DETAIL PROJECT REPORT

VISHWAKARMA YOJNA: VIII

AN APPROACH TOWARDS RURBANISATION

NAYTA Village

Patan District

PREPARED BY

STUDENT NAME	BRANCH NAME	ENROLLMENT NO
Pooja Chandubhai Panchal	Civil Engineering	171360106002
Sarthak Shantilal Varde	Civil Engineering	171360106008
Parthav Mukeshkumar Modi	Electrical Engineering	181363109003

COLLEGE NAME: M.K College Of Engineering, PATAN

NODAL OFFICERS NAME: Prof. Jahnavi Raval

COLLEGE LOGO:

YEAR:2020-21

GUJARAT TECHNOLOGICAL UNIVERSITY
Chandkheda, Ahmedabad– 382424 Gujarat

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CERTIFICATE

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

Detail Project Report on,

VILLAGE: NAYTA
DISTRICT: PATAN
Under

Vishwakarma Yojana: Phase-VIII

In partial fulfillment of the project offered by

GUJARAT TECHNOLOGICAL UNIVERSITY, CHANDKHEDA

During the academic year 2020-21
This project work has been carried out by them under our supervision and guidance.

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ABSTRACT

Title: "Vishwakarma Yojana: Phase-VIII An Approach towards Rurbanization for Nayta Village, Patan District, Gujarat".

Today world is growing fast, thus facilities, living standards are increasing very much so in development of urban area villages are stay behind to give attention for development. So today's biggest, issue is migration from rural area to urban area. Therefore, in Vishwakarma Yojana Phase-8 we will find rural current issues and problems, listing out existing amenities and give best economical solution. We will give planning proposal of Physical Infrastructure, Social Infrastructure & Socio-Cultural Infrastructure facilities with method of giving Redesigning, Reimaging, Repair & maintenance, and Sustainable planning for basic need of village like government buildings, schools, health facilities, water supply and sanitation, waste disposal management system, electricity, road networks, irrigation facilities, community hall, Recreational Garden and Playground, Sports zone, rainwater harvesting system, Solar energy utilization and other non conversation energy sources utilization etc..All this done consulting with villagers, local revenue authorities, Sarpanch, TDO and DDO for future needs of the village keeping in mind the need of today's, future targeted population growth, growth of surrounding town or taluka places etc. We will give best planning proposal and best economic & sustainable solution for serving society directly or indirectly for nation with this VY project and make Nayta village near Sihori, Dist. Patan.

Key Words: Ideal Village Surveys, Techno-Economic Survey of Village, Data Collection, List out existing Facilities, Gap analysis, Making Rurbanization by Redesigning, Reimagination, Repair & Maintaining, Sustainable Planning, Give Economical Design planning proposal.

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Chapter 1. Ideal village visit from District of Gujarat State

1.1 Background & Study Area Location

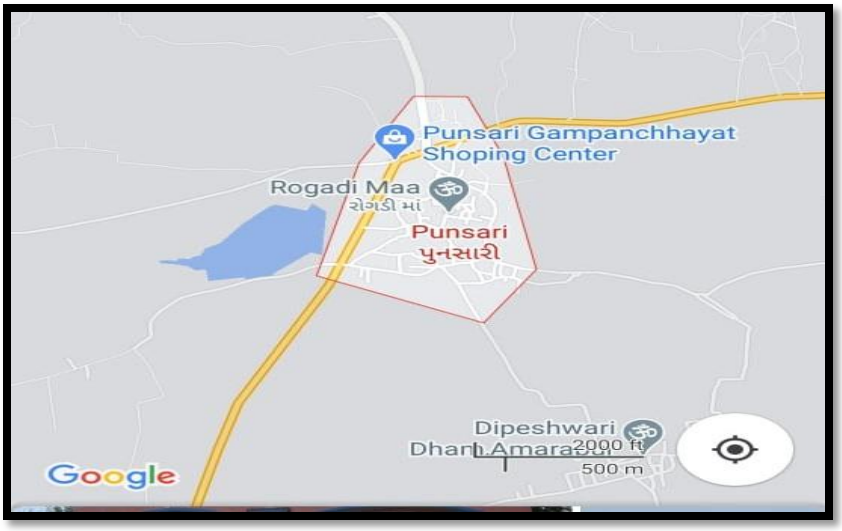
For better understating the needs of village and to learn the work already done in some of the ideal villages, site visits are planned for the students by the institute in which a representative of the village explain the way of working, difficulties and solution to develop infrastructure facilities in their village with the scopes and future plans. For on experience of Adarsh Gram and amenities available at the this village, 3 students working in Vishwakarma yojana from M.K college patan visited award-winning village Punsari, dist. Sabarkantha. The village has received several awards from government of Gujarat and India like best Gram Panchayat award and Nirmal Gram Puraskar. Village showcases development of rural area with vision and mission of gram panchayat.

On 5th March 2021, We Visited Village Name ―Punsari. Punsari Village Located At Sabarkantha District In Gujarat. The Sarpanch Of Punsari Village Name Is Himansu Patel. The Village Follows The Panchayat Raj System. Many Advanced Technology Used For Various Purpose In This Village. Many Facilities Developed In This Village And That Makes This Village As ―Ideal Village‖. Various Facilities Like Hospitals, Schools, Post Office, Banks, Panchayat Office , Water Tank, Bank, etc.

Punsari Village is Located at sabarkantha District In State Gujarat.It Is Located From 80 Km From Capital Of Gujarat.

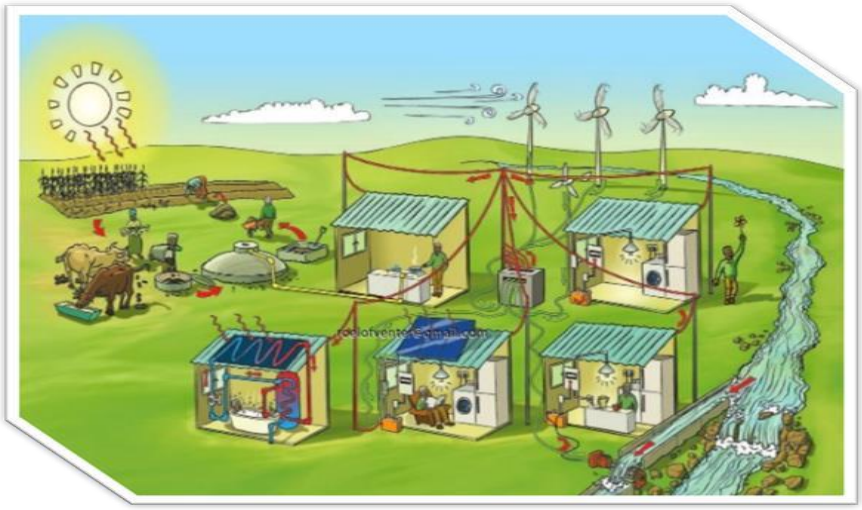
The population of punsari village is 5500 as per 2011 census of Gov. of India. Punsari is a village located in Sabarkantha district in the state of Gujarat, India. Punsari is considered as India's smartest village. The village is located at about 80km from the state capital, Gandhinagar. Punsari is 20km from Parvati Hills. Parvati Hills is the largest table top land of India. The village follows the

Panchayati raj system. The village extent is about 65 km



The land in use of agriculture is 6 hectares. The main non farming activity is dairy in this village. The village has undergone a transformation under the panchayat. There has been use of new and advanced technology in education. This village has wi-fi connection for all people. Efforts have been made for the empowerment of women and increasing security in the village.

1.2 Concept: Ideal village, Normal village



❖ **Ideal village**

The People of an ideal village should be honest and hard-working. They should possess qualities like tolerance to every faith and religion, brotherhood and unity. They should live like a large family and help one another in the hour of need. They should have a sense of discipline and a spirit of service before self.

Smart Villages is a relatively new concept within the realm of EU policy making. The emerging concept of Smart Villages refers to rural areas and communities which build on their existing strengths and assets as well as on developing new opportunities.

❖ **Normal village**

Around 70% of the State's population is living in rural areas. People in rural areas should have the

same quality of life as is enjoyed by people living in sub urban and urban areas. On account of poverty, unemployment, poor and inadequate infrastructural facility has caused migration of the rural people to urban. Hence, created slum in this region consequently social and economic tension has resulted urban areas. Hence, rural Development which is concerned with economic growth and social justice, improvement in the living standard of the rural people by providing adequate and quality social services and minimum basic needs becomes essential.

The present strategy of rural development mainly focuses on provision of basic amenities and infrastructure facilities through innovative program of wage and self-employment. For economic improvement of local people the above goals will be achieved by various program being implemented creating partnership with communities, non-governmental organizations, community based organizations, institutions.

The Government's policy and program have laid emphasis on poverty, generation of employment and income opportunities and provision of infrastructure and basic facilities to meet the needs of rural poor.

1.2.1Objectives

• The main aim of the project is to provide urban amenities in rural areas and maintaining the rural soul.

• To provide basic infrastructure facilities like transportation facilities, primary health care facilities, government sectors like ATM facilities, post offices etc.

• To facilitate enough power supply system for whole village.

• To retrofit and renovate the primary school facilities with smart technology.

• To provide biogas plant facility due to lots of milk production in the village and to utilize the bio product as fertilizers and electricity generation.

1.2.2 live Case studies of ideal village of Gujarat

The village is located about 82 kilometers north-east of Ahmedabad, the largest city of Gujarat, a state in the western region of India. Punsari falls within Sabarkantha district. The nearest railway station is 10 kilometers away. Name of the village is pronounced as –Punsari‖ by its people. According to last (2011) census of India, it has increased to 5500. About 98% of the population is engaged agriculture or dairy activities. Gujarati is the Local Language here. Punsari Gram Panchayat was established in 1955. However, it is mainly in last five years that the Panchayat work received significant attention and acclaim. Punsari‘s Panchayat has planned and implemented multiple projects for the complete transformation of the village. Effective functioning of these projects collectively has made Punsari a success story and a role model for others to follow.

The village administration has been bestowed with several awards in recognition of its exemplary

achievements But Punsari was not always a model village. Like many villages in India, it did not have proper roads. Shortage of safe drinking water was an acute problem. Electricity was available only occasionally. Street lights were non-existent. The sewage disposal system was ineffective. Sanitation was poor. To make matters worse, the gram panchayat did not have sufficient funds to bring in significant changes. The transformation from just another-underdeveloped-village to the role model village of the country was gradual. A serious exploration of this exceptional achievement brings out the positive role of rural leadership in this transformation.

Punsari is a model village today. On 20th October, 2006, Mr. Himanshu Patel was elected as village Sarpanch of Gram Panchayat with a margin of 300 votes. Since his election, Mr. Patel worked relentlessly on effective utilization of a host of welfare schemes sanctioned by state and central government, coupled with judicious management of available resources. Sustained efforts by the Sarpanch started showing results in the village. In 2011, Mr. Patel was re-elected with a higher margin of 1100 votes. In his second term, he continued his efforts to fulfill his vision of –Rurban‖ village. He described his vision as: –a village with a rural soul and amenities of a city‖.

1.2.3 The Idea of a Smart Village

- The idea of smart village comes through ― PRADHAN MANTRI AADARSH GRAM YOJANA‖. It was lounched by centeral government by 2009.
- The scheme was implemented in pilot mode in 1000 villages of assam, bihar, himachal pradesh, rajasthan ,tamil nadu .
- In this scheme all 100 villages allocation RS 10 lakha per village.
- Himachal pradesh launched a mukyamantri adarsh gram yojana similar lines in 2011,with alloction rs 10 lakh per village.
- Smart village refers to a concept developed in rural area that provides solutions to problems occurred and improves the qulity of life.
- Smart village concept emerged due to some diferent charateristics between rural and urban areas.

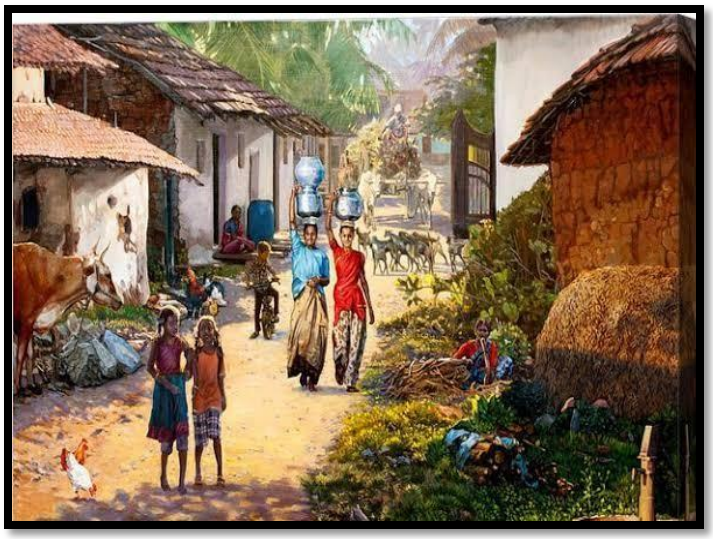
1.2.4 Ancient History Civil concept about Indian Village perspctive about village and its new develpoment

Mahatma Gandhi is often quoted as having said: ‒Real India lives in its villages.‖ The fact that in the early decades of the 20th century, India‘s urban segment constituted only 11 per cent of the total population gave strength to his argument. It was the villages in which 89 per cent of the population lived. That made India an agricultural country.

The development of Village India, for Gandhi, was the development of India. Illiteracy, ignorance, and poverty characterized the vast population of rural India. Gandhi organized mass movements to draw attention to the problems of the rural people, and also to involve the peasants in the freedom struggle. Social scientists also became interested in studying rural problems, particularly the deteriorating rural economy.

The growing rural discontent also worried the British Government. It felt the need to investigate the actually existing conditions. S.J. Patel, in his book Agricultural Laborers in Modern India and Pakistan, talks about the growth of village studies: With the end of the First World War, the beginnings of an agrarian crisis was accompanied by the entry of peasants into the political arena, as exemplified during the Champaran and Kaira campaigns led by Gandhiji. As a result, the cultivator of the soil began to attract consid•erable attention from students of Indian society. G. Keatings and Harold Mann in Bombay, Gilbert Slater in Madras, and E.V. Lucas in the Punjab initiated intensive studies of particular villages and general agricultural problems.

The results of these investigations evoked great interest and stressed the necessity for still further study. Economists and social anthropologists later joined the movement of village studies. In the 1950s, several studies of individual villages were undertaken. In 1955, four major publications came out, three of which were anthologies of articles written by social anthropologists/sociologists on the villages studied by them, and the fourth one was a full-length monograph – the very first and by an Indian social scientist.



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

1.3 Socio economic, physical, demographic and infrastructure details of Punsari–an Ideal village

A] PHYSICAL FACILITIES

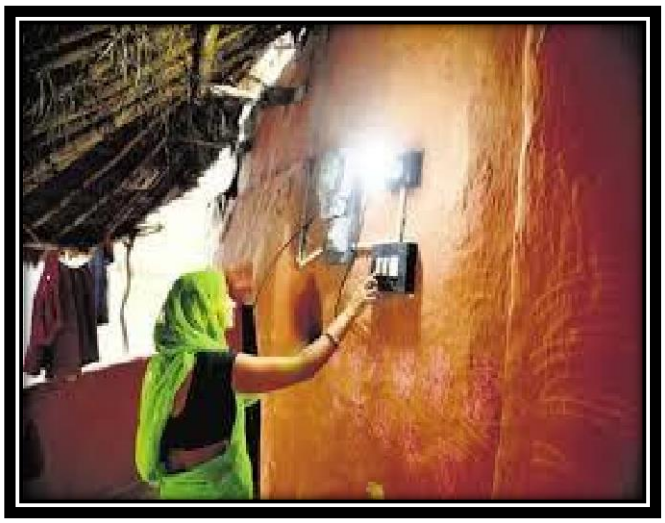
1. Road Facilities

In smart village good road facility must have. Road connect rural area with urban area . roads are provide transport facility and it decrease the time of transportation. Good roads give push up of village development.

Village road should be connected nearest city and major district road so villagers could easily reach nearest city. Roads have many types like national highway, state highway, major district road, minor district road, village road etc…

2 . Electricity

The electricity should be supplied 24 hour. The village should good facilities of electricity. Electricity also available for agricultural purpose. Various crops of field are depended on regular water supply and water supply is depended on electricity.



B. SOCIAL FACILITY

3. Food

Villager grows food for all people of country. They provide us fresh and healthy food. There are various types of village crops like weath, bajara, sugar cone, cotton, Etc…

Fig 1.3.3 Food

3.Drinking Water

Smart village should have good supply of drinking water. Water is necessity for human. There is enough tube well in the smart village.

4. Agriculture Facility

Smart village has small market for sell their crop at same palace so that transportation costs of farmers are reduced. Various farming technology machine should available for farmers in smart village.

5. Education Facility

Smart village has primary school, high school and craft school. Infrasture of school building has good and suitable as per Gov. Guide line. Proper education makes increment of rural power so that education facility is most important factor of any village.

1.4 SWOT analysis of Ideal village / Smart Village

Analysis is a strategic planning method used to evaluate the Strengths, Weaknesses, Opportunities, and Threats involved in a project or in a business venture. It involves specifying the objective of the business venture or project and identifying the internal and external factors that are favorable and unfavorable to achieving that objective. SWOT analysis provides a framework for visioning by helping the planners to identify and priorities the organization‟s GOALS and to further identifies the strategies of achieving them. SWOT analysis is a technique to analyze the Strengths, Weakness, Opportunity and Threats of a decision, problem ad place etc. In community development or urban planning SWOT is often used at community meeting to structure conversations about projects carrying out this analysis often illuminates what needs to be done and puts problems in to

prospective. A tool that identifies the Strengths, Weaknesses, Opportunities and Threats of an organization. Specifically, SWOT is a basic, straightforward model that assesses what an organization can and cannot do as well as its potential opportunities and threats. The method of SWOT analysis is to take the information from an environmental analysis and separate it into internal (strengths and weaknesses) and external issues (opportunities and threats). Once this is completed, SWOT analysis determines what may assist the firm in accomplishing its objectives, and what obstacles must be overcome or minimized to achieve desired results.

- **VILLAGE STRENGTHS**
  - Collective Strengths and unity of the villagers
  - Better natural resource base
  - Organized men and women groups/ institutions in the village
  - Availability of enough agricultural lands
  - Basic infrastructure
  - Good educational status of the villagers

- **WEAKNESS**
  - Poor health facilities

Communication gap between government and villagers

- **OPPORTUNITIES**
  - Use of modern techniques in agriculture, new cropping pattern and scope of irrigation in agriculture
  - Soil improvement by different institutions
  - Development of cash crops and horticulture in the village
  - Development of wastelands, abandon lands and other village lands
  - Promotion of different livelihoods opportunities in dairy, farming practices, horticulture, poultry, fisheries, candle making and other sectors.

- **THREATS**
  - Crop damage by wild animals
  - Low rain fall and dry season for crops

- Lack of funds and technical knowledge in agricultural fields

1.5 Future prospects of Development of the Ideal village

A Sustainnable Development:

Housing

Capacity Building Of Stake Holders

Live Hood
Drinking Water
Sanitation
Good

B Community Involvement:

Village Devlopment Planning

Monitoring Government Fund Utilization

Influsing Personal And Commuinity

C Technology:

Land Record Modernization
Pension
Space Technology In The Aid Of Farmer

D Connectivity:

Easy and Cheap Transportation

Digital Connectivity
Mobile Connectivity
Physical Connectivity to Town
Land Record Modernization
Financial Connectivity
Power ConnectivityInsurance
Pension
Space Technology In The Aid Of Farmer

1.6 Benefits of the visits of Ideal/Smart village

❖ **Services required for smart village**

1. Food security.
2. Democratic engagement

- Good governance,
- Social development.

3. Health welfare

- Environmental development
- Personal development.

4. Education - Basic knowledge for awareness.

5. Local business - economic development.

❖ Requirement Of Smart Village

1. Smart security.
2. Efficient public transportation system.
3. Improving sanitation conditions
4. Solid and liquid waste management.
5. Rain harvesting
6. Safe drinking water facilities.
7. Use of renewable energy.
8. Energy conservation.
9. Grievance redresser.
10. Strengthening CBOs.
11. Functional bank account.
12. Facilities regarding to the agriculture.
13. Latest& affordable medical facilities.
14. E-governance.
15. Use of modern technologies for improvement of locality.
16. Improvement on women empowerment.
17. Educational facilities.

❖ BENEFITS

1. Locally produced and locally consumed energy:

In villages if the mountains, hilly area are present then use of solar energy & wind energy then energy is produce in that village itself & use for development of village.

2. Creation of job:

Generally village people migrate from village to city for purpose of job. If village becomes smart so all the job requirements are fulfills & people not migrate from one place to another.

3. Contribution to global environment:

The system can reduce reliance on fossil fuels &contribute to reduction of greenhouse gases such as carbon dioxide .Energy consumption Optimization 25-30% average energy saving.

4. For farmer e-learning etc. facility that will be able to ask there Quarries online.

5. New technologies in education

E-learning, desktop publishing, horoscope generation of interested person of the village. Transportation of village into comfortable & safe space that enhance quality.

Smart Villages, or "Villages of the Future," are community-led initiatives that empower rural areas to overcome the digital divide between urban and rural areas through improved connectivity.

Countries around Europe are exploring ideas and initiatives around revitalising rural services through digital and social innovation. They're looking at how rural services – such as health, social services, education, energy, transport, retail – can be improved and made more sustainable through the deployment of Information and Communication Technology (ICT) tools.

By investing in a village's internet connection, it will be possible to establish coworking hubs which act as a communal office space for a community to work from.

Towns and villages experience cultural and economic growth and regeneration.

Villages become 'smart,' with improved internet speed and connectivity.

Villages become more attractive to foreign and domestic investors.

It provides greater opportunities for the jobseekers.

It solves many of the big societal challenges such as diversity, climate change and the sustainable provision of food, biomass and energy.

Villages become more attractive to future home-owners.

1.7 Civil and Electrical Concept of Ideal Village

Traditionally, rural development looked as a top bottom process. This view was further reinforced through centrally funded poverty alleviation and rural development programmes. In 2006, a young man, Himanshu Patel, was elected as village headman of Punsari. He hails from Chaudhary Patel Community. There was no model in front of him at the time of his election. He began with performing mundane and routine functions of the gram Panchayat. While doing his work, he realised that the village required urgent attention and a plethora of existing government schemes that were available could be a useful source of finance for development projects. He was clear that he would not beg for funds from corporate entities under their corporate social responsibility schemes or funds from non-

resident Indians (NRI). He knew that the revenue generated by the Panchayat was not the only source of finance. It was also not adequate for such programmes. Hence, it was necessary to rely on the funds coming from the state and federal governments.

The only challenge for him was how to establish a link between gram Panchayat and various existing government schemes. Currently some eighty-two different schemes for rural development are in operation in India. Himanshu Patel thought of joining the village system with these existing schemes and benefit from them. For example, under the Sarva Shiksha Abhiyan (Scheme for Education for All) central government gives funds to construct rooms, toilets, and buy educational material in primary schools. The task of the leader at the local level and the gram Panchayat is to mobilise the gram Panchayat members and village folks, to prepare a proposal, and apply for such schemes so that the money is granted to the village and that it can be used for the purpose of development in the field of education. Similarly, he consistently thought of identifying such schemes and ministries and departments which were already offering financial assistance in a variety of programmes for rural rejuvenation, and he declined to exhaust money generated by Panchayat through taxes.

In the past ten years, more than seventeen crore of rupees have been transferred in the form of financial assistance under various government schemes and programmes to this single village. Generally, criticism is levelled against our three-tier federal model in which government units at the grass roots have the biggest problem of financial crunch but this village stands out as an exemplar. The village head disproved the myth that money does not come from the state and central governments. He rather made a point that local level committed leadership, activism, and vision for rural development were required. Self-governance begins with first owning your work and responsibilities.

Finance is just one aspect of rural reconstruction. The bigger challenge is to take the team of elected representatives at the grass-roots level together and generate consensus amidst difference of opinions and actions. Himanshu Patel has successfully handled this situation as he sees village headman not merely as an elected representative but visualises him as a Chief Executive Officer of a particular village. He believes that a village headman should be available to his people 24/7. The rural transformation is not merely a process of changing the village physically but also changing the way village headman has to function. His model focused on a change in the people's beliefs and attitudes.

Chapter 2. LITERATURE REVIEW (Civil Concept)

2.1 Introduction:

1. RURAL

Rural areas are areas which are not towns or cities. They are often farming or agricultural areas.These areas are sometimes called "the country" or "countryside". People who live "in the country" often live in small villages, but they might also live somewhere where there are no other houses nearby.

Rural is the opposite of urban, which means places such as cities where buildings and places where people work and live are all close together.

A rural area is an open swath of land that has few homes or other buildings, and not very many people. A rural areas population density is very low. Many people live in a city, or urban area. Their homes and businesses are located very close to one another.

Researchers and policy officials employ many definitions to distinguish rural from urban areas, which often leads to unnecessary confusion and unwanted mismatches in program eligibility. However, the existence of multiple rural definitions reflects the reality that rural and urban are multidimensional concepts. Sometimes population density is the defining concern, in other cases it is geographic isolation. Small population size typically characterizes a rural place, but how small is rural? Population thresholds used to differentiate rural and urban communities range from 2,500 up to 50,000, depending on the definition.

Because the U.S. is a nation in which so many people live in areas that are not clearly rural or urban, seemingly small changes in the way rural areas are defined can have large impacts on who and what are considered rural. Researchers and policymakers share the task of choosing appropriately from among alternate rural definitions currently available or creating their own unique definitions.

2. URBAN

An urban area is an area where many people live and work close together. The population density is higher than in the surrounding area. It is where buildings are close together. Urban is the opposite of rural, where farm lands and nature are. Urban areas are usually cities and towns.

Most of the work available in urban areas is factory and office work. agricultural work is rare because buildings are close together and there is no space for farm lands.

An urban area is the region surrounding a city. Most inhabitants of urban areas have nonagricultural jobs. Urban areas are very developed, meaning there is a density of human structures such as houses, commercial buildings, roads, bridges, and railways. "Urban area" can refer to towns, cities, and suburbs

Urbanization in Republic of India was primarily caused when independence, thanks to adoption of mixed system of economy by the country that given rise to the event of personal sector. Urbanization is going down at a quicker rate. Population residing in urban areas in Republic of India, in keeping with 1901 census, was 11.4%.

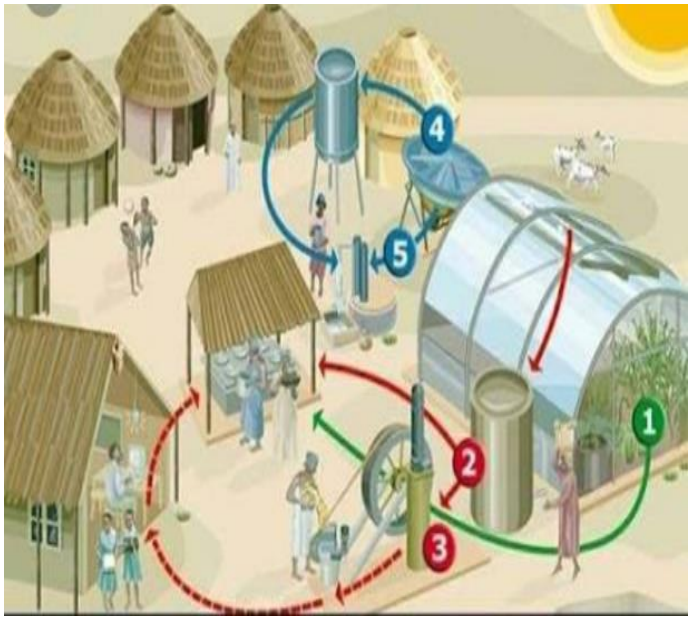
This count increased to twenty-eight. 53% in keeping with 2001 census, and crossing half- hour as per 2011 census, standing at thirty one.16%. in keeping with a survey by world organization State of the globe Population report in 2007, by 2030, 40.76% of country's population is anticipated to reside in urban areas

2.2 IMPORTANCE OF THE RURAL DEVELOPMENT

Rural development relates to the method of enhancing the quality of life and financial well-being of an individual

living in populated and remote areas.

Traditionally rural development is centred on the misuse of land natural resources such as forestry and agriculture. But today, increasing urbanisation and change in global production, networks have transformed the nature of rural areas.



Today, rural development still remains the core of the overall development of the country.
It has become more than two-thirds of the country's people is dependent on agriculture for their livelihood and one-third of rural India is still below the poverty line. Therefore, it is important for the government to be productive and provide enough facility to upgrade their standard of living.

Rural development is pretended to be noticeable importance in the country today than inthe 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.

2.3 Ancient Villages / Different Definition of: Rural Urban Villages

As a physical phenomenon, urbanisation takes two paths: through expansion of existing urban bodies by engulfing adjoining villages into their territory and through the independent transformation of rural areas into urban areas. Delhi is a classic example of urban sprawl caused by population growth. The urban village as an entity exists only as a concept. Administratively, it merges with the urban ward as soon it gets notified, but has starkly different characteristics from the rest of the ward. In the wake of current planning mechanisms, urban villages remain isolated and alienated entities to be exploited by property dealers, political power brokers and speculators. The pattern of development that emerges in these areas is haphazarded and chaotic. Uncontrolled

invasion of non-compatible land-uses and elimination of traditional interrelationships by outside and superfluous forces leads to the disintegration of the communities

2.4 SCENARIO: RURAL / URBAN VILLAGE OF INDIA POPULATION GROWTH

POPULATION GROWTH OF INDIA as per Census 2011:

Rural/Urban distribution: 68.84% & 31.16%

Level of urbanization increased from 27.81% in 2001 Census to 31.16% in 2011 Census.
As per the Provisional Population Totals of Census 2011, the total population of India was 1210.2 million. Of this, the rural population stands at 833.1 million and the urban population 377.1 million.

The total urban population in the country as per Census 2011 is more than 377 million constituting 31.16% of the total population.

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The statistic displays the main states and union territories with the highest number ofpeople living in rural areas in India in 2011.

In that year, the state of Uttar Pradesh had the highest population with over 155 million people living in rura
The government has started many programs aimed at improving the standard of living in villager rural areas.

To build rural infrastructure, the government launched a time-bound business plan for action Bharat Nirmanin2005. Under Bharat Nirman, action is proposed in the areas of Water Supply, Housing, Telecommunication and Information Technology, Reads, Electrification and Irrigation.

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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, and cantonment board or notified town area committees. According to census 2011, there are 7,935 towns, 4,041 statutory town and 3,894 census towns.

Rural: All the areas which are not characterized as urban area is called rural area. In which the populations 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 populations associated with agricultural activity is known as rural area.

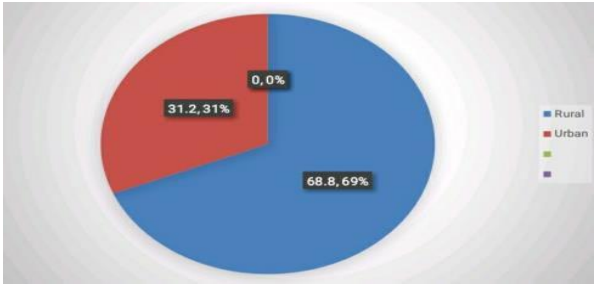


Figure 1: Population according 2011 Census

	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

2.5 SCENARIO: RURAL / URBAN VILLAGE OF GUJARAT AS PER CENSUS 2011 AND LATEST

The total population growth in this decade was 19.28 percent while in previous decade it was 22.48 percent. The population of Gujarat forms 4.99 percent of India in 2011. In 2001, the Figure was 4.93 percent.

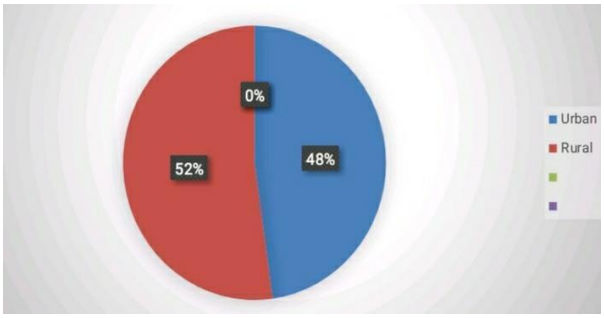


Figure 2: Rural and Urban population in Gujarat

For the Census of India 2011, the definition of urban area is as follows:

1. All places with a municipality, corporation, and cantonment board or notified
2. All other places which satisfy the following criteria:

- A minimum population of 5,000.
- At least 75% of the male main working population engaged in Non- agricultural.

Description	Rural.	Urban
Male.	81.61 %	90.98 %
Female	57.78 %	70.26 %

2.6 Rural Development Issues - Concerns – Measures

Problems and challenges are integral to the existence of the individuals as well as the communities. In rural areas, individuals and communities are experiencing number of problems and challenges, which are proving to be major impediments within the course of meeting livelihoods opportunities. The major problems are, poverty, illiteracy, unemployment, homelessness and crime and violence. The individuals get effected by either one or more of these problems, which are having unfavorable consequences within their overall quality of lives. Poverty is characterized by lack of resources, when the individuals do not possess adequate financial resources; they are unable to fulfill their needs and requirements.

The prevalence of illiteracy is common among rural individuals, apart from poverty, there are number of causes, leading to illiteracy. Lack of literacy skills, education and awareness leads to an increase in unemployment. Homelessness among rural individuals takes place due to unaffordable housing, when they lose property, wealth and housing due to the occurrence of natural calamities and disasters and so forth. Prevalence of crime and violence is common in households as well as in other places, such as, schools, market places and so forth.

For India's economy to be strong, the rural economy needs to grow. Rural areas are still plagued by problems of malnourishment, illiteracy, unemployment and lack of basic infrastructure like schools, colleges, hospitals, sanitation, etc. This has led to youth moving out of villages to work in cities.

Poverty is largely a rural problem. More than 75 percent of the world‟s poor live in rural areas and a majority of the poor will continue to live in rural areas well into the 21st century. Although internationally comparable statistics on rural poverty are limited, it is clear that in virtually all developing countries, the rural poor outnumber the urban poor, often by a factor of two or more .

The rural poor suffer deeper levels of poverty than their urban counterparts and have much more limited access to basic social services such as sanitation, safe water, health services and primary education; thus they suffer disproportionately from hunger, ill health and illiteracy. In many countries, furthermore, the income gap between urban and rural areas is widening. Clearly, the rural poor face overwhelming obstacles in breaking the cycle of poverty.

Sustainable agricultural growth and rural development can be achieved. The key ingredients to this end include: (i) access or entitlement to assets (e.g. land, water, farm animals and technology); (ii) access to fair and competitive markets - both domestic and international - for farm products; and (iii) the necessary information and physical infrastructure to reach these markets. Governments have an important role to play in facilitating the development of and access to national agricultural assets and in correcting market failures and distortions to domestic markets.

The international agricultural trading environment. The current international trading context for agriculture affects rural development in developing countries in various ways, in particular through market distortions arising most often from subsidized competition from developed countries and from market access barriers to the agricultural exports of the developing countries.

In addition, attempts to reform international trade in agriculture by disciplining national policies may also constrain governments of developing countries in their efforts to promote agricultural growth, since they limit the types of support policies that may be implemented. The WTO negotiations on agriculture, therefore, are of

crucial importance to developing countries in their pursuit of sustainable rural development.

2.7 Projects / Schemes of Gujarat / Indian Government

Prime Minister Narendra Modi on Saturday virtually inaugurated three projects, including „Kisan Suryodaya Yojana" for the farmers in Gujarat.

Kisan Suryodaya Yojana: In a bid to provide a day-time power supply to farmers for irrigation, the BJP-led Gujarat government had recently announced the Kisan Suryodaya Yojana. Under this scheme, farmers will be able to avail power supply from 5 AM to 9 PM. The state government has allocated a budget of Rs 3,500 crores for installing transmission infrastructure under this scheme by 2023.

Major Government Sponsored Programmes of the Central Government

- Prime Minister"s Employment Generation Programme(PMEGP)
- Dindayal Antyoday Yojana National Rural Livelihood Mission(DAY NRLM)
- Dindayal Antyoday Yojana National Urban Livelihood Mission(DAY NULM)
- Prandhan Mantri Mudra Yojana(PMMY)
- Pradhan Mantri Awas Yojana(PMAY)
- Stand-up India Scheme
- Pradhan Mantri Gram Sadak Yojana(PMGSY)
- Mahatma Gandhi National Rural Employment Guarantee Act(MANREGA)
  Mid Day meal in schools
  National Livelihood Mission – Ajeevika
  Shyama Prasad Mukherjee Rurban Mission
  Rashtriya Gram Swaraj Abhiyan (RGSA)
  Rasthriya Swasthya Bima Yojana
  National Education Mission
  Umbrella ICDS
  Mission for Protection and Empowerment of Women
  Jobs and Skill Development

Environment Forestry and Wildlife

Urban Rejuvenation Mission: AMRUT and Smart Cities Mission

Modernisation of Police Force

Rural development aims at finding ways to improve rural lives with participation of rural people themselves, so as to meet the required needs of rural communities. The outsider may not understand the setting, culture, language and other things prevalent in the local area.

Rural areas need drastic changes in areas like infrastructure, credit availability, literacy, poverty eradication, etc. The schemes that are already in place with the aim of rural development need a new outlook and proper updating.

Rural development usually refers to the method of enhancing the quality of life and financial well-being of individuals, specifically living in populated and remote areas.

Traditionally, rural development was centred on the misuse of land-intensive natural resources such as forestry and agriculture. However today, the increasing urbanisation and the change in global production networks have transformed the nature of rural areas.

Rural development still remains the core of the overall development of the country. More than two-third of the country's people are dependent on agriculture for their livelihood, and one-third of rural India is still below the poverty line. Therefore, it is important for the government to be productive and provide enough facilities to upgrade their standard of living.

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

- Education
- Public health and Sanitation
- Women empowerment
- Infrastructure development (electricity, irrigation, etc.)
- Facilities for agriculture extension and research
- Availability of credit
- Employment opportunities

2.8 Government schemes, projects for village development.

Janani Suraksha Yojana (JSY) is a safe motherhood intervention under the National Health Mission (NHM) being implemented with the objective of reducing maternal and neo-natal mortality by

promoting

institutional delivery among the poor pregnant women. The Scheme has contributed immensely in increasing the Institutional deliveries among the BPL, ST and SC population. The progress of Scheme has been remarkable since inception and is expected to achieve good results in the years to come.

After Hon'ble Supreme Court's instructions, 500/- of JSY benefit is being paid 8 to 12 weeks before delivery without any age, parity and place restriction to BPL, SC & ST women and additional benefit (200/- for rural area and 100/- for urban area) are being paid to the beneficiaries before discharge from health facility. All JSY benefits are being made through bearer cheques only since Sept. 2010.

[FROM NHM.GUJARAT.GOV.IN]

Integrated Child Development Services (ICDS) scheme is world's largest community based programme. The scheme is targeted at children upto the age of 6 years, pregnant and lactating mothers and women 16–44 years of age. The scheme is aimed to improve the health, nutrition and education (KAP) of the target community. Launched on 2 October 1975, the scheme has completed 25 years of its operational age. The article describes in brief, the organisation, achievements and drawbacks of this national programme. It also suggests various thrust areas for its betterment and further improvement.

This scheme is a redesign of the already existing Adolescent Girls (AG) Scheme being implemented as a component under the centrally sponsored Integrated Child Development Services (ICDS) Scheme. The new scheme dramatically extends the coverage of the earlier scheme with significant content enrichment, strengthens the training component, particularly in skill development, aspects aimed at empowerment and enhanced self-perception. It also fosters convergence with other sectoral programmes, addressing the interrelated needs of adolescent girls and women.

The programme through its interventions aims at bringing about a difference in the lives of the adolescent girls. It seeks to provide them with an opportunity to realize their full potential.

Chapter 3.Smart Village Concept Idea and its Visit

The idea of smart village comes through ― PRADHAN MANTRI AADARSH GRAM YOJANA‖. It was lounched by centeral government by 2009.

The scheme was implemented in pilot mode in 1000 villages of assam, bihar, himachal pradesh ,rajasthan ,tamil nadu .

In this scheme all 100 villages allocation rs 10 lakha per village .

Himachal pradesh launched a mukyamantri adarsh gram yojana similar lines in 2011,with alloction rs 10 lakh per village.

3.1 Introduction: Concepts and Definitions

Human society is progressing with fast urge and accumulated various successes for making its sustenance. The civilization gone through for various changes affiliated to its development through different accelerators like green revaluation, science and technology, industrial development etc. The present era is intensified on Information and Communication Technology. The increasing population of the world makes it necessary to alleviate the cities and villages to serve in a smart way. Hence, the idea of Smart cities came into being. Smart Villages are the need of the hour as development is needed for both rural and urban areas for improved livelihood. The impulsive motive behind the concept on “Smart Village " is that the technology

.Now it's need of the hour is - integrated planning ,strategy, and above all monitoring and execution of the activities using proper governance models to work properly for the real future of emerging India.

Smart City

Smart city was an adaptive city, possessing high capacity to react; the key was on the adaptation and learning capacity, in which the citizens as the main roles in reacting, listening and receiving learning itself, this learning must be done within groups.

Smart city concept was operated in complex urban area, combined several complex infrastructures, human behavior, technology, social structure and politic as well as economy.

Smart city was more than digital city as it was able to connect the capital city physically with its social and develop the services and infrastructures of a better city by combining IT and politic vision to clear program for the city improvement and its services.

3.2 Vision-Goals, Standards and Performance Measurement Indicators

Vision of Smart Village

To accomplish the „Smart Village/Ward" status, the community, individually and collectively, will be empowered to take smart decisions using smart technologies and with the support of smart manpower and by managing to be self-sufficient.

- **Performance Measurement Indicators**

While there is a huge amount of indicator systems available to measure urban sustainability or performance on specific sectors, holistic indicator systems for smart city (project) performance measurement are still lacking. One reason for this might be that the concept of smart cities is not yet well established and it also covers issues that are rather difficult to measure. In CITY keys philosophy a smart city must be sustainable and therefore typical sustainability impact categories and KPIs can be found in the framework. The difference between smart and sustainable cities is that smart cities use innovative and integrated methods either technological or collaborative – to achieve the sustainability impacts. As a conclusion it is key to have in a smart city performance measurement framework both concrete output indicators that measure the implementation of certain measures (e.g. number of smart meters installed) and impact indicators that measure the progress towards the overall targets (e.g. GHG emission reduction). Also both quantitative and qualitative indicators are needed to capture the concept of smart city in its full extent. CITY keys framework has been co-developed in close collaboration with its main target group, i.e. cities, which is expected to ensure its usability in

practice. The development of the framework remains, however, at theoretical level, and still needs to be tested and validated in real case studies that will take place in CITYkeys project. One purpose of the CITY keys framework is to allow the assessment of lighthouse projects" performance which also still remains to be tested. However, the reception of the framework both at practical city level as well as political level has been already extremely positive.Several

policy actors have already adopted CITYkeys framework or KPIs in their work

3.3 Technological Options

Smart cities are cites where everything is connected to each other and this is highly depended on technologies. So let‟s have a look at six technologies crucial for smart cities.

Smart city

1. Information and Communication Technology

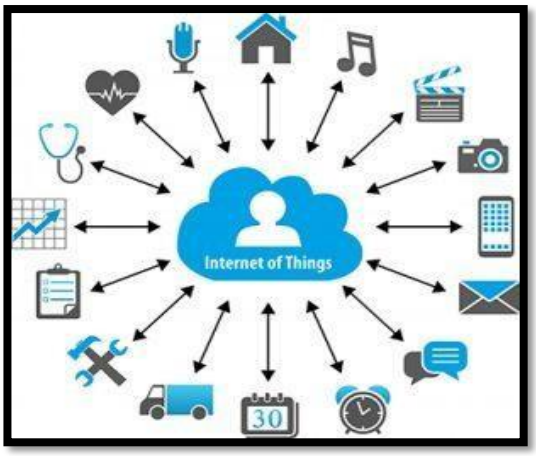
Creating a two-way communication channel is very important for a city to be smart. And here comes the role of Information and communication technology. ICT builds a bridge between the citizens and the government where the citizens can interact with the government and in return, the government can build a city which the choice of its citizens. ICT helps the government to analyze the demand pattern of the state and thus create a pool of resources to address the same online. The electronic medium of communication in a community helps in creating a collective intelligence which can be deployed for resource optimization with the help of analytics and deep learning.

information and communication

2.Internet of Things

Internet of things is like veins of the city spread all across and connecting each dot. Every device that is part of a smart city needs to be connected to each other

so that they can talk amongst and can take decisions for themselves which in return allows managing resources of a megacity population. This is where the IoT comes in, providing the perfect template of a body of communicating devices that provides smart solutions to everyday problems. All smart solutions in smart cities are based on Internet of things where they are connected and smart enough to decide their action.



3.Sensor

Sensors are hidden but ubiquitous components of the urban landscape. Sensors are a crucial component of any intelligent control system. A process is improved based on its environment and for a control system to be aware of its environment, it is typically fitted with an array of sensors, from which it collects the required data. It then uses the appropriate variables to characterize its environment and adjusts its operations accordingly.

Sensor

The availability of a multitude of different sensors and continuously evolving technology enables applications that were infeasible in the past due to high costs and limited availability. Sensors are like converters which convert parameters of a physical nature to an electronic signal, which can be interpreted by humans or can be fed into an autonomous system. These signals for conventional sensors, amongst others, include light, pressure, temperature, humidity, moisture and a variety of other parameters.

4.Geospatial Technology

Whatever is built in a smart city has to be right and so to build right a right plan is the need which is

sustainable and this requires accurate, concise and detail data and here comes the role of Geospatial technologies which provide the underlying foundation and ultimately the fabric upon which solution can be built. It provides location which allows pinpointing exactly on the need so that better solution can be applied to it. Geospatial technology provides a necessary framework

3.4 Road Map and Safe Guards

The main goal of this roadmap is to promote the development of sustainable, productive and resilient cities and communities.

The roadmap is to serve as a:

Guidebook: Describing the possible positive societal effects of smart city initiatives and identifying key opportunities, challenges and issues.

Bridge Builder: Defining smart cities in a Norwegian context and using this definition to establish a common set of values that promote collaboration and co-creation across all sectors, professions at all levels and, in particular, together with the public.

Value Creator: Aiming to contribute to renewal and innovation in the public sector. It describes the link between smart cities and urban and community development. It also shows how local and regional authorities can be the driving force behind this transformation.

Platform: Positioning Norway within the smart city context. It serves as a communication platform both internally and externally and stimulates the development of innovative, multidisciplinary solutions that can be scaled, thereby promoting value creation.

This first version of the roadmap provides a framework for smart city initiatives in Norwegian local and regional authorities, describing overriding principles and visions. In the next phase, the roadmap will be expanded with recommended measures, tools and best practices.

3.5 Issues & Challenges

Smart cities face challenges and opportunities

- Technology challenges with coverage and capacity.
- Digital security.
- Legislation and policies.
- Lack of confidence or reluctance shown by citizens (lack of clarity around benefits).
- Funding and business models.
- Interoperability.
- Existing infrastructure for energy, water and transportation systems.

Smart City

3.6 Smart Infrastructure - Intelligent Traffic Management

In present-day times, the number of vehicles has increased drastically, but in contrast, the capabilities of our roads and transportation systems still remain underdeveloped and as a result, fail to cope with this upsurge in the number of vehicles. As a consequence, traffic jamming, road accidents, increase in pollution levels are some of the common traits that can be observed in our new age cities. With the emergence of the Internet of Things and its applicability in Smart Cities, creates a perfect platform for addressing traffic-related issues, thus leading to the establishment of Intelligent Traffic Management Systems (ITMS).

One of the key components in smart cities of the future is the use of Advanced Traffic Management Systems (ATMS) and Advanced Traveler Information Systems (ATIS) for efficient management and control of traffic flows. The purpose of the ATMS/ATIS is to improve the overall traffic system performance, e.g. reducing emissions, noise and travel times.

In order to manage and control traffic flows, the conditions of the road traffic have to be captured. The road traffic state can be described using speed, flow and density on a specific segment of the road. The length of the segment might vary depending on the geometry of the road. When estimating the traffic state, different types of traffic models are commonly used. However, the models can not include all aspects of the real system, and in order to have a good representation of reality the models have to be combined with measured data of the traffic state, e.g. traffic counts and speed/travel time measurements.

Today, most existing ATMS/ATIS rely on fixed point (eulerian) measurements from loop and radar detectors. Eulerian sensors can collect observations in terms of flow, speed and occupancy, but are unable to provide any trajectory based measurements (lagrangian measurements), such as direct trip observations or travel times on routes, which can contribute even further to the understanding of the behavior of the traffic flow. Already, cities generate large amounts of space-time location data from different systems, such as cellular networks, social networks and

participatory sensing. When eulerian sensors are combined with lagrangian sensors available in connected vehicles and user devices, the possibility of observing large scale mobility patterns will dramatically change. Massive amounts of lagrangian sensors enable a new era of road traffic sensing, making it possible to directly observe trips for a much larger penetration than before. These observations enable a new dynamic understanding of experienced travel times, as well as departure time, mode and route choices, which relate to the travel demand. If detailed data is available, activity patterns on individual level can also be captured.

3.7 Cyber Security and Green Building

1. Cyber Security

Encryption of data: Encryption is the conversion of electronic data into cipher-text which cannot be easily understood by anyone except authorised parties. Sensitive data need to be protected with (preferably strong) encryption at-rest and in-transit. Encryption guarantees data confidentiality as it protects against unauthorized access (*e.g.* wiretapping).

- **Deploy network intrusion detection systems:** (Network) intrusion detection systems inspect all inbound and outbound network activity and identifies suspicious patterns that may indicate a network or system attack. To perform efficiently, network intrusion detection systems shall be configured appropriately (e.g. monitor key data exchange, know authorised connections…)
- **Deployment of physical protection:** Physical protection aims at limiting tampering and unauthorized access to the physical infrastructure. Physical protection measures include locks, alarms, surveillance equipment, sensors, access control systems, etc. It is particularly important to protect equipment not located in a secure location (*e.g.* Field equipment).

- **Access control:** Access controls refer to the methods by which a systems grants/denies access approval to a subject based on the successful authentication. Access control is usually a combination of physical measures (*e.g.* key, lock) and logical measures (*e.g.* authentication, access-control list). Access control limits unauthorized access and provides evidences in case of tampering.

Cyber security

- **Alarms and surveillance:** Surveillance refers to the monitoring of behavior or other changing information. Alarms give a signal when a problem or a specific conditions occurs. Alarms need to be defined according to the security requirements. They monitor key performance indicators and can alert of a threat. For enhanced security, alarms are associated to organizational procedures.

- **Implementation of an information security policy:** Information Security Policy/Framework is implemented to effectively manage information security throughout an organization. Such policy defines for example the elements to protect, the procedures to follow, the organization of security. A common example is ISO 270001.26

- **Creation of activity logs:** Activity logs, audit trails, and error logging record actions onto a log file. These log offer evidence and analysis capacity in case of an incident. They provide a good indicator of what happened and how a threat materialized effectively.

- **Maintenance of backups:** Maintain backups of data, ideally in secure off-site servers that allow for data recovery in the case of corruption/loss. Proper maintenance of backups ensures that data recovery retains integrity (*i.e.* no loss of data).

- **Regular auditing:** Regular auditing is an inspection or examination of infrastructure (digital or physical) to evaluate or improve its appropriateness, safety, efficiency, or the like. Audits usually provide a report that points out weaknesses/vulnerabilities and proposes remedial actions.

2. Green Building

A 'green' building is a building that, in its design, operation or construction, reduces or eliminates negative impacts, and can create positive impacts, on our climate and natural environment. Green buildings preserve precious natural resources and improve our quality of routine life. The Green Building practice expands and complements the classical building design concerns of economy, utility, durability, and comfort.

The common objective of green buildings is to reduce the overall impact of the built environment on human health and the natural environment by:

- Efficiently using energy, water, and other resources
- Protecting occupant health and improving employee productivity
- Reducing waste, pollution and environmental degradation

Green House

Advantages of green buildings

1. Cost:

The construction costs are the same as a standard building and sometimes they cost a little bit

more as they require special materials to be built. However, regular building costs won‟t stop after its construction since money will always be spent on maintenance, renovation, operation, or even demolition.

This doesn‟t mean that green buildings won‟t need maintenance, renovation, operation, or even demolition as well, but is built of natural resources all that re-doing stuff will take ages till done as they are not damaged that fast hence, investing in green building is 10 times more profitable than standard ones.

2. Efficiency:

This here is divided into the following:-

A- Water efficiency:

Green buildings don‟t know the meaning of "wasted", they recycle rainwater and greywater and use them for toilet flushing for instance.

B- Energy Efficiency:

These buildings save energy more than those built out of bricks. They only depend on all renewable energy resources such as solar power, hydro-power, and wind power which are used for heat and electricity and help improve the indoor air quality.

C- Material Efficiency:

Green buildings are built from natural, non-toxic and recycled materials that don‟t cost much and Eco-friendly such as bamboo, straw, recycled metal or concrete..etc.

3. Preserving infrastructure:

Being efficient in both energy and water supply, these buildings stretch the capacity of local infrastructure greatly.

4. High ROI rates**:**

Considering that these buildings are all-natural, they have a huge return on investment rates and

properties in these buildings sell at high prices.

Disadvantages of green buildings

1- Location:

Since these buildings depend on the sun for energy, they need to be located in a position that will have the best sun exposure which may demand placing them opposite to other neighborhood homes.

2- Availability:

The materials to build such buildings can be hard to find especially in urban areas where preserving the environment is not the people‟s first option.

3- No air cooling features:

These buildings run on heat to generate power, so they are not designed for hot areas as they do not have any ventilation systems, so air conditioners will be required which will make these buildings anything but Eco-friendly.

4- A long time to construct:

Buildings require a longer time to be built and designed: Green building designs adopt a special method that takes into account the surrounding environmental conditions.

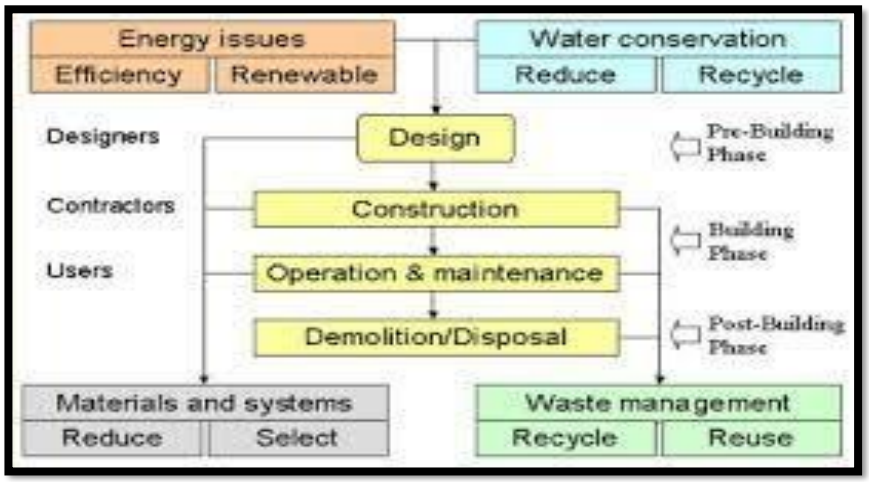
5- The cost of construction:

This is because at the present time the construction of green buildings requires a greater cost than regular buildings because they depend on a lot of natural materials, which may not be available at all times and places.

- **Process:**

- The green building is not a bolt on conventional building but is instead an integrated discipline of design that requires a different way of thinking.
- Building a green Building is more than a matter of assembling a collection of latest green technologies or material. It is a process in which the elements of design are first optimized and then integrated as part of whole building solution.

- By blending the right mix of green technologies that cost less with green materials it is possible to have a project not much expensive than the conventional ones.
- More emphasis on adopting the right building science and less dependence on high-cost building technologies A better scientific understanding of the way buildings work and avoiding high technological sophistication.



Green Building Design & Construction - A Developer‟s Perspective

3.8 Retrofitting- Redevelopment- Greenfield Development District Cooling

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.

3.9 Strategic Options for Fast Development

There still isn‟t much of a consensus on how to define the term "smart city." Most explanations of the term, however, describe using information technology, most notably the Internet of Things, to improve how cities are run and the quality of life for residents. The Smart Cities

Council, a for-profit industry-led organization, states that a smart city harnesses information and communications technology to improve livability, workability and sustainability. In essence, a smart city uses connected sensors and information technology to improve the quality of life of residents.

The underlying idea of using technology to improve the quality of life may be simple, but it's also an abstract and partly subjective concept. A vast range of cities across the world are attempting to deploy IoT technology to reimaging urban living and are adopting an array of strategies to do so. As a result, it isn‟t clear when a city deserves the "smart" moniker. At present, "smart city" seems to be more of an inspirational term than a reality, although many cities are making quick progress in deploying cutting-edge information systems that are beginning to up the IQ of their municipalities.

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

The seriousness of the challenges associated with urban water supply and sanitation in India have been recognized in recent times. After decades of neglect, the first national effort to invest in the urban water and sanitation sector commenced in the 1970s, but was accorded considerable priority in the subsequent two decades as a part of different national- and state level schemes, culminating most recently in the „Swachh Bharat Mission". As most of the recent reports and commentaries, (M. Shah (2013) have highlighted, the problems of the urban water and sanitation sector in India are complex and shall need concerted efforts to sustain the policy momentum.

While the concerns of urban water and sanitation are faced in many countries in the global South, the scale of gaps in access and services in India poses a dilemma. According to the 2011 census, India has a total population of 1.21 billion, which is an addition of 181 million people during the decade of 2001–2011 (Census of India, 2011b). Although only 31.16 per cent of India is urban according to the Census of India, at 377 million, India‟s current urban population is larger than the entire population of United States which is the third most populous country in the world. As recent commentators have highlighted, if India fails to meet its MDG or the emerging SDG targets, the global targets would not be met.

3.11 Initiatives in village development by local self-government

1. Social workers.
2. Development by NGO.
3. Trust base organizations.

3.12 Smart Initiatives by District Municipal Corporation

1. Solid waste management.
2. Selvedge water disposal.
3. Effective road transportation.
4. Maintained street light facilities.
5. Agriculture awakening center.

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

1. PMGSY

• The Pradhan Mantri Gram Sadak Yojana (PMGSY) was launched by the Govt. of India to provide connectivity to unconnected Habitations as part of a poverty reduction strategy. Govt. of India is endeavoring to set high and uniform technical and management standards and facilitating policy development and planning at State level in order to ensure sustainable management of the rural roads network.

2 PMAY

• Pradhan Mantri Garmin Awas Yojana, previously Indira Awaas Yojana, is a social welfare programme, created by the Indian Government, to provide housing for the rural poor in India.

2. MGNREGA

- This yojana launched at 2nd Feb 2006.
- Mahatma Gandhi Employment Guarantee Act 2005 is an Indian labour law and social security measure that aims to guarantee the 'right to work'.

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

The meaning of the word _environment‘ is the surrounding of an organism. It is define as the condition of air, water, land, and other things surrounding us.

By definition, environmental factors affect large groups that share common living or working spaces.

Thus, they are key candidates as explanatory factors for health differences across geographic areas, such as countries.

Indeed, a major motivation for the research on environmental determinants of health has been the repeated observation that many health outcomes are spatially patterned.

With the Smart Cities' programme well underway, it was merely a question of time before the need for Smart Villages came on the radar, given the statistical predominance of the latter. As per data from Census 2011, 69 per cent of the nation's population (around 833 million) resides in the rural region, while only 31 per cent (approx. 377 million) live in urban areas. If we are seeking to take the nation forward it will clearly have to involve the development of the rural area. If we are to move forward towards the goal of a developed nation, then smart villages will be a critical component of that milestone.

Today, the rural population is reeling under the impact of shrinking of employment and wealth generation opportunities. The return of city labourers to their native villages is just one manifestation of the temporary reverse migration. Against this backdrop, the creation of Smart Villages could address several challenges in one go. Smart Villages could open up not only employment avenues but also raise living standards in villages where infrastructure is palpably absent. This is a crucial aspect that could stem conventional migration from villages to cities, which is putting pressure on urban infrastructure and leaving a huge social impact.

The importance of modern and Smart infrastructure is being recognised at both National and State Governments. For instance, in mid-February this year, the Government of Jharkhand launched its Momentum Jharkhand Global Investors' Summit 2017. Recognising that rural migration to urban areas is giving rise to various related problems, the Jharkhand Government is looking to build green-field Smart Cities, while simultaneously improving infrastructure in rural zones. The State Government feels it critical to stop migration to cities within and outside the state, it is necessary to provide civic amenities as well as jobs in the villages.

➢ The meaning of the word _environment‘ is the surrounding of an organism. It is define as thecondition of air, water, land, and other things surrounding us.

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➢ Thus, they are key candidates as explanatory factors for health differences across geographicareas, such as countries.

➢ Indeed, a major motivation for the research on environmental determinants of health has beenthe repeated observation that many health outcomes are spatially patterned.

Ecological factor of Environment:-

1. **Biotic factor:-**These include all living organism that interact with each other and their livingenvironment. For example, pant animal, bird micro-organism.
2. **A biotic factor**:-These include all living organism that interact with each other and their non-livingenvironment. Also called physical environment. For example light, water, air etc.
3. **Topographic factor:-**

➢ Mountains, plains

➢ Lack, Ocean, River

➢ Forest

➢ Desert

4. **Climate factor:-**

➢ Light, Temperature

➢ Humidity, rainfall

➢ Air movement, etc.

3.15 Electrical Concept

Elective wellsprings of energy are being sought after on the planet today, as the availability of petroleum products and other non-inexhaustible assets are declining. Sunlight based energy offers a promising answer for this hunt as it is a less dirtying energy asset and can without much of a stretch be changed over into power through the use of photovoltaic frameworks. It is a spotless, contamination free and sustainable power source. Model methodologies for an environmentally friendly power supply have been created and shown to meet the energy prerequisites of rustic individuals, while raising monetary efficiency adding to a practical improvement in everyday environments in country regions.

These likewise give contributions to additional provincial energy intercessions and they decrease

fossil fuel by-products by zeroing in on advances not founded on petroleum derivatives. Giving admittance to power in rustic regions of India is a significant test. The fuel is by and large of small quality, and energy is utilized wastefully; the force supply is questionable and admittance to it restricted, with around 500 million individuals in rustic regions still unfit to profit by present day energy administrations.

This not just adversely affects monetary profitability; all the more critically, it likewise influences individuals' personal satisfaction and is firmly affecting the climate. The impractical utilization of privately sourced biomass and an expanding reliance on petroleum derivatives are causing natural debasement at neighbourhood (land corruption), territorial (air, water and soil contamination) and worldwide levels (ozone harming substance – GHG discharges adding to environment change).

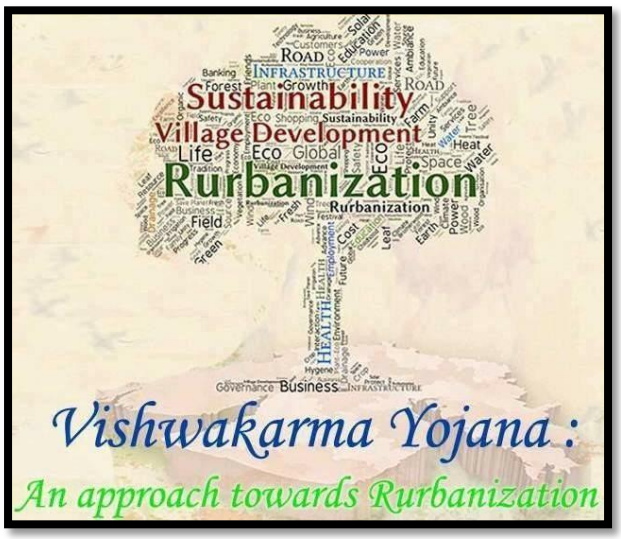
At a similar time, privately based estimates that utilization sustainable power sources to get the rustic force supply are opening up new freedoms for financial efficiency while likewise decreasing GHG outflows and nearby contamination.

This initiative is evaluating how to deliver energy access to rural communities so as to make smart villages a reality. Through a three-year programme of engagement activities in Africa, Asia and Latin America, it will help to ensure that policies and development initiatives are better informed on the realities, challenges and opportunities of rural energy provision for development in key sectors. The following paragraphs elaborate on some of the characteristics of smart villages that will be explored by the initiative.

Smart villages aim to increase the time available for students to study and will address prevalent factors that negatively affect the ability of students to acquire the knowledge and skills necessary to achieve economic goals and improve labour productivity. These include eliminating the need to spend time collecting traditional biomass, reducing respiratory illness caused by indoor air pollution, and ensuring that lighting is both safe and of sufficient quality.

Chapter 4.ABOUT NAYTA VILLAGE

4.1 INTRODUCTION



An initiative and prestigious project of Vishwakarma Yojana has allotted by Gujarat Technological University through Government of Gujarat.

VY project, first phase has allotted 85 villages and second phase has allotted 255 villges.

This is the eighth phase which is include also 250 village allotted to respective Institute and students of Civil engineering and Electrical engineering both in degree and diploma.

In all phase it is the aim that take details of village and done Techno- Economic Survey in all district of the state in terms of basic and public amenities, other infrastructural facilities for the need of people and to prepare detail project report on survey of the available data with reference to population of the village and growth of the area .Moreover, the next task is to give economical sustainable design for village development.

VY is providing that all real worlds experience and give technical knowledgeto develop infrastructure in villager for planning and management for villagers andusers ofit.

Nayta Village is in Patan District of Gujarat State, India.

As per census board of India 2011, Nayta village had a population of 6846, In which Males are 3564 and females are 3282.

- Area of village (approx. in hectare)- 1787.22 hector
- Nearest Bus Station:-Patan
- Nearest Railway Station: -Patan

4.1.2 NEED OF THE STUDY:

Generally every mind knows that Indian villages are not as developed as the facilities are possible. We know cities are more progressive than villages but there is agree to make a change incompare of cities.

Rurban development is the big idea which government has to ready for implementation. When we started

to discuss about development of rural area we realize that villagers. They should be ready to welcome various types of government project of villagers any project can go right. Rurban development is related to honesty of villagers. They should be ready to welcome various types of government project.

Government of Gujarat & Gujarat Technological University has establish the Vishwakarma Yojna to know the minimize problems of rurban people. Generally we know that many rurban people are face unexpected conflicts, because of their ignorance.

Government is ready to improve this all problem, if we provide proper sanitary system. We can remove unexpected garbage from the village.

Educational development is more support for rural ignorance, the village know his duty regularly we can stop such type of commodity. In sort the government improve all facilities in village.

The need of the study is to produce the essential necessities of individuals within the village and for Rurban Development of the village. For this purpose the data of the village is collected supported totally different classes like Education, Water Facilities, evacuation Facilities, Transportation Facilities, Primary Health Care, Bank Facilities, Public bathrooms, Community hall and alternative amenities.

4.1.3 Study Area

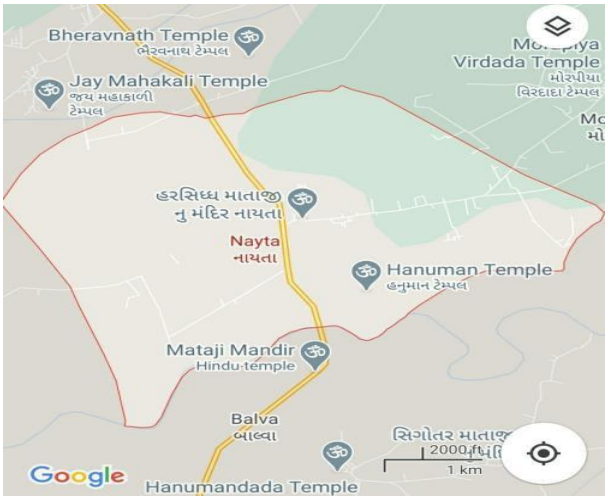


Figure 4: Nayta Village

The total geographical area of village is 1787.22 hectares. Nayta has a total population of 6,846 peoples.

There are about 1,218 houses in Nayta village. As per 2019 stats, Nayta villages comes under Patan assembly & parliamentary constituency. Patan is nearest town to Nayta which is approximately 15km away.

State: -Gujarat District: - Patan Taluka: - Village: -Nayta
Male Population: -3564 Female Population: - 3282 Population: -6846

The village has population in Panthawada mostly peoples are OBCs.

It has got a main road or approach road on the village about 1km long and 2.5m wide but this all road are in poor condition.

For drinking, water is available from nearest dam. In village 1 overhead tank and underground sump is available.

24 hr Electricity is available in Nayta.

In Nayta the availability of facilities are provided like taluka panchayat and primary school, dairy etc.

About the telecom facilities they are provided, every household having mobile facility. Drainage is under construction.
In nayta, peoples are not highly educated.

4.1.4 OBJECTIVES OF STUDY

The village on the way of high progress. The under drainage system is also on progress. If we provide this facility we can make model village.

Infrastructure facility like dam is existing in our village. By this facility the ratio of public health we can improve. This type of facility will uplift human life. Physical problem can be solve. We can compare the life style to the urban locality.

Renewable facility is more supportive for coming generation. By this we can improve lifestyle. Techno economy survey related task in our village is mostly related to farming. Cause surround area is totally empty and water table is at also at insufficient level.

4.1.5 SCOPE OF THE STUDY :

In Nayta by taking detail of village, scope of study In VY project the main scope are in two fields.

#Scope for Civil engineering Planning and Designing

-Techno-Economic Survey
-Preparation of map forVillage

-Redesigning and Reimagination Repair and maintenance of structure

-Infrastructure planning & development Quantity,estimation and surveying

-Rurbanization

-Economical solution for problems

- Improving Irrigation Efficiency

-Improvement in sanitation…+

#Scope of Electrical Engineering

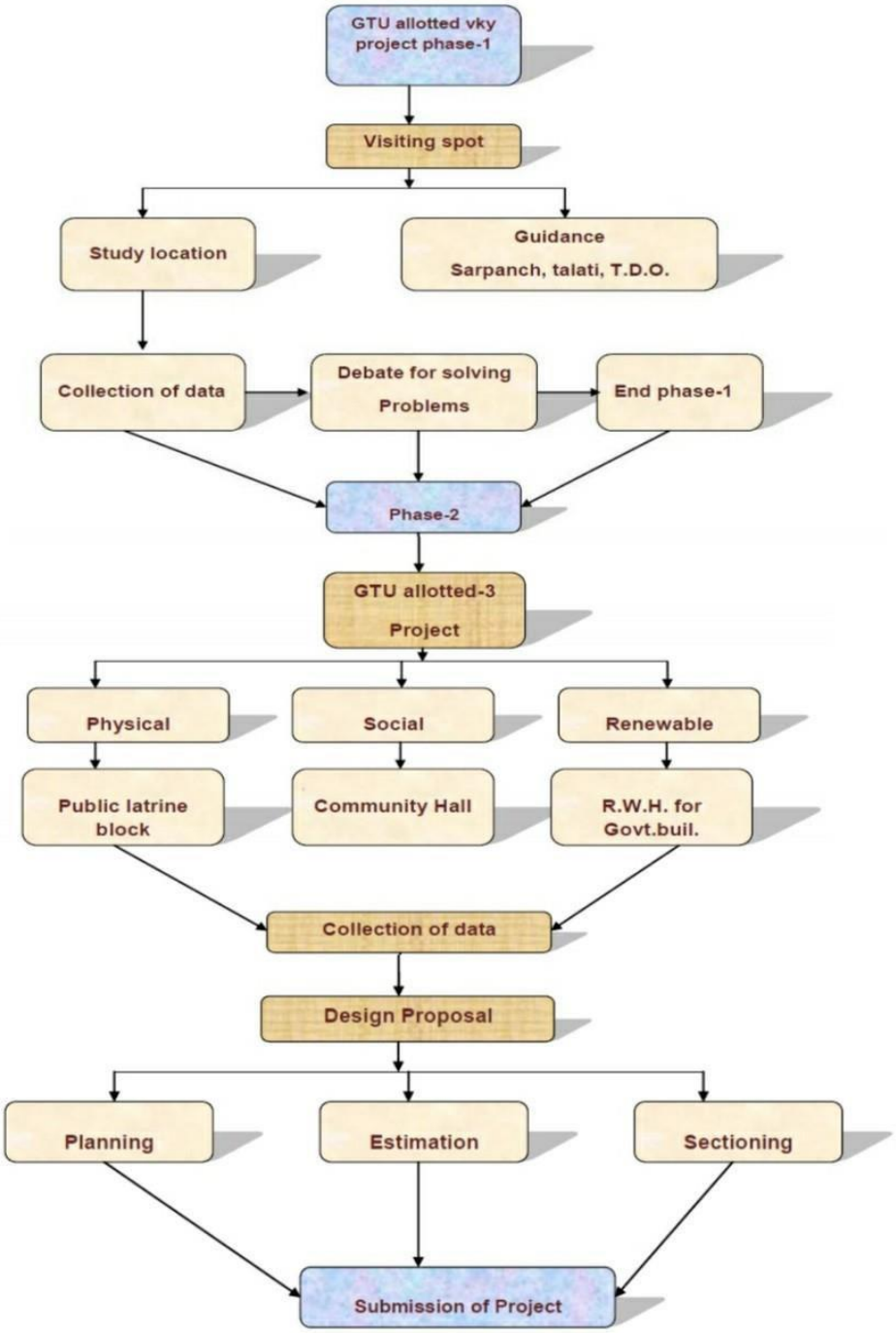
-Design, develop and provide more efficient and sustainable electricity in rural area

-Providing better connection of electricity in rural areas Telecommunication

Civil engineering is one of the most sought-after engineering disciplines, and perhaps one of the oldest ones too. The potential of infrastructure developments and advancements has led to the sizeable demand for civil engineers across all subsectors. As a result, civil engineering is emerging as a promising professional discipline with a wide range of applications and opportunities available across different industrial sectors.

Civil engineers basically deal with the designing, construction, and maintenance of the physical structures and built environments. One particular aspect of civil engineering that holds significant value when it comes to determining the potential of a civil engineer is structural design. The more a civil engineer is sound with the concept of structural design, the more impactful will be the physical built and sustainability of the structures built by him/her.

4.1.6 METHODOLOGY :



-Allocated village survey at Nayta village near Patan.

-Data collection.

-Gap analysis for facilities available as per allocated village and requirements.

-Techno-economic survey of Nayta village near Patan.

-SWOT analysis of Nayta village near Patan.

-Meeting with Villagers, Sarpanch, Talati, TDO &DDO.

-Consulting with all related to village and analyze problem faced by Nayta village.

-Gap analysis of Naytavillage.

-SWOT analysis of Nayta village.

-Finding best, economical & sustainable solution for problems as per UDPFI Guidelines.

-Best Proposanal Design for solving problem.

-Detail progress report and detail design done in final project report.

4.1.7 Available Methodology for development of related to Civil/Electrical

Techno-economic survey of villages: Collected all this essential information from village such as: Household data, Occupational detail, Water facilities, Drainage facilities, Sanitation availability, Storm water network, Solid waste Management facilities, Electricity Networks, Recreation facilities, Education facilities, Health Facilities', Transportation facilities, Road network, Irrigation system, Use of non-conventional energy sources, Migration rate, Literacy rate and other necessary data.

Development document preparation: Plan and estimates of proposed development by assessing gap analysis.

Detailed Project report (DPR): Preparation of development strategies and action plan.

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

→ Post Office

→ Library

→ Public Garden

→ Toilet Block

→ Community Hall

We can do some special efforts to increase production of pulses and root vegetable.

By implementing agricultural land ceiling, allocate left-over area and complete assembling of land records by eliminating all administrative and legal difficulties.

Also by Increase irrigation development, potential equipment and contributions for dryland cultivation.

We can supply mineral drinking water to all the village at minimal monthly cost.

By strengthening and expanding the handling of rural development and national rural employment programmes.

Allot house locations to rural families who are starved of them and develop packages for building support also.

Basic Necessities in Life – food, shelter, clothes, basic literacy, primary health care and security of life and property

4.2 NAYTA Village: Study Area Profile

4.2.1 STUDY AREA LOCATION WITH BRIEF HISTORY LAND USE DETAILS

As per Techno-economic survey collecting information from Sarpanch, Talati, and Villagers and by our team the land use detail or Geographical detail are asunder…

Table 3:- Land Description

Sr no.	*Description*	*Information/Detail*
1	*Area of village approx.(In Hectors)*	*1787.22*
2	*Forest Area approx. (In Hectors)*	*202.47*
3	*Agricultural Land Area approx. (in Hectors)*	*1404.09*
4	*Residential Area (in Hectors)*	*9.01*
5	*Other Area (in Hectors)*	*0.2373*
6	*Water Bodies*	*Check Dam and ponds nearerto villages*
7	*Nearest Town with Distance*	*Sariyad 7 km*

4.2.2 Village Location Map and land map

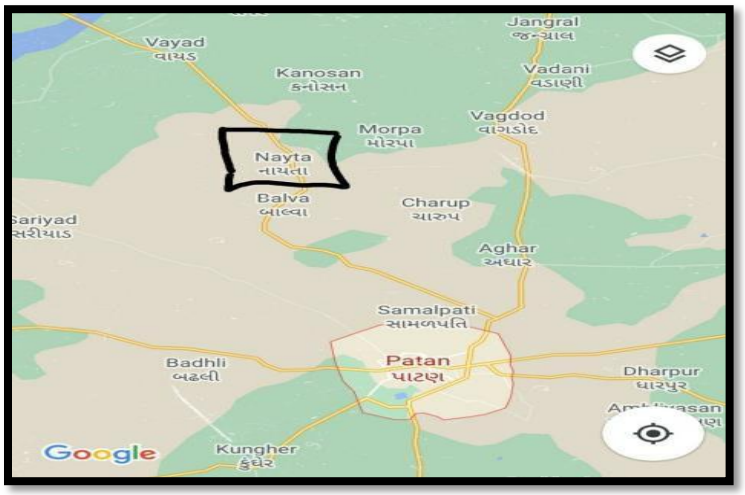


Figure 5:- Location of Nayta

Nayta village is situated on 21.923 latitude and 72.896 longitudes. Nearest town from Nayta villageis Sotavad,

it is 3.6 km away from Nayta.. Nayta Village is situated at Patan Taluka in Patan District of Gujarat State.

PIN: 384285

District: Patan

State: Gujarat

4.2.3 PHYSICAL & DEMOGRAPHICAL GROWTH :

Area of Nayta village (Approx.):- 1787.22 hectors.

Total Forest area (Approx):- 202.47 hectors.

Total agricultural land area:- 1404.09 hectors.

Residential area:- 9.01 hectors.

Other area:- 0.2373 hectors.

TABLE: 1 (DEMOGRAPHICAL DETAIL)

NO.	Census	Population	Male	Female
1	2001	5423	3045	2930
2	2011	6846	3564	3282

-Future population growth of nayta village will be 8215

Nayta is a Village in Patan Taluka in Patan District of Gujarat State, India. It is located 15 KM towards North from District head quarters Patan. 12 KM from . 117 KM from State capital Gandhinagar

Nayta Pin code is 384285 and postal head office is Wagdod .

Nayta Local Language is Gujarati. Nayta Village Total population is 6846 and number ofhouses are 1218. Female Population is 47.9%. Village literacy rate is 45.6% and the Female Literacy rate is 15.3%.

Bharatiya Janata Party , BJP , INC are the major political parties in this area.Polling Stations /Booths nearNayta.

1)Nayata-1

2)Nayata-3

3)Nayata-2

4)Nana Ramanda

5)Nayata-4

There is no railway station near to Nayta in less than 10 km.

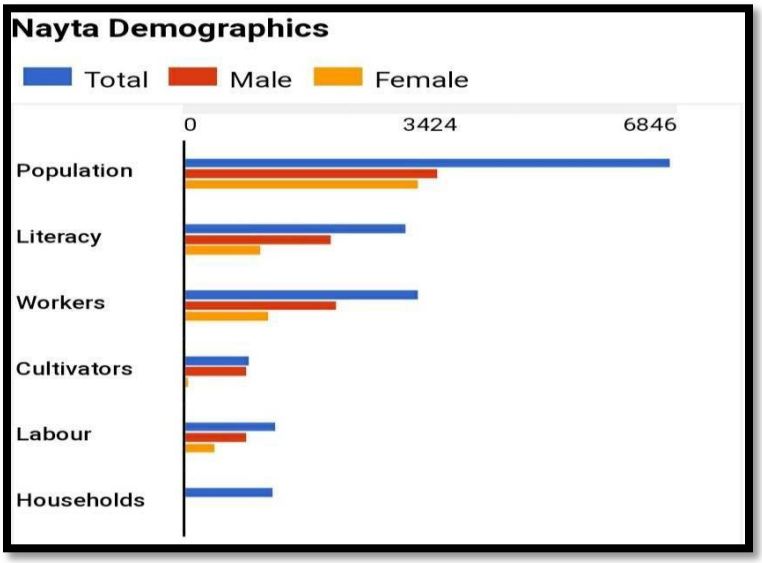


FIGURE 6: POPULATION GRAPH

4.2.4 ECONOMIC GENERATION PROFILE:

Three major occupation groups in villages:-

-Agriculture(70% of total population)

-Labour work(20% of total population)

-Business(10% of total population)

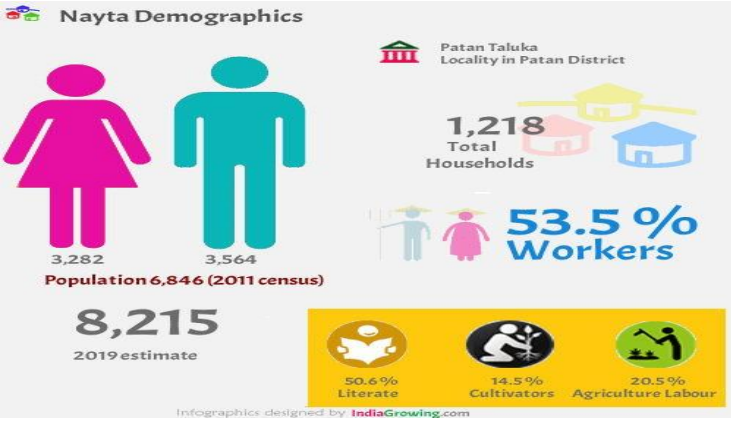
Majority Crops taken in village are Bajra, Wheat, and Cotton. Agriculture is the main occupation of village. Accept it some people are running stores (local shops).

4.2.5 SOCIAL SCENARIO

Following table is showing the sex ratio of female and male and literacy rate of villagepopulation as per census data for year 2001 and 2011.

TABLE: 2 (SEX-RATIO & LITERACY RATE)

Sex-Ratio (Female/Male)	**Literacy rate**
0.9742% IN 2001	54.93% in 2001
0.9827 % IN 2011	69.54% in 2011



-Nayta is 15 km from Patan.

-Transport facility from the main district Patan to Nauta is average.

-Express high way is provided.

-Buses and private vehicles are easily available.

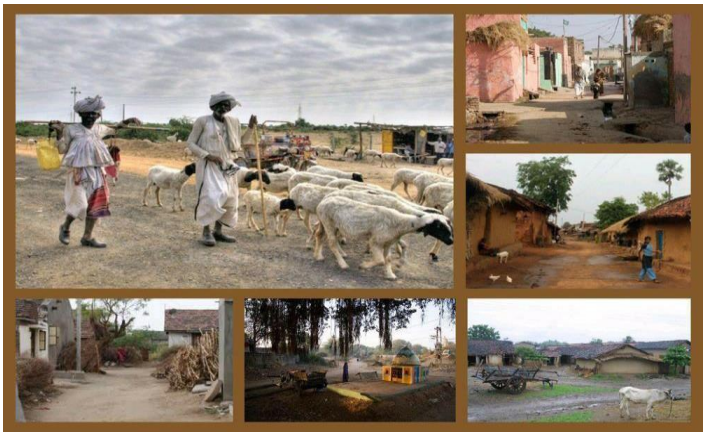
-Road system connecting to various places with in the village is slightly in poorcondition.

- The village has population in Nayta mostly people is uneducated.

-It has got a main road or approach road on the village about 1km long and 2.5m wide but this all road is poor condition.

-For drinking water is available from river. In village well is available.

4.3 DATA COLLECTION OF NAYTA VILLAGE



4.3.1 GENERAL:

-Door-to-Door information collected from villagers of Nayta.

-Collection of Information from Talati Mantri, Sarpanch, Gram Sevak and School Principal, etc.

-Techno-economic survey of allocated village Nayta and reference by done Techno- Economic survey of surrounding.

-Gap analysis and SWOT analysis per collected data of village Nayta.

-From internet and Census 2001 & 2011records

-From self-exploration of village by doing survey.

4.3.2 Describe Methods for data collection

Methods for data collection:-

❖ **Types of Surveys:-**

- Surveys are classified according to their focus and scope (census and sample surveys) or according to the time frame for data collection (longitudinal and cross-sectional surveys). A survey that covers the entire population of interest is referred to as a census. In research, however the population is used to refer to the entire group of individuals to whom the findings of a study apply. The researcher defines the specific population of interest.

❖ **Different method for data collection given below:-**

- Interviews
- Questionnaires and Surveys.
- Observations
- Focus Groups.
- Ethnographies, Oral History, and Case Studies.
- Documents and Records.

4.3.3 Primary details of survey

Primary survey is done in order to collect the basic information about variousfacilities available in the village.

In Nayta when we were going for village survey, we have seen all existing amenities, and all existing infrastructure facilities and our collected information is asunder…

In educational facilities, there are Two primary schools, which have separate classrooms held at different location in village whose management is quite difficult for school principal and for students, schools are up to 7thSTD only.
For drinking purpose they are dependent only on Bore & Tube well, river water is supply 15 days periodically in a month.

1 sub-center is available in very poor condition; community hall and GramPanchayat Kacheri are in one building.

There is no District Co-operative Bank, Milk Co-operative society, Post office in the village.

4.3.4/4.3.5/4.3.7/4.3.8 SECONDARY SURVEY DETAILS

1. Demographical Detail: Table 4

Sr. No.	Censu s	Population	Male	Female	Total House Holds
i)	2001	5679	3467	2950	1050
ii)	2011	6846	3564	3282	1240

2. Geographical Detail: Table 5

Sr. No.	Description	Information/Detail
1)	Area of Village (Approx.) (In Hector) Coordinates for Location:	1787.22

2)	Forest Area (In hect.)	202.47
3)	Agricultural Land Area (In hect.)	1404.09
4)	Residential Area (In hect.)	9.01
5)	Other Area (In hect.)	0.2373
6)	Water bodies	Bore well, check dam
7)	Nearest Town with Distance:	Sariad, 6 km

4.3.6/4.3.10 Occupational Details: Table 6

Name of Three Major Occupation groups in Village	1. Agriculture
	2. Small scale industries
	3. Animal Husbandry

4.3.11 Educational Facilities: Table 7

Aaganwadi/ Play group	-	Yes	6	Maintenance
Primary School	Govt.	Yes	2	Maintenance
Secondary school	Govt.	Yes	1	Maintenance
Higher sec. School	Private	No	0	-

4.4 INFRASTRUCTURE DETAILS (With photographs)

4.4.1 DRINKING WATER/ Water Management System

Pure drinking water is supplied through underground pipes in from tube well to the storage tanks and from tank it is supplied to the village houses.

As per standard data of NBC code, 100 liters of water is needed per person, In Nayta village there is no proper overhead tank with proper condition.

FIGURE 7: STORAGE TANKS

There is a must need of new overhead tank to get the proper facility of water. Currently bore well is the source of water in the Nayta Village.

4.4.2 DRAINAGE NETWORK/ Sanitation Facilities

There is good drainage system in the Nayta Village. But there is no proper cleanliness in the village regarding the drainage.

Due to improper cleanliness villagers are suffering from different differentdiseases.

Figure 8:- Drainage

4.4.3 TRANSPORTATION & ROAD NETWORK

There is average transportation facility in the Nayta Village. There is one bus stop invillage. Sakda and rickshaw facility is also there. No railway station is there in the village.

Figure 9: Bus stop

Road condition is very poor. The network of road with district road is quite good.

No PCC roads are there. There is only kaccha road in the Village.

Figure 10: Internal Street

4.4.4 HOUSING CONDITION:

Both kuchha and pucca houses are there in Nayta village. Kaccha houses are more in compared to pacca houses.

Housing conditions are not well. Most of the Houses are without sanitation facilities.

There is much more possibility of braking down of house due to strong wind or rain.

Figure 11: Kaccha house

Figure 12: pacca house

4.4.5 SOCIAL INFRASTRUCTURE FACILITIES

a) HEAITH FACILITIES

Primary health center in form of Aanganwadi is available in village. There are 6number of Aanganwadi in the village which provides the primary needs of health center to the villagers. There are no private clinics in the village.

All the villagers are going to the nearby village for the hospital facilities whichcreates the dissatisfaction.

Figure 13 Health Facilitis

b) EDUCATION FACILITIES

There is 2 primary schools in the village there is no secondary in the village which is not at all sufficient for whole village population. There are Six aaganwadis are available in in different areas.

There is much need of secondary and higher secondary in the village. Village children goes to different cities for the education suffering from much difficulties.

Figure 14: Primary School

4.4.6 OTHER FACILITIES

- Much more local shops are there in the Nayta Village.
- Venders are there.
- Gram panchayat building is available in Nayta village.
- There private small scale industries in thevillage.
- There are some small tailor shops in the village.

FIGURE 15: Gram Panchayat

Figure 16: Local shops

FIGURE 17: Dairy

Figure 18: Small Scale Shops

Figure 19: Temple

4.4.7 Existing Condition of Public Buildings & Maintenance of existing Public Infrastructures:

1. Existing Condition of Public Buildings:-

- The building is in condition typical for buildings of this age.
- Structure is essentially sound with isolated areas that require attention. Caulking and Sealant requires replacement throughout the building exterior.

2. Maintenance of existing Public Infrastructures:-

- Other facility provided is of the drinking water facility and gram Panchayat building which is being totally obsolete.
- In this village also maintains for the bus stand, public toilet should be provide and primary school facilities etc. in existing public facilities are need in this village.

4.4.8 Technology Mobile/ WIFI / Internet Usage Details

- All people 100 % use personal mobile and internet, but in this village are not any WIFI facilities available.

4.4.9 Sports Activity as Gram Panchayat

- Not any sports Activity available in Gram Panchayat.

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

- Socio-cultural Facilities likes Community hall, Public Library, Public garden, Recreation center, Assembly Polling, Birth& Death, etc.

4.5 ELECTRIC CONCEPT

4.5.1 ELECTRICITY FACILITIES:

Government electricity is available in village and it is supplied almost for 24 hours.

No street lights are available on main road and streets of village. There is good availability of network in the village.

Figure 20: Electrical Facility

4.5.2 IRRIGATION FACILITIES:

Water for irrigation for every farmers is in sufficient quantity in the village. They use the drip irrigation method for farming. No advanced technology is used for irrigation

.

4.5.3 SOLAR TO ELECTRICAL ENERGY FACILITIES

We will explain to the villagers about solar energy and its benefits and tell them to make good use of it. Likewise this picture is solar energy to electrical energy.

4.6 EXISTING INSTITUTION

4.6.1 Dudh Mandali

FIGURE 21: Dairy

4.6.2 Primary School

Figure 22: School

4.6.3 Aanganwadi

Figure 23: Aanganwadi

4.6.4 Plantation for Air Pollution

Nill

4.6.5 Rain Water Harvesting

Nill

4.6.6 Agricultural Development

Nill

4.6.7 Any Other

Nill

Chapter 5.Technical Options

5.1Civil Concepts

5.1.1 Advance Sustainable construction techniques / Practices and Quantity Surveying

For contractors, a strategy for saving time and materials can lead to higher profitability and the good feeling of not creating unnecessary waste. Here‟s a look at five techniques that are having the greatest impact on sustainable building construction.

1. Prefabricating Materials in Controlled Environments

Constructing as much of a structure in a controlled environment as possible has improved the quality of buildings and resulted in less trash, says Spencer Finseth, principal of Minneapolis- based Greiner Construction.

2. Construction Waste Management

Reducing waste is becoming more achievable for contractors as haulers have grown more sophisticated in recent years. Where jobsites once had trash bins for different types of waste, they now need just one, in many cases, because haulers use pickers to separate materials.

3. Managing the Site for Improved Environment

4. Lean Manufacturing to Reduce Energy

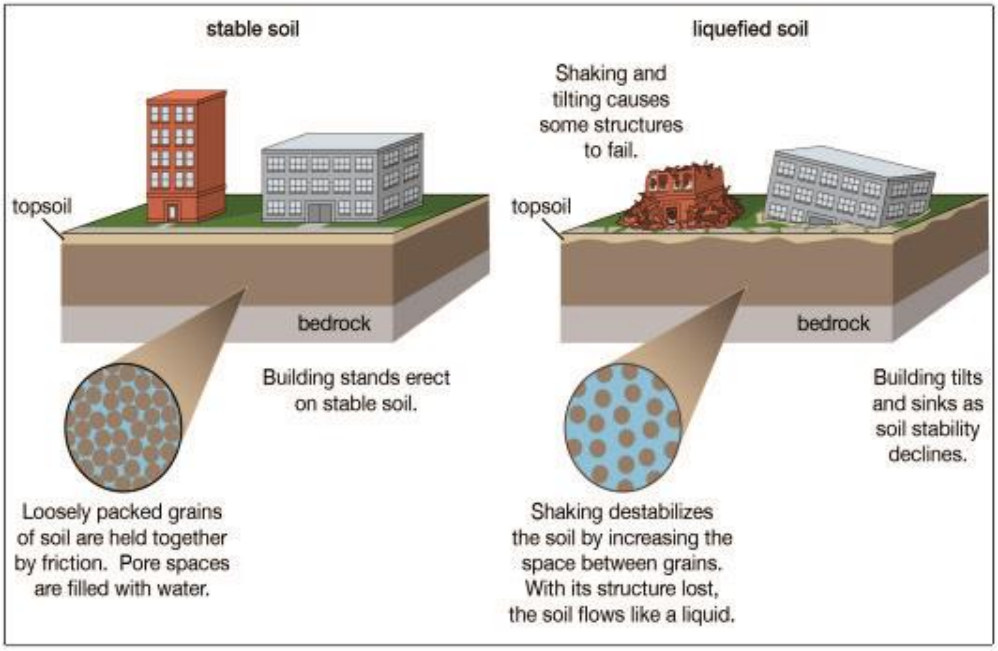
5. Material Selection

5.1.2 Soil Liquificatiom

Liquefaction is a phenomenon in which the strength and stiffness of a soil is reduced by earthquake shaking or other rapid loading. Liquefaction and related phenomena have been responsible for tremendous amounts of damage in historical earthquakes around the world.

Local soil conditions have a significant effect on damage to structures caused by earthquakes. During an earthquake, different kinds of soil conduct generated seismic waves in different ways and their effect on structures depends on the characteristics of the foundation soil. Many earthquakes, such as those that occurred in Japan in 1964 (Niigata) and in 1995 (Kobe), emphasized the impact and the possibility of the soil liquefaction. Liquefaction is one of the most dramatic phenomena and causes of damage to structures during the earthquake.

Liquefaction occurs in saturated soils, that is, soils in which the space between individual particles is completely filled with water. This water exerts a pressure on the soil particles that influences how tightly the particles themselves are pressed together. Prior to an earthquake, the water pressure is relatively low. However, earthquake shaking can cause the water pressure to increase to the point where the soil particles can readily move with respect to each other



SOIL LIQUEFACTION

5.1.3 Sustainable Sanitation

The main objective of a sanitation system is to protect and promote human health by providing a clean environment and breaking the cycle of disease.

To qualify as sustainable sanitation, a sanitation system has to be economically viable, socially acceptable, technically and institutionally appropriate, and protect the environment and natural resources.

The Swachh Bharat Abhiyan has managed to increase the national sanitation coverage to 63.76 per cent from 41.92 per cent in October, 2014. But sanitation experts have consistently asked whether the rapid pace of building toilets would lead to the sustainable sanitation practices in rural India.

5 Ways To Keep The Sanitation Clock Ticking In Rural India

1. Participation Of Ministries
2. Ensuring Piped Water Supply
3. Ensuring Community Led Total Sanitation
4. Ensuring Behavioural Change
5. Making Profits From Sanitation

A robust and innovative program can additionally be proven as failed due to poor delivery mechanism, implementation, and lack of monitoring system. The Government should focus on creating a strong and sustainable mechanism and policy for delivering the plans, funds, and ideas at the grassroots level. There should be focused monitoring of the implementation backed by a penalty and incentive schemes that will encourage the channel to deliver and implement the program in a much more effective and scheduled manner.

Monthly membership systems should offer some discounts/perks to the user and at the same time should provide a guaranteed user for the month

Sanitary shop and multi-utility stores near toilet complexes, where fast-moving products and services such as mobile recharge, snacks, and tea will be available

5.1.4 Transport Infrastructure/ system

The economic role of transport infrastructure the impact on growth of investment in transport infrastructure varies in the different stages of a country‘s economic development. In low-income countries, investment in basic infrastructure provision can make a very large difference in access to education, jobs and services. As incomes rise, better transport services are needed to support the growth of business activities, exports and value creation, and the focus for infrastructure investment shifts to supporting these sectors of the economy.

India is overwhelmingly an agricultural country with about six lakh villages, many of which have little or no connection with the outside world. The preoccupation of Indian planners with inter-city and intra-city transport during past plan periods has left the rural transport system in a state of utter neglect. Although rural population accounts for three-fourth of the total population and generates more than half of the national income, commensurate attention to rural transportation has not been paid in the past.

Types of transport system:

1 Road

2 Rails

3 Pedestrian

4Urban waterways

5Subway systems

6 Bridges and fly-overs 7 Terminals

7.1 Airports

7.2 Train station

7.3 Metro station

7.4 Bus terminal

7.5 Freight terminal

7.6 Sea port

8 Traffic intersections

5.1.5 Vertical Farming

Agriculture in India is continuously molting. Newer technologies are coming up to face the challenges arising due to overgrowing population, water scarcity, climate change, labour scarcity and urbanization leading to reduction in arable land. Various technologies like See &Spray Technology, field sensors for irrigation control, electrical conductivity sensing, machine learning and robotics in agriculture are on its way to come. These advanced technologies will no doubt boost the agriculture. Still then, in spite of all these latest and modern technologies, food security amidst the overpopulation pressure with decreasing arable lands is a major concern all over the world. Vertical farming is perhaps intensive way of increased food production with lesser lands.

Vertical farming is the practice of producing food on vertically inclined surfaces. Instead of farming vegetables and other foods on a single level, such as in a field or a greenhouse, this method produces foods in vertically stacked layers commonly integrated into other structures like a skyscraper, shipping container or repurposed warehouse.

Using Controlled Environment Agriculture (CEA) technology, this modern idea uses indoor farming techniques. The artificial control of temperature, light, humidity, and gases makes producing foods and medicine indoor possible. In many ways, vertical farming is similar to greenhouses where metal reflectors and artificial lighting augment natural sunlight. The primary goal of vertical farming is maximizing crops output in a limited space.

There are four critical areas in understanding how vertical farming works: 1. Physical layout, 2. Lighting, 3. Growing medium, and 4. Sustainability features.

Firstly, the primary goal of vertical farming is producing more foods per square meter. To accomplish this

goal, crops are cultivated in stacked layers in a tower life structure. 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 lighting efficiency.

Thirdly, instead of soil, aeroponic, aquaponic or hydroponic 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.

5.1.6 Corrosion Mechanism, Prevention and 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 imprompt 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 an) 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.

Strength of steel has been far much better than concrete yet later is the most widely used engineering material, this can be explained with three main reasons: One of the main reason is the excellent resistance of concrete for water which makes it a superior material than wood or steel for structural purposes. The second reason is that the concrete can be formed into different structural elements easily. Its easy availability and cost efficiency is the third and most important reason behind the popularity of concrete .

5.1.7 Sewage Water Treatment.

Sewage is generated by residential and industrial establishments. It includes household waste liquid from toilets, baths, showers, kitchens, sinks, and so forth that is disposed of via sewers. In many areas, sewage also includes liquid waste from industry and commerce. The separation and draining of household waste into greywater and blackwater is becoming more common in the developed world. Greywater is water generated from domestic activities such as laundry, dishwashing, and bathing, and can be reused more readily. Blackwater comes from toilets and contains human waste.

Primary Treatment

In primary treatment, sewage is stored in a basin where solids (sludge) can settle to the bottom and oil and lighter substances can rise to the top. These layers are then removed and then the remaining liquid can be sent to secondary treatment. Sewage sludge is treated in a separate process called sludge digestion.

Secondary Treatment

Secondary treatment removes dissolved and suspended biological matter, often using microorganisms in a controlled environment. Most secondary treatment systems use aerobic bacteria, which consume the organic components of the sewage (sugar, fat, and so on). Some systems use fixed film systems, where the bacteria grow on filters, and the water passes through them. Suspended growth systems use “activated” sludge, where decomposing bacteria are mixed directly into the sewage. Because oxygen is critical to bacterial growth, the sewage is often mixed with air to facilitate decomposition.

Tertiary Treatment

Tertiary treatment (sometimes called “effluent polishing”) is used to further clean water when it is being discharged into a sensitive ecosystem. Several methods can be used to further disinfect sewage beyond primary and secondary treatment. Sand filtration, where water is passed through a sand filter, can be used to remove particulate matter. Wastewater may still have high levels of nutrients such as nitrogen and phosphorus. These can disrupt the nutrient balance of aquatic ecosystems and cause algae blooms and excessive weed growth.

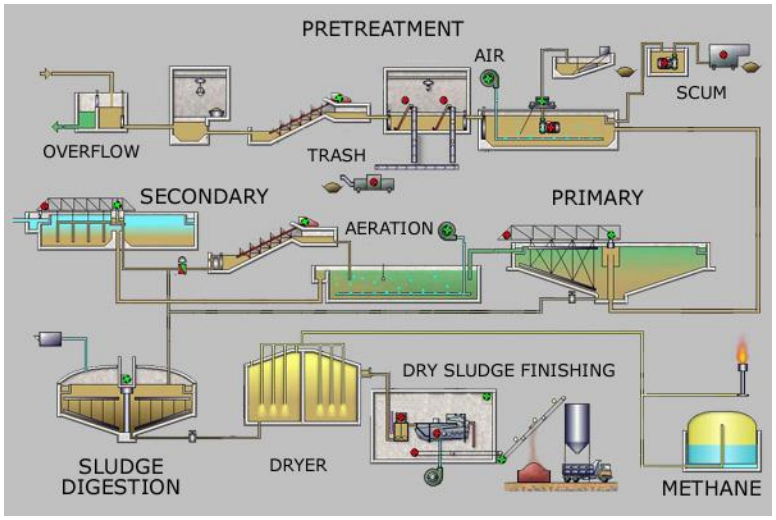
Phosphorus can be removed biologically in a process called enhanced biological phosphorus removal. In this process, specific bacteria, called polyphosphate accumulate organisms that store phosphate in their tissue. When the biomass accumulated in these bacteria is separated from the treated water, these biosolids have a high fertilizer value. Nitrogen can also be removed using nitrifying bacteria. Lagooning is another method for removing nutrients and waste from sewage. Water is stored in a lagoon and native plants, bacteria, algae, and small zooplankton filter nutrients and small particles from the water.

Sludge Digestion

Sewage sludge scraped off the bottom of the settling tank during primary treatment is treated separately from wastewater. Sludge can be disposed of in several ways. First, it can be digested using bacteria; bacterial digestion can sometimes produce methane biogas, which can be used to generate electricity. Sludge can also be incinerated, or condensed, heated to disinfect it, and reused as fertilizer.

Sewage treatment may also be referred to as wastewater treatment. However, the latter is a broader term that can also refer to industrial wastewater. For most cities, the sewer system will also carry a proportion of industrial effluent to the sewage treatment plant that has usually received pre-treatment at the factories to reduce the pollutant load. If the sewer system is a combined sewer, then it will also carry urban runoff (stormwater) to the sewage treatment plant. Sewage is conveyed in sewerage which comprises the drains, pipework and pumps to convey the sewage to the treatment works inlet.

In highly regulated developed countries, industrial effluent usually receives at least pretreatment if not full treatment at the factories themselves to reduce the pollutant load, before discharge to the sewer. This process is called industrial wastewater treatment or pretreatment. The same does not apply to many developing countries where industrial effluent is more likely to enter the sewer if it exists, or even the receiving water body, without pretreatment.

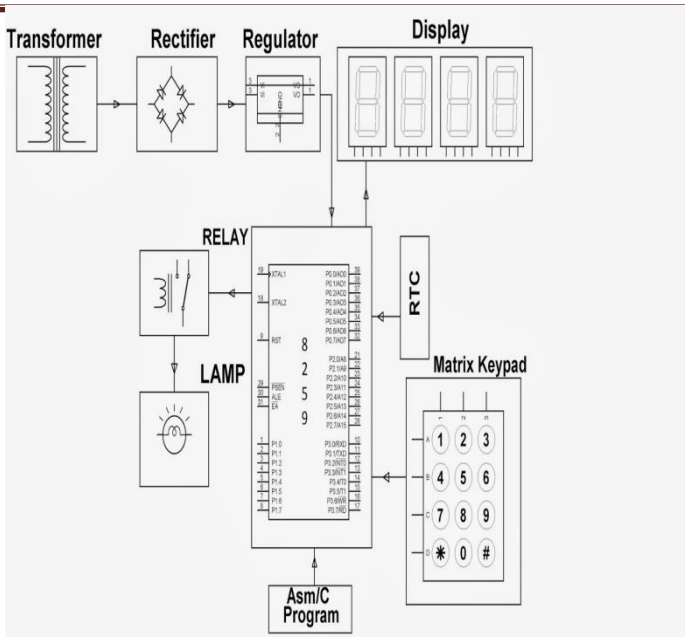


Industrial wastewater may contain pollutants which cannot be removed by conventional sewage treatment. Also, variable flow of industrial waste associated with production cycles may upset the population dynamics of biological treatment units, such as the activated sludge process.

5.2 ELECTRICAL CONCEPT

5.2.1 Programmable Load Shedding

In today's world, there is a continuous need for automatic appliances with the increase in standard of living, there is a sense of urgency for developing circuits that would ease the complexity of life.



The project is designed to operate an electrical load multiple number of times as per the program. It overcomes the difficulties of switching the load ON/OFF manually. This proposed has an inbuilt real time clock (RTC) to keep tracking the time and thus to switch ON/OFF the load accordingly.

Load shedding is what electric utilities do when there is a huge demand for electricity that exceeds the supply. Thus in a distribution system it needs to be precisely controlled for specific period of time. Programmable load shedding time management system is a reliable circuit that takes over the manual task of switch ON/OFF the electrical devices with respect to time. It uses real time clock (RTC) interfaced to a microcontroller of 8051 family. While the set time equals to the real time, then microcontroller gives command to the corresponding relay to turn ON the load and then another command to switch OFF as per the program. Multiple ON/OFF time entry is the biggest advantage with this project.

5.2.2 Railway Security System using IoT

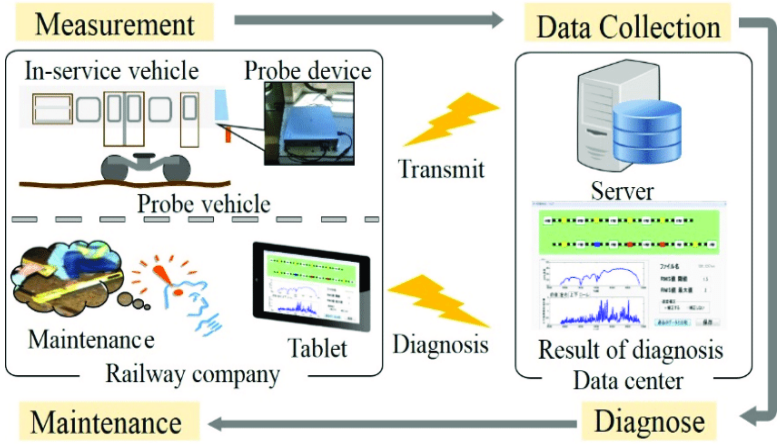
The objective of this project is to create a Security System for the goods that are carried in open top freight trains. The most efficient way to secure anything from thieves is to have a continuous observation. So for continuous observation of the open top freight train, Camera module2 has been used.

Passive Infrared Sensor (PIR) 1 has been used to detect the motion or to sense movement of people, animals, or any object. So whenever a motion is detected by the PIR sensor, the Camera takes a picture of that particular instance. That picture will be send to the Raspberry PI which does Skin Detection Algorithm and specifies whether that motion was created by a human or not. If a human makes it, then that picture will send to the drop box. Any Official can have a look at the same.

The existing system has a CCTV installed at various critical locations like bridges, railway stations etc. but they does not provide a continuous observation. This paper describes about the Security System that provides continuous observation for open top freight trains so that goods can be carried safely to its destination.

Railways is considered as one of the widely spread mode of transportation all over the globe. Nowadays there is

an enormous increase in road and railway traffic. This rapid growth has given rise to more and more accidents at the level crossings.



This is a serious concern for both railway and road traffic users. There are no easy ways for tackling this problem, but the main concern is regarding its feasibility for the fluctuating environmental conditions. In this paper, we are proposing an IoT based technique as an alternative and efficient solution for manned and unmanned level crossings. To implement this technology, we are fixing two Infrared Sensors at a pre-calculated distance to calculate the speed of train and time taken by the train to reach level crossings. With this data we are trying to automate closing and opening of gates at level crossings and to regulate road traffic users waiting time.

This real time information is sent to database server with the help of Wi-Fi module through Internet of Things (IoT). With the help of GSM module, we send the intrusion detection information to the concerned train driver, station master and control room for efficient monitoring.

5.2.3 Management through Energy Harvesting Concept

The objective of the **Power Management through Energy Harvesting Concept** project work has been designed and implemented in the power management through energy harvesting concept which deals with the power saving and optimization. The overall control is based on sensors of light and temperature. After installing the components the process becomes automatic.

Energy harvesters provide a very small amount of power for low-energy electronics. While the input fuel to some large-scale generation costs resources (oil, coal, etc.), the energy source for energy harvesters is present as ambient background. For example, temperature gradients exist from the operation of a combustion engine and in urban areas, there is a large amount of electromagnetic energy in the environment because of radio and television broadcasting.

One of the earliest applications of ambient power collected from ambient electromagnetic radiation (EMR) is the crystal radio.

Energy harvesting devices converting ambient energy into electrical energy have attracted much interest in both

the military and commercial sectors. Some systems convert motion, such as that of ocean waves, into electricity to be used by oceanographic monitoring sensors for autonomous operation. Future applications may include high power output devices (or arrays of such devices) deployed at remote locations to serve as reliable power stations for large systems. Another application is in wearable electronics, where energy harvesting devices can power or recharge cellphones, mobile computers, radio communication equipment, etc. All of these devices must be sufficiently robust to endure long-term exposure to hostile environments and have a broad range of dynamic sensitivity to exploit the entire spectrum of wave motions.

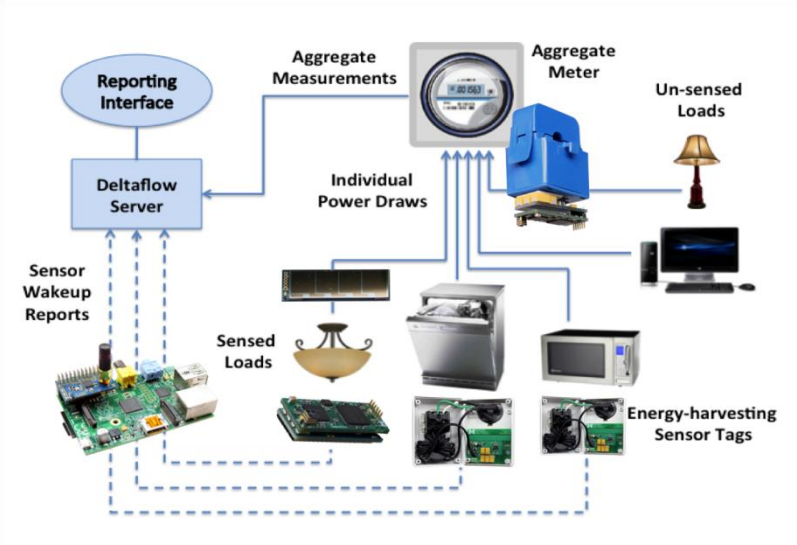
Accumulating energy

Energy can also be harvested to power small autonomous sensors such as those developed using MEMS technology. These systems are often very small and require little power, but their applications are limited by the reliance on battery power. Scavenging energy from ambient vibrations, wind, heat or light could enable smart sensors to be functional indefinitely.

Typical power densities available from energy harvesting devices are highly dependent upon the specific application (affecting the generator's size) and the design itself of the harvesting generator. In general, for motion powered devices, typical values are a few μW/cm³ for human body powered applications and hundreds of μW/cm³ for generators powered from machinery. Most energy scavenging devices for wearable electronics generate very little power

Storage of power

In general, energy can be stored in a capacitor, super capacitor , or battery. Capacitors are used when the application needs to provide huge energy spikes. Batteries leak less energy and are therefore used when the device needs to provide a steady flow of energy. these aspects of the battery depend on the type that is used. A common type of battery that is used for this purpose is the lead acid or lithium ion battery although older types such as nickel metal hydride are still widely used today. Compared to batteries, super capacitors have virtually unlimited charge-discharge cycles and can therefore operate forever enabling a maintenance-free operation in IoT and wireless sensor devices.



Use of the power

Current interest in low power energy harvesting is for independent sensor networks. In these applications an energy harvesting scheme puts power stored into a capacitor then boosted/regulated to a second storage capacitor or battery for the use in the microprocessor or in the data transmission.The power is usually used in a sensor application and the data stored or is transmitted possibly through a wireless method.

5.2.4 Moisture Monitoring System

Soil moisture sensors aid good irrigation management. Good irrigation management gives better crops, uses fewer inputs, and increases profitability. Soil moisture sensors help irrigators to understand what is happening in the root zone of a crop.

Scheduling irrigation

To be used effectively, soil moisture sensors must be:

Used in an irrigation shift that delivers water evenly

Installed correctly and placed in an area which is representative of the crop being grown

Used in combination with other irrigation management information (soil moisture sensors only measure a tiny Area of an irrigation shift):

Evaporation-based scheduling

Soil moisture monitoring

Grower observation.

Sensor types

There are basically two groups of sensors:

water potential sensors, such as tensiometers and granular matrix sensors

soil moisture sensors that give a percentage or relative content of soil moisture.

Water potential sensors

These sensors measure how hard it is to remove water from the soil, providing the best indication of available water for plants. Soil type and water content influence the suction pressure required to remove water from the soil, but a monitored sensor, which is recorded and graphed, will show the sharp fall that indicates water has become hard for a plant to access.

Tensiometer sensors

Tensiometers (Figure 1) are the most responsive water potential sensor, and they require the most care and maintenance. There are two types of tensiometer tip: one is used in sands, and the other in clays and loams. Use the appropriate tip to see quick reactions to changes in water status.

Tensiometers work by measuring suction pressure at the tensiometer's porous tip. Water is drawn out of or into the tip, depending on water availability. This creates a suction pressure representing the suction force required for a plant to obtain water from the soil. Measurements can be done by manually reading a vacuum gauge, or automatically, using a logging pressure transducer.

To maintain tensiometers, check for bubbles and refill the fluid used to create the vacuum within the tensiometer.

Granular matrix sensors

Granular matrix sensors pass a current across a porous media – usually gypsum – with the electrical resistance changing proportionally to the amount of water drawn in and out of the media. They are generally a low cost, low maintenance sensor. Once installed they often last many years without intervention.

The reactivity of granular matrix sensors to changes in water status is the biggest limitation to their use. Accuracy is somewhat poor and can vary greatly – between 10% and 25% of the actual measurement.

Most granular matrix sensors have low accuracy at low tension (0–10 kilopascals). This is an issue if the soil type being measured has limited plant available water and the crop is water sensitive, such as vegetables grown on the coarse WA sands and heavier clays.

Depending on the porous material and the construction of the sensor, the water seems to move in and out of these sensors slower than with tensiometers. There tends to be a lag in the sensor wetting and drying in response to the soil. The lag tends to be greater as the soil dries, as opposed to rewetting, and therefore may lead to an underestimation of plant stress on the drying cycle.

5.2.5 Home Automation using IoT / Any other methodology

Once a dream, iot home automation is slowly but steadily becoming a part of daily lives around the world. In fact, it is believed that the global market for smart home automation will reach $40 billion by 2020.

This shouldn’t be surprising when you consider the convenience and ease that smart home devices offer. Since these IoT devices are interconnected, it becomes easier to manage multiple operations. In fact, IoT home devices also help in reducing costs and energy, not to mention time as well, says Rushabh Patel, founder and CEO.

These days, there is a vast range of devices powered by IoT. These include thermostats, refrigerators, security systems and even dryers and kettles. With the passage of time, more devices are sure to be added and with smarter features.

IoT home automation – Smart homes and Internet of Things

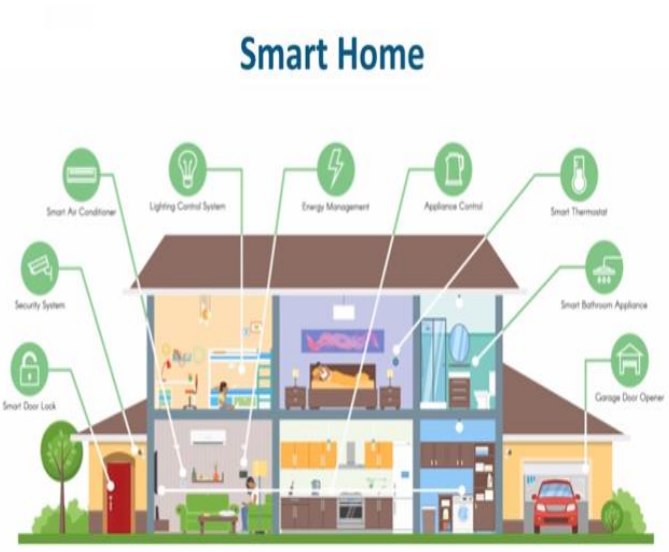
Before proceeding any further, let's take a closer look at IoT. 'Internet of Things' is an umbrella term used for all technologies that enable the connection of a device to the Internet.

Such systems depend on the collection of data. The data is then used for monitoring, controlling and transferring information to other devices via the internet. This allows specific actions to be automatically activated whenever certain situations arise. In a simple example, consider a smart kettle. The kettle can be programmed to automatically turn off once it reaches a specific temperature. It might also send a notification to the user on the same.

Now apply the same concept to the entire home and all the devices present. That is a smart home powered by IoT. Instead of manually going up to the device and taking action, those actions can be taken at the press of a button. These days, most smart IoT home automation devices allow you to control them via an app or even via voice commands**.**

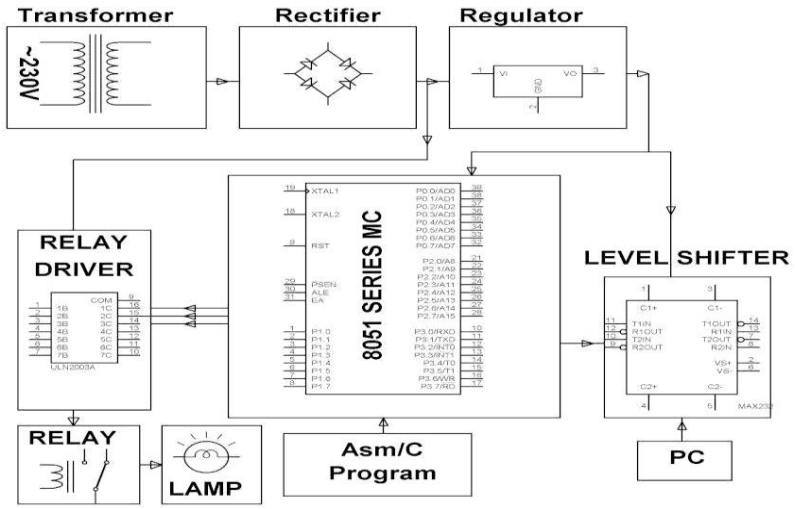
Now imagine if you did not even need to undertake such actions. In other words, the smart home will know when to take certain actions and automatically take them. This is where the future of home automation and IoT lies.

The IoT based Home Automation will enable the user to use a Home Automation System based on Internet of Things (IoT). The modern homes are automated through the internet and the home appliances are controlled. The user commands over the internet will be obtained by the Wi-Fi modems. The Microcontroller has an interface with this modem. The system status is displayed through the LCD display, along with the system data. This is a typical IoT based Home Automation system, for controlling all your home appliances. The smart home market is taking off as IoT device prices come down and the general public comes to understand the benefits of these products. And from smart homes, the next logical step is smart cities, which would take the IoT to the next level. And yet, smart homes are just one small part of our daily lives that the Internet of Things will transform in the coming years.



5.2.6 PC Based Electrical Load Control

The aim of this project is to control the electrical appliances through a personal computer (PC). For example, theatre lighting can be centrally controlled form the PC for better stage management.



The aim of this project is to control the electrical appliances through a personal computer (PC). For example, theatre lighting can be centrally controlled form the PC for better stage management. Presently, they are manually managed which makes it difficult to coordinate the lighting with the respective scene. With this system, one can control the electrical appliances ON/OFF by just being seated at one place using a PC.

This system is integrated with the electrical loads and also connected to the PC where centralized control takes place. It uses an RS-232 protocol from the microcontroller to communicate with the PC. To turn on/off the appliances, we use Hyper Terminal on PC. Once the connection is established with the PC, then the system starts working. The microcontroller used in this project belongs to 8051 family.

This project can be further enhanced by implementing a GUI based control panel on the PC with appropriate embedded software. The intensity control can also be incorporated using power electronics devices. Note: The project works only on operating systems having hyper terminal (E.g. Windows XP). The computer must have a RS232 serial port.

Electrical appliances can be controlled through a PC interfaced to a microcontroller. This interface is done through a level shifter IC. The loads are then controlled through the relays duly interfaced to the relay driver which in turn is connected to the microcontroller.

The system aims at controlling electrical loads through a central Pc. Considering a pc can be used to control the lights and fans of an auditorium or college from a single place.

Currently, someone needs to manually switch of the lights on each floor and room. This system allows a single user to operate all those light fans, or other loads from a single PC. The project consists of lamps/loads to demonstrate as electrical appliances. These loads are then connected to an PC through an Rs 232 interface to a microcontroller circuit.

The system once turned on allows users to switch the load on and off, submitting commands from a PC. This

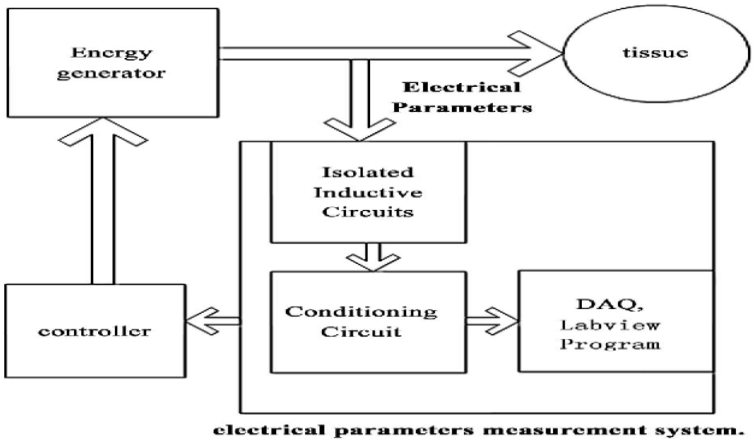
allows user to control a load through PC.

The system may be further improved by implementing an effective GUI to control multiple loads from a pc within a glance.

5.2.7 Electrical Parameters Measurements

Electrical measurements are the methods, devices and calculations used to measure electrical quantities. Measurement of electrical quantities may be done to measure electrical parameters of a system. Using transducers, physical properties such as temperature, pressure, flow, force, and many others can be converted into electrical signals, which can then be conveniently measured and recorded. High-precision laboratory measurements of electrical quantities are used in experiments to determine fundamental physical properties such as the charge of the electron or the speed of light, and in the definition of the units for electrical measurements, with precision in some cases on the order of a few parts per million. Less precise measurements are required every day in industrial practice. Electrical measurements are a branch of the science of metrology.

Measurable independent and semi-independent electrical quantities comprise:



Voltage

Electric current

Electrical resistance and electrical conductance

Electrical reactance and susceptance

Magnetic flux

Electrical charge by the means of electrometer

Partial discharge measurement

Magnetic field by the means of Hall sensor

Electric field

Electrical power by the means of electricity meter

S-matrix by the means of network analyzer (electrical)

Electrical power spectrum by the means of spectrum analyzer

Measurable dependent electrical quantities comprise:

Inductance

Capacitance

Electrical impedance defined as vector sum of electrical resistance and electrical reactance

Electrical admittance, the reciprocal of electrical impedance

Phase between current and voltage and related power factor

Electrical spectral density

Electrical phase noise

Electrical amplitude noise

Transconductance

Transimpedance

Electrical power gain

Voltage gain

Current gain

Chapter 6. SWACHH BHARAT ABHIYAN (CLEAN INDIA)

6.1 SWACHHTA NEEDED IN ALLOCATED VILLAGE- EXISTING SITUATIONS WITH PHOTOGRAPHS

There is much need of swachhata in Nayta village. There is no awareness in the villagers about cleanliness. We tried our best to increase the swachhata in the Nayta Village

Figure 24: About Swachhata

•The focus of the Strategy is to move towards a _Swatchh Bharat‘ by providing flexibility to State

Governments, as Sanitation is a state subject, to decide on their implementation policy and mechanisms, taking into account State specific requirements.

•This is focused to enable States to develop an Implementation Framework that can utilize the provisions under the Mission effectively and maximize the impact of the interventions.

6.2 Guidelines Implementation in allocated village.

.1 Visible efforts of maintaining cleanliness on the part of institutions is a must so that people are inspired to keep their surrounding clean. Usually people hesitate to spoil or defile a place that is already neat and clean. When there would be cleanliness at public places they will think twice before defiling it. Delhi metro is an example of collective conscience about cleanliness where people try to keep it squeaky clean defeating the common perception that this would be an impossible task

2. A separate project must be designed for students which may include embedding instructions about cleanliness, creating awareness camps in organizing cleanliness drives so that cleanliness is inculcated in their attitude and learning.

3. There could be a part of cleanliness and related areas in the environment course which is being offered in the system. Also, institutions like Universities and colleges must collaborate to come out with ways to make the Swachha mission possible. Research must be funded for the innovative designs and implementation strategies for making a clean India.

4. Apart from keeping things at the mercy of people's character, there must be some legal aspects of enforcing cleanliness. Not only there must be enough laws that require a citizen to adopt cleanliness but there must be provisions of penalties and fines that may act deterrent for the law breakers. Their execution must be ensured and in this respect the use of electronic surveillance may be of great use. This is quite prevalent in places where people are already sensitized to the idea of hygiene and cleanliness.

5. An effective and structured propaganda and awareness machinery must be visualized and pressed into service to gain public co-operation and confidence.

6. People sensitization programs about the environment- forest and greenery must be conducted. It will further motivate them to take care of our natural greens and keep water resources clean and safe by not

making them the dumping grounds.

7. Proper waste segregation and disposal system should be in place and ensure that it is implemented at the structural level.

8. More effective Public Participation Models should be in place to include and ensure public participation in the campaign for clean India.

9. Public Toilets must not only be constructed but also well maintained so as to assure their continued use. It is one of the crucial factors in making clean India a success that the public toilets are clean otherwise people will continue to relieve themselves in open place, which unfortunately they consider a cleaner option.

10. NGOs must be roped in with increased participation for implementation of cleaner practices in our daily lives. We already have a successful example before us- Sulabh International Toilets. Also, the role of corporate may be sought in Swachchha Bharat Mission as part of their corporate social responsibilities in any form be it financial assistance or program implementation. The companies working in the area of say sanitation or innovation communication or adoption or any other related area may collaborate on the mission. Their co-operation may be in the form of adoption of neighborhoods or localities, villages .

6.3 Activities done by students for allocated village.

No activities are done by students or villagers in the allocated village because of COVID-19 situation.

Chapter 7. Village CONDITION DUE TO COVID-19

7.1 Taken steps in Nayta village related to existing situation:

- Village locals were informed by the sarpanch and talati about the pandemic situation and were also informed about the norms given by Government to fight this situation.
- They then sealed the village border to stop the movement of villagers and also to restrict entry of others.
- With help of Government officers, Sarpanch and other village people they sanitized the village streets and houses and other places.
- People also started using sanitizer and mask when they went out of home.
- All the villagers were following Government norms of how to be safe from this situation and were also regularly taking account of updates by Government for this situation.

7.2 Steps taken by students while visiting the village:

- All the safety measures were taken by the students while visiting the allocated village.
- Mask was always on and we also washed our hands regularly.
- We kept social distance while interaction with everyone in the village be it the locals or the Sarpanch.
- Proper mask wearing were there in our group.

Figure 25: Awareness about Covid-19

7.3 Any other steps taken by students or villagers.

Villagers are standing with masks and were protecting themselves from being infected by corona.

After lockdown we also visited the village again and there we nited the vaccination camp for villagers and all of them are cooperating with the heaith instructors. We had arranged the awareness speech regarding the COVID 19 vaccination and how to protect ourselves and our family members from being infected from COVID 19. All the villagers are soo much supportive to us, mucg cooperative regarding this camp that they all were present at the timimg of awareness program.

Chapter 8.PLANNING PROPOSAL

8.1 DESIGN PROPOSALS

8.1.1 PAKKA DWELLING HOUSE

In the Part-I of Vishwakarma Yojana Phase-VIII we have selected sustainable designs in this project report. That is physical design of dwelling house.

In this Village pucca houses are found at some places but most of those found in very poor condition.
So there is necessity to maintain them. At major places on village there are only houses made up of only sand or cement bricks. By providing better facilities of pucca houses villagers will not face the rather problems.

Pucca House are more stronger than Kuccha house. it is made up of bricks and jointed by cement. The pucca house is a complete house. It cannot be destroyed by to winds,floods and other things. Pucca housing (or pukka or pacca) refers to dwellings that are designed to be solid and permanent. This
term is applied to housing in South Asia built of substantial material such as stone, brick, cement, concrete, or timber.

Pucca homes are typically made of concrete, stone, clay tiles and/or metal, in contrast to older homes made of mud and organic material. These building methods are more costly and labor-intensive than
The more traditional building methods.

DRAWING DETAILS OF DWELLING HOUSE

Capacity :-

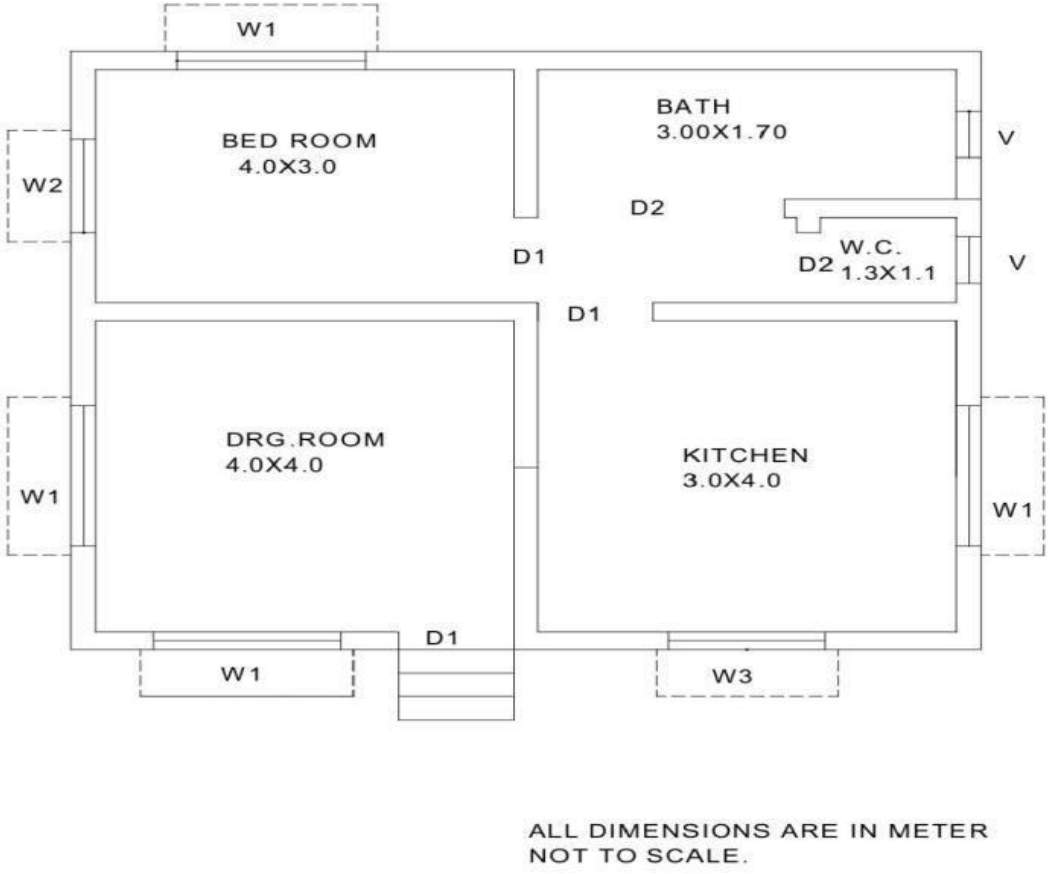
It has the capacity of 4 persons, and maximum as per requirement .

Floor space and level :-

The main dimention of house is 7.9 m x 8.9 m . The height of house is 4.45 m from the ground level.

Construction materials :-

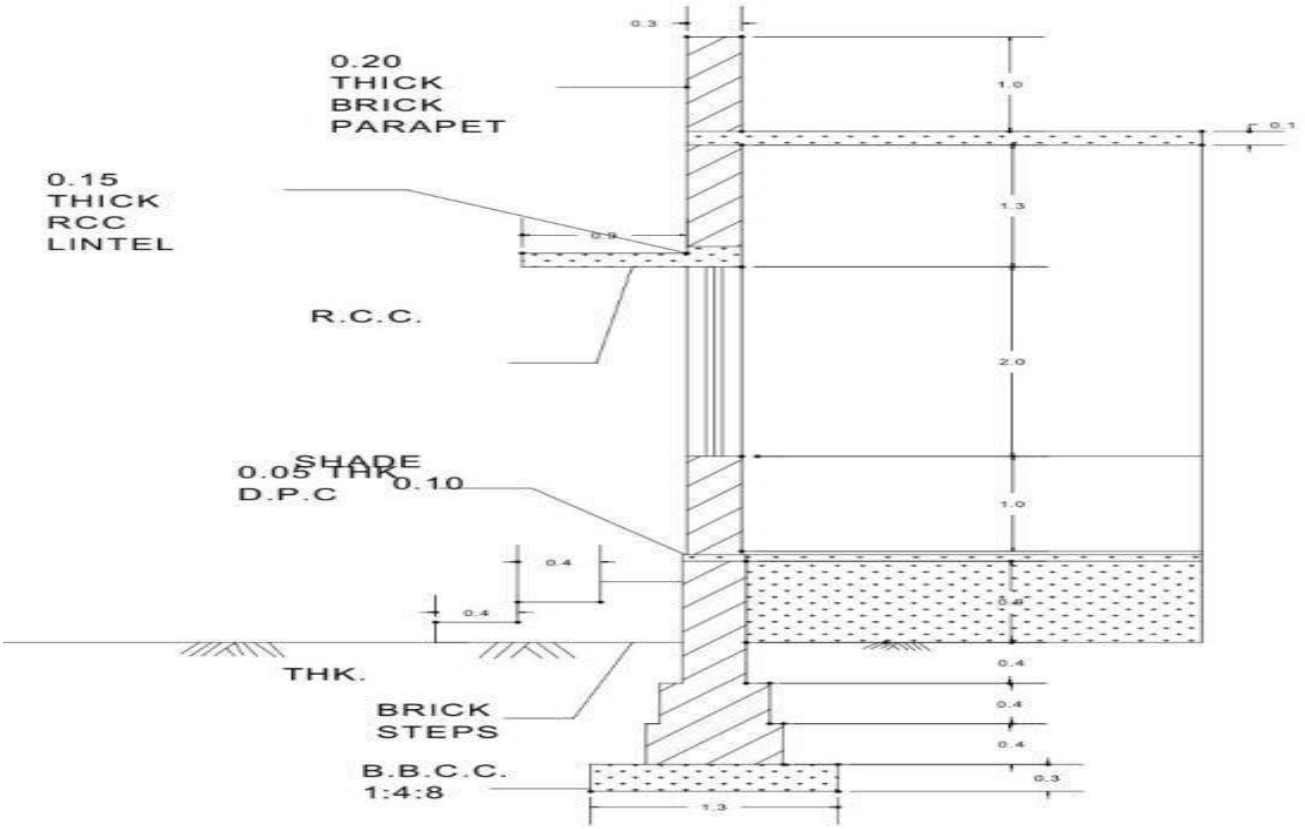
To build this anomality cement, bricks, timber , concrete , street etc, materials are used.



PLAN

COMPONENTS AND DESCRICYION OF DWELLING HOUSE

Structure life	25 YEARS
Average Use	5 – 10
Size of floor	7.9m x 8.9m
Plinth level above G.L.	0.6m
Height of stairs	0.45m
Roof	10cm thick RCC slab



SECTION

Elevation

Estimation of cost of Dwelling house:-

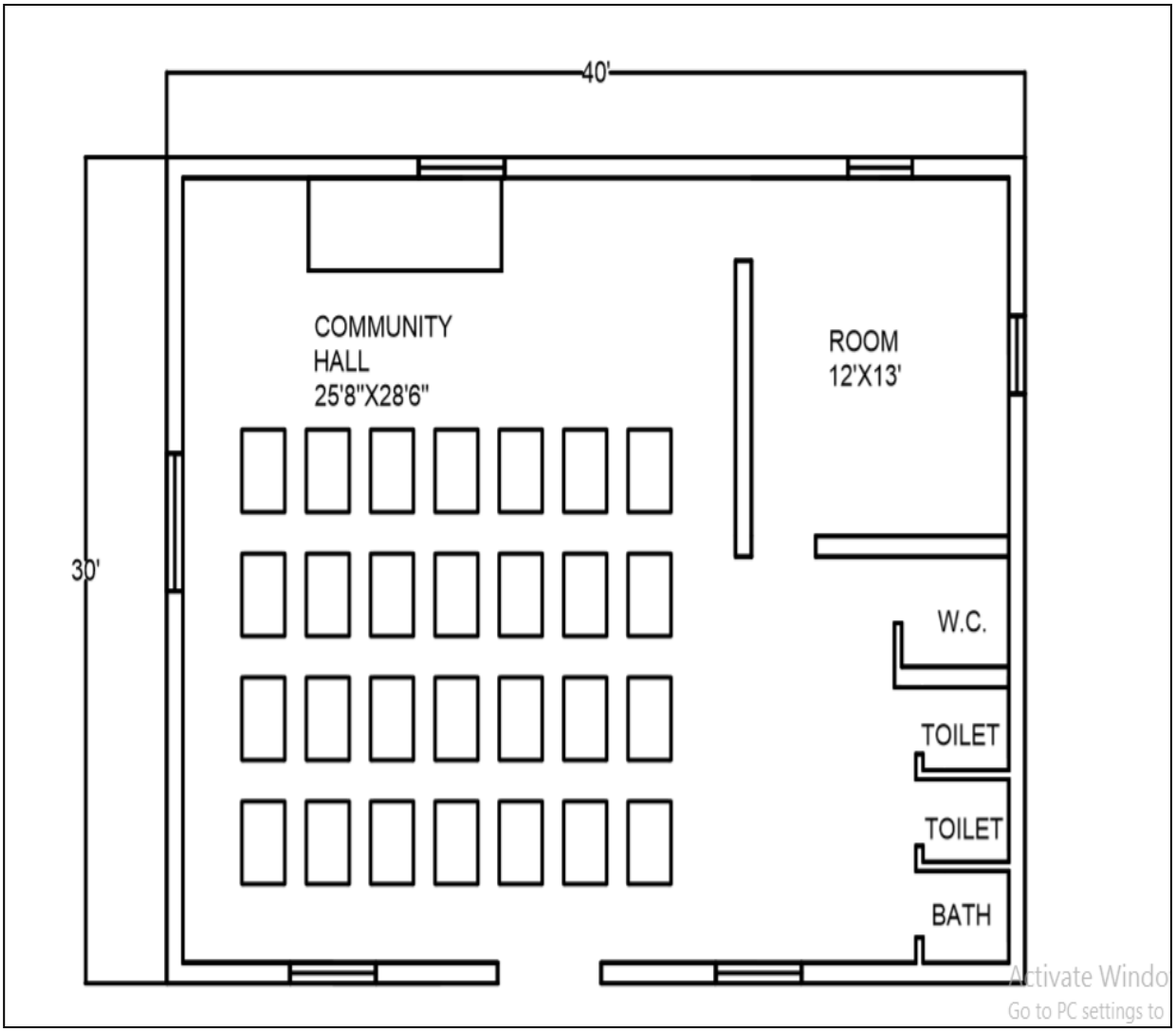
TABLE :-

Item	No.	L	B	H/O	Quantity	Rate	Cost
Earthwork in Excavation for foundation	1	44.4	0.9	1.10	43.96 m^3	85	3736.6
Brick Masonry up to plinth 1:6 Steps	1 1 1 1 1 1	46.4 46.9 47.4 1.1 1.1 1.1	0.3 0.4 0.3 0.9 0.6 0.3	0.3 0.3 0.85 0.15 0.15 0.15	6.96 5.63 12.08 0.15 0.10 0.05 24.97 m^3	3200	79904
Brick Masonry above plinth 1:6	1	47.9	0.2	3.0	22.52 m^2	3500	78820
Smooth plaster	--	--	--	--	219.3 m^2	150	32895
2 cm thick marble flooring RCC work in slab, chajja and linted					55.19 m^2 0.646 m^3 5.57 m^3 6.216	500 8000	27595 54700
TOTAL :- 2,77,650 Rs.							

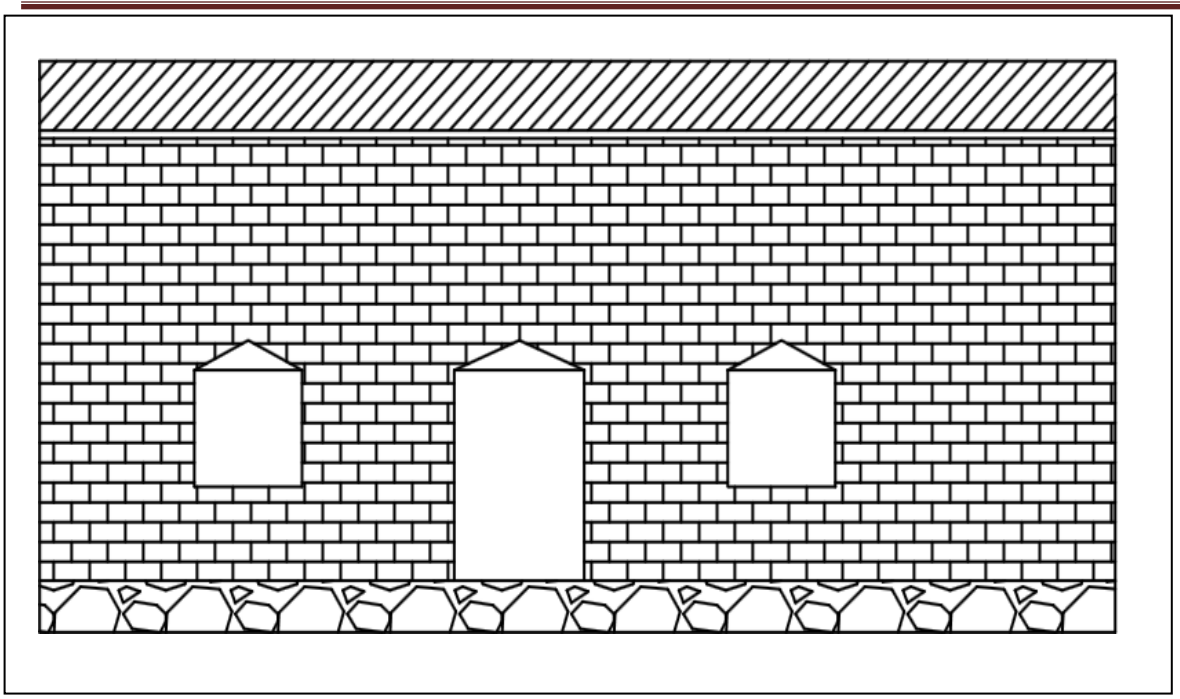
Add 1.5 % of water charges = 0.015 x 2,77,650 = 4164.75
Add 10 % of contractor's profit = 0.10 x 2,77,650 = 27765

GRAND TOTAL = 3,09,579.75 ₹

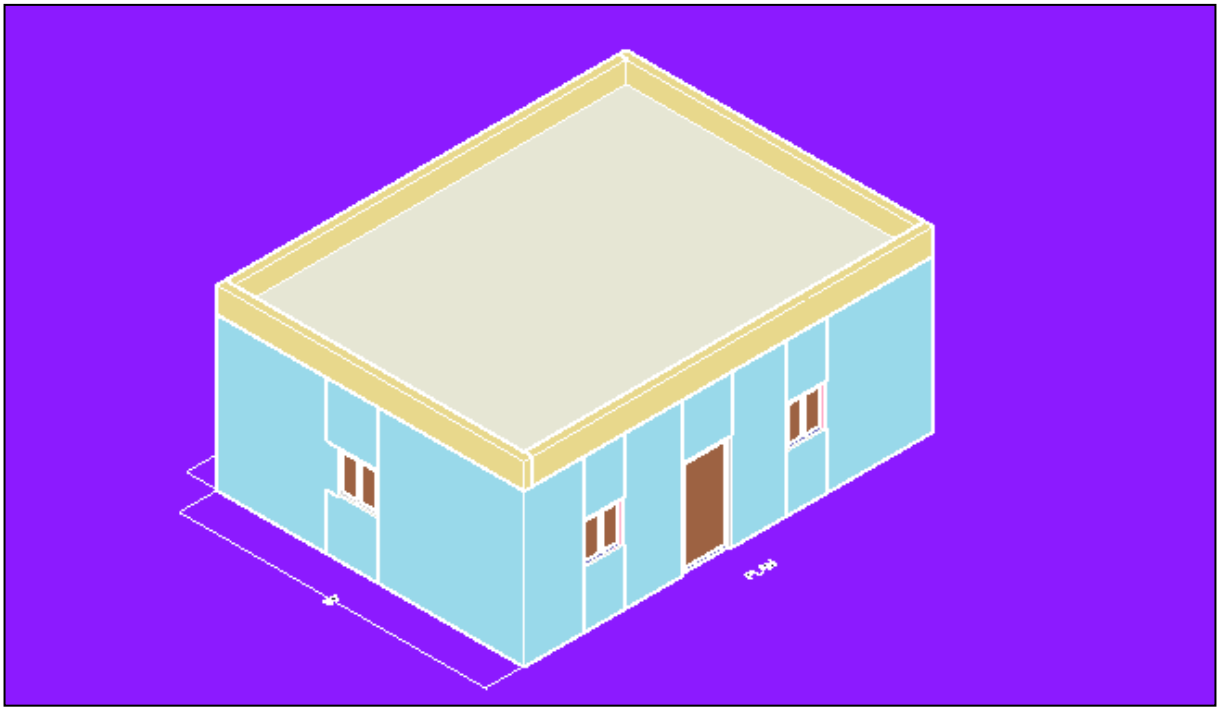
8.1.2 COMMUNITY HALL



PLAN FOR COMMUNITY HALL



SECTION FOR COMMUNITY HALL



ELEVATION OF COMMUNITY HALL

Measurement Sheet

Total Center Line = {(8.9154*2) + (11.9634*2) + 3.8862 + 4.991}
= 49.8348m (With 2 Junctions)

Measurement Sheet for Community Hall

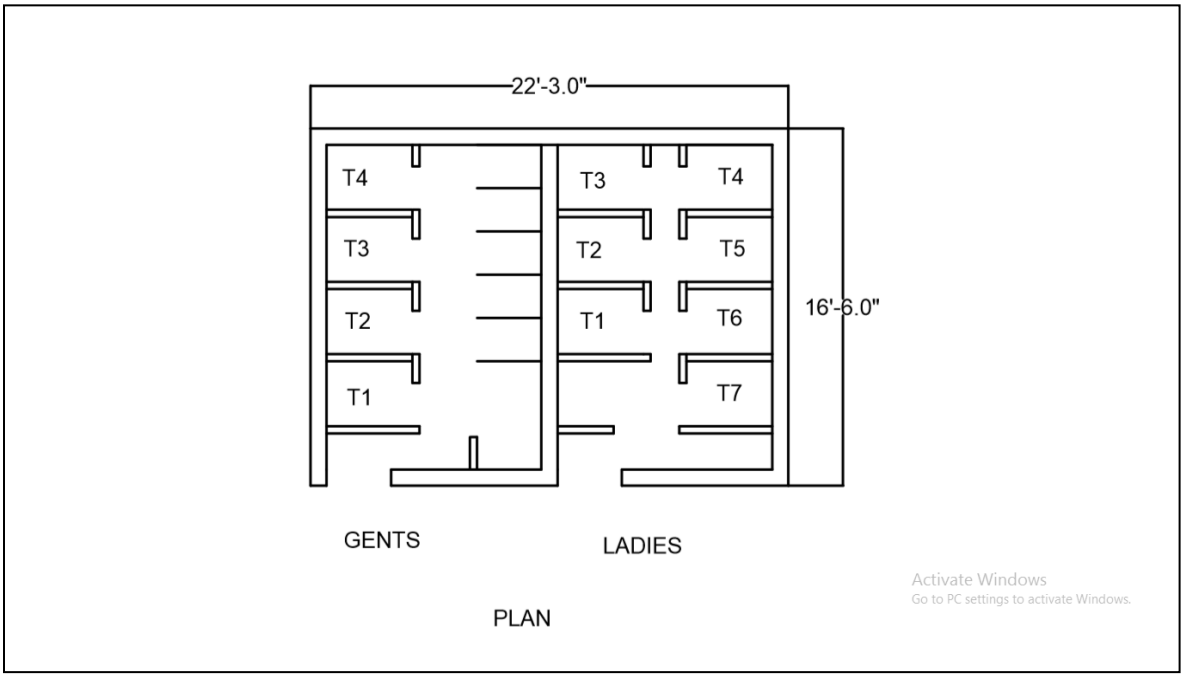
Sr. No	Item Description	No.	Length (m)	Breadth (m)	Height (m)	Quantity
1	Earth work in Excavation L = 49.8348 – (0.5*0.9*2)	1	48.935	0.9	0.3	**13.212m^3**
2	PCC (1:3:6) in Foundation	1	48.935	0.9	0.3	**13.212m^3**
3	First class brickwork up to plinth (1:6) L = 48.935 – (0.5*0.2*2)	1	48.706	0.2286	0.6096	**6.787m^3**
4	First class brickwork above the plinth up to first floor	1	48.706	0.2286	3.048	**33.937m^3**
	Door & Window deduction					
	D	1	1.22	0.2	2.1	2.675
	D1	2	0.91	0.2	2.1	0.7644
	W	1	1.524	0.2	1.4	0.4267
	W1	5	0.9	0.2	1.4	1.26
	Net Quantity = 33.937 – 2.9635 = **30.9735 m^3**					**=2.9635m^3**

Abstract Sheet Quantities

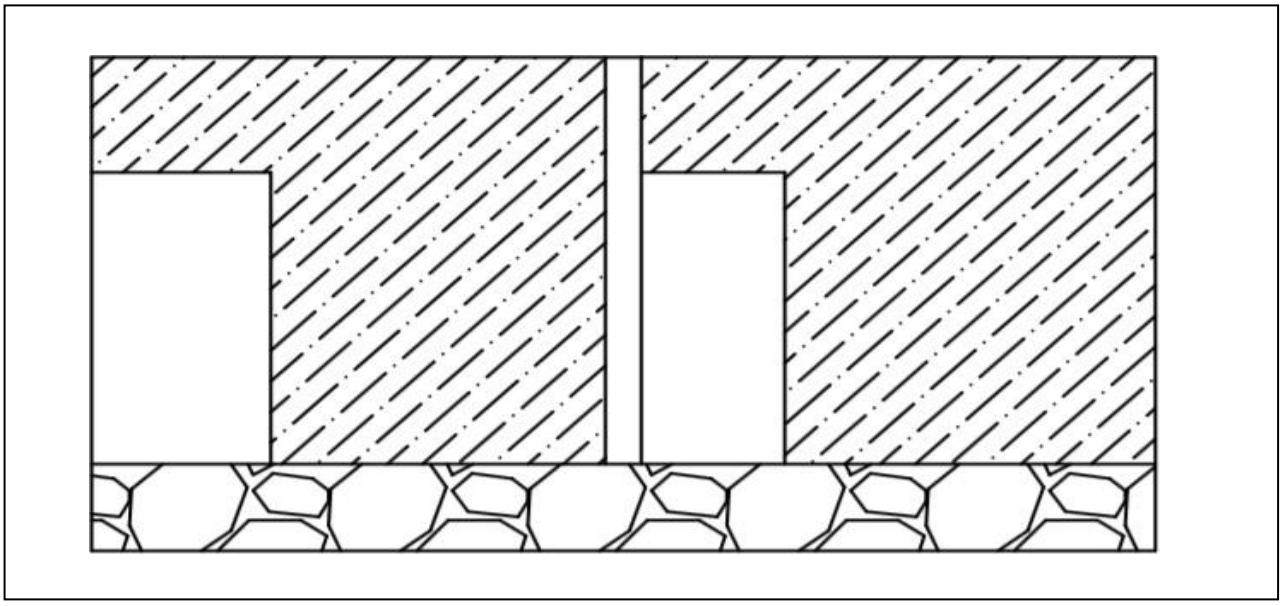
Abstract Sheet for Community Hall

Particulars	Quality m^3	Per 10 m^3	Total Amount Rs.
Excavation for foundation	13.212	900	11890
Cement concrete 1:4:8 in foundation	13.212	37800	499413
Brick bat cement in foundation (1:4:8)	6.787	31677	21499
First class brickwork in C.M. 1:6 in Superstructure (up to First Floor)	30.9735	78888	244344
Net Amount of Cost up to First Floor Level			**477146.6**

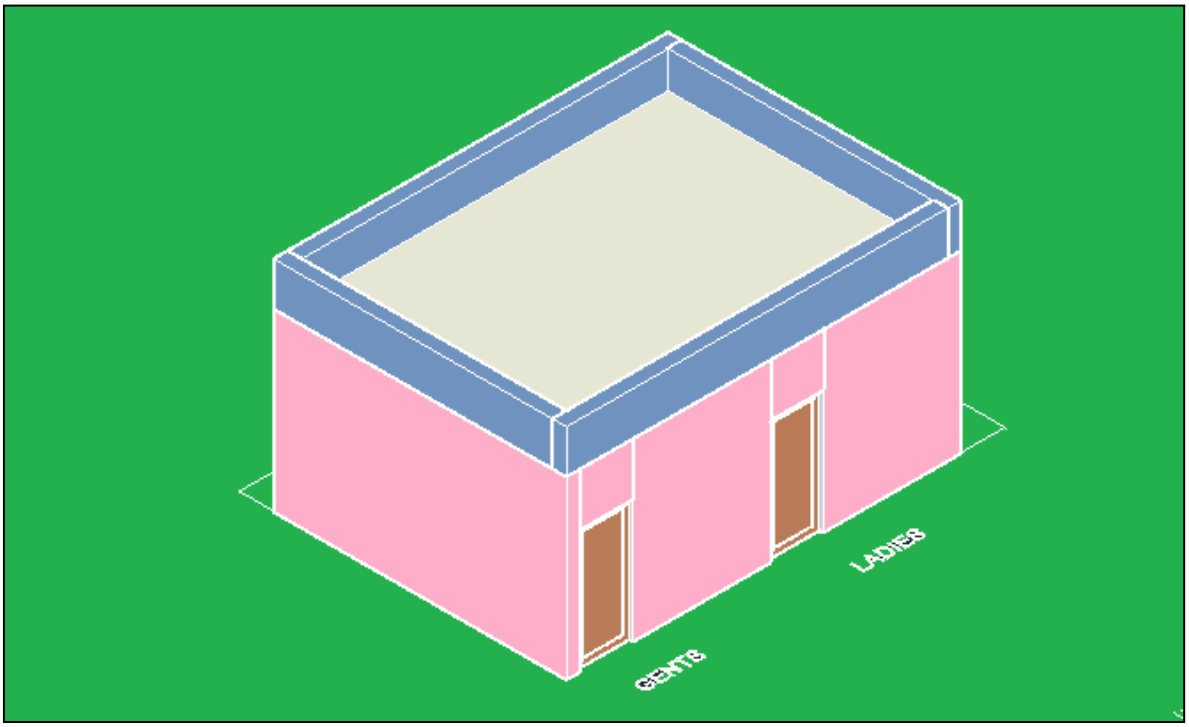
8.1.3 PUBLIC TOILET



PLAN



SECTION FOR PUBLIC TOILET



ELEVATION OF PUBLIC TOILET

Measurement Sheet for Public Toilet

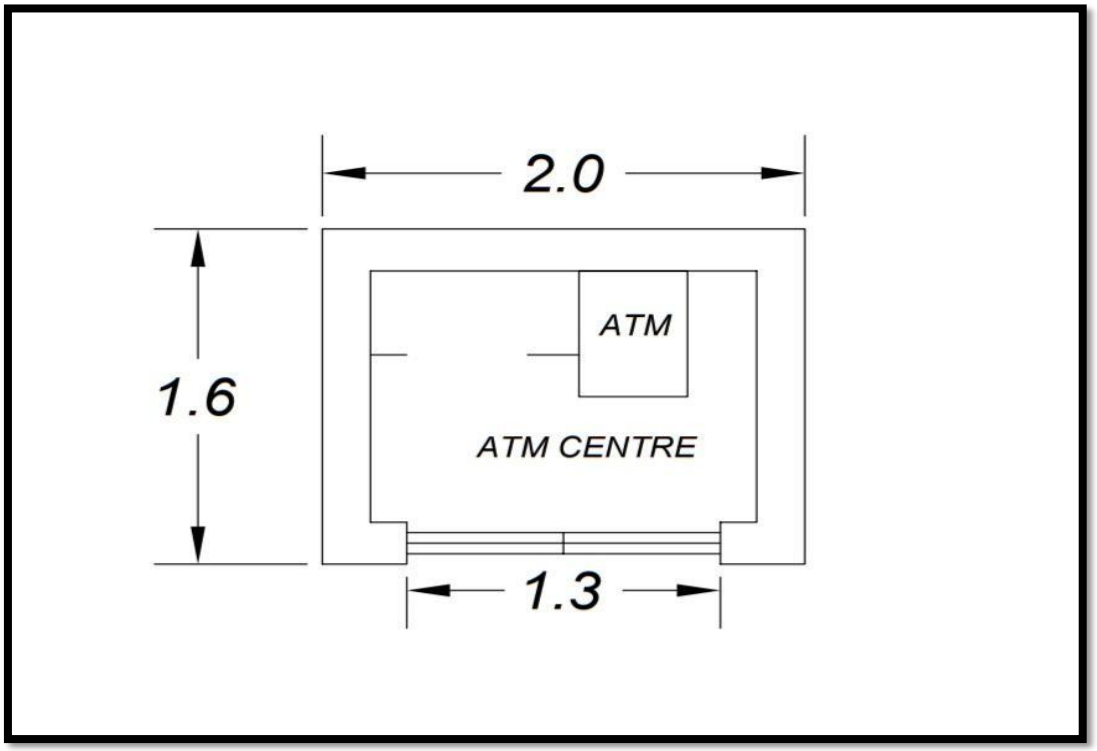
Sr. No	Item Description	No.	Length (m)	Breadth (m)	Height (m)	Quantity
1	Earth work in Excavation					
	Long Wall=7.09+0.9	2	7.99	0.9	0.3	**4.32 m^3**
	Short Wall=5.03-0.9	3	4.13	0.9	0.3	**3.35m^3**
						7.67m^3
2	PCC (1:3:6) in Foundation					
	Long Wall	2	7.99	0.9	0.3	**4.32 m^3**
	Short Wall	3	4.13	0.9	0.3	**3.25m^3**
						7.67m^3
3	First class brickwork up to plinth (1:6)					
	Long Wall = 7.99-0.67	2	7.32	0.23	0.61	**2.05 m^3**
	Short Wall = 4.13+0.67	3	4.8	0.23	0.61	**2.02m^3**
						4.07m^3
4	First class brickwork above the plinth up to first floor					
	Long Wall	2	7.32	0.23	3.05	**10.27 m^3**
	Short Wall	3	4.8	0.23	3.05	**10.10m^3**
	Short Wall:1	11	1.08	0.102	3.05	**3.7m^3**
	Short Wall:2	11	1.08	0.102	3.05	**4.34m^3**

						28.41m^3
Door & Window deduction						
	D	2	1.22	0.2	2.1	1.0248
	D1	11	0.91	0.2	2.1	4.2042
Net Quantity = **23.18 m^3**						**= 5.23m^3**

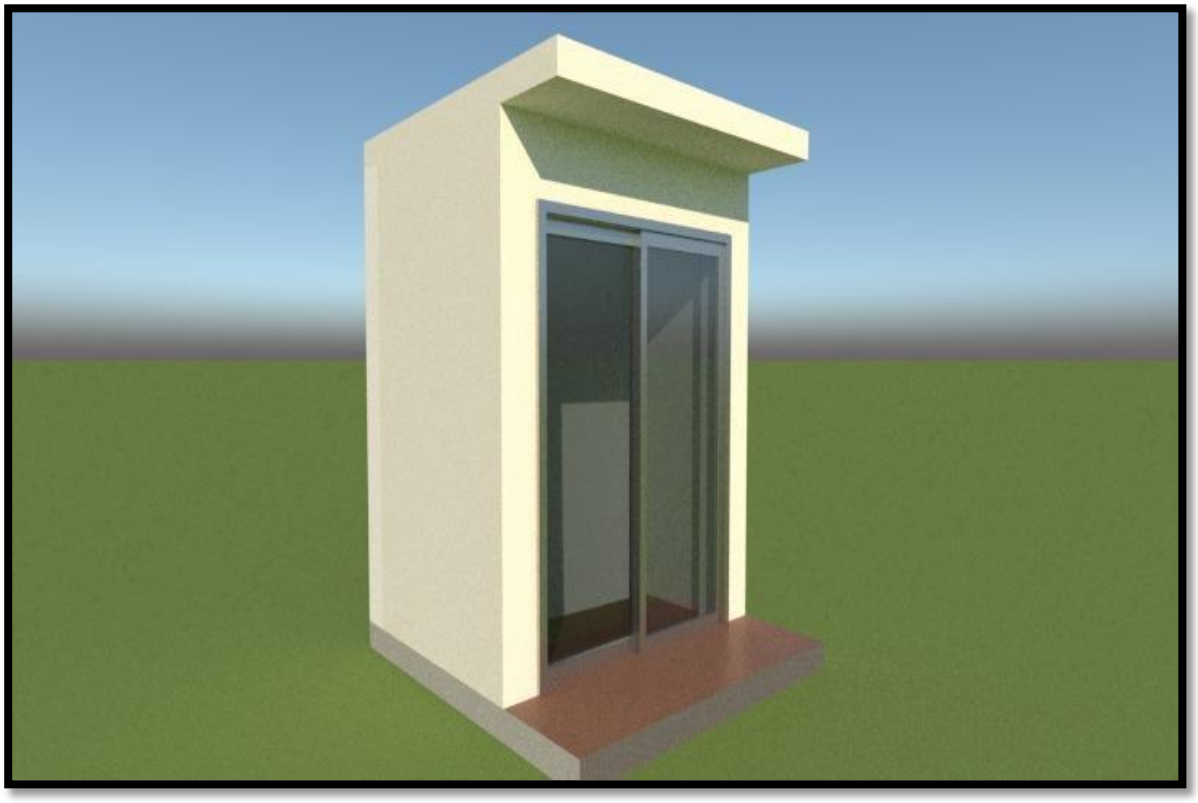
Abstract Sheet For Public Toilet

Particulars	Quality m^3	Per 10 m^3	Total Amount Rs.
Excavation for foundation	7.67	860	660
Cement concrete 1:4:8 in foundation	4.07	37674.9	15334
Brick bat cement in foundation (1:4:8)	28.41	31677	16824
First class brickwork in C.M. 1:6 in Superstructure (up to First Floor)	23.18	78888	182862
Net Amount of Cost up to First Floor Level			**288850**

8.1.4 ATM



PLAN OF ATM

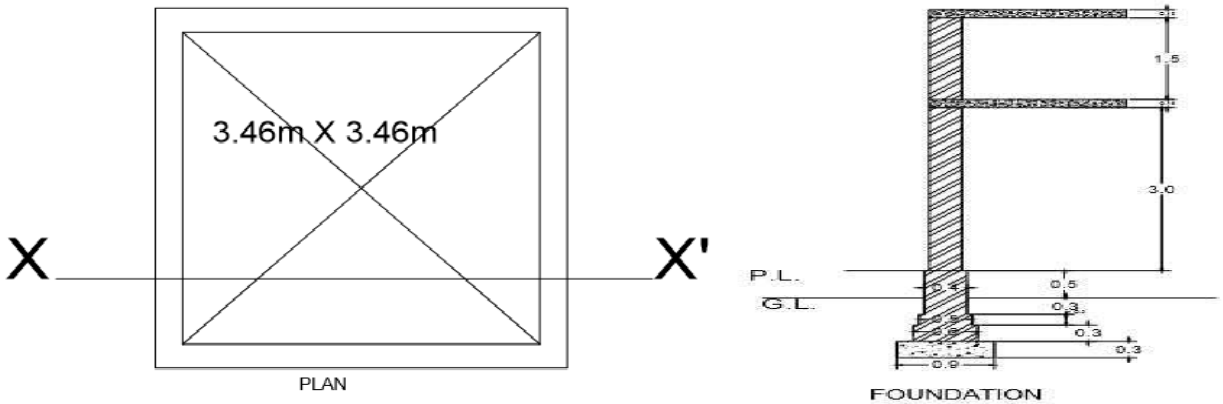


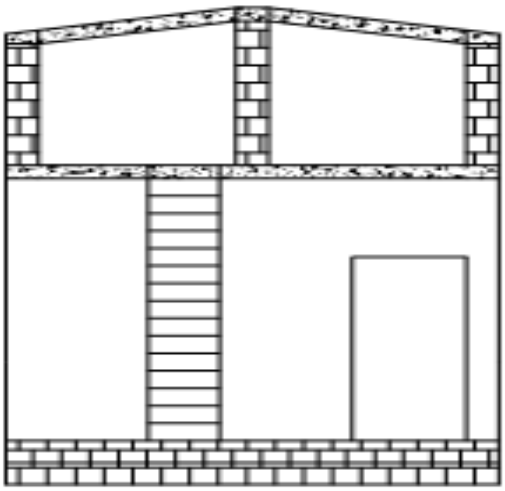
ELEVATION FOR ATM

ATM centre of size 2.0m x 1.6m out to out dimension will provide in Kungher Village. Area of ATM centre of out to out dimension = 2.0 * 1.6

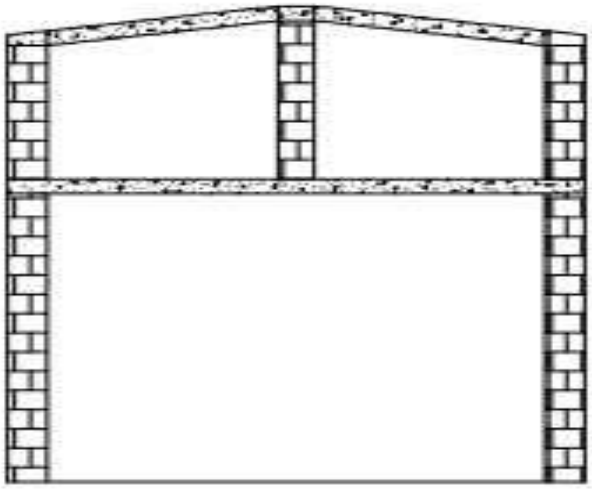
= 3.2 m^2

8.1.5 CHABUTRA





ELEVATION



SECTION

Total center line = 13.2 m Net

center line = 13.2 m

Measurement sheet Chabutara

Measurement sheet							
Sr no.	**Item Description**	**Nos**	**Length(m)**	**Width(m)**	**Height(m)**	**Quantity(cu.m)**	**Total Quantity**
1	Excavation for foundation in Soft ordinary soil. Total length = 13.2 m	-	13.2	0.9	1.1	-	13.068
2	Providing and laying Foundation concrete (P.C.C.) (1:4:8) at Foundation.	-	13.2	0.9	0.3	-	3.564
3	Providing and laying Brick masonry at foundation up to G.L.	-				-	

3.1	1st footing Total length= 13.2 m	-	13.2	0.6	0.3	2.367	7.911cu.m.
3.2	2nd footing Total length= 1.2 m	-	13.2	0.5	0.2	1.32	
3.3	3rd footing (up to G.L.) Total length= 13.2 m	-	13.2	0.4	0.3	1.584	
3.4	Brick masonry up to P.L.	-	13.2	0.4	0.5	2.64	
4	Providing refilling of the ordinary soil	Refilling = Total Excavation – (P.C.C. + Brick masonry of 1st – 3rd footing + Brick masonry up to G.L.) = 4.237 cu. m.					
5	Providing and refilling of the Yellow soil up to the Plinth level.	Refilling = 4.5 cu. m.					
6	Providing and laying Brick masonry up to bottom of the Slab. Total length = 13.2 m	1	13.2	0.3	3	11.88	11.88
	Deduction D	1	0.8	0.3	2.1	0.504	0.504
	Brick masonry 1st slab to 2nd slab	5	0.3	0.3	1.5	0.675	0.675
							Total brickwork = 12.042 cu. m.
7	Providing and Laying R.C.C. (1:2:4) work for 1st slab	1	3	3	0.15	1.35	1.35

	Providing and Laying R.C.C. (1:2:4) work for 2nd slab	1	3.48	3.482	0.15	1.81	1.81
	R.C.C. Chajja(1:2:4) D	1	0.95	0.6	0.15	0.086	0.086
							Total R.C.C. (1:2:4) Work = 3.246 cu. m.
9	Plaster						
9.1	inside plaster Total length =	5	3	3		45	45 sq.m
	Deduction D	1	0.8		2.1	0.252	0.252 sq.m
							Total outside plaster = 45.252 sq. m.
9.2	outside plaster up to 1st slab	4	3.65		3	43.5	43.8 sq.m
	Plaster for brick masonry column	5	0.3		1.5	2.25	2.25 Sq.m
	up to 1st to 2d slab						
	Deduction D	1	0.8		2.1	0.252	0.252 Sq.m
							Total inside plaster = 45.79 sq. m.
10	Flooring		3	3		9	9 Sq.m

Abstract Sheet Chabutara

Abstract Sheet

Sr no.	Particulars	Total Qty.	Rate	Per	Amount
1	Excavation for foundation in soft ordinary soil.	13.068	86	M^3	1123.84
2	Providing and laying Foundation concrete (P.C.C.) (1:4:8) at foundation.	3.564	3000	M^3	10692
3	Providing and laying Brick masonry at foundation and plinth.	7.911	900	M^3	7119.9
4	Providing refilling of the ordinary soil in foundation trenches.	4.23	106.93	M^3	452.31
5	Providing and refilling of the Yellow soil at Plinth level	4.5	211.78	M^3	953.01
6	Providing and laying Brick masonry upto bottom of the slab	12.051	3530	M^3	42540
7	Providing and Laying R.C.C. (1:2:4) work	3.24	8800	M^3	28512
8	Providing 12 mm thick cement plaster in C.M. (1:4)	91.042	130	M^2	11835

9	Providing and fixing tile flooring	9	600	M^2	5400
		Total cost in Rupees =108628.06			

8.1.6 Bio-Gas Plant

Design:

Total no. of animals in village = 580.

As per standard data assume per day dung of animals = 10.5 kg So,

total dung per day = 580 x 10.5

= 6090 kg/day

Design of Digester:

Assume retention period (R) = 70 days

Now total amount of slurry per day (S) = Total dung per day + water amount

= 6090 + 2(6090)

= 18270 kg/day

= 18.27 m3/day Digester

Volume = S x R = 18.27 x 30 = 1278.9 = 1280 m3 Assume

cylinder shape biogas plant.

Provide total 2 no. of unit in different area.

So, digester volume becomes = 1280/2 = 640 m3

Provide = 640 m3

Total digester volume (Vd) = πr2h

640 = πr2 (10) , assume h = 10 m r =

4.51 m

So, dimensions are h = 10 m, r = 4.5 m

Design of Gas Holder:

Assume digester temperature = 26-28 ^{O}C

Now,

Specific Gas Production (Gd) = 37 liter/day Daily

Gas Production G = Gd x Feed Volume

= 37 x 12870 = 675990 lit = 676 m3

Assume Gas Holder capacity = 60%

Gas Holder Volume = Daily Gas Production x Capacity of Holder

= 676 x 0.60

= 406 m3

So, take gas holder volume = 300 m3

Now, for 6 units provide volume of holder each unit = 300 m3 / 2 = 150 m3

Provide cylinder shaped,

Therefore, Volume = πr2h

150 = πr2 (1) assume h = 1 r =

6.91 m

So, dimension of the gas holder: h = 1 m, r = 7 m Design of

Inlet and Outlet:

Total Volume of slurry mix deposit = 18.27 / 2 = 9.135 m3 / day

Assume two-time filling operation in plant.

So, take total volume of slurry = 9.135 / 2 = 4.567 m3 / day = 4 m3 / day

Provide Rectangular tank.

So, Total volume for one time mixing of slurry = L x B x H

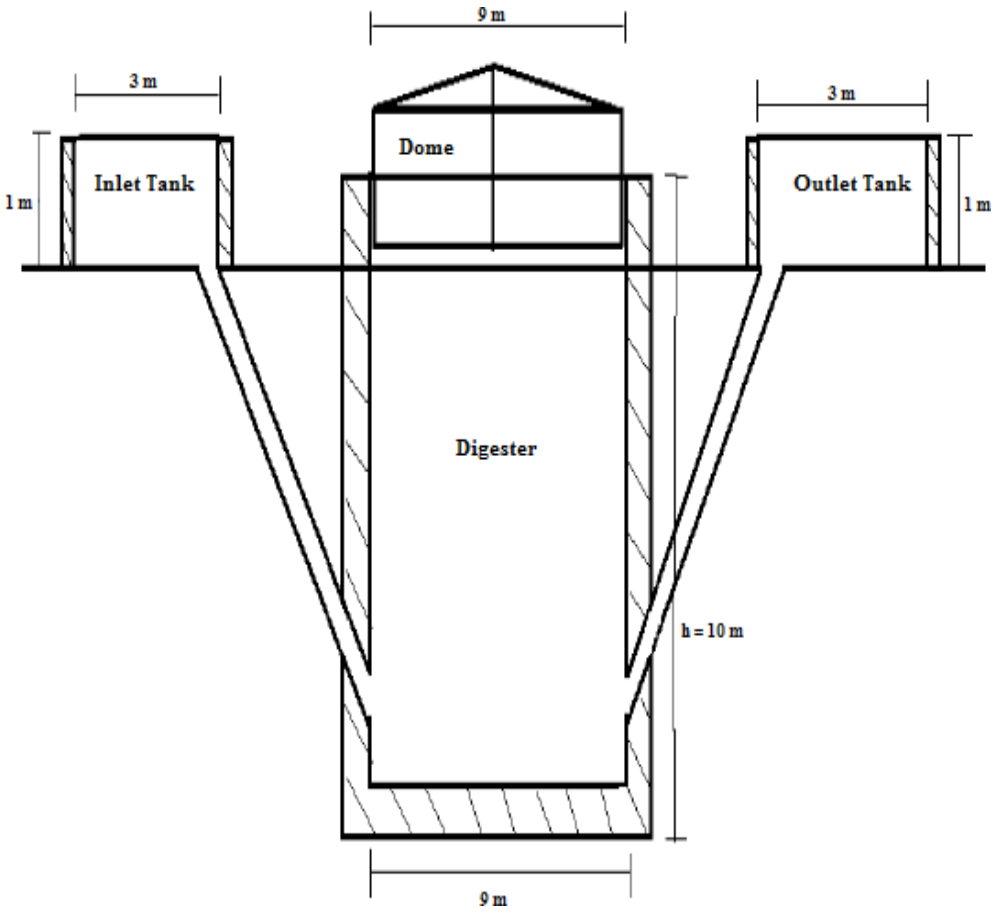
5 = L x B x 1

Dimensions of inlet: L = 3m B = 2 m H = 1 m

Here, 5 m3 / day required < 6 m3 / day provided.
Provide same size of outlet also.

CONSTRUCTION OF GAS PIPELINE:

The gas pipe conveying the gas from the plant to users point is vulnerable for damages by people, domestic animals and rodents. Therefore only heavy quality galvanized iron pipe should be used which must be, where possible buried 30m below ground level. Fittings in the pipeline must be sealed with zinc putty and Teflon tape. any other sealing agent , like grease , paint only , soap etc must be avoided.



Biogas Plant

8.1.7 SOLAR STREETLIGHT

INTRODUCTION

In this village street lights are found at some places but most of that found not in workable condition. So it needs to maintain them. And some of important places found with not having this facility. So they need a solar wind hybrid street light facility. Because solar wind hybrid street light facility is better than the normal street light facility.

Solar Wind hybrid street light have low maintenance cost and it is renewable energy source. So we suggest to the government to take steps to provide solar street light with wind turbine in the village.

Each street light can have its own photo voltaic panel and wind turbine independent of other street lights. Alternatively, a number of panels can be installed as a central power source on a separate

location and supply power to a number of street lights.

The village has electrified from many years. Most of the household are electrified. Electricity is available 24 hours in their house. The survey shows the 95% households are electrified. The village receives 24 hour every day without break in a day

In the view of agricultural there is a few farmers use the electricity for the agriculture purpose. There is no facility of the street light in the village road and the main road approach to the village.

They use the Jyoti gram Yojana for the electricity. There is also electrification in the gram Panchayat building, anganwady Kendra and primary school. All over in the village the electrification system is well but they need the street light in the village road and the main road at some interval.

Latest designs use wireless technology and fuzzy control theory for battery development. The street lights using this technology can operate as a network with each light having the capability of performing on or off the network.

Places Where It Is Required

In this village some places like temple and gram Panchayat are having this facility, but other important buildings are not having this facility. So we can design for other government buildings and some public locations. Primary school, main market and in the street we are going to design solar streets and with wind turbine .

Here are some locations which needs solar street lights.

Components of solar wind hybrid street light

Solar Panel

Solar panel is one of the most important parts of solar wind hybrid street lights, as solar panel will convert solar energy into electricity. There are 2 types of solar panel; mono-crystalline and poly-crystalline. Conversion rate of monocrystalline solar panel is much higher than poly-crystalline.

Wind turbine

Wind turbine is one of the most of solar wind hybrid street light, as wind turbine will convert wind energy into electricity. There are two types of wind turbine; vertical turbine and horizontal turbine. Conversion rate of vertical turbine is much higher than horizontal turbine.

Lighting Fixture

LED is usually used as lighting source of modern solar street light, as the Led will provide much higher lumens with lower energy consumption. The energy consumption of LED fixture is at least 50% lower than HPS fixturewhich is widely used as lighting source in Traditional street lights. LEDs lack of warm up time also allows for use of motion detectors for additional efficiency gains.

Rechargeable Battery

Battery will store the electricity from solar panel provide energy to the fixture during night and wind turbine is generate energy 24 hours. The life cycle of the battery is very important to the lifetime of the light and the capacity of the battery will affect the backup days of the lights. There are usually 2 types of batteries; Gel Cell Deep Cycle Battery and Lead Acid Battery

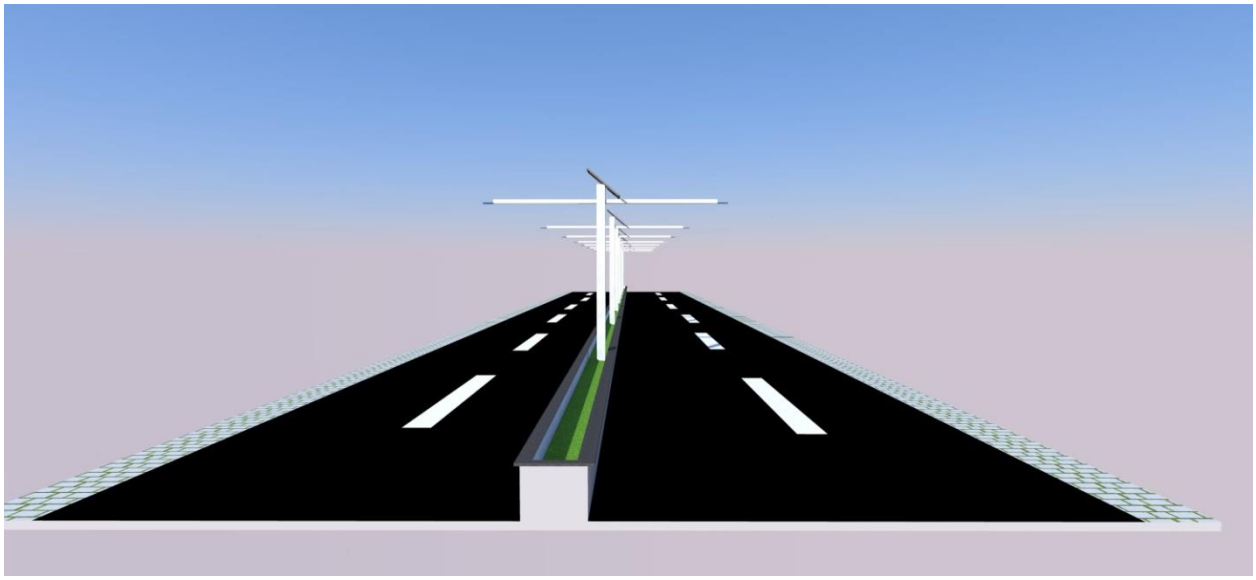
Controller

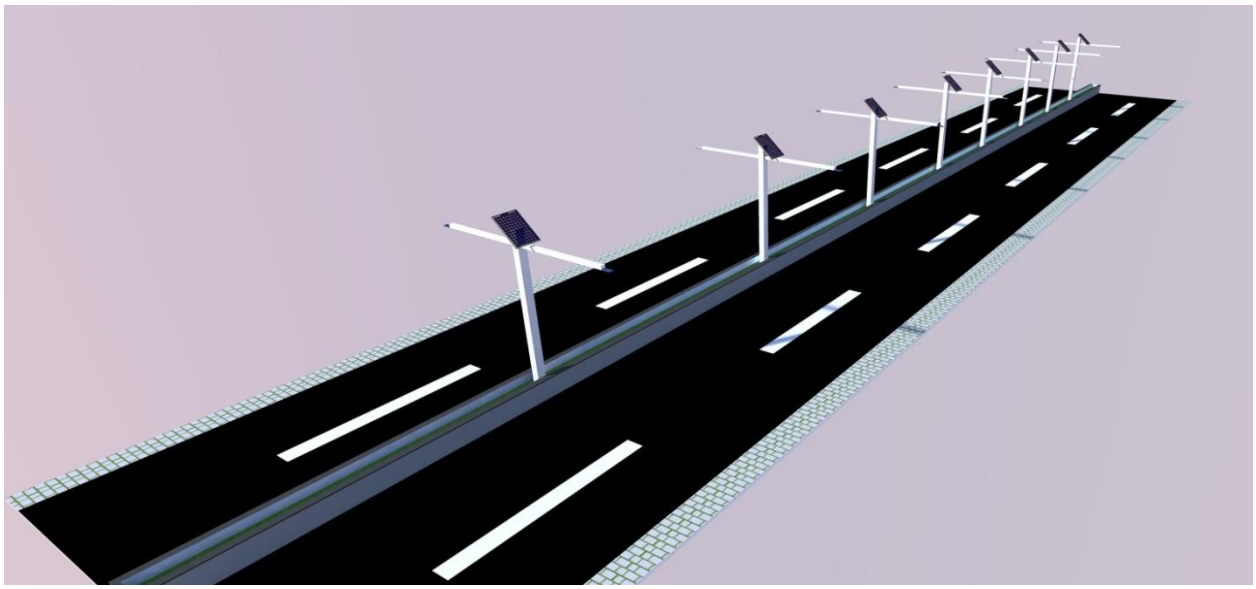
Controller is also very important for solar wind hybrid street light. A controller will usually decide to switch on/off charging and lighting. Some modern controllers are programmable so that user can decide the appropriate chance of charging, lighting and dimming.

Pole

Strong Poles are necessary to all street lights, especially to solar and wind street lights as there are components mounted on the top of the pole; Fixture, Panels and sometimes batteries. And wind resistance should also be taken into consideration when choosing the pole.

Design of solar wind hybrid street light





Front & Top View of Solar street lights

Cost of Component

Sr. No. Component Price

1 Wind turbine 14,000
2 Solar panel 2,550 Rs.
3 Lighting fixtures 1,250 Rs.
4 Controller 4,000 Rs.

5 Rechargeable battery 3,500 Rs.
6 Pole 2,000 Rs.
7 Labour charge 1,000 Rs.

Grand Total 28,100 Rs.

8.1.8 Automation Power System with Prepaid Energy Meter

Introduction

The present traditional billing system have many problems like problem of payment collection,energy thefts etc. due to which the traditional billing system is slow, costly and unreliable. The present billing system has chances of error and it is also time or labour consuming. A paper suggests a design of digital energy meter for improved metering and billing system. Poly-phaseprepaid energy metering system has also been proposed and developed based on local prepayment and card reader.

Prepaid Energy Meter

Prepaid energy meter is technique which is cost efficient and can reduce problems associated with billing and also reduces deployment of manpower for taking meter readings. Prepaid energy meter has many advantages both from suppliers as well as consumer's point as follows:

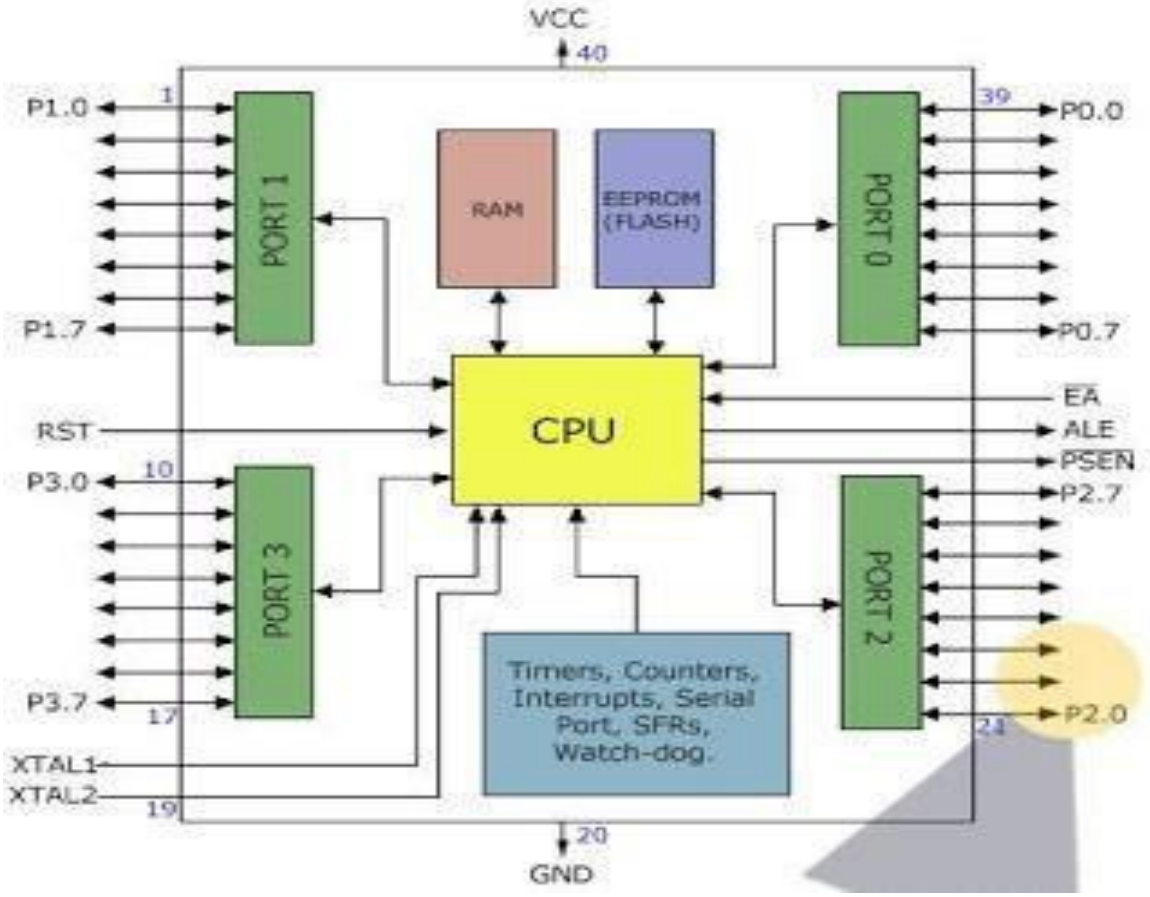
Why Prepayment – From supplier point of view?

- Pay before use
- Keep customers on supply
- Recover money owed (debt)
- Lower overhead
- No bill production
- No bill distribution
- No need to chase payments
- No further actions such as disconnections
- Social acceptability
- Customer responsible for disconnection
- Load and demand side management
- Limit load
- Load based
- Time based

Why Prepayment – From Customer point of view?

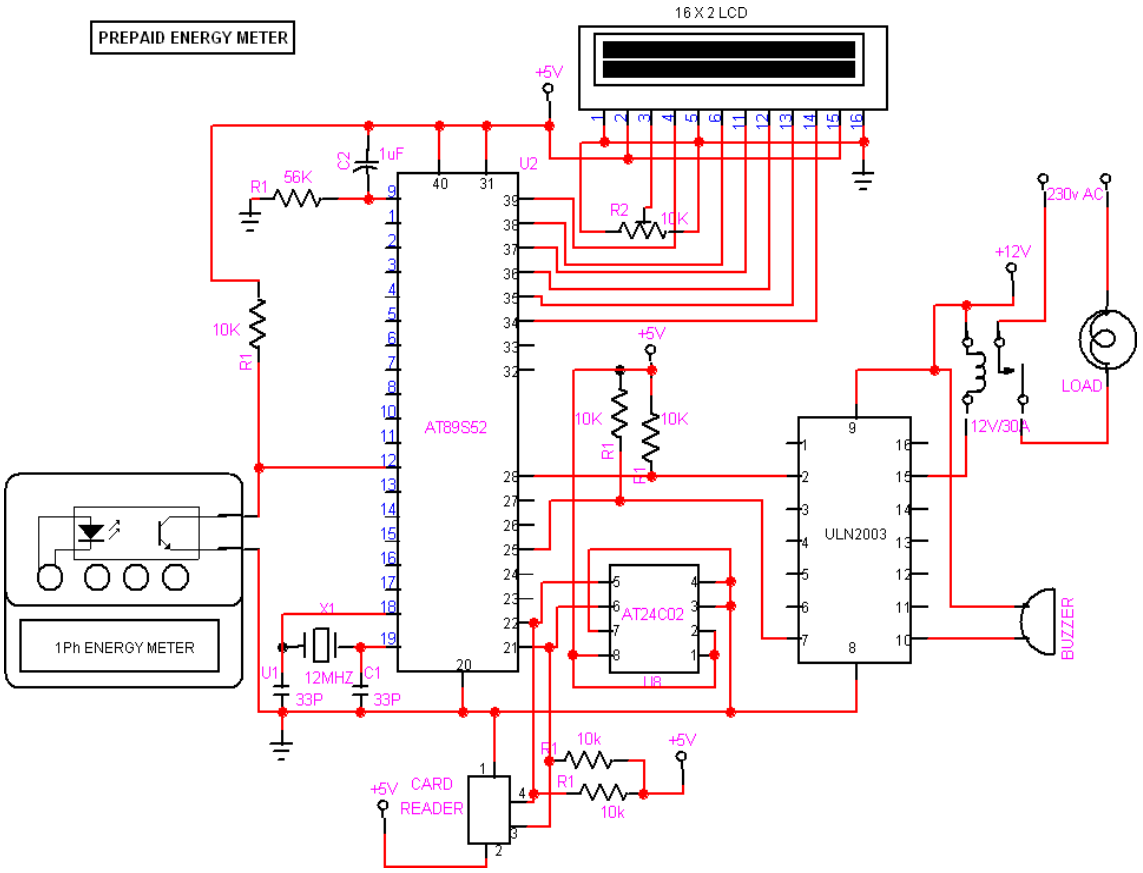
- >80% mobile phones used in India are prepaid
- Flexible payment solution

- Pay to suit your income status
- Daily, weekly , monthly budgeting
- Show true cost of consumption and money left Reduce consumption when income is tightmake money last
- Reduce waste – conserve energy
- No bills
- No billing errors



BlockDiagram of prepaid energy meter

The block diagram of prepaid energy meter is shown in fig. It consist of microcontroller AT89S52, buzzer, keypad, relay, single phase energy meter, IC AT24C02 which is an EEPROM and has volatile memory, IC ULN2003 is a high voltage/ high current Darlington array each contains seven open collector Darlington pairs with common emitters used to drive loads.



Circuit diagram of energy meter

The circuit diagram of energy meter circuit is shown in fig. (ii). A 230 V A.C – 12 V D.C step down transformer is used as power supply. The rectifier circuit is used to convert A.C into D.C.at the output of rectifier circuit +12V power supply is generated. The IC 7805 is a voltage regulator which is a 3 pin IC and is used to convert +12V into +5V. Now in our project where we need

+5V supply we take it from output of IC7805 and where we required +12V supply we take from the input of IC7805. When the microcontroller AT89S52. which is a 40 pin IC gets signals first of all we insert the recharge number using the keypad. The recharge unit is stored in IC AT24C02 which is an EEPROM and has volatile memory and this recharge unit is display in Liquid Crystal display (LCD) and a message "recharge successful" also displays. The IC ULN2003 is a high voltage/ high current Darlington array

containing seven open collector Darlington pairs with common emitters used to drive loads. Since the current produced by the microcontroller is only 10 mA which is very low to drive a relay that is why we are using ULN2003. which converts 10 mA into 80 mA and the relay is switched ON. As the power is consumed the reading in the single phase energy meter(connected across X2-1 and X2-2) is increased and the units in LCD is decreased by Rs.1.When the balance reaches to Rs.10 then the buzzer starts indicating that we should recharge our meter soon. And if balance is nil then the relay is switched off and no electricity flows.

Energy is the measure of how much work has been required over a known period of time. We areusing a light bulb as a load with a 100W rating which consumes 100 watts of active power in order to create light (and heat). First of all a wattmeter is used to measure the power consumed by the load by using the equation. The frequency across 100 W load obtained during an experiment is F= 0.5 Hz

And P = 100*X/0.5P =

200*X

Where X is the frequency of pulses that is produced by the energy meter.1

watt sec = 1 kW sec/1000

1 watt sec = 1 kWh/ (1000*3600) Therefore

Energy = P * Sec/ (1000*3600)

Features :

- 8K Bytes of In-System Programmable (ISP) Flash Memory
- Endurance: 1000 Write/Erase Cycles
- 4.0V to 5.5V Operating Range
- 256 x 8-bit Internal RAM
- 32 Programmable I/O Lines
- Full Duplex UART Serial Channel
- Fully Static Operation: 0 Hz to 33 MHz

Costing of Small Wind Mill:-

Costing of small wind mill

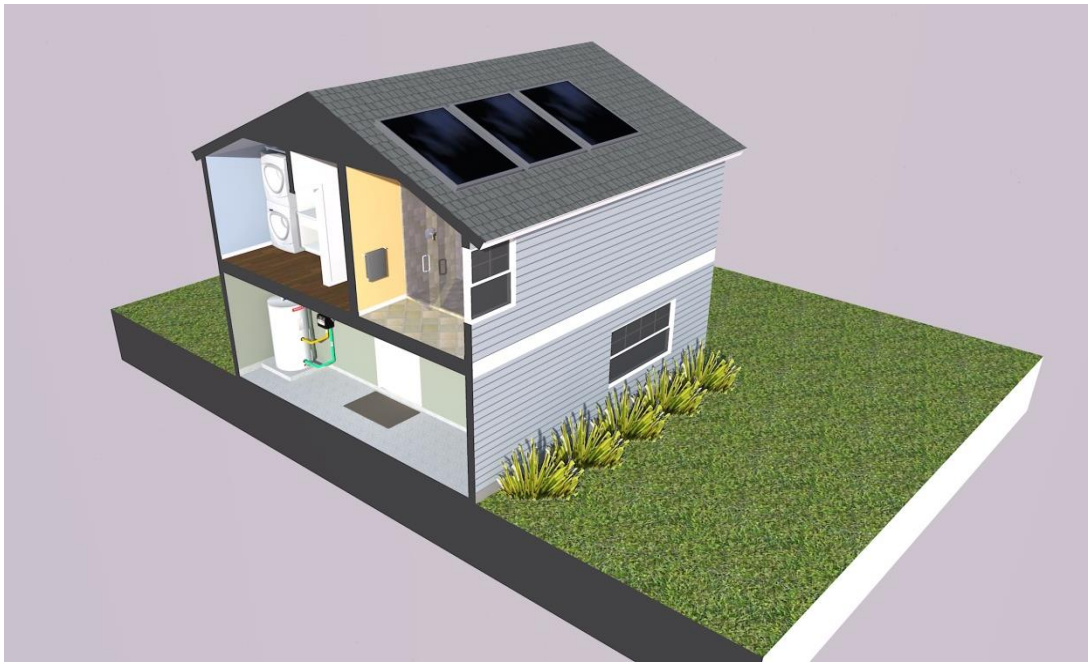
Sr. No.	COMPONENTS	QUANTITY	TOTAL PRICE

1.	Microcontroller 8051 AT89s52	1	150
2.	Voltage regulator	1	100
3.	LED display	1	150
4.	Crystal oscillator	1	145
5.	Energy meter	1	200
6.	Key-pad	1	157
7.	Relay	1	270
8.	Optocoupler	1	199
9.	Resistor	4	200
10.	Other price for soldering wires, PCB, assembeled charge.	-	5000
		Total	**6571**

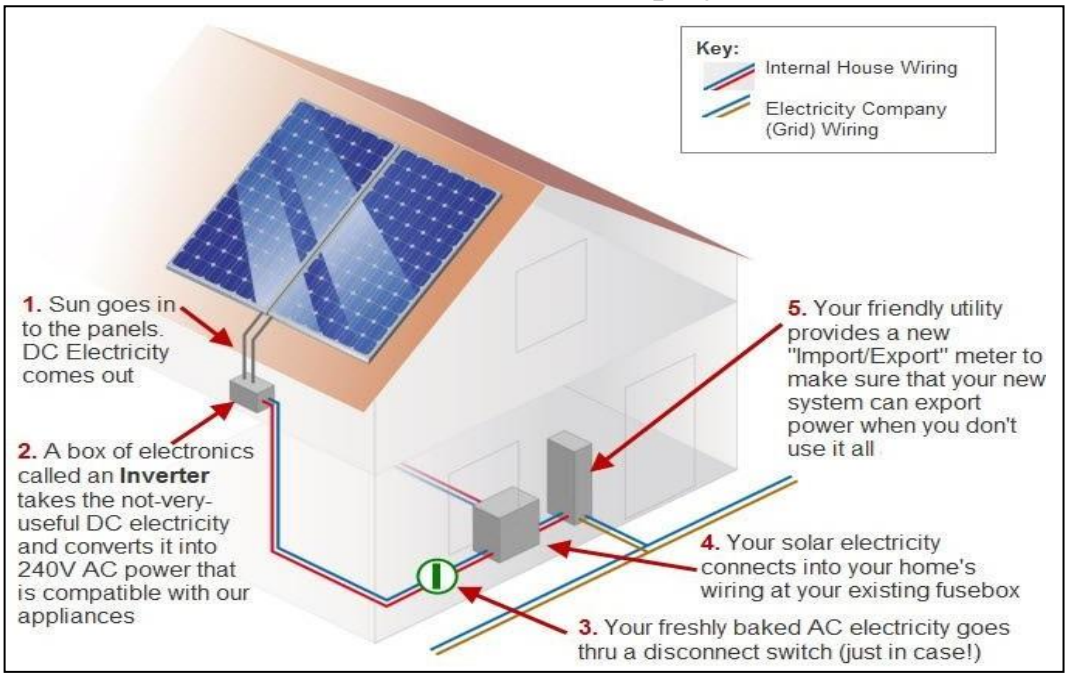
8.1.9 Panel Rooftop System

- Photovoltaic is a technology that reliably converts solar radiation into electricity. There are different types of modules depending on power ratings. Every module has a numberof solar cells.
- Solar cells are fabricated by means of semiconductors such as silicon. Photovoltaic cellsgenerate electricity in clean and reliable manner which is the prime concern for today's environment.
- Variation in temperature affects the efficiency of solar module greatly. Due to these variations this technology faces enormous challenges in its power quality performance.
- Integration of renewable energy is also a tedious process. Solar photovoltaic stand alonesystems have better power quality as compared to grid integrated systems. In standalonesystems batteries connected with MPPT charge controller tolerates all fluctuations of temperature and radiation associated with environment.
- In this design, 1 kW PV system is designed for small home mainly for rustic areas sitedin India.
- This is small roof top system and its performance based on cost analysis has evaluatedusing PV system software.
- PV system software uses the information of solar radiation to calculate generated power,used power and unused power.
- Then the economical costing of the system is performed on the generated data. Mainly the study includes the data for one year and the information about the solar radiation is generated by the software itself based on the latitude and longitudinal information of thesite.
- Then for the specified load it gives different values about the generation of solar energy.

- The second section gives a brief introduction about the designing of PV system.



Elevation of Panel Rooftop System



Component of Rooftop System

Component Cost

Sr. No.	COMPONENTS	COST (In Rs.)
1.	Solar PV modules	30000
2.	Inverter	12000
3.	Mounting structure	8000
4.	Junction Box	1000
5.	Earthing strip	1000
6.	Cables and Wires	2000
7.	Transportation cost	500
8.	Other miscellaneous cost	2000
TOTAL COST		**56500**

Government Incentives

Sr. No.	Category of Consumer	Central subsidy	State subsidy
1.	Residential	30%	10000/KW maximum of 20000 for 2 KW of system
2.	Institutional	30%	NA
3.	Government buildings and institution	Achievement linked incentives	NA
4.	Private commercial and industrial sector	NA	NA

8.2 Reason for Students Recommending this Design:

- We recommend this Pucca dwelling house design for villagers because there is very bad condition of the houses.
- We recommend community hall design in the village for the well-being of the users.
- We recommend ATM design in the village for the convenience of the villagers.
- We recommend Public Toilet design in the village for spreading awareness about safety in the village.

8.3 Benefit of the villagers

1. To Meet the Population Amenities.
2. To Design Eco-Sanitation System for Public Toilet to Reduce the Cost of the Construction and meet the Government Tender Requirement.
3. The Developed new community hall to meet the Future Requirement and Safety Instant.
4. To Increase the Communication and Skill.
5. The Developed of Social Infrastructure to Increase the Skill of the Peoples or Students.
6. To Design or Establishment of ATM, villagers will get proper facilities.
7. To Design Mobile Toilets in the Village to meet Public Amenities every day and Big Festival.
8. To Reduce the Cost Land area Uses and Increase the Land Values.
9. To Increase the Skill and Knowledge about the Culture by Developing Community Hall.

Chapter 9. PROPOSING DESIGNS FOR FUTURE DEVELOPMENT OF THE VILLAGEFOR THE PART-II

-**Bank** for providing good awareness related to investments and money.
By this bank facility villagers can easily stay connected to the government schemes.

-Overhead for providing sufficient quantity of water to the villagers and farmers for farming. By this overhead tank villagers will easily get their irrigated water for farming.

-Post Office for providing the monthly facilities to the villagers.
Villagers will no need of going to farther city for money related issues.

-Government Hospital for well-being of villagers, by this they should not have to run to other district for treatment in emergency cases.

-Solar plant can be used for electricity purposes in schools and hospitals.
To get the proper electricity with low cost and economic cost.

-Higher Secondary School for providing education to the students. By this facility children have no need to migrate to other nearby cities for their studies and will get all their education from Nayta village itself.

-Disposal plant can be planted for disposal of garbage and plastics from the village to make it clean. By this disposal plant there will no garbage in the village which will minimize the viral diseases and protect the villagers.

-Road for giving peaceful transportation to villagers and should not face the problems in monsoon. Roads for villagers' welfare and for their wellbeing. They will get the proper and comfortable travelling by goog approuach roads in the village.

Chapter 10. CONCLUSION OF ENTIRE VILLAGE ACTIVITIES OF PROJECT

From this VY Phase-8 project, we have concluded that…

What is basic need of village and what is amenities and prior requirement to make any village as an allocated village.

We have surveyed of an allocated village at Nayta near patan, we have to determine that what is basic need& facilities to have in a village and how to providing this facilities as economical and sustainably for superior purposes in our Nayta village.

We can also determine that what is the process needs to be done such all this work and what is role of villagers, Sarpanch, Local authorities, Talati, TDO, DDO for development of village and also basic and main thing is supporting to all will make sustaining design and facilities for village develops as an allocated village.

We can say that by this project that if we want to change the society as nation or urban area then first of all the main income source and backbone of our India is villages or rural area. so we have to give all necessity amenities that cause they live better life as well as they can utilize all facilities as economical as possible also villagers can develop their self as compare to urban area.

Village area is far from city area hence many things like educational,health social cultural facilities has developed by us with the help of this excellent project VYphase-8.

Hence, we can conclude that if we want to change our society and nation then first of all change or develop village area. In addition, this is the initial step to make India as a developed country so we have to serve by our skill to develop our country and “Make India An Developed country from a developing country" with the and how to do work systematically so we can make any help of this type of project work.

Chapter 11. REFRENCES REFEREED FOR THIS PROJECT

Research Papers & Reports:

Amit kumar et. Al. (2018), "Vishwakarma Yojana: Rural Development Approach by GTU (Anand & Kheda District, Gujarat, India)".

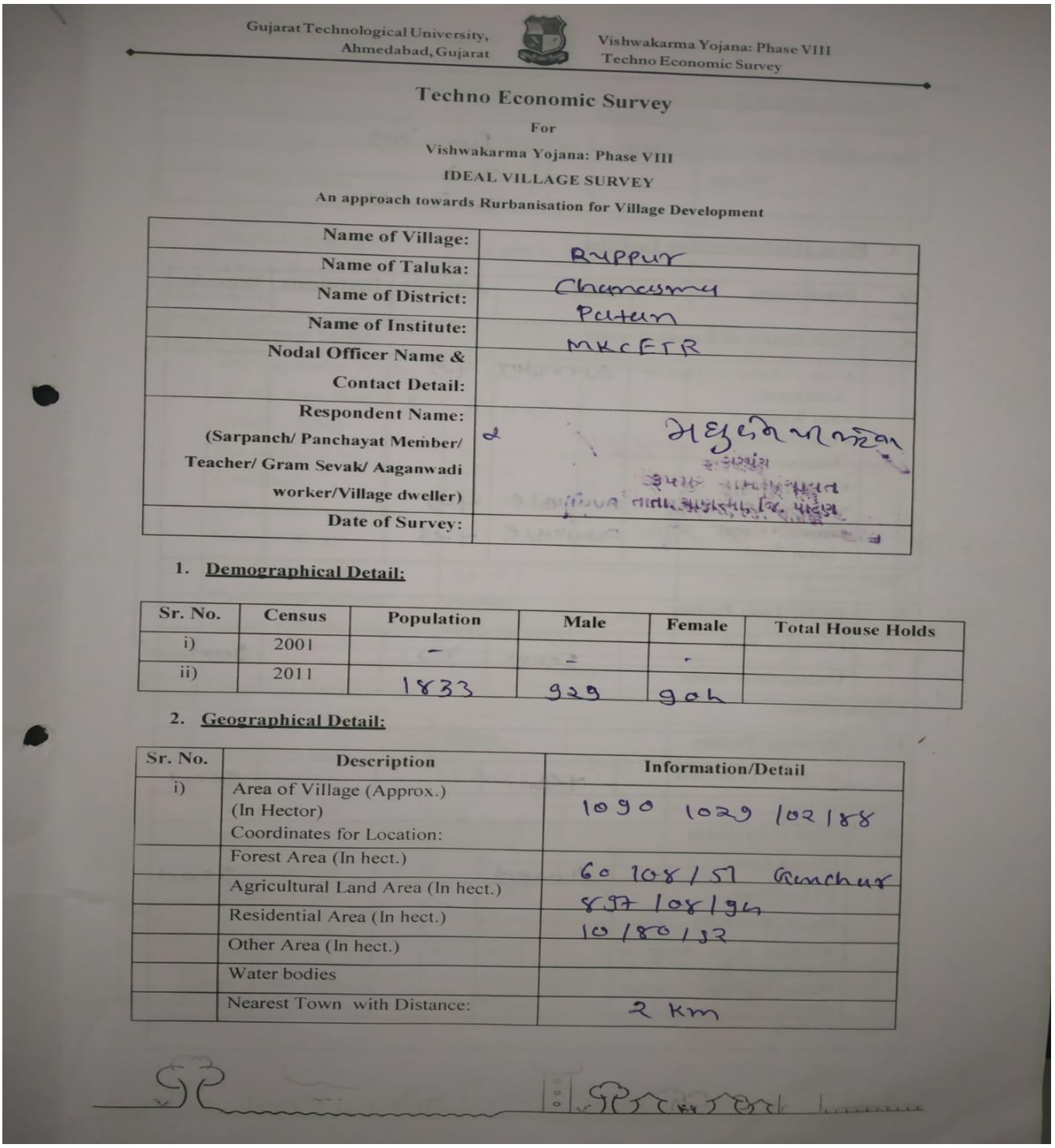
1. Das, R., & Mondal, B. K. MICRO LEVEL STUDY ON IMPACT ANALYSIS OF MGNREGA TO UPLIFT THE RURAL SECTOR OF SOUTH 24 PARGANAS.
2. Gondalia, D., & Vishwakarma, S. (2018). VISHWAKARMA YOJNA: VI AN APPROACH TOWARDS RURBANISATION Vajdi Gadh Village Rajkot District.
3. Makadia, K., & Panara, T. (2019). VISHWAKARMA YOJNA: VI AN APPROACH TOWARDS RURBANISATION Hadala Village Rajkot District.
4. Ranpariya, R., & Tadhani, K. (2019). VISHWAKARMA YOJNA: VI AN APPROACH TOWARDS RURBANISATION Dholra Village Rajkot District.
5. Ghose, A. (2015). Addressing the employment challenge: India"s MGNREGA (No. id: 7469).
6. Narayanan, S., Ranaware, K., Das, U., & Kulkarni, A. (2014). MGNREGA Works and their Impact: A Rapid Assessment in Maharashtra (No. id: 6194).
7. Deb, M. K. (2019). Impact of MGNREGA on Living Standard of Agriultural Labourers in Tripura: An Empirical Study on Unakoti District. Journal of Rural and Industrial Development, 7(1), 33-42.

Websites:

- http://www.vyojana.gtu.ac.in/
- http://www.onefivenine.com/india/villages/Patan/Patan/Kungher
- https://www.google.co.in/search?source
- https://villageinfo.in/gujarat/patan/sidhpur/jafaripura.html
- https://www.google.co.in/maps/place/Kungher,+Gujarat/
- https://www.google.co.in/maps/place/Jafaripura+Primary+School
- https://www.nationalgeographic.org/encyclopedia/rural-area

Chapter 12. ANNEXURE ATTACHMENT

12.1 Survey form of IDEAL village Scanned copy attachment for part 1



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Vishwakarma Yojana: Phase VIII
Techno Economic Survey

Techno Economic Survey

For

Vishwakarma Yojana: Phase VIII

IDEAL VILLAGE SURVEY

An approach towards Rurbanisation for Village Development

Name of Village:	Ruppur
Name of Taluka:	Chanasma
Name of District:	Patan
Name of Institute:	MKCFTR
Nodal Officer Name & Contact Detail:	
Respondent Name: (Sarpanch/ Panchayat Member/ Teacher/ Gram Sevak/ Aaganwadi worker/Village dweller)	
Date of Survey:	

1. **Demographical Detail:**

Sr. No.	Census	Population	Male	Female	Total House Holds
i)	2001	-	-	-	
ii)	2011	1833	929	904	

2. **Geographical Detail:**

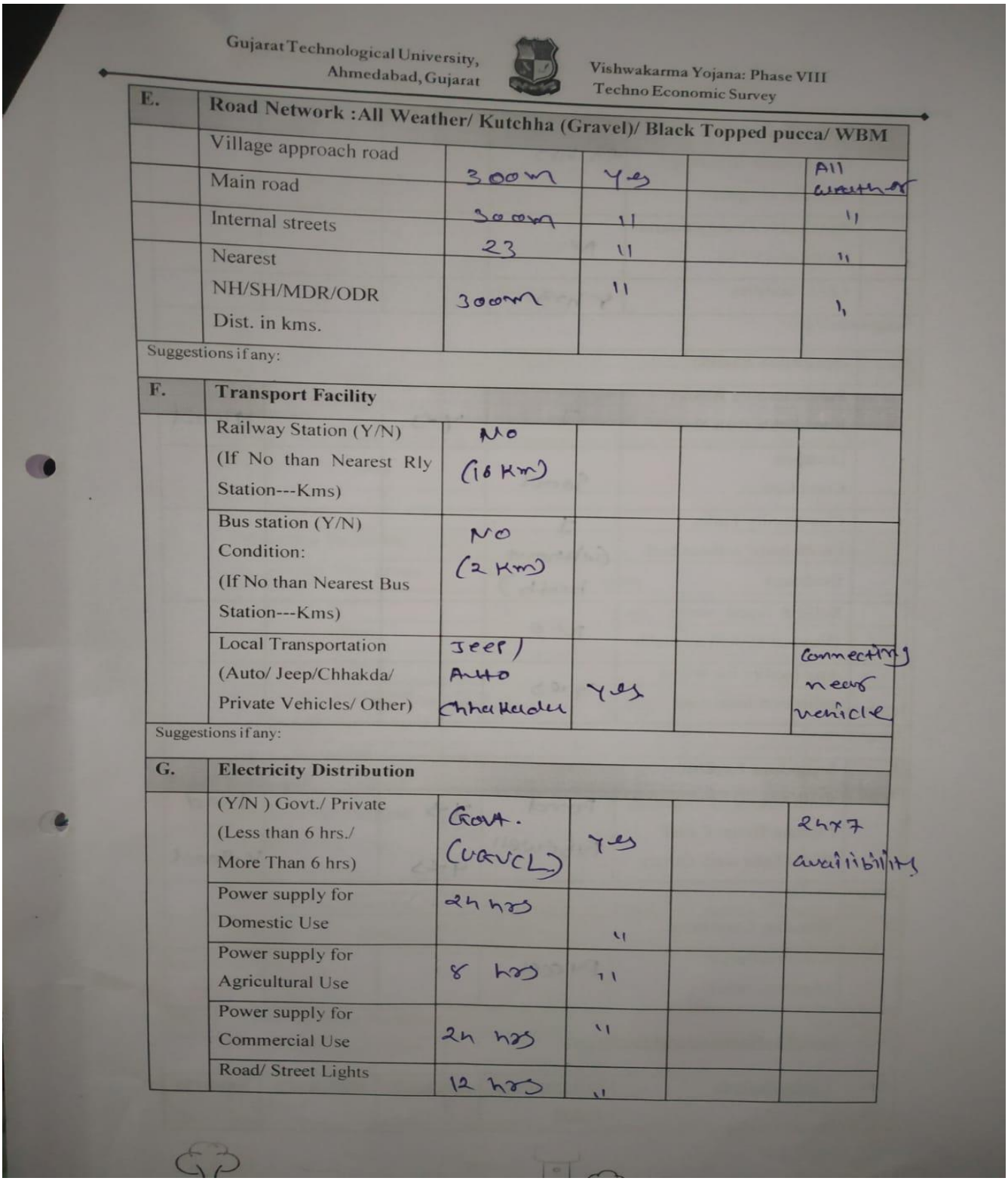
Sr. No.	Description	Information/Detail
i)	Area of Village (Approx.) (In Hector) Coordinates for Location:	1090 1029 102188
	Forest Area (In hect.)	60 108/57 Ranchur
	Agricultural Land Area (In hect.)	837 108/94
	Residential Area (In hect.)	10/80/32
	Other Area (In hect.)	
	Water bodies	
	Nearest Town with Distance:	2 Km

3. Occupational Details:

Name of Three Major Occupation groups in Village	1. Farming 2. Job 3. business

4. Physical Infrastructure Facilities:

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



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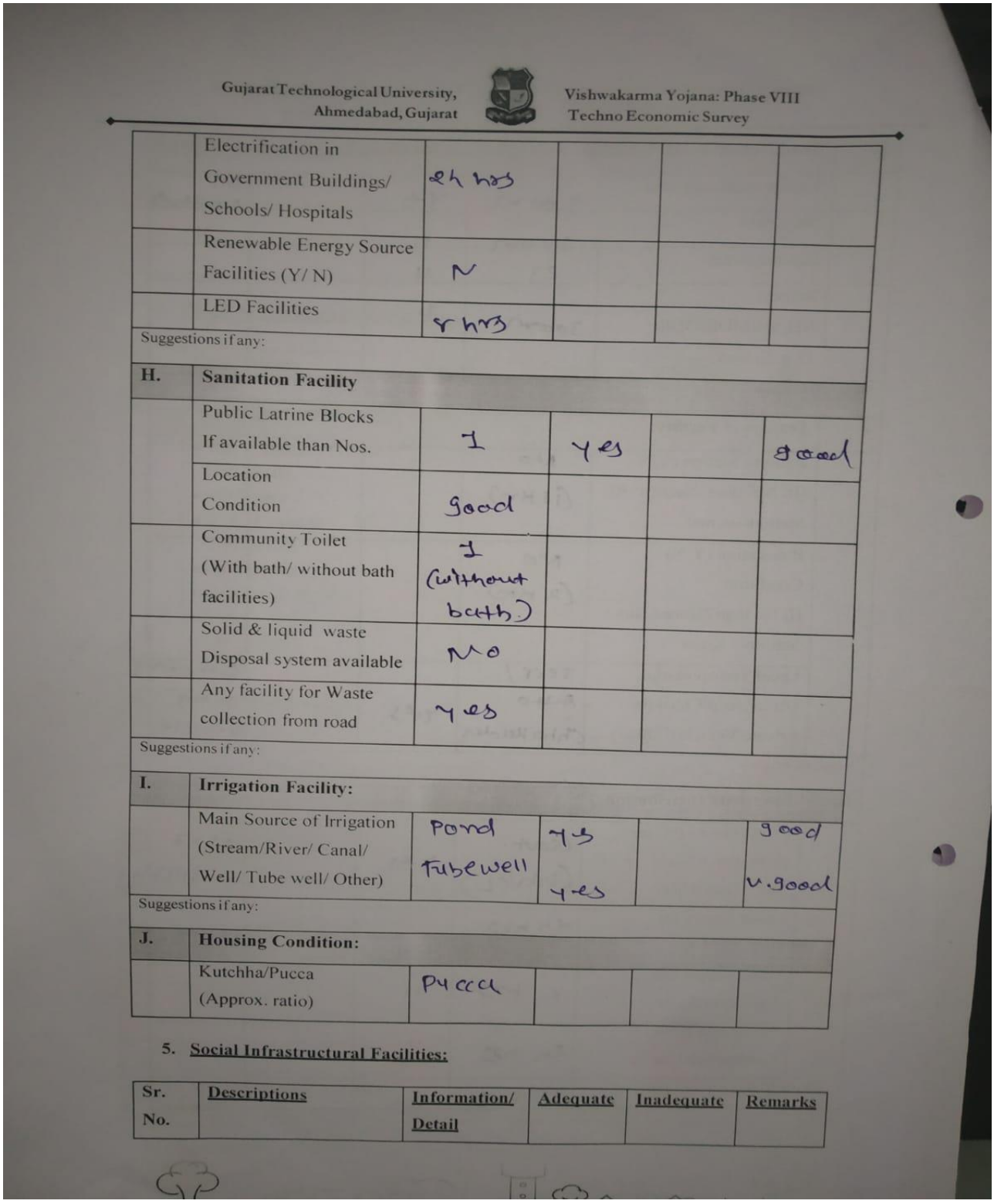
E.	Road Network :All Weather/ Kutchha (Gravel)/ Black Topped pucca/ WBM				
	Village approach road	300m	Yes		All weather
	Main road	300m	"		"
	Internal streets	23	"		"
	Nearest NH/SH/MDR/ODR Dist. in kms.	300m	"		"
Suggestions if any:					
F.	**Transport Facility**				
	Railway Station (Y/N) (If No than Nearest Rly Station---Kms)	No (16 Km)			
	Bus station (Y/N) Condition: (If No than Nearest Bus Station---Kms)	No (2 Km)			
	Local Transportation (Auto/ Jeep/Chhakda/ Private Vehicles/ Other)	Jeep/ Auto Chhakda	Yes		Connecting near vehicle
Suggestions if any:					
G.	**Electricity Distribution**				
	(Y/N) Govt./ Private (Less than 6 hrs./ More Than 6 hrs)	Govt. (UGVCL)	Yes		24x7 availibility
	Power supply for Domestic Use	24 hrs	"		
	Power supply for Agricultural Use	8 hrs	"		
	Power supply for Commercial Use	24 hrs	"		
	Road/ Street Lights	12 hrs	"		



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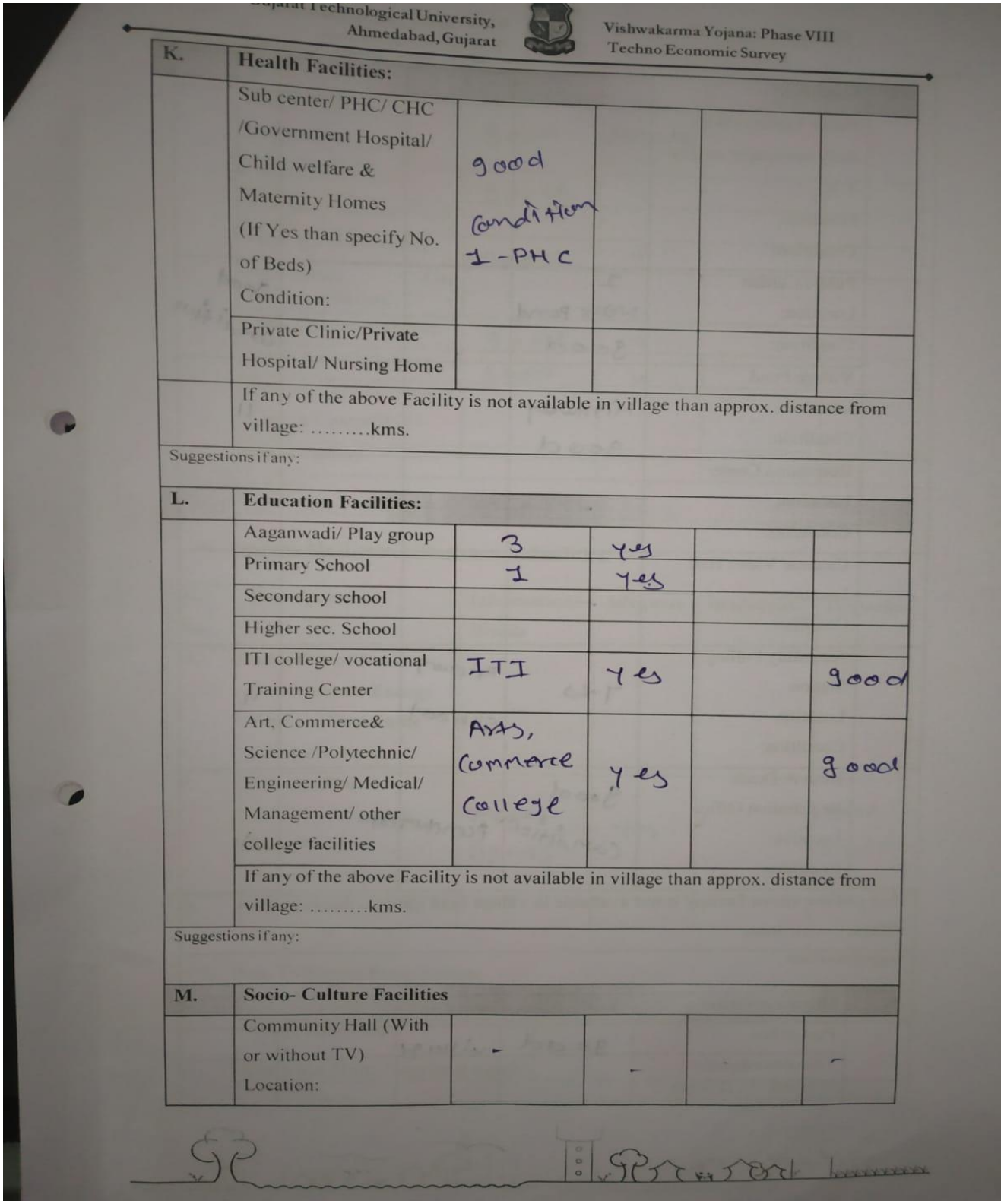
	Electrification in Government Buildings/ Schools/ Hospitals	24 hrs			
	Renewable Energy Source Facilities (Y/ N)	N			
	LED Facilities	8 hrs			
Suggestions if any:					
H.	**Sanitation Facility**				
	Public Latrine Blocks If available than Nos.	1	yes		good
	Location Condition	Good			
	Community Toilet (With bath/ without bath facilities)	1 (without bath)			
	Solid & liquid waste Disposal system available	No			
	Any facility for Waste collection from road	yes			
Suggestions if any:					
I.	**Irrigation Facility:**				
	Main Source of Irrigation (Stream/River/ Canal/ Well/ Tube well/ Other)	Pond Tubewell	yes yes		good v.good
Suggestions if any:					
J.	**Housing Condition:**				
	Kutchha/Pucca (Approx. ratio)	Pucca			

5. **Social Infrastructural Facilities:**

Sr. No.	Descriptions	Information/ Detail	Adequate	Inadequate	Remarks



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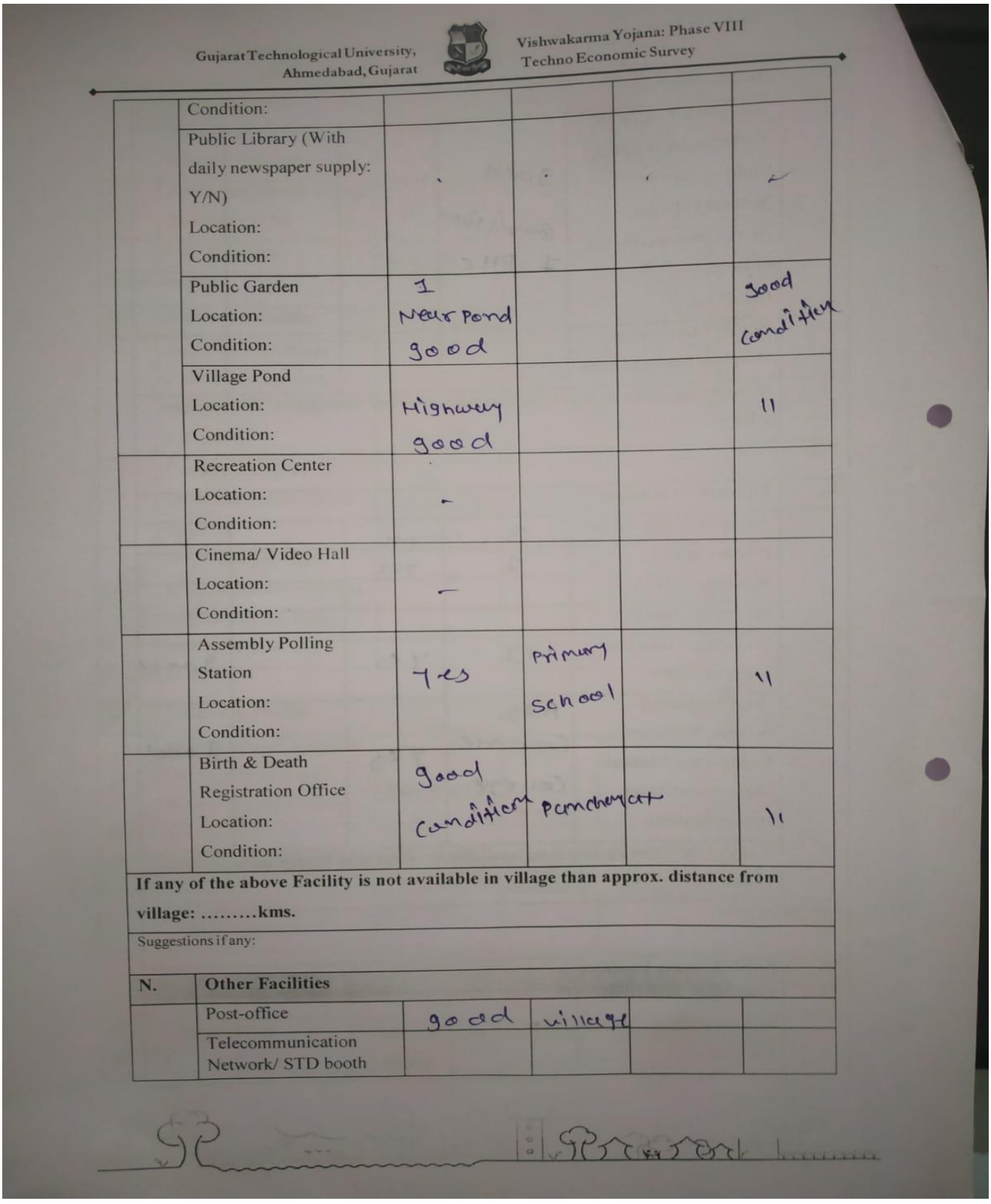
K.	Health Facilities:				
	Sub center/ PHC/ CHC /Government Hospital/ Child welfare & Maternity Homes (If Yes than specify No. of Beds) Condition:	good condition 1-PHC			
	Private Clinic/Private Hospital/ Nursing Home				
	If any of the above Facility is not available in village than approx. distance from village: .....kms.				
Suggestions if any:					

L.	Education Facilities:				
	Aaganwadi/ Play group	3	Yes		
	Primary School	1	Yes		
	Secondary school				
	Higher sec. School				
	ITI college/ vocational Training Center	ITI	Yes		good
	Art, Commerce& Science /Polytechnic/ Engineering/ Medical/ Management/ other college facilities	Arts, Commerce College	Yes		good
	If any of the above Facility is not available in village than approx. distance from village: .....kms.				
Suggestions if any:					

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



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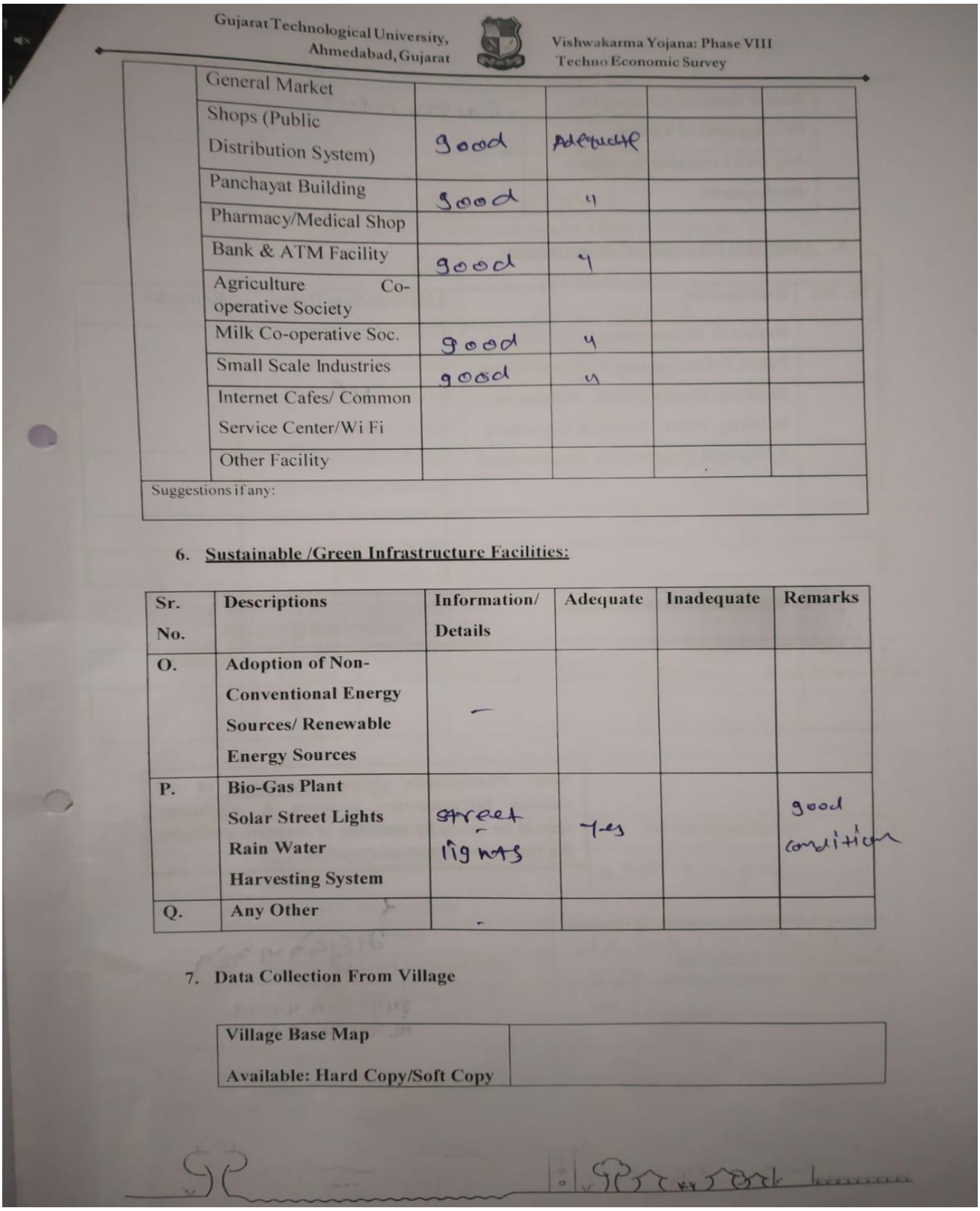
	Condition:				
	Public Library (With daily newspaper supply: Y/N) Location: Condition:	.	.	.	-
	Public Garden Location: Condition:	1 Near Pond good			Good condition
	Village Pond Location: Condition:	Highway good			11
	Recreation Center Location: Condition:	-			
	Cinema/ Video Hall Location: Condition:	-			
	Assembly Polling Station Location: Condition:	Yes	Primary school		11
	Birth & Death Registration Office Location: Condition:	Good condition	Panchayat		11

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

Suggestions if any:

N.	Other Facilities				
	Post-office	good	village		
	Telecommunication Network/ STD booth				



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	General Market				
	Shops (Public Distribution System)	Good	Adequate		
	Panchayat Building	Good	4		
	Pharmacy/Medical Shop				
	Bank & ATM Facility	Good	4		
	Agriculture Co-operative Society				
	Milk Co-operative Soc.	Good	4		
	Small Scale Industries	Good	4		
	Internet Cafes/ Common Service Center/Wi Fi				
	Other Facility				
Suggestions if any:					

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

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

7. **Data Collection From Village**

Village Base Map Available: Hard Copy/Soft Copy	

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

8. **Additional Information/ Requirement:**

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

9. **Smart Village Proposal Design**

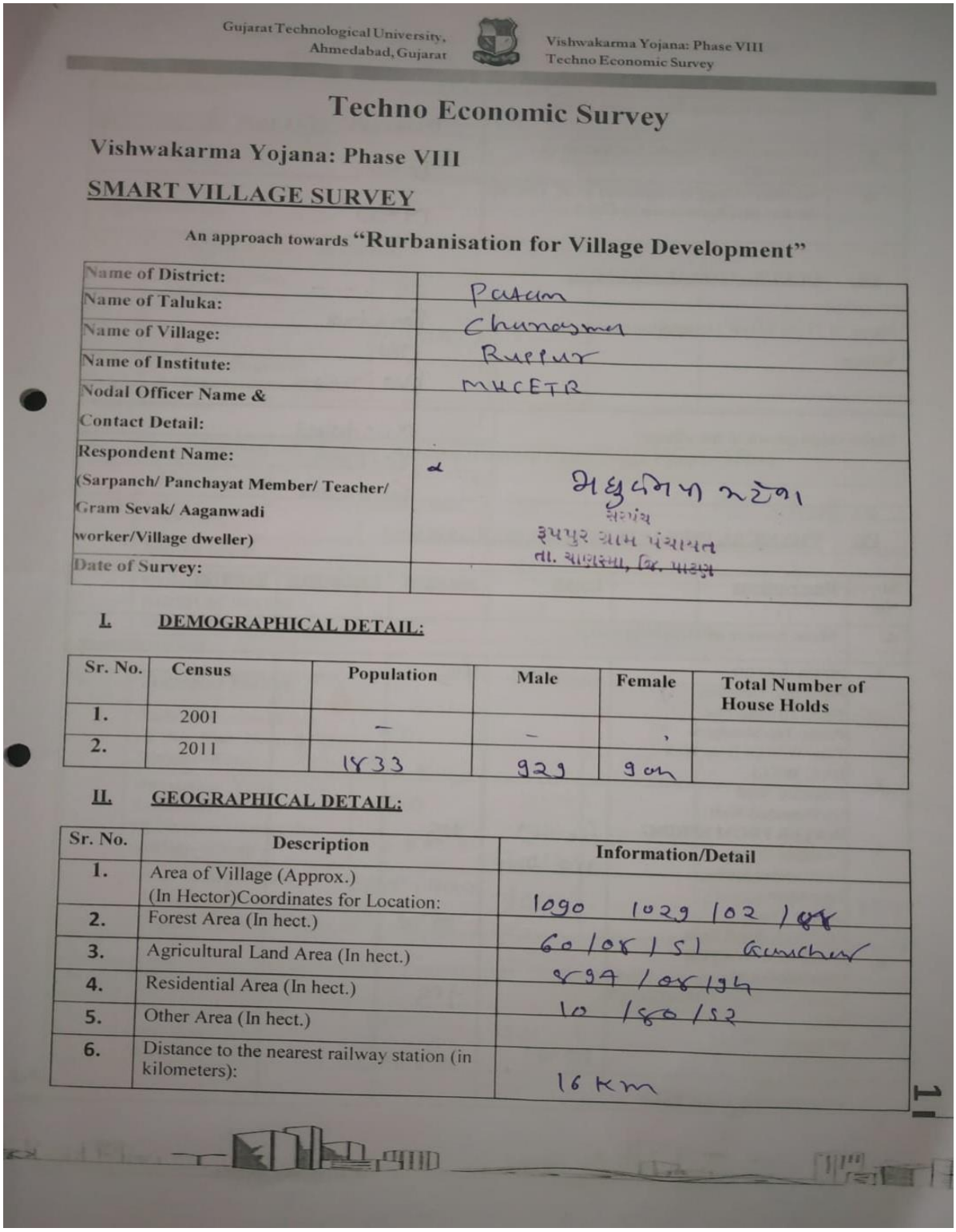
Sr. No.	Descriptions	Information/ Detail	Remarks
1.			

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

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

મહેશભાઈ પટેલ
સરપંચ
રૂપપુર ગ્રામ પંચાયત
તા. ચાણસ્મા, જિ. પાટણ

12.2 Survey form of SMART village Scanned copy attachment for part 1



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SMART VILLAGE SURVEY

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

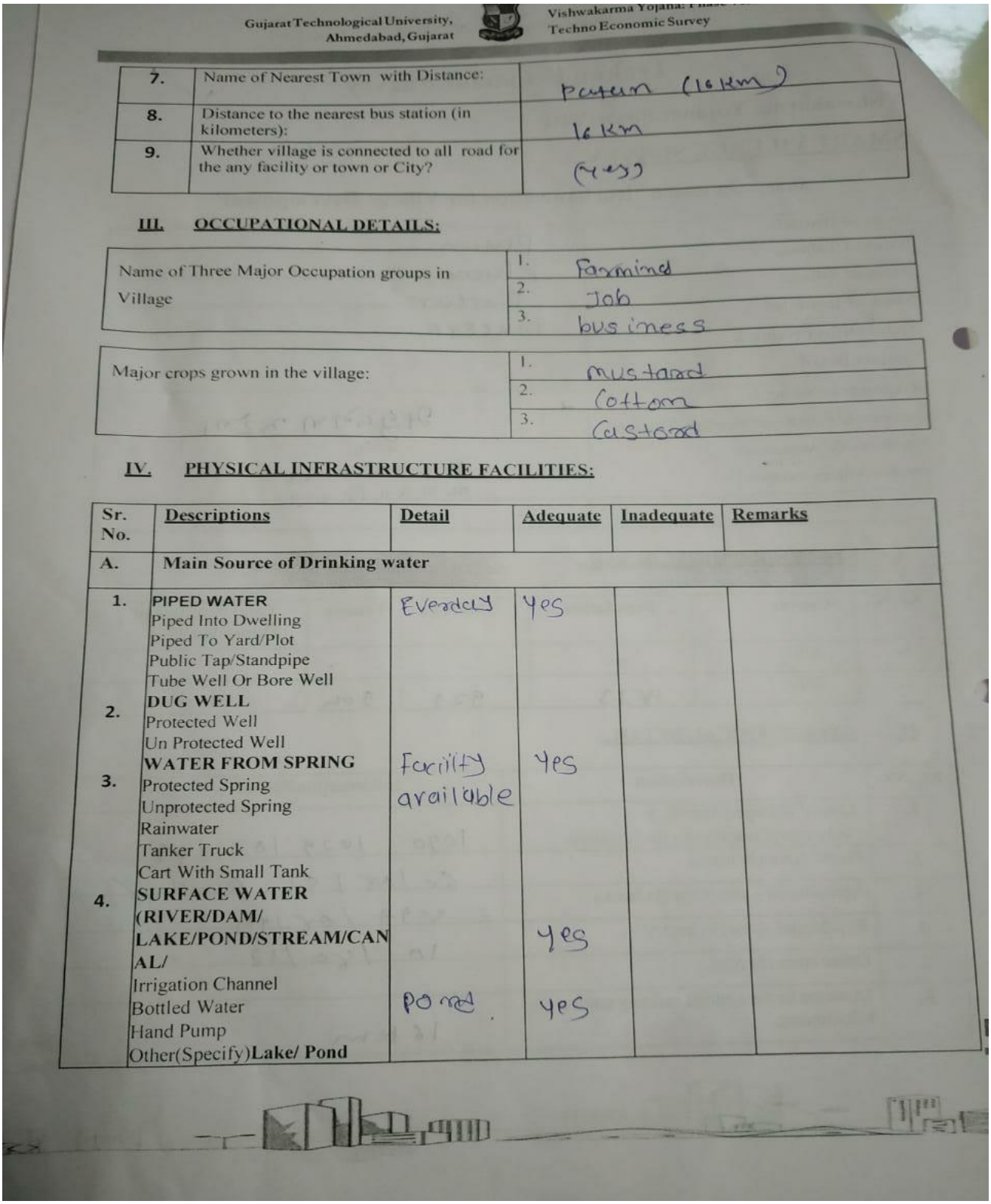
Name of District:	Patan
Name of Taluka:	Chanasma
Name of Village:	Rupur
Name of Institute:	MHCETR
Nodal Officer Name & Contact Detail:	
Respondent Name: (Sarpanch/ Panchayat Member/ Teacher/ Gram Sevak/ Aaganwadi worker/Village dweller)	મધુબેન મફતભાઈ સરપંચ રૂપપુર ગ્રામ પંચાયત તા. ચાણસ્મા, જિ. પાટણ
Date of Survey:	

I. DEMOGRAPHICAL DETAIL:

Sr. No.	Census	Population	Male	Female	Total Number of House Holds
1.	2001	–	–	–	
2.	2011	1833	929	904	

II. GEOGRAPHICAL DETAIL:

Sr. No.	Description	Information/Detail
1.	Area of Village (Approx.) (In Hector)Coordinates for Location:	1090 1029 102
2.	Forest Area (In hect.)	60/05/51 Gunchar
3.	Agricultural Land Area (In hect.)	894/05/194
4.	Residential Area (In hect.)	10/80/52
5.	Other Area (In hect.)	
6.	Distance to the nearest railway station (in kilometers):	16 Km



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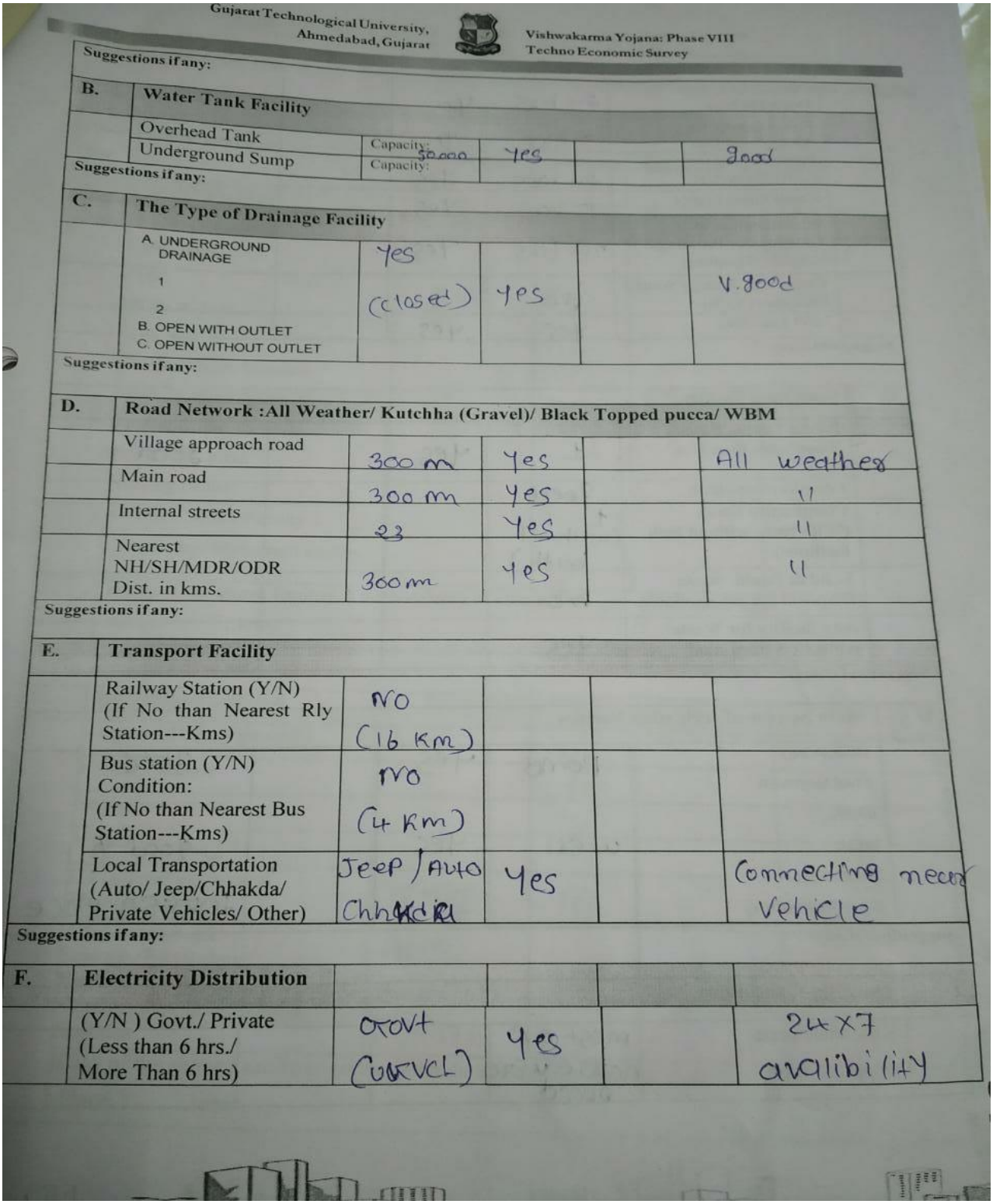
7.	Name of Nearest Town with Distance:	Patan (16 Km)
8.	Distance to the nearest bus station (in kilometers):	16 Km
9.	Whether village is connected to all road for the any facility or town or City?	(Yes)

III. OCCUPATIONAL DETAILS:

Name of Three Major Occupation groups in Village	1.	Farming
	2.	Job
	3.	business
Major crops grown in the village:	1.	mustard
	2.	Cottom
	3.	Castord

IV. PHYSICAL INFRASTRUCTURE FACILITIES:

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



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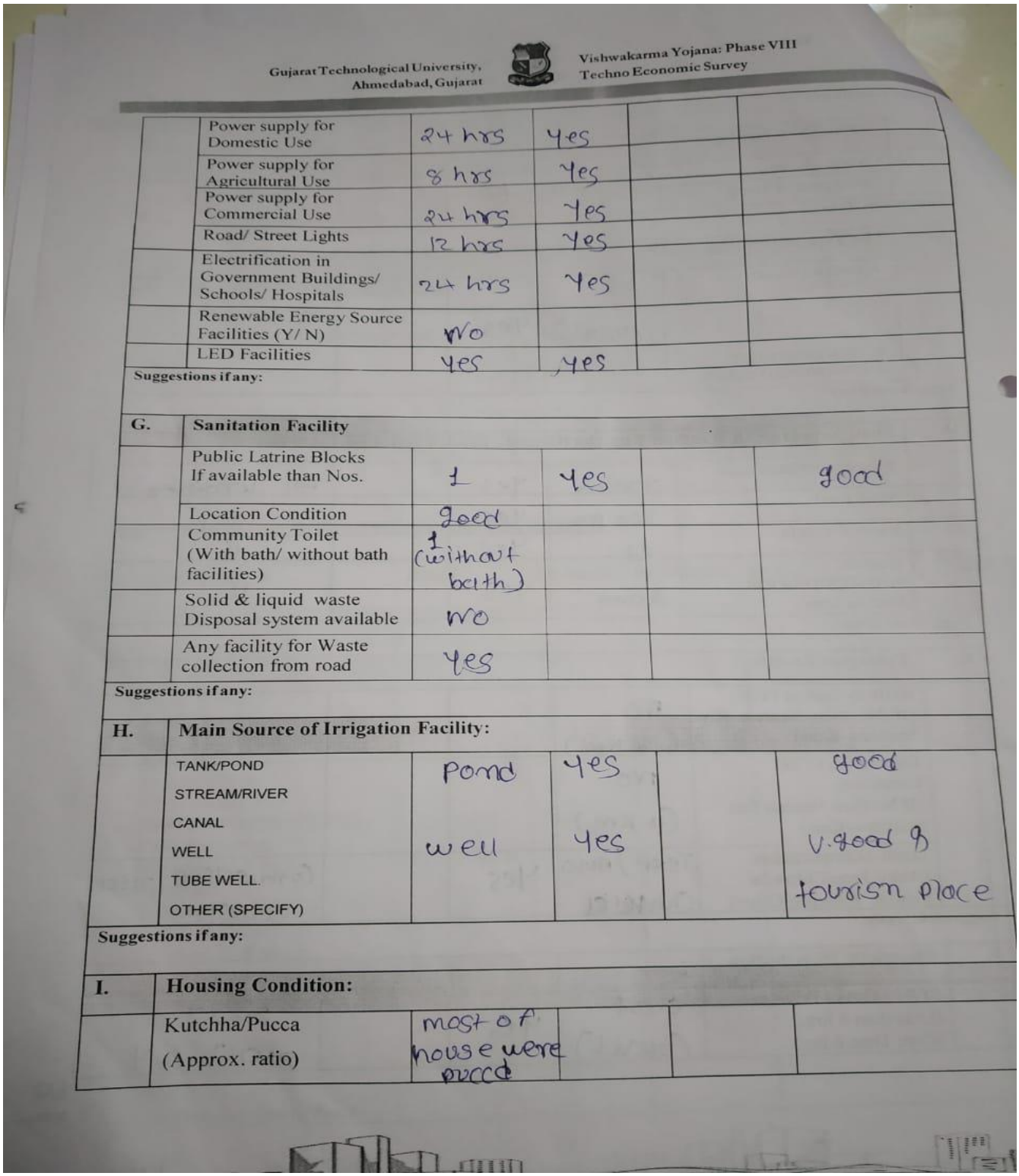
Suggestions if any:					
B.	**Water Tank Facility**				
	Overhead Tank	Capacity:			
	Underground Sump	Capacity: 50000	Yes		Good
Suggestions if any:					
C.	**The Type of Drainage Facility**				
	A. UNDERGROUND DRAINAGE 1 2 B. OPEN WITH OUTLET C. OPEN WITHOUT OUTLET	Yes (closed)	Yes		V. Good
Suggestions if any:					
D.	**Road Network :All Weather/ Kutchha (Gravel)/ Black Topped pucca/ WBM**				
	Village approach road	300 m	Yes		All weather
	Main road	300 m	Yes		"
	Internal streets	23	Yes		"
	Nearest NH/SH/MDR/ODR Dist. in kms.	300 m	Yes		"
Suggestions if any:					
E.	**Transport Facility**				
	Railway Station (Y/N) (If No than Nearest Rly Station---Kms)	NO (16 Km)			
	Bus station (Y/N) Condition: (If No than Nearest Bus Station---Kms)	NO (4 Km)			
	Local Transportation (Auto/ Jeep/Chhakda/ Private Vehicles/ Other)	Jeep / Auto Chhakda	Yes		Connecting near vehicle
Suggestions if any:					
F.	**Electricity Distribution**				
	(Y/N) Govt./ Private (Less than 6 hrs./ More Than 6 hrs)	Govt (GVCL)	Yes		24x7 availibility



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	Power supply for Domestic Use	24 hrs	yes		
	Power supply for Agricultural Use	8 hrs	Yes		
	Power supply for Commercial Use	24 hrs	Yes		
	Road/ Street Lights	12 hrs	Yes		
	Electrification in Government Buildings/ Schools/ Hospitals	24 hrs	Yes		
	Renewable Energy Source Facilities (Y/ N)	NO			
	LED Facilities	yes	yes		

Suggestions if any:

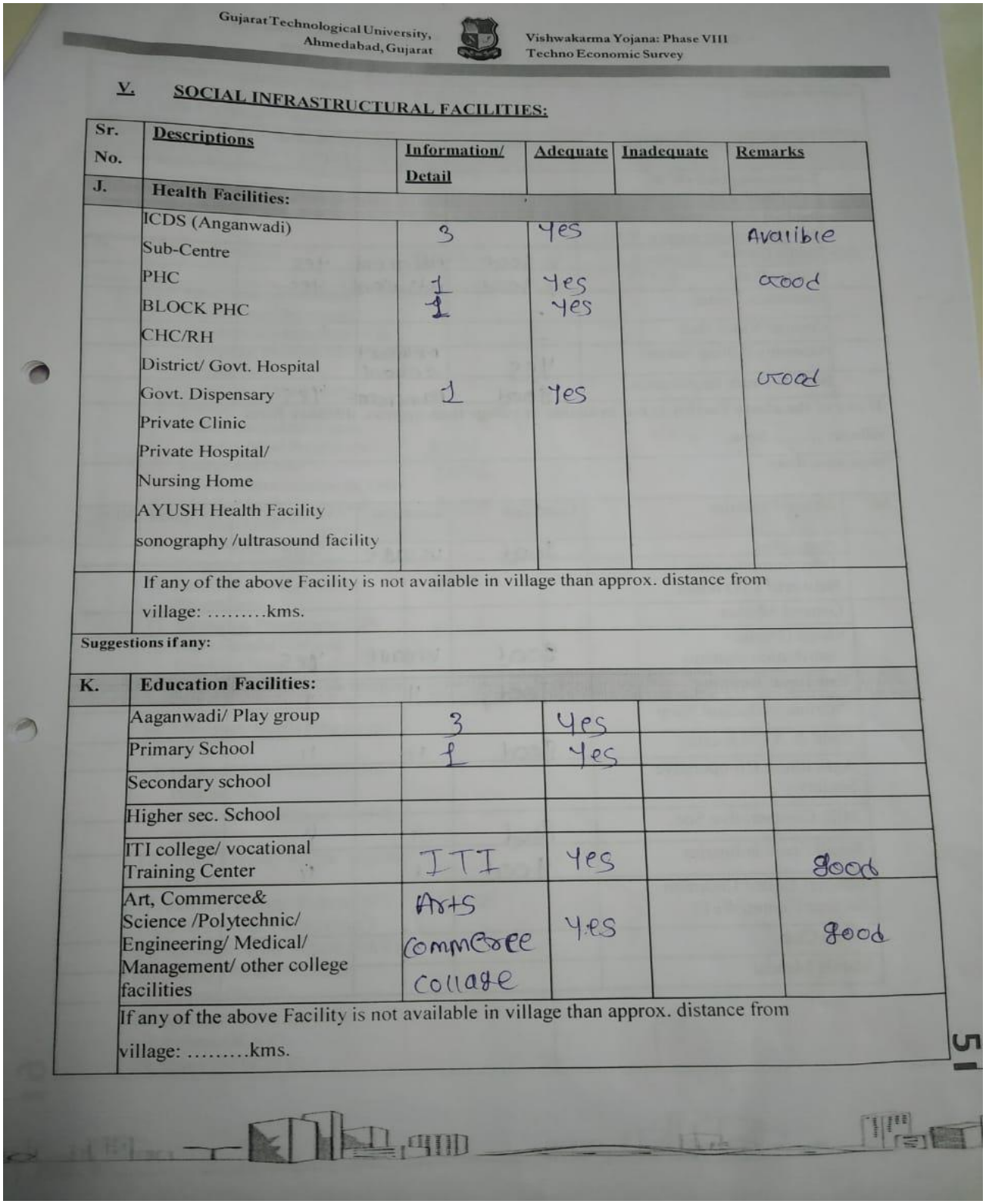
G.	**Sanitation Facility**				
	Public Latrine Blocks If available than Nos.	1	yes		good
	Location Condition	good			
	Community Toilet (With bath/ without bath facilities)	1 (without bath)			
	Solid & liquid waste Disposal system available	NO			
	Any facility for Waste collection from road	yes			

Suggestions if any:

H.	**Main Source of Irrigation Facility:**				
	TANK/POND	Pond	yes		good
	STREAM/RIVER				
	CANAL				
	WELL	well	yes		V.good &
	TUBE WELL.				tourism place
	OTHER (SPECIFY)				

Suggestions if any:

I.	**Housing Condition:**				
	Kutchha/Pucca (Approx. ratio)	most of house were pucca			



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V. SOCIAL INFRASTRUCTURAL FACILITIES:

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

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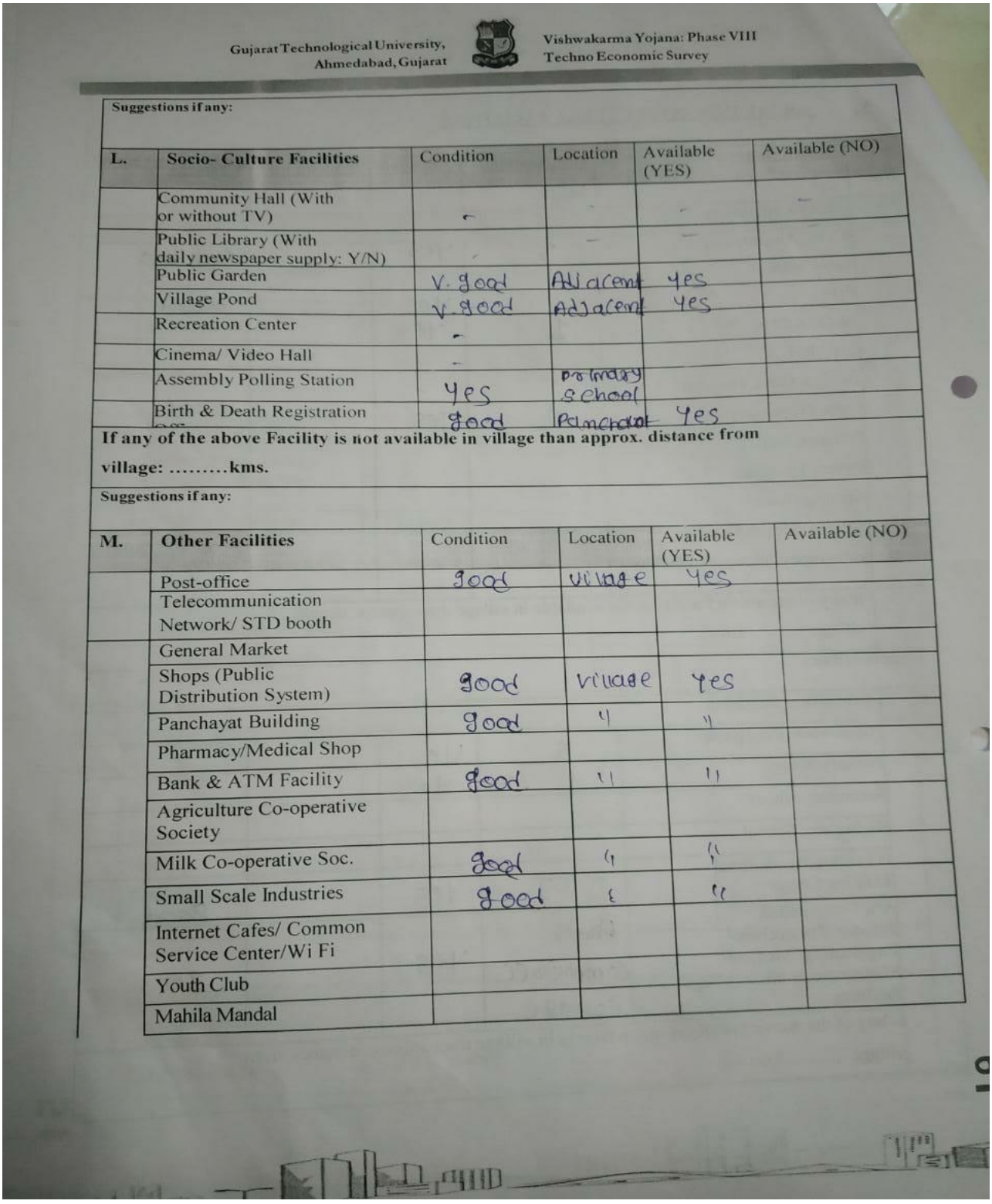

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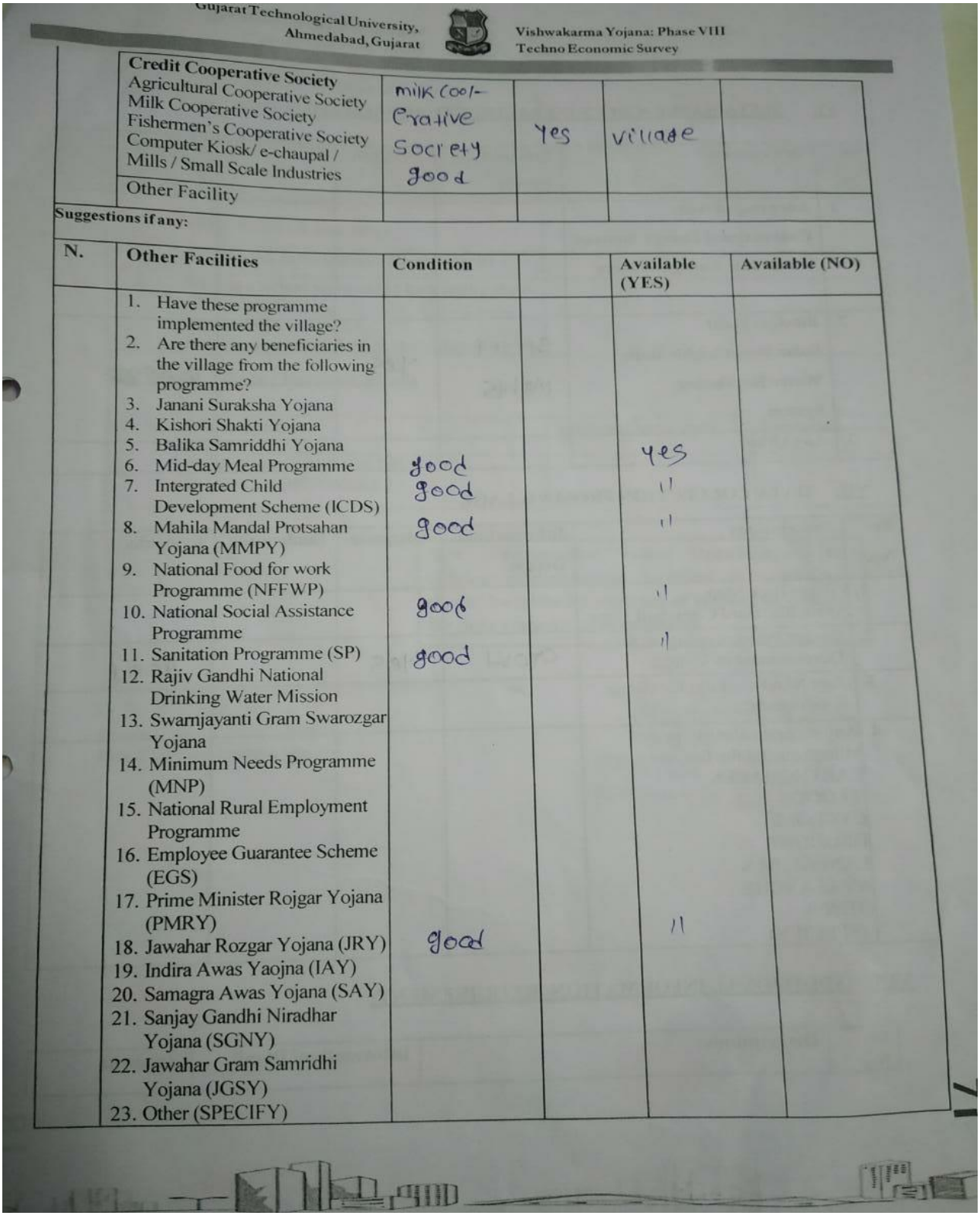
Suggestions if any:

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

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

Suggestions if any:

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



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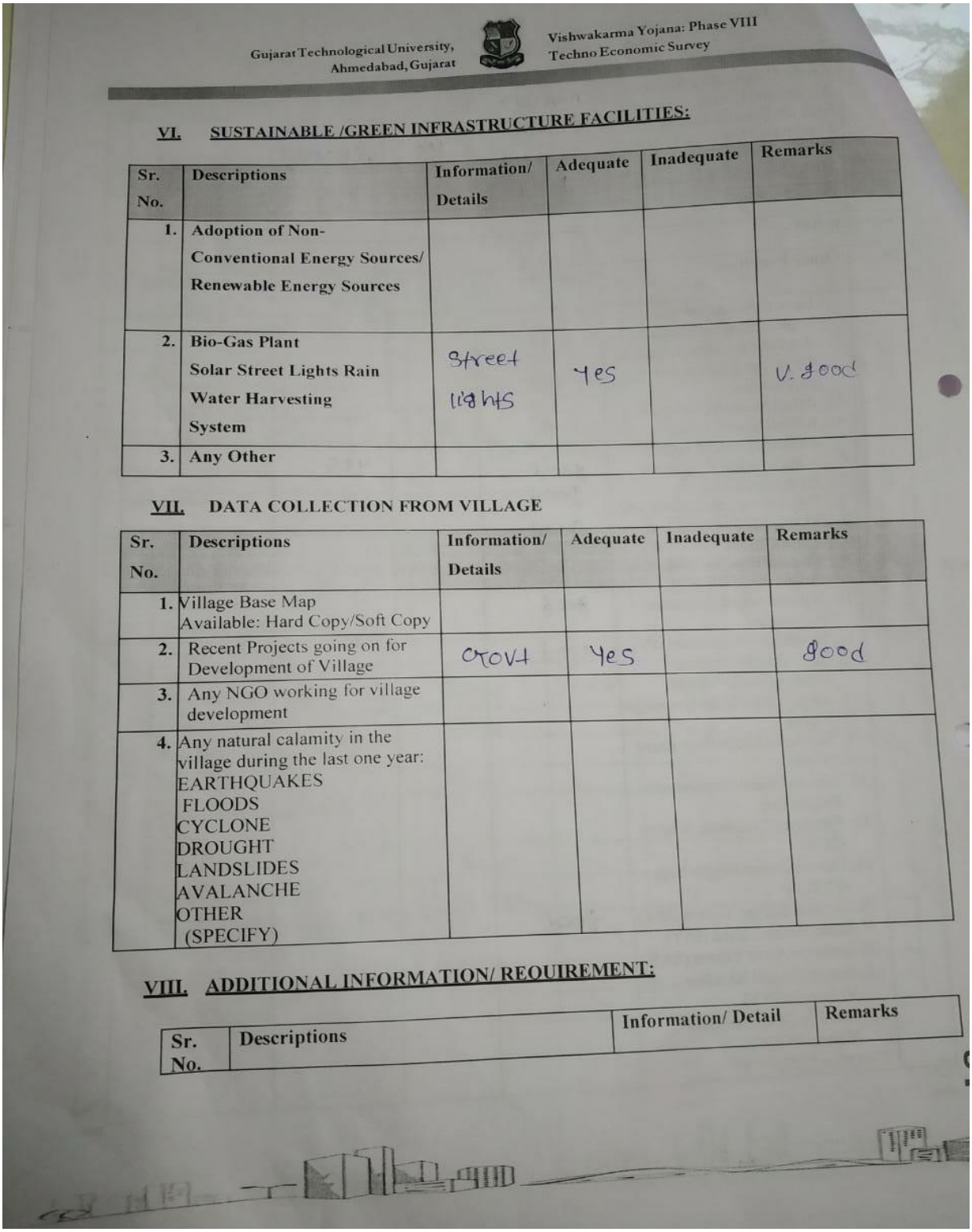
	Credit Cooperative Society Agricultural Cooperative Society Milk Cooperative Society Fishermen's Cooperative Society Computer Kiosk/ e-chaupal / Mills / Small Scale Industries	milk Cool- Crative Society good	Yes	village	
	Other Facility				

Suggestions if any:

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



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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	Street lights	Yes		V. good
3.	Any Other				

VII. DATA COLLECTION FROM VILLAGE

Sr. No.	Descriptions	Information/ Details	Adequate	Inadequate	Remarks
1.	Village Base Map Available: Hard Copy/Soft Copy				
2.	Recent Projects going on for Development of Village	GOVT	Yes		good
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)				

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

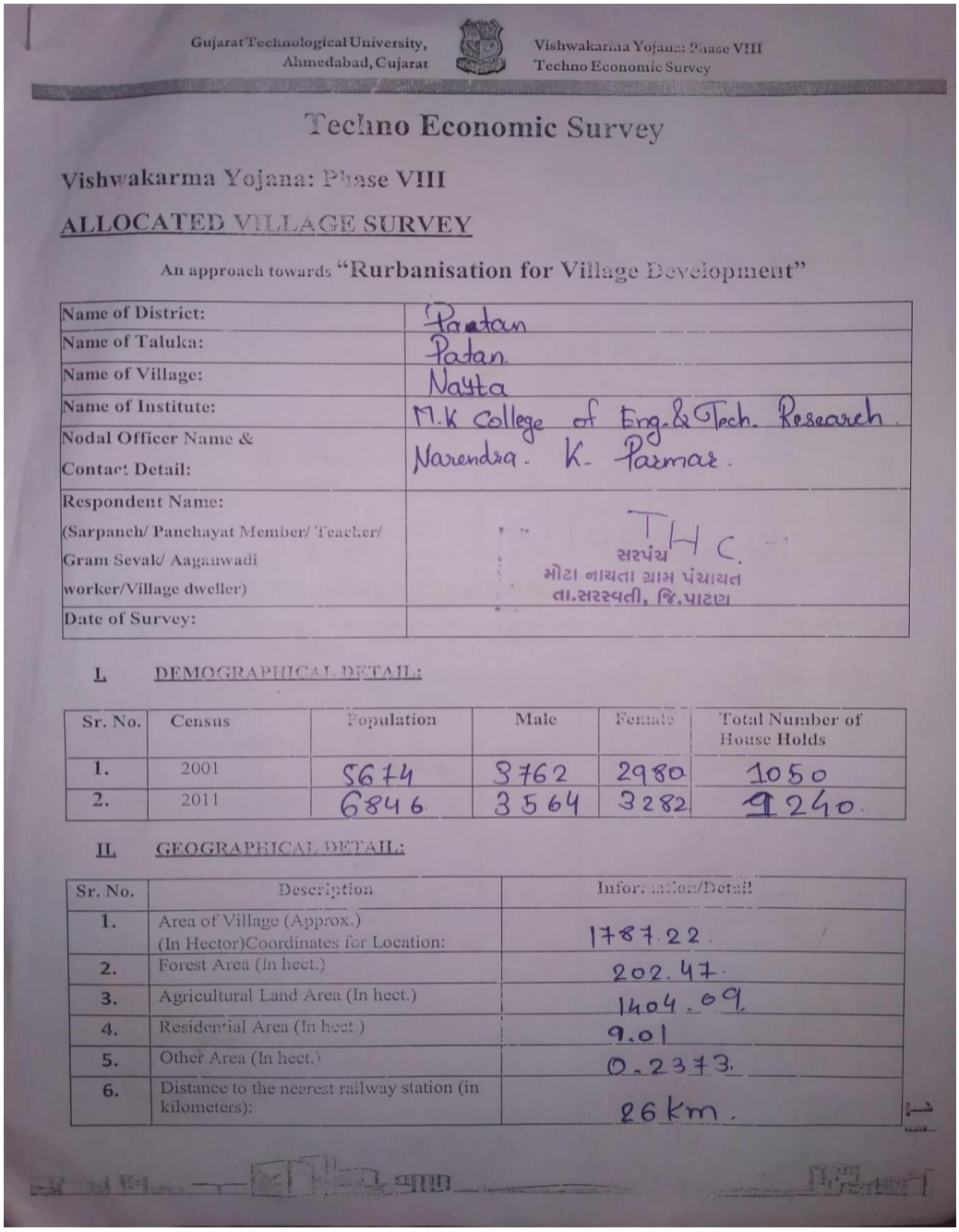
Sr. No.	Descriptions	Information/ Detail	Remarks
1.	IS THEIR ANY THING FOR THE VILLAGE ENHANCEMENT POSSIBLE ?		

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

અબુભાઈ અટા
સરપંચ
રૂપપુર ગ્રામ પંચાયત
તા. ચાણસ્મા, જિ. પાટણ

12.3 Survey form of ALLOCATED village Scanned copy attachment for part 1-



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Vishwakarma Yojana: Phase VIII

ALLOCATED VILLAGE SURVEY

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

Name of District:	Patan
Name of Taluka:	Patan
Name of Village:	Nayta
Name of Institute:	M.K College of Eng. & Tech. Research.
Nodal Officer Name & Contact Detail:	Narendra. K. Parmar.
Respondent Name: (Sarpanch/ Panchayat Member/ Teacher/ Gram Sevak/ Aaganwadi worker/Village dweller)	T H C. સરપંચ મોટા નાયતા ગ્રામ પંચાયત તા.સરસ્વતી, જિ.પાટણ
Date of Survey:	

I. DEMOGRAPHICAL DETAIL:

Sr. No.	Census	Population	Male	Female	Total Number of House Holds
1.	2001	5674	3762	2980	1050
2.	2011	6846	3564	3282	1240.

II. GEOGRAPHICAL DETAIL:

Sr. No.	Description	Information/Detail
1.	Area of Village (Approx.) (In Hector)Coordinates for Location:	1787.22.
2.	Forest Area (In hect.)	202.47.
3.	Agricultural Land Area (In hect.)	1404.09.
4.	Residential Area (In hect.)	9.01
5.	Other Area (In hect.)	0.2373.
6.	Distance to the nearest railway station (in kilometers):	26 km.

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7.	Name of Nearest Town with Distance:	Sotavad 7 Km.
8.	Distance to the nearest bus station (in kilometers):	Patan (20km)
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. Farming.
	2. Labour.
	3. Small Scale Business.

Major crops grown in the village:	1. Wheat.
	2. Bajra.
	3. Cotton.

IV. PHYSICAL INFRASTRUCTURE FACILITIES:

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

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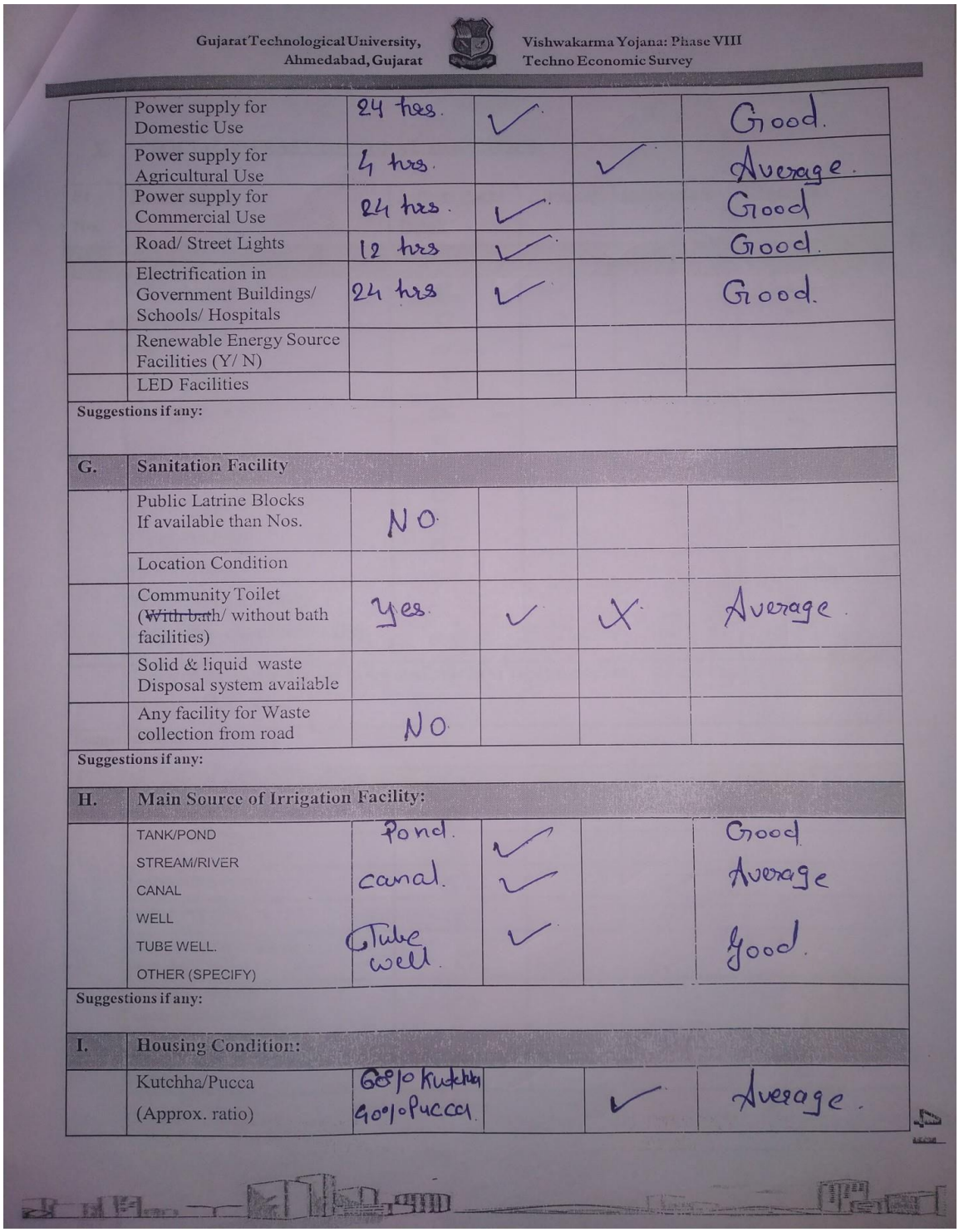
	Other(Specify)Lake/ Pond	No		✓	
Suggestions if any:					
B.	**Water Tank Facility**				
	Overhead Tank	Capacity:		✓	
	Underground Sump	Capacity: 50,000 L	✓		Average.
Suggestions if any:					
C.	**The Type of Drainage Facility**				
	A. UNDERGROUND DRAINAGE 1	Under-Ground.	Yes		Average.
Suggestions if any:					
D.	**Road Network :All Weather/ Kutchha (Gravel)/ Black Topped pucca/ WBM**				
	Village approach road	Single lane	✓		Good.
	Main road	All weather	✓		Good
	Internal streets	Kutchha		✓	Average.
	Nearest NH/SH/MDR/ODR Dist. in kms.	SH - 131			Good.
Suggestions if any:					
E.	**Transport Facility**				
	Railway Station (Y/N) (If No than Nearest Rly Station---Kms)	No (25 km)		✓	
	Bus station (Y/N) Condition: (If No than Nearest Bus Station---Kms)	No (23 km)		✓	
	Local Transportation (Auto/ Jeep/Chhakda/ Private Vehicles/ Other)	Rikshaw/ Jeep	✓		Average.
Suggestions if any:					
F.	**Electricity Distribution**				
	(Y/N) Govt./ Private (Less than 6 hrs./ More Than 6 hrs)	24 hrs.	✓		Good.



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	Power supply for Domestic Use	24 hrs.	✓		Good.
	Power supply for Agricultural Use	4 hrs.		✓	Average.
	Power supply for Commercial Use	24 hrs.	✓		Good
	Road/ Street Lights	12 hrs	✓		Good.
	Electrification in Government Buildings/ Schools/ Hospitals	24 hrs	✓		Good.
	Renewable Energy Source Facilities (Y/ N)				
	LED Facilities				

Suggestions if any:

G.	Sanitation Facility				
	Public Latrine Blocks If available than Nos.	NO.			
	Location Condition				
	Community Toilet (~~With bath~~/ without bath facilities)	Yes.	✓	✗	Average.
	Solid & liquid waste Disposal system available				
	Any facility for Waste collection from road	NO.			

Suggestions if any:

H.	Main Source of Irrigation Facility:				
	TANK/POND	Pond.	✓		Good.
	STREAM/RIVER				
	CANAL	canal.	✓		Average
	WELL				
	TUBE WELL.	Tube well.	✓		Good.
	OTHER (SPECIFY)				

Suggestions if any:

I.	Housing Condition:				
	Kutchha/Pucca (Approx. ratio)	60% Kutchha 40% Pucca		✓	Average.

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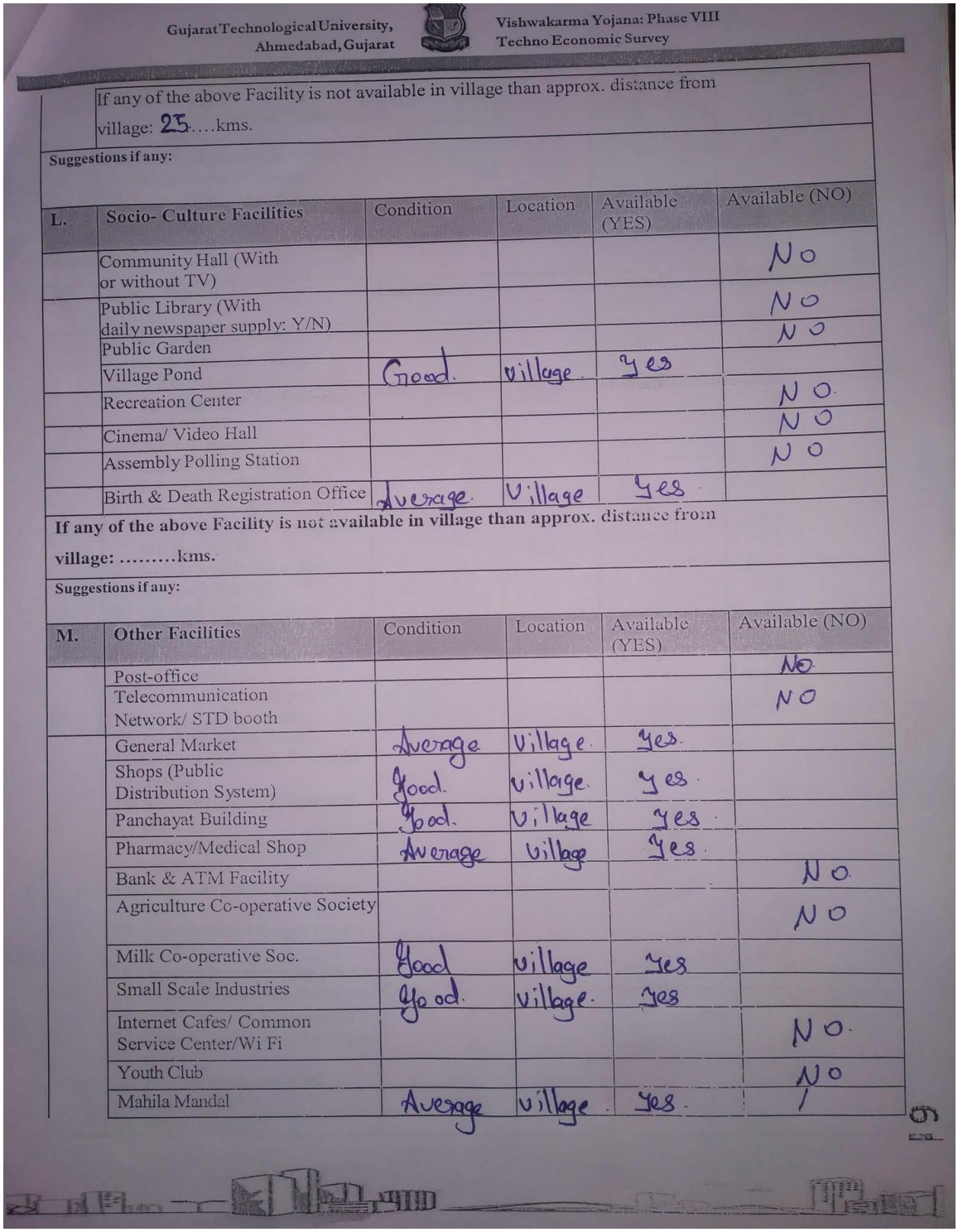
V. SOCIAL INFRASTRUCTURAL FACILITIES:

Sr. No.	Descriptions	Information/ Detail	Adequate	Inadequate	Remarks
J.	**Health Facilities:**				
	ICDS (Anganwadi)	6	✓	—	Good.
	Sub-Centre	0	—	—	—
	PHC	0	—	—	—
	BLOCK PHC	0	—	—	—
	CHC/RH	0	—	—	—
	District/ Govt. Hospital	0	—	—	—
	Govt. Dispensary	0	—	—	—
	Private Clinic	0	—	—	—
	Private Hospital/	0	—	—	—
	Nursing Home	0	—	—	—
	AYUSH Health Facility	0	—	—	—
	sonography /ultrasound facility	0	—	—	—
	If any of the above Facility is not available in village than approx. distance from village: .25..kms.				
Suggestions if any:					
K.	**Education Facilities:**				
	Aaganwadi/ Play group	6	✓		
	Primary School	1	✓		
	Secondary school	0		✓	
	Higher sec. School	0		✓	
	ITI college/ vocational Training Center	0		✓	
	Art, Commerce& Science /Polytechnic/ Engineering/ Medical/ Management/ other college facilities	0		✓	



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If any of the above Facility is not available in village than approx. distance from village: 25....kms.

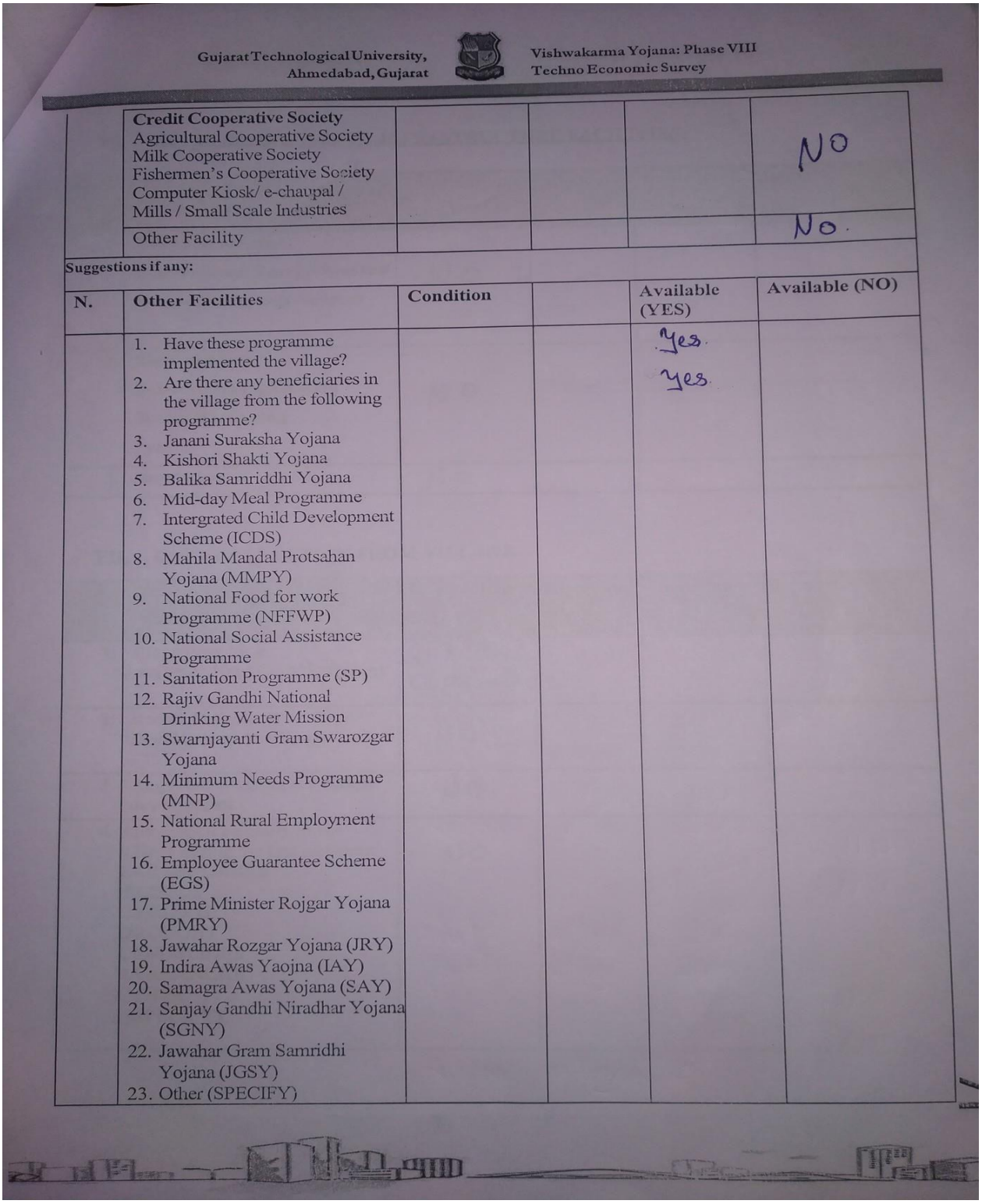
Suggestions if any:

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.	village	Yes	
	Recreation Center				No
	Cinema/ Video Hall				No
	Assembly Polling Station				No
	Birth & Death Registration Office	Average	Village	Yes	

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

Suggestions if any:

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

Suggestions if any:

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

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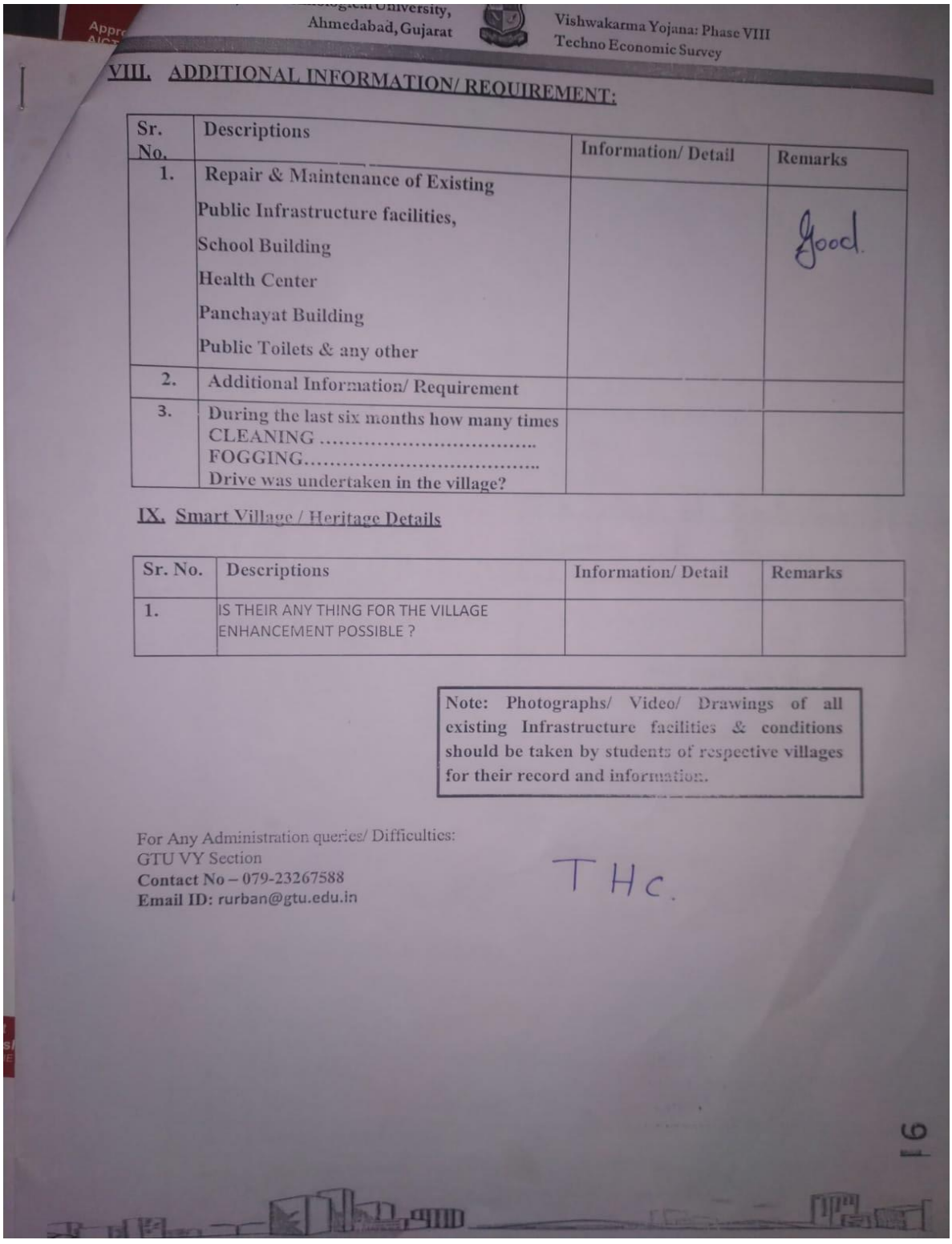
VI. SUSTAINABLE /GREEN INFRASTRUCTURE FACILITIES:

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

VII. DATA COLLECTION FROM VILLAGE

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



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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		Good.
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

THC.

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12.4 GAP ANALYSIS OF ALLOCATED VILLAGE GAP ANALYSIS:

TABLE 8- GAP ANALYSIS

VILLAGE GAP Analysis					
Village Facilities	**Planning Commission/ UDPFI Norms**	**Village Name:**	**NAYTA**		
		Population: 6846			
		Existing	**Required as per Norms**	**Future Projection Design**	**Gap**
Social Infrastructure Facilities					
Education					
Anganwadi	Each or Per 2500population	**6**	**2**		**0**
Primary School	Each Per 2500 population	**1**	**1**		**0**
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 Dispensaryor Sub PHC or Health Centre	Each Village	**1**	**1**		**0**
Primary Health & Child Health Center	Per 20,000 population	**1**	**1**		**0**
Child Welfare and Maternity Home	Per 10,000 population	**0**	**1**		**1**
Multispeciality Hospital	Per 100000 Population	**0**	**0**		**0**
Public Latrines	1 for 50 families (if toilet is not there in home, specially for slum pockets & kutcha house)	**1**	**2**		**1**

Physical Infrastructure Facilities					
Transportation		Adequate			
Pucca Village Approach Road	Each village	**1**	**1**		**0**
Bus/Auto Stand provision	All Villages connected by PT(ST Bus or Auto)	**1**	**1**		**0**
Drinking Water (Minimum 70 lpcd)		Adequate			
Over Head Tank	1/3 of Total Demand	1.6 LAC CAP			
U/G Sump	2/3 of Total Demand	3.2 LAC CAP			
Drainage Network - Open		Adequate / Inadequate			
Drainage Network - Cover		Adequate			
Waste Management System		Inadequate			

Socio- Cultural Infrastructure Facilities					
Community Hall	Per 10000 Population	**0**	**1**		**1**
community hall and PublicLibrary	Per 15000 Population	**0**	**1**		**1**
Cremation Ground	Per 20,000 population	**0**	**1**		**1**
Post Office	Per 10,000 population	**1**	**1**		**0**
Gram Panchayat Building	Each individual/group panchayat	**1**	**1**		**0**
APMC	Per 100000 Population	**0**	**0**		**0**
Fire Station	Per 100000 Population	**0**	**0**		**0**
Public Garden	Per village	**0**	**0**		**0**
Police post	Per 40,000Population	**0**	**0**		**0**
Shopping Mall	Shops areavailable	**no**			
Electrical Design					
Electricity Network	**UGVCL**	**Adequate** 67 KV Substation			
Any smart village facilities					
Technology	**-**	**0**	**1**		**1**

12.5 SUMMARY DETAILS OF ALL VILLAGES DESIGNS IN TABLE FORM.

No	VILLAGE	DESIGN PART 1 and 2
1	NAYTA	1.Pucca dwelling house 2.Communuty Hall 3.Public Toilet 4.ATM 5.Chabutra 6.Solar Street Light 7.Bio Gas plant 8. Automation power system 9. Panel Rooftop System 10. Elevated water tank 11. Village Chowk 12. Approuch Road 13. Post office 14. Aanganwadi 15. School sanitary system 16. Automation water level controller 17. Automatic LED light 18. Three phase fault analysis
2	SARIYAD	1.Bus Stop 2.Auditorium 3.Anganwadi 4.Entrace Gate 5.School sanitation 6.Dwelling House **7.** Public Garden 8. Gym 9. Library 10. Rain water harvesting

		11.Bank 12. Bio gas plant
3	KUNGHER	1.Bus Stop 2.Unde ground water tank 3.Gate 4.Solar Street Light 5.Solar water pump

These all are the designs we have done for the future planning of the villages, which are allocated to us for making it the smart city from the village.

All the designs are ecofriendly and most economic to an engineer, by the means of finance, elevation and plan. We tried our best to give our whole to the villagers for their welfare and well being.
We hope that government and GTU accept our designs and make it happen.

12.6 SUMMARY OF GOOD PHOTOGRAPHS IN TABLE FORM.

DAIRY

SCHOOL

TEMPLE

GRAM PANCHAYAT

PUCCA HOUSE

HEALTH CENTER

12.7 SARPANCH LETTER

Nayta Grampanchayat

Patan-384265

Gujarat, India.

To

Pooja Panchal

Parthav Modi

Sarthak Varde

U.G. Civil engineer,

M.k College, Patan.

Letter of Appreciation

Dear Sir,

I am very much enthused to write to express my profound gratitude to you and your entire team of final year project under section of Vishwakarma Yojana phase VIII. Gujarat Technological University for designing various amenities for people of our Nayta village.

I would like to state that all the amenities like primary school, Dwelling house, Aganwadi, bus stop, auditorium, entrance gate etc. were all as per requirement of our village to bring forth development goals.

I undersigned, and Nayta gram panchayat appreciate all your efforts and valuable time towards our village.

Thanking you.

T H C.

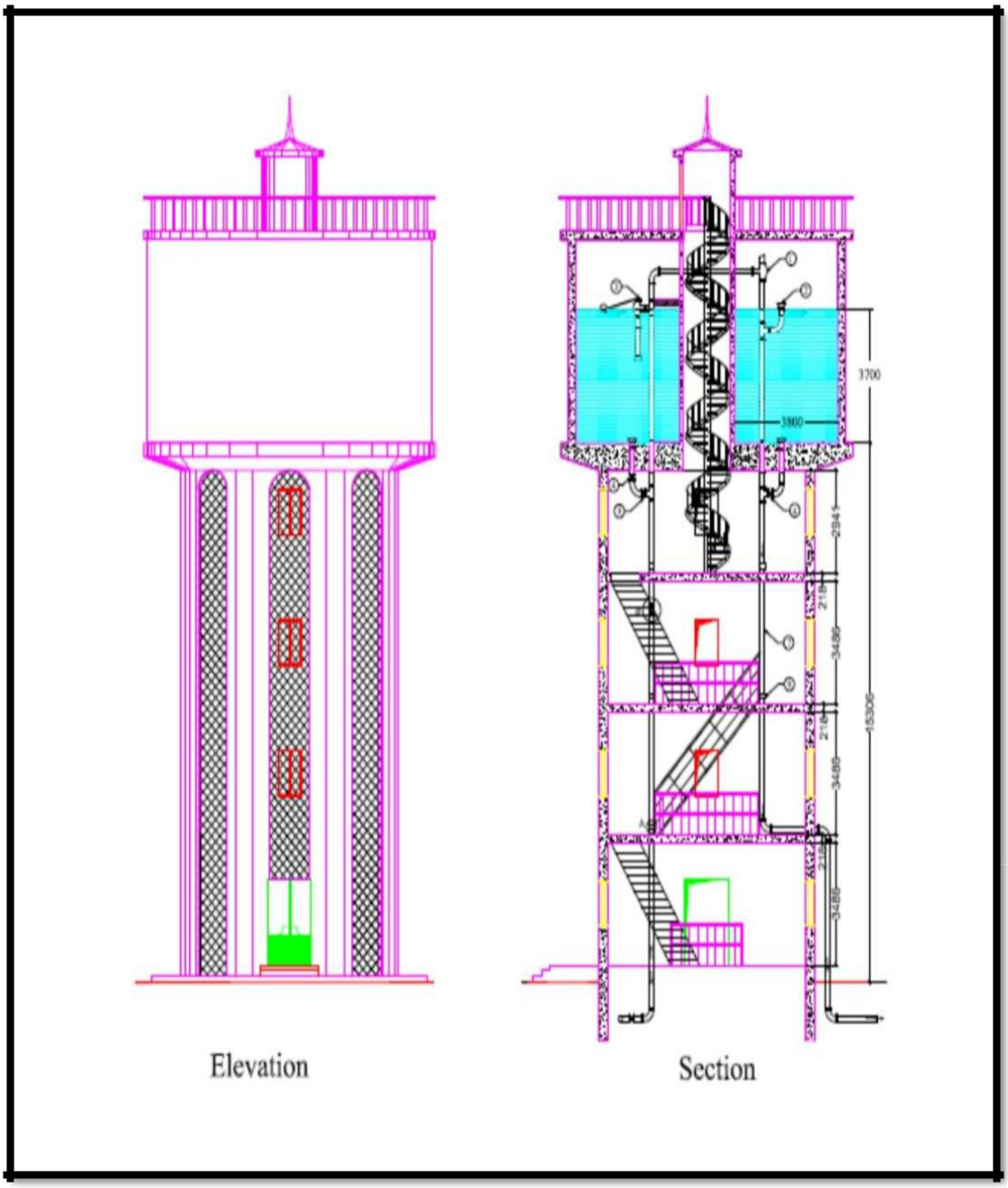
સરપંચ
મોટા નાયતા ગ્રામ પંચાયત
તા.સરસ્વતી, જિ.પાટણ

Sign of sarpanch

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

13.1 Design Proposals

13.1.1 Elevated Water Tank

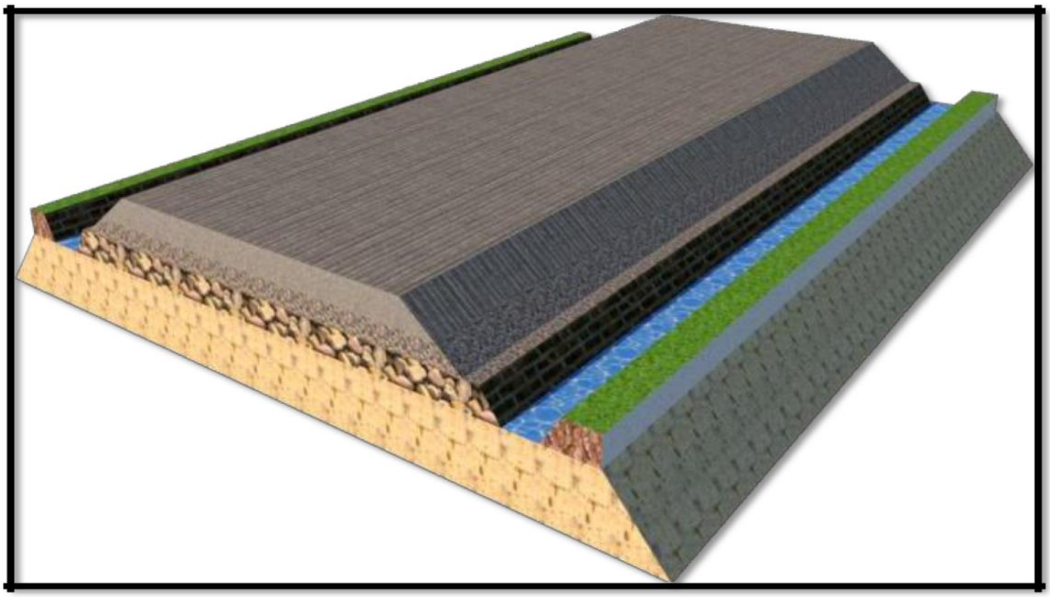


Elevated Water Tank

Elevated WaterTank									
MEASUREMENT SHEET									
Sr No	Description	Unit	No	Length	Width	Height/Depth	Area	Quantity	Total
1	Excavation	CuM	1			3.000	107.459	322.376	322.376
2	PCC							-	
	Below Foundation	CuM	1			0.100	107.459	10.746	10.746
3	RCC							-	
	Foundation	CuM	1			0.650	107.459	69.848	
	Column	CuM	12			18.300	0.442	96.967	
	Plinth Beam	CuM	1	30.458	0.750	0.750		17.133	233.948
	Bracing & Intermediate Beam	CuM	1					50.000	
								-	
5	Plaster Internal	SqM	1	30.458		5.700		173.611	173.611
								-	
6	External Plaster								
	Tank outside	SqM	1	32.342		5.700		184.349	
	Columns	SqM	12	2.355		15.330		433.226	817.575
	Bracing & Intermediate Beam	SqM	1					200.000	
								-	
7	Paint	SqM	1	30.458		5.700		173.611	173.611
8	Staircase	LS	1					1.000	1.000
9	Misc Connections	LS	1					1.000	1.000

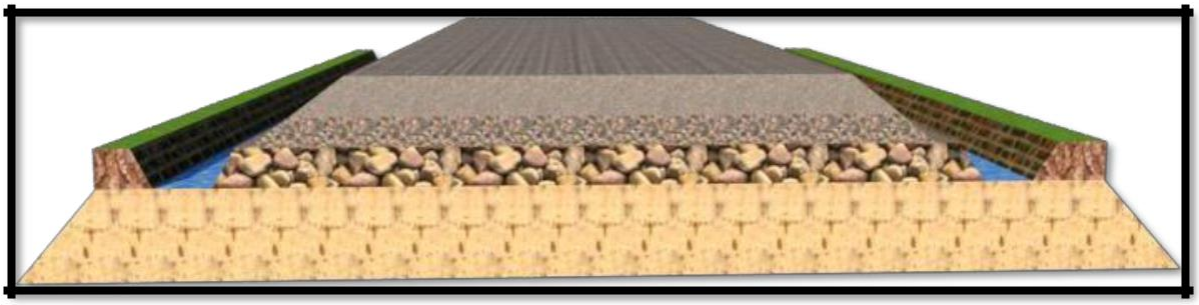
Elevated WaterTank						
ABSTRACT						
Sr No	Description	Unit	Quantity	Rate	Amount	Remarks
1	Excavation	CuM	322.376	152.540	49,175.227	
					-	
2	PCC		10.7459	3900	41,909.010	
	Below Foundation	CuM	1		-	
					-	
3	RCC		233.948	8,763.000	2,050,086.324	
	Foundation	CuM	1		-	
	Column	CuM	12		-	
	Plinth Beam	CuM	1	30.458	30.458	
	Bracing & Intermediate Beam	CuM	1		-	
					-	
5	Plaster Internal	SqM	173.611	30.458	5,287.844	
					-	
6	External Plaster		817.575		-	
	Tank outside	SqM	1	32.342	32.342	
	Columns	SqM	12	2.355	28.260	
	Bracing & Intermediate Beam	SqM	1		-	
					-	
					-	
7	Paint	SqM	173.611	30.458	5,287.844	
					-	
8	Staircase	LS	1		25,000	
					-	
9	Misc Connections	LS	1		50,000	
	Total Amount				**2,226,837.309**	
	Contingencies		**3%**		**66,805.119**	
	Total Cost				**2,293,642.428**	

13.1.2 Approach Road



View of Road

v



Approach Road

Base 15 cm thick

Sub-Base 20 cm thick

Table . Measurement sheet for Approach Road

Sr. No.	Particulars of item	No.	Length (m.)	Width (m.)	Height (m.)	Quantity	Remark
1.	Box cutting in road crust & consolidating & dressing subgrade to the specified grade & camber	1	1000	3.5	0.35	**1225 m3**	H = 0.15+0.20 = **0.35 m**
2.	Supplying consolidated soil gravel & stacked a roadside at regular intervals	1	1000	3.5	0.30	**1050 m3**	200 mm compacted when loose 200+(200/2) = **300mm**
	Labour for spreading & consolidating soil gravel	1	1000	3.5	0.30	**1050 m3**	
3.	Cement concrete (1:2:4) with 20 mm aggregate for road slab including floating the concrete surface after compaction & belting after floating for skid resistance &	1	1000	3.5	0.15	**525 m3**	

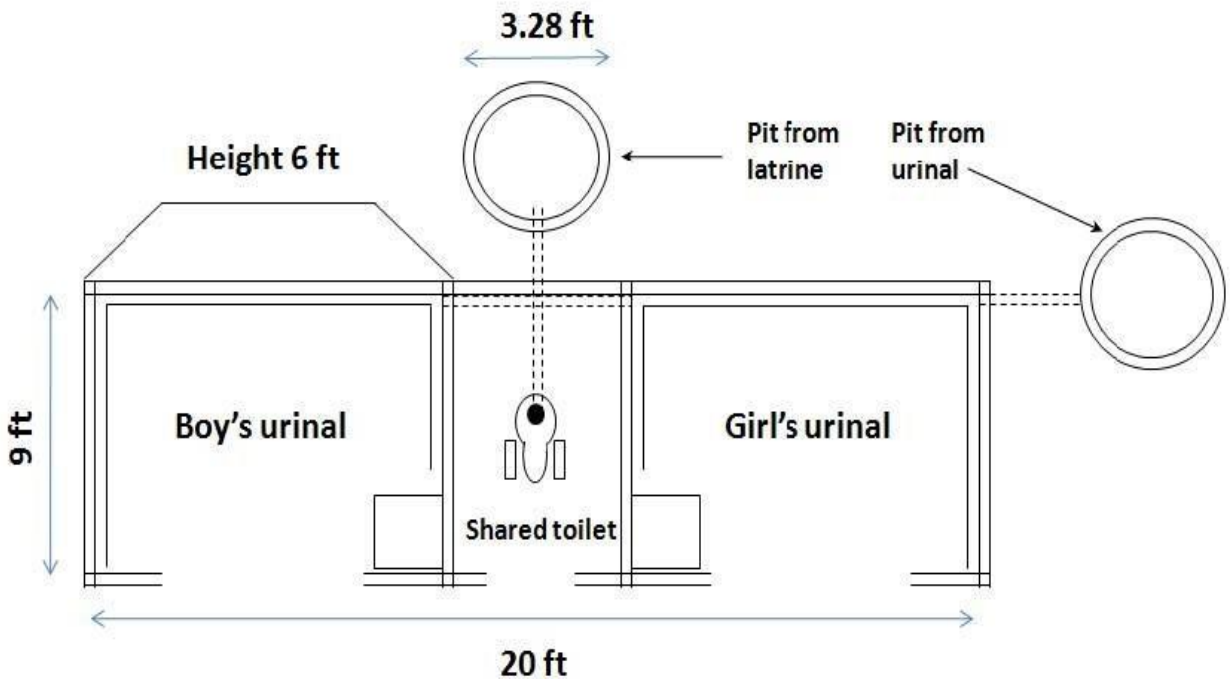
	including Brooming, Edging etc.						
4.	Providing necessary joints in concrete slab & filling the joints with bitumen.						Transverse joints = 1000/10=100
	a. For longitudinal joints	1	1000	_	_	**1000 rm**	
	b. For transverse joints @ 10m intervals	100	_	3.5		**350 rm**	Total joints = 1000+350 = 1350 rm

Abstract sheet for Approach Raod

Sr. No.	**Particulars of item**	**Unit**	**Quantity**	**Rate**	**Amount**	
					₹	**P .**
1.	Box cutting in road crust & consolidating & dressing subgrade to the specified grade & camber	m^3	1225	40	49000	**00**
2.	Supplying consolidated soil gravel & stacked a roadside at regular intervals	m^3	1050	150	**157500**	**00**

	Labour for spreading & consolidating soil gravel	m^3	1050	40	42000	**00**
3.	Cement concrete (1:2:4) with 20 mm aggregate for road slab including floating the concrete surface after compaction & belting after floating for skid resistance & including Brooming, Edging etc.	m^3	525	600	315000	**00**
4.	Providing necessary joints in concrete slab & filling the joints with bitumen.	rm	1350	15	20250	**00**
		Total Amount = ₹ 583750.00				
5.	**Add 5% for contingencies & work charged establishment**	5% of **583750.00**			29188	**00**
		Grand Total = ₹ 612938				
		Rate per km = 612938.00				

13.1.3 School Sanitary Design



School sanitary complex

Salient features:-

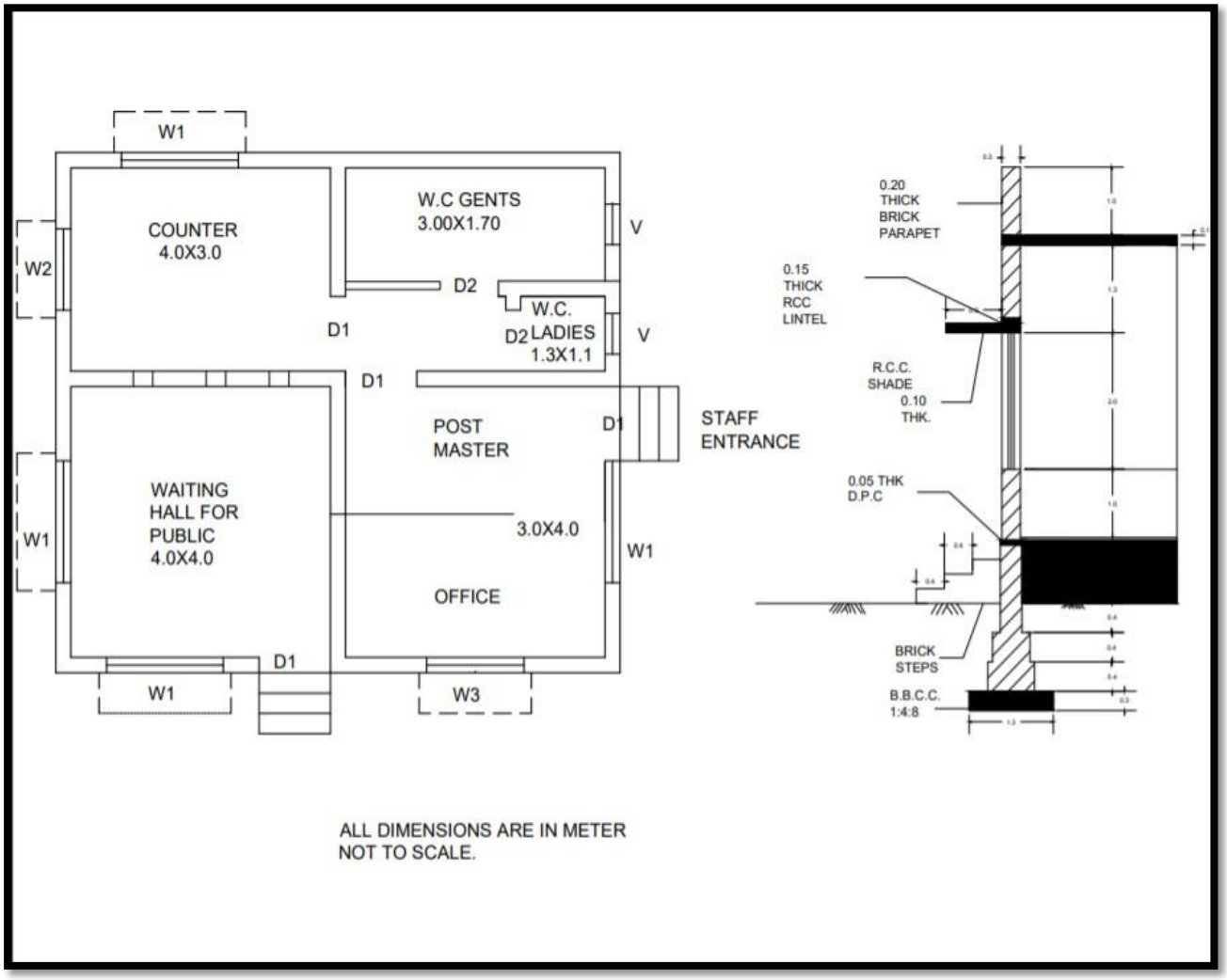
- School Sanitation is a tool for promoting better sanitation and water Management forchildren
- To improve the school environment
- Privacy for school children
- Following hygiene behaviors from the childhood
- Operation and maintenance by school children
- Separate facilities for children for urination and defecation
- School toilets should construct within the school campus
- Incinerator should be installed in girls toilet for menstrual hygiene management
- One toilet is enough for primary school children
- Water facilities and hand washing facilities should be inside of the toilet

Cost Estimate:-

Table : Cost estimate of school sanitary complex

Sr No.	Particulars	Quantity/Nos.	Units cost	Amount Rs. Ps.
1	Cement	30 bags	280.00	8400.00
2	Sand	2 Units	2400.00	4800.00
3	Ceramic pan Water Closet 18‖ size with P trap and footrest	2 No.	270.00	540.00
4	Stoneware pipes – 4 ― or PVC pipes	8 Nos.	60.00	480.00
5	Earth work excavation charges	L.S.	….	1500.00
6	R.R. foundation work with soling stone	1Cart load	750.00	750.00
7	Basement work with R.R.	L.S.	….	1500.00
8	White washing and painting	L.S.	….	3000.00
9	Ceramic tiles and fitting charges	Tiles 8‖ x 8‖ size 12 boxes	500.00	6000.00
10	Water Tap connection to toilets and urinals	L.S.	….	1500.00
11	Pre-cast cement slab – 4‘x 2‘ size , 2‖ thickness – reinforced slab for toilet roof	8 Nos.	300	2400.00
12	Door with iron frame and tin sheet 5‘ x 2‘ size	4 Nos.	1000.00	4000.00
13	Country Bricks – 9‖ size	3000 Nos.	4.00	12000.00
14	Masonry charges	12 days	400.00	4800.00
15	Unskilled labour charges	24 days	Rs.150.00	3600.00
16	Transport Charges	….	….	2000.00
	Total cost			57270.00

13.1.4 Post Office



2d plan of post office

Post office is very important facility for villagers but in Nayta village there is no post office so we design sustainable design for village post office.

Estimation of post office building:-

For estimation we use centerline method.

There are 10 junctions of the walls.So, net

center – line length

= total canter line length – [½ * width * no. of junctions]

Total center line length

= 3*[4+0.2+3+0.2] horizontal walls

+ 3*[3 +0.2 + 4+ 0.2] vertical walls

+1*[3+2] between G w/c and L w/c

+ 1*[1.1 +0.2] infant of L w/c

=22.2+22.2+3.2+1.3

=48.9m

Table measurement sheet

Item no.	Item description	No.	Length L m	Breadth B m	Height H m	quantity
1	**Earth work in excavation for foundation:** Total center line length =48.9m No. of junctions =10 S0, L = 48.9-1\2 * 0.90 *10 = 44.4 m	1	44.4	0.9	1.10	43.96m^3
2	**Brick masonry up to plinth level in C.M 1:6**					
	First step: L = 48.9-1/2*0.5*10 **=46.40m**	1	46.4	0.5	0.3	6.96
	second step: L = 48.9-1/2*0.4*10 **=446.9m**	1	46.9	0.4	0.3	5.63
	Third step: L = 48.9 -1/2 *0.3*10					

= 47.4m	1	47.4	0.3	0.85	12.08
Steps:	1	1.1	0.9	0.15	0.15
First step:	1	1.1	0.6	0.15	0.10
Second step:	1	1.1	0.3	0.15	0.05
Third step:					24.97m^3
For steps L = D1 = 1.1 m					
Brick masonry above plinth up to slab level in C.M 1:6					
L= 48.9 – ½*0.2* 10					
= 47.9 m	1	47.9	0.2	3.0	28.74m^3
Deduction for door					- 5.57 m^3
Deduction for Intel					- 0.646 m^3
					22.52m^3
Smooth plaster inside the rooms and callings in cm 1:3					238.39m^3
					-19.01 m^3
					219.37 m^3
Brick bat cement concrete [1:4:8] for foundation	1	44.4	0.9	0.2	7.99m^3

Table abstract sheet

N0.	Item	quantity	rate	per	Total amount
1	Earth work in excavation for foundation:	43.96m^3	85	m^3	1,156
2	Brick masonry up to plinth level in C.M 1:6	24.97m^3	3450	m^3	86,146.5
3	Brick masonry above plinth up to slab level in C.M 1:6	22.52m^3	3321	m^3	74,788.92
4	Smooth plaster inside the rooms and callings in cm 1:3	219.37 m^3	130	m^2	28,518.1
5	Brick bat cement concrete [1:4:8] for foundation	7.99m^3	2604	m^3	20,805.96

Total item amount =211,415.48

Add water charges (1.5%) =3,171.232

Contractor‘s profit (10%) =21,141.548

Contingencies charges (5%) =10,570.774Total granted amount = 2,46,299.034

Elevation of post office

13.1.5 Aanganwadi

The aim is to provide a learning environment for children under the age group of 3-6 years, and early care and stimulation for children under the age of three. PSE is provided through the medium of "play" to promote the social, emotional, cognitive, physical and aesthetic development of the child as well as to prepare him/her for primary schooling.

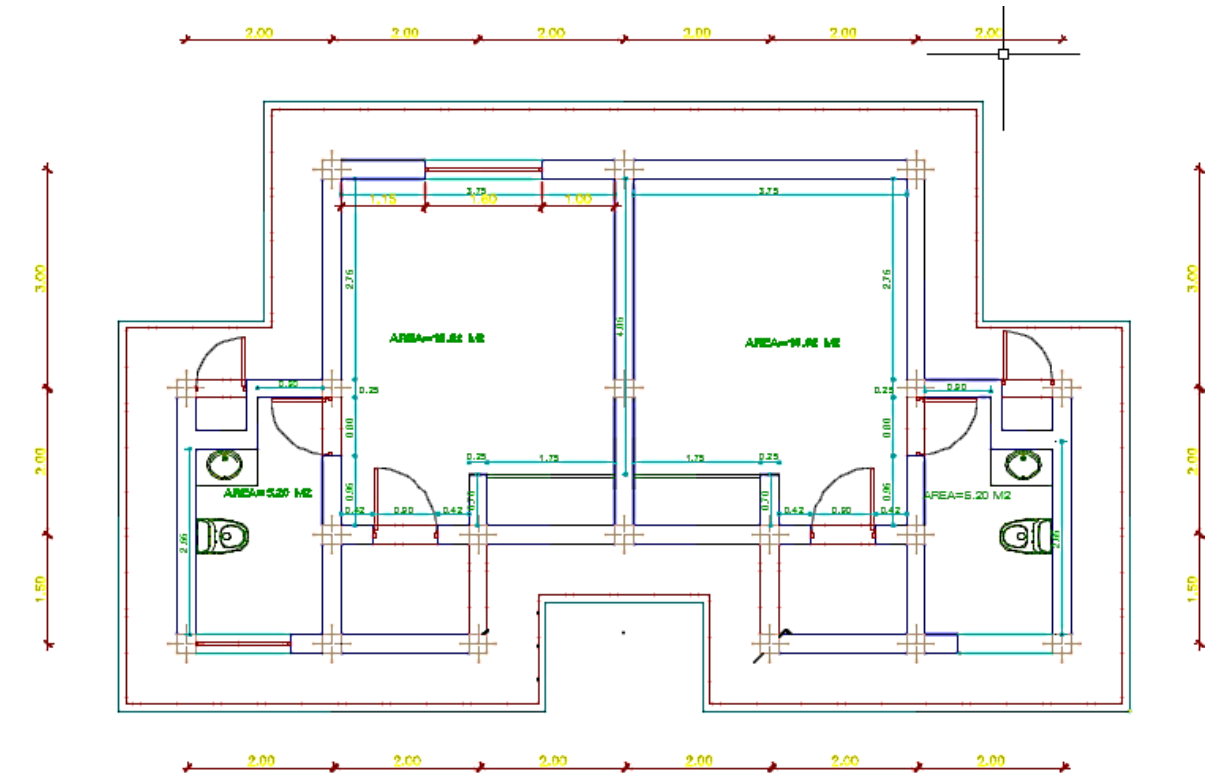
- To improve the nutritional and health status of children below the age of six years.
- To lay the foundation for the proper psychological, physical and social development ofthe child.
- To reduce the incidence of mortality, morbidity, malnutrition and school dropouts.
- To achieve effective coordination of policy and implementation among variousdepartments to promote child development.
- To enhance the capability of the mother to look after the normal health, nutritional and developmental needs of the child through proper community education.

The Anganwadi is passing through many ups and downs. It does not mean that it is a worthlessprogram; but on the other hand, it helped many rural children by providing them with an early education. Therefore, for making this program successful, it is our collective duty to cooperatewith each other in this pious social work.

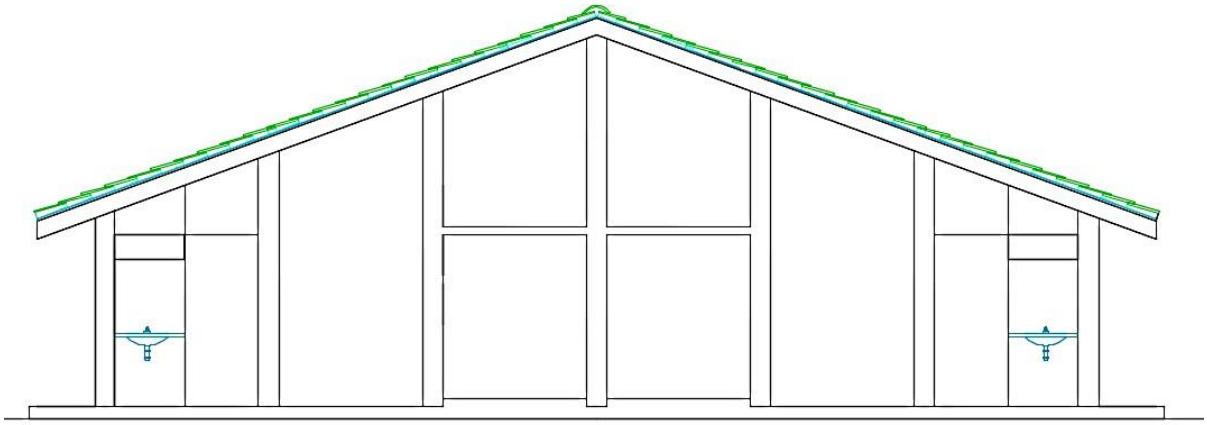
The basic services provided under ICDS are mentioned under three headings like nutrition, health and pre-school education. Nutrition services include supplementary feeding, growth monitoring, and nutrition and health counselling. Health services include immunization, basic health care, and referral services. Pre-school education involves various stimulation andlearning activities at the Anganwadi.

Integrated Child Development Services (ICDS) is the only major national program that addresses the needs of children under the age of six years. It seeks to provide young children with an integrated package of services such as supplementary nutrition, health care and pre- school education. Because the health and nutrition needs of a child cannot be addressed in isolation from those of his or her mother. The program also extends to adolescent girls, pregnant women and nursing mothers

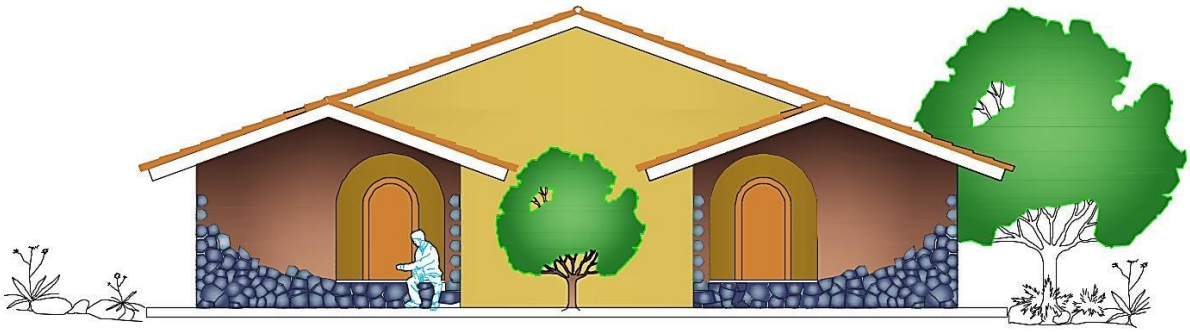
The meaning of the word 'Anganwadi' in the English language is "courtyard shelter". The word Anganwadi is derived from the Hindi word "Angan", it refers to the courtyard of a house. Angan is a rural Indian term for "a place where people get together to discuss, greet, and socialize their matters".



PLAN



SECTION



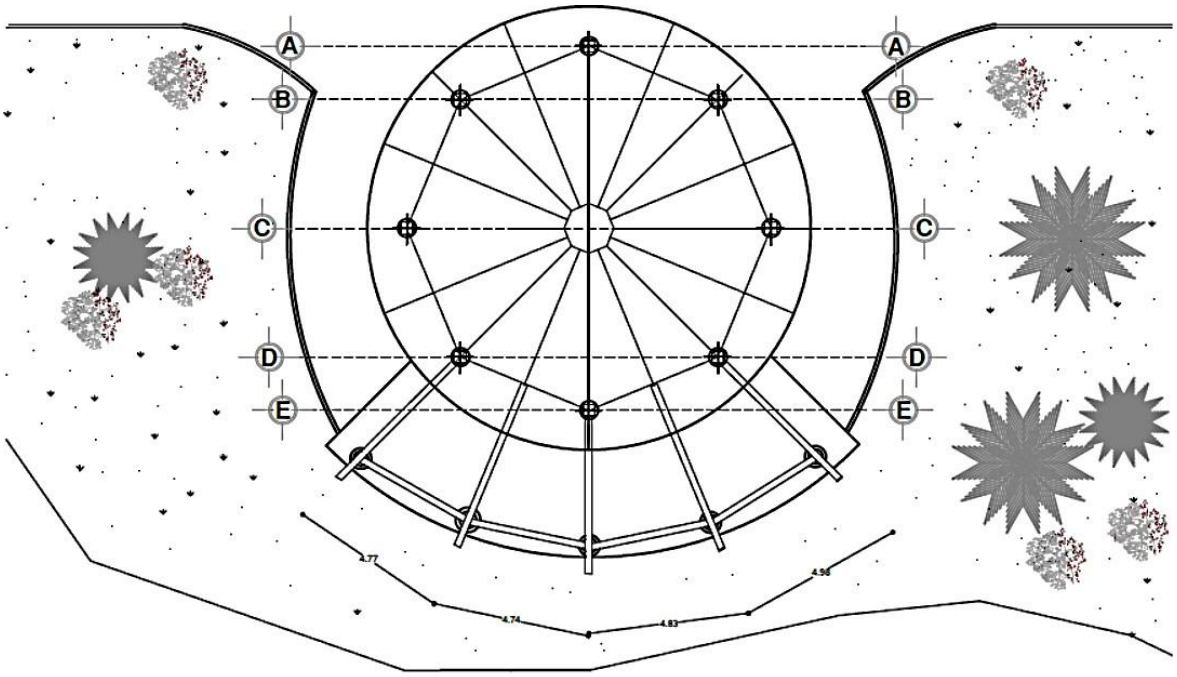
ELEVATION

Abstract Sheet

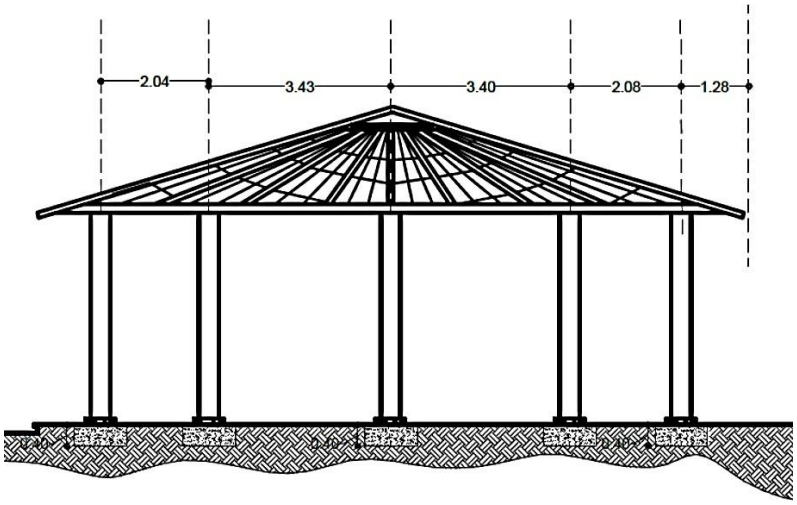
Sr. No	Item Description	No.	Length	Width	Height	Quantity	Total Quantity	Rate	Per	Total Amount
1.	**Excavation**									
	Main Walls	1	80.9	0.6	0.6	29.124	37.333	350	m^3	13066
	Columns	19	0.6	0.6	1.2	8.208				
2.	**PCC In Foundation**									
	Main Walls	1	80.9	0.25	0.2	4.045	4.285	3200	m^3	13712
	Columns	19	0.25	0.25	0.2	0.24				
3.	**Brickwork In Foundation**									
	Main Walls	1	80.9	0.25	0.4	8.09	9.28	3400	m^3	31600
	Columns	19	0.25	0.25	1	1.19				
4.	**Brickwork In Superstructure**									
	Main Walls	1	80.9	0.25	4.5	91.1				
	Columns	4	0.25	0.25	3	0.75	96.225	3600	m^3	346410
		8	0.25	0.25	4	2				
		4	0.25	0.25	5	1.25				
		3	0.25	0.25	6	1.125				
	White putti on both side of walls									
5.	**Main Walls**	2	80.9	-	4.5	728				
	Columns	8	0.25	-	3	6	769	45	m^2	34605
		16	0.25	-	4	16				
		8	0.25	-	5	10				
		6	0.25	-	6	9				
6.	**RCC precast slab**						95.72	1950	m^2	186654
Total										**6,26,047**
Add 6% Enhancement										**37,562**
Total Rs.										**6,63,609**
Say Rs.										**6,65,000**

13.1.6 Chowk

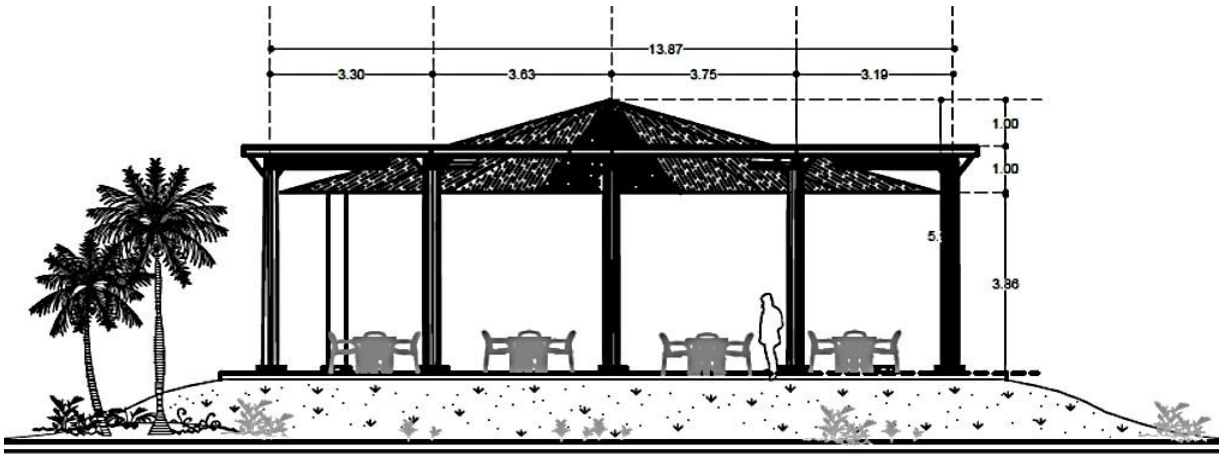
Chowk can be used as gathering place for village. Meetings can be arranged in this place whereenough place is available with seating arrangements. In Village villagers and farmers can sit heat for take rest after doing the hard work. Workers can use this public place to take rest andto eat with peace.



PLAN



SECTION

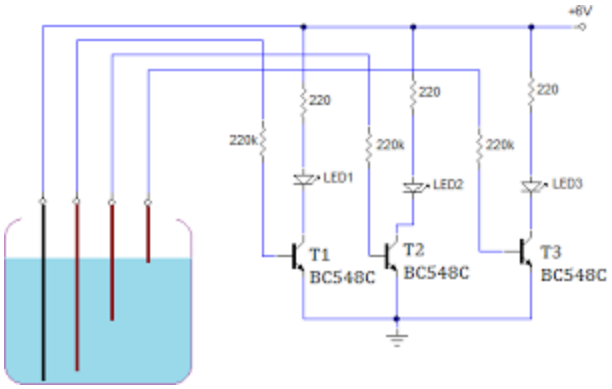


ELEVATION

	Item Description	No.	Length	Width	Height	Total Quantity	Rate	Per	Total Amount
1.	**Earth work in excavation in foundation**	8	1.3	1.3	0.4	5.408	350	m^3	1892
2.	**PCC foundation**	8	1	1	0.4	3.2	3400	m^3	10880
3.	**Column**	8	0.375	0.375	4	4.5	3600	m^3	16200
4.	**Roof sheet - Polycarbonate Sheet**					83.2	320	m^2	26624
Total									**55,596**
Add 12% Miscellaneous									**6,671**
Total Rs.									**62,267**
Say Rs.									**65,000**

13.1.7 Automatic water level controller & indicator

The drinking water crisis in Asia is reaching alarming proportions. It might very soon attain the nature of global crisis. Hence, it is of utmost importance to preserve water for human beings. In many houses there is unnecessary wastage of water due to overflow in overhead tanks. Automatic Water Level Indicator and Controller can provide a solution to this problem. The operation of water level controller works upon the fact that water conducts electricity due to the presence of minerals within it. So water can be used to open or close a circuit. About 95% of the Earth's water is in the oceans, which is unfit for human consumption. About 4% is locked in the polar ice caps, and the rest 1% constitutes all fresh water found in rivers, streams and lakes which is suitable for our consumption. A study estimated that a person in India consumes on an average of 140 litres per day. This consumption would rise by 40% by the year 2025. This signifies the need to preserve our fresh water resources. This circuit consists of 4 sensing probes which are dipped in water to sense the level of water. The probe A is connected as com-mon to other three, which should be at the bottom most part of the water tank, also it act as a reference level. The probes B, C and D are set as minimum, middle and maximum level respectively. A short length three, 18 SWG copper wires can be used as sensing probes. . As a result the transistor conducts causing the LED1 to glow and immediately the pump will start functioning and the buzzer starts sounding. Similarly, when water touches sensor C, LED2 glow and indicates that the tank is half- filled and still the pump works and it gives the information about the level of water in the tank.



Equipment Used

Input Voltage: 6 volt power supply is required.

Transistor:

BC548C is general purpose silicon, NPN, bipolar junction transistor. It is used for amplificationand switching purposes. The current gain may vary between 110 and 800. The maximum DC current gain is 800.

Water Sensors:

18 SWG copper wires can be used as sensing probes that can be placed in the water tank. As the current required passing through the wire is in Nano amps. But if needed then carbon rodsat the end of wires can be used. These carbon rods should be thoroughly washed.

LM7805:

This is the 5v regulator used to power up the whole circuit.

Buzzer:

Any 6 V buzzer will work here.

Automatic water level controller will automatically START the pump set as soon as the water level falls below the predetermined level and shall SWITCH OFF the pump set as soon as tankis full. It can be used to predict flood Liquid level indicator in the huge containers in the companies.

- Low costs
- Low power consumer.
- Fuel level indicator in vehicles.

Costing:

Component	Unit Cost	Quantity	Total Cost(Rs.)
Transistor (BC548c)	10	7	70
Water Sensors	39	4	156
Copper wires(18SWG)	22.5 / meter	3 m	67.5
Buzzer(6V)	8	1	8
LM7805	1	130	130
Battery 24V,100Ah	8250	1	8250
LED	12	1	12
		Overall Cost	RS. 8693

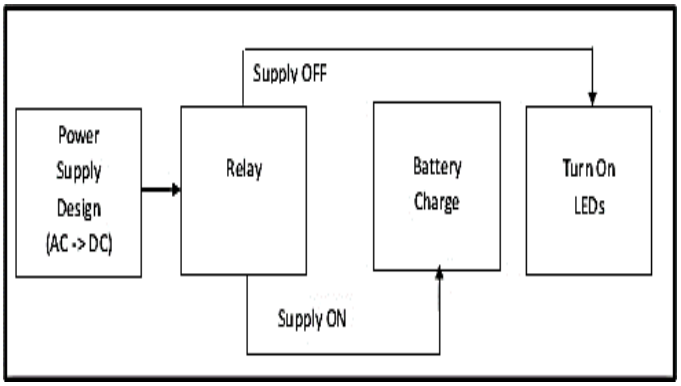
Automatic Water level Controller can be used in Hotels, Factories, Homes Apartments,Commercial Complexes, Drainage, etc.

13.1.8 Automatic LED Emergency Light

INTRODUCTION:

Growing demand for the saving of electricity. It is based on the principle of providing light when the power is cut off. This is accomplished by the use of automatic charger which gets charged when power supply exists. When the battery is fully charged it stops charging. In case of power failure, the LED glows automatically with the supply provided by the charged battery. **This project is working on two major processes:**

1. It turns on automatically when the mains power fails, so you need not search it in the dark.
2. Its battery starts charging as soon as mains resumes.

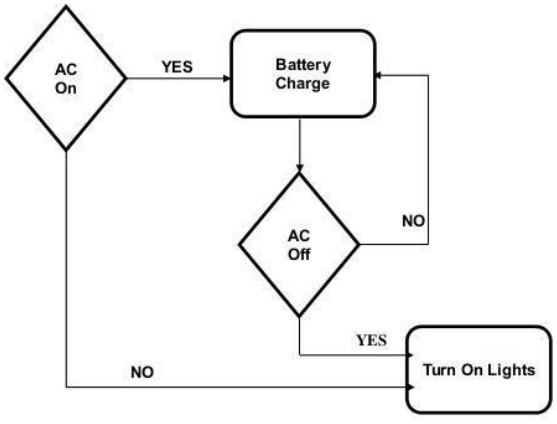


This Emergency light is used mostly in village because there is the lack of electricity which isvery required. In industries and as well as in household applications an emergency light is employed where there is frequent non uniform voltage distribution occurs. Many types of emergency lights from rechargeable torches to systems like generators are available in market.All of them require a switch to operate them when frequent power failure occurs.

The present one deals with a modelwhich senses the mains as well as daylight to switch on the emergency light. There is no need to search the switch in the dark as it switches on/off automatically. . In most of the emergency light there exists a drawback. The dischargelevel of the battery is not being controlled to a safe level. The batteries get discharged completely and lose their life rapidly. This is a very serious aspect in order to overcome this cut-off is provided and there exists a minimum discharge level which ensures the long life of batter.

Power supply

For converting 230V AC to 12V AC, 12-0-12V Transformer is used. It steps down the voltage from 230V to 12V AC. Now, to convert 12V AC to 12V DC we use Bridge Circuit. There arefour 1N4007 Diode is used to get 12V DC output. This is the function of Power Supply to convert AC to DC.



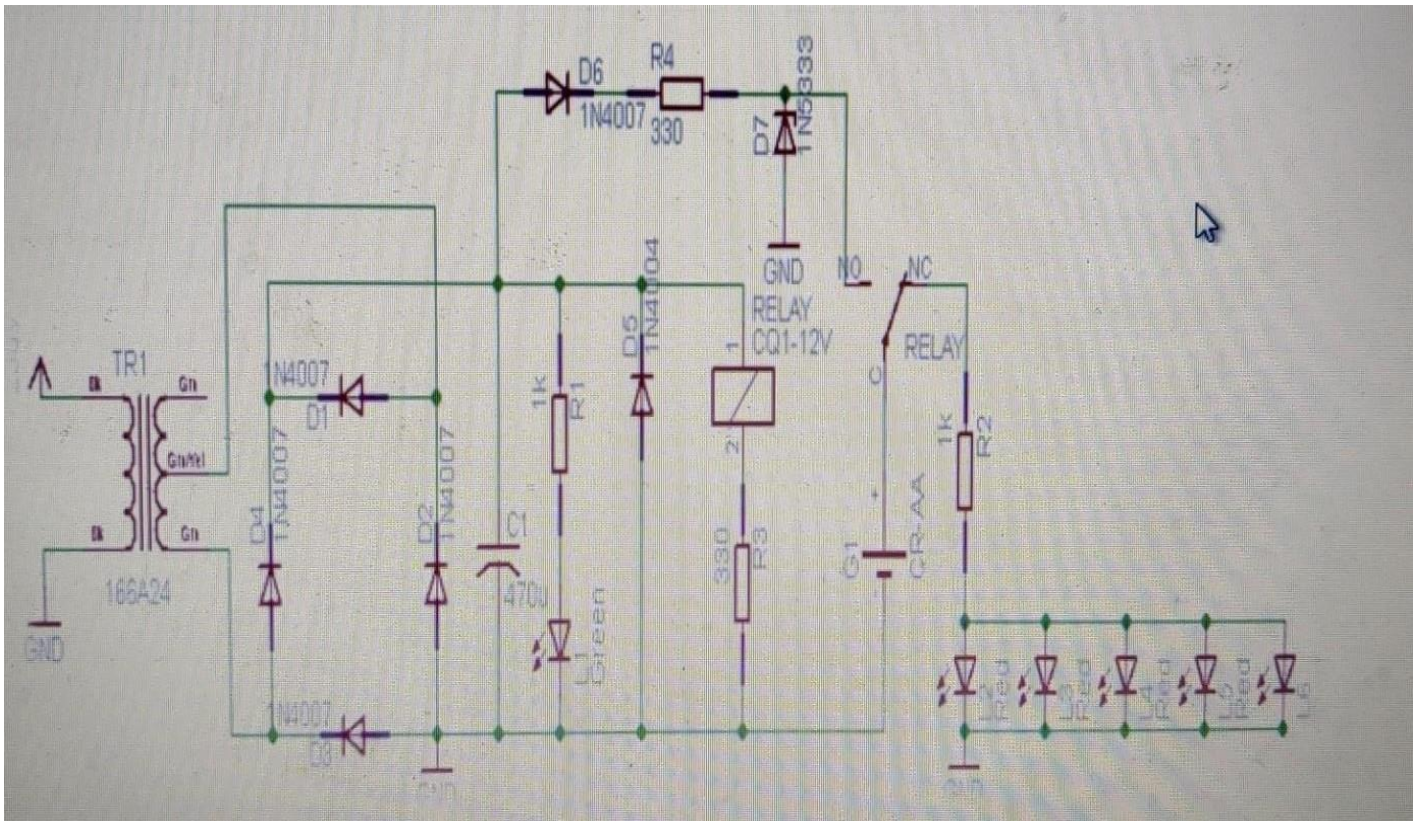
Rechargeable Battery:

Li-ION battery is used to give 3.7V as Output and Maximum Voltage of the battery is 4.7 voltage Zener Diode of 4.5V is used to get 4.5V as an input. So that it can be measured how much time it will take to charge battery.

LEDs:

10 LEDs are connected in parallel to get charge from rechargeable battery when power supplyis cut off. It is on automatically when power supply is off.

When AC is on the flow shows that battery will be charge. When AC is off it turn on the LEDsas shown in the flow diagram.

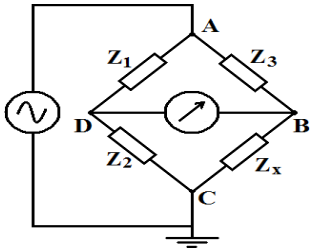


Circuit Diagram

Operation

- The step down transformer and the diode bridge rectifier steps down and convert thehigh AC (in the range of 110V or 230V) voltage to low (12V) DC voltage.
- The diode D5 prevents the battery charge from flowing back, it acts as a freewheelingdiode too.
- In the presence of electricity, the relay contact connects the NO (Normally Open)terminal to

- battery. Thus battery charges during this time.
- Use Green LED as the charging indicator which glows when the emergency lightbattery is charging.
- When supply failure occurs, relay connects the NC (Normally Closed) terminal to thebattery.



- The LED arrays are connected to NC terminal, thus they glow by using the chargestored in the battery.

Transformer:

For Converting High AC voltage to Low AC voltage we used 12-0-12V Transformer.

Bridge Circuit:

To convert 12V AC to 12 V DC, we use 4 Diode 1N4007. It has High Current Capability and Low Forward Voltage Drop. The value of capacitor is 470µF. So we get rectified output.

Relay:

Relay is working as a Switch. To operate relay we needs 12V DC supplyso that we are using 12V Transformer.

For Rechargeable battery, Nominal Voltage of Li-Ion battery is 3.7 Voltage. Standard capacity is 1950mAh. Charging voltage is 4.2V.Constant current 0.2C5A.

Costing

Component	Quantity	Unit Cost	Total cost(Rs.)
Relay	2	25	50
Battery	2	110	220
LEDs	10	5	50
Transformer (12V)	3	300	900
1N4007 Diode	10	4	40
		Overall cost(Rs.)	**1,260**

Advantages:

- It is easy to use, save energy more and easy to install anywhere.
- Efficiency: more light per watt than incandescent bulbs.
- Colour: can emit of an intended colour without use of colour filters.
- Size: very small.
- On/off time: light up very quickly.

- Life time: long useful life time

Disadvantages:

Cost: currently more expensive.

Health hazard: cool white LEDs can cause problems to eyes

13.1.9: Three phase fault analysis with autoreset on temporary fault and permanent trip otherwise

Introduction:

A fault in a power system is any failures which interface with the normal flow of current. Thecause of electric power system faults is insulation breakdown.

This breakdown can be due to a variety of different factors such as,

- Lightning stroke
- Spray on Insulators
- Trees coming in contact with wires
- Equipment Failure

As from the studies 70% to 90% of faults are occurred in overhead transmission line which are transient. There are many transient fault, such as damages of insulation, swinging wires and little time contact with other objects.

These faults are cleared by operating the circuit breakers or can be cleared by de-energizing the line at short period for clearing the fault. The other 30% to 10% faults are occurred in overhead line which are permanent or long duration fault. Permanent or long duration fault occurred by broken wire which results one phase to ground fault or joining the two phase together which is occurred in overhead line as well as in the underground cable.

These fault cleared by finding them in line and repair which results permanent trip of line. Types of Faults:

The faults can be classified into:

- Symmetrical faults
- Unsymmetrical faults

The Shunt faults are characterized by increase in current and fall in voltage and frequency. The Shunt faults can be classified as:

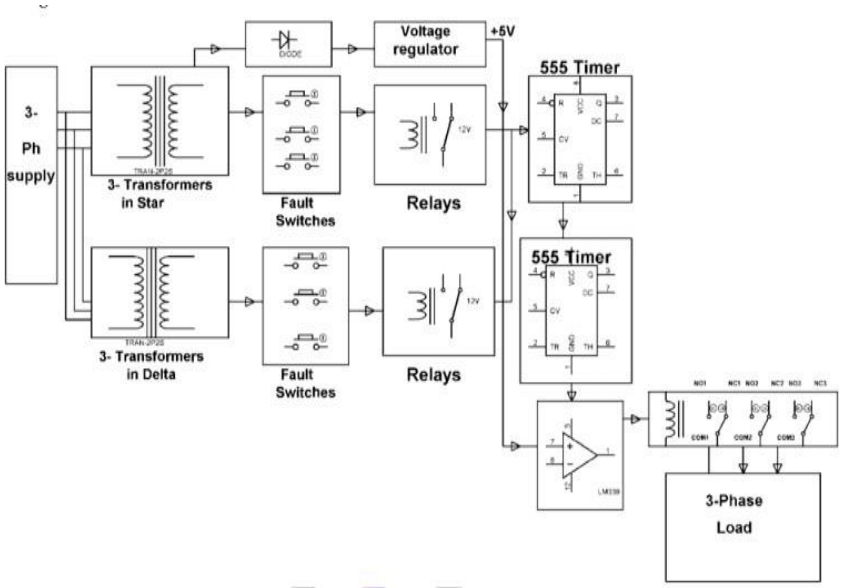
- Single Line to Ground (LG) fault
- Line to Line (LL) fault
- Double line to ground (LLG) fault

- Three Phase fault.

An unbalanced fault does not affect each of the three phase equally. Common type ofunbalanced fault and there causes:

- Line-to-Line (LL) fault: A short circuit between lines, caused by ionization of air, orwhen lines come into physical contact, for example due to a broken insulator.
- Single line-to-ground (LG) fault: A short circuit between one line & ground, very oftencaused by physical contact, for example due to lightning or other damages.
- Double line-to-line ground (LLG) fault: Two lines come into contact with the groundalso commonly due to storm damage.

Block Diagram:

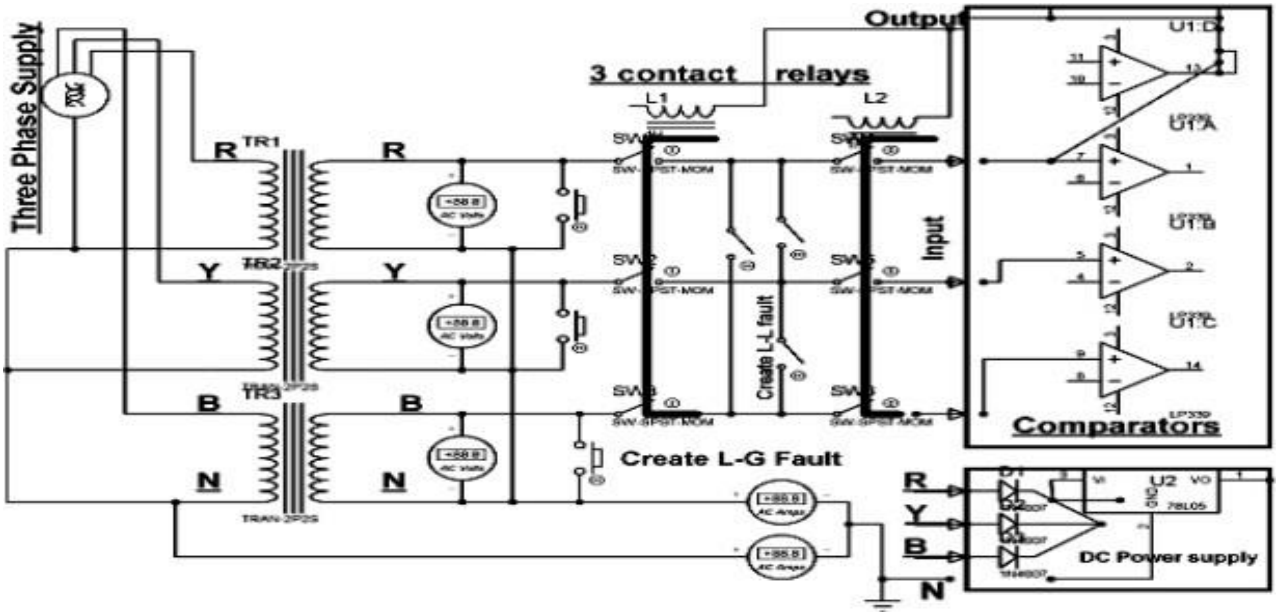


COMPONENTS USED:

- Power transformer
- Voltage regulator
- Relays and 555 timer
- LM 358

POWER TRANSFORMER:

This is a device which is used tocovert electricity from alternating current (AC) voltage to another AC voltage with less lose of power.



Working Principle:

There are six step down transformers which are connected to the board producing 12 volt to the circuit. These six transformers are divided into two groups, first one group is connected instar-star connection and later s connected in star-delta connection.

The NC contacts of all the relay are made parallel while all the common points are grounded. The parallel connected point of NC is then connected to pin2 of 555 timer through a resistor R5 i.e. wired in constable mode the output (pin3) of the same timer is connected to reset (pin4)of the other 555 timer wired in a stable mode.

LED's are connected at their output to indicate their status. The output (pin1) of 555 timer (U3)is given to op-amp LM358 through wire 11 and d12 (1N4007) to the non-inverting input (pin3)which acts as a comparator.

Costing:

Component	Quantity	Unit Cost (Rs.)	Total cost (RS.)
Stepdown Transformers	6	300	1800
Relay	2	25	50
Push Button	6	8	48
555 timer	1	225	225
Op-amp LM358	5	45	225
Resistors(1K)	10	2	20
Voltage Regulator(LM7805)	1	9	9
Diode (1N4007)	12	4	48
		Overall Cost(Rs.)	**2,425**

13.2 Reasons for students recommending this design

- We recommend post office design because there is no facility of it in the village.
- We recommend Village chowk design to give free space to the villagers.
- We recommend Aanganwadi design for welfare os students

13.3 Benefit of the villagers

1. To Meet the Population Amenities.
2. To Design Eco-Sanitation System for Public Toilet to Reduce the Cost of the Construction and meet the Government Tender Requirement.
3. The Developed new community hall to meet the Future Requirement and Safety Instant.
4. To Increase the Communication and Skill.
5. The Developed of Social Infrastructure to Increase the Skill of the Peoples or Students.
6. To Design or Establishment of ATM, villagers will get proper facilities.
7. To Design Mobile Toilets in the Village to meet Public Amenities every day and Big Festival.
8. To Reduce the Cost Land area Uses and Increase the Land Values.
9. To Increase the Skill and Knowledge about the Culture by Developing Community Hall

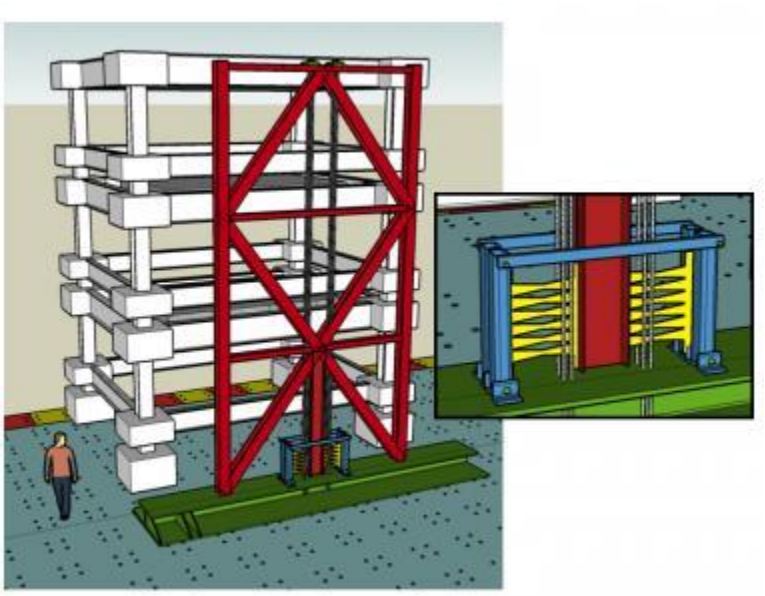
Chapter 14. Technical Options with Case Studies

14.1 Earthquake

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.

These range from appropriately sizing the structure to be strong and ductile enough to survive the shaking with an acceptable damage. The conventional approach to earthquake resistant design of buildings depends upon providing the building with strength, stiffness and inelastic deformation capacity which are great enough to withstand a given level of earthquake-generated force. This is generally accomplished through the selection of an appropriate structural configuration and the careful detailing of structural members, such as beams and columns, and the connections between them. But more advanced techniques for earthquake resistance is not to strengthen the building, but to reduce the earthquake-generated forces acting upon it.



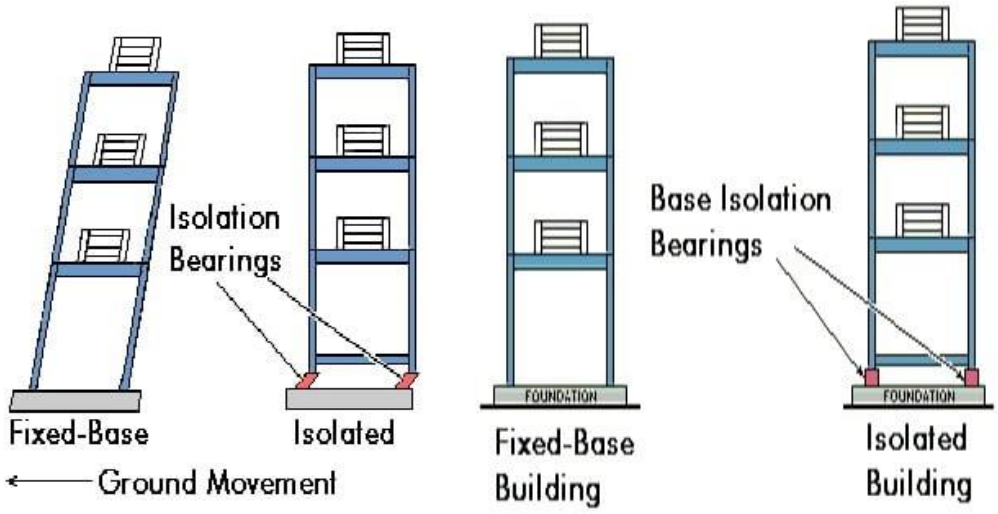
Among the most important advanced techniques of earthquake resistant design and construction are:

1.Base Isolation

2.Energy Dissipation Devices

1. Base Isolation

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.



The base-isolated building itself escapes the deformation and damage, which implies that the inertial forces acting on the base-isolated building have been reduced. Experiments and observations of base-isolated buildings in earthquakes have been shown to reduce building accelerations to as little as 1/4 of the acceleration of comparable fixed-base buildings, which each building undergoes as a percentage of

gravity. As we noted above, inertial forces increase, and decrease, proportionally as acceleration increases or decreases. Acceleration is decreased because the base isolation system lengthens a building‟s period of vibration, the time it takes for the building to rock back and forth and then back again. And in general, structures with longer periods of vibration tend to reduce acceleration, while those with shorter periods tend to increase or amplify acceleration. Finally, since they are highly elastic, the rubber isolation bearings don‟t suffer any damage. But the lead plug in the middle of our example bearing experiences the same deformation as the rubber. However, it generates heat.

2. Energy Dissipative Device

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 dampe

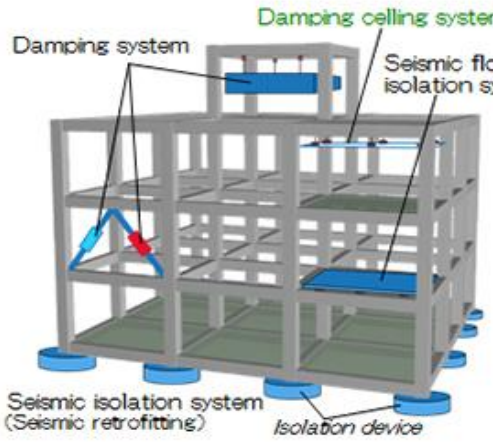
Construction method:

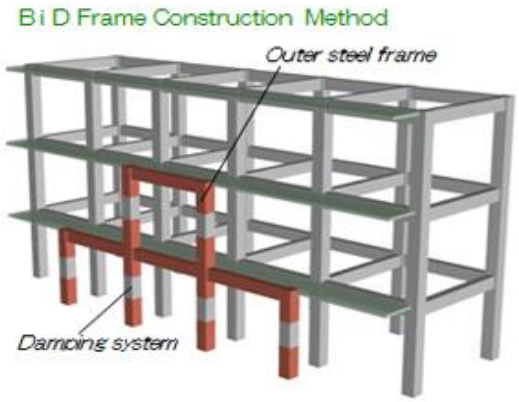
1.Base-isolation are designed in buildings . It is a building designed to reduce amount of energy that reaches the building during earthquake. 2.Flexible joints and automatic shut off valves can be installed. Protecting Against Earthquake Damage Prepare a Seismic Risk Map for the globe which identifies rock types, liquefaction potential, landslide potential. Extensive geological surveying has to be done to identify all active

faults, including hidden faults. Earthquake Resistant Design of Structures Enact building codes to design and build earthquake-resistant structures in high seismic risk areas. wood, steel and reinforced concrete are preferred as they tend to move with the shaking ground.

14.1.2 Seismic Retrofitting of Buildings

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





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

- **External post-tensioning**

The use of external post-tensioning for new structural systems have been developed in the past decade. Under the PRESS (Precast Seismic Structural Systems), a large-scale U.S./Japan joint research program, unbonded post-tensioning high strength steel tendons have been used to achieve a moment-resisting system that has self-centering capacity. An extension of the same idea for seismic retrofitting has been experimentally tested for seismic retrofit of California bridges under a Caltrans research project and for seismic retrofit of non-ductile reinforced concrete frames. Pre-stressing can increase the capacity of structural elements such as beam, column and beam-column joints. External pre-stressing has been used for structural upgrade for gravity/live loading since the 1970s.

- **Base isolators**

Base isolation is a collection of structural elements of a building that should substantially decouple the building's structure from the shaking ground thus protecting the building's integrity and enhancing its seismic performance. This earthquake engineering technology, which is a kind of seismic vibration control, can be applied both to a newly designed building and to seismic upgrading of existing structures. Normally, excavations are made around the building and the building is separated from the foundations. Steel or reinforced concrete beams replace the connections to the foundations, while under these, the isolating pads, or base isolators, replace the material removed. While the base isolation tends to restrict transmission of the ground motion to the building, it also keeps the building positioned properly over the foundation. Careful attention to detail is required where the building interfaces with the building, especially at entrances, stairways and ramps, to ensure sufficient relative motion of those structural elements.

- **Tuned mass dampers**

Tuned mass dampers (TMD) employ movable weights on

some sort of springs. These are typically employed to reduce wind sway in very tall, light buildings. Similar designs may be employed to impart earthquake resistance in eight to ten story buildings that are prone to destructive earthquake induced resonances.

- **Slosh tank**

A slosh tank is a large container of low viscosity fluid (usually water) that may be placed at locations in a structure where lateral swaying motions are significant, such as the roof, and tuned to counter the local resonant dynamic motion. During a seismic (or wind) event the fluid in the tank will slosh back and forth with the fluid motion usually directed and controlled by internal baffles – partitions that prevent the tank itself becoming resonant with the structure, see Slosh dynamics. The net dynamic response of the overall structure is reduced due to both the counteracting movement of mass, as well as energy dissipation or vibration damping which occurs when the fluid's kinetic energy is converted to heat by the baffles. Generally the temperature rise in the system will be minimal and is passively cooled by the surrounding air. One Rincon Hill in San Francisco is a skyscraper with a rooftop slosh tank which was designed primarily to reduce the magnitude of lateral swaying motion from wind. A slosh tank is a passive tuned mass damper. In order to be effective the mass of the liquid is usually on the order of 1% to 5% of the mass it is counteracting, and often this requires a significant volume of liquid. In some cases these systems are designed to double as emergency water cisterns for fire suppression.

- **Adhoc addition of structural support/reinforcement**

The most common form of seismic retrofit to lower buildings is adding strength to the existing structure to resist seismic forces. The strengthening may be limited to connections between existing building elements or it may involve adding primary resisting elements such as walls or frames, particularly in the lower stories. Common retrofit measures for unreinforced masonry buildings in the Western United States include the addition of steel frames, the addition of reinforced concrete walls, and in some cases, the addition of base isolation.

- **Connections between buildings and their expansion additions**

Frequently, building additions will not be strongly connected to the existing structure, but simply placed adjacent to it, with only minor continuity in flooring, siding, and roofing. As a result, the addition may have a different resonant period than the original structure, and they may easily detach from one another. The relative motion will then cause the two parts to collide, causing severe structural damage. Seismic

modification will either tie the two building components rigidly together so that they behave as a single mass or it will employ dampers to expend the energy from relative motion, with appropriate allowance for this motion, such as increased spacing and sliding bridges between sections.

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

The Indian advanced construction techniques industry is experiencing a period of fast growth. Aiming to overcome the housing problem, it also has to face the dual challenge of fulfilling the needs of the client and maintain the quality standards. At the same time, the up-gradation of technology through the adoption of new techniques has become necessary to survive in a tough competitive environment.

EQUIPMENT USED FOR SMALL AND MEDIUM CONSTRUCTION WORK

The equipment with proven utility in building construction may be as listed below

- Chain and pulley block
- Grouting pumps
- Sprayers ffor painting work
- Tile cutters
- Portable hand drilling machines
- Horizontal trolleys, wheelbarrows
- Pumps
- Vibrators for compaction of concrete, surface vibrators
- Auto ramming concrete block machine
- Sand washing machine
- M.S. tubular scaffolding, and formwork
- Concrete mixers
- Cranes

1. Modern materials:

- **Mass Timber**

Humans have been building with wood since they first moved out of caves, but in modern times, materials like cement and steel have all but supplanted it for tall buildings. There's a good reason for that: Wood is generally weaker than other materials and it is vulnerable to fire.

Following federal research into more advanced wood building techniques, though, the old dog of the construction industry is getting some new tricks. Mass timber – in which solid wood is panelized and laminated for increased strength and other useful properties – is helping tall wood buildings to appear in cities across America again.

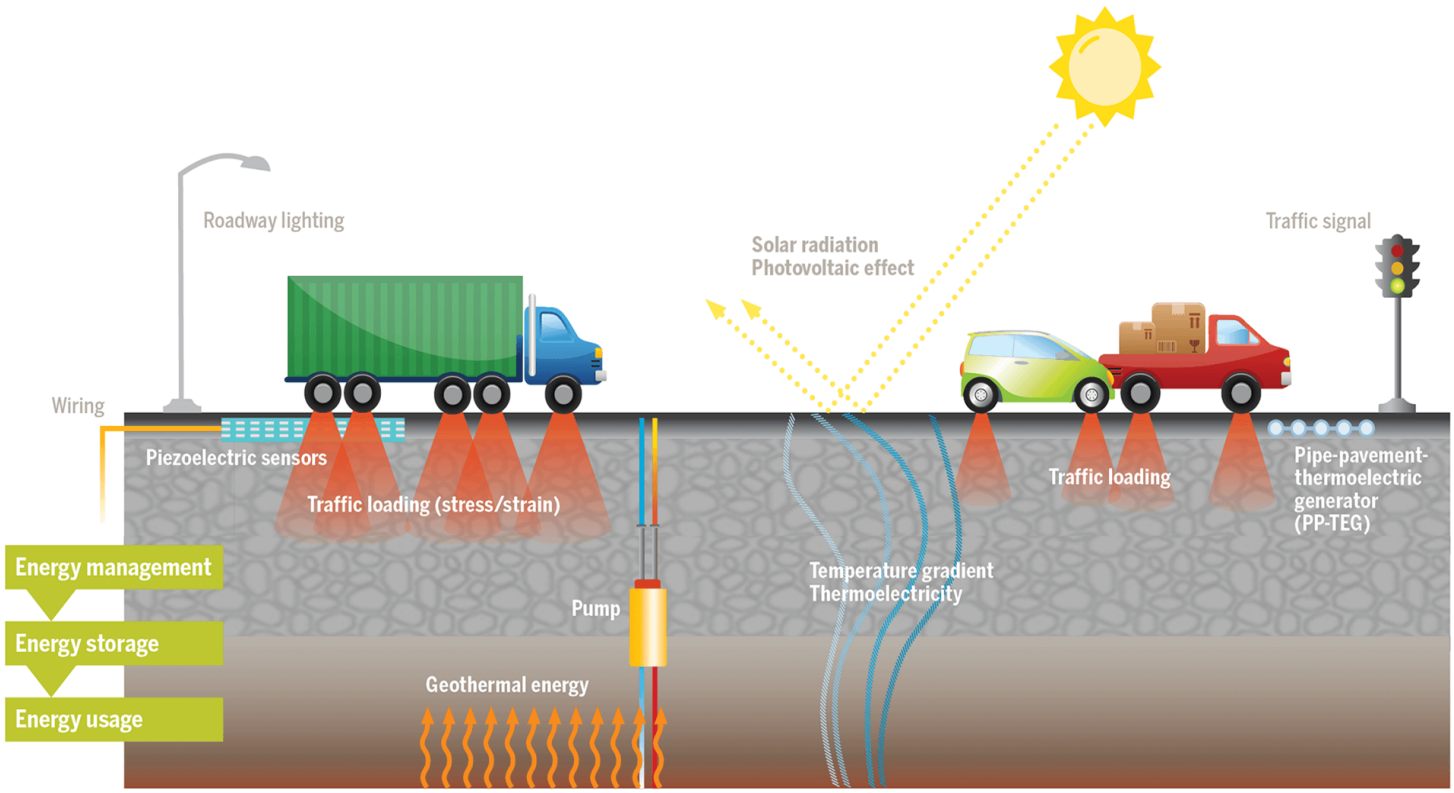
The mass timber category includes several types of laminated timber, most notably cross-laminated timber and glue-laminated timber. Glue-laminated timber is composed of several pieces of lumber that are glued together and is useful for creating strong beams. Cross-laminated timber is made up of pieces of lumber stacked in alternating directions and makes large panels that can support a lot of weight.

2. Modern techniques:

KINETICROADS

It has developed a technology called Lybra, a tyre-like rubber paving that converts the **kinetic** energy produced by moving vehicles into electrical energy. Developed in co-operation with the Polytechnic University of Milan, Lybra operates on the principle that a braking car dissipates **kinetic** energy.

The result is the creation of **Kinetic Paving** material technology that when people step on it will produce electricity. The benefits of this technology can create electricity that can be used for the environment of this **kinetic paving**. ... **Kinetic Paving** is applied in pedestrian traffic spaces.



3. Modern equipments:

- **Telematics:**

Savage of Vermeer explains that many manufacturers are using telematics that allow the machine to communicate vital information to fleet managers and equipment owners.

Additionally, telematics provides a number of benefits to the construction industry including increased productivity, greater efficiency, and heighted security of the operations.

Technology can remotely track and create reports for data such as location, fuel consumption, and machine operation. John Deere, for instance, offers JDLink, which monitors this on equipment. However, Kahler says one of the most helpful aspects of JDLink is the availability of the product.

"The accessible nature of this system helps customers effectively manage their fleet and job site from anywhere," he says. "On a day to day basis, local John Deere dealers monitor their customer's machines, allowing customers to focus on the job at hand. Also, machine data flows through Deere's machine health monitoring center, which focuses on the big picture of machine health and preventative maintenance."

14.1.4 Engineering Aspects of Soil mechanics - Environmental Impact Assessment:

The main objective of the Environmental Impact Assessment (EIA) is to evaluate the Project likely impacts on the environment as described in section 4 of this ESIA. One of the key objectives of the ESIA is to assist in ensuring environmentally and socially sound management of the Project during its entire lifecycle. The description of the existing conditions of the local environment provides a comprehensive data collection and analysis of the baseline conditions at the project site. The baseline data permits the identification of the main socio environment factors that might be associated with the project activities.

- Shear Strength of Soils.
- Mohr-Coulomb Failure Criterion.
- Direct Shear Test.
- Triaxial Test.
- Total Stress Strength Parameters.
- Effective Stress Strength Parameters.
- Pore Water Pressure Parameters.
- Stress-Strain Behaviour of Sands.

The interaction between the Project activities and the environmental and social baseline conditions of the ecosystem at the Project site is at the core of the ESIA.

The ESIA is designed to forecast the positive and negative effects that may occur to the receiving e nvironment. The early identification of impacts that may occur in the area leads to a reduction of the risk of future adverse environmental effects, and permits the proposal of mitigation guidelines/measures to avoid, reduce or remediate significant adverse effects.

The need for an environmental impact assessment:

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

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 insound 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.

Chapter 15. Smart and/or Sustainable features of Chapter 8 & 13 designs

Sr. No.	Design Name	Period	Amount Expenditure (RS.)	Benefit
1	Dwelling House	2-3 years	2,77,650	Facilities for villagers.
2	Community hall	Within 1 Year	4,77,146.6	Villagers can arrange meetings.
3	Public Toilet	Immediately	2,88,850	For cleanliness
4	ATM	Immediately	-	For money transections
5	Chabutra	Immediately	1,08,628	Facilities for birds.
6	Bio- Gas plant	Within one month	1,96,148	For using of natural fuel
7	Solar Streetlight	Within 6 months	28,100	For welfare of villagers at night
8	Automation power system	Within 1 Year	6,571	Easy supplying of power
9	Panel Rooftop System	Within 6 months	56,500	UV rays facilities
10	Elevated Tank	One Year	22,93,642	Storage and distribution of water.
11	Approach Road	Immediately	6,12,938	Better Transportation
12	School Sanitery Design	Immediately	57,270	For students' Facility.
13	Post Office	6 months	2,46,299	For villagers
14	Chowk	Immediately	65,000	For gathering
15	Aanganwadi	1 year	6,65,000	For Welfare
16	Auto water level indicator	6 months	8,693	Safety
17	Three phase fault analysis	Immediately	2,425	Welfare
18	Auto LED emergency light	Immediately	1,260	welfare

Here total cost of village development is = 63,92,120~ 65,00,000(approx..)

Chapter 16. Survey by Interviewing with Talati or Sarpanch

Gujarat Technological University, Ahmedabad, Gujarat

Vishwakarma Yojana: Phase VIII
Survey with Interviewing

SURVEY BY INTERVIEWING WITH TALATI AND/OR SARPANCH

Vishwakarma Yojana: Phase VIII

ALLOCATED VILLAGE SURVEY

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

CHAPTER- 16

Sr.	Questions	Yes/ No	Remarks
1	What are the sources of income in village?	YES	Agriculture, Dairy products
2	What are the chances of employment in village?	YES	Farming, business etc.
3	What are the special technical facilities in village?	YES	Adequate water supply
4	Is any debt on village dwellers?	NO	
5	Are village people getting agricultural help?	YES	There is agriculture department
6	Is women health awareness Program organized in village?	YES	
7	Are women having opportunity to work and income?	YES	Proper awareness is there
8	Child girl education is appreciated in village?	YES	
9	Facility of vaccination to child is available in village?	YES	Anganwadi is there
10	Are village people aware about child vaccination and done to each and every child as per norms?	YES	
11	Women help line number information is provided to village people?	YES	Women are well educated and aware.
12	Is water scarcity in village? How many days per year?	NO	
13	Is village under any debt?	NO	
14	Is any serious issue due to debt from bank or any person happened in village?	NO	
15	Is any suicide like incident observed in village due to government policy, debt or threatening?	NO	
16	Is any death of patient occurred due to unavailability of medical facility in village?	NO	
17	How many disabled (physically challenged) is observed in village? Provide list with Male/female/girl/boy with age and type of disability and reason of disability.	NO	
18	Is village improvement is observed in comparative scenario from past to present?	YES	In last few years development is very impressive
19	Is any unavoidable difficulty village people are facing? Any natural calamity is there?	NO	
20	Life Living standard of girls and women is appreciated and uplifted in village?	YES	

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

Administration queries/ Difficulties:
GTU VY Section
Contact No – 079-23267588

T H C.
સરપંચ
મોટા નાયતા ગ્રામ પંચાયત
તા.સરસ્વતી, જિ.પાટણ

Chapter 17. Irrigation / Agriculture Activities and Alternate Techniques and Solution

Nayta village Total area is 2678 hectare. Wheat, cattle seed and cotton seed are agriculture commodities grow in this village. 8 hours agricultural power supply in summer and 8 hours agricultural power supply in winter is available in this village.

Different types of irrigation systems can be used for agriculture like

- •Surface irrigation
- •Drip irrigation
- •Sprinkler irrigation
- •Center pivot irrigation
- •Lateral move irrigation
- •Sub-irrigation
- •Manual irrigation

AGRO INDUSTRIES

Agro-based industries are industries that use plant and animal-based agricultural output as their raw material. Also, they add value to agricultural output by processing and producing marketable and usable products.

Some **examples of agro-based industries** in India include Textile, Sugar, Vegetable Oil, Tea, Coffee and Leather goods industries

All branches of agro-based industry are important because:

- Help in increasing industrial production.
- Provide employment to landless agricultural labor and tribal population from rural and backward areas.
- Ensure the development and stability of rural economy through diversification and reduced dependence on agriculture.
- Ensure the alleviation of poverty by providing steady sources of income and livelihood.
- Earn much required foreign exchange for the country.
- Improve the standard of living in rural areas.
- Help in reducing the extreme inequalities in the distribution of income and wealth.

- Support balanced growth between agriculture and industry, and
- Help in avoiding wastage of perishable agricultural products.

ALTERNATE TECHNICS OF IRRIGATION

1. CENTER-PIVOT:

Center pivot irrigation is a form of overhead sprinkler irrigation consisting of several segments of pipe (usually galvanized steel or aluminum with sprinklers positioned along their length, joined together and supported by trusses and mounted on wheeled towers. The machine moves in a circular pattern and is fed with water from the pivot point at the center of the circle.

For a center pivot to be used, the terrain needs to be reasonably flat; but one major advantage of center pivots over alternative systems that use gravity flow is the ability to function in undulating country. This advantage has resulted in increased irrigated acreage and water use in some areas. The system is in use, for example, in parts of the United States, Australia, New Zealand, and Brazil and also in desert areas such as the Sahara and the Middle East.

Center pivots are typically less than 1600 feet (500 meters) in length (circle radius) with the most common size being the standard 1/4 mile (400 m) machine. A typical 1/4 mile radius crop circle covers about 125 acres of land.

As the name suggests, center pivots irrigate in a circular pattern around a central pivot point. Pivots are capable of applying water, fertilizer, chemicals, and herbicides. This versatility can improve the efficiency of irrigation practices by using a single piece of machinery to perform several functions.

Ever more powerful motors allowed irrigators to increase the systems' scale, with the largest set-ups covering all but the corners of a 640-acre section of land. Over time, farmers positioned sprinkler nozzles closer to the ground, resulting in less evaporation. During the return of drought conditions in the 1950s, those who had chosen to irrigate had an advantage over those who did not, which convinced many latecomers to get on board. In 1993, historian John Opie observed that industrial irrigation that emerged in the Great Plains was a three-legged stool supported by fertile land, plentiful and low-cost groundwater, and inexpensive fuel.

Center pivot irrigation was a technological triumph—and it also transformed the agricultural geography of the country. With feed crops becoming available in the Great Plains and easily portable via the new interstate highway system, feedlots and meatpacking plants moved to the region. An abundance of low cost, non-unionized labor and low-cost water for raising livestock and processing meat led the area, where 160 acres of land could previously support just one steer, to become a center for some of the world's largest high-density livestock feedlots with hundreds of animals per acre. Large-scale swine production facilities have thousands of animals under one roof. Any one of these farms requires more water for drinking and waste removal than a typical city: A farm of 20,000 hogs uses far more water than a community of 20,000 people.

2.SUBIRRIGATION:

Applying irrigation water below the ground surface either by raising the water table within or near the root zone or by using a buried perforated or porous pipe system that discharges directly into the root zone.

Subirrigation systems, also know as zero runoff, are an environmentally responsibly alternative that conserve water and fertilizers. They are being installed by greenhouse growers to improve product quality, achieve more uniform growth and increase production efficiency.

In subirrigation systems, water and nutrient solution provided at the base of the container rises by capillary action through holes in the bottom and is absorbed by the growing media. These systems are adaptable to crops grown in pots or flats.

3.SURGE FLOODING:

Traditional flooding involved just releasing water onto a field. In using surge flooding, water is released at prearranged intervals, which reduces unwanted runoff.

A storm surge, storm flood, tidal surge, or storm tide is a coastal flood or tsunami-like phenomenon of rising water commonly associated with low-pressure weather systems, such as cyclones. It is measured as the rise in water level above the normal tidal level, and does not include waves.

Chapter 18. Social Activities – Any Activates Planned By Students

We planned many activities such as, awareness program, playing with students, time spending with students of village, much more. We did many activities rom above mentioned but somehow we are nit able to complete them all. The main activity done there was periods awareness programme in the village.

- Give awareness about Covid-19.
- Insist villagers to wear mask.
- Teach steps for hand washing to villagers.
- Give awareness about social distance.
- Inform villagers to use packing things after sanitation is done.
- Insist villagers to drink pure and hot water.
- Insist for Covid-19 vaccination.
- Help the villagers to to get proper information about the virures.
- Also giving the information about the spreading Fungus.

Much has been assumed regarding the sanitary pad usage in rural india. The general perception is that, sanitary napkins are not available or affordable by rural women and girls. It will therefore come as a surprise to many that, even in the rural areas, the prevalence of disposable products for managing menstruation is much higher than the 12% number often quoted. The study was conducted by A.C.Neilsen and endorsed by Plan India in October 2010, which stated that only 12% Indian women use Sanitary Napkins and the rest are using unsanitary methods of managing menstruation. However, this study titled "Sanitary Protection: Every Woman's Health Right" is not available on any public domain. This was a 2010 study. Years later, most CSR programs, NGO interventions and even Government schemes are still based on this "12%". What's more, it is assumed that the rest 88%, that do not use sanitary napkins, must be using unsanitary means. According to National Family Health Survey, NFHS 2015-16, the numbers both in rural and urban India are far higher than this.

The NFHS 2015-16 survey pegs the number for women using hygienic means of managing menstruation in India at 78% in urban areas, 48% in rural areas and 58% overall. Today, nearly 6 out of 10 women in India have access to disposable sanitary napkins. According to this survey, locally prepared napkins, sanitary napkins and tampons are considered as hygienic methods of protection. One can assume from the

language used that single use disposables are considered hygienic. There are wide variations in usage of 'hygienic products' across different states, with Tamilnadu, Kerala and Delhi as high as 90% and rural Bihar as low as 30%.

Government has been running free sanitary pad programmes in rural areas where a girl student receives a pack of pads on a regular basis. Scheme for promotion of menstrual hygiene has rolled out in 17 states in 1092 blocks through Central supply of 'Freedays' sanitary napkins. Till August 2014, over 1.4 crore adolescent girls have been reached and 4.82 crore packs of 'Freedays'.

Government. NGO and CSR programs that distribute sanitary napkins are based on the assumption that adolescent girls drop out of school because of lack of sanitary products. Interestingly, there is no substantive research or data to back this assumption – that providing sanitary napkins free or subsidized to school going girls increased their attendance or performance. In the absence of supporting data, what is so simplistically reduced to access or lack of products, is actually a more complex situation. Shradha Shreejaya, a menstrual hygiene advocate and educator at Sustainable Menstruation Kerala collective, who has worked in Assam, Odisha, Tamil Nadu and Kerala at various times, opines that the girls miss school during periods due to two main reasons – Period cramps and lack of private changing space and clean toilets. Ground situation is not very differentinRajasthan.

So we conducted this programme in our village Nayta ans Sariyad and tried to spread maximum awareness regarding period problems in girls and women as well. They had given proper attention in this and also cooperated.

Chapter 19.SAGY Questionnaire Survey form

SAANSAD ADARSH GRAM YOJANA (SAGY) Baseline Household Survey Questionnaire

Village: Nayta Gram Panchayat: Nayta Ward No. ____

Block: Patan District: Patan

State: Gujarat L S Constituency: ____

1. Family Identity and Size

Name of Head of Household	Chandarji Thakor							Male/ Female	M
SECC Survey ID:		Family Size	5	Over 18	4	6 to 18	1	Under 6	-

2. Category & Entitlement Details (Tick as appropriate)

Social Category[1]	OBC	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	NO
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]
Chandarji Thakor	52	M	N	2	02	Y	Y	0
Hawaben Chandarji Thakor	48	F	N	2	01	Y	Y	0
Vasuben Thakor	25	F	N	1	08	Y	Y	0
Manishaben Thakor	21	F	N	1	06	Y	Y	0

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
Rohan Thakor	18	M	N	1	04	Y	N	0

4. Children below 6 years

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

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

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

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

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

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

Saansad Adarsh Gram Yojana (SAGY) Panchayat Details Survey Questionnaire

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

I. Basic Information

a. Gram Panchayat: Nayta
b. Block: Patan
c. District: Patan
d. State: Gujarat
e. Lok Sabha Constituency: Patan
f. Number of Wards in the Gram Panchayat: _____
g. Number of Villages in the Gram Panchayat: _____
h. Names of Villages:

Demographic Information

Number of Households 1240 Total Population 6846 Male 3564 Female 3282

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	N	10KM
b.	Nearest Primary Health Centre (PHC)	Y	
c.	Nearest Community Health Centre (CHC)	N	
d.	Nearest Post Office	Y	
e.	Nearest Bank Branch (Any)	N	
f.	Nearest Bank with CBS Facility	N	
g.	Nearest ATM	N	9KM
h.	Nearest Primary School	Y	
i.	Nearest Middle School	Y	
j.	Nearest Secondary School	N	
k.	Nearest Higher Secondary School / +2 College	N	
l.	Nearest Graduate College	N	8KM
m	Nearest ITI / Polytechnic Centre	N	8KM
n	Kisan Seva Kendra	Y	7KM

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	10 Km
p	Nearest Agro Service Centre	N	
p	MSP based Government Procurement Centre	N	
q	Milk Cooperative /Collection Centre	Y	
r	Veterinary Care Centre	Y	
s	Ayurveda Centre	Y	
t	E – Seva Kendra	N	
u	Bus Stop	N	6 KM
v	Railway Station	N	20 KM
w	Library	N	15 KM
x	Common Service Centre	N	10 KM

IV. Sports Facilities in the Gram Panchayat

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

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

V. Education, ICDS

a. Number of Angan Wadi Centres: 1

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.: 1

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)			Yes	Yes			
b.	Kerosene			Yes	Yes		Panchayat	
c.	Other (mention)			Yes	Yes			

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

VIII. Land and Irrigation

	Private Land	Area in Acres		Common Land	Area in Acres		Irrigation Structure	No.
a.	Cultivable Land	140401	d.	Pasture / Grazing Land		g.	Check Dam	1
b.	Irrigated Land	202.47	e.	Forests/ Plantations		h.	Wells/Bore Wells	1
c.	Un-irrigated Land	10264	f.	Other Common Land		i	Tanks /Ponds	3

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

Saansad Adarsh Gram Yojana (SAGY) Panchayat Details Survey Questionnaire

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

IX. Parameters relating to Households & Institutions

		Number
a)	Number of eligible Households for pension (old age, widow, disability)	105
b)	Number of Households receiving pension (old age, widow, disability)	95
c)	Number of eligible Households who are not receiving pension	
d)	Number of Households eligible for Ration Card	1200
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	
i)	Number of Job Card holders who completed 100 days of work during 2013-14	
j)	Number of shops selling alcohol	
k)	Number of BPL families	
l)	Number of landless households	
m)	Number of IAY beneficiaries	
n)	Number of FRA[2] beneficiaries	
o)	Number of Community Sanitary Complexes	
p)	Number of Households headed by single women	
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	
w)	Number of Bharat Nirman Volunteers	

Name and Signature of Surveyor and Respondent'

Panchal Pooja Vasde Sarthak Mod. Parthav Surveyor	PRI Respondent (Preferably Gram Panchayat Chairperson)	Official Respondent (Preferably seniormost Government official in the Gram Panchayat)	15/11/2020 Date of Survey

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

SAANSAD ADARSH GRAM YOJANA (SAGY) Village Details Survey Questionnaire

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

I. Basic Information

a. Village: Nayta

b. Ward Number: _____

c. Gram Panchayat: Nayta

d. Block: Patan

e. District: Patan

f. State: Gujarat

g. Lok Sabha Constituency: Patan

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

i. Names of Habitations / Hamlets:

Demographic Information

Number of Households 1240 Total Population 6846 Male 3564 Female 3282.

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	N	
d.	Kisan Seva Kendra	N	4km
e.	Milk Cooperative /Collection Centre	Y	
g.	Health Sub Centre	N	10 km
h.	Bank	N	
i.	ATM	N	9km
j.	Bus Stop	N	
k.	Railway Station	N	

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

SAANSAD ADARSH GRAM YOJANA (SAGY) Village Details Survey Questionnaire

L	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	15KM
m	Common Service Centre	N	20KM
n	Veterinary Care Centre	Y	

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: None (*1-All* *2-None* *3-Some*)
If 3 mention the name of the habitations not covered: ___

b.Hand Pump Coverage in Habitations: Some (*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: All (*1-All* *2-None* *3-Some*)
If 3 mention the name of the habitations not covered: ___

b. Coverage under Open Drains: None (*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): No
b.Mini Stadium : No Yes(Y) /No (N)

vii. Education, ICDS
a. Number of Anganwadi Centres: 1
c. Schools (Number)
Primary Private: 0 Primary Govt.: 2
Middle Private: 0 Middle Govt.: 1
Secondary Private: 0 Secondary Govt.: 0
Higher Secondary Private: 0 Higher Secondary Govt: 0

2

SAANSAD ADARSH GRAM YOJANA (SAGY) Baseline Household Survey Questionnaire

5. Hand washing

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

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

7. Do members take Regular Physical Exercise

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

8. Consumption of Tobacco

	Smoking	Chewing
Adults	✓	–
Children	–	–

9. House & Homestead Data

Own House: Yes / No	No. of Rooms: 2
Type: Kutcha / Semi Pucca / Pucca	
Toilet: Private / Community / Open Defecation	
Drainage linked to House: Covered / Open / None	
Waste Collection System	Door Step / Common Point / No Collection System
Homestead Land: Yes / No	Kitchen Garden : Yes / No
Compost Pit: Individual/ Group/ None	Biogas Plant: Individual/ Group/ None

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

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

11. Source of Lighting and Power

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

12. Landholding (Acres)

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

13. Principal Occupations in the Household

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

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

15. Agriculture Inputs

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

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

Name	Unit	Quantity
Wheat	kg	1300
cotton	kg	1500.

17. Livestock Numbers

Cows: 3	Bullocks: 2	Calves: 1
Female Buffalo:	Male Buffalo:	Buffalo Calves:
Goats/ Sheep:	Poultry/ Ducks:	Pigs:
Any other: Type		No.
Shelter for Livestock: Pucca / Kutcha / None		
Average Daily Production of Milk(Litres): 15		

18. What games do Children Play
Hide and Seek, etc.
Cricket

19. Do children play musical instrument (mention)
No

Schedule Filled By:
Principal Respondent:
Date of Survey: 15/11/2020

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	1404.9	d.	Pasture / Grazing Land		g.	Check Dam	1
b.	Irrigated Land	202.47	e.	Forests/ Plnatations		h.	Wells/Bore Wells	1
c.	Un-irrigated Land	102.64	f.	Other Common Land		I	Tanks /Ponds	3

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

Name and Signature of Surveyor and Respondent'

Pooja Panchal Vaidle Sarthak Modi Parthav		T H C. સરપંચ મોટા નાયતા ગ્રામ પંચાયત તા.સરસ્વતી, જિ.પાટણ	15/11/2020
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

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

(no subject)
1 message

pooja panchal <panchalpooja261@gmail.com> Fri, 16 Jul 2021 at 5:45 pm
To: ddo-pat@gujarat.gov.in, collector-pat@gujarat.gov.in
Cc: mk.jahnavi.cvl@gmail.com, mkcetr@gmail.com, rurban@gtu.edu.in

Respected Sir,

As a part of the PMMS subject we had given the project under scheme of Vishwakarma Yojana phase VIII. Under this project we had allotted Nayta village Patan district. Under this project we visited the village to study existing infrastructure and to propose new amenities.

In Vishwakarma Yojana Phase VIII, We had assigned the Nayta village for survey. We visited the village and met the Sarpanch and Talati of the village and discussed the infrastructure facilities available in the village and other details about the village. We had collected the data from the village and proposed twelve designs such as dwelling house, community hall, public toilet, ATM, chabutra, bio-gas plant, solar street light, automation power system, panel rooftop system, elevated tank, approach road, school sanitary system, post office, chowk, anganwadi, auto water level indicator, three phase fault analysis, auto LED emergency light etc. to fulfil the requirement of the existing population. The proposed designs are as under:

Sr. No.	Design Name	Period	Amount Expenditure (RS.)	Benefit
1	Dwelling House	2-3 years	2,77,650	Facilities for villagers.
2	Community hall	Within 1 Year	4,77,146.6	Villagers can arrange meetings.
3	Public Toilet	Immediately	2,88,850	For cleanliness
4	ATM	Immediately	-	For money transactions
5	Chabutra	Immediately	1,08,628	Facilities for birds.
6	Bio- Gas plant	Within one month	1,96,148	For using of natural fuel
7	Solar Street Light	Within 6 months	28,100	For welfare of villagers at night
8	Automation power system	Within 1 Year	6,571	Easy supplying of power
9	Panel Rooftop System	Within 6 months	56,500	UV rays facilities
10	Elevated Tank	One Year	22,93,642	Storage and distribution of water.
11	Approach Road	Immediately	6,12,938	Better Transportation
12	School sanitary system	Immediately	57,270	For students' facilities.
13	Post Office	6 months	2,46,299	For villagers
14	Chowk	Immediately	65,000	For gathering
15	Aanganwadi	1 year	6,65,000	For Welfare
16	Auto water level indicator	6 months	8,693	Safety
17	Three phase fault analysis	Immediately	2,425	Welfare
18	Auto LED emergency light	Immediately	1,260	welfare

So, this is for your kind information...
Please find the attached Detailed Report of Nayta Village

Chapter 21. Comprehensive Report for the entire Village

In Vishwakarma Yojana Phase-8 we will find rural current issues and problems related with the village under study. We have also visited existing amenities. After studying it properly and comparing with the need of the people we have suggested amicable and best possible economical solution. We have given planning proposal for new Physical Infrastructure, Social Infrastructure & Socio-Cultural Infrastructure facilities with method of giving Redesigning, Reimaging, Repair & maintenance, and Sustainable planning for basic need of village like government buildings, schools, health facilities, water supply and sanitation, waste disposal management system, electricity, road networks, irrigation facilities, community hall, Bio gas plant, drainage System , rainwater harvesting system, Solar energy utilization and other non-conversation energy sources utilization etc..

Our allocated village is Nayta. This is a Village in Patan Taluka in Patan District of Gujarat State, India. It is located 15 km towards west from the District head-quarters Patan. In this phase of Vishwakarma Yojana, we were assigned the village Nayta for survey work. We visited the village for the purpose of doing survey of the existing infrastructure. First we contacted the Sarpanch by phone and fixed the Date for the visit of the village Nayta. On decided date we visited the village and met the Sarpanch and Talati of the village at Panchayat ghar.

There we gathered primary information about the village. We gathered information about demography of the village and discussed about the infrastructure facilities available in village. There we recorded the data in the given form. We have collected the data from the village. To collect the data we visited some part of the village. There we met some residents of the village. As it was high time of the on-going pandemics, We met limited people with due care for covid protocols. And tried to collect maximum details regarding existing infrastructure and perceived need by the residents. Based on our observations, and as suggested by the Sarpanch and talati and as represented by the people we proposed six design such as Dwelling house, solar panel, Bio-Gas Plant, public toilet, ATM centre and Stone pitching on periphery of lake for part 1 to enhance the existing infrastructure. We have suggested additional six design such as Community Hall, Public Toilet, Chabutara, Elevated Water tank, etc, to fulfilll villagers's requirements.

We had done these designs for the villagers' welfare and well-being. We have had a great experience by this

project VY section phase 8, we gained so much knowledge, so much of our mistakes have been corrected by Dr. Darshana Ma'am we are so thankful to her and she is grateful to all of us, thanking you ma'am. We are also thankful to our project guide Prof. Narendra Sir and Prof. Jahnavi ma'am for their support and being so kind to all of us.

By providing a good ideas and by doing quality work with our engineering and technical skills, here we have suggested some of our ideas in it. For that there were many Activities done by us in the village and for the village like techno- economic survey of ideal village, smart village and allocated village more than that gap analysis between ideal and allocated village are also done by us with SAGY survey. These survey includes Demographical detail, Geographical detail, Occupational details, Physical infrastructure facilities, Social infrastructural facilities, Sustainable infrastructure facilities, Data collection from village or any other Additional information that may have required.

Based on the survey we tried to give design of required basic facilities to fulfil their needs. By providing these basic facilities to villagers migration rate will be decreased. This is ultimate aim of the Vishwakarma Yojana.

Scope of developments that we have found out by Revisiting the Nayta Village with a new Perspective towards the Rurbanization are in Sanitation sector, plenty of dilapidated building that may be use after renovation, repair or rehabilitation for different purposes and other things like Pot-holes in inter connected village roads, Water logging during monsoon season, No Eco- friendly Energy-sources, Poor condition of Common Play Ground, Insufficient storage space for Animal Food etc.

The reason behind choosing the Vishwakarma Yojana Project as our final year project is to have an experience of working with Government bodies, to be helpful for people directly with our engineering knowledge and to be part of development of our nations' foundations.

Future Plan of Vishwakarma Yojana are to maximize participation from NGO, Public Private Partnership authorities and other need to be identified for development process also Involvement of stake holders from planning phase and Developing new technologies for effective development. Designing of Model Rurban Town and More Expert sessions and Technical skill enhancement of Students are also considerable.