DETAIL PROJECT REPORT

VISHWAKARMA YOJNA: VIII
AN APPROACH TOWARDS RURBANISATION
Madheli Village

Vadodara District

PREPARED BY

STUDENT NAME	BRANCH NAME	ENROLLMENT NO
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BABARIA INSTITUTE OF TECHNOLOGY

YEAR: 2020-21

GUJARAT TECHNOLOGICAL UNIVERSITY
Chandkheda, Ahmedabad – 382424 Gujarat

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CERTIFICATE

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

Detail Project Report for;

VILLAGE MADHELI

DISTRICT VADODARA

Under

Vishwakarma Yojana: Phase VIII

in partial fulfilment 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 purpose of this **Vishwakarma yojana** is to define the role of rural areas and country towns play in the persistence of, or often time regrettably, the dissolution of local character and place. The observations contained in this paper apply to most types of rural areas in many different locales. The central argument of this work is that wherever viable rural settlements exist, the government, professional planners, and inhabitants within must focus their energies on the immediate place – they must make the word "local" mean something if we are ever to be successful in the retention and sustenance of "local community." A rural development doctrine must, if it is to be effective, give deeper and more concentrated thought to the role of local rural place as we seek to find solutions to the ongoing problems of population imbalance and the dissolution of the countryside.

Madheli village is situated in Vadodara District. People of this village are living in very peaceful manner. Agriculture is the main profession of this village. Still this village is waiting for Industrial development. Education, drinking water, Road and Electricity are the main concern of this village. Young generation is more attracted towards mobile, Laptop and computer technology these days. If banks and finance institutions proved loan and other financial support to the villagers, this village will see the real development. Medical and health services have to be improved.

Madheli village houses are Eco- friendly in nature, made by bamboos and muds. The houses in the village are mostly built of bamboo with thatched roofs. Wall and floor of the village houses are by painted by a mixture of dirt, grass, and cow dung. Before and after rain, these houses need a maintenance every time.Most of the people who live in village are farmers. The life style of villagers is very clean, sweet and simple.

In the Indian context rural development may be defined as maximizing production in agriculture and allied activities in the rural areas including development of rural industries with emphasis on village and cottage industries. It attaches importance to the generation of maximum possible employment opportunities in rural areas, especially for the weaker sections of the community so as to enable them to improve their standard of living. Provision of certain basic amenities like drinking water, electricity, especially for the productive purpose, link roads connecting villages to market centers and facilities for health and education etc.

For the development of an economy in both rural and urban areas need to be focused upon. Rural Areas need drastic changes in areas like infrastructure, credit availability, literacy, poverty eradication, etc.The schemes that are already in place with the aim of rural development need a new outlook and proper updating. Accordingly, the government needs to act for the upliftment of rural India.

Keywords: infrastructure, development, drainage system, healthcare, road network, employment.

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ABBREVIATIONS :

SHORT NAME / SYMBOL	FULL NAME
NGOS	Non-government organisations
DDT powder	dichloro-diphenyl-trichloroethane powder
SDGs	Sustainable Development Goals
IoTs	Internet of Things

Chapter 1.

Ideal village visit from District of Gujarat State (Civil Concept) :

1.1 BACKGROUND AND STUDY LOCATION

BACKGROUND

As a Part of Vishwakarma Yojana, It is necessary To understand the development idea of Ideal Village concept and required development of allocated Village. We collect the necessary Data fpr Tecno-economic survey.

Punsri is a large village located in Talod Taluka of Sabarkantha district, Gujarat with total 1109 familie residing. The Punsri village has population of 5100 of which 2653 are males while 2447 are females as per Population Census 2011. In Punsri village population of children with age 0-6 is 578 which makes up 11.33 % of total population of village.Average Sex Ratio of Punsri village is 922 which is higher than Gujarat state average of 919. Child Sex Ratio for the Punsri as per census is 914, higher than Gujarat average of 890.Punsri village has higher literacy rate compared to Gujarat. In 2011, literacy rate of Punsri village was 79.43 % compared to 78.03 % of Gujarat. In Punsri Male literacy stands at 89.62 % while female literacy rate was 68.40 %.As per constitution of India and Panchyati Raaj Act, Punsri village is administrated by Sarpanch (Head of Village) who is elected representative of village. Our website, don't have information about schools and hospital in Punsri village.

STUDY LOCATION

The village is located at about 80km from the state capital, Gandhinagar.
Punsari is 20km from Parvati Hills. Parvati Hills is the largest table top land of India and about 170 km from the Vadodara district, Gujarat.

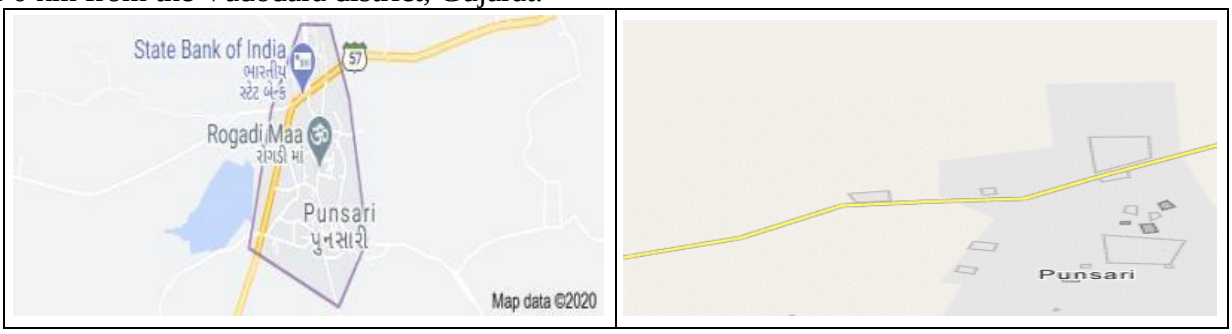


Figure 1.1 Location area of Punsari villag

1.2 Concept: Ideal Village, Normal Village

Development is a highly complex, relative, and multi-dimensional concept. The core focus of this term even today continues to be economic growth. However, some quintessential terms such as sustainability and inclusiveness have been added to broaden the scope of this concept. From a holistic perspective, development is directed to achieve goals in health, education, public infrastructure, and empowerment of the people particularly at grass-roots level.

The term rural development represents improvement in the quality of life of the people in rural areas.As per Chambers (1983), "rural development is a strategy to enable a specific group of people, poor rural women and men, to gain for themselves and their children more of what they want and need". According to Sreedhar and Rajasekhar (2014), rural development as a phenomenon can be viewed as the result of interactions between various physical, environmental, technological, economic, socio-cultural, and institutional factors in the rural areas of a nation. Sreedhar and Rajasekhar add that as a strategy, rural development is the approach or operational design to bring about the desired positive change in the socio-economic and cultural life of the people. Although development of rural areas has always been a priority of Indian government since independence, off late rapid urbanisation has diverted attention of the government onto urban areas.Equal attention needs to be paid to the goal of rural rejuvenation. In the following section, the trajectory of rural development programmes in India is briefly sketched.

1.2.1 Objectives

Prevent distress migration from rural to urban areas, which is a common phenomenon in India's villages due to lack of opportunities and facilities that guarantee a decent standard of living.

Make the model village a "hub" that could attract resources for the development of other villages in its vicinity. Contribute towards social empowerment by engaging all sections of the community in the task of village development. Create and sustain a culture of cooperative living for inclusive and rapid development.

1.2.2 EXAMPLE OF IDEAL VILLAGE OF INDIA/GUJARAT Ideal village:

An ideal Villages project assists in this by putting concepts Such as hygiene education, environmental health, health promotion and environmental protection into action in rural communities. An ideal Villages project enables a village to mobilize the human and financial resources needed to address many health and quality- of-life issues.

Mawlynnong: "God's Own Garden"

Mawlynnong is a village in the East Khasi Hills districy of the Meghalaya state in North East India. It is notable for its cleanliness. Mawlynnong is known for its cleanliness. The waste is collected in the dustbins made of bamboo, directed to pit and then used as manure. A Community initiative mandates that allresidents should participants in cleaning up the village. Smoking and use of polythene is banned while rainwater harvesting is encouraged.

Dharnai: First fully solar-powered village

Residents of Dharnai had been using diesel-based generators and hazardous fuel like cow dung to meet the electricity requirement for decades, which were both costly and unhealthy. Since the launch of Greenpeace's solar-powered 100-kilowatt micro-grid in 2014, quality electricity is being provided to more than 2,400 people living in this village in Jehanabad district.

Dharnai first solar village

Eraviperoor, Kerala:

At a time when the country is abuzz with talks about Digital India, and how technology can be taken to the Remotest corners of the country, the Eraviperoor gram panchayat in Pathanamthitta district Kerala is leading way. It is the first gram panchayat in Kerala to have free Wi-Fi for the general public.

The village has alsp launched a free palliative care scheme for the poor and is the first Panchayat in the state to get ISO – 9001 certificate for its primary health centre. It has also been recognized as model Hi-tech Green village, by The Horiculture Department, for its green initiatives.

Eraviperoor, Kerala

Payvihir, Maharashtra: Eco Village

Payvihir has set an example for the country by consistently showing how communities and NGOs can work together to conserve the environment and ensure sustainable livelihood for people.

In 2014, Payvihir got the Biodiversity Award from the United Nation's Development Programme for turning a barren, 182-hectare land under community forest right,into a forest. Recently, the village also came up with an out-of-the-box idea of selling organic sitafals (custard apples) and mangoes in Mumbai.


Payvihir Village, Maharashtra

1.2.3 The Idea of Model/Smart Village

The idea of an "Adarsh Gram" or Model village has been explored earlier as well, most notably through the Pradhan Mantri Adarsh Gram Yojana, launched by the Central Government in 2009-10. The scheme was implemented in pilot mode in 1000 villages of Assam, Bihar, Himachal Pradesh, Rajasthan and Tamil Nadu, with an allocation of Rs 10 lakh per village. This limit was later raised to Rs 20 lakh per village.The target villages under the scheme were those with more than 50% of the population belonging to Scheduled Castes (SCs). Additionally, State governments have also taken steps in this direction. Himachal Pradesh launched a Mukhya Mantri Adarsh Gram Yojana along similar lines in 2011, with the allocation of Rs 10 lakh per village. Thw proposed smart village model was categorized into 6 dimension including 1)Governance 2) Technology, 3) Resources, 4)Village Service, 5) Living, and 6) Tourism. This research is expected to be applied to villages in other Regencies by adjusting the Characteristics of each region. A large percentage of our population lives in cities. Hence, the researchers as well as the governments concentrate their efforts towards the development of smart cities which are self-sustainable and technologically advanced. These cities can use their resources in a smart and restrained manner. The same idea can be extended to the villages. Rural population comprises a good portion of the total population of a farming-based economy like India.The life of people in villages is also tougher compared to their city counter-parts. There is a dire need to work towards the progress of the villages along with improving the life in cities. There are certain ideas in smart cities that can be directly implemented in villages.

1.2.4 Ancient History Civil concept about Indian Village and its development

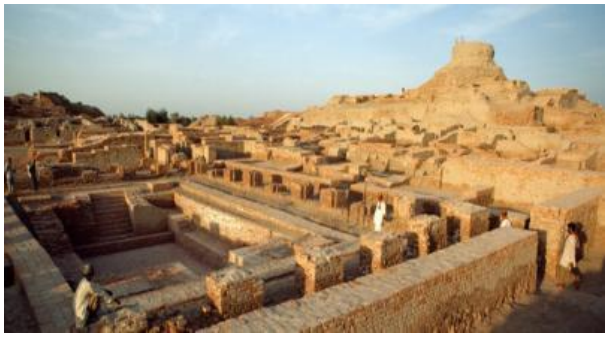
India's history and culture is dynamic, spanning back to the beginning of human civilization. It begins with a mysterious culture along the Indus River and in farming communities in the southern lands of India. The history of India is punctuated by constant integration of migrating people with the diverse cultures that surround India.

Available evidence suggests that the use of iron, copper and other metals was widely prevalent in the Indian sub-continent at a fairly early period, which is indicative of the progress that this part of the world had made. By the end of the fourth millennium BC, India had emerged as a region of highly developed civilization

The Indus Valley Civilization:

The Indus valley civilization was basically an urban civilization and the people lived in well-planned and well-built towns, which were also the centers for trade. The ruins of Mohenjo-Daro and Harappa show that these were magnificent merchant cities-well planned, scientifically laid, and well looked after. They had wide roads and a well-developed drainage system. The houses were made of baked bricks and had two or more storeys.

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



The Indus Valley Civilization

Vedic Civilization:

The Vedic Period or Vedic Age (1500 - 500 BCE) was the period during which the Vedas, the oldest scriptures of Hinduism were composed. During the early part of the Vedic period, the Indo-Aryans settled into northern India, bringing with them their specific religious traditions. The associated culture was initially a tribal, pastoral society centered in the north-western parts of the Indian subcontinent; it spread after 1200 BCE to the Ganges Plain, as it was shaped by increasing

settled agriculture, a hierarchy of four social classes, and the emergence of monarchical, state-level polities.

Pre-INDEPENDENCE INDIA:

During the British rule, Britishers were not concerned with the socio-economic development of India and thus our rural economy severely damages resulting in the miserable conditions of the rurality's. The primary concern of the administration was maintenance of law and order and collection of revenue, not the development. Thus, colonial interests were primary objectives and the rural development was secondary.

Post-INDEPENDENCE ERA:

In the post-independence era, the development of rural areas can be considered wisely through various programmers and schemes which have been launched by the government. The country adopted the planned development. The very first five-year plan laid stress on agricultural development. It took a number of measures to bring more land under irrigation. Major irrigation Dams like Bakra Nangal, Hirakud, Nagarjunasagar, Tungabhadra were constructed which generated power for industrialization of the country and water for the irrigation. The Indian farmer, as a result, is now not exclusive depending on the monsoon.

1.3 Detail study (Social economical, physical, demographic and infrastructure details)

Pansuri is a Census village in district of Sabarkantha, Gujarat. The Pansuri Census village has a total Population of 5100 of which 2653 are male while 2447 are females as per the report released by Census India 2011.

Population of Children with age of 0-6 is 578 which is 11.33% of total population of Punsari. In Punsari Census village female sex ratio is 922 of against state average of 919, and Morever Child Sex ratio in Punsari is around 914 compared to Gujarat state average of 890. Literacy rate of Punsari is 79.43% higher than state average of 78.03%. In Punsari, Male literacy is around 89.62% while female literacy rate is 68.40%

Socio-economic details:
Social profile:
Punari village has good social scenario.

1. Schools: 5 WITH CCTV
2. RO plant
3. MINI Bus
4. Wi-Fi connectivity
5. 25 CCTV in prime junction of village
6. Hospital
7. ATAL EXPRESS for women for import of milk

Economic profile:
Occupation detail:

1. Farming - 70 %
2. Business -10%
3. Dairy - 10%
4. Employee - 10%

PHYSICAL DETAILS And INFRASTRUCTURE DETAIL

The most important concern in rural development is to provide basic amenities to each person living in the rural area. Punsari stands out in this regard as it has constructed a reverse osmosis plant and since then provided house-to-house piped connections to supply chlorinated water. It also has its own 66 KVA substation for electricity generation and 100 per cent coverage of all streets with LED streetlights. A public address system with 120 waterproof speakers for announcing information and spreading messages has been another striking feature of this village. The village headperson uses this public announcement system to share what s/he thinks, plans, and is doing at the gram Panchayat. The entire village has been put under CC TV surveillance, which has helped to bring down crime rate to almost zero per cent. Each household has a personalised lavatory and the whole village has a well-designed drainage and storm water disposal system. Atal Express is a free bus service available for commutation to all the villagers. Punsari is the first fully Wi- Fi-covered village in India. There are also plans to do GIS mapping for the better implementation of many government schemes. Some of the popular national banks and their ATM centers are now available as well.

Demographic detail

The population of Punsari was 5500 as per 2011 census of India which has increased to 5500 in 2011. As of June 2012, the population is 6000.

1.4 SWOT analysis of Ideal village:

SWOT analysis (or SWOT matrix) is a strategic planning technique used to help a person or organization identify strengths, weaknesses, opportunities, and threats related to business competition or project planning.

This technique, which operates by 'peeling back layers of the company is designed for use in the preliminary stages of decision-making processes and can be used as a tool for evaluation of the strategic position of organizations of many kinds (for-profit enterprises, local and national governments, NGOs, etc.). It is intended to specify the objectives of the business venture or project and identify the internal and external factors that are favorable and unfavorable to achieving those objectives. Users of a SWOT analysis often ask and answer questions to generate meaningful information for each category to make the tool useful and identify their competitive advantage. SWOT has been described as the tried-and-true tool of strategic analysis, but has also been criticized for its limitations.

SRENGTH:

Rcc road
24*7 electricity
Street light
CCTV cameras
WI-FI availability
Speaker for announcement

WEAKNESS:

Only 50% roads
Closed drainage system should be constructed
50% road should be constructed -Mosquito nuisance due to open drainage system

OPPORTUNITIES:
Use of modern Technology

THREAT:

Increasing Pollution
Poor Maintenance
Post Pandemic

1.5 Future prospects of Development of the Ideal Village

Focus on preparing a team of young local level leaders who are not only from his own state but from across the country.For the future prospects there are many things can be apply for safe and better future for next generation. We know that there will be also requirement of energy sources for the next generation people and there for we have to do maximum use of renewable sources.Nearly 73 percent of India's population lives in more than 5.5 lakh villages. The ministry has been supporting programs for the use of renewable energy products and devices such as biogas plants, solar thermal systems, photovoltaic devices, biomass gasifiers, etc. as well as the Integrated Rural Energy Program.

-National Bio gas and Manure Management Program (NBMMP)
-Solar Thermal Energy
-Remote Village Electrification Programs
-Village Energy Security Project
-Village Pandemic Combating System

1.6 Benefits of the visit of Ideal village

The visit of ideal village is helpful in civil aspect such as, analysis of water supply network, roads, public health center, water storage tank, solid waste collection, etc.
It gives answer of many questions like…

1) How is the culture of a village?
2) What is the Socio-economic condition of village?
3) Which type of infrastructure facilities required?
4) Which amenities that are need by village?

By visiting the ideal village, it gives the answer of above-mentioned questions.

1.7 Civil aspects required in Ideal village:

Apart from basic facilities like school, Post office, House, RCC Road, Anganwadi, etc. but there is lack Of some facilities such as free Wi-Fi, Water harvesting system, Library, Public Park which basic, dairy which is basic Requirement in today's life.

By providing re-creational center and skill development centers for youth it will helpful to the youth for employment aspect.

CHEPTER 2.

MADHELI LITERATURE REVIEW –CIVIL CONCEPT

2.1 Introduction urban and ruler village:

2.1.1 URBAN VILLAGE CONCEPT:

In urban planning and design, an urban village is an urban development typically characterized by medium density houses, mixed use zoning, good public transit and an emphasis on pedestrianization and public spaces. Contemporary urban village ideas are closely related to new urbanism and smart growth ideas initiated in the United States. Urban villages are seen to provide an alternative to recent patterns of urban development in many cities, especially decentralization and urban sprawl.

They are generally purported to:
1. Reduce car reliance and promote cycling, walking and transit use
2. Provide a high level of self-containment (people working, recreating and living in the same area)
3. Help facilitate strong community institutions and interaction

2.1.2 Ruler village concept

The first category of urban units is known as Statutory Towns. These towns are notified under law by the concerned State/UT Government and have local bodies like municipal corporations, municipalities, municipal committees, etc., irrespective of their demographic characteristics

For the Census of India 2011, the definition of urban area is as follows;
All places with a municipality, corporation, cantonment board or notified town area committee, etc.
All other places which satisfied the following criteria:
- A minimum population of 5,000;
-At least 75 per cent of the male main working population engaged in non- agricultural pursuits; and
- A density of population of at least 400 persons per sq. km

2.2 Importance of the Rural development:

2.2.1 Rural development introduction:

Rural development is important not only for the majority of the population residing in a rural area but the growth of rural activities is necessary to stimulate the speed of overall economic expansion of the nation. Rural development is pretended to be noticeable importance in the country today than in the olden days in the process of the evolution of the nation. It is a strategy trying to obtain improved rural creation and productivity, higher socio-economic equality, and ambition, stability

in social and economic development. The primitive task is to decrease the famine roughly about 70 percent of the rural population, implement sufficient and healthy food. Later, serve fair equipment of clothing and footwear, a clean environment and house, medical attention, recreational provision, education, transport, and communication.

2.2.2 Need for Rural Development in India:

Rural development is a topic that is pretty easy to understand but hard to implement. It focuses upon the upliftment and development of the sections of ruler economics, that experience grave poverty issues and effectively aims at developing their productivity. It also emphasizes the need to address various pressing issues of village economies that hinder growth and improve these areas.
Some areas that need urgent attention for Rural Development in India are:

- Female empowerment
- Enforcement of law and order
- Infrastructure development like irrigation, electricity, etc.
- Availability of credit,etc.

2.3 Ancient Villages / Different Definition of Rural Urban Villages:

Rural areas have low population density and large amount of undeveloped land. Agricultural Activities are more in rural areas.

Census rural refers to individuals living in the countryside outside centres of 1000 or more population. Rural and small town refers to individuals in towns or municipalities outside the commuting zone of larger urban centers. These individuals may disaggregate into zones according to the degree of a larger urban center.

A rural area is an open swath of land that has few homes or other buildings and not many people.

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

Agenda of census of India is to release of provisional population totals-Rural urban distribution.
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

Table 2.4 Population of Rural and Urban areas as per census 2001 and 2011

For the first since independence, the absolute increase in population is more in urban areas that in rural areas. Rural-Urban Distribution: 68.84% & 31.16
Level of urbanization increased from 27.81% in 2001 census to 31.16% in 2011.

The slowing down of the overall growth rate of population is due to the sharp decline in the growth

rate in rural areas, while the growth rate in urban areas remains almost the same.

Growth Rate of Population (in %)

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

	1991-2001	2001-2011	Difference
EAG	25.0	20.9	-4.1
Rural	23.5	18.7	-4.8
Urban	31.6	29.9	-1.7
Non EAG	18.9	15.0	-3.9
Rural	13.2	5.7	-7.5
Urban	31.5	32.7	+1.2

Growth Rate of Population (in %)

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

Census 2011 Gujarat:

The total population growth of Gujarat 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.

Gujarat	DESCRIPTION	2011	2001
	Actual Population	6.04 crores	5.07 crores
	Male	31,491,260	26,385,577
	Female	28,948,432	24,285,440
	Population Growth	19.28%	22.48%
	Sex Ratio	919	920
	Density/km2	308	258
	Literacy	78.03 %	69.14 %
	Area (Km2)	196,244	196,024

Table 2.5: Population of Gujarat

According to the census reports of Indian Census 2011, is given bellow.

India	DESCRIPTION	2011
	Approximate Population	1,210,854,977
	Male	623, 724, 248

Female	586,469, 174
Population Growth	17.64%
Sex Ratio	940
Density/km2	382
Literacy	74.04%
Area (Km2)	3.287 million km2

Table 2.5: Population of India

2.6 Rural Development Issues - Concerns – Measures:

Rural Area issue: -

- Rural health
- Rural poverty is thought to be more persistent than urban poverty
- Literacy of rural areas people
- People have to migrate to the urban areas due to unavailability of Higher education.
- Poor infrastructure facilities
- Traditional way of thinking
- Lack of recreation facilities.
- Farmers are not having market area for selling their goods directly to the market.

Various Measures are taken for Rural development are as follows:

1.Elevate the growth of rural area as whole in terms of culture, society, economy, technology and health.

2.promote living slandered of rural mass.

3.Uplift rural youths, children and women.

4.Enhance and empower human resource of rural area in terms of their psychology, skill, knowledge, attitude and other abilities.

5.Built infrastructure facility of rural area.

6.Nurture minimum facility to rural mass in terms of drinking water, education, transport, electricity and communication.

7.Improve rural institutions like Panchayat, cooperatives, post, banking and credit.

8.To provide financial assist to develop the artisans in the rural areas, farmers and agrarian unskilled labor, small and big rural entrepreneurs to improve their economy.

9.Step up the rural industries through the development of handicrafts, small scaled industries, village industries, rural crafts, cottage industries and other related economic operations in the rural sector.

10.Upgrade agriculture, animal husbandry and other agricultural related areas. To Develop Rural area as per Pandemic Norms

12.Expand Village as Green building Norms

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

GPDP (gram panchayat development plan) is a comprehensive plan for effective development of a village panchayat area. GPDP aims to expand governing space of a village panchayat and to empower it as a development institution.
GPDP is generally aimed at:

- Improving basic amenities in a village panchayat. This includes sanitation, connectivity, drinking water, storm water drainage, burial grounds, etc.
- Improving standard of living of poor families in a panchayat area.
- Eradication of absolute and relative poverty through convergence of government programs and policies.
- Prevention and control of communicable diseases with the support of the health department.
- Providing social security to all sections of marginalized communities.
- Effective management of natural resources and sustainable development of livelihoods.
- Conserving soil and water.
- Ensuring 100 per cent enrolment in schools.
- Ensuring gender equality and equity in all aspects of development.
- Development of governing capability of village panchayats.
- Strengthening a gram sabha and improving the quality of a gram sabha. In the RADPFI Guidelines (2016: Chapter 4), the Ministry of Rural Development has also provided the contents of a typical Gram Panchayat Spatial Development Plan (GPSDP).

2.8 Other Projects / Schemes of Gujarat / Indian Government:

Following are the projects/schemes by Govt. Sector:

1. Mukhyamantri kissan sahay yojna
2. Gujarat Mukhyamantri Pak Sangrah Yojana 2021
3. Deen Dayal Upadhyaya Grameen Kaushalya Yojana

i) Mukhyamantri kissan sahay yojna

- The "Mukhya Mantri Kisan Sahay Yojana" is implemented in the State for Kharif 2020 as per the GR issued Dt.10/8/2020
- No monetary share by farmers and scheme covers all Kharif crops of the State.
- Scheme covering 3 risks- Drought, Heavy rain and Unseasonal rainfall
- All the farmers of the State possessing agricultural land and holding the Sanad under the Forest Right
- Act shall be considered as beneficiary farmer.

- For Crop loss of 33 % to 60 %, assistance of Rs. 20000/ Ha. and for Crop loss above 60 %, assistance of Rs. 25000/ Ha. will be eligible for maximum 4 hectors in Kharif season.
- Farmers can also avail benefit of SDRF independently.
- A portal linked with land records and CM dashboard will be created to get the online application of farmers.
- Approved assistance will be directly paid into farmer's bank account through DBT.
- A special grievance redressal mechanism will be set up to address the queries of the beneficiary farmers.

ii) Gujarat Mukhyamantri Pak Sangrah Yojana 2021

Gujarat Government has Launched mukhyamantri pak sangrah yojana 2021 for farmers. The State Government will provide RS 30,000 per unit for construction of on-farm storage structures. The main Objective to provide assistance is to prevent crop looses of farmers. People would be soon able to Apply online for the scheme by filling mukhyamantri pak sangrah yojana application form. The main purpose of mukhyamantri pak sangrah yojana is to raise the farmers income by protecting Their crops. The announcement to start mukhyamantri pak sangrah yojana is made in The Gujarat Budget 2020-2021.

iii) Deen Dayal Upadhyaya Grameen kaushlya Yojana

DDU-GKY was launched on 25th September 2014 by union ministers Nitin Gadkari and Venkaiah Naidu on the occasion of 98 birth anniversary of Pandit Deen Dayal Upadhyaya. The vision of DDU-GKY is to "to transform rural poor youth into an economically independent and globally relevant workforce". It aims to target the youth, in the age group of 15-35 years. DDU-GKY is part of the national rural live hood mission, tasked with the dual objectives of adding diversity to the rural poor family. Under this programme disbursements would be made through the digital voucher directly into the bank account of student.

Chapter 3.

Smart Village/City Concept Idea and its Visit

3.1 Introduction: Concepts, Definition, Practices

The main idea behind the concept is to encourage people to take initiative and find solution in order to adapt ongoing changes. this includes support from various form of local cooperation or the use of digital technologies. “in short, smart village is mainly about people and for people. It is a return to the partially lost roots in the countryside, to common sense, which our society Is lacking.”

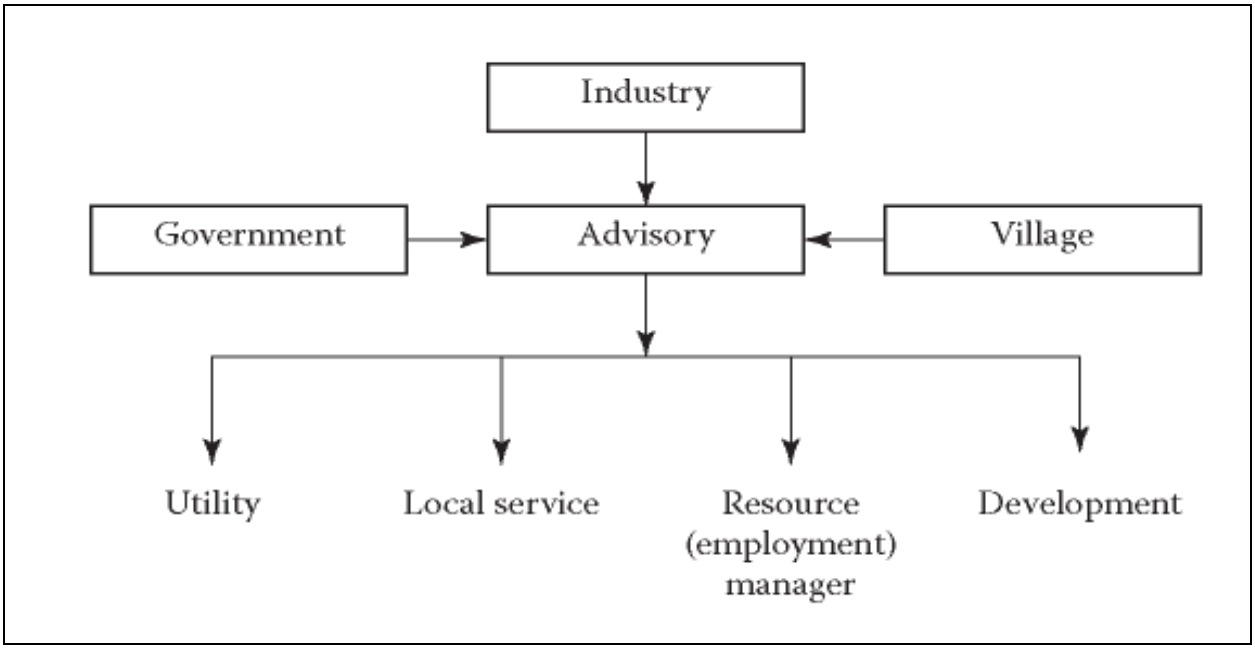
Definition: Smart Villages are communities in rural areas that use innovative solutions to improve their resilience, building on local strengths and opportunities.

3.2 Vision-Goals, Standards and Performance Measurement Indicators:

The vision of smart village is that modern energy access can act as catalyst for development in education, health, productive enterprise, clean water, sanitation, environmental sustainability and participatory democracy which helps to support further improvement in access to energy.

Based on an integrated approach to digital development, the Smart Village model enables accelerated impact on multiple SDGs – such as health, commerce, education and agriculture – by increasing last-mile access and making sure that the right digital solutions reach the people.

The Smart Village Performance Measurement Indicator are as Follows.



3.3 Technological Options

i. Climate services:
- Weather forecasts
- Agro-advisories
- ICT based dissemination

ii. Designed diversification
- Adapted varieties
- Crop livestock system
- Bio diversity

iii. Capacity buildings:
- ICT based weather and market information
- Linking with private sector
- Training and exposure visits

iv. Rural mobility:
- Automated vehicle location system
- Intelligent signaling system
- Parking information system
- Real time traffic information system

3.4 Road Map and Safe Guards:

Like any other field agriculture needs to be viewed with a new prism to make it economically rewarding. Most of the initiatives targeted to transform agriculture have always been seen as philanthropy gestures, not as a sustainable business model in India. The country is supporting start-up culture to give boost to entrepreneur skills among youngsters. There must be some provision where government bodies support the idea of reviving agriculture through various transformative solutions like opening up of market for agriculture produce in strategically targeted locations for greater economic output, providing technical and financial support to the new ideas of marketing and innovation.

For example: a growing demand in cities for organic and chemical-free food was driving a spurt in online and offline stores that sell such products. Many social enterprises were being formed and the concept was being widely discussed to enable villagers to market their goods to cater to this demand. Even Prime Minister Narendra Modi has promoted the idea in many of his election speeches in north eastern states. Rural Development Ministry must take this into account.

3.5 Issues & Challenges:

Problems and challenges are integral to the existence of the individuals as well as the communities. In rural areas, individuals and communities are experiencing number of problems and challenges, which are proving to be major impediments within the course of meeting livelihoods opportunities. The major problems are, poverty, illiteracy, unemployment, homelessness and crime and violence.

The individuals get effected by either one or more of these problems, which are having unfavorable consequences within their overall quality of lives. Poverty is characterized by lack of resources, when the individuals do not possess adequate financial resources; they are unable to fulfil their needs and requirements. The prevalence of illiteracy is common among rural individuals, apart from poverty, there are number of causes, leading to illiteracy. Lack of literacy skills, education and awareness leads to an increase in unemployment. Homelessness among rural individuals takes place due to unaffordable housing, when they lose property, wealth and housing due to the occurrence of natural calamities and disasters and so forth. Prevalence of crime and violence is common in households as well as in other places, such as, schools, market places and so forth.

Inadequate Financial Management – Rural individuals mostly are illiterate and unaware. They do not possess adequate knowledge in terms of effective management of finances. In some cases, they do not make savings and investments and spend the available monetary resources on things, which are not necessary. Hence, when they do not make savings or investments in meaningful schemes, then they experience scarcity of funds, at the time of need. Hence, inadequate financial management leads to prevalence of poverty.

Health Care Needs – The rural individuals, belonging to all age groups and backgrounds pay adequate attention towards their health conditions. The elderly individuals are required to make visits to health care centres on a regular basis to get their check-ups done. But in the case of severe health problems and illnesses, individuals are even required to make visits to urban areas.

Unemployment–Unemployment is referred to as the state, when individuals are not engaged in any form of work or occupation or task, primarily to generate a source of income. When the individuals are jobless and idle, then they are stated to be unemployed. In rural communities, the problem of unemployment is severe among the individuals. When they are unemployed, they experience number of problems and challenges, which are regarded as major barriers within the course of attainment of better livelihoods opportunities. When the rural individuals are unemployed and are struggling to make ends meet, then they are continuously looking for employment opportunities or means to generate a source of income. When the individuals are looking for employment opportunities, they need to ensure that they possess adequate skills and abilities to put into practice their job duties in a well-organized manner.

Intelligent technology- It is believed that intelligent technology for this smart villages is still in the pre commercial or in various cases the conceptual stage. And since the technology is in the pre-mature or conceptual stage, it generates uncertainties regarding return on investment as far as financial parameters are concerned. This also results in apprehension of a long payback period, and investors are unwilling to invest, which contributes to financial uncertainties for intelligent technology initiatives.

3.6 Smart Infrastructure - Intelligent Traffic Management:

Ever-increasing traffic flow leads to traffic congestions and jams, giving rise to increase in the cost of transportation as well as affecting the routine lives of people. an intelligent traffic management system enables users to be better informed and to make safer, more coordinated, efficient and smarter use of transport networks. An intelligent traffic management system (ITMS) is defined as

an advanced application that—without embodying intelligence as such—aims to provide innovative services related to different modes of transport and traffic management. It enables users to be better informed and to make safer, more coordinated, efficient and smarter use of transport networks.

In developing countries such as ours, migration from rural to urbanized habitats due to rapid urbanisation and industrialization is causing high population density without significant infrastructural development of the suburbs. Mega cities, such as New Delhi and Mumbai, are affected the most. Use of multimodal transportation systems, including bicycles, motorcycles, auto rickshaws, cars, buses, metro, trains and pedestrians, are leading to rapid increase in road traffic.

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The solution lies in leveraging advanced technologies and intelligent solutions by deploying ITMS. This system would be able to track the flow and pace of traffic to provide real-time traffic management, which is more dynamic and accommodative of the varying nature of traffic density.

GPS based method: An increasing number of vehicles are now equipped with in-vehicle GPS or satnav (satellite navigation) systems that have two-way communication with a traffic data provider. Different position readings from these vehicles are used to compute vehicle speeds.

Smart-phone based monitoring: smartphone with sensors are used to track traffic speed And density. Accelerometer data from smartphones used by car drivers is monitored to find out the traffic speed and road quality. Audio data and GPS tagging of smartphones enable identification of traffic density and possible traffic jams.

3.7 Cyber Security:

Cyber security is the practice of defending computers, servers, mobile devices, electronic systems, networks, and data from malicious attacks. It's also known as information technology security or electronic information security.

Malware means malicious software. One of the most common cyber threats, malware is software that a cybercriminal or hacker has created to disrupt or damage a legitimate user's computer. Often spread via an unsolicited email attachment or legitimate-looking download, malware may be used by cybercriminals to make money or in politically motivated cyber-attacks.

The field is of growing importance due to the increasing reliance on computer systems and the Internet, wireless networks such as Bluetooth and Wi-Fi, the growth of "smart" devices, including smartphones, televisions and tiny devices as part of the Internet of Things.

3.8 Retrofitting- Redevelopment- Greenfield Development District Cooling:

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 (also known as heat networks or teleheating) is a system for distributing heat generated in a centralized location for residential and commercial heating requirements such as space heating and water heating. The heat is often obtained from a cogeneration plant burning fossil fuels but increasingly also biomass, although heat-only boiler stations, geothermal heating, heat pumps and central solar heating are also used, as well as nuclear power. District heating plants can provide higher efficiencies and better pollution control than localized boilers. According to some research, district heating with combined heat and power (CHPDH) is the cheapest method of cutting carbon emissions, and has one of the lowest carbon footprints of all fossil generation plants.

3.9 Strategic Options for Fast Development:

The present strategy of rural development in India mainly focuses on poverty alleviation, better livelihood opportunities, provision of basic amenities and infrastructure facilities through innovative programmes of wage and self-employment.in India, technology developers for rural areas have been catering to needs (with small improvement), rather than creating demand. There is no industry linkage machinery to create demand-based-technology market for rural communities. Besides, there is also an imbalance between strategies and effective management programmes. Propagation of technology/schemes for rural development is slow and there is a lacking in wider participation of different stakeholders. An ideal approach may therefore, include the government, panchayats, village personals, researchers, industries, NGOs and private companies to not only help in reducing this imbalance, but also to have a multiplier effect on the overall economy.

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

The problem of access to safe drinking water and sanitation facilities in urban areas of India is also a major concern. It is estimated that by 2050, half of India's population will be living in urban areas and will face acute water problems. At present, 163 million people do not have access to safe drinking-water and 210 million people lack access to improved basic sanitation in India. In urban areas, 96% have access to an improved water source and 54% to improved sanitation. Whereas in rural areas, which accounts for 72% of India's population lives, only 84% have access to safe water and only 21% for sanitation. In addition, there is a lack of wastewater treatment facilities to treat the wastewater of a growing population. There is a need to reuse treated wastewater in order to meet the current and future demands for water.

the drainage and solid waste collection services are not adequate in most of the urban areas. The systems are either poorly planned and designed, or operated without inadequate maintenance. Use of natural capacities of soil and vegetation (green infrastructure) can be applied to absorb and treat

waste water. Natural systems are found to be more cost-effective and require low building, labour and maintenance costs.

Investment in water and sanitation has indisputable economic benefits. The World Health Organization (WHO) estimates that every U.S. dollar invested in water & Sanitation generates an economic benefit of $3 to $34, depending on the type of water system installed and the region where the investment is made. Whatever the exact number, investment in water and sanitation not only improves service and quality of life, but also has a direct impact on the economy generally.

EXAMPLE:

Masu-Palar Masu Village (batch II) was identified for SWAJAL because there was the scarcity of water and the supply of Jal Sansthan was irregular. Samata, the support organization in SWAJAL was working in Masu since 1992-93. The villagers had trust on SAMTA because of long relationship with this organization. There is one tank in the village, which was installed by HARC ten years ago; the people in the village still use that tank for drinking water. Since the population of the village was less (500 pop and 65 households) the village could not be taken up under SWAJAL which had the provision of catering to 900 population. Therefore, a neighboring village Palar was taken up which did not have a grave problem of water. A stream flows in the village in Palar. Both Masu and Palar constitute one panchayat. The construction work is still going on, the work is delayed and water has not come in the village. The SO and DPMU have withdrawn since the project period lapsed.

Bhabha Atomic Research Centre (BARC) is playing a pivotal role in the development of these technologies. Some of these technologies are as follows:

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 about0.1% 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'sis hygiene using radiation technology using standard Gamma facility at a Dose of 10kGs. such radiation plants are operating in India for sterilizing medical products.

Role of environmental isotope techniques in the water resources development and management: There are two types 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 ground water salinity, to assess the changes due to long-term exploitation of groundwater, for hydro-chemical investigation and to carry out geochemical evolution of groundwater.

3.11 Initiatives in village development by local self-government:

The institutions of Local Government have flourished in India since time immemorial. The Panchayats or Village Governments, as they were called, were ancient institutions and were themselves small republics. They exercised power in various spheres such as industrial,

commercial, administrative, and social including civic education and religious functions. The development of Urban Local Self- Government, as compared to that of Rural Local Self Government, has been very slow after independence.

- The first two Plans did not carry much for the improvement of Urban Local Bodies. It was only at the end of the Second Plan that the planners focused their attention on the Urban Local Bodies. In the Third Plan, it was suggested strengthening the Municipal Administration by the way of better Personnel and Finances and by enlarging their jurisdiction and functions. It was also suggested to cover all the Towns and Cities having a population of over one lakh under the scheme of planning in an organic way. Election to Municipalities- The superintendence, direction, and control of the preparation of the electoral rolls for, and the conduct of, all elections to the Panchayats and Municipalities shall be vested in the State Election Commission.

3.12 Smart Initiatives by District Municipal Corporation:

District Municipal Corporation may initiate following technologies to make smart city:

1) Transit Hub: In the passenger system, poor modal connectivity is a significant barrier to the use of public transport. Pune city will soon be functional with Metro, BRTS, Feeder system etc. The transit hub will provide the public transportation services a smoother intermodal interfaces and travel route connection opportunities that tend to promote higher ridership along with economic benefits.

2) Customer Care: The successful functioning of any organization is dependent upon efficient, Transparent& multi directional flows of information. Thus, for efficient working a complete mapping & survey of customer is proposed along with a centralized customer center where the citizens would be able to register their grievances, enquiries, billing information and payment, etc.

3)intelligent Physical Infrastructure: Infrastructure is about establishing new technologies, reuse or optimization of existing infrastructure, which is consistent with the principles of urban sustainability and global sustainable development. The Physical Infrastructure module mainly comprises hard infrastructure projects of transport & water sector with one component of live ability.

4)Startup Zone: A fundamental shift is happening towards startup, friendly policies and a business-friendly environment. The need is to nurture the entrepreneurial ecosystem to create more startups as well as opportunities for the vast young population of the city. Pune has large technical talent available due to its many universities, along with cost-effective real estate and good infrastructure.

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

- Digi locker
- My gov.in
- Bharat net
- BPO policies

- National scholarship portal
- WIFI hotspot
- Digitize India platform
- Centre of excellence of internet of things
- Fast tag
- UPI payment

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

Village Adoption Scheme from other country to our country is to equip and familiarize the public, with the socio- economic dimensions of the rural communities, status of sustainable use of natural resources, changing perceptions & aspirations, priorities and innovative effort of the rural communities for sustainable development and; enable/inspire the community for self-help to roll out strategies, methodologies, processes to develop sustainably and create cohesive communities where every individual gets equal opportunity to realize his/her potential. Through this process the stakeholder learns, document the ups and downs of the process which can help them in revising strategies for better training and come up with new models of rural development for replication elsewhere by all stakeholders.

When you think of France, you might think of indulgence, not restraint, but the latter is exactly what earned this country a second-place finish and an EPI of 83.95. In 2015, France enacted the Energy transition for green growth act (LTECV), a comprehensive plan to limit its energy dependence. By 2025, France is expected to reduce the share of energy from nuclear power by 25 percent. By 2030, the goal is to reduce greenhouse gas emissions by 40 percent, increase renewable energy sources to 32 percent, and reduce the use of fossil fuels by 30 percent. France hopes by 2050 to reduce final energy consumption by an impressive 50 percent.

With increased urbanization, urban areas are expected to house 40 per cent of India's population and contribute to over 75 per cent of India's GDP by 2030. This calls for large scale infrastructural development which is not just physical and institutional but also social and economic infrastructure. Only then would these cities will attract investments leading to continuous growth and development.

Chepter-4

About Madheli village

4.1 INTRODUCTION

4.1.1 Introduction about Madheli Village details:

Madheli is a Village in Waghodia Taluka in Vadodara District of Gujarat State, India. It is located 26 KM towards East from District headquarters Vadodara. 8 KM from. 152 KM from State capital Gandhinagar.

Madheli Pin code is 391760 and postal head office is Vaghodia .

Vanadra (2 KM), Limda (2 KM), Vejalpur (3 KM), Kunvarwada (5 KM), Vaghodia (5 KM) are the nearby Villages to Madheli. Madheli is surrounded by Dabhoi Taluka towards South, Vadodara Taluka towards west, Halol Taluka towards North, Sankheda Taluka towards East.

Vadodara, Padra, Karjan, Rajpipla are the nearby Cities to Madheli.

4.1.2 Justification/ need of the study:

The developmental work in villages that could under taken as per the need of the village in particular includes:
Physical infrastructure facilities (Water, Drainage, Road, Electricity, Storm Water Network,

Telecommunication & other), Social infrastructure facilities (Education,Health, Sanitation), Socio- Cultural Facilities (Community Hall, Library, Recreation Facilities &other) and Sustainable Infrastructures (Rain water harvesting, Biogas plant, Eco Toilets, SolarStreet lights & other) for effective development of Villages.

"Vishwakarma Yojana" has provided the platform for real world experience to engineering students and simultaneously apply their technical knowledge in the rural infrastructure development

4.1.3 Study Area (Broadly define):

Why study needed for rural areas?

The importance of rural areas can be calculated properly when it realizes the importance of rural society. Rural area presents a scientific picture of rural lifecycle. Villages are important because they are the spirals to feed urban areas. The importance of rural area can be put under following heads.

Man has need to know human relationship and this can be satisfied through rural area. Rural Population is in a Majority: India is built by number of villages. It is true that over 80% population of India resides in villages.

It Gives Broad Knowledge of Village Life:
Rural area gives us complete knowledge of village life. Village is the first step of development in country. It is a center of culture of any country.

Rural Improvement:
Rural reformation is the primary aim of rural areas. In this context it helps in following works.
i) Organization:
Rural are a unit which are planned and can be planned through rural areas. It better in the co-ordination of various unit sand helps in bringing a development in economic, social and health conditions.

ii) Economic Improvement:
Through detailed study of village problems and surveillance rural sociology gives stress on the importance of increasing the quantity and quality of living life style. This results in to raising the standard of living.

iii) Development Technology and Systematic Knowledge and reforms in Farm Production:
Main population of80% population of village is agriculture. In order to improving this main population of rural people. The previous researches in rural areas were made in agricultural college.

iv) Solutions of Compulsive Social Problems:
Rural areas examine the social compulsive problems and it suggests ways for the improving these problems.

v) Education:
The improvement for rural area, the development of any community depends on its education. Rural area lays stress on education in rural problems.

4.1.4 Objectives of the study:

Creation of infrastructure – connectivity, civic and social infrastructure along with:

- Provision of alternative livelihood generation is the key pillars.
- Basic Physical Infrastructure – Water Supply, Transport, Sewerage and Solid Waste Management should be the priority focus and be provided.
- Basic Social Infrastructure – Health and Education facilities should be provided and ensure proper delivery of facilities to village dwellers.
- Promote integrated development of rural areas with provision of quality housing, better connectivity, employment opportunities and supporting physical and social infrastructure.
- Reduce migration from rural to urban areas due to lack of basic services and sufficient economic activities in rural areas.
- Internal roads within village settlement, Efficient Mass Transportation systems to improve connectivity between urban and rural areas, Public transportation facilities that need to be developed like bus stops, transport depot, etc.

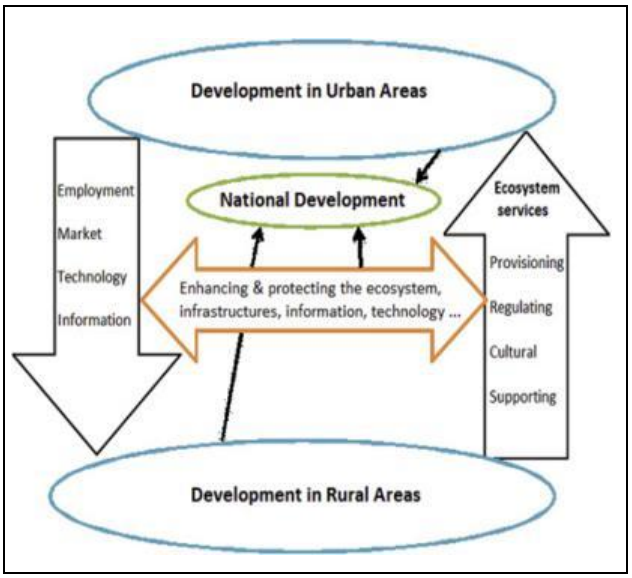
4.1.5 Scope of the study:

It can be development of the village for basic facility. Whole area and people to change the improving. Population growth high to development village and their rural area compare to the urban area. It is very essential to develop village because India's development depends upon the progress of the villages. India is agriculture country and poverty can be removed through improvement in agriculture. Solutions of rural problems can bring the change in the rural society.

The country and its society can be reconstructed only through rural developments. For successful implementation of democratic decentralization, the village community is to be studied in detail. Rural sociology can help to organize the disorganized Indian in detail.

The extension worker must know the rural culture, rural institutions, problems, resources etc. for successful transfer of technology for improvement of agriculture. It can be achieved through the study of rural sociology. Through the technology and communication methods are known to the extension workers. The study of rural sociology helps the extension worker to transfer the technology. For successful implementation of the community development programmed the knowledge of rural sociology is very essential.

4.1.6 Methodology Framework for Development of Your Village:



Method of implementation:

The techno-economic survey of villages has been conducted in different districts of the Gujarat state in terms of basic and public amenities, other infrastructural facilities. The project had been divided into three parts:

(i)Techno-economic survey of villages: Collected all 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.

(ii)Development document preparation: Plan and estimate of proposed development by assessing gap analysis.

(iii)Detailed Project report (DPR): Preparation of development strategies and action plan in the design Proposals: As per the proposed development and planning strategies have been designed as per all the regulations and norms along with the consultation of concerned Government officials (TDO, DDO & Sarpanch). Students of all respective villages have prepared design proposals for essential infrastructure facilities, prepared ready to execute documents, detail estimates with abstract sheet, measurement sheets, recapitulation Sheet and detail drawings.

In the designing Phase, the students have proposed various designs from the following:

i) Physical infrastructure facilities (Water, Drainage, Road, Electricity & Solid-liquid waste Management)

ii) Social infrastructure facilities (Education, Health & Sanitation facilities)

iii) Socio-cultural facilities (Community Hall, Library, Recreation Facilities & other)

(iv) sustainable infrastructures (Rain water harvesting, Biogas plant, Solar Street lights, Eco sanitation & other)

(v) Repair & Maintenance of public buildings for overall development of village.

4.1.7 Available Methodology for development of related to Civil

Methodology-Implementation:
The techno-economic survey of villages has been conducted in different districts of the Gujarat state in terms of basic and public amenities, other infrastructural facilities. The project had been divided into three parts.

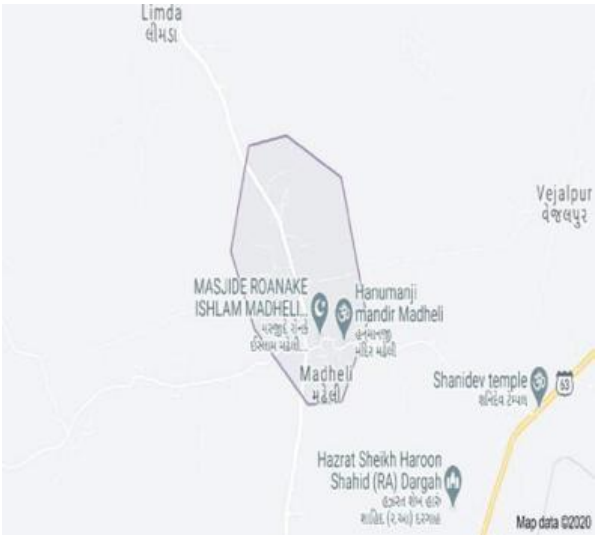
i) Techno-economic survey of villages: Collected all essential information from village such as: Household data, Occupational detail, Water facilities, Drainage facilities, Sanitation availability, Storm water network, Solid waste Management facilities, Electricity Networks, Recreation facilities, Education facilities, Health Facilities, Transportation facilities, Road network, Irrigation system, Use of non- conventional energy sources, Migration rate, Literacy rate and other necessary data.
ii) Detailed Project report (DPR): Preparation of development strategies and action plan
iii) Development document preparation: Plan and estimate of proposed development by assessing gap analysis.

4.2 Madheli Study Area Profile

4.2.1 Study Area Location with Breif history Land use details

Our village madheli has not properly developed. So many problems are there in this village. Infrastructure development is very slowly in this village. Rare kuttcha house in this village. Kuttcha house and pakka house ratio of this village is 40% & 60%. Kuttcha house is 40% and pucka house is 60%.
Our group has visited this village and saw many government buildings are in bad situation and required to be re-constructed which are in worst condition.

4.2.2 Base Location map, Land Map



Location map

Satellite image of madheli

4.2.3 Physical and demographical Growth Physical Growth

Drinking-Water and Sanitation
Treated tap water supply all-round the year and in summer also available. Covered well and tube wells/boreholes are other drinking water sources.

Underground drainage system available in this village. there is no system to collect garbage on street. drain water is discharged directly into water bodies.

Communication:
Sub post office is available in this village. landline available. mobile coverage is available. internet facility available in this village. no private courier facility in less than 10 km.

Transportation:
Public bus service unavailable in this village. there is no railway station in less than 10 km. autos available in this village. tractors available in this village. animal driven carts are there in this village.
No nearest national highway in less than 10 km. no nearest state highway in less than 10 km. district road passes through this village. pucca road, kuccha road and foot path are other roads and transportation within the village.

Commerce:
No ATM in less than 10 km. commercial bank unavailable in this village. cooperative bank unavailable in this village. agricultural credit society is unavailable in this village.

Other Amenities
This village has a power supply with 24 hour power supply in summer and 24 hour power supply

in winter, anganwadi centre, asha, post office, daily newspaper and polling station, dairy house, primary school are the other amenities in the village.

Demographical Growth:

Madheli Local Language is Gujarati. Madheli Village Total population is 2057 and number of houses are 434. Female Population is 48.4%. Village literacy rate is 77.5% and the Female Literacy rate is 36.1%.

Census Parameter	Census Data
Total Population	2057
Total No of Houses	434
Female Population %	48.4 % (996)
Total Literacy rate %	77.5 % (1595)
Female Literacy rate	36.1 % (742)

Scheduled Tribes Population %	30.9 % (636)
Scheduled Caste Population %	6.8 % (140)
Working Population %	45.0 %
Child (0-6) Population by 2011	262
Girl Child (0-6) Population % by 2011	43.5 % (114)

4.2.4 Economic generation profile / Banks

Village economic condition is good. Mostly income is come from farming. Wheat, rice, arendah, cotton crops farming done by farmers. There is dairy house in this village.Which can store milk in big tank and later collect by the dairy van in 7 days. Very few people doing their own business. Those people have their shops. Higher and lower income groups are there in village. Lower income group generally are of labors.

4.2.5 Actual Problem faced by Villagers and smart solution

Problem: There is no health facility in the village. No street lights are there in village.
Solution: we can setup health camp every week in the village. Solar panel LED street light can be solution to overcome of maintenance free street light.

4.3 Data collection madheli village

Locality name: Madheli
Taluka name: Waghodia
District: Vadodara
State: Gujarat
Language: Gujarati,Hindi,English
Time zone: IST (UTC+5:30)
Elevation/Altitude: 33 m. Above the sea level
Telephonic code/ STD code: 02668
Assembly constituency: vaghodiya assembly constituency
Assembly MLA: Madhubhai shrivastav
Lok sabha constituency: Vadodara parliamentary constituency
Parliament MP: Ranjanben Bhatt
Sarpanch Name: Chirag jagdish bhai patel
Pin code: 391760
Post office name: vaghodia

4.3.1 Describe Methods for data collection

Team member has done techno economic survey by taking help of village sarpanch. Also take visit of village to get visual information about the village.

4.3.2 Primary detail of Survey

Village is facilitated with good infrastructure. Some areas are needed to look upon to provide more facility in village. Such as it needs new reconstruction of school and panchayat building. Village needs public toilet with caretaker staff. Street lights can enhance the view of village in night as there are few street lights available in village.

4.3.2 Average Size of the House - Geo-Tagging of House

Three or four room average.

4.3.4 No. of Human being in One House

The no of human being in one house is approximate 5 person in a family

4.3.5 Material available locally in the village and Material Out Sourced by the villagers

Mainly the Organic Material are used locally and the rest materials are bought from out of the village. Organic materials are defined in modern chemistry as carbon-based compounds, originally derived from living organisms but now including lab-synthesized versions as well. Most are combinations of a few of the lightest elements, particularly hydrogen, carbon, nitrogen, and oxygen. Organic materials include the wood from which furniture is made, feathers, leather, and synthetic materials such as petroleum- based plastics. In spite of this variety, they share some general characteristics. For example, many organic materials undergo fading, yellowing, of embrittlement in response to prolonged exposure to light or other forms of radiation, caused by breakdown of the covalent bonding structure shared by many carbon containing compounds.

Out Sourced Material

The out sourced material is construction material & fuel. Because this material generally not available in the village. So, this material is purchase on out of village markets.

4.3.6 Geographical Detail

According to Census 2011 information the location code or village code of Madheli village is 520008. Madheli village is located in Vaghodia Tehsil of Vadodara district in Gujarat, India. It is situated 8km away from sub-district headquarter Vaghodia and 18km away from district

headquarter Vadodara.
The total geographical area of village is 877.34 hectares. Madheli has a total population of 2,057 peoples. There are about 434 houses in Madheli village. Vaghodia is nearest town to Madheli which is approximately 8km away.

4.3.7 Demographical Detail - Cast Wise Population Details

80% public of the village are of open cast. Remaining are of schedule tribe and schedule cast category as per the information getting from the village sarpanch.

4.3.8 Occupational Detail - Occupation wise Details

Since it is a village and it's not developed so mainly farming & milk production are the basic occupation here, and working in nearby factories are also an occupation for villagers.

4.3.9 Agricultural Details / Organic Farming / Fishery

Large group of the people in madheli village are occupied in farming. The main crops grown in the village are: wheat, rice, arendah, cotton etc. There are no any farmer or villager using organic farming or fishery. 8 hours agricultural power supply in summer and 8 hours agricultural power supply in winter is available in this village. Organic farming done by farmers.

4.3.10 Manufacturing HUB / Ware Houses:

farmers don't need this facility in this village.

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

There is no tourism cluster involved with village.

4.4 Infrastructure Detail

4.4.1 Drinking Water / Water Management Facilities

In this village drinking water is treated and clean. And this water supply going to pipe through to separate houses.

water is neat and clean for drinking purpose. And in this village water tank facility provided for storage of water. Two types of

water tank provided. Firs is overhead water tank and second is underground water tank. This water used for drinking purpose.

4.4.3 Transportation & Road Network

Public Bus service unavailable in this village. There is no Railway Station in less than 10 km. Autos Available in this Village. Tractors Available in this Village. Animal Driven Carts are there in this Village. No Nearest National Highway in less than 10 km. No Nearest State Highway in less than 10 km. District Road passes through this village.

Pucca road, Kuccha Road and Foot Path are other Roads and Transportation within the village.

4.4.4 Housing condition:

The house condition is 40% of kutchcha and 60% of pucca approximate. But all house condition is well & good and also Some house condition is really needed to look upon.

4.4.5 Social Infrastructure Facilities , Health , Education , Community Hall , Library :

In madheli village there are 1 anganwadi, 1 primary school, 2-3 temples, 1 Post office, Panchayat building available. There are no secondary and higher secondary schools. Village does not have any health care center, bank and public latrine.

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

Poor condition of school and panchayat house. Dairy house and community hall is in good condition.

4.4.7 Technology Mobile/ WIFI / Internet Usage Details:

Network is well established in village, Wi-Fi facility available near panchayat house.

4.4.8 Sports Activity as Gram Panchayat:

Play equipment's available in school only. People love to play cricket near to water tank ground in madheli village.

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

Pond of village recently got its new look. Wall around the surface of pond constructed and water fountain going to be established for recreational purpose. No public park is available in village. Children love to play cricket near water tank ground.

4.4.10 Other Facilities

80000 liter of water tank gives ample amount of water to the village and 80000 liter of underground storage tank store water for conservation purpose.

4.4.11 Any other details:

RCC road recently constructed in village. Newly Dairy house store 7 days of milk from the people of village and then dairy van take those milk to the dairy. Public toilet needs to be constructed.

4.5 Existing Institution like - Village Administration – Detail Profile

4.5.1 Bachat Mandali: In the Madheli village there is no any Bachat Mandali existing.
4.5.2 Dudh Mandali: There is one Dudh Mandali existing in the madheli village in Dairy.
4.5.3 Mahila forum: There is no forum in Madheli village.
4.5.4 Plantation for the Air Pollution: There is no such activity done of tree plantation for the air pollution in the Madheli village.
4.5.5 Rain Water Harvesting: Rain Water Harvesting Facility is available in School of Village Madheli.
4.5.6 Agricultural Development: farmers are well experienced in farming. So overall agricultural development happens to seen here. With good basic facility to grow crops, maximum crop yield happens to cut here.
4.5.7 Any Other: There are no any other kind of institutions existing in the madheli village apart from panchayat building, dairy, primary school, temples, anganwadi, etc.

Chapter 5.

Technical Options with Case Studies

5.1 Concept:

5.1.1 Advance Sustainable construction techniques / Practices and Quantity Surveying:

1. IoT Integrated Automated Building Systems

The Internet of Things (IoT) is a collection of interrelated computing devices, mechanical and digital machines equipped with unique identifiers and the ability to transmit data across a network without involving human-to-human or computer-to-computer contact. Its potential excites multiple industries. The importance of IoT in the building is very vital. Modern building operations follow IoT to achieve energy savings, gain flexibility in operation, and ease in day-to-day maintenance activities. It is now starting to have a positive impact on automation and control of smart buildings. IoT offers a number of benefits for building automation including lower energy consumptions, improvements in operational efficiencies, predictive maintenance, improvements in financial planning, improvements in building performance data, and the increased use of sensors, among others.

2. Synthetic Roof Underlayment

Synthetic roof underlayment provides a secondary weather barrier to help fortify roofs from wind-driven rain or simple exposure to the elements. synthetic underlayment is designed to enhance the life of the roof. Equally as important, this moisture resistant synthetic underlayment is a water barrier built to stand strong when it needed the most. Also, Synthetic Roof Underlayment is a highly engineered and coated with woven which combines a durable and high strength design with a fiber grip walking surface.

3. Grid Hybrid System

Hybrid solar systems generate power in the same way as a common grid-tie solar system but use special hybrid inverters and batteries to store energy for later use. This ability to store energy enables most hybrid systems to also operate as a backup power supply during a blackout. Traditionally the term hybrid referred to two generation sources such as wind and solar but in the solar world the term 'hybrid' refers to a combination of solar and energy storage which is also connected to the electricity grid.

4. Green Roofs

A green roof or living roof is a roof of a building that is partially or completely covered with vegetation and a growing medium, planted over a waterproofing membrane. It may also include additional layers such as a root barrier and drainage and irrigation systems.

5. Passive Solar

Another way to leverage a sustainable solar energy source is to construct the building based on the passive solar concept. The facility's location and design maximize solar energy for heating during winter, while reducing its impact during warmer months.

6. Greywater Plumbing Systems

Greywater systems reduce the facility's need for fresh water, as everything except for toilet streams can be processed for reuse. The most common uses for this water include irrigation and supplying toilets with water.

7. Electrochromic Glass

Electrochromic glass can shift from clear to opaque based on external stimuli such as an electrical current or UV rays. It eliminates the need for shades and other window treatments, while adapting to current conditions passively. Additional benefits include blocking the vast majority of UV rays.

8. Solar Thermal Cladding

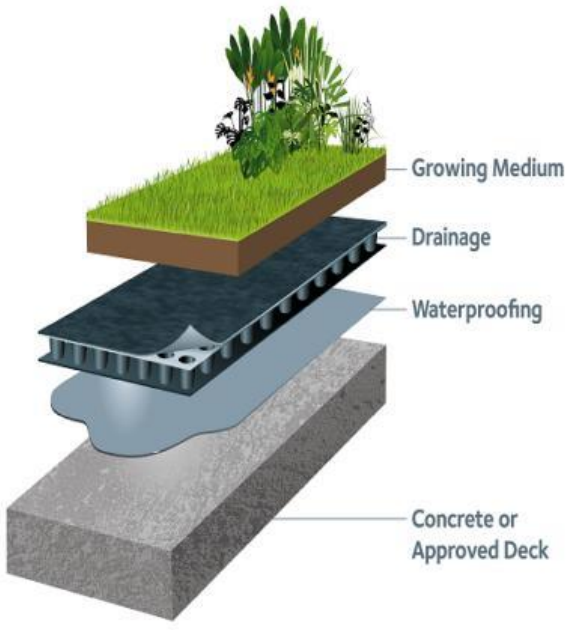
Solar thermal cladding is a passive solar building method designed specifically to hold heat during the winter. The sun's energy is stored within this material and passed through to the building for heat retention purposes.

9. Structural 3D Printing

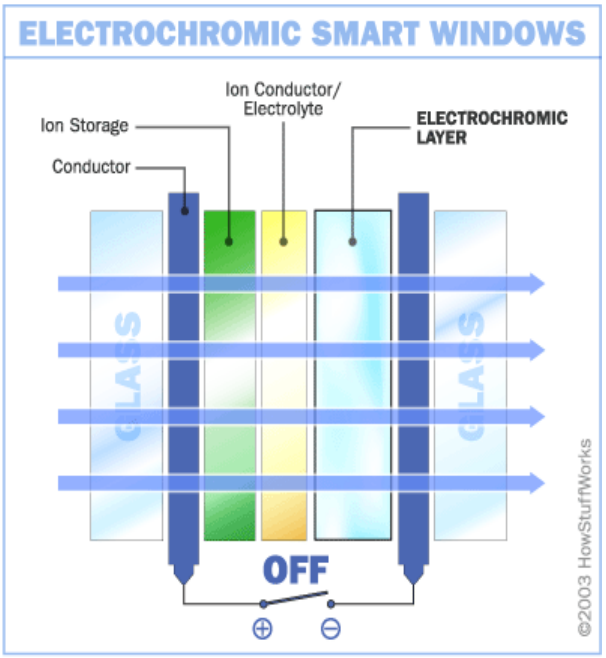
Creating and moving building materials to the job site can have heavy environmental costs. As structure 3D printing begins moving forward, it becomes easier to cut down on shipping costs or reduce the weight of components.

10. Self-healing Concrete

This material is in its early stages, but once it's commercially viable it opens up many sustainable possibilities. Everything from roads to walkways can benefit from concrete that heals itself. Road crews would no longer need to shut down busy streets and highway lanes to address potholes and cracks.



Green roof



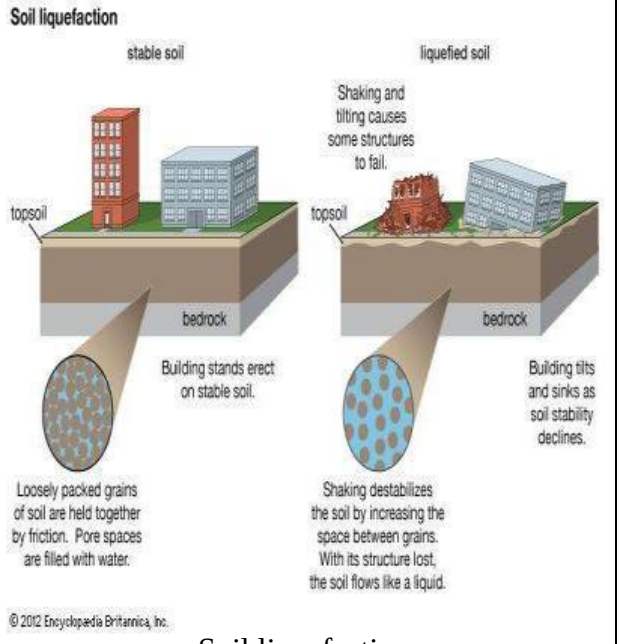
Electrochromic Glass

5.1.2 Soil Liquefaction:

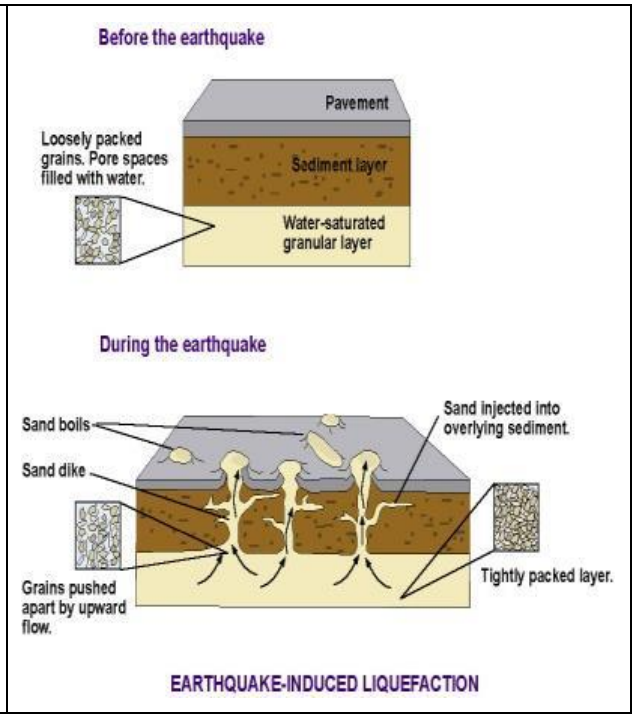
"A Phenomenon whereby a saturated or partially saturated soil substantially loses strength and stiffness in response to an applied stress, usually earthquake shaking or other sudden change in stress condition, causing it to behave like a liquid" is called Soil Liquefaction.

How does soil liquefaction work:
The soil is a mixture of soil particles that stay connected together. These particles naturally rest upon each other due to gravity and form grids based on its properties. Each particle produces its own contact force by the surrounding particle. These contact forces together hold all the individual soil particles in their place. Soil liquefaction occurs due to sudden and rapid load on the soil particle. The sudden water pressure leads to soil losing its cohesive strength. Once the soil loses its cohesion, it gets softened, weak and loses its solid properties that are converted to liquid properties.

Liquefaction during seismic events:
Seismic events affect ground conditions. Liquefaction of soil causes structural instability in buildings. This occurs due to various instances of structural failure. The liquefied ground cannot sustain the stresses of its load from the foundations. Foundations will sink into the sand deposit and cause the building to lean and eventually collapse. Soil liquefaction occurs only in areas which have saturated soils. Most of these areas are located near a water body such as lakes, ponds, rivers etc.
Buildings constructed in this zone must adhere strict codes and bylaws. The soil can sustain the ground forces in general conditions. But an earthquake or strong motion/vibrations in the ground, can cause water logging which increases the liquid consistency in the soil. The soil loses its rigidity and the ground cannot support the loads causing them to sink or collapse.



Soil liquefaction



5.1.3 Sustainable Sanitation

Sustainable sanitation is a sanitation system designed to meet certain criteria and to work well over the long- term. Sustainable sanitation systems consider the entire "sanitation value chain", from the experience of the user, excreta and wastewater collection methods, transportation or conveyance of waste, treatment, and reuse or disposal.

The Sustainable Sanitation Alliance (Susana) includes five features (or criteria) in its definition of "sustainable sanitation": Systems need to be economically and socially acceptable, technically and institutionally appropriate and protect the environment and natural resources.

Sustainable sanitation approaches focus on the "sanitation value chain" which includes collection, emptying, transport, treatment and reuse/disposal.
The purpose of sustainable sanitation is the same as sanitation in general: to protect human health. However, "sustainable sanitation" attends to all processes of the system: This includes methods of collecting, transporting, treating and the disposal (or reuse) of waste.

The main objective of a sanitation system is to protect and promote human health by providing a clean environment and breaking the cycle of disease. In order to be sustainable a sanitation system has to be not only economically viable, socially acceptable, and technically and institutionally appropriate, but it should also protect the environment and the natural resources.

Health aspects include the risk of exposure to pathogens and hazardous substances 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. The topic also covers aspects such as hygiene, nutrition and the improvement of livelihood achieved by the application of a certain sanitation system, as well as downstream effects.

5.1.4 Transportation Infrastructure/ System

Transportation refers to any vehicle or activity that moves people and goods from one place to another. In the United States, key modes of transportation for people and goods include buses, trains, trucks, cars, airplanes, and other forms of motorized vehicles. However, transportation can also refer to bicycles, boats, and even pedestrian traffic.
Both public and private authorities can manage transportation systems, which can involve maintaining and updating infrastructure to ensure the system runs smoothly. Transportation infrastructure may include roads, bridges, bus stations, train tracks, airports, sidewalks, or ferry terminals.

transportation plays a critical role in the livability of a community – the factors that influence a community's quality of life. Transportation allows for access to food, healthcare, educational opportunities, and employment. Additionally, access to transportation increases rural residents' ability to access recreation, entertainment, and other activities that promote community engagement. Efficient and affordable transportation is an important driver in economic growth in rural areas and helps ensure that people can obtain services and participate in public life.

Rural residents are more reliant on personally-owned, single driver automobiles for transportation than their urban counterparts. However, many rural residents are unable to rely on this mode of transportation. Personal vehicles can be expensive to purchase and maintain, and some residents may not have drivers' licenses. Additionally, rural residents who have physical or mobility limitations may not be able to drive.

The impacts of rural road connectivity:
1. Improved transportation services leads to improve access to market centres for the rural producers, better availability of farm inputs at reduced price.
2. Better connectivity enhances employment opportunities in the non-agricultural sectors.
3. Improved services with improved road connectivity, enhances access to education, health and financial services.
4. Improve the connectivity of village people from major city roads by that all public services are improved.

5.1.5 Vertical Farming:

Vertical farming refers to a method of growing plants or crops in vertically stacked layers. The concept behind this type of farming is quite different from conventional or horizontal farming. The growing methods may include the use of soil, aeroponic or hydroponic practices.
However, the basics of vertical farming remain the same while utilizing each of these methods.

Apart from being revolutionary, vertical farming is a more sustainable method of growing crops. It utilizes almost 70% less water and helps to save a reasonable amount of resources. In addition, it is an eco-friendly method, which proves to be efficient in almost every environmental condition.

Hydroponics
The basic concept behind this method is to grow plants in a nutrient-rich solution. This practice works by suspending plant roots in a solution, which offers a suitable amount of nutrients for the plants to grow.
However, it requires great attention and knowledge to grow plants using just a solution. The liquid needs to be circulated frequently and you need to maintain an ideal composition of such a solution.

Aeroponics
Aeroponics is a technique that allows growing plants without soil and with a minimum amount of water. In fact, the plants literally grow in air, with roots exposed. The mist environment provides the necessary amount of moisture to the root, so that plant can grow.
aeroponics is the most advanced and efficient way of growing crops through vertical farming. The amount of water consumed is 90% less than conventional farming. It is even more efficient than hydroponics system when it comes to vertical farming. Moreover, while growing in an aeroponics system, the plants absorb more nutrients and mineral. Hence, the vegetables produced through this method are more fresh, tasty, nutrient-rich, and healthy.

Aquaponics
This system is identical to the hydroponics system but it has some additional benefits. The idea behind this system is to create an ecosystem where plants and fish benefit each other. This suggests

that when you grow fish in indoor ponds, the water becomes nutrient-rich. This water serves as a food source for the plants growing in your vertical farm.

Vertical Farming Requirements

Unlike other farming options, vertical farming systems require the latest structural and engineering equipment. The whole process of farming takes place through automation. This ensures to treat crops with utmost attention and care. As a result, it is possible to get the maximum amount of yield while utilizing minimum space.

Depending on the size, the height of a vertical farm may reach up to 30 feet. At such height, it is not viable to control the irrigation, lighting, and fertigation. Hence, automation is the only method to manage vertical farm in a proper manner.

Climate Control System

Vertical farming allows us to grow plants under a controlled environment, it is essential to manage its different aspects. This includes controlling humidity, lighting, temperature, and CO2.

Hydroponics System

This system provides a required amount of water, oxygen, and nutrients to the crop. The hydroponic system helps to grow plants without any soil; hence, one need to provide all the nutrients through a solution.

Irrigation & Fertigation Controllers

This system allows person to save energy by managing irrigation and fertigation requirements of a vertical farm. These controllers are highly efficient and help to monitor different aspects of your vertical farm. person can use some compostable material to fertilize your system.

Aquaponics system

Vertical farming

5.1.6 Corrosion Mechanism, Prevention & Repair Measures of RCC Structure

The sturdiness of solid structures is influenced by various factors, for example, ecological presentation, electrochemical responses, mechanical stacking, affect harm and others. Of all of these, consumption of the support is most likely the primary driver for the decay of steel fortified cement (RC) structures. Consumption the board is winding up progressively fundamental because of the developing number of maturing foundation resources (e.g. spans, burrows and so on.) and the expanded prerequisite for impromptu upkeep with the end goal to keep these structures operational all through their plan life (and normally, past).

The principal RC fix, repair and restoration approaches commonly utilized can be comprehensively classified under an) ordinary, b) surface medications, c) electrochemical medicines and d) structure arrangements. The larger point of this examination was to recognize the key erosion the executive's systems and attempt exact examinations concentrated on full-scale RC structures to research their long-haul execution. To accomplish this, singular research bundles were distinguished from the above wide five approaches for fix, substitution and recovery.

These were 1) Patch fixes and nascent anodes, 2) Impressed Current Cathodic Protection, 3) Galvanic Cathodic Protection what's more, 4) Hydrophobic medicines. The determination of the above research bundles depended on over a significant time span use by the development industry to fix, renovate and restore RC structures. Their commitments might be extensively sorted as I) Investigations on how explicit medicines and materials perform, ii) Investigations on the adequacy of existing techniques for estimations and creating choices, iii) Changes to the current hypothesis of consumption inception and capture what's more, iv) Changes to the executives structure procedures.

5.1.7 Sewage treatment plant:

Sewage treatment is the process of removing contaminants from municipal wastewater, containing mainly household sewage plus some industrial wastewater. Physical, chemical, and biological processes are used to remove contaminants and produce treated wastewater (or treated effluent) that is safe enough for release into the environment. A by-product of sewage treatment is a semi-solid waste or slurry, called sewage sludge. The sludge has to undergo further treatment before being suitable for disposal or application to land.

The term "sewage treatment plant" (or "sewage treatment works" in some countries) is nowadays often replaced with the term wastewater treatment plant or wastewater treatment station. Sewage can be treated close to where the sewage is created, which may be called a "decentralized" system or even an "on-site" system (in septic tanks, biofilters or aerobic treatment systems). Alternatively, sewage can be collected and transported by a network of pipes and pump stations to a municipal treatment plant. This is called a "centralized" system (see also sewerage and pipes and infrastructure).

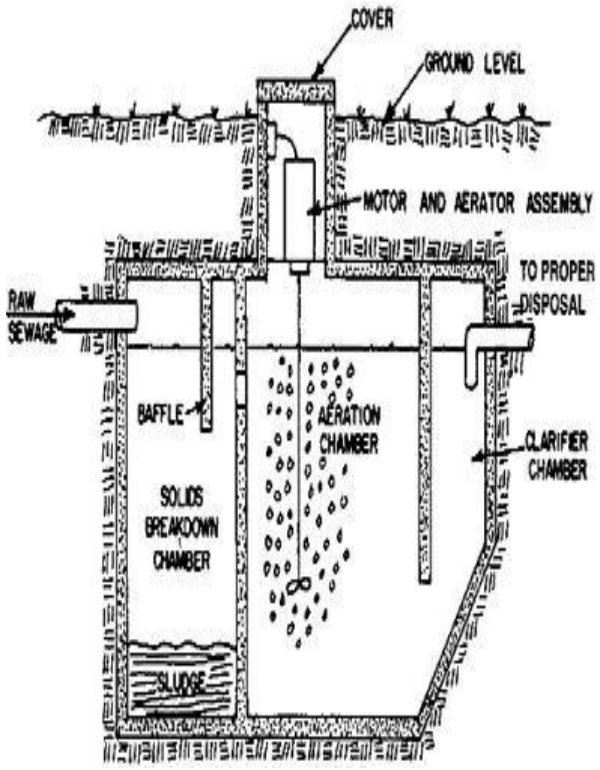
Advantages of a sewage treatment plant

- Reliable and unlikely to encounter problems with only regular maintenance

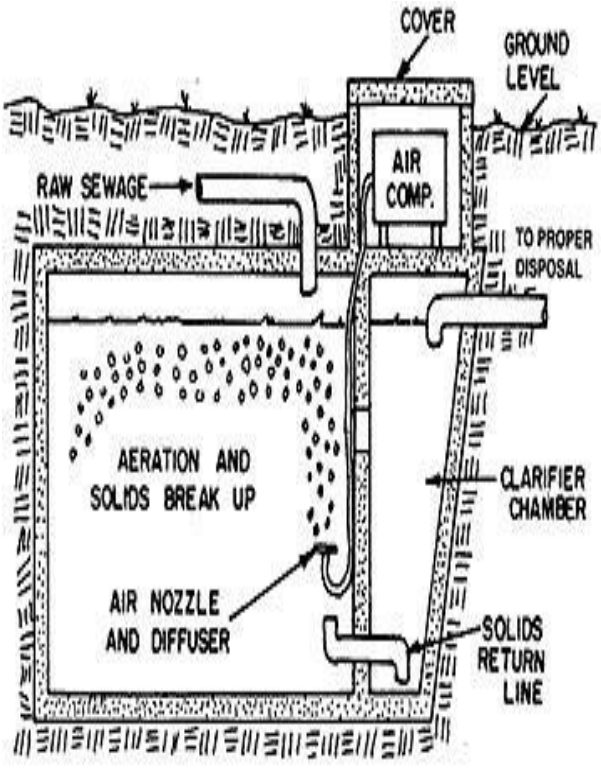
- Can be installed even on challenging or compact sites
- Cost-effective over time, with only installation, power and maintenance to pay for

Disadvantages of a sewage treatment plant

- The plant needs a constant supply of electricity to run
- Will require professional maintenance annually, and in the unlikely event of problems
- Design and installation of the system needs to be undertaken professionally



Sewage treatment plant for rural homes



An aerobic treatment system

5.1.8 Technical Case Study on "Chhatrapati Shivaji International Airport"

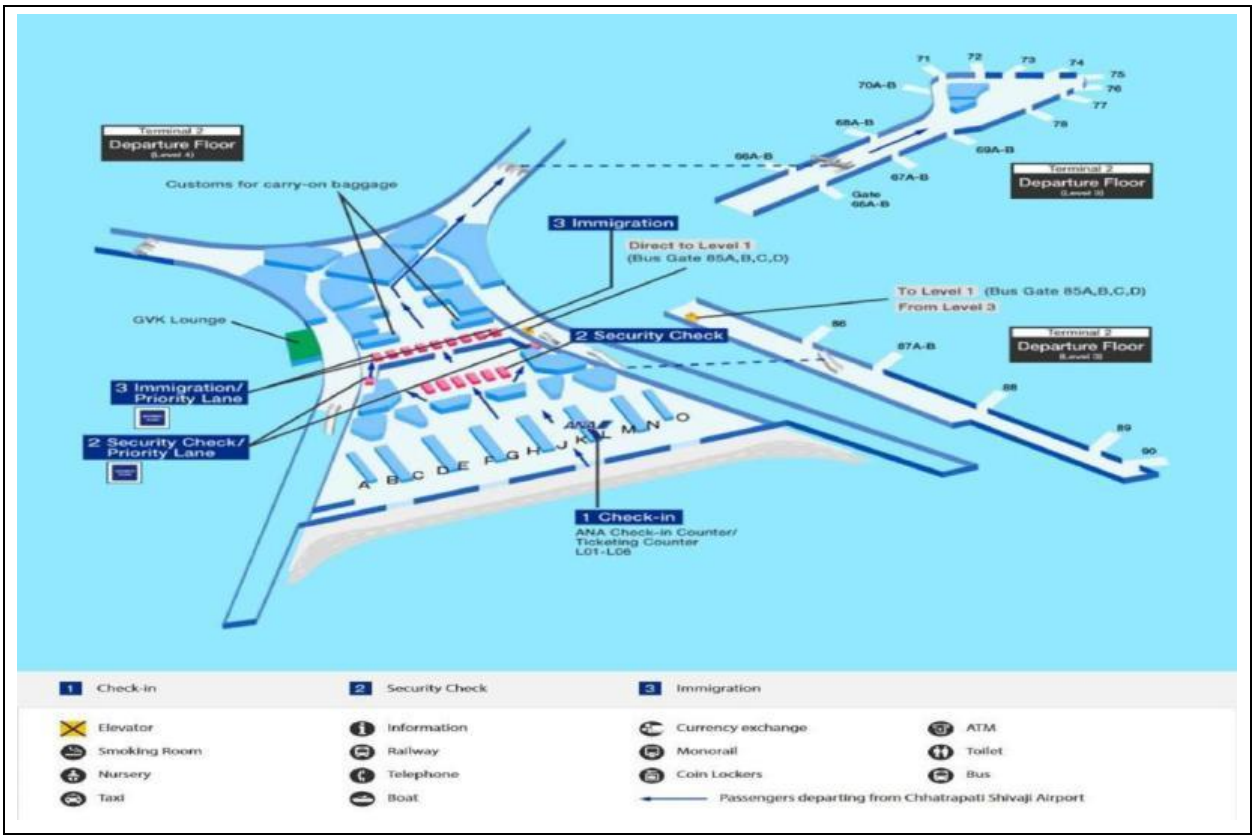
We have selected an already constructed structure site named The Chhatrapati Shivaji International Airport as a technical case study. Chhatrapati Shivaji International Airport (CSIA) in Mumbai,

Maharashtra, India, (formerly Sahar International Airport) is located inside the city, towards the north with convenient access to the rest of the city by road and the local rail network.

The CSIA airport operates with three terminals, terminal 1 for domestic flights, terminal 2 for both domestic and international flights, and general aviation terminal for private and non-scheduled flight operators.

The airport handled 48.83 million passengers for FY 2018-19.

Location: It is located in Mumbai city.



History:
Aviation in the Mumbai region dates back as far as 1932, when mail planes used the Juhu air strip, less than 3 miles / 2 km from the actual site of the city's airport today. In 1940, Mumbai decided to find an alternative site and a spot was chosen at Santa Cruz and Chhatrapati Shivaji Airport was born. Used by the military during the war years, Mumbai Airport was managed by the Directorate General of Civil Aviation from 1946 onwards and in 1958, a new terminal was opened.

In 1972, the operation of Mumbai's Chhatrapati Shivaji International Airport (BOM) was taken over by the International Airports Authority of India and expansion plans were soon implemented over the next three decades. By the turn of the new millennium, the airport had grown to become the busiest in the whole of India.

Design:

Chhatrapati Shivaji International Airport at Mumbai is one of the busiest airports in India. For years it had languished with limited and obsolete facilities. Then in the year 2006, an internationally acclaimed firm of Skidmore, Owings & Merrill (SOM) was commissioned to redesign the airport on the same site. Construction of the new airport completed in 2014, and international operations from the new Terminal -T2 commenced on 12 February, 2014.

The limited land with no scope of expansion on any side posed the biggest challenge to the SOM. Among the other challenges were to increase the capacity of the existing airport to three times, that too without interfering in, or stopping its daily operations. The SOM's integrated team of airport planners, architects, and engineers with its determination, dedication, and devotion was able to overcome all these challenges.

Keeping in view the site constraints, and the projected requirement of three times capacity, the SOM developed a unique X-shaped plan for the new airport building. The length of the two piers of the terminal however, is not the same as the eastern pier remains truncated due to non-clearance of slums in the adjoining plot. As a result, the X- shaped terminal gives an asymmetrical look in its aerial view.

The shape of the plan ensured maximum aircraft gates due to wide spreading concourses. Some common facilities like retail, dining, and elaborated baggage handling system have been accommodated at the narrow centre of the X- shaped plan. The central location of these facilities makes them easily accessible from all parts of concourses.

Unlike most of the airports where international and domestic retail areas are placed side-by-side, here all the retail areas are stacked vertically with international retail service above the domestic service. This arrangement though is unconventional yet quite efficient with regard to saving in large covered area. Apart from this, it ensured airport to operate concourses to serve either domestic or international flights depending upon demand.

The airport's arrivals and departures area has been planned on the northern side, sandwiched between the eastern and western piers. All the international and domestic travellers enter the terminal on the fourth floor through a sweeping elevated road. At the entrance, this approach road has been sufficiently widened to provide space for drop-offs curbs. The entire arrivals roadway has been covered with a huge cantilevered roof of the terminal building thus protecting the passengers and their accompanying guests from Mumbai's scorching heat and unpredictable monsoons.

The hallmark of the design is a long-span roof of the terminal building which covers 70,000 square metres without an expansion joint thus making it one of the world's largest roofs. The roof is supported on 30 massive steel columns spaced at 64 metres in the north-south direction, and at 34 metres in the east-west direction. The designers increased the depth of the steel trusses near the columns, and ran trusses in both an orthogonal grid, and 45-degree grid, resulting in generous spacing, and cantilevers of 40 metres along the perimeter.

The mega-columns were also designed to serve as hoist mechanisms so that entire roof could be constructed without tower cranes - a measure taken in response to site constraints and close proximity of an existing terminal. In addition to its superlative roof, the terminal features the largest and longest cable wall system in the world.

All the mega steel columns and a network of trusses have been artistically clad in thousands of precision-made glass- fibre-reinforced concrete panels on the exteriors, and glass-fibre-reinforced gypsum panels in the interiors. Due to curvilinear form of mushroom columns and roof, the size and shape of all these coffered panels vary from place to place. As a result, each panel has been custom made with computerized precision.

The design of the motif for the moulded coffered panels has been derived from teardrop-shaped eye of the peacock which is India's national bird. At the centre of each of the coffered panels is a round aperture for natural and electric light to pass. In each aperture is a laminated lens that produces two colours, depending on the angle at which light strikes it. About the effect of these lights on the ambiance, the designers have very rightly said, "When the light is right, the whole airport looks like a Rajasthan palace filled with coloured glass."

Ownership:

Mumbai International Airport Pvt. Ltd. (MIAL), a joint venture between the GVK led consortium (74%) and Airports Authority of India (26%), was awarded the mandate of modernizing and upgrading Mumbai's Chhatrapati Shivaji Maharaj International Airport (CSMIA) in February 2006.

Adani Group's flagship holding company Adani Airport Holdings Ltd (AAHL) has acquired 23.5 percent stake in the Mumbai International Airport Ltd (MIAL) from foreign investors namely ACSA Global Ltd (ACSA) and Bid Services Division (Mauritius) Ltd (Bidvest). the total bid stood at Rs 1,685.25 crore. This led to the complete purchase from two South African entities, marking the first step towards acquiring a majority control in the country's second busiest airport.

Construction:

The transformation of CSMIA is a one-of-its-kind unique infrastructural project in the world, unlike any other airport development project. Since taking over operations, MIAL has brought

about significant improvements in the operations of the airport. Some of the key highlights include the refurbishment of domestic terminals 1A & 1B, international terminals 2B & 2C, opening of a brand new domestic terminal 1C and Terminal 2. Some significant airside enhancements include the commissioning of new taxiways, aprons, reconstruction of the runway intersection, reconstruction of both the main runway 09/27 and the secondary runway 14/32 and the the construction of new ATC Tower. With a height of 83.8 meter, the Air Traffic Control Tower at CSMIA is India's tallest ATC tower, built within an area of 2,800 square meters. The height and location of the wish-bone shaped structure provide an unobstructed view of the entire operational area, optimizing air traffic separation and enhancing the traffic handling capacity.

The new iconic Terminal 2, inaugurated in January 2014, is state-of-the-art 4 level integrated terminal with an area of over 4,39,000 sq. mts. and include new taxiways and apron areas for aircraft parking designed to cater to 40 million passengers per annum and one million tons of cargo annually.

Terminal 2, referred to as T2, is India's first and most advanced vertical passenger terminal that integrates world class design, architecture, infrastructure and operational efficiency, with a rich infusion of Indian heritage & cultural character. The design of Terminal 2 draws inspiration from India's national bird – The Peacock. It portrays the magnificent character of the White Peacock, representing flight, as well as rare beauty.

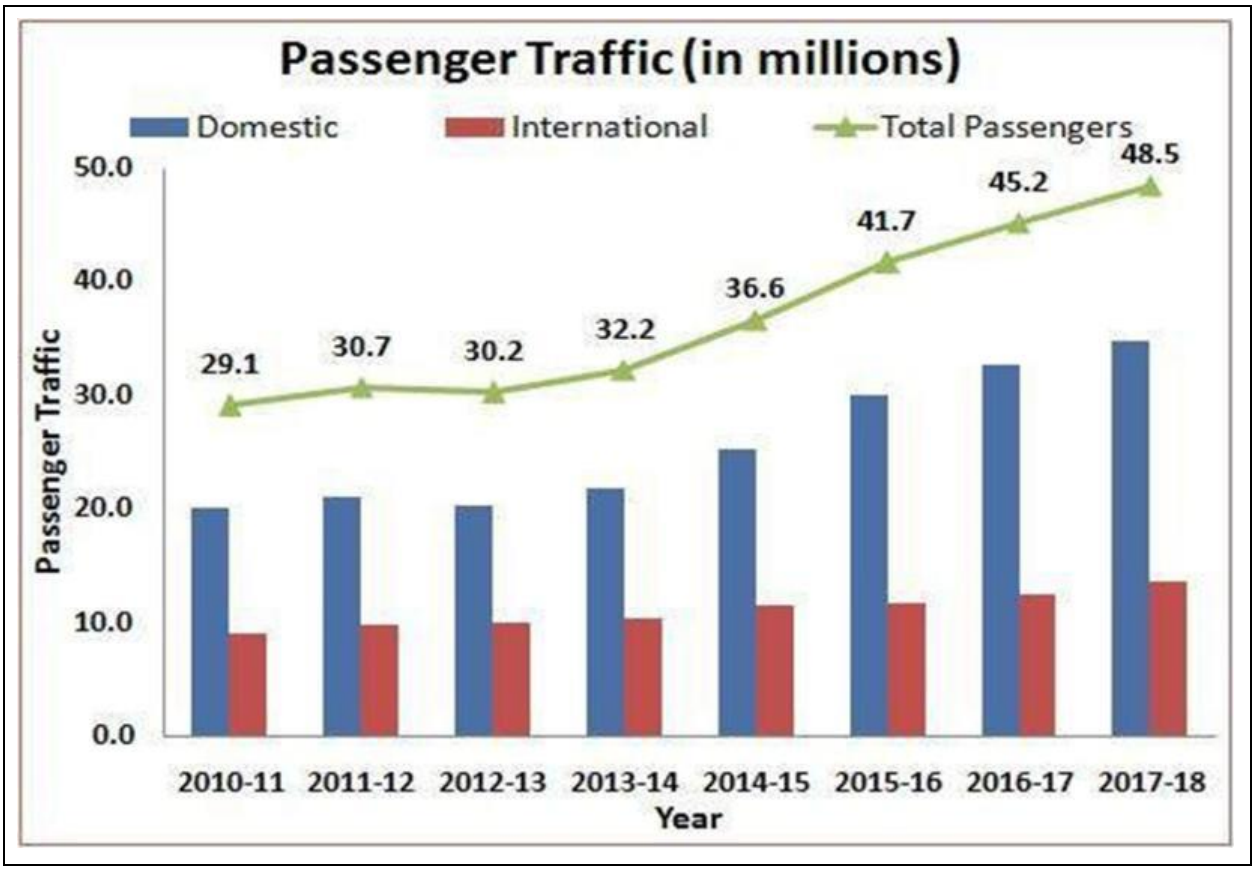
The T2 is also be home to India's largest public art programme, titled 'Jaya He', in the form of a 3 km multi- story Art Wall, illuminated by skylights, that has over 7000 pieces of artwork & artefacts from every region & corner of India. With a highly compact design that puts passenger convenience and operational efficiency at the centre, this design marvel is set to position India on the global aviation and infrastructure platform.

MIAL has received several international and national accolades for its efforts in modernizing CSMIA:

- GVK CSMIA has been awarded the Vasundhara Award 2015 by the State Government, for excellence in environmental conservation.
- GVK CSMIA has won the Management Consulting Association (MCA) award for the Best International Project Delivery of 2014.
- GVK CSMIA has been awarded the Archaizer A+ Award in the 'Transportation – Airports' category, 2015 for being one of the best architectural structures in the world.
- GVK CSMIA has been conferred the Golden Peacock Business Excellence Award for significant achievements in the field of Business Excellence.
- GVK CSMIA amongst only three airports world over to be inducted in the elite ACI Director General's Roll of Excellence for 2015.
- GVK CSMIA's T2 has been awarded the Platinum A' Design Award 2015 for Architecture, Building and Structural Design.
- GVK CSMIA has been ranked 3rd among the World's Most Improved Airports and as one of the Top airports in Central Asia by Skytrax World Airports Awards, 2015.
- GVK CSMIA has been ranked among the Top 5 Airports worldwide in the 25-40 million passengers per annum category by Airports Council International in the annual ACI Airport Service Quality Awards 2014.

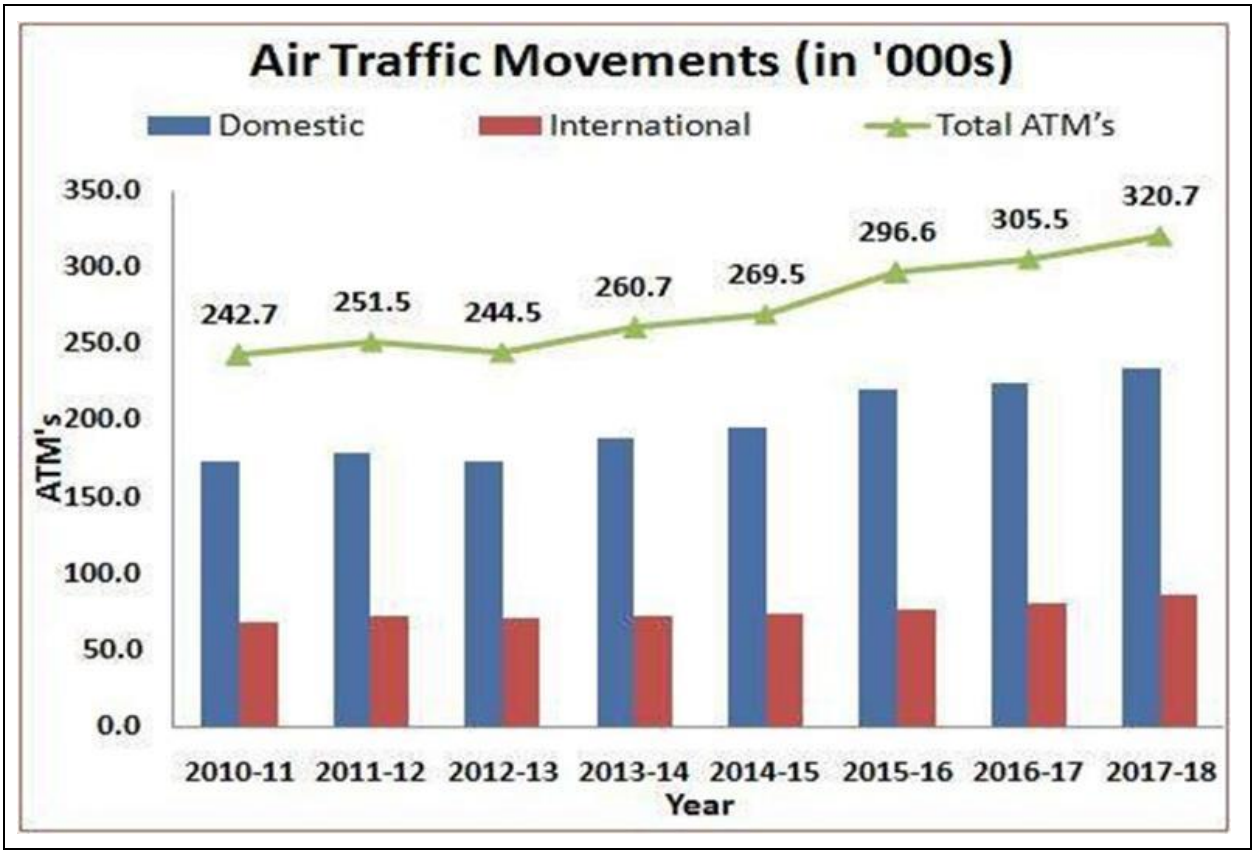
Statistics: Mumbai international airport limited

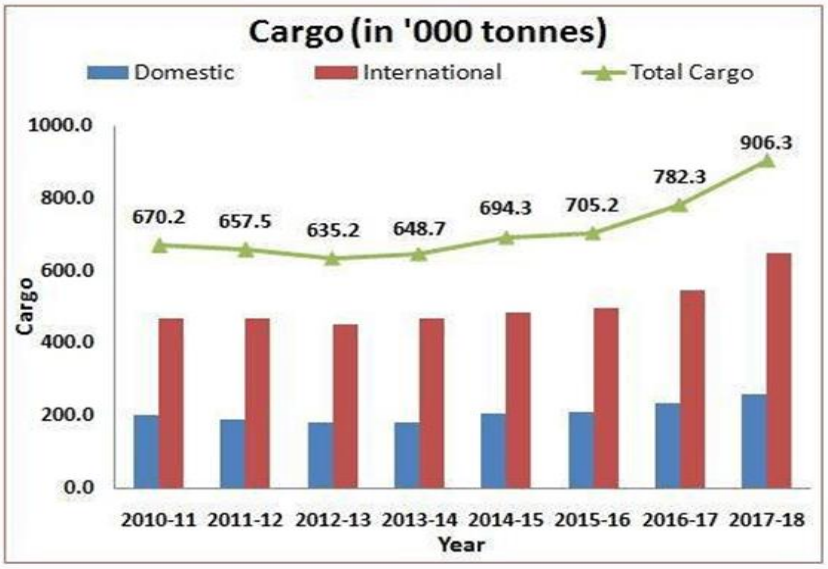
Passenger Traffic								
(in Millions)	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
Domestic	20.0	21.0	20.3	21.9	25.2	30.0	32.7	34.8
International	9.1	9.7	9.9	10.3	11.4	11.6	12.4	13.6
Total Passengers	**29.1**	**30.7**	**30.2**	**32.2**	**36.6**	**41.7**	**45.2**	**48.5**
Growth Y-o-Y (%)	13.5	5.8	-1.7	6.7	13.7	13.7	8.4	7.4
Passenger Traffic Share in %								
Domestic	68.8	68.4	67.1	67.9	68.8	72.1	72.4	71.9
International	31.2	31.6	32.9	32.1	31.2	27.9	27.6	28.1
% of Passenger Traffic handled by MIAL in comparison with all Airports								
Domestic	18.9	17.3	17.4	17.9	18.1	17.8	15.9	14.3
International	23.9	23.8	23.1	22.2	22.5	21.2	21.0	20.8
Total	**20.3**	**18.9**	**19.0**	**19.1**	**19.3**	**18.6**	**17.0**	**15.7**



Cargo Traffic								
(in '000 tonnes)	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
Domestic	199.8	190.3	182.4	181.1	207.7	209.0	234.9	258.4
International	470.4	467.2	452.7	467.6	486.5	496.2	547.4	648.0
Total Cargo	**670.2**	**657.5**	**635.2**	**648.7**	**694.3**	**705.2**	**782.3**	**906.3**
Growth Y-o-Y (%)	15.0	-1.9	-3.4	2.1	7.0	1.6	10.9	15.9
% of Cargo handled by MIAL in comparison with all Airports								
Domestic	23.4	23.4	23.3	21.7	21.1	20.0	20.9	21.3
International	31.4	31.8	32.2	32.4	31.5	29.9	29.5	30.2
Total	**28.5**	**28.8**	**29.0**	**28.5**	**27.5**	**26.1**	**26.3**	**27.0**

Annual Handling Capacity	
Annual Cargo Handling Capacity	1.0 million tones




Cargo (in '000 tonnes)
Domestic
International
Total Cargo
1000.0
800.0
600.0
400.0
200.0
0.0
Cargo
670.2
657.5
635.2
648.7
694.3
705.2
782.3
906.3
2010-11
2011-12
2012-13
2013-14
2014-15
2015-16
2016-17
2017-18
Year


Mumbai International Airport Limited (MIAL)
Passenger Traffic (in millions)
Aircraft Movement (in '000s)
Cargo handled (in '000 tonnes)
Mumbai Airport Traffic
1000.0
800.0
600.0
400.0
200.0
0.0
670.2
657.5
635.2
648.7
694.3
705.2
782.3
906.3
242.7
251.5
244.5
260.7
269.5
296.6
305.5
320.7
29.1
30.7
30.2
32.2
36.6
41.7
45.2
48.5
2010-11
2011-12
2012-13
2013-14
2014-15
2015-16
2016-17
2017-18
Year

Source: Airports Authority of India, Traffic News and Mumbai International Airport Limited (MIAL)

Features of CSMIA:

- The new terminal has 188 check-in counters, 60 immigration counters for departing passengers, and 76 immigration counters for incoming fliers
- To get around, passengers can have access to 47 escalators and 73 elevators.
- A multi-level car park has been built to accommodate 5,000 vehicles. T2 will mostly cater to international traffic, though a few domestic airlines are expected to move operations there.
- The X-shaped terminal boasts of a three-kilometer-long art walk which incorporates Indian aesthetics with a white peacock theme.

A six-lane elevated expressway is being helpful to ease things on airport.

Overcoming multiple challenges:

- The existing airport site is land locked by the surrounding city, complicating logistics planning
- Construction in an operational environment, on top of the existing pavements that are being used daily for aircraft operations and parking had its own complexities
- Time restrictions for operations were major challenges
- Non-availability of existing underground service layouts
- The Mumbai climate which can potentially shutdown all works during the monsoon period lasted almost 4 months.

Going green:

To make the project more economical and environmentally friendly, the project team adopted rubblization and concrete recycling technologies in the T2 apron development works. The existing concrete was either rubblized in-situ or crushed on-site and recycled for reuse as base-course material by using specialist machineries imported from Europe. The base material underneath the existing apron pavement was also recycled. Apart from material being reused, these initiatives also saved a great deal of transportation requirement and thereby reduced the use of fossil fuel.

##Information and details in brief in below video and articles##

REFERENCES:

https://www.lntecc.com/homepage/documents/Concordoct14.pdf

https://youtu.be/5B54IFPiYT4

Chhatrapati Shivaji International Airport - Infogalactic: the planetary knowledge core

Chhatrapati Shivaji International Airport, India - Airport Technology (airport-technology.com)

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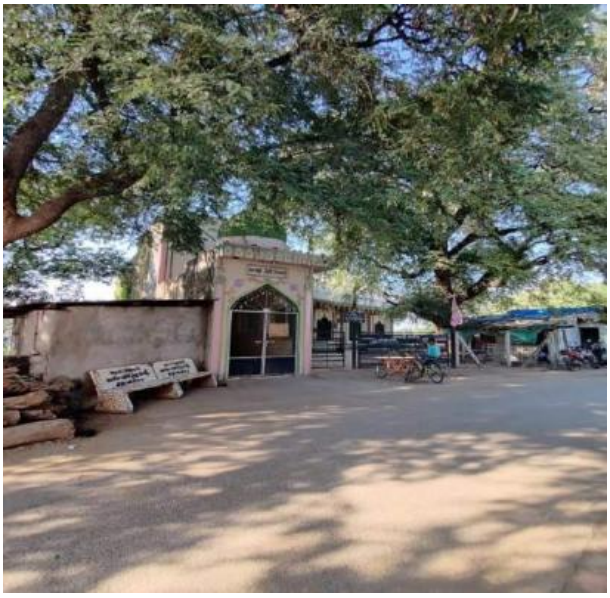
Chepter 6.

Swatchh Bharat abhiyan (Clean india)

To accelerate the efforts to achieve universal sanitation coverage and to put the focus on sanitation, the Prime Minister of India had launched the Swachh Bharat Mission on 2nd October 2014. Under the mission, all villages, Gram Panchayats, 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 Swachh Bharat Mission (Grameen) will reinforce ODF behaviors and focus on providing interventions for the safe management of solid and liquid waste in villages. The campaign's official name is in Hindi. In English, it translates to "Clean India Mission". The campaign was officially launched on 2 October 2014 at Rajghat New Delhi by Prime Minister Narendra Modi. It is India's largest cleanliness drive to date with three million government employees and students from all parts of India participating in 4,043 cities, towns, and rural communities. At a rally in Champaran, the Prime minister called the campaign *Satyagrah se Swachhagrah* in reference to Gandhi's *Champaran Satyagraha* launched on 10 April 1916.

6.1 Swatchhta needed in allocated village -Existing Situation with photograph

Village is neat and clean except some areas



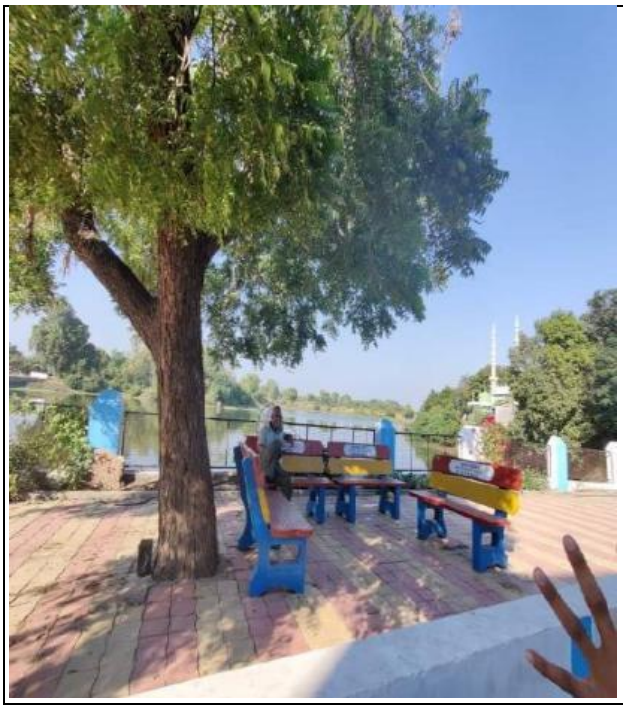
As we can see in the first photograph village street is neat and clean. There are many dustbin available at street corner but in the second photograph some area of the village need implementation of swachhata guidelines. Our Group had done survey in village Madheli there we found that the village is neat and clean but we have seen that is some of the parts there were no sewage collecting dusbin,.

6.2 Guidelines - Implementation in allocated village with Photograph

Provide maximum number of dustbin and also provide separate dustbin for dry and wet wastage collection. If possible provide dustbin at every corner of the street. Cleanly drive is arranging by village administration thrice a week.There is No daily basis waste collection In Madheli Village.Set a proper time table on daily basis for solid waste collection. Spread awareness among the People of the village to obey the swachhta Guidelines.

6.3 Activities Done by Students for allocated village with Photograph

In Madheli Village we have made aware to Villagers about Benefits of Swatchhta And explain ill effects of un-cleanliness. We explain Villagers How to dispose the COVID Mask after Usage and also We have conducted Swatchhta Drive in village.



Chepter 7.
Village condition due to Covid-19

while as a disease Covid-19 has remained largely confined to the cities, as a social phenomenon, it has caused widespread damage even in rural areas. The reversal of rural-urban migration is one of the major impacts experienced by vulnerable groups. It may even affect the demographic situation in villages during the next Census, depending on how long the impact plays out. There is a need for broad-basing the outreach of the relief schemes along with making their working effectiv The allocation for MGNREGA has to be increased substantially. The official agencies should also publish Covid-19 data by
rural-urban classification.COVID-19 had mostly remained in India's cities, but the disease is now spreading to rural India – an area with over 850 million people and far worse healthcare. The reason for this shift appears to be migrant workers who have been returning to their villages since lockdown was eased at the end of June. The medical response to stop the spread and treat those infected has been inadequate, according to media reports.With one trained doctor for every 1,497 people, against the World Health Organization recommended one per 1,000, and public health expenditure for 2018 at just 1.3% of GDP, India faces an uphill struggle in dealing with the pandemic. While two-thirds of India's population lives in rural areas, there are almost four times as many health workers per person in cities.Most rural communities rely on untrained health workers. Over two-thirds of these rural health providers have no formal medical training, but remain the only option of medical support for most of the rural population.

The Covid-19 pandemic started as an urban phenomenon in India. But it is now spreading at a faster rate in rural areas. An HT analysis on August 26 had shown that 55% of new Covid-19 cases reported in August were in districts where the rural population had a share of more than 60%. These districts had reported only about 23% of new cases in April. The risk of spread in rural areas is heightened. This is due to a number of factors, including lack of awareness, a limited supply of clean water, low levels of nutrition, and most importantly, ill-equipped and insufficient public health centres and district hospitals.

The feared effects on rural populations have already started to materialise. Take for example:

1. Poultry producers in Jharkhand are bearing the brunt of the decreasing demand for broiler chickens, with rates falling as low as INR 20 per kg, from the regular rate of INR 90 per kg.
2. There are rotting vegetables in some regions of Tamil Nadu as a result of the transport system partially breaking down, as observed by the field staff of the Tamil Nadu State Rural Livelihoods Mission.
3. Rural *haats* in Odisha, West Bengal, and Chhattisgarh, and *mandis* in Madhya Pradesh and Maharashtra are being closed down, as observed by our team members on the ground, making it difficult for smallholder farmers in these areas to sell their produce.

To tackle the problem, state governments have sent advisories to rural areas—through the district administration, which then passes it down—to spread information about how to deal with the virus affected cases as well as about how to reduce the chance of it spreading. The current crisis is one which we are not fully equipped for, nor know enough about. Preparing and empowering

the rural population would go a long way in this fight.

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

During the visit of Madheli we interact with the sarpanch and Talalti and they told us that sanitization done regularly during COVID phase and quarantine place were also formed by Panchayat. Home quarantine were also implemented during lockdown.Sarpanch told us that sprinkling of DDT powder is getting done every 3 days.

	
Anganwadi was being use as quarantine center.	DDT powder was sprinkled where needed.

7.2 Activities Done by Students for allocated village clean with Photograph

We did talk session regarding the COVID 19 and in the talk session we aware the people about the COVID and told the villagers not to interact with the people and use mask in proper way. Use hand sanitizer in case of come to the contact with people. We also told the Villagers that stay at home and avoid to go outside if not necessary and keep faith in the government and follow the instruction of government. Also, preparation for sanitization done by us and villagers.

7.3 Any other steps taken by the students / villagers

Sanitization was done at the starting of the COVID 19 phase. Quarantine place and home quarantine facility were implemented during the lockdown.

Chapter 8.

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

8.1 Design Proposals: Observation and brief write up about each design from 8.1.1 to 8.1.6

Sustainable Design: Medical Store

In the Madheli village there is no any PHC or dispensary or private clinic or medical store. So according to the feedback given by the villagers, one medical store should be there in the village. So that we have designed one medical store for the urgent requirement of medicines for the villagers.

Physical design: Panchayat Building

In the madheli village the existing panchayat building were not in good condition so we have de-Cided and finalized the design of new panchayat building with basic facilities should be there in the village.

Social Design: Community Hall

In Madheli Village there should be a Community hall in which members of a community gather for group activities, events, festivals and social purpose They may sometimes be open for whole community or for a specialized group example Mahila Mandal hall. A community hall of village generally consists of a hall, storage or kitchen area and washroom.

Socio-Cultural Design: Library

In the survey of smart and ideal village we got idea to design the library in the socio-cultural design for the villagers. The prime purpose of a library is to provide access to knowledge and information. Libraries help the students to develop good reading and study habits. Public officials use libraries for research and public issues. The libraries provide information and services that are essential for learning and progress.

Smart Village Design: CCTV surveillance building

It goes without saying that having a surveillance system installed at your premises will act as a serious deterrent to criminals and anyone carrying out illegal activities. Construction of surveillance rooms sits at the heart of a security installation, bringing together video surveillance, access control and fire control into one room. It serves as a central space where a large physical facility or physically dispersed service can be monitored and controlled by security guards. it will Help for Security and Safety Purpose in Village.

Heritage village design: Clubhouse

A clubhouse is the hub of all recreational activities in one roof. It is a solution for all recreation and fitness activities of a community.

8.1.1 Sustainable Design (Civil) : Medical Store

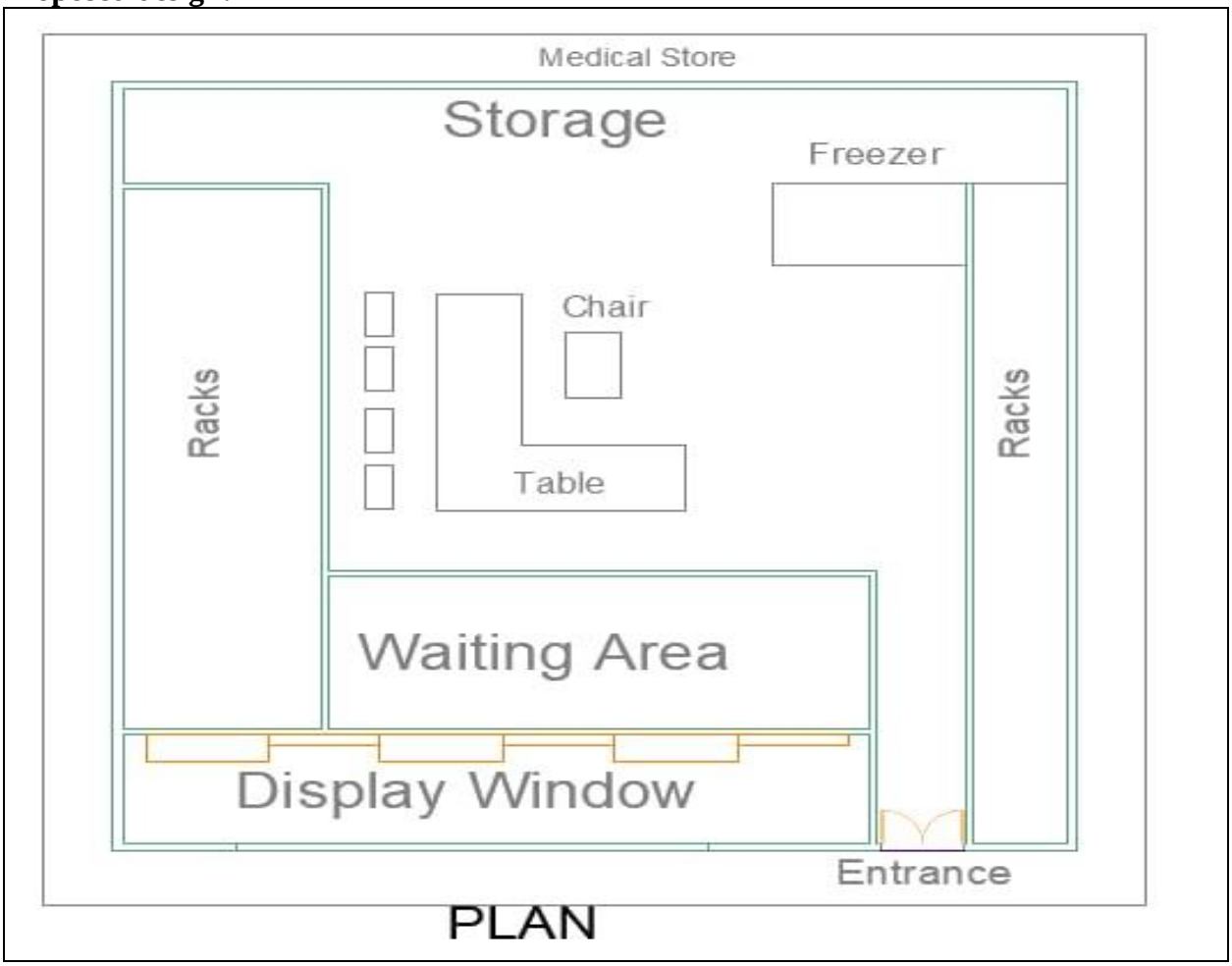
Scenario:

Healthcare is the right of every individual but lack of quality infrastructure, dearth of qualified medical functionaries, and non- access to basic medicines and medical facilities thwarts its reach to 60% of population in India. A majority of 700 million people lives in rural areas where the condition of medical facilities is deplorable. Considering the picture of grim facts there is a dire need of new practices and procedures to ensure that quality and timely medical store facility reaches the deprived corners of the Indian villages.

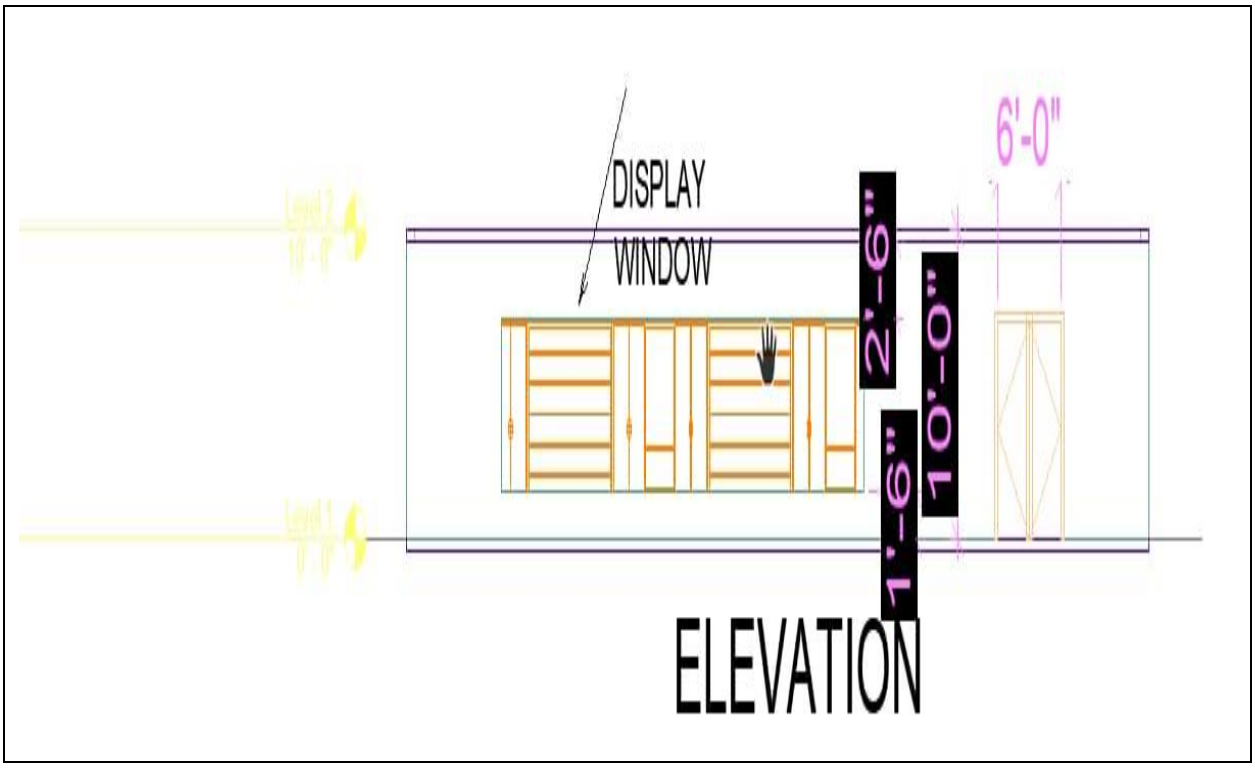
Existing Situation in madheli :

In the Madheli village there is no any PHC or dispensary or private clinic or medical store. So according to the feedback given by the villagers, one medical store should be there in the village. So that we have designed one medical store for the urgent requirement of medicines for the villagers.

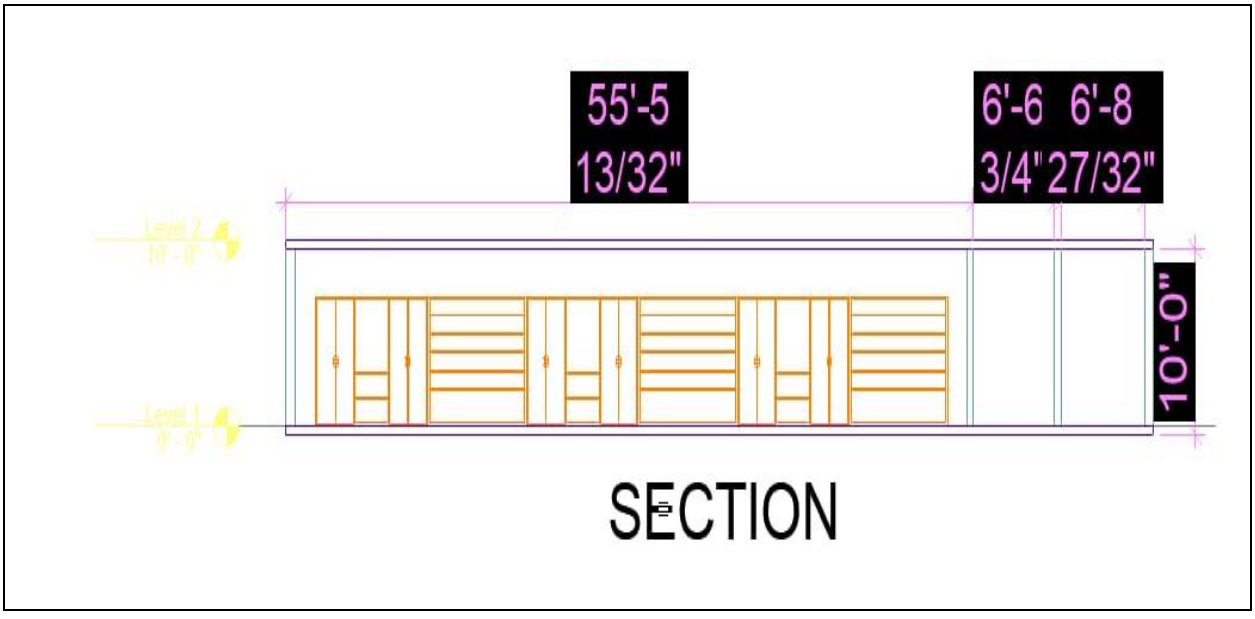
Proposed design:



(Plan of medical store)



(Elevation of medical store)



(Section of medical store)

Measurement sheet of Medical store:

Measurement sheet of Medical store						
No.	Description	length	width	height	count	Quantity
1	Door	-	1.828	2.255	1	4.122
2	Window	-	16.76	1.76	1	29.43
3	Wall-1	6	0.3	3	2	10.8
4	Wall-2	12	0.3	3	2	21.6
5	Excavation	37.2	0.9	1.2	1	40.176
6	Roof	-	-	0.15	1	0.15

Abstract sheet of medical store:

Abstract sheet of medical store					
No.	Description	quantity	Rate	Per	Amount
1	Door	4.122	-	-	3250rs.
2	Window	29.49	220	-	6500rs.
3	Wall-1	10.8	130	Ft2	1404rs.
4	Wall-2	21.6	130	Ft2	2808rs.
5	Excavation	37.2	35	m3	13020rs.
6	Roof	0.15	3500	m3	65500rs.

8.1.2 Physical design (Civil): Panchayat Building

Scenario:
Every village has a representative body called the panchayat. it is the local self-government at the basic level. The local self-government is a body whose purpose is to look into the local problems and basic requirements of the people of a village, town or city.
The panchayat consists of five members called panchas. They are elected by the people of the village. The head of the panchayat is called the sarpanch. The panchayat ghar is the building where the panchayat meets to discuss its working and perform its functions.

Existing situation in Madheli:
Madheli village's population in year 2011 was 1747 & year 2011 population was 2057 So we calculated total population by arithmetical increase method for year 2021 by This method's formula is **Pn=P+ni** So we can get population.

Sr No.	Census	Population	Male	Female	Total House Hold
1	2001	1747	991	835	430
2	2011	2057	1061	996	434

Population Of Madheli Village

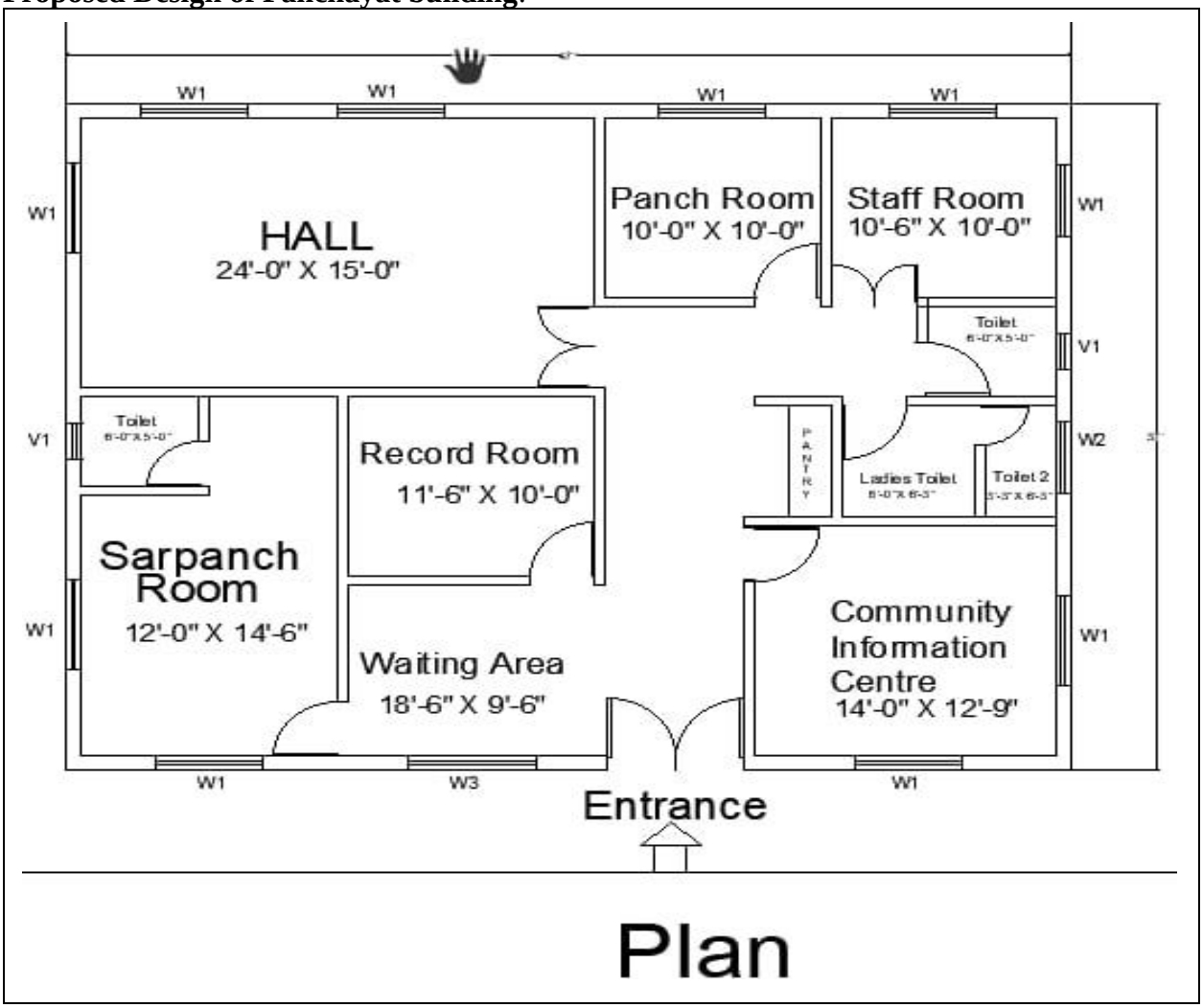
For future forecasting Population

We have Arithmetic Method

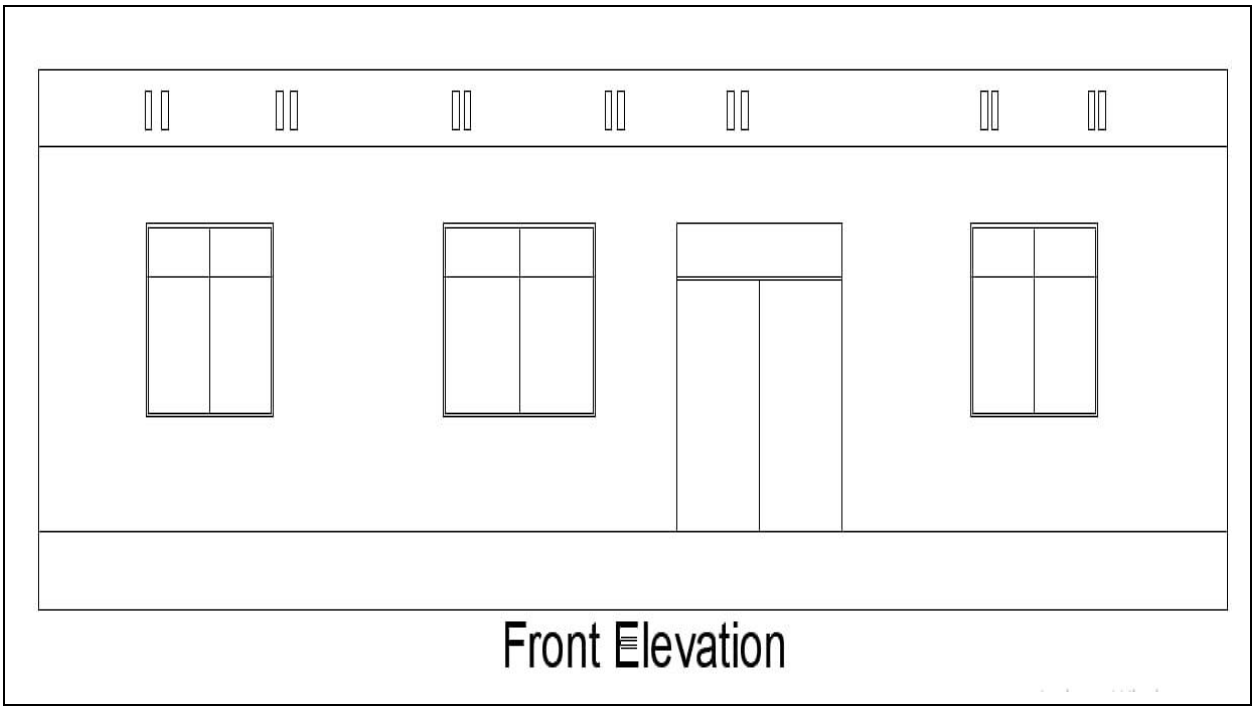
Pn= Future population
P= Present Population
i= average population of year
n= number of decade
Pn=P+ni
For 2021 Year
Pn = 2057+(1)x(310)
= 2057+310
Pn =**2367**

In 2021 the population of Madheli village will be 2367

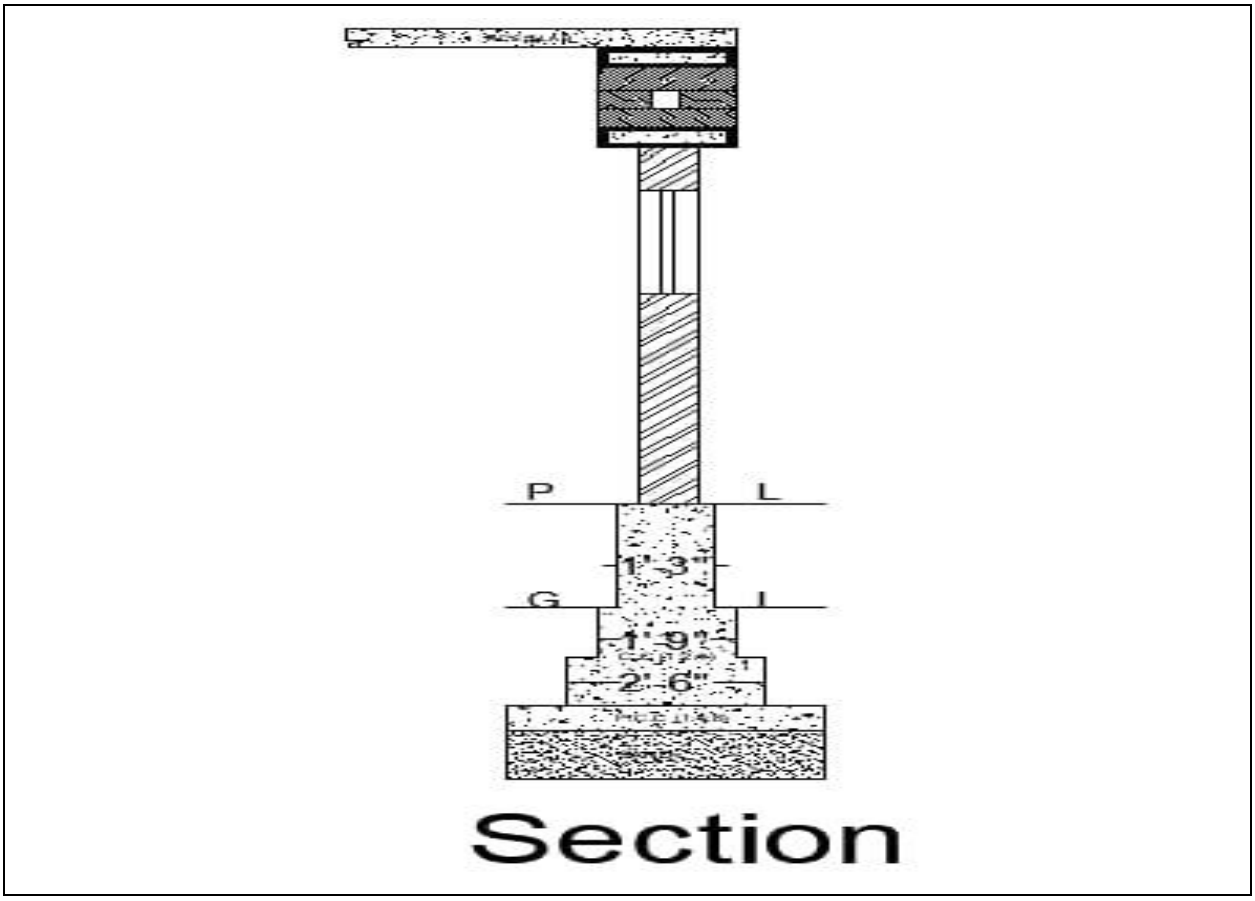
Proposed Design of Panchayat building:



(Plan of panchayat building)



(elevation of panchayat building)



(section view of panchayat building)

Panchayat building: Measurement Sheet

Measurement sheet of panchayat building						
Sr no.	description	Length(m)	Width(m)	Height(m)	Count(nos.)	Total Quantity(m^3)
1	D1	-	0.91	2.133	4	7.765
2	D2	-	0.91	2.011	I	1.830
3	D3	-	0.91	2.011	4	7.320
4	W1	-	1.74	1.82	2	6.333
5	W2	-	1.52	1.82	2	5.533
6	W3	-	0.91	1.82	-	1.656
7	W4	-	0.71	1.12	4	3.180
8	W5	-	0.60	1.01	I	0.606
9	WALL9"	14.32	0.22	3	I	9.451
10	WALL9"	11.27	0.22	3	-	7.438
11	FLOOR36"	-	-	0.914	-	0.914
12	ROOF6"	-	-	0.15	-	0.150
13	EXCAVATION	17.0	1.2	1.5	4	122.4
14	WALL6"	10.8	0.15	0.7	I	1.134

ABSTRACT SHEET:

Abstract sheet of panchayat building					
Sr no.	Description	Total quantity(m^3)	Rate	Per	Amount
1	D1	7.765	-	-	6100
2	D2	1.830	-	-	2000
3	D3	7.320	-	-	6500
4	W1	6.333	220	-	25000
5	W2	5.5333	220	-	20100
6	W3	1.656	220	-	9500
7	W4	3.180	220	-	20550
8	W5	0.606	220	-	5000
9	WALL 9''	9.451	130	Ft^2	155000
10	WALL 9"	7.438	130	Ft^2	141000
11	FLOOR 36"	0.914	3500	M^3	71990
12	ROOF 6"	0.150	3500	M^3	65500
13	EXCAVATION	122.4	350	M^3	1500
14	WALL 6"	1.134	90	Ft^2	50000
15	PCC	15.2	3500	M^3	35100
				Total- 614840 Rs.	

8.1.3 SOCIAL DESIGN(CIVIL) : COMMUNITY HALL

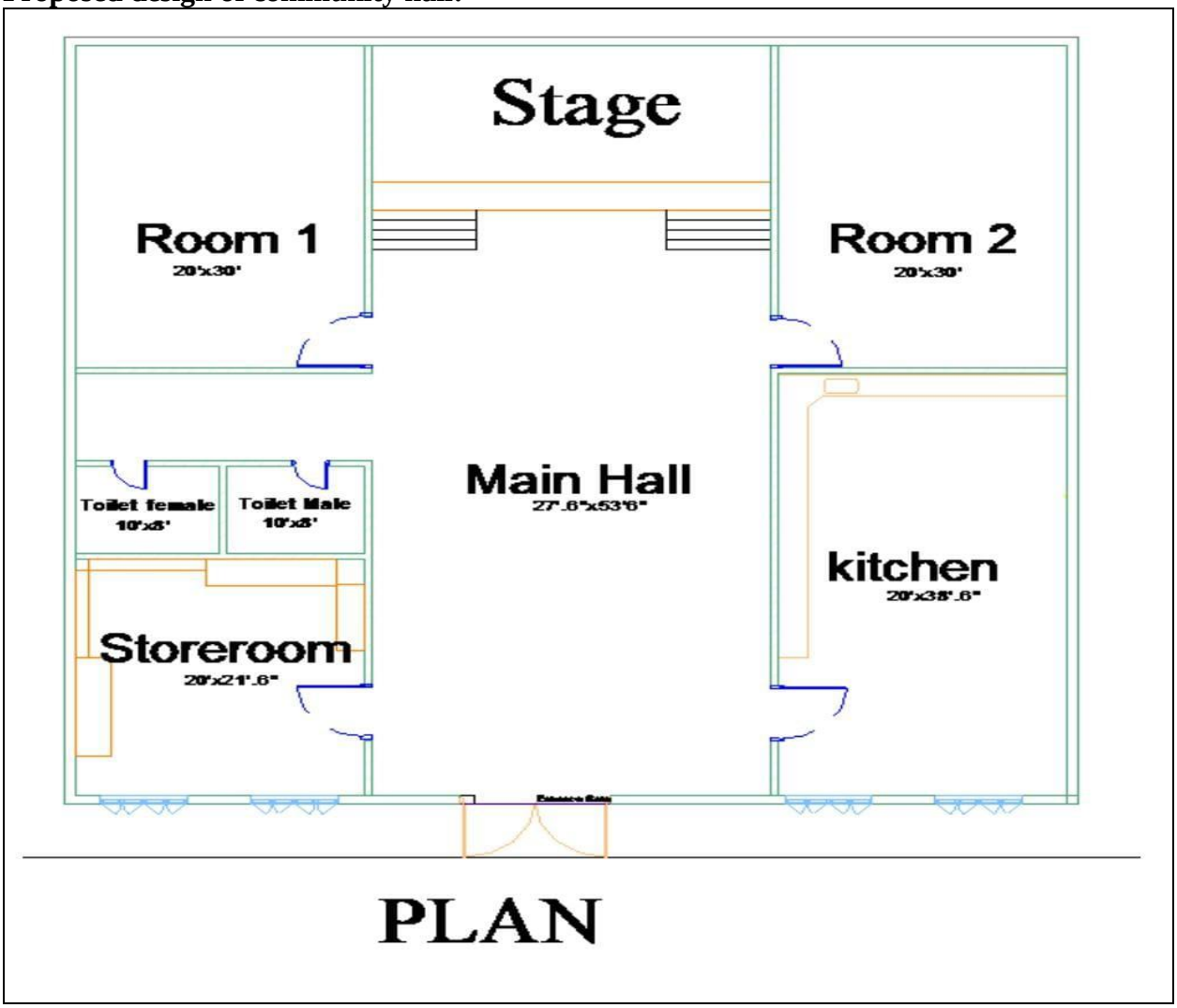
Scenario:

Community centers or community halls are public locations where members of a community tend to gather for group activities, social support, public information, and other purposes. They may sometimes be open for the whole community or for a specialized group within the greater community.

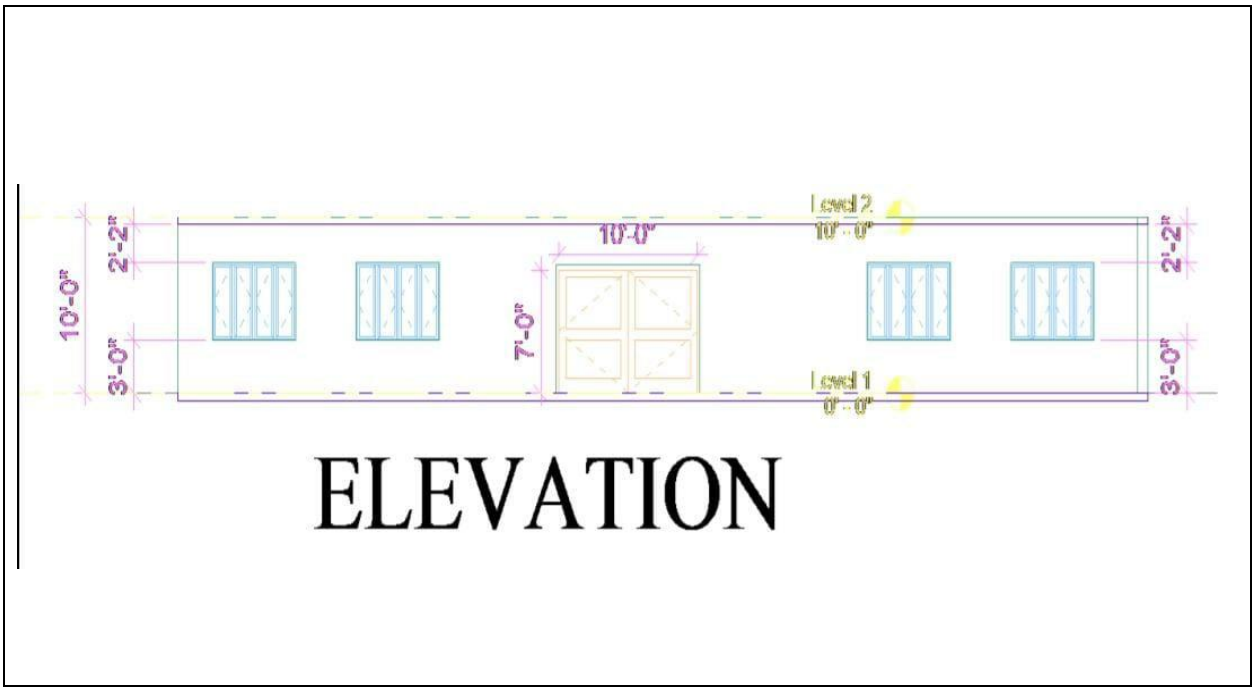
Existing situation in madheli:

In Madheli Village there should be a Community hall in which members of a community gather for group activities, events, festivals and social purpose They may sometimes be open for whole community or for a specialized group example Mahila Mandal hall. A community hall of village generally consists of a hall, storage or kitchen area and washroom.

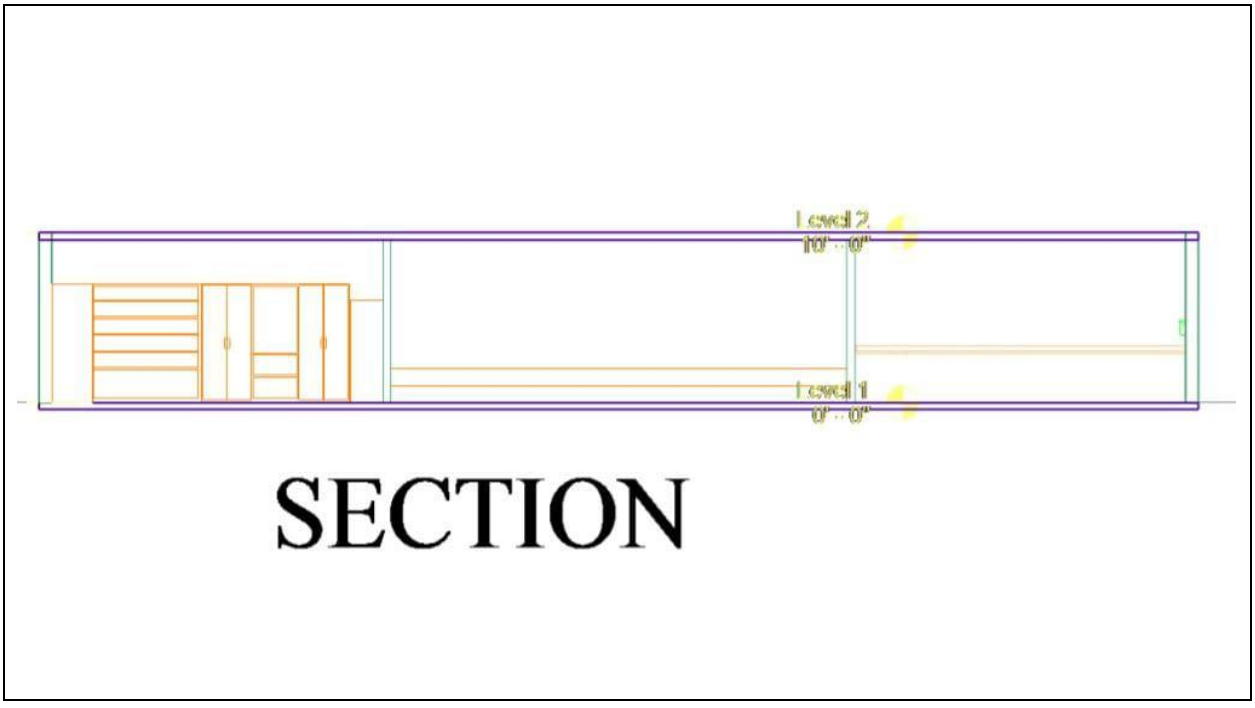
Proposed design of community hall:



(Plan of community hall)



(Elevation of community hall)



(Section view of community hall)

Measurement sheet of community hall:

Measurement sheet of community hall						
Sr no.	description	Length(m)	Width(m)	Height(m)	Count(nos.)	Total Quantity(m^3)
1	D1	-	0.91	2.133	4	7.765
2	D2	-	0.91	2.011	I	1.830
3	D3	-	0.91	2.011	4	7.320
4	W1	-	1.74	1.82	2	6.333
5	W2	-	1.52	1.82	2	5.533
6	W3	-	0.91	1.82	-	1.656
7	W4	-	0.71	1.12	4	3.180
8	W5	-	0.60	1.01	I	0.606
9	WALL9"	14.32	0.22	3	I	9.451
10	WALL9"	11.27	0.22	3	-	7.438
11	FLOOR36"	-	-	0.914	-	0.914
12	ROOF6"	-	-	0.15	-	0.150
13	EXCAVATION	17.0	1.2	1.5	4	122.4
14	WALL6"	10.8	0.15	0.7	I	1.134

Abstract sheet of community hall:

Abstract sheet of community hall					
Sr no.	Description	Total quantity(m^3)	Rate	Per	Amount
1	D1	7.765	-	-	6100
2	D2	1.830	-	-	2000
3	D3	7.320	-	-	6500
4	W1	6.333	220	-	25000
5	W2	5.5333	220	-	20100
6	W3	1.656	220	-	9500
7	W4	3.180	220	-	20550
8	W5	0.606	220	-	5000
9	WALL 9''	9.451	130	Ft^2	155000
10	WALL 9"	7.438	130	Ft^2	141000
11	FLOOR 36"	0.914	3500	M^3	71990
12	ROOF 6"	0.150	3500	M^3	65500
13	EXCAVATION	122.4	350	M^3	1500
14	WALL 6"	1.134	90	Ft^2	50000
15	PCC	15.2	3500	M^3	35100
				Total- 614840 Rs.	

8.1.4 SOCIO-CULTURAL DESIGN(CIVIL) : LIBRARY

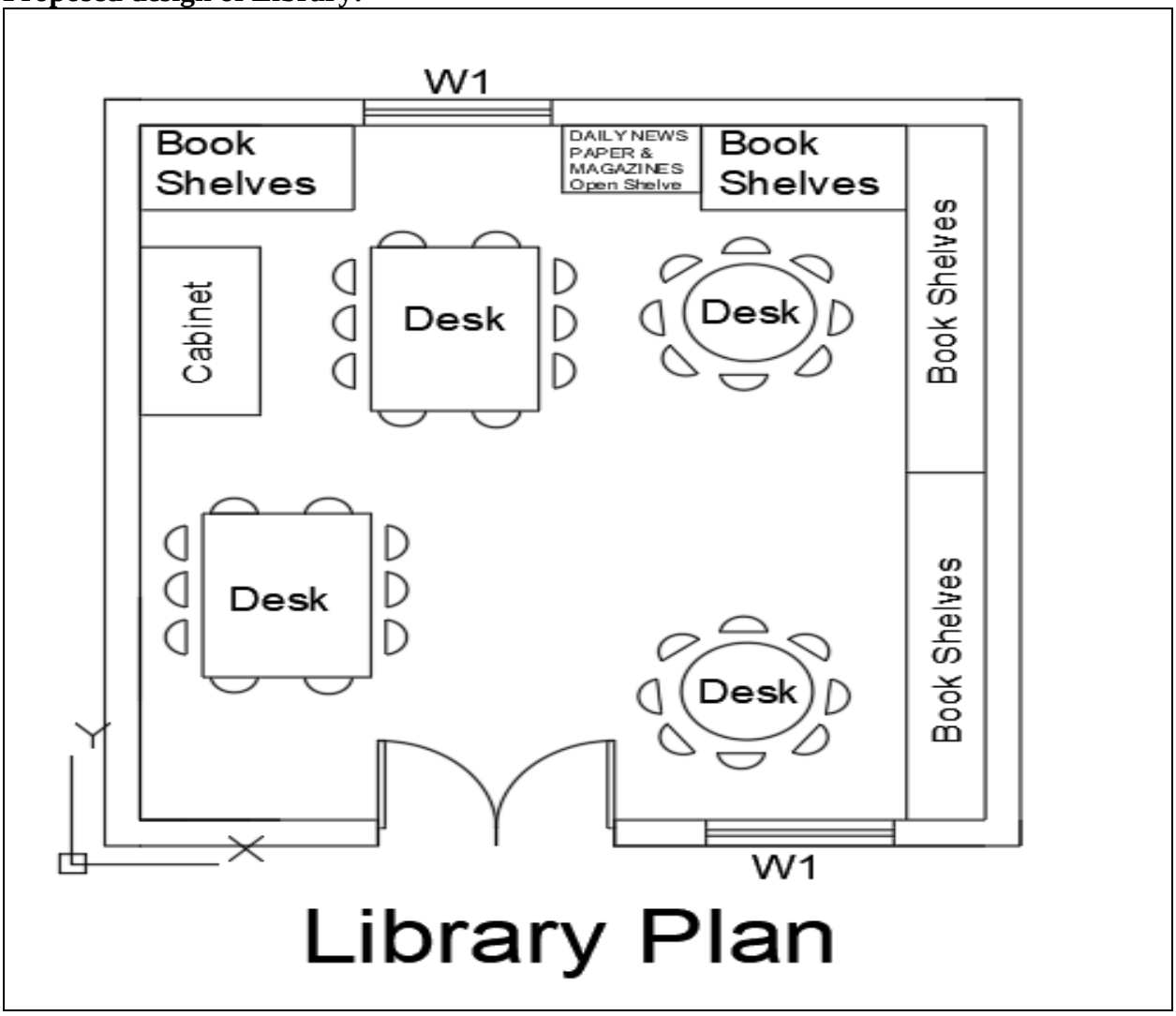
Scenario:

A library is a curated collection of sources of information and similar resources, selected by experts and made accessible to a defined community for reference or borrowing, often in a quiet environment conducive to study. It provides physical or digital access to material, and may be a physical location or a virtual space, or both.

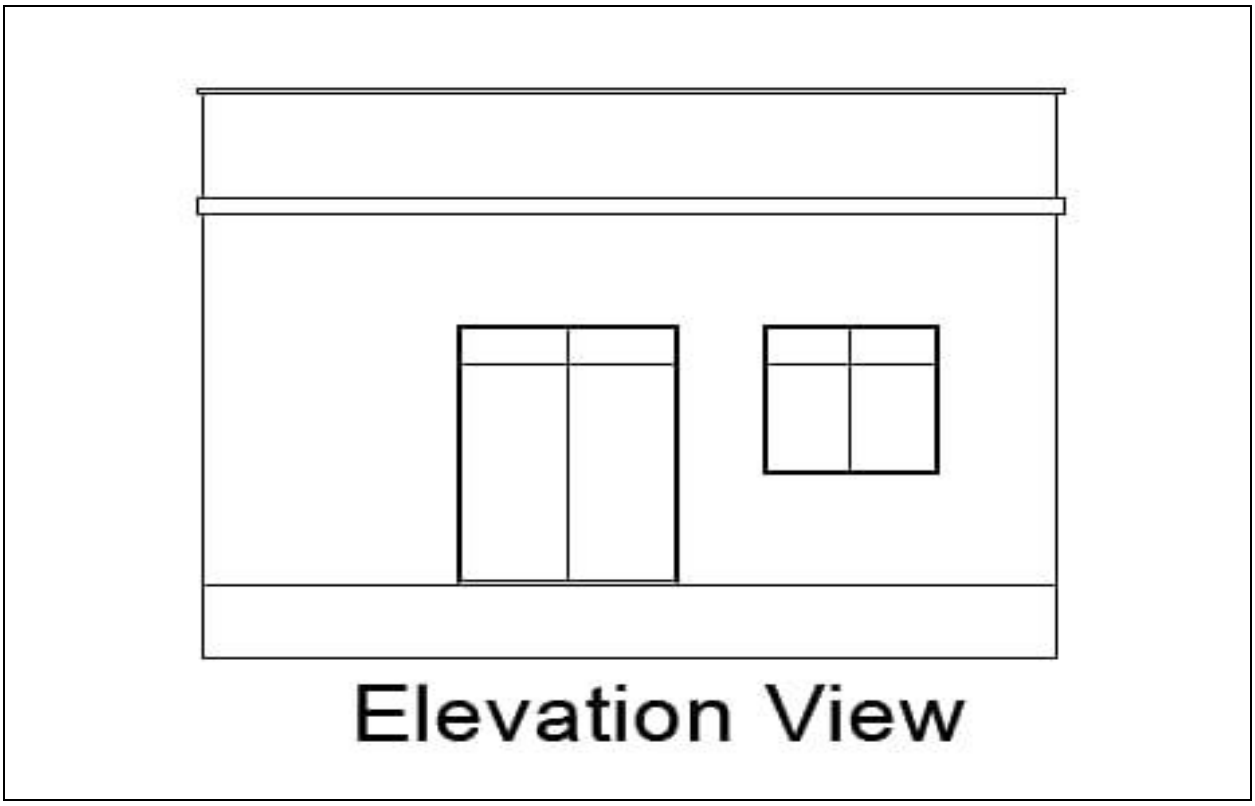
Existing situation in Madheli:

In the survey of smart and ideal village we got an idea to design the library in the socio-cultural design for the villagers. The prime purpose of a library is to provide access to knowledge and information. Libraries help the students to develop good reading and study habits. Public officials use libraries for research and public issues. The libraries provide information and services that are essential for learning and progress.

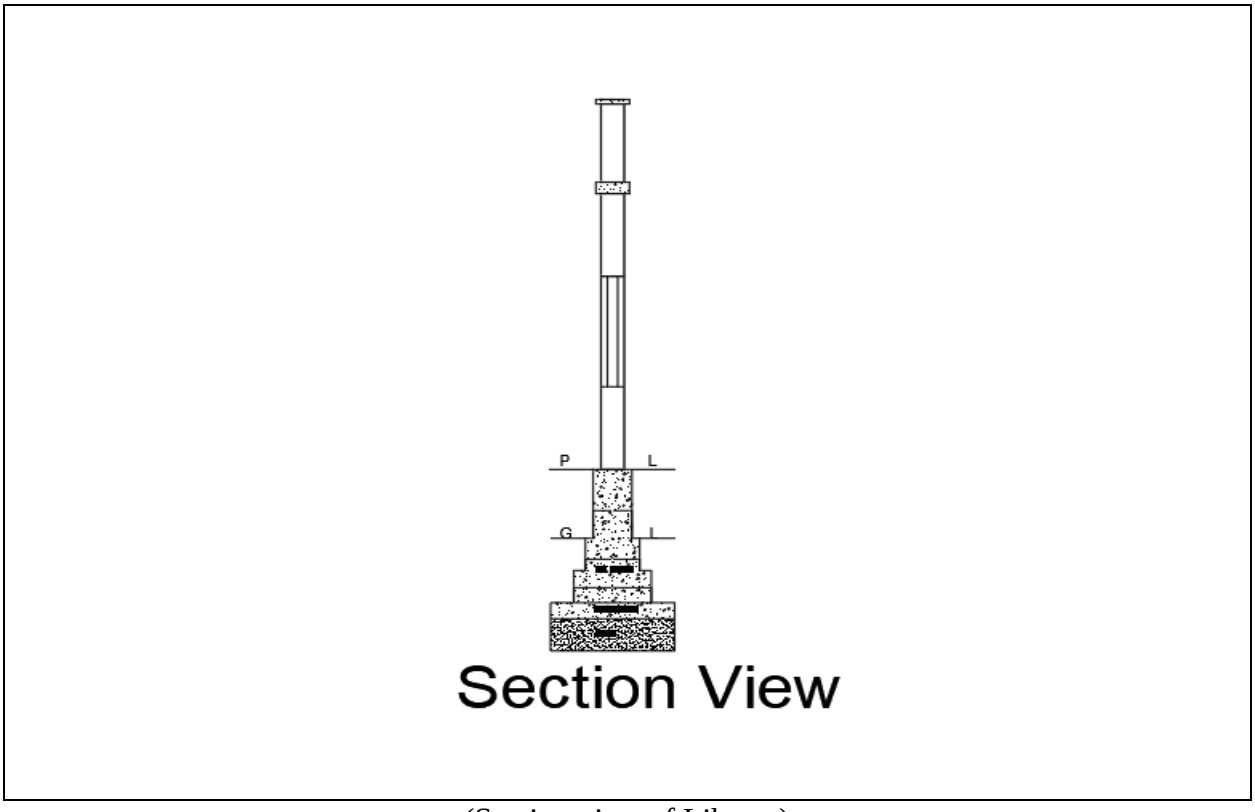
Proposed design of Library:



(Plan of Library**)**



(Elevation view of Library)



(Section view of Library)

Measurement sheet of Library:

Measurement sheet of library						
SR NO.	Description	Length (m)	Width (m)	Height (m)	Count (nos.)	Total Quantity (m3)
1	D1	-	0.91	2.133	4	7.765
2	D2	-	0.91	2.011	1	1.830
3	D3	-	0.91	2.011	4	7.320
4	W1	-	1.74	1.82	2	6.333
5	WALL 9”	5.79	0.22	3	1	3.821
6	WALL 9“	6.40	0.22	3	1	4.224
7	FLOOR 36“	-	-	0.914	1	0.914
8	ROOF 6“	-	-	0.15	1	0.150
9	EXCAVATION	17.0	1.2	1.5	4	122.4
10	WALL 6”	10.8	0.15	0.7	1	1.134

Abstract sheet of library:

Abstract sheet of library					
SR MD.	Description	Total Quantity (m3)	Rate	Per	Amount **(**Rs.**)**
1	D1	7.765	-	-	6100
2	D2	1.830	-	-	2000
3	D3	7.320	-	-	6500
4	W1	6.333	220	-	25000
5	WALL 9”	3.821	130	Ft^2	130000
6	WALL 9”	4.224	130	Ft^2	121000
7	FLOOR 36”	0.914	3500	M^3	71990
8	ROOF 6”	0.150	3500	M^3	65500
9	EXCAVATION	122.4	350	M^3	1500
10	WALL 6”	1.134	90	Ft^2	50000
11	PCC	15.2	3500	M^3	35100
				Total	514690 Rs.

8.1.5 SMART VILLAGE DESIGN(CIVIL) : CCTV surveillance building

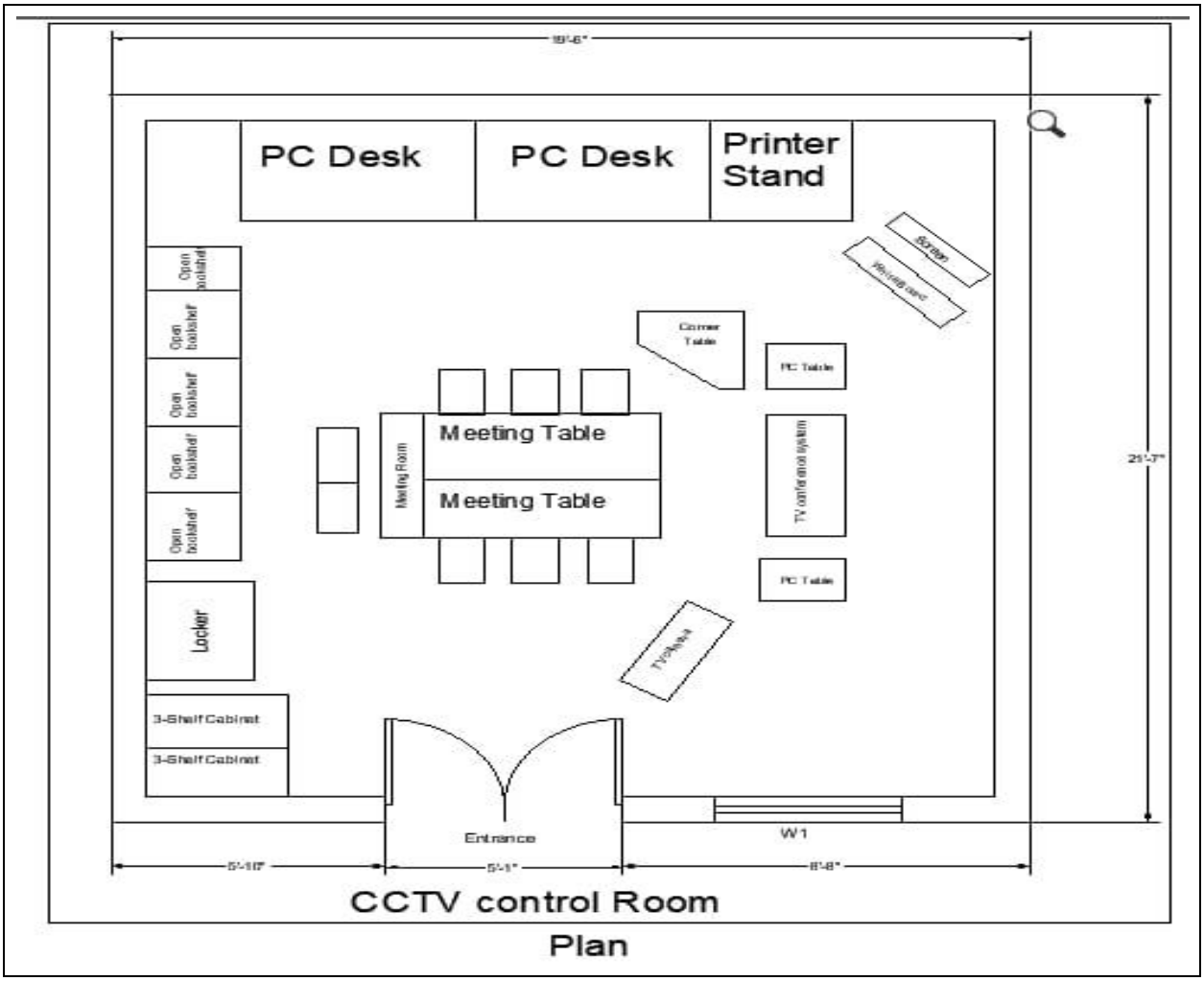
Scenario:

It goes without saying that having a surveillance system installed at your premises will act as a serious deterrent to criminals and anyone carrying out illegal activities. Construction of surveillance rooms sits at the heart of a security installation, bringing together video surveillance, access control and fire control into one room. It serves as a central space where a large physical facility or physically dispersed service can be monitored and controlled by security guards. it will Help for Security and Safety Purpose in Village.

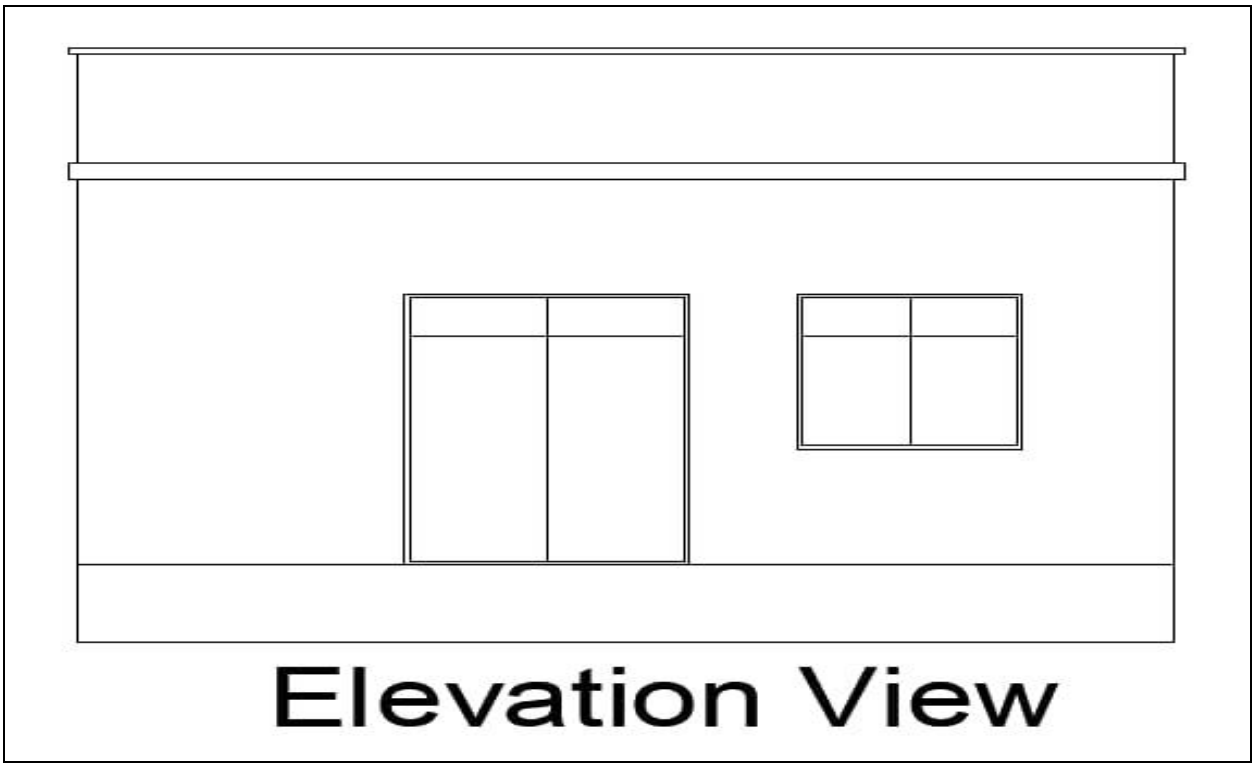
Existing situation in Madheli:

As we did survey and also talk with villagers, we come to know that there is no cctv surveillance building in Madheli village. So, we proposed modern surveillance room design with latest facilities for better security of the people of village in future.

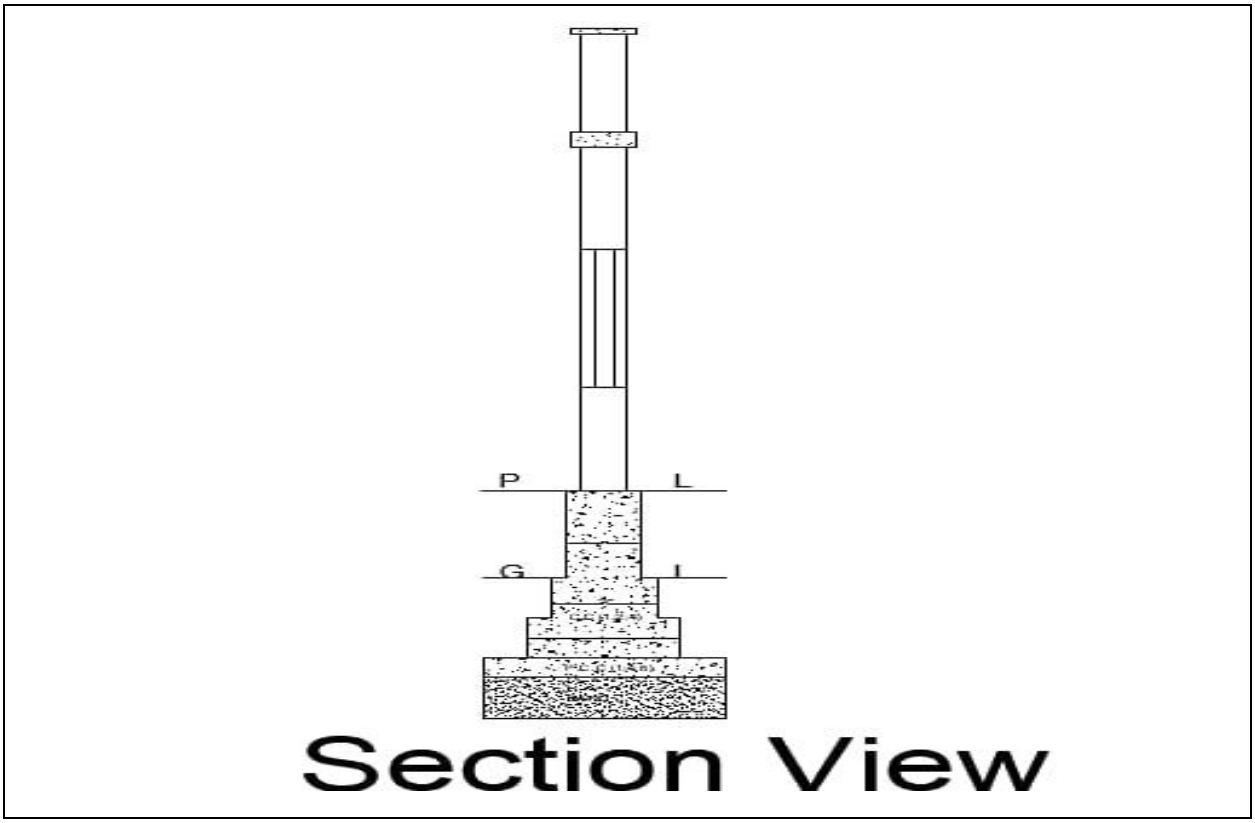
Proposed Design:



(Plan of cctv surveillance room)



(Elevation view of surveillance room)



(Section of surveillance room)

Measurement sheet of CCTV surveillance room:

Measurement sheet of CCTV surveillance room						
SR NO.	Description	Length (m)	Width (m)	Height (m)	Count (nos.)	Total Quantity (m3)
1	D1	-	0.91	2.133	4	7.765
2	D2	-	0.91	2.011	1	1.830
3	D3	-	0.91	2.011	4	7.320
4	W1	-	1.74	1.82	2	6.333
5	WALL 9”	5.79	0.22	3	1	3.821
6	WALL 9“	6.40	0.22	3	1	4.224
7	FLOOR 36“	-	-	0.914	1	0.914
8	ROOF 6“	-	-	0.15	1	0.150
9	EXCAVATION	17.0	1.2	1.5	4	122.4
10	WALL 6”	10.8	0.15	0.7	1	1.134

Abstract sheet of surveillance room:

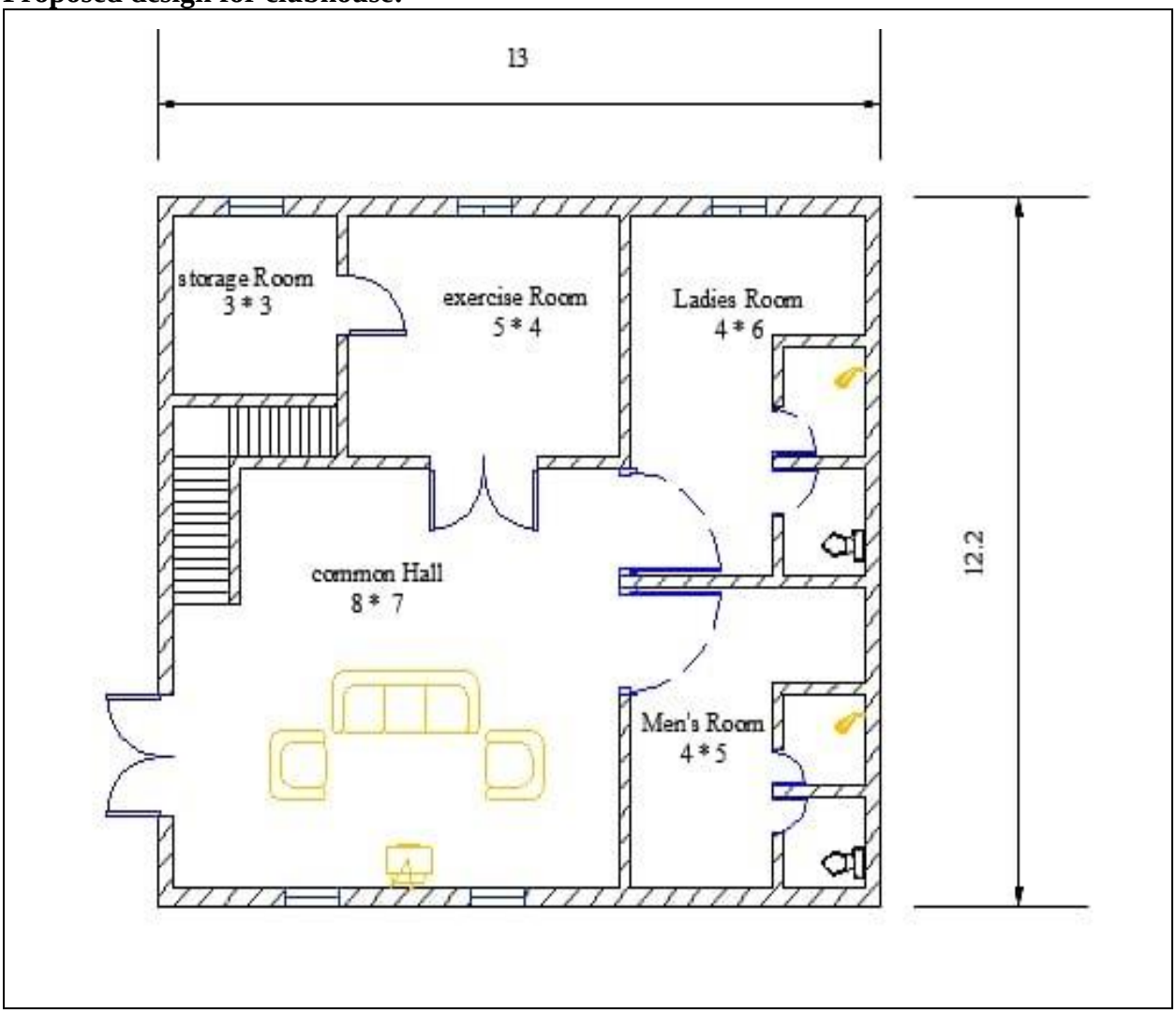
Abstract sheet of CCTV surveillance room					
SR MD.	Description	Total Quantity (m3)	Rate	Per	Amount **(Rs.)**
1	D1	7.765	-	-	6100
2	D2	1.830	-	-	2000
3	D3	7.320	-	-	6500
4	W1	6.333	220	-	25000
5	WALL 9”	3.821	130	Ft^2	130000
6	WALL 9”	4.224	130	Ft^2	121000
7	FLOOR 36”	0.914	3500	M^3	71990
8	ROOF 6”	0.150	3500	M^3	65500
9	EXCAVATION	122.4	350	M^3	1500
10	WALL 6”	1.134	90	Ft^2	50000
11	PCC	15.2	3500	M^3	35100
				Total	514690 Rs.

8.1.6 HERITAGE VILLAGE DESIGN(CIVIL) : Club house

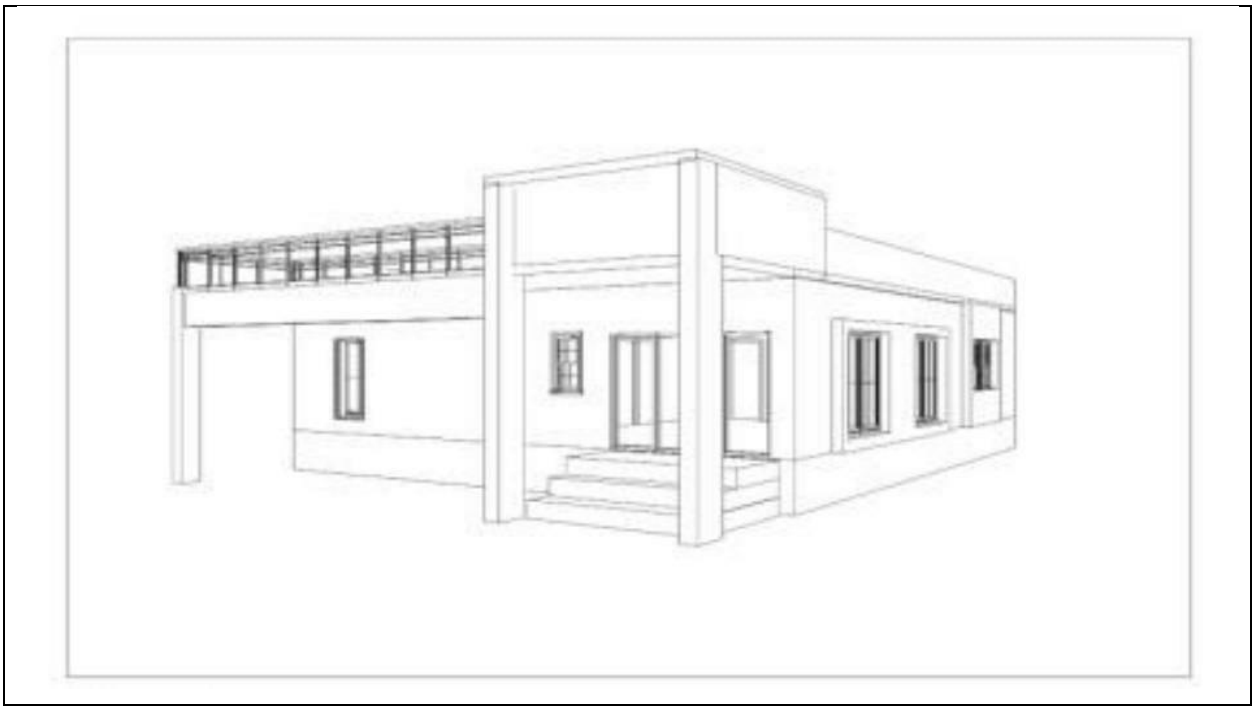
Scenario:
Clubhouses are a great way to socialize. Since these clubhouses provide a common area to gather and engage in activities, it often brings people together. Moreover, it makes socializing pretty much easier without even going out of the gates of the community where individual live. A clubhouse in a residential real estate is a place which fosters the community living. A place for the kids to meet their agemates, the elders to meet and chat, the old people to get along with and much more. It brings out the people from the sole life and clusters them to a community in love and peace often.

Existing situation in Madheli village:
There is no such club house available in Madheli village.

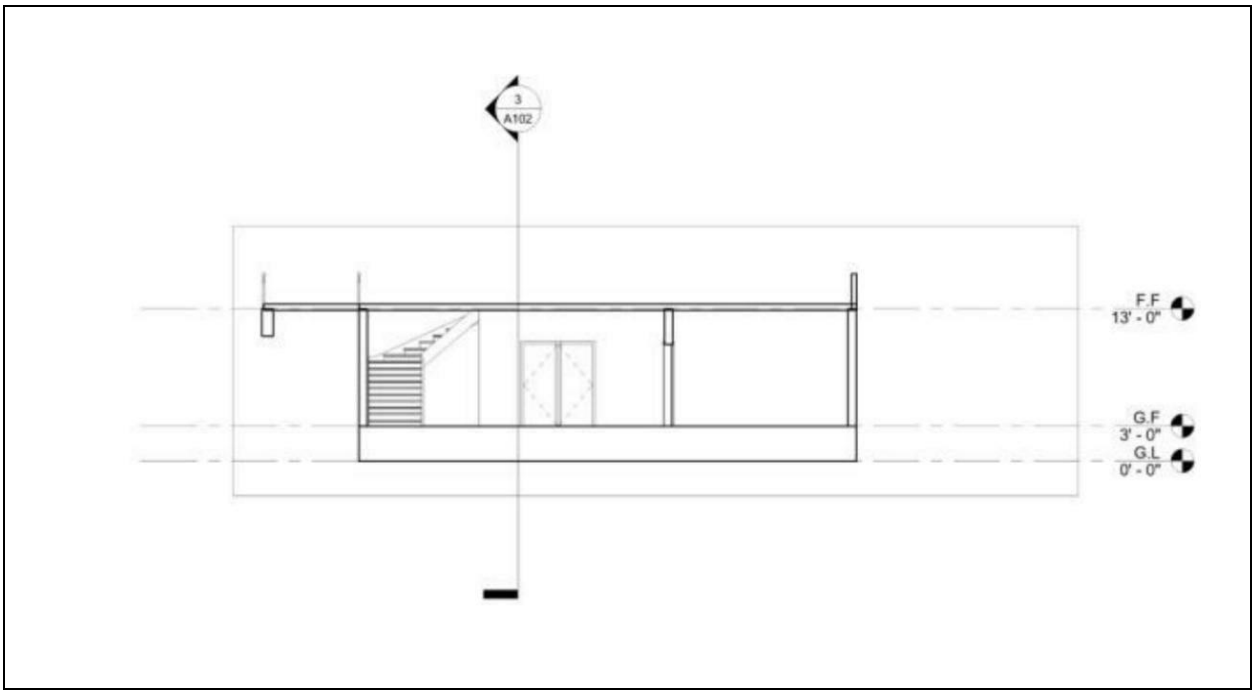
Proposed design for clubhouse:



(plan of club-house**)**



(Elevation of clubhouse)



(Section of clubhouse**)**

Measurement sheet of Clubhouse:

Measurement sheet of clubhouse						
Sr no.	Description	Length(m)	Width(m)	Height(m)	Count(nos.)	Total Quantity(m^3)
1	D1	-	0.91	2.133	4	7.765
2	D2	-	0.91	2.011	1	1.830
3	D3	-	0.91	2.011	4	7.320
4	W1	-	1.74	1.82	2	6.333
5	W2	-	1.52	1.82	2	5.533
6	W3	-	0.91	1.82	1	1.656
7	W4	-	0.71	1.12	4	3.180
8	W5	-	0.60	1.01	1	0.606
9	Wall 9”	13.0	0.22	3	1	8.580
10	Wall 9”	12.2	0.22	3	1	8.052
11	Floor 36”	-	-	0.914	1	0.914
12	Roof 6”	-	-	0.15	1	0.150
13	Excavation	17.0	1.2	1.5	4	122.4
14	Wall 6”	10.8	0.15	0.7	1	1.134

Abstract sheet:

Abstract sheet of clubhouse					
Sr no.	Description	Total Quantity (m^3)	Rate	Per	Amount
1	D1	7.765	-	-	6100
2	D2	1.830	-	-	2000
3	D3	7.320	-	-	6500
4	W1	6.333	220	-	25000
5	W2	5.533	220	-	20100
6	W3	1.656	220	-	9500
7	W4	3.180	220	-	20550
8	W5	0.606	220	-	5000
9	Wall 9”	8.580	130	Ft^2	145000
10	Wall 9”	8.052	130	Ft^2	141000
11	Floor 36”	0.914	3500	M^3	71990
12	Roof 6”	0.150	3500	M^3	65500
13	Excavation	122.4	350	M^3	1500
14	Wall 6”	1.134	90	Ft^2	50000
15	PCC	15.2	3500	M^3	35100
				Total	604840 Rs.

8.2 Reason for Students Recommending this Design:

RO Water Plant: To Provide Safe Drinking Water to every Villagers and For Commercial Usage to generate Income as well as provide Pure water we have proposed One design of RO water plant in Madheli Village.

Panchayat Building: To Provide Basic Governing Institute in Village and for administrative functions We Have Proposed One Design of Panchayat Building in Madheli Village.

Community Hall: To organize Village Events Easily for the Villagers We have proposed One design of Community Building in the village.

Library: To provide access to Knowledge and Information to Villagers and Help the Student to develop Good Learning Habits We have proposed one design of Library in Madheli Village

CCTV Control Room: For the Purpose of Safety and Security in the Village we Have propsed one design of CCTV control Room.

Recreational Park: In the Madheli village there is no any recreational area existing. So that forthe better living standard and entertainment purpose we have proposed one design of public garden as recreational area in the Village.

8.3 About designs Suggestions / Benefit of the villagers

1.RO Water Plant:
The Population of Madheli Village is 2057 in 2011 as per Census and it is required To Provide Safe Drinking Water to every Villagers and For Commercial Usage to generate Income as well as provide pure water so we have decide to have One design of RO water plant in Madheli Village and Finalized the RO water Plant design.

2.Panchayat Building:
In Madheli Village For the Basic Governing Institute in Village and for administrative functions. So that we Have Proposed One Design of Panchayat Building in Madheli Village For Smooth Functioning of Government administration.

3.Community Hall :
In the Village Madheli there should be a Community hall in a public location so that members of a community gather for group activities, events, festivals and social purpose. SO We Have finalized one design for community Hall

4.Library:
In Madheli Village there is no Library So it is require To have one library which provide access to Knowledge and Information to Villagers and Help the Student to develop Good Learning Habits

We have finalized one design of Library in Madheli Village.

5.CCTV Control Room:
In Madheli Village as per Smart Village We should Have CCTV Control Room For the Purpose of Safety and Security in the Village we Have proposed one design of CCTV control Room.

6.Recreational Park:
In the Madheli village there is no any recreational Park existing. So that for the better living standard and entertainment purpose we have proposed one design of public garden as recreational area in the Village.

8.4 About Maintenance:

Maintenance can help:
- Prevent unnecessary damage from the weather or from general usage
- Prevent the process of decay and degradation.
- Ensure continued compliance with statutory requirements.
- Determine the causes of defects and so help prevent re-occurrence or repetition.
- Prevent the process of decay and degradation.
- Maintain structural stability and safety

By Maintaining the building or machinery we can preserve the operating condition of machinery and building services, structures, etc. and also restore them back to their original standards.

Common maintenance tasks include:
- Repair of Pet holes
- Repair of electronics things like cameras and computers
- Exterior painting and plastering
- Landscaping and gardening.
- Paving repairs
- Window and door repairs
- Debris/rubbish removal and clearance
- Jet washing with chemical cleaning agents to remove fungal stain or mould
- Gutter clearance and repair.
- Carpentry
- Lighting repairs
- Re-plastering and plaster repairs
- Tiling
- Carpeting and flooring
- Plumbing
- Repairing cracking or leaning walls

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

For future development of the Madheli village we are proposing the designs for Part II design in which following points should be considered,

Sustainable design: Rain Water harvesting System
As there is no any other sources of water supply in the village we have decided to design of rain water harvesting system it will helpful during emergency need of water. In Madheli Village we are planning to propose the design of Rain water Harvesting System in village it can be an additional source of water will be available which could be used at the time of emergency or water shortage by implementing the Rain Water Harvesting system in the village households.

Physical Design: Bio gas plant
As part of Physical design we will proposed to design Bio gas plant in madheli village.In the Madheli village there is no provision to control the waste produced by animals so we will proposed a design of biogas plant due to which the organic waste is converted into gas which can be used as fuel for domestic purposes as well as other purposes. It will also not spread pollution.

Social Design: Public Toilet
In the Madheli village the design of public toilet is important for the people living in the village from social cultural point of view and For the Sanitation and health of community

Socio-Cultural Design: Sakhi Mandal
By designing Sakhi mandal hall in madheli it will increase interaction among women of village. By organizing social and women empowerment program helping in socio economic growth of the village. In the Madheli Village we are planning to design a Hall for Sakhi Mandals,Sakhil Mandal are Mutual aid groups created under the government to empower women in Rural areas through various medium.

Smart Village Design: Cybercafe
In Madheli village we are planning to propose design of Cyber Cafe which will help to provide Access to internet connectivity to villagers, students and also provide Computer related tasks

Heritage Design : Entrance Gate
In Madheli village we are planning to have an entrance gate at the village approach road.

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

Identifying the problems of urban and rural sectors of a region, the present study has endeavoured to focus on the syndrome of urban-rural interface and its reflection on or contribution to rural development. The question of urban-rural interdependence is vital to India's developing economy where the rural areas are poverty-ridden and where there exists a wide hiatus between urban and rural areas. Though scholars have been investigating the spatial pattern of this interdependence in different parts of the World, yet the dynamism in the process of urban-rural interaction needs a reappraisal in the Indian perspective, keeping rural development in view because this may ultimately promote an integrated and comprehensive regional development.

Besides smart cities, it is necessary for us to have smart village for, sustainable and inclusive future of emerging India. Smart Villages are the need of the hour as development is needed for both rural and urban areas for better livelihood and technology. To convert any village into Smart and Clean Village, use of more and more renewable energy resources is an option.

Vishwakarma yojana an approach towards Rurbanisation means to provide all the basic necessities of the urban areas to the rural people by conserving their soul natural surroundings

We have visited the ideal Village Punsari (India's Smartest Village) that visit helped us to know about the type of infrastructure needed by the village. There has been use of old as well as advanced technology in Village and with the help of techno-economic survey and gap analysis and also studying / surveying our ideal village Punsari, we were able to broadly define requirements of development for people of Madheli village.

In the Madheli village, the basic requirements like community hall, any recreational area, RO water Plant etc were not existing so by implanting given design proposals, all the missing amenities can be provided which will stop the migration of rural people towards the urban area and Improve Lifestyle and standard of living.

The amenities designed under this Vishwakarma project phase VIII will be helpful for better development of the village as physically as well as socially, which improves the overall lifestyle of people along with nation with preserving nature bit by bit. This will help in developing Smart villages in sustainable manner, reduce migration from villages and prevent the cities from the urban pressure. This should lead to some rethinking about the meaning of efficiency beyond the usual conceptions of economic or technical efficiency. Indeed, employment expansion is at least as important as growth in productivity. In a sense, both represent the utilization of labour as a resource. Why, then, does thinking about efficiency focus on one and neglect the other It is important to reflect on this question. The answer, which calls for change in both economics and politics, could make a real difference.

These Project Not only Helped to Develop the Village but it also helped our Team to Gain the Real Time experience in this pandemic

Chapter 11.
Reference refered for this project

1..http://smartvillages.org

2.https://en.wikipedia.org/wiki/Smart_Village_India

3.https://www.censusindia.co.in/states/gujarat

4.https://www.google.com/maps/place/Punsari

5.https://en.wikipedia.org/wiki/Payvihir,_Maharashtra

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12.https://www.villageinfo.in/

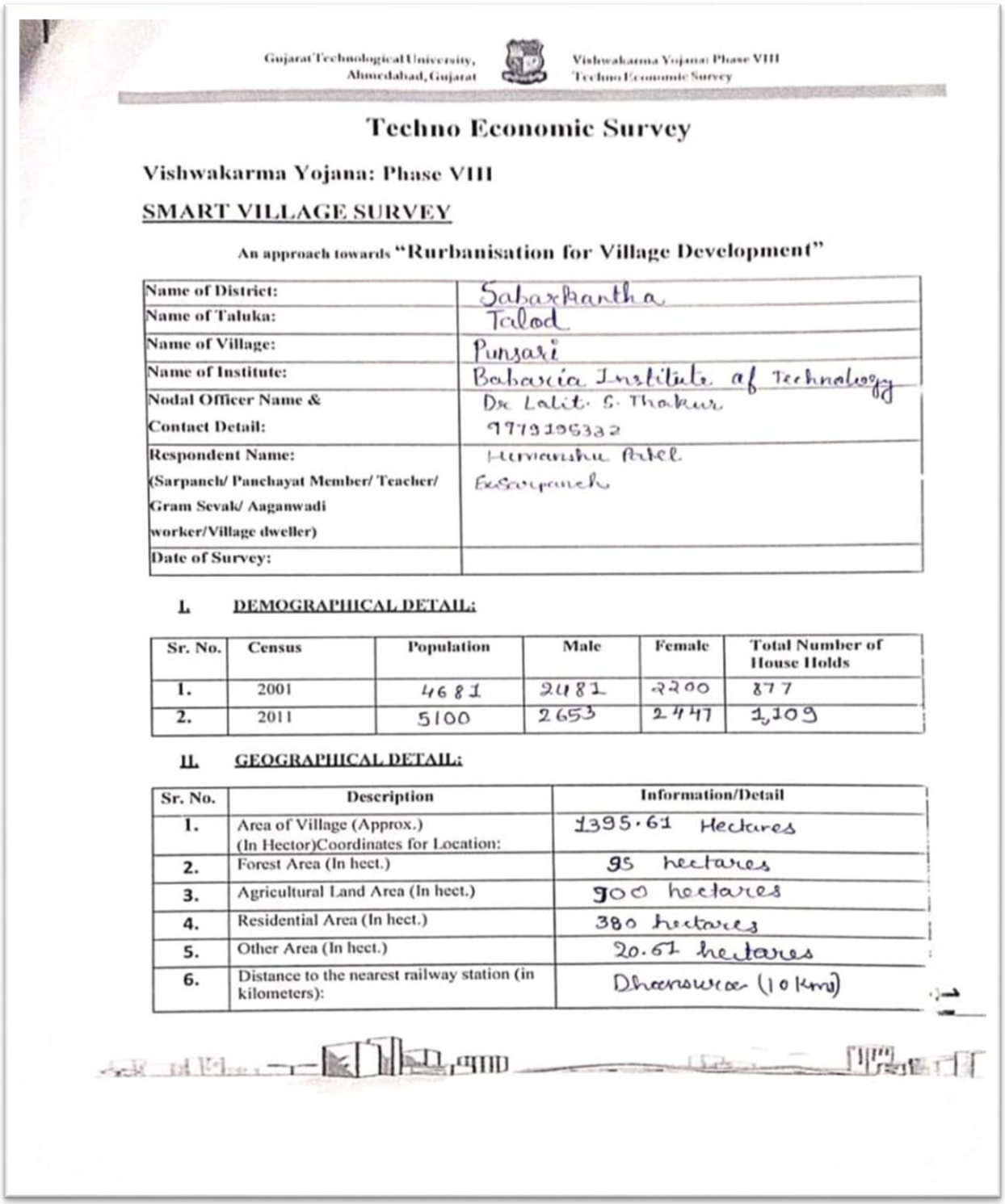
13.https://sabarkantha.nic.in/villages-panchayats/

14.http://www.onefivenine.com/india/villages/Sabar-Kantha/Bayad/Punsari

15.https://www.essaysauce.com/architecture-essays/designing-a-model-village/

Chapter 12.
Annexure attachment :

12.1 Survey form of Ideal Village Scanned copy attachment in the report for Part-1 :



Gujarat Technological University, Ahmedabad, Gujarat

Vishwakarma Yojana: Phase VIII
Techno Economic Survey

Techno Economic Survey

Vishwakarma Yojana: Phase VIII

SMART VILLAGE SURVEY

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

Name of District:	Sabarkantha
Name of Taluka:	Talod
Name of Village:	Punsari
Name of Institute:	Babaria Institute of Technology
Nodal Officer Name & Contact Detail:	Dr Lalit S. Thakur 9979195322
Respondent Name: (Sarpanch/ Panchayat Member/ Teacher/ Gram Seval/ Aaganwadi worker/Village dweller)	Himanshu Patel Ex-Sarpanch
Date of Survey:	

I. DEMOGRAPHICAL DETAIL:

Sr. No.	Census	Population	Male	Female	Total Number of House Holds
1.	2001	4681	2481	2200	877
2.	2011	5100	2653	2447	1,109

II. GEOGRAPHICAL DETAIL:

Sr. No.	Description	Information/Detail
1.	Area of Village (Approx.) (In Hector)Coordinates for Location:	1395.61 Hectares
2.	Forest Area (In heet.)	95 hectares
3.	Agricultural Land Area (In heet.)	900 hectares
4.	Residential Area (In heet.)	380 hectares
5.	Other Area (In heet.)	20.61 hectares
6.	Distance to the nearest railway station (in kilometers):	Dhansura (10 Km)

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Vishwakarma Yojana: Phase VIII
Techno Economic Survey

7.	Name of Nearest Town with Distance:	Talod (24 Kms)
8.	Distance to the nearest bus station (in kilometers):	In Village
9.	Whether village is connected to all road for the any facility or town or City?	Yes

III. OCCUPATIONAL DETAILS:

Name of Three Major Occupation groups in Village	1.	Agriculture, Farming
	2.	Dairy
	3.	Animal Husbandary
Major crops grown in the village:	1.	Pearlmillet / Bajra
	2.	Wheat
	3.	Ground nut

IV. PHYSICAL INFRASTRUCTURE FACILITIES:

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

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Vishwakarma Yojana: Phase VIII
Techno Economic Survey

Suggestions if any:

B.	Water Tank Facility				
	Overhead Tank	Capacity: 2 Lakh	✓		
	Underground Sump	Capacity: 1- 5 Lakh	✓		

Suggestions if any:

C.	The Type of Drainage Facility				
	A. UNDERGROUND DRAINAGE	80% U.G Drainage	✓		
	1				
	2				
	B. OPEN WITH OUTLET	✓	✓		
	C. OPEN WITHOUT OUTLET	—			

Suggestions if any:

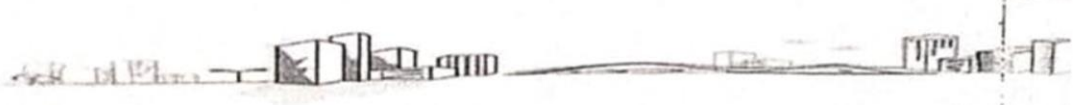
D.	Road Network :All Weather/ Kutchha (Gravel)/ Black Topped pucca/ WBM				
	Village approach road	RCC	✓		
	Main road	CC/RCC	✓		
	Internal streets	Paver Block	✓		
	Nearest NH/SH/MDR/ODR Dist. in kms.	SH-47 (25Kms)	✓		

Suggestions if any:

E.	Transport Facility				
	Railway Station (Y/N) (If No than Nearest Rly Station---Kms)	No Dhanusara (30Kms)	✓		
	Bus station (Y/N) Condition: (If No than Nearest Bus Station---Kms)	In village	✓		
	Local Transportation (Auto/ Jeep/Chhakda/ Private Vehicles/ Other)	City Bus, Private Vehicles	✓		

Suggestions if any:

F.	Electricity Distribution				
	(Y/N) Govt./ Private (Less than 6 hrs./ More Than 6 hrs)	MGVCL 24 hrs (66KV GETCO)	✓		24 hrs Available



	Power supply for Domestic Use	Yes	✓		
	Power supply for Agricultural Use	Yes	✓		
	Power supply for Commercial Use	Yes	✓		
	Road/ Street Lights	Yes	✓		
	Electrification in Government Buildings/ Schools/ Hospitals	Yes	✓		
	Renewable Energy Source Facilities (Y/ N)	Yes	✓		
	LED Facilities	Yes	✓		

Suggestions if any:

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

Suggestions if any:

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

Suggestions if any:

I.	**Housing Condition:**				
	Kutchha/Pucca (Approx. ratio)	80% Pucca 20% Kachha (Approx)	✓		

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V. SOCIAL INFRASTRUCTURAL FACILITIES:

Sr. No.	Descriptions	Information/ Detail	Adequate	Inadequate	Remarks
J.	**Health Facilities:**				
	ICDS (Anganwadi)	8	✓		
	Sub-Centre	1	✓		
	PHC	1	✓		
	BLOCK PHC				
	CHC/RH	-	-		
	District/ Govt. Hospital	1	✓		
	Govt. Dispensary	1	✓		
	Private Clinic	yes	✓		
	Private Hospital/	yes	✓		
	Nursing Home	No	-		
	AYUSH Health Facility	yes	✓		
	sonography /ultrasound facility	No	-		
	If any of the above Facility is not available in village than approx. distance from village: ....20....kms. Taluka				
Suggestions if any:					
K.	**Education Facilities:**				
	Aaganwadi/ Play group	yes	✓		
	Primary School	5 yes	✓		
	Secondary school	1 yes	✓		
	Higher sec. School	1 yes	✓		
	ITI college/ vocational Training Center	No			
	Art, Commerce& Science /Polytechnic/ Engineering/ Medical/ Management/ other college facilities	No			
	If any of the above Facility is not available in village than approx. distance from village: ....20....kms. Taluka				

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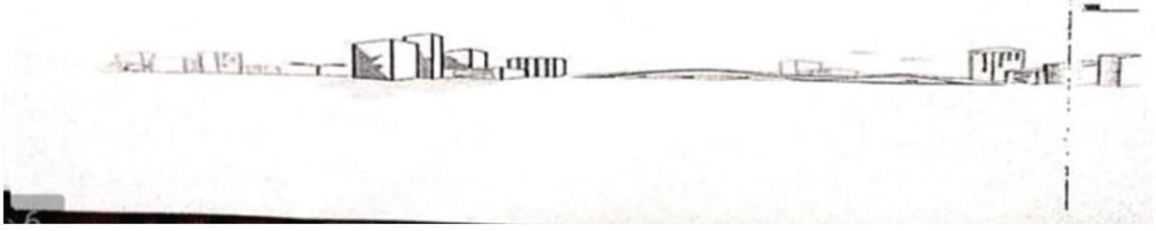
Suggestions if any:

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

If any of the above Facility is not available in village than approx. distance from village: .2.0...kms. Taluka

Suggestions if any:

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



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

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	NO
	4. Kishori Shakti Yojana			yes	
	5. Balika Samriddhi Yojana			yes	
	6. Mid-day Meal Programme			yes	
	7. Intergrated Child Development Scheme (ICDS)			yes	
	8. Mahila Mandal Protsahan Yojana (MMPY)				NO
	9. National Food for work Programme (NFFWP)				NO
	10. National Social Assistance Programme			yes	
	11. Sanitation Programme (SP)				NO
	12. Rajiv Gandhi National Drinking Water Mission			yes	
	13. Swarnjayanti Gram Swarozgar Yojana				NO
	14. Minimum Needs Programme (MNP)			yes	
	15. National Rural Employment Programme				NO
	16. Employee Guarantee Scheme (EGS)				NO
	17. Prime Minister Rojgar Yojana (PMRY)			yes	
	18. Jawahar Rozgar Yojana (JRY)			yes	NO
	19. Indira Awas Yaojna (IAY)				NO
	20. Samagra Awas Yojana (SAY)				
	21. Sanjay Gandhi Niradhar Yojana (SGNY)				
	22. Jawahar Gram Samridhi Yojana (JGSY)			yes	
	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	✓	yes		
2.	Bio-Gas Plant Solar Street Lights Rain Water Harvesting System	yes ✓ ✓	yes yes yes		
3.	Any Other	Solar energy	✓		

VII. DATA COLLECTION FROM VILLAGE

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

VIII. ADDITIONAL INFORMATION/ REQUIREMENT:

Sr. No.	Descriptions	Information/ Detail	Remarks

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

IX. Smart Village / Heritage Details

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

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

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

12.2 Survey form of Smart Village Scanned copy attachment in the report for Part-1 :

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:	Varnama
Name of Taluka:	Vadodara
Name of District:	Vadodara
Name of Institute:	Babaria institute of technology
Nodal Officer Name & Contact Detail:	Dr Lalit S. Thakur 9979195332
Respondent Name: (Sarpanch/ Panchayat Member/ Teacher/ Gram Sevak/ Aaganwadi worker/Village dweller)	pinkyben dineshbhai patel
Date of Survey:	

1. **Demographical Detail:**

Sr. No.	Census	Population	Male	Female	Total House Holds
i)	2001	4177	2216	1961	897
ii)	2011	4251	2228	2023	951

2. **Geographical Detail:**

Sr. No.	Description	Information/Detail
i)	Area of Village (Approx.) (In Hector) Coordinates for Location:	1761.79 hectares
	Forest Area (In hect.)	202.05 hectares
	Agricultural Land Area (In hect.)	974.58 hectares
	Residential Area (In hect.)	529.79 hectares
	Other Area (In hect.)	52.37 hectares
	Water bodies	2.55 hectares
	Nearest Town with Distance:	Vadodara (17 km)

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3. **Occupational Details:**

Name of Three Major Occupation groups in Village	1. Farming 2. Labours 3. Dairy

4. **Physical Infrastructure Facilities:**

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

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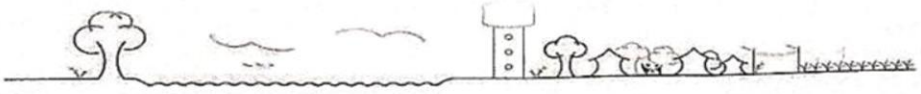
E.	Road Network :All Weather/ Kutchha (Gravel)/ Black Topped pucca/ WBM				
	Village approach road		yes		Bitumin road
	Main road	NH-48	yes		
	Internal streets		yes		pcc Road
	Nearest NH/SH/MDR/ODR Dist. in kms.	NH-48 Road touched	yes		Bitumin Road
Suggestions if any:					
F.	**Transport Facility**				
	Railway Station (Y/N) (If No than Nearest Rly Station---Kms)	Varnama railway station	yes		
	Bus station (Y/N) Condition: (If No than Nearest Bus Station---Kms)	Varnama Bus stop	yes		
	Local Transportation (Auto/ Jeep/Chhakda/ Private Vehicles/ Other)	Auto/ chhakda private vehicle	yes		
Suggestions if any:					
G.	**Electricity Distribution**				
	(Y/N) Govt./ Private (Less than 6 hrs./ More Than 6 hrs)	Government more than 6 hrs.	yes		
	Power supply for Domestic Use	24 hrs.	yes		
	Power supply for Agricultural Use		yes		
	Power supply for Commercial Use		yes		
	Road/ Street Lights		yes		

	Electrification in Government Buildings/ Schools/ Hospitals		yes		
	Renewable Energy Source Facilities (Y/ N)	Solar pannel	yes		
	LED Facilities		yes		
Suggestions if any:					
H.	**Sanitation Facility**				
	Public Latrine Blocks If available than Nos.			No	
	Location Condition			No	
	Community Toilet (With bath/ without bath facilities)			No	
	Solid & liquid waste Disposal system available	Daily Basis waste collection	yes		
	Any facility for Waste collection from road	Door to Door by Tractor	yes		
Suggestions if any:					
I.	**Irrigation Facility:**				
	Main Source of Irrigation (Stream/River/ Canal/ Well/ Tube well/ Other)	Canal and pond	yes		
Suggestions if any:					
J.	**Housing Condition:**				
	Kutchha/Pucca (Approx. ratio)	80% pucca 20% kutchha	yes		

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:	primary Health centre Varnama	yes		
	Private Clinic/Private Hospital/ Nursing Home	private clinic	yes		
	If any of the above Facility is not available in village than approx. distance from village: .....kms.				
Suggestions if any:					

L.	Education Facilities:				
	Aaganwadi/ Play group		yes		
	Primary School		yes		
	Secondary school		yes		
	Higher sec. School		yes		
	ITI college/ vocational Training Center			No	
	Art, Commerce& Science /Polytechnic/ Engineering/ Medical/ Management/ other college facilities	Babaria Institute of technology	yes		
	If any of the above Facility is not available in village than approx. distance from village: ...3....kms.				
Suggestions if any:					

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

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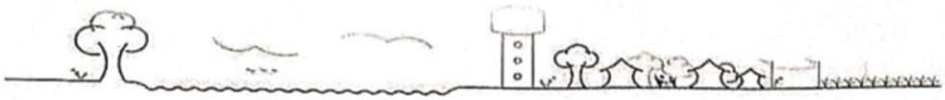
	Condition: Good				
	Public Library (With daily newspaper supply: Y/N) Location: Varnama Condition: Good	Daily Newspaper Supply	yes		
	Public Garden Location: Condition:			NO	
	Village Pond Location: varnama Condition: Good		yes		
	Recreation Center Location: Condition:			No	
	Cinema/ Video Hall Location: Condition:			NO	
	Assembly Polling Station Location: Condition:			No	
	Birth & Death Registration Office Location: Varnama Condition: Good		yes		
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	BPO	yes		
	Telecommunication Network/ STD booth			NO	



	General Market		yes		
	Shops (Public Distribution System)		yes		
	Panchayat Building	Good condition	yes		
	Pharmacy/Medical Shop		yes		
	Bank & ATM Facility	BOB ATM	yes		
	Agriculture Co-operative Society			NO	
	Milk Co-operative Soc.		yes		
	Small Scale Industries			NO	
	Internet Cafes/ Common Service Center/Wi Fi			NO	
	Other Facility			NO	
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	Renewable Energy Sources like Solar pannel	yes		
P.	Bio-Gas Plant Solar Street Lights Rain Water Harvesting System			NO NO NO NO	
Q.	Any Other			NO	

7. **Data Collection From Village**

Village Base Map Available: Hard Copy/Soft Copy	NO

Recent Projects going on for Development of Village	No
Any NGO working for village development	No

8. **Additional Information/ Requirement:**

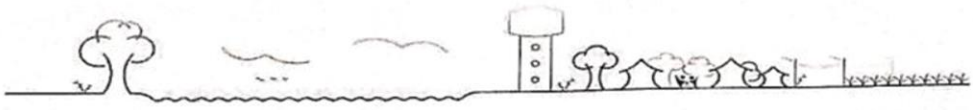
Sr. No.	Descriptions	Information/ Detail	Remarks
1.	Repair & Maintenance of Existing Public Infrastructure facilities(School Building, Health Center, Panchayat Building, Public Toilets & any other)	No, there is no requirement of repair & maintenance	Good condition
2.	Additional Information/ Requirement	No	
	Daily Basis waste collection		

9. **Smart Village Proposal Design**

Sr. No.	Descriptions	Information/ Detail	Remarks
1.		No	

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

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



12.3 Survey form of Allocated Village Scanned copy attachment in the report for Part-1 :

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Techno Economic Survey

Vishwakarma Yojana: Phase VIII

ALLOCATED VILLAGE SURVEY

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

Name of District:	Vadodara.
Name of Taluka:	Vaghodia.
Name of Village:	Madheli
Name of Institute:	Babaria institute of technology.
Nodal Officer Name & Contact Detail:	Dr. Lalit S. Thakur. 99791 85322.
Respondent Name: (Sarpanch/ Panchayat Member/ Teacher/ Gram Sevak/ Aaganwadi worker/Village dweller)	Chiragbhai jagdishbhai patel.
Date of Survey:	5th December 2020.

I. DEMOGRAPHICAL DETAIL:

Sr. No.	Census	Population	Male	Female	Total Number of House Holds
1.	2001	1826	991	835	430
2.	2011	2057.	1,061	996	434

II. GEOGRAPHICAL DETAIL:

Sr. No.	Description	Information/Detail
1.	Area of Village (Approx.) (In Hector)Coordinates for Location:	877.34 hectares [22.2653° N, 73.3787° E]
2.	Forest Area (In hect.)	45 hec
3.	Agricultural Land Area (In hect.)	524 hec
4.	Residential Area (In hect.)	11 hec
5.	Other Area (In hect.)	5 hec
6.	Distance to the nearest railway station (in kilometers):	Vadodara junction [24 Km]

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7.	Name of Nearest Town with Distance:	Vaghodia.
8.	Distance to the nearest bus station (in kilometers):	Limda [3km]
9.	Whether village is connected to all road for the any facility or town or City?	Yes, It is.

III. OCCUPATIONAL DETAILS:

Name of Three Major Occupation groups in Village	1.	Farmer
	2.	Company employees.
	3.	Labours.

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

IV. PHYSICAL INFRASTRUCTURE FACILITIES: yes/no.

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		✓		
2.	**DUG WELL**				
	Protected Well			✓	
	Un Protected Well			✓	
3.	**WATER FROM SPRING**				
	Protected Spring			✓	
	Unprotected Spring			✓	
	Rainwater		✓		
	Tanker Truck		✓		
	Cart With Small Tank		✓		
4.	**SURFACE WATER (RIVER/DAM/ LAKE/POND/STREAM/CANAL/**	Lake, Pond, Canal are available in Village.	✓		
	Irrigation Channel		✓	✓	
	Bottled Water		✓		
	Hand Pump		✓		

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	Other(Specify)Lake/ Pond	Khet talavdi.	✓		Two pond available in village.
Suggestions if any:					
B.	**Water Tank Facility**				
	Overhead Tank	Capacity:	✓		
	Underground Sump	Capacity:	✓		
Suggestions if any:					
C.	**The Type of Drainage Facility**				
	A. UNDERGROUND DRAINAGE 1		✓		
Suggestions if any:					
D.	**Road Network :All Weather/ Kutchha (Gravel)/ Black Topped pucca/ WBM**				
	Village approach road		✓		Bitumen Road.
	Main road	2km from village.	✓		Bitumen Road.
	Internal streets		✓		RCC Road
	Nearest NH/SH/MDR/ODR Dist. in kms.	16 Km	✓		Vadodara district.
Suggestions if any:					
E.	**Transport Facility**				
	Railway Station (Y/N) (If No than Nearest Rly Station---Kms)	No.			Vadodara Railway station (48 Km)
	Bus station (Y/N) Condition: (If No than Nearest Bus Station---Kms)	No			Limda bus station. (10 Km)
	Local Transportation (Auto/ Jeep/Chhakda/ Private Vehicles/ Other)		✓		Auto/Chhakda/ Private vehicles are available.
Suggestions if any:	bus stand				
F.	**Electricity Distribution**				
	(Y/N) Govt./ Private (Less than 6 hrs./ More Than 6 hrs)	Yes.	✓		Govt - mgvcl. (More than 6 hrs)

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	Power supply for Domestic Use	24 hrs.	✓		
	Power supply for Agricultural Use	8 hrs.	✓		
	Power supply for Commercial Use	24 hrs.	✓		
	Road/ Street Lights		✓		CFL bulb.
	Electrification in Government Buildings/ Schools/ Hospitals		✓		In govt buildings and School.
	Renewable Energy Source Facilities (Y/ N)	No			
	LED Facilities			✓	

Suggestions if any: Renovation of school, New Panchayat house and LED with Solar Panel Street light needed in madheli Village.

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

Suggestions if any: Waste collection facility is need of development.

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

Suggestions if any: Beautification of Pond could enhance appearance of it.

I.	**Housing Condition:**				
	Kutchha/Pucca (Approx. ratio)	40% Kutchha & 60% Pucca.	✓		40% Kutchha are of lower income group of people.

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V. SOCIAL INFRASTRUCTURAL FACILITIES:

Sr. No.	Descriptions	Information/ Detail	Adequate	Inadequate	Remarks
J.	**Health Facilities:**				
	ICDS (Anganwadi)		✓		
	Sub-Centre			✓	
	PHC			✓	
	BLOCK PHC			✓	
	CHC/RH			✓	
	District/ Govt. Hospital			✓	
	Govt. Dispensary			✓	
	Private Clinic			✓	
	Private Hospital/ Nursing Home			✓	
	AYUSH Health Facility			✓	
	sonography /ultrasound facility			✓	
	If any of the above Facility is not available in village than approx. distance from village: ..7..kms. (from Waghodia)				
Suggestions if any:	Much need of health facility.				
K.	**Education Facilities:**				
	Aaganwadi/ Play group		✓		
	Primary School		✓		
	Secondary school			✓	
	Higher sec. School			✓	
	ITI college/ vocational Training Center			✓	
	Art, Commerce& Science /Polytechnic/ Engineering/ Medical/ Management/ other college facilities			✓	

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If any of the above Facility is not available in village than approx. distance from village: ....8.....kms.

Suggestions if any:

L.	Socio- Culture Facilities	Condition	Location	Available (YES)	Available (NO)
	Community Hall (With or without TV)	fair enough.	In Village.	✓	
	Public Library (With daily newspaper supply: Y/N)				✓
	Public Garden				✓
	Village Pond	Good.	In village.	✓	
	Recreation Center				✓
	Cinema/ Video Hall				✓
	Assembly Polling Station	Poor.	School.	✓	
	Birth & Death Registration Office	Bad.	Panchayat office	✓	

If any of the above Facility is not available in village than approx. distance from village: .....8.....kms.

Suggestions if any: New Panchayat house needed.

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

N.	Other Facilities	Condition		Available (YES)	Available (NO)
	Credit Cooperative Society Agricultural Cooperative Society Milk Cooperative Society Fishermen's Cooperative Society Computer Kiosk/ e-chaupal / Mills / Small Scale Industries				✓
	Other Facility				✓
	Suggestions if any: Pharmacy shop and ... needed in village.				
	1. Have these programme implemented the village?	poor			No.
	2. Are there any beneficiaries in the village from the following programme?	Children.		Yes	
	3. Janani Suraksha Yojana				
	4. Kishori Shakti Yojana				✓
	5. Balika Samriddhi Yojana				✓
	6. Mid-day Meal Programme	Fair enough		✓	
	7. Intergrated Child Development Scheme (ICDS)	Fair		✓	
	8. Mahila Mandal Protsahan Yojana (MMPY)				✓
	9. National Food for work Programme (NFFWP)	Provide to tribes not in village			✓
	10. National Social Assistance Programme				✓
	11. Sanitation Programme (SP)				✓
	12. Rajiv Gandhi National Drinking Water Mission				✓
	13. Swarnjayanti Gram Swarozgar Yojana				✓
	14. Minimum Needs Programme (MNP)				✓
	15. National Rural Employment Programme				✓
	16. Employee Guarantee Scheme (EGS)				✓
	17. Prime Minister Rojgar Yojana (PMRY)				✓
	18. Jawahar Rozgar Yojana (JRY)				✓
	19. Indira Awas Yaojna (IAY)	Fair		✓	
	20. Samagra Awas Yojana (SAY)				✓
	21. Sanjay Gandhi Niradhar Yojana (SGNY)				✓
	22. Jawahar Gram Samridhi Yojana (JGSY)	Fair.		✓	
	23. Other (SPECIFY)	(Road improvement	needed	through R/C Road	development

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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	Some houses equipped with Solar roof top, Solar heater		✓	No Govt Scheme Provided till now.
2.	Bio-Gas Plant Solar Street Lights Rain Water Harvesting System	Khet talavdi.	✓	✓ ✓	
3.	Any Other	Rain water harvesting using waste construction material.			

VII. DATA COLLECTION FROM VILLAGE

Sr. No.	Descriptions	Information/ Details	Adequate	Inadequate	Remarks
1.	Village Base Map Available: Hard Copy/Soft Copy			✓	only from map of village available.
2.	Recent Projects going on for Development of Village	Beautification of Pond.	✓		
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)	Village overcome from the flood and Cyclone during Last one year.			No Severe damages occurs.

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III. ADDITIONAL INFORMATION/ REQUIREMENT:

Sr. No.	Descriptions	Information/ Detail	Remarks
1.	Repair & Maintenance of Existing Public Infrastructure facilities,	—	
	School Building	New School building requires.	very old building.
	Health Center	—	
	Panchayat Building	New Panchayat house requires.	very old house.
	Public Toilets & any other	Unavailable.	
2.	Additional Information/ Requirement	Need Road in farm area.	
3.	During the last six months how many times CLEANING ..... Regular ..... FOGGING..... Zero. ..... Drive was undertaken in the village?	Sprinkle DDT powder and Sanitisation in Pandemic.	

IX. Smart Village / Heritage Details

Sr. No.	Descriptions	Information/ Detail	Remarks
1.	IS THEIR ANY THING FOR THE VILLAGE ENHANCEMENT POSSIBLE ?	Develope - health facility, Bank facility, Secondary School, Bus Station.	Renovation of govt buildings.

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

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

તા. ૨૮/૦૨/૨૦૨૧
તલાટી કમ મંત્રી,
મેદરી કમ પંચાયત,
તા. પાદરા, જી. વડોદરા.

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12.4 Gap Analysis of the Allocated Village

VILLAGE GAP Analysis

Village Facilities	Planning Commission/UDPFI Norms	Village Name:	Madheli (Waghodia,Vadodara)		
		Population:2057			
		Existing	Required as per Norms	Smart Vilage / Cities / Heritage Future Projection Design	Gap
Social Infrastructure Facilities					
Education					
Anganwadi	Each or Per 2500 population	1	1	-	0
Primary School	Each Per 2500 population	1	1	-	0
Secondary School	Per 7,500 population	0	0	-	0
Higher Secondary School	Per 15,000 Population	0	0	-	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	0	1	-	-1
Primary Health & Child Health Center	Per 20,000 population	0	0	-	0
Child Welfare and Maternity Home	Per 10,000 population	0	0	-	0
Multispeciality Hospital	Per 100000 Population	0	0	-	0
Public Latrines	1 for 50 families (if toilet is not there in home, specially for slum pockets & kutcha house)	1	1	-	0
Physical Infrastructure Facilities					
Transportation		**Adequate**		-	-
Pucca Village Approach Road	Each village	**Adequate**	Good Road	-	-
Bus/Auto Stand provision	All Villages connected by PT (ST Bus or Auto)	**Adequate**	Bus Stop in Village	-	--
Drinking Water (Minimum 70 lpcd)		**Adequate**	-	-	-
Over Head Tank	1/3 of Total Demand	**Adequate**	1	-	0
U/G Sump	2/3 of Total Demand	**Adequate**	1	1	0

Drainage Network - Open		Adequate	30% open		
Drainage Network - Cover		Adequate	70% covered		
Waste Management System		Adequate			
Socio- Cultural Infrastructure Facilities					
Community Hall	Per 10000 Population	1	0	-	1
community hall and Public Library	Per 15000 Population	0	0	-	0
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	1	-	-1
Police post	Per 40,000Population	0	0	-	0
Shopping Mall: Shops are available in Village					
Electrical Design					
Electricity Network		Adequate	-	-	-
Any Smart Village Facility					
Technology		CCTV CAMERA			
		LED STREET LIGHT			

12.5 summary Details of all the villages designs in table form as Part-1 and Part-2 :

Sr no	Village name	Discipline	Part-1	Part 2
1	MADHELI	CIVIL	Medical Store	Rainwater Harvesting System
			Sarpanch Office	Pickup Stand
			Community Hall	Public Toilet
			Library	Sakhi Mandal
			CCTV Surveillance Room	Cybercafe
			Club House	Entrance Gate
2	LIMDA	CIVIL	Medical Store	Rainwater Harvesting
			Sarpanch Office	Pickup Stand
			Community Hall	Public Toilet
			Library	Sakhi Mandal
			CCTV Surveillance Room	Cyber Cafe
			Club House	Entrance Gate

12.6 Drawings:

All the drawings and images are attached in their respective chapters along with designs and their listing are mentioned in the list of figures along with their page numbers.

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

Summary Of Photograph Of Madheli – Allocated Village

	
	

Summary of Photographs of varnama – Ideal Village :

	

Summary of Photograph of Punsari – Smart Village

12.8 Village Interaction With Sarpanch/Talati Report With Photograph :

Village Interaction With Sarpanch/Talati Letter

Vishwakarma Yojna Phase VIII

Madheli Village, Waghodia Taluka, Vadodara district

Village pincode :391760

Subject : Village Interaction Form with sarpanch

I sarpanch/Talati of Madheli Village undersigned gives approval of doing Village Interaction activity under Vishwakarma Yojna Phase VIII – An Approach Towards Rurbanisation by Students Of Babaria College Vadodara Named Divyesh Bharadva (170050106503) and Ankit Patel (170050106513).

Date

Sign

Seal of Grampanchayat

12.9 Sarpanch Letter Giving Information About The Village Development:

Approval Letter For Proposed Designs Approval :

Approval Letter For Proposed Design Approval

Vishwakarma Yojna Phase VIII

Madheli Village, Waghodia Taluka, Vadodara district

Village pincode :391760

Subject : Approval of Design Proposed For Madheli Vilage

I sarpanch/Talati of Madheli Village undersigned gives approval of doing Village Interaction activity under Vishwakarma Yojna Phase VIII – An Approach Towards Rurbanisation by Students Of Baharia College Vadodara Named Divyesh Bharadva (170050106503) and Ankit Patel (170050106513).

•Approved Main Design proposals As Part 1:

1) Sarpanch Office

2)Community Hall

3)RO Water Building

Date

Sign

Seal of Gramipanchayat
ता. वाघोडिया, जि. वडोदरा.

Approval Letter For Swachhta And COVID Awareness Activity Approval :

Approval Letter For Swachhta &Covid Awarness Activity Approval

Vishwakarma Yojna Phase VIII

Madheli Village, Waghodia Taluka, Vadodara district

Village pincode :391760

Subject :Approval of Doing Awarness Activity For Swachhta & Covid For Madheli Village

I sarpanch/Talati of Madheli Village undersigned gives approval of doing Village Interaction activity under Vishwakarma Yojna Phase VIII – An Approach Towards Rurbanisation by Students of Babaria College Vadodara Named Divyesh Bharadva (170050106503) and Ankit Patel (170050106513).

Date

Sign

Seal of Grampanchayat