DETAIL PROJECT REPORT

VISHWAKARMA YOJNA: VIII
AN APPROACH TOWARDS RURBANISATION
ANJLAV Village
VALSAD District

PREPARED BY

STUDENT NAME	BRANCH NAME	ENROLLMENT NO
DHRUVI PATEL	CIVIL	170860106012
MONTIKA PATEL	CIVIL	180863106008

COLLEGE NAME

LAXMI INSTITUTE OF TECHNOLOGY, SARIGAM

NODAL OFFICER'S NAME

MR.AMITKUMAR. CHAUHAN

COLLEGE LOGO

YEAR: 2020-21

GUJARAT TECHNOLOGICAL UNIVERSITY

Chandkheda, Ahmedabad – 382424 Gujarat

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ON

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CERTIFICATE

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

Detail Project Report for,

VILLAGE ANJLAV

DISTRICT VALSAD

Under

Vishwakarma Yojana: Phase-VIII

In partial fulfillment of the project offered by

GUJARAT TECHNOLOGICAL UNIVERSITY, CHANDKHEDA

During the Academic year 2020-21.

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

STUDENT NAME	BRANCH NAME	ENROLLMENT NO
DHRUVI PATEL	CIVIL	170860106012
MONTIKA PATEL	CIVIL	180863106008

Date of Report Submission:

Principal Name and Signature:

Dr. Basavaraj Patil

VY-Nodal Officer Name and Signature:

Mr. Amitkumar R. Chauhan

Internal(Evaluator) Guide Name and Signature:

Mr. Amitkumar R. Chauhan

College Name: **Laxmi Institute Of Technology, Sarigam**

College Stamp:

ABSTRACT

Vishwakarma yojana is one of the initiatives towards rurbanization of village by the Government of Gujarat hand over to GTU. The vision of Vishwakarma yojana is to reduce and remove the rural-urban divide through infusion of urban patterns and service in rural systems to ensure provision of quality lifestyle and livelihood option while keeping the basic rural soul intact. By studying the village life with respect to delivery of basic needs, the main aim is to reimagine, redesign, rejuvenate and strengthen the community life. The main objectives of project is to study the present status and to conduct techno-economic survey of all selected villages of the state. It ascertains the existing basic and public amenities, essential commodities and other infrastructural.

According to census 2011 information the location **Anjlav** Village located in ValsadTaluka, 2536 People are living in this Village, 1271 are males and 1265 are females as per 2011 census. Expected Anjlav population 2019/2020 is between 2,460 and 3,043. Literate people are 2113 out of 1111 are male and 1002 are female.

The nearest city from the Anjlav village is valsad 13 km from Anjlav village. The village had its own post office and pin code of Anjlav village is 396055

As per our actual visit of village, we found the current scenario of village; the village is a tourist place having religious temple 2km from Anjlav village. The facilities available in the village are school, Panchayat office and paddy is the major crops grown in village. Village is not having proper solid waste management, storm water drainage and bad conditioned village roads are there. In addition, village needs initiative for approach to various govt. schemes by local bodies. The main source of income for most of the villagers is from farming only but no such schemes like drip or sprinkler irrigation is adopted by them which can increase the yield. This leads to small scale jobs. The use of modern irrigation practices is must for them for better living.

After providing the basic facilities suggested by us, we will try to approach towards smart village concepts. With the help of this work and village governance, we will try to make the village digital by providing E-facilities. In this work the main focus is on increasing the existing farming facilities strong by providing drip irrigation system with proper design. In addition, it is important to maintaing the existing facilities strong and more productive rather than new development.

The important facilities required for the ultimate development of the village are provided considering the young, old and other peoples so that everyone can be benefited. This will lead to a prosperous village, where all love to live.

KEY WORDS: Rural development, ideal village surveys, Irrigation Practices, Drip irrigation

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ABBREVIATIONS

SHORT NAME / SYMBOL	FULL NAME
MGNREGA	Mahatma Gandhi National Rural Employment Guarantee Act
PMGSY	Pradhan Mantri Gram Sadak Yojana
IAY	Indira Awas Yojana

CHAPTER 1: IDEAL VILLAGE VISIT FROM DISTRICT OF GUJARAT STATE

1.1 Background and study area location.

The total geographical area of village is 475.22 hectares. Samroli has a total population of 8,189 peoples. There are about 1,855 houses in Samroli village. Chikhli is nearest town to Samrolii which is approximately 1km away.

According to Census 2011 information the location code or village code of Samroli village is 523073. Samroli village is located in Chikhli tehsil of Navsari district in Gujarat, India. It is situated 1km away from sub-district headquarter Chikhli and 30km away from district headquarter Navsari. As per 2009 stats, Samroli village is also a gram panchayat.

Figure 1: Satellite view of SAMROLI village

- Area : 475.22 hectares
- Population : 8,189
- Households : 1,855
- Nearest Town : Chikhli (1 km)

1.2 Concept: Ideal Village, Normal Village

1.2.1 Objectives

- Prevent distress migration from rural to urban areas, which is a common phenomenon in India's villages due to lack of opportunities and facilities that guarantee a decent standard of living.
- Make the model village a "hub" that could attract resources for the development of other villages in its vicinity.
- Provide easier, faster and cheaper access to urban markets for agricultural produce or other marketable commodities produced in such villages
- Contribute towards social empowerment by engaging all sections of the community in the task of village development.
- Create and sustain a culture of cooperative living for inclusive and rapid development.

1.2.2 Example / Live case studies of ideal village of India / Gujarat.

1) Punsari (Gujarat):

   Punsari, located in Gujarat, puts most metros to shame. Funded by the Indian government and the village's own funding model, Punsari is no NRI-blessed zone. The village also boasts of a mini-bus commute system and various other facilities.

2) Dharnai (Bihar) First fully solar powered village:

   Dharnai, a village in Bihar, beat 30 years of darkness by developing its own solar-powered

system for electricity. With the aid of Greenpeace, Dharnai declared itself an energy-independent village in July. Students no long need to limit their studies to the day time, women no longer limit themselves to stepping out in the day in this village of 2400 residents.

3) Pothanikkad (Kerala) The village with 100% literacy rate:

   Unsurprisingly in Kerala, Pothanikkadvillage was the first in the country to achieve a 100% literacy rate. Not only does the village boast of city-standard high-schools, but it also has primary schools and private schools. Guess the number of people the village has educated? Well, according to the 2001 census there are 17563 residents living in the village.

4) Mawlynnong (Meghalaya) Asia's cleanest village:

   Mawlynnong, a small village in Meghalaya, was awarded the prestigious tag of 'Cleanest Village in Asia' in 2003 by Discover India Magazine. Located at about 90 kms from Shillong, the village offers a sky walk for you to take in the beauty as you explore it. According to visitors, you cannot find a single cigarette butt/plastic bag lying around there.

1.2.3 The Idea of a model / smart village.

The idea of an "Adarsh Gram" or model village has been explored earlier as well, most notably through the PradhanmantriAdarsh Gram Yojana, launched by the Central Government in 200910. The scheme was implemented in pilot mode in 1000 villages of Assam, Bihar, Himachal Pradesh, Rajasthan and Tamil Nadu, with an allocation of Rs 10 lakh per village. This limit was later raised to Rs 20 lakh per village. The target villages under the scheme were those with more than 50% of the population belonging to Scheduled Castes (SCs). Additionally, State governments have also taken steps in this direction. Himachal Pradesh launched a MukhyaMantriAdarsh Gram Yojana along similar lines in 2011, with the allocation of Rs 10 lakh per village.

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

Lothal was one of the southernmost cities of the ancient Indus Valley Civilization, located in the Bhal region of the modern state of Gujarat. Construction of the city began around 2200 BCE. Discovered in 1954, Lothal was excavated from 13 February 1955 to 19 May 1960 by the Archaeological Survey of India (ASI), the official Indian government agency for the preservation of ancient monuments. According to the ASI, Lothal had the world's earliest known dock, which connected the city to an ancient course of the Sabarmati River on the trade route between Harappan cities in Sindh and the peninsula of Saurashtra when the surrounding Kutch desert of today was a part of the Arabian Sea. However, this interpretation has been challenged by other archaeologists, who argue that Lothal was a comparatively small town, and that the "dock" was actually an irrigation tank.

Lothal is situated near the village of Saragwala in the DholkaTaluka of Ahmedabad district. It is

six kilometres south-east of the Lothal-Bhurkhi railway station on the Ahmedabad-Bhavnagar railway line. It is also connected by all-weather roads to the cities of Ahmedabad (85 km/53 mi), Bhavnagar, Rajkot and Dholka.

The people of Lothal made significant and often unique contributions to human civilisation in the Indus era, in the fields of city planning, art, architecture, science, engineering, pottery, and religion.

A thick ring-like shell object found with four slits each in two margins served as a compass to measure angles on plane surfaces such as housing alignments, roads or land surveys. S.R. Rao also suggested that it could have functioned as an instrument for measuring angles and perhaps the position of stars and thus for navigation like a sextant. Lothal contributes one of three measurement scales that are integrated and linear (others found in Harappa and Mohenjodaro). An ivory scale from Lothal has the smallest-known decimal divisions in Indus civilisation. The scale is 6 millimetres (0.2 inches) thick, 15 mm (0.59 in) broad and the available length is 128 mm (5.0 in), but only 27 graduations are visible over 46 mm (1.8 in), the distance between graduation lines being 1.70 mm (0.067 in) (the small size indicates use for fine purposes). The sum total of ten graduations from Lothal is approximate to the angula in the Arthashastra. The Lothal craftsmen took care to ensure durability and accuracy of stone weights by blunting edges before polishing.

Lothal Water well: The well has been constructed with radial bricks, 2.4 meters (7.9 feet) in diameter and 6.7 meters (22 feet) deep. It had an immaculate network of underground drains, silting chambers and cesspools, and inspection chambers for solid waste

Figure 2: LOTHAL Water well.

Figure 3: The bathroom toilet structure of house in LOTHAL

Figure 4: Block of brick

Figure 5: Canal

Figure 6: Lothal lower town

The dock with a canal opening to allow water to flow into the river and there by maintaining a stable water level.

1.3. Detail study (Socio economic, physical, and demographic and infrastructure detail of Ideal village / smart village photograph.

ECONOMIC PROFILE: 88.30% of the population of samroli is educated. The annual income of the village is Rs. 5 to 7 crore. All the people of the village pay their tax to the Gram panchayat. There are 3 banks in samroli.

1) Disposal of wastage :

   For cleaning purpose, Gram panchayat provides 1 tractor. Take garbage from road side.This collect wastage and garbage is dumped 10 km outside the village.

2) Recreational facilities:

   There are 6 temples in samroli. The temple of fuldeviMaa , which is very famous among the people of village because it situated near the pond.

Figure 7: Fuldevimaa temple sat samroli.

Figure 8: School at samroli

3) Education facilities:

   Education is the mainly focused in the village. The king of gondal, bhagavatsinh made education compulsory to all. Therefore there are 7 schools in samroli village. It includes primary schools, secondary schools and higher secondary also. There are 7 Anganwadi in village also. The schools have the facility of computer lab and library.

4) Road facilities and transportation service:

50% roads are Bitumen road in the village. Rickshaw and bus are also used for transportation purpose in the village.

Figure 9: Bitumen road

Figure 10: Hospital in Samroli.

5) Hospitals:

There is very well developed primary health care facilities available in samroli village. There are 4 private hospitals in samroli village.

6) Public toilet: One public toilet available in village near panchayat office.it is clean and good in condition with water tank facility

Figure 11: Public toilet in Samroli

Figure 12: water tank in Samroli

7) Water tank:

There are 5 overhead water tank constructed in village for distribution of water. Only two overhead tank water supply systems are in a working condition.

8) Paver block:

Paver block are available in almost each and every house's front yard.

Figure 13: Paver block near housed in Samroli.

1.4 SWOT analysis of Ideal village / Smart Village.

Table 1: SWOT analysis of Ideal village.

Strength

1.Basic physical infrastructure
- Water supply
- Transport
- Sewerage
- Solid waste management

2. basic social infrastructure
- Health facilities
- Education facilities

3.Quality of housing
4. Better connectivity
5 Mass transport facilities
6. public transport facilities
7. door to door solid waste collection
8. wells
9. street light
10 post office
11.banking facilities
12 temple

Opportunities
- To make a Wi –Fi free zone
- Use a modern technology

Weakness
- Open drainage
- Storm water network

Threats
- Water crisis
- Open drainage systems

1.5 Future prospect of development of the Ideal village / Smart village.

- For future prospect, the village Samroli can use more advanced technologies for agricultural prospect and for other requirements also.
- They can make the village Wi-Fi zone and can improve the computer labs in the schools.
- There is open ditch drainage in Samroli therefore they can convert the open ditch drainage to the closed drainage system.
- They can also provide biogas plant in the village.
- They can also provide CCTV camera for safety.
- There should be police station in the village for the safety purpose.

1.6 Benefit of the visit of Ideal village / smart village.

- By the visit of the village Samroli, we got an idea about an ideal village. We had seen many kind of new technologies which can be used in village that are being used in the urban area.
- By this visit of Samroli, it improved our communication skills and we knew how to interact with the different peoples

CHAPTER 2: Literature Review

2.1 Introduction: Urban and Rural village concept.

Urban:

Urban is that area where the population density is more and new facilities are provided to the people. Urban area is the region surrounding a city. Most of inhabitants of urban areas have non-agricultural jobs. Urban areas have municipality, corporation, cantonment board or notified town area committee etc. According to census 2011, there are 7,935 towns, 4,041 statutory town and 3,894 census towns.

Figure 14: Urban and Rural Areas

Rural

All the areas which are not characterized as urban area is called rural area. In which the population is very low compared to urban areas. Mainly they depend on agricultural activities. According to census 2011, there are 6, 40,867 villages in India.

The area where more than 75% of male population is associated with agricultural activity is known as rural area. Rural areas have low population density and large amount of undeveloped land. Agriculturalactivities are more in rural areas.

Rural development is a complete term that concentrates on the action taken for the development of rural areas improve the village economy. However, few areas that demand more focused attention and new initiatives are.

- Education
- Public Health and Sanitation
- Women Empowerment
- Infrastructure Development (e.g. electricity, irrigation, etc.)
- Facilities for agriculture extension and research
- Availability of Credit
- Employment opportunity

2.2 Importance of rural development.

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

- Rural development is pretended to be noticeable importance in the country today than in the olden days in the process of the evolution of the nation. It is a strategy trying to obtain improved rural creation and productivity, higher socio-economic equality, and ambition, stability in social and economic development.
- The primitive task is to decrease the famine roughly about 70 percent of the rural population, implement sufficient and healthy food. Later, serve fair equipment of clothing and footwear, a clean environment and house, medical attention, recreational provision, education, transport, and communication.

2.3 Ancient Villages / Different Definition of: Rural Urban Villages.

Villages in Ancient India:

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

According to Apastamba Dharma Sutra, state officials (Adhyaksas or Adhipals) were to be appointed by the kings for towns and villages with well-defined jurisdictions. In VisnuSmrti, it is written that a chain of officials is to be placed by the king in charge of 1, 10, and 100 villages as well as of the whole rural area.

Key Differences between Urban and Rural:

- The fundamental differences between urban and rural are discussed in the following points:
- A settlement where the population is very high and has the features of a built environment (an environment that provides basic facilities for human activity), is known as urban. Rural is the geographical region located in the outer parts of the cities or towns.
- The life in urban areas is fast and complicated, whereas rural life is simple and relaxed.
- The Urban settlement includes cities and towns. On the other hand, the rural settlement includes villages and hamlets.
- There is greater isolation from nature in urban areas, due to the existence of the built environment. Conversely, rural areas are in direct contact with nature, as natural elements influence them.
- Urban people are engaged in non-agricultural work, i.e. trade, commerce or service industry. In contrast, the primary occupation of rural people is agriculture and animal husbandry.

- Population wise, urban areas are densely populated, which is based on the urbanization, i.e. the higher the urbanization, the higher is the population. On the contrary, the rural population is sparse, which has an inverse relationship with agriculturist.
- Urban areas are developed in a planned and systematic way, according to the process of urbanization and industrialization. Development in rural areas is seldom, based on the availability of natural vegetation and fauna in the region. When it comes to social mobilization, urban people are highly intensive as they change their occupation or residence frequently in search of better opportunities. However, in rural areas occupational or territorial mobility of the people is relatively less intensive. Division of labour and specialization is always present in the urban settlement at the time of job allotment. As opposed to rural areas, there is no division of labour.

2.4 Scenario: Rural / Urban village of India population Growth.

Agenda to Release of Provisional Population Totals - Rural Urban Distribution

Launch of Census 2011 Dashboard

Table 2: Census Population 2011Population (inCrore)

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

- For the first time since Independence, the absolute increase in population is more in urban areas that in rural areas
- Rural – Urban distribution: 68.84% & 31.16%
- Level of urbanization increased from 27.81% in 2001 Census to 31.16% in 2011 Census
- The proportion of rural population declined from 72.19% to 68.84%

Table 3: Growth Rate of Population (in %)

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

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

Table 4: Literacy Rate (in %)

	2001	2011	Difference
Males			
India	75.3	82.1	+6.8

Rural	70.7	78.6	+7.9
Urban	86.3	89.7	+3.4
Females			
India	53.7	65.5	+11.8
Rural	46.1	58.8	+12.7
Urban	72.9	79.9	+7.0

Improvement in female literacy is more than males in both rural and urban areas

- The gender gap in literacy has come down from 24.6 in 2001 to 19.8 in 2011 in rural areas and from 13.4 in 2001 to 9.8 in 2011 in urban areas

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

Gujarat Census: Rural and Urban population of Gujarat (2001 and 2011).**2**

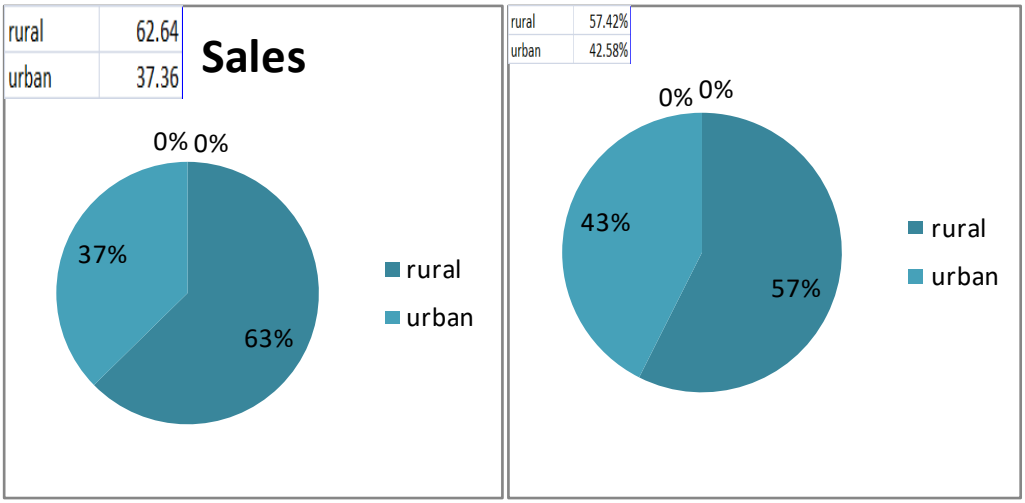


Table 5: Rural and urban population of Gujarat 2001 Table 6: Rural and urban population of Gujarat 2011

2.6 Rural Development Issues - Concerns – Measures.

Following issues are concern with rural areas:

1) People are directly or indirectly dependent on agriculture and a large number of landowners have small and medium-sized landholding.
2) Economy of the people living in rural areas is low.
3) The price the farmers get for their produces is less in relation to the work they put in.
4) People have to migrate to the urban areas due to unavailability of education.
5) The other rural problems are due to the fact that since the rural people do not live in concentrated masses, the availability of specialized service to them is minimum.
6) Very less people are employed in the rural areas.
7) Lack of physical facilities in rural areas.
8) Lack of recreation facilities.
9) Farmers are not having market area for selling their goods directly to the market.

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

Table 7: various infrastructure guidelines

Facilities	Planning commission / UDPFI norms	Required as per norms
Education		
Aganwadi	Each village	1
Primary school	Each village	1
Secondary school	Per 7,500population	2
Higher secondary school	Per 125,000 population	0
College	Per 125,000populations	0
Tech.training institute/ agriculture research centre.	Per 100,000 populations	0
Medical facility		
Govt / panchayat dispensary or PHC or health centre	Each village	1
PHC and CHC	Per 20,000 population	0
Child welfare and maternity home	Per 10,000population	1
Hospital	Per 100,000 population	0
Transportation		
Pucca village road	Each village	
Bus/ auto stand provision	All village connect by ST bus or auto.	1
Drinking water		
Water facilities		
Overhead tank	1/3 of total demand	1.6 lac cap
U/G sump	2/3 of total demand	3.2 lac cap
Public latrines	Each village	60
Post office	Per 10,000population	1
Gram panchayat building	Each individual	1
APMC	Per 100,000 population	0
Fire station	Per 100,000 population	0
Police station	Per 15,000 population	0
Community hall	Per 10,000population	1

2.8 Other Projects / Schemes of Gujarat / Indian Government.

Following are the projects/schemes by Govt. Sector:

i) Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA)

ii) Pradhan Mantri Gram Sadak Yojana (PMGSY)

iii) Indira Awas Yojana (IAY)

iv) Jyotigram Yojana

i) Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA):

- MGNREGA Launched on 2nd February 2006 as a momentous initiative towards pro-poor growth. For the first time, rural communities have been given not just a development

programme but also a regime of rights. The National Rural Employment Guarantee Act, 2005 (NREGA) guarantees 100 days of employment in a financial year to any rural household whose adult members are willing to do unskilled manual work.

- This work guarantee also serve other objectives: generating productive assets and skills thereby boosting the rural economy, protecting the environment, empowering rural women, reducing rural urban migration and fostering social equity, among others. The Act offers an opportunity to strengthen our democratic processes by entrusting principle role to Panchayats at all levels in its implementation and promises transparency through involvement of community at planning and monitoring stages.

i) Pradhan Mantri Gram Sadak Yojana (PMGSY):Pradhan Mantri Gram Sadak Yojana (PMGSY) was launched on 25th December 2000 as a fully funded Centrally Sponsored Scheme to provide all weather road connectivity in rural areas of the country. The programme envisages connecting all habitations with a population of 500 persons and above in the plain areas and 250 persons and above in hill States, the tribal and the desert area.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.

- The President of India, in his address to Parliament on 25th February, 2005 announced a major business plan for rebuilding rural India called Bharat Nirman. The Finance Minister, in his Budget Speech of 28th February,2005, identified Rural Roads as one of the six components of Bharat Nirman and has set a goal to provide connectivity to all habitations with a population of 1000 persons and above (500 persons and above in the case of hilly or tribal areas) with an all-weather road. A total of 59564 habitations are proposed to be provided new connectivity under Bharat Nirman. This would involve construction of 1, 46,185 kms of rural roads. In addition to new connectivity, Bharat Nirman envisages upgradation/renewal of 1, 94,130 kms of existing rural roads.

ii) Indira Awas Yojana (IAY): Housing is one of the basic requirements for human survival. For a normal citizen owning a house provides significant economic security and status in society.

iii) Jyotigram Yojanajyotigram Yojana (lit. 'Village lighting scheme') is an initiative of the Government of Gujarat, India, to ensure that a 24-hour, three-phase quality power supply is available to rural areas of the state and supply power to farmers residing in scattered farmhouses through feeder lines with specially designed transformers.The scheme was announced in 2006 by the President of India, A. P. J. Abdul Kalam. In 2011 it was announced by the Government of India that it would accept Gujarat's Jyotigram project as a flagship scheme for its Twelfth five-year plan.

CHAPTER 3: SMART VILLAGE.

3. Smart (Cities / Village) Concept Idea and its Visit (Civil & Electrical Concept)

3.1 Introduction: Concepts, Definitions and Practices

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

Hanuman Bhagda development story by Mr. Jagdish Patel, Sarpanch of this village. This village is really a model of PURA (Providing Urban Facilities in Rural Area) concept given by Dr. APJ Abdul Kalam.

“Smart village” is the community of individual and collectively, will be empowered to take smart technologies, communication and innovations.

3.2 Vision-Goals, Standards and Performance Measurement Indicators

Vision: - To reconstruct the villages of India so that it may be easy for anyone to live in them it is supposed to be in the cities.

1. Smart security
2. Efficient public transportation
3. Solid and liquid waste management
4. Safe drinking water facilities
5. Educational facilities
6. Improvement on women empowerment
7. Latest and affordable medical Facilities.
8. Facilities regarding to the agriculture.
9. Functional bank account.
10. Use of renewable energy.
11. Rain water harvesting and rain water drainage system.

3.3 Technological Options.

1) Under Ground Drainage:-

It helps excess rainwater. If water collection tank get full, the excess passes through your drainage system and is transported to larger water collection areas via underground pipes. It helps to minimize the risk of soil erosion.

Figure 15: Underground drainage.

2. Reverse Osmosis:-

Figure 16: Reverse osmosis.

Reverse osmosis is essentially an ultra-effective filtering method that removes virtually all contaminants from the water. This includes particulate matter, harmful chemicals, sediment, chlorine, lead, copper, and a whole host of other impurities which might otherwise harm your health. So, this system is very useful for people of Hanuman Bhagda Village.

3. Street Light: -

There are street lights facilities available on the both sides of the road, which help people to drive in a night.

- *Figure 17: street light*

3.4 Road map and safe Guard

Road Map:-

Hanuman Bhagda village is located in Valsad district of Gujarat, India. Valsad is nearest town to Hanuman Bhagda Village. The 2-km road from Valsad to Hanuman Bhagda gives a commuter the feeling of passing through a city. This is because the village road is wide and is well lit with street lights. This road has been laid with government money.

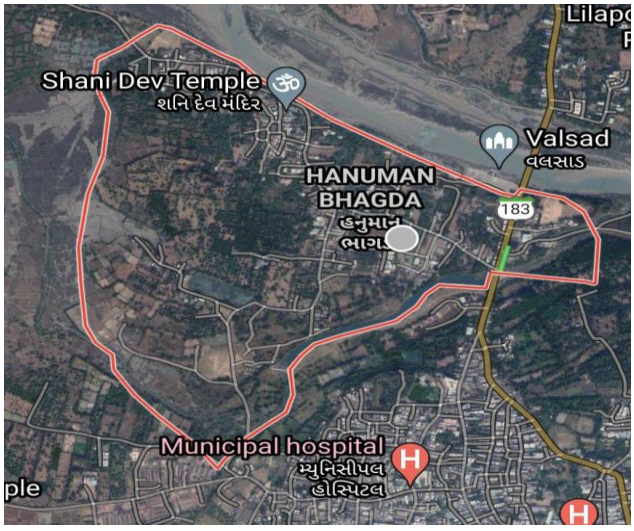


Figure 18: Hanuman Bhagda Satellite view

Safe Guard:-

C.C.T.V Camera:-

This is the biggest and most recognized benefits for the people who lives in village. The CCTV camera was on 24/7 which is connected in panchayat office because of this children's and women

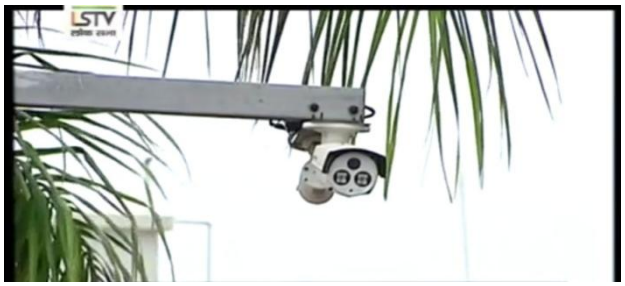


Figure 19:C.C.TV camera.

feel safe and they can go easily without any fear. There was no theft and any criminal activity.

3.5 Issues and Challenges

Works its way through- out the area to be harvested - always, though, separated and apart from the village population. However, at that level of the actual fieldwork a different problem mani- fested itself: the distinction between the cane-cutters

3.6 Smart infrastructure – intelligent Traffic Management

1. Club:-

A club teaches young people important life skills like water safety, commitment, time management, leading a healthy life style, social skill, and work ethic more. A club with swimming pool provides a fun and safe social environment for children and their parents.

2. Circular water Tank:-

There is a over head tank constructed in Baben village for distribution of water. Applications like washing machine and Purifiers need constant flow those needs are satisfied by these overhead tank at the domestic level.

Figure 20: water tank.

3.7 Youth development

Youth are always encouraged to participate in various activities to develop village and motivate other youth of the village to work on the same thing.

3.8 Retrofitting Redevelopment Greenfield Development District Cooling

There are tree Plantation on the both sides of the road. Total 35000 tree plantation, now 25000 trees are available in the village. 5 to 6 persons higher to take care the all plantation.

3.9 Strategic Options for Fast Development

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

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

packed into the retrofitted smart city. This strategy may also be completed in a shorter time frame, leading to its replication in another part of the city.

- Redevelopment will effect a replacement of the existing built-up environment and enable co-creation of a new layout with enhanced infrastructure using more than 50 acres, identified by Urban Local Bodies (ULBs) in consultation with citizens. For instance, a new layout plan of the identified area will be prepared with mixed land-use, higher FSI and high ground coverage. Two examples of the redevelopment model are the Saifee Burhani Upliftment Project in Mumbai (also called the Bhendi Bazaar Project) and the redevelopment of East Kidwai Nagar in New Delhi being undertaken by the National Building Construction Corporation.
- Greenfield development will introduce most of the Smart Solutions in a previously vacant area (more than 250 acres) using innovative planning, plan financing and plan implementation tools (e.g. land pooling/ land reconstitution) with provision for affordable housing, especially for the poor. Greenfield developments are required around cities in order to address the needs of the expanding population. One well known example is the GIFT City in Gujarat.Unlike retrofitting and redevelopment.

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

Urban sanitation in India faces many challenges. Nearly 60 million people in urban areas lack access to improved sanitation arrangements, and more than two-thirds of waste water is let out untreated into the environment, polluting land and water bodies. To respond to these environmental and public health challenges, urban India will need to address the full cycle of sanitation, i.e., universal access to toilets, with safe collection, conveyance and treatment of human excreta.

3.11 Initiatives in village development by local self-government

Under the scheme, during 2019-24, MPs will be able select one village every year for integrateddevelopment aimed at improving the overall quality of rural life. The project also envisages turning villages into model villages not just through infrastructure development but gender equality, peace and harmony.

- It also aims to instill the spirit of community service, mutual cooperation, self-reliance, local self-government and drive transparency and accountability in public life.
- The programme also aims to inspire a sense of pride among people by giving them ownership of the development schemes and through initiatives like honoring village elders, celebrating village day and folk art festivals and by driving them to develop their own village song.
- The blueprint of the project, which is likely to be unveiled by Prime MinisterNarendraModi on Saturday, will have the gram panchayat as the basic unit for development. While a population

size of 3,000-5,000 per development unit has been fixed for plain areas, for hilly, tribal and difficult areas the population base for each of these selected villages will be between 1,000 and 3,000. According to the document, while LokSabha MPs will have to choose a gram panchayat from within their constituencies, RajyaSabha MPs will be able to select a gram panchayat from a district of their choice in the state from which they have been elected.

3.12 Smart Initiatives by District Municipal Corporation

Stabilization pond system for waste water treatment

- Duckweed based waste water treatment with culture
- Root zone treatment system
- Anaerobic Decentralized Waste Water Treatment System
- Aerobic DEWATS
- Study Technological Options at Household Level Management like
- Kitchen Garden with Piped Root Zone System, Kitchen Garden without Piped Root
- Zone System and Leach Pit
- Pile Method, NADEP Method, Bangalore Method, Indor Method and Coimbatore Method
- Vermi composting, Windrow Composting, Thermophilic Composting
- MARC Method ,Biogas Technology
- Toilet Linked Biogas Plant

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

Government of India has launched the scheme "DeendayalUpadhyaya Gram Jyoti Yojana" for rural electrification. The erstwhile Rajiv Gandhi GrameenVidyutikaranYojana(RGGVY) scheme for village electrification andproviding electricity distribution infrastructure in the rural areas has been subsumed in the DDUGJY scheme. Rural ElectrificationCorporation is the Nodal Agency for implementation of DDUGJY.

- Under DDUGJY-RE, Ministry of Power has sanctioned 921 projects toelectrify 1, 21,225 un-electrified villages, intensive electrification of 5, 92,979 partially electrified villages and provides free electricity connections to 397.45 lakh BPL rural households. As on 30thJune 2015, works in 1, 10,146 un-electrified villages and intensive electrification of 3, 20,185partially electrified villages have been completed and 220.63 lakh free electricity connections have been released to BPL households.

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

How to implement other Countries smart villages projects in Indian village context Similar to Vishwakarma Yojana, Students of engineering colleges can be given chance to visit foreign countries' smart villages and survey and study it properly as they study the smart villages of Gujarat. Than with the help of other government or private engineers, one can implement other countries smart village projects in Indian villages.

Glimpse of the village

CHAPTER 4 ALLOCATED VILLAGE

4.1 Introduction

4.1.1 Introduction about Anjlav Village details.

Anjlav Village Details

Anjlav is a Village in ValsadTehsil ,Valsad district and Gujarat State. Anjlav village Pin code is 396055. Anjlav Village Total population is 2536 and number of houses are 604.

Female Population is 49.9%. Village literacy rate is 83.3% and the Female Literacy rate is 39.5%.Population

Table 8: Anjlav village census

Census Parameter	Census Data
Total Population	2536
Total No of Houses	604
Female Population %	49.9 % (1265)
Total Literacy rate %	83.3 % (2113)
Female Literacy rate	39.5 % (1002)
Scheduled Tribes Population %	35.9 % (911)
Scheduled Caste Population %	3.3 % (84)
Working Population %	3.3 % (84)

Location: AnjlavVillage Gram Panchayath name is Anjlav. Anjlav is 13 km distance from Sub District HeadQuarterValsad and it is 13 km distance from District HeadQuarterValsad.

Nearest Statutory Town is Valsad in 13 km Distance.

4.1.2 Justification/ need of the study.

In the development of village that could under taken as per the need of the Anjlav village is particular included.

- In the Anjlav village the physical infrastructure facilities that are solid waste management, storm water network, telecommunication, common toitel, protected well, paver block.
- Social infrastructure facilities, needed a private clinic, sanitation, sub center, playground.
- Socio- cultural facilities need a community hall, library, recreation facilities, public garden, and video conference hall.
- Sustainable infrastructure, which are need in village are rain water harvesting, bio gas plant, eco toilet , solar street light ,reverse osmosis plant.
- The other facilities which are need for Anjlav village are Wi-Fi facilities, milk bus,

announcement (speakers), and women employment.

4.1.3 Study Area.

The **Anjlav** Village located in ValsadTaluka, 2536 People are living in this Village, 1271 are males and 1265 are females as per 2011 census.

Expected Anjlav population 2019/2020 is between 2,460 and 3,043. Literate people are 2113 out of 1111 are male and 1002 are female.

People living in Anjlav depend on multiple skills, total workers are 1160 out of which men are 774 and women are 386.

Total 200 Cultivators are depended on agriculture farming out of 188 are cultivated by men and 12 are women. 266 people works in agricultural land as a labour in Anjlav, men are 192 and 74 are women.

4.1.4 Objectives of the study.

Creation of infrastructure - connectivity, civic and social infrastructure along with Provision of alternative livelihood generation is the key pillars.

Basic Physical Infrastructure:

Water Supply, Transport, Sewerage and Solid Waste Management should be the priority focus and be provided.

Basic Social Infrastructure Health and Education facilities should be provided and ensure proper delivery of facilities to village dwellers.

Reduce migration from rural to urban areas due to lack of basic services and sufficient economic activities in rural areas.

Internal roads within village settlement, Efficient Mass Transportation systems to improve connectivity between urban and rural areas, Public transportation facilities that need to be developed like bus stops, transport depot etc.

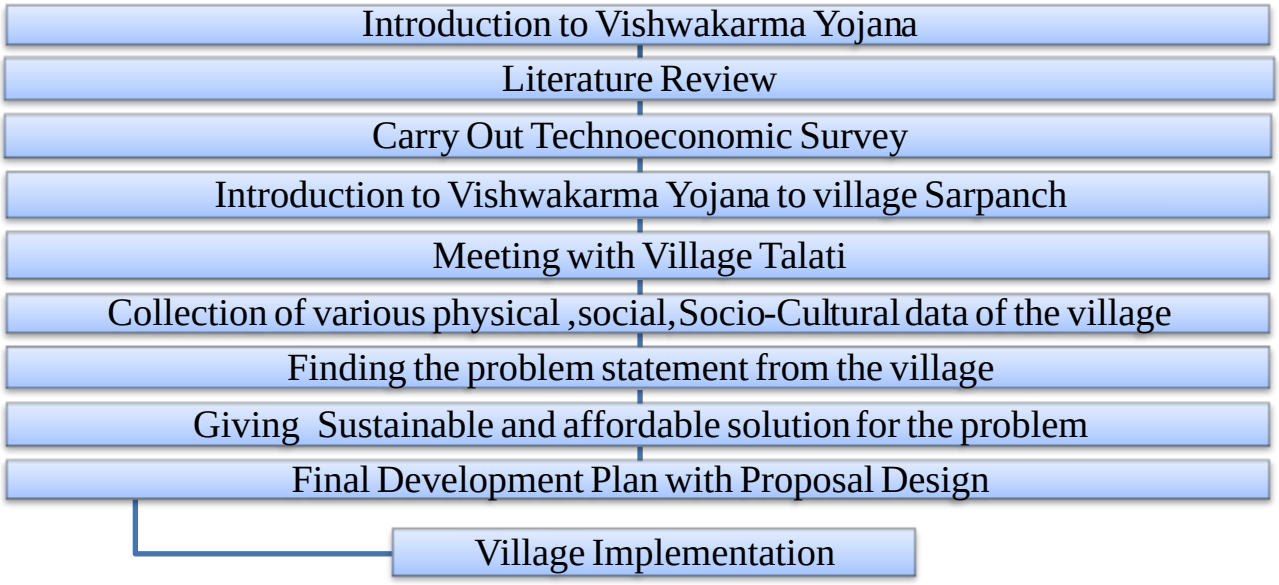
Identification of sanitation facilities that need improvement sewerage and drainage line for household connection, door to door solid waste collection & dumping facilities Refurbishing of village lakes, water tanks and wells, construction of rain water harvesting structures for sustainable Development.

4.1.5 Scope of study.

To provide urban amenities to a village without affecting the soul of village. By studying the present status and techno-economic survey of anjalav village in valsad district of the Gujarat state in terms of basic services, public amenities.

other infrastructural facilities for the need of the people and to prepare a report on the expected socio-economic growth of the area with the consultation of sarpanch will helpful in providing Better facilities and services in village.

4.1.6 Methodology Frame work for development of village.



- Methodology- implementation: the techno-economic survey of village is been done in terms of basic abs public amenities and other infrastructure facilities.
- Techno- economic survey of village: collected all essential information from village such as: household data, occupational detail, water facilities, drainage facilities, storm water network, electricity network recreation facilities, education facilities, health facilities, transportationfacilities, road network, irrigation system literacy rate and other data.

Gap analysis:

Table 9: Gap Analysis.

Existing facilities.	Required facilities.
• **Physical infrastructure facilities** 1. Public tap/ stand pipes. 2. Unprotected well. 3. Hand pumps. 4. Overhead tank. 5. Kutchacha storm water drainage	1. Solid waste management. 2. Protected well. 3. Community toilet. 4. Paver block. 5. Underground drainage. 6. Milk bus. 7. Street light 8. Safe drinking facilities(RO)
• **Social infrastructure facilities.** **1.** Anganwadi **2.** Primary school **3.** Post office. **4.** Panchayat building. **5.** Milk cooperative society.	1. Anganwadi 2. play ground 3. Sub centre 4. Private clinic,
• **Socio- culture facilities.** 1. Assembly polling station 2. Birth and death registration office.	1. Community hall 2. Recreation facilities 3. Public garden 4. Video conference hall.

	5. Wi-fi facilities.
	Sustainable infrastructure
	1. Rain water harvesting 2. Biogas plant 3. Eco toilet 4. Solar street light

4.1.7 Available methodology for development of related to civil.

- **Gram Panchayat**
- **Temple**
- **Drainage System**
- **Overhead Water Tank**
- **Bus Stop**
- **R.C.C Roads**
- **Paver Blocks**
- **Electricity 24*7**
- **Milk Co-Operative Society.**
- **General Provision Street.**
- **Water Supply System**
- **Solid Waste Collection**

4.2 ANJLAV VILLAGE study area profile.

4.2.1 Study Area Location with brief History land use details

- Total area = 658.77 heaters
- Non Agricultural area = 0.03 Hecters
- Irrigated area = 587.31 Hecters
- Paddy, mango and sugarcane are agricultural commodities grow in anjalav village.

4.2.2Base Location map, Land map, Gram Tal Map.

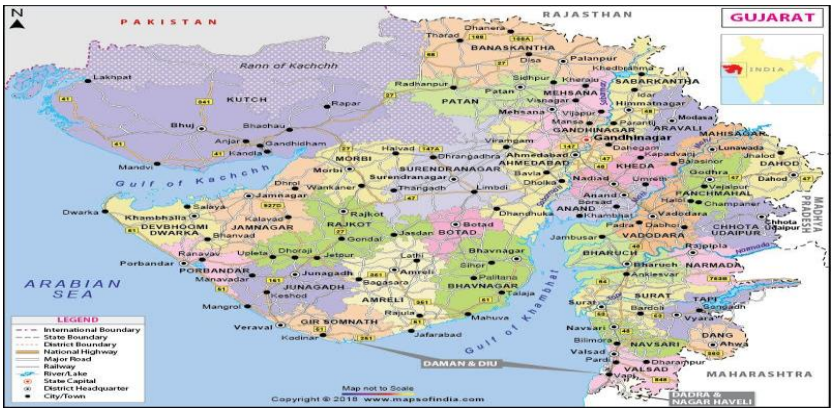


Figure 21: Base Map

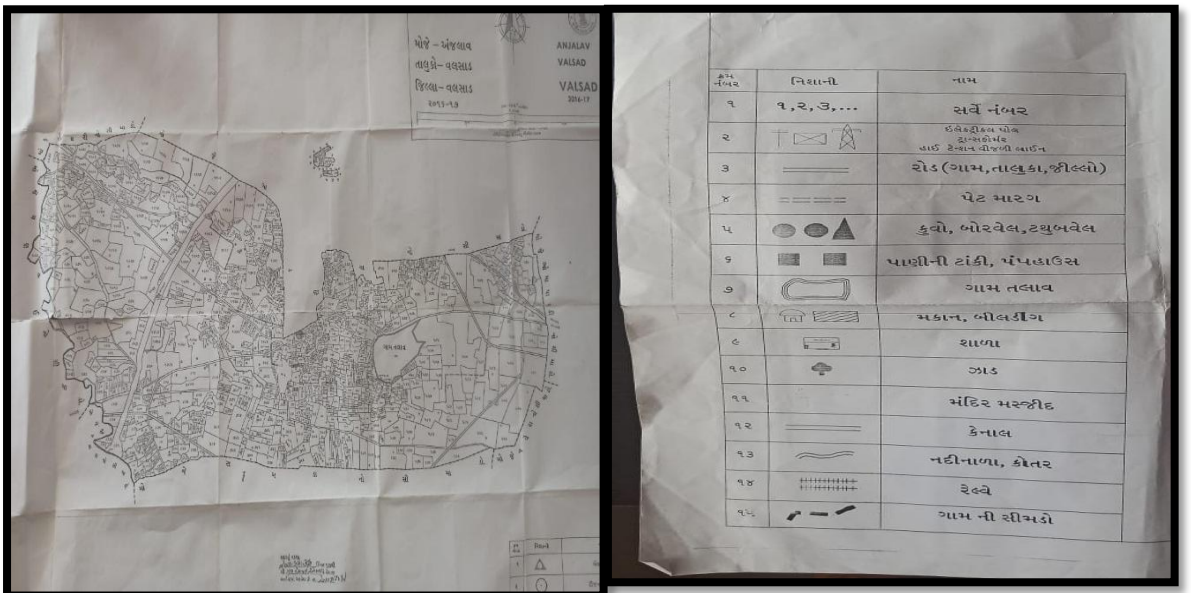


Figure 22: Land Map

4.2.2 Physical and Demographical Growth.

- The Anjlav village is located in ValsadTaluka, 2536 people are living in thid village, 1271 are males and 1265 are females as per 2011 census.
- Expected Anjlav village population 2019\2020 is between 2,460 and 3,043.
- Literate people are 2,113 out of1, 111 are male and 1,002 are female. People living in Anjlav village depend on multiple skills, Total workers are1, 160out of which men are 774 and women are 386.

4.2.4 Social scenario –Preservation of tradition, Festivals, Cuisine

- Preservation of Tradition, Festivals, Cuisine
- We respect and preserve traditions through cultural celebrations. Through the naming of our children. Through the honoring of our ancestors through the preservation of their graves and monuments. By the teaching of our youth as to the great people and institutions of the past.

4.2.5 Migration Reasons / Trend

1. Push Factors

- Lack of services, Lack of safety, High crime, Crop failure, Drought ,Flooding .Poverty .War.

2. Pull factors

- higher employment,more wealth ,better services ,good climate ,safer, less crime ,political stability ,more fertile land ,lower risk from natural hazards

4.3 Data collection ANJLAV VILLAGE photograph/ graphs/ chart/table.

4.3.1 Describe method for data collection.

There are basically different types of data collection methods for collection of data from village or city or any of the town is as follows:

- By filling of survey form
- By interaction with villagers
- By interaction with sarpanch
- By observing the current condition of village
- Visiting different location of village

In all above method of data collection we can use the Home Interview Survey.For the data collection of the Jakhariya village we can try to home interview survey & collect other data from the panchayat house of Jakhariya village. The sarpanch of the village was giving the overall important details of the village like area, population, and existing facility in the village. In Techno Economic Survey form fill the all data which are required.

4.3.2 Primary detail of survey.

Table 10: Primary detail of Anjlav

Particulars	Total	Male	Female
Total no. of House	604	-	-
Population	2536	1271	1265
Child	185	96	89
Schedule caste	84	39	45
Schedule tribe	911	443	468
Literacy	89.88%	94.55%	85.20%
Total workers	1160	774	386
Main worker	844	-	-
Marginal worker	316	68	248

4.3.3 Average size of the house – geo-tagging-house.

Theapprox ratio of house is 95% pucca house and 5%kuccha. There are total 604 houses.

4.3.4 No of Human beings in one house.

There are approx. five members are in one house as it is not the exact no of person it is the average no taken from survey.

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

- For building of house mainly wood, brick and cements are used and they are economical and even mouram are also available.
- There is no out sourced material are available in village.

4.3.6 Geographical detail.

Table 11: Geographical detail.

Sr no.	Description	Information
1	Area of village	658.77 hect.
2	Forest area (in hect)	
3	Agricultural land area (in hect)	587.31hect
4	Distance to the nearest railway station.(in km.)	Valsad (13km)
5	Name of nearest town with distance.	Valsad(13km.)

4.3.7 Demographical detail.

Table 12: Demographicaldetail.

Sr.no.	Census	Population	Male	Female	Total no. of households.
1	2011	2536	1271	1265	604

4.3.8 Occupational detail.

- People of Anjlav village are mainly inclined in agriculture and other work

4.3.9 Agricultural detail.

- 587.31 hectors agricultural area is available in village and mainly people depend on agriculture. Major crops grown in village are paddy, mango, and vegetables.

4.3.10 Physical infrastructure facilities- manufacturing HUB/warehouses.

- No warehouses or manufacturing hub are available in village.

4.3.11 Tourism development available in the village for attracting the tourist.

- No tourism spots are there in village but the nearest spot are 2km.

4.4 Infrastructure detail

4.4.1 Drinking water.

There are 6 water tank are available in the village but not in working condition. There is only 30min water supply in the village which is pump from the other village. In the rainy season water is not pure.

Figure 23: Water tank.

4.4.2 Drainage network.

There is the open type drainage facility in anjlav. The drain water is discharged directly in to its nearby water body or on the free land. Also it creates bad smell and polluted atmosphere. It is not good for the people those are living near it.

Figure 24: Drainage network.

4.4.3 Transportation and Road network.

There is bus and auto stand in village. All the roads in village are not in well condition. The main road of the village is bitumen and the internalstreet road of the village is kuchha there for it is very difficult for the village people. But the agriculture land there is no hard road only earth road is available. There is no railway station in village. People use their own vehicles for the local transportation.

Figure 25: Road network in Anjlav.

4.4.4 Housing conditions.

- Pucca house-90%
- Kaccha house-5%

4.4.5 Social infrastructure facilities, health,education, community hall, library.

- **Health facilities.**

  Anganwadi is available in the village no other medical facilities are available in the village not even the sub center.

- **Education facilities.**

  There is Anganwadi is available but in that playground for the children is not good. The primary school is available in the village condition is good but in the school there is no computer lab and library is available for the students even the drinking water for the student is not pure no reverse osmosis in the school.

- Socio – culture facilities,Village pond,Temple.
- Other facilities-Mahilamandal

Figure 26: Anganwadi play ground

4.4.6 Existing condition of public building and maintenance of existing public infrastructure.

- The panchayat building and milk Co-operative society were in good condition.

4.4.7 Technology mobile / WIFI / Internet usage detail.

- There is personal Wi-Fi in the village. From the total population 80% people are used mobile phone and used their own internet. There is no any other Wi-Fi facility available for public usage.

4.4.8 Sports activity as Gram panchayat.

- There is no sports activity in the village. Sometime cricket match is organized by local people.

4.4.9 Social – cultural facilities, public garden/ park/ playground/ pond/ other Recreation facilities.

- There is no public garden in the village.
- There is no public library in the village.
- There is one village pond in the village.
- There is no community hall in the village.

4.4.10 Other facilities

- There is one panchayat building in the building.
- There is one milk co-operative society in the village.
- There is no sub center in the village for medical.
- There is no Bank in the village.
- There is no medical shop in the village.

4.5.1 Irrigation Facilities-

- Normal furrow irrigation.
- No use of drip or sprinkler irrigation.
- No use of any other smart irrigation system.

- Lined Canal available in the village.

4.6. Existing institution like – village administration- Detail profile.

4.6.1 Bachatmandali.

Table 13: Bachatmandali.

Srno.	Descriptions	Information / detail	Adequate	Inadequate
1.	BachatMandali	No	-	-

4.6.2 DudhMandali.

Table 14: DudhMandali.

Sr no.	Descriptions	Information / detail	Adequate	Inadequate
1.	DudhMandali	Yes	Yes	-

4.6.3 Mahila forum.

Table 15: Mahila forum.

Sr no.	Descriptions	Information / detail	Adequate	Inadequate
1.	Mahila forum	Yes	Yes	-

4.6.4 Plantaion for the Air Pollution.

Table 16: Plantation for the Air Pollution

Sr no.	Descriptions	Information / detail	Adequate	Inadequate
1.	Plantation for the Air Pollution.	No	-	-

4.6.5 Rain water Harvesting.

Table 17: Plantation for the Air Pollution

Sr no.	Descriptions	Information / detail	Adequate	Inadequate
1.	Rain water Harvesting.	No	-	-
2.	Waste water recycling.	No	-	-

4.6.6 Agricultural Development.

Table 18: Agricultural Development.

Sr no.	Descriptions	Information / detail	Adequate	Inadequate
1.	Agricultural Development.	No	-	-

4.6.7 Any other

Table 19: Any other

Sr. no.	Descriptions	Information / detail	Adequate	Inadequate
1	Adopting of Non-conventional Energy Sources/ Renewable Energy Sources.	No	-	-

CHAPTER 5

5. Technical options with case studies.

5.1.1 Advance sustainable construction techniques / practices and quantity surveying.

- The construction industry is repeatedly criticized for being inefficient and slow to innovate. The basic methods of construction, techniques and technologies have changed little since Roman times. But the application of innovation in the construction industry is not straight forward.
- Incorporating advanced construction technology into practice can increase levels of quality, efficiency, safety, sustainability and value for money. However, there is often a conflict between traditional industry methods and innovative new practices, and this is often blamed for the relatively slow rate of technology transfer within the industry.
- Every construction project is different, every site is a singular prototype, construction works are located in different places, and involve the constant movement of personnel and machinery. In addition, the weather and other factors can prevent the application of previousexperience effectively.
- The adoption of advanced construction technology requires an appropriate design, commitment from the whole project team, suitable procurement strategies, good quality control, appropriate training and careful commissioning.
- Advanced construction technologies are commonly described as including (amongst many others) advanced forms of:
- 3D printing.
- Materials.
- Building information modeling (BIM).
- Cladding systems.
- Computer aided design and computer aided manufacturing (CAD/CAM).
- Computer numerical control.
- Construction Innovation Hub.
- Construction plant.
- Modern methods of construction.
- Modular construction.
- Offsite manufacturing.
- Prefabrication and preassembly.
- Research and development.
- Site investigations and surveying.

- Substructure works.
- Water engineering.
- Temporary works.
- Smart technology.
- Robotics.
- GPS controlled equipment.

5.1.2 Soil Liquefaction.

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

The effects of soil liquefaction on the built environment can be extremely damaging. Buildings whose foundations bear directly on sand which liquefies will experience a sudden loss of support, which will result in drastic and irregular settlement of the building causing structural damage, including cracking of foundations and damage to the building structure, or leaving the structure unserviceable, even without structural damage. Where a thin crust of non-liquefied soil exists between building foundation and liquefied soil, a 'punching shear' type foundation failure may occur. Irregular settlement may break underground utility lines. The upward pressure applied by the movement of liquefied soil through the crust layer can crack weak foundation slabs and enter buildings through service ducts, and may allow water to damage building contents and electrical services

5.1.3 Sustainable sanitation.

Almost all sanitation systems are water centric systems and do not run without sufficient quantity of water. These systems are linear expensive, unaffordable in terms of operation and maintenance and not as per Bellagio principles accepted by Nations worldwide. Inadequate management of sanitation and sewerage system has posed enormous health and hygiene problems and ever increasingly urban population has further compounded the same. Loss of school days, man days on account of this is a major issue for poverty alleviation and overall economic development of the country.

With water centric sanitation system approach and the day by day increase in demand and supply gap in drinking water, it will be almost important that the concept of sustainability should always in

focus while providing the solutions. 2/3rd of generated waste water which is 80% of supplied drinking water does not get any treatment which shows that there should be some paradigm shift in thinking is to approach while finding solution for these unserved population in providing sanitation. From 'Flush' and 'Forget' system to 'Recycle in consonance with 'Waste to Wealth' approach. Ecosan services foundation, a Pune based NGO has taken up this imperative task of closing the loop between taking and giving, by providing the sustainable sanitation solutions…. the task to convert waste into wealth! ESF works in close association with German Development Cooperation, gtz, Seecon International; Switzerland has proven its expertise to Department of drinking water supply and Ministry of Urban Development, Govt. of India in shortest span through knowledge, communication and implementation. Ecological Sanitation, 'Ecosan', is endeavoring to provide economically viable, socially acceptable and technically appropriate sanitation solutions for protecting the environment and natural resources and achieving long term sustainability. With its philosophy of moving from flush and forget attitude towards Waste to Wealth recycle approach, Ecosan claims to have awakened in a resourceful dawn. While closing the loop between sanitation and agriculture without compromising the health Ecosan has provided many ecofriendly, user friendly, cost effective and low maintenance solutions for reuse of waste water as nutrients for crops. 'Ecosan' concept is based on segregation of different flow streams at source reuse after appropriate treatment.

There are various technological options in Ecosan.

1. Urine Diverting Dehydration toilet

The 'Urine diverting dehydration toilet' is principally a collection system of separating human urine at the source before it mixes with faeces. Here Urine, human excreta and anal cleansing water is separated by three holes pan. Urine is stored separately for about 90 days, Faecal is separately collected which is flushed with dry material for dehydration and composting and anal cleansing water is percolated in to the ground through sand filter.

5.1.4 Transport infrastructure / system.

Roads have been existing in India for the last 5000 years. In early stages of Indian History, Ashokand Chandragupta made efforts to construct roads. But the real progress was made during the Mughal period.

WBM Road:

Water Bound Macadam (WBM) roads contain crushed stone aggregate in its base course. The aggregates are spread on the surface and these are rolled after sprinkling water.WBM roads provides better performance compared to earthen, gravel, murrum and Kankarroads.WBM roads are laid as layers about 10cm thickness of each layer. They are very rough and may disintegrate immediately under the surface.

Bituminous Road:

Bituminous roads are very popular roads around the world. They are most used roads in the world. They are low in cost and good for driving conditions. They are flexible and thickness of bituminous roads depends upon the sub grade soil conditions.

Concrete Road:

Cement concrete is used to construct the pavements in case of concrete roads. These are very popular and costlier than all other types of roads. They are not flexible so, they require less maintenance. Concrete roads are suitable for high traffic areas. Concrete roads are laid with joints and time of construction is more.

Composite Road:

Composite materials are often used in types of construction that are more related to maintenance, recycling, and rehabilitation. Composite materials are combinations of both asphalt and concrete, and are typically employed in one of two methods. Asphalt overlays literally are placed over a damaged surface, or alternatively pavement may be cracked and seated instead, forming a true new surface.

Asphalt Road:

One of the most popular types of construction ever since its inception in the early 1920s is asphalt paving. In this construction technique, a layer of asphalt is laid on top of an equally thick gravel base. Advantages of this form of road construction are that the pavement produces relatively little noise, its relative low cost compared to other materials, and that it is relatively easy to repair and maintain as well. However, asphalt is known to be significantly less durable and strong than most other choices, and isn't the best for the environment either.

5.1.5 Vertical farming.

- Vertical farming is the practice of growing crops in vertically stacked layers or integrated in other structures (such as in a skyscraper or old warehouse) with use of less water and no soil.
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Need for vertical farming.

Increasing food demand due to growing population along with ever decreasing arable lands poses

as one of the greatest challenges. The high yield farming methods that support our immense population are characterized by their instable consumption of our limited reserves of fresh water, fossil fuel and soil. Vertical farming is the urban farming of crops inside a building in a city or urban centre, wherein the floors are designed to accommodate certain crops. These heights will act as future farm lands and that they can built by nations with little or no arable land, transforming nations which are currently unable to farm into top food producers. Vertical farming creates an alternate source of sustainable food production units for today's urban needs and future generation. The food production is just the start. These vertical farms will recycle grey water and black water, generate power from the incineration of plant waste (think plasma arc gasification) which will reduce waste to its constituent molecules, and harvest water from dehumidification. Every urban center gets one or several thus cutting way down on food miles.

Scope and potential.

1. Less deforestation and land use. This means less erosion and less flooding.
2. Abandoned or unused properties will be used productively.
3. Crops will be protected from harsh weather conditions like floods, droughts and Snow.
4. Reduction in vehicular transport as the crops produced is easily consumed.
5. Less CO2 emission and pollution by decreasing reliance on coal burning product.
6. Overall wellness as city wastes will be channelized directly into farm buildings.
7. Water is used more effectively.

How dose vertical farming works.

There are four critical areas in understanding how vertical farming works:

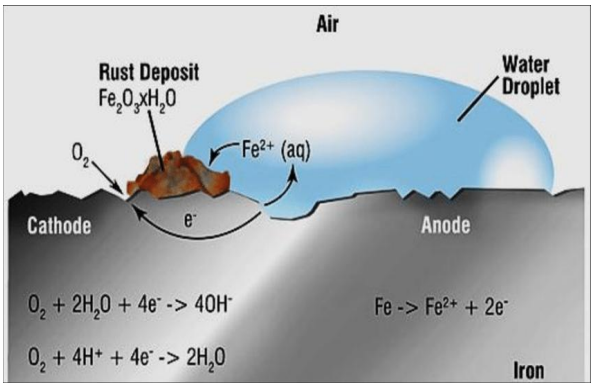
i. Physical layout.
ii. Lighting.
iii. Growing medium.
iv. Sustainability features.

Firstly, the primary goal of vertical farming is producing more foods per square meter and so the crops are stacked vertically to grow. Secondly, a perfect combination of natural and artificial lights is used to maintain the perfect light level in the room. Technologies such as rotating beds are used to improve the lighting efficiency. Thirdly, instead of soil, we will employ hydroponics (bathing the plant roots in a nutrient bath) or aeroponics (spray-misting the plant roots) oraquaponic growing mediums are used. Peat moss or coconut husks and similar non-soil mediums are very common in vertical farming. Finally, the vertical farming method uses various sustainability features to offset the energy cost of farming. In fact, vertical farming uses 95% less water than traditional farming. VI. HYDROPONICS A. About Hydroponics is a method of growing plants without soil. Instead of having their roots supported and nourished by soil, the plant are supported by an inert growing

medium like cocopeat and are fed via a nutrient-rich water solution and uses about 70% less water than traditional farming. Hydroponic systems may be as simple as a glass of water filled with pebbles and water containing fertilizer or as complex as a large greenhouse structure containing beds of clay pellets/troughs filled with cocopeat that are periodically supplied with a nutrient solution. Nutrient Film technique (NFT) is also a kind of hydroponic farming that is adopted by many commercial farmers these days.

5.1.6 Corrosion mechanism, prevention and Prevention & Repair Measures of RCC Structure,

- The durability of concrete structures is influenced by various factors, for example, ecological presentation, electrochemical responses, mechanical stacking, affect harm and others. Of all of these, consumption of the fortification is likely the primary driver for the disintegration of steel strengthen cement (RC) structures.



- Consumption administration is ending up progressively important because of the developing number of maturing foundation resources (e.g. spans, burrows and so on.) and the expanded prerequisite for impromptu upkeep with a specific end goal to keep these structures operational all through their outline life (and usually, past).
- The primary RC repair, restoration and recovery approaches by and large utilized can be extensively arranged under a) ordinary, b) surface medications, c) electrochemical medicines and d) outline arrangements. The overall point of this examination was to recognize the key consumption administration strategies and embrace exact examinations concentrated on full-scale RC structures to explore their long haul execution.
- To accomplish this, singular research bundles were recognized from the above expansive five approaches for repair, substitution and recovery.
- These were 1) Patch repairs and nascent anodes, 2) Impressed Current Cathodic Protection, 3) Galvanic Cathodic Protection, what‘s more, 4) Hydrophobic medications. The determination of the above research bundles depended on over a wide span of time use by the development industry to repair, renovate and restore RC structures.
- Their commitments might be comprehensively arranged as i) Investigations on how particular medications and materials perform, ii) Investigations on the viability of existing techniques for estimations and creating options, iii) Changes to the current hypothesis of consumption commencement and capture furthermore iv) Changes to administration system methodologies.

5.1.7 A case study on the Canal Top Solar Plant Trial Project - Gujrat, India

- In a bid to become less reliant on conventional sources of energy production like thermal (using coal and Petroleum) and Hydro, Gujrat government was leaning towards the use of Solar Plants for generation of clean energy for the state. While the world was struggling with poor percentage of power generation leading to higher per unit costs, Gujrat government was looking at innovative ideas for lowering the per unit cost of power generation using solar panels.
- The government wanted to move fast so that some substantial electrical generation could be achieved using solar plants, before the end of the term of the elected government.
- The biggest hurdle in the way was not finance but the acquisition of huge amounts of lands for the placement of solar panel arrays for generation of electricity. The land acquisition laws of the country had always been a source of major headaches and major project delays.
- A lot of ideas were raised and considered for the location of solar power plants. The government think tank were also struggling with various ideas that could reduce the cost of power produced by the solar pants.
- Someone in the Gujrat government (not sure who, as this information could not be obtained from the ministry) close to the Chief Minister suggested that solar panels could be placed on top of the several water canal systems that existed in Gujrat state. This would completely eliminate the need for any land acquisition whatsoever.

Figure 27: Solar Canal project

- A proposal for the pilot was circulated and finally the US Based company SunEdison was selected as they had had past experiences of building solar plants over Lakes and river bodies.
- The planning for this was in done in conjunction with the key stakeholders from PMO of the State Government, Sardar Sarovar Narmada Nigam Ltd (SSNNL), Gujrat State Electricity Corporation (GSEC) and representatives from the local village panchayats (a democratic local village regulatory and governance body overseeing the village local affairs). This ensured that the plans encompassed the suggestions, inputs as well as risks of all the three major players to this pilot project.

- The entire design was done in several iteration to ensure that the design would become componentized template that could be scaled up for larger and larger such projects in future. A lot of time was also spent on finding cheaper and more durable design that would ensure that panels do not budge or topple over even while facing gale force winds of 150km per hour. The design was also to include the solutions to the objections raised by SSNNL regarding cleaning and emergency situations in the canal. The panchayat bodies put forth their accessibility needs connected to the water canal, while accepting their contribution of time for manual security and overseeing safety measures during accessing water from the canal.

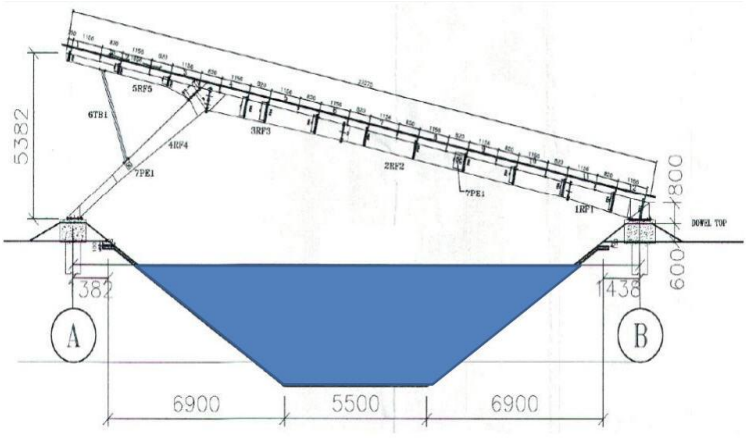


Figure 29: Design of Narmada solar canal

- Once the design was finalized the construction started in a typical waterfall style with minimum redundancy of equipment and material to avoid any kind of wastages.

- The overall design was to place the solar panels across the two walls of the canal such that the rows of panels would become a lid like cover on the canal. This ensured that no land would have to be acquired.

- The panels were raised from one side to face the sun at a sloping angle. The design also put gaps in arrays of solar panels to ensure that the curves in the canal would not end up making the panels face away from the sun.

For the prototype a stretch of 750 meters of canal was selected near Chandrasan Village in the Mehsana district of Gujrat. The total cost was estimated to be 17.50 Crore Indian Rupees. And its output was targeted to be 1 megawatt.

The entire project was completed before time in just under 10 months and finally inaugurated by the Chief Minister on April 24th, 2012.

After 3 yrs of its operations the following information came to light: -

1) The project finished exactly on budget and before time.
2) The design turned out to be scalable and repeatable without much adaptation (this was proven in 2015 when 10 MW project was completed in record time and under budget at Vadodara, Gujrat and inaugurated by the Ban Ki Moon, then UN General Secretary.)
3) The design allowed for easy access to water for the tribal and the villagers.
4) The use of light weight panels with quartz technology has ensured that there have been no leakages of any kind of chemicals into the water.
5) Gaps have been provided among the arrays of panels to allow for undertaking of cleaning or any kind of emergency extraction services.
6) The cleaning of the solar panels becomes easy as the water from the canal was used directly to wash the dust off the panels and they would just drip back into the canal through specifically designed gutter systems running parallel to the panels.
7) It is now estimated that in just that 750 meters of stretch of canal the solar panel covering prevented water evaporations to the extent of 34 million litres of water every single year.
8) Because of the fact that the covering allows hardly any sun rays to reach the canal bottom, less grass and algae growth happened in the canal thus drastically reducing the need for maintenance activities.
9) Animal friendly mesh at the start of the solar panel coverage on the canal also prevented any kind of animals being washed under the solar panels.
10) Because of the fact that the solar panels on the canal created tunnel effect for the winds blowing, the natural high velocity of cool air kept the temperature of the solar panels so low, even during scorching summers, that the panels kept producing electricity at near total levels throughout the year.
11) The CCTV coverage of the operations of this Canal Top Solar Power Generation has ensured that not a single breach of the canal walls or any kind of stealing of water has happened in the last 4 yrs.

Figure 30: Cleaning of solar panel

12) After 4 yrs of implementation the experts have found out that the life of these panels over canals is much more than those put over the land mass. Currently these solar panels have been certified to have life of much beyond 25 yrs.
13) The canal top solar plant produced the lowest ever cost of solar plant power production in the world, at just INR8.00 per unit.

14) It has been producing 1.6 million units per year since its operations.
15) Since hardly any infrastructure was created, this form of solar power plant is the most environmentally friendly installation among all kinds of solar plants

This pilot has been so successful followed by the resounding success of the 10MW plant on the canals near Vadodara, the State Government has now initiated projects of Canal Top Solar Plants around the state to cover not less than 10% of the total canals that they have in the state. Gujrat has 19,000 km of canals. All this would be done before 2022 and by the time all these Canal Top Solar Plants are completed they would end up producing a minimum of 2,200 MW of clean power every single year.

Figure 31: Sardar Sarovar Narmada Nigam Ltd.

This pilot was the first project of this kind ever in the world where canals were used for laying solar panels for power production. Now several countries are trying to do the same.

Some of the factors that lead to the immense success of this project were:

1) Making sure that all the (as well as only) necessary stakeholders were involved in the planning as well as designing of the project specifications.
2) Being open to criticism and unproven ideas allowed the project to be flushed with interesting ideas that only needed practical validation.
3) Essential and practical risk management with preventive and yet less costly solutions ensured that the project does not become unnecessarily risky or costly.
4) Instead of going all out with a huge big-budget project, a trial was done to not only test the validity of the idea but also to make the design so componentized that its replication would need minimum planning as well as redesign while making it highly scalable.
5) The bureaucrats were tasked with enablement and facilitation and also made accountable for the outcome of the project leading to one of the best "Private – Public" synergy ever seen anywhere in the world.
6) Effective and detailed cost estimation allowed for ensuring tracking of the project both time wise as well as cost wise. This also helped in finishing the project under-budget.

CHAPTER 6: Swatchh Bharat Abhiyan

6. Swatchh Bharat Abhiyan(Clean India).

A clean India would be the best tribute India could pay to Mahatma Gandhi on his 150 birth anniversary in 2019," said Shri NarendraModi as he launched the Swachh Bharat Mission at Rajpath in New Delhi. On 2nd October 2014, Swachh Bharat Mission was launched throughout length and breadth of the country as a national movement. The campaign aims to achieve the vision of a 'Clean India' by 2nd October 2019.

6.1 Swatchhta needed in allocated village- existing situation with photograph.

We observe during Survey and visit of the village that the cleanliness needed in the Anjlav village that are Canal Cleaning, Pond Cleaning, Street Road Cleaning, door to door garbage collection system is also required so that people can keep theirarea clean. Villagers also stop polluting soil.

6.2 Guidelines – implementation in allocated village with photograph.

As the work of cleaning the old type of dustbins of Municipal Corporation comes under the Gram Panchayat or Municipal Corporation, it should be properly emptied and new dustbins for dry and wet waste should be provided separately and it should be maintained properly and regularly. The design of Public sanitary blocks would be given by us, so they should be constructed by the government if designed properly. At rest of the few places left, the villagers should clean it themselves as very less area would be come under that part.

6.3 Activities done by students for allocated village with photograph.

We have done meeting and aware the people of Anjlav village about the Swachh Bharat Abhiyan, and gave some knowledge about importance of cleanness in the village, its benefit,

Why it is necessary, etc. we communicate with them and discuss about some points and give suggestion for live healthy and clean life.

Suggestions like:

- Keep paper bags with yourself to store wet waste and throw them in dustbinonly.
- While traveling doesn't throw any wrapper, paper or any dry waste on road. Keep it in your bag or pocket (as it is a dry waste you can keep them in your bag/pocket).
- Avoid spitting on roads (as it can be the reason of viral disease).
- Avoid chewing Pan-Masala, Gutka and Tobacco.
- Avoid use of plastic bag.
- If someone is breaking the rule then make them aware of it.
- Stop your friends if they are making such mistakes.
- Spread awareness to keep our village.

6.4 Capacity building

Community Led Total Sanitation (CLTS) workshops: Trainings were conducted to train ground-

level motivators for working in SBM and were further deployed in villages as triggering teams to sensitise and trigger the emotions of the community towards sanitation. Training to Safaikarmis, Rozgar Sevaks, and SHGs on various aspects of SBM to involve a larger workforce for the mission as 'Swachhta Doot'/'Swachhagrahi'. Mason trainings: Number of masons to be deployed in each village were estimated to make it ODF in stipulated time against the compressed demand of the village. The numbers of trained (on Twin-Pit technology) masons were increased by on-site mason training, and were further deployed at each gram panchayat (GP), where these masons trained other masons to create a big force of trained masons. On an average one mason can build one toilet in five days.

6.5 CLTS approach

The mission was implemented effectively by involvement of community by empowering people in the community. Following a model of incentivising and appreciating helped create a big motivated workforce to work for the mission. Nigrani Samiti: It is a 30-member team (10 kids, 10 women, 10 adults) from each village who were asked to do regular morning and evening follow-ups at places where people usually go for open defecation. They were empowered by giving a proper vigilance tool kit that has a whistle, torch, cap and jacket.

6.6 Efficient fund flow system:

Direct Beneficiary Transfer (DBT) In DBT, the toilet incentive fund of Rs 12,000 was directly transferred to the beneficiary's account in two equal installments of Rs 6,000 for the construction of IHHL (Individual Household Latrines), where the first disbursement happened on construction of twin pits with Swikriti Patra (Agreement Letter) to the District Panchayat Raj Office.

Figure 32: Collection of garbage by students in village

- To keep village clean and in hygienic conditions, we collected waste and plastic from the village.
- We motivated and encouraged villagers to use less plastic and try to keep village clean.

CHAPTER 7: Village condition due to Covid 19

7. Village condition due to covid-19

7.1 Taken steps in allocated village related to existing situation with photograph.

During covid-19 pandemic In the Anjlav village without mask and without sanitize their hands peoples are not allowed to enter in the shop.

The villagers have close road connectivity with the other villages. The ministry of Anjlav Village sarpanch also declared that without their permission no one will come from the other states anespeciallyform Mumbai.

- When the people come from other states they keep them in Home Quarantine for Max 14days and min7 days.
- The sarpanch first strategized by sealing the boundaries of the area in order to minimize the people approaching the village.
- He also involved the neighbouring gram panchayats to follow and support the initiative.
- He has also printed pamphlets for sensitizing people about Coronavirus and its preventive measures.

7.2 Activities done by students for allocated village with photograph.

We explained peoples of Anjlav village how they can protect themselves from covid-19.we encouraged them to wash hands frequently, use antiseptics to clean household items, wear masks in public places, avoid meeting people with colds and coughs, observe physical distance, avoid crowded places, and stay home as much as possible.

We have identified people who are really in need of help. Relief material was provided by government to them that includes vegetables, ration items, chicken, bakery products and drinking water.

- Even monetary assistance too few families were provided. Door to door coverage of households is being done in entire village.
- We volunteered our working 24×7 for the wellbeing of the people.

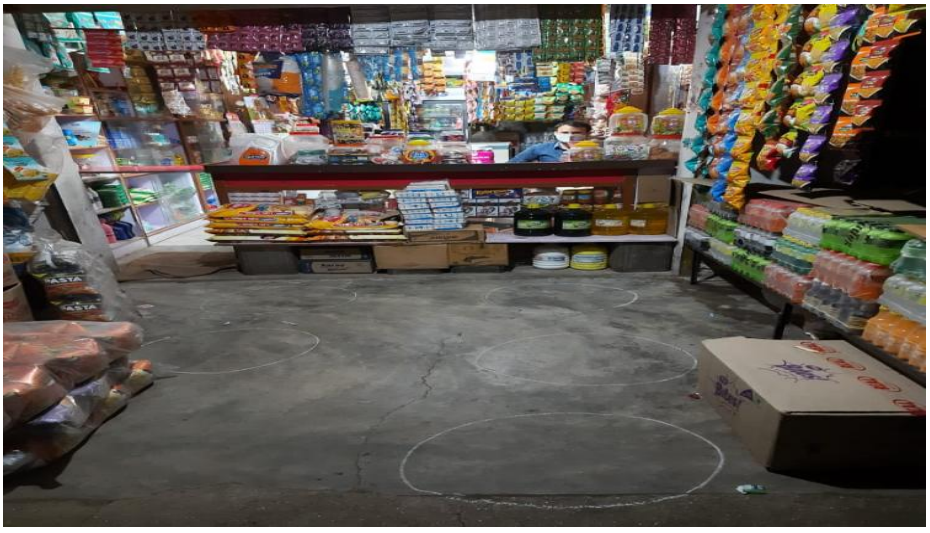


Figure 33: Village activities during Covid 19

- In Anjlav, sanitation workers are sanitizing entire bazaar areas including shops, vegetable market, and public places.

7.3 **Any other steps taken by the students/ villagers**.

The gram panchayat sanitized whole village to protect village people from very dangerous disease corona virus. Even not given permission to set the haath market (hatwado) in the village. During covid 19 conditions to maintain social distance between people ,the various village shops were using social distance circle.

Figure 34: Social distancing circle at village shop

- This circle keeps people 1 m apart while buying anything from shop.
- As social distancing is one of the most important precautions in Covid 19 conditions.so this was very important move by the shop people.
- And this rule was strictly followed by the village people

CHAPTER 8

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

8.1 **Design Proposals:** As the basic source of income for the village is from agriculture and farming, so the best possible solution is to strengthen the agricultural facilities and increasing the yield of the crops. Most of the farmers are growing crops on seasonal basis but very few are able to get the most benefit from the land. The yield is not that high which can give them is good amount of income. Facilities like crop monitoring, Drip irrigation system and sprinkler Irrigation system can be very useful for the farmers. In this work a drip irrigation system has been proposed can be installed directly on the field. This kind of drip irrigation system will provide a water coverage and water saving. Drip system is consider to give better yield with less water losses while applying water to the field.

8.1.1 Sustainable design.

As the proposed design is of Drip irrigation system the following points will lead to better sustainable environment.

1) Loss cost drip irrigation system to manage large fields
2) Less use of water with less wastage of canal or ground water.
3) Less soil erosion
4) No salt accumulation near plants, Disease free plants
5) More crop yield.
6) Less monitoring required, more time of farmers will be saved that can be utilized for others low scale works.
7) Easy to handle and apply water, safety during night time
8) Better utilization of field land.
9) Modern methods can be implemented easily on field.

8.1.2 Physical design

Table 20: Drip Irrigation Design

Design of a drip irrigation system for the following data	
Crop	Banana
Spacing	1.5 m x 1.35 m
Area	1 ha (100 m x100 m)
Slope	0.3 to 0.4%
Water Source	Well
Static Head	10 m
Pan Evaporation	12 mm/day

Soil characteristics	Clay soil
	Field capacity: 48%
	Wilting Point: 25%
	Bulk Density: 1.3 g/cm3
	Effective Root Zone Depth: 60 cm
Wetted Area:	60%
Maximum Pump Discharge:	2.5 lps
Design Steps	
Calculation of depth of irrigation	ETcrop= ET0×Kc = Ep×Kp×Kc = (12) ×(0.7) ×(1.0) = 8.4 mm/d
Volume of water to be applied	Area × Depth
	=(1.5×1.35) ×(0.6) ×(8.4) = 10.21 m^3
Number of Emitters per plant	Number of Emitters per plant is to be selected (based on layout) Say, One emitter per plant (4 l/h Capacity)
Irrigation Time	Irrigation time =Volume/Discharge rate
	10.21/4 =2.55 h say 2.5h
Number of Emitters per lateral	Length of field =100 m
	The submain is laid at the centre (layout), hence lateral length = 50 m
	Emitter spacing on lateral = Plant spacing =1.35 m
	Number of emitters per lateral =50/1.35=37
Discharge through one lateral	QLateral = 37× 4 =148 l/h
Number of laterals per manifold	Pump Discharge = 2.5 lps = 9000 l/h
	Number of lateral that can be operated
	=9000/148 =60.81 say 61
	Breadth of the field =100 m
	Number of laterals along the breadth depend on row spacing
	Distance between two laterals = 1.5 m
	Number of laterals on one side =100/1.5 = 67
	Total number of laterals = 67×2 =133 Number of manifolds = 133/61 = 2.2 say, 4 for uniformity in layout

	Number of Laterals per manifold = 133/4 = 33.25, say 34
Design 1	**Size of lateral**
Darcy Weisbach Equations	$H1 = KCLQ^N \div D^{2N+n}$ Where, K = friction factor that depends on pipe material L = Length of pipe, m Q = Discharge , l/min D = Diameter of pipe, mm C, N and n= Constants The constants c, N and n for D-W are 277778, 2.0 &1.0
Let us assume a lateral of 12 mm diameter	$V = Q \div A = \frac{2961l}{h} \div [(\pi \div 4) \times (12mm^2) = 72.7cm/sec$
Reynolds Number	$N_R = \rho V d \div \mu = 8704$ (q= 998.2 kg/cu m; μ = 1.002 x10-3 N-S/m2)
Since NR is between 2000-10^5, use Reynolds number (turbulent flow) equation to compute f	
Friction factor	$f = 0.32N_R^{-0.25} = 0.32(8704)^{-0.25} = 0.033$
friction factor that depends on pipe material	$k = 0.811(f \div g) = 0.811(0.033 \div 9.81) = 2.73 \times 10^{-3}$ Where, f = friction factor from the moody diagram f for small-diameter trickle tubing, is also related to the
Correcting L in Darcy- Weisbach, Hazen- Willams or Scobey Equation for barb losses	
L = 50 m + (number of emission devices)CL	
CL= 0.6 ft from figure = 0.18 m	
L = 50 + 37(0.18) = 54.86 m	
	$H1 = KCLQ^m \div D^{2N+n}$ $= 2.73 \times 10^{-3} \times 277778 \times 63.32 \times 4.93^2$ $\div (12^{2\times2+1}) = 4.08m$
h_1= Energy loss in pipe, m $h_1 = FH_1 + M_1 = 0.347 \times 4.08 + 0 = 1.415$ m Where, F = constant; f(number of outlets and method used to estimate H1) H_1 = friction loss, m M_1 = minor losses through fitting (from Tables)	
Too high; should be maximum 5% of static head , i.e., 0.5 m	
Increase the lateral size , Let us take 16 mm lateral	

	$V = Q \div A = \frac{5032l}{h} \div [(\pi \div 4) \times (16mm^2) = 40.90cm/sec$
	$N_R = \rho V d \div \mu = 6528$
Since NR is between 2000-105 , use Reynolds number (turbulent flow) equationto compute 'f '	
	$f = 0.32N_R^{-0.25} = 0.33(6528)^{-0.25} = 0.035$
	$k = 0.811(f \div g) = 0.811(0.035 \div 9.81) = 2.94 \times 10^{-3}$
Correcting L in Darcy- Weisbach, Hazen- Willams or Scobey Equation for barb losses	
L= 50 m + (number of emission devices) CL	
CL = 0.33 ft from figure = 0.11 m	
L = 50 +37 (0.11) = 54.07 m	
$H1 = KCLQ^m \div D^{2N+n} = 2.73 \times 10^{-3} \times 277778 \times 58.14 \times 4.93^2 \div (12^{2\times2+1}) = 1.02m$	
$h_1 = FH_1 + M_1 = 0.338 \times 1.02 + 0 = 0.35$ **m** (<0.5 m)	
Acceptable from Table for 37 outlets, Thus, Lateral Size = 16 mm	
Design 2	**Size of Manifold**
	Qmanifold = Qlateral× No. of lateral per manifold
	= 148 × 34 = 5032 l/hr
Manifold design is similar to lateral design	
Assume Manifold Diameter = 50 mm	
$V = Q \div A = \frac{5032l}{h} \div [(\pi \div 4) \times (50mm^2) = 71.18cm/sec$	
	$N_R = \rho V d \div \mu = 35502$
NR is between 2000-105, use Reynolds number (turbulent flow) equation to compute f	
$f = 0.32N_R^{-0.25} = 0.32(35502)^{-0.25} = 0.023$	
$k = 0.811(f \div g) = 0.811(0.023 \div 9.81) = 1.92 \times 10^{-3}$	
L=50m	
$H1 = KCLQ^m \div D^{2N+n} = 1.92 \times 10^{-3} \times 277778 \times 50 \times 83.86^2 \div (50^{2\times2+1}) = 0.06m$	
$= FH_1 + M_1 = 0.347 \times 0.06 + 0 = 0.22$m For 34 outlets	
Head loss in manifold = **0.21 m**	
Head at inlet of manifold = Hemitter +Hlateral+Hslope+ Hmanifold	
= 10 + 0.35 + 0.18 + 0.21	
= 10.74 m	
Design 3	**Size of main**
Length of main = 100 m F (well location)	
Qmain = Qmanifold = 5032 l/hr = 1.4*10-3 m3/sec	

Assume main diameter = 50 mm
$V = Q \div A = \frac{5032l}{h} \div [(\pi \div 4) \times (50mm^2) = 71.18cm/sec$
$N_R = \rho V d \div \mu = 35502$
Since NR is between 2000-105 use Reynolds number (turbulent flow) equationto compute f (f = 0.023)
$H1 = KCLQ^m \div D^{2N+n} = 1.92 \times 10^{-3} \times 277778 \times 150 \times 83.86^2 \div (50^{2\times2+1}) = 1.815m$
$h_1 = FH_1 + M_1$ = 0.469× 1.21 + 0 = 0.851 m**for 4 outlets**
Total Head
Total Head = Head manifold inlet + Hmain+ Hstatic+ Hlocal
= 10.74+0.851+10+2.16
= 23.75 m
(Hlocalis continued as 10% of all other heads)
Pump Horse Power
$h.p. = \gamma \times h \times Q \div 75 \times \eta$
$1000 \times 23.75 \times (1.4 \times 10^{-3}) \div (75 \times 0.70)$
= 0.63~1 hp

8.1.2.1Autocad drawing of suggested drip irrigation system

Design 1, 2, 3

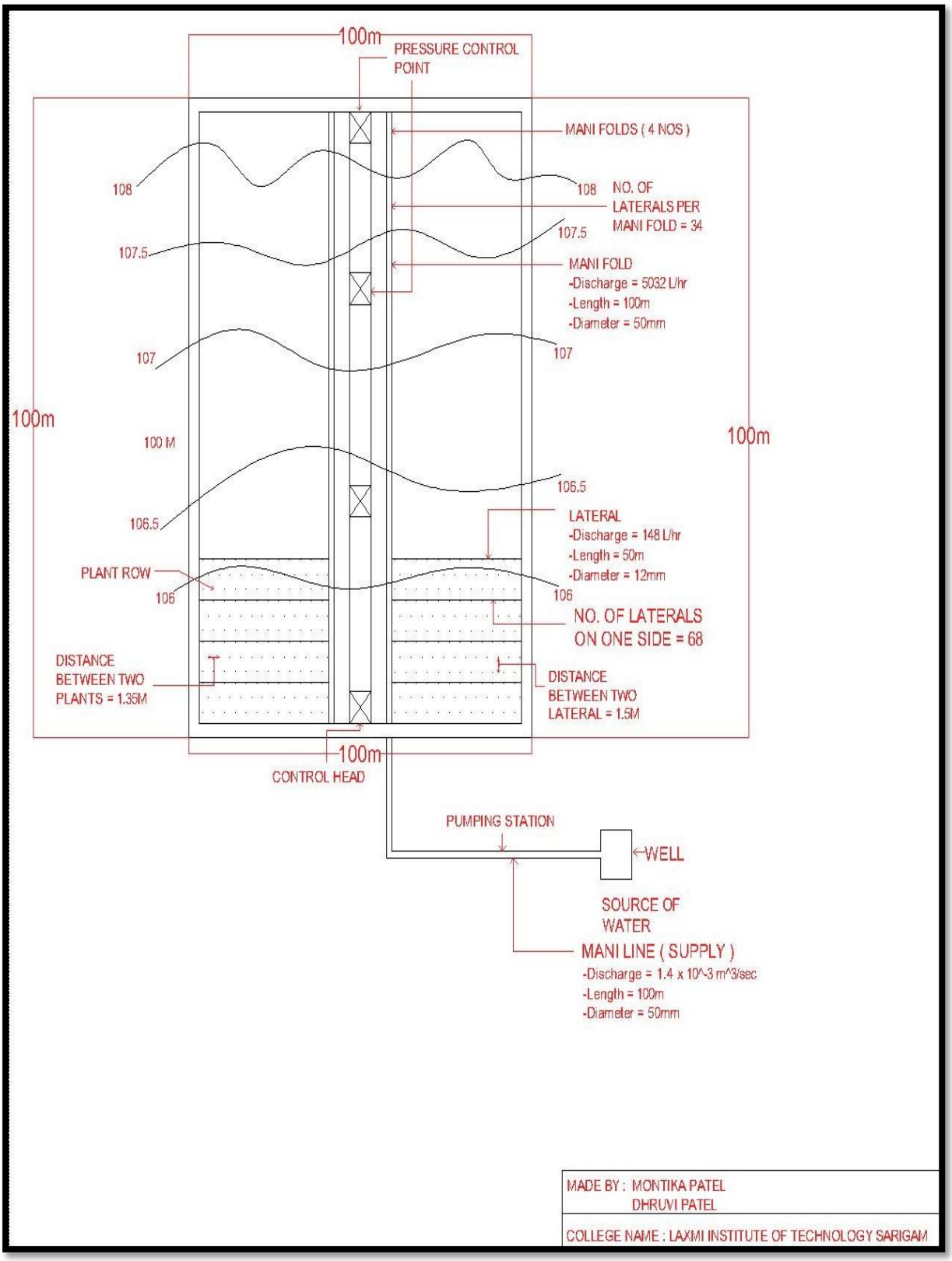


Figure 35: Drip Design Layout of Anjlav Village

8.1.2.2 **Cost of Drip Irrigation system appurtenances**

Table 21: Approximate Cost of Drip Irrigation system appurtenances

Item	Quantity	Unit	Unit Cost	Total Cost
1 Costing	**Supply and mainline**			
uPVC pipe 50 mm class4	180	m	600	600
uPVC pipe 63 mm class4	78	m	200	200
reducing bush uPVC 63 mm x 50mm	1	each	100	100
elbow 45° uPVC 63mm	1	each	50	50
elbow 45° uPVC 50mm	1	each	40	40
barrel nipple uPVC 63 mm x 2inch	1	each	200	200
end cap uPVC 2inch	1	each	100	100
reducing uPVC tee 75 mm x 63 mm x 75mm	3	each	60	180
reducing uPVC tee 63 mm x 50 mm x 63mm	1	each	50	150
barrel nipple 50 mm x 2inch	12	each	200	2200
union 50mm	3	each	150	450
pressure regulator 2inch	4	each	800	3200
barrel nipple 63 mm x 2inch	4	each	200	800
gate valve 2inch	1	each	600	600
union 63mm	1	each	150	150
saddle outlet 50 mm x 1inch	3	each	30	90
saddle outlet 63 mm x 1inch	1	each	45	45
rizer uPVC 25 mm class 16, 1.5 mlong	4	each	75	300
uPVC end cap 25mm	4	each	200	800
pressuretap	4	each	500	2000
2 Costing	**Manifolds**			
uPVC pipe 50 mm class4	222	m	740	740
elbow 90° uPVC 50mm	3	each	50	150
uPVC pipe 63 mm class4	78	m	200	200
elbow 90° uPVC 63mm	1	each	60	60
elbow 45° uPVC 50mm	3	each	50	150
elbow 45° uPVC 63mm	1	each	50	50
barrel nipple 50 mm x 2inch	3	each	200	600
end cap 2inch	3	each	100	300
barrel nipple 63 mm x 2inch	1	each	200	200
end cap 2inch	1	each	100	100
grommet take-off 20mm	100	each	700	700
3 Costing	**Laterals**			
LDPE pipe 12 mm class 4	15 000	m	4050	4050
drippers 4 lph at H = 10 m with a Cv = 0.07 or better and x = 0.42 or better	7500	each	15000	15000
end sleeves 2 cm long, 40 mm	100	each	50	50
Total Cost				**34335**

8.1.2.3 Design of a basketball ground

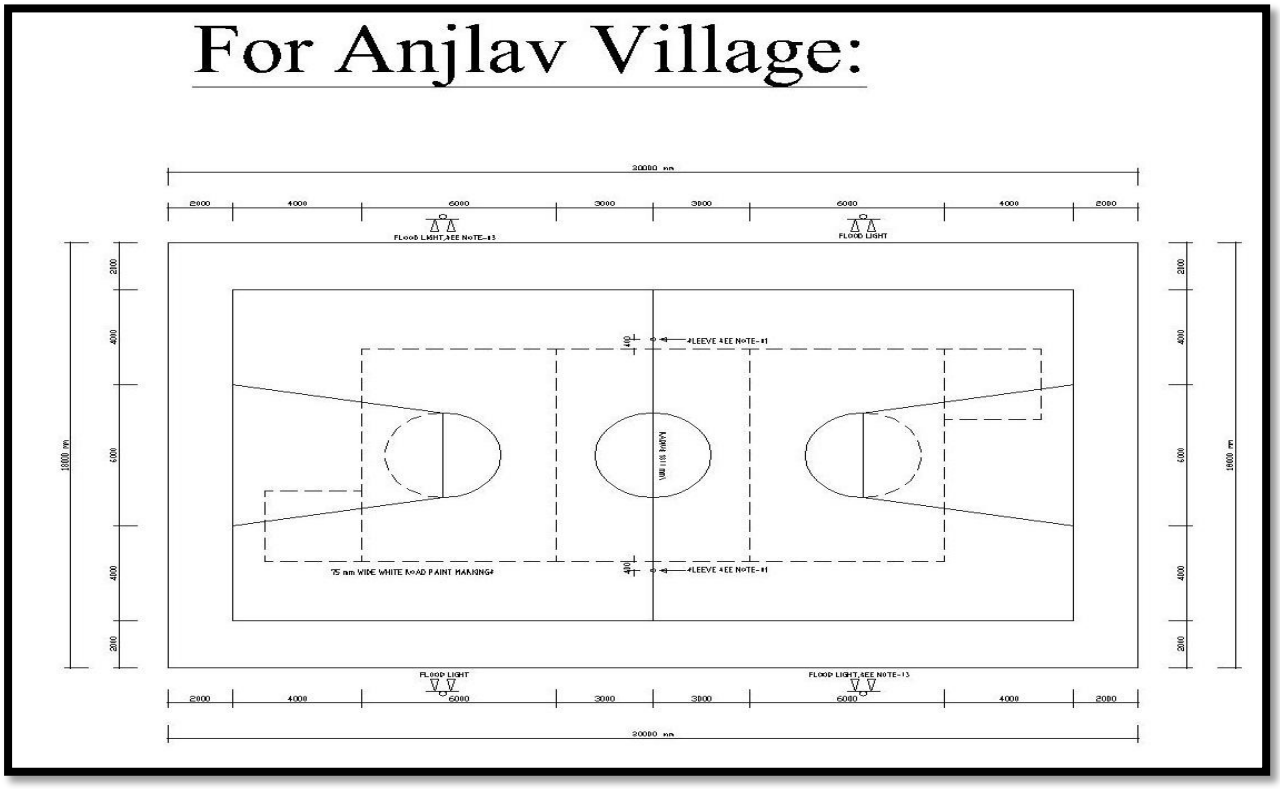


Figure 36: Basket Ball court Autocad

8.1.2.4 Animal Farm

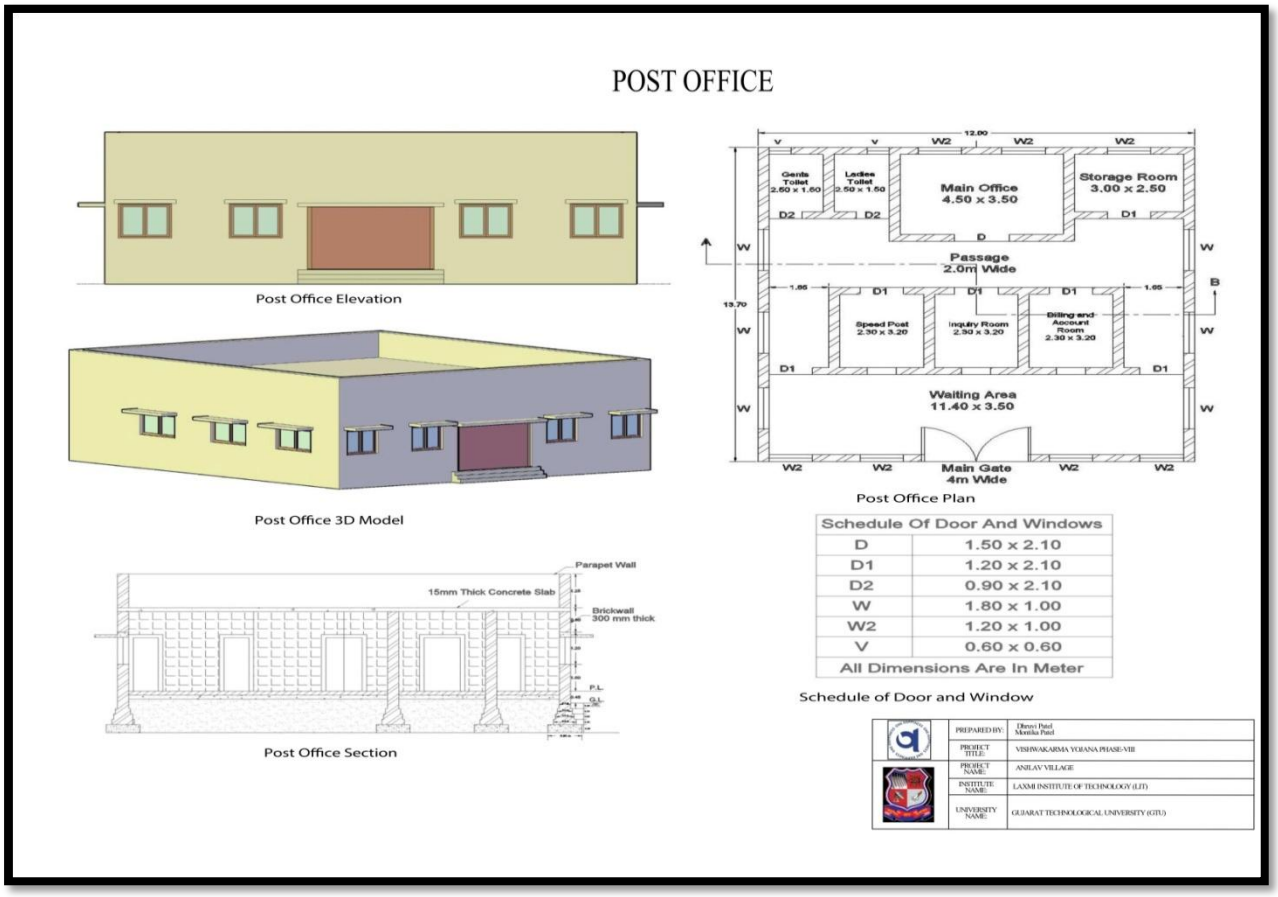


Figure 37: Animal Farm Autocad

8.1.2.5 Bank

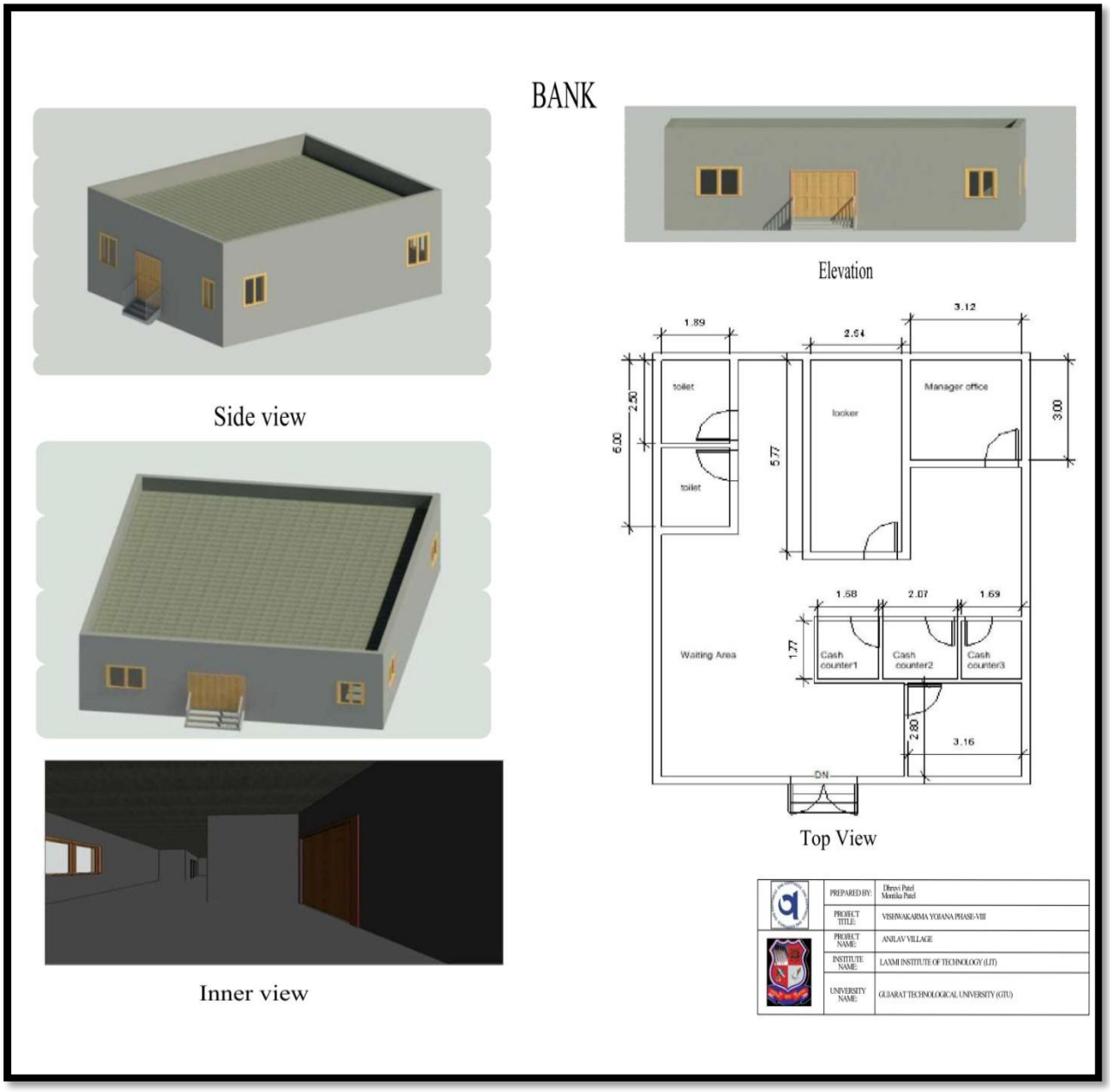


Figure 38: Bank

8.1.3 **Social design:** The points will be added to the betterment in the famer's life.

1) Farmer's suicide case will decrease, as they will be able to generate more income from their field.
2) Farmers will come back to their filed instead of working for any small scale job.
3) The land erosion will decrease.
4) Water wastage will decrease; the same water can be used for other activities.
5) The confidence of the farmers will boost and they will be their own owner.
6) The betterment of the farmers and village will be on larger scale.
7) The problem like less yield, water shortage for irrigation, loan dept. ,
8) Soil erosion will be solve

8.1.4 **Smart village design:** Drip irrigation system is an automatic system which is simply controlled on one switch. This kind of system allows easy handling of water supplied to each and every plant at regular interval. Village people will be able to generate good quality of crops with better yield using this kind of smart system. This kind of smart system not only will make village people compete in this modern time at the same time this kind of system will develop positive attitude in the farmers.

8.2 **Reason for Students Recommending this Design:** Following are the reasons for selecting drip irrigation system,

1) Mostly all the villagers are relying on farming activities or small scale work.
2) Technically they don't go to any irrigation specialist for any modern irrigation method.
3) Doing Drip irrigation design at root level will encourage them to take benefit of drip system.
4) As all the farmers are doing furrow irrigation using traditional method of supplying water to the crops.
5) So there is no continuity in the yield of the crop, bad weather and water deficiency plays big role in the crop yield.
6) Applying water at regular interval and on time creates lots of pressure on the farmers and because of this they are unable to do small scale work.
7) Using drip irrigation system saves lot of time.

8.3 **About designs Suggestions / Benefit of the villagers:**

1) Farmers should be more educated on this kind of modern system at root level.
2) More simplicity and easy process should be defined so that each farmer adopts modern methods for its crop.
3) Proper Drip system design should be done to get the maximum benefit.
4) Adopting drip system will increase crop yield, time saving, less use of water, decease in salt related disease, and more income to farmers, less soil erosion.
5) The most important benefit is it will boost confidence to do better farming.

Chapter 9: Future scope of work

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

- The future scope of the work is to provide the important facilities required for the overall growth of the village community.
- Focusing on the development required for the needy people and economic growth of the villagers.
- Focusing on youth and their facilities.
- Amenities related to sports, library, Inter café, wife facilities etc.
- To provide better cyber café with good internet facilities so that they can do the following things.
    - To fill exam forms.
    - To collect important data
    - To do video calls
- To provide better banking facilities.
- To provide better social garden.
- To provide good public health centre for.
- Regular health checks up.
- Emergency health issue.
- Blood camp.
- Covid 19 vaccination

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

The following points were observed from the field visit

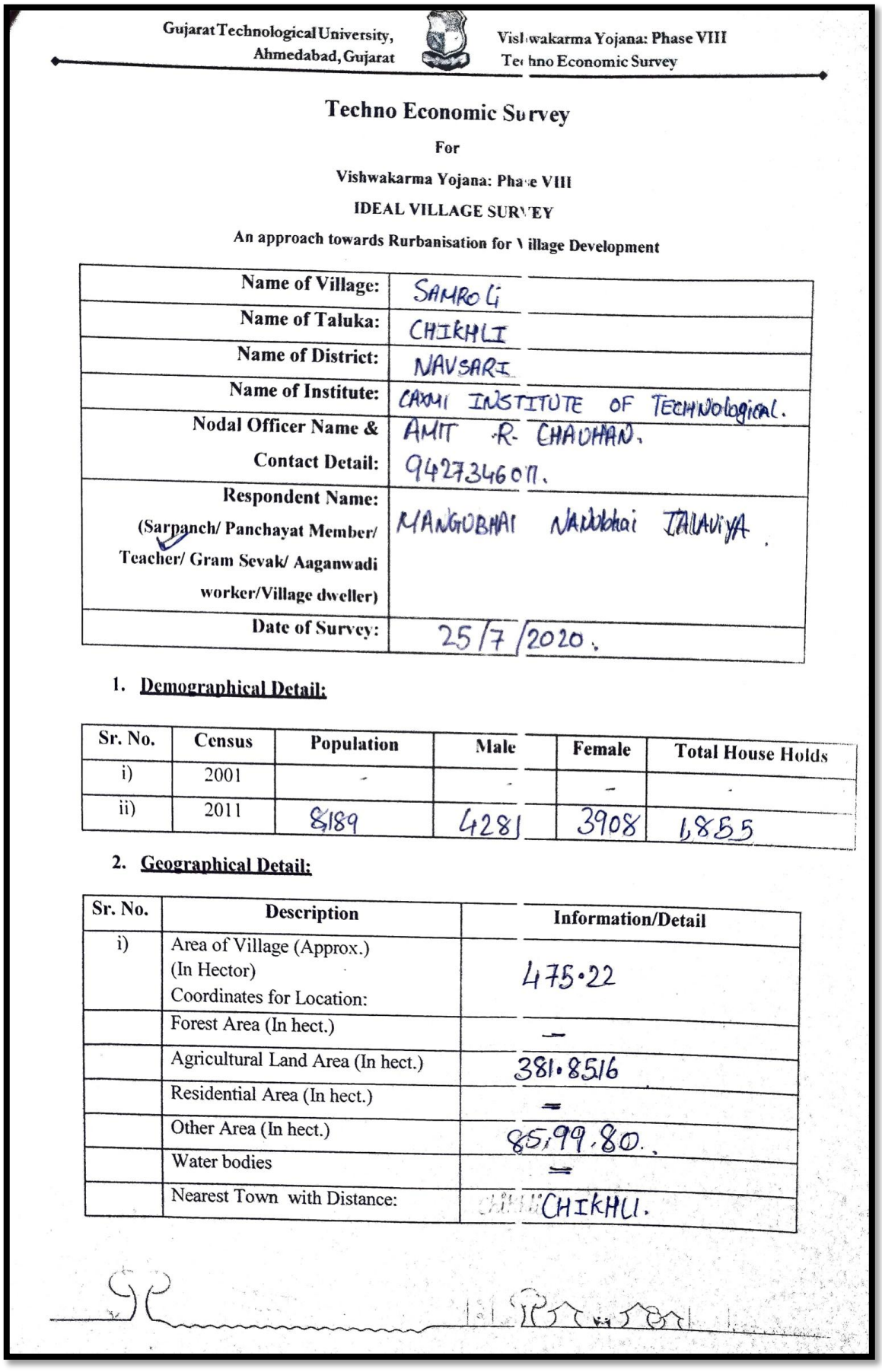
- Poor drainage facilities
- Bad condition Village roads
- People doing small scale work.
- Most of the villagers rely on farming activities.
- No modern irrigation practice followed by farmers.
- Less use of Solar power equipment's
- Many rammed earth houses are in bad condition.
- Paver blocks are not laid at the required places
- No storm water drainage
- Most of the village roads don't have Street light.
- No sports complex
- No social activity centre
- No PHC
- No individual public toilet.
    - The aim of carrying out all the survey and finding out the basic root level requirement of the village people .so that we can help them in their personal daily life.
    - Basic requirement can be regarding daily work,water,food,transportation and banking related.
    - It can be for young people as well for the older people too.

Chapter 11 References refereed for this project:

- Census department, Ministry of Home Affairs, Govt. of India
- www.censusindia.gov.in
- Vishwakarma Yojana & its concept: http://www.vyojana.gtu.ac.in/
- Demographic and other data of the village: www.censusindia.gov.in https://www.census2011.co.in/
- https://www.indiastat.com/administrative-units-data/1/villages/32/stats.aspx
- For Smart City concept and its visions: https://www.thesmartcityjournal.com/en/articles/1333-smart-cities-futuristic-vision
- For various details of Smart, Ideal & Allocated Village: http://www.onefivenine.com/india/villag/Valsad
- For different topics related to project: https://en.wikipedia.org/wiki/Main_Page
- https://cis-india.org/internet-governance/blog/adoption-of-standards-in-smart-cities.pdf http://www.citykeys-project.eu/citykeys/cities_and_regions/performance-measurementframework#:~:text=The%20indicators%20for%20smart%20cities,reached%2C%20or%20are%20within %20reach.
- http://www.differencebetween.net/miscellaneous/difference-between-urban-and-rural/
- Professional Practice and Valuation Book by R. P. Rethaliya, B. N. Dutta & A. S. Kotadia
- ForUDPRFIGuidelineshttps://www.google.com/url?sa=t&source=web&rct=j&url=http://mohua.gov.in/upload/uploadfiles/files/URDPFI%2520Guidelines%2520Vol%2520I.pdf&ved=2ahUKEwiYzdH1gsHsAhWWc30KHcqaCnIQFjAHegQIARAB&usg=AOvVaw1eyAe-ZRvxoD5NLc3mh1r5
- For proper location: https://www.google.com/maps
- https://revenuedepartment.gujarat.gov.in/village-map
- https://projects.datameet.org/indian_village_boundaries/reference/

Chapter 12 Annexure attachment

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



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For

Vishwakarma Yojana: Phase VIII

IDEAL VILLAGE SURVEY

An approach towards Rurbanisation for Village Development

Name of Village:	SAMROLI
Name of Taluka:	CHIKHLI
Name of District:	NAVSARI
Name of Institute:	LAXMI INSTITUTE OF TECHNOLOGICAL.
Nodal Officer Name & Contact Detail:	AMIT R. CHAUHAN. 9427346011.
Respondent Name: (Sarpanch/ Panchayat Member/ Teacher/ Gram Sevak/ Aaganwadi worker/Village dweller)	MANGUBHAI NARUBHAI TALAVIYA.
Date of Survey:	25/7/2020.

1. **Demographical Detail:**

Sr. No.	Census	Population	Male	Female	Total House Holds
i)	2001	-	-	-	-
ii)	2011	8189	4281	3908	1855

2. **Geographical Detail:**

Sr. No.	Description	Information/Detail
i)	Area of Village (Approx.) (In Hector) Coordinates for Location:	475.22
	Forest Area (In hect.)	-
	Agricultural Land Area (In hect.)	381.8516
	Residential Area (In hect.)	-
	Other Area (In hect.)	85.99.80.
	Water bodies	-
	Nearest Town with Distance:	CHIKHLI.

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3. Occupational Details:

Name of Three Major Occupation groups in Village	1. Farmer 2. Labour. 3. Agricultural.

4. Physical Infrastructure Facilities:

Sr. No.	Descriptions	Detail	Adequate	Inadequate	Remarks
A.	**Main Source of Drinking water**				
	• Tap Water (Treated/ Untreated)	Treated	-	Yes	Good.
	• RO Water	Not Free of cost	-	yes.	bad.
	• Well (Covered/ Uncovered)	Covered.	Yes	-	Good.
	• Hand pumps	Yes.	Yes	-	Good.
	• Tube well/ Borehole	Yes	Yes	-	good.
	• River/ Canal/ Spring/ Lake/ Pond	River, Canal, Pond - 3 No.	Yes	-	Good.
Suggestions if any:					
B.	**Water Tank Facility**				
	Overhead Tank	Capacity: 50,000	Yes.	-	Good.
	Underground Sump	Capacity: -	-	-	-
Suggestions if any:					
C.	**Drainage Facility**				
	Available (Yes/ No)	above aveg.	-	Yes	Needed.
Suggestions if any:					
D.	**Type of Drainage**				
	Closed/ Open	Open	-	Yes	bad.
	If Open than Pucca / Kutchcha	Pucca.	-	Yes	Mid.
	Whether drain water is discharged directly in to Water bodies/ Sewer plants	Yes	Yes	-	Good.
Suggestions if any:					

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E.	**Road Network :All Weather/ Kutchha (Gravel)/ Black Topped pucca/ WBM**				
	Village approach road	Yes	Yes	-	Good
	Main road	Bitumen Road	Yes	-	Good.
	Internal streets	Bitumnes Road	Yes	-	Good.
	Nearest NH/SH/MDR/ODR Dist. in kms.	National Highway	Yes	-	Good.
Suggestions if any:					
F.	**Transport Facility**				
	Railway Station (Y/N) (If No than Nearest Rly Station---Kms)	No- Nearest Rly Sta- 9.7 km	-	-	Good.
	Bus station (Y/N) Condition: (If No than Nearest Bus Station---Kms)	Yes	-	Yes	bad.
	Local Transportation (Auto/ Jeep/Chhakda/ Private Vehicles/ Other)	Auto Chhakda. & Private Vehicle	-	-	good.
Suggestions if any:					
G.	**Electricity Distribution**				
	(Y/N) Govt./ Private (Less than 6 hrs./ More Than 6 hrs)	Yes 24/7 hrs.	Yes	-	Good.
	Power supply for Domestic Use	Yes	-	Yes	bad.
	Power supply for Agricultural Use	Yes.	Yes	-	Good.
	Power supply for Commercial Use	Yesbut less use	-	Yes	bad.
	Road/ Street Lights	Yes	Yes	-	Good

	Electrification in Government Buildings/ Schools/ Hospitals	Yes	Yes	-	Good.
	Renewable Energy Source Facilities (Y/ N)	No	-	-	-
	LED Facilities	No	-	-	-
Suggestions if any:					
H.	**Sanitation Facility**				
	Public Latrine Blocks If available than Nos.	Yes 3 Nos	-	Yes	Good.
	Location Condition	Center of village Good.	-	-	-
	Community Toilet (With bath/ without bath facilities)	Yes without bath Only. 3 Nos.	No.	-	-
	Solid & liquid waste Disposal system available	No.	-	-	-
	Any facility for Waste collection from road	Waste collect Vehicle comes twice in a Week	Yes	-	Good
Suggestions if any:					
I.	**Irrigation Facility:**				
	Main Source of Irrigation (Stream/River/ Canal/ Well/ Tube well/ Other)	Pond, Canal Well, Tube well, other River	Yes	-	Good.
Suggestions if any:					
J.	**Housing Condition:**				
	Kutchha/Pucca (Approx. ratio)	Both mixed Pucca.	Yes.	-	Good

5. **Social Infrastructural Facilities:**

Sr. No.	Descriptions	Information/ Detail	Adequate	Inadequate	Remarks
	ICDS (Anganwadi)	Yes.	Yes	-	Good.

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K.	**Health Facilities:**				
	Sub center/ PHC/ CHC /Government Hospital/ Child welfare & Maternity Homes (If Yes than specify No. of Beds) Condition:	PHC	Yes	-	-
	Private Clinic/Private Hospital/ Nursing Home	Private Hospital 4No	Yes.	-	Good.
	If any of the above Facility is not available in village than approx. distance from village: ...0...,...kms.				
Suggestions if any:					
L.	**Education Facilities:**				
	Aaganwadi/ Play group	Yes	Yes	-	Good
	Primary School	Yes	Yes	-	Good
	Secondary school	Yes	Yes	-	Good.
	Higher sec. School	Yes	Yes	-	Good
	ITI college/ vocational Training Center	No	-	-	-
	Art, Commerce& Science /Polytechnic/ Engineering/ Medical/ Management/ other college facilities	No.	-	-	-
	If any of the above Facility is not available in village than approx. distance from village: ...8...kms.				
Suggestions if any:					
M.	**Socio- Culture Facilities**				
	Community Hall (With or without TV) Location:	without TV.	Yes	-	Good.

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	Condition:	good	-	-	Good
	Public Library (With daily newspaper supply: Y/N) Location: Condition:	No	-	-	-
	Public Garden Location: Condition:	working condition	Yes	-	Good.
	Village Pond Location: Condition:	Yes centre of villag good	Yes	-	Good.
	Recreation Center Location: Condition:	Temple	Yes.	-	Good
	Cinema/ Video Hall Location: Condition:	No	-	-	-
	Assembly Polling Station Location: Condition:	No	-	-	-
	Birth & Death Registration Office Location: Condition:	In Panchayat building	Yes	-	Good.
If any of the above Facility is not available in village than approx. distance from village: ..8.....kms.					
Suggestions if any:					
N.	**Other Facilities**				
	Post-office	Average condition	-	Yes	bad.
	Telecommunication Network/ STD booth	No.	-	-	-

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General Market	No	-	-	-
Shops (Public Distribution System)	Yes	Yes	-	Good.
Panchayat Building	Good	Yes	-	Good.
Pharmacy/Medical Shop	good	Yes	-	Good
Bank & ATM Facility	good	Yes.	-	Good.
Agriculture Co-operative Society	Not good.	-	Yes	bad.
Milk Co-operative Soc.	Not good	-	Yes	bad.
Small Scale Industries	No	-	-	-
Internet Cafes/ Common Service Center/Wi Fi	No	-	-	-
Other Facility	-	-	-	-

Suggestions if any: Need a Renewation of Agriculture & Milk Co-Operative Society.

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

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

7. **Data Collection From Village**

Village Base Map Available: Hard Copy/Soft Copy	Hard Copy.

VIII. ADDITIONAL INFORMATION/ REQUIREMENT:

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

IX. Smart Village / Heritage Details

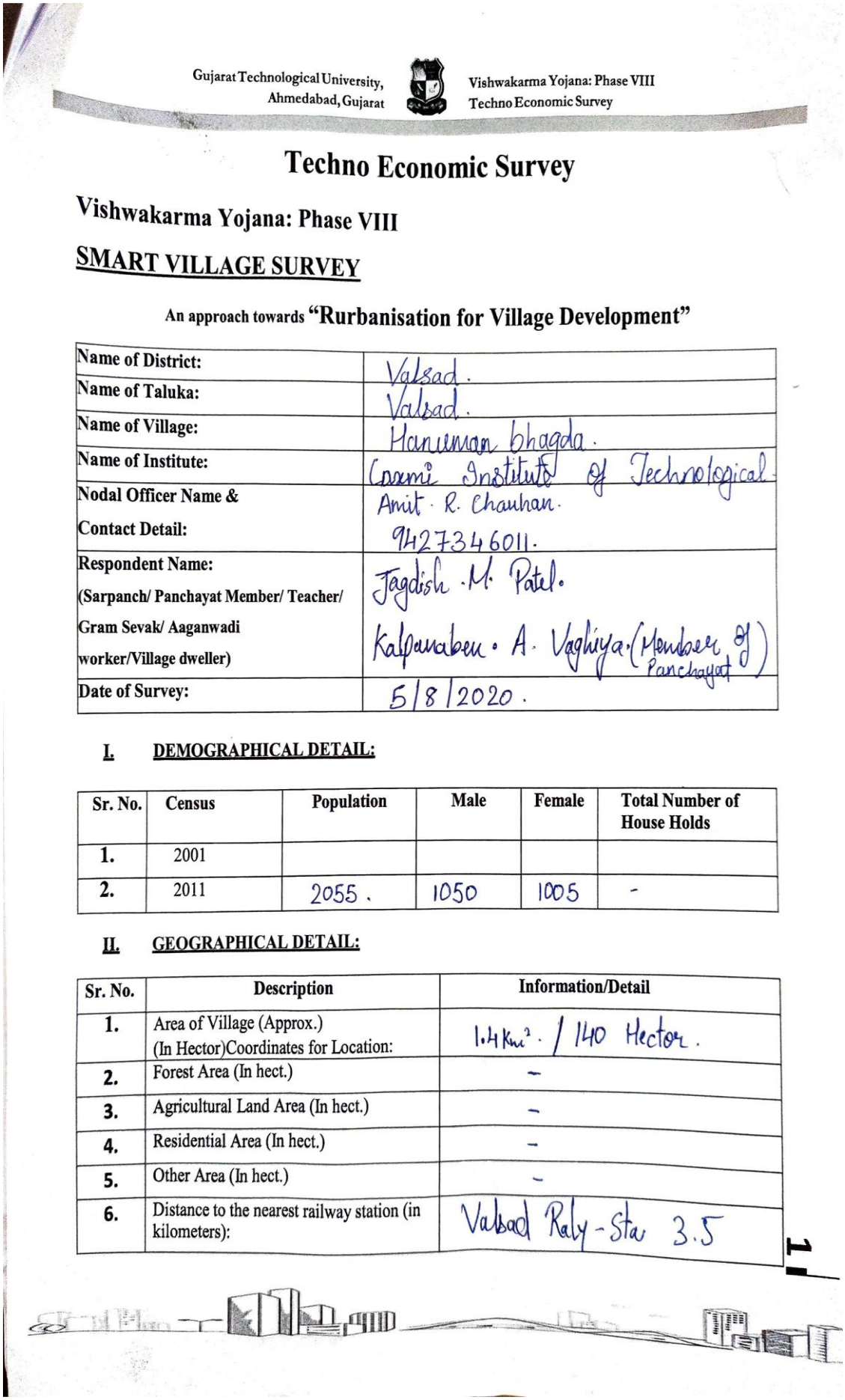
Sr. No.	Descriptions	Information/ Detail	Remarks
1.	IS THEIR ANY THING FOR THE VILLAGE ENHANCEMENT POSSIBLE ?	CCTV camera	

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

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

સરપંચ
ગ્રામ પચાયત સમરોલી
તા. ચીખલી જિ નવસારી

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



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Vishwakarma Yojana: Phase VIII

SMART VILLAGE SURVEY

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

Name of District:	Valsad.
Name of Taluka:	Valsad.
Name of Village:	Hanuman bhagda.
Name of Institute:	Laxmi Institute of Technological
Nodal Officer Name & Contact Detail:	Amit. R. Chauhan. 9427346011.
Respondent Name: (Sarpanch/ Panchayat Member/ Teacher/ Gram Sevak/ Aaganwadi worker/Village dweller)	Jagdish. M. Patel. Kalpanaben. A. Vaghiya. (Member of Panchayat)
Date of Survey:	5/8/2020.

I. DEMOGRAPHICAL DETAIL:

Sr. No.	Census	Population	Male	Female	Total Number of House Holds
1.	2001				
2.	2011	2055.	1050	1005	-

II. GEOGRAPHICAL DETAIL:

Sr. No.	Description	Information/Detail
1.	Area of Village (Approx.) (In Hector)Coordinates for Location:	1.4 Km^2. / 140 Hector.
2.	Forest Area (In hect.)	-
3.	Agricultural Land Area (In hect.)	-
4.	Residential Area (In hect.)	-
5.	Other Area (In hect.)	-
6.	Distance to the nearest railway station (in kilometers):	Valsad Rly-Sta 3.5

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7.	Name of Nearest Town with Distance:	Valsad.
8.	Distance to the nearest bus station (in kilometers):	0 km.
9.	Whether village is connected to all road for the any facility or town or City?	Yes.

III. OCCUPATIONAL DETAILS:

Name of Three Major Occupation groups in Village	1. Worker.
	2. Farmer.
	3. Fishing.

Major crops grown in the village:	1. Paddy.
	2. Mango.
	3. Vegetables.

IV. PHYSICAL INFRASTRUCTURE FACILITIES:

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

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Suggestions if any:					
B.	**Water Tank Facility**				
	Overhead Tank	Capacity: 25001-250001-	-	-	yes
	Underground Sump	Capacity: -	Yes	-	yes.
Suggestions if any:					
C.	**The Type of Drainage Facility**				
	A. UNDERGROUND DRAINAGE 1 Storm water Drainage.	Yes	Yes	-	good.
	2 B. OPEN WITH OUTLET	Yes	Yes	-	good.
	C. OPEN WITHOUT OUTLET				
Suggestions if any:					
D.	**Road Network :All Weather/ Kutchha (Gravel)/ Black Topped pucca/ WBM**				
	Village approach road	All Weather.	Yes	-	good
	Main road	All Weather	Yes	-	good
	Internal streets	All Weather.	Yes	-	good.
	Nearest NH/SH/MDR/ODR Dist. in kms.	NH/SH/MDR/ ODR-1 Km.	-	-	-
Suggestions if any:					
E.	**Transport Facility**				
	Railway Station (Y/N) (If No than Nearest Rly Station---Kms)	Valsad. Rly. 3.2 km.	Yes	-	-
	Bus station (Y/N) Condition: (If No than Nearest Bus Station---Kms)	Yes.	-	-	-
	Local Transportation (Auto/ Jeep/Chhakda/ Private Vehicles/ Other)	Auto, Private Vehicles.	-	-	-
Suggestions if any:					
F.	**Electricity Distribution**				
	(Y/N) Govt./ Private (Less than 6 hrs./ More Than 6 hrs)	yes. Govt. 24*7.	Yes	-	good.

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	Power supply for Domestic Use	Yes.	Yes	-	good.
	Power supply for Agricultural Use				
	Power supply for Commercial Use	Yes	Yes	-	good.
	Road/ Street Lights	Yes	Yes	-	good.
	Electrification in Government Buildings/ Schools/ Hospitals	Yes.	Yes	-	good.
	Renewable Energy Source Facilities (Y/ N)	No.	-	-	-
	LED Facilities	-	-	-	-

Suggestions if any:

G.	**Sanitation Facility**				
	Public Latrine Blocks If available than Nos.	Private	-	-	yes.
	Location Condition				
	Community Toilet (With bath/ without bath facilities)	-	-	-	-
	Solid & liquid waste Disposal system available	-	-	-	-
	Any facility for Waste collection from road	-	-	-	-

Suggestions if any:

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

Suggestions if any:

I.	**Housing Condition:**				
	Kutchha/Pucca (Approx. ratio)	Pucca.	Yes.	-	good.

V. SOCIAL INFRASTRUCTURAL FACILITIES:

Sr. No.	Descriptions	Information/ Detail	Adequate	Inadequate	Remarks
J.	**Health Facilities:**				
	ICDS (Anganwadi)	Yes.	Yes	-	good.
	Sub-Centre	Yes	Yes	-	good.
	PHC	Yes	Yes	-	good.
	BLOCK PHC	Yes	Yes	-	good.
	CHC/RH	-	-	-	-
	District/ Govt. Hospital	-	-	-	-
	Govt. Dispensary	-	-	-	-
	Private Clinic	Yes	-	-	-
	Private Hospital/	-	-	-	-
	Nursing Home	-	-	-	-
	AYUSH Health Facility	Yes	-	-	-
	sonography /ultrasound facility	-	-	-	-
	If any of the above Facility is not available in village than approx. distance from village: 3.5 kms.				
Suggestions if any:					
K.	**Education Facilities:**				
	Aaganwadi/ Play group	Yes	Yes	-	Good.
	Primary School	Yes	Yes	-	good.
	Secondary school	-	-	-	-
	Higher sec. School	-	-	-	-
	ITI college/ vocational Training Center	-	-	-	-
	Art, Commerce& Science /Polytechnic/ Engineering/ Medical/ Management/ other college facilities	-	-	-	-
	If any of the above Facility is not available in village than approx. distance from village: 3.....kms.				

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Suggestions if any:

L.	Socio- Culture Facilities	Condition	Location	Available (YES)	Available (NO)
	Community Hall (With or without TV)	good	in Village	Yes	-
	Public Library (With daily newspaper supply: Y/N)	~~No~~.	-	1 -	No.
	Public Garden	-	-	-	No.
	Village Pond	-	-	-	-
	Recreation Center	good.	-	Yes	-
	Cinema/ Video Hall	-	-	-	-
	Assembly Polling Station	good	Club.	Yes	-
	Birth & Death Registration	good	Panchayat	yes	-

If any of the above Facility is not available in village than approx. distance from village: ..3.....kms.

Suggestions if any:

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

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

Suggestions if any:

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

7

VI. SUSTAINABLE /GREEN INFRASTRUCTURE FACILITIES:

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

VII. DATA COLLECTION FROM VILLAGE

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

VIII. ADDITIONAL INFORMATION/ REQUIREMENT:

Sr. No.	Descriptions	Information/ Detail	Remarks

1.	Repair & Maintenance of Existing Public Infrastructure facilities, School Building, Health Center, Panchayat Building, Public Toilets & any other	No.	-
2.	Additional Information/ Requirement	-	-
3.	During the last six months how many times CLEANING …………………………… FOGGING……………………………… Drive was undertaken in the village?	~~Once~~ time Every month. cleaning.	-

IX. Smart Village / Heritage Details

Sr. No.	Descriptions	Information/ Detail	Remarks
1.	IS THEIR ANY THING FOR THE VILLAGE ENHANCEMENT POSSIBLE ?	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 Administration queries/ Difficulties:
GTU VY Section
Contact No – 079-23267588
Email ID: rurban@gtu.edu.in

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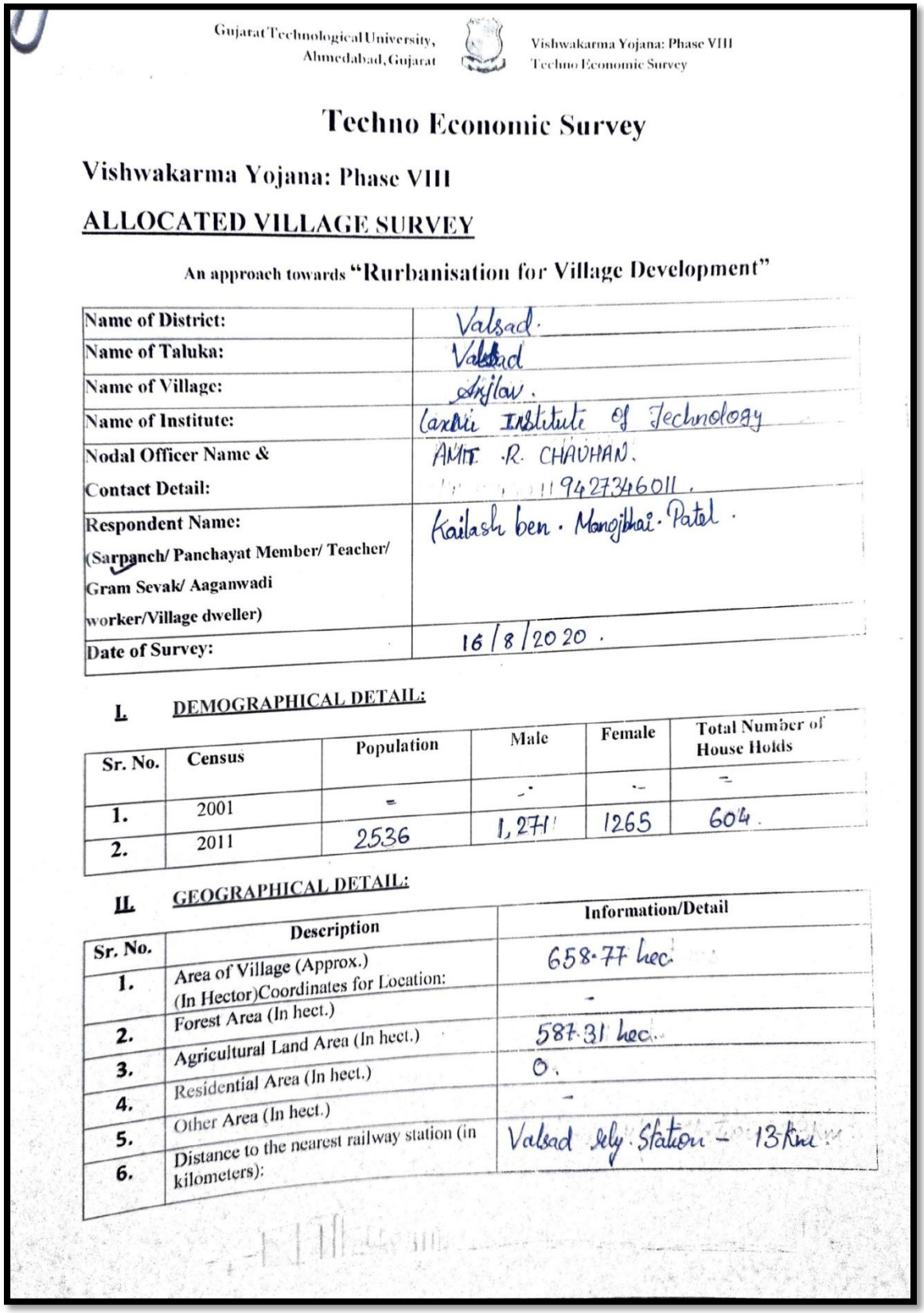
તા.જી.વલસાડ

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



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ALLOCATED VILLAGE SURVEY

An approach towards "Rurbanisation for Village Development"

Name of District:	Valsad.
Name of Taluka:	Valsad
Name of Village:	Anjlav.
Name of Institute:	Laxmi Institute of Technology
Nodal Officer Name & Contact Detail:	AMIT R. CHAUHAN. 9427346011.
Respondent Name: (Sarpanch/ Panchayat Member/ Teacher/ Gram Sevak/ Aaganwadi worker/Village dweller)	Kailash ben. Manojbhai. Patel.
Date of Survey:	16/8/2020.

I. DEMOGRAPHICAL DETAIL:

Sr. No.	Census	Population	Male	Female	Total Number of House Holds
1.	2001	-	-	-	-
2.	2011	2536	1,271	1265	604.

II. GEOGRAPHICAL DETAIL:

Sr. No.	Description	Information/Detail
1.	Area of Village (Approx.) (In Hector)Coordinates for Location:	658.77 hec.
2.	Forest Area (In hect.)	-
3.	Agricultural Land Area (In hect.)	587.31 hec.
4.	Residential Area (In hect.)	0.
5.	Other Area (In hect.)	-
6.	Distance to the nearest railway station (in kilometers):	Valsad Rly. Station - 13 Km.

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7.	Name of Nearest Town with Distance:	Valsad - 13 Km.
8.	Distance to the nearest bus station (in kilometers):	0 Km.
9.	Whether village is connected to all road for the any facility or town or City?	Yes it is Connected to town & Valsad city.

III. OCCUPATIONAL DETAILS:

Name of Three Major Occupation groups in Village	1. Farmer.
	2. Labour.
	3. Agricultural.

Major crops grown in the village:	1. Paddy.
	2. Mango.
	3. Vegitation.

IV. PHYSICAL INFRASTRUCTURE FACILITIES:

Sr. No.	Descriptions	Detail	Adequate	Inadequate	Remarks
A.	**Main Source of Drinking water**				
1.	**PIPED WATER**				
	Piped Into Dwelling				
	Piped To Yard/Plot				
	Public Tap/Standpipe	Tap.	yes	-	okay.
	Tube Well Or Bore Well	yes.	yes	-	good.
2.	**DUG WELL**				
	Protected Well	un-protected well	yes.	-	okay.
	Un Protected Well	-	-	-	-
3.	**WATER FROM SPRING**	-	-	-	-
	Protected Spring	-	-	-	-
	Unprotected Spring	Rainwater	Yes	-	-
	Rainwater	-	-	-	-
	Tanker Truck	-	-	-	-
	Cart With Small Tank	-	-	-	-
4.	**SURFACE WATER (RIVER/DAM/ LAKE/POND/STREAM/CANAL/**				
	Irrigation Channel	548.80 hec.	yes.	-	good.
	Bottled Water	-	-	-	-
	Hand Pump	Yes	Yes	-	good.

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	Other(Specify)**Lake/ Pond**	11.31 hect	Yes	-	Good.
Suggestions if any:					
B.	**Water Tank Facility**				
	Overhead Tank	Capacity:	Yes	-	Good
	Underground Sump	Capacity:	Yes	-	-
Suggestions if any:					
C.	**The Type of Drainage Facility**				
	A. UNDERGROUND DRAINAGE 1	Kutchcha	-	Yes	Middle.
Suggestions if any:	Need a Pucca drainage for storm water.				
D.	**Road Network :All Weather/ Kutchha (Gravel)/ Black Topped pucca/ WBM**				
	Village approach road	All Weather	-	Yes	Mid.
	Main road	All Weather	-	Yes	Mid.
	Internal streets	Kutchha	-	Yes	Mid.
	Nearest NH/SH/MDR/ODR Dist. in kms.	SH- MDR. Passes through this village.	Yes	-	Mid.
Suggestions if any:	Village internal Road & Paverblock should set up.				
E.	**Transport Facility**				
	Railway Station (Y/N) (If No than Nearest Rly Station---Kms)	No - Rly. Station less than 10 km	-	-	-
	Bus station (Y/N) Condition: (If No than Nearest Bus Station---Kms)	Yes	-	-	Okay.
	Local Transportation (Auto/ Jeep/Chhakda/ Private Vehicles/ Other)	Auto, Chhakda Private Vehicle	-	-	-
Suggestions if any:					
F.	**Electricity Distribution**				
	(Y/N) Govt./ Private (Less than 6 hrs./ More Than 6 hrs)	More than 6 hrs (24/7)	Yes	-	Good.

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	Power supply for Domestic Use	Yes	-	Yes	-
	Power supply for Agricultural Use	Not Proper	-	Yes	-
	Power supply for Commercial Use	-	-	-	-
	Road/ Street Lights	No	-	-	-
	Electrification in Government Buildings/ Schools/ Hospitals	Yes	Yes	-	Good.
	Renewable Energy Source Facilities (Y/ N)	No	-	-	-
	LED Facilities	No	-	-	-

Suggestions if any: Need a Road Street light.

G.	**Sanitation Facility**				
	Public Latrine Blocks If available than Nos.	No	-	-	-
	Location Condition	-	-	-	-
	Community Toilet (With bath/ without bath facilities)	-	-	-	-
	Solid & liquid waste Disposal system available	No	-	-	-
	Any facility for Waste collection from road	No	-	-	-

Suggestions if any: Public Toilet should be setup and facility for waste collection.

H.	**Main Source of Irrigation Facility:**				
	TANK/POND	Tank-1131	-	-	-
	STREAM/RIVER	-	-	-	-
	CANAL	Yes 587.31	-	-	-
	WELL	Yes	-	-	-
	TUBE WELL	Yes	Yes	-	-
	OTHER (SPECIFY)				

Suggestions if any:

I.	**Housing Condition:**				
	Kutchha/Pucca (Approx. ratio)	Kutchha & Pucca both	-	Yes	-

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V. SOCIAL INFRASTRUCTURAL FACILITIES:

Sr. No.	Descriptions	Information/ Detail	Adequate	Inadequate	Remarks
J.	**Health Facilities:**				
	ICDS (Anganwadi)	Yes	Yes	-	Good.
	Sub-Centre	-			
	PHC	-			
	BLOCK PHC	-			
	CHC/RH	-			
	District/ Govt. Hospital	-			
	Govt. Dispensary	-			
	Private Clinic	-			
	Private Hospital/ Nursing Home	-			
	AYUSH Health Facility	-			
	sonography /ultrasound facility	-			
	If any of the above Facility is not available in village than approx. distance from village: ...23..kms.				
Suggestions if any:	Need a PHC Centre in ~~and~~ anjlav Village.				
K.	**Education Facilities:**				
	Aaganwadi/ Play group	Yes	Yes	-	Not good in Cond.
	Primary School	Yes	Yes	-	Good.
	Secondary school	-	-	-	-
	Higher sec. School	-	-	-	-
	ITI college/ vocational Training Center	-	-	-	-
	Art, Commerce& Science /Polytechnic/ Engineering/ Medical/ Management/ other college facilities	-	-	-	-

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If any of the above Facility is not available in village than approx. distance from village: .13...kms.

Suggestions if any:

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

If any of the above Facility is not available in village than approx. distance from village: .13...kms.

Suggestions if any: Need a Public Library.

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

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Credit Cooperative Society Agricultural Cooperative Society Milk Cooperative Society Fishermen's Cooperative Society Computer Kiosk/ e-chaupal / Mills / Small Scale Industries	Milk cooperative Society - good condition.	at Center.	Yes.	-
Other Facility				

Suggestions if any:

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

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VI. SUSTAINABLE /GREEN INFRASTRUCTURE FACILITIES:

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

VII. DATA COLLECTION FROM VILLAGE

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

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VIII. ADDITIONAL INFORMATION/ REQUIREMENT:

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

IX. Smart Village / Heritage Details

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

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

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

12.4 Gap analysis of the allocated village

Table 22: Gap analysis of the allocated village

VILLAGE GAP Analysis

Village Facilities	Planning Commission/UDPFI Norms	Village Name:	ANJALA V		
		Population:3536			
		Existing	Required as per Norms	Smart Vilage / Cities / Heritage Future Projection Design	Gap
Social Infrastructure Facilities					
Education					
Anganwadi	Each or Per 2500 population	3	1		2
Primary School	Each Per 2500 population	2	1		1
Secondary School	Per 7,500 population	0	1		-1
Higher Secondary School	Per 15,000 Population	0	1		-1
College	Per 125,000 Population	0	0		0
Tech. Training Institute	Per 100000 Population	0	0		0
Agriculture Research Centre	Per 100000 Population	0	0		0
Skill Development Center	Per 100000 Population	0	0		0
Health Facility					
Govt/Panchyat Dispensary or Sub PHC or Health Centre	Each Village	1	0		1
Primary Health & Child Health Center	Per 20,000 population	0	1		-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, especially for slum pockets & kutcha house)	0	10		-10
Physical Infrastructure Facilities					
Transportation		**Adequate/ Inadequate**			
Pucca Village Approach Road	Each village	I		Inadequate	50% pucca
Bus/Auto Stand provision	All Villages connected by PT (ST Bus or Auto)		Adequate	-	-
Drinking Water (Minimum 70 lpcd)		**Adequate/ Inadequate**	Adequate	-	-
Over Head Tank	1/3 of Total Demand		Adequate	-	Maintenance and repair work are required
U/G Sump	2/3 of Total Demand		-	-	-
Drainage Network - Open		**Adequate/ Inadequate**	-	Inadequate	Not in good condition
Drainage Network - Cover			-	Inadequate	-
Waste Management System		**Adequate/ Inadequate**	-	Inadequate	-
Socio-Cultural Infrastructure Facilities					
Community Hall	Per 10000 Population	0	0		0
community hall and Public Library	Per 15000 Population	0	0		0
Cremation Ground	Per 20,000 population	0	0		0
Post Office	Per 10,000 population	1	0		+1
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	1		-1
Police post	Per 40,000Population	0	0		0
Shopping Mall					
Electrical Design					
Electricity Network		**Adequate/ Inadequate**	-	Adequate	-
Any Smart Village Facility					
Technology					

		ESR cap	0		
		Sump cap	0		
		Lat	0		

12.5 Summary Details of all the villages Design in Table form as part-1 and part-2

Table 23: Summary Details of all the villages Design in Table form as part-1 and part-2

Sr. No.	Village Name	Branch	Part 1	Part 2
1.	MANEKPUR	CIVIL	Rainwater Harvesting Plant	Drainage Design
			Public Toilet	Bus Stop
			Post Office	Public Library
			Community Hall	Public Garden
			Bank with ATM Facility	Village Entrance Gate
			Gram Panchayat	Pond Recreation
2.	CHANVAI	CIVIL	Drainage line	Anganwadi
			Library	Public garden
			Repair & Maintenance of Bus-stop	Village market
			Community Hall	Cricket ground
			Road design	Vocational training centre
			Maternity home	Village pond development
3.	ANJLAV	CIVIL	Designs of Laterals	PHC
			Manifolds	Public toilet
			Mains of Drip Irrigation	Garden
			Basketball Court	Bus stand
			Post office	Library
			Bank	Cyber Cafe

12.5.1 Summary of Good Photographs in Table format (village visits,ideal,smart Village or any other)

Allocated Village Photographs

Figure 39: Panchayat building

Figure 40: Milk corporation society

Figure 41: Canal in Anjlav village

Figure 42: Anganwadi in Anjlav village

IDEAL VILLAGE PHOTOGRAPH

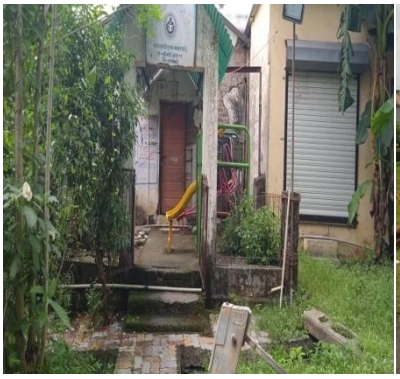


Figure 43:Anganwadi Ideal village

Figure 44:Public garden

Figure 45:children's are playing

Figure 46:Canal

Figure 47:Gram Panchayat office

Figure 48:Farm in ideal village

Figure 49: Pond in ideal village

Figure 50: Groceries shop

SMART VILLAGE PHOTOGRAPHS

Figure 51:Paver block road in smart village

Figure 52: Shanidham

53: Court

12.6 Village interaction with Sarpanch report with the photograph

Figure 54: Interaction with Sarpanch

As per the guideline of vishwakarma yojana Phase - 8, we had selected our allocated village i.e. Anjlav village of valsad District, we met Sarpanch and Talati of the village to discuss the present scenario of the village. They both are very dynamic person & gave us the detailed information and data about the information and data about the village. Also we met the other staff members and collected information also about the village. We haveconducted a techno-economic survey of Anjlav village. Based on the information received from the Sarpanch and the other villagers the requirement was to make the village more efficient in farming activities so we have done a complete design of drip irrigation system. The objective of doing the design is to save more water and increase the yield of the crop. Most of the villagers are unaware on how to select the proper drip irrigation system so they mostly hesitate to use them.

We presented our work under Vishwakarma Yojana Phase VIII. We explained core theme of VY, and various benefits of village development and issues prevailing in villages. We explained our design to Sarpanch of the village and got the approval on Design of drip irrigation system in Anjlav village.

Our team members are Dhruvi patel and Montika patel we thank all the members of village for their support during this work period and understanding that the implementation of such a facilities can build a better village and hence lead to build a strong nation.

12.7 Sarpanch Approval letter giving information about the village development

VISHWAKARMA YOJANA PHASE - VIII.

VILLAGE :- Anjlav DISTRICT :- Valsad.

Subject :- Approval of Design Proposal for Anjlav Village.

To,
Sarpanch,
Anjlav Village,
Valsad Gujarat.

As per 'Vishwakarma Yojana' guideline, following Student are allocated Anjlav Village as part of their final year Project. After making numbers of visit in the Village & gathering valuable information about the Village, Students have found the requirement of the basic amenities for Anjlav Village.

Kindly accept our design proposal in allotted by Government of gujarat to the Gujarat Technological University. So we are proposing the design for study purpose only.

NAME	ENROLMENT No.	MOBILE No.
Dhruvi Patel	170860106012.	9879375341.
Monika Patel	180863106008	9745536747.

Proposed Design for Anjlav Village:
- Design of Drip irrigation System.

PROF. AMIT .R. CHAUHAN.
NODAL OFFICER OF V.V. PROJECT.
LAXMI INSTITUTE OF TECHNOLOGY, SARIGAM, Valsad

I am Sarpanch of Anjlav Village, Undersigned accepting your proposed design for the development of Village given under "VISHWAKARMA YOJANA".

KAILASHBEN MANOJBHAI PATEL.
Sarpanch of Anjlav Village.

સરપંચશ્રી
ગ્રામ પંચાયત કાર્યાલય
તા. જી. વલસાડ.

VISION

Figure 55: Sarpanch Approval letter

Chapter 13. From the Chapter- 9, Future Designs of the Aspects (Feasibility, Construction, Operation and maintenance of various design options in Rural Areas along with cost with AutoCAD designs / planning with Sketchup)

13.1.1 Design 1

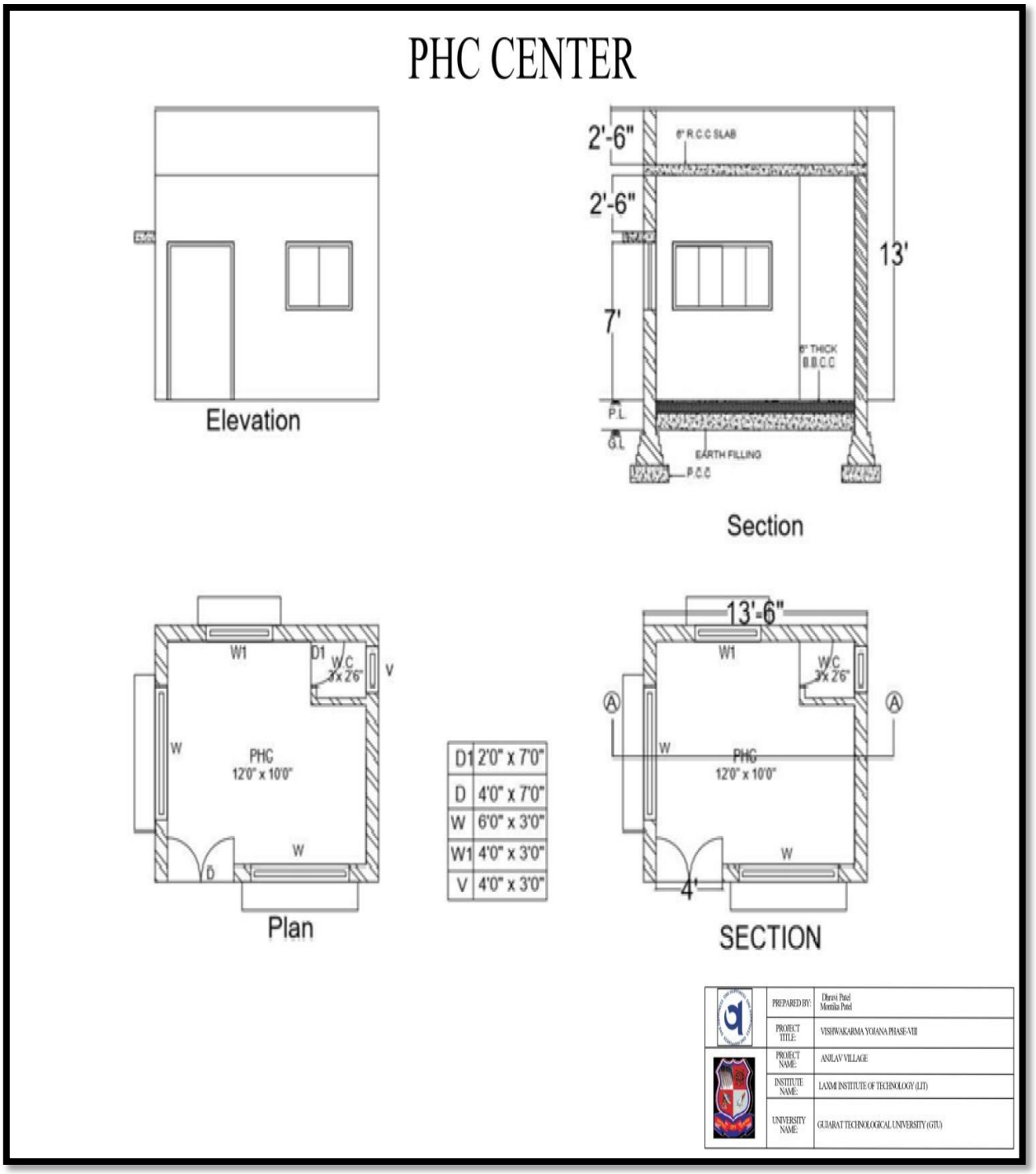


Figure 56: Public health centre Autocad

13.1.2 Design 2

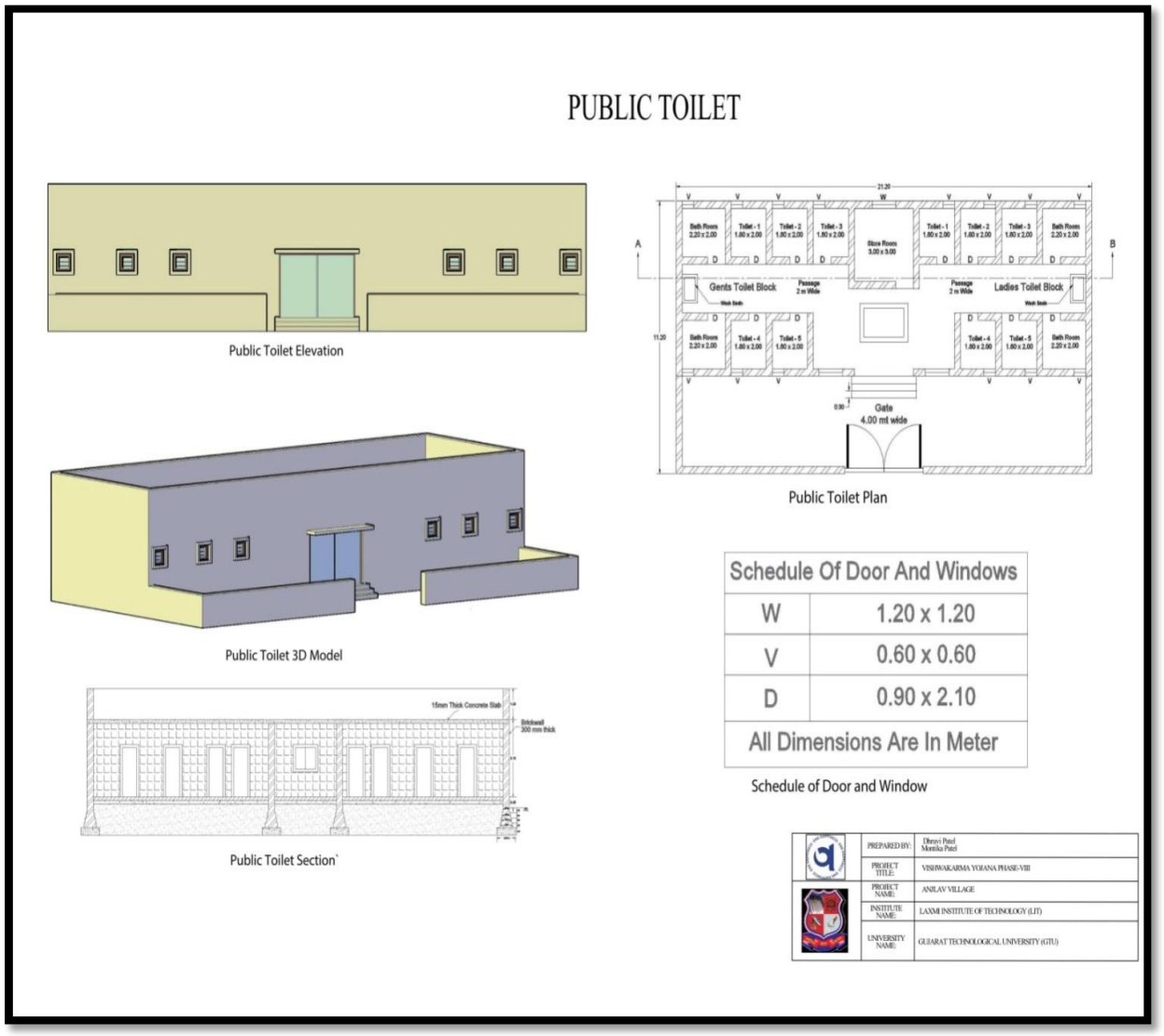


Figure 57: Public Toilet Autocad

Table 24: Public toilet Measurement shet

Measurement Sheet							
Sr	**Description of Work**	**No**	**Length**	**Width**	**Depth / Height**	**Quantity**	
1	Excavation for Foundation						
i	Long Walls	3	6.90	0.90	1.10	20.49	m3
ii	Short Wall 1	5	0.60	0.90	1.10	2.97	m3
iii	Short Wall 2	3	2.4	0.9	1.1	7.128	m3
			TOTAL			30.59	m3
2	**P.C.C**						
i	Long Walls (Simple)	3	6.90	0.90	0.30	5.59	m3

	Short Walls 1	5	0.6	0.9	0.3	0.81	m3
	Short wall 2	3	2.40	0.90	0.30	1.94	m3
		Total				**8.34**	m3
3	Brick masonary up to plinth						
i	**Long wall**						
	First step	3	6.60	0.60	0.30	3.56	m3
	Second step	3	6.30	0.50	0.20	1.89	m3
	Third step	3	6.20	0.40	0.80	5.95	m3
		Total				**11.41**	m3
ii	Short Wall 1						
	Step 1	5	0.80	0.60	0.30	0.72	m3
	Step 2	5	1.00	0.50	0.20	0.50	m3
	Step 3	5	1.10	0.40	0.80	1.76	m3
		Total				2.98	m3
iii	Short Wall 2						
	step 1	3	2.70	0.60	0.30	1.46	m3
	Step 2	3	2.80	0.50	0.20	0.84	m3
	Step 3	3	2.90	0.40	0.80	2.784	m3
		Total				**5.082**	m3
4	Brick work up to super structure						
i	Long wall	3	6.15	0.3	3	16.605	m3
ii	Short wall 1	5	1.11	0.3	3	4.995	m3
iii	Short wall 2	3	2.91	0.3	3	7.857	m3
		Total				29.457	m3
	Deduction						
	D1	2	1.1	0.3	2.1	**1.386**	m3
	D2	4	0.9	0.3	2.1	2.268	m3
	D3	4	0.6	0.3	0.45	0.324	m3
		Total				3.978	m3
	Deduction for lintel	2	1.4	0.3	0.15	0.126	m3
		4	1.2	0.3	0.15	0.216	m3
		4	0.9	0.3	0.15	0.162	m3
						0.504	m3
5	Plaster						
	inner wall plaster						
i	W.C. 1	4	1.2		3	14.4	m3
ii	W.C. 2	4	1.2		3	14.4	m3
iii	W.C. 3	4	1.2		3	14.4	m3
iv	W.C. 4	4	1.2		3	14.4	m3
	Silling plaster						
	W.C.	4	1.2	1.2		5.76	m3
	Passage	2	3	1.2		7.2	m3
		TOTAL				70.56	m3
6	R.C.C SLAB CHAJJA AND LINTEL						
		1	5.1	6.3	0.15	4.8195	m3

7	Marble Flooring						
		4	1.2	1.2		5.76	m3
		2	3	1.2		7.2	m3
	Door Sill						
	D1	2	1.1	0.3		0.66	m3
	D2	4	0.9	0.3		1.08	m3
		TOTAL	14.7	m3			
8	EARTH FILLING IN PLINTH						
	W.C.	4	1.2	1.2	0.38	2.1888	m3
	Passage	2	2.7	3	0.38	6.156	m3
		TOTAL				**8.3448**	m3

Table 25: Rate Analysis public toilet

RATE ANALYSIS FOR TOILET					
ITEM NO.	PARTICULERS OF ITEM	Quantity	PER	RATE	AMOUNT
1	EXCAVATION IN FOUNDATION	30.59	m3	90	2753.1
2	PCC IN FOUNDATION (1:3:6)	8.34	m3	3500	29190
3	BRICK WORK UPTO PLINTH LEVEL	19.47	m3	3500	68145
4	BRICK WORK UPTO SUPER STRUCTURE	24.94	m3	3500	87290
5	PLASTERING WORK (INNER WALL AND SILLING)	70.56	m3	300	21168
6	RCC WORK IN SLAB, CHAJJA AND LINTEL	4.81	m3	9000	43290
7	MARBLE FLOORING	14.7	m3	750	11025
8	EARTH FILLING	8.34	m3	70	583.8
9	DOORS,WINDOW				6000
			TOTAL		269444.9

13.1.3 Design 3 Garden:

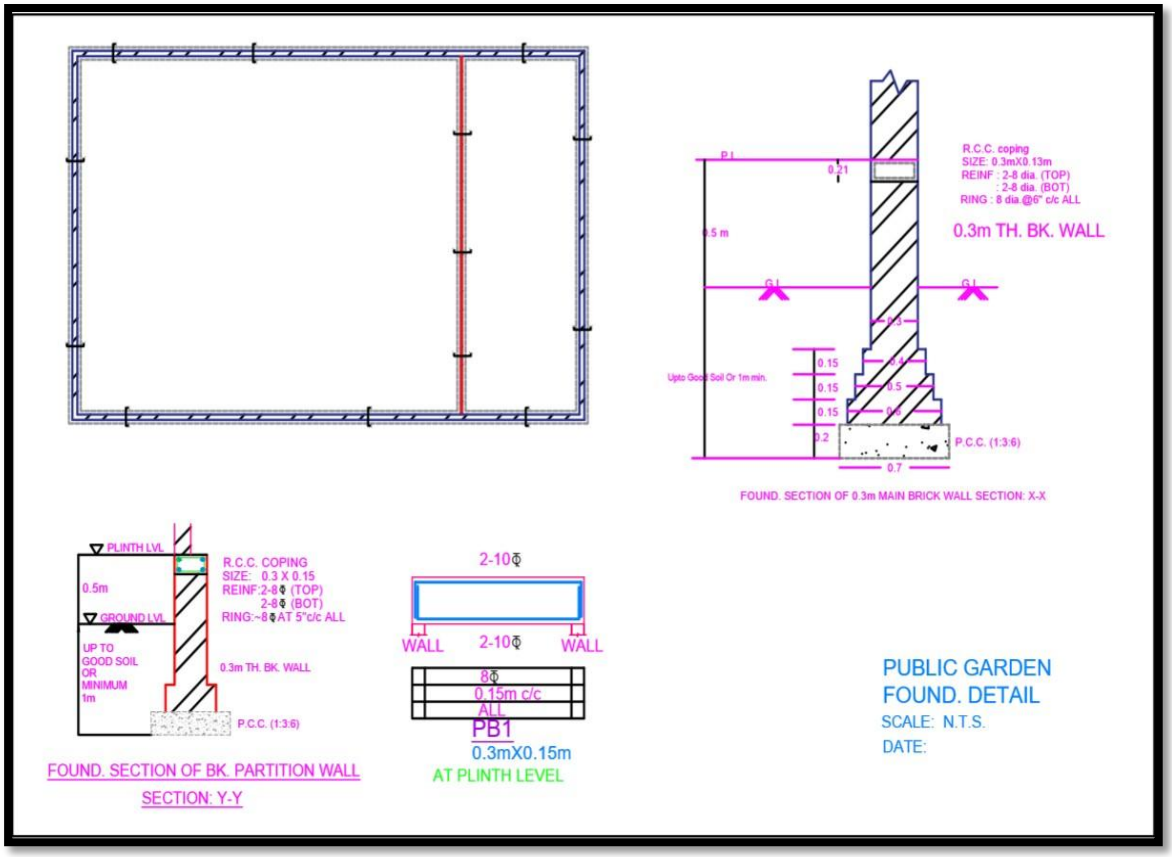


Figure 58: Public Garden Autocad

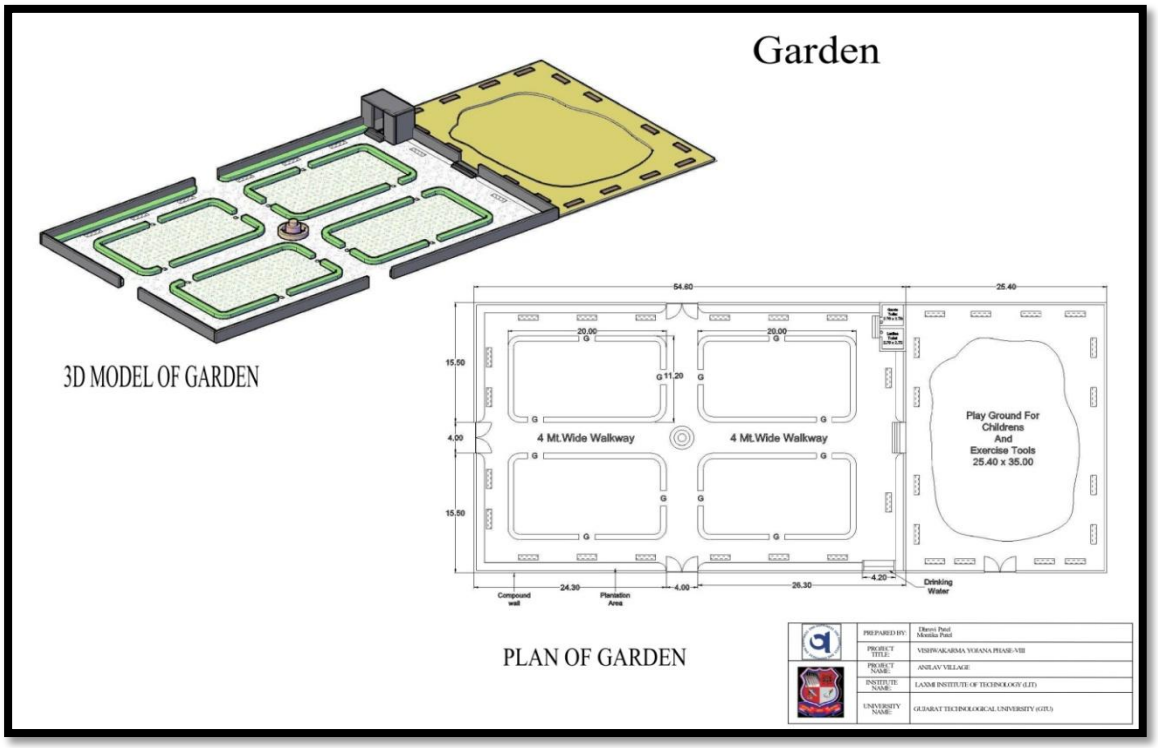


Figure 59: Public Garden Autocad 2

Estimation & Costing

Table 26: Measurement sheet public Garden

Sr No	Description of items	No	Length (meter)	Breadth (meter)	Height (meter)	Total Quantity
	CL=(30.3)*2 +(20.3)*2		101.2			
1	Earthwork in Foundation	1	101.2	0.7	1.15	81.456m^3
2	P.C.C in Foundation	1	101.2	0.7	0.2	14.168m^3
3	Brickwork upto plinth					
	Step-1	1	101.2	0.6	0.15	9.108 m^3
	Step-2	1	101.2	0.5	0.15	7.59 m^3
	Step-3	1	101.2	0.4	0.15	6.072 m^3
	Step-4	1	101.2	0.3	0.5	15.18 m^3
						Total=37.95 m^3
4	Brickwork in Superstructure					
	Wall boundary	1	101.2	0.3	1.5	45.54 m^3
	Internal wall	1	20	0.3	0.2	0.4 m^3
	Deduction					
	Gate	1	2	0.3	1.5	-0.9 m^3
						Total=45.04 m^3
5	Plaster					
	(Outer)Boundary wall1	2	30.6	-	1.5	91.8 m^2
	Boundary wall2	2	20.6	-	1.5	61.8 m^2
	(Inner) Boundary wall1	2	30	-	1.5	90 m^2
	Boundary wall 2	2	20	-	1.5	60 m^2
	Internal wall	2	20	-	0.2	8 m^2
	Deduction					
	Door	2	2	-	1.5	-6 m^2
6	Paint	AS per plastering	AS per plastering	AS per plastering	AS per plastering	305.6 m^3

Abstract Sheet

Table 27: Abstract Sheet Public Garden

Sr. no.	Particular items	Quantity	Rate (Rs.)	Per	Amount (Rs.)
1.	Excavation for foundation	81.456	85	Cu.m	6924
2.	P.C.C work in foundation	14.168	3200	Cu.m	45337
3.	Brickwork in foundation up to plinth	37.95	3200	Cu.m	121440

4.	Brickwork for super structure	45.04	3500	Cu.m	157640
5.	Plaster	305.6	150	Sq. m	45840
6.	Paint	305.6	120	Sq. m	36672
					Total = 413853 Rs.

13.1.4 Design 4 Bus stand

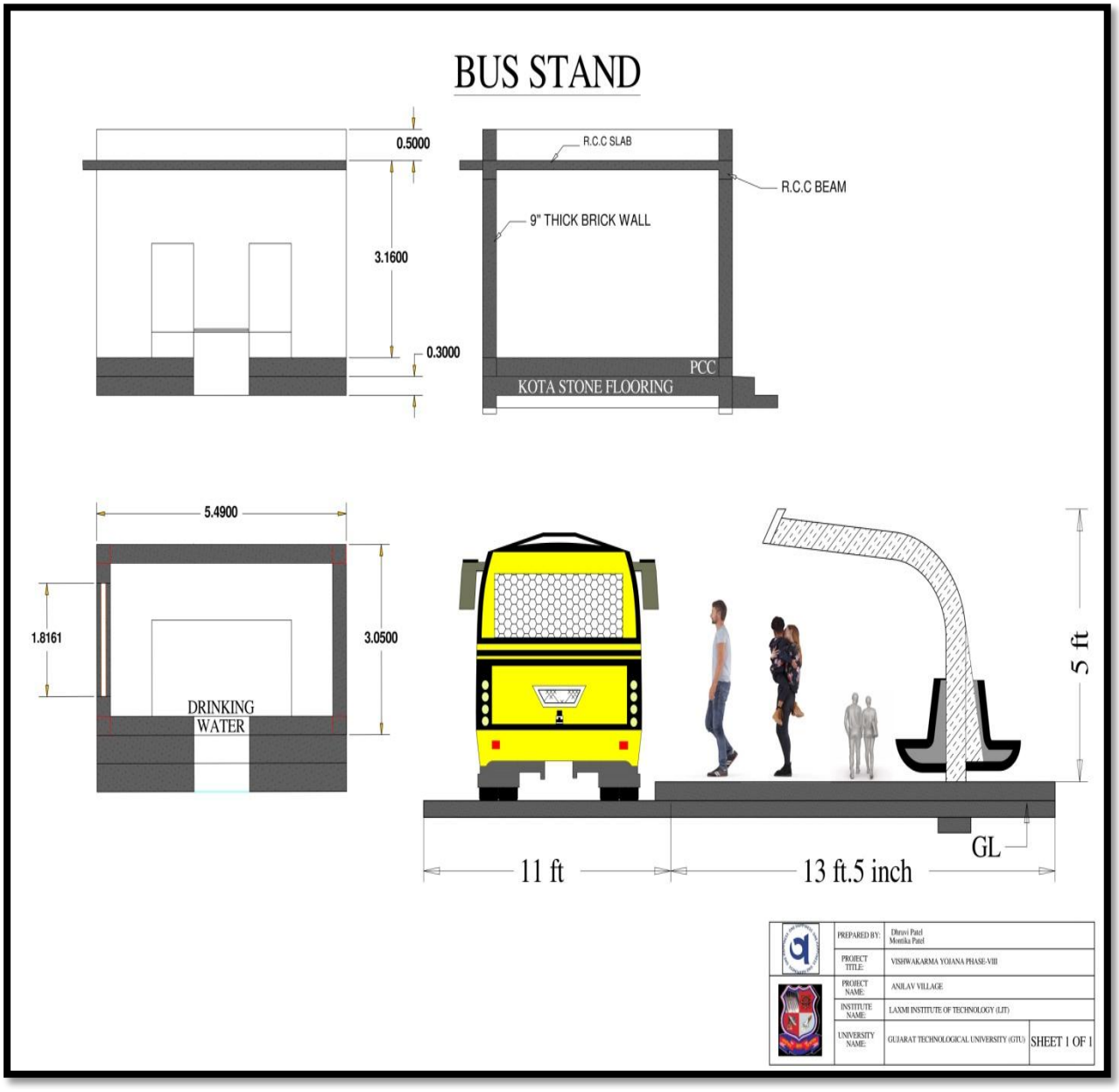


Figure 60: Bus stand Autocad

Table 28: Measurement sheet Bus stand

Item No.	Description	Nos.	Length (m)	Width (m)	Height (m)	Quantity	Unit	Total
1.	Excavation	4	1.5	1.5	1.5	13.5	m^3	
2.	P.C.C.(1:4:8) in footing	4	0.8	0.8	0.075	0.192	m^3	
3.	R.C.C.(1:1.5:3) in footing	4	0.7	0.7	0.15	0.294	m^3	
4.	R.C.C.(1:1.5:3) in column below G.L.	4	1.5	0.23	0.3	0.414	m^3	
5.	R.C.C.(1:1.5:3) in column below G.L.	4	3	0.23	0.3	0.828	m^3	
6.	Excavation for Ground Beam	4	2	0.5	0.45	1.8	m^3	
7.	P.C.C.(1:4:8) in Ground Beam	4	2	0.25	0.075	0.15	m^3	
8.	R.C.C.(1:1.5:3) in Ground Beam	4	2	0.23	0.3	1.84	m^3	
9.	Masonry work up to	4	0.5	0.23	0.6	0.276	m^3	
	plinth level (0.6 m height from ground)							
10.	Filling of moorum up to plinth level	1	3.5	5	0.5	8.75	m3	
11.	P.C.C.(1:4:8) at plinth level	1	3.5	5	0.15	2.625	m3	
12.	R.C.C.(1:1.5:3) in Slab							
	S1	1	3.5	5	0.10	1.75	m3	
13.	Masonry work L = (2) (3.5) + 2(7.5) =15	-	15	0.23	0.75	2.58	m3	
14.	Plaster:							
x.	Main plaster area: Length of plaster	-	15	1.73		25.95	m2	
xi.	Plaster on Slab							
	S1	1	3.5	7.5		26.25	m2	
22.	Flooring	-	3.5	7.5		26.25	m2	
23.	Painting (Same as quantity of plastering)	LS					LS	

Table 29: Abstract sheet Bus stand

Sr. no	Item	Quantity	Rate	Unit	Amount
1.	Excavation for Foundation: Excavation for foundation in any type of soil except rock. Rate to include dressing the sides and bottom, bailing out ofwater if encountered, shoring, strutting, backfilling with available excavated earth (in layers 150 mm compacted thickness, including watering, compaction by saturation, earthrammer, hand rammer, all complete after the construction work), and disposal of surplus excavated earth within/outside				
	HPCL's premises to an unobjectionable place, as directed by the Engineer in Charge including spreading, watering and compaction, complete.				
	Excavation in soil < 2m	15	205.00	m3	3075
2.	P.C.C.(1:4:8) Providing and laying PCC 1:4:8 using 40 mm and down size graded stone aggregates including machine mixing, placing, compacting by hand ramming , curing etcComplete.	1.345	2604.00	m3	3502.38
3.	R.C.C.(1:1.5:3) Footing Providing, mixing and placing RCC 1:1.5:3 mix for Footings & Pile caps with OPC/ PPC using 20mm and down size graded crushed aggregate including machine mixing, compacting by vibrators, curing, hacking the surface to receive plaster etc. complete. Rate shall be exclusive of the cost of steel reinforcement, which will be paid under a separate item. Concrete conforming to relevant specifications of IS 456 Latest Edn.	0.735	4426.00	m3	3253.11
4.	R.C.C.(1:1.5:3) Column and Beam	9.195	4792.00	m3	44062.44

	Same as Item no.3 but for Columns & Beams.				
5.	R.C.C.(1:1.5:3) SLABS Same as Item no.3 but for Building Slab	5.48	4621.00	m3	25323.08
6.	MURRUM FILLING Supply and filling murrum (plasticity index between 5 to 7) in 150mm to 200mm thick layers including leveling with	11.93	366.00	m3	4366.38
	dozer, watering, compacting each layer with 8/10 MT road roller to obtain field dry density 92% of MDD, dressing top layer to the required slope, testing of murrum samples for OMC & MDD and testing of field dry density by core cutter for checking compaction. Payment will be made only for compacted thickness.				
7.	Brick Masonry Providing and constructing 230 mm & above thickness brick masonry in CM 1:5 using bricks having minimum compressive strength 35 Kg/cm2 and conforming to IS: 1077- Latest Edition including providing all openings and projections as per the drawing, raking the joints to 1 cm deep, Scaffolding, soaking of bricks in water prior to use and curing etc complete as per specification.	15.2	3321.00	m3	16039.5
8.	Kota Stone Flooring Providing and fixing 20mm & higher thickness Kota stone (2' x 2'/1.5') with 25mm to 50mm bedding CM 1:3, cement slurry and machine polishing on one side for flooring and shelf slab including curing, chipping, finishing the joints, scaffolding etc all complete as directed by engineer in charge.	16.6	700.00	m2	11620
12.	SMOOTH PLASTERING (BLDG) 15MM Providing and laying 15mm thick smooth cement plastering with Niru/ Lime Finish in 1:4	160.89	130.00	m2	20915.7

	CM in				
	single coat to all the interior walls of sales room & other buildings including providing necessary scaffolding, chipping, cleaning the surface, watering, finishing, chicken wire mesh at all joints of brick and concrete surfaces, with a minimum overlap of 150mm in all directions and additional Thickness if required to achieve perfect line and level without any extra cost.				
13.	APEX PAINT (ExternalPaint) Providing and applying 2 coatsof apex paint to all exterior surfaces over a coat of primer as perManufacture's specification including necessary scaffolding, curing etc., complete. If additional coats are required to obtain uniform and smooth finish, the same shall be carried out at no extraCost.	L.S			5000
14.	Oil Bound Distemper (Internal Paint) Providing and applying 2 coats (first coat with brush and final coat with roller) of OBD of approved make and shade on all surfaces and heights to give an even shade including priming coat and full putty afterthoroughly brushing the surfacefree from mortar dropping and other foreign matter and also including preparing the surface even and sand papered smooth, scaffolding, necessary surface preparation, additional coats if reqd. etc all material and labor	L.S			3700
	complete as directed by engineer in charge.				
15.	Reinforcement Steel: Supply, fabrication, hoisting and placing in position HYSD reinforcement bars conformingto IS 1786 - Latest Edition Grade FE 415 as per detailed drawing and specifications including cutting,	535	55.00	Kg.	29425

	bending and tying with 18 SWG binding wire complete. The rates shall be applicable forall heights and depths. Paymentshall be made as per reinforcement drawings and with theoretical weights only including all authorized laps and hooks. Unauthorized chairs, spacers and laps will not be measured and paid for.				
16.	Water Tank 500 L: Supplying and installation of HDPE water tanks Syntax / Fusion / Polygon make of 1000L capacity including 300mm high brick masonry pedestal of 230mm thick in CM 1:5, providing 75mm thick RCC 1:2:4 slab with reinforcement 8mm tor @ 150mm c/c, lifting the tank, making all necessary GI connections to inlet, outlet and overflow nozzles and cleaning the tank before commissioning.	1	7945	Each	7945
17.	Miscellaneous:				15000
				Total	1,93,224.00

Design13.1.5 Library

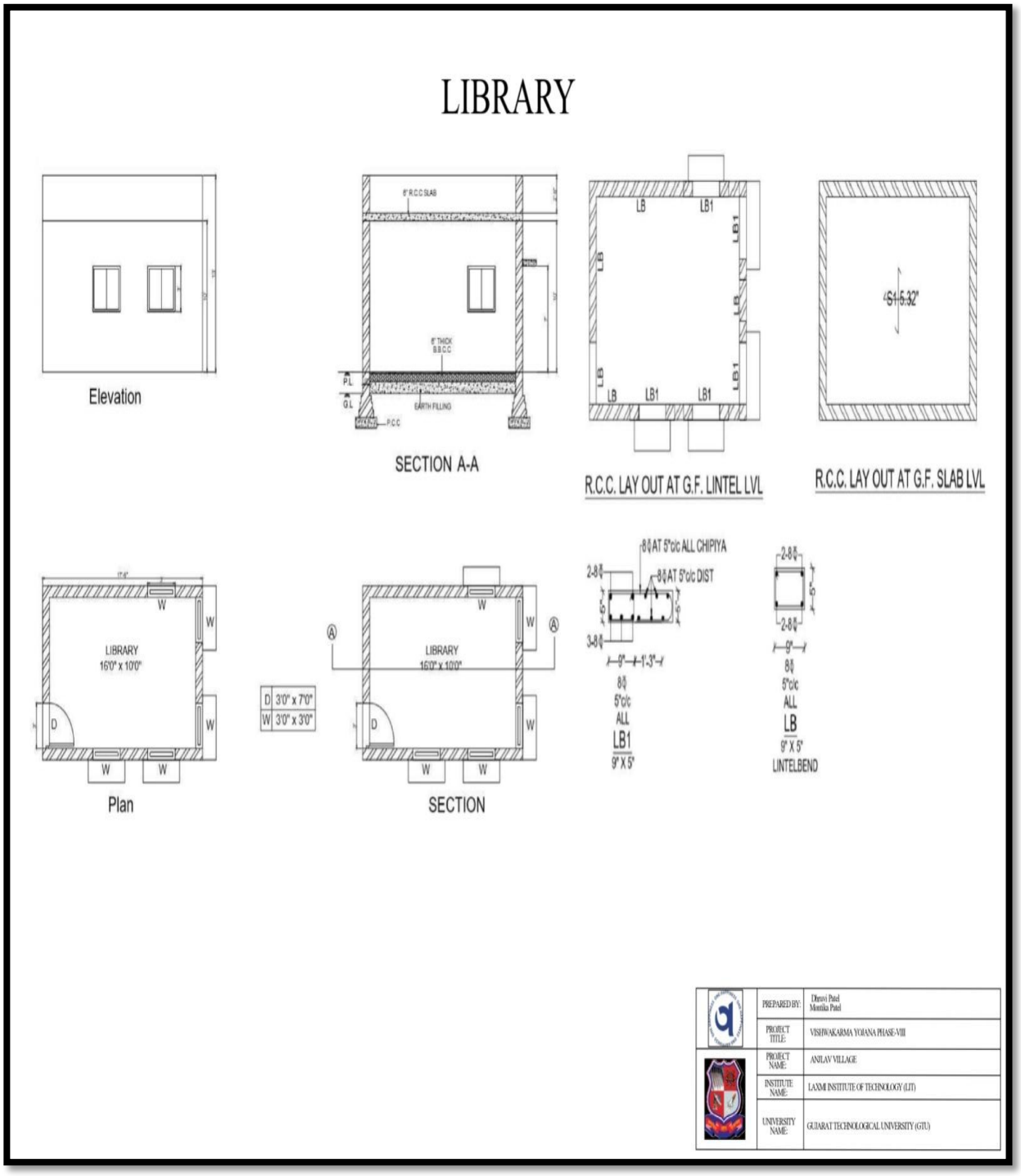


Figure 61: Library

13.1.6 Cyber Cafe

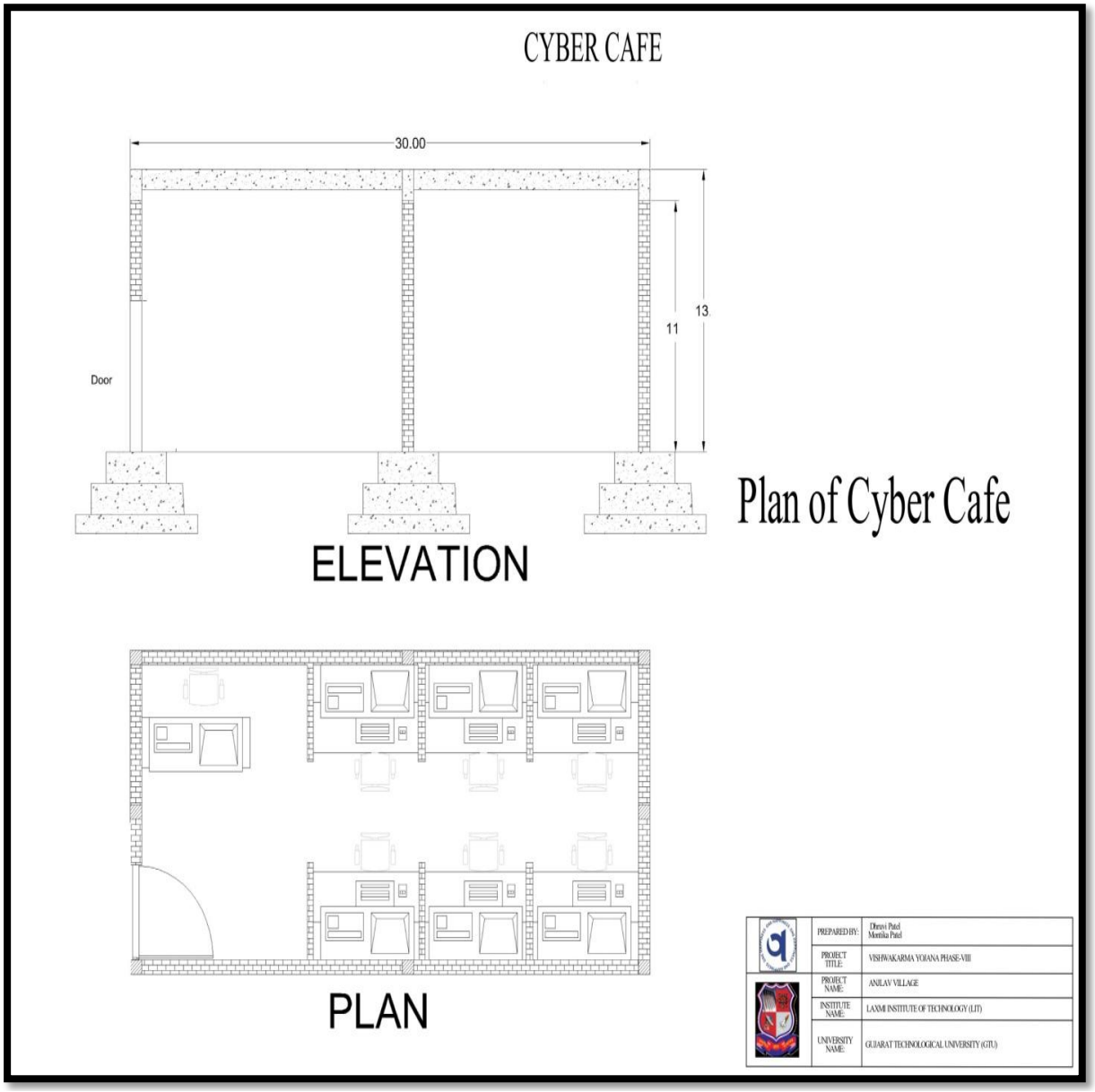


Figure 62: Cyber Cafe

14 Technical Options with Case Studies

(EXPLAIN ALL TOPIC AND FOR MINIMUM ONE TOPIC EXPLAIN NEW CONCEPT, DESIGN, PROTOTYPE MODEL WITH ACTUAL COST ESTIMATION)

14.1 Civil Engineering

14.1.1 Advanced Earthquake Resistant

Earthquake-resistant structures are structures designed to protect buildings from earthquakes. While no structure can be entirely immune to damage from earthquakes, the goal of earthquake-resistant construction is to erect structures that fare better during seismic activity than their conventional counterparts. According to building codes, earthquake-resistant structures are intended to withstand the largest earthquake of a certain probability that is likely to occur at their location.Currently, there are several design philosophies in earthquake engineering, making use of experimental results, computer simulations and observations from past earthquakes to offer the required performance for the seismic threat at the site of interest.

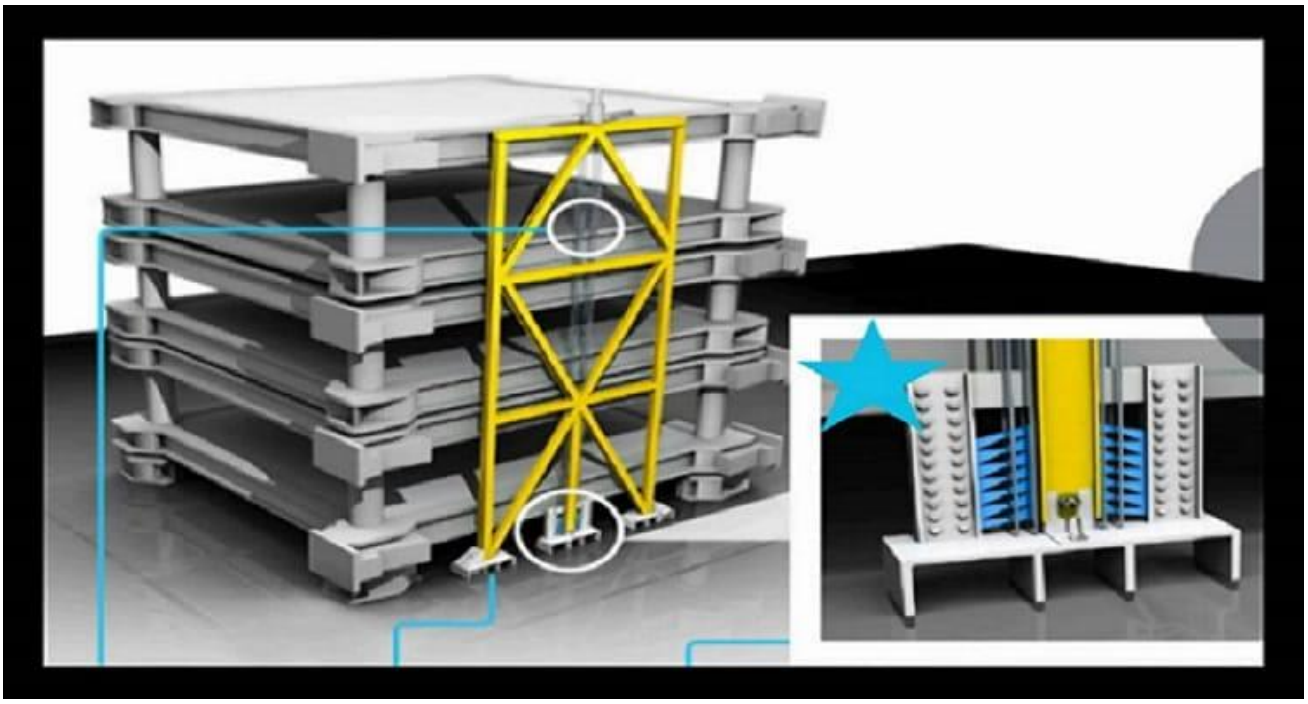


Figure 63: Advanced Earthquake Technique

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

1. Base Isolation
2. Energy Dissipation Devices

Base Isolation Method of Earthquake Resistant Design

A base isolated structure is supported by a series of bearing pads which are placed between the building and the building's foundation. A variety of different types of base isolation bearing pads

have now been developed.The bearing is very stiff and strong in the vertical direction, but flexible in the horizontal direction.

To get a basic idea of how base isolation works, examine Figure . This shows an earthquake acting on both a base isolated building and a conventional, fixed-base, building. As a result of an earthquake, the ground beneath each building begins to move. In Figure, it is shown moving to the left. Each building responds with movement which tends toward the right. The building undergoes displacement towards the right. The building's displacement in the direction opposite the ground motion is actually due to inertia. The inertial forces acting on a building are the most important of all those generated during an earthquake. It is important to know that the inertial forces which the building undergoes are proportional to the building's acceleration during ground motion. It is also important to realize that buildings don't actually shift in only one direction. Because of the complex nature of earthquake ground motion, the building actually tends to vibrate back and forth in varying directions. By contrast, even though it too displacing, the base-isolated building retains its original, rectangular shape. It is the lead-rubber bearings supporting the building that are deformed.

Energy Dissipation Devices

The second of the major new techniques for improving the earthquake resistance of buildings also relies upon damping and energy dissipation, but it greatly extends the damping and energy dissipation provided by lead-rubber bearings. As we've said, a certain amount of vibration energy is transferred to the building by earthquake ground motion. Buildings themselves do possess an inherent ability to dissipate, or damp, this energy. However, the capacity of buildings to dissipate energy before they begin to suffer deformation and damage is quite limited. The building will dissipate energy either by undergoing large scale movement or sustaining increased internal strains in elements such as the building's columns and beams. Both of these eventually result in varying degrees of damage. So, by equipping a building with additional devices which have high damping capacity, we can greatly decrease the seismic energy entering the building, and thus decrease building damage. Accordingly, a wide range of energy dissipation devices have been developed and are now being installed in real buildings. Energy dissipation devices are also often called damping devices. The large number of damping devices that have been developed can be grouped into three broad categories: Friction Dampers: these utilize frictional forces to dissipate energy Metallic Dampers : utilize the deformation of metal elements within the damper Viscoelastic Dampers : utilize the controlled shearing of solids Viscous Dampers: utilized the forced movement (orificing) of fluids within the damper.

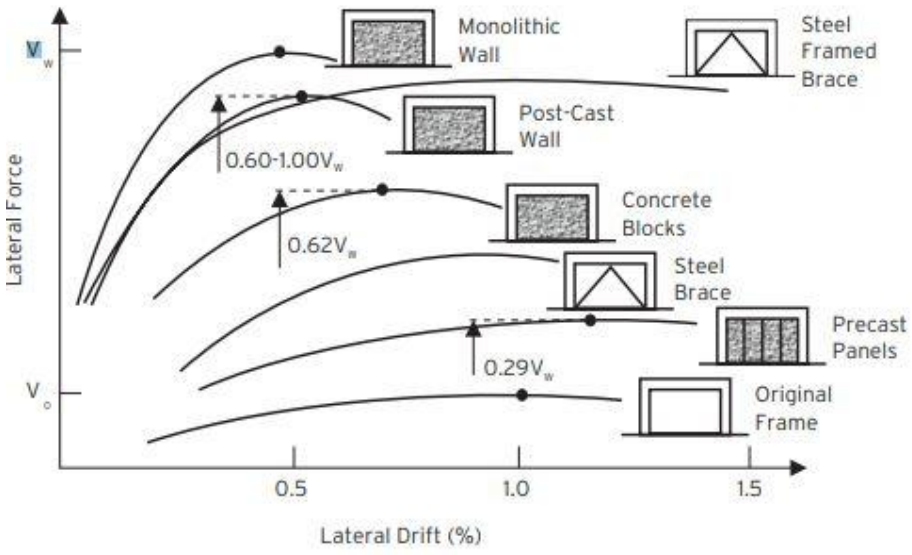
14.1.2 Seismic Retrofitting of Buildings

Retrofitting of existing structures with insufficient seismic resistance accounts for a major portion of

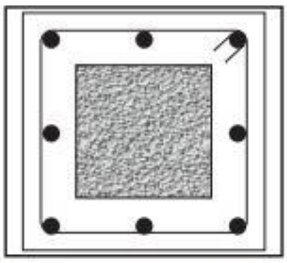
the total cost of hazard mitigation. Thus, it is of critical importance that the structures that need seismic retrofitting are identified correctly, and an optimal retrofitting is conducted in a cost effective fashion. Once the decision is made, seismic retrofitting can be performed through several methods with various objectives such as increasing the load, deformation, and/or energy dissipation capacity of the structure. Conventional as well as emerging retrofit methods are briefly presented in the following subsections Conventional Strengthening Methods Conventional retrofitting methods include addition of new structural elements to the system and enlarging the existing members. Addition of shear walls and bracings shown in Fig. 1(a) is the most popular strengthening method due to its effectiveness, relative ease, and lower overall project cost compared to column and beam jacketing shown in Fig. 1(b) and (c), respectively. Relative effectiveness of various wall and bracing configurations are compared in Fig. 1(a). From this figure, it is seen that post-cast shear walls and steel braced frames are the most effective strengthening techniques. Although the latter is more effective due to its much higher ductility, post-cast concrete shear walls are the most commonly applied method due to their lower cost and familiarity of the construction industry with the method. Design of additional shear walls is performed to resist a major fraction of the lateral loads likely to act on the structure. This reduces the demand on the beams and columns, hence increasing their safety. Those still likely to be overstressed are strengthened through concrete or steel jacketing, which are relatively more laborious applications. Fig. 2 shows applications of various conventional strengthening methods such as post-cast shear wall (a), additional foundation to support the shear walls to be constructed around the stairs (b), concrete jacketing of a column (c), and addition of column members to remedy vertical irregularities (d). The main research need associated with conventional strengthening methods is optimization of the retrofit design to achieve a satisfactory structural performance level at a minimum cost based on reliably characterized seismic demand and structural capacity.

Retrofit of Structures Using Innovative Materials

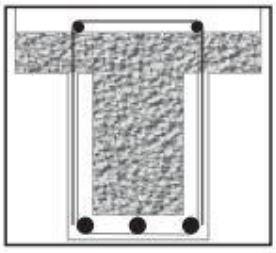
Current research on advanced materials in civil engineering is mainly concentrated on high performance concrete and steel, and fiber reinforced plastic (FRP) composites. FRP composite materials have experienced a continuous increase of use in structural strengthening and repair applications around the world in the last fifteen years. High specific stiffness and specific weight combined with superior environmental durability of these materials have made them a competing alternative to the conventional strengthening methods. It was shown through experimental and analytical studies that externally bonded FRP composites can be applied to various structural members including columns, beams, slabs, and walls to improve their structural performance such as stiffness, load carrying capacity, and ductility.



(a) Effectiveness of structural walls and bracings (Sugano, 1989; CEB, 1997)



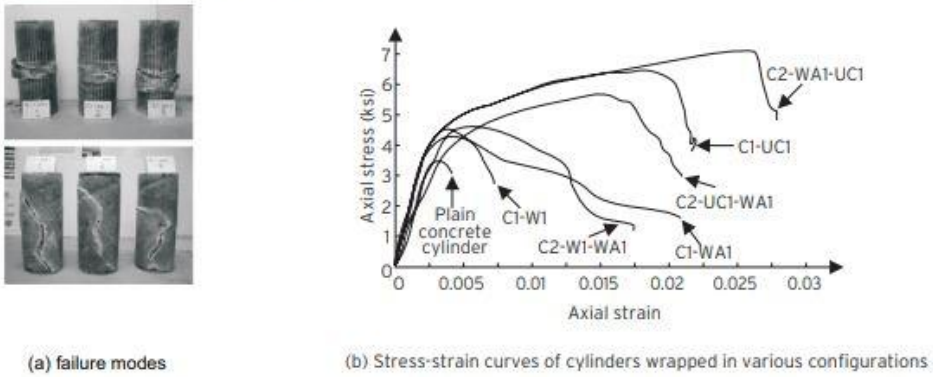
(C) Column jacketing



(C) Beam jacketing

a) additional shear wall (b) additional foundations (c) jacketing (d) additional columns

Fig. 2 Applications of conventional strengthening methods



(a) failure modes (b) Stress-strain curves of cylinders wrapped in various configurations

Figure 64: Retrofitting of structures

14.1.3 Advance Practices in Construction field in Modern Material, Techniques and Equipments.

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

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

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

3D Volumetric Construction

Using this modular construction technology, 3D units are produced in controlled factory settings using needful construction and building materials. Finished units are transported to site in various modules, basic structural blocks or final touched up units with all amenities installed, for assembly. Blocks can be erected rapidly at site and properties of concrete like fire retardant, sound resistivity, thermal mass etc. are retained.

Precast Flat Panel Modules

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

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

Figure 65: Modern Materials

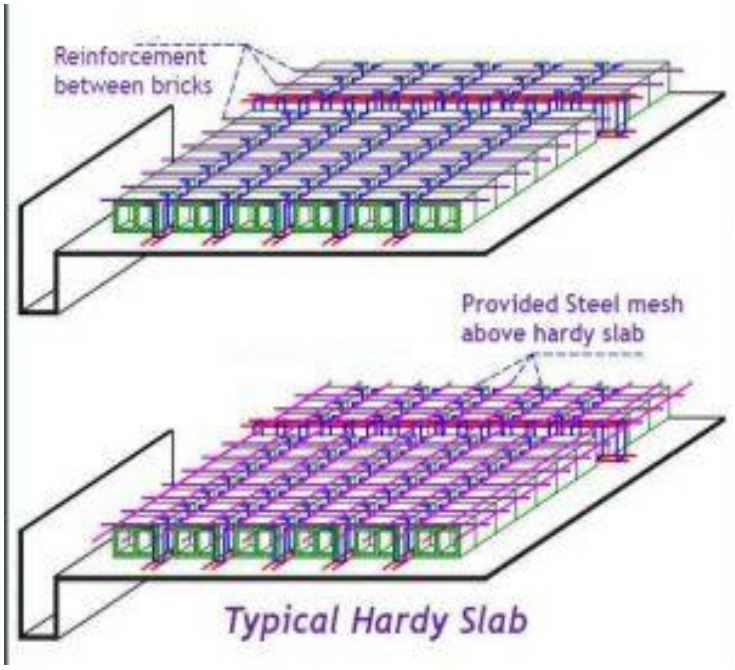
Tunnel Formwork System

With this tunnel technique, construction is paced up for cellular structures of repetitive patterns

through the building of monolithic walls or units in a single operation per day.Expeditious work is achieved by deploying formwork and readily mixed concrete with the convenience and agility of factory conditions. Formworks in tunnel form are stacked and used at the site with cranes.

Flat Slabbing Technology

This technique utilizes the simplicity of contemporary formwork for quickly building flat slabs to facilitate easy and swift placing of horizontal amenities and for partitioning. Maximization of pre-fabricated services occurs as services can be carried out in an uninterrupted manner in zones underneath the floor slabs. Every top-notch building Construction Company is using the same as internal layouts can be conveniently modified for accommodating alterations at a later date. Further, reinforcement needed is lesser which cuts down labour costs significantly.



Pre-cast Foundation Technique

Foundations can be built swiftly with precast concrete units which are produced in a factory and are high on quality quotient. Strength is imparted to foundation related building construction materials through interconnected concrete piles. This technique allows construction work to progress even in inclement weather and minimizes excavation activity.

Figure 66: Pre cast Construction

14.1.4 Engineering Aspects of Soil mechanics - Environmental Impact Assessment

The Need for an Environmental Impact Assessment

An Environmental Impact Assessment is a formal method of judging the impact that any new

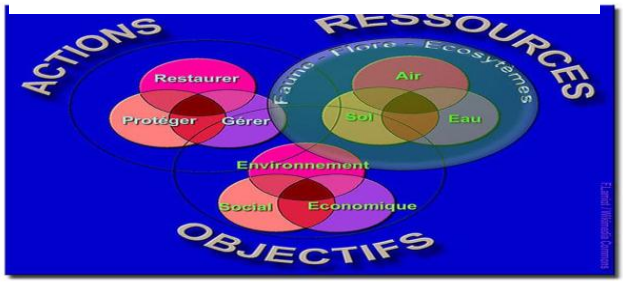


Figure 67: EIA

developmental project would have on the environment and its constituents. This can include changes that the project would create in the physical aspects of existing geography, chemical changes to the atmosphere including air and water, biological changes that affect plant, animal and human life, cultural impact of a project on the society in the area, and other socio-economic effects that the project can have.

Such an assessment allows problems to be foreseen, so that the design and planning of the projects is modified to reduce any negative effects. It is now fashionable to build green buildings which have a positive effect on the environment.

There is historical precedent for the now mandatory Environmental Impact Assessments (EIA). Past efforts by governments have resulted in bans on activities that caused noxious odors, garbage dumps were positioned at places far away from habitation, and commercial activities were restricted to town centers.

Objectives of Environmental Impact Assessment

The objective of an EIA is to predict the environmental impact project would have on all aspects of the environment. Once this is done, a study has to be made to see if the impacts can be reduced in any way. The project has then to be modified to suit the local environment and all predictions and likely options presented to decision makers for final decisions.

You can gain a better understanding of EIA by understanding how any typical project can affect the environment of a particular area. Take for example the building of a new road in a city.

The alignment of the road may require that certain lands have to be leveled or new embankments created. Cutting of the land and the new embankments would affect the geography of the area and probably upset its drainage pattern. This would require re-planning existing methods of treating the run-off and could cause existing watercourses to be modified. The new road may require the removal of existing green cover and this could affect the living conditions in that area. The traffic going through that area can cause pollution problems from vehicles which also includes an increase in sound pollution. The emissions from the vehicles can affect already existing atmospheric pollutants which in turn could affect human health, animal health and affect greenery in the area. The road may affect existing structures in the area which may have to be removed and can cause changes in the economic wellbeing of the persons who are using those structures.

A positive impact of the new road may mean a reduction in traffic congestion, its positive effect on pollution, and the economic advantage of these two aspects.

For any environmental impact assessment, complete data on all these aspects as they are at present has to be made so that any changes can be reasonably judged to existing standards required for good living. The deterioration or increase in these living standards has then to be highlighted by the EIA

before any final decision on the project can be undertaken.

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

Water resources are under pressure from continuing population growth and urbanisation, rapid industralisation, and expanding and intensifying food production, particularly in developing countries and in urban areas. Urban populations may nearly double from current 3.4 billion to 6.4 billion by 2050. Numbers of people living in slums will rise even faster, with most of the rapid expansion in urbanization taking place not in megacities (21 of the world's 33 megacities are on the coast), but in small and medium sized cities with populations of less than 500 000.

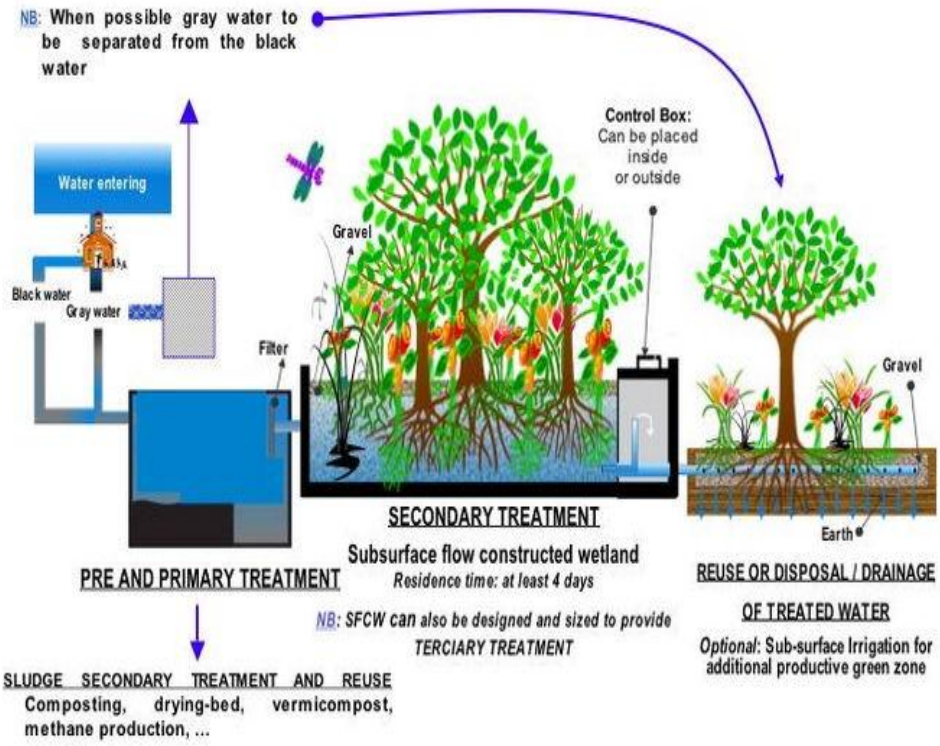


Figure 68: Sustainable sewerage system

This represents a global threat to human health and wellbeing, with both immediate and long term consequences for efforts to reduce poverty whilst sustaining the integrity of some of our most productive ecosystems. At least 1.8 million children under five years-old die every year from water-related diseases. Diarrhoeal diseases make up over four per cent of the global disease burden, 90 percent of which is linked to environmental pollution, a lack of access to safe drinking water and sanitation. Over half of the world's hospital beds are occupied by people suffering from water-related diseases.

The report reviews how the production and treatment cycle can be better understood and managed so that through better investment and management, major environmental, societal, and economic dividends can be achieved.

What are the major causes of the world global water quality crisis?

World's water resource will not change but the amount of wastewater produced is increasing, and the infrastructure and management systems are not adequate for this increasing volume. Globally, two

million tons of sewage, industrial and agricultural waste is discharged into the world's waterways, and that is not counting the unregulated or illegal discharge of contaminated water. This wastewater contaminates freshwater and coastal ecosystems, threatening food security, access to safe drinking and bathing water and being a major health and environmental management challenge.

In particular, the way food is produced uses 70–90 per cent of the available fresh water, and much of this water returns back to the system with additional nutrients and contaminants. Further downstream, agricultural pollution is joined by human and industrial waste. Up to 90 per cent of wastewater flows untreated into the densely populated coastal zone. This contributes to the growth of marine dead zones, which already cover an area of 245 000 km2, approximately the same area as all the world's coral reefs. This will lead to further losses in biodiversity and ecosystem resilience, which in turn will undermine prosperity and efforts towards a more sustainable future.

Has education a role to play in water and wastewater management?

Education is vital and must play a central role in reducing overall volumes and harmful content of wastewater produced, so that solutions are sustainable. Increased understanding of the links between wastewater and health, ecosystem functioning and the potential benefits of wastewater reuse in contributing to development and improved wellbeing, can increase uptake of initiatives. It is vital that education and engagement of stakeholders in all sectors include access to solutions and be culturally specific. Education, together with awareness, advocacy and stewardship should be addressed at multiple levels, including the development of professional skills for improved inter-sectorial collaboration and multi-year financial planning.

Where are the opportunities for (re)using wastewater?

Improving watershed management will be crucial and finding ways to reduce, optimize and recycle water, will become increasingly essential in the future.

Wastewater is already being used for irrigation and fertilization and can continue to expand this role, particularly for peri-urban or urban agriculture, and home gardens. But maximizing water efficiency in the entire water chain, including before water enters the cities, and reducing production of wastewater should be primary goals throughout the entire management scheme.

There are clear health advantages related to wastewater use in agriculture, stemming directly from the provision of food (mainly vegetables) to urban populations or to generate biogas, thus turning the nutrients contained therein into resources. Typical concentrations of nutrients in treated wastewater effluent from conventional sewage treatment processes would supply all of the nitrogen and much of the phosphorus and potassium normally required for agricultural crop production. Other valuable micro-nutrients and the organic matter contained in the effluent would also provide benefits.

It is estimated that 10 per cent of the worlds population relies on food grown with untreated,

contaminated wastewater. Whilst providing affordable food, the use of wastewater for food production without proper management can pose a serious risk. Untreated wastewater is often used in the informal, unregulated sector, and directly benefits poor farmers who would otherwise have little or no access to water for irrigation.

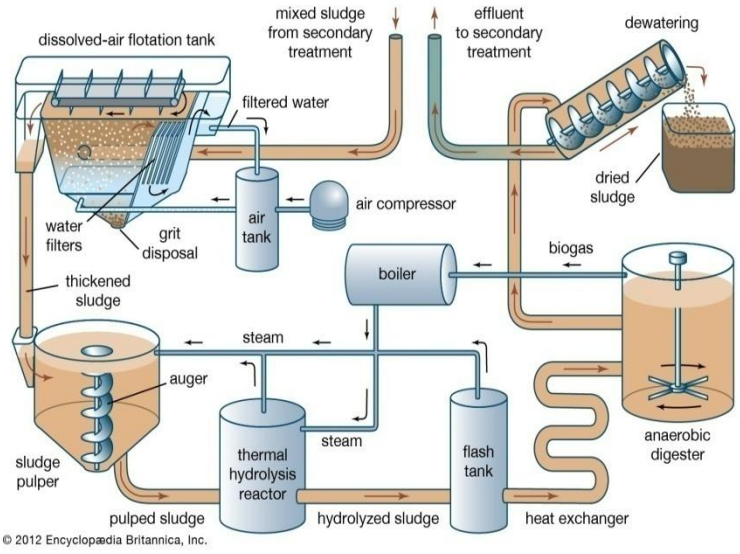
Forests and wetlands, including salt marsh and mangrove forests, have also an important natural role to play in wastewater management, capturing water, filtering out nutrients and other contaminants, and releasing water into lakes, rivers and coastal seas.

14.1.6 Case Study with Cost estimation for planning and designing of decentralized wastewater treatment system

Decentralized wastewater treatment plant is a site-specific system. The different components of the system settler, anaerobic baffled reactor, planted filter and polishing pond are planned and designed according to the treatment requirement of the wastewater generated. Average water consumption for domestic usage in India is 135 Lpcd. 80% of the water which is used or consumed for domestic purposes comes out as a wastewater.

Prototype decentralised wastewater treatment system

An on-site wastewater treatment plant like DWWT can be installed to treat and recycle this wastewater in order to close the loop. The capacity of the system may vary from 1KLD to 100 KLD . For instance, DWWT system at CSE is designed for the capacity of 8 KLD to treat and reuse wastewater which is generated by the staff population of 150-200.



Broadly, planning and designing, implementation and operation & maintenance activities comprise of 25%, 60% and 15% respectively of the total cost incurred. Parameters which are to be considered while planning and designing DWWT system are land requirement, installation and operation & maintenance.

Land requirement

Depending on the total volume, total area of the land required to install different units of DWWT can be calculated. This is influenced by the nature of wastewater and depth of the unit tanks.

Settler 0.5 m2/m3 daily flow

Anaerobic baffled reactor : 1 m2/m3 daily flow

Constructed wetland: 30 m2/m3 daily flow

Anaerobic ponds: 4 m2/m3 daily flow

Facultative aerobic ponds:25 m2/m3 daily flow

These figures are approximate values, also the area requirement increases with the strength of the wastewater. Structures like settler and improved septic tank or anaerobic baffled reactor are underground hence leads to no wastage of open area.

Installation

This includes activities like excavation, plastering, brick work, plumbing, flooring etc along with the cost of construction material. The different items which are required for construction are walls of solid cement blocks with outside and inside plastering for water tightness, PCC base, PVC pipes , baffle walls, gravel filter media, RCC slab, perforated slabs, vent pipes and plants/reeds like cana, cattails, bulrushes etc. The cost component pertaining to the construction and installation varies from cities to cities. Typically, for installation of a plant of 8-10 KLD capacity would cost around Rs. 2.5-3 lakhs.

Operation & maintenance Decentralised wastewater treatment systems are low cost onsite treatment approach but continuous operation and maintenance is necessary for the sustainability and to maintain the desirable performance of the plant.

The annual operation and maintenance cost for the plant is generally in the range of Rs. 3000-5000. Regular de-sludging of the settler and baffled reactor is required in the span of 1-3 years in order to meet the effluent standards. Replacement of filter media is also necessary when treatment efficiency goes down. The normal period of cleaning the gravel filter media is in the interval of 8 – 10 years.

Cost estimation for the case study

As the capacity increases, up-to some level DEWATS is effective but for larger capacity multi- units of DWWT system is recommended of smaller manageable sizes limited to 100kld. Average cost of construction is Rs. **25,000-30,000 per KL flow per day (approximately).**

Cost summary of DWWT components for 1 KLD plant is *

Components	Surface area requirement (sqm/KL)	Capacity (Cum/KL)	% of Total cost(approx)
Settler	0.5	1	10
Reactor	1	1.73 (inner); 3 (outer)	40
Planted filter	5	4	30
Storage sump	-	1	10
Polishing Pond	1	0.88	5
Misc			5

*Indicative only, the dimensions and rate may vary as per the inlet water quality and cities respectively. Current rates has to be taken for actual cost estimation.

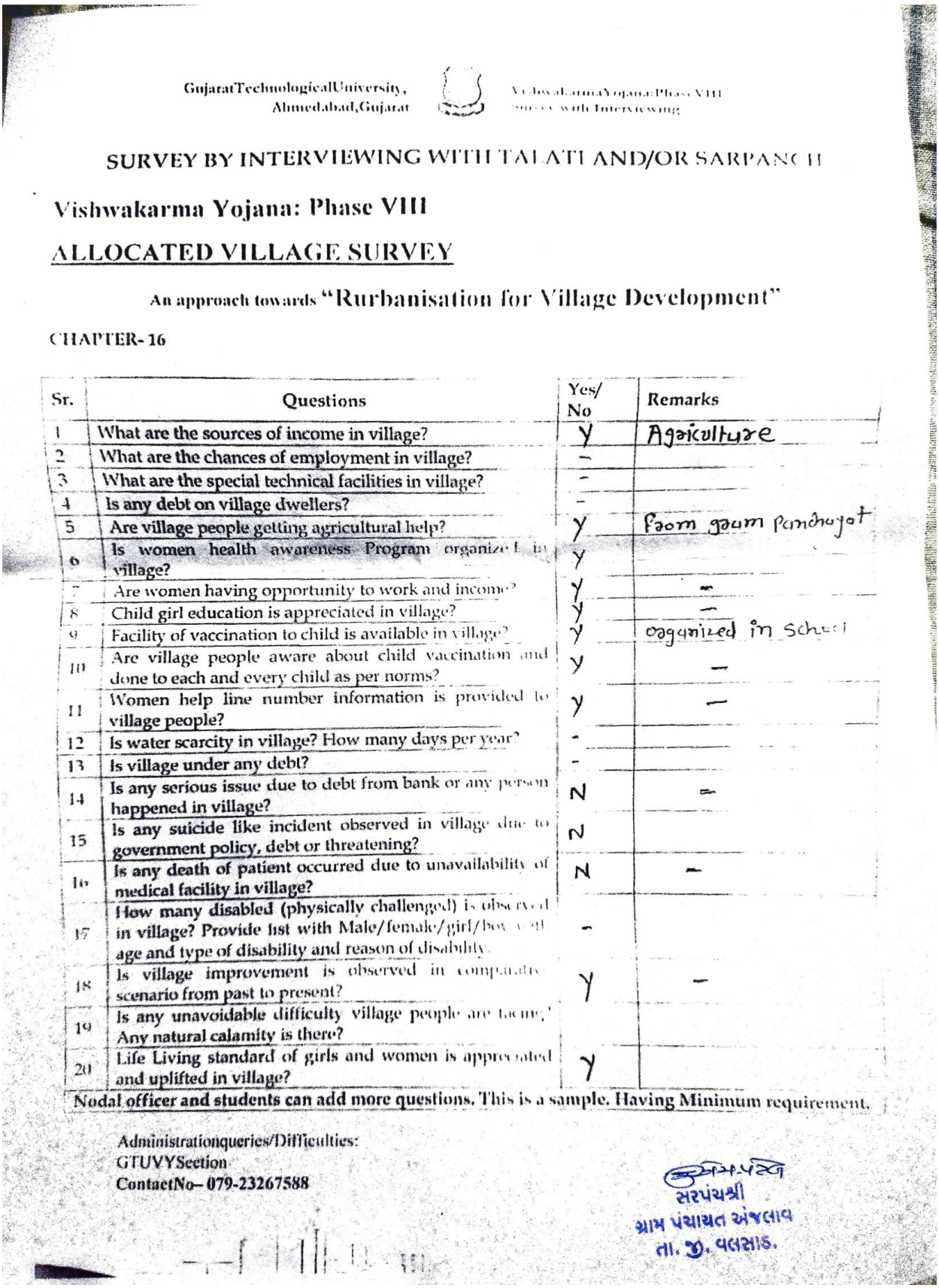
Chapter 15. Smart and/or Sustainable features of Chapter 8 & 13 designs, Impact on society.

(For Allocated village development, villager's happiness, comfortable and for enhancement of the village) (With the Smart village development concept as per your idea and village visit, modern technology with innovation). With doing small changes, Period, Amount Expenditure and Benefit – a) Immediately b) Within 1 year c) Long term (3-5 years) along with cost estimation. b) If possible, List the sources of the funding available with the Village gram panchayat

Table 30: Sustainable impact on society

Sr. No	Design Name	Design Period	Expenditure amount (In Rupees)	Benefits
1	Drip laterals	1 month	35000	Easy Irrigation
2	Drip Mains	1 month	35000	East Water supply
3	Drip Manifolds	1 month	35000	Easy water distribution
4	Basketball Court	1 month	250000	Physical benefits
5	Post office	2 Years	5000000	Easy post office works
6	Bank	2 Years	4000000	Easy money handling
7	PHC	1 Years	2000000	Good medical facilities
8	Public Toilet	6months	270000	Good Sanitization
9	Public garden	6months	201000	Socializing for old
10	Bus Stop	6 months	2000000	Easy transportation
11	Public Mini Library	1Years	1600000	Easy books access
12	Cyber Cafe	1 Years	1000000	Better Internet facilities

Chapter 16. Survey by Interviewing with Talati and/ or Sarpanch



GujaratTechnologicalUniversity,
Ahmedabad,Gujarat

VishwakarmaYojana:Phase VIII
Survey with Interviewing

SURVEY BY INTERVIEWING WITH TALATI AND/OR SARPANCH

Vishwakarma Yojana: Phase VIII

ALLOCATED VILLAGE SURVEY

An approach towards "Rurbanisation for Village Development"

CHAPTER- 16

Sr.	Questions	Yes/ No	Remarks
1	What are the sources of income in village?	Y	Agriculture
2	What are the chances of employment in village?	-	
3	What are the special technical facilities in village?	-	
4	Is any debt on village dwellers?	-	
5	Are village people getting agricultural help?	Y	From gaun Panchayat
6	Is women health awareness Program organized in village?	Y	
7	Are women having opportunity to work and income?	Y	-
8	Child girl education is appreciated in village?	Y	-
9	Facility of vaccination to child is available in village?	Y	Organized in School
10	Are village people aware about child vaccination and done to each and every child as per norms?	Y	-
11	Women help line number information is provided to village people?	Y	-
12	Is water scarcity in village? How many days per year?	-	
13	Is village under any debt?	-	
14	Is any serious issue due to debt from bank or any person happened in village?	N	-
15	Is any suicide like incident observed in village due to government policy, debt or threatening?	N	
16	Is any death of patient occurred due to unavailability of medical facility in village?	N	-
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.	-	
18	Is village improvement is observed in comparative scenario from past to present?	Y	-
19	Is any unavoidable difficulty village people are facing? Any natural calamity is there?		
20	Life Living standard of girls and women is appreciated and uplifted in village?	Y	

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

Administrationqueries/Difficulties:
GTUVYSection
ContactNo– 079-23267588

સરપંચશ્રી
ગ્રામ પંચાયત અંજલાવ
તા. જી. વલસાડ.

Chapter 17. Irrigation / Agriculture Activities and Agro Industry, Alternate Technics and Solution

Water serves a range of productive, environmental and social purposes in the agricultural sector and wider economy.

Governments, water managers and consumers/users have a role to ensure that mechanisms and actions are in place to make certain that water is allocated and used to achieve socially and economically beneficial and efficient outcomes in a manner that is environmentally effective and sustainable. But management of water resources in agriculture is being severely tested with rising food and energy prices, growing competition for water resources between different users, an expanding global population, and concerns related to climate change.

Agriculture is a primary target for policies that move the sector towards sustainable management of water as it uses about 70% of the world's freshwater withdrawals and over 40% of total OECD countries water withdrawals.

The anticipated growth in world population from 7 billion currently to 9 billion by 2050, will involve a major expansion in demand for food and water, not only for use in agriculture but for drinking, sanitation, industry, the energy sector, as well as to meet demands for environmental improvement of ecosystems and associated recreational and cultural uses. These global developments have implications for OECD countries, given they are

major players in world food markets as exporters and importers. But the focus of water resource management in agriculture differs greatly within and across countries, ranging from concerns with water scarcity and stress in some regions, to a focus on water drainage and flood control in others, reflecting varying climatic and agricultural systems. Consideration of climate change further complicates this picture.

With the passage of time and accelerated by macro-economic reforms undertaken in recent years, the Institutional arrangements as well as the mode of functions of bodies responsible for providing technical underpinning to agricultural growth are proving increasingly inadequate.

Changes are needed urgently to respond to new demands for agricultural technologies from several directions. Increasing pressure to maintain and enhance the integrity of degrading natural resources, changes in demands and opportunities arising from economic liberalization, unprecedented opportunities arising from advances in biotechnology, information revolution and most importantly the need and urgency to reach the poor and disadvantaged who have been by passed by the green revolution technologies.

Here are 8 of the most advanced agricultural technologies employed today:

1. **Tractors on autopilot** Thanks to GPS tractors, combines, sprayers and more can accurately drive themselves through the field. After the user has told the onboard computer system how wide a path a given piece of equipment will cover he will drive a short distance setting A & B points to make a line. Then the GPS system will have a track to follow and it extrapolates that line into parallel lines set apart by the width of the tool in use. These systems are capable of tracking curved lines as well. The tracking system is tied to the tractor's steering, automatically keeping it on track freeing the operator from driving. This allows the operator to keep a closer eye on other things. Guidance is great for tillage because it removes human error from overlap, saving fuel and equipment hours. Trust me when I tell you that once you starting auto tracking, you'll never go back manual steering.

2. **Swath control and variable rate technology** Building on GPS technology are swath control and variable Rate Technology VRT. This is where guidance really begins to show a return on investment. Swath control is just what it sounds like. The farmer is controlling the size of the swath a given piece of equipment takes through the field. This video is a great visual representation of how swath control works. The savings come from using fewer inputs like seed, fertilizer, herbicides, etc. Since the size and shapes of fields are irregular you are bound to overlap to some extent in every application. Thanks to GPS mapping the equipment in the field already knows where it has been. Swath control shuts off sections of the applicator as it enters the overlap area, saving the farmer from applying twice the inputs on the same piece of ground. VRT works in a similar fashion. Based on production history and soil tests a farmer can build a prescription GPS map for an input. By knowing what areas of a field are most and least productive the application rate of an input like fertilizer can be tailored to increase or decrease automatically at the appropriate time. This is a big benefit for farms. Instead of applying a set rate of fertilizer over the entire field (many times a high rate to help those low producing areas) an operator can now apply a rate most effective for a particular section of ground.

3. **Your tractor is calling** Telematics is being touted as the next big thing in agriculture. This technology allows equipment to talk to farmers, equipment dealers, and even other equipment. Imagine you have a problem in the field and have to stop working. With telematics your dealer can access the onboard diagnostic system of your tractor. Depending on the problem they might be able to fix your equipment right from dealer. No waiting on a mechanic to drive out to wherever you might be. You're back to work, and the dealer saved a trip too. Farmers will be able to keep track of what field equipment is in, fuel consumption, operating hours, and much more. Personally I've noticed on our farm as we become more technologically advanced our downtime is often caused by electrical, software, or hardware problems as opposed to mechanical. Tractors can even communicate between themselves. The best example is a combine and a grain cart. Grain carts pull up next to

harvesting equipment so the harvester can unload on the move without stopping to unload. Telematics can tell the grain cart operator when a combine is filling up with grain. Even better if one cart is chasing two combines.

4. **Your cow is calling too** And it's not saying "Moo!" Collars developed for livestock are helping producers keep track of their herds. Sensors in the collar send information to a rancher's smartphone giving the rancher a heads up on where a cow might be, or maybe she's in some sort of distress, or maybe just in the mood for some mating. I suppose you could say it's kind of like telematics for cows. RFID tags are also a handy device for livestock management. The information kept on a tag helps producers keep track of individual animals, speeding up and making record keeping more precise. I recently read about RFID tags placed in to hay as it is baled. Data such as moisture and weight can be stored in the tag to be scanned later

5. **Irrigate via smart phone** Mobile technology is playing a big role in monitoring and controlling crop irrigation systems. With the right equipment a farmer can control his irrigation systems from a phone or computer instead of driving to each field. Moisture sensors in the ground are able to communicate information about the level of moisture present at certain depths in the soil. This increased flexibility allows for more precise control of water and other inputs like fertilizer that are applied by irrigation pivots. Farmers can also combine this with other tech like VRT mentioned earlier to control the rate of water applied.

6. **Sensing how your crop** is feeling this is taking variable rate technology to the next level. Instead of making a prescription fertilizer map for a field before you go out to apply it, crop sensors tell application equipment how much to apply in real time. Optical sensors are able to see how much fertilizer a plant may need based on the amount of light reflected back to the sensor. I haven't seen one of these systems in operation yet, but I'm keeping a close eye on them. It's fairly new and pretty expensive, but I see huge potential here. Crop sensors are going to help farmers apply fertilizer in a very effective manner, maximizing uptake and reducing potential leaching and runoff into ground water.

7. **Field documentation** Because of onboard monitors and GPS the ability to document yields, application rates, and tillage practices is becoming easier and more precise every year. In fact farmers are getting to the point where they have so much good data on hand that it can be overwhelming to figure out what to do with all of it. And of course, every farmer's favorite form of documentation is the yield map. It sums up a year's worth of planning and hard work on a piece of colorful paper. As harvesting equipments rolls through the field it calculates yield and moisture as it goes tying it in with GPS coordinates. When finished a map of the field is printed. These maps are often called heat maps. I liken then to weather radar maps. Each color on the map relates to a certain

yield range. Now the farmer can see what varieties had the best, worst, or most consistent yield over varying conditions. Maps like this can tell a farmer how well a field's drainage system is working.

8. **Biotechnology** Biotech or genetic engineering (GE) isn't new tech, but it is a very important tool with much more potential yet to be unleashed. The form of GE most people have probably heard of is herbicide resistance. The other would likely be insect resistant traits. Crops can be made to express toxins that control particular pests. Many employ Bt toxin that is the same toxin found in some organic pesticides. That means a farmer won't have to make a pass through his fields to apply pesticide, which not only saves on pesticide, but fuel, labor, and wear on equipment too.

Chapter 18. Social Activities – Any Activities Planned by Students (e. g. Teaching Learning activities, awareness camp, business idea for SELF HELP GROUP or any other

In INDIA many people are aged between 15 and 24, the youngest population in the world. This age groupis expected to double in number by 2045. Low profitability, poor security of land tenure, and high risks are just some of the reasons youth are leaving rural areas to seek jobs in cities, a migration that could see INDIA with a shortage of farmers in the future.

Given that agriculture is one of the continent's biggest economic sectors, generating broad economic development and providing much of the population with food, this poses a serious threat to the future of farming and to meeting the demands of a rapidly growing urban population. Growing youth unemployment, ageing farmers and declining crop yields under traditional farming systems mean engaging youth in agriculture should be a priority.

This awareness program highlights this key challenge and suggests solutions for making agriculture more attractive to younger generations.

1) Link social media to agriculture

The rise of social media and its attraction among young people with access to the appropriate technologies could be a route into agriculture if the two could be linked in some way. Mobile phone use in INDIA is growing rapidly and people are now much more connected to sources of information and each other. Utilizing these channels to promote agriculture and educate young people could go a long way in engaging new groups of people into the sector.

2) Improve agriculture's image

Farming is rarely portrayed in the media as a young person's game and can be seen as outdated, unprofitable and hard work. Greater awareness of the benefits of agriculture as a career needs to be built amongst young people, in particular opportunities for greater market engagement, innovation and farming as a business.

The media, ICT and social media can all be used to help better agriculture's image across a broad audience and allow for sharing of information and experiences between young people and young farmers.

3) Strengthen higher education in agriculture

Relatively few students choose to study agriculture, perhaps in part because the quality of agricultural training is mixed. Taught materials need to be linked to advances in technology, facilitate innovation and have greater relevance to a diverse and evolving agricultural sector, with a focus on agribusiness and entrepreneurship. Beyond technical skills, building capacity for management, decision-making, communication and leadership should also be central to higher

education. Reforms to agricultural tertiary education should be designed for young people and as such the process requires their direct engagement.

4) Greater use of Information and Communication Technologies (ICT)

Not only can ICT be used to educate and train those unable to attend higher education institutions but it can be used as a tool to help young people spread knowledge, build networks, and find employment. Catering to a technologically savvy generation will require technological solutions. Such technologies can also reduce the costs of business transactions, increasing agriculture's profitability.

5) Empower young people to speak up

If we are to enable youth to transform agriculture then the barriers to their engagement, such as access to land and finance, need to be addressed. National policies on farming and food security need to identify and address issues facing young people.

As such youth need to become part of policy discussions at the local and national levels, whether as part of local development meetings, advisory groups or on boards or committees.

The Young Professionals' Platform for Agricultural Research for Development (YPARD) aims to provide a platform for young people to discuss opportunities in agricultural development, share experiences and advocate for greater youth engagement and representation.

6) Facilitate access to land and credit

Land is often scarce and difficult to access for young people, and without collateral getting credit to buy land is nigh on impossible.

Innovative financing for agriculture and small businesses is needed. For example soft loans provided to youth who come up with innovative proposals in agriculture or micro franchising.

7) Put agriculture on the school curricula

Primary and high school education could include modules on farming, from growing to marketing crops. This could help young people see agriculture as a potential career.

Many organization runs project aiming to help school children discover more about agriculture as a profession.

8) Greater public investment in agriculture

Young people may see agriculture as a sector much neglected by the government, giving farming the image of being old fashioned. Investment in agriculture is more effective at reducing poverty than investment in any other sector but public expenditure on agriculture remains low.

9) Make agriculture more profitable

This is an easy statement to make but a difficult one to realise. Low yields and market failures in Africa reduce the potential of agriculture to be profitable and to provide people with a chance of escaping poverty and improving their quality of life.

Making agriculture profitable requires that the costs of farming and doing business are reduced while at the same time productivity increases.

Although large-scale commercial farming springs to mind, this is not necessarily the case, and small farms can be highly productive with low labour costs.

Of course all of these solutions come with their own hurdles: access to education and technologies, rural development, land rights etc. But as one article states "Africa has the highest number of youth in the whole world, and some of the most fertile soils – the two combined could be a force to promote agricultural development!

" Foregoing engaging youth in agriculture and the potential for transformation this could bring because of the complexities of modernising agriculture would be a huge opportunity lost.

Figure 69: Cleaning activity to encourage people against Covid and Dengue spread.

Chapter 19. Anjlav Village SAGY Questionnaire Survey form with the Sarpanch Signature (Scanned copy attachment in the soft copy report and original copy in hardbound report)

SAANSAD ADARSH GRAM YOJANA (SAGY) Baseline Household Survey Questionnaire

Village: Anjlav Gram Panchayat: Anjlav Ward No. –

Block: Anjlav (C.D Block) District: Valsad

State: Gujarat L S Constituency: –

1. Family Identity and Size

Name of Head of Household	Vikrambhai Patel							Male/ Female	
SECC Survey ID:	–	Family Size	10	Over 18	6	6 to 18	3	Under 6	1

2. Category & Entitlement Details (Tick as appropriate)

Social Category[1]		Life Insurance	1. All Adults ✓ 2. Some Adults 3. None	AABY	1. Yes ✓ 2. No	Kisan Credit Card	Yes / No
Poverty Status Year[2]:	1. BPL ✓ 2. APL	Health Insurance ✓	1. All Adults 2. Some Adults 3. None	RSBY	1. Yes ✓ 2. No	MGNREGS Job Card. Number	N
PDS (If NFSA is not implemented)	Annapurna	Antyodaya	BPL		APL	Is any woman in the family member of an SHG? Yes / No	
PDS (If NFSA is implemented)	Annapurna	Antyodaya	Priority		Other		

2. Adults (above 18 years)

	Name	Age	Sex M/F/O	Disability Status Y/N	Marital Status[3]	Education Status[4]	Adhaar Card (Y/ N)	Bank A/C (Y/N)	Social Security Pension[5]
1.	Vikrambhai Patel	59	M	N	Y	12th	Y	Y	N
2.	Yogeshbhai Patel	41	M	N	N	Graduate	Y	Y	N

3. Children from 6 years and up to 18 years

	Name	Age	Sex M/F/O	Disability Y/N	Marital Code*	Level of Education: Code#	Going to School /College (Y/N)	Current Class	Computer Literate Y/N
1.	priyansh Patel	10	M	N	N	3	Y	3	–
2.	Vaidehi bhayal	11	F	N	N	7	Y	7	–
3.	Kalpa patel	18	F	N	N	12	Y	12	–

4. Children below 6 years

	Name	Age	Sex M/F/O	Disability Yes/No	Going to School (Y/N)	Going to AWC Y/N	De-worming Done	Fully Immu-nised Y/N	Mother's Age at the time of Child's Birth
1.	Mishti patel	4	F	No	N	–	–	–	–

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

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

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

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

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

Saansad Adarsh Gram Yojana (SAGY) Panchayat Details Survey Questionnaire

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

I. Basic Information

a. Gram Panchayat: Anjdav
b. Block: Valsad (C.D Block)
c. District: Valsad
d. State: Gujarat
e. Lok Sabha Constituency: Primary School
f. Number of Wards in the Gram Panchayat: ____
g. Number of Villages in the Gram Panchayat: 1
h. Names of Villages: Anjlav

Demographic Information

Number of Households 604 Total Population 2536 Male 1271 Female 1265

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

I. Access to Infrastructure / Facilities / Services

	Infrastructure Facilities / Services	Located within the GP Yes (Y)/No (N)	If located elsewhere (N), distance from the GP office
a.	ANM/ Health Sub Centre	Y	-
b.	Nearest Primary Health Centre (PHC)	Y	-
c.	Nearest Community Health Centre (CHC)	Y	-
d.	Nearest Post Office	Y	-
e.	Nearest Bank Branch (Any)	Y	-
f.	Nearest Bank with CBS Facility	Y	-
g.	Nearest ATM	Y	-
h.	Nearest Primary School	Y	-
i.	Nearest Middle School	Y	-
j.	Nearest Secondary School	Y	-
k.	Nearest Higher Secondary School / +2 College	Y	-
l.	Nearest Graduate College	N	8.9 km.
m	Nearest ITI / Polytechnic Centre	N	-
n	Kisan Seva Kendra	N	-

1

Area Area

Principal Respondent: X Frselunki
Date of Survey: 15-4-21

Saansad Adarsh Gram Yojana (SAGY) Panchayat Details Survey Questionnaire

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

	Infrastructure Facilities / Services	Located within the GP Yes (Y)/No (N)	If located elsewhere (N), distance from the GP office
o	Agriculture Credit Cooperative Society	N	-
p	Nearest Agro Service Centre	N	-
p	MSP based Government Procurement Centre	N	-
q	Milk Cooperative /Collection Centre	Y	-
r	Veterinary Care Centre	N	-
s	Ayurveda Centre	N	-
t	E – Seva Kendra	N	-
u	Bus Stop	Y	-
v	Railway Station	N	13.9 Km
w	Library	N	-
x	Common Service Centre	N	-

IV. Sports Facilities in the Gram Panchayat

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

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

V. Education, ICDS

a. Number of Angan Wadi Centres: 4

b. Number of villages without Angan Wadi Centres –

Names of such villages: –

c. Schools (Number)

Primary Private: 0 Primary Govt.: 2

Middle Private: 0 Middle Govt.: 0

Secondary Private: 0 Secondary Govt.: 0

Higher Secondary Private: 0 Higher Secondary Govt: 0

VI. Public Distribution System

	Item	Private Contractor	Women's SHG	Gram Panchayat	Cooperative	Other (Mention)	Location in GP (mention Location)	If outside GP, Location & distance from GP HQrs)
a.	Cereal (Rice/ Wheat/ Millets)	NO	-	✓	-	-	Anjlav	
b.	Kerosene	-	-	✓	-	-	Anjlav	-
c.	Other (mention)	-	-	-	-	-	-	-

2

Saansad Adarsh Gram Yojana (SAGY) Panchayat Details Survey Questionnaire

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

VII. Coverage of Villages under different Facilities & Services

	Parameter	Villages Status[1]	Names of Villages Covered	Names of Villages not Covered
a.	Piped Water Supply Coverage to Villages	Covered ✓ / Not Covered	- Anjlav	–
b.	Hand Pump Coverage in Villages:	Covered ✓ / Not Covered	- Anjlav	–
c.	Coverage under Covered Drains:	Covered / Not Covered ✓	–	–
d.	Coverage under Open Drains:	Covered / Not Covered ✓	–	–
e.	Villages with Household Electricity Connection (Numbers)	Connected ✓ / Not Connected	All	–

VIII. Land and Irrigation

	Private Land	Area in Acres		Common Land	Area in Acres		Irrigation Structure	No.
a.	Cultivable Land	–	d.	Pasture / Grazing Land	–	g.	Check Dam	0
b.	Irrigated Land	567.31	e.	Forests/ Plantations	–	h.	Wells/Bore Wells	8
c.	Un-irrigated Land	–	f.	Other Common Land	–	i	Tanks /Ponds	1

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

Saansad Adarsh Gram Yojana (SAGY) Panchayat Details Survey Questionnaire

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

IX Parameters relating to Households & Institutions

		Number
a)	Number of eligible Households for pension (old age, widow, disability)	20 +/-
b)	Number of Households receiving pension (old age, widow, disability)	-
c)	Number of eligible Households who are not receiving pension	80 +/-
d)	Number of Households eligible for Ration Card	90 +/-
e)	Number of eligible HHs having ration cards	-
f)	Number of households covered under RSBY (Rashtriya Swasthya Bima Yojana)	-
g)	Number of HHs covered under AABY (Aam Aadmi Bima Yojana)	-
h)	Number of active Job Card holders under MGNREGA	30 +/-
i)	Number of Job Card holders who completed 100 days of work during 2013-14	-
j)	Number of shops selling alcohol	0
k)	Number of BPL families	50 +/-
l)	Number of landless households	30 +/-
m)	Number of IAY beneficiaries	-
n)	Number of FRA[2] beneficiaries	-
o)	Number of Community Sanitary Complexes	0
p)	Number of Households headed by single women	-
q)	Number of Households headed by physically handicapped persons	-
r)	Total number of Persons with Disability in the village	-
s)	Number of SHGs	-
t)	Number of active SHGs	-
u)	Number of SHG Federations	-
v)	Number of Youth Clubs	0
w)	Number of Bharat Nirman Volunteers	0

Name and Signature of Surveyor and Respondent'

Surveyor	PRI Respondent (Preferably Gram Panchayat Chairperson)	Official Respondent (Preferably seniormost Government official in the Gram Panchayat)	Date of Survey
Monika Patil Dhaval Patel		સરપંચશ્રી ગ્રામ પંચાયત અંજલાવ તા: ઉમરગામ જિ: વલસાડ	15-4-21

SAANSAD ADARSH GRAM YOJANA (SAGY) Village Details Survey Questionnaire

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

I. Basic Information

a. Village: Anjlav
b. Ward Number: _____
c. Gram Panchayat: Anjlav
d. Block: Valsad
e. District: Valsad
f. State: Gujarat
g. Lok Sabha Constituency: _____
h. Number of Habitations / Hamlets in the Gram Panchayat: 0
i. Names of Habitations / Hamlets: -

Demographic Information

Number of Households 604 Total Population 2536 Male 1271 Female 1265

SC HHs _____ ST HHs _____ OBC HHs _____ Other HHs _____

II. Access to Infrastructure/Amenities etc.

i.	Access to Infrastructure / Facilities / Services	Located in the Village Yes (Y)/No(N)	If located elsewhere (N), distance in kms from the village
a.	Nearest Primary School	Y	-
b.	Nearest Middle School	Y	-
c.	Nearest Secondary School	Y	-
d.	Kisan Seva Kendra	N	-
e.	Milk Cooperative /Collection Centre	Y	-
g.	Health Sub Centre	Y	-
h.	Bank	N	10.65 km.
i.	ATM	Y	-
j.	Bus Stop	Y	-
k.	Railway Station	N	13 Km

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

1

SAANSAD ADARSH GRAM YOJANA (SAGY) Village Details Survey Questionnaire

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

ii. Road Connectivity

a. Habitations connected by All-weather Roads *(1-All 2-None 3-Some)*

If 3 mention the name of the habitations where not available: _____

iii. Drinking Water Facilities

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

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

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

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

iv. Coverage of Habitations under Waste Management System

a. Coverage under Covered Drains: _____ *(1-All 2-None 3-Some)*

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

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

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

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

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

v. Coverage of Habitations under Electrification

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

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

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

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

vi. Sports Facilities in the Village

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

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

vii. Education, ICDS

a. Number of Anganwadi Centres: 4

c. Schools (Number)

Primary Private: 0 Primary Govt.: 2

Middle Private: 0 Middle Govt.: 0

Secondary Private: 0 Secondary Govt.: 0

Higher Secondary Private: 0 Higher Secondary Govt: 0

2

SAANSAD ADARSH GRAM YOJANA (SAGY) Village Details Survey Questionnaire

viii. Land Category	Area in Acres	Land Category	Area in Acres	Irrigation Structure	No.
a. Cultivable Land	-	d. Pasture Grazing Land	-	Check Dam	0
b. Irrigated Land	561.31	e. Forests/Plantations	-	Wells/Bore Well	5
c. Un-irrigated Land	-	f. Other Common Land	-	Tanks/Ponds	1

ix. Entitlement Related Parameters

1	Number of active Job Card holders under MGNREGA	30 /
2	Number of active Job Card holders who have completed 100 days of work	—
3	Number of shops selling alcohol	0
4	Number of BPL families	50 /
5	Number of landless households	30 /
6	Number of IAY beneficiaries	—
7	Number of FRA beneficiaries	—
8	Number of common sanitation complexes	1
9	Number of SHGs	-
10	Number of active SHGs	-
11	Existence of SHG Federation in the Village (Yes/No)	-
12	Number of Youth Clubs	0
13	Number of Bharat Nirman Volunteers	0

Name and Signature of Surveyor and Respondent

Surveyor	PRI Respondent (Preferably a ward member from a ward that is fully or partially covered under the Village)	Official Respondent (Preferably seniormost Government official in the Gram Panchayat)	Date of Survey
Monika Patel Dhaval Patel.	X Fmsolanki	સરપંચશ્રી ગ્રામ પંચાયત અંજલાવ તા.જી. વલસાડ.	15-4-21

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

9/12/21, 9:39 AM Laxmi Vidyapeeth Mail - Regarding GTU Vishwakarma Yojana Phase 8 Project report on Anjlav Village valsad city

Gmail

Montika Patel <180863106008@laxmi.edu.in>

Regarding GTU Vishwakarma Yojana Phase 8 Project report on Anjlav Village valsad city

2 messages

Montika Patel <180863106008@laxmi.edu.in> Sun, Sep 5, 2021 at 10:49 PM
To: tdo-valsad@gujarat.gov.in, ddo-val@gujarat.gov.in, collector-val@gujarat.gov.in

Respected Sir/Mam,
We the Students of Laxmi Institute of Technology,Sarigam which is under the Gujarat Technological University (GTU). We are writing this email with our GTU Vishwakarma Yojana Phase 8 Project report on Anjlav Village.This project was done under the guidelines of the Vishwakarma yojana Phase 8 ,this initiative is under the GTU. Vishwakarma yojana is established with the vision "To make villages as Smart and developed villages" for reducing rate of migration from rural area to urban area, helping to reduce haphazard growth in urban and suburban area and to make development of rural area without much affecting the village culture.Our selected village is Anjlav.It is a village situated around 13 km away from Valsad City on valsad Dharampur road,valsad.
During this project we visited the Anjlav village and met the village people and the village Sarpanch and conducted a short survey to know about village activity and condition. Based on Survey conducted, we have tried to solve the villagers problems by suggesting the design and other requirements.We have also tried to encourage villagers about sustainability and precaution during Covid condition.We have also put some motivational points to develop small scale industries in villages for self development.
So we are very grateful to GTU and the Gujarat Government for giving this opportunity .We hope that you will like our project and suggestions in the report. We also want to thank our Project Nodal officer Mr. Amit R Chauhan for continuous support and Guidance .
We have attached the Complete project report in this email.

Thanking You

Sincerely
Montika V Patel (180863106008)
Dhruvi Patel (170860106012)

Vishwakarma Yojana Phase VIII-Anjlav Village Report.pdf
18118K

Chapter 21: Comprehensive Report for the entire village

COMPREHENSIVE REPORT

ON

Vishwakarma Yojana: Phase VIII

LAXMI INSTITUTE OF TECHNOLOGY, SARIGAM

Prepared by

Mr. Amit R. Chauhan

Asst. Prof. Civil Engineering Department

Year: 2020-21

Gujarat Technological University, Chandkheda, Ahmedabad – 382424 Gujarat

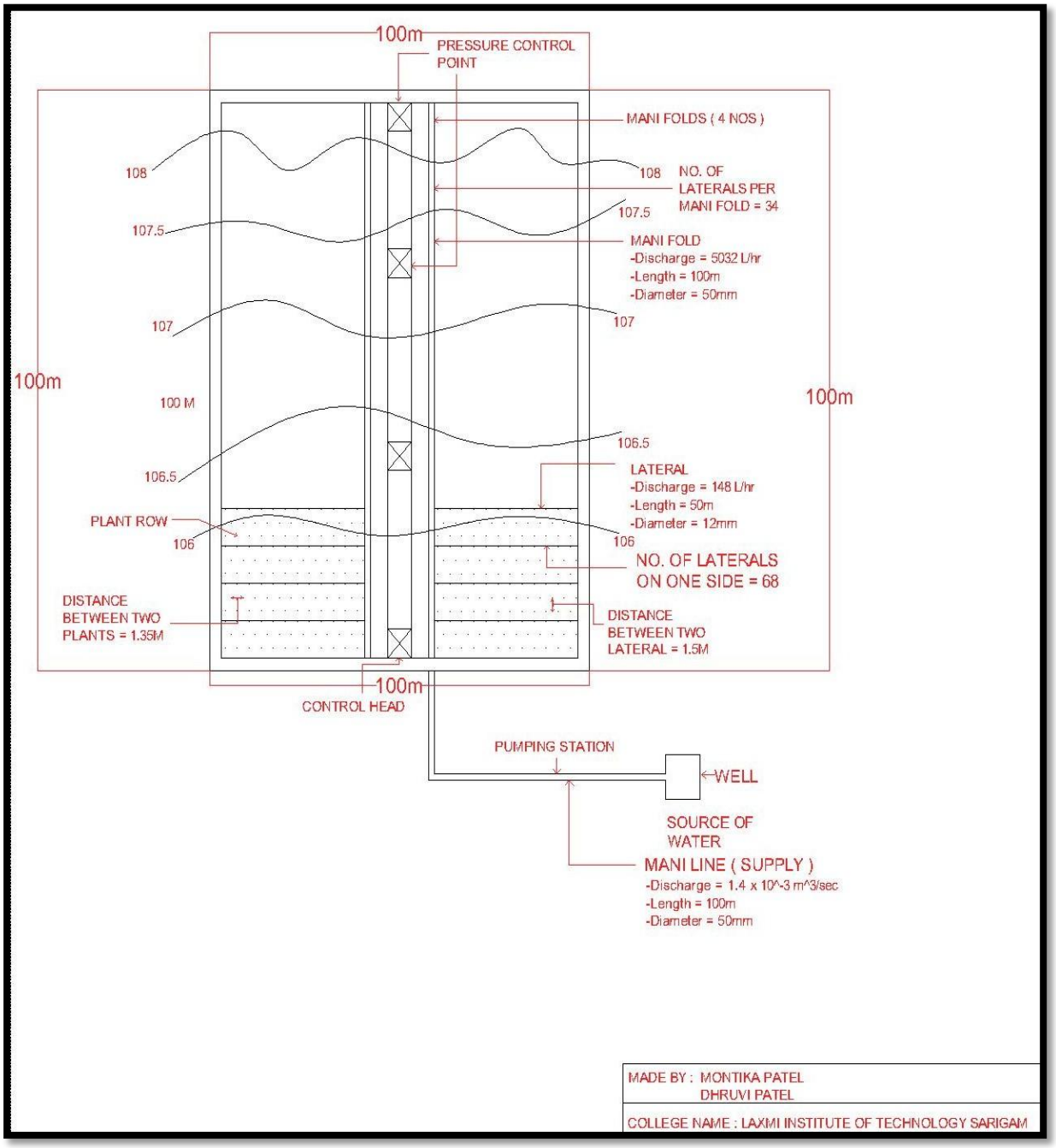
CONCEPT

Vishwakarma Yojana provides a special scheme for village development of villages by GTU and Government of Gujarat in which students work together and collect data and information regarding village development with the help of gram panchayats and stakeholders. Villages have some basic facilities like drinking water, drainage system, pucca road, and other facilities like primary school, primary health center, community hall, library, public latrine block, are sufficient so that village can develop. So, we will give proposals regarding sustainable energy sources and solutions related to infrastructure problems. Efforts have been made in this project to identify and plan some of the below facilities for sustainable development of the village and to meet the needs of the future population. Vishwakarma Yojana is one of the initiatives towards Rurbanization that is village development by the government of Gujarat, which was allotted as a real time situation type project provided to GTU.

It is one of the strategies to reduce urban city pressure and lower the migration rate by developing villages with a "rural soul" but with all urban amenities that a city may have. In this project the students meet the relevant citizens of the village and survey the existing facilities. Then design of the sustainable infrastructure which is to be modified is carried out for the village. This includes implementation of engineering skills to prepare detailed project reports for the village as a part of the final year project work. By this project certain experiences recreates a real work and need of application of an individual technical knowledge on any existing problems. Based on the survey we tried to give the design of basic facilities to fulfil their needs. By providing these basic facilities to villages to reduce urban city pressure and decrease migration rate, which is the aim of Vishwakarma Yojana. With this development the youth and the hard working people both will find their way for success in life.

District VALSAD, Village ANJLAV

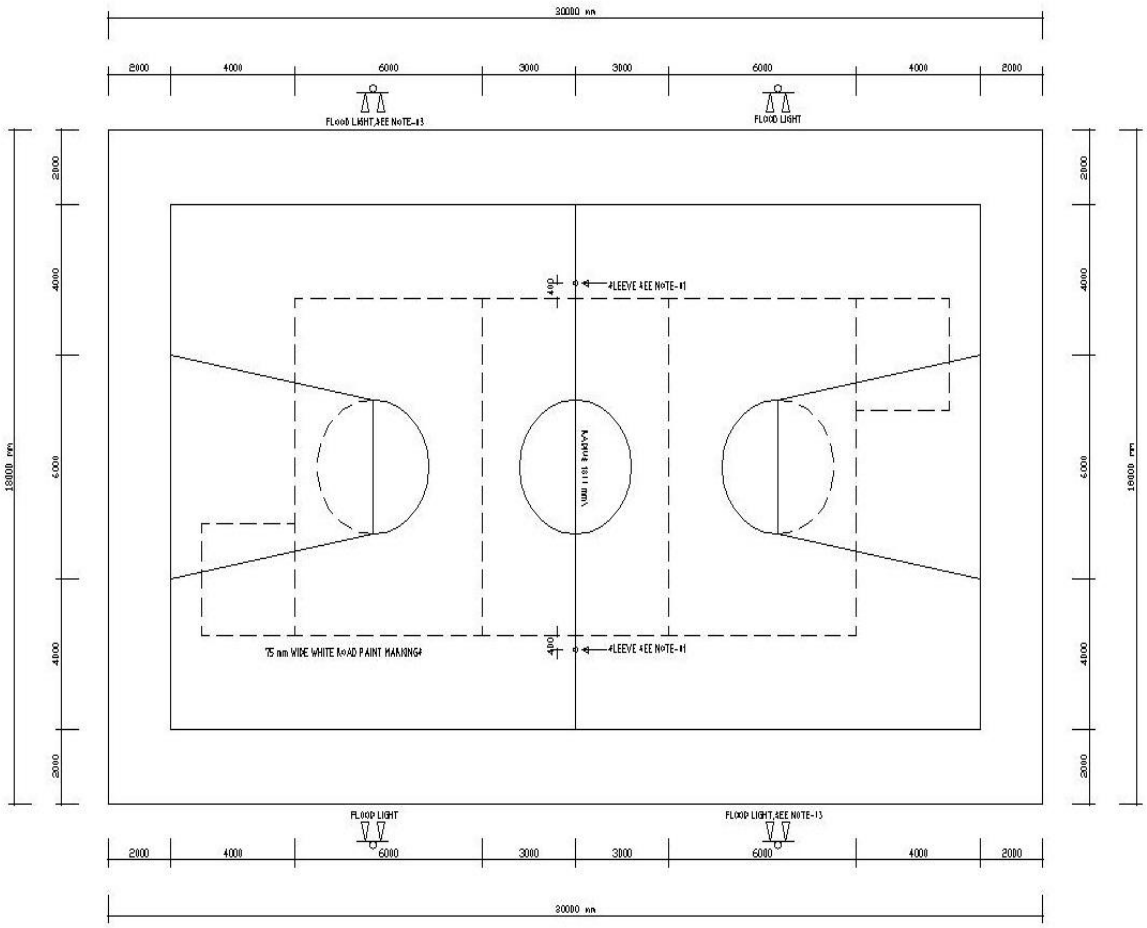
Design 1, 2, 3: Design of Mains,Laterals,Manifolds of Drip irrigation system



DESIGN INFRASTRUCTURE: DRIP SYSTEM
VILLAGE: ANJLAV DISTRICT: VALSAD

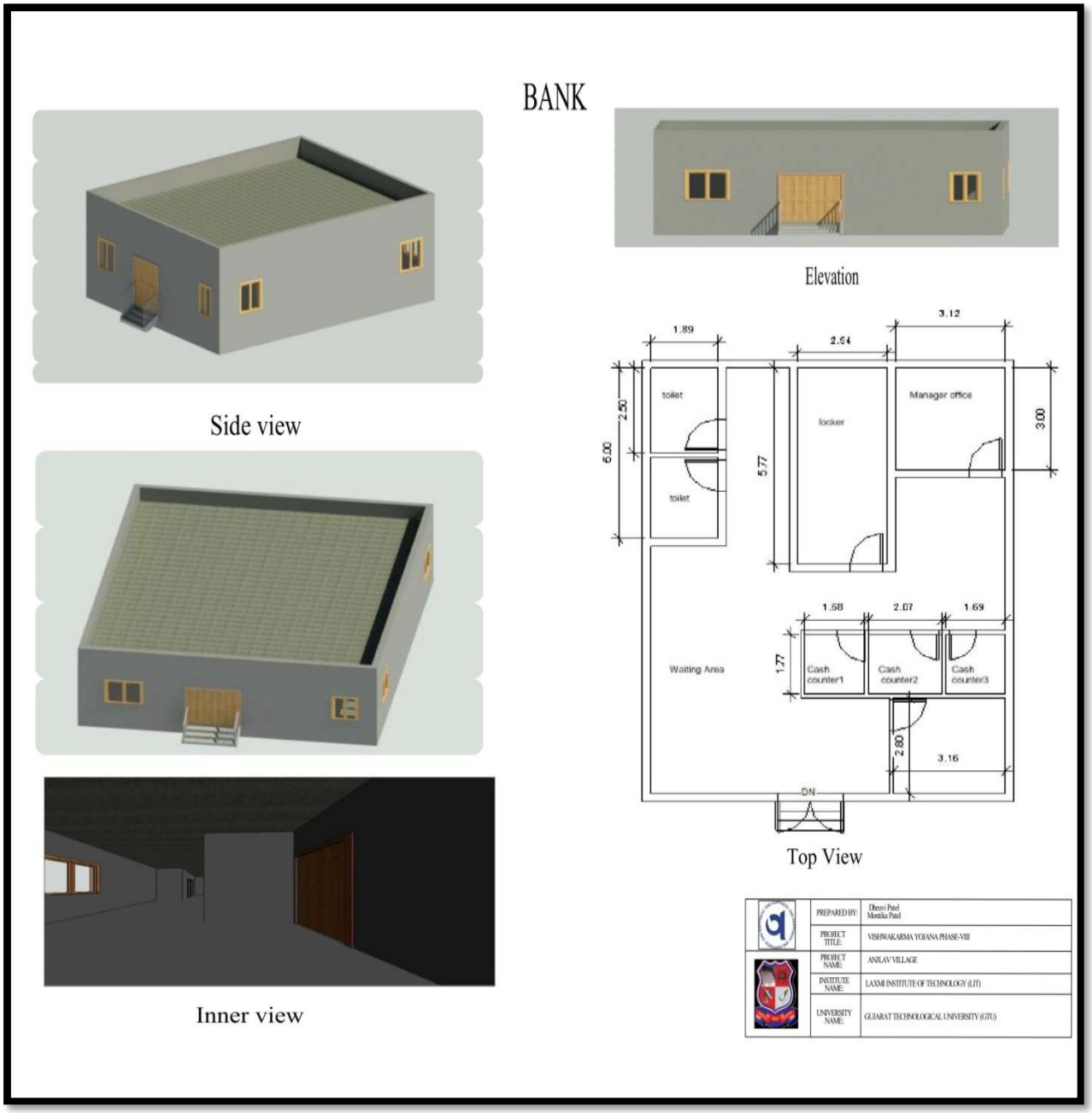
Design 4: Basketball Court

For Anjlav Village:



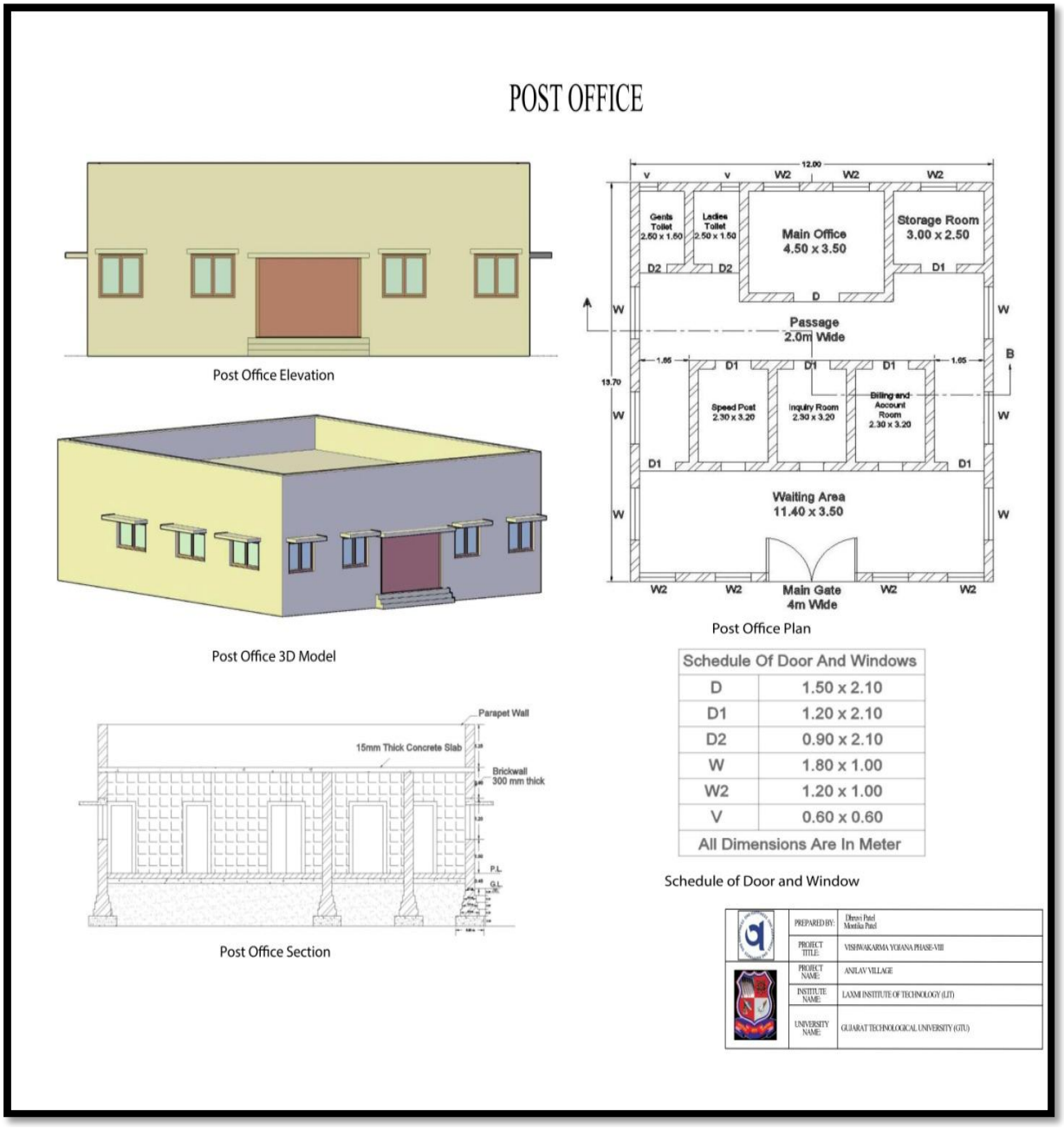
DESIGN INFRASTRUCTURE: Basketball Court
VILLAGE: ANJLAV DISTRICT: VALSAD

Design 5: Bank



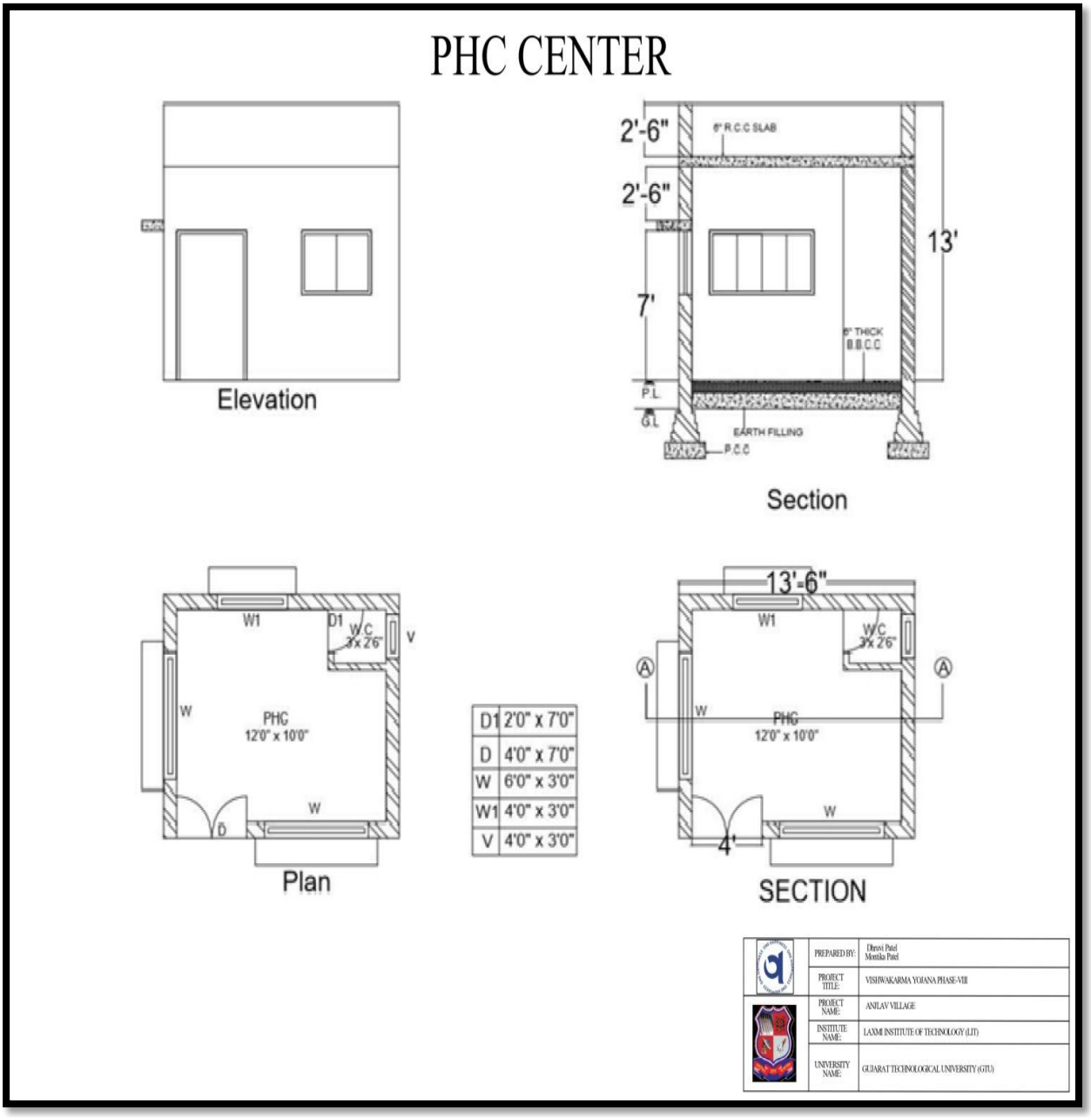
DESIGN INFRASTRUCTURE: Bank
VILLAGE: ANJLAV DISTRICT: VALSAD

Design 6: Post office



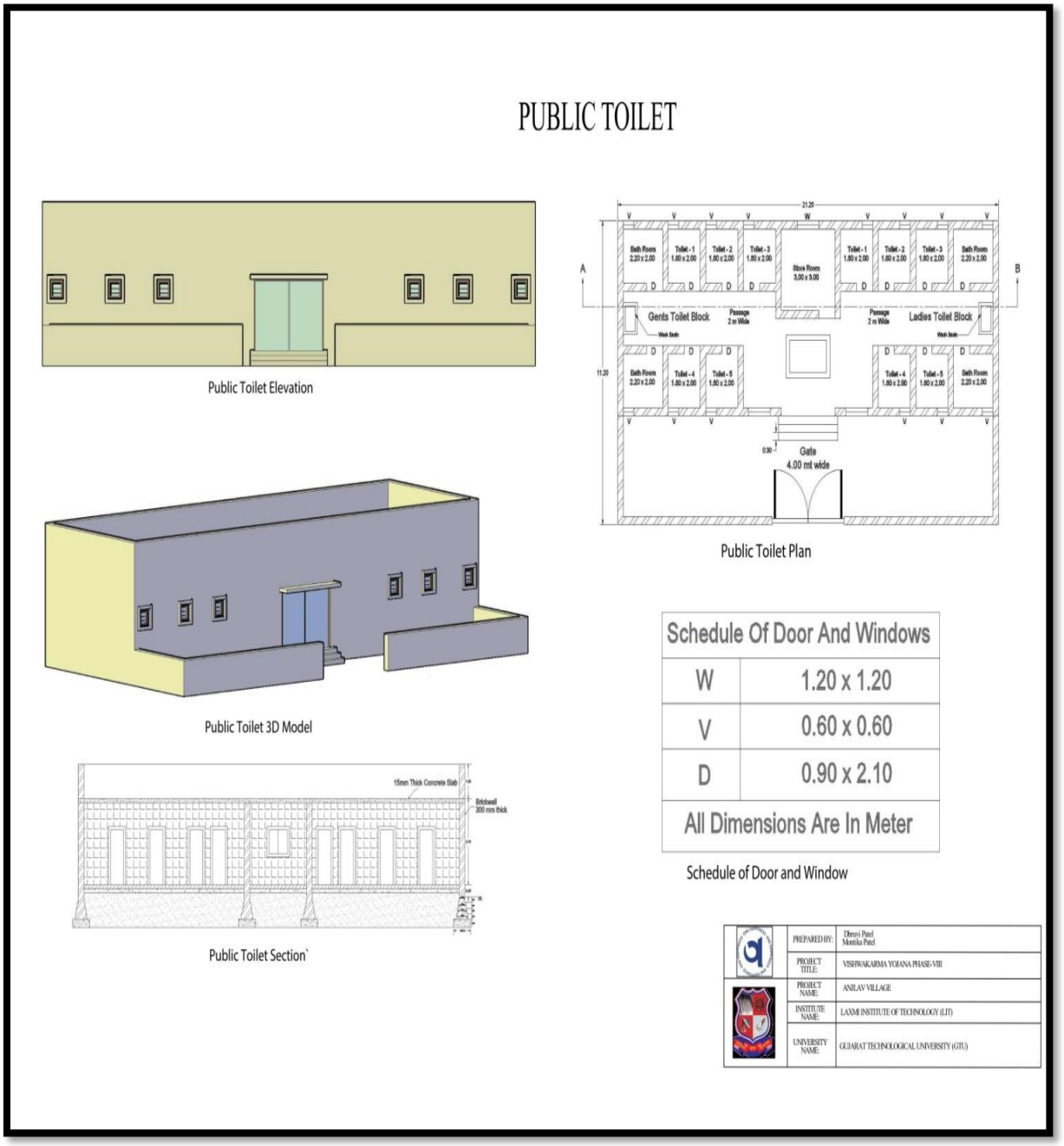
DESIGN INFRASTRUCTURE: Post office
VILLAGE: ANJLAV DISTRICT: VALSAD

Design 7: PHC center



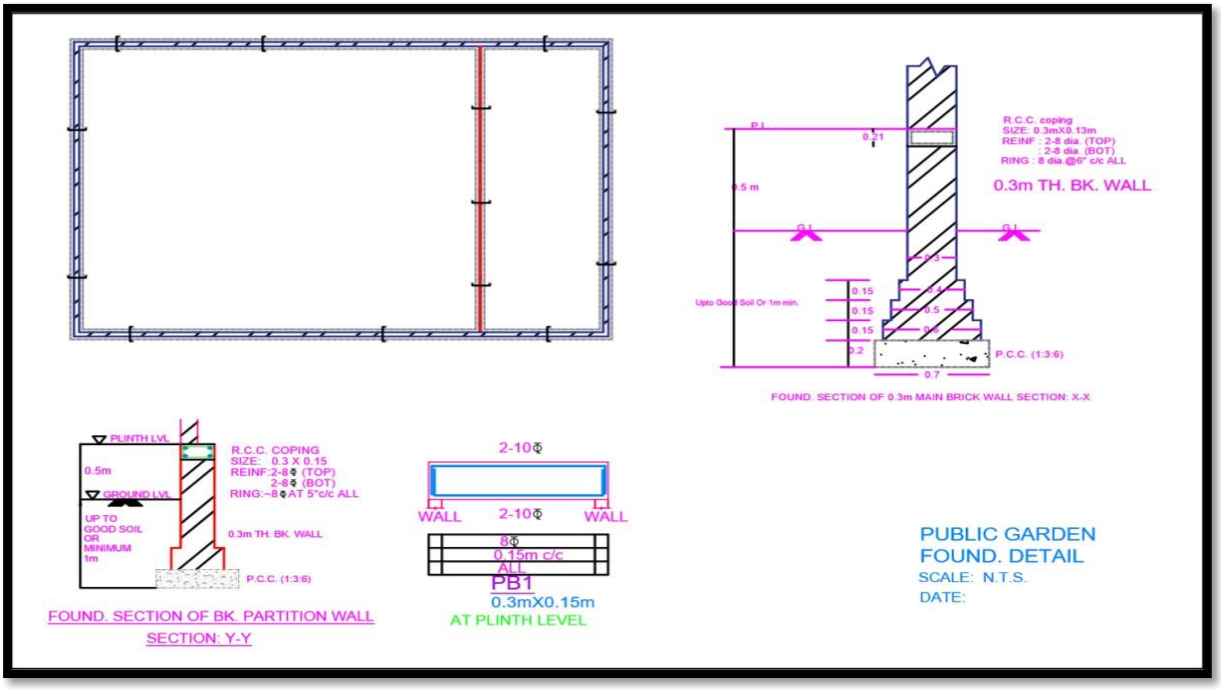
DESIGN INFRASTRUCTURE: PHC center
VILLAGE: ANJLAV DISTRICT: VALSAD

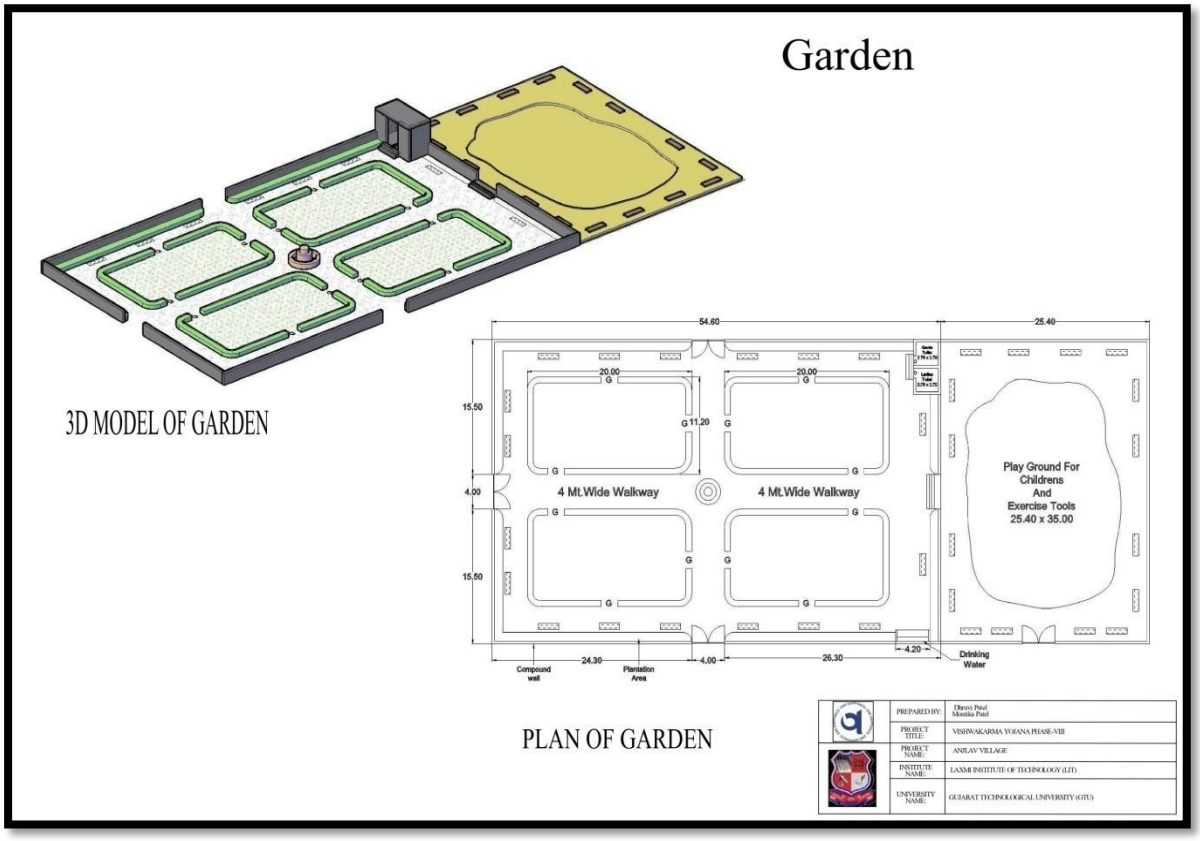
Design 8: Public Toilet



DESIGN INFRASTRUCTURE: Public Toilet
VILLAGE: ANJLAV DISTRICT: VALSAD

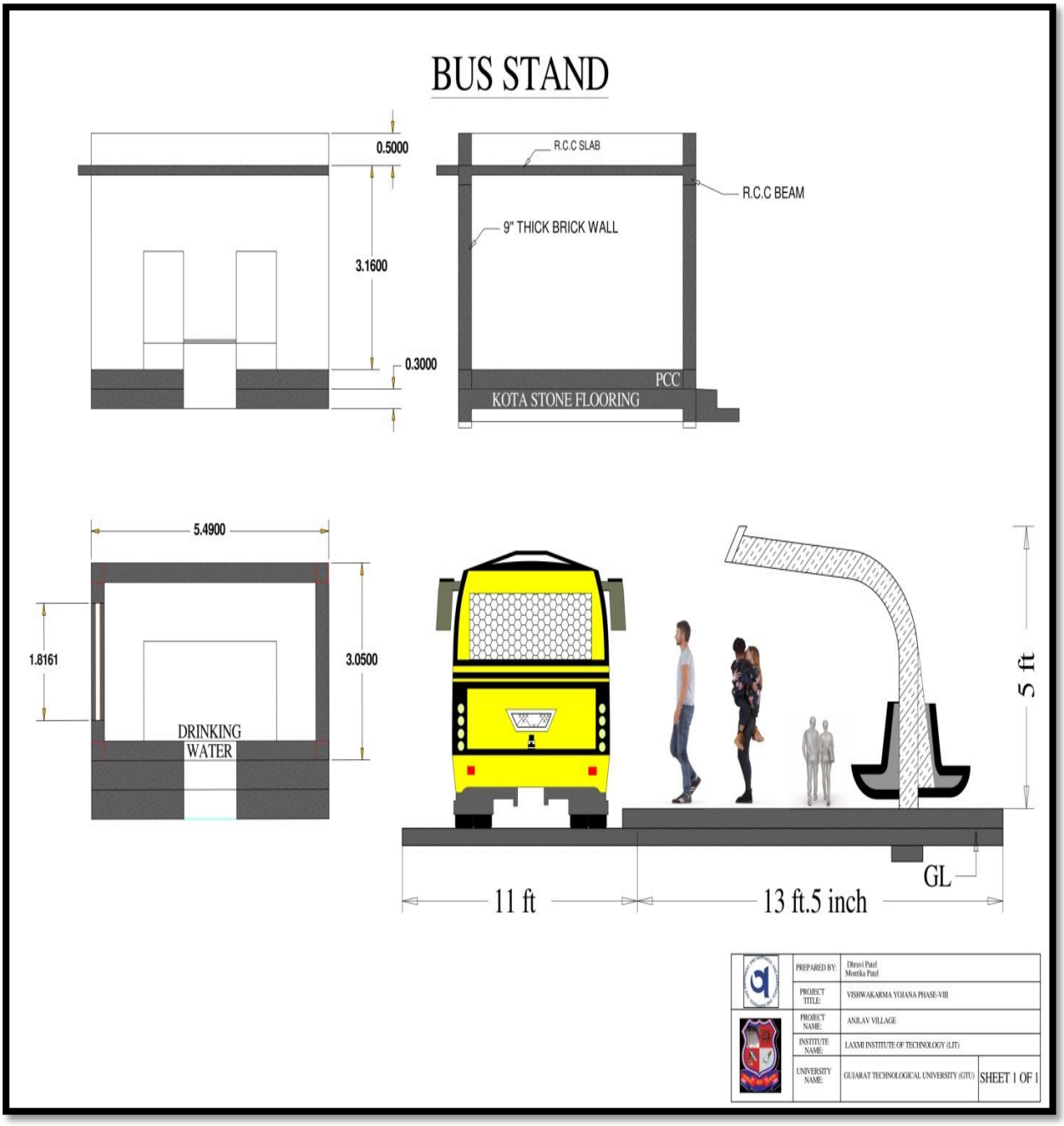
Design 9: Garden for old people





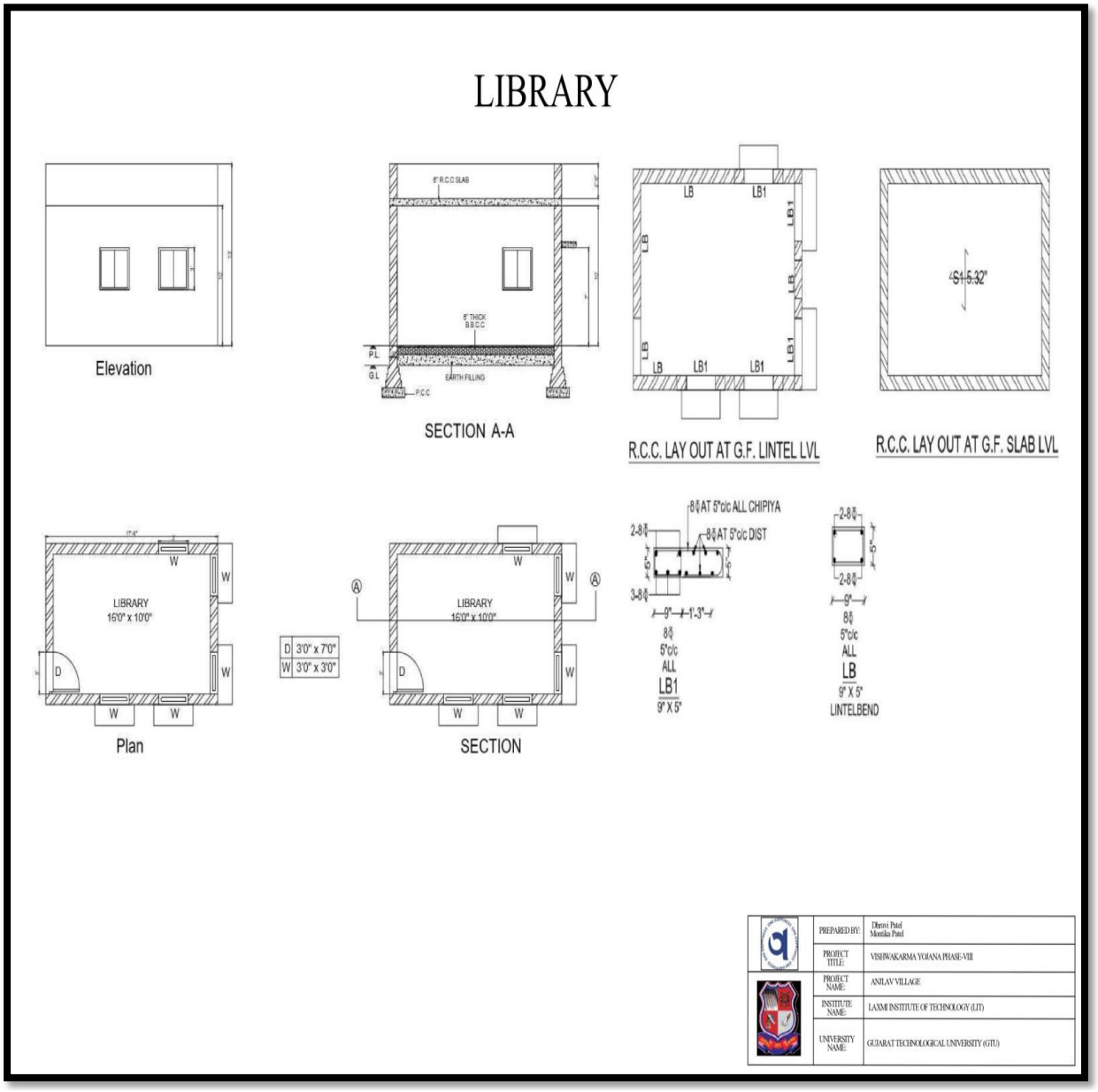
DESIGN INFRASTRUCTURE: Community Garden
VILLAGE: ANJLAV DISTRICT: VALSAD

Design 10: Bus Stop



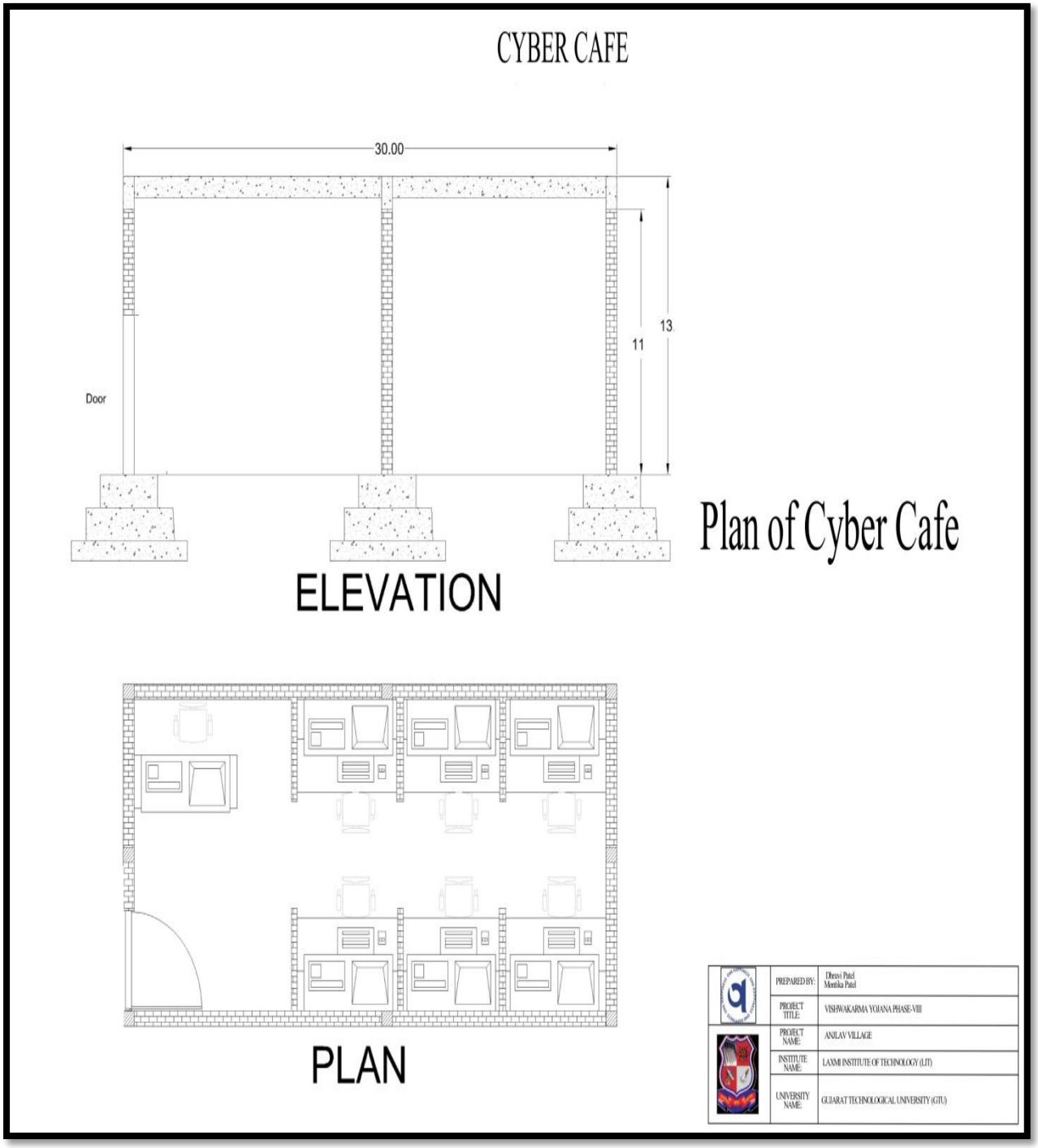
DESIGN INFRASTRUCTURE: Bus Stop
VILLAGE: ANJLAV DISTRICT: VALSAD

Design 11: Mini library



DESIGN INFRASTRUCTURE: *Mini library*
VILLAGE: ANJLAV DISTRICT: VALSAD

Design 12: Cyber Cafe



DESIGN INFRASTRUCTURE: Cyber Cafe
VILLAGE: ANJLAV DISTRICT: VALSAD

NODAL OFFICER STATEMENT:

By providing this required facility to the village, development and growth of the village can be possible. So ultimately migration rate and urban city pressure can be reduced, and the livelihood of village dwellers will increase. All the designs which are given as above are very helpful for future development of village and village people for their enhancement and prosperity. I admire these students for doing work related to civil engineering and hope these works are going to help to improve and understand their skills and make it even better. I am sure they got deep knowledge about the development of the village and various infrastructure facility designs of the village. Lastly, we all enjoyed the informational as well as practical journey of civil engineering work. Nodal Officer: Mr. Amit R. Chauhan , Laxmi Institute of Technology, Sarigam