Dedicated financial, manpower and managerial resources for the implementation of rural development programs are grossly inadequate.

- **Illiteracy percentage:** In India the percentage of illiteracy is alarming. Every five persons among ten in India are illiterate.

- **Basic Hygiene:** Sanitation is yet another problem, but one of the biggest, in India village (rural area).

- **Healthcare system:** The healthcare facility is very poor in India village due to some corrupted gov. and overburden of work on healthcare supply employ.

- **Poverty:** Due to bad policy by gov. and some corrupted people due to this reason Indian village people are get poor and now India has 3rd. largest country which population of 31 % people live in international poverty line.

- **Infrastructure:** India needs to work swiftly on its infrastructure towards better roads, and services like water, sanitation, etc. 6. Production Price: The price the farmers get for their produces less than in relation to the work they put in.

- **Various Measures for Rural Development:**
  - The main objective of rural development has been to remove poverty of the people and fill the widened gap between the rich and the poor.
  - Rural development which encompasses the entire gamut of improvement in the overall quality of life in the rural areas can be achieved through eradication of poverty in rural areas. Rural development is the national necessity and it has following measures:
  - Need to develop a rural area as of its culture, society, economy, digitalization and health.
  - We need to develop living slandered of rural people.
  - We need to develop education in rural youths, children and women.
  - We need to develop and empower human resource of their psychology, skill and other abilities.
  - We need to develop infrastructure facility of rural area in terms of sanitation, water and roads facility.

- We need to provide minimum facility to rural mass in terms of education, electricity, communication and network facility.
- We need to develop rural institutions like Panchayat, cooperatives, post, banking, and credit.
- We need to develop rural industries through the development of handicrafts, small scaled industries, village industries, rural crafts, cottage industries and other related economic operations in the rural sector.
- We need to restore uncultivated land, provide irrigation facilities and motivate farmers to adopt a new soil cultivation method.

1.8 Rural & Urban Development guidelines :

➢ An ideal village should have the following facilities:

❖ **Physical Facilities:**

- **Road facilities**: An ideal village must have good road facilities that the people can easily move from one place to other. The roads linking with the other nearby village or town or city must be provided. Dwelling Houses: The dwelling-house in an ideal village are very neat and clean. The dwellers of these houses look to the house sanitation and house- drainage. The houses have sufficient windows to let in light and air. All the houses are roofed by good tiles at least. Electricity: The electricity should be supplied 24 hours. The village should have good facilities of electricity because most of the work nowadays depend on electricity.

❖ **Social Facilities:**

- **Sanitation and Drainage:** An ideal village has good system of sanitation and drainage. Because filth and rubbish of the village should be regularly removed away into the compost pits. An ideal village has very good drains so that the dirty water of the village is properly drained away. Food and fooder: The villagers grow food for themselves and fodder for their cattle. They eat fresh and healthy food. They grow good grass for fodder and also leave sufficient land for pasture.

- **Drinking Water:** An ideal village should have good supply of drinking water. There are enough tubewells in an ideal village. There are separate ponds for men and cattle. Agriculture and Industry: People of an ideal village are good farmers and good artisans. They grow food crops, commercial crops and oil-seeds. They take up improved method of farming. They do all kinds of home industry including spinning and weaving. Educational Facilities: There are Primary schools, High schools and craft schools in an ideal village. Primary education is free and compulsory. Clinical Facilities: In an ideal village, there are clinical facilities for men and the domestic animals. Hence, there are dispensaries and veterinary dispensaries.

Fig. 1.9 Drinking water in village

- **Socio-Cultural Facilities:**
  - These includes facilities like playgrounds, library, gardens, lake, etc.

- **Sustainable Facilities:**
  - An ideal village should have facilities like biogas plant, solar systems, use of rain water harvesting system etc.
  - Sustainable Village Development Concept : Sustainable development is a organizing principle for sustaining finite resources necessary to provide for the needs of future generations of life on the planet. It is a process that envisions a desirable future state for human societies in which living conditions and resource-use continue to meet human needs without undermining the "integrity, stability and beauty" of natural biotic systems.

1.9 Other Projects / Schemes of Gujarat / Indian Government - For Rural Urban Village development :

- **Atal Bhujal Yojana (ATAL-JAL):** Under this scheme, groundwater storage will be carried out through sustainable groundwater management in water-stressed areas of North Gujarat (Included Kachchh). 7 districts, 34 talukas and 2201 villages of North Gujarat are covered under this scheme. The Government of India has allocated Rs.757.00 crore for Gujarat state for five years.

- **PMGSY :** The Pradhan Mantri Gram Sadak Yojana (PMGSY), was launched by the Govt. of India to provide connectivity to unconnected Habitations as part of a poverty reduction strategy. Govt. of India is endeavoring to set high and uniform technical and management standards and facilitating policy development and planning at State level in order to ensure sustainable management of the rural roads network.
- According to latest figures made available by the State Governments under a survey to identify Core Network as part of the PMGSY programme, about 1.67 lakh Unconnected Habitations are eligible for coverage under the programme. This involves construction of about 3.71 lakh km. of roads for New Connectivity and 3.68 lakh km.
- **SGSY :** The Ministry of Rural Development, Government of India has launched a new programme known as "Swarnjayanti Gram Swarozgar Yojana" (SGSY) by restructuring the existing schemes namely :

- Integrated Rural Development Programme (IRDP)
- Training of Rural Youth for Self Employment (TRYSEM)
- Development of Women & Children in Rural Areas (DWCRA)
- Supply of Improved Toolkits to Rural Artisans (SITRA)
- Ganga Kalyan Yojana (GKY)
- Million Wells Scheme (MWS)

- **Swachh Bharat Mission :** Swachh Bharat Mission (Gramin) (SBM-G), previously called Nirmal Bharat Abhiyan (NBA), is a community-led total sanitation program initiated by Government of India (GOI) and has been implemented in the State since 2004-05. It is a demand-driven and people- centered sanitation program. The Govt. of India and State Govt. share the funding pattern in the ratio of 75:25 approximately.
- **Pradhan Mantri Krishi Sinchayee Yojana :** Watershed Component : The main objective of the Integrated Watershed development programme is to restore the ecological balance by harnessing, conserving and developing degraded natural resources such as soil, vegetative cover and water. The process leads to prevention of soil run-off, regeneration of natural vegetation and recharge of the groundwater table. It enables multi- cropping and diverse ago based activities. This promotes sustainable livelihood option for the nearby population.

1.9.1 Other schemes for rural development by Gujarat Govt. :

- **Sardar Patel Awas Yojana :** For land less agricultural labours and village artisan living Below Poverty Line in rural areas of the State. Sardar Awas Vajahat, Rampun, dist. Vadodara Govt. has made strategic planning for solution of houses in the village. The poor has right to live new life and to turn to new culture as colony of poor population.

- **EGram Yojana at a glance :** The only state in India which has the infrastructure to provide E-services through computers to 13685 Gram Panchayats. The state government aims to transform every village panchayat office into a village secretariat (Gram Sachivalaya), as a single point contact for all government services.

- **Samras Gram Yojana :** It is a scheme introduced in Gujarat in 1994 and emphatically implemented since 2002, where the leader and members of village panchayats are chosen by consensus and not elected through elections.

- **Panchvati Yojana :** It aims at welfare of rural people of the State, to develop parks and gardens in the village with necessary facilities and implements of joy and amusement are easily assailable.

- **Tirth-Gram Yojana :** The Tirth Gram Yojana has been formulated to strengthen the goodwill amongst the people living in the rural areas of the state, to promote unity and help the overall development of the village.

- **Swachcha Gram Swasth Gram Yojana :** A new scheme has been introduced in 2007- 08 to ensure that village is properly cleaned, there may arise good spirit on cleanliness, level of cleaning as well as level of rural life may go high. Consequently financial assistance may be given for slavering and cleanliness, which may be used for preservation of cleanliness and to purchase sanitation implements. Inspired by this, the gram panchayat may be alert to make his village neat and clean.

1.10 Other Countries rural-village development procedure and policy :

1.10.1 Korea :

- The development in rural regions is driven in large measure by two inter-ministerial oversight committees, the Presidential Committee for Balanced National Development and the Prime Minister's Committee for Quality of Life. Together these two committees oversee myriad initiatives in support of economic development and to support the well-being of rural people, with the committee on Balanced National Development driving much of the economic agenda in these regions while the quality of life committee concentrates on service delivery and well-being in fishing and farming communities.

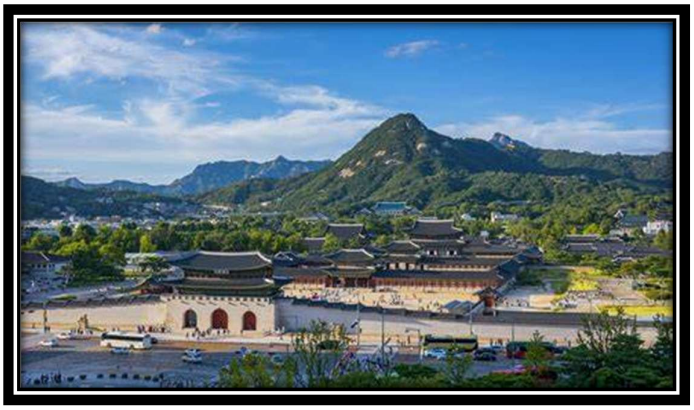


Fig. 1.10 Korean villages

- Economic development activities in rural regions fall within the mandate of several ministries, most specifically MAFRA in rural areas and MOLIT more broadly at the regional level, with oversight and co-ordination provided by the Presidential Committee on Balanced National Development (PCBND).
- The success of the country's development strategy in the latter half of the 20th century in building an advanced industrial economy has increased concentration in cities and particularly in and around Seoul, while rural communities have seen their populations age and fall. Consequently, the government has grown increasingly concerned about the inclusion of rural communities in the overall balanced development agenda. In an effort to revitalise rural places and reduce perceived disparities, rural development policy

focuses on two dimensions: economic development of rural regions and the well-being of rural communities. This section introduces the main policy instruments to support local growth opportunities and boost competitiveness in rural regions.

- The Handmi village showed successful village development programs in terms of cooperation between residents and local governments. This was striking in their program on agricultural product sales, the experience of program operations, the rural study program and the development of the restaurant / lodging facility operations that they started.

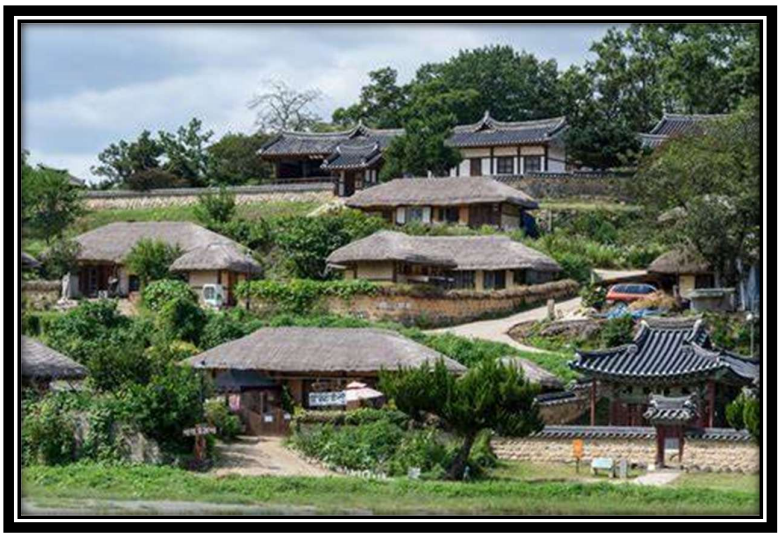


Fig. 1.11 Handmi village in Korea

- The 'Buraemi' village was successful in their various events and festivals for tourists and residents, development of brands for village agricultural products. They focused on capacity building and special experience programs for visitors and residents. There was a high level of enthusiasm among the village residents and a desire on their part to make small but significant changes. The villagers participated directly from the start and received public assistance, budget support or expert assistance for national projects subsequently, after demonstrating their interest and capabilities.
- In contrast to these mostly positive cases, the story of the Naju village development project was clearly unsatisfactory. This was mainly because the local residents saw a lack of autonomy for them as and when the projects progressed. There was also a greater dependence on the government as the lack of control and agency became a basis for increased financial dependence.

Fig. 1.12 Buraemi village in Korea

1.11 Civil- Infrastructure Concept :

- Civil infrastructure is the backbone of modern society, encompassing a vas vast array of physical assets and systems that support our daily lives. From roads and bridges to water supply and sewage systems, civil infrastructure plays a pivotal role in ensuring the functioning of communities and economies. In this 1000-word exploration, we will delve into the key aspects of civil infrastructure, its significance, challenges, and the future of this critical sector.

1.11.1 Historical Perspective:

- Civil infrastructure has a rich history dating back to ancient civilizations. The Romans, for example, are renowned for their advanced aqueducts, roads, and bridges that facilitated trade and transportation. Over the centuries, infrastructure has evolved in response to the changing needs of society. The Industrial Revolution saw the rise of railways and canals, transforming transportation and trade. Today, our infrastructure is a testament to centuries of innovation and engineering excellence.

1.11.2 Types of Civil Infrastructure:

- **Ground transportation:** This includes roads, bridges, tunnels, and railroads that facilitate the movement of vehicles and goods on land.

- **Air transportation:** Infrastructure related to air travel, such as airports, heliports, ground facilities, and air-traffic control systems.

- **Waterways and ports:** Infrastructure for inland waterways, shipping channels, terminals, dry docks, and sea ports that enable water transportation.

- **Inter-modal facilities:** Terminals that facilitate the transfer of goods and passengers between different modes of transportation, such as rail/airport terminals and truck/rail/port terminals.

  - **Mass transit:** Infrastructure for public transportation systems, including subways, bus transit, light rail, monorails, and platforms/stations.

  - **Pipelines:** Infrastructure for the transportation of natural gas and crude oil through pipeline networks.

Fig. 1.13 Civil Infrastructure

1.11.3 Water and Wastewater:

- **Water supply:** Infrastructure for water pumping stations, treatment plants, main water lines, wells, and mechanical/electric equipment to provide clean water to communities.

- **Structures:** Infrastructure like dams, diversion channels, levees, tunnels, and aqueducts used for water management and control.

- **Agricultural water distribution:** Infrastructure comprising canals, rivers, weirs, gates, and dikes that support the distribution of water for agricultural purposes.

- **Sewers:** Infrastructure for managing wastewater, including main sewer lines, septic tanks, treatment plants, and stormwater drains.

- **Stormwater drainage:** Infrastructure designed to handle stormwater runoff, such as roadside gutters and ditches, streams, and levees.

1.11.4 Waste Management:

- **Solid waste:** Infrastructure for the transport, disposal, treatment, and recycling of solid waste, including landfills, treatment plants, and recycling facilities.

- **Hazardous waste:** Infrastructure for the safe transport, storage, treatment, and disposal of hazardous waste, ensuring proper handling and security.

- **Nuclear waste:** Infrastructure for the transportation, storage, and security of nuclear waste materials to minimize environmental and public health risks.

Fig. 1.14 Waste management

1.11.5 Energy Production and Distribution:

- **Fossil fuel-based electric power production:** Infrastructure for power generation from gas, oil, and coal, including power plants and associated facilities.

- **Electric power distribution grid networks:** Infrastructure comprising high-voltage power transmission lines, substations, distribution systems, control centers, and service and maintenance facilities.
- **Gas pipelines:** Infrastructure for the transportation, storage, and distribution of natural gas, including pipeline networks, computer stations, and control centers.

- **Petroleum/oil production:** Infrastructure involved in the extraction of petroleum/oil, including pumping stations, separation plants, and road networks.

- **Petroleum/oil distribution:** Infrastructure for the transportation, storage, and distribution of petroleum products, such as marine and ground tanker terminals, pipelines, and storage tanks.

- **Nuclear power stations:** Infrastructure supporting nuclear power generation, including nuclear reactors, power-generation stations, waste disposal facilities, and emergency equipment.

- **Renewable energy and non-fossil fuels:** Infrastructure for solar power, wind power, hydroelectric power, and bio-fuels, including generation facilities and associated infrastructure.

1.11.6 Buildings:

A. **Public buildings:** Infrastructure for public facilities like schools, hospitals, government offices, police stations, fire stations, postal offices, prison systems, and parking structures.

B. **Other buildings and structures:** Infrastructure for residential, commercial, and office spaces, including public housing, utilities, swimming pools, and parking facilities.

C. **Multipurpose and sports complexes:** Infrastructure for venues like coliseums, amphitheaters, convention centers, and related facilities.

D. **Housing facilities:** Infrastructure for public and private housing, supporting residential communities.

E. **Industrial, manufacturing/warehouse, and supply chain facilities:** Infrastructure for industrial and manufacturing operations, warehouses, and supply chain logistics.

❖ **Recreation facilities:**

➢ **Parks and playgrounds:** Infrastructure for recreational spaces, including roads, parking areas, facilities, buildings, restrooms, ornamental fountains, swimming pools, and picnic areas.

➢ **Lake and water sports:** Infrastructure supporting lake-based activities, such as access roads, parking areas, picnic areas, and marinas.

- **Theme parks/casinos:** Infrastructure associated with theme parks and casinos, including access roads, buildings, restaurants, security facilities, and related structures.
- **Hospitals and public health facilities:** Infrastructure for healthcare facilities, both public and private, to provide medical services and support.

1.11.7 Communication:

- Infrastructure for communication includes telecommunications networks, fiber-optic cables, cellular towers, satellite communication systems, data centers, and other infrastructure that supports connectivity and information exchange.
- These types of infrastructure are crucial for the functioning of urban and rural areas, providing essential services, supporting economic activities, and enhancing the quality of life for communities.

1.12 Electrical- Infrastructure Concept :

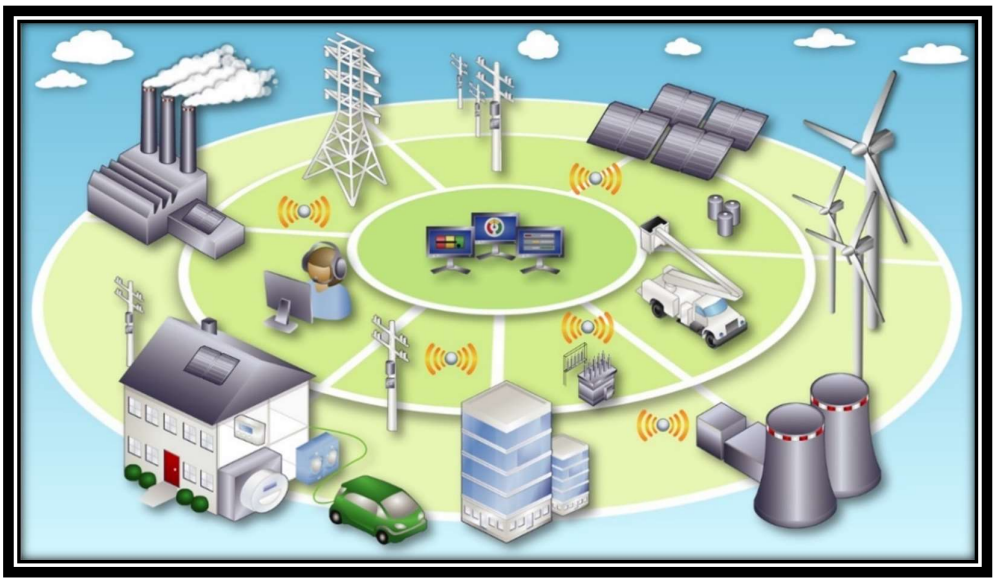


Fig.1.15 Electrical Infrastructure

- Electrical infrastructure refers to the networks of power generation, transmission, and distribution facilities that provide electricity to homes, businesses, and industries. It is composed of power plants, substations, transformers, transmission lines, and distribution lines that work together to deliver electrical energy to consumers.

- **Generation:** Power plants, whether they are fossil fuel-based, nuclear, renewable, or other sources, produce electricity.

- **Transmission**: High-voltage transmission lines transport electricity over long distances from power plants to substations.
- **Distribution:** Substations step down voltage and distribute electricity to homes, businesses, and industries through lower-voltage lines.
- **Grid Management:** Control centers monitor and manage the grid, ensuring a stable and reliable supply of electricity.
- **End-Use:** Electrical infrastructure also includes the wiring, outlets, switches, and devices within homes and buildings for consuming electricity.

CHAPTER:2 – MODEL (IDEAL) / SMART VILLAGE (VISITS) GUJARAT STATE

2.1 Concept & Indicators of a model village/Smart Village

- The concept of a Smart Village in India envisions transforming rural areas into self-sufficient, technologically advanced, and economically vibrant communities. Key components include digital infrastructure, renewable energy, smart agriculture, e-governance, smart water management, and waste management. Economic development is fostered through local entrepreneurship, skill development, and market access for farmers. Social and community improvements focus on education, healthcare, and community engagement. Sustainable practices like organic farming and climate resilience are prioritized, alongside infrastructure development in transport and housing. Technological innovations such as IoT, big data, and AI play a crucial role, supported by government policies and public-private partnerships. Despite challenges like limited funding and digital literacy, solutions involve community involvement and phased implementation. Success stories, such as Punsari in Gujarat, demonstrate the positive impact of these initiatives, leading to economic growth, improved quality of life, and sustainability.

Fig.2.1 Smart Village

- According to the Census of India (2011), those areas where population is below 5000 and population density less than 400 per square kilometer are considered as villages or rural areas. In such areas, at least 75 per cent of the males of the working population are engaged in agrarian sectors. Mahatma Gandhi said that India resides in its village, highlighting the development of villages for development of India. In this context, the concept of model village emerged from the vision of Mahatma Gandhi, where in his two text Hind Swaraj and Gram Swaraj , he talks about Adarsh Gram, promoting the concept of integrated rural development to impact majority of the population, as the primary initiative after India Independence in 1947.

Presently, Sansad Adarsh Gram Yojana is running programme of Government of India, it was launched on 2nd October

- 2014 for village adoption and setting them as role model villages for rest of villages in our country. The Holistic Village Development Program (HVDP) under Sansad Adarsh Gram Yojana (SAGY), where each Member of Parliament adopts one village from their constituency to transform that village into a model village. The ideal village model is based on multidimensional aspects including water issues, agriculture issues, gender issues, health issues etc. Sansad Adarsh Gram Yojana (SAGY) covered 2379 villages till 2019.

2.2 Present scenario of Gujarat State :

- Gujarat has made significant strides in rural development through various initiatives aimed at improving infrastructure, enhancing agricultural productivity, and boosting economic opportunities. The state has focused on implementing the Smart Village concept, with projects like the transformation of Punsari village, which now boasts amenities like Wi-Fi, CCTV surveillance, solar street lights, and digital classrooms. The Gujarat government has also promoted renewable energy solutions, with numerous villages adopting solar power for reliable electricity. Agricultural innovations, including drip irrigation and precision farming, have increased productivity and water efficiency. E-governance initiatives ensure that rural populations have access to essential services and benefits through digital platforms. Additionally, skill development programs and microfinance opportunities have empowered local entrepreneurs, contributing to economic growth. The state's commitment to sustainable practices, such as organic farming and water conservation, has further bolstered rural development. These efforts collectively aim to bridge the urban-rural divide, improving the quality of life and economic prospects for Gujarat's rural residents.

2.3 Study area location :

- **Pansar** is a large village located in **Kalol** Taluka of **Gandhinagar** district of Gujarat State, India. It is situated **25 km** towards the district of Gandhinagar. The pin code of Pansar is **382740** and it has a postal head office. Nearby villages include Chhatral (5 km), Isand (3 km), and Dhamasan (5 km).
- According to census data of **2011**, the population of Pansar village is **8438**, with **4467** males and **3971** females. The population of 2001 was **7789**.
- In Pansar village population of children with age 0-6 is **930** which makes up **11.02 %** of total population of village. Average Sex Ratio of Pansar village is **889** which is lower than Gujarat state average of **919**. Child Sex Ratio for the Pansar as per census is **713**, lower than Gujarat average of **890**.
- Pansar village has higher literacy rate compared to Gujarat. In 2011, literacy rate of Pansar was **83.34%** compared to **78.03%** of Gujarat.
- In Pansar, male literacy stands at **90.83%** while female literacy rate was **75.14%.**

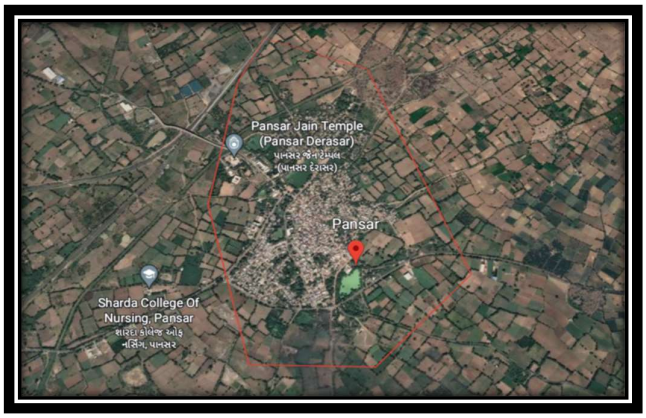


Fig.2.2 Pansar village

2.3.1 Study Area Profile:

Table 5 Study Area of Ideal Village

Parameter	Information
Name	Pansar
Taluka	Kalol
District	Gandhinagar
State	Gujarat
Distance from Gandhinagar	27.4 km
Pin code	382740
Language	Gujarati, Hindi
Time zone	UTC+5:30(IST)
Elevation	71 meters
Coordinates	23.30°N 72.48°E

Fig.2.3 Map of Pansar village

Table 6 Population of Pansar village

Particulars	Total	Male	Female
Total No. of Houses	1,874	-	-
Population	8,438	4,467	3,971
Child (0-6)	930	543	387
Schedule Caste	1,061	589	472
Schedule Tribe	93	51	42
Literacy	83.34%	90.83%	75.14%
Total workers	3,008	2,450	558
Main worker	2,707	-	-
Marginal Worker	301	111	190

2.3.2 Demographic details of the Pansar village:

- The village Pansar is located 25 km away from Gandhinagar city. Village is spread over an area of 1682.32 hectare.
- In Pansar village, out of the total population, 3008 people were engaged in work activities. A significant 89.99% of workers describe their work as Main work (Employment or Earning more than 6 Months) while 10.01% were involved in marginal activity providing livelihood for less than 6 months.
- Among the workers, 323 were cultivators (owner or co-owner) and 510 were Agricultural labourers. This suggests that a large portion of the population in Pansar village is engaged in agriculture and relative activities.

2.4 Infrastructure in Pansar Village:

Fig.2.4 Bus stand of Pansar

Fig.2.5 (a) Railway station of Pansar Village

Fig.2.5 (b)

Fig.2.5 (c)

Fig.2.6 Pansar Primary School

Fig.2.7 Pansar Secondary high School

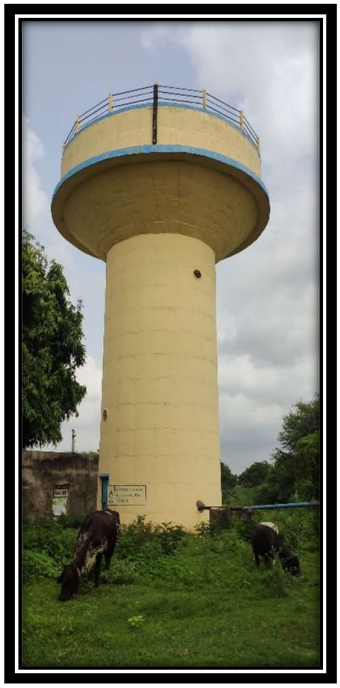


Fig.2.8 Overhead Tank

Fig.2.9 Public Health Care

Fig.2.10 Lake in village

Fig.2.11 Jain Derasar

Fig.2.12 Pansar Gram Panchayat

Fig.2.13 Mataji Temple

Fig.2.14 Clock Tower

Road Network	Housing condition	Transportation facilities
• SH 217 • NH 41 • Extrnal roads of village are • Bitumen road(Good condition) • Internal Roads are c.c road	• 90% houses are pucca house. • Door to door waste collection • facility is not available properly • Good sanitationwith toilets	• Nearest Bus stop • Nearest Railway station • Auto, Jeep facilities are available

- Overhead tank capacity is 2 lakh litter.
- Drinking water is provided by the three water tanks.
- The water is provided by the tap water in each and every house.

2.5 Case studies from India & Gujarat

- **Punsari village, Gujarat**

- Punsari village, located in the Sabarkantha district of Gujarat, India, has become a remarkable example of smart village development, transforming itself from a typical rural community into a model of modernity and sustainability. This transformation was spearheaded by former village head Himanshu Patel, who initiated a series of innovative projects aimed at improving the villagers' quality of life. Key initiatives included the establishment of comprehensive digital infrastructure, such as village-wide Wi-Fi and CCTV surveillance, which enhanced connectivity and security. The village embraced renewable energy solutions, particularly solar power, ensuring a reliable and sustainable electricity supply. E-governance initiatives streamlined administrative processes, making essential services more accessible and transparent.
- In the field of education, Punsari introduced smart classrooms equipped with modern learning tools, significantly improving educational quality and engagement. Healthcare access was enhanced through telemedicine services and regular health camps, providing villagers with timely medical care. The implementation of a piped water supply system and effective waste management practices ensured clean water and sanitation, contributing to better public health and hygiene. Economic development was driven by microfinance schemes and support for local entrepreneurship, empowering residents, especially women, to start businesses and contribute to the local economy. Community engagement was fostered through

participatory governance, where digital platforms facilitated villagers' involvement in decision-making processes.

- The comprehensive development in Punsari has led to significant improvements in infrastructure, education, healthcare, and economic opportunities, elevating the overall standard of living. The village's success has garnered national and international recognition, serving as an inspirational model for rural development. Punsari's achievements highlight the potential for similar initiatives to transform other rural areas, demonstrating the impact of visionary leadership, community participation, and the strategic use of technology.

Fig.2.15 Punsari Village Gate

2.6 Smart infrastructure :

- Smart infrastructure refers to systems and structures that leverage digital technologies, the Internet of Things (IoT), artificial intelligence (AI), and data analytics to improve the efficiency, sustainability, and resilience of urban and rural environments. These infrastructures are designed to be adaptive, responsive, and capable of self-monitoring and self-healing.
- In order to ease life of villagers in every possible way, a village has to be well supported with infrastructure to enhance efficiency of habitants and efficacy of inputs from the villagers. The infrastructure includes roads, institution buildings, weather station equipment, hospital equipment, telephone towers etc. Most of these infrastructures can be established with well-intended village habitants and the guiding institutions through convergence of funds, functions and functionaries. Smart element needs to be included in every stage of infrastructure development.

- Initiatives of government under Unnat Bharat Abhiyan (UBA) and Sansad Adarsh Gram Yojana (SAGY) are worth mentioning here in this section, for their intentions and outcomes.

Table 7 Smart infrastructure

Aspect	Description
Digital Connectivity	High-speed internet, 5G networks, and extensive broadband coverage enabling real-time data exchange and remote monitoring.
Internet of Things (IoT)	Interconnected devices such as sensors, cameras, and smart meters for monitoring and data sharing.
Artificial Intelligence (AI) and Machine Learning	Algorithms processing data from IoT devices for informed decision-making and optimization.
Data Analytics	Analyzing large datasets to extract insights and patterns for efficiency improvement.
Sustainable Energy Solutions	Incorporating renewable energy sources like solar and wind for reduced reliance on fossil fuels.
Waste Management	Using sensors for waste monitoring and optimizing collection routes.
Smart Buildings	Integrating IoT devices and automation for energy efficiency and occupant comfort.
Economic Growth	Job creation, productivity gains, and cost savings stimulating economic development.
Smart Infrastructure in Rural Areas	Extension of smart infrastructure beyond urban centers to rural communities.
Smart Infrastructure for Sustainability	Promoting efficient resource use and environmental stewardship.

2.7 Global example of smart village – cities :

2.7.1 Songdo, South Korea

- Songdo International Business District, situated in the Incheon Free Economic Zone near Seoul, South Korea, represents a pioneering example of smart urban development. Constructed in the early 2000s with a vision for sustainability and technological innovation, Songdo stands out as one of the world's first smart cities. At its core lies a robust digital infrastructure, featuring ubiquitous Wi-Fi coverage, smart grids for efficient energy distribution, and intelligent transportation systems that optimize traffic flow. Furthermore, Songdo's buildings are equipped with smart technologies designed to optimize energy usage and enhance occupant comfort, while an integrated management system oversees city services, ensuring efficiency and sustainability across various sectors. The city's commitment to sustainable urban planning is evident in its ample green spaces and parks, efficient waste management practices, water conservation efforts, and mixed-use development model that promotes walkability and

reduces commuting needs. Economically, Songdo serves as a global business hub, attracting multinational corporations and receiving recognition and awards for its innovative approach to urban development. In conclusion, Songdo International Business District stands as a model for smart cities worldwide, showcasing the potential of advanced technologies and sustainable practices to create thriving, livable urban environments in the 21st century.

Fig.2.16 Songdo, South Korea

2.7.2 Amsterdam, Netherlands :

- Amsterdam, the capital city of the Netherlands, has embraced various smart infrastructure initiatives aimed at enhancing urban living. Leveraging IoT devices and data analytics, the city has implemented innovative solutions to address key challenges such as traffic congestion, energy consumption, and waste management. Through the use of smart sensors and real-time data analysis, Amsterdam effectively manages traffic flow, optimizing signals and providing alternative routes to alleviate congestion and improve transportation efficiency. Additionally, Amsterdam has invested in a smart grid infrastructure that integrates renewable energy sources like solar and wind power, enabling real-time energy management and contributing to sustainability efforts. Furthermore, the city has deployed IoT-enabled sensors in waste bins and containers to monitor fill levels, facilitating more efficient waste collection and promoting recycling programs to reduce environmental impact. Amsterdam's commitment to smart city development has not only improved the quality of life for its residents but has also attracted investment and international recognition, solidifying its position as a global leader in urban innovation and sustainability.

Fig.2.17 Amsterdam , Netherlands

2.7.3 Barcelona, Spain

- Barcelona, Spain, has undergone a remarkable transformation into a smart city through the strategic implementation of cutting-edge technologies aimed at enhancing urban services and sustainability. The city's forward-thinking approach includes the deployment of sensors across various sectors to monitor and optimize key aspects of urban life. These sensors play a crucial role in monitoring air quality, allowing authorities to assess pollution levels and take timely measures to improve environmental conditions and public health. Additionally, Barcelona employs smart waste management systems enabled by IoT devices to optimize waste collection routes, reduce operational costs, and promote recycling and waste reduction initiatives.
- Another standout feature of Barcelona's smart infrastructure is its innovative smart lighting system, which dynamically adjusts street lighting based on real-time traffic patterns and weather conditions. By automatically dimming or brightening street lights as needed, Barcelona not only reduces energy consumption but also enhances public safety by ensuring adequate illumination in high-traffic areas. These initiatives underscore Barcelona's commitment to

Fig.2.18 Barcelona, Spain

leveraging technology for the benefit of its residents, while also positioning the city as a global leader in smart urban development.

2.8 Future scope and enhancement of the village :

- **Agriculture and Farming:** Implementing modern farming techniques, promoting organic farming, and providing access to agricultural resources can boost agricultural productivity and income generation for the villagers.

- **Digital Connectivity:** Enhancing digital connectivity in Pansar Village can bridge the digital divide and enable access to information, online services, and digital platforms for education, entrepreneurship, and communication.

- **Tourism Development:** Leveraging the natural beauty and cultural heritage of Pansar Village can attract tourists, leading to economic growth through hospitality, local businesses, and job opportunities.

- **Community Development:** Encouraging community participation, fostering social cohesion, and organizing events and activities can strengthen the sense of belonging and pride among the villagers.

- **Skill Training and Employment Opportunities:** Providing skill training programs and creating employment opportunities within the village can empower the residents and contribute to the overall development of the community.

- **Environmental Conservation:** Implementing initiatives for environmental conservation, such as afforestation, waste management, and water conservation, can help preserve the natural beauty of Pansar Village for future generations.

2.9 Conclusion

- We have visited the ideal village Pansar and that visit helped us to know about the type of infrastructure needed by the village. The amenities designed under this Vishwakarma project phase XI will be helpful for better development of the village as physically as well as socially, which improves the overall lifestyle of people along with the nation with preserving nature bit by bit.
- This will help in developing Smart villages sustainably, reduce migration from villages and prevent the cities from the urban pressure.
- After considering the potential future scope and enhancements for Pansar Village, it becomes evident that there is immense potential for growth and development.
- By focusing on infrastructure, economic growth, education, healthcare, sustainable practices, agriculture, digital connectivity, tourism, and community development, Pansar Village can transform into an ideal village that offers a high quality of life for its residents.

CHAPTER:3 – TECHNICAL OPTION

3.1 Technical concept (civil) :

3.1.1 Advance analysis of structure

- Structural analysis is a fundamental aspect of civil engineering, focusing on assessing the strength, stability, and rigidity of structures. This report provides a detailed overview of advanced structural analysis techniques used in civil engineering to ensure the safety, durability, and efficiency of buildings, bridges, and other critical infrastructure.

3.1.2 Fundamental of structural analysis

- Structural analysis involves understanding how different forces affect structures and predicting their response to these forces. Key components include:

- **Loads and Forces**: Analysis considers various loads such as dead loads (permanent/static forces), live loads (temporary/moving forces), environmental loads (wind, seismic, thermal), and accidental loads (impacts, explosions).
- **Structural Elements**: The primary elements analyzed include beams, columns, slabs, trusses, frames, and foundations. Each element has specific properties and responses to loads.

3.1.3 Analytical Methods

- There are several advanced methods for structural analysis:

- **Finite Element Analysis (FEA)**: A computational technique that divides a structure into discrete elements, allowing for detailed stress and deformation analysis under complex loading conditions.
- **Dynamic Analysis**: Assesses the impact of dynamic loads, such as earthquakes and wind, using methods like modal analysis and time-history analysis.
- **Nonlinear Analysis**: Considers material nonlinearity (e.g., plasticity, cracking) and geometric nonlinearity (e.g., large deformations), providing a more accurate representation of real-world behaviour.

3.1.4 Structural Health Monitoring (SHM)

- SHM involves continuous or periodic monitoring of structures to detect damage and assess structural integrity:

- **Sensors and Data Acquisition**: Utilizes sensors like strain gauges, accelerometers, and fiber optic sensors to collect data.

- **Data Analysis and Interpretation**: Advanced algorithms and machine learning techniques are used to analyze data and predict maintenance needs.

3.1.5 Classical Methods of Structural Analysis

➢ Classical methods are based on fundamental mechanics principles.

- **Static Analysis**: Includes the Force Method (Flexibility Method) and Displacement Method (Stiffness Method), solving for unknown forces and displacements in statically determinate and indeterminate structures.
- **Moment Distribution Method**: Iterative technique for analyzing continuous beams and rigid frames.
- **Slope-Deflection Method**: Relates moments at member ends to rotations and deflections.

3.1.6 Matrix Methods of Structural Analysis

➢ Matrix methods generalize classical methods, suitable for computer implementation.

- **Direct Stiffness Method**: Uses a global stiffness matrix to relate nodal displacements to applied forces.
- **Finite Element Method (FEM)**: Subdivides structures into smaller elements for detailed analysis.
- **Flexibility Method**: Similar to the force method but in matrix form, solving for forces based on displacements.

3.1.7 Advanced Methods of Structural Analysis

➢ These methods offer detailed insights for complex structures.

- **Finite Element Analysis (FEA)**: Includes nonlinear analysis for material and geometric nonlinearities.
- **Dynamic Analysis**: Modal Analysis for natural frequencies, Time-History Analysis for time-varying loads, and Response Spectrum Analysis for seismic response.
- **Stability Analysis**: Buckling and post-buckling analysis to assess stability under critical loads.
- **Probabilistic Methods**: Reliability analysis and Monte Carlo simulations for assessing failure probabilities and uncertainties.

3.2 Advancement in Solid Waste Management :

➢ Waste is any item beyond use in its current form and discarded as unwanted. It can be solid or liquid with respective management methods.
➢ Water, sanitation, and hygiene (WASH) directly impact human health and have far reaching consequences when ignored. India is one of the fastest developing economies,

but when it comes to WASH indicators, it continues to lag behind. With a population of over 1.2 billion, there is a mounting and urgent need to address sanitation.

- Solid and Liquid Waste Management1 (SLWM) is one of the key components of Swachh Bharat Mission (SBM), launched with the objective of bringing improvement in cleanliness, hygiene and the general quality of life in rural areas. This document presents a basic, quick introduction to Solid Liquid Waste Management (SLWM) in rural areas. The document is geared, particularly for district administrators to help focus on SLWM along with Open Defecation Free (ODF) activities.
- Advancements in solid waste management have been crucial for environmental sustainability. Some key developments include:

- **Recycling Technology:** Improved sorting and processing techniques have increased recycling rates, reducing the amount of waste sent to landfills.

- **Waste-to-Energy:** Technologies like incineration and anaerobic digestion convert waste into energy, reducing landfill dependence and generating electricity or biogas.

- **Smart Waste Bins:** IoT-enabled bins with sensors optimize waste collection routes, reducing costs and environmental impact.

- **Sustainable Packaging:** Innovations in eco-friendly packaging materials and designs reduce waste generation.

- **Public Awareness:** Education campaigns encourage responsible waste disposal and recycling.

- **Legislation:** Stricter waste regulations and policies drive responsible waste management practices.
- These advancements contribute to more efficient and sustainable solid waste management systems.

Fig.3.1 Solid Waste Management

Fig.3.2 Waste Collection

3.3 Use of Artificial intelligence:

3.3.1 Agriculture and Farming

➢ Agriculture is the backbone of rural economies. AI can significantly enhance agricultural productivity and sustainability through the following methods:

- **Precision Farming**: AI-powered tools and sensors collect and analyze data on soil health, crop conditions, and weather patterns, enabling farmers to optimize irrigation, fertilization, and pest control.
- **Crop Monitoring and Disease Detection**: AI algorithms analyze satellite imagery and drone data to monitor crop health and detect diseases early, helping farmers take timely actions to prevent crop loss.
- **Yield Prediction**: Machine learning models predict crop yields based on historical data and current conditions, aiding in better planning and resource allocation.

3.3.2 Healthcare

➢ AI can improve healthcare access and quality in rural areas, addressing the shortage of medical professionals and facilities:

- **Telemedicine**: AI-powered platforms facilitate remote consultations, diagnostics, and treatment recommendations, connecting rural patients with urban healthcare providers.
- **Predictive Analytics**: AI models analyze health data to predict disease outbreaks and identify at-risk populations, enabling preventive measures and timely interventions.

- **Medical Imaging and Diagnostics**: AI algorithms enhance the accuracy of medical imaging and diagnostics, reducing the need for specialized radiologists in remote areas.

3.3.3 Education

➢ AI can bridge the education gap in rural areas by providing personalized learning experiences and access to quality educational resources:

- **E-Learning Platforms**: AI-driven platforms offer interactive and adaptive learning experiences, catering to individual student needs and learning paces.
- **Language Translation**: AI-powered language translation tools help overcome language barriers, making educational content accessible to a broader audience.
- **Teacher Training**: AI tools assist in training rural teachers by providing them with resources, lesson plans, and real-time feedback on their teaching methods.

3.3.4 Infrastructure Development

➢ AI can optimize the planning, construction, and maintenance of rural infrastructure:

- **Smart Grids and Energy Management**: AI algorithms manage rural energy consumption and distribution, integrating renewable energy sources and reducing wastage.
- **Transport and Logistics**: AI optimizes transportation routes and logistics, improving connectivity and reducing costs for rural communities.
- **Water Management**: AI systems monitor and manage water resources, ensuring efficient usage and reducing the impact of droughts.

3.3.5 Governance and Public Services

➢ AI can improve governance and the delivery of public services in rural areas:

- **Smart Governance**: AI-powered platforms enhance transparency and efficiency in government operations, facilitating better service delivery and citizen engagement.
- **Predictive Maintenance**: AI systems predict and schedule maintenance for rural infrastructure, such as roads and bridges, reducing downtime and repair costs.
- **Resource Allocation**: AI algorithms optimize the allocation of resources like funding, personnel, and equipment, ensuring they reach the areas of greatest need.

3.4 Concrete technology :

➢ Concrete technology plays a crucial role in the construction and durability of infrastructure in civil engineering by offering advanced materials and techniques that enhance the performance, longevity, and sustainability of structures. Here's an in-depth look at how concrete technology contributes to these areas:

3.4.1 Enhanced Strength and Load-Bearing Capacity

- **High-Performance Concrete (HPC)**: HPC is designed with superior strength characteristics, making it suitable for high-load-bearing structures such as bridges, tall buildings, and dams. Its high compressive strength allows for the construction of slender, lighter structures without compromising stability.
- **Ultra-High-Performance Concrete (UHPC)**: UHPC provides exceptional compressive and tensile strength, enabling the construction of complex and demanding infrastructure projects. Its high strength reduces the amount of material needed, leading to more efficient designs.

3.4.2 Improved Durability and Longevity

- **Supplementary Cementitious Materials (SCMs)**: Materials like fly ash, slag, and silica fume improve the durability of concrete by enhancing its resistance to chemical attacks, reducing permeability, and increasing long-term strength. This makes infrastructure more resistant to environmental degradation.
- **Fiber-Reinforced Concrete (FRC)**: The incorporation of fibers (steel, synthetic, or glass) into concrete significantly improves its toughness and impact resistance, reducing the likelihood of cracking and extending the lifespan of structures.
- **Self-Healing Concrete**: Advanced concrete mixes that incorporate microcapsules or bacteria can repair cracks autonomously, preventing the ingress of water and harmful chemicals, which can lead to deterioration.

3.4.3 Sustainable Construction Practices

- **Green Concrete**: The use of recycled materials and alternative binders reduces the environmental impact of concrete production. This approach supports sustainable construction practices by lowering CO2 emissions and reducing the consumption of natural resources.
- **Energy-Efficient Mix Designs**: Optimized mix designs reduce the energy required for mixing and curing, contributing to the overall sustainability of construction projects.

3.4.4 Enhanced Workability and Construction Efficiency

- **Self-Compacting Concrete (SCC)**: SCC is highly flowable and can fill intricate forms without the need for mechanical vibration. This property improves the quality of the finish, reduces labor costs, and accelerates construction schedules, particularly in projects with complex formwork and dense reinforcement.
- **3D Printing of Concrete**: This technology allows for the automated, precise placement of concrete, enabling the creation of complex geometries with minimal waste. 3D printing enhances construction efficiency and offers new possibilities for architectural design.

3.4.5 Real-Time Monitoring and Maintenance

- **Smart Concrete**: Embedding sensors within concrete structures allows for real-time monitoring of parameters such as strain, temperature, and humidity. This data can be

used for proactive maintenance, ensuring the early detection of potential issues and reducing the risk of catastrophic failures.

- **Predictive Maintenance**: AI-powered analytics can predict maintenance needs based on the data collected from smart sensors, optimizing maintenance schedules and extending the lifespan of infrastructure.

3.4.6 Applications in Various Infrastructure Projects

- **Bridges and Tunnels**: High-strength and durable concretes like HPC and UHPC are ideal for bridges and tunnels, providing the necessary resilience against heavy loads, environmental conditions, and seismic activities.
- **High-Rise Buildings**: SCC and fiber-reinforced concrete enable the construction of tall buildings with improved structural integrity and fire resistance.
- **Roads and Pavements**: Advanced concrete technologies improve the durability and lifespan of roads and pavements, reducing maintenance costs and downtime.

3.4.7 Case Studies and Real-World Applications

- **Millau Viaduct, France**: The tallest bridge in the world uses HPC for its piers and deck, demonstrating the material's ability to withstand extreme loads and environmental conditions.
- **The Burj Khalifa, UAE**: The world's tallest building utilizes SCC for its ease of placement and superior finish, essential for the construction of its complex, high-rise structure.
- **Seabrook Floodgate Complex, USA**: UHPC was used in the construction of this critical infrastructure to ensure durability and resistance to harsh marine environments.

3.4.8 Challenges and Future Directions

- **Cost Considerations**: High-performance and advanced concretes can be more expensive than conventional mixes. Ongoing research aims to reduce costs and make these materials more accessible.
- **Standardization**: The development of industry standards for new concrete technologies is essential to ensure consistent quality and performance across projects.
- **Continued Innovation**: Future advancements will focus on enhancing sustainability, integrating AI for smarter infrastructure, and developing new materials with even better performance characteristics.

3.5 Disaster management :

3.5.1 Challenges in Rural Disaster Management

- **Limited Infrastructure**: Rural areas often lack robust infrastructure such as well-maintained roads, bridges, and communication networks, making it difficult to evacuate and receive aid during emergencies.
- **Resource Constraints**: Rural communities typically have fewer resources, including medical facilities, emergency responders, and financial reserves, to cope with disasters.

- **Geographic Isolation**: The dispersed nature of rural populations can hinder timely access to emergency services and make it challenging to coordinate disaster response efforts.
- **Economic Vulnerability**: Rural economies are often heavily dependent on agriculture, which can be severely affected by natural disasters, leading to long-term economic repercussions.

3.5.2 Preparedness Measures

- **Community Education and Training**: Educating rural residents about disaster risks and preparedness measures is essential. Regular training programs, drills, and workshops can enhance community resilience.
- **Early Warning Systems**: Implementing early warning systems that leverage technology such as weather forecasting, mobile alerts, and radio broadcasts can provide timely information to rural communities, allowing them to take preventive actions.
- **Emergency Plans and Protocols**: Developing and regularly updating community-specific emergency plans that outline evacuation routes, shelter locations, and communication protocols is critical.
- **Strengthening Infrastructure**: Investing in resilient infrastructure, such as flood-resistant roads and bridges, as well as retrofitting existing structures to withstand natural disasters, can significantly reduce vulnerability.

3.5.3 Response Strategies

- **Community-Based Response Teams**: Establishing local emergency response teams composed of trained volunteers can ensure a rapid and organized response in the immediate aftermath of a disaster.
- **Mutual Aid Agreements**: Creating partnerships with neighboring communities and regions to share resources and support during emergencies can enhance overall response capacity.
- **Utilizing Technology**: Leveraging technology such as drones for aerial surveillance, GIS mapping for damage assessment, and mobile applications for coordination can improve the efficiency and effectiveness of disaster response efforts.

3.6 Construction - safety measurement & practices :

➢ Construction sites, without a tinge of doubt, are dangerous places to work. It goes without saying that proper safety measures at the site are of utmost significance. So, every construction company should be well versed in the construction safety rules and regulations. Now, let's check out some of the most essential safety practices a contractor should be following.

- **Always wear PPE**

➢ All workers and visitors in the construction site should wear the required PPE to reduce exposure to various hazards on the worksite. Common PPEs include goggles, helmets, gloves, ear muffs or plugs, boots, and high visibility vests and suits.

- **Be mindful and follow signs**
  - Safety signs allow management to warn and raise health and safetynawareness for employees and visitors. Appropriately place them around the site where necessary. Workers should be familiar with the construction site safety tips and different signs: prohibition signs, mandatory signs, warning signs, safe condition signs, and firefighting equipment signs.

- **Provide clear instructions**
  - A site induction for general contractors should be present on site. This will enable new workers to be familiar with site operations. Toolbox talks are also an effective way of relaying health and safety instructions to the workforce. It is conducted before commencing work on either a daily or more frequent basis.

- **Organize and store tools properly**
  - Ensure that no tools are lying around, and leave lights and power tools unplugged. Following construction site rules will help prevent tools from getting damaged or even causing injury to workers. Organizing them in their rightful place will also allow for easy navigation.

- **Use the right equipment for the right task**
  - Often, accidents occur due to the misuse of a tool or equipment. Avoid using makeshift tools. Instead, use the correct tool to get the job done quicker and safer.

- **Have an emergency response plan**
  - An emergency response plan directs the workforce on what to do when emergencies like natural disasters, fire, hazardous material spills, or other types of incidents occur. Have a dedicated team responsible for managing emergency crises, answering questions, and reporting potential hazards, quality issues, or near misses.

- **Set up safeguards**
  - One of the ways to ensure safety on site is placing engineering controls such as barriers, fences, and safeguards. These will help isolate people from hazardous areas with high- voltage electricity or chemicals with toxic fumes.

- **Do pre-checks on tools and equipment**
  - Before commencing work, ensure that tools and equipment to be used are free of defect or damage.

- **Report issues immediately**
  - Train workers to report defects and near misses on site as soon as they notice them. Problems can only be solved when they are made aware to management. The sooner issues get reported, the fewer chances of them worsening and causing accidents or further damage.

Fig.3.3 Safety measures to prevent accidents

3.7 Water Supply Treatment Process for Rural Areas :

- The domestic demand of the rural areas is met by using only the available ground water sources, as the villages of the gram panchayat have no access to tapped drinking water. Therefore, the programs such as Accelerated Rural Water Supply Programme (ARWSP), Swajaldhara and Total Sanitation Campaign were launched in serving the rural population with water and sanitation related services all across the State. The rural area water supply management in India can be divided in three categories

  • Mini water supply scheme

  • Water supply using bore well with hand pump and Open well

  • River Access to safe drinking water is essential for good health.

3.7.1 Materials used in water treatment plant :

1. **Conventional Water Supply System**
   - For removal of colloidal, dissolved and suspended impurities from surface water, treatment processes are done. One of the oldest methods used for treatment is conventional water supply system that tends to remove all these impurities and provide potable water to public as per guidelines and standards set. It includes various treatment units like screening, aeration, sedimentation, filtration, disinfection etc. It requires large structures along with mechanical equipment, electrical energy, skilled labours and high capital and maintenance costs.

2. **Unconventional Water Supply System**
   - Also known as the Non-Conventional Treatment Process this type of treatment plants is normally provided in villages or rural areas. It consists of simple units that do not involve mechanical equipment or electrical energy for operation.

3. **Packaged Water Supply System**
   - For rural areas where demand is less than 1 MLD, packaged water system is provided. It is one of the low-cost treatment plants. The treatment involves flocculation, sedimentation, filtration, and disinfection further providing water in a narrow mouth container. It does not require electricity, mechanical equipment or skilled labour.

4. **Chlorination Treatment**
   - Chlorine serves not only as a disinfectant but also controls taste and odour of water. Chlorine is easiest to apply in the form of a solution. It is a useful disinfectant for drinking-water, and is effective against the bacteria commonly associated with water borne disease. Many households in rural areas use chlorine. In piped water supply schemes, water is pumped to an overhead tank and supplied to households through a distribution network. The water in the tank is chlorinated before disinfection.

3.7.2 Methodology:

- Prior to designing of water treatment network, it is necessary to determine quantity of water required daily is required. The entire population may not be evenly distributed hence distribution of population is studied for providing efficient design in distribution system.

❖ **Water Demand:**

- Water demand projections for norm of 70 litres per capita per day at consumer end is normally applied for residential houses according to guideline set by Central Public Health & Environmental Engineering Organization.

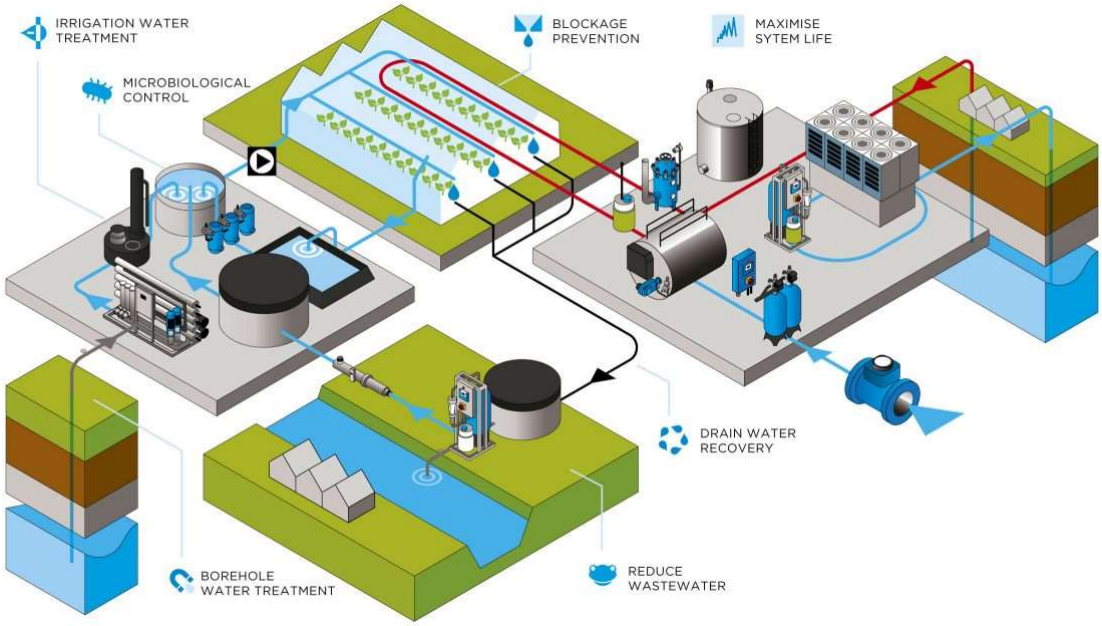


Fig.3.4 Water Treatment Plant

- The treatment process selected is based on quality of water sources and regularity requirements. Design engineers may select most effective and least costly treatment train. Say for 60 villages it may be possible that only 54 villages could be supplied by pipe distribution system efficiently i.e. Conventional way. Rests of the villages can be covered by Unconventional Type of Treatment System, Packaged Water Supply and Chlorination Unit. These distributions are considered depending upon demand required. For villages having demand of approximately 1.0 MLD, Unconventional System can be provided. For demand less than 1 MLD but higher than 0.5 MLD Packaged Water Supply System shall be considered and lastly for demand of less than 0.5 MLD Chlorination System should be adopted.

3.8 Rainwater Harvesting :

- The purpose of rainwater harvesting extends far beyond mere water collection; it embodies a strategic approach to managing a crucial natural resource.

- Environmentally, rainwater collection is pivotal in reducing the demand on our overburdened water systems. By capturing rainwater, we can lessen the load on municipal water supplies, especially in areas where water scarcity is a growing concern. This practice ensures a supplementary water source during dry spells and contributes to replenishing groundwater levels, a critical aspect of maintaining the ecological balance.

- In the broader scope of sustainable development, rainwater harvesting is a key player. It aligns with the principles of sustainable living by promoting the efficient use of water resources and decreasing the environmental footprint of human activities. The practice encourages a more responsible and mindful approach to water usage, fostering a culture of conservation and awareness.
- By integrating rainwater harvesting into urban planning and building design, cities and communities can become more resilient to increased precipitation variability and urban flooding.
- At its core, **rainwater harvesting is a process that intercepts, collects, and stores rainwater for future use**. The principle is straightforward: capture rainwater where it falls rather than allowing it to run off. This is typically done using a catchment area, such as a rooftop, which is the primary surface for collecting rainwater. From here, the water is channeled through gutters and downspouts, directing it into a storage vessel, like a tank or barrel. The stored water can then be filtered and pumped for various uses, ranging from irrigation and landscaping to flushing toilets and drinking.

3.8.1 Environmental Benefits :

- One of the most significant environmental advantages of collecting rainwater is its ability to reduce runoff. Urban runoff often carries pollutants like oils, pesticides, and sediments into water bodies, damaging aquatic ecosystems. When rainwater is collected, this runoff is significantly reduced, minimizing its ecological impact. Additionally, rainwater harvesting aids in recharging groundwater levels. In urban areas, where impermeable surfaces are abundant, rainwater often fails to infiltrate the ground, leading to depleted groundwater. Harvested rainwater can artificially recharge these aquifers, helping maintain the delicate balance of our groundwater systems.

- Using harvested rainwater for non-potable uses, such as irrigation and flushing toilets, reduces water extraction from sensitive ecosystems. This practice is critical in regions experiencing drought or water scarcity, where every drop saved contributes to the environment's overall health.

3.8.2 Economic Benefits

- From an economic perspective, rainwater harvesting can significantly cut costs. By using harvested rainwater for various purposes, businesses and households can reduce their reliance on municipal water supplies, lowering water bills. This is especially beneficial in regions with high water tariffs or where water is metered. Furthermore, for agricultural and industrial users, rainwater harvesting can be a cost-effective alternative to relying solely on purchased water, reducing operational costs and increasing competitiveness.

3.8.3 Social Benefits

- Socially, rainwater harvesting plays a crucial role in promoting water conservation awareness and community engagement. It serves as a tangible demonstration of sustainable living, inspiring individuals and communities to actively manage their

water resources. Educational initiatives centered around collecting rainwater can foster a culture of conservation, making individuals more mindful of their water usage and its broader impacts.

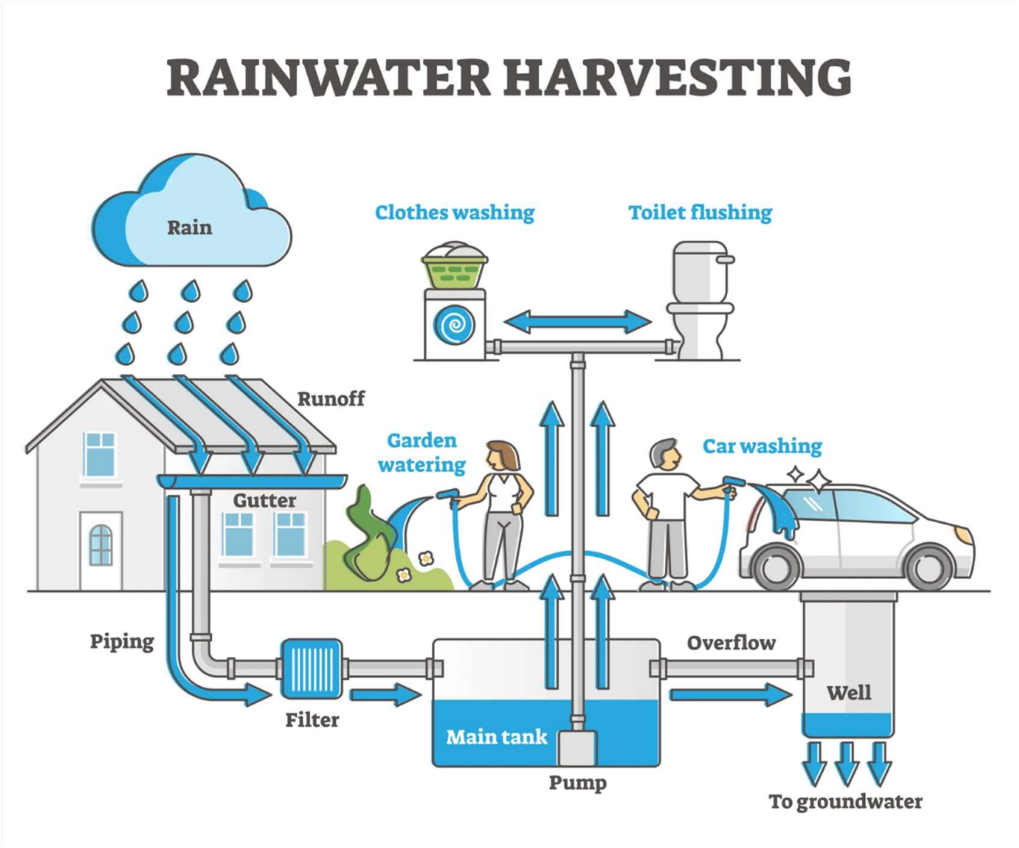


Fig.3.5 Rainwater Harvesting

3.9 Technical concept (Electrical) :

1. **Introduction**

➢ The integration of advanced electrical technologies into modern infrastructure has revolutionized the way we generate, distribute, and utilize electrical power. This report delves into key technical concepts and innovations in the electrical engineering field that are shaping the future of infrastructure development.

2. Smart Grids

➢ Smart grids represent a significant advancement in the management of electrical distribution networks. They utilize digital communication technology to detect and react to local changes in usage.

- **Components and Features**:

- **Advanced Metering Infrastructure (AMI)**: Enables two-way communication between utilities and consumers, facilitating real-time data collection and demand response.
- **Distribution Automation**: Uses sensors and automated controls to improve the efficiency and reliability of the distribution system.
- **Renewable Integration**: Smart grids seamlessly integrate renewable energy sources like solar and wind, balancing supply and demand dynamically.

- **Benefits**:
- Enhanced grid reliability and resilience.
- Improved energy efficiency and reduced operational costs.
- Greater integration of distributed energy resources.

3. Renewable Energy Technologies

- The shift towards renewable energy sources is critical for sustainable development. Key technologies include:

- **Solar Photovoltaics (PV)**:
  - **Technical Aspects**: PV systems convert sunlight directly into electricity using semiconductor materials. Innovations include high-efficiency cells and bifacial modules.
  - **Applications**: From small rooftop installations to large solar farms.
- **Wind Energy**:
  - **Technical Aspects**: Modern wind turbines use advanced aerodynamics and materials to maximize energy capture. Offshore wind farms are becoming increasingly prevalent.
  - **Applications**: Utility-scale wind farms and community-based wind projects.
- **Energy Storage Systems (ESS)**:
  - **Battery Technologies**: Lithium-ion batteries dominate, but advancements in solid-state batteries and flow batteries are promising.
  - **Applications**: Grid storage, peak shaving, and backup power.

4. Electric Vehicles (EVs) and Charging Infrastructure

- The rise of electric vehicles requires robust charging infrastructure and grid integration.

- **EV Technology**:
  - **Battery Management Systems (BMS)**: Ensures safe and efficient battery operation.
  - **Power Electronics**: Inverters and converters for efficient power conversion and motor control.
- **Charging Infrastructure**:
  - **Fast Chargers**: DC fast chargers enable rapid charging, reducing downtime for EV users.
  - **Smart Charging**: Integrates with smart grids to manage load and optimize energy use.

5. Building Automation Systems (BAS)

- Building Automation Systems enhance energy efficiency and comfort in residential, commercial, and industrial buildings.

- **Technical Components**:
  - **Sensors and Actuators**: Monitor and control environmental parameters like temperature, humidity, and lighting.
  - **Control Systems**: Programmable logic controllers (PLCs) and building management systems (BMS) for centralized control.
- **Applications**:
  - **Energy Management**: Optimizing HVAC, lighting, and other systems for energy savings.
  - **Security and Access Control**: Integrating surveillance, alarms, and access systems.

6. Power Electronics and Smart Inverters

➢ Power electronics play a crucial role in the modern electrical landscape by improving the efficiency and control of power systems.

- **Inverters and Converters**:
  - **Technical Aspects**: Devices that convert AC to DC and vice versa, critical for renewable energy systems and EVs.
  - **Smart Inverters**: Capable of managing grid interactions, providing reactive power support, and enhancing grid stability.
- **Applications**:
  - **Renewable Energy Systems**: Ensuring smooth integration and optimal performance.
  - **Industrial Applications**: Variable speed drives for motors and automation systems.

CHAPTER:4 – VILLAGE LEVEL SOCIAL ACTIVITY - WITH PHOTOGRAPH

4.1 Tree plantation in village

Fig.4.1 Social activity

- We are going with our team in allocated village.
- We are meeting to the peoples of village and give the guidance to people about save the tress.
- Then we are plant the tress in the village.

CHAPTER:5 – DESCRIBE ABOUT 'PASUNIYA'

5.1 Details

5.1.1 Introduction about Pasuniya

- Pasuniya village is located in the Dehgam taluka of Gandhinagar district of Gujarat. Pasuniya lies 21 km away from the sub-district headquarters of Dehgam and approximately 43 km from the district headquarters of Gandhinagar.

- The river Meswo passes through the Pasuniya village. Which divides in to two parts: Nana Pasuniya and Mota Pasuniya.

Fig.5.1 Pasuniya Village

- According to Census 2011 information the location code or village code of Pasuniya village is 511398.
- The total geographical area of village is 295.48 hectares.
- There are about 164 houses in Pasuniya village. Pincode of Pasuniya village locality is 382433.
- Pasuniya has a total population of 852 peoples, out of which male population is 436 while female population is 416.
- Literacy rate of Pasuniya village is 66.55% out of which 77.29% males and 55.29% females are literate.

- Ahmadabad is nearest town to Pasuniya for all major economic activities, which is approximately 19km away.

Parameter	Information
Name	Pasuniya
Taluka	Dehgam
District	Gandhinagar
State	Gujarat
Distance from Gandhinagar	43 km
Pin code	382433
Language	Gujarati, Hindi
Time zone	UTC+5:30(IST)
Elevation	76 meters
Coordinates	20.08°N 75.31°E

Table 8 Data of Pasuniya Village

5.1.2 Justification/ Need of study

- By this Vishwakarma Yojana project, government wants technical solution of the problem of villages at the engineering point of view. In this project, the common problems of village are solved by the engineering students. The basic need of rural development program have been alleviation of poverty and unemployment through creation of basic social and economic infrastructure, provision of training to rural unemployed youth and providing employment to marginal Farmers/Laborers to discourage seasonal and permanent migration to urban areas. Through various government departments are involved in various infrastructural development works, a holistic view and modern solutions (Aesthetic, Vastu shastra, etc.) can be provided by new engineers under Vishwakarma Yojana. Study of villages is done by the students with this view. 54% of India's population is below 25 years and most of them live in rural areas with very little employment opportunities. Literacy is the major problem in rural development program. Everyone wants to go to the cities, so that rural people's remains as ignores part by the policy makers also. Privatization concept is useful for rural development but, government not paying much attention to this aspect. To reduce this migration in this area focus is essential.

5.1.3 Study area:

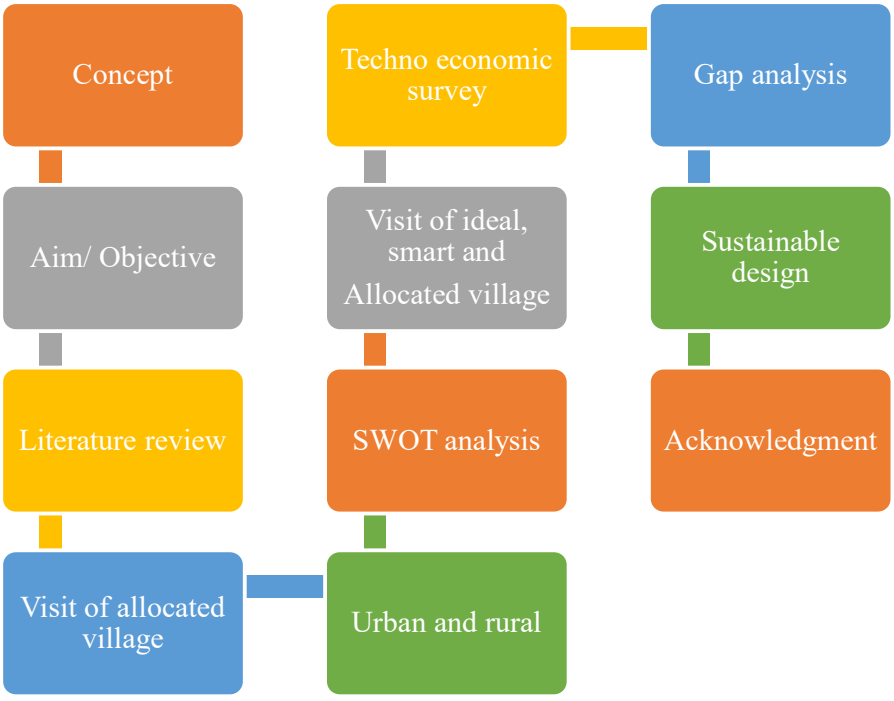
- Pasuniya is a village in Dehgam Taluka in Gandhinagar District of Gujarat state, India. The native language of Pasuniya is Gujarati. Pasuniya is located in the UTC +5:30 time zone and it follows Indian standard time (IST). Area located at 76 meters above sea level in rural region of Gandhinagar district of Gujarat. According to the administration

records, the village code of Pasuniya is 382433. Its geographical coordinate are 20.08° North 75.31° East. The latitude 21.7679 and longitude 78.8718 are the geo-coordinate of the Pasuniya. The other nearest state capital from Pasuniya is Ahmedabad and its distance is 19KM. The total area of village is 295.48 hectares.

5.1.4 Objective and scope of the study:

- To fulfill common requirement like drinking water, drainage system, transport system, improve living standard of people. To manage growth through good planning and appropriate development control, reduce migration from rural to urban areas due to lack of basic services and sufficient economic activities in rural areas. Electricity connections like street lighting that is energy efficient and eco-friendly. Health and education facilities should be provided and ensure proper delivery of facilities to village dwellers. Repair & maintenance of existing public buildings like gram panchayat, public library, school buildings, health center, public toilet block & other.

5.1.5 Plan for village development



5.1.6 Village problem summary with feasible / smart solution

5.1.6.1 Road conditions

- Approach road of the village is in very good condition but the inner roads of the village is in bad condition.

5.1.6.2 No facility of Health Center

- There is no facility for medical emergency available within the village. So, we have planned a design of primary health care center for village.

5.1.6.3 Bank

- There is no Bank facility available within the village. So, we have planned a design of bank for village.

5.1.6.4 Transportation facility

- There is no Transportation facility available within the village people have to walk around 10km to go on bus stop or any other transport.

5.2 Study area Profile

5.2.1 Study area location

- Pasuniya is a village in Dehgam Taluka in Gandhinagar District of Gujarat state, India. The native language of Pasuniya is Gujarati. Pasuniya is located in the UTC +5:30 time zone and it follows Indian standard time (IST). Area located at 76 meters above sea level in rural region of Gandhinagar district of Gujarat. According to the administration records, the village code of Pasuniya is 382433. Its geographical coordinate are 20.08° North 75.31° East. The latitude 21.7679 and longitude 78.8718 are the geo-coordinate of the Pasuniya. The other nearest state capital from Pasuniya is Ahmedabad and its distance is 19KM. The total area of village is 295.48 hectares.

Fig. 5.2 Study area map

5.2.1 Base location map, Land map, Gram tal map

Fig.5.3 Pasuniya Land map

Fig.5.4 Satellite image

5.2.3 Physical & Demographic Growth

- Pasuniya is a small size village located Dehgam taluka of Gandhinagar district, Gujarat, with total population of 852 as per census 2011, in which 436 are male and 416 are female. It has a literacy rate of 77.29% males and 55.29% females. Gujarati is the Local Language here.

5.2.4 Economic generation profile

- In part years of Pasuniya village, there were basic infrastructure facilities were available. And after new government schemes and development programs were introduces the condition of village got more improved.

5.2.5 Actual problem faced by village

- Pasuniya village don't have a proper road connectivity and unplanned roads are passes through the village.
- Village also needs an bridge on Meswo river So in the monsoon they are not facing many problems and also connects Nana Pasuniya and Mota Pasuniya.
- And another point is that village don't have an Public Health Centre (PHC), Bank & Post-office.
- Also, they area facing the problem in monsoon is a erosion of the land.
- Also, in education there is only primary schools up to 1 to 8 std. only and the schools also needs a redevelopment in the village.
- As per Sarpanch and Talati village also needs a bridge on Meswo river it can connect Nana Pasuniya and Mota Pasuniya.
- If we constructed bridge over Meswo river so it is very useful for the villagers because of this they do not face any problem to cross river in monsoon, also village get a lot of facilities after this connectivity.

5.3 Data collection

5.3.1 Describe method for Data collection

- Direct communication
- Government websites
- Communication
- Self-observation
- Research papers

5.3.2 Primary details of survey

- Pasuniya village is located in Gandhinagar district of Gujarat state. It is a small Village with population of 852 as per census 2011 people.
- The total area of the village is 295.48 hectares.
- The nearest town of the Pasuniya is Ahmedabad and Gandhinagar.
- Pasuniya village having a Gram Panchayat, Public toilet, Schools (Anganwadi & Primary schools only).
- Pasuniya village having a external roads bitumen and internal village road made of paver blocks.
- The nearest village of the Pasuniya demaliya, Pasunj & Kuha.

5.3.3 Average size of the House

- In Pasuniya village houses are old structure with load bearing walls.

Fig.5.5 Housing Condition

5.3.4 No of human being in one house

- There are about 250 (approx.) houses in Pasuniya village according to survey and average human being in one house is about 4-5.

5.3.5 Local production of material in the Village and outsourced by the Villagers

- Locally available material
  - Milk
  - Vegetables
  - Wheat and rice
- Outsourced available material
  - Brick
  - Concrete
  - Cement
  - Stationery products like books and other
  - Package food etc.

5.3.6 Demographic details

Table 9 Demographic detail of Pasuniya

Sr No.	Census	Population	Male	Female	Total number of households
1.	2001	620	355	265	115
2.	2011	852	436	416	164

5.3.7 Occupation details

- In Pasuniya village major occupation of the villagers is white-collar job, Agriculture, and vegetable grocery selling.
- The major crops of the village are Wheat, Pearl millet, and Vegetables.

5.4 Infrastructure Details

5.4.1 Health, education, community hall, library

- There is school facility available form 1-8th class.
- There is no facilities like Public health care center, community hall and library present in the village.

Fig.5.6 Nana Pasuniya Primary School

Fig.5.7 Nana Pasuniya School campus

Fig.5.8 Mota Pasuniya Primary School

Fig.5.9 Anganwadi

5.4.2 Drinking water / Water management Facilities

- The government supply water is used by the villagers there is 24 x 7 water supply in the village. Piped water supplying system is exist in Pasuniya village in which water is supplied to all house via pipe connection.

5.4.3 Road Network

- The main roads of the village are made of Bituminous and interanal roads are made of paver blocks and R.C.C.

Fig.5.10 Roads in Pasuniya

5.4.4 Public garden / Playground / Pond / Other recreational facilities

Fig.5.11 Meswo River in Pasuniya

- There is no facility of the Public garden, Play ground, Pond but there is one river passes through the village name as Meswo River.

5.4.5 Public Building

- There is One Gram Panchayat building available as a public building in the village.

Fig.5.12 Gram Panchayat in Pasuniya

5.4.6 Maintenance of existing public infrastructure

Fig.5.13 Public Toilet

- In village existing public building like gram panchayat and school are there. Gram panchayat are in good condition. School is in worst condition require maintenance as soon as possible.
- Public Toilet also requires maintenance.

5.4.7 Tourism development

- There is no famous place for tourism development, but village life and agricultural field have its own beauty because of a lot of greenery.

5.4.8 Rain water harvesting – waste water recycling

- There is no rain water harvesting and waste water recycling system available in village.

5.4.9 Technology mobile / WIFI / internet usage details

- There are mobile tower facilities available in the Pasuniya village and also because of technology development in this era all the people have mobiles hence in most of the places even in small Villages we can see the technology Mobile as well as internet usage. In Sarpanch office wifi facilities are available.

5.4.10 Sports activities in village

- There is no sport Centre in the village.

5.5 Electrical

5.5.1 Electricity concept at village

- In the Pasuniya village electricity is provided by UGVCL. The supply of electricity is 24*7. Through the main feeder outside the village electricity is then supplied by stepping down to 240 v AC. In this village electricity distribution is done via overhead lines. The agricultural areas also have electricity connection.

Fig.5.14 Transmission Tower in Pasuniya

5.5.2 Electrical Infrastructure

1. **Generation**: Electricity is generated using various sources, including fossil fuels (coal, natural gas), nuclear power, and renewable energy (solar, wind, hydro, geothermal).

- **Power Plants**: Facilities where electricity is produced. Modern plants incorporate advanced technologies to enhance efficiency and reduce emissions.
- **Renewable Energy Systems**: Solar panels, wind turbines, and hydroelectric dams represent a growing share of global electricity generation.

2. **Transmission**: The process of transporting high-voltage electricity from power plants to substations near populated areas.

- **Transmission Lines**: High-voltage lines that carry electricity over long distances. Innovations include the use of high-temperature superconductors and HVDC (High Voltage Direct Current) technology.
- **Substations**: Facilities that step down high-voltage electricity to lower voltages suitable for distribution.

3. **Distribution**: The final stage of delivering electricity to consumers.

- **Distribution Networks**: Include lower voltage power lines and transformers that deliver electricity to homes, businesses, and industries.
- **Smart Grids**: Advanced systems that use digital technology to manage electricity distribution efficiently and reliably. They incorporate sensors, smart meters, and automated controls.

4. **Innovations in Electrical Infrastructure**

- **Smart Grids**
  - **Advanced Metering Infrastructure (AMI)**: Enables two-way communication between utilities and consumers, allowing for real-time monitoring and management of energy use.
  - **Demand Response**: Programs that adjust consumer electricity usage during peak periods to maintain grid stability and reduce costs.
  - **Distributed Energy Resources (DERs)**: Integration of small-scale renewable energy sources, like rooftop solar panels, into the grid.
- **Renewable Energy Integration**
  - **Grid-Tied Systems**: Enable renewable energy sources to feed directly into the grid, providing real-time power and reducing dependence on fossil fuels.
  - **Energy Storage Systems (ESS)**: Batteries and other storage technologies store excess energy generated from renewables for use during periods of high demand or low production.

5. **Microgrids**

- **Definition**: Localized grids that can operate independently or in conjunction with the main grid. They enhance resilience and reliability, especially in remote or disaster-prone areas.
- **Components**: Include local power generation (solar, wind, diesel generators), energy storage, and control systems.

6. **Electric Vehicle (EV) Infrastructure**

- **Charging Stations**: Networks of charging stations are essential for supporting the growing number of EVs. Fast chargers and smart charging systems optimize the load on the grid.
- **Vehicle-to-Grid (V2G) Technology**: Allows EVs to feed electricity back into the grid, providing a distributed energy resource.

CHAPTER:6 – DESIGN PLANNING PROPOSAL

6.1 Reason for student recommending this design

- The reason behind recommending the below design is due to the gap analysis survey that we have done during the time we have visited the village.

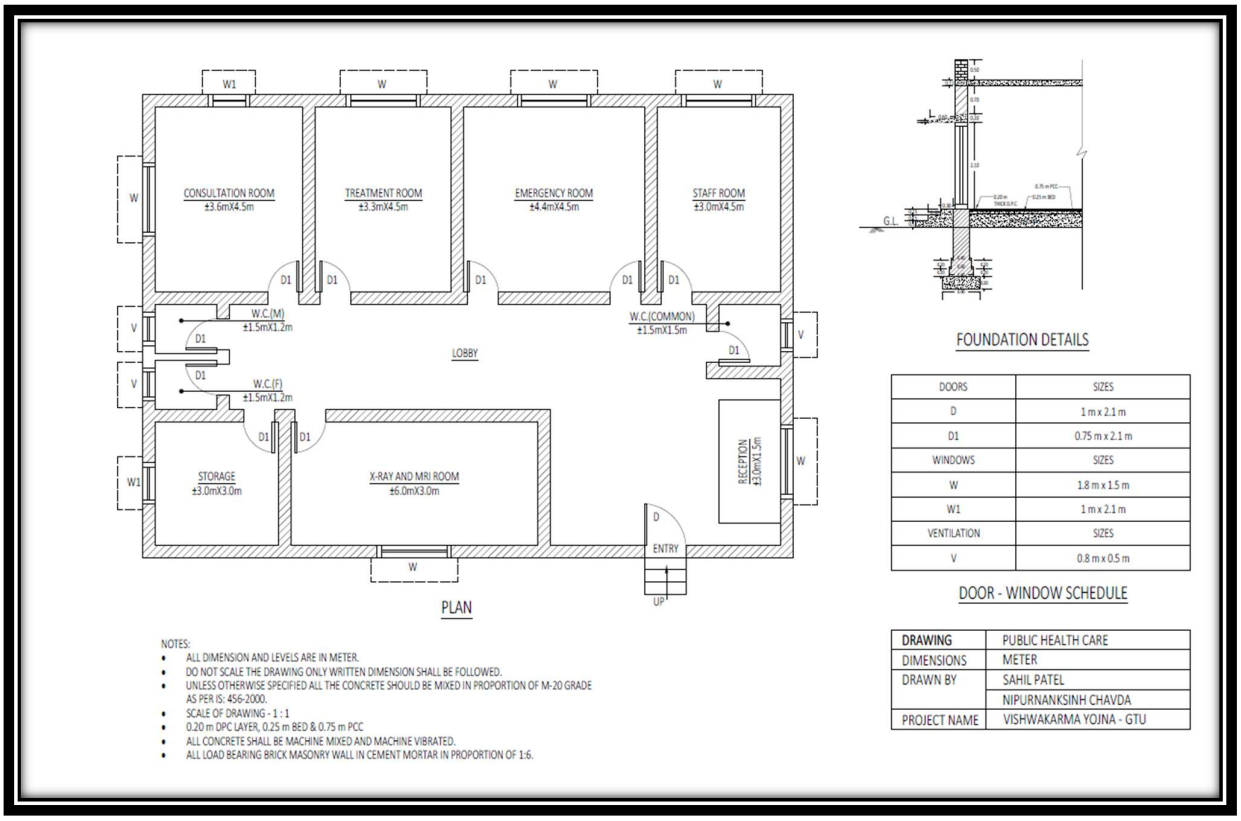
6.2 About each design suggestion / benefit for the villagers / conclusion of the design

Table 10 Design suggestion

Sr no.	Design name	Benefits for the villagers
1.	Bus boot	Providing a transportation facilities for villagers
2.	Public Health Care	Providing a Health Care facilities in the village
3.	Bank	Providing a Financial facilities in the village
4.	Post-office	Providing a Mail and Post facilities in the village
5.	Bridge	To provide Road connectivity between Nana Pasuniya and Mota Pasuniya
6.	Water Treatment Plant	water security, supporting agriculture, reducing costs, and providing environmental and health benefits, rainwater harvesting is a vital practice for the sustainable development of rural communities.

6.3 Design Proposals

6.3.1 Public Health Care



DOORS	SIZES
D	1 m x 2.1 m
D1	0.75 m x 2.1 m
WINDOWS	SIZES
W	1.8 m x 1.5 m
W1	1 m x 2.1 m
VENTILATION	SIZES
V	0.8 m x 0.5 m

DRAWING	PUBLIC HEALTH CARE
DIMENSIONS	METER
DRAWN BY	SAHIL PATEL
	NIPURNANKSINH CHAVDA
PROJECT NAME	VISHWAKARMA YOJNA - GTU

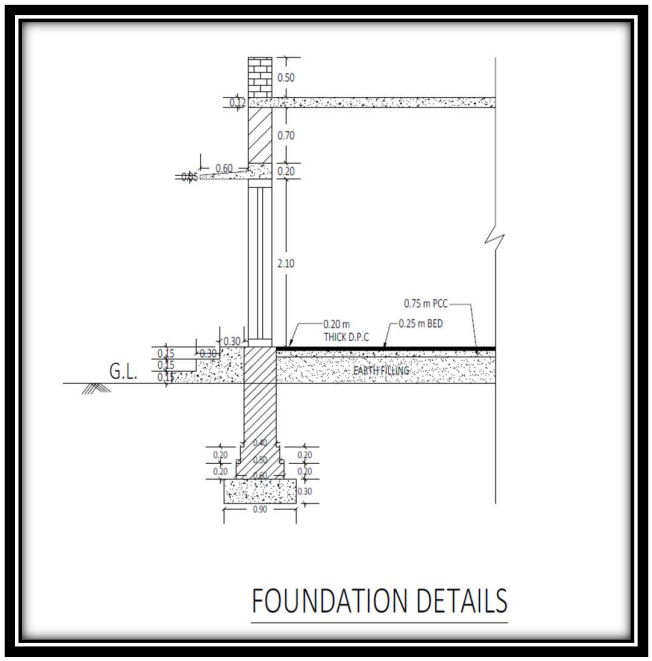


Table 11 Measurement sheet for Public Health Care

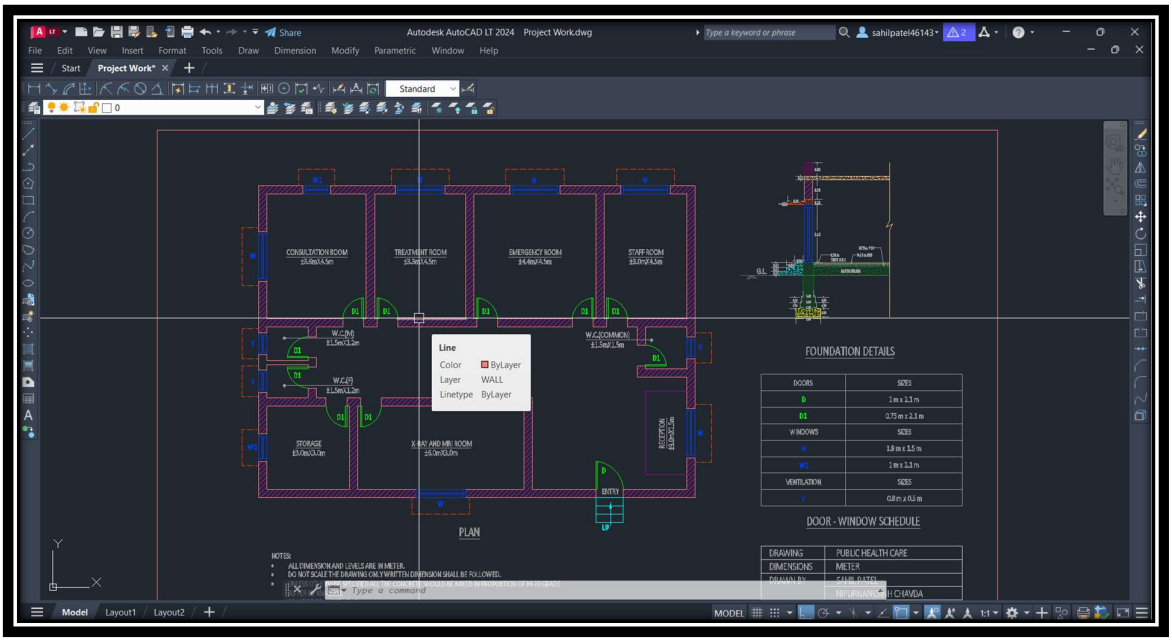
Sr. No.	Description of items	No.	Length (m.)	Breadth (m.)	Depth (m.)	Quantity (m.)
1.	Excavation	-	96.9	0.9	1.5	130.81m^3
2.	P.C.C.	-	96.9	0.9	0.3	26.16m^3
3.	Brick work up to plinth for foundation					
	Steps	-	-	-	-	72.7m^3
	Stair steps	-	-	-	-	0.265m^3
4.	Earth filling	-	-	-	-	32.05m^3
5.	R.C.C. work					
	Slab	-	15.8	11.55	0.12	21.89m^3
	Chajja	-	-	-	-	0.99m^3
	Lintel	-	-	-	-	1.62m^3
	Total R.C.C. Work	-	-	-	-	24.5m^3
6.	Brick work in super structure	-	102.3	0.3	3.0	92.07m^3
	Parapet	-	52.3	0.3	0.50	7.84m^3
	Deduction :					
	Lintel (Doors, Windows, and Ventilation)	-	-	-	-	13.09m^3
	Total Brickwork for Super structure	-	-	-	-	86.82m^3
7.	D.P.C.	-	101.4	0.4	-	40.56m^2
8.	Flooring (Rooms + Doors)	-	-	-	-	99.75m^2
9.	Plaster (Inside)	-	-	-	-	334.2m^2
	Deduction	-	-	-	-	27.00m^2
	Total Inside Plaster	-	-	-	-	307.2m^2
	Outside Plaster (Walls)	2	15.8	-	3.95	124.82m^2
		2	12.15	-	3.95	95.98m^2
	Chajja	-	-	-	-	23.76m^2
	Deduction	-	-	-	-	10.35m^2
	Total Outside Plaster	-	-	-	-	234.21m^2

10.	Skirting Deduction (Doors) Total skirting	- - -	- - -	- - -	- - -	111.40m 16.00m 95.40m
11.	Paint work Inside Deduction Total inside paint work Outside Chajja Deduction Total Outside Plaster	 - - 2 2 - - -	 - - 15.8 12.15 - - -	 - - - - - - -	 - - 3.95 3.95 - - -	 334.2m^2 27.00m^2 307.20m^2 124.82m^2 95.98m^2 23.76m^2 10.35m^2 234.81m^2

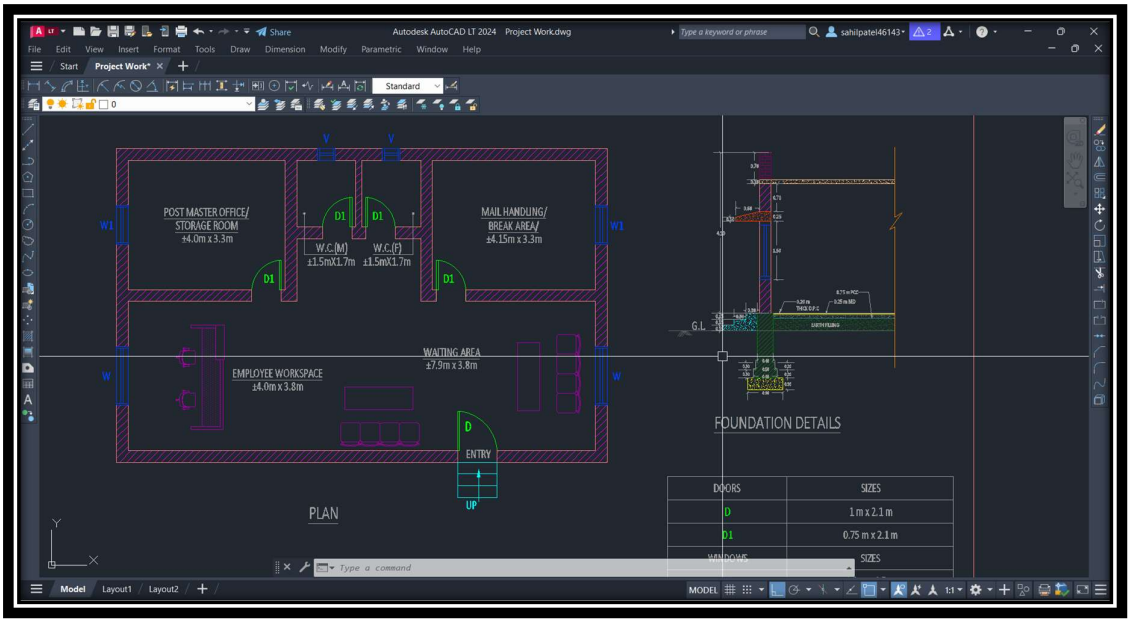
Table 12 Abstract sheet for Public Health Care

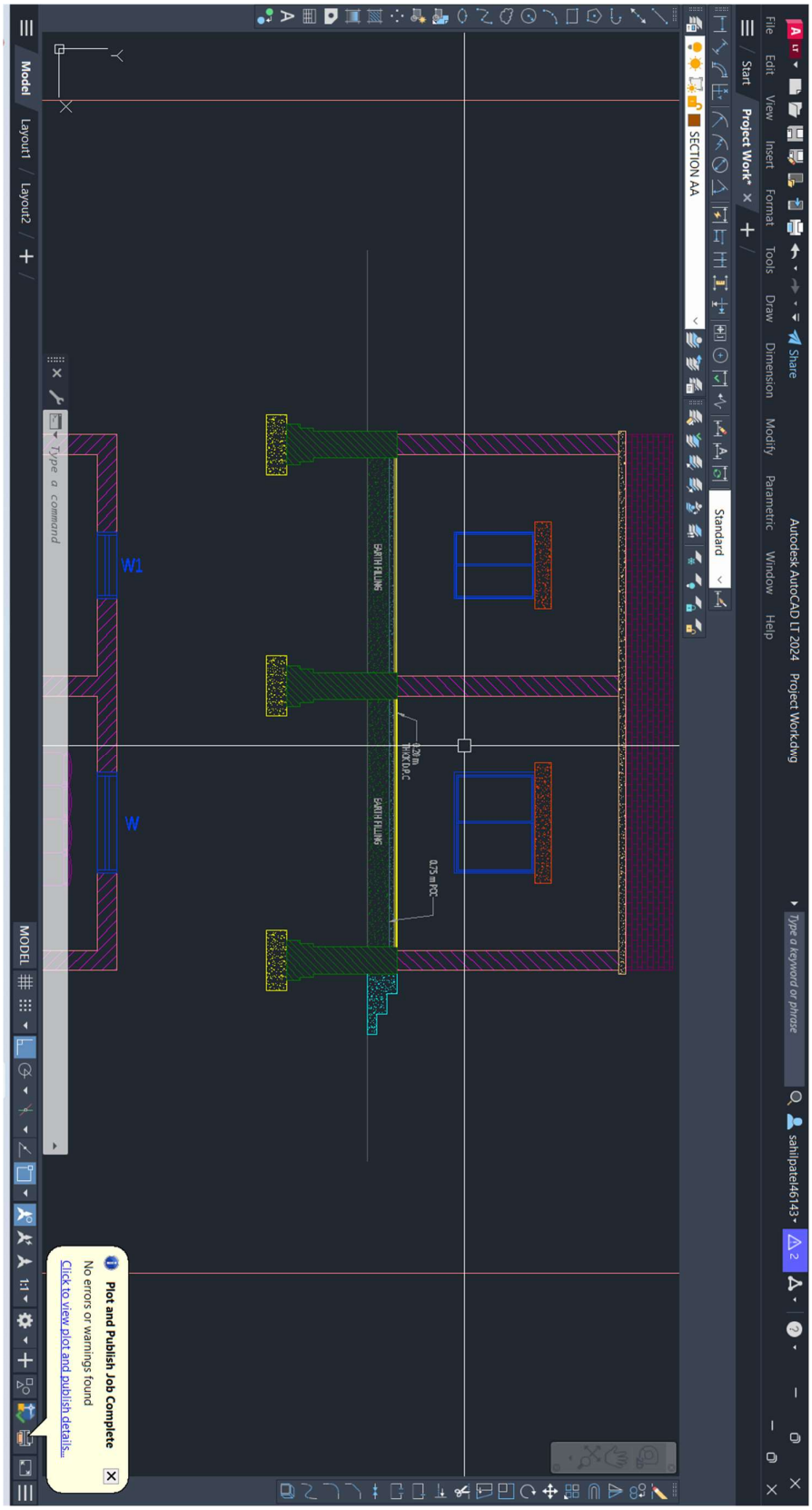
Item No.	Description	Qty.	Rate	Per	Amount (₹)
1.	Excavation	130.81	110	m^3	14,389.10
2.	P.C.C.	26.16	3,400	m^3	88,944.00
3.	Brick work up to plinth	72.96	3,500	m^3	2,55,360.00
4.	Earth filling up to plinth	32.05	30	m^3	961.5
5.	R.C.C. work	25.4	8,200	m^3	2,08,280.00
6.	Brickwork in super structure	86.82	3,700	m^3	3,21,234.00
7.	D.P.C.	40.56	815	m^2	33,056.40
8.	Flooring	99.75	800	m^2	79,800.00
9.	Plastering	541.41	400	m^2	2,16,564.00
10.	Skirting	95.4	415	m	39,591.00
11.	Paint	541.41	80	m^2	43,312.80

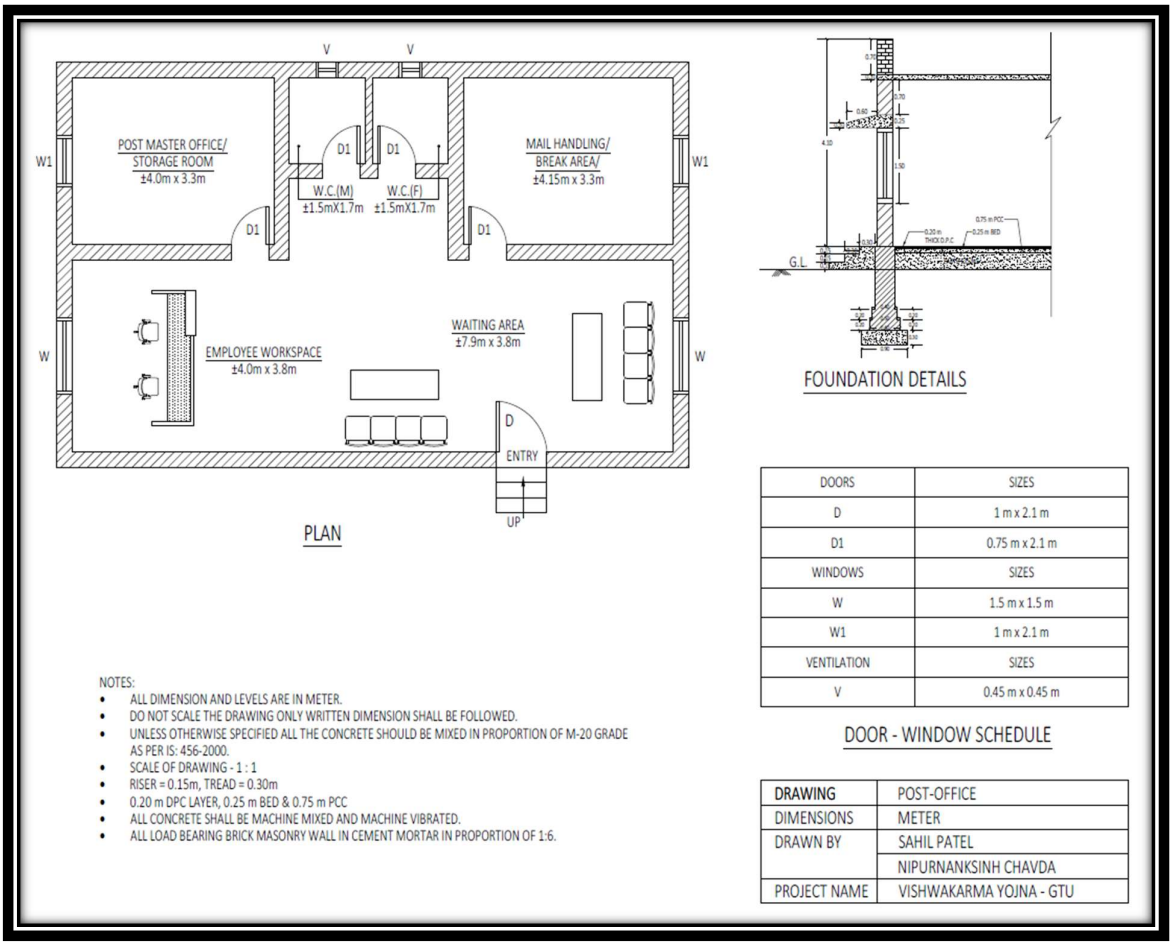
Total Cost = 13,01,493 ₹
Add (1.5%) Water Charges= 19,522 ₹
Add (10%) Construction = 1,30,149 ₹
Profit
Total Cost = 14,51,164 ₹



6.3.2 Post-office



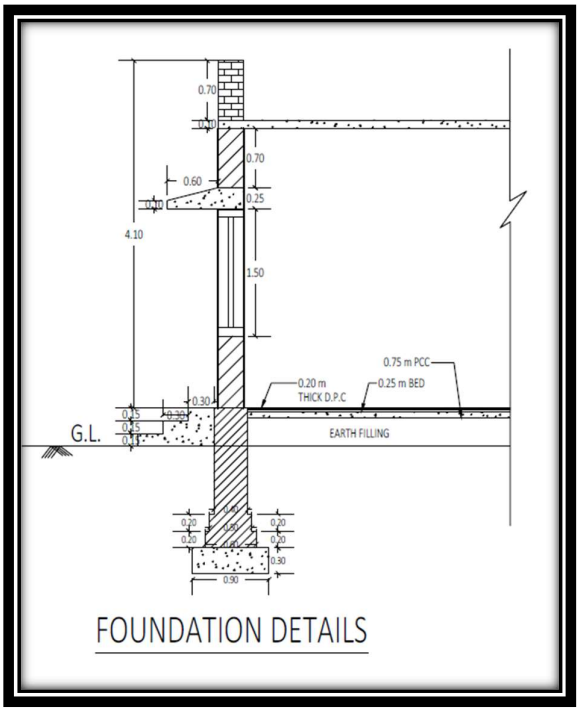

Autodesk AutoCAD LT 2024 Project Work.dwg
Project Work*
SECTION AA
Standard
W1
W
EARTH FILLING
EARTH FILLING
0.75 m RCC
Plot and Publish Job Complete
No errors or warnings found
Click to view plot and publish details.
MODEL
Model
Layout1
Layout2
Type a command



DOORS	SIZES
D	1 m x 2.1 m
D1	0.75 m x 2.1 m
WINDOWS	SIZES
W	1.5 m x 1.5 m
W1	1 m x 2.1 m
VENTILATION	SIZES
V	0.45 m x 0.45 m

DOOR - WINDOW SCHEDULE

DRAWING	POST-OFFICE
DIMENSIONS	METER
DRAWN BY	SAHIL PATEL
	NIPURNANKSINH CHAVDA
PROJECT NAME	VISHWAKARMA YOJNA - GTU



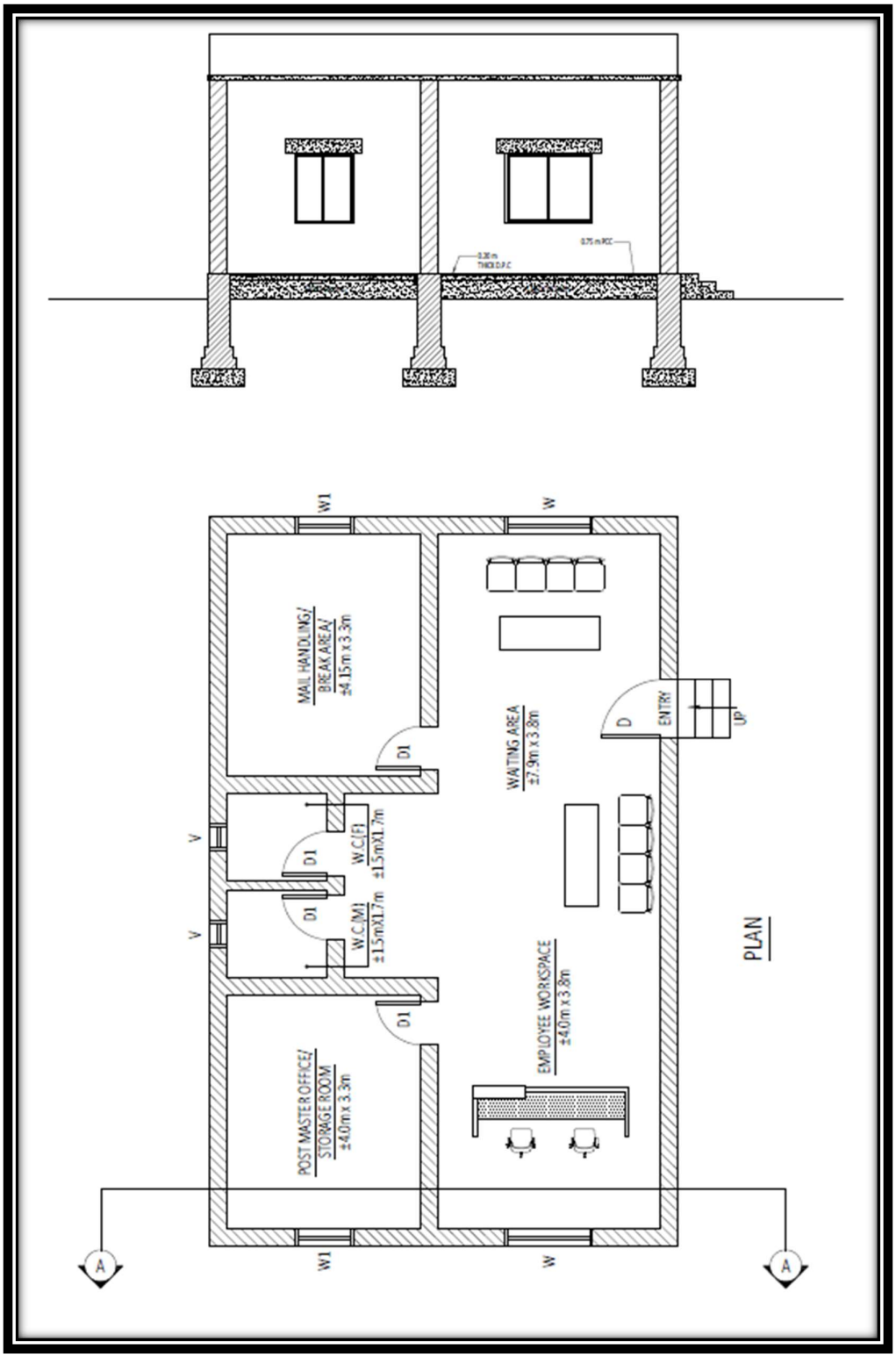

W1
W
MAIL HANDLING/
BREAK AREA/
±4.15m x 3.3m
D1
WAITING AREA
±7.9m x 3.8m
D
ENTRY
UP
V
D1
W.C(F)
±1.5mX1.7m
V
D1
W.C(M)
±1.5mX1.7m
D1
EMPLOYEE WORKSPACE
±4.0m x 3.8m
POST MASTER OFFICE/
STORAGE ROOM
±4.0m x 3.3m
PLAN
A
A

Table 13 Measurement sheet for post-office

Sr. No.	Description of items	No.	Length (m.)	Breadth (m.)	Depth (m.)	Quantity (m.)
1.	Excavation	-	34.00	0.9	1.1	33.66m^3
2.	P.C.C.	-	34.00	0.9	0.2	6.12m^3
3.	Brick work up to plinth for foundation					
	Steps	-	-	-	-	22.47m^3
	Stair steps	-	-	-	-	0.4m^3
4.	Earth filling	-	-	-	-	51.23m^3
5.	R.C.C. work					
	Slab	-	-	-	-	9.25m^3
	Chajja	-	-	-	-	0.45m^3
	Lintel	-	-	-	-	0.76m^3
	Total R.C.C. Work	-	-	-	-	10.46m^3
6.	Brick work in super structure	-	36.4	0.3	2.7	29.48m^3
	Parapet	-	39.8	0.3	2.7	8.35m^3
	Deduction : Lintel (Doors, Windows, and Ventilation)	-	-	-	-	5.94m^3
	Total Brickwork for Super structure	-	-	-	-	31.88m^3
7.	D.P.C.	-	36.4	0.3	-	10.92m^2
8.	Flooring (Rooms + Doors)	-	-	-	-	84.15m^2
9.	Plaster (Inside)	-	-	-	-	270.09m^2
	Deduction	-	-	-	-	17.27m^2
	Total Inside Plaster	-	-	-	-	253.63m^2
	Outside Plaster (Walls)	-	15.8	-	-	168.1m^2
	Chajja	-	-	-	-	8.28m^2
	Deduction	-	-	-	-	9.40m^2
	Total Outside Plaster		-	-	-	166.97m^2

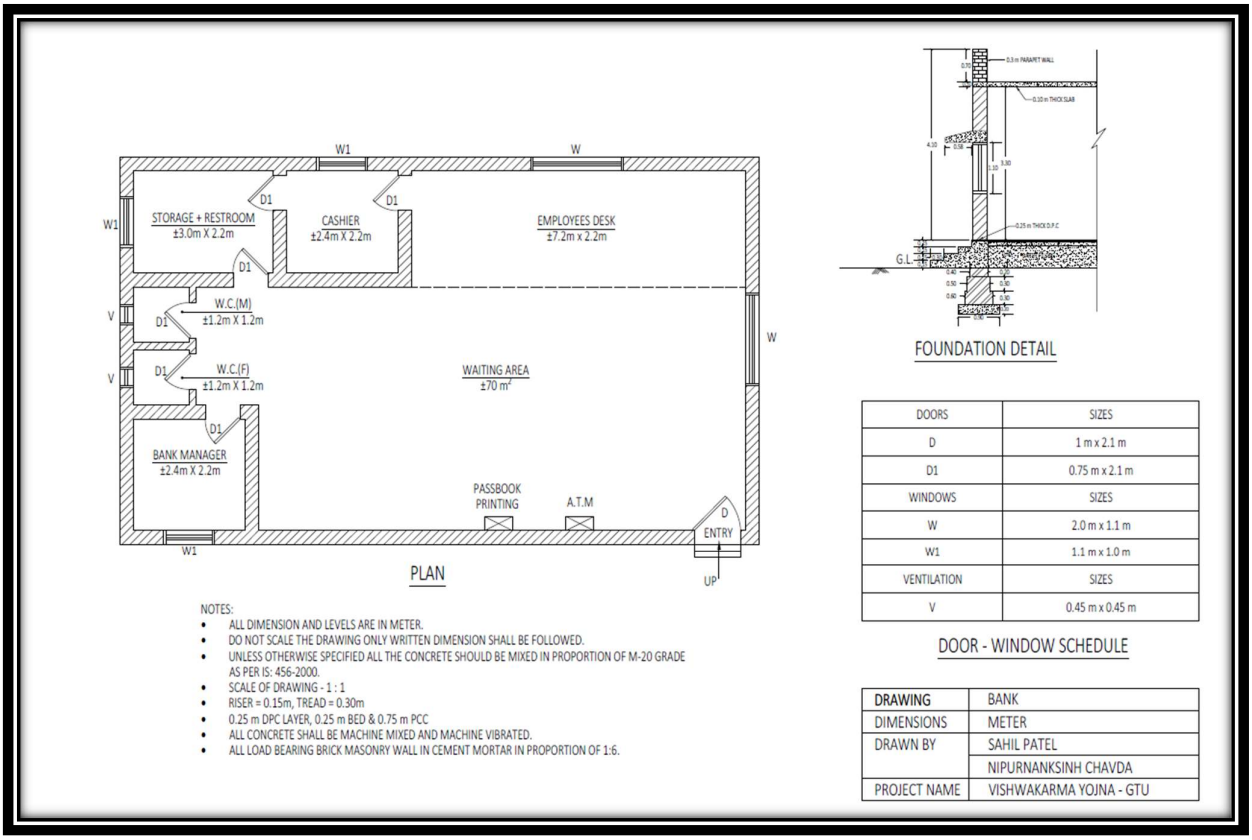
10.	Skirting Deduction (Doors) Total skirting	- - -	- - -	- - -	- - -	77.2m 4.75m 72.45m
11.	Paint work Inside Deduction Total inside paint work Outside Chajja Deduction Total Outside Paint work	 - - - - - -	 - - - - - -	 - - - - - -	 - - - - - -	 270.09m^2 17.27m^2 253.63m^2 168.1m^2 8.28m^2 9.40m^2 166.97m^2

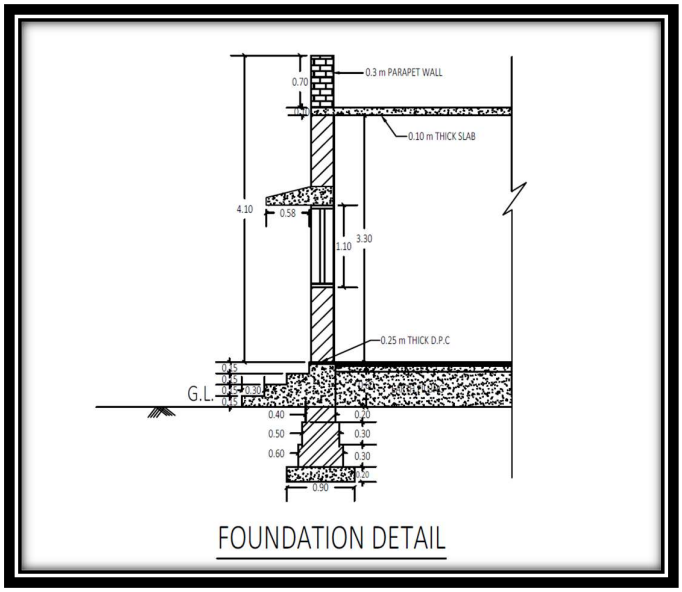
Table 14 Abstract sheet for Post-office

Item No.	Description	Qty.	Rate	Per	Amount (₹)
1.	Excavation	33.66	110	m^3	3,702.60
2.	P.C.C.	6.12	3,400	m^3	20,808.00
3.	Brick work up to plinth	22.87	3,500	m^3	80,045.00
4.	Earth filling up to plinth	51.23	30	m^3	1,536.90
5.	R.C.C. work	10.46	8,200	m^3	85,772.00
6.	Brickwork in super structure	31.88	3,700	m^3	1,17,956.00
7.	D.P.C.	10.92	815	m^2	8,899.80
8.	Flooring	84.15	800	m^2	67,320.00
9.	Plastering	420.06	400	m^2	1,68,024.00
10.	Skirting	72.45	415	m	30,066.75
11.	Paint	420.06	80	m^2	33,604.80

Total Cost = 6,17,725 ₹
Add (1.5%) Water Charges= 9,266 ₹
Add (10%) Construction = 61,773 ₹
Profit
Total Cost = 6,89,000 ₹

6.3.3 Bank


W1
W
D1
STORAGE + RESTROOM
±3.0m X 2.2m
CASHIER
±2.4m X 2.2m
EMPLOYEES DESK
±7.2m x 2.2m
W.C.(M)
±1.2m X 1.2m
W.C.(F)
±1.2m X 1.2m
WAITING AREA
±70 m²
BANK MANAGER
±2.4m X 2.2m
PASSBOOK
PRINTING
A.T.M
D
ENTRY
UP
V
PLAN
NOTES:
ALL DIMENSION AND LEVELS ARE IN METER.
DO NOT SCALE THE DRAWING ONLY WRITTEN DIMENSION SHALL BE FOLLOWED.
UNLESS OTHERWISE SPECIFIED ALL THE CONCRETE SHOULD BE MIXED IN PROPORTION OF M-20 GRADE AS PER IS: 456-2000.
SCALE OF DRAWING - 1 : 1
RISER = 0.15m, TREAD = 0.30m
0.25 m DPC LAYER, 0.25 m BED & 0.75 m PCC
ALL CONCRETE SHALL BE MACHINE MIXED AND MACHINE VIBRATED.
ALL LOAD BEARING BRICK MASONRY WALL IN CEMENT MORTAR IN PROPORTION OF 1:6.
0.3 m PARAPET WALL
0.10 m THICK SLAB
0.25 m THICK D.P.C
G.L.
FOUNDATION DETAIL
DOORS | SIZES
D | 1 m x 2.1 m
D1 | 0.75 m x 2.1 m
WINDOWS | SIZES
W | 2.0 m x 1.1 m
W1 | 1.1 m x 1.0 m
VENTILATION | SIZES
V | 0.45 m x 0.45 m
DOOR - WINDOW SCHEDULE
DRAWING | BANK
DIMENSIONS | METER
DRAWN BY | SAHIL PATEL
NIPURNANKSINH CHAVDA
PROJECT NAME | VISHWAKARMA YOJNA - GTU


0.3 m PARAPET WALL
0.10 m THICK SLAB
0.25 m THICK D.P.C
G.L.
FOUNDATION DETAIL

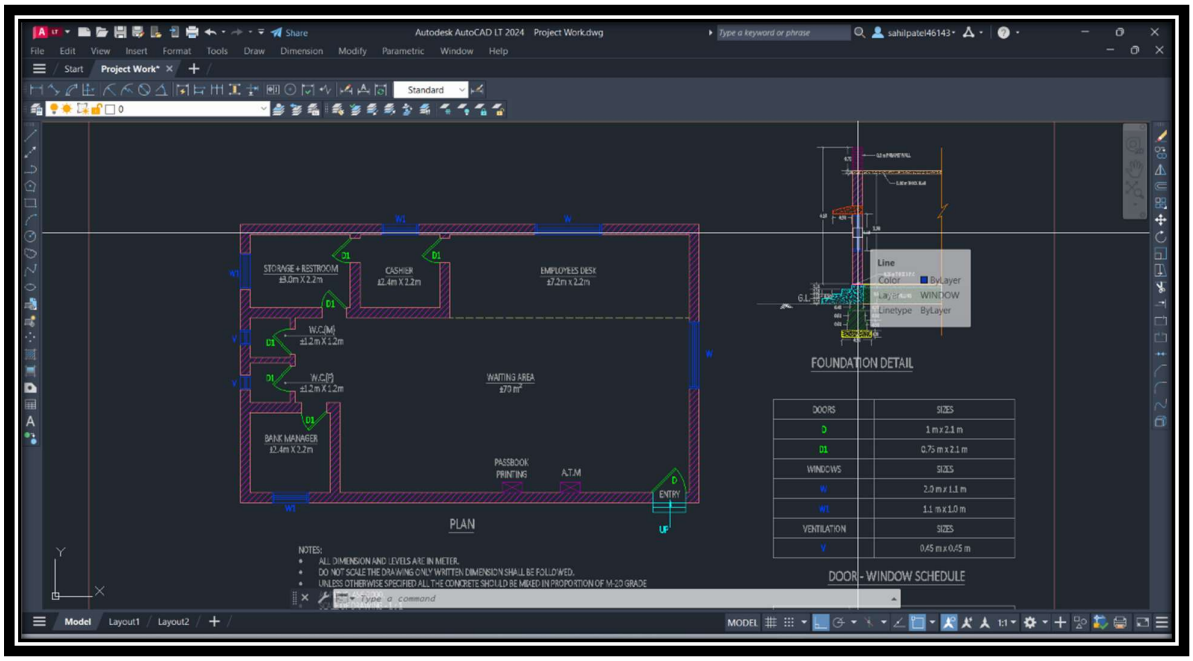

Autodesk AutoCAD LT 2024 Project Work.dwg
STORAGE + RESTROOM
CASHIER
EMPLOYEES DESK
W.C.(M)
W.C.(F)
WAITING AREA
BANK MANAGER
PASSBOOK PRINTING
A.T.M
ENTRY
PLAN
NOTES:
ALL DIMENSION AND LEVELS ARE IN METER.
DO NOT SCALE THE DRAWING ONLY WRITTEN DIMENSION SHALL BE FOLLOWED.
UNLESS OTHERWISE SPECIFIED ALL THE CONCRETE SHOULD BE MIXED IN PROPORTION OF M-20 GRADE
FOUNDATION DETAIL
DOOR - WINDOW SCHEDULE
DOORS
SIZES
WINDOWS
VENTILATION

Table 15 Measurement sheet of Bank

Sr. No.	Description of items	No.	Length (m.)	Breadth (m.)	Depth (m.)	Quantity (m.)
1.	Excavation	-	58.70	0.9	1.1	58.13m^3
2.	P.C.C.	-	58.70	0.9	0.2	10.56m^3
3.	Brick work up to plinth for foundation Steps Stair steps	 - -	 - -	 - -	 - -	 38.64m^3 0.40m^3
4.	Earth filling In plinth	- -	- -	- -	- -	20.01m^3 33.09m^3
5.	R.C.C. work Slab Chajja Lintel Total R.C.C. Work	 - - - -	 13.8 13.8 13.8 -	 5.1 5.1 5.1 -	 0.10 0.60 0.98 -	 7.03m^3 0.45m^3 0.76m^3 8.61m^3
6.	Brick work in super structure Parapet **Deduction :** Lintel (Doors, Windows, and Ventilation) Total Brickwork for Super structure	- - - -	62.3 37.8 - -	0.3 0.3 - -	2.7 2.7 - -	50.46m^3 7.93m^3 6.77m^3 0.98m^3 50.64m^3
7.	D.P.C.	-	62.3	0.3	-	18.69m^2
8.	Flooring (Rooms + Doors)	-	-	-	-	110.02m^2
9.	Plaster (Inside) Deduction Total Inside Plaster Outside Plaster (Walls) Chajja Deduction Total Outside Plaster	- - - - - - 	- - - - - - -	- - - - - - -	- - - - - - -	306.70m^2 22.62m^2 284.08m^2 184.5m^2 11.04m^2 10.53m^2 185.01m^2

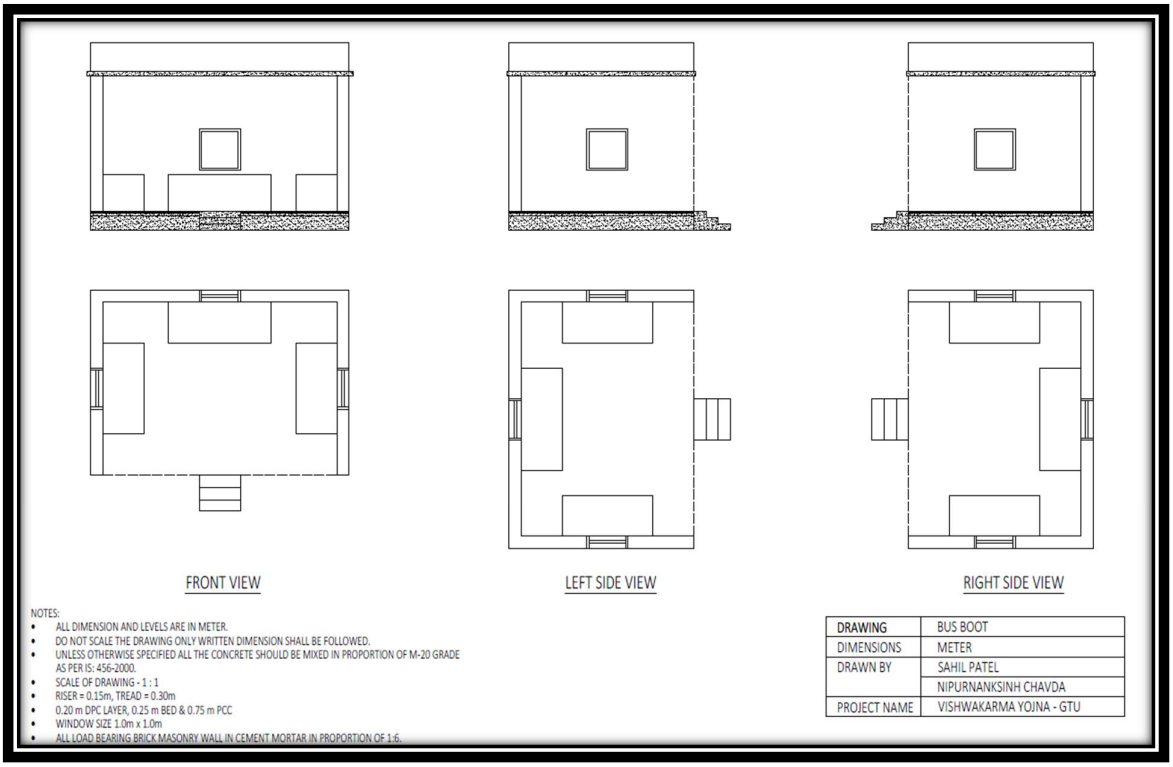
10.	Skirting Deduction (Doors) Total skirting	- - -	- - -	- - -	- - -	77.32m 5.5m 71.82m
11.	Paint work Inside Deduction Total inside paint work Outside Chajja Deduction Total Outside Paint work	 - - - - - -	 - - - - - -	 - - - - - -	 - - - - - -	 306.70m^2 22.62m^2 284.08m^2 184.5m^2 11.04m^2 10.53m^2 185.01m^2

Table 16 Abstract sheet of Bank

Item No.	Description	Qty.	Rate	Per	Amount (₹)
1.	Excavation	58.13	110	m^3	6,394.30
2.	P.C.C.	10.56	3,400	m^3	35,904.00
3.	Brick work up to plinth	39.04	3,500	m^3	1,36,640.00
4.	Earth filling up to plinth	53.19	30	m^3	1,595.70
5.	R.C.C. work	8.61	8,200	m^3	70,602.00
6.	Brickwork in super structure	50.64	3,700	m^3	1,87,368.00
7.	D.P.C.	18.69	815	m^2	15,232.35
8.	Flooring	110.02	800	m^2	88,016.00
9.	Plastering	469.09	400	m^2	1,87,636.00
10.	Skirting	71.82	415	m	29,805.30
11.	Paint	469.09	80	m^2	35,527.20

Total Cost = 7,92,020 ₹
Add (1.5%) Water Charges= 11,880 ₹
Add (10%) Construction = 79,202 ₹
Profit
Total Cost = 8,83,102 ₹
~ 8,84,000 ₹

6.3.4 Bus boot


FRONT VIEW
LEFT SIDE VIEW
RIGHT SIDE VIEW
NOTES:
ALL DIMENSION AND LEVELS ARE IN METER.
DO NOT SCALE THE DRAWING ONLY WRITTEN DIMENSION SHALL BE FOLLOWED.
UNLESS OTHERWISE SPECIFIED ALL THE CONCRETE SHOULD BE MIXED IN PROPORTION OF M-20 GRADE AS PER IS: 456-2000.
SCALE OF DRAWING - 1 : 1
RISER = 0.15m, TREAD = 0.30m
0.20 m DPC LAYER, 0.25 m BED & 0.75 m PCC
WINDOW SIZE 1.0m x 1.0m
ALL LOAD BEARING BRICK MASONRY WALL IN CEMENT MORTAR IN PROPORTION OF 1:6.
DRAWING BUS BOOT
DIMENSIONS METER
DRAWN BY SAHIL PATEL
NIPURNANKSINH CHAVDA
PROJECT NAME VISHWAKARMA YOJNA - GTU

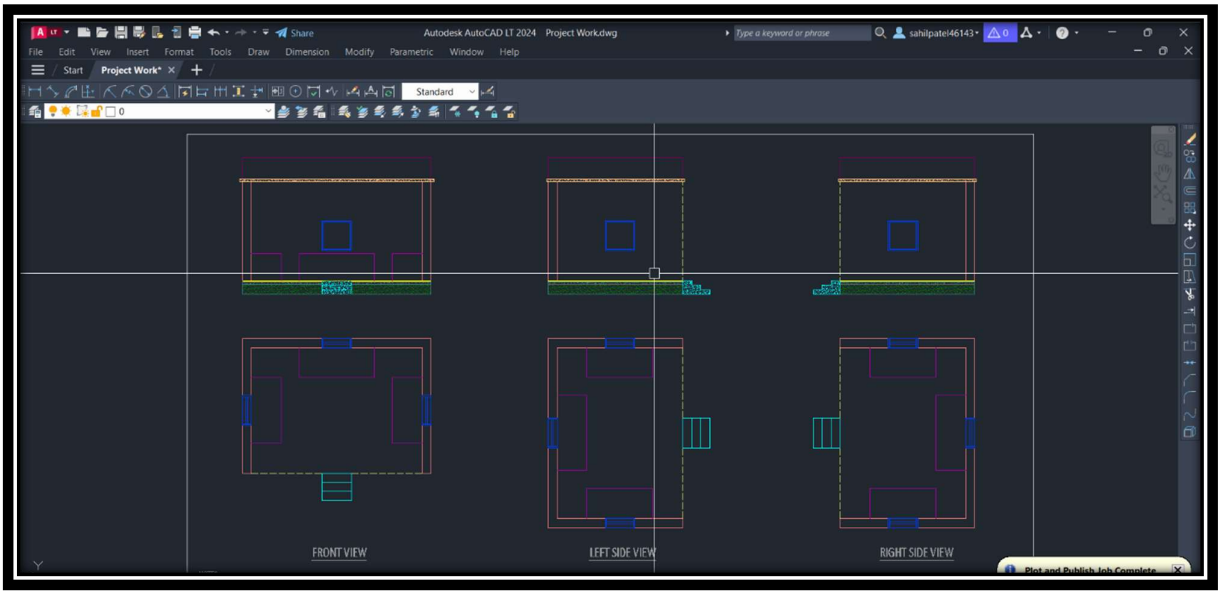

Autodesk AutoCAD LT 2024 Project Work.dwg
FRONT VIEW
LEFT SIDE VIEW
RIGHT SIDE VIEW

Table 17 Measurement sheet of Bus boot

Sr. No.	Description of items	No.	Length (m.)	Breadth (m.)	Depth (m.)	Quantity (m.)
1.	Excavation	-	14.70	0.9	1.1	14.55m^3
2.	P.C.C.	-	14.70	0.9	0.2	2.64m^3
3.	Brick work up to plinth for foundation					
	Steps	-	-	-	-	9.25m^3
	Stair steps	-	-	-	-	0.40m^3
						9.65m^3
4.	Earth filling					
	In plinth	-	-	-	-	5.31m^3
5.	R.C.C. work					
	Slab	-	6.3	4.2	0.10	2.64m^3
	Chajja	3	1.3	0.6	0.10	0.23m^3
	Lintel	3	1.3	0.3	0.20	0.23m^3
	Total R.C.C. Work	-	-	-	-	3.10m^3
6.	Brick work in super structure	-	14.7	0.3	2.7	11.90m^3
	Parapet	-	14.7	0.3	0.7	3.08m^3
	Deduction :					
	Lintel (Doors, Windows, and Ventilation)	3	1.0	0.3	1.0	0.9m^3
		3	1.0	0.3	0.2	0.234m^3
	Total Brickwork for Super structure					13.84m^3
7.	D.P.C.	-	14.7	0.3	-	4.41m^2
8.	Flooring (Rooms + Doors)	1	5.7	4.2	-	23.94m^2
9.	Plaster (Inside)	2	4.02	-	2.7	23.68m^2
	Ceiling	1	5.7	-	2.7	15.39m^2
	Deduction					
	W	3	1.0	-	1.0	3.00m^2
	Total Inside Plaster	-	-	-	-	59.01m^2
	Outside Plaster (Walls)	2	4.5	-	4.1	36.90m^2
		1	6.3	-	4.1	25.83m^2
	Chajja	6	1.0	0.6	-	3.60m^2

	Deduction	3	1.0	-	1.0	3.00m^2
	Total Outside Plaster					63.33m^2
10.	Paint work (Inside)	2	4.02	-	2.7	23.68m^2
	Ceiling	1	5.7	-	2.7	15.39m^2
	Deduction					
	W	3	1.0	-	1.0	3.00m^2
	Total Inside Paint work	-	-	-	-	59.01m^2
	Outside Paint work	2	4.5	-	4.1	36.90m^2
	(Walls)	1	6.3	-	4.1	25.83m^2
		6	1.0	0.6	-	3.60m^2
	Chajja	3	1.0	-	1.0	3.00m^2
	Deduction					
	Total Outside Paint work	-	-	-	-	63.33m^2

Table 18 Abstract sheet of Bus boot

Item No.	Description	Qty.	Rate	Per	Amount (₹)
1.	Excavation	14.55	110	m^3	1,600.50
2.	P.C.C.	2.66	3,400	m^3	8,976.00
3.	Brick work up to plinth	9.65	3,500	m^3	33,775.00
4.	Earth filling up to plinth	16.80	30	m^3	504.00
5.	R.C.C. work	3.10	8,200	m^3	25,420.00
6.	Brickwork in super structure	13.84	3,700	m^3	51,208.00
7.	D.P.C.	4.41	815	m^2	3594.15
8.	Flooring	23.94	800	m^2	19,152.00
9.	Plastering	122.34	400	m^2	48,936.00
10.	Paint Work	122.34	80	m^2	9787.20

Total Cost = 2,02,953 ₹
Add (1.5%) Water Charges= 3,044 ₹
Add (10%) Construction = 20,295 ₹
Profit
Total Cost = 2,26,292 ₹

6.3.5 Solar lights

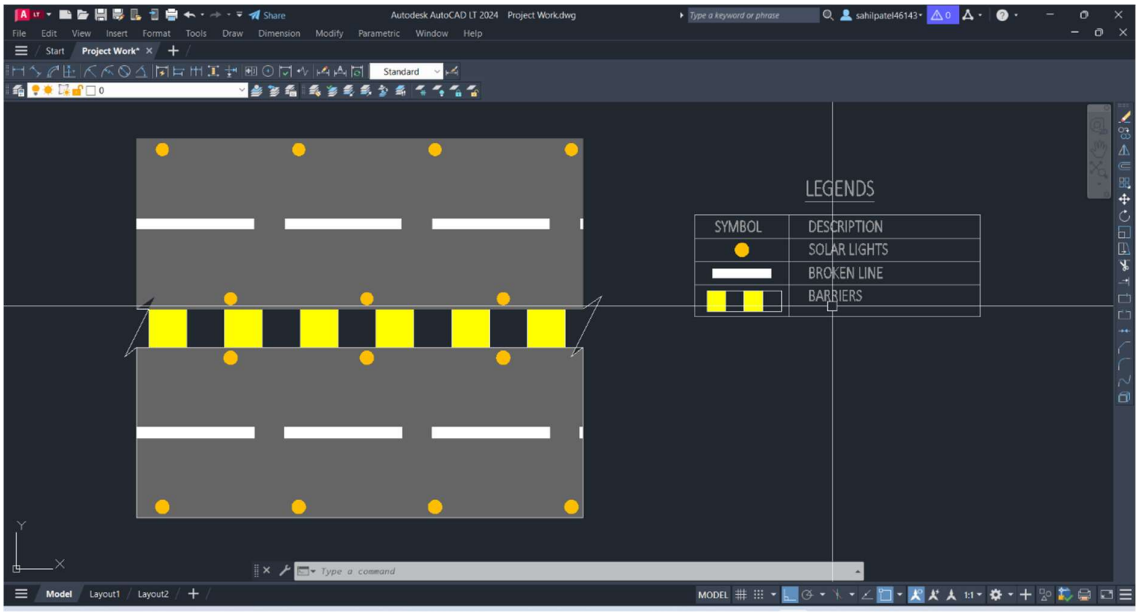


Fig.6.1 Solar light pole in zig-zag

- Solar lights can be placed in zig-zag condition.
- Solar light pole cost = ₹ 10,000 - ₹ 20,000.
- Installation cost = ₹ 5,000 - ₹10,000.
- Additional cost = ₹ 2,000 - ₹5,000.
- Overall cost of installation of one solar light pole of height 5m

Overall cost = ₹17,000 - ₹35,000

If we have a number of poles 22

Then, cost : 22 x 17,000 = 3,74,000/-

: 22 x 35,000 = 7,70,000/-

CHAPTER:7 – SURVEY BY INTERVIEWING WITH TALATI AND SARPANCH

Fig.7.1 Interaction with Sarpanch

Fig.7.2 Interaction with Talati

- We talked with many native of the village about the problem faced by them while living in village and we have out given some of the design for solving the problem of the village.
- They are also giving the suggestion for the village development like they are demanding for the bridge on Meswo river and school redevelopment, etc.
- Also, we interacted with the villagers and asked them which type of problem they are facing in the village.

Fig.7.3 Interaction with Villagers

CHAPTER:8 – CIVIL AND ELECTRICAL – TECHNOLOGY USEFUL FOR VILLAGE DEVELOPMENT

8.1 Civil Engineering Technologies

8.1.1 Water Supply and Sanitation

- **Rainwater Harvesting**: Collecting and storing rainwater for drinking, irrigation, and other uses.
- **Borewell and Hand Pumps**: Accessing groundwater for reliable water supply.
- **Bio-digester Toilets**: Environmentally friendly sanitation solutions that convert human waste into biogas and water.
- **Community Water Purification Systems**: Ensuring access to clean drinking water by removing contaminants.

8.1.2 Housing and Infrastructure

- **Affordable Housing Technologies**: Using local materials and sustainable building practices to construct cost-effective homes.
- **Prefabricated Structures**: Quick assembly homes and community buildings that are durable and weather-resistant.
- **Green Building Materials**: Incorporating sustainable materials like bamboo, recycled plastics, and eco-bricks.
- **Earthquake-Resistant Construction**: Techniques to build structures that can withstand seismic activity.

8.1.3 Transportation

- **All-Weather Roads**: Constructing durable roads to ensure year-round accessibility.
- **Bridges and Culverts**: Improving connectivity by building essential infrastructure to cross waterways and difficult terrains.
- **Sustainable Transportation Solutions**: Promoting bicycles, electric rickshaws, and shared transport systems.

8.1.4 Waste Management

- Solid Waste Segregation and Recycling**: Implementing systems for separating and recycling waste materials.**
- Composting**: Turning organic waste into valuable compost for agriculture.**
- Waste-to-Energy Systems**: Converting waste into biogas or electricity.**

8.1.5 Agricultural Technologies

- **Drip Irrigation**: Efficient water use in farming to enhance crop yields.
- **Greenhouses**: Extending growing seasons and protecting crops from adverse weather.

- **Soil Health Monitoring:** Using sensors and testing kits to ensure optimal soil conditions for farming.

8.2 Electrical Engineering Technologies

8.2.1 Renewable Energy Systems

- **Solar Power**: Installing solar panels to provide electricity for homes, schools, and health centers.
- **Wind Turbines**: Harnessing wind energy to generate power for community use.
- **Micro-Hydro Systems**: Utilizing small streams and rivers to produce hydroelectric power.
- **Biogas Plants**: Converting organic waste into biogas for cooking and lighting.

8.2.2 Electrification

- **Microgrids**: Setting up localized grids that can operate independently or connect to the main grid, ensuring stable power supply.
- **Solar Lanterns and Home Systems**: Providing affordable lighting and basic electricity to homes without grid access.
- **Energy St**orage Solutions: Using batteries to store energy for use during power outages or nighttime.

8.2.3 Smart Grids and Meters

- **Smart Grids**: Implementing advanced grids that optimize electricity distribution and reduce losses.
- **Smart Meters**: Enabling real-time monitoring and management of energy consumption.

8.2.4 Electrical Infrastructure

- **Low-Cost Transmission Lines**: Setting up efficient and durable transmission lines to expand electricity access.
- **Public Lighting:** Installing energy-efficient streetlights to improve safety and extend productive hours after dark.

8.2.5 Education and Communication

- **Telecommunication Towers**: Providing mobile and internet connectivity to enhance communication and access to information.
- **Digital Classrooms**: Equipping schools with digital tools and internet access to improve education quality.
- **Community Radio and TV**: Broadcasting educational and informational content to remote areas.

CHAPTER:9 – TDO-DDO-COLLECTOR SENDING EMAIL WITH THE REPORT

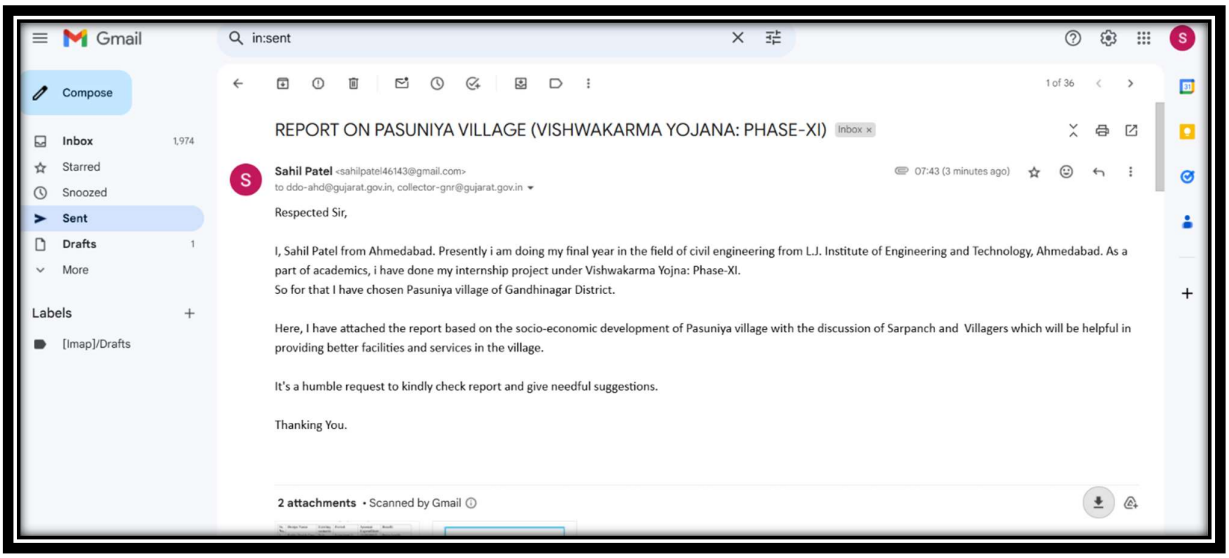


Fig.9.1 TDO-DDO Email

CHAPTER:10 – SUMMARY OF THE COMPREHENSIVE REPORT OF THE ENTIRE VILLAGE

10.1 Introduction

- Gujarat Technological University is allotted important and prestigious project of Vishwakarma Yojana by the Government of Gujarat for the year 2021-22. The first phase of project is aimed to study the present status and techno-economic survey of villages in District of the state in terms of basic and public amenities, essential commodities, and other infrastructural facilities for the need of people and to prepare report on adequacy of the available resource with reference to population of the village and growth of the area. The reason behind choosing the Vishwakarma Yojana Project as our final semester project is to have an experience of working with Government bodies, to be helpful for people directly with our engineering knowledge and to be part of development of our nation's foundations. Future Plan of Vishwakarma Yojana are to maximize participation from NGO, Public Private Partnership authorities and other need to be identified for development process also involvement of stake holders from planning phase and developing new technologies for effective development. Designing of Model Rurban Town and More Expert sessions and technical skill enhancement of Students are also considerable.

10.2 Detail about allocated village – 'Pasuniya'

10.2.1 Introduction of the village

- Pasuniya is a small yet vibrant village located in the heart of Gujarat, India. Nestled amidst lush green fields and scenic landscapes, Pasuniya epitomizes the charm of rural India with its traditional lifestyle and close-knit community. The village, home to a population of approximately 2,000 residents, thrives on agriculture, which is the primary source of livelihood for most families. Situated in a specific district, Pasuniya is positioned at a convenient distance from major towns and cities, making it accessible yet serene. The village is characterized by its fertile soil and favorable climatic conditions, which support the cultivation of a variety of crops. The demographic composition of the village is diverse, with a mix of various age groups and a balanced gender ratio. The community is predominantly agrarian, with many families engaged in farming and related activities.
- Agriculture forms the backbone of Pasuniya's economy, with the cultivation of crops such as wheat, rice, and pulses. The village has also seen a rise in horticulture and dairy farming, contributing to its economic stability. Apart from agriculture, Pasuniya is known for its skilled artisans who produce traditional handicrafts, weaving, and pottery. These crafts not only serve as a source of income but also preserve the cultural heritage of the village. The residents of Pasuniya lead a communal life, characterized by strong social bonds and mutual support. Festivals and cultural events are celebrated with great enthusiasm, reflecting the rich traditions and customs of the region. The village is equipped with a primary school and a healthcare center, ensuring basic educational and medical facilities for its residents. Efforts are ongoing to improve these services and provide better opportunities for the younger generation.
- Pasuniya is connected to nearby towns through a network of well-maintained roads, facilitating easy transport and communication. This connectivity has been crucial in

enhancing trade and access to markets. The village has access to clean drinking water, with a system in place for rainwater harvesting and groundwater replenishment. Sanitation facilities have been improved in recent years, contributing to better public health. The village is fully electrified, providing reliable power supply to households and businesses. The introduction of solar energy projects has further strengthened the energy infrastructure, promoting sustainable development.

- Pasuniya faces challenges typical of rural areas, such as limited access to advanced healthcare, higher education, and modern agricultural techniques. However, with ongoing development initiatives and government support, the village is poised for significant growth. The residents of Pasuniya envision a future where their village is a model of sustainable rural development. By embracing modern technologies in agriculture, improving educational and healthcare facilities, and promoting eco-friendly practices, Pasuniya aims to enhance the quality of life for its residents while preserving its cultural heritage. Pasuniya village stands as a testament to the resilience and spirit of rural India. With its rich cultural heritage, strong community bonds, and ongoing development efforts, Pasuniya is on a path to becoming a thriving, sustainable, and self-sufficient village. The journey of Pasuniya highlights the potential of rural areas to evolve and prosper while maintaining their unique identity and traditions.

10.2.2 Objectives of the study

- To provide basic amenities in the village, like transportation, sanitation, educational, healthcare facilities.
- To reduce migration from rural to urban.
- To promote integrated development.
- To provide sustainable development.
- To propose the comprehensive planning suited for ideal village.
- To analyse the existing conditions.

10.3 Study area location

Table 19 Details of Pasuniya

Parameter	Information
Name	Pasuniya
Taluka	Dehgam
District	Gandhinagar
State	Gujarat
Distance from Gandhinagar	43 km
Pin code	382433

Fig.7.3 Road condition in village

10.4 Scope of Study

- Scope of development we have found out after visiting the village second time we are observed the details and survey and after that we have planned and made a list on it which part of the section we need to be design and what are the major problems facing by the village. We observed the village roads, schools, public toilet, dairy, shops etc. in the village. After that we have finalize the designs for PHC, Bank, Post-office.

10.5 Proposed designs

- Post-office
- Bank
- Public Health Care
- Bus Boot
- Street Solar lights

10.6 Conclusion

- By providing a good idea and by doing quality work with our engineering and technical skills, here we have suggested some of our ideas in it. For that there were many Activities done by us in the village and for the village like techno- economic survey of ideal village, smart village and allocated village more than that gap analysis between ideal and allocated village are also done by us with SAGY survey. This survey includes Demographical detail, Geographical detail, Occupational details, Physical infrastructure facilities, Social infrastructural facilities, Sustainable infrastructure facilities, Data collection from village or any other Additional information that may have required. Based on the survey we tried to give design of required basic facilities to fulfil their needs. By providing these basic facilities to villagers migration rate will be decreased. This is ultimate aim of the Vishwakarma Yojana.

CHAPTER:11 – SMART OR SUSTAINABLE FEATURES OF DESIGNS AND IMPACTS ON SOCIETY

Table 20 Design impact on society

Sr. No.	Design Name	Existing scenario	Period	Amount Expenditure	Benefit
1	Public Health Care Design	N.A.	Long term 2-2.5 years	15,00,000 ₹	Better health facilities
2	Post office Design	N.A.	Within 1 year	7,00,000 ₹	Achieve good facilities
3	Solar light Pole	N.A.	Immediately in 2-3 months	7,70,000 ₹	Providing a reliable source of lighting independent of the power grid.
4	Bank	N.A.	Within 1-2 years	9,00,000 ₹	Better Financial Support
5	Bus stand	N.A.	Within 2-5 months	3,00,000 ₹	Better transportation facilities
6	Public Garden	N.A.	Long term 2-3 years	20,00,000 ₹	Better Physical, Social, and Mental Health

CHAPTER:12 – REFERENCES

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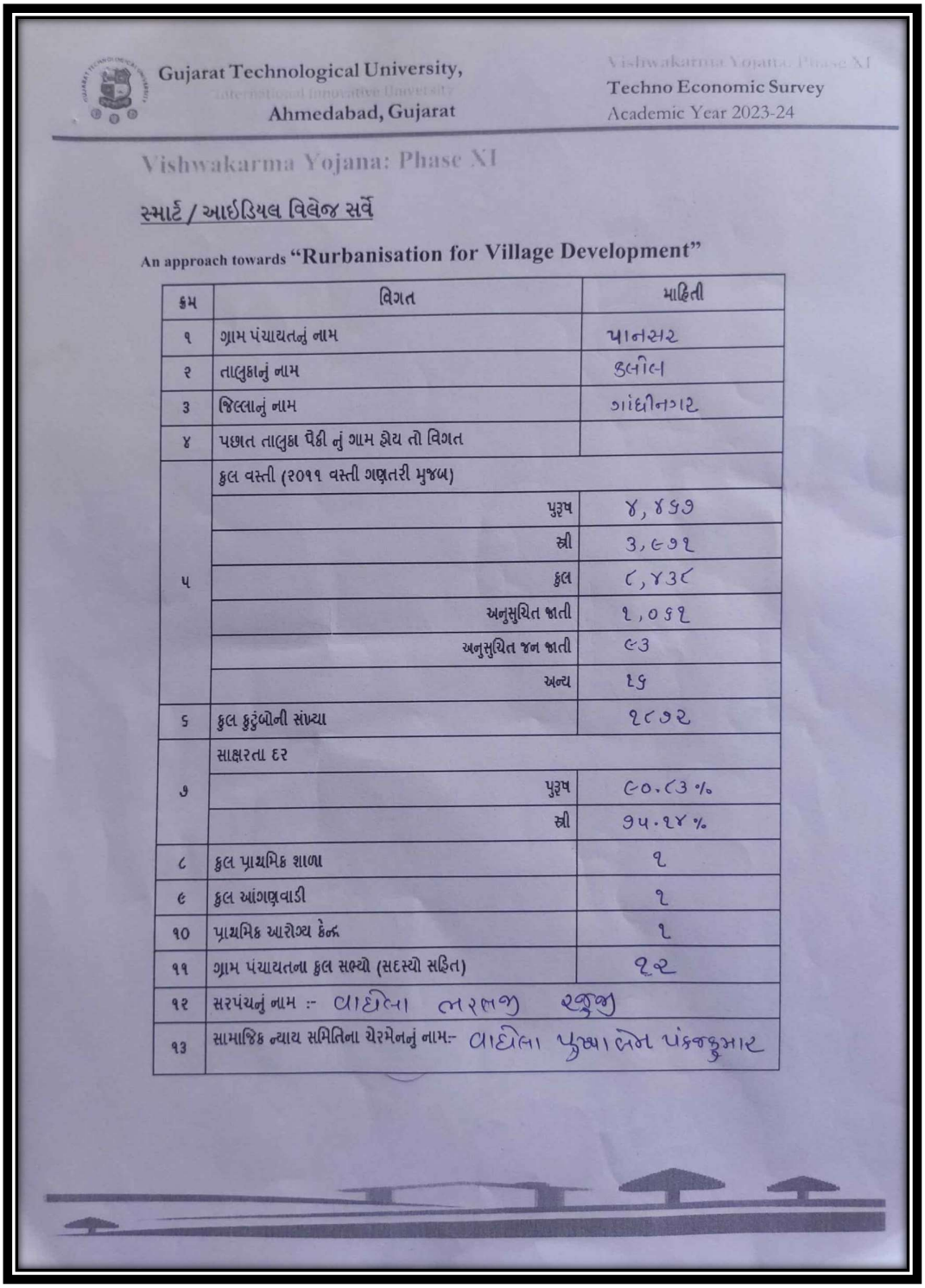
CHAPTER:13 – ALLOCATED VILLAGE DOCUMENTARY FILM

- Pasuniya is a Village in Dehgam taluka in Gandhinagar District of Gujarat state, India. The local Language is Gujarati and Hindi in this village. Pasuniya pin code is 382433 and postal head office is Kuha.
- The documentary film on the allocated village of Pasuniya has been prepared by us and the same has been shown below:

https://drive.google.com/file/d/1iBgqleZBg5A3RaKjCzYzO5lcgzWY0jMC/view

CHAPTER:14 – ANNEXURE ATTACHMENT

14.1 Survey form of model (ideal) / smart village



Gujarat Technological University,
Ahmedabad, Gujarat

Techno Economic Survey
Academic Year 2023-24

Vishwakarma Yojana: Phase XI

સ્માર્ટ / આઇડિયલ વિલેજ સર્વે

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

ક્રમ	વિગત	માહિતી
૧	ગ્રામ પંચાયતનું નામ	પાનસર
૨	તાલુકાનું નામ	કલોલ
૩	જિલ્લાનું નામ	ગાંધીનગર
૪	પછાત તાલુકા પૈકી નું ગામ હોય તો વિગત	
૫	કુલ વસ્તી (૨૦૧૧ વસ્તી ગણતરી મુજબ)	
	પુરૂષ	૪,૪૬૭
	સ્ત્રી	૩,૯૭૧
	કુલ	૮,૪૩૮
	અનુસુચિત જાતી	૧,૦૬૧
	અનુસુચિત જન જાતી	૯૩
	અન્ય	૬૬
૬	કુલ કુટુંબોની સંખ્યા	૧૮૭૨
૭	સાક્ષરતા દર	
	પુરૂષ	૮૦.૮૩ %
	સ્ત્રી	૭૫.૧૪ %
૮	કુલ પ્રાથમિક શાળા	૧
૯	કુલ આંગણવાડી	૧
૧૦	પ્રાથમિક આરોગ્ય કેન્દ્ર	૧
૧૧	ગ્રામ પંચાયતના કુલ સભ્યો (સદસ્યો સહિત)	૧૨
૧૨	સરપંચનું નામ :- વાઘેલા નરેશજી ઠાકોરજી	
૧૩	સામાજિક ન્યાય સમિતિના ચેરમેનનું નામ:- વાઘેલા પુષ્પાબેન પંકજકુમાર	

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૧. શિક્ષણ

ક્રમ	વિગત	માહિતી
૧	શાળા પ્રવેશ દર	૧૦૦
	ગત વર્ષ નો પ્રવેશ દર	૧૨૦
	ચાલુ વર્ષનો પ્રવેશ દર	૭૦
૨	ડ્રોપ આઉટ પ્રમાણ	૦ (૦.૦)
	ગત વર્ષનો ડ્રોપ આઉટ	૦ (૦.૦)
	ચાલુ વર્ષનો ડ્રોપ આઉટ	૦ (૦.૦)
૩	શિક્ષણ ગુણવત્તા સુધારણા આંક (A, B, C, D)	B

૨. આરોગ્ય

ક્રમ	વિગત	માહિતી
૧	જન્મ નોંધણી ની ટકાવારી	૧૦૦ (૦.૦)
૨	મરણ નોંધણી ની ટકાવારી	૧૦૦ (૦.૦)
૩	રસીકરણ ની ટકાવારી (૧૧ મહિનાથી ૨૩ મહિનાના બાળકો)	૧૦૦ (૦.૦)
૪	ઇન્ફન્ટ બાળ મૃત્યુદર ની ટકાવારી	૦ (૦.૦)
૫	માતા મૃત્યુદર ની ટકાવારી	૦ (૦.૦)
૬	સંસ્થાકીય પ્રસુતિ ની ટકાવારી	૧૦૦ (૦.૦)
૭	સ્ત્રી – પુરૂષ પ્રમાણ (√) કરવી	
	દર ૧૦૦૦ પુરૂષે ૯૭૫ કે તેથી વધુ સ્ત્રીઓ	
	દર ૧૦૦૦ પુરૂષે ૯૨૫ કે ૯૫૦ ની વચ્ચે	
	દર ૧૦૦૦ પુરૂષે ૯૨૫થી ઓછી	√

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૩. સ્વચ્છતા

ક્રમ	વિગત	માહિતી
૧	૧૦૦% વ્યક્તિગત શૌચાલયની કામગીરી	હા
	કુલ ઘર	૧૫૦૦
	વ્યક્તિગત શૌચાલય ધરાવતા ઘર	૧૫૦૦
૨	શુધ્ધ પીવાના પાણીની વ્યવસ્થા (બે વાક્યમાં લખવું)	
	ગામમાં પીવાના પાણીની વ્યવસ્થા બારેમાસ છે. ગ્રામ પંચાયત દ્વારા ૩-બોર અને ૨- સંપની વ્યવસ્થા કરી આપવામાં આવી છે	
૩	જાહેર સ્થળોની સ્વચ્છતા (હાલની વ્યવસ્થા બે વાક્યમાં)	
	જાહેર સ્થળોએ દરરોજ સફાઈ કરવામાં આવે છે. ડસ્ટબીનની સગવડ પણ આપવામાં આવે છે.	
૪	ડોર ટુ ડોર ઘન કચરાના નિકાલની વ્યવસ્થા	
	કુલ ઘર	૧૬૮૭
	આવરી લેવાયેલ ઘર	૧૬૮૭
૫	સ્પર્ધા ના સમયગાળા દરમ્યાન ગામમાં કોઇ રોગચાળાનો બનાવ બનેલ છે ? (હા કે ના)	ના

૪. પંચાયત

ક્રમ	વિગત	માહિતી
૧	પંચાયત વેરો	૬૦,૦૦,૦૦૦
	ગત વર્ષની વસુલાત	૫૦,૦૦,૦૦૦
	ચાલુ વર્ષની વસુલાત	૪૦,૦૦,૦૦૦
૨	એરિયા બેઝ આકારણી લાગુ કરી છે ?(હા કે ના)	હા
૩	છેલ્લી ગ્રામસભામાં હાજરીની ટકાવારી	૨૦૦(%)
૪	છેલ્લી ગ્રામસભામાં મહીલા હાજરીની ટકાવારી	૨૦૦(%)
૫	ઇ-ગ્રામ મારફતે સુવિધાઓ	
	૭/૧૨, ૮અ, નં-૬ નકલ, લાઈટબીલ કલેક્શન વેરાવસૂલાત, આવકના દાખલા, સરકારી યોજનાઓનું રજીસ્ટ્રેશન, રાશન કાર્ડને લગતી સુવિધાઓ.	
૬	છેલ્લા વર્ષમાં ગ્રામ પંચાયતની મળેલ બેઠકની સંખ્યા	૧૨

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૫. વિશિષ્ટ સિદ્ધી

ક્રમ	વિગત	માહિતી
૧	મળેલ પુરસ્કારો (√) કરવી	
	સમરસ	
	નિર્મળ ગ્રામ પુરસ્કાર	√
	પાવન ગ્રામ	
	તીર્થગામ	√
	૧૦૦ ટકા બેન્ક ખાતા	√
	ગૌરવ ગ્રામ સભા એવોર્ડ	
	શ્રેષ્ઠ ગ્રામ પંચાયત એવોર્ડ	√
	અન્ય એવોર્ડ	
	અન્ય વિગતોઃ-	

૬. કેન્દ્ર સરકારશ્રીની નીચે મુજબની યોજનાઓની વિગતો

ક્રમ	યોજનાનું નામ	માહિતી
૧	પ્રધાનમંત્રી સુરક્ષા વિમા યોજના	૬૧
૨	પ્રધાનમંત્રી જીવન જ્યોત વીમા યોજના	૬૧
૩	અટલ પેન્શન યોજના	૬૧
૪	સુકન્યા સમૃધ્ધી યોજના	૬૧

Additional Information/ Requirement/ Suggestions:

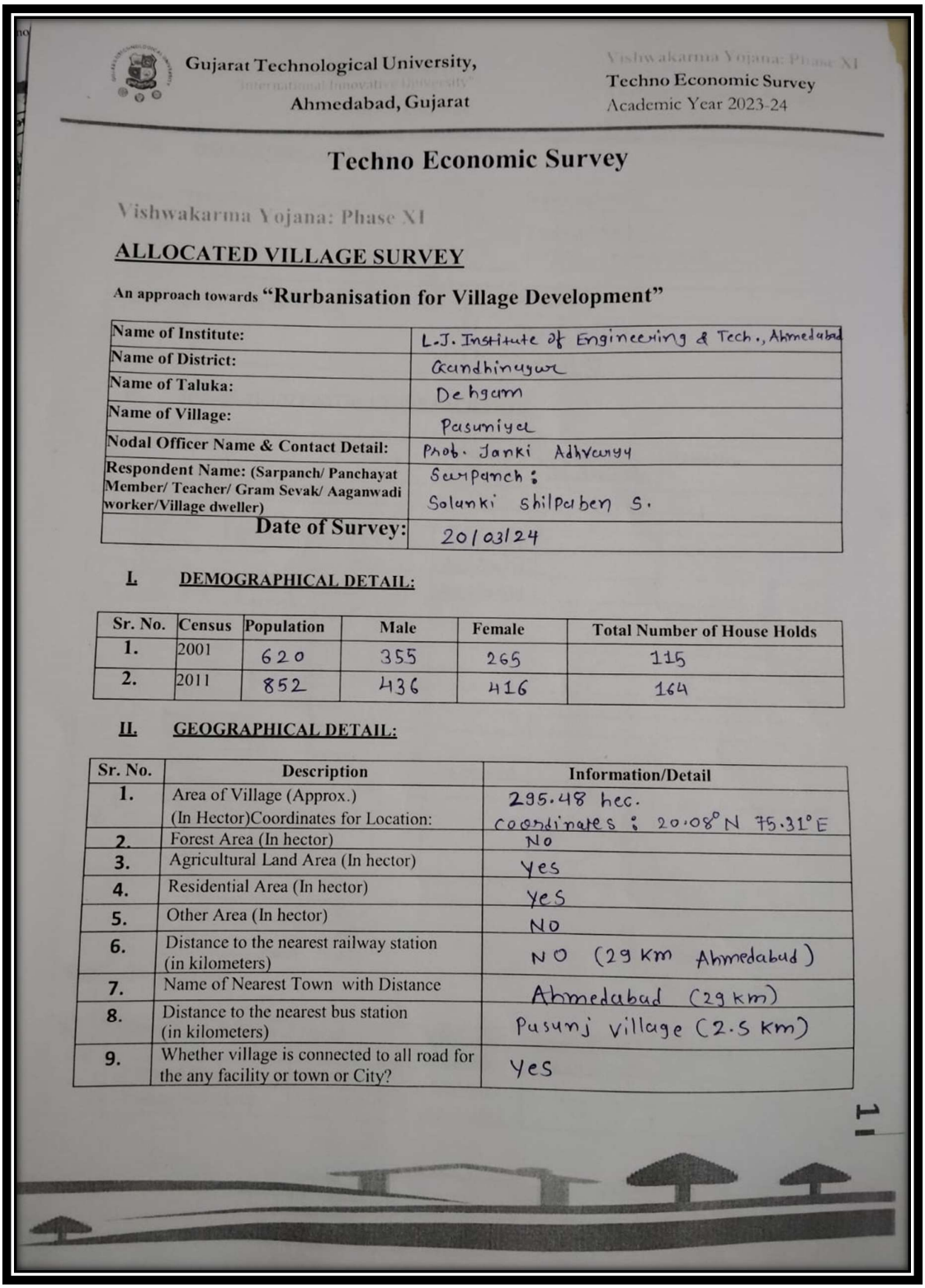
Sr. No.	Descriptions	Information/ Detail	Remarks
1.	**Additional Information/ Requirement**		
2.	Community hall	Yes	
3.	English Medium School	Yes	
4.	Play Ground	Yes	

For Any Information
GTU VY Section,
Contact No – 079-23267588
Email ID: rurban@gtu.edu.in

SARPANCH SIGNATURE & STAMP

B.R. Vaghela
સરપંચશ્રી
પાનસર ગ્રામ પંચાયત
તા. કલોલ, જી. ગાંધીનગર

14.2 Survey form of allocated village



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ALLOCATED VILLAGE SURVEY

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

Name of Institute:	L.J. Institute of Engineering & Tech., Ahmedabad
Name of District:	Gandhinagar
Name of Taluka:	Dehgam
Name of Village:	Pasuniya
Nodal Officer Name & Contact Detail:	Prof. Janki Adhvaryu
Respondent Name: (Sarpanch/ Panchayat Member/ Teacher/ Gram Sevak/ Aaganwadi worker/Village dweller)	Sarpanch : Solanki Shilpaben S.
Date of Survey:	20/03/24

I. DEMOGRAPHICAL DETAIL:

Sr. No.	Census	Population	Male	Female	Total Number of House Holds
1.	2001	620	355	265	115
2.	2011	852	436	416	164

II. GEOGRAPHICAL DETAIL:

Sr. No.	Description	Information/Detail
1.	Area of Village (Approx.) (In Hector)Coordinates for Location:	295.48 hec. Coordinates : 20.08°N 75.31°E
2.	Forest Area (In hector)	No
3.	Agricultural Land Area (In hector)	Yes
4.	Residential Area (In hector)	Yes
5.	Other Area (In hector)	No
6.	Distance to the nearest railway station (in kilometers)	NO (29 Km Ahmedabad)
7.	Name of Nearest Town with Distance	Ahmedabad (29 km)
8.	Distance to the nearest bus station (in kilometers)	Pasunj village (2.5 km)
9.	Whether village is connected to all road for the any facility or town or City?	Yes

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III. OCCUPATIONAL DETAILS:

Name of Three Major Occupation groups in Village	1. Agriculture 2. Industrial 3. White collar job
Major crops grown in the village:	1. Wheat 2. Pearl millet 3. Vegetables

IV. PHYSICAL INFRASTRUCTURE FACILITIES:

Sr. No.	Descriptions	Detail	Adequate / Available	Inadequate / Not Available	Remarks
A.	**Main Source of Drinking water**				
I.	**PIPED WATER**				
1.	Piped Into Dwelling	Yes	Available		
2.	Piped To Yard/Plot	Yes	Available		
3.	Public Tap/Standpipe	Yes	Available		
4.	Tube Well Or Bore Well	Yes			
II.	**DUG WELL**				
1.	Protected Well	NO			
2.	Un Protected Well	NO			
III.	**WATER FROM**				
1.	Protected Spring	NO			
2.	Unprotected Spring	NO			
3.	Rainwater	Yes	Adequate		
4.	Tanker Truck	NO		N.A.	
5.	Cart With Small Tank	NO		N.A.	
IV.	**SURFACE WATER (RIVER/DAM/LAKE/POND/STREAM/CANAL**				
1.	Irrigation Channel	Yes			
2.	Bottled Water	Yes			
3.	Hand Pump	NO			
4.	Other(Specify)**Lake/ Pond**	NO			
Suggestions if any:					

B.	Water Tank Facility	Detail	Adequate / Available	Inadequate / Not Available	Remarks
1.	Overhead Tank	Capacity: 10,000 L	Available		
2.	Underground Sump	Capacity: 10,000 L	Availabel		

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Suggestions if any:

C.	The Type of Drainage Facility	Detail	Adequate / Available	Inadequate / Not Available	Remarks
I.	UNDERGROUND	✓	Available		
1.	AREA-LOCATION	In village			
2.	AREA-LOCATION	In village.			
II.	OPEN WITH OUTLET	✓	Available		
III.	OPEN WITHOUT OUTLET				

Suggestions if any:

D.	Road Network :All Weather/ Kutchha (Gravel)/ Black Topped pucca/ WBM	Detail	Adequate / Available	Inadequate / Not Available	Remarks
1.	Village approach road	Bitumen	Adequate		
2.	Main road	Bitumen	Adequate		
3.	Internal streets	Pavour blocks	Adequate		
4.	Nearest NH/SH/MDR/ODR	NH 59 SH 03	Adequate		

Suggestions if any:

E.	Transport Facility	Detail	Adequate / Available	Inadequate / Not Available	Remarks
1.	Railway Station (Y/N) (**If No** -Then Nearest Rly Station---Kms)	NO	—	N.A.	29 km Ahmedabad
2.	Bus station (Y/N) Condition: (**If No** - Then	No	—	N.A.	2.5 km Pasunj village
3.	Local Transportation (Auto/Jeep/Chhakda (Riksha)/ Private	No	—	N.A.	2.5 km Pasunj village

Suggestions if any:

F.	Electricity Distribution	Detail	Adequate / Available	Inadequate / Not Available	Remarks
1.	(Y/N) Govt./ Private (Less to 6 hrs./More to	Yes			
2.	Power - Domestic Use	Yes			
3.	Power-Agricultural Use	Yes			
4.	Power-Commercial	NO			
5.	Road/ Street Lights	Yes			
6.	Electrification in Government Buildings/ Schools/ Hospitals	Yes			Govt. School

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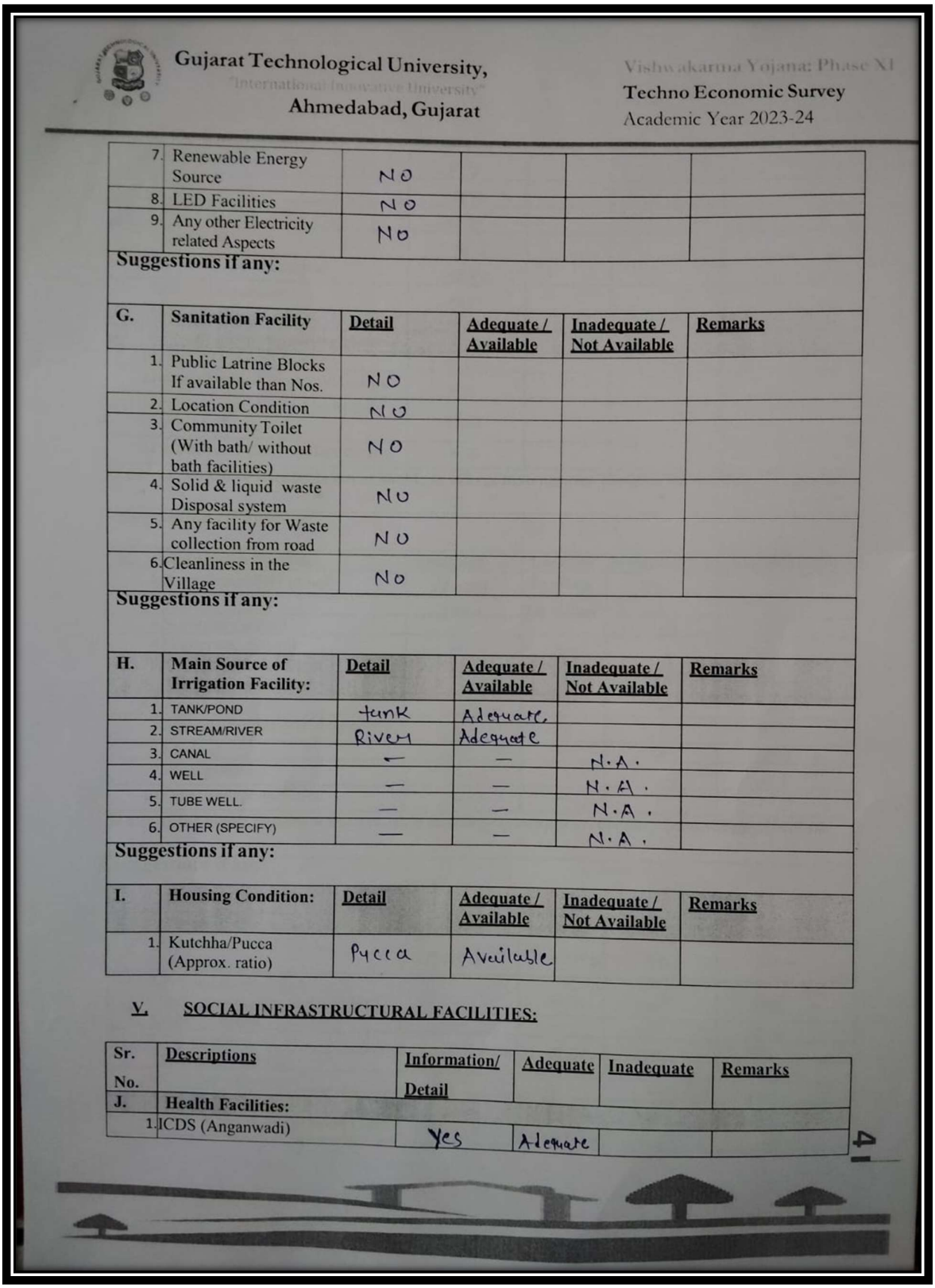

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7.	Renewable Energy Source	NO			
8.	LED Facilities	NO			
9.	Any other Electricity related Aspects	No			

Suggestions if any:

G.	Sanitation Facility	Detail	Adequate / Available	Inadequate / Not Available	Remarks
1.	Public Latrine Blocks If available than Nos.	NO			
2.	Location Condition	NO			
3.	Community Toilet (With bath/ without bath facilities)	NO			
4.	Solid & liquid waste Disposal system	NO			
5.	Any facility for Waste collection from road	NO			
6.	Cleanliness in the Village	No			

Suggestions if any:

H.	Main Source of Irrigation Facility:	Detail	Adequate / Available	Inadequate / Not Available	Remarks
1.	TANK/POND	tank	Adequate		
2.	STREAM/RIVER	River	Adequate		
3.	CANAL	—	—	N.A.	
4.	WELL	—	—	N.A.	
5.	TUBE WELL.	—	—	N.A.	
6.	OTHER (SPECIFY)	—	—	N.A.	

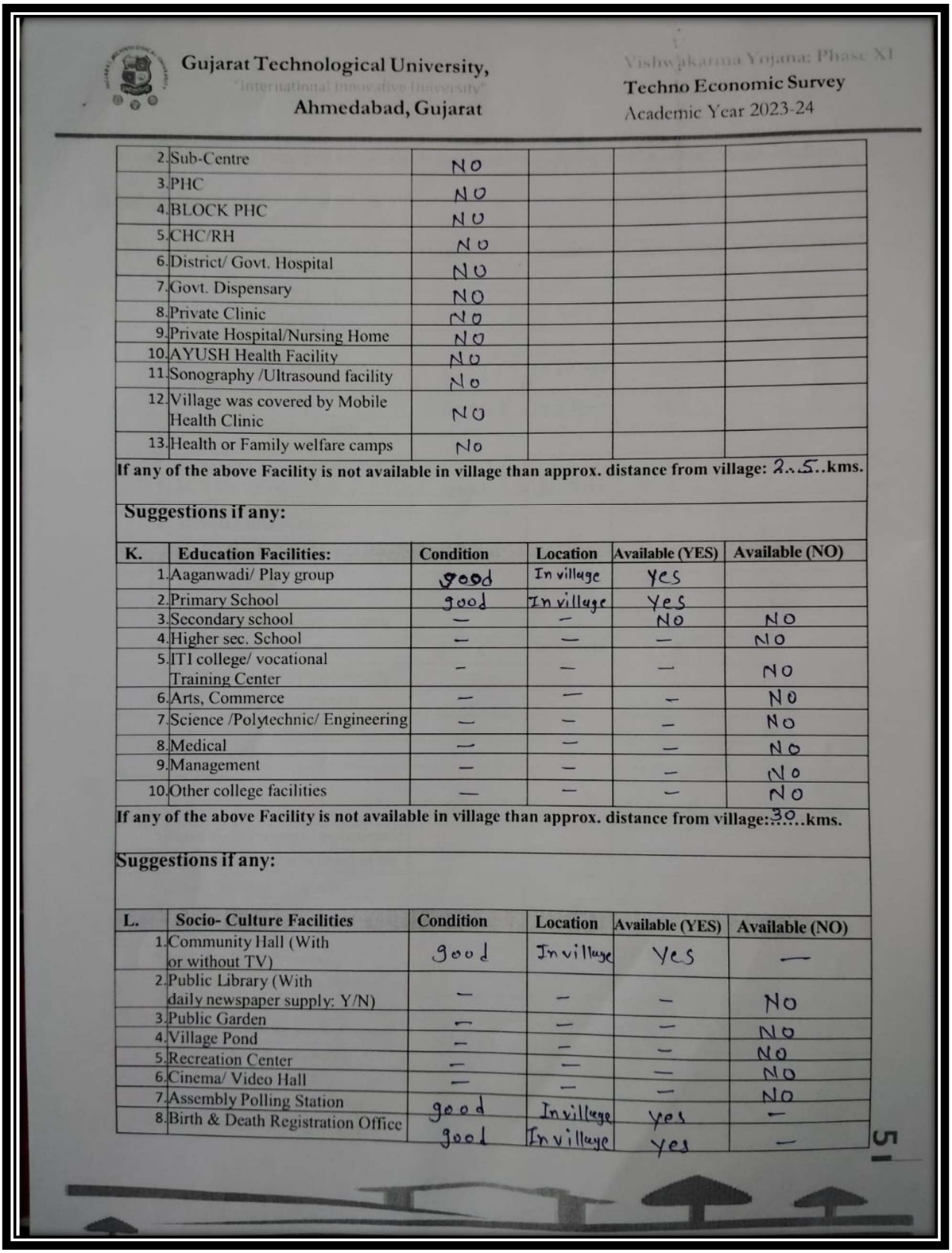
Suggestions if any:

I.	Housing Condition:	Detail	Adequate / Available	Inadequate / Not Available	Remarks
1.	Kutchha/Pucca (Approx. ratio)	Pucca	Available		

V. SOCIAL INFRASTRUCTURAL FACILITIES:

Sr. No.	Descriptions	Information/ Detail	Adequate	Inadequate	Remarks
J.	**Health Facilities:**				
1.	ICDS (Anganwadi)	Yes	Adequate		

4



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2.	Sub-Centre	NO			
3.	PHC	NO			
4.	BLOCK PHC	NO			
5.	CHC/RH	NO			
6.	District/ Govt. Hospital	NO			
7.	Govt. Dispensary	NO			
8.	Private Clinic	NO			
9.	Private Hospital/Nursing Home	NO			
10.	AYUSH Health Facility	NO			
11.	Sonography /Ultrasound facility	No			
12.	Village was covered by Mobile Health Clinic	NO			
13.	Health or Family welfare camps	No			

If any of the above Facility is not available in village than approx. distance from village: 2..5..**kms.**

Suggestions if any:

K.	Education Facilities:	Condition	Location	Available (YES)	Available (NO)
1.	Aaganwadi/ Play group	Good	In village	Yes	
2.	Primary School	good	In village	Yes	
3.	Secondary school	–	–	No	NO
4.	Higher sec. School	–	–	–	NO
5.	ITI college/ vocational Training Center	–	–	–	NO
6.	Arts, Commerce	–	–	–	NO
7.	Science /Polytechnic/ Engineering	–	–	–	NO
8.	Medical	–	–	–	NO
9.	Management	–	–	–	NO
10.	Other college facilities	–	–	–	NO

If any of the above Facility is not available in village than approx. distance from village:30**kms.**

Suggestions if any:

L.	Socio- Culture Facilities	Condition	Location	Available (YES)	Available (NO)
1.	Community Hall (With or without TV)	good	In village	Yes	–
2.	Public Library (With daily newspaper supply: Y/N)	–	–	–	NO
3.	Public Garden	–	–	–	NO
4.	Village Pond	–	–	–	NO
5.	Recreation Center	–	–	–	NO
6.	Cinema/ Video Hall	–	–	–	NO
7.	Assembly Polling Station	good	In village	yes	–
8.	Birth & Death Registration Office	good	In village	yes	–

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If any of the above Facility is not available in village than approx. distance from village: 30 ..kms.

Suggestions if any:

M.	Other Facilities	Condition	Location	Available(YES)	Available (NO)
1.	Post-office	—	—	—	NO
2.	Telecommunication Network/ STD booth	—	—	—	NO
3.	General Market	—	—	—	NO
4.	Shops (Public Distribution System)	good	In village	Yes	—
5.	Panchayat Building	Very good	In village	Yes	—
6.	Pharmacy / Medical Shop	—	—	—	NO
7.	Bank & ATM Facility	—	—	—	NO
8.	Agriculture Co-operative Society	—	—	—	NO
9.	Milk Co-operative Soc.	good	In village	Yes	—
10.	Small Scale Industries	—	—	—	NO
11.	Internet Cafes/ Common Service Center/Wi Fi	—	—	—	NO
12.	Youth Club	—	—	—	NO
13.	Mahila Mandal	—	—	—	NO
14.	Credit Cooperative Society	—	—	—	NO
15.	Agricultural Cooperative Society	—	—	—	NO
16.	Milk Cooperative Society	good	In village	Yes	—
17.	Fishermen's Cooperative Society	—	—	—	NO
18.	Computer Kiosk / e-chaupal	—	—	—	NO
19.	Mills / Small Scale Industries	—	—	—	NO
20.	Other Facility	—	—	—	NO

Suggestions if any:

Sr.No		Condition		Available (YES)	Available (NO)
1.	Have these Program implemented				
2.	Are there any beneficiaries in the				
3.	Janani Suraksha Yojana				
4.	Kishori Shakti Yojana				
5.	Balika Samriddhi Yojana				
6.	Mid-day Meal Program				
7.	Intergrated Child Development				
8.	Mahila Mandal Protsahan Yojana				
9.	National Food for work program				
10.	National Social Assistance				
11.	Sanitation program (SP)				
12.	Rajiv Gandhi National Drinking				
13.	Swarnjayanti Gram Swarozgar				

14.	Minimum Needs program (MNP)				
15.	National Rural Employment				
16.	Employee Guarantee Scheme				
17.	Prime Minister Rojgar Yojana				
18.	Jawahar Rozgar Yojana (JRY)				
19.	Indira Awas Yaojna (IAY)				
20.	Samagra Awas Yojana (SAY)				
21.	Sanjay Gandhi Niradhar Yojana				
22.	Jawahar Gram Samridhi Yojana				
23.	Other (SPECIFY)				

VI. SUSTAINABLE /GREEN INFRASTRUCTURE FACILITIES:

Sr.	Descriptions	Information/ Details	Adequate	Inadequate	Remarks
1.	Adoption of Non- Conventional Energy Sources	—			
2.	Renewable Energy Sources	—			
3.	Bio-Gas Plant	—			
4.	Solar Street Lights	—			
5.	Rain Water Harvesting System	—			

VII. DATA COLLECTION FROM VILLAGE

Sr.	Descriptions	Information/ Details	Adequate	Inadequate	Remarks
1.	Village Base Map Available: Hard Copy/Soft Copy	NO			
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:	NO			
5.	EARTHQUAKES	NO			
6.	FLOODS	NO			
7.	CYCLONE	NO			
8.	DROUGHT	NO			
9.	LANDSLIDES	NO			
10.	AVAILABLE ANY OTHER	NO			

VIII. ADDITIONAL INFORMATION/ REQUIREMENT:

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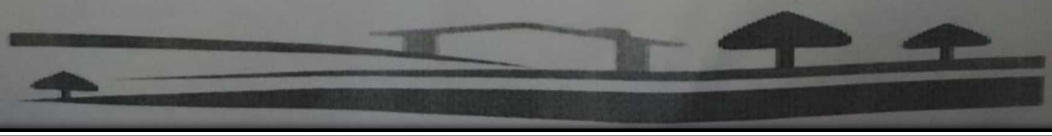

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Sr. No.	Descriptions	Information/ Detail	Remarks
1.	Repair & Maintenance of Existing	Yes	
2.	Health Center	Yes	
3.	Public Infrastructure facilities,	Yes	
4.	School Building	–	
5.	Panchayat Building	–	
6.	Public Toilets & any other	–	
7.	Additional Information/ Requirement	–	
8.	During the last six months how many times cleaning FOGGING- Drive was undertaken in the village?	–	

IX. SMART VILLAGE / HERITAGE DETAILS /

Sr. No.	Descriptions	Information/ Detail	Remarks
1.	Is There Any Thing For The Village Enhancement Possible?	Yes	
2.	Any Other Facility Available?	No	

X. ANY OTHER FACILITY FOR THE VILLAGE

Sr. No.	Descriptions	Information/ Detail	Remarks
1.	Is There Any Thing For The Village Enhancement Possible?	NO	
2.	Any Other Facility Available?	NO	

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 Information
GTU-VY Section,
Contact No – 079-23267588
Email ID: rurban@gtu.edu.in

SARPANCH SIGNATURE & STAMP

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પસુણીયા ગ્રામ પંચાય
તા. દહેગામ, જિ. ગાંધીન

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Techno Economic Survey
Academic Year 2023-24

Vishwakarma Yojana: Phase XI

Survey By Interviewing With Sarpanch / Talati

ALLOCATED VILLAGE SURVEY

An approach towards "Rurbanisation for Village Development"

Name of Institute:	L.J. Institute of Engineering & Tech., Ahmedabad
Name of District:	Gandhinagar
Name of Taluka:	Dehgam
Name of Village:	Pasuniya
Nodal Officer Name & Contact Detail:	Prof. Janki Adhvaryu
Respondent Name: (Sarpanch/ Panchayat Member/ Teacher/ Gram Sevak/ Aaganwadi worker/Village dweller)	Surpanch: Solanki Shilpaben S.
Date of Survey:	20/03/24

Sr.	Questions	Yes/ No	Remarks
1	What are the sources of income in village?	Yes	
2	What are the chances of employment in village?	No	
3	What are the special technical facilities in village?	No	
4	Is any debt on village dwellers?	No	
5	Are village people getting agricultural help?	No	
6	Is women health awareness Program organized in village?	No	
7	Are women having opportunity to work and income?	No	
8	Child girl education is appreciated in village?	Yes	
9	Facility of vaccination to child is available in village?	No	
10	Are village people aware about child vaccination and done to each and every child as per norms?	Yes	
11	Women help line number information is provided to village people?	Yes	
12	Is water scarcity in village? How many days per year?	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?	Yes	

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Techno Economic Survey
Academic Year 2023-24

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	
19	Is any unavoidable difficulty village people are facing? Any natural calamity is there?	Yes	River
20	Life Living standard of girls and women is appreciated and uplifted in village?	Yes	

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

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 Information
GTU VY Section,
Contact No – 079-23267588
Email ID: rurban@gtu.edu.in

SARPANCH SIGNATURE & STAMP

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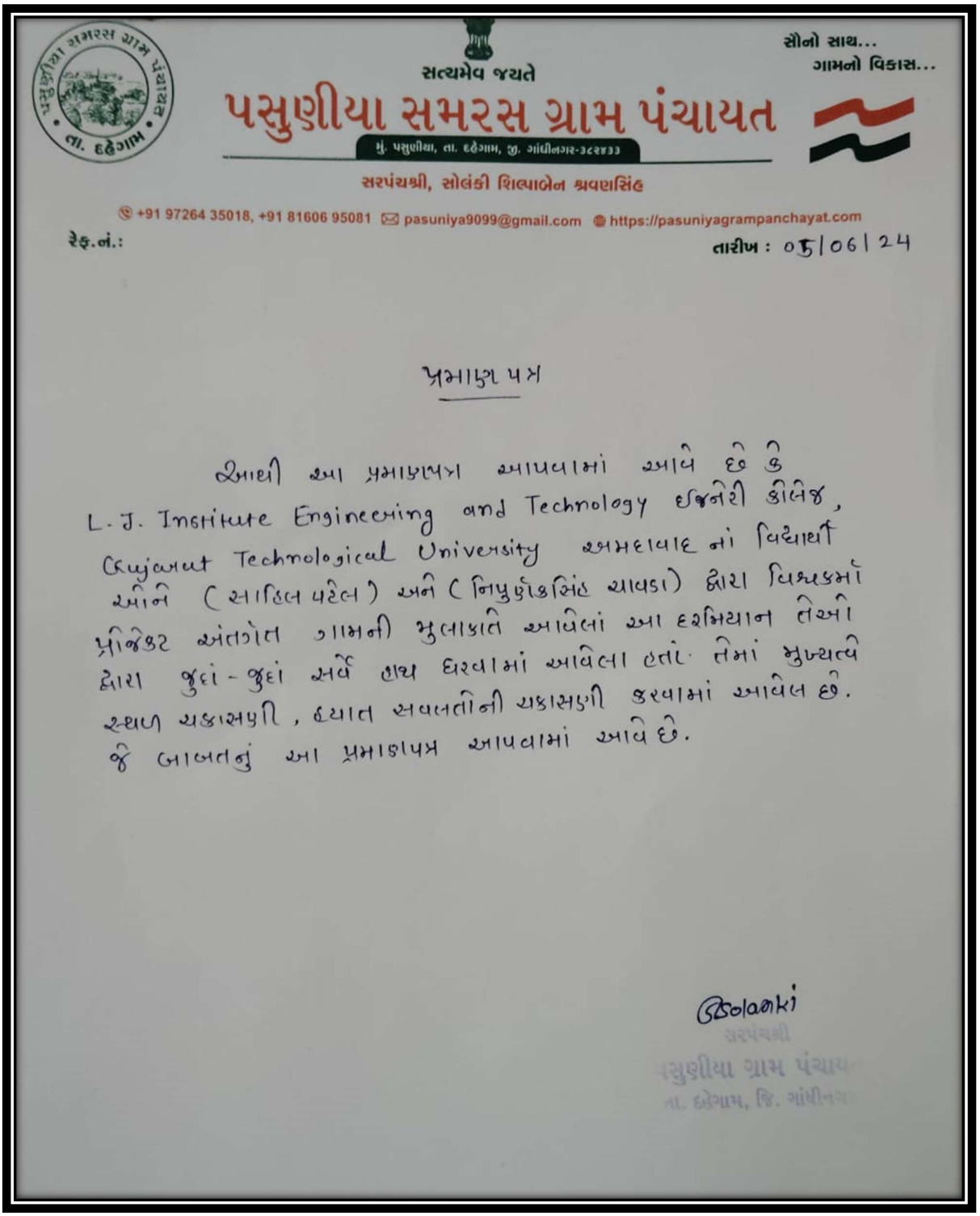
14.3 Gap analysis of the allocated village

VILLAGE GAP Analysis-FOR PHASE-XI

Village Facilities	Population	Village Name:	Pasuniya	District: Dehgam (Gandhinagar)	
				Population:	852
		Existing Available Infrastructure Adequate / Inadequate	Required as per Norms	Ideal / Smart Vilage / Cities / Heritage Future Projection Design	Gap
Social Infrastructure Facilities					
Education					
Anganwadi	Each or Per 2500 population	1	1	_	0
Primary School	Each Per 2500 population	1	0	_	1
Secondary School	Per 7,500 population	Inadequate	0	_	1
Higher Secondary School	Per 15,000 Population	Inadequate	0	_	1
College	Per 125,000 Population	Inadequate	0	_	1
Tech. Training Institute	Per 100000 Population	0	0	_	0
Agriculture Research Centre	Per 100000 Population	0	0	_	0
Skill Development Center	Per 100000 Population	0	0	_	0
Health Facility				_	
Govt/Panchyat Dispensary or Sub PHC or Health Centre	Each Village	0	1	_	0
Primary Health & Child Health Center	Per 20,000 population	0	0	_	1
Child Welfare and Maternity Home	Per 10,000 population	0	0	_	0
Multispeciality Hospital	Per 100000 Population	0	0	_	0
Public Latrines	1 for 50 families (if toilet is not there in home, specially for slum pockets & kutcha house)	1	1	_	0
Physical Infrastructure Facilities					
Transportation		**Inadequate**		_	_
Pucca Village Approach Road	Each village	**Adequate**	2km approach road	_	_
Bus/Auto Stand provision	All Villages connected by PT (ST Bus or Auto)	**Inadequate**	_	_	_
Drinking Water (Minimum 70 lpcd)		**Adequate**	_	_	_
Over Head Tank	1/3 of Total Demand	**Adequate**	_	_	0
U/G Sump	2/3 of Total Demand	**Inadequate**	_	_	0
Drainage Network - Open		**Adequate**	30% open	_	_
Drainage Network - Cover		**Adequate**	70% covered	_	_
Waste Management System		**Inadequate**	_	_	_
Socio- Cultural Infrastructure Facilities					
Community Hall	Per 10000 Population	0	0	_	0

Community hall and Public Library	Per 15000 Population	1	0	_	1
Cremation Ground	Per 20,000 population	0	0	_	0
Post Office	Per 10,000 population	0	0	_	0
Gram Panchayat Building	Each individual/group panchayat	1	1	_	0
APMC	Per 100000 Population	0	0	_	0
Fire Station	Per 100000 Population	0	0	_	0
Public Garden	Per village	0	0	_	0
Police post	Per 40,000Population	0	0	_	0
Shopping Mall	Per 10000 Population	**0**	**0**	_	**0**
Electrical Design					
Electricity Network					
Electricity	Per 10000 Population	**Adequate**	0	_	0
Pole	Per 10000 Population	**Adequate**	0	_	0
Wiring	Per 10000 Population	**Adequate**	0	_	0
Any Other	Per 10000 Population				
	Capacity Needs for electricity development				
Any Smart concept Village Facility					
Technology					
Heritage Building					
Infrastructure					
		ESR cap	0		
		Sump cap	0		
		Lat	0		

14.4 Certification by Sarpanch



સત્યમેવ જયતે

સૌનો સાથ...
ગામનો વિકાસ...

પસુણીયા સમરસ ગ્રામ પંચાયત

મું. પસુણીયા, તા. દહેગામ, જી. ગાંધીનગર-૩૮૨૩૩૩

સરપંચશ્રી, સોલંકી શિલ્પાબેન શ્રવણસિંહ

+91 97264 35018, +91 81606 95081 pasuniya9099@gmail.com https://pasuniyagrampanchayat.com

રેફ.નં.:

તારીખ : 05/06/24

પ્રમાણપત્ર

આથી આ પ્રમાણપત્ર આપવામાં આવે છે કે L.J. Institute Engineering and Technology ઈજનેરી કોલેજ, Gujarat Technological University અમદાવાદ નાં વિદ્યાર્થી સોની (સાહિલ પટેલ) અને (નિપુર્ણકસિંહ ચાવડા) દ્વારા વિશ્વકર્મા પ્રોજેક્ટ અંતર્ગત ગામની મુલાકાતે આવેલાં આ દરમિયાન તેઓ દ્વારા જુદાં-જુદાં સર્વે હાથ ધરવામાં આવેલા હતાં તેમાં મુખ્યત્વે સ્થળ ચકાસણી, હયાત સવલતોની ચકાસણી કરવામાં આવેલ છે. જે બાબતનું આ પ્રમાણપત્ર આપવામાં આવે છે.

Solanki
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તા. દહેગામ, જિ. ગાંધીનગર