DETAIL PROJECT REPORT

VISHWAKARMA YOJNA: VIII
AN APPROACH TOWARDS RURBANISATION
Sariyad Village

Patan District

PREPARED BY

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COLLEGE NAME

M.K COLLEGE OF ENGI.NERING & RESEARCH INSTITUTE

NODAL OFFICERS NAME

Prof. Jahnavi Raval

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/ Diploma Engineering successfully submitted

Detail Project Report for,

VILLAGE: - SARIYAD

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

The Next 2 Billion folks can board cities and town; thus we want to arrange currently. Most future increase within the next forty years is absorbed by cities of the developing world, that square measure unprepared for such fast growth. Designing must begin currently to require advantage of the various advantages cities offers. Whereas cities concentrate poorness, they conjointly give the most effective suggests that of escaping it. Cities have long been the engines of economic process. Densely inhabited areas are a lot of environmentally property than sprawling communities and permit for a lot of economical provision of services. The ideas, connections and activities in cities typically generate the solutions to the issues they produce.

People in rural areas ought to have constant quality of life as is enjoyed by folks living in sub urban and concrete areas. Any there square measure cascading effects of poorness, state, poor and inadequate infrastructure in rural areas on urban centers inflicting slums and of import social and economic tensions manifesting in economic deprivation and concrete poorness. Thus Rural Development that thinks about with economic process and social justice, improvement within the living commonplace of the agricultural folks by providing adequate and quality social services and minimum basic wants becomes essential. The current study deals with constant.

Vishwakarma Yojana is one in every of the approaches to cut back urban town Pressure and lower the migration rate by developing village with a ‘rural soul’ however with all urban amenities that a town might have. The biological process add villages that would undertake as per the necessity of the village.

Key words: Techno-economic survey of village, Data collection, List out existing facilities, Gap analysis, Need of amenities, Making Rurbanization by redesigning, Repair & Maintaining, Sustainable Planning, Give Economical Design Planning proposal.

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ABBREVIATIONS

SHORT NAME	FULL NAME
JSY	JANANI SURAKSHA YOJANA
KSY	KISHORI SHAKTI YOJANA
ICDS	INTEGRATED CHILD DEVELOPMENT SCHEME

1. SMART/IDEAL VILLAGE VISIT FROM DISTRICT OF GUJARAT STATE (MAKTUPUR)

1.1 BACKGROUND & STUDY AREA LOCATION

Maktupur village is located at 33 Km from PATAN.The village is connected with Palanpur-Ahmedabad. This village is developed during recent years very efficiently and now this village have all basic amenities like, Cement Concrete road, underground drainage, water supply, solid waste management, gram panchayat, most houses are pucca, transportation services, higher education etc. the education is very good in this village. This village has post office. Figure 1 represents the Google map of the village.

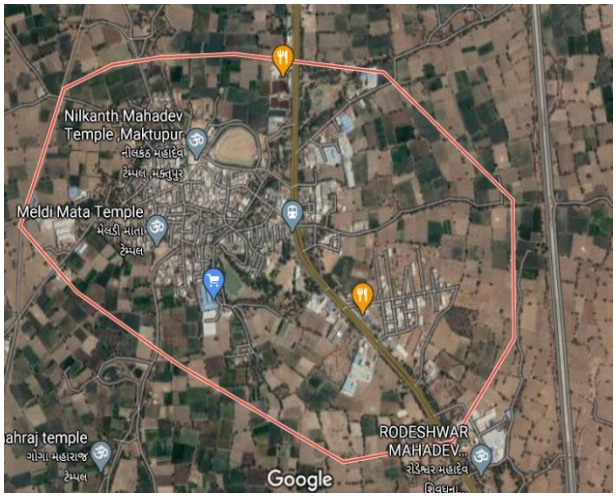


Figure 1 Map of Village

Study area location

- Name: Maktpur
- District: Mehesana
- Taluka: Unjha
- Distance from Patan: 33 km
- Pin code: 384170
- Language: Gujarati and Hindi
- Time zone: IST (UTC+5:30)
- Elevation/Altitude**:** 110 meters. Above-Sea level

1.2 Concept: Ideal Village, Normal Village

1.2.1 Objectives

- Prevent distress migration from rural to urban areas, which is a common phenomenon in India's villages due to lack of opportunities & facilities that guarantee a decent standard of living.
- Better livelihood opportunities which are not in villages.
- To get basic amenities.

- Contribute towards social empowerment by engaging all sections of the community in the task of village development.
- Improving the economic conditions of the Semi-skilled and Un-skilled labour by publishing their availability status on the Internet;
- Providing updated information and databanks tothe Government for better analysis and individual profiling

1.2.2 Case study of Smart village Punsari

Punsari, located in Gujarat, puts most metros to shame. Funded by the Indian government and the village's own funding model, Punsari is no NRI-blessed zone. The village also boasts of a mini- bus commute system and various other facilities. This village in the punsari village there is100% led system. There is also fully wi-fi system with the very minimum rate. Cleaning& fogging system is regularly. has Wi-Fi connection for all people. Efforts have been made for the empowerment of women and increasing security in the village. Some of the facilities provided by the panchayat include local mineral water supply, sewer & drainage.

Punsari has won national as well as state awards for Best Gram Panchayat in 2011. The case of Punsari Village from the Sabharkantha District of Gujarat is unique as it stands out as India's first model as well as smart village. Using descriptive analytical framework, the paper aims to argue that such smart villages are a ray of hope for rural revitalization in the countryside of India.The official document of the state government of Gujarat on smart and model village defines a model village as —a village which has foresight for the development and proper planning to keep the village clean, healthy, green, pollution free, crime free, and disease free with co-ordination of various community development and welfare schemes of Government. Smart village means a village which wishes to increase facilities for the citizen by taking decisions democratically. Smart village means a village in which the youth, women, farmers, village artisans, backward, and deprived people may get equal opportunity for development.

1.2.3 The idea of a model/smart village

- The idea of an “Adarsh Gram” or model village has been explored earlier as well, mostnotably

- Through the Pradhan Mantri Adarsh Gram Yojana, launched by the Central Government in2009.
- The scheme was implemented in pilot mode in 1000 villages of Assam, Bihar, HimachalPradesh, Rajasthan and Tamil Nadu, with an allocation of Rs 10 lakh per village. This limitwas later raised to
- Rs 20 lakh per village. The target villages under the scheme were those with more than 50%of the
- Population belonging to Scheduled Castes (SCs). Additionally, State governments have alsotaken
- Steps in this direction. Himachal Pradesh launched a Mukhiya Mantri Adarsh Gram Yojanaalong
- Similar lines in 2011, with the allocation of Rs 10 lakh per village.

- The idea of an “Adarsh Gram” or model village has been explored earlier as well, most notably through the Pradhan MantriAdarsh Gram Yojana, launched by the Central Government in 2009.

1.2.4 Ancient History in India village

Rural areas are large and isolated areas and open country with low population density. The Indus valley civilization is so far known to be the ancient civilization in India and at mainly comprise two cities of Harappa and Mohenjo-Daro.

1.3DETAIL STUDY

- **Physical & Demographic Representation**

State Name	District Name	SubDistrict	Village Name
Gujarat	Patan	Chanasma	Ruppur

Demographic Details

Sr.No.	Census	Population	Male	Female
1	2011	1833	929	904

Occupational details

- Farming
- Business
- Dairy
- Animal husbandry

Social profile :

The social scenario of village is excellent .in the past few years there is 0% migration in the village. The gram panchayat had spent around 12-13 crores for the development of the village and that to with use government schemes and from the revenue, the gram panchayat has zero financing from NRI, NGO And CSR. The income of the village is approx. 5.50-6.00 lakhs

Infrastructures:

Various infrastructure facilities like educational buildings, Health and Wellness Centers, Administrative buildings, Parks and Banking facilities, etc. are visited and observed. Fig.2 represents the infrastructural facilities at Ruppur village.

- **Infrastructures Facilities**

Arts, Commerce and ITI College

Harshidh Lake

Village Panchayat

Health and Wellness Center

Paver Block in whole Village

Community Hall

Dudh Sarita

Park

Proper Drainage Facility

Bank

Garden near Lake

Harshidh Mata Temple

Post Office

Primary School

Elevated Service Reservoir

Dust Bin

Public Urinals

Drinking Water Facilities

Figure 2. Infrastructural Facilities at Ruppur Village

1.4 SWOT ANALYSIS OF IDEAL VILLAGE

Herewith the SWOT analysis for ideal village is represented. Such analysis can be useful for understanding scope of future developments with available strength and also the prevailing weaknesses are to be overcome by appropriated techniques.

Strength	Weakness	Opportunuties & Threats
Land	Llliteracy	Cottage industries
Transportation system	Solid waste management	Govt. schemes
Drainage facilities	Low wage payment	Education facilities
Drinking facilities		Job insecurity

1.5 FUTURE PROSPECTS OF VILLAGE

- The village should use advance technologies in agricultural, water-supply as well as for other fields.
- Rain water harvesting system should be installed in every household to conserve the water.
- E - Auction of Agro products.
- Recycling of drainage water.

- Easy data base management for agriculture.
- Create awareness about new government schemes and planned meeting involving villagers, Grievances Redressal etc.

1.6BENEFITS OF THE VISIT OF VILLAGE

- To know the strength and weakness of village.
- We see some different type of little requirements of village.
- We discussed the good and bad thing about village from village people.
- We saw all type of basic and primary amenities available.
- Town and village experience cultural and economic growth and regeneration.
- Village becomes ‗smart' with improve internet speed and connectivity
- Villages become more attractive to future home-owners.
- Tourism and culture can stimulate employment and investment in rural areas.
- Encourage to return to their home villages and prevent further brain drain from local villages.
- 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 foreign and domestic investors.
- It provides greater opportunities for the jobseekers.

2. LITERATURE REVIEW

2.1 VARIOUS DEFINITIONS:

2.1.1 Rural

In general, a rural area is a geographic area that is located outside the cities and towns. Typical rural areas have a low population density and small settlements. Agricultural areas are commonly rural, though so are others such as forests.

Rural areas are also known as 'countryside' or a 'village' in India. It has a very low density of population. In rural areas, agriculture is the chief source of livelihood along with fishing, cottage industries, pottery etc. According to the Planning Commission, a town with a maximum population of 15,000 is considered rural in nature. In these areas the panchayat takes all the decisions.

2.1.2 Urban

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

1. All places with a municipality, corporation, encampment board or notified city space committee, etc.
2. All alternative places that glad the subsequent criteria:
    - A minimum population of 5000.
    - A density of population of a minimum of four hundred persons per sq. km.
    - An urban areas characterizes by higher population density and immense human feature compared to areas close it, however the term isn't normally extended to rural settlements such villages and hamlets.

2.1.3 RURBANISATION

“Creating ‘big village’ with a ‘rural soul’ however with all urban amenities that a town might have”. the concept of Rurbanisation is to supply urban amenities in rural areas and maintaining the agricultural soul. this can facilitate to scale back migration from villages and stop the cities from the burden of migration.

The theme is being pioneered by Gujarat’s Chief Minister, Shree Narendra Modi. in step

with him, “Rurbanisation” combined a method of conserving the “soul of villages” by providing all the civic and infrastructure facilities accessible in huge cities and cities to arrest migration and at a similar time, transfer down the burden on huge cities and cities detonating at their seams. He same it'd be created attainable by providing all the facilities and amenities, as well as jobs by putting in industries in rural areas so folks failed to consider migrating to cities and most well-liked to remain in their own villages.

2.1.4 URBANIZATION

Urbanization is that the method by that rural community along forms cities, or urban centers, and, by extension, enlargement} and expansion of these cities. Urbanization began in ancient geographical area within the excretion amount as, it's speculated, a very prosperous and economical village attracted the eye of different, less prosperous, tribes United Nations agency then connected themselves to the thriving settlement. This method, then, gave rise to the densely inhabited centers that came to be called 'cities’.

Urbanization in Republic of India was primarily caused when independence, thanks to adoption of mixed system of economy by the country that gave rise to the event of personal sector. Urbanization is going down at a quicker rate in Republic of India. 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 area.

2.1.5 STANDARD URBAN AREAS

A new conception that had been developed for the 1971 Census for the tabulation of sure urban knowledge was the quality geographical area.

- It should have a core town of a minimumpopulation size of 50000.
- The contiguous areas created from different urban also as rural body units should have

close usual socio- economic links with the core town and the chances area unit that this whole space can get absolutely urbanised during a amount of 2 to a few decades.

2.1.6 INFRASTRUCTURE FACILITIES

Infrastructure is basic physical and structure structures required for the operation of a society or enterprise, or the services associate degreed facilities necessary for an economy to operate. It are often usually outlined because the set of interconnected structural components that offer framework supporting a complete structure of development. it's a very important term for deciding a rustic or region's development.

The term usually refers to the technical structures that support a society, like roads, bridges, water system, sewers, electrical grids, telecommunications, then forth, and might be outlined as "the physical parts of reticulate systems providing commodities and services essential to change, sustain, or enhance social living conditions."

Viewed functionally, infrastructure facilitates the assembly of products and services, and additionally the distribution of finished product to markets, also as basic social services like faculties and hospitals; as an example, roads change the transport of raw materials to a manufacturing plant. In military formulation, the term refers to the buildings and permanent installations necessary for the support, redisposition, and operation of military forces.

2.2 IMPORTANCE OF THE RURAL DEVELOPMENT:

Rural development is necessary not only for an over-whelming majority of the population living in villages but the development of rural activities is essential to accelerate the pace of overall economic development ofthe country. Rural development has assumed greater importance in India today than in the earlier period in the process of the development ofthe country. It is a strategy package seeking to achieve enhanced rural production and productivity, greater socio-economic equity, and aspiration, balance in social and economic development. The primary task is to mitigate the hunger of about 70 percent of the rural population, providing adequate and nutritious food. Then follow an adequate provision of clothing and footwear, a clean house in a clean environment, medical care, recreational facility, education, transport and communication.

2.3 ANCIENT VILLAGES / DIFFERENT DEFINITION OF: RURAL AREA / VILLAGES:

- Rural areas are also known as the 'Countryside' or a 'village' in India. It has a very low population density. In rural areas, agriculture is the chief source of livelihood

along with fishing cottage industries, pottery etc., as opposed to urban areas which have larger populations. The rural area means any places as per the latest census which fulfills the following criteria. A population of less than 5,000 with 400 persons per sq. km. density require75

- People work is nonagricultural.

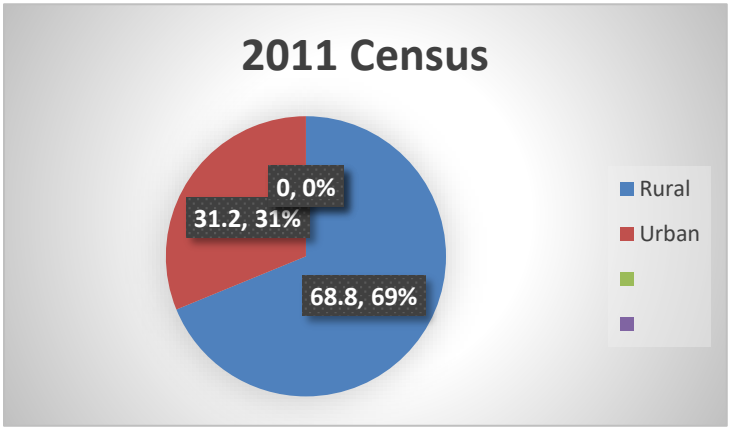
2.4 SCENARIO: RURAL / URBAN VILLAGE OF INDIA POPULATION GROWTH:

POPULATION GROWTH OF INDIA as per Census 2011:

•For the first time since Independence, the absolute increase in population is more in urban area that in rural area.

• Rural – Urban distribution: 68.84% & 31.16%

• Level of urbanization increased from 27.81% in 2001 Census to 31.16% in 2011 Census.



• The proportion of rural population declined from 72.19% to 68.84% Table 3.1 Population of India Population (in Crore) 2001 2011 Difference India 102.9 121.0 18.1 Rural 74.3 83.3 9.0 Urban 28.6 37.7 9.1 Population Growth of Gujarat as Per Census 2011:

Figure 3: Population as per 2011 Census

The government has started many programs aimed at improving the standard of living in villages or 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.

	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.

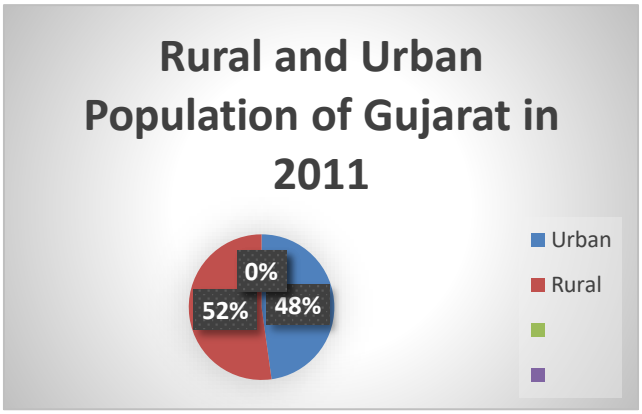


Figure 4: Rural and Urban population in Gujarat

		Total	Rural	Urban
Population	Persons	1210193422	833087662	377105760
	Males	623724248	427917052	195807196
	Females	586469174	405170610	181298564

2.6 RURAL DEVELOPMENT ISSUES & CONCERNS

As we know the 60 to 70 percent of rural population in India lives in primitive conditions.This statement exists even after 70 years of independence of India. So that Rural Development programs have urgency in the present condition also. There are many obstacles in the development programs of rural which are given below:

- People have to migrate to the urban areas due to unavailability of education
- Economy of the people living in rural areas is low
- Very less people are employed in the rural areas
- There is no electricity supply in many villages
- No transportation facility
- Less income opportunity
- Lack of sanitation
- They have not any kind of new technology for the cooking and living etc.

- Now also many rural peoples using primitive methods of cooking, living and farming and they have trust on these methods

Various Measures For Rural Development

- Poverty can be removed and different in gap is minimized in the village is the main objective of any village to developed successfully. To develop rural area as whole in terms of culture, society, economy, technology and health
- The village should be proper developed to get basic facilities is and proper plan required to get benefit and also understanding required to get benefit. The cost of infrastructure should be less for the proper development of the village and get maximum benefit.so quality of life may increase of the villagers and get pure environment feeling Empower women and small-scale farmers, and indigenous peoples, including through securing equitable land tenure supported by appropriate legal frameworks.
- Support of the villagers is requiring developing the infrastructure in the village and accordingly also proper use of it require.

Due to development of infrastructure the people may include in work and it get income from that work.

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

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

A huge amount of migration of people is observed from rural areas to the urban areas to improve their quality of life. People generally have tended to move permanently to the urban areas instead of daily to and from visits for various urban facilities. Migration mainly occurs due to lack of basic facilities like drainage facilities, water facilities, proper health facilities and most important lack of source of income. Development of rural areas is accidently ignored in the race of developing urban areas. The motive of this project is to suggest development of the rural areas not only by the means of infrastructure but also increasing its economic growth.

2.8 GOVERNMENT SCHEMES, PROJECTS IMPLEMENTED FOR VILLAGE DEVELOPMENT:

2.8.1 Janani Suraksha Yojana

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]

2.8.2 Kishori Shakti Yojana

Kishori Shakti Yojana (KSY) seeks to empower adolescent girls, so as to enable them to take charge of their lives. It is viewed as a holistic initiative for the development of adolescent girls. 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.

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.
[FROM wcd.nic.in/kishori-shakti-yojana]

2.8.3 Integrated Child Development Yojana(ICDS)

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.

KEY WORDS: Complementary Nutrition (CN), Knowledge, Attitude, Practice (KAP), Low Birth Weight (LBW) [FROM www.ncbi.nlm.nih.gov]

3. SMART VILLAGES & VILLAGE'S CONCEPT

3.1 UNDERSTANDING SMART VILLAGE (CONCEPT, DEFINITIONS AND PRACTICES)

- **Concept**

Asper above diagram shows the proper meaning of smart village, Self-sufficient and Self-Reliant village with empowerment of Manpower through available natural sources and Appropriate Rural Technologies.

"A city can be defined as 'smart' when investments in human and social capital, transport and modern (ICT) communication infrastructure fuel SUSTAINABLE ECONOMIC DEVELOPMENT and a high quality of life, with a wise management of natural resources, through participatory action and engagement''.

- **Definition**: -

A city well performing in a forward-looking way in economy, people, governance, mobility, environment, and living, built on the smart combination of endowments and activities of self-decisive, independent and aware citizens.

- **Practices**: -

1. Stratagic system planning
2. Demonstration of low energy building
3. Demonstration of nearly zero-energy building renovation for cities and districts
4. Sustainable energy solutions
5. energy systems for urban heating and cooling

3.2 VISION GOALS, STANDARDS AND PERFOMANCE MEASUREMENT INDICATORS

A Transport:

- Maximum travel time of 30 minutes in small& Medium size cities and 45 minutes in metropolitan areas.
- Continuous unobstructed footpath for 2 m wide on either side of all street.
- Dedicated and physically segregated bicycle tracks with width of 2 m or more, one in each direction, should be provided on all streets with carriage way larger than 10 m.
- High quality and high frequency mass transport within 800m & 5-minute walking distance) of all residences in areas over175persons / ha of built area

B Spatial Planning:

- 175 persons per Ha along transit corridors.
- 95% of residences should have daily needs retail, parks, primary schools and

recreational areas accessible within 400m walking distance.
- 95% residences should have access to employment and public and institutional transport or bicycle or walk.
- At least 20% of all residential units to be occupied by economically weaker sections in each Transit Oriented

C Water Supply:
- 24 x 7 supply of water
- Every household with direct water supply connections
- 135 LPCD of supply of water
- Every house should have metered of water connections
- Max efficiency in collection of water related charges

D Sewerage& Sanitation:
- Every households should have access to toilets
- Every schools should have separate toilets for girls
- Every households should be connected to the waste water network
- Every efficiency in the collection and treatment of waste water
- Max efficiency in the collection of sewerage network

E Solid management:
- Every households should be covered by daily door-step Collection system.
- Max collection of municipal solid waste
- 100% segregation of waste at source, i.e. Bio-degradable and non- degradable waste
- Max Efficiency in recycling of solid waste

F Storm storage:
- Max coverage of road network with storm water drainage network.
- Aggregate number of incidents of water logging reported in a Year =0.
- 100% rainwater harvesting

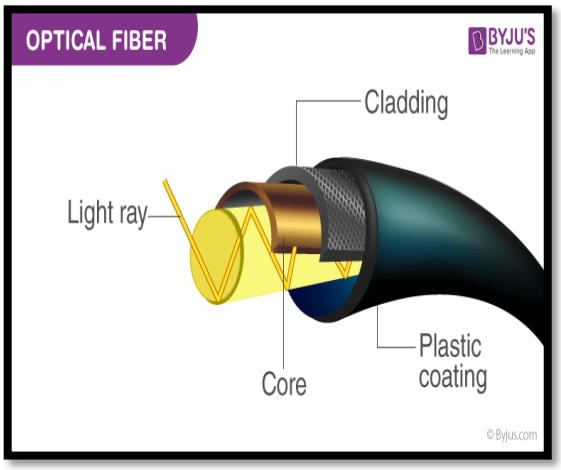
G Electricity:
- Every households having 24 x 7 supply of electricity.
- Every house with metered electricity supply.

H Healthcare facilities:
- 30 minutes of emergency response time
- 1 dispensary for every 15,000resident
- Nursing home, child, welfare and maternity center - 25 to 30 beds per lakh population
- Intermediate Hospital (Category B) - 80 beds per lakh population
- Intermediate Hospital (Category A) - 200 beds per lakh population

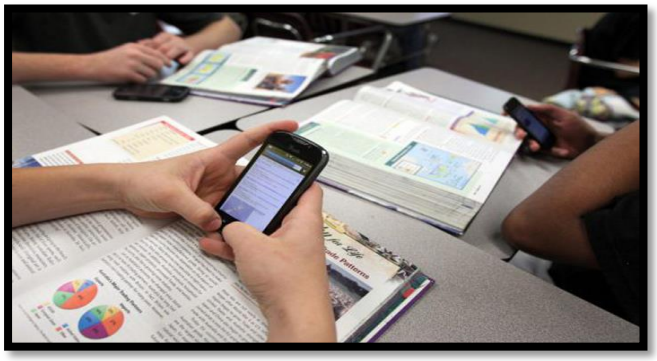
Multi-Specialty Hospital - 200 beds per lakh population

3.3 TECHNOLOGICAL OPTIONS

Enhanced Use of Smart Phones and Optical Fiber Technology for Internet Techniques



India has become the second biggest Smartphone market in terms of unique Smartphone users, crossing 220 million users, surpassing the US market, as per the report by Counterpoint research. Over 20 mobile phone brands are now assembling their parts in India. With over 460 million internet users, India is the second largest online market, ranked only behind China. By 2021, there will be about 635.8 million internet users in India. Urban population is adopting latest technology so fast that within a short span of three months, there are more than 10 crore JIO users. Indians often turn to mobile internet, as the large majority of the digital population in India were mobile internet users in 2016.India had an estimate of 262 million mobile internet users living in urban communities and 109 million living in rural areas which is close to one third of urban users. Alongside smart phone, there are alternative mediums for accessing fast internet in villages like optical fiber technology. This is one of the advanced technologies nowadays and is replacing cable network rigorously. Optical fiber communication is more advantageous than cable network due to its comparatively low cost, easy to install, high data transfer speed and abundantly available raw material.



Online Library and E- Education

After provision of internet facility at villages using various advanced technology, our next responsibility towards making villages smarter is to provide a quality education to

the villagers. Internet is one of the easy ways of accessing the dat and information. This technology can now be explored to more extent by providing online education in schools and colleges. Worldwide digital contents are available on internet which can be accessed by children in villages to make them compatible with rest of the world. All Schools shall be connected with broadband. Free Wi-Fi shall be provided in all secondary and higher secondary schools (coverage would be around 250,000 schools). Fig: - 3.3 Online Education to Children. A program on digital literacy would be taken up at the national level. MOOCs –Massive Online Open Courses shall be developed and leveraged for e-Education.

Smart Agriculture

Farming is our country's oldest profession for earning daily wages along with bread and butter and more than half of our population is directly dependent on this profession. But the agricultural productivity in our country is still lacking behind many of other developed countries. Also, most of our farmers are dependent on natural resources like monsoon and old techniques of farming. Due to drought like situation, many of our farmers have committed suicide and this number is increasing day by day. Our Government is trying to control this number through various schemes but all is in vein. Smart agriculture can be life saver to such people if implemented in right direction. Following techniques can be adopted for implementing smart agriculture:

A). In Climate smart technology, a small weather forecasting centers can be opened for group of villages well equipped with advanced technology which will be able to monitor the upcoming weather changes with the help of satellites and same information shall be communicated with the nearby villagers in an advance so that farmers can plan their agricultural activities. This will save farmers from uncertainties of monsoon and other atmospheric effects.

B). Smart apps for smart agriculture like IFFCO KISAN, AgriApp can be introduced in villages for providing timely updates regarding availability and cost of seeds, fertilizers, pesticides and other agricultural commodities. Present stock and shortage of seeds,

fertilizers and pesticides can be communicated with farmers in an advance by using these apps. Government initiatives like water harvesting, subsidies on products, crop insurances, agricultural product exhibition, etc. can directly be communicated with the farmers using these smart app. Live streaming of agricultural commodities rates, market network can be done on these smart apps which will help farmers to sell their products with better prizes.

C). A training can be provided to farmers through which organic fertilizers and pesticides can be manufactured at community level to boost its better use than chemical fertilizers and fertilizers. This will help in maintaining soil quality and increasing productivity. Such types of training workshops can be arranged at Tehsil level for nearby farmers and they should be promoted to participate in it.

D). Water harvesting is the today's most essential need and is a part of smart agriculture. Government is running various schemes for rain water harvesting and providing financial support for the same. Recently Maharashtra Government have run "Magel tyala Shet tale" scheme and thousands of farmers have benefited through this scheme. Such types of projects can be explored at other ground like roof top rain water harvesting, industrial water recycling and etc. at large scales and should be financially supported by the state and central governments. The proper awareness can be created among villagers for water conservation, monitoring and harvesting.

E). Solar powered bore wells can be installed directly in fields to avoid both the water and electricity crisis. Due to lack of 24 x 7 electricity farmers are unable to install irrigation in

F). their fields and remain dependent on natural sources. Solar powered bore wells can help them in increasing agricultural productivity through timely water supply along with overcoming power crisis.

Smart and Efficient Public Transport System

Lack of transportation facility is the major reason behind isolating villages from rest of the world. Since last 70 years of freedom, roads and train network in rural part of India could not be spread to our expectations. There are thousands of villages in our country to which as such no transportation is available. The direct impact of this is on accessibility of villagers to urban areas, market and lack of any other facilities which is only available in big cities. To overcome this problem, smart transportation can be main melody for development of smart villages. Our government is playing vital role in improving the situation and has already taken steps in right directions. A total of 599 highway projects covering around 12,903 km of national highways have been sanctioned till date incurring an expenditure of INR 108,000 crore over the next 5 years. Under the Smart Cities Scheme, Government of India has already earmarked INR 50,802 crore for the project with a proposed budget of INR 48,000 crore to be utilized for developing first 20 Smart cities [7]. Similar type of bold initiative from government is expected for actual development of smart transportation in rural India too. While supporting to the scheme of Clean and Smart cities & villages, we must promote use of clean fuels like Bio-fuels, ethanol, and compressed natural gas (CNG) for our vehicles. Besides these, electric and solarpowered vehicles can also be promoted equally. Vehicles running on hydrogenas fuel and using fuel cell technology are also a clean option available with us. CNG has already become a popular fuel in India due to its low cost. However, it needs infrastructure support in terms of a greater number of fueling stations and accessibility. This will definitely help us in fulfilling our dream of establishing clean and smart cities, smart villages along with saving our environment from pollution by lowering the use of carbon

burning fuels like petrol, diesel, and coal.

Smart Sewage Management System and Sanitation

No village or group of villages can be termed truly ‘smart’ without an effective sewage management system and there is a need for framing a proper sanitation plan for towns intended to become smart. Management of large quantity of household waste and garbage had become major headache for local managing bodies. Also dumping such garbage in locality is affecting common people’s health.

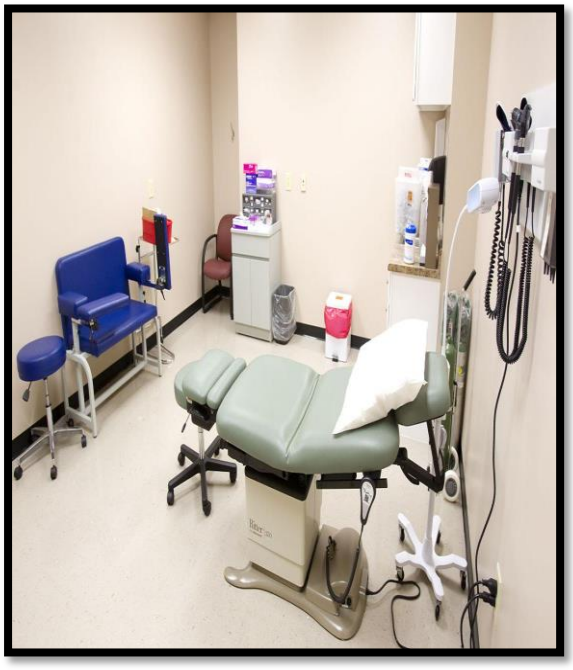
To solve the problem related with sewage management, an urgent and effective action plan is required. The knowledge enhancement and capacity building on sanitation diagnostics, town sanitation planning and decision making and analysis of cost effective and sustainable waste water treatment technologies for mainstreaming fecal sludge should be main focus for developing smart villages. Preparing our mind set for sewage management at personal level will be more fruitful.

Every individual can have dust bin fixed outside their home where they can put their household garbage instead of throwing in open space. Different colored dust bins can be chosen for different categories of wastes like dry and wet, decomposable and non-decomposable waste, etc. Ample number of wastes collecting vehicles so called ‘Ghantagadi’ can be availed for each village to collect it. Waste material dumping yards shall be far away from civilization and shall have provision for categorizing and recycling of collected waste. Also, similar types of actions are required to manage bio waste generated in hospitals as well as e waste generated.

Renewable Energy Sources and Solar Energy

Traditional sources of energy like wood, coal, diesel, petrol, oil, natural gas, etc. are now on the verge of ending. Also, excessive use of these sources is polluting earth's environment and is responsible for remarkable adverse effects, like abrupt climate change, drought and flood situation, green house effects, melting of ice caps on poles, de-thickening of ozone layer in atmosphere collectively known as global warming. Due to fast growing development of urban civilization, forests are reducing with greater rate. By the 1990s, the excess use of traditional sources in developing countries was marked as a leading environmental threat, with negative impacts linked with deforestation, desertification and widespread soil erosion. Thus, to save our earth from the threat of global warming, alternative energy sources which burns less carbon are required to be invented and solar energy source can play vital role to overcome these global environmental effects

Latest and Affordable Medical Facilities



After fulfilling basic needs like food and drinking water, affordable medical facilities are equally important for common man. Many rural residents are not able to take treatment for basic ailments either due to the non-presence of health care services in the vicinity or due to lack of funds to access the same. Lack of public sector infrastructure and latest technology is one major obstacle in providing good healthcare to villagers. There is no sufficient number of primary health centers available for rural parts of India. Even though a well-structured public health care system exists, the infrastructure

as well as the staff that are required to provide the health care services is inadequate in many different perspectives. Generally rural public health facilities across the country are having a difficult time attracting, retaining and ensuring regular presence of highly trained medical professionals. Many doctors are not willing to serve in the rural areas due to lack of facilities even if they are paid high salaries. Evaluation reports have also shown that there is lack of equipment's, poor or absence of repairs, improper functioning or lack of complementary facilities in hospitals like 24 hour running water, electricity back-ups, transportation, etc. To overcome these issues related with the systematic problems a phase wise systematic solution is required. One such step towards ensuring rural public health is introducing an ample number of mobile medical vans in the rural areas can solve the problem of accessibility. Mobile vans equipped with basic medical facilities could supplement a primary health centers and travel to those areas where the primary health centers do not exist or have failed to meet the requirements of common people. These vans can have schedule of visits in particular areas and can be called in times of emergencies. The quality of service can be improved by increasing the awareness level of the users. Awareness is required for many of Government schemes available for economically poor and rural people.

3.4 ROAD MAP AND SAFEGUARDS

- **A smart city road map consists of four/three (the first is a preliminary check) major components:**

- First, we have to check why we necessary smart village initiative, why we need
- To describe exactly what is the community: maybe that definition can condition what you are doing in the subsequent steps; it relates to geography, links between cities and flows of people between them;
- Study Community: Before deciding to build a smart city, first we need to know that. This can be done by determining the benefits of such an initiative. Study the community to know the citizens, the business's needs – know the citizens and the community's unique attributes, such as the age of the citizens,

their education, hobbies, and attractions of the city

- Develop a Smart City Policy: Develop a policy to drive the initiatives, where roles, responsibilities, objective, and goals, can be defined. Create plans and strategies on how the goals will be achieved.
- Engage The Citizens: This can be done by engaging the citizens through the use of - government initiatives, open data, sport events, etc.
- People, Processes, and Technology (PPT) are the three principles of the success of a smartcity initiative. Cities must study their citizens; know the processes, business drivers, create

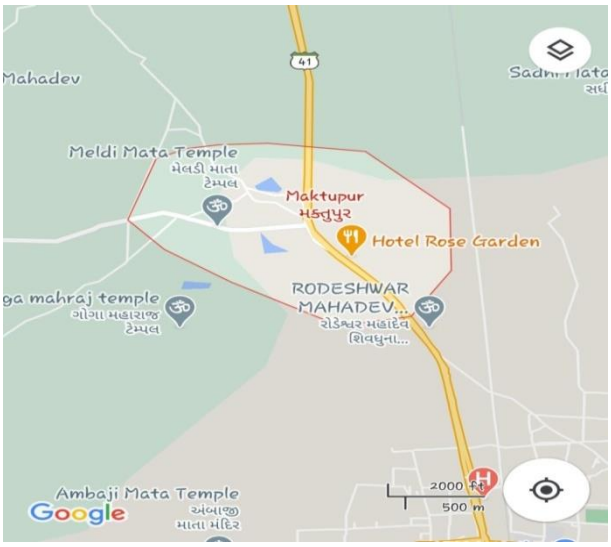


Figure 5: Road map

- policies, and objectives to meet the citizens' needs. Then, technology can be implemented to meet the citizens' need, in order to improve the quality of life and create real economic opportunities.

3.5 ISSUE & CHALLENGES

The Smart Cities Mission requires smart people who actively participate in governance and reforms. Citizen involvement is much more than a ceremonial participation in governance. Smart people involve themselves in the definition of the Smart City, decisions on deploying Smart Solutions, implementing reforms, doing more with less and oversight during implementing and designing post-project structures in order to make the Smart City developments sustainable. The participation of smart people will be enabled by the SPV through increasing use of ICT, especially mobile-based tools.

While most everyone can agree that smart technology has the power to make our lives much simpler especially in highly populated urban areas implementing that technology must be done in a carefully planned and highly secure manner. Rather than just focusing on what the solution can do, developers and tech companies must also consider how it will affect the people that come into contact with it. When technology, city governance, and communities of people come together to improve the quality of life for everyone involved,

that's when a city truly becomes "smart."

3.6 SMART INFRASTRUCTURE

In a world where infrastructure is truly smart, sensing technologies are embedded in infrastructure and the equipment it interacts with. These sensors are connected to a communication backbone which allows real-time data acquisition and analysis. The information gathered is analyzed, interpreted and delivered as reliable, robust and meaningful information to infrastructure providers, who can then make better informed decisions about the structural health and maintenance of their assets.

In a sensing environment, infrastructure is able to respond in real time to users" needs. Self-aware infrastructure assets direct their own maintenance, leading to condition- based maintenance, reduced down time and greater operational efficiency of the infrastructure overall.

Better information leads to an enhanced understanding of the behavior of infrastructure. The impact of this will lead to transformations in the approaches to design and construction as well as step changes in improved health and productivity, greater efficiency in design and performance, a low-carbon society and sustainable urban planning and management.

3.7 CYBER SECURITY

Cyber security in the context of Smart Cities is a hot topic. The objective of Smart Cities is to Optimize the city in a dynamic way to offer a better quality of life to the citizens through the Application of information and communication technology (ICT). The range of areas where cities can become smarter is extensive: it is an evolution of "Connected Cities" with the prevalence of data exchange at a larger scale.

- Municipalities should support the development of a harmonized cyber security framework

- The European Commission and Member States should foster knowledge exchange and collaboration in cyber security among industry, Member States and municipalities
- IPT Operators should develop a clear definition of their security requirements.
- IPT Operators and Municipalities should allocate higher spending on cyber security
- Manufacturers and solution vendors should integrate security in their products.

3.8 DISTRICT COOLING AND HEATING

- In the Southeast, air conditioners are almost crucial pieces of equipment for home comfort. However, it can be difficult to find the right air conditioner for your home, one that will provide enough cool air in the summer to cool your home without driving your energy costs through the roof.
- District cooling is the cooling equivalent of district heating. Working on broadly similar principles to district heating, district cooling delivers chilled water to buildings like offices and factories needing cooling.
- In winter, the source for the cooling can often be sea water, so it is a cheaper resource than using electricity to run compressors for cooling.
- Alternatively, District Cooling can be provided by a Heat Sharing Network which enables each building on the circuit to use a heat pump to reject heat to an ambient ground temperature circuit.
- District heating is a system for distributing heat generated in a centralized location for residential and commercial heating requirements such as space heating and water heating.

3.9 STRATEGIC OPTIONS FOR FAST SMART VILLAGES DEVELOPMENT

The strategic components of area-based development in the Smart Cities Mission are

- City Improvement (retrofitting),
- City renewal (redevelopment) and city extension (Greenfield Development)
- Pan-city initiative in which Smart Solutions are applied covering larger parts of the city.

Below are given the Deion's of the three models of Area-based smart city development.

- Retrofitting will introduce planning in an existing built-up area to achieve smart city objectives, along with other objectives, to make the existing area more efficient and livable.
- Redevelopment will effect a replacement of the existing built-up environment and enable eco-creation of a new layout with enhanced infrastructure using mixed land use and increased density.
- Green field development will introduce most of the smart solution in a previously vacant area using innovative planning, plan financing and plan implementation tools with provision for affordable housing, especially for the poor
- Pan-city development envisages application of selected smart solution to the exist in city wide infrastructure. Application of smart solution will involve the use of technology, information and data to make infrastructure and service better.

3.10 INDIA'S URBAN WATER AND SANITATION CHALLENGES AND ROLE OF INDIGENEOUS TECHNOLOGIES:

Swachh Bharat Abhiyaan was launched by Hon 'blue Prime Minister of India on 2nd October 2015, which caught attention of everybody not only in India, but also in the world. The government has taken various steps to create awareness among the masses for keeping the area surrounding them neat and clean. Government is also paying special attention for cleaning of rivers, railway stations, tourist destinations and other public places. To achieve the target of cleanliness, the technologies to treat the waste material should also be developed along with creating awareness. There are many technologies that are used to treat waste material. They are usually very costly, very complex to be understood and viable only for large size units. At the same time, indigenous technologies are low cost capital and easy to use and they can also be used by different size units. In India, they are particularly suitable for the small and medium units.

The objective of the workshop was to disseminate indigenous technologies of water, wastewater and solid waste treatment developed by the Bhabha Atomic Research Centre (BARC) under —Swachh Bharat Abhiyaanll and to bridge gap between the research at the Vishwakarma Yojana: Maktupur, Mahesana Gujarat Technological University 27 | P a g e research centers and the practical application of the technologies. The BARC is playing a pivotal role in the development of these technologies.

Some of these technologies are as follows:

Indigenous water purification technologies:

These technologies can improve the drinking water quality of smaller villages as well as larger cities. It uses the Pressure Driven Membrane Processes. These are suitable for all capacity units e.g. they are adaptable from household level unit or community level unit to large scale unit. Water purification technologies make use of the nuclear energy and solar energy also.

Environment friendly Plasma technologies:

Solid waste dumping sites or landfill sites need more amount of land which is not available in urban areas. Incineration of solid waste pollutes the environment if the incinerators are not designed or operated properly. Thermal Plasma Technology is ideally suited for waste treatment. By plasma technology Hazardous & toxic compounds are broken down to elemental constituents at high temperatures; Inorganic materials are converted to Vitrified Mass; and Organic materials are Paralyzed or Gasified, converted to flue gases (H2 & CO) & Lower hydrocarbon gases when operated at low temperature (500 – 600^{o}C). Disposal of carcass is also being thought of using plasma pyrolysis.

Role of environmental isotope techniques in the water resources development and management:

There are two type of isotopes, stable isotopes and radioactive isotopes. Isotope techniques are used to find out the type of contamination in surface water and ground water, the sources and origin of contamination, pollutant dispersion in surface water bodies, to assess the groundwater salinity, to assess the changes due to long-term exploitation of groundwater, for hydro-chemical investigation and to carry out geochemical evolution of groundwater.

The BARC UF Membrane Technology for Domestic Water Purifiers:

Water filters manufactured by Sondhka based on membrane-based water Purification Technology has been developed by BARC. Benefits of BARC Polysulfone Membrane are high tech 0.02micron or 20nm, simple form factor, rugged (life of more than 1 year) and low maintenance (about Rs. 500 per year). It is very easy to use and very low-cost solution for the water contamination.

Radiation Hygienization of Municipal Sewage Sludge:

The Sewage is the waste water generated from domestic premises and consists mainly of human waste. It typically contains 99.9% water and about 0.1% solid. The solid waste in sewage is typically organic in nature and is broken down in the sewage treatment plants resulting in sewage sludge as a byproduct. In Radiation Hygienization process dry sludge generated at STP ‘s is 52hygienized using radiation technology using standard Gamma facility at a Dose of 10 kgs. Such radiation plants are operating in India for sterilizing medical products.

3.11 INITIATIVES IN VILLAGE DEVELOPMENT BY LOCAL SELF-GOVERNMENT

Panchayat Raj in Bihar

In the past "government as provider" approach, the priorities were to secure budget allocations and develop projects. The Housing Policy and the NCU statement implicitly give higher priority to two other requirements: first, the reform of policies and regulations that now inhibit development initiatives by the people; and second, more efficient resource management and the building of institutional capacity.

Resource Management and Institutional Development. India's urban institutions do not have the capacity to provide adequate services at present, let alone address the requirements of accelerated urban growth in the future. Proposals relate to three types of institutions.

He primes public sector actors in the urban development process; call for clearer allocations of responsibility and authority to them; and recognize the need for new organizational relationships between local governments and development authorities and

State governments that would avoid overlaps and facilitate coordinated programming. Improved personnel incentives will be needed to permit the recruitment and retention of qualified staff as will skills training programs. Resource constraints, however, preclude simply expanding local government under current practices in proportion to urban growth. In many areas, the very nature of the way work is conducted will have to be redesigned to permit much higher levels of productivity.

The NCU recognizes reforms of internal management as vital. This is likely to entail implementing more systematic and efficient approaches in many areas: for example, budgeting and financial management; project management and control; billing and collections; infrastructure systems maintenance; and personnel management. A. Financial Systems constraints on government budgets and the rigidities of the present system of intergovernmental transfers prevent an adequate response of traditional arrangements to the challenge of urbanization. A new and more decentralized system of public and private financial intermediaries will be required. The establishment of the NHB represents an important step: an apex institution that will stimulate the creation of a network of mortgage financing. The NCU also calls for the creation of Urban Infrastructure Development banks to permit local governments to borrow for infrastructure. B. Non-Governmental Organizations given the size of the job and the difficulty governmental agencies have in dealing directly in some aspects of the development of urban areas (e.g. stimulating informal sector enterprise and provision of shelter) there is a recognition of the need for new and expanded NGOs to assist in facilitating the urbanization process

3.12 SMART INITIATIVES BY DISTRICT MUNICIPAL CORPORATION

- Segregation of types of waste while collection
- Maintenance of roads
- Publicize and propagate the scheme in the district
- Encourage Gram Panchayat for taking part in the competition
- Give in principle/administrative approval to works under Smart Village
- Guide the Gram Panchayat and help it achieve the goals of Smart Village
- Submit progress report periodically to state level
- Mosquito repellent smokes spread out in the city for prevention of malaria and dengue.

3.13 ANY PROJECTS CONTRIBUTED WORKING BY GOVERNMENT / NGO / OTHER DIGITAL CONCEPT

- The Government of India launched the *Shyama Prasad MukherjiRurban Mission* (SPMRM) in 2016, with the objective to spur social, economic and infrastructural development in rural areas. The mission aims at making villages smart and growth centers of the nation. In its first phase, it targeted to develop a cluster of 300 Smart Villages over the next three years across the country. *SansadAdarsh Gram Yojana*, which envisages integrated development of selected villages was another step taken by government in this direction.

- **Pradhan Mantri AwasYojana** (**PMAY**) is an initiative by Government of India in which affordable housing will be provided to the urban poor with a target of building 20 million affordable houses by 31 March 2022. It has two components: **Pradhan MantriAwasYojana (Urban)** (**PMAY-U**) for the urban poor and Pradhan MantriAwasYojana (Garmin) (**PMAY-G** and also **PMAY-R**) for the rural poor. This scheme is converged with other schemes to ensure houses have a toilet, SaubhagyaYojana electricity connection, Ujjwal Yojana LPG gas connection, access to drinking water and Jan Dhan banking facilities, etc. Total 88 lakhs houses are approved against total demand of 1.12Cr as of 29 Aug 2019.

- Ayushman Bharat is National Health Protection Scheme, which will cover over 10 crore poor and vulnerable families (approximately 50 crore beneficiaries) providing coverage up to 5 lakh rupees per family per year for secondary and tertiary care hospitalization.

- While the government-led initiatives rely on integration and convergence of the existing central and state government schemes to develop these Smart Villages or clusters, the CSR initiatives are generally more innovative in terms of implementation and use of technologies. For example, smartphone-maker Nokia has launched a Smartpur project which aims to create a sustainable ecosystem where community members can leverage digital tools to bring efficiency in daily lives. It aims to bring transparency in governance, economic prosperity for households and ease of access to various government services and information

- Tata Trusts supports agriculture intervention for tribal communities under its *LakhpatiKisan* – Smart Villages program. While these CSR or philanthropic

institutions do work closely with government institutions, their model of engagement and the partnership with the government vary significantly

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 thecondition of air, water, land, and other things surrounding us.

➢ By definition, environmental factors affect large groups that share common living or workingspaces.

➢ 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.

4. ABOUT SARIYAD VILLAGE

4.1 INTRODUCTION:

4.1.1 INTRODUCTION ABOUT VILLAGE:

- Sariyad is a Village in Patan District of Gujarat State, India. It is located 20 KM towards Northeast from District headquarters Patan.
  As per census board of India 2011, sariyad had a population of 6750. Males are 3123 and females are 2944.
- Area of village (approx. in hectare) 2678 hector
- Nearest Bus Station: -Patan
- Nearest Railway Station: -Patan
- Major Occupation: farming & labor work
- Major crop grown are Castor, Mustard & wheat

4.1.2 NEED OF THE STUDY:

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.

65% of the population of the country lives on agriculture that contributes solely 15 August 1945 to the country's gross domestic product. If we tend to compare this with China that includes a similar sector contribution to the gross domestic product, solely half-hour folks|of individuals} depend upon agriculture whereas in country like USA simply two of the people ar hooked in to agriculture. Rurbanisation addresses this concern and imbalance by providing alternate jobs to rural plenty dependent upon agriculture. thus it's vital to develop geographical region compare to urban one.

Study space chiefly includes study of Sariyad Village that is located at Patan Taluka in Patan District of Gujarat State, India. It conjointly includes some sub-villages like Nayta etc.

The Vishwakarma Yojana is aimed to development of the village like geographic area. For that purpose study space we tend to ar set for taking detail info of the village. The study space includes education, social life, basic desires of the person, economic process of village, transport facilities etc. Education includes varied facilities like Anganwadi, School, school etc.

4.1.3 STUDY AREA:

Study area mainly includes study of Sariyad Village which is situated at Patan Taluka in Patan District of Gujarat State, India. It also includes some sub-villages like Nayta etc.

The Vishwakarma Yojana is aimed to development of the village like urban area. For that purpose study area We are decided for taking detail information of the village. The study area includes education, social life, basic needs of the person, economic growth of village, transport facilities etc.

Education includes various facilities such as Anganwadi, School and College etc.

4.1.4 OBJECTIVES OF THE STUDY:

Following are the various objectives of study…….

- To provide insufficient basic physical infrastructure facilities like Water Supply, Transportation, Sewerage and Solid Waste Management etc.
- To provide insufficient Social infrastructure facilities like health and education facilities and to ensure proper delivery of facilities to village dwellers
- To promote integrated development of rural areas with provision of quality housing, better connectivity, supporting physical and social infrastructure.
- To provide Internal roads within village settlement & efficient mass transportation systems between clusters of villages to improve connectivity
- To Identification sanitation facilities that are needed to be improve like sewerage and drainage line, dumping facilities, Electricity connections.

4.1.5 SCOPE OF THE STUDY:

By studying the present status and techno-economic survey of Sariyad village in Patan

districts of the Gujarat state in terms of basic services, public amenities, other infrastructural facilities for the requirement of the people and to prepare a report on the expected socio-economic growth of the area with the consultation of TDO, DDO and Sarpanch; will help full in providing better facilities and services in village.

From the gap analysis, development strategies for village development will be proposed and planning proposals for Physical infrastructure, Social Infrastructure and Renewable energy Source will be suggested for the village.

The study will focus the development trend, growth of the village, and find out the problems related to the physical development of the area and infrastructure services of the village.

4.1.6 METHODOLOGY:

- We studied what are the various goals and different objectives and aspect of Vishwakarma Yojana. We also studied various basic definitions related to the project like rural area, urban area, urbanization etc.
- After this we contacted our village sarpanch, talati-mantri and different gram-panchayat members.
- Than after we frequently visited the village for the purpose of collecting various data related to various facilities and amenities and survey of different aspects related to physical, infrastructural, social facilities.
- Gap analysis is done based on data collected through survey of village. And various suggestions are made by us on development of village. And based on this suggestions we will design proposed facilities in the village according to the need and population of that village.

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

4.2 STUDY AREA PROFILE

4.2.1 STUDY AREA LOCATION:

Sariyad village is situated on 23.929 latitude and 71.996 longitudes. Nearest town from Sariyad village is Volavi and it is 5.3 km away from Sariyad. Sariyad Village is situated at Patan Taluka in Patan District of Gujarat State.

PIN: 384265
District: Patan
State: Gujarat

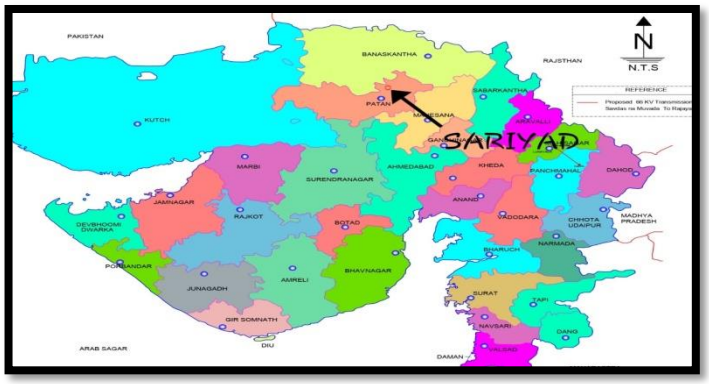


FIGURE 6: LOCATION DETAIL OF VILLAGE

4.2.2 Base Location map, Land Map, Gram Tal Map

Here is a map showing boundary line of Sariyad village in Patan district; which is taken from g oogle.com.

FIGURE 7: SETELITE & BOUNDRY MAP OF SARIYAD FROM GOOGLE

4.2.3 PHYSICAL & DEMOGRAPHICAL GROWTH:

Area of Sariyad village (Approx.) is 2678 hectares. Total Forest area (Approx) 1000 hectare and Total agricultural land area of village is 1678 hectares.

TABLE: 1 (DEMOGRAPHICAL DETAIL)

No.	Census	Population	Male	Female
1	2001	5500	2706	2609
2	2011	6750	3123	2944

As per year 2019 census the population of Sariyad village is 7280 people.

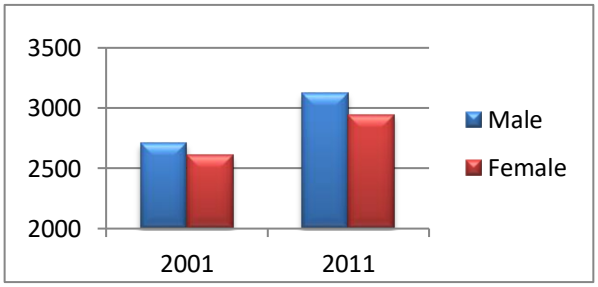


Figure 8: Population Graph

- BRIEF HISTORY:

Sariyad is a Village in Patan Taluka in Patan District of Gujarat State, India. It is located 20KM towards West from bus stop.

Urban areas around Sariyad village are nayta and volavi .Nearest town from Sariyad village is Volavi and it is 5 km away from Sariyad.

4.2.4 ECONOMIC PROFILE:

Name of three major occupation groups in village are…..

- Agriculture(10.4% of total population)
- Agricultural Labour work(13.4% of total population)
- Literate (64.5% of total population)

Majority Crops taken in village are Bajra, Wheat, and Cotton. In village the labours concern with agricultural work are 13.4% of total population and concern with sand industries are 15% of total population. Agriculture is the main occupation of village. Accept it some people are running stores.

4.2.5 Actual Problem Faced by Villagers and smart solution:

- There are two water tanks in village but one of them is useless water tank cause of its condition.
- So there are need of renovation of water tank.

Figure 9: water tank

4.2.6 SOCIAL SCENARIO:

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

TABLE: 2 (SEX-RATIO & LITERACY RATE)

Sex-Ratio (Female/Male)	**Literacy rate**
0.9641% IN 2001	_
0.9426 % IN 2011	66.99% IN 2011

4.2.7 Migration Reasons:

Reasons of Migration are below.

- Not higher education available in the village.
- For employment opportunities people are also migrate from village.

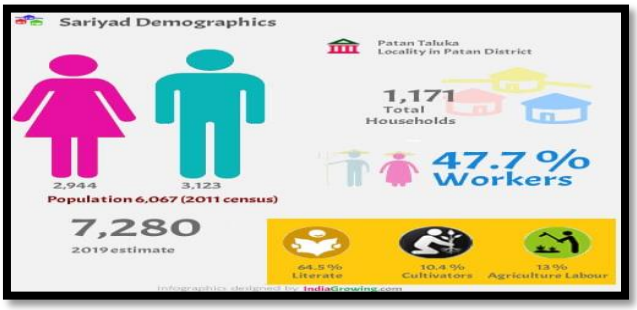


Figure 10: Social scenario

- To improve standard of living.
- Lack of basic Facilities.

4.3 DATA COLLECTION

4.3.1 GENERAL :

Base line survey is a benchmark for any intervention during and post implementation of any development programme. A detailed baseline survey was undertaken which involved household census survey, Bio-physical survey and Village level data collection from Sarpanch. This gave in the details of the demographic profile of the village, the literacy percentage, SC/ST population, number of BPL household, cattle population and net consumption rate in the village, average milk production of the cattle and various schemes running and their benefits Bio-physical survey was undertaken to identify various natural resources available in the village. It included the soil typology, well in the area, crop taken in the field, Cropping pattern, fertilizer used and various sources of irrigation in the field.

4.3.2 Methods for data collection

What is a Survey?

A Survey is any activity that collects information in an 73organized and methodical manner about characteristics of interest from some or all units of a population using well defined concepts, methods and procedures, and compiles such information into a useful summery form. A survey usually begins with the need for information where no data- or insufficient data-exist. Sometimes this need arises from within the statistical agency itself, and sometime it results for a request from an external client, which would be another Gov. agency or department, or private organization. Typically, the statistical agency or the clients wises to study the characteristics of population, build a data base for analytical purpose or test a hypothesis.

A survey can be thought to consist of several interconnected steps which includes:

- Defining the Objectives
- Survey methodology as a scientific field seeks to identify principals about the sample design,
- Data collection instrument, statistical adjustment of data, and data processing, and

final data.Analysis that can create systematic and random survey errors. Survey errors are sometimes analyzed in a connection with survey cost. Cost constraints are sometimes framed as an improving quality within cost constrains, or alternatively, reducing cost for a fixed level of quality. Survey methodology is a both scientific field and a profession, meaning that some professional in the field focus on survey errors empirically and other designs survey to reduce them. For survey designers, the task involves meeting a large set of decision about thousands of individual surveys in order to improve it.

Survey Methodology Topics:

- Identify and select potential sample members.
- Contact sample individuals and collect data those who are hard to reach.
- Evaluate and test questions.
- Select the mode for posing questions and collection responses.
- Train and supervise interviewer.
- Check data files for accuracy and internal consistency.
- Adjust survey estimate to identify the errors.

4.3.3 PRIMARY SURVEY DETAILS :

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

In this survey data is collected by various means like house to house means door to door survey, by interviewing people, school teachers, shop keepers, and other public.

Accuracy of this data is not sufficient means that data based on primary survey is not reliable or very accurate. Variances in the data happened due to different views of people.

We checked the infrastructure condition of different buildings like school, gram- panchyat, police station, banks, etc. And also check the condition of various basic amenities like water supply, drainage, electricity, solid waste management, railway station, bus station, hospitals, PHC, etc.

4.3.4 SECONDARY SURVEY DETAILS :

Secondary survey includes data collection from various government offices like gram

panchyat, police station, phc, etc.

We collect the data related total population of the village , male female ratio , literacy rate of village , growth rate , number of schools, various government schemes running for village development , area of village , agricultural area of village , major occupations , major crops taken, water supply source for drinking as well as irrigation water, etc.

4.3.5 No of human being in one house:

Total No. of house in Sariyad village are 1171. Total population in village is 6067. Average 4-5 human being in one house.

4.3.6 Material used locally:

In Sariyad village brick, cement, sand, aggregate, R.C.C materials are mainly used.

4.3.7 Geographical details:

This village is coming under Patan District. Total area of the village is 2678 hectares.

Village	Taluka	District	State	Language	Time zone	Pin code
Sariyad	Saraswati	Patan	Gujarat	Gujarati	IST (UTC+5:30)	384265

4.3.8 Demographical details:

No	Census	Population	Male	Female	Total no. of house holds
1	2001	5500	2706	2609	1171
2	2011	6750	3123	2944	

4.3.9 Occupation details:

Name of three major occupation groups in village	1. Farming
	2. House hold work
	3. Labour (Farm work)

4.3.10 *Agricultural Details / Organic Farming / Fishery:*

In Sariyad village 1678 hectare land is used for agricultural activities. For agriculture activity water are used from well and near around 1km Sujalam Sufalam canal is passing. Mainly showing a Mustard, castor, Wheat.

4.3.11 Physical infrastructure facilities:

- No such major physical infrastructure facilities are available.

4.4 INFRASTRUCTURE DETAILS:

4.4.1 DRINKING WATER:

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

As per standard data of NBC code, 100 liters of water is required for per person per day in village area. Total 728000 liters of water is needed for whole village per day. This is sufficient for the whole village.

FIGURE 11: ELEVATED STORAGE TANKS

4.4.2 DRAINAGE NETWORK

FIGURE 12: DRAINAGE CHAMBER

Almost in all areas of village having chamber system of drainage.

4.4.3 TRANSPORTATION & ROAD NETWORK

A good approach road (state highway 130) to reach Sariyad village is available in good condition. Streets are in acceptable condition in village .Internal streets are in fair weather condition and suitable in all weathers like monsoon.

Figure 13: Internal sreets

A Bus-stop is available in village near bazar area. Infrastructural condition of bus- stand is very poor accordingly to the village population and it need to be improve.

4.4.4 HOUSING CONDITION:

Both kutchha and pucca houses are there in Sariyad village. Approx. ratios of kutchha and pucca houses are 80:20. Housing conditions are very well. Most of houses have bath-toilet facility and electricity.

FIGURE 14: HOUSING CONDITIONS

4.4.5 SOCIAL INFRASTRUCTURE FACILITIES:

- *HEALTH FACILITIES:*

Primary health center is available in village in bazar area which is almost in center of village. There are three private clinics & one private hospital (Dhyan hospital) of 15 bed capacity with all primary health services are available in village.

- *EDUCATION FACILITIES*

One primary, one secondary and one higher secondary school are available in the Sariyad village which is sufficient for whole village population. Six aaganwadis (play group) are available in Sariyad village in different areas.

Figure 15: PHC

FIGURE 16: PRIMARY SCHOOL

FIGURE 17: SECONDARY SCHOOL

FIGURE 18: ANGANWADI

Various socio-cultural facilities like Community Hall, Public Library, Public Garden /Park, Village Pond are not available in the village. Accept it no other recreational facilities are available in the village.

4.4.6 OTHER FACILITIES

- One post office is available in Sariyad bazar area.
- A police station is located in Sariyad bazar area which is out police station.
- All the shops of general market are held in Sariyad bazar area.
- A gram panchyat building is available in Sariyad village.
- There are many medical shops are available in the village. Different banks like BOB BANK are available in the village.
- There are some small stone crushing industries are located around village.

FIGURE 19: POST-OFFICE

FIGURE 20: GRAM-PANCHYAT

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 EXISTING INSTITUTION

4.5.1 Bachat mandali:

- This type of facility is not available in the village.

4.5.2 Dudh mandali:

- There are only dudh mandali existing institute in village.

4.5.3 Mahila mandali:

- This type of facility is not available in the village.

4.5.4 Planation for the air polution:

- Villagers do plantation in village for reduce air pollution.

4.5.5: Agricultural Development:

- There are many cribs for animals in the village. Villager use mostly natural fertilizer for plantation.

5. SUSTAINABLE TECHNICAL OPTION WITH CASE STUDY: - HYDROPONICS

5.1 What is Hydroponics?

- Hydroponics is the cultivation of plants without using soil. Hydroponic flowers, herbs, and vegetables are planted in inert growing media and supplied with nutrient-rich solutions, oxygen, and water. This system fosters rapid growth, stronger yields, and superior quality. When a plant is grown in soil, its roots are perpetually searching for the necessary nutrition to support the plant. If a plant's root system is exposed directly to water and nutrition, the plant does not have to exert any energy in sustaining itself. The energy the roots would have expended acquiring food and water can be redirected into the plant's maturation. As a result, leaf growth flourishes as does the blooming of fruits and flowers.

Figure 21: Plant Hydrophonics

- Plants sustain themselves by a process called photosynthesis. Plants capture sunlight with chlorophyll (a green pigment present in their leaves). They use the light's energy to split water molecules they've absorbed via their root system. The hydrogen molecules combine with carbon dioxide to produce carbohydrates, which plants use to nourish themselves. Oxygen is then released into the atmosphere, a crucial factor in preserving our planet's habitability. Plants do not need soil to photosynthesize. They need the soil to supply them with water and nutrients. When nutrients are dissolved in water, they can be applied directly to the plant's root system by flooding, misting, or immersion. Hydroponic innovations have proven direct exposure to nutrient-filled water can be a more effective and versatile method of growth than traditional irrigation.

Abstract: Hydroponic systems have been utilized as one of the standard methods for plant

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biology research and are also used in commercial production for several crops, including lettuce and tomato. Within the plant research community, numerous hydroponic systems have been designed to study plant responses to biotic and abiotic stresses. Here we present a hydroponic protocol that can be easily implemented in laboratories interested in pursuing studies on plant mineral nutrition.This protocol describes the hydroponic system set up in detail and the preparation of plant material for successful experiments. Most of the materials described in this protocol can be found outside scientific supply companies, making the set up for hydroponic experiments less expensive and convenient.The use of a hydroponic growth system is most advantageous in situations where the nutrient media need to be well controlled and when intact roots need to be harvested for downstream applications. We also demonstrate how nutrient concentrations can be modified to induce plant responses to both essential nutrients and toxic non-essential elements.

Case Study: Nutrient Film Technique (NFT), a method of hydroponics, was been observed in a household. This method was used to grow Tomato, Cucumber, Lettuce, Fenugreek.

Types of Hydroponics Systems:

Hydroponics is a complex mechanism and there are multiple techniques you can use to ensure the nutrient solution reaches your plants. These vary in the investment required and level of complexity.
We've included six methods below:

Deepwater Culture:

Also known as the reservoir method, deepwater culture is thought to be the easiest method of running hydroponics. The roots are suspended directly inside the nutrient solution and growers must utilize an aquarium air pump to oxygenate the solution so the plants don't drown.

Nutrient Film Technique:

This method depends on absorption of oxygen from the air by running a continuous flow of nutrient solution over the plants' roots. To properly execute this method, the plants must be grown on a slight tilt that allows the solution to flow downwards. This may sound like a hassle, but the increased growth rate makes it worth it!

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Aeroponics:

Aeroponics depend on suspending the roots in the air and misting them with the solution. You can promote growth this way and do it by hitting the roots with either a pond fogger or a fine spray nozzle.

Wicking:

Of all the methods of running hydroponics, this is thought to be the simplest and most cost-efficient method. The plant and reservoir of a nutrient solution are connected by the wick, which slowly feeds them over time

5.1.1 Advanced Sustainable Construction Techniques (3-D Printing):

Abstract: 3D printing concrete is an emerging technology in which structures are made only using concrete in layers with the help of Software. With this technology, even geometrically intricate structures, heavy load bearing structures and hydraulic structures can be made easily in no time with less wastage of materials and minimum costs. It does not require any additional form-work during construction and also the human resource required is comparatively less. It is a sustainable technology which can also be used for aesthetic purpose. This technology was invented by Charles Hull in 1984. This review paper is about the methods of using 3D printer in the construction field and its future trends.

Introduction: 3D printing is a technology for producing 3D models of an object of any shape or size in layers using computer software. This technology was first invented by Charles Hull in the year 1984, as he designed the first 3D printer. He was the pioneer of the solid imaging process called Stereo lithography and the stereo lithographic file format, which is the widely used format for 3D printing even today. The first solid object from a

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digital design was printed by Hideo Kodama of Nayoga Municipal Industrial Research Institute. Following this several advancements were made to make the printers more efficient, affordable and applicable for several fields like research, engineering, military, construction and architecture, fashion, medical industry, computer industry, etc. The production of metal parts like engine brackets and nuts began from 2010. 3D printing is mainly based on Additive Manufacturing (AM) process. AM is defined as the process of joining materials to make objects from 3D model data, usually layer upon layer. In this process the model is first created using CAD software and then transferred to the printer as a set of stereo lithography language, which is then converted to layers that can be laid directly. Each layer has an activating agent and a power material which helps in bonding of the layers. For large scale construction computer-controlled placement of extruded cement-based mortar to create objects in layers.

5.1.2 Soil liquefaction:

- What is soil Liquefaction

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

The phenomenon is most often observed in saturated, loose (low density or uncompacted), sandy soils. This is because loose Sand has a tendency to compress when a load is applied. Dense sands, by contrast, tend to expand in volume or 'dilate'. If the soil is saturated by water, a condition that often exists when the soil is below the water table or sea level, then water fills the gaps between soil grains ('pore spaces'). In response to soil compressing, the Pore water pressure increases and the water attempts to flow out from the soil to zones of low pressure (usually upward towards the ground surface)

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Abstract: Liquefaction hazard is one of the major concerns for earthquake geotechnical engineering. In this paper an attempt has been made to assess liquefaction potential of Chennai city using SPT N values. Chennai is located between 12.75° to 13.25° N and 80.0° to 80.5° E on the southeast coast of India and in the northeast corner of Tamil Nadu. To understand the liquefaction possibility of Chennai city, about 650 Bore logs have been collected from different geotechnical agencies and used for the analysis. These boreholes were drilled for different projects in Chennai, most of them were drilled up to hard stratum and a minimum depth of 10m. SPT borehole data contains information about depth of water table, the classification of soil and the field observed 'N' values, index properties, rock depth. These borehole information are used to prepare N corrected table by applying the universally followed correction factors for liquefaction study. These corrected N values are further used to estimate the factor of safety against liquefaction of soil layer. Based on the factor of safety, the regional liquefaction hazard maps have been developed for depths of 1.5m, 3.0m, 6.0m and 10.0m. To represent the worst scenario, least factor of safety has been identified for each borehole location and mapped. Further the estimated factor of safety against liquefaction is used to estimate liquefaction potential index by considering depth of layer. These results are analyzed and compared in this paper.

5.1.3 Sustainable Sanitation:

sanitation aims at overcoming these drawbacks. It is not a certain technology, but an approach with certain underlying principles. There are a number of technologies that can be used to make sanitation and wastewater management more sustainable. The term "sustainable sanitation" in principle denominates the same as ecological sanitation, though the latter has a stronger focus on source separation.

The first and foremost principle is probably the one to recognise that excreta and wastewater are not a waste, but a valuable resource that can be reused and recycled. This

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is actually — to speak in a simplified way — the very basis of sustainability: to use resources wisely and without impairing the possibilities of future generations to meet their own needs.

Sustainable sanitation can be defined more precisely (adapted from SUSANA 2008):
The main objective of any sanitation system is to protect and promote human health by providing a clean environment and breaking the cycle of disease. In order to be sustainable a sanitation system has to do this, and additionally be economically viable, socially acceptable, and technically and institutionally appropriate, and it should also protect the environment and the natural resources. This implies the following criteria:

- **Health and hygiene:** The sanitation system must put an effective barrier between its user and the environment, and must prevent exposure that could affect public health at all points of the sanitation system: From the toilet, via the collection and treatment system, to the point of reuse or disposal and downstream populations — hence it also includes hygiene behavior.

- **Environment and natural resources:** In order to be sustainable, the sanitation system must protect and respect the natural environment and resources. Wherever possible, the resources contained in excreta and wastewater (energy, nutrients, water) are recycled, thereby protecting other resources (e.g. by replacing fossil fuels through biogas). Should use little energy, water or other resources (e.g. for construction, operation and maintenance), and should produce as little harmful emissions to the environment as possible (both liquid, solid and gaseous)..

5.1.4 Sustainable Transportation/System

Introduction: Transportation infrastructure, as a complex network, connects cities and accommodates human activities coupling the social, economic and environmental systems with the urbanization and

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population growth. Additionally, the transportation network contributes to the socioeconomic development and the increased quality of life through generating inter- or intra-city connections during urbanization in addition, goals such as low-carbon, resilient and sustainable development should not be ignored. when the transportation network is expanded. In detail, transportation infrastructure among cities leads to urban aggregation and diffusion, greatly boosting the regional and national economic development. However, the irrational planning of transportation infrastructure also generates negative effects, such as the ecological destruction, increased traffic accidents, climate change, CO_2 emissions and lower transport efficiency. Therefore, it is necessary to identify multiple impacts of transportation infrastructure from existing studies.

Abstract: Transportation infrastructure has an enormous impact on sustainable development. To identify multiple impacts of transportation infrastructure and show emerging trends and challenges, this paper presents a scientometric review based on 2543 published articles from 2000 to 2017 through co-author, co-occurring and co-citation analysis. In addition, the hierarchy of key concepts was analyzed to show emerging research objects, methods and levels according to the clustering information, which includes title, keyword and abstract. The results expressed by visual graphs compared high-impact authors, collaborative relationships among institutions in developed and developing countries. In addition, representative research issues related to the economy, society and environment were identified such as cost overrun, spatial economy, prioritizing structure, local development and land value. Additionally, two future directions, integrated research of various effects and structure analysis of transportation network, are recommended. The findings of this study provide researchers and practitioners with an in-depth understanding of transportation infrastructure's impacts on sustainable development by visual expression.

5.1.5 Vertical Farming

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Introduction: Due to the limited access to land for farming, there is a need for sustaining farming tasks so as to pave the way for adding to food needs. Many aspects press on food industry and processing such as: growth of population and its growing needs accordingly, reduction of natural sources due to growing cities, earth erosion, different forms of contamination, advent of biofuels, restrictions imposed on food production techniques affected by customers and rule providers which requires better quality, less use of chemicals and many useful environmental attempts 'from farm to fork. Recently, environmental obsessions have been mixed with rising obsession with health as architecture design is concerned. Therefore, it has led to more interest in providing healthy food and incorporating it in the sustainable development project. The answer to these issues is Vertical Farming (VF). VF has grown as a project which combines the design of building and farms all together in a high-rise building. VF is a system of growing crops in skyscrapers, to maximize the use of land by having a vertical design whereby plants, animals, fungi and other life forms are cultivated for food, fuel, fiber… by artificially stacking them vertically above each other. Vertical farms are now used in a lot of countries. At present, these farms are largely grown and produce different types of crops inside cities.

Abstract: Recently, the application of Vertical Farming into cities has increased. Vertical farming is a cultivating vegetable vertically by new agricultural methods, which combines the design of building and farms all together in a high-rise building inside the cities. This technology needs to be manifest both in the agricultural technique and architectural technology together, however, little has been published on the technology of Vertical Farming. In this study, technology as one of the important factors of Vertical farming is discussed and reviewed by qualitative approach. In the first, identifying existing and future VF projects in Europe, Asia, and America from 2009 to 2016. Then a comprehensive literature reviewed on technologies and techniques that are

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used in VF projects. The study resources were formed from 62 different sources from 2007 to 2016. The technologies offered can be a guide for implementation development and planning for innovative and farming industries of Vertical Farming in cities. In fact, it can act as a basis for evaluating prospective agriculture and architecture together. The integration of food production into the urban areas have been seen as a connection to the city and its residents. It simultaneously helps to reduce poverty, adds to food safety, and increases contextual sustainability and human well-being.

5.1.6 Corrosion Mechanism, Prevention & Repair Measures of RCC Structure.

Introduction: Reinforced concrete (RC) has been developed and applied extensively in the twentieth century and it continues to be used in this century as well. It combines the good compressive strength of concrete with the tensile strength of steel and has proven to be successful in terms of both structural performance and durability. One major flaw, namely its susceptibility to environmental attack can severely reduce the strength and life of these structures. In humid conditions atmospheric pollutants percolate through the concrete cover and cause corrosion of steel reinforcements. The resulting corrosion products occupy volumes several times that of the steel. The increased volume induces tensile stresses in the concrete that result in cracking, delamination and spalling. As a result, the reinforcements get exposed to direct environmental attack and the corrosion is accelerated. Along with unpleasant appearance it weakens the concrete structure to a high degree. Moreover, bond between the steel and the concrete is reduced.Pitting corrosion may also reduce the ductility of the steel bar by introducing notches on the surface of the steel bars that leads to a premature necking. A large proportion of damage is caused due to insufficient planning and incorrect assessment of the environmental attack such as carbonation and chloride exposure. Corrosion affected structures are highly susceptible to

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catastrophic collapse. Unlike other devices and facilities that are renewed periodically with newer ones human endeavor has been to maintain centuries old structures. As a result, structural engineers deal with RC structures of age varying more than hundred years. They are also subjected to a wide range of environmental load regimes. Typically, an RC structure that is subjected to heavy environmental loading requires major restoration work within fifteen years of its construction.

Abstract: The reduction in the useful service-life of reinforced concrete structures, mainly due to reinforcement corrosion, is a cause of concern to the construction industry worldwide. It not only affects the physical appearance of the structure but it leads to notable effect on structural performance of the RC structures. The present research paper focus on mechanism of corrosion, types of corrosion, various parameters effecting corrosion and different strategies to monitor corrosion. It also discusses various effects of corrosion on reinforced concrete structures.

5.1.7 Sewage Water Treatment:

Introduction: Discharge of untreated sewage water in the water body is a common practice in many countries. This is the common cause for pollution of surface and groundwater because there is a large gap between generation and treatment of domestic wastewater in India. In general, the wastewater discharged from domestic premises like

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residences, institutions, and commercial establishments is termed as sewage or wastewater. Normally domestic and municipal wastewater are composed of 99.9 % water and remaining 0.1 % suspended, colloidal and dissolved solids, mainly organic in nature because it consists of maximum amount of carbon compounds, viz., human waste, paper, vegetable matter, etc., and it also contributes pathogens which consumes available oxygen from water bodies. Besides this, industrial wastewater gets mixed with municipal waste polluting the water bodies and land which is irrigated by the wastewater.

Abstract: This is a conventional kind of monitoring study. The objective of the study was to assess and monitor the physicochemical parameters in wastewater at inlet and outlet of sewage treatment plant (STP) and also to study the effectiveness of the STPs. The average concentration of parameters at inlet sampling site pH, electrical conductivity, total dissolved solids, are 7.16, 2,169 µS/cm, 766.06 mg/l, and major ions bicarbonate, nitrate, sulphate, phosphate, chloride, sodium, potassium, magnesium and calcium values 515.88, 4.28, 82.85, 15.17, 7.01, 23.08, 29.34, 4.14 and 84.31 mg/l. While the average concentration of these parameters, after treatment shows following values 7.47, 2,161.43 (µS/cm), 695.81, 436.52, 1.25, 99.22, 12.69, 6.83, 23.18, 29.07, 4.40 and 82.65 mg/l, respectively. Further, to check the Na % and sodium absorption ratio at inlet and outlet which 27.89 %, 0.67 and 28.19 %, 0.68, respectively, for the suitability of the wastewater. Finally, the agglomerative hierarchical clustering techniques were used to study the similarity in the sewage treatment plants. The result suggests that there is considerable improvement in the wastewater quality after treatment except at the Pappankalan and Coronation Pillar, Timarpur.

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6. SWACHH BHARAT ABHIYAN (CLEAN INDIA)

6.1 SWACHHTA NEEDED IN YOUR VILLAGE EXPLAINING EXISTING SITUATION WITH PHOTOGRAPHS:

FIGURE 22: GARBAGE FREE SARIYAD VILLAGE

In our village no need of swachhta because of our village is clean and there are good cleaning facilities for garbage and dump so there are no needs of implementation in village.

To accelerate the efforts to achieve universal sanitation coverage and to put the focus on sanitation, the Prime Minister of India had launched the Swatchh Bharat Mission on 2nd October 2014. Under the mission, all villages, Gram Panchayat, Districts, States and Union Territories in India declared themselves "open-defecation free" (ODF) by 2 October 2019, the 150th birth anniversary of Mahatma Gandhi, by constructing over 100 million toilets in rural India. To ensure that the open defecation free behaviors are sustained, no one is left behind, and that solid and liquid waste management facilities are accessible, the Mission is moving towards the next Phase II of SBMG i.e. ODF-Plus. ODF Plus activities under Phase II of Swatchh Bharat Mission (Grameen) will reinforce ODF behaviors and focus on providing interventions for the safe management of solid and liquid waste in villages.

6.2 Guidelines - Implementation in allocated village with Photograph

A schematic representation of the SBM Programmer Implementation Diagram is represented belowas an illustrative model.

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- In the context of the various interventions identified in the Implementation Framework, certainapproaches can be considered.
- Implementation of SBM is proposed with ‗District's the base unit, with the goal of creating ODFGPs.
- The District Collectors/Magistrates/CEOs of Zillah Panchayat are expected to lead the Mission themselves, so as to facilitate district wide planning of the Mission and optimum utilization of resources.
- A project proposal shall be prepared by the District, scrutinized and consolidated by the State Government into a State Plan.
- The State plans shall provide details of the IEC, BCC, Triggering exercise, Capacity building, Implementation, Financial support and Monitoring activities planned in each district, consolidated forall Gram Panchayat.
- The District-wise plans will have Gram Panchayat wise details. The State Project Implementation Plans currently prepared by States on a perspective basis shall be revised based on the Baseline data and the revised norms of the SBM.

6.3 Activities Done by Students for allocated village with Photograph:

- There are no activity done by us because of covid-19 situation.

.

7. VILLAGE CONDITION DUE TO COVID-19

7.1 Taken steps in allocated 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.

7.3 Any other steps taken by the students / villagers:

- Villagers were quarantine themselves in their homes.
- They are maintain social distancing during buying some things and going in temple

.

8. PLANNING PROPOSAL

8.1 DESIGN SELECTION:

8.1.1 Physical Design (Civil)

Bus Stop:-

There are no Bus Stop in village. So we develop the Bus Stop.

- Advantages of Bus Stop:-
- People can seat comfortable in Bus Stop who waiting for bus transport and protect themselves from heat, rain and cold waves.
- We provide television in Bus Stop so people can see time and routes of various buses.
- We provide water cooler facility so people can drink pure and clean water.
- Provide ceiling fan also in Bus Stop.
- Small ramp provide for handicap people and plinth level is also lower so old people can easily go in bus stop.

8.1.1.1 Design Considerations:

Capacity:

A Bus Stop is normally designed for use by 12 - 15 members. In special cases it is designed for use up to a maximum of 20 members in a public scenario.

Floor Space and Level:

The floor dimension of Bus Stop is 50.18 m x 2.43 m. Height of structure is 3.35 m. Plinth level is 0.15 m above from ground level.

Construction materials:

A Bus Stop is designed with proof. can be constructed using locally available materials like bricks, cement blocks, concrete, bamboo, steel However, care should be taken to prevent entry of rainwater into the Bus Stop.

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Following figure shows the bus stop designed by us for village for individual use.

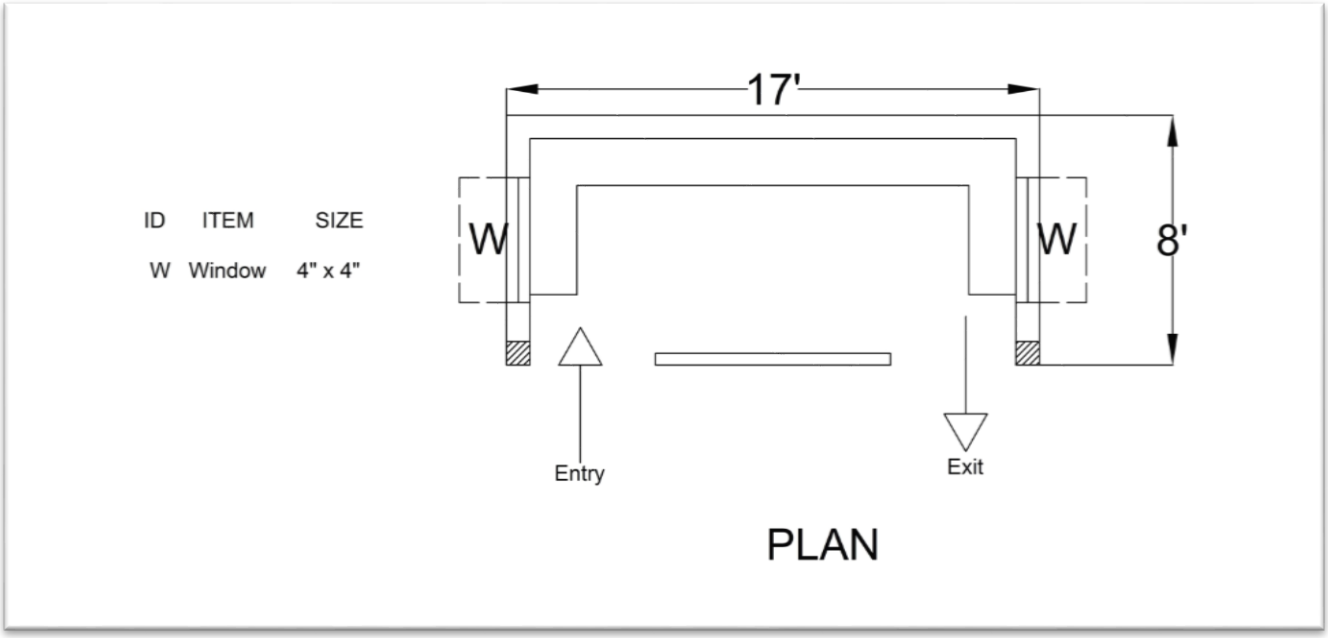

FIGURE 23: PLAN OF BUS STOP

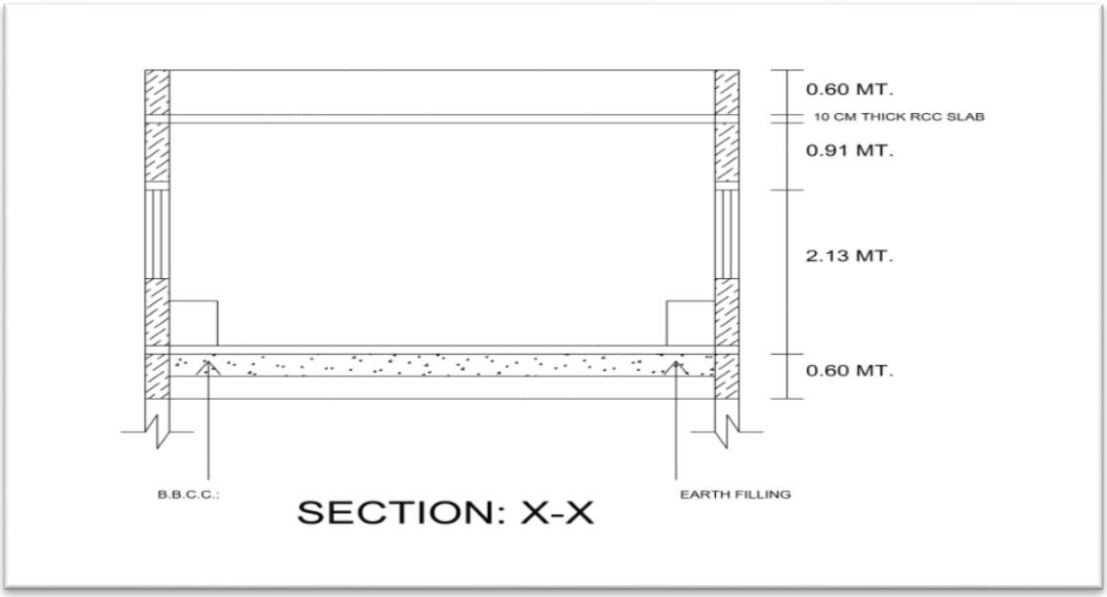

FIGURE 24: CROSS SECTION OF BUS STOP

.

FIGURE 25: PLAN AND ELEVATION OF BUS STOP

8.1.1.2 DRAWING DETAIL OF BUS STOP

TABLE 3 - DRAWING DETAIL OF BUS STOP

Design details	Specification
Max. users	20
Structure life	20 Years
Average user	12 - 15
Size of the floor	5.18 m x 2.43m
Plinth level above from G.L	0.18 m
Height of Otta	0.60 m
Roof	10 cm thick RCC slab
Super structure	Brick wall 22 cm thick

8.1.1.3 COMPONENT & DESCRIPTION OF BUS STOP:

TABLE 4- COMPONENT & DESCRIPTION OF BUS STOP

Components	Description
Slab	5.18 x 3.03 m RCC two way slab
Reinforcement steel	10 mm and 6 mm bar. Senting wire
Column	300 x 300 mm. (4 nos.)
Street light	LED light (solar)

8.1.1.4 Estimation of cost for dry bus stop:-

.

TABLE 5 - COST ESTIMATION OF BUS STOP

ITEM	Nos.	L	B	H/D	QUANTITY	RATE Rs.	MONEY Rs.
RCC Columns	4	0.22	0.22	3.64	1.602 m^3	13,000	83,304
RCC SLAB		5.18	2.43	0.1	1.258 m^3	14,000	17,612
MASONARY IN SUPER STRUCTURE		10.04	0.22	2.94	3.64 m^3	3500	
DEDUCTION							
WINDOW	2	1.21	0.2	1.21	0.484 m^3		
					3.156	3500	11,046
PCC AT PLINTH		5.18	2.43	0.1	1.26 m^3	4800	6048
BOTH SIDE PLASTER(2)	2	5.18 2.43	- -	3.04 3.04	31.48 29.54		
DEDUCTION							
WINDOW	2	1.21	-	1.21	1.46		
					59.56 m^2	130	7742
CEILING PLASTER		5.18	2.43		12.58 m^2	140	1761
TOTAL =							1,27,513 Rs.

Add 1.5% water charges = 1,27,513 x 0.015 => 1913 Rs.

Add 10% contractor's profit = 1,27,513 x 0.10 => 12751 Rs.

Grand Total = 1,42,177 Rs.

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8.1.2 Socio Cultural Design (Civil)

Community Hall

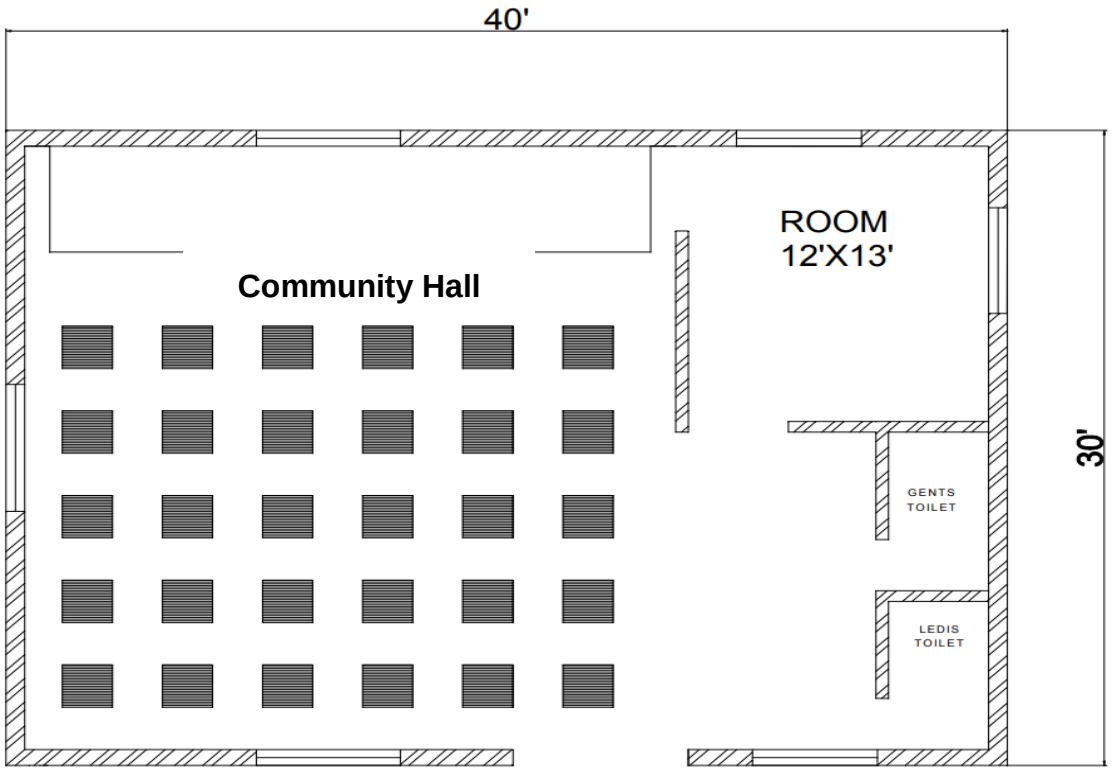

Figure 26: Community hall

Sariyad village has no other Community hall so we design it for village.

- Community hall has one dressing room.
- Dimension of Community room is 40‘x30‘and hall is 25‘8‖x28‘6‖.
- It is useful for school function and other social functions.
- It is placed at the near panchayat house.
- It is actually needed of village.

Calculation for Community hall:

Total Centre Line = {(8.9154 x 2) + (11.9634 x 2) + 3.8862 + 4.991}

= 49.8348m (With 2 Junctions)

Table 8.1.4(a) Measurement Sheet for Community Hall

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Table 6: Measurement sheet

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 toplinth (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**
						=2.9635m3
Net Quantity = 33.937 – 2.9635						
						=30.9735m3

Abstract sheet quantities

Sr no	**Particulars**	**Quantity m3**	**Per 10 m^3**	**Total Amount Rs.**
	Excavation for foundation	**13.212**	**800**	**10570**
	Cement concrete 1:4:8 infoundation	**13.212**	**3500**	**46242**
	Brick bat cement in foundation(1:4:8)	**6.787**	**30000**	**203610**
	First class brickwork in C.M.1:6 in Superstructure (up to First Floor)	**30.9735**	**75000**	**2323012.5**
Net Amount of Cost up to First Floor Level				**25,83,435/-**

.

Figure 27: Elevation view of Community hall

Figure 28: in- side view of Community hall 1

Figure 29: in- side view of Community hall 2

8.1.3 Smart Village Design:

Anganwadi:

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- Sariyad village has total 4 Aganwadi but 1 Aganwadi has not own building it is on rent.

- So, we design Aganwadi for village and this Aganwadi is on smart village concept.
- It has one kitchen and toilet.
- Elevation of anganwadi is based on smart village.

Calculation for Aganwadi

Total Centre Line = {(2*7.3914) +10.0584+4.572+3.048+6.7818}

= 39.243m (With 2 Junctions)

Table 7: Measurement Sheet for Aganwadi

Sr. no	Item Description	No.	Length (m)	Breadth (m)	Height (m)	Quantity
1	Earth work in Excavation L = 39.243 – (0.5*0.9*2)	1	38.348	0.9	0.3	10.354 m^3
2	PCC (1:3:6) in Foundation	1	38.348	0.9	0.3	10.354 m^3
3	First class brickwork up toplinth (1:6) L = 38.348 – (0.5*0.2*2)	1	38.114	0.2286	0.6069	5.311 m^3
4	First class brickwork above the plinth up to first floor	1	38.114	0.2286	3.048	26.57 m^3
Door & Window deduction						
	D	1	1.22	0.2	2.1	0.5124
	D1	1	0.91	0.2	2.1	0.3822
	W	5	1.22	0.2	1.4	1.708
						=2.6026m3
Net Quantity						=23.97m3

Table 8.1.5(b) Abstract sheet quantities

Sr. no	Particulars	Quality m^3	Per 10 m^3	Total Amount Rs.

.

	Excavation for foundation	10.354	800	8,283
	Cement concrete 1:4:8 in foundation	10.354	3500	36239
	Brick bat cement in foundation (1:4:8)	5.371	30000	161130
	First class brickwork in C.M. 1:6 in Superstructure(up to First Floor)	23.97	75000	1797750
Net Amount of Cost up to First Floor Level				20,03,357/-

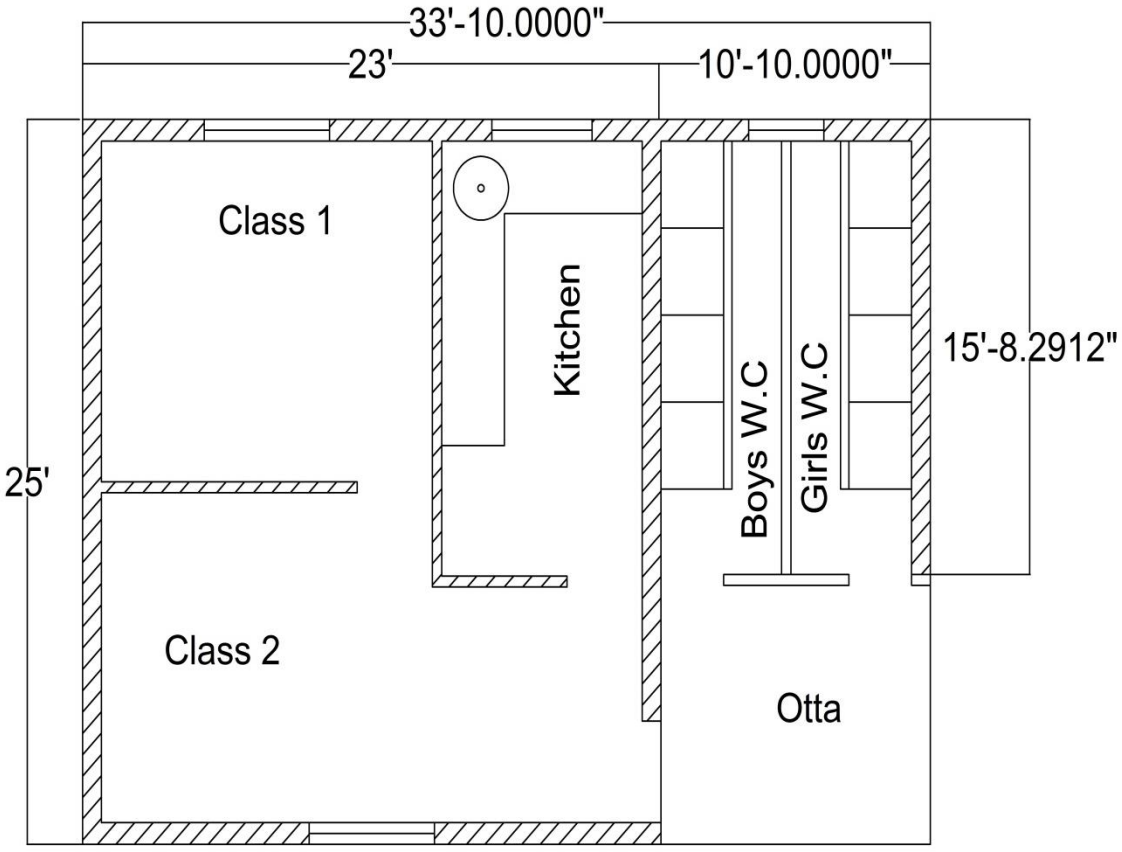

Figure 30: Aganwadi plan

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Figure 31: Elevation of anganwadi

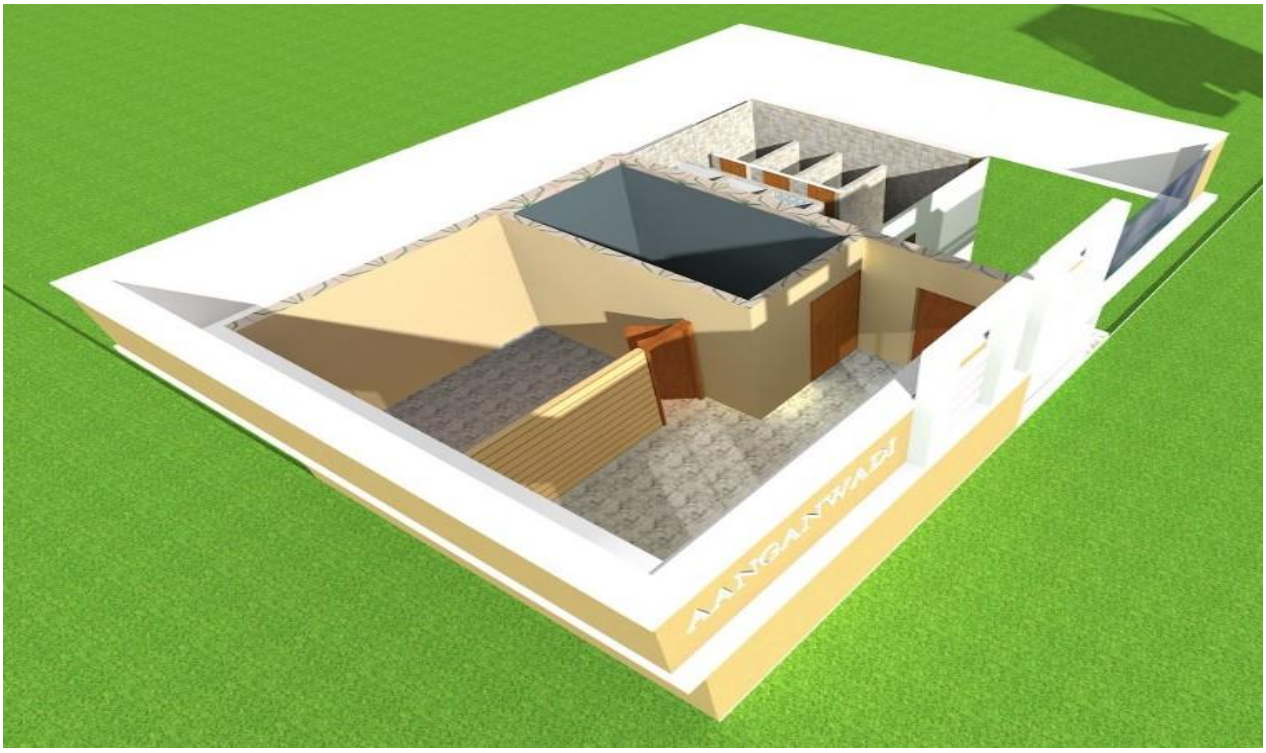

Figure 32: Cut Section of anganwadi

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8.1.4 Heritage village design (civil):

Entrance Gate:

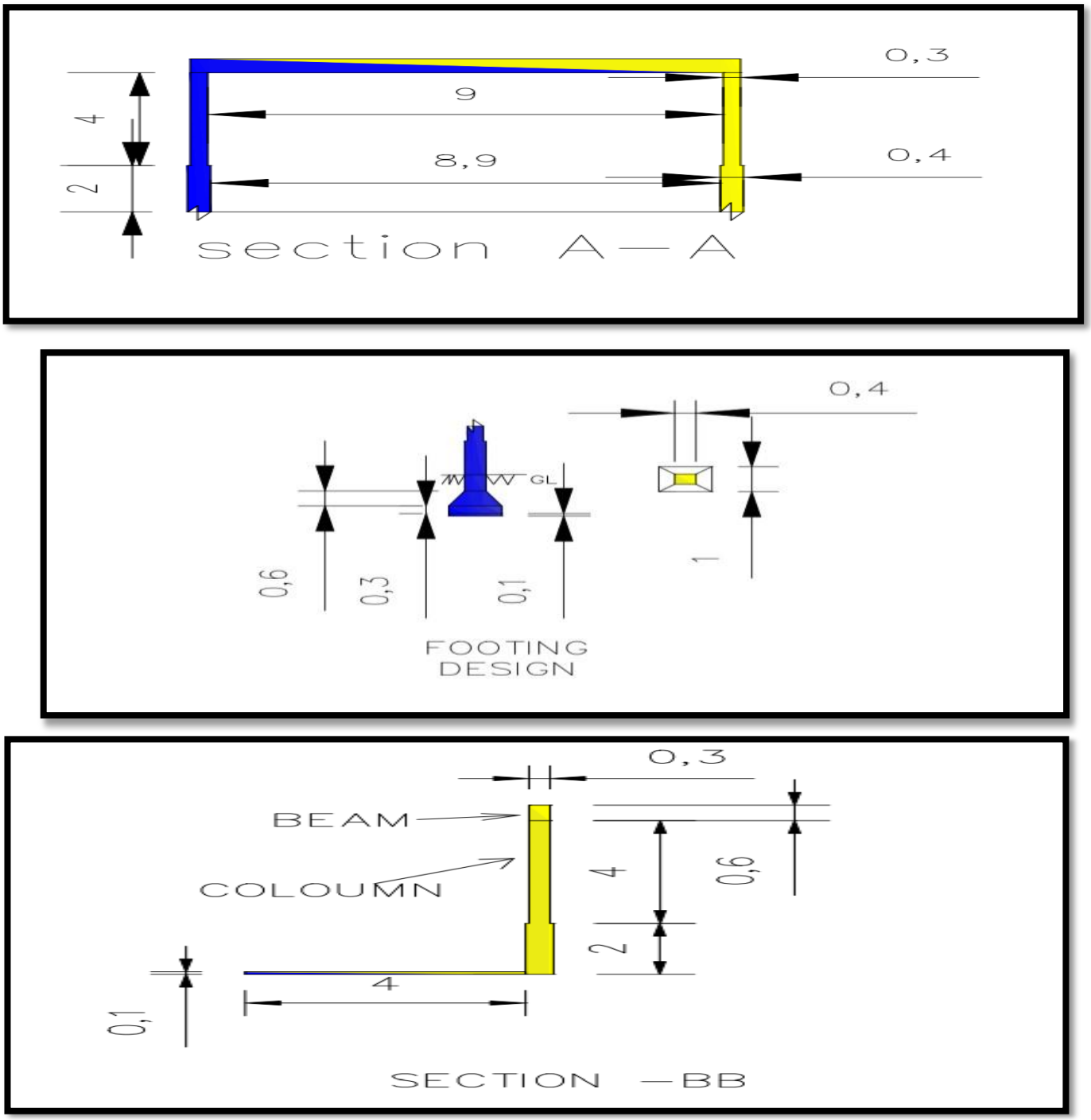

Figure 33: Section A-A, B-B & Footing design

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Entry gate Calculation:

Table 8: Measurement sheet

Sr. No	Particulars	No	L	B	H	Total	G.Total
	Beam						
1.	**R.C.C work 1:2:4**	1	9.6	0.3	0.6	1.728m3	1.728m3
2.	**Form work for beam**						
	Bottom	1	9	0.3	-	2.7m3	
	Sides	2	9.6	-	0.6	11.52m3	
	Ends	2	-	-	0.6	0.36m3	
3.	**Steel**	5	9.86	-	2.47	121.77 Kg	
	16mm Dia. Bent up bars:	2	10.21	@	1.58	32.26Kg	
	20mm Dia. pins: @ 30cm c/c	15	0.25	@	2.47	9.29Kg	204.44Kg
	12mm Dia. Top anchor bar bars:	2	9.72	@	0.88	17.10Kg	
	6mm Dia. Stirrups: @ 15cm c/c	15	1.682	@	0.22	24.05Kg	
	Column and footing						
1.	**Excavation for foundation**	1	1	1	1.4	1.4m3	1.4m3
2.	**Filling of foundation trench**						0.624m3
3.	**P.C.C 1:4:8**						
	Vol. of concrete = 0.1 Vol. of dry concrete = 1.52 x 0.1 =0.152 Cement = 0.01169 (0.33 bags) Sand = 0.047 Aggregate = 0.094	1	1	1	0.1	0.1m3	0.1m3
4.	**R.C.C. 1 :2 : 4**	1	1	1	0.3	0.3m3	
	A) Footing without Slope						
	B) Footing with slope Vol. of sloping portion= 0.312					0.312m3	1.356m3
	C) Part of column below GL	1				0.64m3	
	D) Column 0.4*0.4 m above GL	1				0.32m3	
	E) Column 0.3*0.3 m above GL	1				0.36m3	
5.	**Steel for column and footing**						
	Dowel bars : 16 Dia.	6	3.86	@	1.58	36.59Kg	87.95Kg
6.	**Formwork for column and footing**						
	Column above plinth	4		0.3	4	4.8m3	10.52m3
	Column below plinth	4		0.4	2.4	3.84m3	

.

Abstract sheet for Entry Gate

No.	Item	Qty	Rate.	Per	Amount Rs.
	Beam				
1.	**R.C.C 1:2:4**	1.728M3	900	1m3	15552
2.	**Formwork for beam** Vertical bars of column 12mm dia - 6 nos. L=4.2m =Total excavation – PCC – Footing without slope – footing with slope – column below	45358m3 4.2	120 @	1m3 0.89	5470
3.	**Total quantity of steel in kg**	204.05Kg	50	1m3	10203
	Total amount				31225
	Column & Footing				
4	**Excavation for foundation**	1.4m3	90	1m3	126
5	**Filling of foundation trench**	0.624m3	55	1m3	34.32
6	**P.C.C. 1 : 4 : 8**	0.1m3	2600	1m3	260
7	**R.C.C. 1: 2 : 4**	1.35m3	9000	1m3	12150
8	**Column footing bars in kg**	87.95kg	50	1kg	4375
9	**Column footing formwork**	10.52m3	120	1m3	1262
	Total amount				18207
Total amount =Total 2 Nos. column and footing + beam **= (2 x 18207) + 31225 = 67639**					

Figure 34: Elevation of entrance gate

.

8.1.5 Social Design:

School sanitary Design:

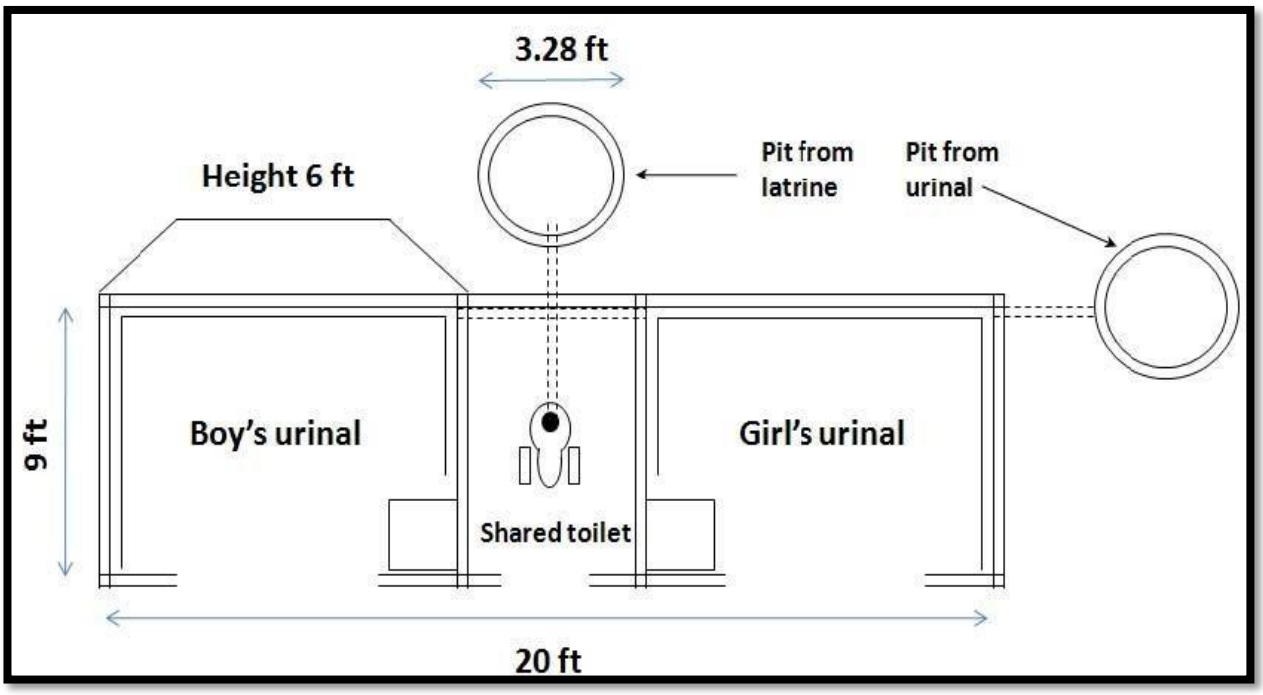

Figure 35: School sanitary complex

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 9: 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 – reinforcedslab 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

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8.1.6 Sustainable Design (Civil)

Design of Dwelling House:

- **Drawing Details of Dwelling house:-**

Structure life	28 YEARS
Average Use	5 – 8
Size of floor	8.6m x 7.3m
Plinth level above G.L.	0.6m
Height of stairs	0.45m
Roof	4.5 inch thick RCC slab

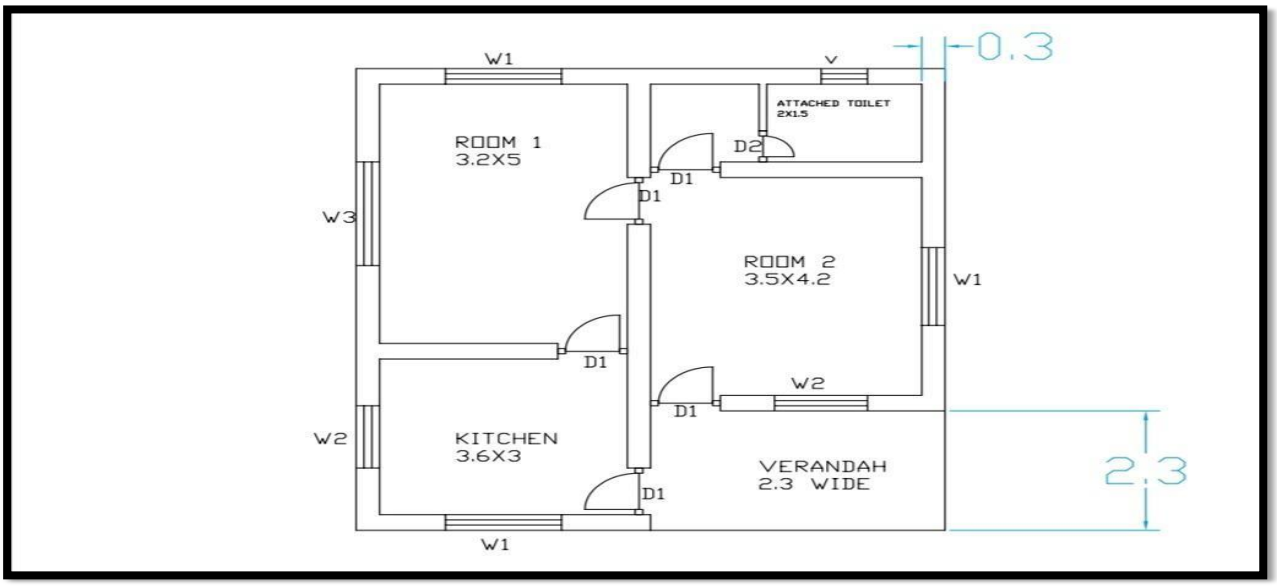

Figure 36: Plan of dwelling house

Figure 37: Front view of house

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Estimation of cost of pucca house:-

Table 10: Measurement sheet

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	90	3956
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	3500	87395
Brick Masonry above plinth 1:6	1	47.9	0.2	3.0	22.52 m^2	3600	81072
Smooth plaster	--	--	--	--	219.3 m^2	150	32895
2 cm thick marble flooring					55.19 m^2	500	27595
RCC work in slab, chajja and linted					0.646 m^3 5.57 m^3 6.216	8000	54700
TOTAL :- 2,87,613 Rs.							

Add 1.5 % of water charges = 0.015 x 2,87,613 = 4315

Add 10 % of contractor's profit = 0.10 x 2,87,613

= 28765

GRAND TOTAL = 3,20,693 ₹

.

Figure 38: Dwelling House

8.2 Reason for Students Recommending this Design:

- For bus stop, it is spotted outside from village so villagers can‘t use it and it also not in workingcondition.so we design bus stop inside the village.
- For anganwadi, it is very bed condition and the building old from last 30 year and not properfacilities provide in this building. Villagers also want to rebuild their anganwadi.
- For Entrance gate, Village looks beautiful from entrance.

8.3 Benefit of the villagers

- The various benefits of new development or design by students are as bellow…

1. To Meet the Population Amenities.
2. To Design Eco-Sanitation System for Public Toilet to Reduce the Cost of the Construction andMeet the Government Tender Requirement.
3. The Developed new Panchayat Building 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 Established new Technology for the Anganwadies like Theater or Online Teachingthrough new Story about India.
7. To Design Mobile Toilets in the Village to Meet Public Amenities every day and Big Festival.

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9. PROPOSING DESIGNS FOR FUTURE DEVELOPMENT OF THE VILLAGE FOR THE PART-II DESIGN

1 Gym:

Gym will be providing fitness to youth of village.

2 Library:

At least one library should exist in village so students can take knowledge from sources which are available in library.

3 Public garden:

Children, young people can play in public garden and senior citizen can walk or sit in garden.

4 Rain water harvesting:

It will be use for storing rain water for long time.

5 Bank:

Villagers can deposit or withdraw their money and also take a loan from the bank.

6 Biogas plant:

Villager get natural gas from biogas plant and it helps to reduce air pollution. And animal's dry dung can be used in farms for fertilizing.

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10. CONCLUSION

The vishwakarma Yojana given all the design which is implemented in the Sariyad village to developed the rural area to urban area. We visit the village and meet the sarpanch and talati of the village and discuss about the infrastructure facilities available in village and other details about village. We list out the problems which villagers are facing in day to day life. Than we analysis the data collected and the list of problems and finding out the suitable mode of the solution for the particular problem.

The main objective is “All the Village Developing with Rural Solution but the all Smart Urban Facilities may have”. To remember this objective to develop smart village facilities in suitable manner and reduce the migration and pollution in environment. The Smart Villages have suitable energy resources or services for development to provision of good education, health facilities, clean water, sanitation and nutrition, to increase the productive enterprise to boost the income or wealth, security, generate equalities in both sides and many all types of infrastructures. This all the facilities provide in the rural village to develop or carry it to urban cities. To use the Smart village (Ideal village) in reference to developed all the villages in the India. To provide best infrastructure facilities in the village to promote the overall income wealth and economy in the areas. This main objective to carries Vishwakarma Yojana: to developed the entire village in one by one in the nearest cities to more away.

From the take good decision to develop the Good Economic Profile, Good Employment Solution from smart village examples.

The main aim is to implement the project to provide all the facilities in both sides rural & urban to decrease the migration. The rural sector will under developed in which there are many employments promote from the agriculture areas and also boost to all peoples to livelihoods in good or attempt infrastructure.

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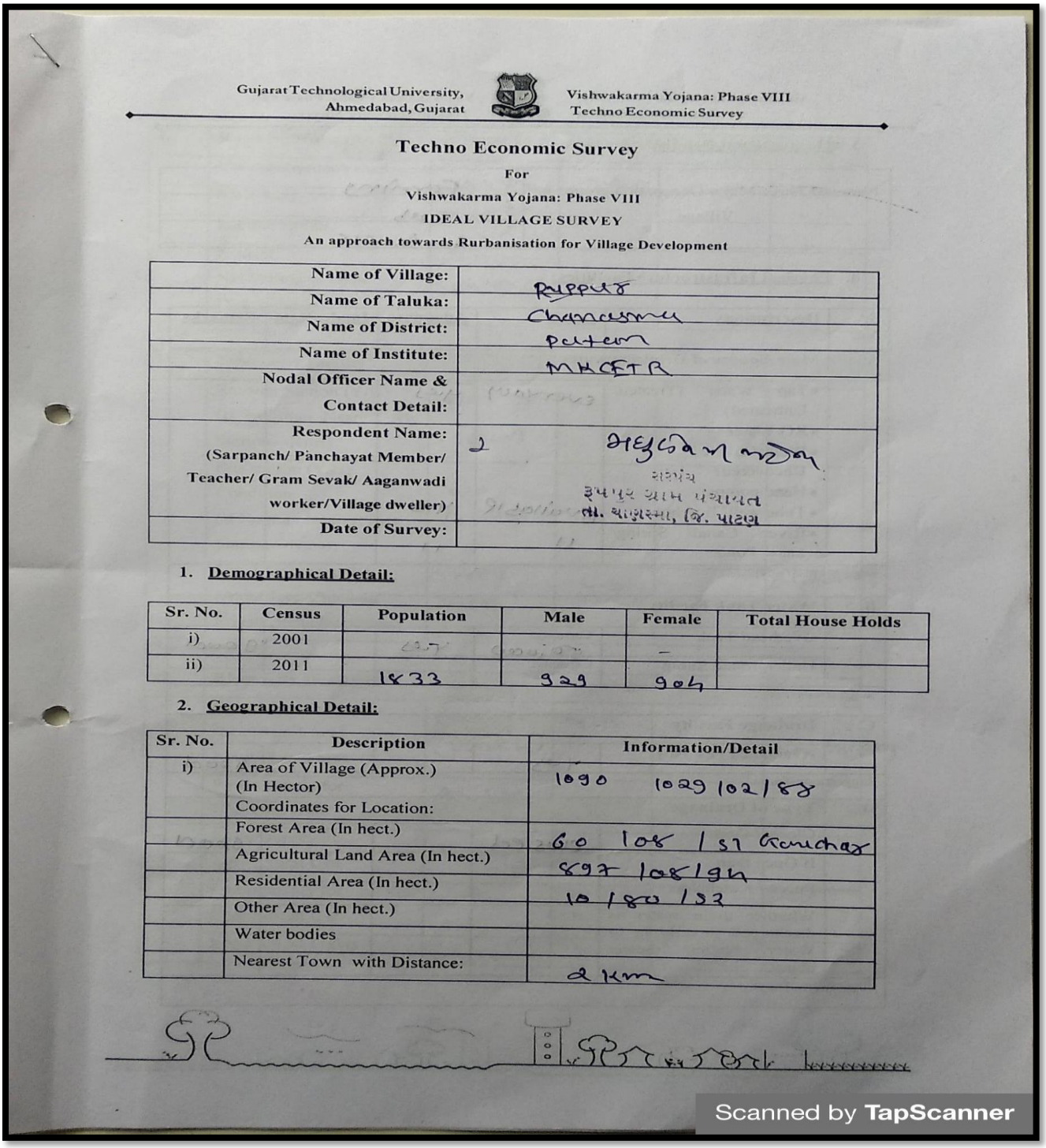
12. ANNEXURE ATTACHMENT

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

Survey form of Ideal Village Original copy attachment in the report for Part-II



Gujarat Technological University, Ahmedabad, Gujarat

Vishwakarma Yojana: Phase VIII
Techno Economic Survey

Techno Economic Survey

For

Vishwakarma Yojana: Phase VIII

IDEAL VILLAGE SURVEY

An approach towards Rurbanisation for Village Development

Name of Village:	Rampur
Name of Taluka:	Chanasma
Name of District:	Patan
Name of Institute:	MHCET R
Nodal Officer Name & Contact Detail:	
Respondent Name: (Sarpanch/ Panchayat Member/ Teacher/ Gram Sevak/ Aaganwadi worker/Village dweller)	2 [illegible] સરપંચ રૂપપુર ગ્રામ પંચાયત તા. ચાણસ્મા, જિ. પાટણ
Date of Survey:	

1. **Demographical Detail:**

Sr. No.	Census	Population	Male	Female	Total House Holds
i)	2001	[illegible]	[illegible]	–	
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 102/88
	Forest Area (In hect.)	60 108/1 Gauchar
	Agricultural Land Area (In hect.)	897 108/1
	Residential Area (In hect.)	10/80/33
	Other Area (In hect.)	
	Water bodies	
	Nearest Town with Distance:	2 km

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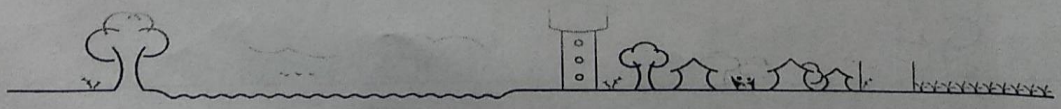
Techno Economic Survey

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 • Tube well/ Borehole • River/ Canal/ Spring/ Lake/ Pond	everyday Available "	yes 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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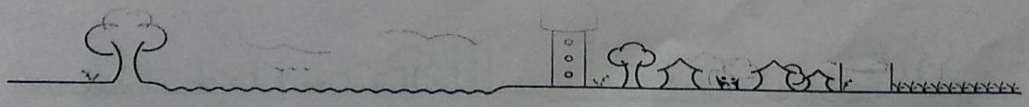
Vishwakarma Yojana: Phase VIII
Techno Economic Survey

E.	**Road Network :All Weather/ Kutchha (Gravel)/ Black Topped pucca/ WBM**				
	Village approach road	300 m	Yes		All weather
	Main road	3000 m	"		"
	Internal streets	23	"		"
	Nearest NH/SH/MDR/ODR Dist. in kms.	300 m	"		"
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		24 x 7 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	"		



	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 11		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	11		good
	Art, Commerce& Science /Polytechnic/ Engineering/ Medical/ Management/ other college facilities	Arts, commerce college	11		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			"
	Recreation Center Location: Condition:	-			
	Cinema/ Video Hall Location: Condition:	-			
	Assembly Polling Station Location: Condition:	Yes	Primary School		"
	Birth & Death Registration Office Location: Condition:	good condition	Panchayat		"
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				

	General Market				
	Shops (Public Distribution System)	good	Adequate		
	Panchayat Building	〃	〃		
	Pharmacy/Medical Shop				
	Bank & ATM Facility	〃	〃		
	Agriculture Co-operative Society				
	Milk Co-operative Soc.	〃	〃		
	Small Scale Industries	〃	〃		
	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	

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Vishwakarma Yojana: Phase VI
Techno Economic Survey

Recent Projects going on for Development of Village	Govt.
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

સરપંચ
રૂપપુર ગ્રામ પંચાયત
તા. ચાણસ્મા, જિ. પાટણ

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FIGURE: 39 IDEAL VILLAGE SURVEY

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

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Vishwakarma Yojana: Phase VIII Techno Economic Survey

Techno Economic Survey

Vishwakarma Yojana: Phase VIII

SMART VILLAGE SURVEY

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

Name of District:	Patan
Name of Taluka:	Chanasma
Name of Village:	RupPur
Name of Institute:	MKCETR.
Nodal Officer Name & Contact Detail:	
Respondent Name: (Sarpanch/ Panchayat Member/ Teacher/ Gram Sevak/ Aaganwadi worker/Village dweller)	[illegible] 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 / 02 / 88
2.	Forest Area (In hect.)	60 / 08 / 51 Gauchar
3.	Agricultural Land Area (In hect.)	897 / 08 / 94
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.	Cotton
	3.	Custard

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	Everyday	Yes		
2.	**DUG WELL** Protected Well Un Protected Well				
3.	**WATER FROM SPRING** Protected Spring Unprotected Spring	Facility available	Yes		
	Rainwater Tanker Truck Cart With Small Tank				
4.	**SURFACE WATER (RIVER/DAM/ LAKE/POND/STREAM/CANAL/** Irrigation Channel		Yes		
	Bottled Water Hand Pump Other(Specify)**Lake/ Pond**	Pond	Yes		

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Suggestions if any:					
B.	**Water Tank Facility**				
	Overhead Tank	Capacity: 50,000	Yes		good
	Underground Sump	Capacity:			
Suggestions if any:					
C.	**The Type of Drainage Facility**				
	A. UNDERGROUND DRAINAGE 1 2 B. OPEN WITH OUTLET C. OPEN WITHOUT OUTLET	Yes (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 weathrey
	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 Kms)			
	Bus station (Y/N) Condition: (If No than Nearest Bus Station---Kms)	NO (4 Kms)			
	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. (PGVCL)	Yes		24 x 7 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 & tourism place
	TUBE WELL.				
	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		Available
	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 college	yes		good
	If any of the above Facility is not available in village than approx. distance from village: .....kms.				

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Suggestions if any:

L.	Socio- Culture Facilities	Condition	Location	Available (YES)	Available (NO)
	Community Hall (With or without TV)	-	-	-	-
	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 coop - erative 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		11	
	8. Mahila Mandal Protsahan Yojana (MMPY)	good			
	9. National Food for work Programme (NFFWP)				
	10. National Social Assistance Programme	good		11	
	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		yes	
	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				

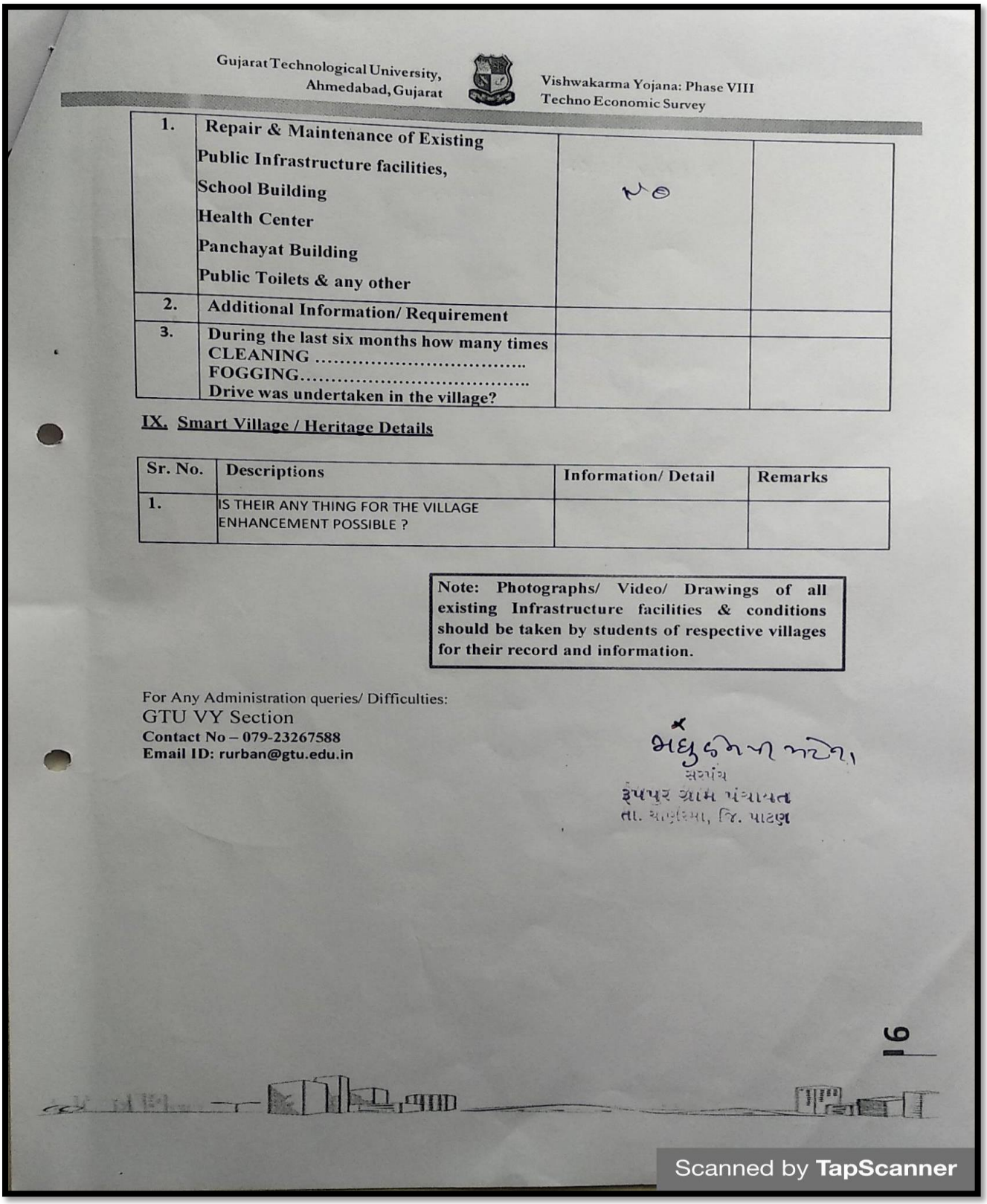
VII. DATA COLLECTION FROM VILLAGE

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

8



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1.	Repair & Maintenance of Existing Public Infrastructure facilities, School Building Health Center Panchayat Building Public Toilets & any other	૫૦	
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

સરપંચ
રૂપપુર ગ્રામ પંચાયત
તા. [illegible], જિ. પાટણ

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FIGURE 40: SMART VILLAGE SURVEY

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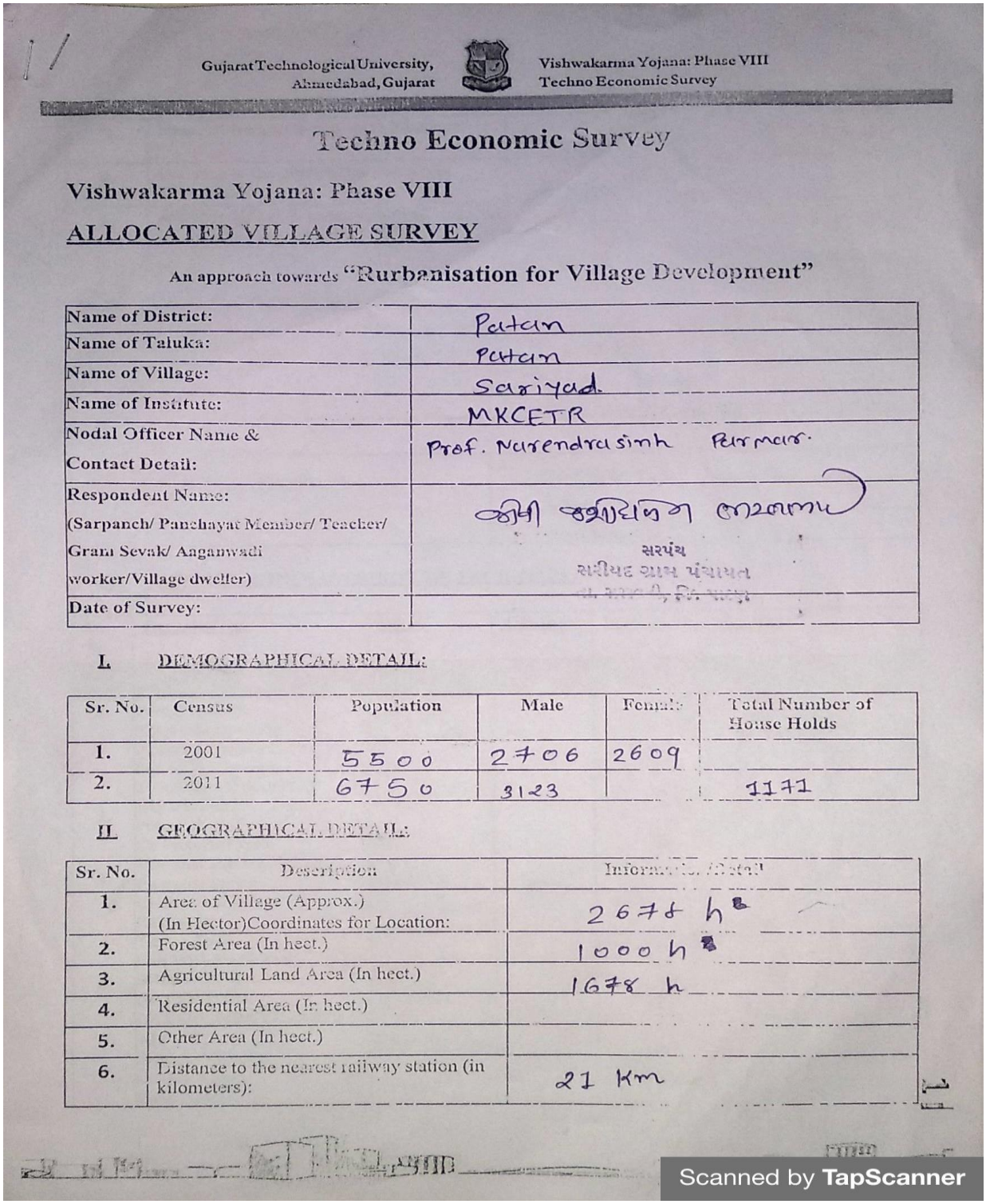
12.3 SURVEY FORM OF ALLOCATED VILLAGE SCANNED COPY ATTACHMENT IN THE REPORT FOR PART-I



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Vishwakarma Yojana: Phase VIII
Techno Economic Survey

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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:	Sariyad.
Name of Institute:	MKCETR
Nodal Officer Name & Contact Detail:	Prof. Narendra sinh Parmar.
Respondent Name: (Sarpanch/ Panchayat Member/ Teacher/ Gram Sevak/ Aanganwadi worker/Village dweller)	સરપંચ શરીયદ ગ્રામ પંચાયત
Date of Survey:	

I. DEMOGRAPHICAL DETAIL:

Sr. No.	Census	Population	Male	Female	Total Number of House Holds
1.	2001	5500	2706	2609	
2.	2011	6750	3123		1171

II. GEOGRAPHICAL DETAIL:

Sr. No.	Description	Information Detail
1.	Area of Village (Approx.) (In Hector)Coordinates for Location:	2678 h
2.	Forest Area (In heet.)	1000 h
3.	Agricultural Land Area (In heet.)	1678 h
4.	Residential Area (In heet.)	
5.	Other Area (In heet.)	
6.	Distance to the nearest railway station (in kilometers):	21 Km

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7.	Name of Nearest Town with Distance:	Dhaneery 5 km B.K
8.	Distance to the nearest bus station (in kilometers):	Patan 20 km
9.	Whether village is connected to all road for the any facility or town or City?	SARIYAD velloda mota

III. OCCUPATIONAL DETAILS:

Name of Three Major Occupation groups in Village	1.	Farmers
	2.	Farm labour.
	3.	Shop keeper / Bysness men.

Major crops grown in the village:	1.	Mustard
	2.	Wheat
	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	Everyday	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	Facility available	Yes		
4.	**SURFACE WATER (RIVER/DAM/ LAKE/POND/STREAM/CANAL/** Irrigation Channel Bottled Water Hand Pump	Canal / Pond	Yes		Good

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Vishwakarma Yojana: Phase VIII
Techno Economic Survey

	Other(Specify)Lake/ Pond	Anushya Van lake	Yes		Good
Suggestions if any:					
B.	**Water Tank Facility**				
	Overhead Tank	Capacity:	1,00,000lt		Good.
	Underground Sump	Capacity:			
Suggestions if any:					
C.	**The Type of Drainage Facility**				
	A UNDERGROUND DRAINAGE 1	Under-ground.	Yes		modrate.
Suggestions if any:					
D.	**Road Network :All Weather/ Kutchha (Gravel)/ Black Topped pucca/ WBM**				
	Village approach road	Double lane	Yes		Good
	Main road	Double lane	Yes		Good
	Internal streets	RCC	Yes		Good
	Nearest NH/SH/MDR/ODR Dist. in kms.	SH - 130	Yes		Good
Suggestions if any:					
E.	**Transport Facility**				
	Railway Station (Y/N) (If No than Nearest Rly Station---Kms)	No (21 Km)			
	Bus station (Y/N) Condition: (If No than Nearest Bus Station---Kms)	No (20 Km)			
	Local Transportation (Auto/ Jeep/Chhakda/ Private Vehicles/ Other)	Auto / Jeep	Yes		Good
Suggestions if any:					
F.	**Electricity Distribution**				
	(Y/N) Govt./ Private (Less than 6 hrs./ More Than 6 hrs)	24 hours	Yes		Good

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	Power supply for Domestic Use	24 hour	yes		Good
	Power supply for Agricultural Use	8 hour	yes		Good
	Power supply for Commercial Use	24 hour	yes		Good
	Road/ Street Lights	12 hour	yes		Good
	Electrification in Government Buildings/ Schools/ Hospitals	24 hour	yes		
	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)	-			
	Solid & liquid waste Disposal system available	NO			
	Any facility for Waste collection from road	yes	yes		Good
Suggestions if any:					
H.	**Main Source of Irrigation Facility:**				
	TANK/POND	Pond	yes		Good
	STREAM/RIVER				
	CANAL	Canal	yes		Good
	WELL				
	TUBE WELL.	Farmer 200	yes		Good
	OTHER (SPECIFY)	Tube well			
Suggestions if any:					
I.	**Housing Condition:**				
	Kutchha/Pucca (Approx. ratio)	Pucca 80%. Kutchha 20%.	yes		Good

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V. SOCIAL INFRASTRUCTURAL FACILITIES:

Sr. No.	Descriptions	Information/ Detail	Adequate	Inadequate	Remarks
J.	**Health Facilities:**				
	ICDS (Anganwadi)	6	yes		
	Sub-Centre				Good condition
	PHC	1	yes		
	BLOCK PHC				
	CHC/RH	1	yes		
	District/ Govt. Hospital				
	Govt. Dispensary				
	Private Clinic				
	Private Hospital/ Nursing Home				
	AYUSH Health Facility	*			
	sonography /ultrasound facility				
	If any of the above Facility is not available in village than approx. distance from village: ..20....kms.				
Suggestions if any:					
K.	**Education Facilities:**				
	Aaganwadi/ Play group	6	yes		Good
	Primary School	1	yes		Good
	Secondary school	1	yes		Good
	Higher sec. School	1	yes		Good
	ITI college/ vocational Training Center				
	Art, Commerce& Science /Polytechnic/ Engineering/ Medical/ Management/ other college facilities				

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

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

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

Suggestions if any:

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

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

Suggestions if any:

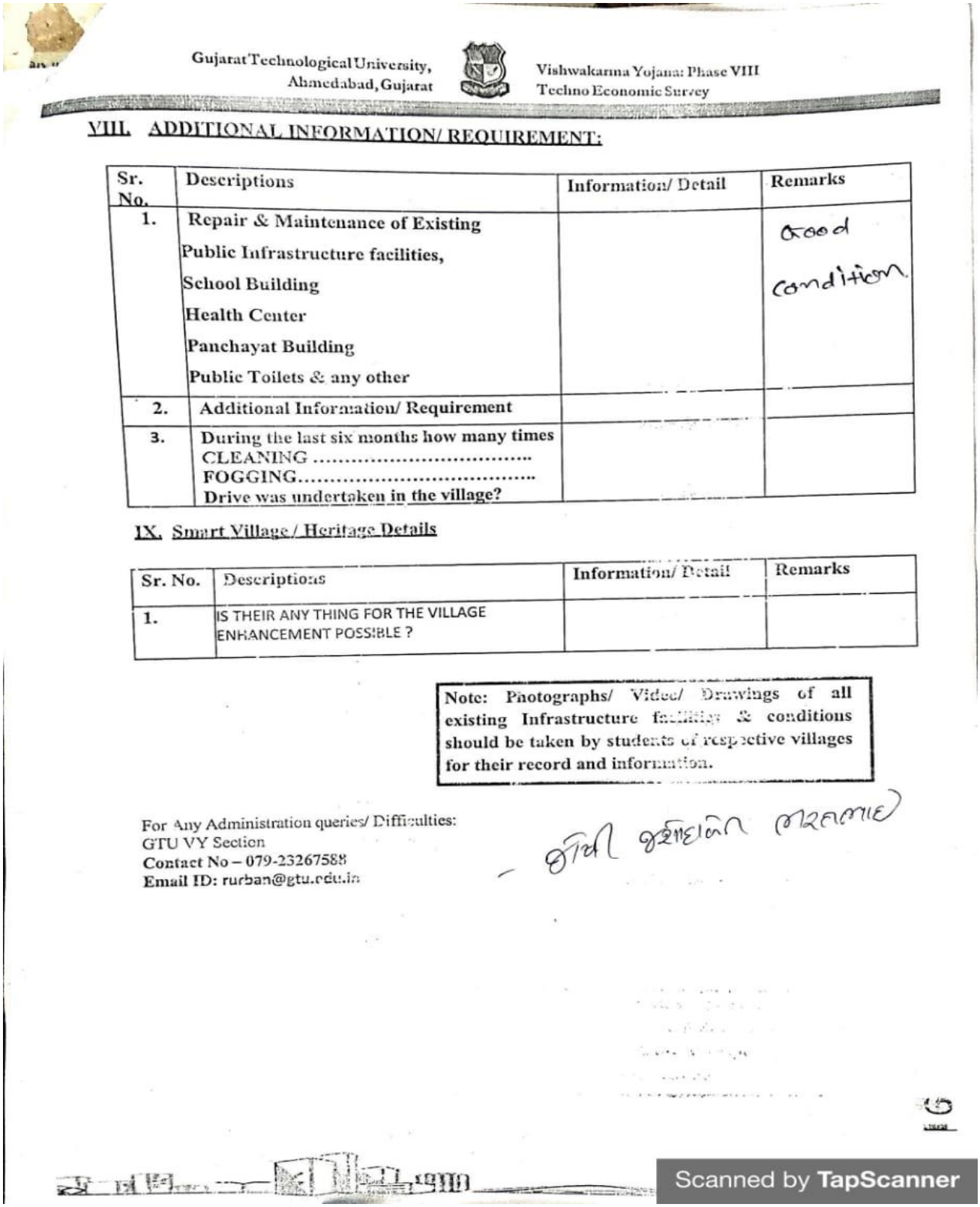
N.	Other Facilities	Condition		Available (YES)	Available (NO)
	1. Have these programme implemented the village?			yes	
	2. Are there any beneficiaries in the village from the following programme?			yes	
	3. Janani Suraksha Yojana			yes	
	4. Kishori Shakti Yojana			yes	
	5. Balika Samriddhi Yojana			yes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

VI. SUSTAINABLE /GREEN INFRASTRUCTURE FACILITIES:

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

VII. DATA COLLECTION FROM VILLAGE

Sr. No.	Descriptions	Information/ Details	Adequate	Inadequate	Remarks
1.	illage Base Map Available: Hard Copy/Soft Copy				
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 condition.
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

Scanned by TapScanner

FIGURE: 41 ALLOCATED VILLAGE SURVEY

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12.4 GAP ANALYSIS

12.4.1 GENERAL:

First of all we collect the all data related to the village from our survey by various means like gram-panchyat, house to house survey. Than after we compared our data with the UDPFI guidelines. And by comparing the village data with the standard UDPFI guidelines we have done the gap analysis by following table.

12.4.2 GAP ANALYSIS:

Following table show the key observation for the village which shows insufficiency or oversufficiency of facilities.

Table 11: GAP ANALYSIS

VILLAGE GAP Analysis					
Village Facilities	**Planning Commission/ UDPFI Norms**	**Village Name:**	**SARIYAD**		
		Population: 6750			
		Existing	**Required as per Norms**	**Future Projection Design**	**Gap**
Social Infrastructure Facilities					
Education					
Anganwadi	Each or Per 2500 population	**6**	**2**		**0**
Primary School	Each Per 2500 population	**1**	**1**		**0**
Secondary School	Per 7,500 population	**1**	**1**		**0**
Higher Secondary School	Per 15,000 Population	**1**	**1**		**0**
College	Per 125,000 Population	**0**	**0**		**0**
Tech. Training Institute	Per 100000 Population	**0**	**0**		**0**
Agriculture Research Centre	Per 100000 Population	**0**	**0**		**0**
Skill Development Center	Per 100000 Population	**0**	**0**		**0**
Health Facility					

.

Govt/Panchyat Dispensary or Sub PHC or Health Centre	Each Village	**1**	**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**		**0**
Multispeciality Hospital	Per 100000 Population	**1**	**0**		**0**
Public Latrines	1 for 50 families (if toilet is not there in home, specially for slum pockets & kutcha house)	**0**	**2**		**2**
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 Public Library	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 are available	**no**			
Electrical Design					
Electricity Network	**UGVCL**	**Adequate**	66 KV Substation		
Any Smart Village Facility					
Technology					
		ESR cap	**0**		**0**
		Sump cap	**0**		**0**
		Lat	**0**		**0**

12.4.3 PROJECTION OF DATA:

We have done the data projection by geometric increase method which is simple and reliable method of growth projection.

year	Population	Increase in population	% increase	Growth rate
2001	5500	-	-	-
2011	6750	1250	1250 / 5500	22.72

P $_{2021}$ **=** 9750+0.2272 x 6750

= 8283

P $_{2031}$ **=** 8283 + 0.2272 x 8283

= 10164

P $_{2041}$ **=** 10164 + 0.2272 x 10164

= 12473.

.

12.5 Summary of Good Photographs in Table Format (village visits, Ideal, Smart Village or any other)

No.	Village	Design part-1	Design part-2
1	**Sariyad**	1 Bus stop	Public garden
		2 Auditorium	Gym
		3 Anganwadi	Library
		4 Entrance gate	Rain water harvesting
		5 School sanitation system	Bank
		6 Dwelling house	Bio gas Plant
2	**Nayta**	1 Pucca dwelling house	Elevated water tank
		2 Community hall	Approach road
		3 Public toilet	School sanitary Design
		4 ATM	Post office
		5 Chabutara	Anganwadi
		6 Bio gas plant	Village chowk
		7 Solar street light	Automatic water level controller
		8 Automation power system with prepaid energy meter	Automatic LED emergency light
		9 Panel rooftop system	Three phase fault analysis
3	**Kungher**	1 Bus stop	Overhead water tank
		2 Water tank	Water tank
		3 Gate	Pipe culvert
		4 Solar street light	Sencer based gas leakage detector system
		5 Solar water pump	Automatically trip coil
		6 Solar rooftop system connected grid	PLC based control solar tracking system

12.6 Summary of Good Photographs in Table Format (village visits, Ideal, Smart Village or any other)

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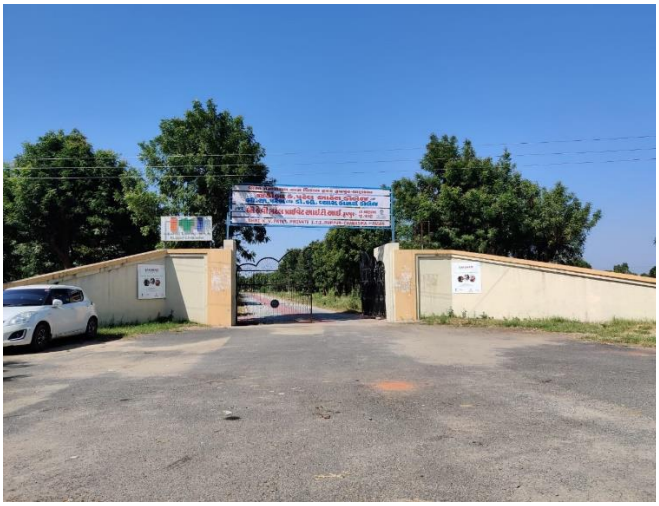

Arts, Commerce and ITI College

Harshiddh Lake

Village Panchayat

Health and Wellness Center

Paver Block in whole Village

Community Hall

.

Dudh Sarita

Park

Proper Drainage Facility

Bank

Garden near Lake

Harshidh Mata Temple

FIGURE: 42 Summary Picture

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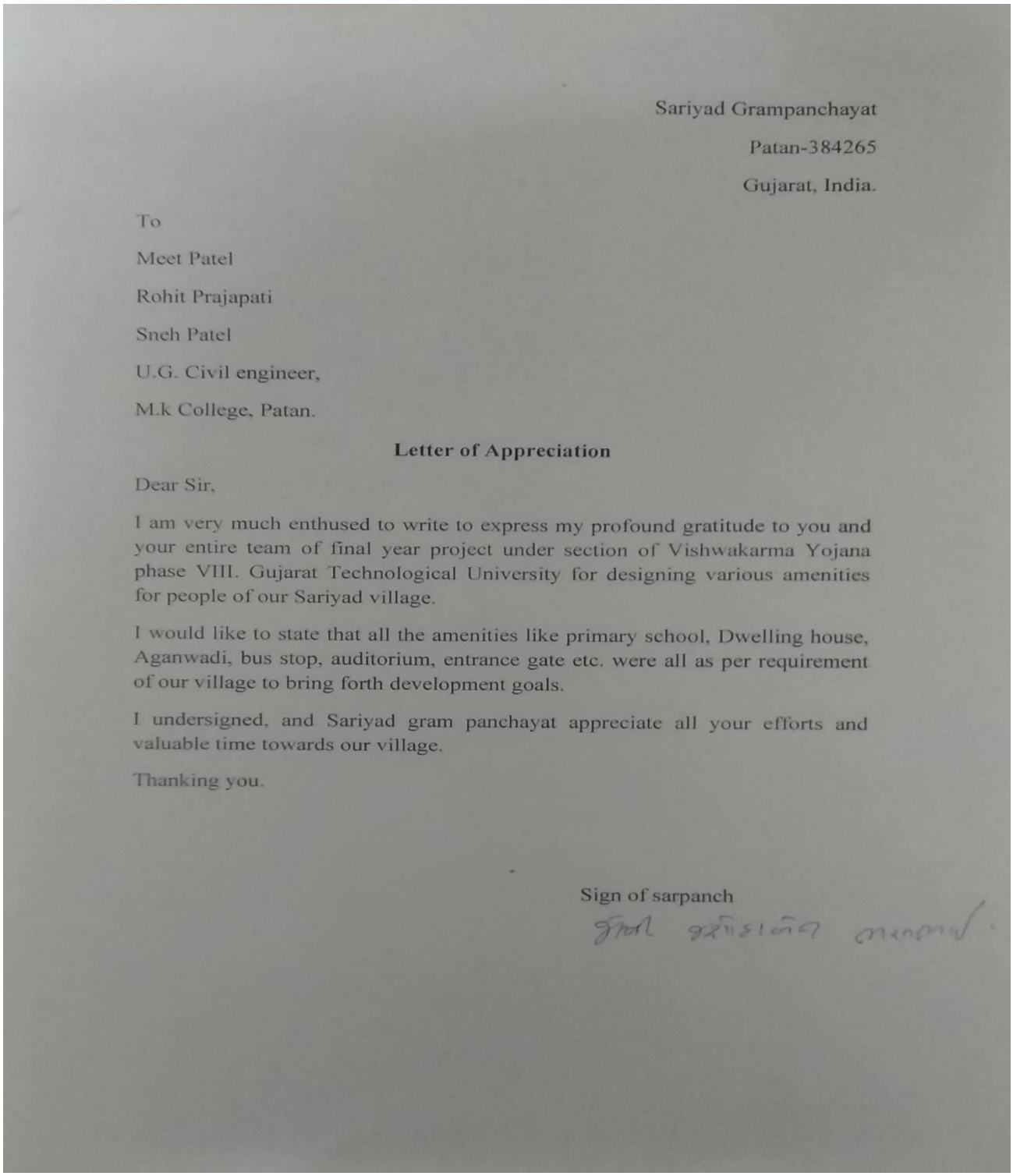
12.7 Sarpanch letter giving information about the village development.



Sariyad Grampanchayat

Patan-384265

Gujarat, India.

To

Meet Patel

Rohit Prajapati

Sneh Patel

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 Sariyad 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 Sariyad gram panchayat appreciate all your efforts and valuable time towards our village.

Thanking you.

Sign of sarpanch

Figure 43: Sarpach letter

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

13.1 Design proposal

13.1.1Civil design 1:- Public Garden

- Sariyad village has not any garden or public park.
- So, we design Public Park for village and this park is on smart village concept.
- There are many play instruments which will be useful for children.
- It will helps child to play in secure place, old peoples can gather with their friends and enjoy there.

Calculation for Public garden:-

There are no heavy structure in public garden so there are no required of deep excavation so its cost will be negligible.

"This estimate was calculated on paper and here are its direct values."

Sr. no	Item description	Nos.	Estimate value
1	Fences around garden	-	37,048
2	Rest room	2	67,870
3	toilet	2(girls & boys)	47,380
4	Play Equipment	1 – Slider 3 – Swings 2- See saw	10,000 (approx.)
		Total = 1,62,298 Rs.	

.

Elevation of public garden

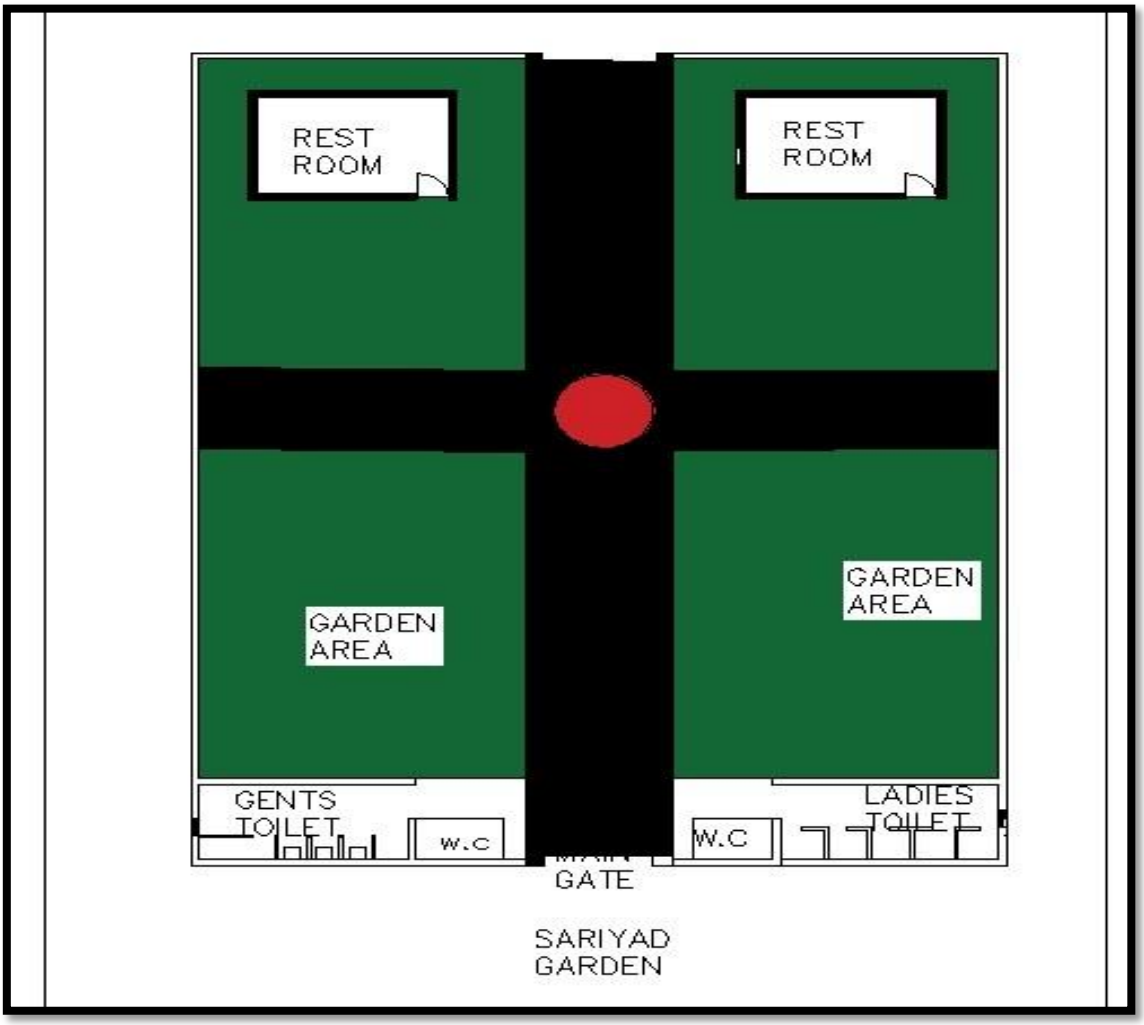

Fig 44: Plan of public garden

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13.1.2 Civil design 2 :- Gym

- Sariyad village has no gym or fitness facilities.
- So, we design Gym for people of village.
- There are many latest instruments which will be useful for build fitness.
- It will helps young people for build fitness.

Calculation for Gym:-

Table 12: Measurement Sheet

Sr. no	Item Description	No.	Length (m)	Breadth (m)	Height (m)	Quantity
1	Earth work in Excavation L = 48.76 – (0.5*0.9*2)	1	47.86	0.9	0.3	12.92 m^3
2	PCC (1:3:6) in Foundation	1	47.86	0.9	0.3	12.92 m^3
3	First class brickwork up toplinth (1:6) L = 47.86 – (0.5*0.2*2)	1	47.66	0.22	0.60	6.29 m^3
4	First class brickwork above the plinth up to first floor	1	47.66	0.22	3.04	31.88 m^3
Door & Window deduction						
	D	1	1.21	0.2	2.1	0.5182
	D1	1	0.91	0.2	2.1	0.3822
	W	6	3.04	0.2	1.21	4.41
						=5.31 m^3
Net Quantity						=26.57m^3

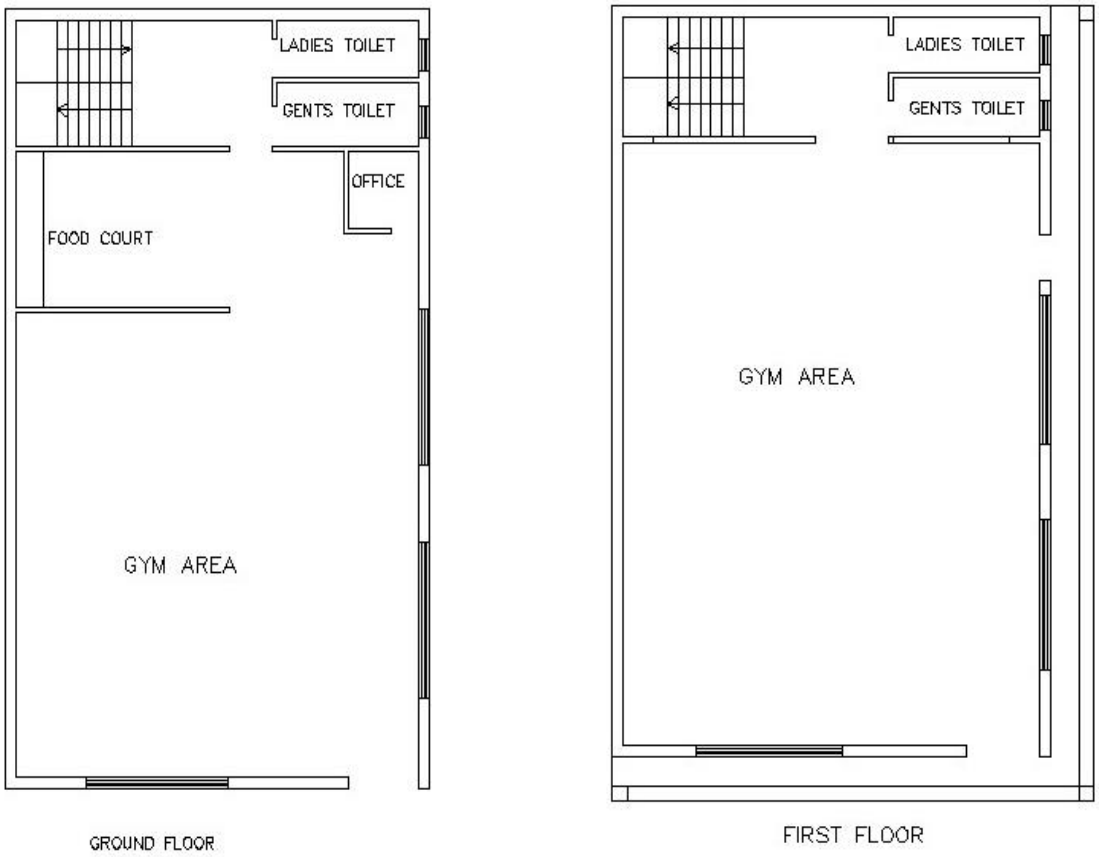
Abstract sheet quantities

Sr. no	Particulars	Quality m^3	Per 10 m^3	Total Amount Rs.
	Excavation for foundation	12.92	800	10,336
	Cement concrete 1:4:8 in foundation	12.92	3500	45,220

.

	Brick bat cement in foundation (1:4:8)	6.29	3000	18,870
	First class brickwork in C.M. 1:6 in Superstructure(up to First Floor)	26.57 x 2 (floor)	7500	3,98,550
Net Amount of Cost up to First Floor Level				4,72,976

4,72,976 + 1,10,000 (Gym equipments) = 5,82,976 Rs.



Plan of Gym

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External elevation of Gym

Fig 45: Interior of Gym

13.1.3 Civil design 3:- Library

- Sariyad village has no library for reading and book storage.
- So, we design Library for students and who interested for reading.
- There are many latest books and materials which will be useful for knowledge improvement.
- It will help students to get more knowledge and read in peaceful atmosphere.

.

Table 13: Measurement sheet & Abstract sheet quantities

Sr. no	Item Description	No.	Length (m)	Breadth (m)	Height (m)	Quantity
1	Earth work in Excavation L = 48.76 – (0.5*0.9*2)	1	47.86	0.9	0.3	12.92 m^3
2	PCC (1:3:6) in Foundation	1	47.86	0.9	0.3	12.92 m^3
3	First class brickwork up toplinth (1:6) L = 47.86 – (0.5*0.2*2)	1	47.66	0.22	0.60	6.29 m^3
4	First class brickwork above the plinth up to first floor	1	47.66	0.22	3.04	31.88 m^3
Door & Window deduction						
	D	1	1.21	0.2	2.1	0.5182
	D1	1	0.91	0.2	2.1	0.3822
	W	6	3.04	0.2	1.21	4.41
						=5.31 m^3
Net Quantity						=26.57m^3

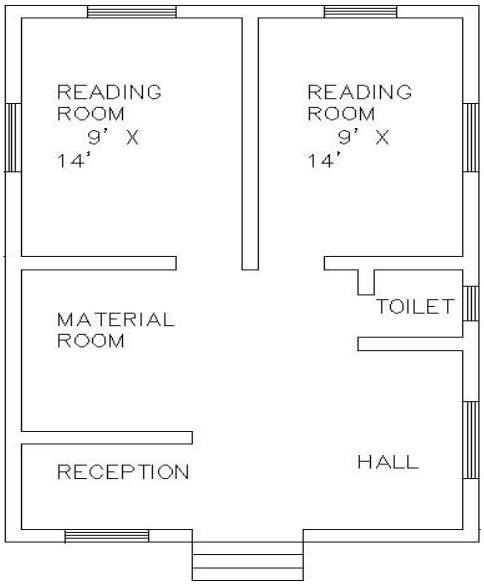
5	Smooth plaster on inside walls and ceiling(1:3)					
	Reading room walls	8	28.04	0.2	3	16.824 m^2
	Hall + material room walls	4	17.8	0.2	3	10.68 m^2
	Reception	4	7.86	0.2	3	4.71 m^2
					Total quantity with deduction = 26.9 m^2	
6	RCC Slab	1	9	6	0.10	5.4 m^3

Sr no.	Particulars	Quantity per m^3	Rate	Per	Total amount Rs.
1.	Excavation	12.92	800	m^3	10,336
2.	P.C.C	12.92	3500	m^3	45,220
3.	Brick work up to plinth	6.29	7500	m^3	47,175
4.	Brick work plinth	26.57	7500	m^3	2,00,025

.

	to first floor				
5.	Smooth plaster	26.9	150	m^2	4035
6.	RCC slab	5.4	6000	m^3	32,400

Total cost of library = 3,39,191 Rs.



Library Plan

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Fig: 46 Elevation of Library

13.1.4 Civil design 4:- Rain water harvesting.

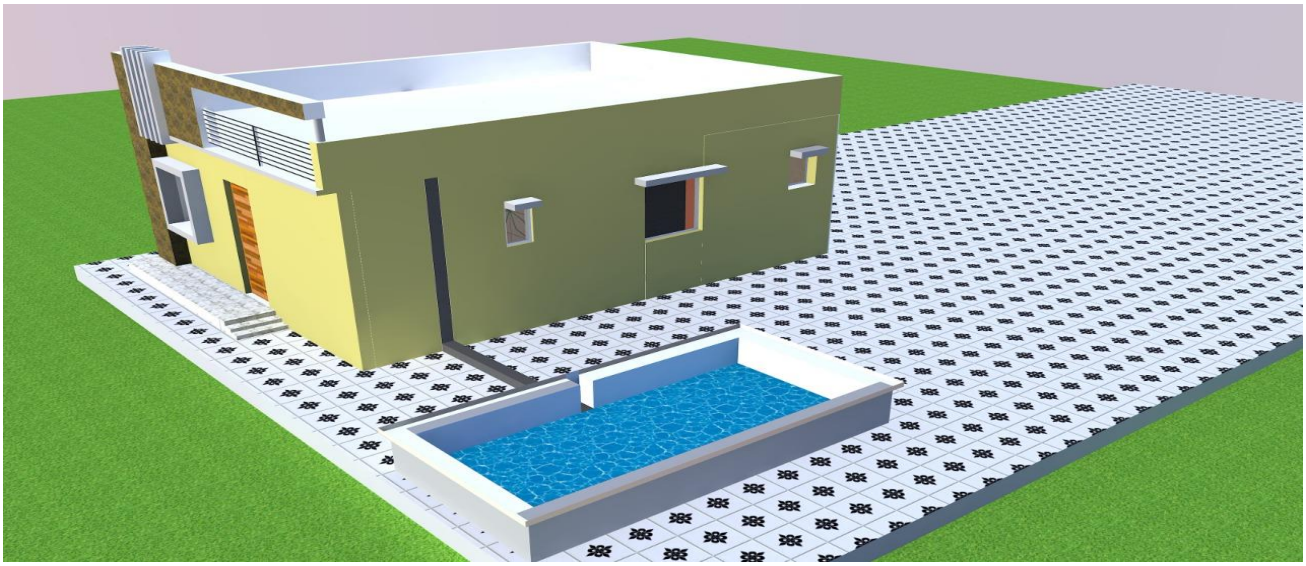
- Sariyad village has only one reservoir which is a lake. So we decide that make another reservoir at every home or every streets of village.
- We named our design Rain Water Harvesting.
- Villagers can use this water for long times.

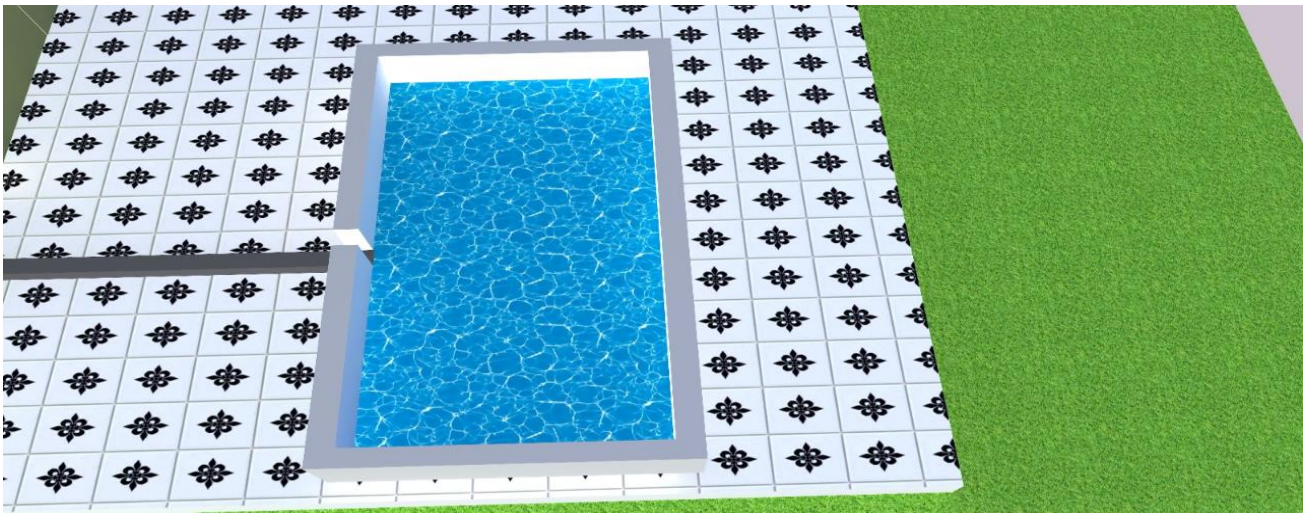
Table 14: Abstract sheet quantities

Item No.	Description of items	Qty	Units	Rate	Amount
1	Total Excavation Work for foundation	67	m^3	625	41,875
2	Providing and laying cement concrete 1:3:6 machine cut metal 40mm nominal size P.C.C work	14.56	m^3	2500	36,400
3	Providing and laying cement concrete 1:2:4 machine cut metal 20mm nominal size Raft at foundation work	14.56	m^3	4000	58,240
4	Providing and laying cement concrete M-200 R.C.C work with curing etc. completed including R.C.C wall	9.11	m^3	5250	47,828
5	Providing and laying cement concrete M-200 R.C.C work with curing	14.56	m^3	5500	80,080

.

	etc. completed including R.C.C slab				
6	Providing and laying Reinforcement for R.C.C work including bending binding and placing to TMT bar IS: 1786/FE 415	300	KG	60	18000
7	Supplying and fixing CI manhole cover 60 x 60 cm size	1	Nos.	1599	1599
				Total Amount	2,90,022
				Add charge 5%	14,500
				Profit at cont. 10%	29,000
				Net Amount	3,33,522 /-





Elevation of Rain Water Harvesting

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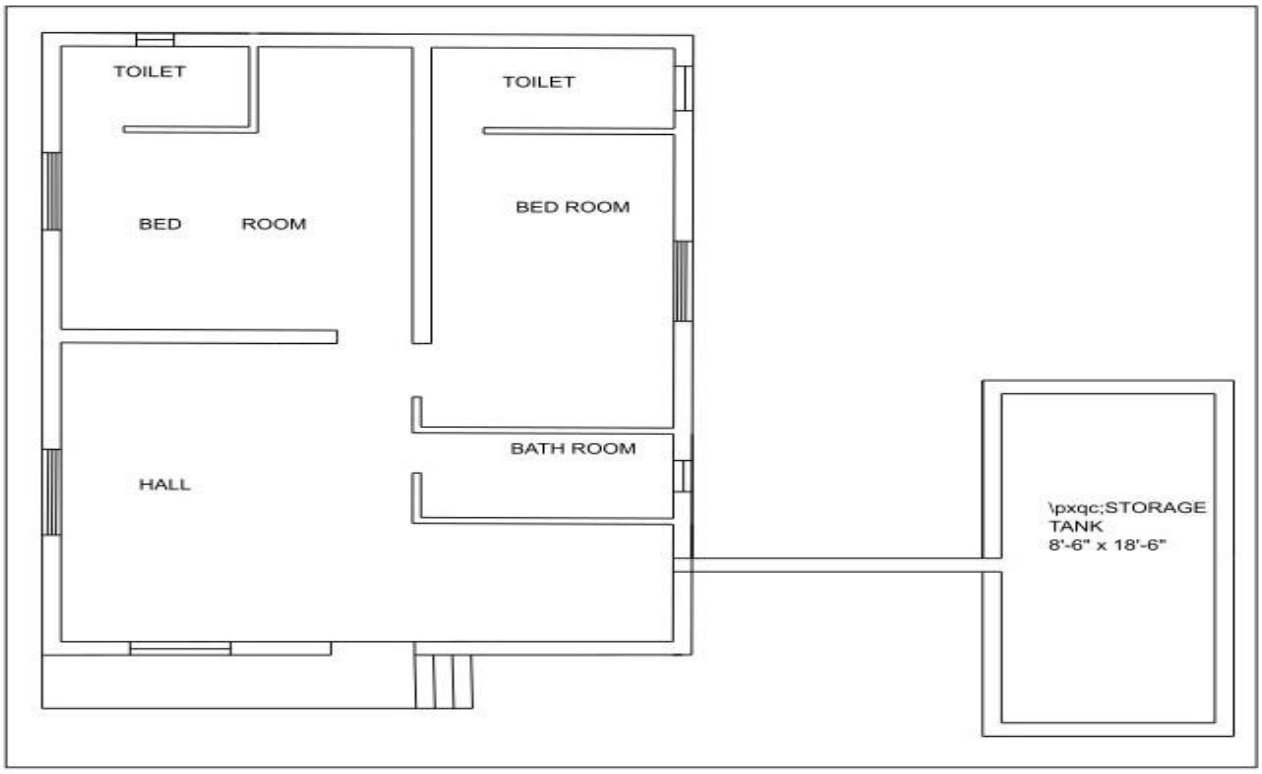

Fig: 47 Plan of Rain Water Harvesting

13.1.5 Civil design- Bank:

Estimation of bank building:-

Centre line method.

There are 10 junctions of the walls

So, net centre – line length

= total centre line length – (1/2 x width x no. of junctions)

Total centre line length = 3x (4+0.2+3+0.2) horizontal walls + 3x(3+0.2+4+0.2) vertical walls + 1x (3+0.2) between ledis w.c and gents w.c + 1x(1.1+0.2) inform of w/c

= 22.2+22.2+3.2+1.3

=48.9m

.

Table 15: Measurement sheet

Item No.	Item Description	Nos.	L (m)	B (m)	H (m)	Quantity
1	Earthwork in excavation for foundation Total center line length= 48.9m No of junctions= 10 L= 48.9 – (0.5 x 0.9 x 10) =44.4m	1	44.4	0.9	1.10	43.96 m3
2	Brick bat cement concrete (1:4:8) for foundation	1	44.4	0.9	0.2	7.99 m3
3	Brick masonry up to plinth in cm1:6 First step L = 48.9 – (0.5 x 0.5 x 10) = 46.40m Second step L = 48.9 – (0.5 x 0.4 x 10) = 46.9m Third L = 48.9 – (0.5 x 0.3 x 10) = 47.4m **Steps:** First Second Third For step L= D1+ 1.1m	1 1 1 1 1 1	46.4 46.9 47.4 1.1 1.1 1.1	 0.9 0.6 0.3	 0.15 0.15 0.15	 0.15 0.15 0.15 24.97 m3
4	Brick masonry above plinth up to sslab level in cm1:6 L = 48.9 – (0.5 x 0.2 x 10) = 47.9m Deduction for doors / windows Deduction for lintels	1	47.9	0.2	3.0	28.74 m3 -5.57 m3 -0.646 m3
5	Smooth plaster inside the rooms and ceiling in c.m 1:3					238.39 m3
					Total -	519.48 m3
					Add first floor quantity -	475.52 m3
					Net quantity -	995 m3

.

Abstract sheet quantities

Item No.	Particulars	Qty.	per	Rate	Amount
1	Earthwork in excavation for foundation	43.96	m^3	180	7913
2	Brick bat cement concrete (1:4:8) for foundation	7.99 x 2	m^3	3500	55,930
3	Brick masonry up to plinth in C.M 1:6	24.97 x 2	m^3	4000	1,99,760
4	Brick masonry above plinth up to slab level in C.M 1:6	28.74 x 2	m^3	4000	2,29,920
5	Smooth plaster inside the rooms and ceilings in C.M 1:3	238.39 x 2	m^2	300	1,43,034
				Total Amount -	6,36,557 /-
				Add charge 5% -	31,828 /-
				Profit at cont. 10% -	63,656 /-
				Net Amount -	7,32,141 /-

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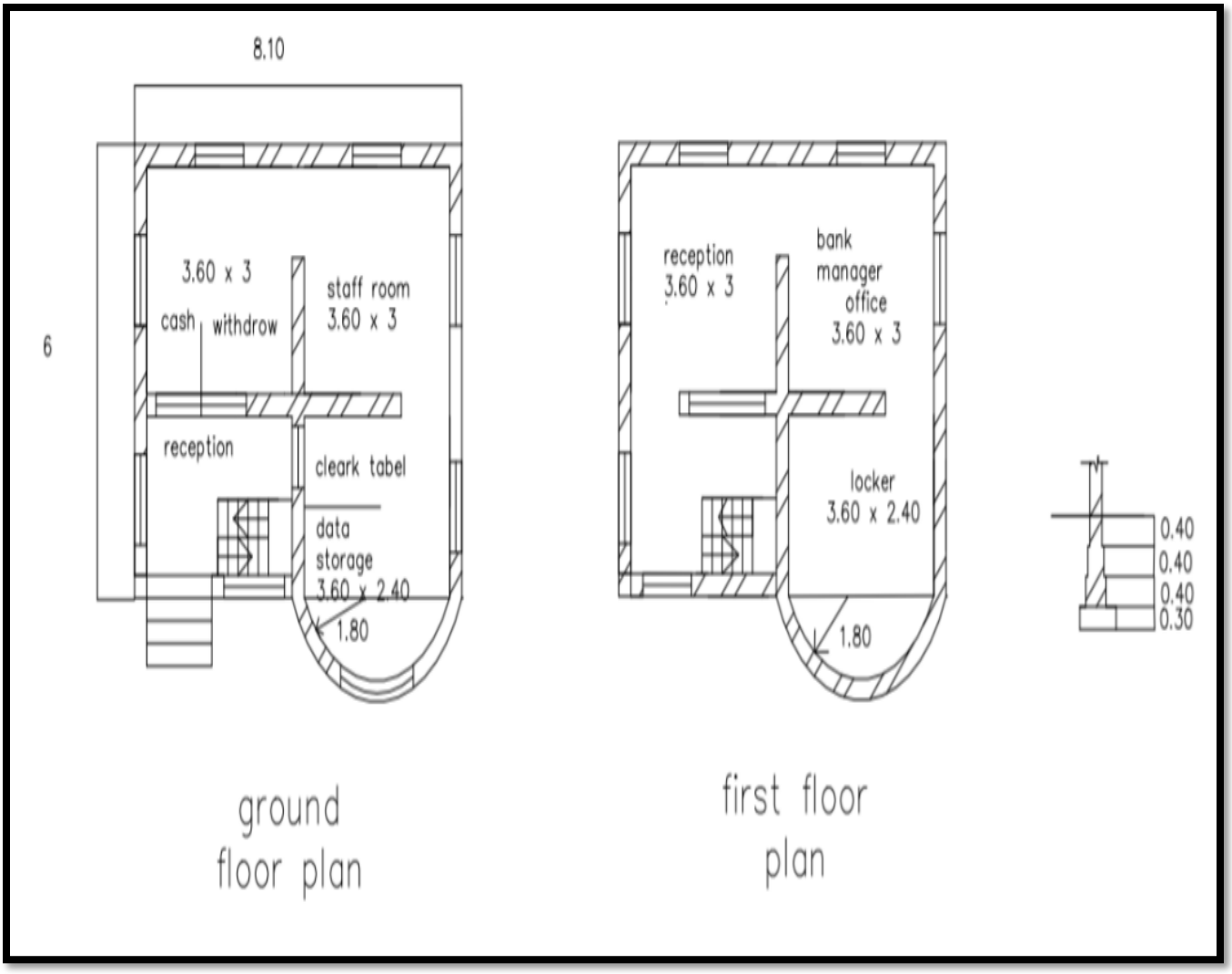

Figure: 48 Plan and Elevation of DENA Gramin Bank

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13.1.6 Civil Design6:- Bio Gas Plant

Bio gas plant is one of the plant for renewable energy sources. It transforms rural village in to clean village and also provide gas as energy source and gives fertilizer at end.

- *BASIC THINGS:*

Total numbers of animals in village = 3000
As per standard data assume per day dung of

animal=10.5 Kg. So total per day dung = 3000 * 10.5

=31500 Kg. /day

- *DESIGN OF DIGESTER:*

Assume retention period (RT) = 70 days.
Assume mixing proportion of solid and water is 1:2.

Now total amount of slurry per day (S_d) = Total per day dung + Water amount
= 31500 + (2*31500)
= 94500 Kg. /day
= 94500 Lit. /day
= 94.5 m^3 / day

Digester volume (V_d) = Sd * RT
= 94.500 * 70
= 6615 m^3

Assume cylinder shaped bio gas plant.
Provide total 6 numbers of units in different areas, so digester volume becomes for one unit= 6615 ÷ 6 =1102 m^3
So provide= 1100 m^3

Total digester volume (Vd) = π r^2 h
1100 = π r^2 (h = 10 m)

So dimensions of digester are h=10 m, R= 6 m

- *DESIGN OF GAS HOLDER:*

Assume digester temperature= 26-28 ˚C
Now from following fig find Gd by taking RT=70 days

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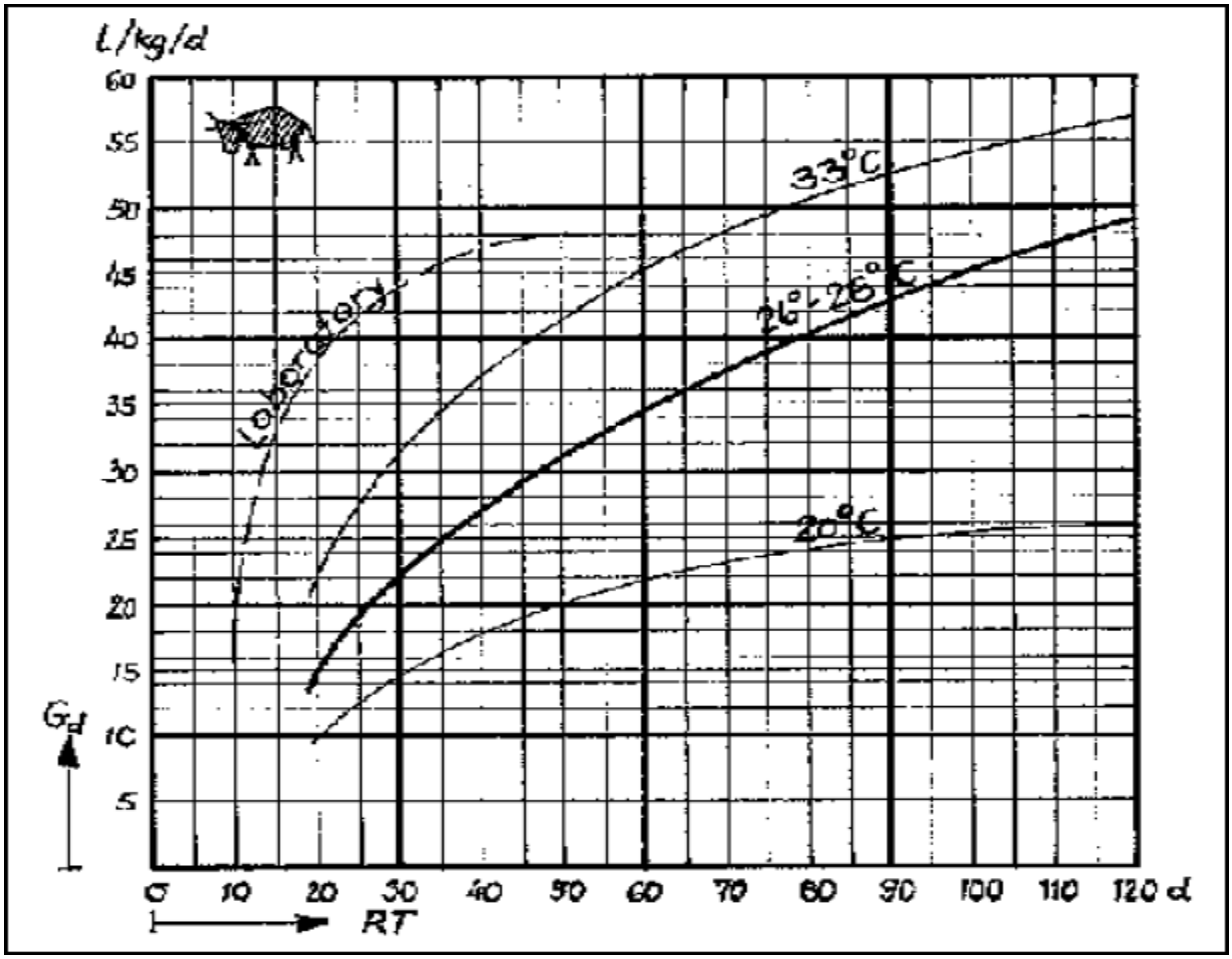

Figure: 49 GD Vs RT Chart

Specific gas production Gd = 37 Lit. / Kg. / day

Daily gas production G = Gd × Feed volume
= 37 × 31500
=1165500 Lit.
=1165.5 m^3

Now assume gas holder capacity = 60 %

Gas holder volume = Daily gas production × Capacity of holder
= 1165.5 × 0.60
=699.3 m^3

So take Gas holder volume = 700 m^3

Now for 6 units provide volume of holder of each unit =
700 ÷ 6
= 116.66
Take it =120 m^3

Provide cylinder shaped holder; so…
Volume = $\pi r^2 h$

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$120 = \pi r^2 (h = 1 m)$

So dimensions of Gas holder are H = 1 m, R= 6

- *DESIGN OF INLET & OUTLET:*

Total volume of slurry mix per unit = 94.50 ÷ 6 = 15.75 m^3 / day

Assume two time filling operation in plant; so take total volume of slurry = 15.75 ÷ 2
= 7.87
m^3 / day Take it
= 8 m^3 / day

Provide rectangular tank…
So... Total volume for one time mixing of slurry = L × B × H
8 = L × B × (H=1m)

Dimension of inlet are L = 3 m, B= 3 m, H=1 m

Here 8 m^3 / day required < 9 m^3 / day
provided. Hence ok
Provide same size for outlet tank also.

[References taken from biogas book by LUDWIG SASSE, & WWW.BIOTEC-ASIA.COM & WWW.TANAU.AC.IN]

Elevation of Bio Gas Plant

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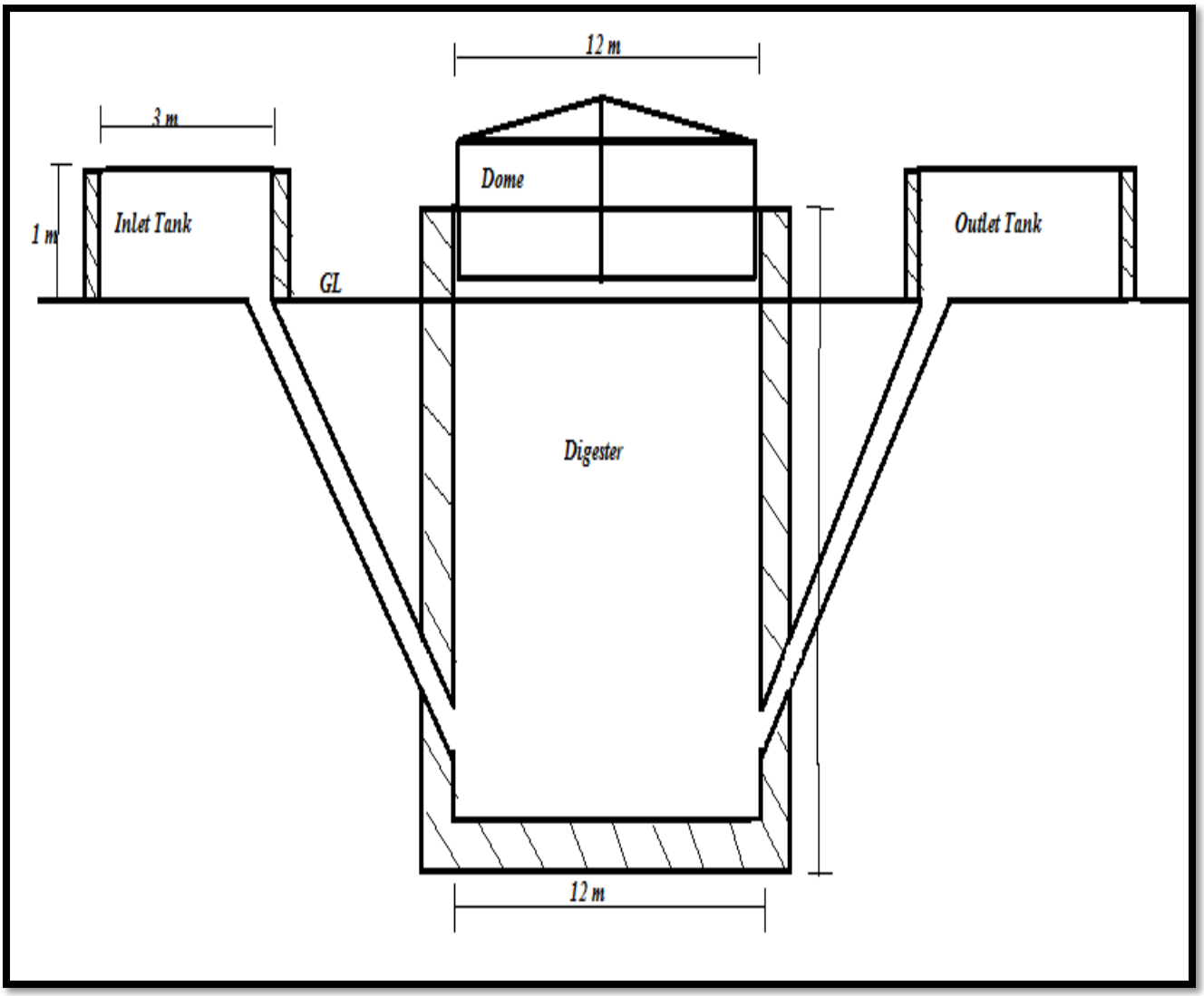

Figure: 50 Plan of Bio Gas Plant

Table 16: Abstract sheet quantities

Item No.	Particulars	Qty.	per	Rate	Amount
1	Earthwork in excavation for Bio gas plant	75.36	m^3	180	13,565
2	Brick bat cement concrete (1:4:8) for foundation	12.56	m^3	3500	43,960
3	Brick masonry up to ground level	25.12	m^3	4000	1,00,480
4	Brick masonry above ground	1.26	m^3	4000	5020

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	level				
5	Smooth plaster inside the biogas plant	25.12	m^2	300	7536
				Total Amount -	1,70,561 /-
				Add charge 5% -	8529 /-
				Profit at cont. 10% -	17,058 /-
				Net Amount -	1,96,148 /-

13.2 Reason for Students Recommending this Design

- For elevated water tank, Sariyad village has two water tanks and one has not working condition.so that we design water tank for village.
- For library, Sariyad village has not facility of library so we design suitable library for Sariyad village.
- Rainwater harvesting, water is very important resource for human. Sariyad village has facing problem shortage of water so we design rain water harvesting system.

13.3 About designs Suggestions / Benefit of the villagers

The various benefits of new development or design by students are as below…

1) To provide library facility for students so that they encourage their knowledge.

2) To provide elevated water tank for drinking water purpose.

3) Develop rainwater harvesting system for collect rain water for various purpose.

4) To Increase the Communication and Skill.

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14. Technical Options with Case Studies

14.1 Earthquake:

- **What is Earthquake?**

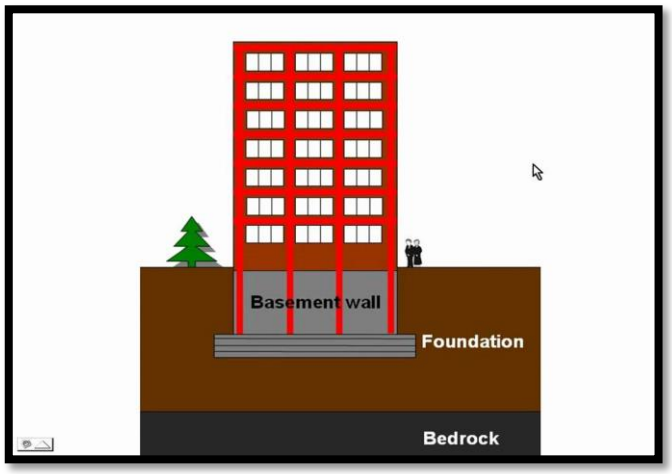
An **earthquake** is what happens when two blocks of the earth suddenly slip past one another. The surface where they slip is called the **fault** or **fault plane**. The location below the earth's surface where the earthquake starts is called the **hypocenter**, and the location directly above it on the surface of the earth is called the **epicenter**.

- **How are earthquakes recorded?**

Earthquakes are recorded by instruments called **seismographs**. The recording they make is called a **seismogram**. The seismograph has a base that sets firmly in the ground, and a heavy weight that hangs free. When an earthquake causes the ground to shake, the base of the seismograph shakes too, but the hanging weight does not. Instead the spring or string that it is hanging from absorbs all the movement. The difference in position between the shaking part of the seismograph and the motionless part is what is recorded.

14.1.1 Advanced Earthquake Resistant:

Floating Foundation:



The levitating or floating foundation separates the substructure of a building from its superstructure.

One way of doing this is by floating a building above its foundation on lead-rubber bearings that comprise a solid lead core covered in alternating layers of rubber and steel. The bearings are attached to the building and its foundation with the help of steel plates. So, when an earthquake occurs, the floating foundation can move without moving the structure above it.

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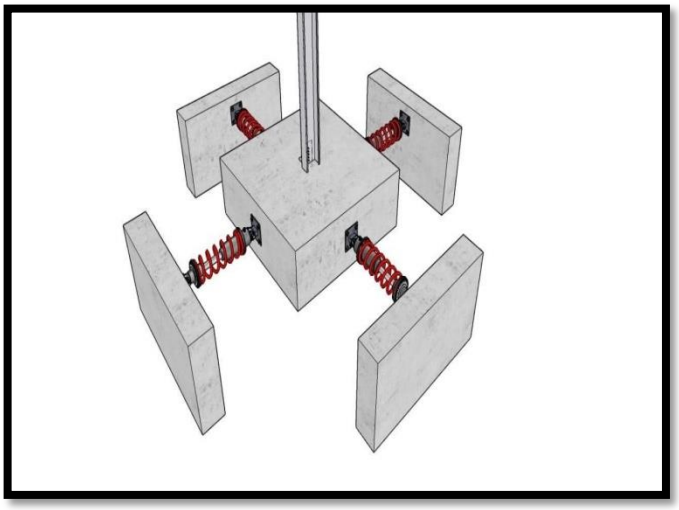
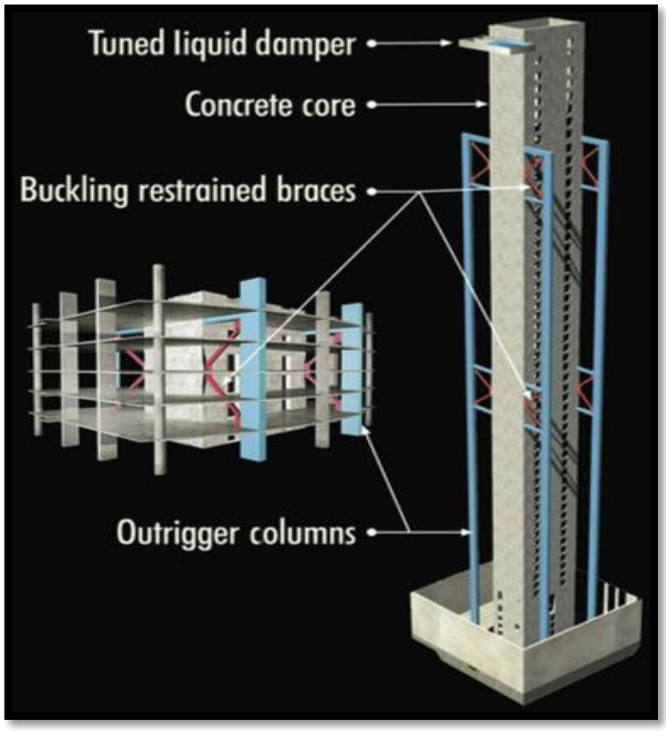
In Japan this base isolation system works at a whole new level. Their design allows buildings to float mid-air. The system levitates, keeping the building on a cushion of air. The system has in-built sensors for detection of seismic activity and these sensors communicate with the air compressor that creates the layer of air between the building and its base.

Shock Absorption:



Similar to the shock absorbers used in vehicles, buildings also makes use of this technology. This earthquake resistant technology helps buildings slow down and reduce the magnitude of vibratory motions. Ideally shock absorbers should be placed at each level of the building – one end attached to the beam and the other end to the column. Each comprises a piston head that moves inside a cylinder full of silicone oil. During earthquakes, the horizontal motion of building will make the piston push against the oil, transforming mechanical energy from the quake to heat

Rocking Core-Wall:



Modern high-rise buildings use this technique to improve seismic resistance at a low cost. To make this work, a reinforced concrete core is set through the heart of the structure, surrounded by elevator banks. Many modern high-rise buildings use this technique to increase seismic resistance in an affordable way. It works most effectively when used together with base isolation. For base isolation, elastometric bearings are built with alternating layers of steel and natural

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rubber/neoprene. The bearing thus created has low horizontal stiffness and vertical rigidity. The combination is highly effective, cost-friendly and simple to implement.

14.1.2 Seismic Retrofitting of Buildings:

It is the modification of existing structures to make them more resistant to seismic activity, ground motion, or soil failure due to earthquakes. The retrofit techniques are also applicable for other natural hazards such as tropical cyclones, tornadoes, and severe winds from thunderstorms.

- **Need for Seismic Retrofitting:**
- To ensure the safety and security of a building, employees, structure functionality, machinery and inventory
- Essential to reduce hazard and losses from non-structural elements.
- predominantly concerned with structural improvement to reduce seismic hazard.
- Important buildings must be strengthened whose services are assumed to be essential just after an earthquake like hospitals.

- **Adding Steel Bracings:**
- An effective solution when large openings are required.
- Potential advantages due to higher strength and stiffness, opening for natural light can be provided, amount of work is less since foundation cost may be minimized and adds much less weight to the existing structure.

- **Adding New Shear Walls:**
- Frequently used for retrofitting of non ductile reinforced concrete frame buildings.
- The added elements can be either cast?in?place or precast concrete elements.
- New elements preferably be placed at the exterior of the building.

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- Not preferred in the interior of the structure to avoid interior mouldings.

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

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.

- **Air Cleaning Bricks**

Indoor air quality (IAQ) is becoming a more important concern for commercial real estate as we gain a better understanding of how built environments affects the health of those who live and work in them. There is no shortage of ways to improve IAQ, but most of them require active energy use to filter the air. That approach emits more carbon and other pollutants into the air over the long term.

Carmen Trudell, assistant professor at Cal Poly San Luis Obispo's school of architecture and founder of Both Landscape and Architecture, has invented a passive system that makes use of the bricks on the outside of the building to filter out the heavier particles in the

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air as it enters the space. The concrete bricks funnel air into an internal cyclone filtration section that separates heavy elements and drops them down into a hopper at the base of the wall. Clean air is then pulled into the building, either mechanically or passively, and maintenance can simply remove and empty the hopper on a periodic basis.

In tests, the system removed about a third of fine particulate matter and 100 percent of coarse particles. Better still, Trudell's system is inexpensive relative to alternative options, and she envisions using them in developing countries.

2. Modern techniques:

- **3D volumetric construction:**

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

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

- **Tunnel formwork system**:

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

Expeditious work is achieved by deploying formwork and readily mixed concrete with the

.

convenience and agility of factory condition. Formworks in tunnel form are stacked and used at the site with cranes.

3. Modern equipments:

- **Drones:**

The final technology that is playing a big role at the construction jobsite today is drones, also known as unmanned aerial vehicles.

The Teal Group suggests that civil unmanned aerial systems are attracting venture capital and predicts the civil, non-military market will grow 12.9 percent between 2018 and 2027. It also predicts that commercial use will surpass consumer drone market in 2024, with construction leading the commercial market throughout the next decade.

A number of technology companies are offering intelligent systems to help transform how the construction industry does business at the jobsite.

“Drones, which were once viewed as primarily recreational, have now taken on the task of industrial work,” explains Kahler. “In the case of John Deere, we formed a strategic alliance with Kespry to provide customers with a revolutionary new system to rapidly capture survey-grade topography in a matter of minutes.”

He adds that this has made UAVs indispensable, providing valuable insights for bidding, productivity tracking, inventory management, and project verification.

- **Telematics:**

Telematics is one of the key technologies changing the way the construction industry does

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business. A telematics system can provide machine diagnostics alerts that help prevent downtime, theft, and misuse.

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:

- 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 need for an environmental impact assessment:**

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

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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

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could affect human health, animal health and affect greenery in the area. The road may affect existing structures in the area which may have to be removed and can cause changes in the economic wellbeing of the persons who are using those structures.

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

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

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

Water is the most precious element / commodity available on the earth which is the main life support system of the environment. The water sources are identified and then they are used for various purposes and at various locations. Thus, water supply and distribution facilities are critical infrastructure for the environment. These facilities include wells or water supply intake structures, transmission mains, distribution mains and individual service lines. Regarding water supply source, water determination may not only bring forth technical issues, but political issues may arise as well. Ownership of water sources can be controversial, whether the source is ground water or surface water.

The use of water except for drinking purpose generates the wastewater which when discharged for the domestic use generates sewage. The sewage collection is carried out through sewer collection system. The sewage cannot be directly let loose in to the environment as there are all possibilities of polluting the surface water or the ground water.

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Even for irrigation also, the sewage requires treatment. The sewer collection and conveyance needs the treatment before its disposal. The treated sewage can be reused for cooling purpose, irrigation purpose or even for recycling in to the toilets and other applications depending on the specific use excluding drinking and bathing. The sewerage is the sewage collection network starting from individual discharge points to centrally collection point, conveyance mains, treatment systems and safe disposal in to the environment.

Many factors must be considered during planning, design and construction of these systems. For new areas, the population density, the available water supply source and its quantity and the topography is taken in to account. In developed areas where there are existing underground utilities including existing water and sewer, telephone, gas, electric, and cable, it is especially important to consider the impact of new water and sewer mains on these systems. Relocating existing utilities is very expensive, so care must be taken to avoid conflicts as much as possible. Excellent communication and coordination with owners of these utilities and governing agencies during planning, design and construction stage is crucial to the success of this infrastructure project.

- **Decentralized/Sustainable Wastewater Treatment Technologies:**

The centralised sewage treatment technologies have proven to be expensive, complex and are failing to cater to the total wastewater generated. The untreated/partially treated wastewater makes its way to the water body causing immense degradation of the ecosystem and the environmental health.

Need is for sustainable wastewater treatment technologies - to locally treat the sewage and also reuse/recycle. The decentralised sewage treatment can be both electro-mechanical system that have higher energy requirement or natural systems with less or no energy requirement.

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CSE has reviewed and documented select case studies that present innovative, sustainable and affordable ways treating the sewage locally including reuse/recycle. The case studies comprise of the wastewater treatment systems which have been implemented at individual, community/cluster and at municipal level. The case studies documented discuss the principle, salient features, and performance indicators and provide details of individuals or agencies/institutions who have implemented the system.

A set of indicators that incorporate environmental, societal, and economic sustainability were developed and used to investigate the sustainability of different wastewater treatment technologies, for plant capacities of <5 million gallons per day (MGD) or 18.9×103 cubic meters (m3/day). The technologies evaluated were mechanical (i.e., activated sludge with secondary treatment), lagoon (facultative, anaerobic, and aerobic), and land treatment systems (e.g., slow rate irrigation, rapid infiltration, and overland flow).

The economic indicators selected were capital, operation and management, and user costs because they determine the economic affordability of a particular technology to a community. Environmental indicators include energy use, because it indirectly measures resource utilization, and performance of the technology in removing conventional wastewater constituents such as biochemical oxygen demand, ammonia nitrogen, phosphorus, and pathogens.

These indicators also determine the reuse potential of the treated wastewater. Societal indicators capture cultural acceptance of the technology through public participation and also measure whether there is improvement in the community from the specific technology through increased job opportunities, better education, or an improved local environment. While selection of a set of indicators is dependent on the geographic and demographic context of a particular community, the overall results of this study show that there are varying degrees of sustainability with each treatment technology.

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

Sr. No.	Design Name	Period	Amount Expenditure (RS.)	Benefit
1	Bus stop	Immediately	1,42,177	People can sit till the bus comes.
2	Community hall	Within 1 Year	25,83,435	Villagers can arrange meetings.
3	Anganwadi	Immediately	20,03,357	Skill development of children.
4	Entrance gate	Immediately	67,639	For a warm Welcome in the Village.
5	School sanitation system	Immediately	57,270	Students use the facility & don't go out.
6	Dwelling house	Long term (2-3 Years)	3,20,693	People live in pucca house
7	Public Garden	Within 1 Year	1,62,298	Villagers can play, walk & meet each other.
8	Gym	Within 1 Year	4,72,796	Bodybuilding, Fitness.
9	Library	Within 6 months	3,39,191	Students can silently study.
10	Rain water harvesting	Within 2 months	3,33,522	Storage of water.
11	Bank	Within 1 Year	7,32,141	Save money and take out a loan.
12	Bio-gas Plant	Within 1 month	1,96,148	People can use Natural fuel.

Here total cost of village development is = 74,10,667 => app. 75,00,000 Rs.

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16. Survey by Interviewing with Talati or Sarpanch

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

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17. Irrigation Activities and Agro Industry, Alternate Technics and Solutions.

Sariyad 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.

Alternate techniques and solutions:

- High yielding varieties of seeds can be used.
- Chemical fertilizers can apply.
- Irrigation has been improved by utilizing properly both ground water and surface water resources of the State.
- Cold storage, logistics and improved infrastructure can be developed

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

1. AGRO INDUSTRIES

- **What is an Agro-based industry?**

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.

- **Importance of Agro-based industries in India**

.

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.

➢ **Types of Agro-based industries in India**

Agro-based industries in India can be broadly classified into the following types:

1. Agro-produce processing units – These units are not involved in manufacturing and mainly deal with the preservation of perishable products and utilization of by-products for other uses. Rice and Dal processing mills are perfect examples of these kinds of units.

2. Agro-produce manufacturing units – These units engage in the manufacturing of new products where the finished goods are entirely different from the raw materials used. Sugar factories, solvent extraction units and textile mills are some of the examples of these kinds of units.

3**. Agro-inputs manufacturing units –** These units are engaged in the manufacturing of products, either for the mechanization of agriculture or for increasing agricultural productivity. Some examples of these units include agricultural implements, seed, fertilizer and pesticide manufacturing units.

4. Agro Service Centres – Agro service centres are workshops and service centres, which are engaged in the repairing and servicing of pump sets, diesel engines, tractors and other types of farm equipment.

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- **Problems Faced by Agro-based Industries in India:**

Like with any other industry in India, Agro-based industries also face some constraints, which seem to be-devil their development. Some of these constraints and problems include:

Small Landholdings – Small landholdings make it difficult for farmers to achieve economies of scale because of which farmers are forced to rely on subsistence farming.

Seasonal nature – This means that the farmers have a very small window to reap the benefits of their hard labor. In recent times, climate change has affected weather patterns because of which there has been an adverse effect on agricultural production.

Perishable nature of products – Agricultural products are perishable in nature because of which they require huge infrastructure in the form of cold storage, excellent road connectivity. India suffers on both accounts, forward and backward linkages.

Variability – Agro-based industries involve variability in the quantity and quality of raw materials. Quantity of raw materials suffers because of fluctuations in weather and soil conditions. The quality suffers because of lack of standardization. These factors, exert additional pressure on agro-based industries in terms of operations related to production,

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scheduling and quality control.

Limited Knowledge – The absence of information, lack of awareness and limited knowledge about opportunities, technology and production systems is also a major hurdle.

Competition – India is increasingly facing competition from other countries in the region such as Bangladesh, which offer similar advantages in terms of low labor costs and soil fertility.

2. ALTERNATE TECHNICS OF IRRIGATION

1. IRRIGATION MTHODS

Irrigation is the controlled application of water for agricultural purposes through manmade systems to supply water requirements not satisfied by rainfall. Crop irrigation is vital throughout the world in order to provide the world's ever-growing populations with enough food. Many different irrigation methods are used worldwide, including:

- **CENTER-PIVOT:**

Automated sprinkler irrigation achieved by automatically rotating the sprinkler pipe or boom, supplying water to the sprinkler heads or nozzles, as a radius from the center of the field to be irrigated. Water is delivered to the center or pivot point of the system. The pipe is supported above the crop by towers at fixed spacing and propelled by pneumatic, mechanical, hydraulic, or electric power on wheels or skids in fixed circular paths at uniform angular speeds. Water is applied at a uniform rate by progressive increase of nozzle size from the pivot to the end of the line. The depth of water applied is determined by the rate of travel of the system. Single units are ordinarily about 1,250 to 1,300 feet long and irrigate about a 130-acre circular area.

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If you've been in an airplane you can easily locate center-pivot irrigation systems on the ground. You can't miss them -- just look for green circles of irrigated land below.

- **DRIP OR MICROIRRIGATION**:

A planned irrigation system in which water is applied directly to the Root Zone of plants by means of applicators (orifices, emitters, porous tubing, perforated pipe, etc.) operated under low pressure with the applicators being placed either on or below the surface of the ground.

- **FLOOD OR FURROW**:

The application of irrigation water, where the entire surface of the soil is covered by ponded water.

Early humans would have used this "low-tech" method of irrigating crops collect water in a bucket and pour it onto the fields. Today, this is still one of the most popular methods of crop irrigation. The system is called flood irrigation water is pumped or brought to the fields and is allowed to flow along the ground among the crops. This method is simple and cheap, and is widely used by societies in less developed parts of the world.

- **SPRAY OR SPRINKLER:**

A planned irrigation system in which water is applied by means of perforated pipes or nozzles operated under pressure so as to form a spray pattern.

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- **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.

- **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.

- **Buried Clay Pot Irrigation**

- One of the most studied, and very effective systems uses a buried clay pot full of water to irrigate plants
- The capillary flow of water through the clay walls of the pot is regulated by demand - so little water is wasted
- Highly recommended! For restoration, gardens, landscaping, farming
- Clay pots worked well even in the lowest, hottest desert
- Excellent for seedlings or for starting seeds or cuttings
- Pot rim painted white to reduce evaporation

- **Deep Pipe Irrigation**

- This method of irrigation was suggested by a traditional system from India - where water was placed in the hollow stem of a dead plant to water deeper in the soil
- Subsequent research found one study and one report from India
- This has been our best system for restoration work -- cheap, durable and very effective

.

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.

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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 programs 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 different in Rajasthan.

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.

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Fig: 51 Social Activities

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19. SARIYAD VILLAGE SAGY Questionnaire Survey form with the Sarpanch Signature

SAANSAD ADARSH GRAM YOJANA (SAGY) Baseline Household Survey Questionnaire

Village: Sariyad Gram Panchayat: Sariyad Ward No.____

Block: Patan District: Patan

State: Gujarat L S Constituency: _____

1. Family Identity and Size

Name of Head of Household	Bharatbhai Joshi							Male/ Female	
SECC Survey ID:		Family Size	4	Over 18	4	6 to 18		Under 6	

2. Category & Entitlement Details (Tick as appropriate)

Social Category[1]	OPEN	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]
Bharatbhai Joshi	46	M	N	2	6	Y	Y	0
Jashodaben Joshi	46	F	N	2	6	Y	Y	0
Rahul B Joshi	22	M	N	1	8	Y	Y	0
Dhruvi B Joshi	19	F	N	1	8	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

4. Children below 6 years

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

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

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

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

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

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

SAANSAD ADARSH GRAM YOJANA (SAGY) Baseline Household Survey Questionnaire

5. Hand washing

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

6. Use of Mosquito Net

Children: Yes / No Adults: Yes / No

7. Do members take Regular Physical Exercise

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

8. Consumption of Tobacco

	Smoking	Chewing
Adults	–	–
Children	–	–

9. House & Homestead Data

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

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

Source of Water		Distance
Piped Water at Home	Yes / No	
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	2678	2. Cultivable Area	678
3. Irrigated Area	1000	4. Uncultivable Area	1000

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	1500
Cotton	Kg	1400

17. Livestock Numbers

Cows: 3	Bullocks: 1	Calves: ____
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): 12		

18. What games do Children Play

Hide & seek, Cricket, Carrom etc.

19. Do children play musical instrument (mention)

Schedule Filled By:

Principal Respondent:

Date of Survey: 15/11/2020

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: Sariyad

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 1171 Total Population 6750 Male 3123 Female 2944

SC HHs – ST HHs – OBC HHs – Other HHs –

I. Access to Infrastructure / Facilities / Services

	Infrastructure Facilities / Services	Located within the GP Yes (Y)/No (N)	If located elsewhere (N), distance from the GP office
a.	ANM/ Health Sub Centre	Y	
b.	Nearest Primary Health Centre (PHC)	Y	
c.	Nearest Community Health Centre (CHC)	N	15 KM
d.	Nearest Post Office	Y	
e.	Nearest Bank Branch (Any)	Y	
f.	Nearest Bank with CBS Facility	Y	
g.	Nearest ATM	Y	
h.	Nearest Primary School	Y	
i.	Nearest Middle School	Y	
j.	Nearest Secondary School	Y	
k.	Nearest Higher Secondary School / +2 College	Y	
l.	Nearest Graduate College	N	18 KM
m	Nearest ITI / Polytechnic Centre	N	18 KM
n	Kisan Seva Kendra	Y	

1

Saansad Adarsh Gram Yojana (SAGY) Panchayat Details Survey Questionnaire

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

	Infrastructure Facilities / Services	Located within the GP Yes (Y) No (N)	If located elsewhere (N), distance from the GP office
o	Agriculture Credit Cooperative Society	Y	
p	Nearest Agro Service Centre	N	15 KM
p	MSP based Government Procurement Centre	N	20 KM
q	Milk Cooperative Collection Centre	Y	
r	Veterinary Care Centre	Y	
s	Ayurveda Centre	N	18 KM
t	E – Seva Kendra	N	18 KM
u	Bus Stop	N	18 KM
v	Railway Station	N	20 KM
w	Library	N	16 KM
x	Common Service Centre	N	18 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: 5

b. Number of villages without Angan Wadi Centres_____

Names of such villages: _____

c. Schools (Number)

Primary Private: 0 Primary Govt.: 1

Middle Private: 0 Middle Govt.: 1

Secondary Private: 0 Secondary Govt.: 1

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			

2

Saansad Adarsh Gram Yojana (SAGY) Panchayat Details Survey Questionnaire

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

VII. Coverage of Villages under different Facilities & Services

	Parameter	Villages Status[1]	Names of Villages Covered	Names of Villages not Covered
a.	Piped Water Supply Coverage to Villages	Covered yes Not Covered		
b.	Hand Pump Coverage in Villages:	Covered Not Covered		
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	678	d.	Pasture / Grazing Land	100	g.	Check Dam	-
b.	Irrigated Land	500	e.	Forests/ Plantations	200	h.	Wells/Bore Wells	-
c.	Un-irrigated Land	200	f.	Other Common Land	-	i	Tanks /Ponds	2

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

3

Saansad Adarsh Gram Yojana (SAGY) Panchayat Details Survey Questionnaire

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

IX. Parameters relating to Households & Institutions

		Number
a)	Number of eligible Households for pension (old age, widow, disability)	
b)	Number of Households receiving pension (old age, widow, disability)	
c)	Number of eligible Households who are not receiving pension	
d)	Number of Households eligible for Ration Card	
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'

Patel Meet Prajapati Rohit 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

4

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: sariyad

b. Ward Number: _____

c. Gram Panchayat: sariyad

d. Block: Sariyad

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 1171 Total Population 6750 Male 3123 Female 2944

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

II. Access to Infrastructure/Amenities etc.

i.	Access to Infrastructure / Facilities / Services	Located in the Village Yes (Y)/No(N)	If located elsewhere (N), distance in kms from the village
a.	Nearest Primary School	Y	
b.	Nearest Middle School	Y	
c.	Nearest Secondary School	Y	
d.	Kisan Seva Kendra	Y	
e.	Milk Cooperative /Collection Centre	Y	
g.	Health Sub Centre	Y	
h.	Bank	Y	
i.	ATM	Y	
j.	Bus Stop	N	18 KM
k.	Railway Station	N	20 KM

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

1

SAANSAD ADARSH GRAM YOJANA (SAGY) Village Details Survey Questionnaire

i.	Access to Infrastructure / Facilities / Services	Located in the Village Yes (Y)/No(N)	If located elsewhere (N), distance in kms from the village
l	Library	N	17 KM
m	Common Service Centre	N	16 KM
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: _____ (*1-All 2-None 3-Some*)

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

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

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

iv. Coverage of Habitations under Waste Management System

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

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

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

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

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

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

v. Coverage of Habitations under Electrification

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

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

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

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

vi. Sports Facilities in the Village

a.Number of Play Grounds in the Village (minimum size 200 square meters): NO

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

vii. Education, ICDS

a. Number of Anganwadi Centres: 5

c. Schools (Number)

Primary Private: - Primary Govt.: 1

Middle Private: - Middle Govt.: 1

Secondary Private: - Secondary Govt.: 1

Higher Secondary Private: - Higher Secondary Govt: 0

2

SAANSAD ADARSH GRAM YOJANA (SAGY) Village Details Survey Questionnaire

viii. Land Category		Area in Acres		Land Category	Area in Acres		Irrigation Structure	No.
a.	Cultivable Land	678	d.	Pasture / Grazing Land	100	g.	Check Dam	-
b.	Irrigated Land	500	e.	Forests/ Plnatations	200	h.	Wells/Bore Wells	-
c.	Un-irrigated Land	200	f.	Other Common Land	-	I	Tanks /Ponds	2

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'

Patel Meet Prajapati Rohit		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

3

Fig: 52 SAGY form

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

(no subject)
1 message

Meet <meetpatelmj1234@gmail.com> Fri 16 Jul, 2021 at 12:43 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 projectWe had alliotted Sariad 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 Sariyad 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 bus stop, community hall, anganwadi, entrance gate, school sanitary, dwelling house, public garden, gym, library, rain water harvesting, bank, bio gas plant etc. to fulfill the requirement of the existing population. The proposed designs are as under:

Sr. No.	Design Name	Period	Amount Expenditure (RS.)	Benefit
1	Bus stop	Immediately	1,42,177	People can sit till the bus comes.
2	Community hall	Within 1 Year	25,83,435	Villagers can arrange meetings.
3	Anganwadi	Immediately	20,03,357	Skill development of children.
4	Entrance gate	Immediately	67,639	For a warm Welcome in the Village.
5	School sanitation system	Immediately	57,270	Students use the facility & don't go out.
6	Dwelling house	Long term (2-3 Years)	3,20,693	People live in pucca house
7	Public Garden	Within 1 Year	1,62,298	Villagers can play, walk & meet each other.
8	Gym	Within 1 Year	4,72,796	Bodybuilding, Fitness.
9	Library	Within 6 months	3,39,191	Students can silently study.
10	Rain water harvesting	Within 2 months	3,33,522	Storage of water.
11	Bank	Within 1 Year	7,32,141	Save money and take out a loan.
12	Bio-gas Plant	Within 1 month	1,96,148	People can use Natural fuel.

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

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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 bus stop, community hall, anganwadi, entrance gate, school sanitary, dwelling house, public garden, gym, library, rain water harvesting, bank, bio gas plant etc...

Our Village is Sariyad. Sariyad is a Village in Patan Taluka in Patan District of Gujarat State, India. It is located 18 km towards west from the District headquarters Patan. In this phase of Vishwakarma Yojana, we were assigned the village Sariyad 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 Sariyad. 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 ongoing pandemics, We met limited people with due care for covid-19 protocols. And we 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 bus stop, community hall, anganwadi, entrance gate, school sanitary, dwelling house for part 1 to enhance the existing infrastructure. We have suggested additional six designs such as public garden, gym, library, rain water harvesting, bank, bio gas plant for part 2 to fulfill the requirement of existing population.

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