DETAIL PROJECT REPORT

VISHWAKARMA YOJNA: VIII
AN APPROACH TOWARDS RURBANISATION
Katawana Village

Porbandar District

PREPARED BY

STUDENT NAME	BRANCH NAME	ENROLLMENT NO
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NODAL OFFICERS: - ASST.PROF.YASH

DASANI

YEAR: 2020-21

GUJARAT TECHNOLOGICAL UNIVERSITY
Chandkheda,Ahmedabad– 382424 Gujarat

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Chandkheda, Ahmedabad – 382424 Gujarat

CERTIFICATE

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

Detail Project Report for, Katawana Village Porbandar District

Under

VishwakarmaYojana: Phase-VIII

In partial fulfillment of the project offered by

GUJARAT TECHNOLOGICAL UNIVERSITY, CHANDKHEDA

During the academic year2020-21.

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

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ABSTRACT

Vishwakarma Yojana project and How you do your vision project:-

If 75% peoples of any place are connected with agriculture activities than this place are called the VILLAGE. The average village has 200-250 households, and occupies an area of 5 sq. km. Most of this is farmland, and it is typical to find all the houses in one or two clusters. Villages are thus spaced 2-3 km apart, and spread out in all directions from the market towns. About 75% of India's population, or 8000 million, live in its 600,000 villages.

The government of Gujarat has launched vishwakarma yojna (scheme) for development of Villages by identifying the requirements of villages. Under this scheme, the villages are surveyed and this project was identified and selected for implementation. Reurbanization is to bring peace of mind to the villagers by providing them the basic amenities required and still keeping the Village soul intact. It is about finding out what the basic facilities are present and what can be provided to betterment of the village. The present resources are made to such a use that it gives Its cent percentage usability with sustainability.

About your village description:-

Our village Katawana is located at 09km away from Kutiyana. It is located on national Highway 27. Pin code of village is 362650. Language spoken are Gujarati & Hindi. Elevation/altitude: 37 meter above sea level.

About existing village condition:-

The village's condition is enough good. The village has facilities of Milk Co-operative Society, Primary school. But the other side the problem of narrow roads in village, poor conditions of Panchayat building, Pond and Community hall.

About your proposed designs your view for village development:-

The PHC required in village. The physical structure like public toilet is must needed Component in village. And Public library, recreational zone are also needed and post office and bus stand require for enlargement.

About future scope of the village development:-

To application of service and maintenance of some structure. And some sustainable structure should made in village. This factors affecting on the development of village.

Key Words:-Good facility of post office, Public Toilet, Community Hall, Public Garden, Panchayat building.

ACKNOWLEDGEMENT

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

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We are also thankful to our **Dr.S.Agal Principal**, faculties of our colleges for their encouragement and support to complete this project work.

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CONTENT

LIST OF TABLE

ABBREVIATIONS

PHC	Primary Health Center
CHC	Community Health Center
TDO	Taluka Developer Officer
DDO	District Developer Officer
PPP	Public Private Partnership
NGO	Non Governmental Organization
PUR	Provision of Urban Amenities in Rural Area
CSS	Centrally Sponsored Schemes
BOD	Biochemical Oxygen Demand
COD	Chemical Oxygen Demand
DEWATS	Decentralized Wastewater System
BORDA	Bremen Overseas Research & Development Association
ZWM	Zero Waste Management
DRDA	District Rural Development Agency
EPF	Eco-friendly Plastic Fuel
MGNREGA	Mahatma Gandhi National Rural Employment Guarantee Act
PMGSY	Pradhan Mantri Gram Sadak Yojana
IAY	Indira Awas Yojana
NRuM	National Rurban Mission

LIST OF FIGURES

Chapter: 1
Ideal Village Visit of Ranava (Porbandar, Gujarat)

1.1 BACKGROUND:

On 14 October, 2020 we visited a village named Ranavav. Ranavav is the village located in Porbandar district in Gujarat.It is called the Jambuvant's caves near Ranavav railway station. [Legend: This is cave where Jambuvan, warrior of Ramayana age was residing. He was born in Satya Yuga and seen Treta Yuga and Dvapara Yuga waiting for Krishna. He found a diamond which he gave to his daughter Jambuvati.Many facilities like hospitals, schools, college, post office, banks, bus station, railway station etc. are developed in this village.

- **Elevation** : 40 m
- **Population :** 46,018 (2011)
- **Weather** : 37 °C, Wind NE at 14 km/h, 36% Humidity

- The total straight line distance between Porbandar and Ranavav is 15 KM (kilometers) and 860.34 meters. The miles based distance from Porbandar to Ranavav is 9.9 miles.

- Total area of Ranavav is 585 km² including 499.87 km² rural area and 84.70 km² urban area.Ranavav has a population of 1,14,568 peoples. Latitude: 21°41′14″ N Longitude: 69°44′41″ E *Elevation* above *sea level*: 29 m = 95 ft.

(Figure.1.1 Location Area of Village Ranavav)

1.2 CONCEPT OF IDEAL VILLAGE :

An ideal Indian village will be so constructed as to lend itself to perfect sanitation. It will have cottages with sufficient light and ventilation built of a material obtainable within a radius of five miles of it. The cottages will have courtyards enabling householders to plant vegetables for domestic use and to house their cattle.

The village lanes and streets will be free of all avoidable dust. It will have wells according to its needs and accessible to all. It will have houses of worship for all, also a common meeting place, a village common for grazing its cattle, a co-operative dairy, primary and secondary schools in which industrial education will be the central fact, and it will have Panchayats for settling disputes. It will produce its own grains, vegetables and fruit, and its own Khadi.

The very first problem the village worker will solve is its sanitation. It is the most neglected of all the problems that baffle workers and that undermine physical well-being and breed disease.

1.2.1 Objectives.

An ideal village project has the following important objectives:

- Provide awareness about government schemes & policies to farmers.
- Provide urban amenities to improve the quality of life in rural areas.
- Provide advanced agricultural equipment & educate farmers about climate smart agriculture practices.
- Provide a help in setting up good roads infrastructure &transportation.
- Empowerment of rural areas with latest digital technology.
- Prevent distress migration from rural to urban areas
- Create and sustain a culture of cooperative living.

1.2.2 Example/Live Case study of any other state ideal village: Punsari, Sabarkantha,Gujart

- In a case study of other state village we have selected Punsari village of Sabarkantha district of Gujarat state.
- The Sarpanch Mr. Himanshu Patel is a major part of the development of the village.
- Mr. Himanshu Patel the Sarpanch of the Punsari village is utilized various Government Schemes for the purpose of village welfare. He serves as a good coordinator for various development activities in his village.
- He is able to communicate with other villagers effectively Because of his efforts, his village is having all required basic amenities. He has done significant work in health care aspects. His work in solid waste management is also important. He could create awareness among villagers regarding solid waste management and healthcare.

Fig 1.2.2 Village Gate of Gram panchayat

Backdrop

Punsari village is birth place of Mr. Himanshu Patel. This village is located in Sabarkantha district, Gujarat, India. He was raised there. Once, elementary education was completed, he had to pursue higher education. For this purpose, his family started living in a town near to his village. During vacations, Himanshu used to visit his village. Hence, he could distinguish between facilities available at village and town. This made him feel the need to contribute towards the betterment of the village and the people living there.


Fig1.2.2.1 Health care facilities


Fig1.2.2.2 Gram panchayat & Nandghar

Objectives:

Providing basic amenities to Punsari village through various Govt. Schemes.

1. Improving healthcare system of Punsari village
2. Improving collection and management of solid waste
3. Creating awareness about various Government Schemes

Implementation process:

1. The IMR (Infant Mortality Rate) and MMR (Mother Mortality Rate) came down to zero after the village introduced its own transport facility. Health has considerably improved and crimes have gone down to zero.
2. In rural areas, there is perennial shortage of physicians. Due to financial constrains hospitals in rural areas are less as compare to urban areas. Care companies do not have interest in rural market. Over the years, there is more integration of health care Institutions and health care professionals with system. This is related to health care finance also. Rural health care system changed a bit due to all this development. Government has implemented various rural health care programs. In context of rural health care, primary care medical professionals may play significant role.
3. Mr. Himanshu Patel encouraged villagers to learn about waste collection and management. For solid waste management, technology may be selected based on certain criteria i.e. within village area, there should be a common space, water supply sources/pattern for public as well as individual, manpower availability, housing pattern, financial status of villagers etc.
4. There are various Wastewater treatment technologies concerning liquid waste management i.e. Soil Bio technology, Waste stabilization pond system, sequencing batch reactor system, Duckweed pond system, Extended aeration system, constructed wetland, package aeration system, up flow anaerobic sludge blanket etc.

Fig1.2.2.3 a mini bus used for milk transportation

Fig1.2.2.4 School of Punsari

Impact:

Wi-Fi is available to the villagers. CCTV cameras are installed in the village. Punsari is developed as a clean and green village to prevent diseases. There is a renewable power station in the village. Vaccination in village is hundred percent. Approximately 6000 villagers have been benefitted by efforts of Mr. Himanshu Patel. Sixty persons are actively involved in various initiatives by Mr.HimanshuPatel.

1.2.3 The Idea of a model / Smart village

- Indiaisacountryofvillages,wheremorethe68%ofthetotalpopulation reside in over 5.97 lakhs of villages.
- As said, India lives in its villages Mahatma or India's soul is in villages, which is the backbone of Indian culture.
- The references of the villages as "Sabha" is found in the time of Rig-Veda, which was the grass root level governing system.
- Agriculture is practice in the country from antiquity (from Harappa Civilization) where, communication settled and civilized structure of villages evolved.
- The social, economic and scientific development in these communities helped in the growth of such villages and also has become the building block of civilization.
- However, even after the collapse of such progressed civilization, villages continued to exist and flourish through rich heritage and traditional practices.

1.2.4 Ancient History Civil concept about Indian Village/Foreign Countries Perspective andits Development

The village in India holds a unique place, both in the social and economic spheres. There were 212.6million people living in rural areas in 1901,in 2001 rural population has increased to 721.1 million naturally the density of population has increased, land under agriculture has diminished, affected the forests and exodus to urban areas accelerated agricultural labor continued to be exploited. The phenomenon of Rural Development is becoming more and more complex despite technological advancement and availability of resources as well as continued efforts from the pre independence period. Rural Development has a long history inIndia.

Chhotkei village in Angul district of Odisha has emerged as the first smart micro grid implementing village in India. The village gets a supply of 30kWp (kilowatt, peak) Solar- power. The village has installed a Smart Nanogrid to meet the energy demands of 140 households, 20 street lights, temple, and

three community centres. After usage the village saves around 10 kWp which they set aside for day-time use in irrigation pumps and microenterprises to improve agricultural output, to enable value-addition to agriculture, and generate employment.

1.3 DETAIL OF IDEAL VILLAGE / SMART VILLAGE WITH PHOTOGRAPH STUDY :

1.3.1Smart Village &Ideal village: Ranavav

As of 2011 India census, Ranavav had a population of 46,018. Males constitute 51% of the population and females 49%. Ranavav has an average literacy rate of 83%, higher than the national average of 59.5%: male literacy is 70%, and female literacy is 55%. In Ranavav, 15% of the population is under 6 years of age.

ECONOMIC PROFILE:

The major crops produced in Porbander district are cotton, groundnut, bajra, gram, wheat, tal and jowar.Out of total population, 17,175 were engaged in work or business activity. Of this 13,351 were males while 3,824 were females. In census survey, worker is defined as person who does business, job, service, and cultivator and labouractivity. Of total 17175 working population, 93.76 % were engaged in Main Work while 6.24 % of total workers were engaged in Marginal Work.

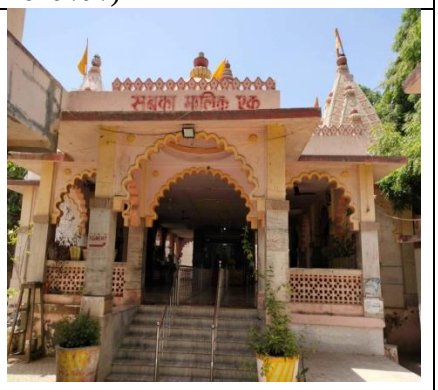
SOCIAL SCENARIO:

Ranavav is a Municipality city in district of Porbandar, Gujarat. The Ranavav city is divided into 10 wards for which elections are held every 5 years. The Ranavav Municipality has population of 46,018 of which 23,550 are males while 22,468 are females as per report released by Census India 2011. Population of Children with age of 0-6 is 5682 which is 12.35 % of total population of Ranavav (M). In Ranavav Municipality, Female Sex Ratio is of 954 against state average of 919. Moreover Child Sex Ratio in Ranavav is around 913 compared to Gujarat state average of 890. Literacy rate of Ranavav city is 74.24 % lower than state average of 78.03 %. In Ranavav, Male literacy is around 82.09 % while female literacy rate is 66.07 %.

INFRASTRUCTURE FACILITIES:

- **Water supply**:
  There is 24 hours water supply in the village. The water is distributed by the Fodala dam which is near to the village.

		
(Figure.1.6.2(b) ATM in Ranavav)	(Figure.1.6.2(a) bank in Ranavav)	(Figure.1.6.3(a) hospital in Ranavav)

		
(Figure.1.6.3(b) hospital in Ranavav)	(Figure.1.6.4(a) school in Ranavav)	(Figure.1.6.4(b) school in Ranavav)
		
(Figure.1.6.5 post office inRanavav)	(Figure.1.6.6 house in Ranavav)	(Figure.1.6.7(a) road in Ranavav)
		
(Figure.1.6.8 farm in Ranavav)	(Figure.1.6.9 Jambuvant's caves in Ranavav)	(Figure.1.6.10 temple in Ranavav)

There are 5 banks in Ranavavout of which 3 banks are government banks and 2 is private bank.There are 4 ATM in Ranavan also out of which 3 are government bank ATM and only one is private banks ATM.

- **Hospitals :**

  There are good facilities for primary treatment in the village. There are 6 hospitals in village. There is one dental clinic also in the village. There is one eye hospital.

- **Education Facilities :-**

  Education is the mainly focused in the village. Therefore there are 6 private schools in Ranavav and 1 college also. It includes primary schools, secondary schools and higher secondary also. We visited some schools of the village. The schools are also having computer lab and library.

- **Post Office**:

  There is also a post office and telephone exchange

- **Residential Buildings:**
  There are 90% buildings are well constructed and all having toilets in their houses.

- **Road facilities and Transportation Service:**
  50% roads are cemented road in the village. Rickshaws are also used for transportation purpose within the village.

- **Agricultural Activities:-**
  As discussed above that there is 24 hours of water supply in Ranavav. Therefore agricultural activities are also in high. There are various crops are being cropped according to the different type of season. Water coming from Fodala dam is used for irrigation purposes and people are also having wells at the farm and this is also used for irrigation purposes. The major crops produced in Porbander district are cotton, groundnut, bajra, gram, wheat, tal and jowar.

- **Jambuvant's caves :-**
  He found a diamond which he gave to his daughter Jambuvati It is called the Jambuvant's caves near Ranavav railway station. This is cave where Jambuvan, warrior of Ramayana age was residing. He was born in Satya Yuga and seen Treta Yuga and Dvapara Yuga waiting for Krishna.

- **Temples and mosques in Ranavav :-**
  There are six temples and three mosques in Ranavav.

1.4 SWOT ANALYSIS OF IDEAL VILLAGE:

- **Strength**
  Water Supply, Transport, Sewage, Telecommunication, Health facilities, Education, Community hall, Recreational facilities, Quality, Mass transport facilities, Public transport facilities, Street lighting, Post office, Police station, Banking facilities, Temples

- **Weaknesses**
  Storm water network, Open drainage, Library

- **Opportunity**
  To making Wi-Fi free zone, Use modern technology, C.C.T.V. camera

1.5 FUTURE PROSPECT:

For future prospect, the village Ranavav can use more advanced technologies for agricultural prospect and for other requirements also. They can make the village Wi-Fi zone and can improve the computer labs in the schools. For safety purpose provide C C T V cameras in village There is open ditch drainage in Ranavav therefore they can convert the open ditch drainage to the closed drainage system.

1.6 BENEFITS OF THE VISIT:

By this visit of Ranavav, it improved our communication skills and we knew how to interact with the different peoples. And also how to get Information from unknown persons. By the visit of the village Ranavav, we got an idea about an ideal village. We had seen much kind of new technologies which can be used in village that are being used in the urban area.

Chapter 2: Literature Review

2.1 INTRODUCTION: URBAN & RURAL:

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

- **Rural area :-**All the areas which are not characterized as urban area is called rural area. In which the population is very low compared to urban areas. Mainly they depend on agricultural activities. According to census 2011, there are 6, 40,867 villages in India. The area where more than 75% of male population is associated with agricultural activity is known as rural area.

2.2 DIFFERENT DEFINITIONS OF: RURAL AREA / VILLAGE:

- 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 centers 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 disaggregated 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.

2.3ANCIENT VILLAGE/DIFFERENT DEFINITIONS OF RURAL AREAVILLAGE.

In ancient time villages were a usual form of community for societies that practice subsistence agriculture, and also for some non-agricultural societies. A village is a clustered human settlement or community, larger than a hamlet but smaller than a town, with a population ranging from a few hundred to a few thousand. Although many patterns of village life have existed, the typical village is often small, consisting of perhaps 5 to 30 families. rural area settlements are based more on natural resources and events.

2.4 SCENARIO: RURAL / URBAN INDIA & GUJARAT AS PER CENSUS 2011 POPULATION GROWTH}:

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

	2001	2011	DIFFERENCR
INDIA	102.21	121.0	18.1
RURAL	74.3	83.3	9.0
URBAN	28.6	37.7	9.1

(Table 2.3.1 Population of Rural and Urban areas as per census 2001 and 2011)

- For the first in 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

Literacy rates (in %)

	2001	2011	DIFFERENCR +VE
INDIA	64.8	74.0	9.2
RURAL	58.7	68.9	10.2
URBAN	79.9	85.0	5.1

(Table: 2.3.2 Literacy Rates in Rural and Urban areas as per Census 2001 and 2011)

- The improvement in literacy rate in rural area is two times that in urban areas.
  The rural urban literacy gap which was **21.2%** points in 2001, has come down to **16.1%** points in 2011.
  Literacy Rates (in %)

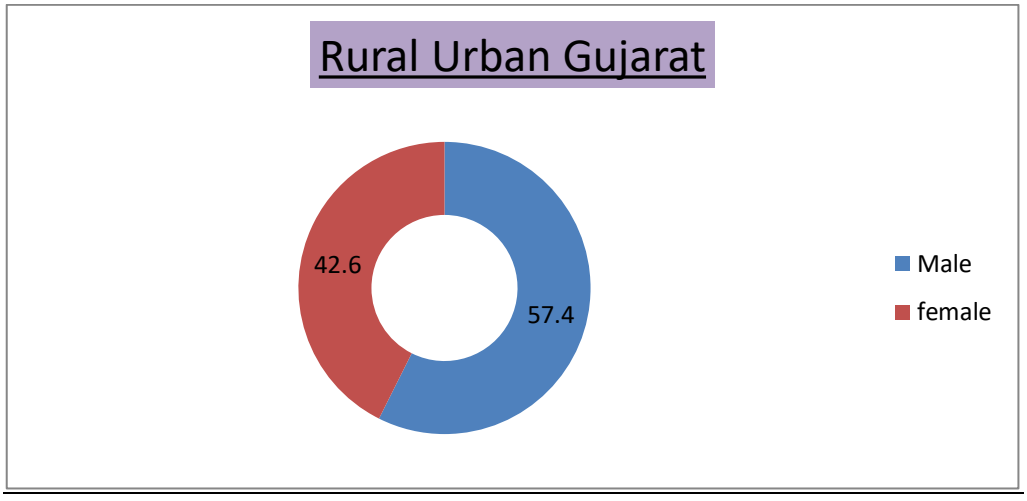
	2001	2011	DIFFERENT +VE
MALE			
`INDIA	75.3	83.1	6.8
RURAL	70.7	78.6	7.9
URBAN	86.3	89.7	3.4
FEMALE			
INDIA	53.7	65.5	11.8
RURAL	46.1	58.8	12.3
URABAN	72.9	79.9	7.0

(Table: 2.3.3 Literacy Rates in Rural and Urban area as per the males and females)

- **Gujarat Census:** Population of Gujarat:

Population	2001	2011
Male	26,385,577	31,491,260
Female	24,285,440	28,498,432
Total	50,671,017	60,439,692

(Table: 2.3.4 Population of Gujarat as per census 2001 and 2011)



(Figure.2.3 Population of Gujarat in %)

2.4 RURAL ISSUES AND CONCERNS:

- People are directly or indirectly dependent on agriculture and a large number of landowners have small and medium-sized landholding.
- Economy of the people living in rural areas is low.

- The price the farmers get for their produces is less in relation to the work they put in.
- People have to migrate to the urban areas due to unavailability of education.
- The other rural problems are due to the fact that since the rural people do not live in concentrated masses, the availability of specialized service to them is minimum.
- Very less people are employed in the rural areas.
- Lack of physical facilities in rural areas.
- Lack of recreation facilities.
- Farmers are not having market area for selling their goods directly to the market.

2.5 VARIOUS MEASURES FOR RURAL DEVELOPMENT:

- To develop rural area as whole in terms of culture, society, economy, technology and health.
- To develop living slandered of rural mass.
- To develop rural youths, children and women.
- To develop and empower human resource of rural area in terms of their psychology, skill, knowledge, attitude and other abilities.
- To develop infrastructure facility of rural area.
- To provide minimum facility to rural mass in terms of drinking water, education, transport, electricity and communication.
- develop rural institutions like Panchayat, cooperatives, post, banking and credit.
- 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.
- To develop rural industries through the development of handicrafts, small scaled industries, village industries, rural crafts, cottage industries and other related economic operations in the rural sector.
- To develop agriculture, animal husbandry and other agricultural related areas.

2.6VARIOUS INFRASTRUCTURE & AMP: GUIDELINES / NORMS FOR VILLAGES FOR T HE PROVISION OF DIFFERENT INFRASTRUCTURE FACILITIES.

Facilities	Planning Commission Norms	Required as per Norms
Education		
Anganwadi	**Each village**	1
Primary School	**Each Village**	1
Secondary School	**Per 7,500 Population**	2
Higher Secondary school	**Per 15,000 Population**	0
College	**Per 125,000 Population**	0
Tech. Training institute	**Per 100,000**	0

	Population	
Agriculture Research Centre	**Per 100,000 Population**	0
Medical Facility		
Gov./Panchayat Dispensary or Sub PHC or Health Centre	Each village	1
PHC & CHC	Per 20,000 Population	0
Child Welfare and Maternity Home	Per 10,000 Population	1
Hospital	Per 100,000 Population	1
Transportation		
Pucca village Approach road	Each village	0
Bus/auto stand Provision	All Villages connected by	1
Drinking Water		
Water Facilities		
Over Head Tank	1/3 of Total Demand	1.6 lac cap
U/G Sump	2/3 of Total Demand	3.2 lac cap
Public Latrines	Each Village	0
Cremation Ground	Per 20,000 Population	0
Post Office	Per 10,000 Population	0
Gram Panchayat Building	Each individual/group	0
APMC	Per 100,000 Population	0
Fire Station	Per 100,000 Population	0

Table 2.6: Various guidelines and norms for infrastructure

2.7 PROJECTS / SCHEMES BY GOVERNMENT SECTOR:

Following are the projects/schemes by Govt. Sector:

- Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA)
- PradhanMantri Gram Sadak Yojana (PMGSY)
- Indira Awas Yojana (IAY)

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

MGNREGA Launched on 2nd February 2006 as a momentous initiative towards pro-poor growth. For the first time, rural communities have been given not just a development program but also a regime of rights. The National Rural Employment Guarantee Act, 2005 (NREGA) guarantees 100 days of employment in a financial year to any rural household whose adult members are willing to do unskilled manual work.
This work guarantee also serve other objectives: generating productive assets and skills thereby boosting the rural economy, protecting the environment, empowering rural women, reducing rural urban migration and fostering social equity, among others. The Act offers an opportunity to strengthen our democratic processes by entrusting principle role to Panchayats at all levels in its implementation and promises transparency through involvement of community at planning and monitoring stages.

ii) PradhanMantri Gram Sadak Yojana (PMGSY):

PradhanMantri Gram Sadak Yojana (PMGSY) was launched on 25th December 2000 as a fully funded Centrally Sponsored Scheme to provide all weather road connectivity in rural areas of the country. The program envisages connecting all habitations with a population of 500 persons and above in the plain areas and 250 persons and above in hill States, the tribal and the desert areas.According to latest figures made available by the State Governments under a survey to identify Core Network as part of the PMGSY programmer, about 1.67 lakh Unconnected Habitations are eligible for coverage under the program. This involves construction of about 3.71 lakh km. of roads for New Connectivity and 3.68 lakh km. under up gradation.
The President of India, in his address to Parliament on 25th February, 2005 announced a major business plan for rebuilding rural India called Bharat Nirman. The Finance Minister, in his Budget Speech of 28th February,2005, identified Rural Roads as one of the six components of Bharat Nirman and has set a goal to provide connectivity to all habitations with a population of 1000 persons and above (500 persons and above in the case of hilly or tribal areas) with an all-weather road. A total of 59564 habitations are proposed to be provided new connectivity under Bharat Nirman. This would involve construction of 1, 46,185 kms of rural roads. In addition to new connectivity, Bharat Nirman envisages up gradation/renewal of 1, 94,130 kms of existing rural roads. This comprises 60% up gradation from Government of India and 40% renewal by the State Governments.

iii) Indira Awas Yojana (IAY) :

Housing is one of the basic requirements for human survival. For a normal citizen owning a house provides significant economic security and status in society. For a shelter less person, a house about a profound social change in his existence, endowing him with an identity, thus integrating him with his immediate social background.

Objective:

The objective of Indira Awaas Yojana is primarily to help construction of dwelling units by members of Scheduled Castes/ Schedule Tribes, freed bonded labourers and also non-SC/ST rural poor below the poverty line by providing them with grant-in-aid.

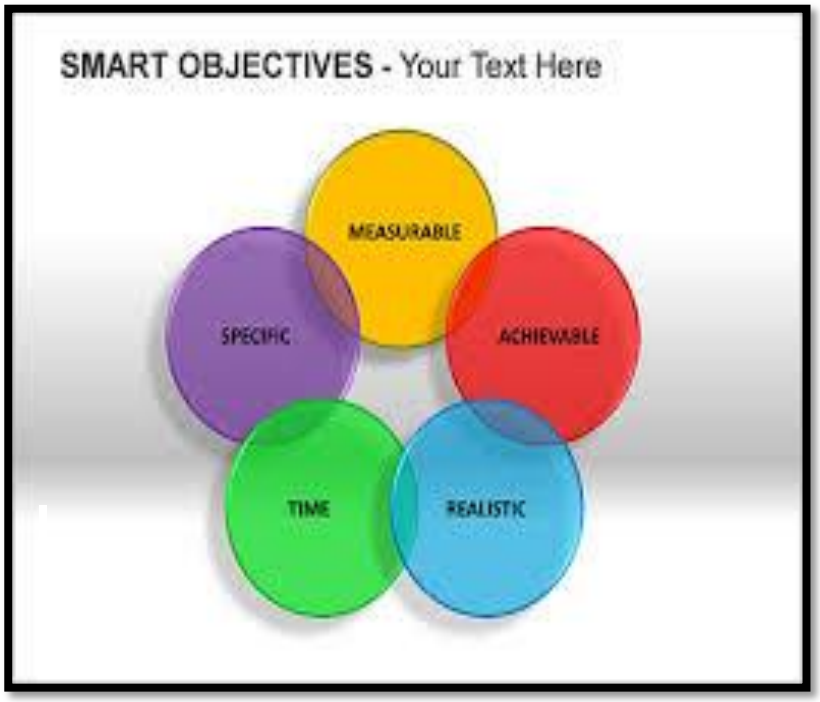
Chapter:3 Smart Village & Cities concept

3.1 Introduction:

Over 68 percent of India's population lives in rural areas. There has been a gradual increase in migration from villages to cities primarily for livelihood opportunities, better education, and healthcare facilities, among others. The rising burden on urban cities due to migration emphasises the need to transform villages so that they can meet the critical as well as aspirational needs of the villagers. This can be done using innovative technologies and transforming the service delivery models for villages. Transformed villages are called Smart Villages.

While the phrase 'Smart Village' has become a buzzword in policy and rural development discussion, there is no universal definition of such villages. Two things that are common to all Smart Villages are the extensive use of technology and integration of several key interventions in infrastructure and service delivery.

It's an integrated approach of delivering access to skills and quality basic services including education, e-health, 24x7 power, safe food, among others.

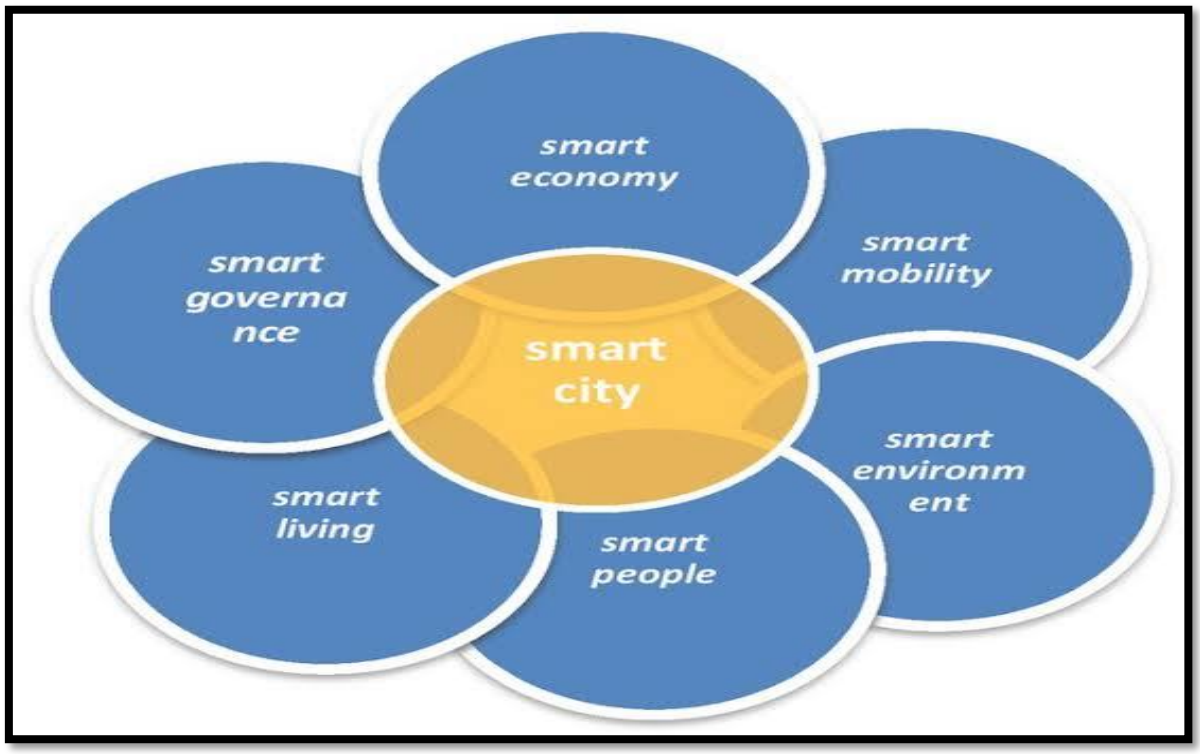


(Figure.3.1 meaning of smart)

➢ Definitions (Civil):

Civil engineering plays vital role in development of smart city. Construction of new infrastructure and maintenance of existing structure, construction of bridges, road network, drainage network, water distribution, high rise building, traffic management and everywhere it requires.

A deeper review, of approximately 100 definitions, combining all three sources17 shows that the majority of them posit ICT as the prime aspect, explicitly or implicitly . However, the importance of the integration of systems and compatibility of frameworks on which a city functionally operates, are largely missing. This shows a lack of clarity in balancing sustainability constraints with a city's aspirational goals. Also, equity as an outcome of a sustainable city fails to get mentioned and is often represented through the idea of 'people' in general. This partially indicates a lack of conscious effort to leverage the capabilities of smart attributes to include the marginalized and disadvantaged within a city's development plans18. Overall, there is a sense of confusion, between the end and the means.



(Figure.3.2 meaning of smart city)

3.2 Vision-Goals, Standards and Performance Measurement Indicators

Some of the bench marks which shows the detailed needs of smart city as below:

- Smart traffic management
- Smart meters
- Building automation and control solutions (security, fire safety, alarms, lighting, gas and smoke detection).
- Smart energy management (Smart grid, smart water meters, smart solar energy solutions, smart electricity meters).
- Free public Wi-Fi network.
- GHG emissions tracking
- Applying smart solutions to infrastructure and service in area-based development.

Smart Cities Standards:

- Standardized indicators within standards benefit smart cities in the following ways:
- Effective governance and efficient delivery of services.
- International and Local targets, benchmarking and planning.
- Informed decision making and policy formulation.
- Leverage for funding and recognition International entities.
- Transparency and open data for investment attractiveness.
- A reliable foundation for use of big data and the information explosion to assist cities in building core knowledge for city decision-making and enable comparative insight.

3.3 Technological Options :

- Smart energy
- Smart mobility
- Smart infrastructure
- Smart public services
- Smart care
- Smart farming
- Environmental monitoring

(Figure.3.3 smart farming)

3.4 Road Map and Safe Guard

Smart Maps capture abroad range of detailed data, such as roads (with details including lanes, speed limits, and turn restrictions),shops,(types, user ratings),and other information(bike and transit routes, building shapes, etc.)Smart Maps are designed so that users can quickly and intuitively interact with them despite having virtually no training, ensuring that information reaches the widest possible audience. Smart Maps are built to update quickly and correctly as cities change and evolve. For example, Lusail City in Qatar,Masdar City in the UAE,andSongdo in SouthKorea are all making digital technology,networks, and appsa central part of how they operate and interact with citizens. By contrast, existing or brownfield metropolitan areas face clear challenges in moving up the ICT Maturity ladder, as they need to modernize their existing infrastructure with embedded sensors and control systems and retrofit old buildings a complicated and expensive process.

3.5 Issues and challenges:

1. Retrofitting existing legacy city infrastructure to make it smart: There are a number of latent issues to consider when reviewing a smart city strategy. The most important is to determine the existing city's weak areas that need utmost consideration, e.g. 100-per-cent distribution of water supply and sanitation. The integration of formerly isolated legacy systems to achieve citywide efficiencies can be a significant challenge.

2. Financing smart cities: The High Power Expert Committee (HPEC) on Investment Estimates in Urban Infrastructure has assessed a per-capita investment cost (PCIC) of Rs 43,386 for a 20-year period. Using an average figure of 1 million people in each of the 100 smart cities, the total estimate of investment requirements for the smart city comes to Rs 7 lakh crore over 20 years (with an annual escalation of 10 per cent from 2009-20 to 2014-15). This translates into an annual requirement of Rs 35,000 crore. One needs to see how these projects will be financed as the majority of project need would move through complete private investment or through PPPs (public-private partnership).

3. Availability of master plan or city development plan: Most of our cities don't have master plans or a city development plan, which is the key to smart city planning and implementation and encapsulates all a city needs to improve and provide better opportunities to its citizens. Unfortunately 70-80 per cent of Indian cities don't have one.

4. Financial sustainability of ULBs: Most ULBs are not financially self-sustainable and tariff levels fixed by the ULBs for providing services often do not mirror the cost of supplying the same. Even if additional investments are recovered in a phased manner, inadequate cost recovery will lead to continued financial losses.

5. Technical constraints of ULBs: Most ULBs have limited technical capacity to ensure timely and cost-effective implementation and subsequent operations and maintenance owing to limited recruitment over a number of years along with inability of the ULBs to attract best of talent at market competitive compensation rates.

6. Three-tier governance: Successful implementation of smart city solutions needs effective horizontal and vertical coordination between various institutions providing various municipal amenities as well as effective coordination between central government (MoUD), state government and local government agencies on various issues related to financing and sharing of best practices and service delivery processes.

7. Providing clearances in a timely manner: For timely completion of the project, all clearances should use online processes and be cleared in a time-bound manner. A regulatory body should be set up for all utility services so that a level playing field is made available to the private sector and tariffs are set in a manner that balances financial sustainability with quality.

3.6 Smart Infrastructure:

Responds intelligently to changes in its environment, with the ability to influence and direct its own delivery, use, maintenance and support. Smart Information and Communications Technology (smart ICT) has the potential to transform the way we plan and manage infrastructure. New developments in computer hardware, new applications and software are changing the face of the infrastructure sector, and society more generally; driving greater efficiency, increasing productivity, and greatly simplifying construction processes and life-of-asset maintenance.

The core infrastructure elements in a smart city would include:

- Adequate Water Supply
- Assured Electricity Supply
- Sanitation, including Solid Waste Management
- Efficient Urban Mobility and Public Transport
- Affordable housing, especially for the poor
- Robust IT connectivity and digitalization
- Good governance, especially e-Governance and citizen participation
- Sustainable environment
- Safety and security of citizens, particularly women, children and the elderly, and
- Health and Education

3.7 Cyber Security:

Smart cities and communities aim to increase economic competitiveness, strengthen sustainability efforts, and improve the quality of life of its people. The components of a smart city or community are designed to increase convenience and open the door to new services and communications in an ever-increasing mobile society. As urban hubs become increasingly connected, many economic, environmental, and quality-of-life benefits are realized. However, with cyber everywhere, this connectivity comes with unique privacy and cybersecurity risks.

In a converging physical and digital world, relying on perimeter cyber defense is not enough. City and community leaders should, therefore, embrace a broader future-minded approach to grow anywhere, safely

3.8: Retrofitting- Redevelopment- Greenfield Development District Cooling:

- **Retrofitting** will introduce planning in an existing built-up area to achieve smart city objectives, along with other objectives, to make the existing area more efficient and livable. In retrofitting, an area consisting of more than 500 acres will be identified by the city in consultation with citizens.

- **Redevelopment** will effect a replacement of the existing built-up environment and enable co-creation of a new layout with enhanced infrastructure using mixed land use and increased density. Redevelopment envisages an area of more than 50 acres, identified by Urban Local Bodies (ULBs) in consultation with citizens.

- **Greenfield** development will introduce most of the Smart Solutions in a previously vacant area (more than 250 acres) using innovative planning, plan financing and plan implementation tools (e.g. land pooling/ land reconstitution) with provision for affordable housing, especially for the poor. Greenfield developments are required around cities in order to address the needs of the expanding population.
- As far as Smart Solutions are concerned, an illustrative list is given below. This is not, however, an exhaustive list, and cities are free to add more applications.

3.9: Strategic Options for Fast Development

- It starts with having a realistic plan.
- Smart cities require extensive experimentation.
- A smart city vision should energize the private sector.
- Smart cities demand smart data.
- Get creative when rethinking transportation.
- Don’t downplay digital security.

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

Urban water supply: status and challenges

- As per Census 2011, over 71.2% of India’s urban house hold shad access to drinking water within their premises; up from 65.4% during Census 2001. Another 20.7% households had a water source within 100 m of their premises. Over 8% of India’s urban households need to move beyond 100 m from their premises to access drinking water; this has come down only marginally from the levels of 9.4% of households during Census 2001 and is a cause for concern.

- Even as basic access eludes about 8% of urban population, a bigger challenge has been in making access to urban water supply consistent, equitable and sustainable. The HPEC report points out that inadequate coverage, intermittent supplies, low pressure, and poor quality are
- prominent features of water supply in the cities of India. A vicious circle is at play; high commercial and physical losses in the distribution network com- pounded by unwillingness to charge and collect user fees, often results in water utilities unable to improve service levels.
- Water utilities in India typically recover only a third of their operations and maintenance (O&M) cost, which is lower than peer Asian city counterparts.
- It is in this context that some of the cases showcased in this Compendium hold promise. They reinforce the view that with sharp institutional focus and commitment, urban water supply systems can indeed be transformed in a relatively shorter period of time. Nagpur is attempting to scale up positive results from delivering 24x7 supply in a demonstration zone, to the entire city. The efforts of Bangalore, Pimpri-Chinchwad and Surat towards improvements in efficiency and information management are a welcome shift from asset creation towards a greater focus on service delivery improved efficiencies.

Urban sanitation: status and challenges

- A City Sanitation Ranking study (2010) conducted by MoUD found that none of 423 cities covered were found to be 'healthy' and 'clean'. While Chandigarh, Mysore, Surat and New Delhi were the only four ULBs that fared relatively better, nearly 190 cities were rated to be in a state of emergency with respect to public health and the environment.

- Urban India has still not been able to eliminate the scourge of open defecation;at Census 2011,over 12.6% of urban households resorted to open defecation. While this is a sharp reduction from the 18% at Census 2001, concerted efforts on a war-footing are required to eliminate open defecation all-together. Asarticulated in the National Urban Sanitation Policy (NUSP), achieving totally sanitised cities requires going beyond building toilets towards adopting holistic city-wide and community-led approaches. The relative successes of Trichy and Nanded in combating open def- ecation through city-wide community-led efforts reaffirm this philosophy and hold insights for rest of urbanIndia.

- Less than a third of the domestic waste-water undergoes any form of treatment. Pollution impacts and loss of freshwater owing to pollution is an area of serious concern. The NUSP reit- erates the need for a combination of city-level sewerage systems complemented with onsite systems and effective septageman- agement in smaller cities and in unserved areas to effectively address this situation.

- In recent years, capital funding from Government of India's Jawaharlal Nehru National Urban Renewal Mission (JnNURM), State-level initiatives and funding from multi-lateral / bi-lat- eral programs have helped a number of cities to expand their sewerage systems. However, the inability to deal with financing O&M has raised serious questions over long-term sustainability of some of these projects. The use of connection deposits, loans, taxear marking anduser charges in Tirunelveli's sewerage system (an approach adopted initially in Alandur in the mid-1990s and replicated in over 25 ULBs in Tamil Nadu) suggests that with policy commitment, effective project appraisals and citizen in-volvement, long-term sustainability of sewerage systems can be achieved.

3.11. Initiatives in village development by local self-government:

In the past "government as provider" approach, the priorities were to secure budget allocations and develop projects. The Housing Policy and the NCU statement implicitly give higher priority to two other requirements: first, the reform of policies and regulations that now inhibit development initiatives by the people; and second, more efficient resource management and the building of institutional capacity. Resource Management and Institutional Development. As discussed in Section 5, India's urban institutions do not have the capacity to provide adequate services at present, let alone address the requirements of accelerated urban growth in the future. Proposals relate to three types of institutions.

He primes public sector actors in the urban development process; call for clearer allocations of responsibility and authority to them; and recognize the need for new organizational relationships between local governments and development authorities and State governments that would avoid overlaps and facilitate coordinated programming. Improved personnelincentives will be needed to permit the recruitment and retention of qualified staff as will skills training programs. Resource constraints, however, preclude simply expanding local government under current practices in proportion to urban growth. In many areas, the very nature of the way work is conducted will have to be redesigned to permit much higher levels of productivity. The NCU recognizes reforms of internal management as vital. This is likely to entail implementing more systematic and efficient approaches in many areas

Financial Systems. Constraints on government budgets and the rigidities of the present system of intergovernmental transfers prevent an adequate response of traditional arrangements to the challenge of urbanization. A new and more decentralized system of public and private financial intermediaries will be required. The establishment of the NHB represents an important step: an apex institution that will stimulate the creation of a network of mortgage financing. The NCU also calls for the creation of Urban Infrastructure Development banks to permit local governments to borrow for infrastructure.

Non-Governmental Organizations. Given the size of the job and the difficulty governmental agencies have in dealing directly in some aspects of the development of urban areas (e.g. stimulating informal sector enterprise and provision of shelter) there is a recognition of the need for new and expanded NGOs to assist in facilitating the urbanization process.

3.12. Smart Initiatives by District Municipal Corporation:

City bus service users will now be able to get information on the movement of their buses with the implementation of **Integrated Transport Management System** (ITMS). The system will also lead to a series of other improvements in the city bus service. ITMS was launched in 75 city buses by the **Vadodara Municipal Corporation** (VMC) as a Smart City initiative. In the second phase of the programmed, it will be launched in the remaining 75 buses.

As a part of the ITMS, the city buses are also being equipped with CCTVs, **Passenger Information System** (PIS) displays, panic buttons, driver display units and GPS tracking The CCTVs and panic buttons will ensure better passenger safety. Apart from live tracking of buses on VMC's official mobile application and website, the estimated time of arrival of buses will also be seen on displays at bus stands soon. Officials said that if the bus diverts from its route or skips the bus stop, those monitoring the service will get an alert.

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

(Figure.3.4 Aadhaarcard)

E-Sign Frame work :

This initiative would enable users to digitally sign a document online using Aadhaar authentication

(Figure.3.5 Digilocker)

Digi Locker :

The service was launched as an important facility to store crucial documents like Voter ID Card, Pan Card, BPL Card, Driving License, education certificates, etc. in the cloud.

(Figure.3.6 Digital India Plateform)

Digitize India Platform :

This initiative will involve digitization of data and records on a large scale in the country to make easy and quick access to them possible.

(Figure.3.7 E Hospital)

E-Hospital

Online Registration System under this initiative enables people to avail services like online registration, payment of fees and appointment, online diagnostic reports, checking on the availability of blood online, etc.

(Figure.3.9 My Gov.in)

My Gov. in

The portal works as an online platform to engage citizens in governance through a "Discuss", "Do" and "Disseminate" approach.

(Figure.3.8Swatch Bharat Mission)

Swatch Bharat Mission Mobile App

The app will enable organizations and citizens to access information regarding the cleanliness drive and achieve the goals of the mission.

3.14 How to Implement Other Countries Smart Villages Projects in Indian Village Context

- **Promoting mixed land use in area-based developments**
  Planning for 'unplanned areas' containing a range of compatible activities and land uses close to one another in order to make land use more efficient. The states will enable some flexibility in land use and building bye-laws to adapt to change.
- **Housing and inclusiveness**
  Expand housing opportunities for all.
- **Creating walkable localities**
  Reduce congestion, air pollution and resource depletion, boost local economy, promote interactions and ensure security. The road network is created or refurbished not only for vehicles and public transport, but also for pedestrians and cyclists, and necessary administrative services are offered within walking or cycling distance.
- **4. Preserving and developing open spaces**
  Parks, playgrounds, and recreational spaces in order to enhance the quality of life of citizens, reduce the urban heat effects in areas and generally promote eco-balance.
- **5. Promoting a variety of transport options**
  Transit oriented development (TOD), public transport and last mile para-transport connectivity.

Chapter:4 about Katawana village

4.1 Introduction about Katawana village

Katawana village is located in the Kutiyana taluka of Porbandar district of Gujarat state. Nearest town from Katawana village is Kutiyana which is 12 km away from Katawana.

(Figure.4.1Study area location)

4.1.2Study justification/ need of the study:

About 70% of India's population live in villages. More than 85% of these villages are in the plains or on the Deccan plateau. The average village has 200-250 households, and occupies an area of 5 sq. km. Villages are thus spaced 2-3 km apart, and spread out in all directions from the market towns. The market centers are typically spaced 30-40 km apart. Each such center serves a catchment of around 250-300 villages in a radius of about 15 km. As the population and the economy grow, several large villages are continually morphing into towns and market centers. The Next Two Billion People will live in cities and town; So We Need To Plan Now. Almost all future population growth in the next 40 years will be absorbed by cities of the developing world, which are unprepared for such rapid expansion.

Around 65% of the State's population is living in rural areas. People in rural areas should have the same quality of life as is enjoyed by people living in sub urban and urban areas. Further there are cascading effects of poverty, unemployment, poor and inadequate infrastructure in rural areas on urban centers causing slums and consequential social and economic tensions manifesting in economic deprivation and urban poverty. Hence Rural Development which is concerned with economic growth and social justice, improvement in the living standard of the rural people by providing adequate and quality social services and minimum basic needs becomes essential. The present Project deals with the same.

4.1.3 Study area (broadly define):

- DISTRICT : PORBANDAR
- STATE : GUJARA
- COUNTRY : INDIA
- ELEVATION : 30m (100ft)
- PIN : 362650
- POPULATION : 562
- TELEPHONE CODE: 02804
- CORDINATES : 21.63°N 69.98° E
- LOCAL TIME :SUNDAY 7:52PM
- VEHICALE REGI. : GJ-25

4.1.4 Objectives of the study:

- We will provide the creation of infrastructure-connectivity, civic & social infrastructure along with provision of different economy generation is the key pillars that the concept hinges on.
- Basic physical infrastructure- water supply, transport, sewage and solid waste management should be the main concern focus and be provided.
- Basic social infrastructure- health and infrastructure 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 infrastructures.
- Reduce migration from rural to urban areas due to lack of basic services and sufficient economic activities in rural areas.
- Internal road within village settlement, efficient mass transportation systems to improve connectivity between urban and rural areas, public transportation facilities that need to be developed like bus stops transport depot etc.
- Identification of sanitation facilities that need improvement-sewage and drainage line for household connection, door to door solid waste collection and dumping facilities.
- Electricity connections like street lighting that is energy efficient and eco-friendly.
- To analyze all feasibility parameters and relevant factors for sustainable development of villages.
- To evolve strategic planning proposal in the form of Physical, Social And Renewable infrastructure facilities for the development of villages, channelizing urban growth and to sustain future.

4.1.5 Scope of the Study

- Various scopes are following for the sustainable developments of village.
- Benefits for the civil engineering students for getting new experiences in field.
- To provide green eco friendly environment in the village.
- To reduce the migration form rural to urban areas due to lack of basic services and sufficient economic activities in rural areas.
- To provide basic facilities as per urban areas for village development.

4.1.6 Methodology/ Study Frame Work

Gujarat is experiencing changing characteristic of villages with growing population and pointed out that people are migrating from rural areas to urban areas not only for employment opportunities but also for good standard of living and better facilities to reduce this pressure Vishwakarma Yojana is finest approach.

4.1.7 Available Methodology for development of related to Civil

Following objects are available related civil:

- Data of ideal village
- Data of smart village
- SWOT Analysis of ideal village
- Outline MAP of Katawana village
- GOV. guideline regarding village development
- SWACH BHARAT ABHIYAN Guidelines bygov.
- GAP Analysis of village

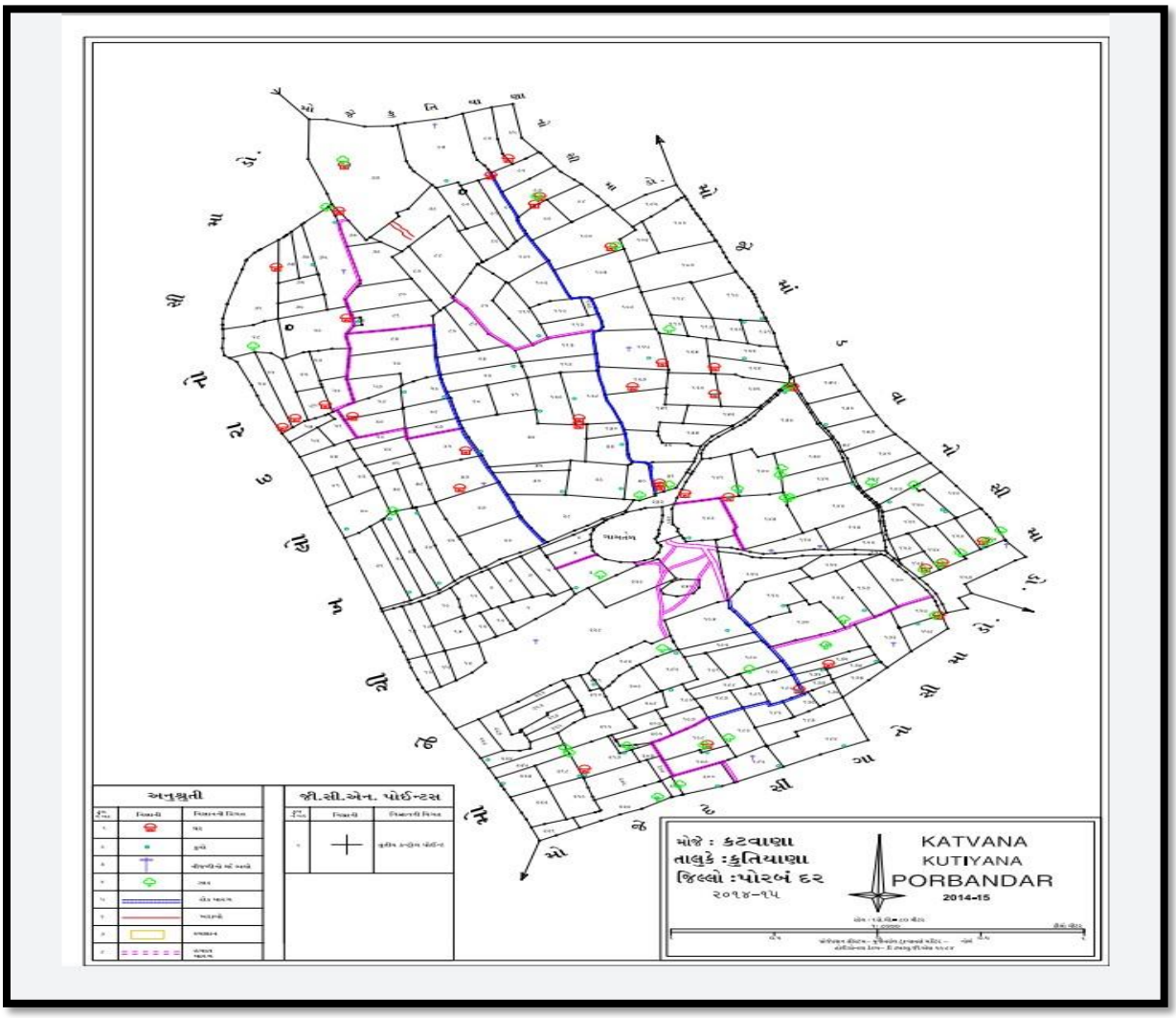
4.2 Study Area Profile

4.2.1 Study Area Location with brief History land use details:

Katawana is located at 21.63°N 69.98°E.It has an average elevation of 30 meters (98 feet). Katawana town is spread over almost a 2 km range on the banks of the Bhadar River. Katawana is around 47 km away from its district center, Porbandar, and 40 km away from Airport.

Katawana is connected via roads. It has no train, water or airport connectivity except its nearest district center, Porbandar.

4.2.2 Base Location map, Land Map, Gram Tal Map :-



(Figure.4.2 base map of village)

4.2.3 Physical And Demographical Growth :

As of 2001 India census, Katawanahad a population of 562. Males constitute 51% of the population and females 49%.In Katawana 13% of the population is under 6 years of age.

4.2.4 Economic profile /Banks:

Name of three Major Occupation groups in village:

- Agricultural :85%
- Business :10%
- Govt. Service : 5%

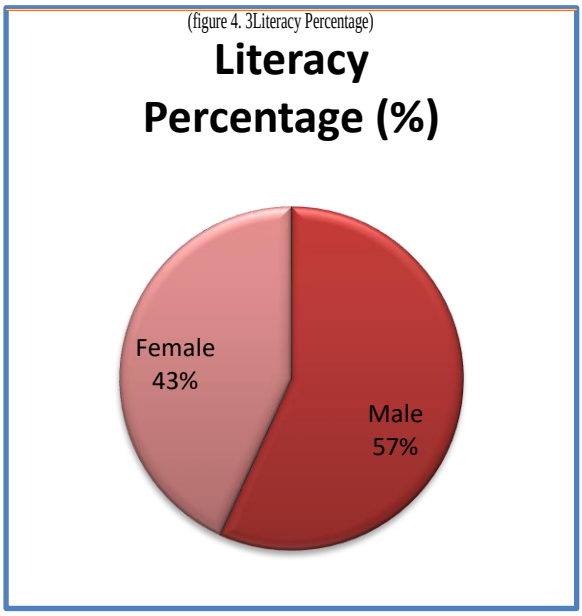
The major crops produced in Katawana are cotton, groundnut, bajra, gram, wheat, tal and jowar.

4.2.5 Actual Problem faced by Villagers and smartsolution:

- The problem is that there is no any single hospital in the village.
- No of animals are more in village compare to city so there must be requirement of biogase plant.
- Requirement of rainwater harvesting .

4.2.6 Social scenario/ Preservation of traditions, Festivals, Cuisine :

(figure 4. 3Literacy Percentage)



Katawana has an average literacy rate of 63%, higher than the national average of 59.5%: male literacy is 71%, and female literacy is 54%.

Village, people are not knowing about that basic facility provide by govt..also in the village basic crop are grown are cotton, Wheat and Pulses. village people are not that much connected with technology and digitalization. people basic income is connected with their agriculture product value and industrial area. people are also connected with another village and stay connected with culture. people are belonging to Hindu religion and celebrate all Hindu festival with good spirit like Diwali,Navratri, new year etc.

Navratri festival is celebrated with a durgapooja. This 10-day celebration, people do DurgaPooja, and enjoy with music and play dandiya and Garba. Festival like Diwali, bhaiduj, vasantpanchami, Holi, kevadi etc. all festival is celebrating in full spirit of god. this village areconcerned with fully Hindu religion people. People also celebrate a nation festival like Freedom Day, Gandhi Jayanti, etc. are celebrated.

4.2.7 To know the reasons of migration / trends of migration / problems and potentials of migrants

- Basic need
- Education
- Hospitals
- Employment
- Marriage

4.3. Data Collection Katawana(Photograph/Graphs/Charts/Table)

4.3.1 Describe Methods for data collection

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

4.3.2 Primary Details of Survey

- Land Map
- Census Details
- Infrastructure Details
- Geographical Details

4.3.3 Average size of the House

3.5M X 4.5M

4.3.4 No of Human Being in one House

On an Average Survey of Village No of Human being in One House is Approximately 4to 8 people.

4.3.5 Material Available locally in the village and Materials Out Sourced by Villagers

The construction of the houses is made of Stone, Sand, cement, Concrete. In this village there were more pucca house then katchcha house. In village concrete house and renovation of old house are done on wider scales.

4.3.6 Geographical Detail

Katawana is located at 21.63°N 69.98°E.It has an average elevation of 30 meters (98 feet). Katawana town is spread over almost a 2 km range on the banks of the Bhadar River. Katawana is around 50km away from its district center, Porbandar, and 45 km away from Airport.

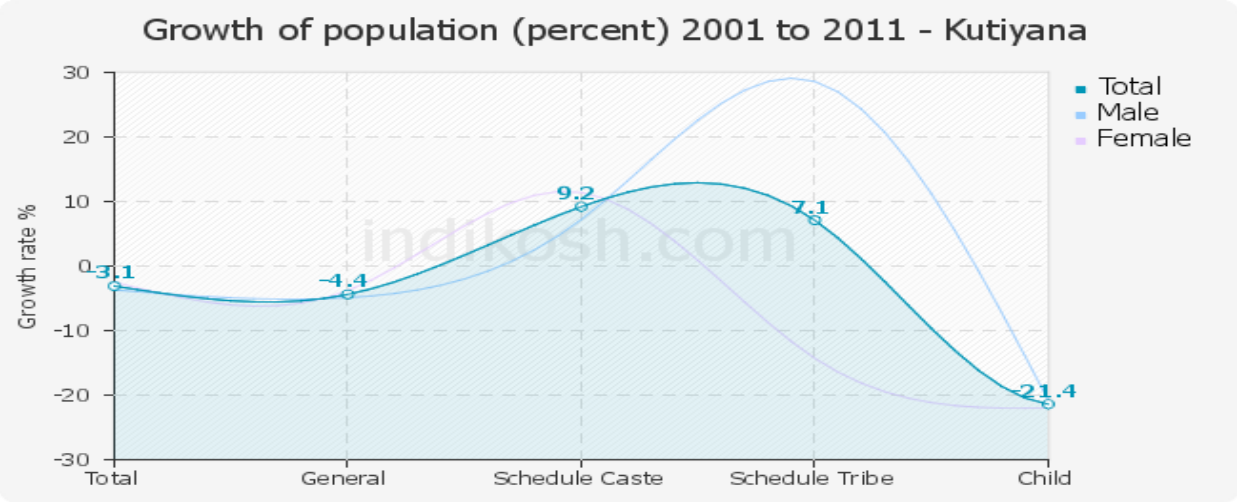
4.3.7 Demographical Details

The sub district is home to about 562, among them 290 (51%) are male and 272 (49%) are female.Child (aged under 6 years) population of Katawanaamong them 51% are boys and 49% are girls.

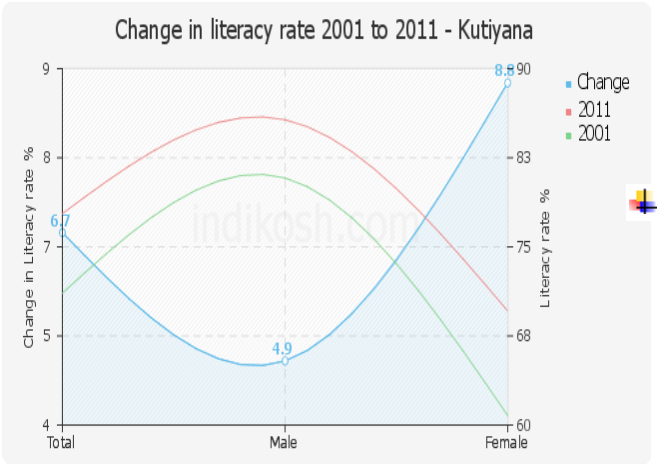
- **Growth of population**

Population of the sub district has decreased by -3.1% in last 10 years. In 2001 census total population here were about 562. Female population growth rate of the sub district is -2.5% which is 1.2% higher than male population growth rate of -3.7%. General caste population has decreased by -

4.4%; Schedule caste population has increased by 9.2%; Schedule Tribe population has increased by 7.1% and child population has decreased by -21.4% in the sub district since last census.



(figure 4.4 growth of population)



sub up

Literacy

Literacy rate (children under 6 are excluded) of Katawana is 78%. 86% of male and 70% of female population are literate here. Overall literacy rate in the district has increased by 7%. Male literacy has gone by 5% and female literacy rate has gone up by 9%.

(figure 4.5 change in literacy rate)

4.3.8Occupational Details

[ajor Occupation Groups in Villages	**Agriculture**
	Service Work, PrivateBusiness
	Laborers
.jor Crop Grown in the Village	**Wheat**
	Jowar
	Bajra

Table 4.3.8 Occupational Details Chart

4.3.9 Agricultural Details

[ajor Occupation Groups in Villages	**Agriculture**
	Service Work, PrivateBusiness
	Laborers
jor Crop Grown in the Village	**Wheat**
	Jowar
	Bajra

4.3.10 Manufacturing HUB/ Ware houses

The Village is connected to highway and Area of nearby village is surrounded by various small as well as big manufacturing industries like (Hathi Cement pvt.ltd., Orient pvt.ltd., Birla Cement Factory.)

4.3.11 Tourism development

No tourism in this village.

4.4. Infrastructure Details (With Exiting Photograph)

4.4.1. Drinking Facilities / Water Management Facilities in the Village :

There is tap water system in the village. There is 100% treated water is distributed in the village. The main source of water for the village is Bhadar River which is only 2 km away from the village. There are 2 overhead tank and 1 tank also. There are 2 wells in the village out of which one well is covered and other well is uncovered. There is ground sump.

(figure .4.6 overhead tank in Katawana)

(figure 4.7 tank in Katawana)

(figure 4.8 ground tank in Katawana)

(figure 4.9 drainage in Katawana)

4.4.2. Drainage Network& Sanitation:

There is open drainage facility in Katawana.. The drain water is discharged directly in to its nearby water body.

4.4.3. Transportation& Road Network

There is bus station in the village. All the roads in the village are of C.C roads. Internal road having width of 5.5 m. There is no railway station in the village.People use their own vehicles for the local transportation

.

(figure 4.10 street and internal road in Katawana)

(figure 4.11 Bus station in Katawana)

(figure 4.12 house in Katawana)

4.4.4. House Condition

There are 80% pucca houses and 20% kachcha houses in the village.

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

- Health Facilities:

There is no any Primary Health Center (PHC) in the village with all types of facility. There is no any child welfare. No any Government maternity home and dental hospital in the village. People have to go to its nearby town Porbandar or Upleta for further treatment.

- Education Facilities :-

There is one Anganwadi in the village. There is also one Primary school in the village. There is no private school in the village. There is no ITI college or any other college in the village. Nearest town having college is Kutiyana which is 5 km away from the village.

(figure 4.13 Aagalvali in Katawana)

(figure 4.14 primary school in Katawana)

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

- It is required to provide Biogas plant in the village.
- We can also provide Rain Water Harvesting System in the village to store the rain water.
- It is required to maintenance and repair the Milk Co-operative Society.

4.4.7. Technology Mobile / Wi-Fi / Internet Usage Details in %:

In village 50 to 55% use smart phone, among which 20 to 25% use a normal phone and rest of people are still having less knowledge of phone. Youth of Village have knowledge of internet and its usages.

4.4.8. Sport Activity as Gram Panchayat

No activity of sports is conducted by gram panchayat but School Conduct Sport Activities.

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

- Public Library: There is no Public Library in the village.
- Public Garden: There is no Public Garden in the village.
- Village Pond: There is two pond or lake in the village.
- Community Hall: There is one community Hall in the village.
- Irrigation Canal : Water Canal is Available for Agricultural Purpose

(figure 4.15.Panchayat Building in Katawana)

(figure 4.16Milk Co-operative Society in Katawana)

(figure 4.17 Community Hall in Katawana)

4.6. Existing Institution like - Village Administration – Detail Profile

4.6.1Bachat Mandali

Village has no bachatmandali. So required a small scale bachatmandli in village.

4.6.2 DudhMandali

Village have small dudhmandali but Condition of DudhMadali is not great physically

4.6.3Rain Water Harvesting

No facility of rain water harvesting in a village.

4.6.4 Agricultural Development

The agriculture activities are supported by Canal irrigation.

Chapter:5 Technical Options with Case Studies

5.1 advanced sustainable construction techniques/practices and quantity surveying

As there is no any renewable / sustainable infrastructure facility, it is very important to provide Sustainable Infrastructure in the village. It will be economical, eco-friendly and efficient also. We can provide Sustainable Infrastructure like Solar street lights, Biogas plant, Rain Water Harvesting System etc.

We can provide Solar Street Lights which uses solar energy to generate electricity. It is the most efficient system for the street lights. Street lights gets sun heat through-out the day and can store solar energy which can be used at night.

The other design we can provide is Biogas plant. It can be used for cooking purposes and can be used as natural gas. This method is also very efficient and eco-friendly and economic also.

Rain Water Harvesting can be provided for any particular Public Building to store the rain water.

5 Techniques for Sustainable Building Construction

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

1. Prefabricating Materials in Controlled Environments

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

Being able to cut materials precisely decreases waste and creates buildings that are strong enough to allow contractors to use wood framing as high as five stories, he says.

Mechanical contractors use Building Information Management (BIM) systems to cut sheet metal for duct work in a controlled environment instead of outside to avoid the shape-changing problems caused by cold or hot weather, according to Mike Smoczyk, director of professional development for Minneapolis-based Kraus-Anderson. That same duct work is delivered to a project "wrapped and sealed tightly and kept out of the elements" to avoid damage, he says. He estimates that prefabrication probably accounts for 15% of any project and likely more for hotels.

Roseville-based McGough Construction is prefabricating forms for use in creating the concrete superstructure of the $39 million, 57,000-sq.-ft. addition for the Ordway Center for Performing Arts addition in downtown St. Paul, according to Dan Brenteson, McGough's lean enterprise system director. McGough first creates 3D models then pre-builds forms at its White Bear Lake warehouse, a much better environment than being outside at a work site exposed to the elements and "in a constrained environment," he says.

The resulting forms are then transported — in this case to the Ordway site — where concrete is poured into them and the pieces are assembled in an Erector Set-style fashion. It's a common practice for McGough that saves time and improves quality because the planning and assembly of formwork were done in a warehouse with access to equipment not readily available on tight jobsites, such as the Ordway, Brenteson states.

2. Construction Waste Management

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

"Through haulers, we can achieve 75% landfill avoidance through their process and we don't need to separate materials to do it," says Dale Forsberg, president of St. Louis Park-based Watson-Forsberg. "On a couple of sites, we've hit 95%."

For inner city projects with small footprints, having haulers handle materials in a single container makes all the difference because space is at a premium, Forsberg says. Some materials are recyclable on site — in particular, concrete that can be crushed and used for foundations or as aggregate beneath parking lots.

The three largest construction projects underway in the Twin Cities all have a recycling rate of more than 90%, according to Zachary Hansen, environmental health director, St. Paul-Ramsey County Public Health department, speaking at a recent conference sponsored by the Minneapolis-based Environmental Initiative. The projects include the Vikings Stadium in Minneapolis, the St. Paul Saints Ballpark and the Ford plant in St. Paul.

3. Managing the Site for Improved Environment

Stormwater pollution prevention has become a "big deal" to municipalities and the state and federal government, says Smoczyk at Kraus-Anderson. "Municipalities do not want a [construction] development that dumps a bunch of bad water into the storm sewer system and overflows it," he says.

Runoff is now contained by silt fencing surrounding an area. A number of "best practice" approaches can be used to treat water on site and avoid having it flow into the local sewer system, Smoczyk says. Kraus-Anderson is now making plans to avoid runoff during construction of its new office building in downtown Minneapolis.

Forsberg says worker safety has led to restrictions and the institution of simple ways to reduce pollution. There's no smoking on the site, for example. When workers enter a building, they travel over "walk-off mats" that remove dirt, lead and other potentially dangerous chemicals from their shoes. Contractors also bring recycling containers for food to decrease organic waste.

4. Lean Manufacturing to Reduce Energy

McGough'sBrenteson says his company encourages rethinking construction approaches through lean thinking. "It's finding the wasteful activities we're doing and eliminating them," he explains.

One success involved a McGough employee who modified a brush that works in conjunction with snow blowers to reduce the amount of time required to clean metal floor decks in winter. The process begins with a brush-mounte1d snow blower — again, modified a bit by McGough — that takes off the majority of the snow. Then, workers used brushes mounted on broom handles to remove snow caught in the grooves of the metal decks.

Although a snow-shoveling brush might not seem like a big deal, it has made life easier for McGough's staff. "It saved a substantial amount of time and manpower and that's important when talking about waste and sustainability," says Brenteson.

McGough also uses tool sheds — all designed by tradespeople — that are organized the same way regardless of the work site. The system eliminates wasted time searching for the right drill bit or wrench. Fewer tools are lost and have to be replaced using the system, and contractors work more efficiently since they can find what they need, says Brenteson. The company was so proud of both approaches it made YouTube videos — one on the snow brush and the other on tool sheds — to showcase them.

LEED doesn't give contractors points for lean construction techniques, but many contractors use them anyway. Ted Beckman of RJM Construction in Minneapolis, says his company sits down with foremen from various subcontractors to share schedules so "everyone knows what they're responsible for."

The materials are delivered "just in time" to avoid having rebar and other materials sitting outside well before installation. The just-in-time system brings supplies on or around the day they are needed, Beckman says.

"It saves time, eliminates theft on the jobsite, eliminates damage, eliminates wasted time moving things," he adds. "Those are lean practices but they are sustainable things, too, in a sense."

5. Material Selection

Architects and clients seeking LEED can achieve many points by selecting materials manufactured from recycled products and from local sources. The materials can be anything, from renewable products such as bamboo for floors, to wood from vendors approved by the Minneapolis-based Forest Stewardship Council.

LEED points are also available for installing water-saving dual-flush toilets and low-flow faucets and other features, says Smoczyk. Water reduction has become a major issue, even in the Land of 10,000 Lakes, he notes.

As buildings become greener, so do construction sites. Off-site fabrication, improved on-site maintenance, lean practices, landfill avoidance and green materials acquisition have begun to fundamentally, albeit slowly, transform the way buildings are constructed today.

5.1.2 Soil liquefaction :-

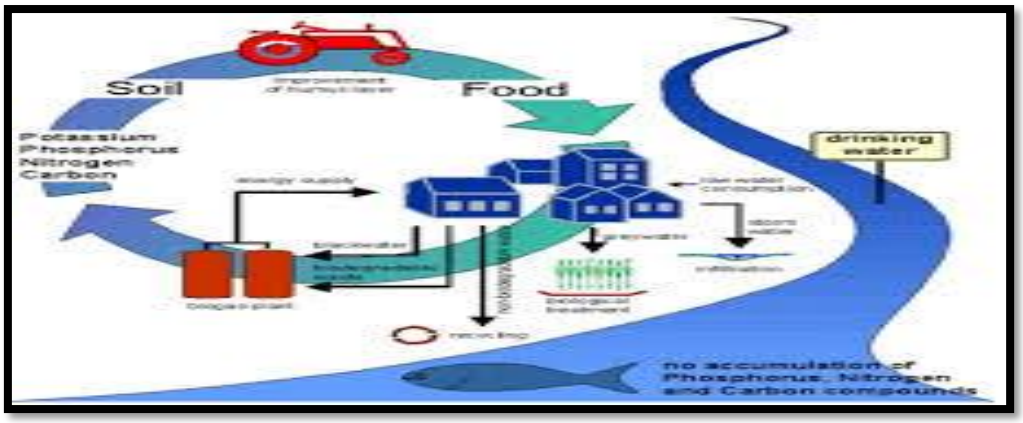
Soil liquefaction occurs when a saturated or partially saturated soil substantially loses strength and stiffness in response to an applied stress such as shaking during an earthquake or other sudden change in stress condition, in which material that is ordinarily a solid behaves like a liquid. In soil mechanics, the term "liquefied" was first used by Allen Hazen in reference to the 1918 failure of the Calaveras Dam in California. He described the mechanism of flow liquefaction of the embankment dam as:

If the pressure of the water in the pores is great enough to carry all the load, it will have the effect of holding the particles apart and of producing a condition that is practically equivalent to that of quicksand… the initial movement of some part of the material might result in accumulating pressure, first on one point, and then on another, successively, as the early points of concentration were liquefied.

Soil liquefaction occurs when the effective stress (shear strength) of soil is reduced to essentially zero. This may be initiated by either monotonic loading (i.e. a single, sudden occurrence of a change in stress – examples include an increase in load on an embankment or sudden loss of toe support) or cyclic loading (i.e. repeated changes in stress condition – examples include wave

loading or earthquake shaking). In both cases a soil in a saturated loose state, and one which may generate significant pore water pressure on a change in load are the most likely to liquefy. This is because loose soil has the tendency to compress when sheared, generating large excess porewater pressure as load is transferred from the soil skeleton to adjacent pore water during undrained loading. As pore water pressure rises, a progressive loss of strength of the soil occurs as effective stress is reduced. Liquefaction is more likely to occur in sandy or non-plastic silty soils, but may in rare cases occur in gravels and clays

5.1.3 Sustainable Sanitation :-



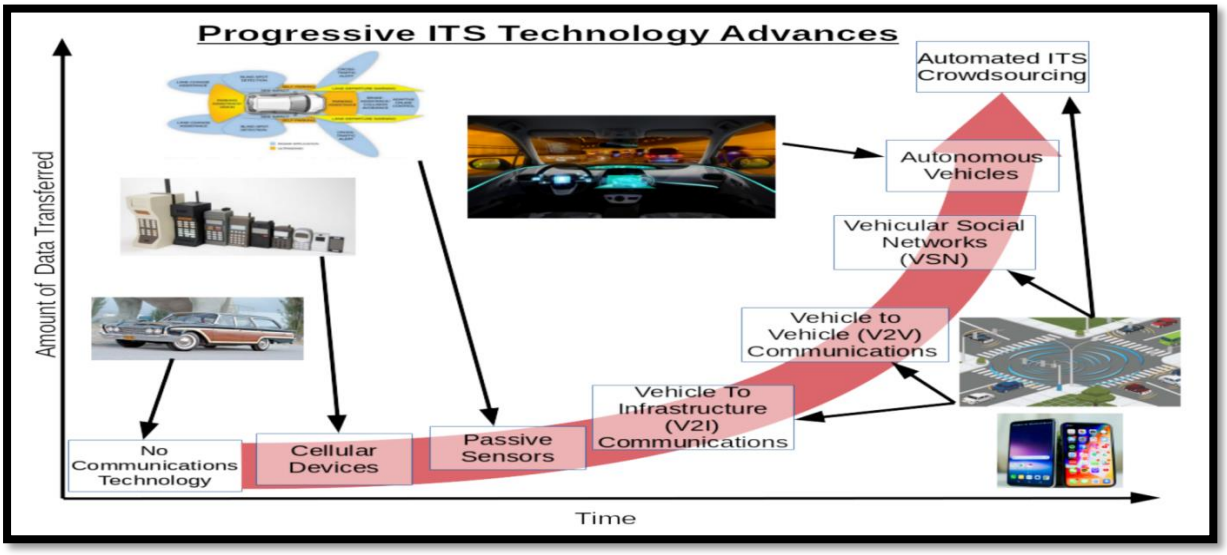
(Fig.5.1Sustainable sanitation)

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.

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.

5.1.4. Transport Infrastructure / System :

his study assessed the effects of the quantity, quality, and structural aspects of transport infrastructure endowment upgrading on economic growth. Additionally, the study explored the possibility of a relationship between government development strategies and the growth impact from transport infrastructure. Since the 1990s, the World Bank has repeatedly emphasized that policymakers should not exclusively focus on the quantity of infrastructure investments and that improving the quality of infrastructure services is also vital. Moreover, the World Bank has found that in the past, low operating efficiency, inadequate maintenance, and insufficient attention to users' needs have all contributed to reducing the development impact of these investments. Therefore, it is considered essential to improve the effectiveness of infrastructure investments as well as the efficiency of infrastructure service provision. After analyzing and summarizing lessons learned from experiences worldwide, the World Bank noted that infrastructure investment alone does not guarantee growth and that when the overall economic policy conditions are unfavorable, the returns from infrastructure investment decline . In summary, the World Bank's research has provided valuable guidance for countries to develop infrastructure according to their own unique characteristics.



(fig5.2 Transport Infrastructure / System)

5.1.5 Vertical Farming :

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

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

(fig5.3Vertical Farming)

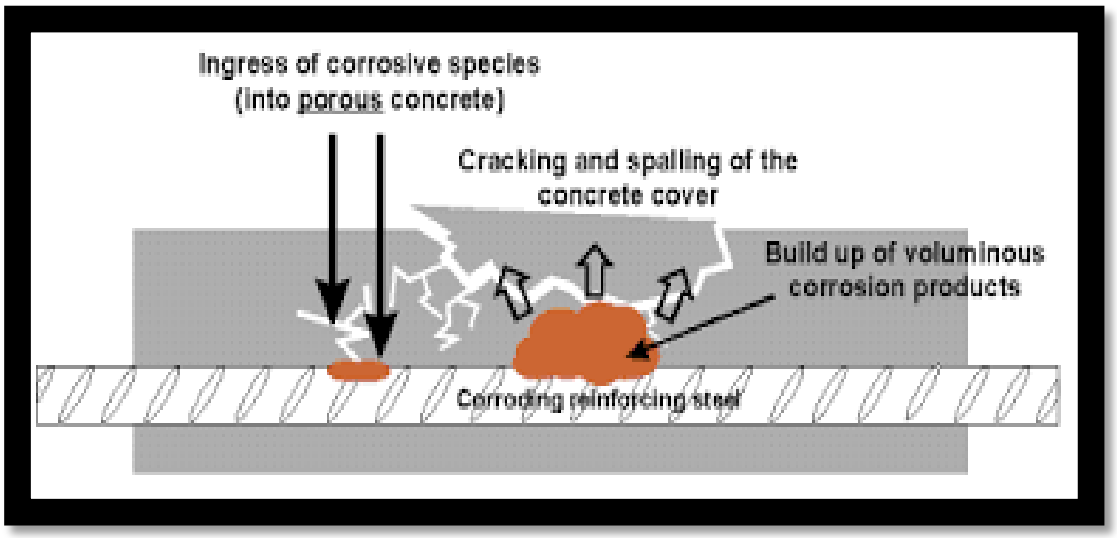
5.1.6 Corrosion mechanism prevention & repair measures of rcc structure:

The aim is to study about RCC, main reason for its corrosion and eliminate the damages by maintenance , protection and repair. As in different cases the climatic conditions, bearing capacity of soil , capital for the construction varies we mainly focus in finding out the most common and cheapest way for the protection of RCC. The different methods include alternative reinforcement and slab design, barrier methods, electrochemical methods, and corrosion inhibitors.

The durability of concrete structures is influenced by various factors, for example, ecological presentation, electrochemical responses, mechanical stacking, affect harm and others. Of all of these, consumption of the fortification is likely the primary driver for the disintegration of steel strengthen cement (RC) structures. Consumption administration is ending up progressively important because of the developing number of maturing foundation resources (e.g. spans, burrows and so on.) and the expanded prerequisite for impromptu upkeep with a specific end goal to keep these structures operational all through their outline life (and usually, past).

The primary RC repair, restoration and recovery approaches by and large utilized can be extensively arranged under an) ordinary, b) surface medications, c) electrochemical medicines and d) outline arrangements. The overall point of this examination was to recognize the key consumption administration strategies and embrace exact examinations concentrated on full-scale RC structures to explore their long haul execution.

Additional measures to mitigate corrosion of steel reinforcement in concrete include the use of corrosion inhibiting admixtures, coating of reinforcement (for example, with an epoxy resin), and use of sealers and membranes on the concrete surface. Sealers and membranes, if used, have to be periodically reapplied.



(fig5.4 Corrosion in RCC)

5.1.7sewage treatment plant:

Essentially, a sewage treatment plant operates by circulating air to encourage the growth of bacteria to break down sewage. The goal being to deliver much cleaner, more environmentally friendly effluent. It involves a similar process to a typical septic tank but has some key differences.

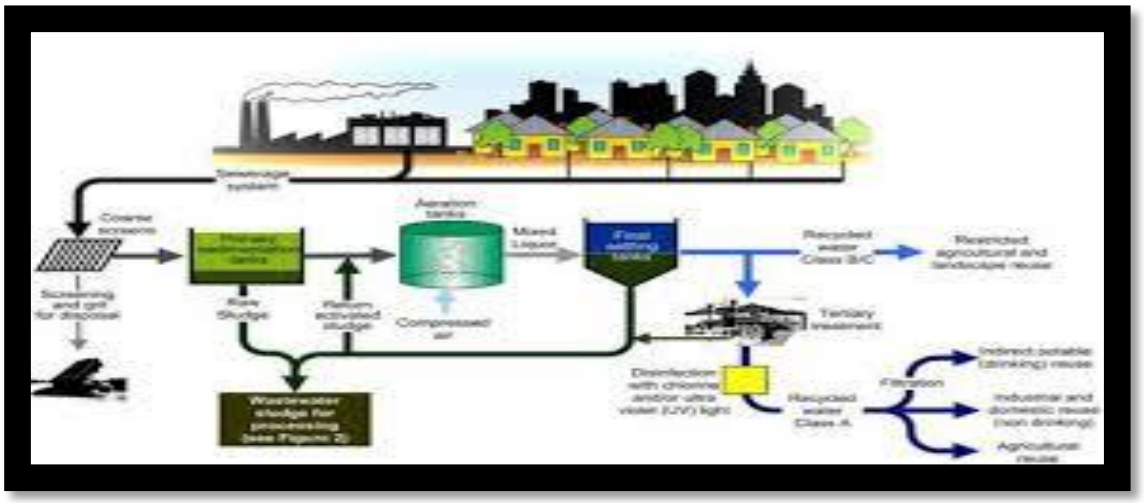
There are three main stages of the wastewater treatment process, aptly known as primary, secondary and tertiary water treatment.

The general construction of a sewage treatment plant doesn't differ too drastically from that of a septic tank. Just as with a septic tank, sewage flows from the property being serviced into the first chamber of the sewage treatment plant. Here, the water sits until grease, oil and scum have floated to the top and solids have settled on the bottom of the tank.

Once the process of separation has taken place, the liquid travels into a second chamber which is where sewage treatment plants differ from septic tanks. This chamber is fitted with an air pump that circulates air around the chamber to encourage the growth of aerobic bacteria. This bacteria helps to break down the contaminants in the water, effectively cleaning it.

The final stage of a sewage treatment plant is one last settlement tank. This final tank allows the very last solids that may remain to sink to the bottom of the tank before the effluent is discharged into a soak away or watercourse.

Once the treatment process has been completed and the wastewater has been treated as thoroughly as possible, it can be discharged into the environment. This is another key area where sewage treatment plants differ from sewage treatment plants. Whereas you must discharge effluent from a septic tank into a soak away for further treatment in the ground, subject to an Environment Agency Consent to Discharge, you can discharge your effluent into local water sources straight from your treatment plant. This is because of the vastly improved effluent quality that the treatment process produces.



(fig5.5sewage treatment plant)

5.8Case Study on Riverfront , Porbandar, Gujarat

5.8About TheCity:

Altitude: Sea Level
Temperature: Winter Max 24- Min 10 degree Celsius
Best time to visit: October to March
Nearest airport: Porbandar
Nearest Railway Station: Porbandar
Highways: National Highway 8B connects Porbandar to Rajkot
PIN Code: 360575
STD Code: 0286
Time Zone: IST
Spoken Language: Gujrati, Hindi, English

Fig 5.1: Site view of Riverfront

5.8.1Site &Surroundings:

The coastal town, famed for Kirti Mandir, a pristine beach and chowpaaty, has now got a riverfront. The two km long riverfront built across the mythological Asmavati River will be inaugurated by chief minister Vijay Rupani .

Built much on the lines of Ahmedabad, the riverfront is spread in an area of 94,000 sq m. The mythological river, which meets the Arabian Sea, has water throughout the year. The work on the riverfront, which was mooted by Tourism Corporation of Gujarat Ltd (TCGL), started around two years ago.

Talking to TOI, Porbandar collector DN Modi said, "We are going to add more rides for children and water sports too. This will be an ideal place to pass Sunday evening for locals. The migratory birds also flock here in winters, making it an attractive place for bird watching too." Along with other facilities, there is a party plot where people can organize marriage functions, birthday parties and other social events. There is a parking facility for 1,000 vehicles. Similar to Sabarmati riverfront, this is one also has a flower park and shopping centre where visitors can purchase handicrafts. The entire area will be under CCTV surveillance.

Positive aspects:

- The building is friendly for physical challenged people.
- There are CCTV at several points .
- There are parking for 1000 vehicles.
- The total new concept and design of the project will make this place a "City Icon" and would surely become pride for the city.

5.8.5Prototype :-

Generally we include 3 steps in making of any prototypes and its starts from requirements and ends with test.

(1) Requirements analysis :-

- They should be designed to accommodate the maximum number of visitors normally waiting, and to provide adequate protection from the front by fancing .
- They should be well lit and ventilated, and attractive designed.
- Where wondering times may be long it may be desirable to provide seating.

(2) Design :-

- CCTV
- Ticket window
- Inquiry counter
- Parking Area
- Tourist information cabin
- Huts
- Water body in semi open area
- Toilets for male &female

(3) Maintenance :-

- Cleaning water closets are essential primarily for hygiene and proper maintenance.
- Cleaning floor by mopping regularly.
- Certain treatments in special areas must be done at regular intervals for the building maintenance. Some of them are explained below:
- The projection of plinth area of the building has to be cleaned.
- The cleaning of ventilators provided in the ceiling areas requires regular cleaning, to avoid dirt accumulation.
- The technical meaning of maintenance involves functional checks, servicing, repairing or replacing of necessary devices, equipment, machinery, building infrastructure, and supporting utilities in industrial, business, and residential installations.

Chapter:6. Swatchh Bharat Abhiyan (Clean India)

6.1 Swatchhta needed in allocated village Existing Situation with photograph

Dustbins are provided at equal interval of distance and all the houses have given their own dustbins by the Gram Panchayat.
There are 1 Public Latrine Blocks in the village. There are also toilet facilities in schools and Gram Panchayat. There is good system for the disposal of the solid and liquid waste management in the village.

(figure 6.1 Exiting condition in Katawana)

(figure 6.2 Public Latrine in Katawana)

6.2 Guidelines - Implementation in allocated village with Photograph

"A clean India would be the best tribute India could pay to Mahatma Gandhi on his 150 birth anniversary in 2019," said ShriNarendraModi as he launched the Swachh Bharat Mission at Rajpath in New Delhi. On 2nd October 2014, Swachh Bharat Mission was launched throughout length and breadth of the country as a national movement. While leading the mass movement for cleanliness, the Prime Minister exhorted people to fulfill Mahatma Gandhi's dream of a clean and hygienic India. ShriNarendraModi himself initiated the cleanliness drive at MandirMarg Police Station. Picking up the broom to clean the dirt, making Swachh Bharat Abhiyan a mass movement across the nation, the Prime Minister said people should neither litter, nor let others litter. He gave the mantra of 'Na gandagikarenge, Na karnedenge.' ShriNarendraModi also invited nine people to join the cleanliness drive and requested each of them to draw nine more into the initiative. By inviting people to participate in the drive, the SwachhtaAbhiyan has turned into a National Movement. A sense of responsibility has been evoked among the people through the Clean India Movement. With citizens now becoming active participantsincleanliness activities across the nation, the dream of a 'Clean India' once seen by Mahatma Gandhi has begun to get a shape.

Guidelines for swatch village by government:

1.) ENSURE :

- Identification of households without toilets for corrective action
- Toilet use and maintenance.
- Facilities for solid and liquid waste management.
- Water-use efficiency by rationalizing water use.
- Inclusion of water and sanitation Issues in Gram Panchayat Development Plan (GPDP).
  Compliance with environmental safeguards for all GPDP activities.

2.)PROMOTE :

- Hygiene education.
- Toilets for all households and institutions.
- Modern agriculture and water-use technologies to conserve water.
- Water-use rationalization by selecting appropriate cropping patterns

3.)ESTABLISH :

- Local environmental safeguard measures.
- Surveillance of water bodies.
- Safeguards for water bodies.

4.)PLAN AND IMPLEMENT :

- Environmental management framework.
- Water supply schemes.

5.)FACILITATE :

- Appropriate irrigation methods
- Regulation of water extraction based on demand yield match.
- Participation of local communities in improving water and sanitation management

6.3 Activities Done by Students for allocated village with Photograph

- We avoided throwing waste in open and always used dustbin.
- We interacted with village people and tried to spread awareness regarding Swatch bharatabhiyan
- We proposed Solid waste management design for the allocated village.
- We also planned to carry out awareness campaign but due to Covid-19 we didn't get permission still we will conduct campaign in future .

Chapter:7. Village condition due to Covid-19

Coronavirus disease 2019 (**COVID-19**) is a contagious disease caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). The first case was identified in Wuhan, China in December 2019.

Common symptoms of COVID-19 include fever, cough, fatigue, breathing difficulties, and loss of smell and taste. Symptoms begin one to fourteen days after exposure to the virus. While most people have mild symptoms, some people develop acute respiratory distress syndrome (ARDS). ARDS can be precipitated by cytokine storms,[9] multi-organ failure, septic shock, and blood clots. Longer-term damage to organs (in particular, the lungs and heart) has been observed. There is concern about a significant number of patients who have recovered from the acute phase of the disease but continue to experience a range of effects—known as long COVID—for months afterwards. These effects include severe fatigue, memory loss and other cognitive issues, low-grade fever, muscle weakness, and breathlessness.

COVID-19 spreads via a number of means, primarily involving saliva and other bodily fluids and excretions. These fluids can form small droplets and aerosols, which can spread as an infected person breathes, coughs, sneezes, sings, or speaks. The virus may also spread by direct contact and it is unknown how often it spreads via fomites (contaminated surfaces).[14][15] The exact route of transmission is rarely proven conclusively,[16] but infection mainly happens when people are near each other for long enough, which is known as "close contact".[a] It can spread as early as two days before infected persons show symptoms (presymptomatic), and from asymptomatic individuals. People remain infectious for up to ten days in moderate cases, and two weeks in severe cases. The standard diagnosis method is by real-time reverse transcription polymerase chain reaction (rRT-PCR) from a nasopharyngeal swab.

Preventive measures include social distancing, quarantining, ventilation of indoor spaces, covering coughs and sneezes, hand washing, and keeping unwashed hands away from the face. The use of face masks or coverings has been recommended in public settings to it.

7.1 Taken steps in allocated village related to existing situation

- They Maintain social distance with people
- Use of nose mask and sanitizer
- Maintaining hygienic condition
- Avoided travelling
- Drinking immunity booster

7.2 Activities Done by Students for allocated

Interaction with villagers and we explain them the severity of covid-19 & how dangerous it is. Villagers were not using mask and sanitizers so we distributed them sanitizers, mask and instructed them how to take precaution. Villagers still need to be made aware regarding pandemic situation and we get to know that in rural area people are still not taking this problem seriously. We told them though government has unlock the states and all activities are carried out in usual manners that doesn't mean the pandemic is over and we are virus free.

7.3 Any other steps taken by the students / villagers

Now people of village is aware from the Covid-19 so, they not giving the permission to enter out side people without their negative corona report. And also they wear mask and sanitizer at the time when they go outside of their home.

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

8.1 Design Proposals

- Rainwater harvesting
- Bio Gas Plant
- Bus stand
- ATM
- Septic tank
- Entrance gate

8.1.1 Sustainable Design:(Rainwater harvesting)

Required of rainwater harvesting in school building. Presently, they are using water from, tank of insufficient capacity .after interaction with villagers we get to know they get water once in 2 or 3 days Thus, by introducing the rainwater harvesting in the village ,villagers will get the desired supply of water for domestic purposes without making additional efforts for that.

8.1.2 Physical Design: Septic tank

Septic tanks are often used in rural areas, campgrounds, and picnic areas in place of sewer systems to treat human waste and separate solids and liquids in wastewater. The liquid portion of the waste is disposed of through a drain field where natural filtering takes place in the soil..

8.1.3 Social Design: Bus stand,

Bus stand is Essential need for any village or town. Katawana has no Bus stand facilities .

8.1.4 Socio-Cultural: ATM

ATM is a social as well as smart initiative.ATM will have Wi-Fi and internet facilities .It can be use as cyber café will be accommodated with computers so that villagers can take benefits of the same.

8.1.5 Smart Design: Bio-Gas Plant

A biogas plant is where biogas is produced by fermenting biomass. The substrate used for the production of this methane-containing gas usually consists of energy crops such as corn, or waste materials such as manure or food waste. This also allows the biogas to rise more easily.
Biogas is a green energy source in form of electricity and heat for the local grid. Considerable environmental advantages less emission of the greenhouse gasses methane, CO2 and nitrous oxide. Environmentally friendly recirculation of organic waste from industry and households

8.1.6 Heritage Design: Entrances Gate

An entrance gate is a fence that provides a practical, safe, and secure entryway. An entrance gate is sometimes called an entry gate and is often used for searches at concerts, festivals, and (sports) events.

8.2 Reason for Students Recommending this Design

- Rainwater Harvesting - to provide desired quantity of water
- ATM - for smart banking
- Bus stand - Easy communication

- Bio Gas Plant - to provide a green energy source.
- Septic tank - to provide a storage facilities in village.
- Entrance gate - Identification of village

. 8.3 About designs Suggestions / Benefit of the villagers

Rainwater Harvesting: Presently, they are using water from, tank of insufficient capacity .after interaction with villagers we get to know they get water once in 2 or 3 days Thus, by introducing the rainwater harvesting in the village ,villagers will get the desired supply of water for domestic purposes without making additional efforts for that.

ATM: ATM is a social as well as smart initiative.ATM will have Wi-Fi and internet facilities .It can be use as cyber café will be accommodated with computers so that villagers can take benefits of the same.

Septic tank: Septic tanks are often used in rural areas, campgrounds, and picnic areas in place of sewer systems to treat human waste and separate solids and liquids in wastewater. The liquid portion of the waste is disposed of through a drain field where natural filtering takes place in the soil..

Bio Gas Plant: Biogas is a green energy source in form of electricity and heat for the local grid. Considerable environmental advantages - less emission of the greenhouse gasses methane, CO2 and nitrous oxide. Environmentally friendly recirculation of organic waste from industry and households

Entrance gate: An entrance gate is a fence that provides a practical, safe, and secure entryway. An entrance gate is sometimes called an entry gate and is often used for searches at concerts, festivals, and (sports) events.

Bus stand: Bus stand is Essential need for any village or town. Katawana has no Bus stand facilities

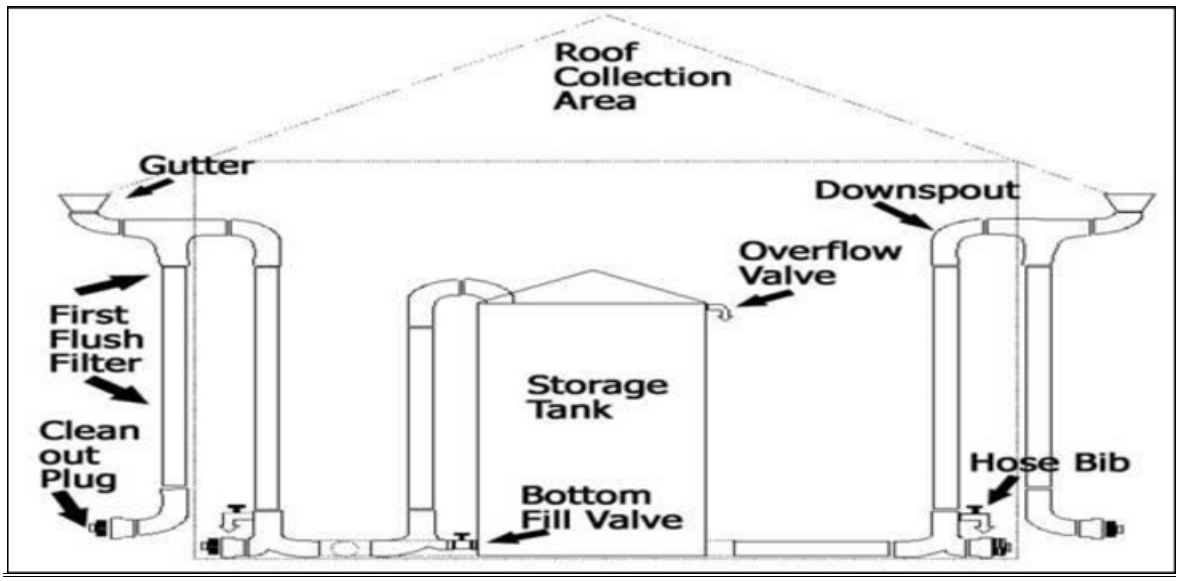
8.3.1Rain Water Harvesting:

Water is our most precious natural resource and something that most of us take for granted. We are now increasingly becoming aware of the water to our survival and its limited supply.

The Harvesting of rainwater simply involves the collection of water from on surfaces which rain falls, and subsequently storing this water for later use. Normally water is collected from the roofs of the buildings and stored in rainwater tanks.

Importance:

- By capturing water directly, we can significantly reduce our reliance on water storage dams. This places less stress on these dams and can potentially reduce the need to expand these dams or build new ones.
- Collecting and using your own water can also significantly reduce your water bills.
- By capturing water, the flow of storm water is also reduced and this minimizes the likelihood of overloading the storm water systems in our neighborhoods.



(Figure. 8.1 Components of Rain Water Harvesting)

Design:

We are providing Roof Top Harvesting System for the Primary School of the village .It is having length of 85 ft. and width of 30 ft.

Catchment Area (A) = 85 x 30 = 2550 ft^2 = 273.21 m^2
Average Annual Rainfall = 1.15 m
Average rate of Rainfall = 625 mm/hr
Runoff co-efficient = 0.85

Step: 1

The maximum amount of rainfall that can be harvested potentially
= 337.21 x 0.85 x 1.15
= 231.87 cum.

Step: 2

From IS: 15797: 2008,
Table no: 1, Interpolating the value of the value of water availability = 232 cum

Step: 3

Calculation of Downpours:

No. of Downpours = Roof drainage area /Max. roof drainage area served per downpour

= 237.21/53= 4.47 = 5

Step: 4

Diameter of gutter and width of G.I. sheet.
Rainfall Intensity = 60 mm/hr
From IS: 15797: 2008, table-3 [Cl. 6.1(b)]

By interpolating the values,
D = 125.44 mm = 125.50 mm
B = 219.89 mm = 225 mm

Therefore, providing 5 inch diameter of gutter and 9 inch width of the G.I. Sheet.

Step: 5

Estimating the size of Conveyance Pipe.
From table A-4, Guidelines for Rain Water Harvesting System handbook by Canada Authority
By interpolating the values, we got 5 inches for pipes.

Step: 6

Estimating the size of the required system.
V = t x n x q | from IS: 15797: 2008, cl. 6.3
V = 245 x 292 x 135 = 9657900 litres = 9658 m^3 Where, V = Volume of tank, in litres
t = Length of Dry season, days
n = number of peoples using that tank
q = Consumption in litres per capita per day
We have to design for 1000 m^3 of water.
We are providing underground rectangular tank of size 17.5 m x 17.5 m x 3.5 m

Considering free board = 150 mm
Water Depth = 3.5 – 0.15 = 3.35 m
Volume = 17.5 m x 17.5 m x 3.35 m = 1025.937 m^3 = 1025937 litres

Sr. No.	Particular	Nos.	L	B	H	Quantity	Total Quantity
1	Excavation for Foundation for depth more than 3.3m including sorting out and stacking of useful material and disposing off the excavated stuff upto 50 m lead	1	17.5	17.5	3.5	1071.8m3	**1071.8m3**
2	Providing and laying Cement Concrete 1:3:6 (1 cement : 3 coarse sand : 6 stone aggregate 40 mm nominal size) and curing complete excluding cost of formwork in foundation	1	17.5	17.5	0.1	30.625m3	**30.625m3**
3	Providing and laying controlled cement concrete M15 for curing complete excluding the cost of formwork & reinforcement including curing of wall slab	4 2	17.5 17.5	3.5 17.5	0.1 0.1	24.50m3 61.25m3	**85.75m3**
4	Deduction of Manholes from the top slab	2	0.6	0.6	0.1	0.072m3	**61.25-0.072 =61.178m3**
5	Providing H.Y.S.D bar reinforcement for R.C.C work including binding and placing in position	85.67 m3	@	70 kg/m3		6000kg	**6000kg**

(Table: 8.1 Measurement Sheet)

Abstract Sheet:

Sr. No.	Particular or Item	Quantity	Rate (in Rs.)	Per	Amount (in Rs.)
1	For Excavation of foundation	1071.8	124	Cum	132903.2
2	Providing and laying P.C.C (1:3:6) excluding cost of formwork	30.625	2932	Cum	89792.5
3	Providing and laying controlled cement concrete M15 for the walls excluding cost of reinforcement	24.5	4077	Cum	99886.5
4	Providing and laying concrete and finishing smooth curing including the cost of formwork but excluding the cost of reinforcement in R.C.C slab	61.25	5927	Cum	363028.75
5	Reinforcement	6000	40	Kg	240000
Total Rs.					**925610.95**
Says					**925610**

(Table: 8.2 Abstract Sheet)

8.3.2 BIOGAS PLANT:

Design:

Total no. of animals in village = 150.
As per standard data assume per day dung of animals = 10.5 kg
So, total dung per day = 150 x 10.5
= 1575 kg/day

Design of Digester:

Assume retention period (R) = 30 days
Now total amount of slurry per day (S) = Total dung per day + water amount
= 1575 + 2(1575)
= 4725 kg/day
= 4.725m^3/day

Digester Volume :

Digester Volume = S x R = 4.725 x 30 = 1278.9 = 141.75 m^3

Assume cylinder shape biogas plant.

Provide total 1 no. of unit
Total digester volume (Vd) = $\pi r^2 h$
141.75 = πr^2 (10) (assume h = 10 m)
r = 2.12 m

So, dimensions are h = 10 m, r = 2.12 m.

Design of Gas Holder:

Assume digester temperature = 26-28 ^oC
Now,
Specific Gas Production (Gd) = 37 litre/day
Daily Gas Production G = Gd x Feed Volume
= 37 x 4725= 174825 lit = 174.825 m^3
Now,

Assume Gas Holder capacity = 60%

Gas Holder Volume = Daily Gas Production x Capacity of Holder

= 174.825 x 0.60

= 104.90 m^3

So, take gas holder volume = 52.5 m^3

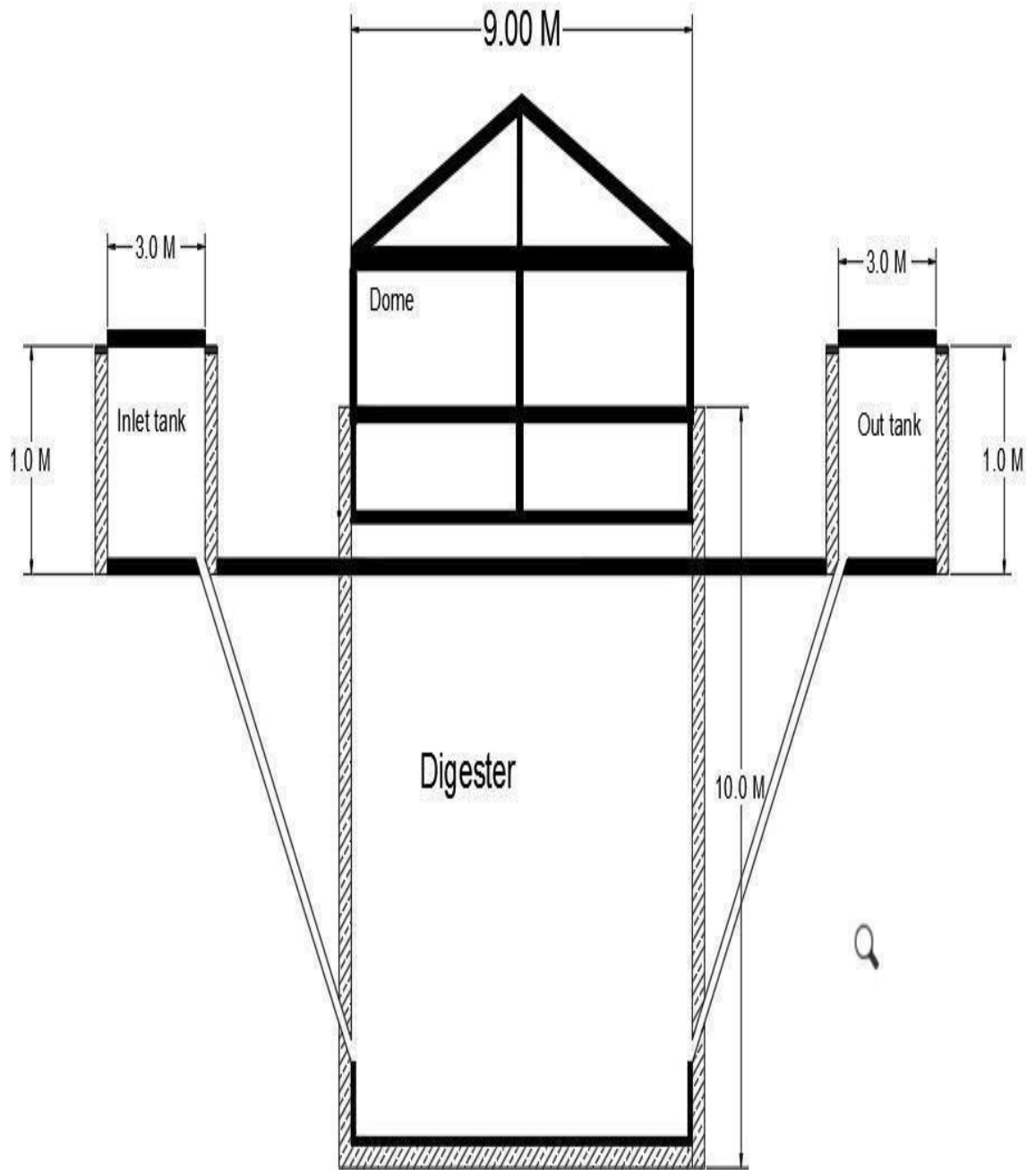
Provide cylinder shaped,

Therefore, Volume = $\pi r^2 h$

52.5 = πr^2 (1) assume h = 1

r = 4.09 m

So, dimension of the gas holder: h = 1 m, r = 4.5m



(Figure. 8.2.BDesign of Biogas Plant)

Design of Inlet and Outlet:

Total Volume of slurry mix deposit = 4.75/ 2 = 2.375 m^3 / day
Assume one time filling operation in plant.
So, take total volume of slurry = 2.375 m^3 / day
Provide Rectangular tank.

So, Total volume for one time mixing of slurry = L x B x H
2.375 = L x B x 1

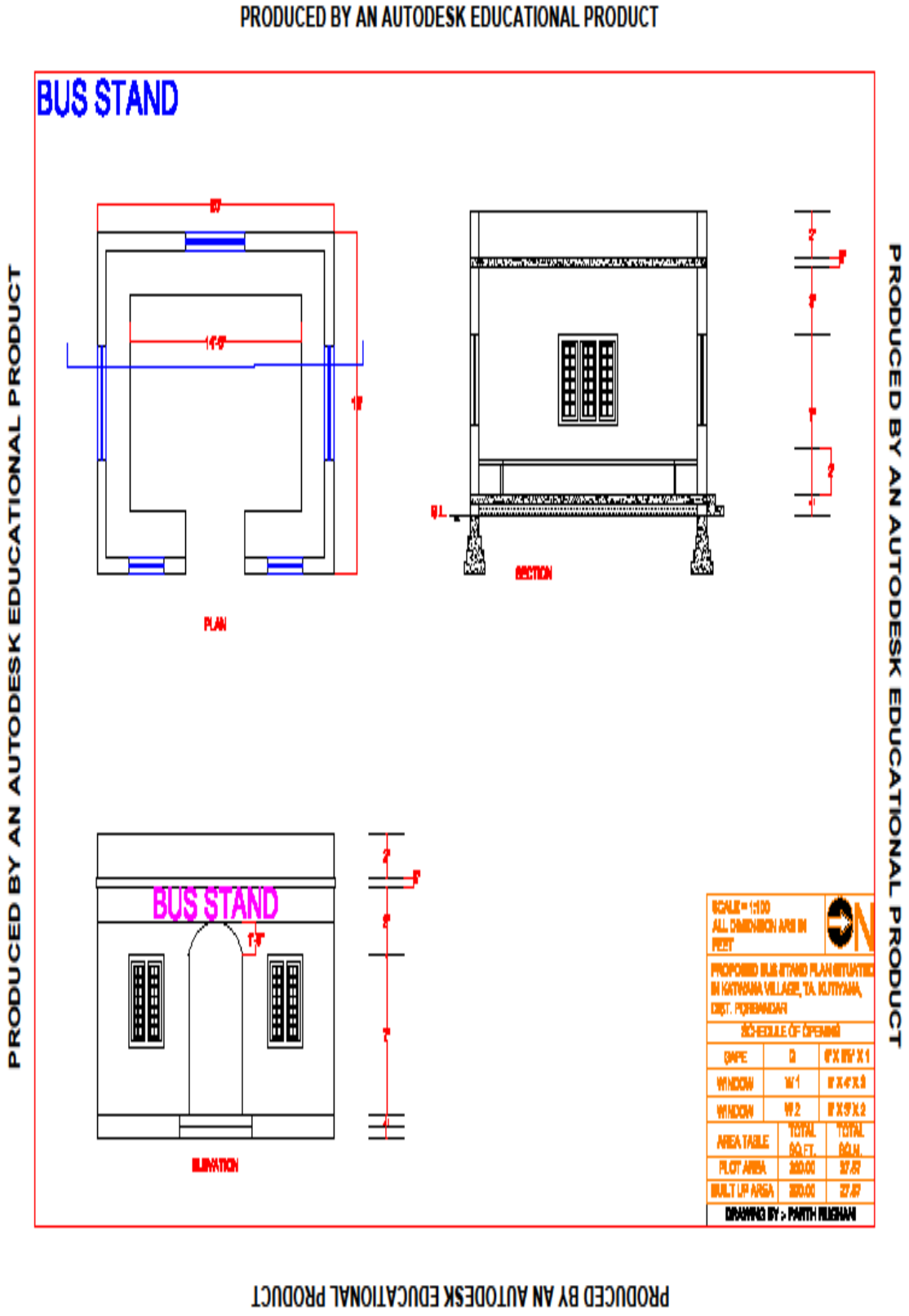
Dimensions of inlet: L = 2 m
B = 1.5 m H = 1 m

Here, 5 m^3 / day required < 6 m^3 / day provided.
….. Hence OK.

Provide same size of outlet also.

Sr. No.	Particular	Nos.	L	B	H	Quantity	Total Quantity
1	Excavation for Foundation for depth more than 3.3m including sorting out and stacking of useful material and disposing off the excavated stuff up to 50 m lead	1	17.5	17.5	3.5	1071.8m3	**1071.8m3**
2	Providing and laying Cement Concrete 1:3:6 (1 cement : 3 coarse sand : 6 stone aggregate 40 mm nominal size) and curing complete excluding cost of formwork in foundation	1	17.5	17.5	0.1	30.625m3	**30.625m3**
3	Providing and laying controlled cement concrete M15 for curing complete excluding the cost of formwork & reinforcement including curing walls sab	4 2	17.5 17.5	3.5 17.5	0.1 0.1	24.50m3 61.25m3	**85.75m3**
4	Deduction of Manholes from the top slab	2	0.6	0.6	0.1	0.072m3	**61.25-0.072 =61.178m3**
5	Providing H.Y.S.D bar reinforcement for R.C.C work including bending binding and placing in position	85.67 m3	@	70 kg/m3		6000kg	**6000kg**

8.3.3Design of Bus stand



(Figure. 8.2.C Design of Bus Stand)

MEASUREMENT SHEET

SR.	DISCRIPTION	NO	L	B	D	QTY.	T.QTY.	UNIT
1	Excavation for foundation upto 1.5 m depth including sorting out and stacking of useful materials and disposing of the excavated Stuff upto 50 Meter lead.							
	Dense of hard soil							
		2	6.100	0.6	1	7.320		
		2	3.380	0.6	1	4.056		
						11.376	11.376	Cu. M
2	Providing and laying Cement Concrete 1:4:8(1-Cement : 4 Coarse sand : 8 hand broken stone aggregate 40 mm nominal size) and curing complete excluding Cost of formwork.							
		2	6.100	0.6	0.15	1.098		
		2	3.380	0.6	0.15	0.608		
						1.706	1.706	Cu. M
3	Uncoursed Rubble Masonry with hard stone of approved quality in foundations & plinth in Cement Mortar 1:6 (1- Cement :6 Coarse Sand) including levelling up etc.							
		2	6.100	0.6	1.35	9.882		
		2	3.380	0.6	1.35	5.476		
						15.358	15.358	Cu. M
4	providing and laying cement concrete 1:2:4 (1-cement : 2-coarse sand : 4-graded stone aggregate 20mm nominal size) and curing, complete excluding cost of formwork in.							
		2	6.100	0.6	0.15	1.098		
		2	3.380	0.6	0.15	0.608		
						1.706	1.706	cu.m.

5	White stone Bela masonry block in course in super-structure with stone of approved quality in cement mortar 1:6 (1 cement : 6 course sand) including racking the Joints etc. Complete.							
		2	6.100	0.23	3.05	8.558		
		2	4.110	0.23	3.05	5.766		
						14.325		
	DEDUCT FOR OPENINGS							
		1	1.52	0.23	2.6	0.909		
		3	1.52	0.23	1.2	1.259		
		6	0.91	0.23	1.2	1.507		
						3.674		
	NET QTY.					10.650	10.65	Cu. M
6	Filling in foundations and plinth with murmur or selected soil in layers of 20 cm thickness including consolidating each deposited layer by ramming and Watering.							
		1	5.64	4.11	0.6	13.908		
						13.908	13.908	Cu. M
8	Providing and laying ordinary cement concret1:2:4 (1- cement :2 coarse sand :4 graded stone aggregates 20 m.m. nominal size) and finishing smooth with curing etc complete including the cost of form work but excluding the cost of rein -for cement for R.C.C work							
		2	6.1	4.57	0.15	8.363		
						8.363		
	DEDUCT	0	0.000	0	0	0.000		
						0.000		
						8.363	8.363	Cu. M

9	providing H.Y.S.D Bar reinforcement for R.C.C.work including bending, binding and placing in position complete upto floor two level							
		8.363						
		8.363	100	0.8	1	669.048	669.048	Kg
10	Providing mild steel reinforcement for R.C.C. work including bending, binding and Placing in position complete upto floor two level.							
		8.363						
		8.363	100	0.2	1	167.262	167.262	Kg
11	providing and 15mm thick cement plaster in single coat on brick/concrete walls for interior plastering upto floor two level and finished even and smooth in.							
	(i) Cement mortar 1:3 (1 cement : 3 sand)							
		4	5.64		3.05	68.808		
		4	4.11		3.05	50.142		
		1	5.64	4.11		23.180		
						142.130		
	DEDUCTION FOR DOOR & WINDOW							
	QTY AS PER IT NO. 6			1	3.674	3.674		
	NET QTY					138.456	138.456	Sq. M
13	providing and fixing pvc rain water pipe of 50mm dia etc. complete (market rate)							
		4	0.6			2.400		
						2.400	2.4	Rmt
17	Providing and laying cement concrete flooring 1:2:4 (1-cement:2-coarse sand:4-graded stone aggregate 20mm nominal size) laid in one layer finished with a floating coat of neat Cement. (A) 40mm thick.							
		1	5.64	4.11		23.180		
		NET				23.180	23.18	Sqmt

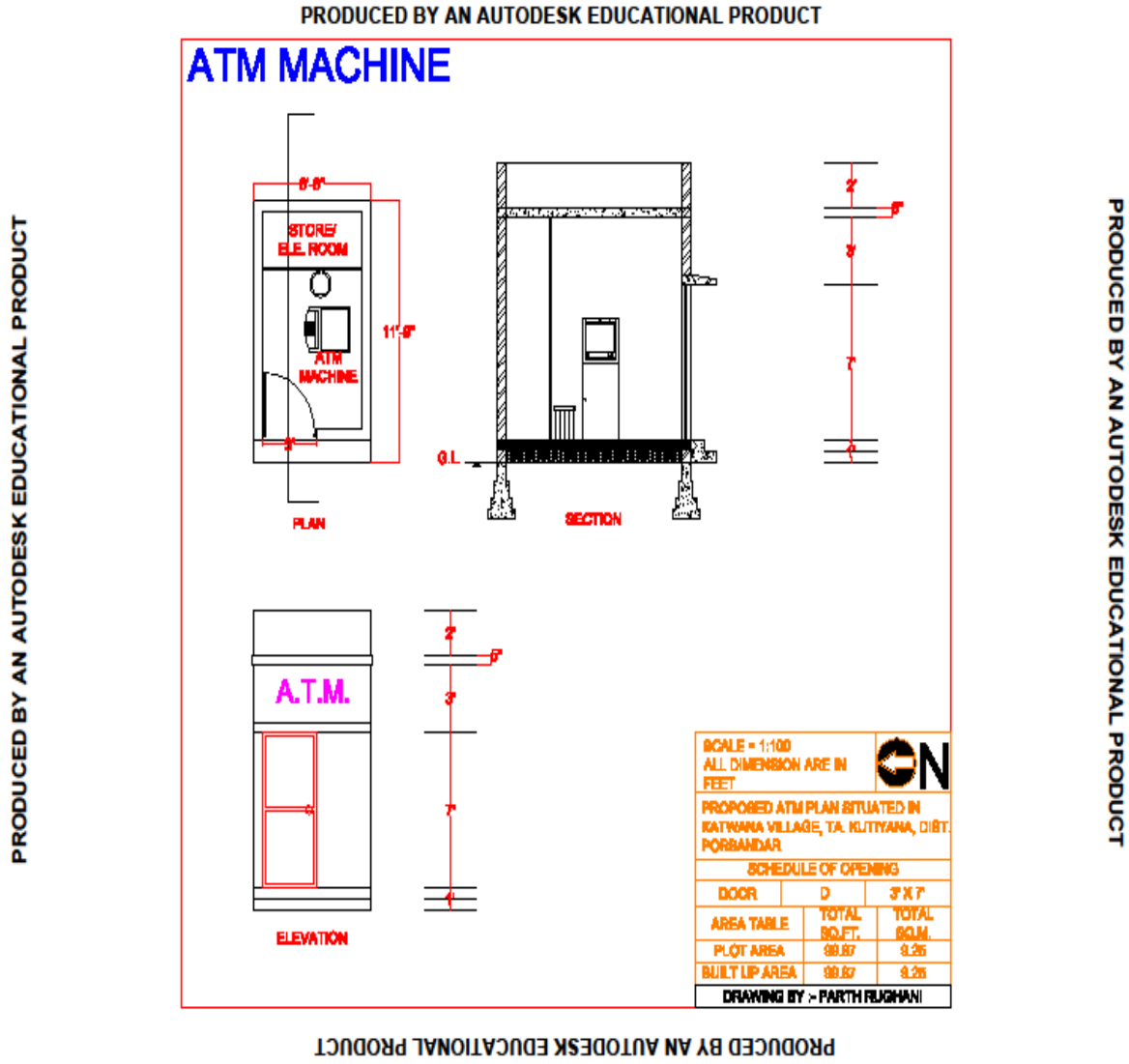
ABSTRACT

QTY.	DISCRIPTION	RATE	PER	AMOUNT
	ITEM NO. 1			
11.376	Excavation for foundation upto 1.5 m depth including sorting out and stacking of useful materials and disposing of the excavated stuff upto 50 Meter lead.			
	Dense of hard soil			
		100	Cu. M	1137.600
	ITEM NO. 2			
1.706	Providing and laying Cement Concrete 1:4:8(1-Cement: 4 Coarse sand: 8 hand broken stone aggregate 40 mm nominal size) and curing complete excluding cost of formwork.			
		1200	Cu. M	2047.200
	ITEM NO. 3			
15.358	Uncoursed Rubble Masonry with hard stone of approved quality in foundations & plinth in Cement Mortar 1:6 (1- Cement :6 Coarse Sand) including levelling up etc.			
		1500	Cu. M	23037.000
	ITEM NO. 4			
1.706	providing and laying cement concrete 1:2:4 (1-cement : 2-coarse sand : 4-graded stone aggregate 20mm nominal size) and curing, complete excluding cost of formwork in.			
		2000	cu.m.	3412.000
	ITEM NO. 5			
10.650	White stone Bela masonry block in course in super-structure with stone of approved quality in cement mortar 1:6 (1 cement: 6 course sand) including racking the joints etc. Complete.			
		3000	Cu. M	31950.000

	ITEM NO. 6			
13.908	Filling in foundations and plinth with murum or selected soil in layers of 20 cm thickness including consolidating each deposited layer by ramming and watering.			
		125	Cu. M	1738.500
	ITEM NO. 7			
8.363	Providing and laying ordinary cement concret1:2:4 (1- cement :2 coarse sand :4 graded stone aggregates 20 m.m. nominal size) and finishing smooth with curing etc complete including the cost of form work but excluding the cost of rein -for cement for R.C.C work			
		2000	Cu. M	16726.000
	ITEM NO. 8			
669.048	providing H.Y.S.D Bar reinforcement for R.C.C.work including bending, binding and placing in position complete upto floor two level			
		50	Kg	33452.400
	ITEM NO. 9			
167.262	Providing mild steel reinforcement for R.C.C. work including bending, binding and placing in position complete upto floor two level.			
		50	Kg	8363.100
	ITEM NO. 10			
138.456	providing and 15mm thick cement plaster in single coat on brick/concrete walls for interior plastering upto floor two level and finished even and smooth in.			
	(i) Cement mortar 1:3 (1 cement : 3 sand)	125	Sq. M	17307.000
	ITEM NO. 11			
2.400	providing and fixing pvc rain water pipe of 50mm dia etc. complete (market rate)			
		50	Rmt	120.000

	ITEM NO. 12								
23.180	Providing and laying cement concrete flooring 1:2:4 (1-cement:2-coarse sand:4-graded stone aggregate 20mm nominal size) laid in one layer finished with a floating coat of neat cement.(A) 40mm thick.								
							200	sqmt	4636.000
									143926.800
							TOTAL		**143926.800**
						Say Rs.			**144000.000**

8.3.4Design of ATM:-



(Figure. 8.2.d Design of ATM)

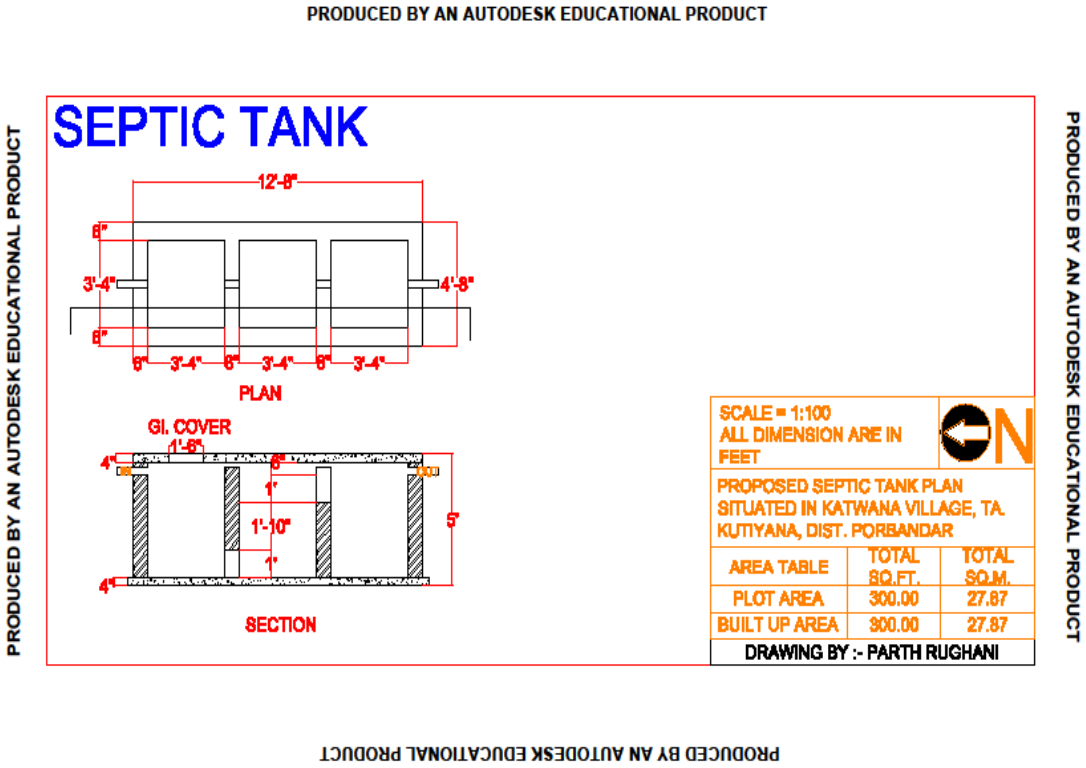
MEASUREMENT SHEET						
		No.	**Length**	**Breadth**	**Depth / Height**	
Sr No.	**Description of Item**		**(L) (M)**	**(B) (M)**	**(D/H) (M)**	**Quantity (Cu.m)**
1	Excavation in ordinary soil					
	L=(0.5+2+0.15) +					
	(0.15+3+0.15)=5.6					
	L=(5.6-1/2*0.9)	1	5.15	0.9	0.9	4.17
2	BBCC (1:2:4)	1	5.15	0.9	0.3	1.39
3	Brick masonary					
	up to plinth level					
	First	1	5.3	0.6	0.1	0.318
	Second	1	5.35	0.5	0.1	0.2675
	Third	1	5.4	0.4	0.1	0.216
	Fourth	1	5.45	0.3	0.8	1.38
	Steps					
	First	1	1	0.6	0.2	0.12
	Second	1	1	0.3	0.2	0.06
						2.36
4	Filling in trench & plinth	1				0.42
		1				1.5
5	Brick masonry in					
	super structure	1	5.45	0.3	3	4.9
	Deduction of door	1	1.4	0.3	2.1	0.882
	Lintel	1	1.7	0.3	0.15	0.0765
						3.94
6	Brick masonary in					
	parapet wall	1	5.45	0.3	0.5	0.8175
7	RCC Slab &	1	2.6	3.6	0.15	1.4
	Lintel	1	1.7	0.3	0.15	0.0765
8	Smooth plaster					
	inside(12 mm)	1	2.6		3.5	9.1

		1	3.6		3.5	12.6
	Deduction of door		1.4		2.1	1.472
						12.53
9	Plasterwork outside	1	2.6		3.5	9.1
		1	3.6		3.5	12.6
	Deduction of door	0.5	1.4		2.1	1.47
						20.23
10	Painting Work	1	2		3	6
	Inside	1	3		3	9
	Deduction od door		1.4		2.1	147
						12.53
11	White Washing	1	2.6		3.5	9.1
	Outside	1	3.6		3.5	12.6
	Deduction of door	0.5	1.4		2.1	1.47
						20.23
12	Tiles flooring					
	Area(2*3)					
	Tiles area (0.2*0.2)					150
	Add 10%					165
13	No. of doors require	1	1.4		2.1	2.94

ABSTRACT SHEET

Sr No.	Description of Item	Quantity (Cu.m)	Rs.	Total Cost In Rs.
1	Excavation in ordinary soil	8.17	220	1797.4
2	BBCC (1:2:4)	4.39	240	1053.6
3	Brick Masonry	7.117	240	1708.08
4	RCC Slab & lintel	1.4765	2000	2593
5	Plasterwork	20.23	300	6069
6	Painting Work	12.53	300	3759
7	White Washing	20.23	300	6069
8	Tiles flooring	165	40	6600
9	No. of doors	1	1000	1000
	Total			29048.4

8.3.5 Design of septic tank:-



(Figure. 8.2.e Design of Septic tank)

Recapitulation Sheet of SepticTank:

Recapitulation Sheet		
Sr.No.	**Description**	**Amount**
1	Septic tank	Rs.20000.00

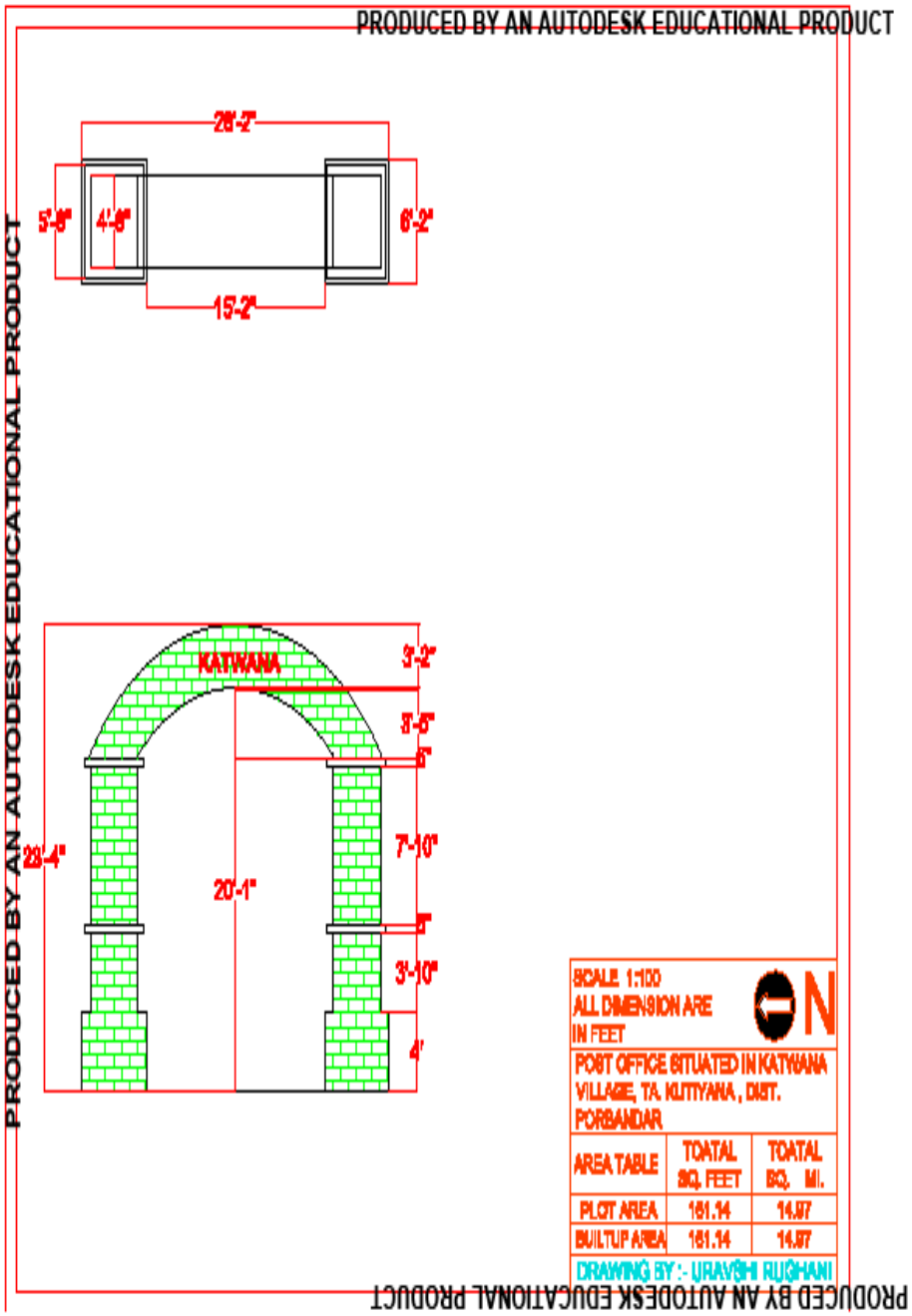
MEASUREMENT SHEET							
Sr. No.	**Item**	**No.**	**L**	**B**	**H**	**Quantity**	**Total**
1	**Excavation work**	1	3.9	1.5	1.5	8.76	8.76 m^3
	L=(3*1)+(4*.2))+(2*.05) = 3.9m						
	B=1+(2*.2)+(2*.05) = .5m						
	D=.1+.15+.3+.55+.3+.1 = 1.5m						
2	**(1:3:6) cement concrete Flooring**	1	3.9	1.5	0.1	0.59	0.59 m^3

3	**First class brick masonry in C.M. (1:6)**						
	Long walls, L=3.9-(2*.05) =3.8m	2	3.8	0.2	1.3	1.98	
	D=1.5-.2=1.3m						
	short walls	2	1	0.2	1.3	0.52	
	middle walls, D = 1.5-.1-.1-.15 = 1.15m	2	1	0.2	1.15	0.46	
							2.96 m^3
4	**R.C.C. slab in proportion (1:2:4)**						
	B=1+(2*.2) = 1.4m	1	3.8	1.4		5.32	5.32 m^2
5	**Weight of steel reinforcement in Slab**						
	1% steel is provided					41.76	41.76 Kg
	volume of concrete of 10cm. slab = 0.532						
	volume of steel 1% of concrete volume = 0.00532						
	weight of steel = volume of steel * density of steel = 41.762						

ABSTRECT SHEET

Sr. no	Item	Quantity	Per	Rate (Rs.)	Amount
1	**Excavation work**	8.78	m^3	130.00	1,141.40
2	**(1:3:6) cement concrete flooring**	0.59	m^3	2,010.00	1,185.90
3	**First class brick masonry in C.M. (1:6)**	2.96	m^3	3,500.00	10,360.00
4	**P.C.C.inproportion(1:2:4)for10cm. thick R.C.C slab**	0.53	m^3	6,058.00	3,210.74
5	**Steel reinforcement in slab**				
	20% mild steel	8.35	Kg	41.75	348.61
	80% HYSD steel	33.41	Kg	39.45	1,318.03
				Total	17,564.68
				Add 5% Contingencies	878.23
				Grand Total	18,442.91
				Say	**Rs. 20,000**

8.3.6Design of Entrance gate:-



Measurement sheet :-

Sr. No.	Particular	Nos.	L	B	H	Quantity	Total Quantity
1	Excavation for Foundation for depth more than 2m including sorting out and stacking of useful material and disposing off the excavated stuff up to 50 m lead	2	2.00	2.00	1.50	6	**12**
2	Basic wall of 6'' of masonry	2	1.60	0.15	1.85	0.888	**1.776**
3	Basic wall of 9'' of masonry	2	7.10	0.20	4.80	6.81	**13.63**
4	1st roof	1	7.00	2.10	0.16	2.352	**2.352**
5	2nd roof	1	7.00	2.10	0.16	2.352	**2.352**

Abstract Sheet:-

Sr. No.	Particular or Item	Quantity	Rate (in Rs.)	Per	Amount (in Rs.)
1	Excavation for Foundation for depth more than 2m including sorting out and stacking of useful material and disposing off the excavated stuff up to 50 m lead	12	350	M^3	4200
2	Basic wall of 6'' of masonry	1.776	150	Ft^2	266.40
3	Basic wall of 9'' of masonry	13.63	3500	Ft^2	47712.00
4	1st roof	2.352	3500	Ft^2	8232.00
5	2nd roof	2.352	3500	Ft^2	8232.00
6	PCC	1.80	3500	Ft^2	6300.00
7	Basic wall 0.30	1.80	90	M^3	162.00
8	Basic wall 0.40	2.90	90	M^3	261.00
9	Basic wall 0.50	2.90	90	M^3	261.00
Total Rs.					**79426.40**
Says					**80000.00**

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

Following are the future plan for our next semester:

- We will provide Social Infrastructure design for the village. It will include the design of CHC (Community Health Centre) and it is required to provide Child Welfare & Maternity Homes. Also provide facility like secondary and higher secondary school in village.
- Most of villagers belong to agricultural activities like farming, Hence provision of Krishi Kendra will prove too beneficial to villagers. Farmers problems can be resolve in that Centre.
- There is no Public garden and Recreational Centre in village, hence provision of public garden and Recreational will provide gathering and refreshing place to villagers.
- Sustainable design for rainwater harvesting this water is used at time of emergencies we sagest that provide on school building .
- Then we will also design Social-Cultural Infrastructure for the village. It will include recreational facilities like Public Library and Public Garden.
- We will also design Physical Infrastructure in the village. It will include the design of overhead water tank.
- Smart village system for this we provide solar lights .
- According to techno economical survey and gap analysis of part 1, almost required design of the village is do. First, basic requirement of the village should be fulfill, there for the design in part one is do according to that. Now in these condition part ,we will try a design that covers all the required maintenance in the village first.
- The village need some of unique or different design in order to make the village attractive and smart. Most of the focus of using to wards the maintenance of government properties such as bus stand; well, etc. because all these structures are damage. Until now, the bus stand was not maintain because there was no any regular route for government bus. However, after the approach roads make ,there is hope of continuous route for the bus.
- In our second part we design Post office, Community hall, Bus stand, Aanganvadi, Hospital and Grampanchayat.

Chapter10. Conclusion of the Entire Village Activities of the Project

- Vishwakarma Yojana: An approach towards Rurbanization. Name Itself indicates to provide primary and mandatory facilities to village which cities may have starting of the project we have visited the ideal village Ranavav. Ideal village terms as village should have facilities like primary school building , heath center , good water supply , well managed drainage system , cleanness of the village , should be connect with nearer city by transportation system , good education facilities.

- We visit the smart village and collect all information regarding the smart village form and Conclude what are the main and primary things needed in village and must be implemented.

- The motive of Vishwakarma Yojana phase-VIII is to uplift the life style of the rural areas to its certain extent up to the level of an ideal village situated at the nearby location of that particular jurisdiction. We have tried to develop sustainable and economic design as per our knowledge and hard work from visiting the villages and provide proper design. In this phase we have focused mainly on Data collection and done the survey of village.

- It is an effective government scheme to develop the rural areas under economical cost with good workability and efficiency during its usage. The project tends to improve the physical, social as well as socio-cultural aspects of the village by implementing and improvising various infrastructures with regards to lesser or least hindrance to its rural authenticity.

- These amenities designed under this project will be helpful for better development of village as physically as well as socially, which improves the overall lifestyle of people along with nation with preserving nature bit by bit.

- We are proposing a design base on our survey, knowledge and Gap analysis to village for its development.

- Comparison with smart village data and gap analysis we proposed detail design of certain amenities which may be use full for the growth of village and other advantage of **Katawana**can be facilitated as like as other smart villages.

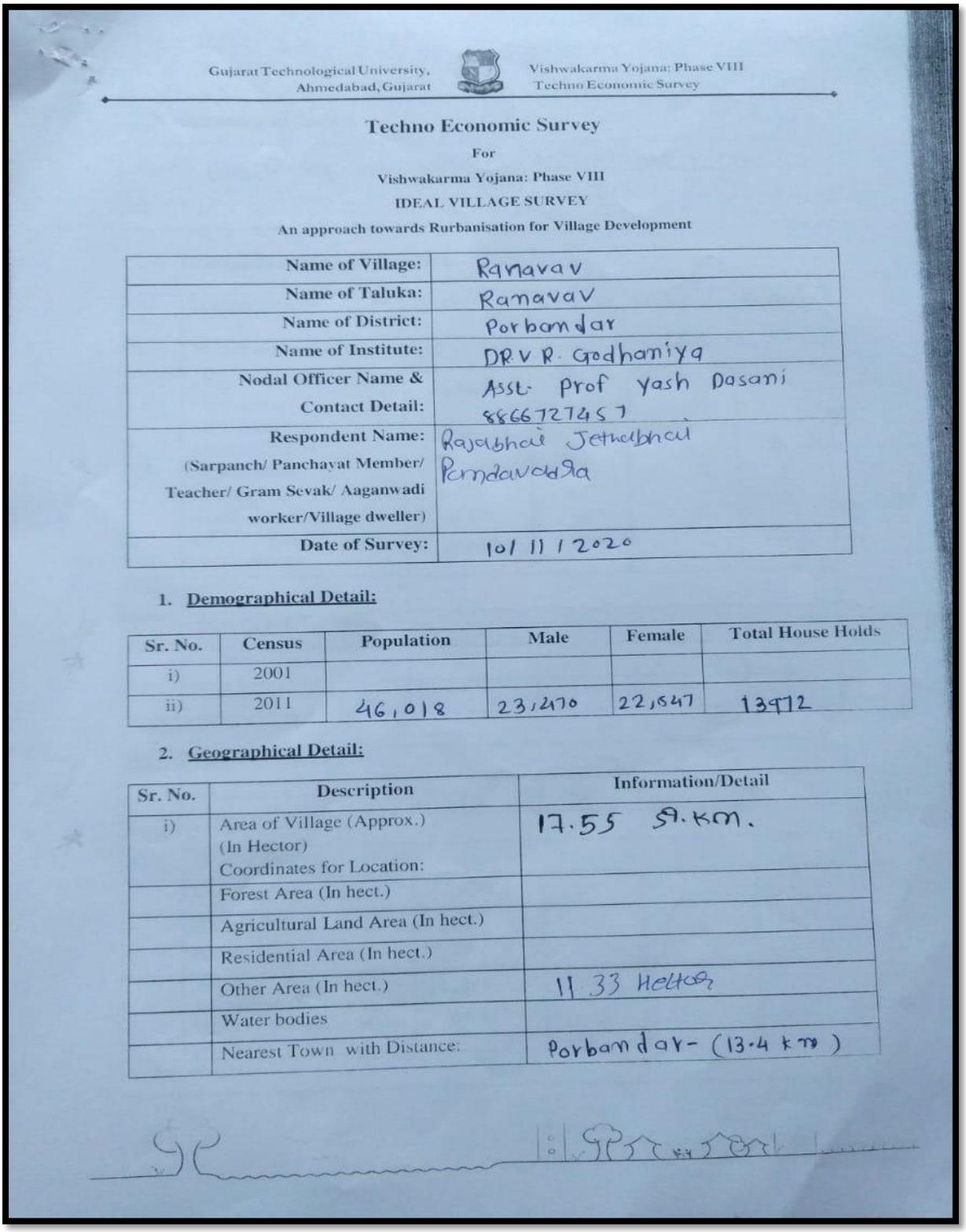
Chapter 11. References

- http://www.vyojana.gtu.ac.in
- http://earth.google.com/
- http://smartvillage.org/
- https://www.forconstructionpros.com/business/article/12068798/five-techniques-for-sustainable-building-construction
- https://en.wikipedia.org/wiki/Soil_liquefaction
- https://www.google.com/search?q=sustainable+sanitation&sxsrf
- https://www.google.com/search?q=corrosion+mechanism+prevention+%26+repair+measures+of+rcc+structure&sxsrf

Chapter: 12

12.1Annexureattachment

Ideal Village Survey Form:



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Vishwakarma Yojana: Phase VIII
Techno Economic Survey

Techno Economic Survey

For

Vishwakarma Yojana: Phase VIII

IDEAL VILLAGE SURVEY

An approach towards Rurbanisation for Village Development

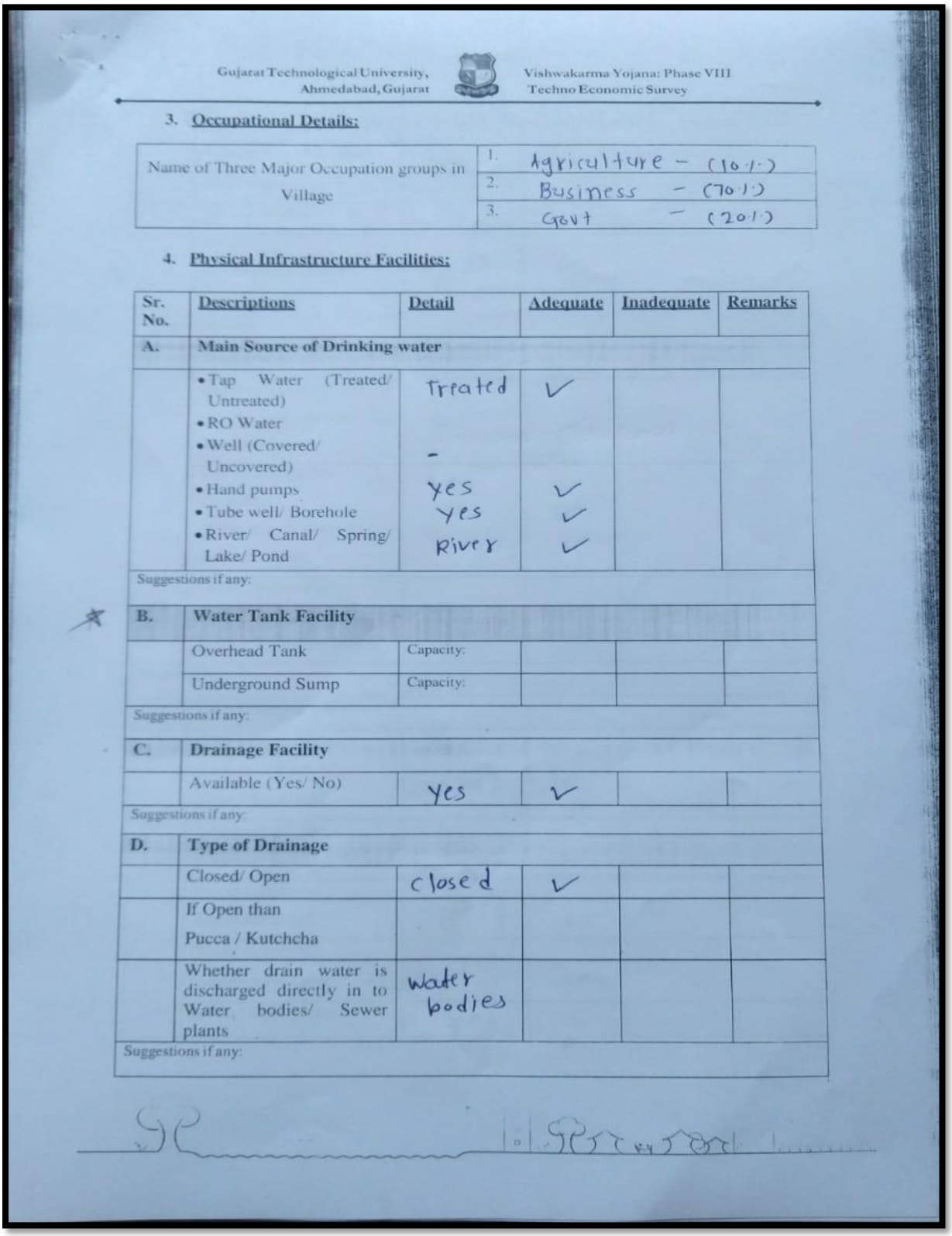
Name of Village:	Ranavav
Name of Taluka:	Ranavav
Name of District:	Porbandar
Name of Institute:	DR V R. Godhaniya
Nodal Officer Name & Contact Detail:	Asst. Prof Yash Dasani 8866727457
Respondent Name: (Sarpanch/ Panchayat Member/ Teacher/ Gram Sevak/ Aaganwadi worker/Village dweller)	Rajabhai Jethabhai Pandavadra
Date of Survey:	10/11/2020

1. Demographical Detail:

Sr. No.	Census	Population	Male	Female	Total House Holds
i)	2001				
ii)	2011	46,018	23,270	22,547	13972

2. Geographical Detail:

Sr. No.	Description	Information/Detail
i)	Area of Village (Approx.) (In Hector) Coordinates for Location:	17.55 Sq.km.
	Forest Area (In hect.)	
	Agricultural Land Area (In hect.)	
	Residential Area (In hect.)	
	Other Area (In hect.)	11.33 Hector
	Water bodies	
	Nearest Town with Distance:	Porbandar- (13.4 km)



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Vishwakarma Yojana: Phase VIII
Techno Economic Survey

3. **Occupational Details:**

Name of Three Major Occupation groups in Village	1.	Agriculture – (10.1.)
	2.	Business – (70.1.)
	3.	Govt – (20.1.)

4. **Physical Infrastructure Facilities:**

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

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Techno Economic Survey

E.	Road Network :All Weather/ Kutchha (Gravel)/ Black Topped pucca/ WBM				
	Village approach road	WBM	✓		
	Main road	RCC	✓		
	Internal streets	cc, bolock	✓		
	Nearest NH/SH/MDR/ODR Dist. in kms.	NH-27	✓		
Suggestions if any:					
F.	Transport Facility				
	Railway Station (Y/N) (If No than Nearest Rly Station---Kms)	yes	✓		
	Bus station (Y/N) Condition: (If No than Nearest Bus Station---Kms)	yes	✓		
	Local Transportation (Auto/ Jeep/Chhakda/ Private Vehicles/ Other)	yes	✓		
Suggestions if any:					
G.	Electricity Distribution				
	(Y/N) Govt./ Private (Less than 6 hrs./ More Than 6 hrs)	Govt (24 hr)	✓		
	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)	No			
	LED Facilities	Yes	✓		
Suggestions if any:					
H.	**Sanitation Facility**				
	Public Latrine Blocks If available than Nos.	Yes	✓		
	Location Condition	Village good			
	Community Toilet (With bath/ without bath facilities)	No			
	Solid & liquid waste Disposal system available	No			
	Any facility for Waste collection from road	Door to Door	✓		
Suggestions if any:					
I.	**Irrigation Facility:**				
	Main Source of Irrigation (Stream/River/ Canal/ Well/ Tube well/ Other)	River Tube well U/G sump			
Suggestions if any:					
J.	**Housing Condition:**				
	Kutchha/Pucca (Approx. ratio)	80% Pacca 20% kachha			

5. **Social Infrastructural Facilities:**

Sr. No.	Descriptions	Information/ Detail	Adequate	Inadequate	Remarks

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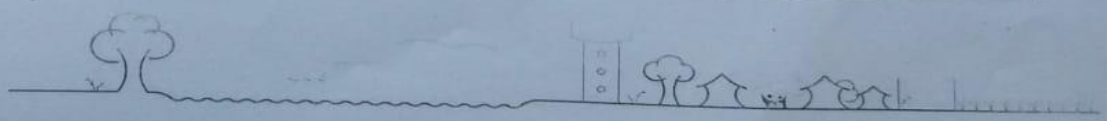
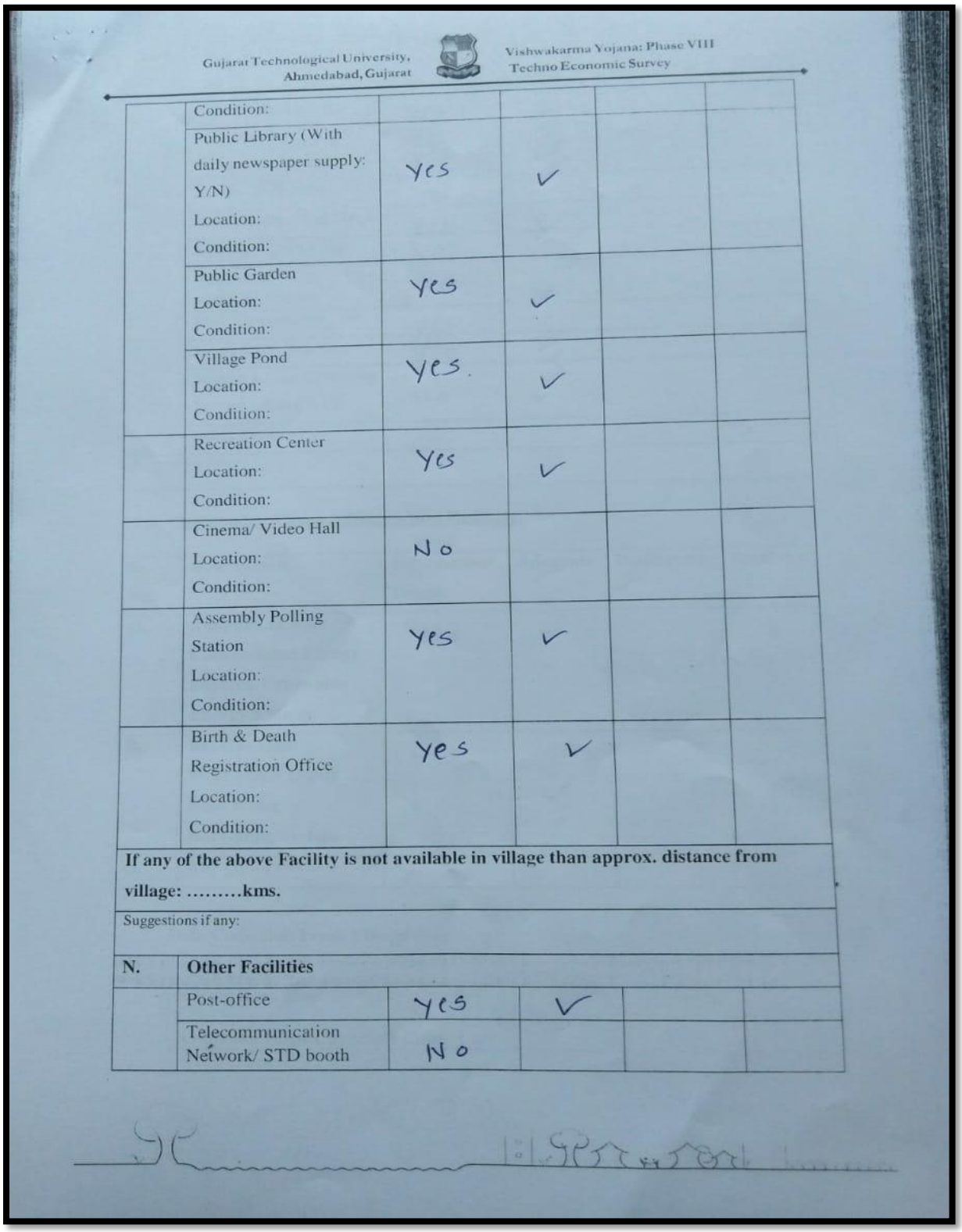
K.	Health Facilities:				
	Sub center/ PHC/ CHC /Government Hospital/ Child welfare & Maternity Homes (If Yes than specify No. of Beds) Condition:	PHC Govt Hospital yes Good	✓ ✓ ✓		
	Private Clinic/Private Hospital/ Nursing Home	All	✓		
	If any of the above Facility is not available in village than approx. 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	yes	✓		
	Art, Commerce& Science /Polytechnic/ Engineering/ Medical/ Management/ other college facilities	yes	✓		
	If any of the above Facility is not available in village than approx. distance from village: .....-.....kms.				
Suggestions if any:					
M.	Socio- Culture Facilities				
	Community Hall (With or without TV) Location:	yes	✓		





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	Condition:				
	Public Library (With daily newspaper supply: Y/N) Location: Condition:	Yes	✓		
	Public Garden Location: Condition:	Yes	✓		
	Village Pond Location: Condition:	Yes.	✓		
	Recreation Center Location: Condition:	Yes	✓		
	Cinema/ Video Hall Location: Condition:	No			
	Assembly Polling Station Location: Condition:	Yes	✓		
	Birth & Death Registration Office Location: Condition:	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	Yes	✓		
	Telecommunication Network/ STD booth	No			

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

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)	Good condition no need to maintanie	
2.	Additional Information/ Requirement	No	

9. **Smart Village Proposal Design**

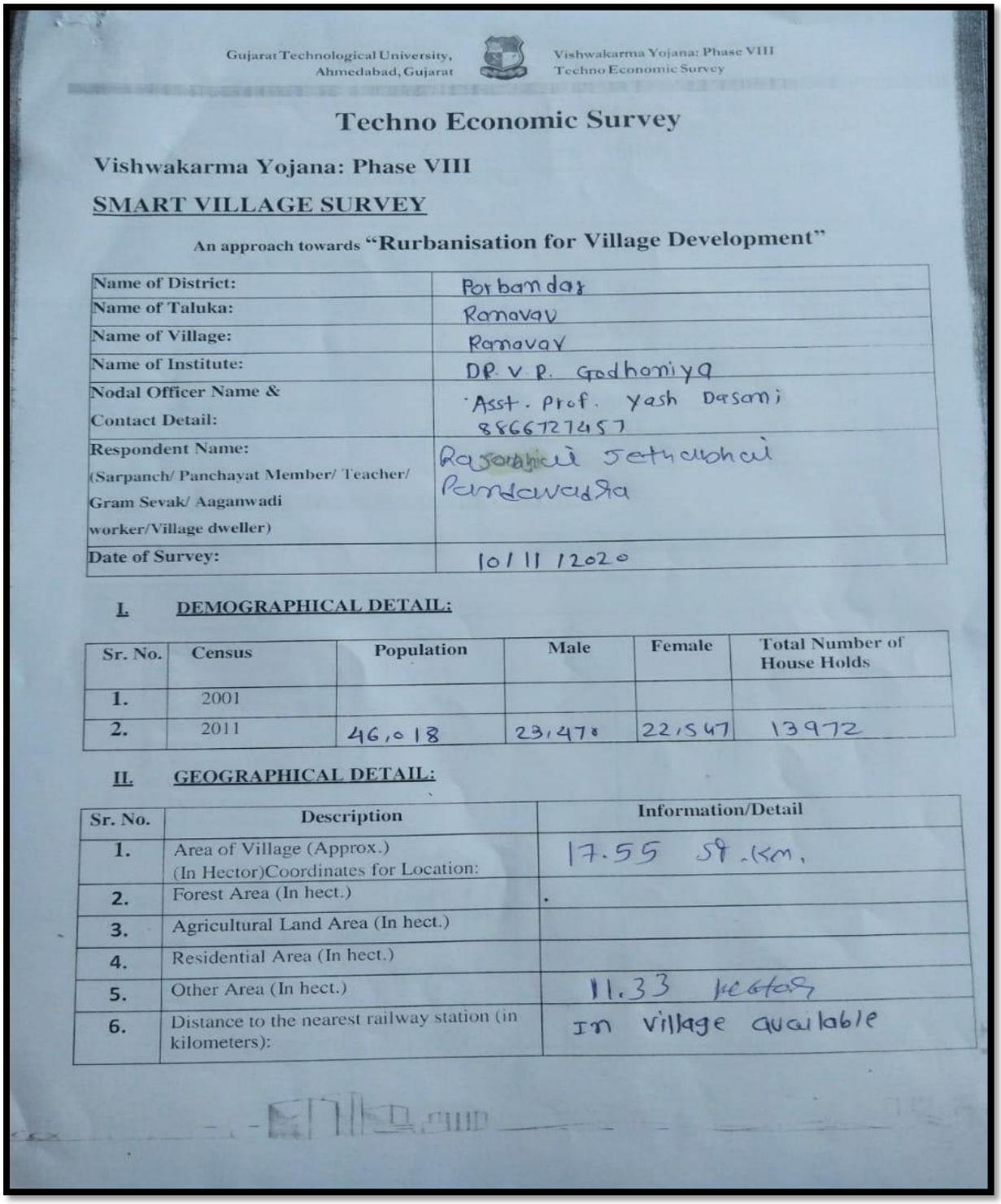
Sr. No.	Descriptions	Information/ Detail	Remarks
1.	Internet cafe, commam service center, wi-fi		

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

પ્રમુખ
રાણાવાવ નગરપાલિકા

Smart Village Survey Form:



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Vishwakarma Yojana: Phase VIII
Techno Economic Survey

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Vishwakarma Yojana: Phase VIII

SMART VILLAGE SURVEY

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

Name of District:	Porbandar
Name of Taluka:	Ranavav
Name of Village:	Ranavav
Name of Institute:	DR. V. R. Godhaniya
Nodal Officer Name & Contact Detail:	Asst. Prof. Yash Dasani 8866727457
Respondent Name: (Sarpanch/ Panchayat Member/ Teacher/ Gram Sevak/ Aaganwadi worker/Village dweller)	Rajeshbhai Jethabhai Pandavadra
Date of Survey:	10/11/2020

I. DEMOGRAPHICAL DETAIL:

Sr. No.	Census	Population	Male	Female	Total Number of House Holds
1.	2001				
2.	2011	46,018	23,478	22,547	13972

II. GEOGRAPHICAL DETAIL:

Sr. No.	Description	Information/Detail
1.	Area of Village (Approx.) (In Hector)Coordinates for Location:	17.55 Sq.Km.
2.	Forest Area (In hect.)	
3.	Agricultural Land Area (In hect.)	
4.	Residential Area (In hect.)	
5.	Other Area (In hect.)	11.33 Hectors
6.	Distance to the nearest railway station (in kilometers):	In village available

7.	Name of Nearest Town with Distance:	Porbandar – (13.4 km)
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

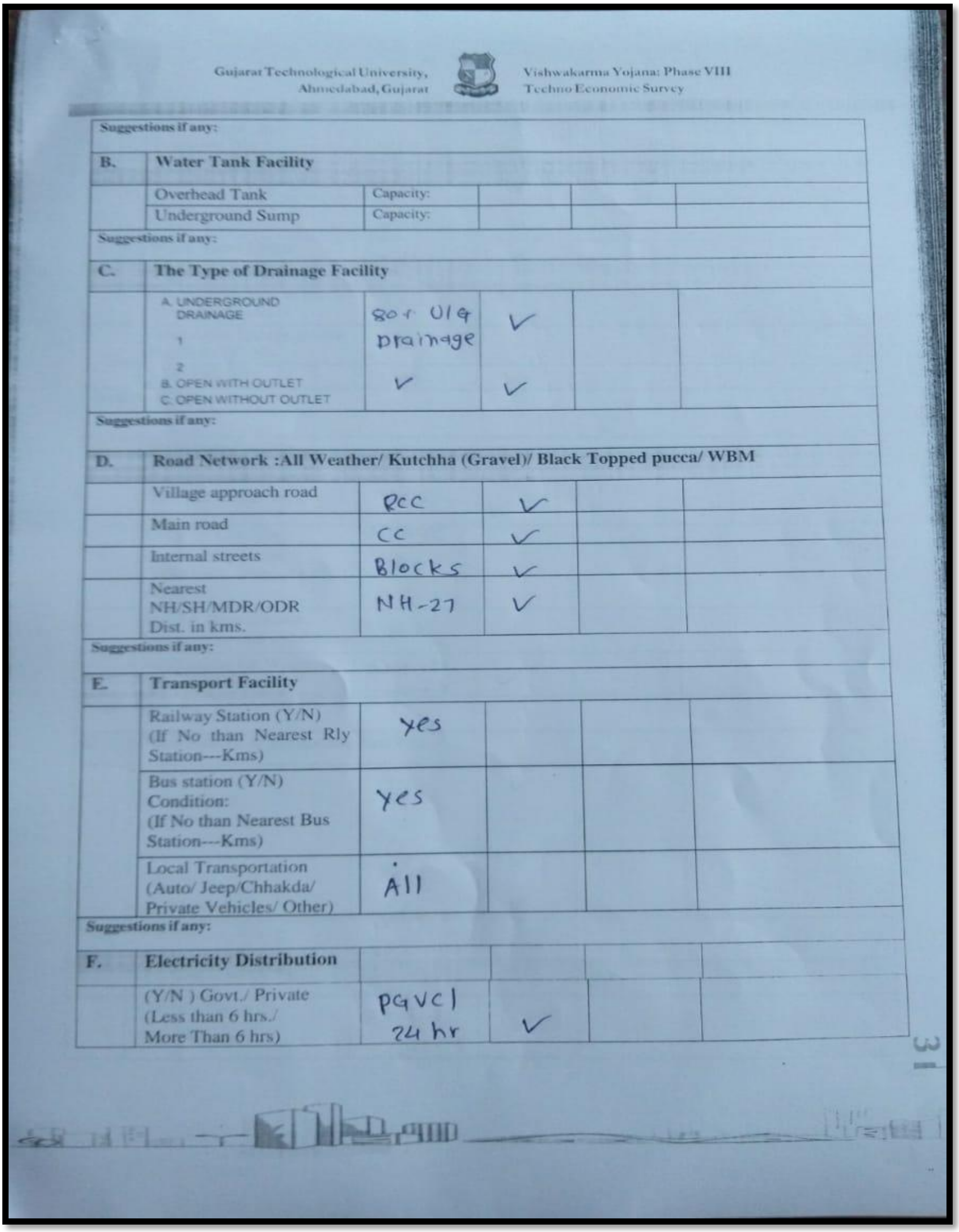
III. OCCUPATIONAL DETAILS:

Name of Three Major Occupation groups in Village	1.	Ariculture – (10.1)
	2.	Business – (70+)
	3.	Govt – (20.1)

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

IV. PHYSICAL INFRASTRUCTURE FACILITIES:

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



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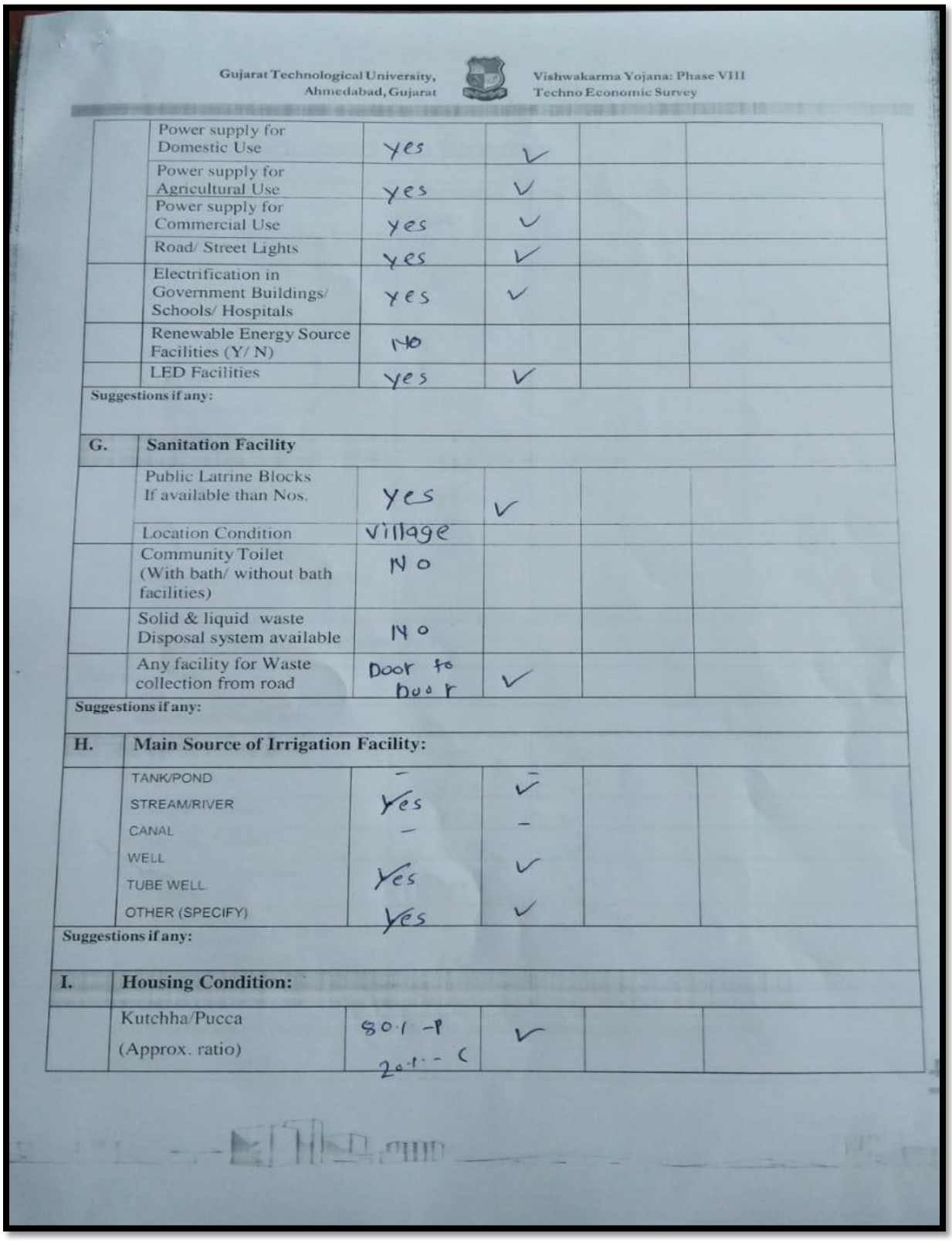
Vishwakarma Yojana: Phase VIII Techno Economic Survey

Suggestions if any:					
B.	Water Tank Facility				
	Overhead Tank	Capacity:			
	Underground Sump	Capacity:			
Suggestions if any:					
C.	The Type of Drainage Facility				
	A. UNDERGROUND DRAINAGE 1 2 B. OPEN WITH OUTLET C. OPEN WITHOUT OUTLET	80% U/G Drainage ✓	✓ ✓		
Suggestions if any:					
D.	Road Network :All Weather/ Kutchha (Gravel)/ Black Topped pucca/ WBM				
	Village approach road	RCC	✓		
	Main road	CC	✓		
	Internal streets	Blocks	✓		
	Nearest NH/SH/MDR/ODR Dist. in kms.	NH-27	✓		
Suggestions if any:					
E.	Transport Facility				
	Railway Station (Y/N) (If No than Nearest Rly Station---Kms)	yes			
	Bus station (Y/N) Condition: (If No than Nearest Bus Station---Kms)	yes			
	Local Transportation (Auto/ Jeep/Chhakda/ Private Vehicles/ Other)	All			
Suggestions if any:					
F.	Electricity Distribution				
	(Y/N) Govt./ Private (Less than 6 hrs./ More Than 6 hrs)	PGVCL 24 hr	✓		

3



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	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)	NO			
	LED Facilities	yes	✓		

Suggestions if any:

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

Suggestions if any:

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

Suggestions if any:

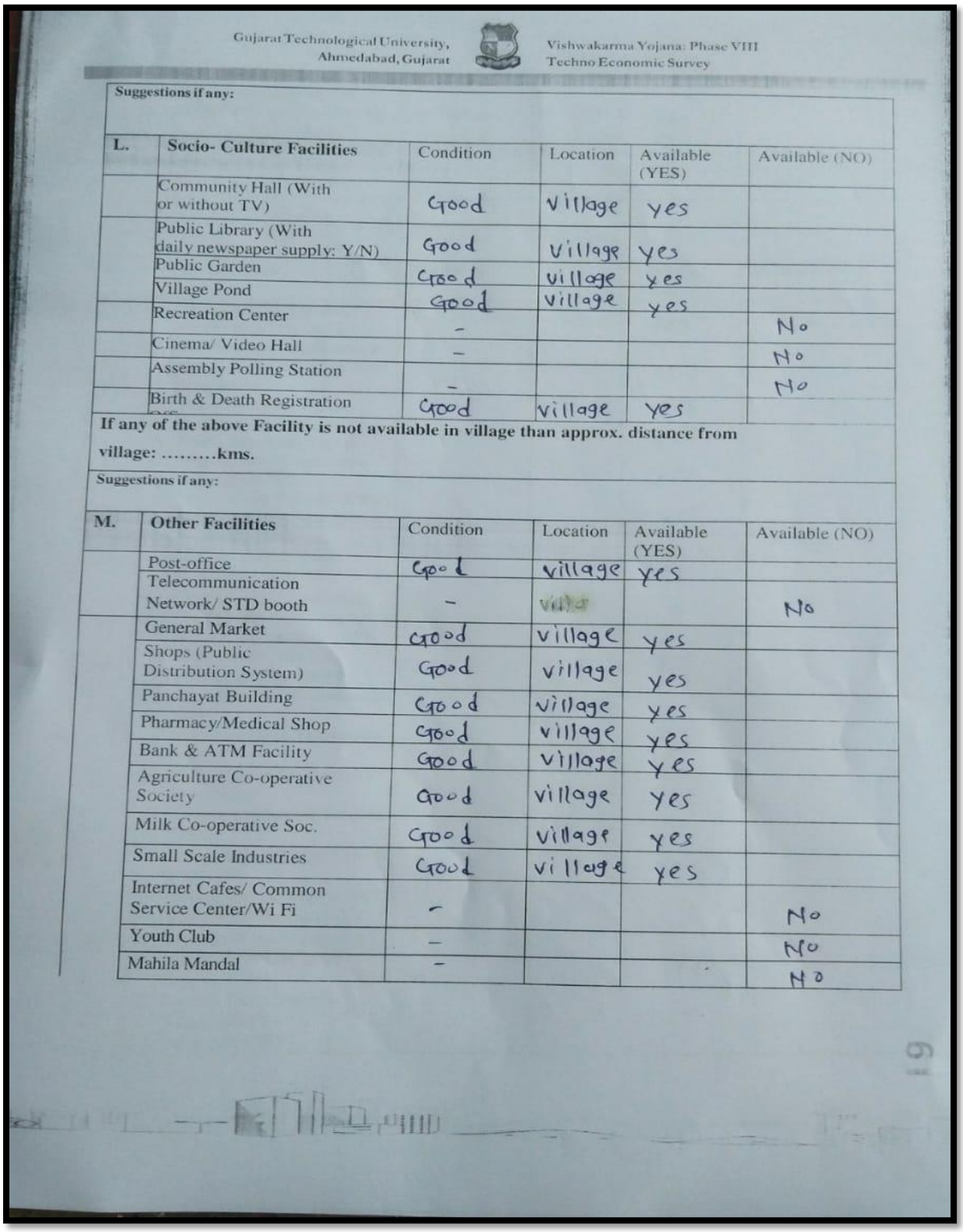
I.	**Housing Condition:**				
	Kutchha/Pucca (Approx. ratio)	80:1 - P 20:1 - C	✓		

V. SOCIAL INFRASTRUCTURAL FACILITIES:

Sr. No.	Descriptions	Information/ Detail	Adequate	Inadequate	Remarks
J.	**Health Facilities:**				
	ICDS (Anganwadi)	Yes	✓		
	Sub-Centre	–			
	PHC	Yes	✓		
	BLOCK PHC	Yes	✓		
	CHC/RH	–			
	District/ Govt. Hospital	Govt	✓		
	Govt. Dispensary	–			
	Private Clinic	Yes	✓		
	Private Hospital/	Yes	✓		
	Nursing Home	–			
	AYUSH Health Facility	–			
	sonography /ultrasound facility	–			
	If any of the above Facility is not available in village than approx. distance from village: 13.4 kms. Porbandar				
	Suggestions if any:				
K.	**Education Facilities:**				
	Aaganwadi/ Play group	yes	✓		
	Primary School	yes	✓		
	Secondary school	yes	✓		
	Higher sec. School	yes	✓		
	ITI college/ vocational Training Center	yes	✓		
	Art, Commerce& Science /Polytechnic/ Engineering/ Medical/ Management/ other college facilities	yes	✓		
	If any of the above Facility is not available in village than approx. distance from village: .....kms.				

V. SOCIAL INFRASTRUCTURAL FACILITIES:

Sr. No.	Descriptions	Information/ Detail	Adequate	Inadequate	Remarks
J.	**Health Facilities:**				
	ICDS (Anganwadi)	Yes	✓		
	Sub-Centre	–			
	PHC	Yes	✓		
	BLOCK PHC	Yes	✓		
	CHC/RH	–			
	District/ Govt. Hospital	Govt	✓		
	Govt. Dispensary	–			
	Private Clinic	Yes	✓		
	Private Hospital/	Yes	✓		
	Nursing Home	–			
	AYUSH Health Facility	–			
	sonography /ultrasound facility	–			
	If any of the above Facility is not available in village than approx. distance from village: 13-4 .kms. Porbandar				
Suggestions if any:					
K.	**Education Facilities:**				
	Aaganwadi/ Play group	yes	✓		
	Primary School	yes	✓		
	Secondary school	yes	✓		
	Higher sec. School	yes	✓		
	ITI college/ vocational Training Center	yes	✓		
	Art, Commerce& Science /Polytechnic/ Engineering/ Medical/ Management/ other college facilities	yes	✓		
	If any of the above Facility is not available in village than approx. distance from village: .....kms.				



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Suggestions if any:

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

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

Suggestions if any:

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

Gujarat Technological University, Ahmedabad, Gujarat

Vishwakarma Yojana: Phase VIII
Techno Economic Survey

Credit Cooperative Society				
Agricultural Cooperative Society	Good	Village	Yes	
Milk Cooperative Society	Good	Village	Yes	
Fishermen's Cooperative Society	–			No
Computer Kiosk/ e-chaupal /	–			No
Mills / Small Scale Industries				
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	
	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)			–	
	9. National Food for work Programme (NFFWP)			–	
	10. National Social Assistance Programme				
	11. Sanitation Programme (SP)			yes	
	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)			yes	
	17. Prime Minister Rojgar Yojana (PMRY)			–	
	18. Jawahar Rozgar Yojana (JRY)			Yes	
	19. Indira Awas Yaojna (IAY)			–	
	20. Samagra Awas Yojana (SAY)				
	21. Sanjay Gandhi Niradhar Yojana (SGNY)				
	22. Jawahar Gram Samridhi Yojana (JGSY)				
	23. Other (SPECIFY)				

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Vishwakarma Yojana: Phase VIII
Techno Economic Survey

	Credit Cooperative Society				
	Agricultural Cooperative Society	Good	Village	Yes	
	Milk Cooperative Society	Good	Village	Yes	
	Fishermen's Cooperative Society	–			No
	Computer Kiosk/ e-chaupal /				
	Mills / Small Scale Industries	–			No
	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	
	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)			–	
	9. National Food for work Programme (NFFWP)			–	
	10. National Social Assistance Programme				
	11. Sanitation Programme (SP)			Yes	
	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)			Yes	
	17. Prime Minister Rojgar Yojana (PMRY)			–	
	18. Jawahar Rozgar Yojana (JRY)			Yes	
	19. Indira Awas Yaojna (IAY)			–	
	20. Samagra Awas Yojana (SAY)				
	21. Sanjay Gandhi Niradhar Yojana (SGNY)				
	22. Jawahar Gram Samridhi Yojana (JGSY)				
	23. Other (SPECIFY)				

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1.	Repair & Maintenance of Existing Public Infrastructure facilities, School Building Health Center Panchayat Building Public Toilets & any other	Good condition no need to maintance	
2.	Additional Information/ Requirement	No	
3.	During the last six months how many times CLEANING ..... FOGGING..... Drive was undertaken in the village?	yes yes	Due to corona no fix

IX. Smart Village / Heritage Details

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

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: vurban@gtu.edu.in

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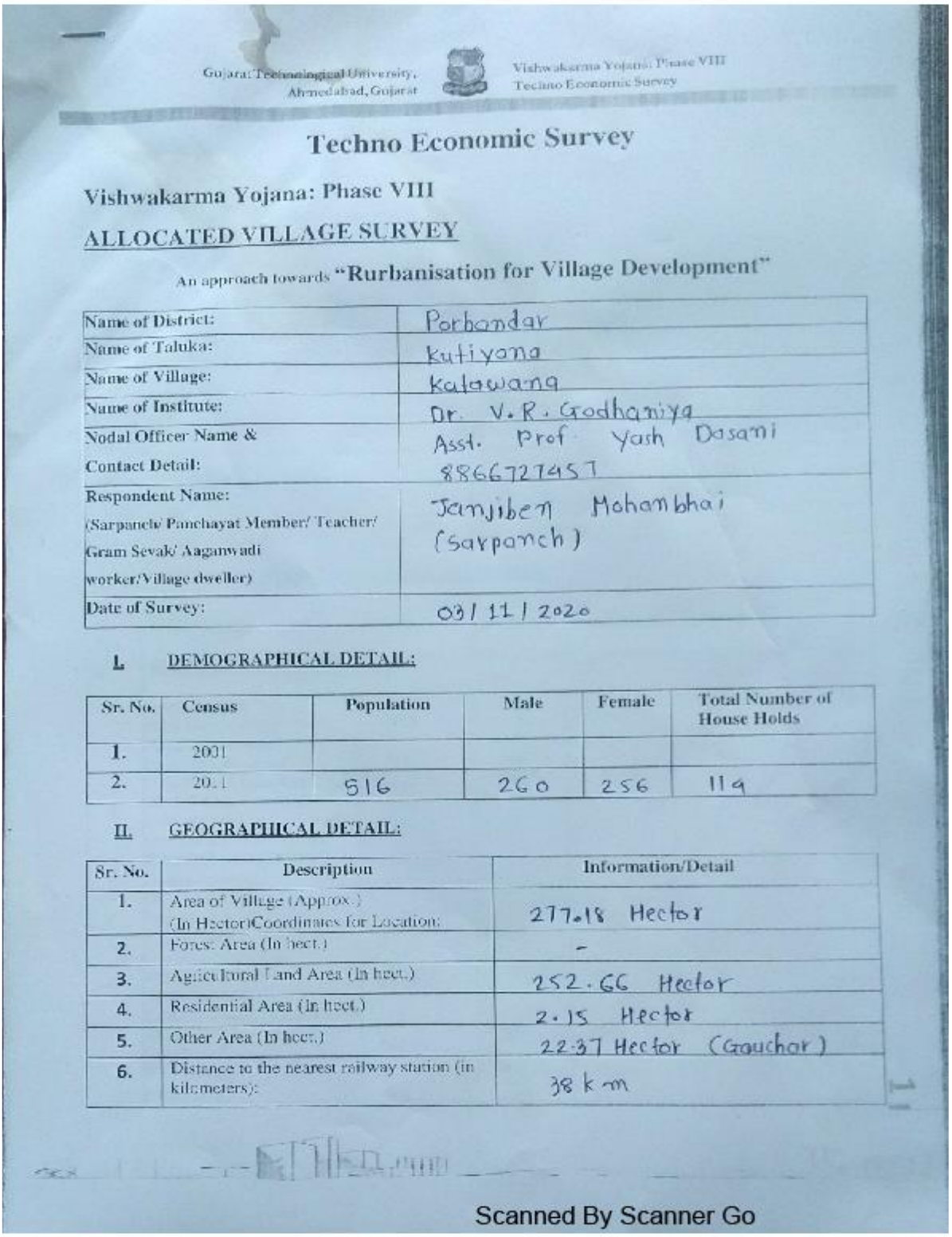
Allocated Village Survey Form:



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Vishwakarma Yojana: Phase VIII
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Techno Economic Survey

Vishwakarma Yojana: Phase VIII

ALLOCATED VILLAGE SURVEY

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

Name of District:	Porbandar
Name of Taluka:	Kutiyana
Name of Village:	Katawana
Name of Institute:	Dr. V.R. Godhaniya
Nodal Officer Name & Contact Detail:	Asst. Prof Yash Dasani 8866727457
Respondent Name: (Sarpanch/ Panchayat Member/ Teacher/ Gram Sevak/ Aaganwadi worker/Village dweller)	Janiben Mohanbhai (Sarpanch)
Date of Survey:	03/11/2020

I. DEMOGRAPHICAL DETAIL:

Sr. No.	Census	Population	Male	Female	Total Number of House Holds
1.	2001				
2.	2011	516	260	256	114

II. GEOGRAPHICAL DETAIL:

Sr. No.	Description	Information/Detail
1.	Area of Village (Approx.) (In Hector)Coordinates for Location:	277.18 Hector
2.	Forest Area (In hect.)	-
3.	Agricultural Land Area (In hect.)	252.66 Hector
4.	Residential Area (In hect.)	2.15 Hector
5.	Other Area (In hect.)	22.37 Hector (Gauchar)
6.	Distance to the nearest railway station (in kilometers):	38 km

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7.	Name of Nearest Town with Distance:	Kutiyana 12 km away
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 (85%)
	2.	Business (10%)
	3.	Govt. (5%)

Major crops grown in the village:	1.	Cotton
	2.	wheat
	3.	Bajara

IV. PHYSICAL INFRASTRUCTURE FACILITIES:

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

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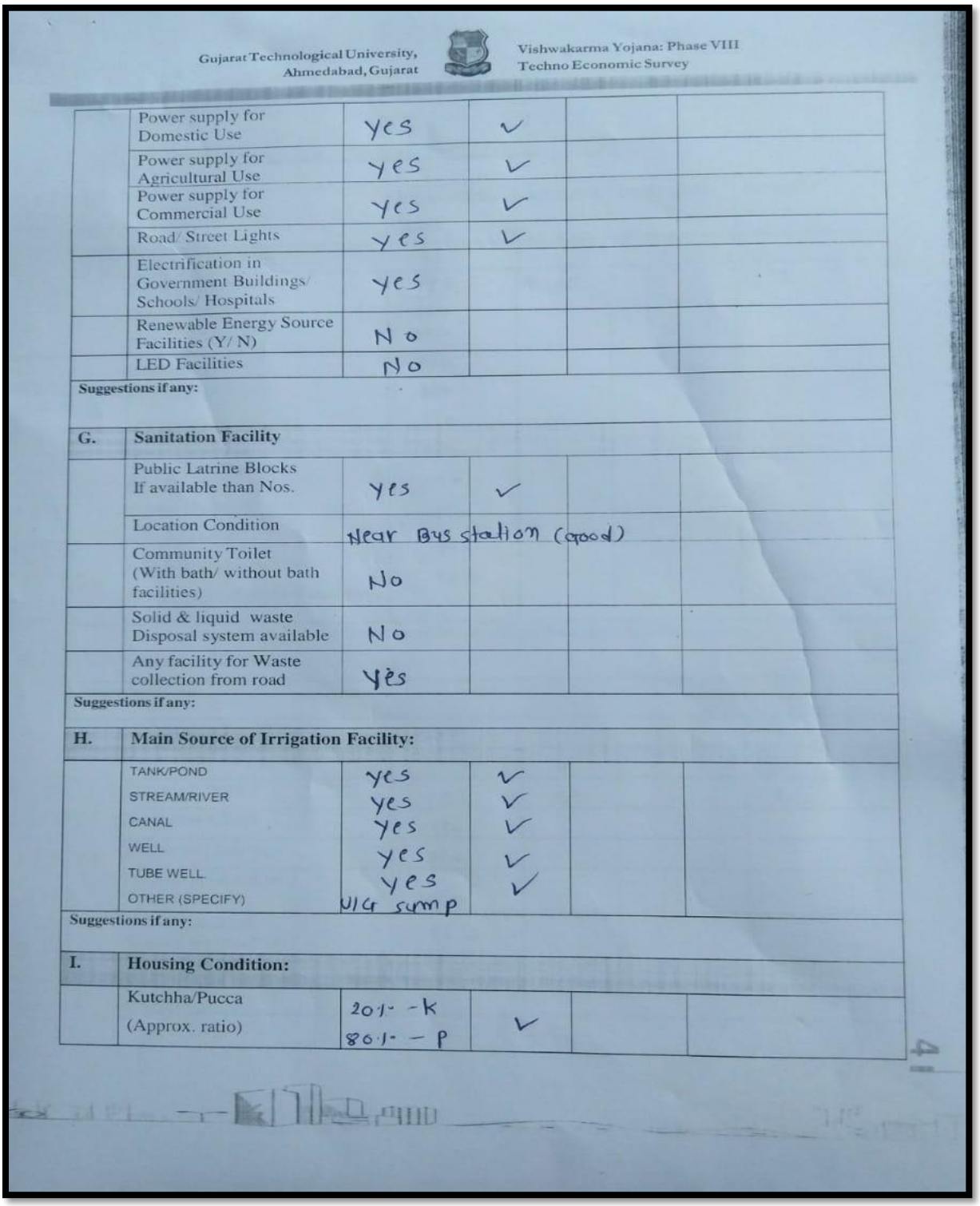
	Other(Specify)Lake/ Pond	Pond	✓		
Suggestions if any:					
B.	**Water Tank Facility**				
	Overhead Tank	Capacity: 1.50Lac	✓		1
	Underground Sump	Capacity: 7500 gallons			2
Suggestions if any:					
C.	**The Type of Drainage Facility**				
	A. UNDERGROUND DRAINAGE	60% U/G Drainge 40% open	✓		
Suggestions if any:					
D.	**Road Network :All Weather/ Kutchha (Gravel)/ Black Topped pucca/ WBM**				
	Village approach road	WBM	✓		
	Main road	CC/RCC	✓		
	Internal streets	Block	✓		
	Nearest NH/SH/MDR/ODR Dist. in kms.	NH-27 (12 km)	✓		
Suggestions if any:					
E.	**Transport Facility**				
	Railway Station (Y/N) (If No than Nearest Rly Station---Kms)	No (38 km)			Upleta (38 km)
	Bus station (Y/N) Condition: (If No than Nearest Bus Station---Kms)	yes	✓		
	Local Transportation (Auto/ Jeep/Chhakda/ Private Vehicles/ Other)	chhakda	✓		-
Suggestions if any:					
F.	**Electricity Distribution**				
	(Y/N) Govt./ Private (Less than 6 hrs./ More Than 6 hrs)	PGVCL (24 hr)	✓		



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	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)	No			
	LED Facilities	No			

Suggestions if any:

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

Suggestions if any:

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

Suggestions if any:

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

V. SOCIAL INFRASTRUCTURAL FACILITIES:

Sr. No.	Descriptions	Information/ Detail	Adequate	Inadequate	Remarks
J.	**Health Facilities:**				
	ICDS (Anganwadi)	yes	✓		1
	Sub-Centre	No			
	PHC	No			
	BLOCK PHC	No			
	CHC/RH	No			
	District/ Govt. Hospital	No			
	Govt. Dispensary	No			
	Private Clinic	No			
	Private Hospital/ Nursing Home	No			
	AYUSH Health Facility	No			
	sonography /ultrasound facility	No			
	If any of the above Facility is not available in village than approx. distance from village: ..12...kms.				
Suggestions if any:					
K.	**Education Facilities:**				
	Aaganwadi/ Play group	yes	✓		1
	Primary School	yes	✓		1
	Secondary school	No			
	Higher sec. School	No			
	ITI college/ vocational Training Center	No			
	Art, Commerce& Science /Polytechnic/ Engineering/ Medical/ Management/ other college facilities	No			

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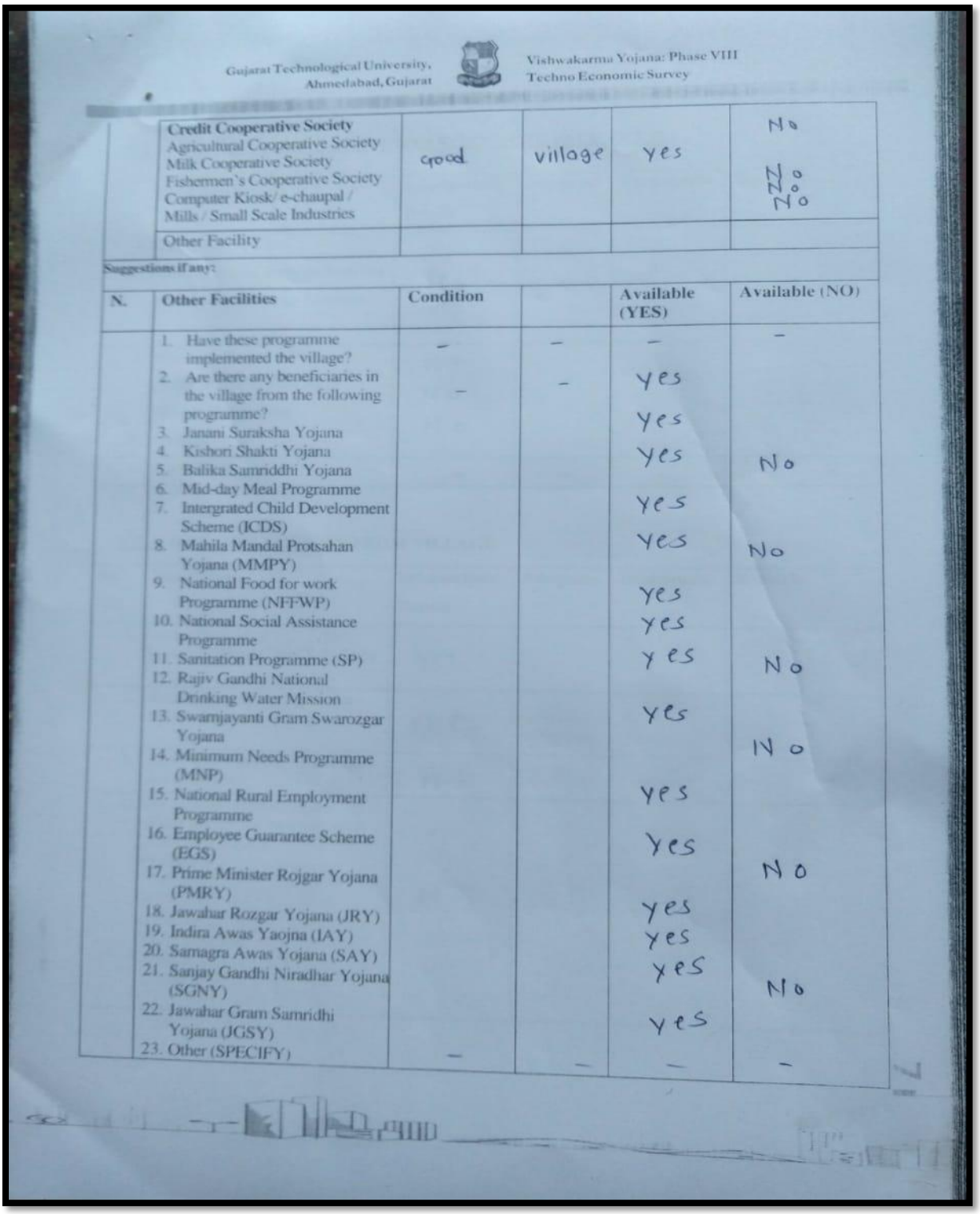
Vishwakarma Yojana: Phase VIII
Techno Economic Survey

V. SOCIAL INFRASTRUCTURAL FACILITIES:

Sr. No.	Descriptions	Information/ Detail	Adequate	Inadequate	Remarks
J.	**Health Facilities:**				
	ICDS (Anganwadi)	yes	✓		1
	Sub-Centre	No			
	PHC	No			
	BLOCK PHC	No			
	CHC/RH	No			
	District/ Govt. Hospital	No			
	Govt. Dispensary	No			
	Private Clinic	No			
	Private Hospital/ Nursing Home	No			
	AYUSH Health Facility	No			
	sonography /ultrasound facility	No			
	If any of the above Facility is not available in village than approx. distance from village: ..12...kms.				
	Suggestions if any:				
K.	**Education Facilities:**				
	Aaganwadi/ Play group	yes	✓		1
	Primary School	yes	✓		1
	Secondary school	No			
	Higher sec. School	No			
	ITI college/ vocational Training Center	No			
	Art, Commerce& Science /Polytechnic/ Engineering/ Medical/ Management/ other college facilities	No			



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Vishwakarma Yojana: Phase VIII
Techno Economic Survey

	Credit Cooperative Society Agricultural Cooperative Society Milk Cooperative Society Fishermen's Cooperative Society Computer Kiosk/ e-chaupal / Mills / Small Scale Industries	Good	village	yes	No No No
	Other Facility				

Suggestions if any:

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

VI. SUSTAINABLE /GREEN INFRASTRUCTURE FACILITIES:

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

VII. DATA COLLECTION FROM VILLAGE

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

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VIII. ADDITIONAL INFORMATION/ REQUIREMENT:

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

IX. Smart Village / Heritage Details

Sr. No.	Descriptions	Information/ Detail	Remarks
1.	IS THEIR ANY THING FOR THE VILLAGE ENHANCEMENT POSSIBLE ?	Bank, PHC, Rainwater harvesting	–

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

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

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12.4 Gap Analysis of the Allocated Village :

VILLAGE GAP Analysis					
Village Facilities	**Planning Commission/UDPFI Norms**	**Village Name**	**Katawana**		
		Population: 516(as per 2019)			
		Existing	**as per Norms**	**Future Design**	**Gap**
Social Infrastructure re 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 SubPHC or Health Centre	Each Village	**1**	**1**	**-**	**0**
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					
Pucca Village Approach Road	**Each village**	**Adequate**		**0**	**0**
Bus/Auto Stand provision	All Villages connected by PT (ST Bus or Auto)	**Inadequate**	No pick up stand available (connected by ST bus, auto, AMTS)		
Drinking Water	(Mini. 70 lpcd)	**Adequate**		**0**	**0**
Over Head Tank	1 /3 of Total Demand	**Adiquate**		**0**	**0**
U/G Sump	2 /3 of Total Demand	**Inadiquate**		**0**	**0**
Drainage Network – Open		**Adequate**		**0**	**0**
Drainage Network - Cover		**Inadequate**		**0**	**0**
Waste Management System		**Inadequate**		**0**	**0**
Socio- Cultural Infrastructure Facilities					
Community Hall	Per 10000 Population	**1**	**1**	**1**	**0**
Community hall and Public Library	Per 15000 Population	**0**	**0**	**1**	**0**
Cremation Ground	Per 20,000 population	**0**	**0**	**0**	**0**
Post Office	Per 10,000 population	**0**	**0**	**0**	**0**
Gram Panchayat Building	Each individual/group panchayat	**1**	**1**	**0**	**0**
APMC	Per 100000 Population	**0**	**0**	**0**	**0**
Fire Station	Per 100000 Population	**0**	**0**	**0**	**0**
Public Garden	Per village	**0**	**1**	**0**	**-1**
Police post	Per 40,000Population	**0**	**1**	**1**	**0**
Shopping Mall		Shops are available			
Electrical design					
Electricity Network		**Adequate**		66 kv Substation	
Any Smart Village Facility					
Technology		**ESR cap**	**0**	**0**	**0**
		Sump cap	**0**	**0**	**0**
		Lat	**0**	**0**	**0**

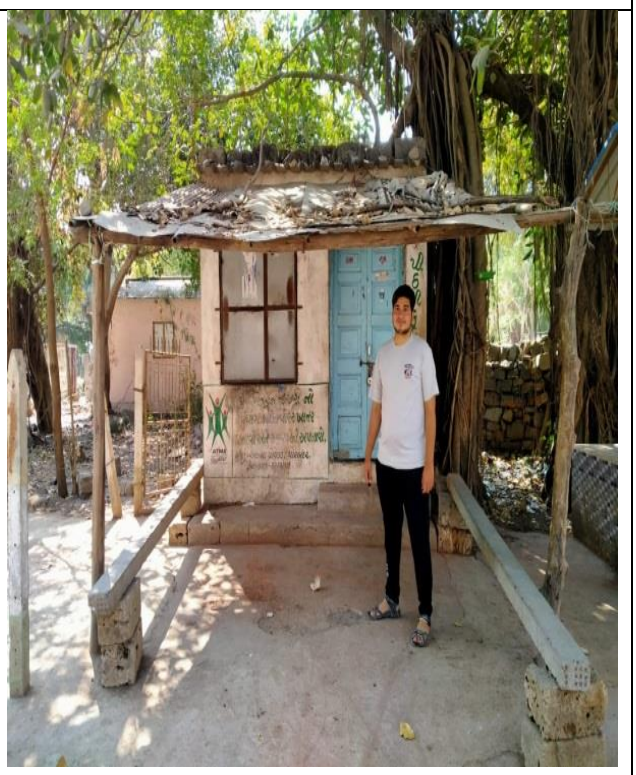
12.5 Summary Detail of all the villages designs table form as part –I and part - II

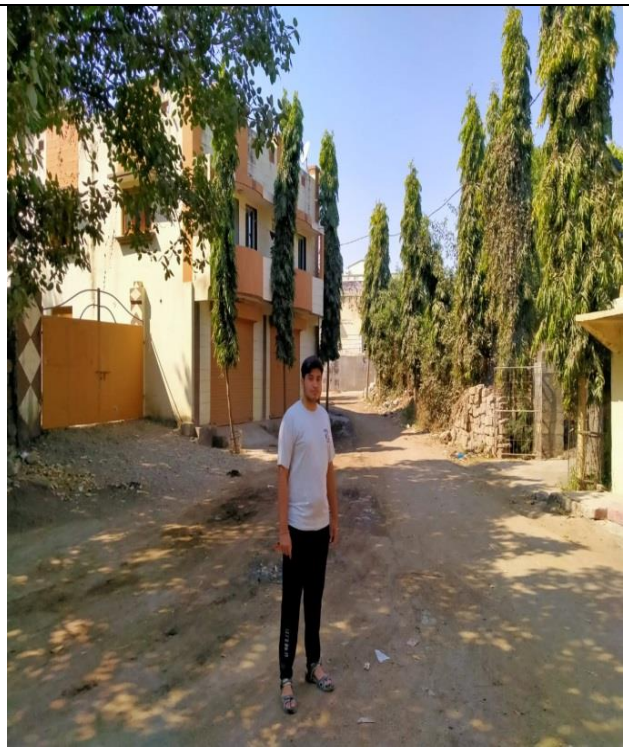
DRVRGCET, Porbandar				
Sr.No.	Village Name	Discipline	Part -1	Part-2
1	Katawana	Civil	Rain water Harvesting	Pharmacy
			Bus Station	Community hall
			Bio gas plant	Public toilette
			Septic tank	Post office
			Entrance gate	Grampanchayat
			ATM	Aaliganv
2	Ranavav	Civil	Post office	Community Hall
			Public Garden	Angalwali
			Rain water harvesting	Higher Secondary school
			public Toilet	Collage
			PHC	Entrance Gate
			Bank	ATM
3	Dharamppur	Civil	Public Toilet	Post Office
			Bus Station	Rain Water Harvesting
			Community Hall	Solar Light
			Public Library	Solide Waste Managetant
			Gram Panchayat	Biogas Plant
			Entrance Gate	ATM

12.6Drawings (If, required, A1, A2, A3 design is not visible then only)

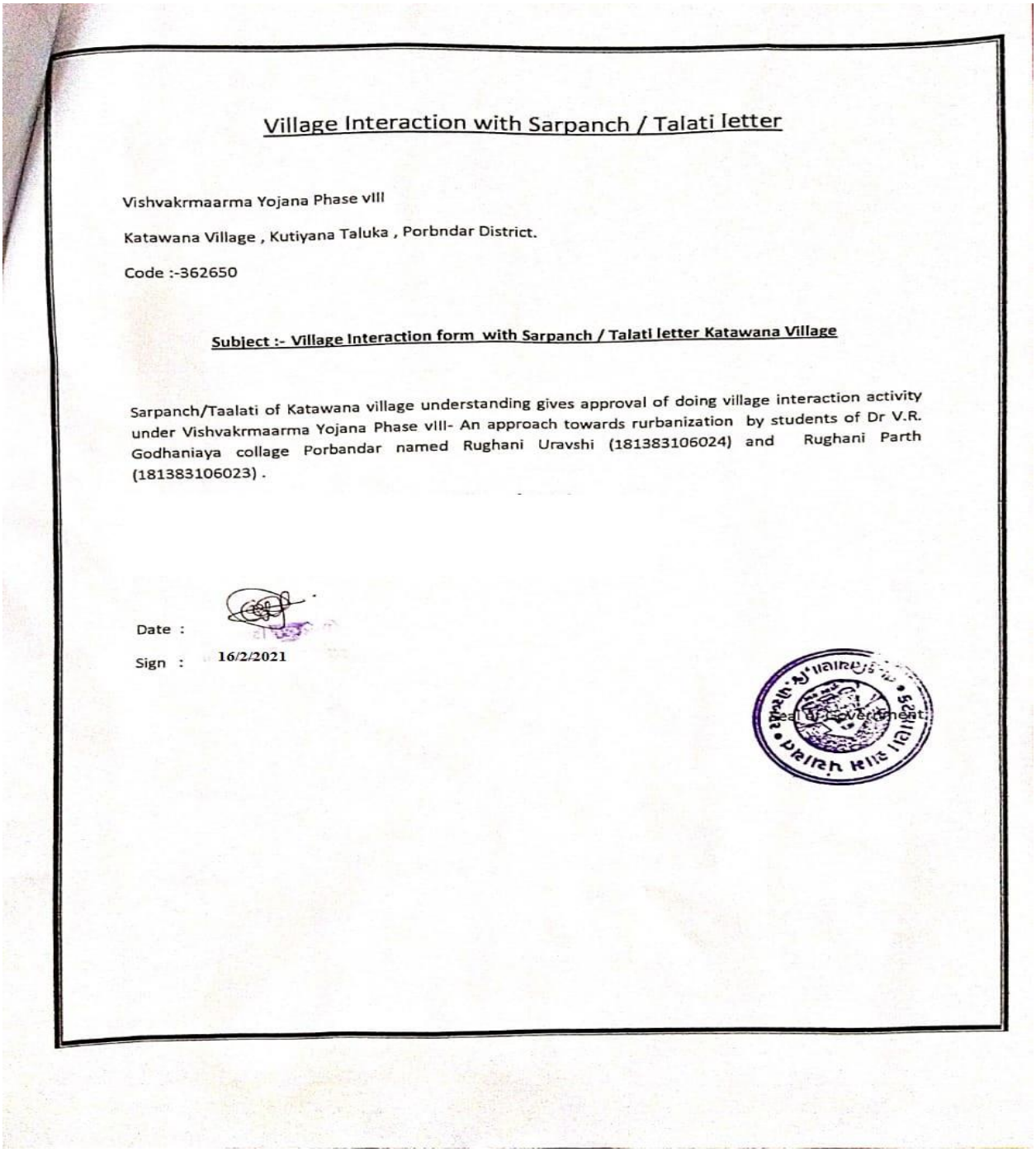
All the 6 drawings of A3 sheet are attached in the last of the report.

12.7 Summary of Good Photograph in Table Format (Allocated , Idle, Smart village)





12.8 Village Interaction WithSarpanch/ Talati letter



Village Interaction with Sarpanch / Talati letter

Vishvakrmaarma Yojana Phase VIII

Katawana Village , Kutiyana Taluka , Porbndar District.

Code :-362650

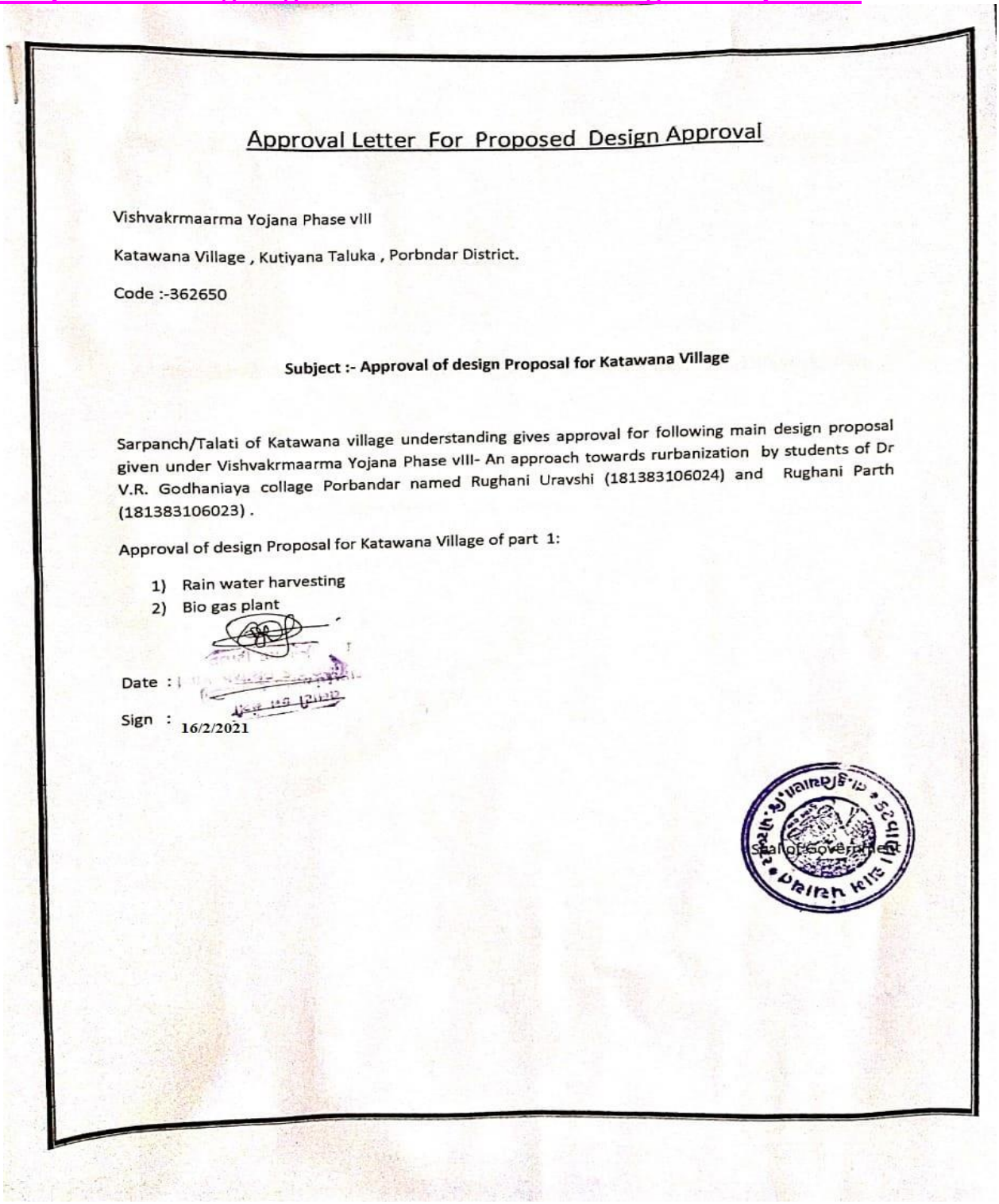
Subject :- Village Interaction form with Sarpanch / Talati letter Katawana Village

Sarpanch/Taalati of Katawana village understanding gives approval of doing village interaction activity under Vishvakrmaarma Yojana Phase VIII- An approach towards rurbanization by students of Dr V.R. Godhaniaya collage Porbandar named Rughani Uravshi (181383106024) and Rughani Parth (181383106023) .

Date : 16/2/2021

Sign :

12.9 Sarpanch Letter giving information about the village development :



Approval Letter For Proposed Design Approval

Vishvakrmaarma Yojana Phase vIII

Katawana Village , Kutiyana Taluka , Porbndar District.

Code :-362650

Subject :- Approval of design Proposal for Katawana Village

Sarpanch/Talati of Katawana village understanding gives approval for following main design proposal given under Vishvakrmaarma Yojana Phase vIII- An approach towards rurbanization by students of Dr V.R. Godhaniaya collage Porbandar named Rughani Uravshi (181383106024) and Rughani Parth (181383106023) .

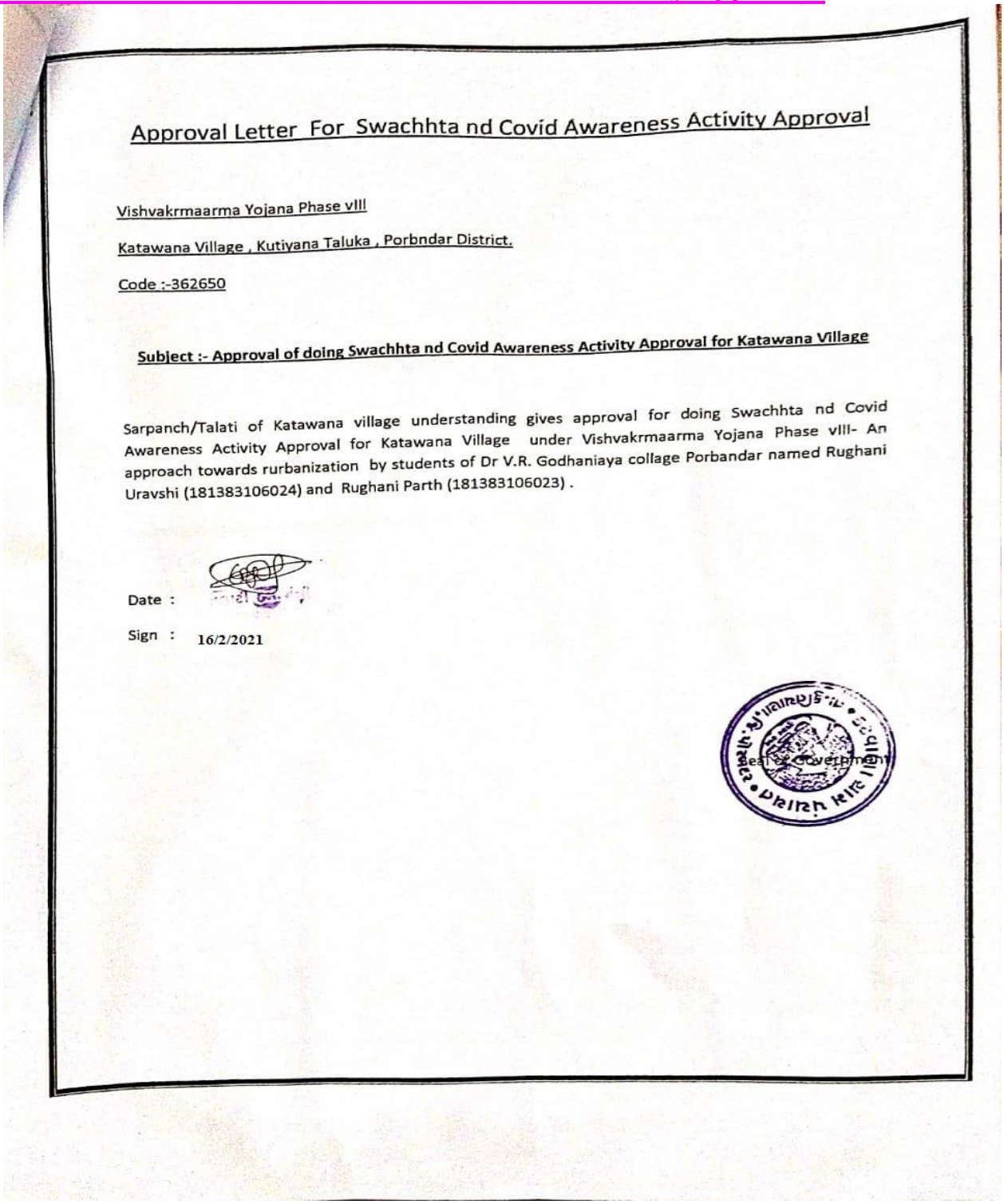
Approval of design Proposal for Katawana Village of part 1:

1) Rain water harvesting
2) Bio gas plant

Date : 16/2/2021

Sign :

Approval Letter ForSwachhta&Covid Awareness Activity Approval:



Approval Letter For Swachhta nd Covid Awareness Activity Approval

Vishvakrmaarma Yojana Phase vIII

Katawana Village , Kutiyana Taluka , Porbndar District.

Code :-362650

Subject :- Approval of doing Swachhta nd Covid Awareness Activity Approval for Katawana Village

Sarpanch/Talati of Katawana village understanding gives approval for doing Swachhta nd Covid Awareness Activity Approval for Katawana Village under Vishvakrmaarma Yojana Phase vIII- An approach towards rurbanization by students of Dr V.R. Godhaniaya collage Porbandar named Rughani Uravshi (181383106024) and Rughani Parth (181383106023) .

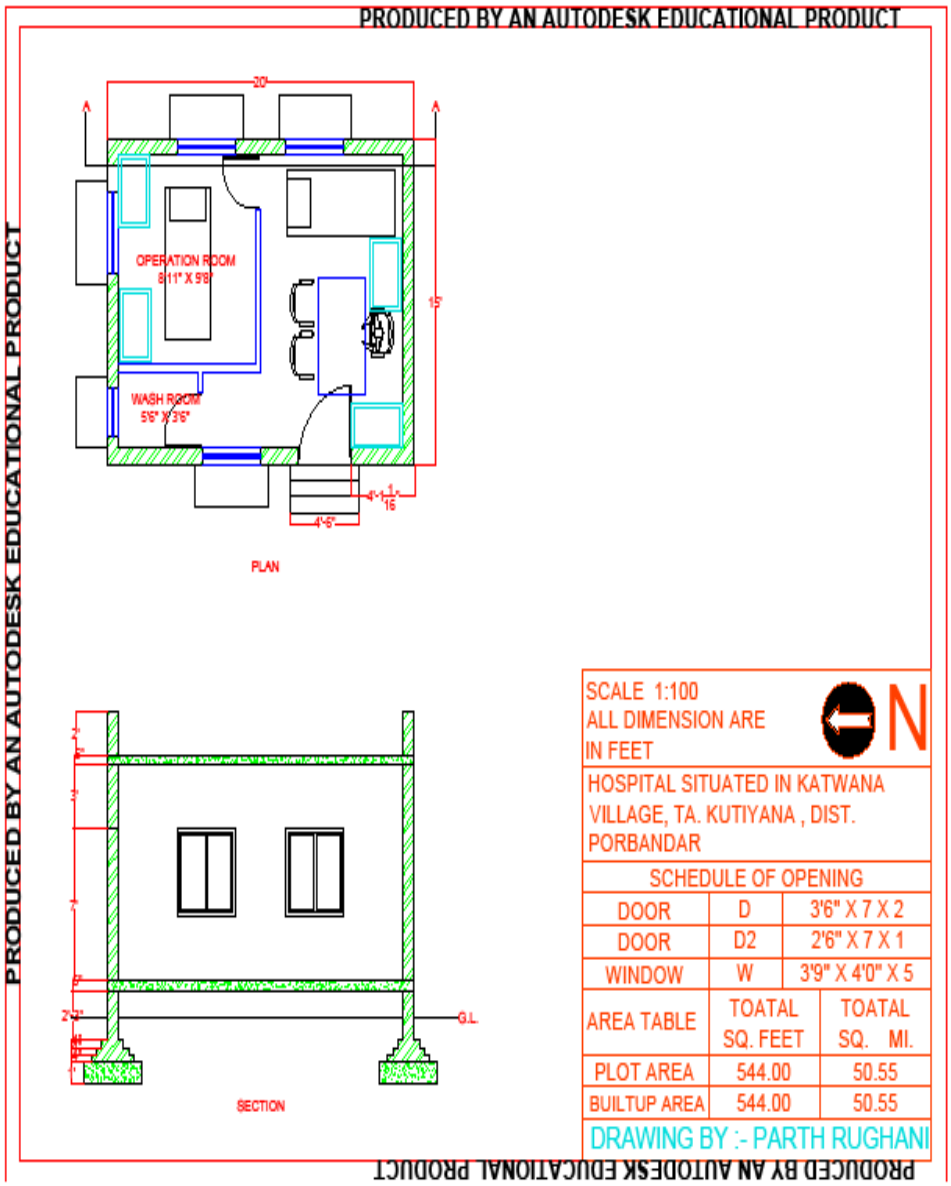
Date :

Sign : 16/2/2021

Seal of Government

13.From the Chapter- 9 future designs of the aspects (Feasibility, Construction, Operation and maintenance of various design options in Rural Areas along with cost with AutoCAD designs / planning with any software)

13.1Design Of hospital:



MEASUREMENT SHEET

Sr No.	Description of Item	No.	Length (L)	Breadth (B)	Depth Or Height (D/H)	Quantity
1	Excavation in ordinary soil					
	Total centerline					
	20.2 m					
	L	1	19.75	0.9	0.9	16
2	BBCC (1:2:2)	1	19.75	0.9	0.3	5.33
3	Brick masonary up to plinth					
	First	1	19.9	0.6	0.1	1.194
	Second	1	19.95	0.5	0.1	1
	Third	1	20	0.4	0.1	0.8
	Forth	1	20.05	0.3	0.8	4.81
	Steps					
	First	1	1.4	0.9	0.2	0.252
	Second	1	1.4	0.6	0.2	0.168
	Third	1	1.4	0.3	0.2	0.084
						8.3
4	Filling in trench					5.87
	Filling in Plinth	1	5.5	4	0.45	9.9
5	Skearting of 10 cn	2	5.5			11
		2	4			8
6	Brick masonary in	1	20.2	0.3	3	18.18
	super structure					
	H=3.0 m					
	Deduction					
	Door	1	1.2	0.3	2.1	0.756
	Window	5	1	0.3	1.4	2.1
	Lintel					
	D	1	1.3	0.3	0.15	0.0675
	W	5	1.3	0.3	0.15	0.29

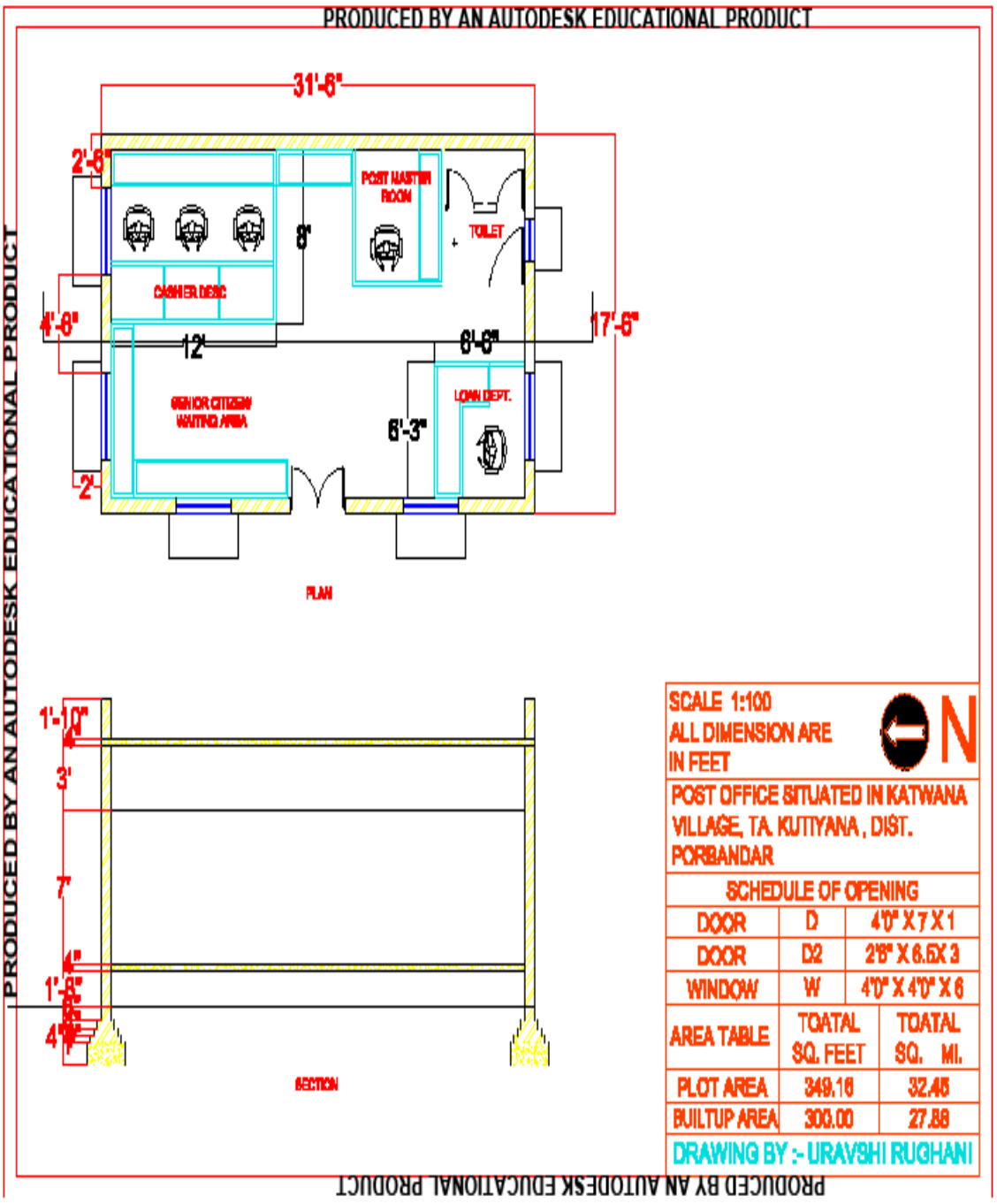
						3.21
7	RCC Work for					
	Slab	1	6	4.6	0.1	2.8
	Lintel					
	D	1	1.5	0.3	0.15	0.0675
	W	5	1.3	0.3	0.15	0.29
	RCC Chajja					
	D	1	1.5	0.6	0.1	0.09
	W	5	1.3	0.6	0.1	0.39
						3.6375
8	Brick Masonry on Parapet					
	Wall	1	20.2	0.3	0.9	5.45
9	Inside plaster 12 mm thick	2	5.5		3	33
		2	4		3	24
	Celling plaster	1	5.5	4		22
	Deduction of					
	D	0.5	1.2		2.1	1.26
	W	2.5	1		1.4	3.5
	Plaster parapet wall	2	5.5		0.9	9.9
		2	4		0.9	7.2
						17.1
10	Outside plaster	2	6.1		4	48.8
		2	4.6		4	36.8
						85.6
	Deduction of					
	D	0.5	1.2		2.1	1.26
	W	2.5	1		1.4	3.5
						80.84
11	Painting work inside	2	5		3	33
		2	4		3	24
	Celling paint	1	5.5	4		22
	Deduction					
	D	0.5	1.2		2.1	1.26
	W	2.5	1		1.4	3.5
	Painting on parapet	2	5.5		0.9	9.9
		2	4		0.9	7.2
12	White washing	2	6.1		4	48.8
	Outsize	2	4.6		4	36.8

	Deduction of					
	D	0.5	1.2		2.1	1.26
	W	2.5	1		1.4	5.5
13	Moisac tiles flooring					
	Area(5.5*4)					62
	Tiles area(0.6*0.6)					68
14	No. Of door &	1	1.2		2.1	2.52
	Window	5	1		1.4	7
	Painting of door &	2	1.2		2.1	5.04
	Window	10	1		1.4	14
						19.04

ABSTRACT SHEET

Sr No.	**Description of Item**	**Quantity (Cu.m)**	**Rs.**	**Total Cost In Rs.**
1	Excavation in ordinary soil	32.77	110	3604.7
2	BBCC (1:2:4)	5.33	120	639.6
3	Brick Work	28.71	1250	35887.5
4	Filling in plinth	9.9	125	1237.5
6	Brick Masonry	14.9665	4000	59866
7	RCC Slab & lintel	3.6375	1000	3637
9	Inside Plaster 12mm	17.1	250	4275
10	Outside Plaster	80.84	250	20210
11	Painting Work Inside	7.2	13	93.6
12	Painting Work Inside	74.24	150	11136
13	White Washing outside	80.84	150	12126
15	Wooden Doors & window			
	D	1	1000	1000
	W	5	750	3750
	Total			**157462.9**

13.2Post office:



Measurement Sheet

Sr No.	Description of Item	No.	Length m (L)	Breadth m (B)	Depth /ht(m) (D/H)	Quantity
1	Excavation in ordinary soil	1	28.75	0.9	0.9	23.28
2	BBCC(1:2:4)	1	28.75	0.9	0.3	7.76
3	Brick masonary up to plinth					
	First	1	28.9	0.6	0.1	1.734
	Second	1	28.95	0.5	0.1	1.44
	Third	1	29	0.4	0.1	1.16
	Fourth	1	29.05	0.3	0.8	6.97
	Steps					
	First	1	1.4	0.9	0.2	0.252
	Second	1	1.4	0.6	0.2	0.108
	Third	1	1.4	0.3	0.2	0.884
						11.75
4	Filling in trench					3.77
	(23.28-7.76-11.75)					
	Filling in plinth	1	9	5	0.45	20.25
5	Brick masonary in					
	super structure					
	H=3.0 m	1	29.2	0.3	3	26.28
	Deduction					
	Door	1	1.2	0.3	2.1	0.756
	Window-1	6	1.2	0.3	1.2	2.592
	Window-2	1	1.2	0.3	1.5	0.54
	Lintel					
	D	1	1.5	0.3	0.15	0.0675
	W1	6	1.5	0.3	0.15	0.405
	W2	1	1.5	0.3	0.15	0.0675
6	RCC Work for					
	Slab	1	9.6	5.6	0.15	8.064
	Lintel					

	D	1	1.5	0.3	0.15	0.0675
	W1	6	1.5	0.3	0.15	0.405
	W2	1	1.5	0.3	0.15	0.0675
	Chajja					
	D	1	1.5	0.6	0.1	0.09
	W1	6	1.5	0.6	0.1	0.54
	W2	1	1.5	0.6	0.1	0.09
						9.324
7	Brick masonary on	1-Jan	29.2	0.3	0.8	1.008
	parapet wall					
	Inside Plaster					
	12 mm thick	2	9		3	54
		2	5		3	30
	Celling	1	9	5		45
	Deduction of					
	D	0.5	1.2		2.1	1.26
	W1	3	1.2		1.2	4.32
	W2	0.5	1		1.5	0.9
						122.52
	Plaster on parapet	2	9		0.8	14.4
		2	5		0.8	8
						22.4
9	Outside plaster	2	9.6		4	76.8
		2	5.6		4	44.8
	Deduction of door	0.5	1.2		2.1	1.26
	W1	3	1.2		1.2	1.32
	W2	0.5	1.2		1.5	0.9
10	Painting Work	2	9		3	54
	Inside	2	5		3	30
	Celling	1	9	5		45
	Deduction					
	D	0.5	1.2		2.1	1.26
	W1	3	1.2		1.2	4.32
	W2	0.5	1.2		1.5	0.9
						122.52
	White Washing outside	2	9.6		4	76.8
		2	5.6		4	44.8
	Deduction					

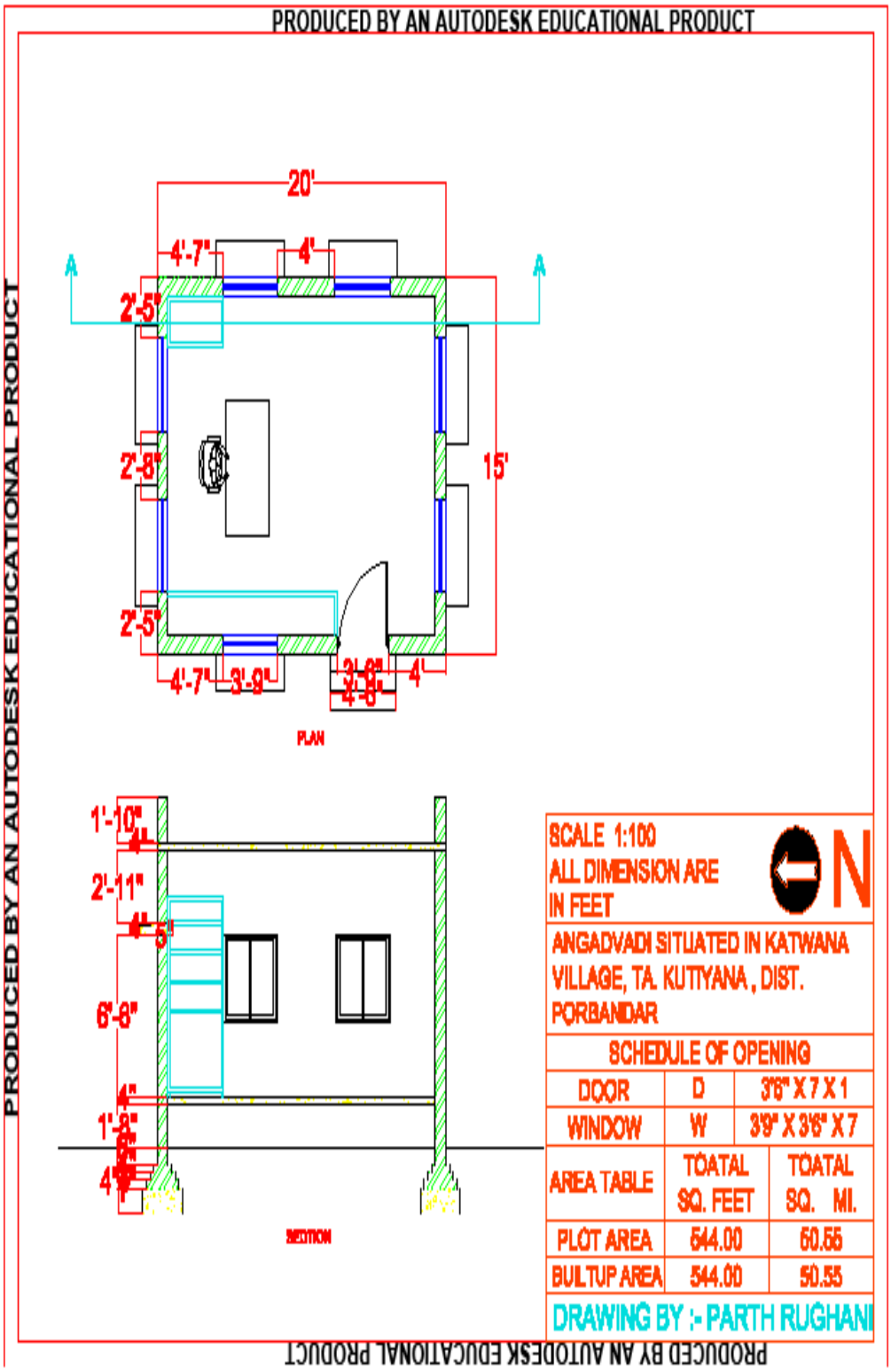
	D	0.5	1.2		2.1	1.26
	W1	3	1.2		1.2	4.32

	W2	0.5	1.2		1.5	0.9
						115.12
13	Moisac tiles					
	Flooring					
	Area (9*5)					
	Tiles area(0.6*0.6)					125
	Add 10%					13
						138
14	Skirting	2	9			18
		2	6			10
						28
15	Wooden door & window					
	D					
	W1	1	1.2		2.1	2.52
	W2	6	1.2		1.2	8.64
		1	1.2		1.5	1.8
	Painting of door					
	W1	2	1.2		2.1	5.04
	W2	12	1.2		1.2	17.28
		2	1.2		1.5	3.6
						25.92
16	Office room-1	1	3.6	0.1	2.1	0.756
	(Wooden partition)	1	2.5	0.1	2.1	0.525
	Deduction of door					
	Opening	1	1.2	0.1	2.1	0.252
						1.029
17	Office room-2	1	2	0.1	2.1	0.21
		1	2	0.1	0.6	0.048
	Deduction of door &	1	1	0.1	2.1	0.21
	Opening	1	0.8	0.1	0.6	0.048

ABSTRACT SHEET

Sr No.	Description of Item	Quantity (Cu.m)	Rs.	Total Cost InRs.
1	Excavation in ordinary soil & filling	23.28	110	52035
2	BBCC (1:2:4)	7.76	7.76	120
3	Brick masonary	47.3	110	52035
5	Skearting	28.84	15	432.6
7	RCC Slab & lintel	9.324	10000	9324
9	Inside & outside plaster(12 mm)	237.64	150	65646
11	Painting Work Inside	122.52	150	18378
12	White Washing outside	115.12	150	17268
14	Wooden Doors &	1	1000	1000
15	Window	7	750	5250
	Total			177042

13.3Anganvadi:



MEASUREMENT SHEET

Sr No.	Description of Item	No.	Length (L)	Breadth (B)	Depth Or Height (D/H)	Quantity
1	Excavation in ordinary soil					
	Total centerline					
	20.2 m					
	L	1	19.75	0.9	0.9	16
2	BBCC (1:2:2)	1	19.75	0.9	0.3	5.33
3	Brick masonary up to plinth					
	First	1	19.9	0.6	0.1	1.194
	Second	1	19.95	0.5	0.1	1
	Third	1	20	0.4	0.1	0.8
	Forth	1	20.05	0.3	0.8	4.81
	Steps					
	First	1	1.4	0.9	0.2	0.252
	Second	1	1.4	0.6	0.2	0.168
	Third	1	1.4	0.3	0.2	0.084
						8.3
4	Filling in trench					5.87
	Filling in Plinth	1	5.5	4	0.45	9.9
5	Skearting of 10 cn	2	5.5			11
		2	4			8
6	Brick masonary in	1	20.2	0.3	3	18.18
	super structure					
	H=3.0 m					
	Deduction					
	Door	1	1.2	0.3	2.1	0.756
	Window	5	1	0.3	1.4	2.1
	Lintel					
	D	1	1.3	0.3	0.15	0.0675
	W	5	1.3	0.3	0.15	0.29

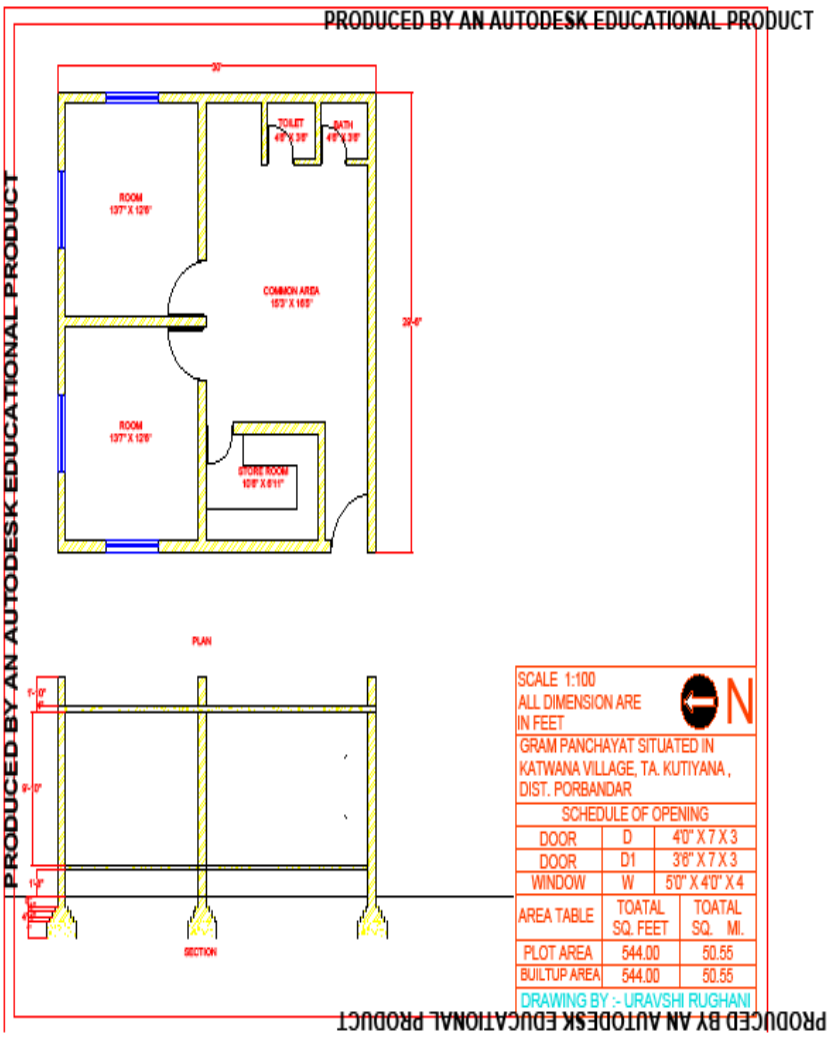
						3.21
7	RCC Work for					
	Slab	1	6	4.6	0.1	2.8
	Lintel					
	D	1	1.5	0.3	0.15	0.0675
	W	5	1.3	0.3	0.15	0.29
	RCC Chajja					
	D	1	1.5	0.6	0.1	0.09
	W	5	1.3	0.6	0.1	0.39
						3.6375
8	Brick Masonry on Parapet					
	Wall	1	20.2	0.3	0.9	5.45
9	Inside plaster 12 mm thick	2	5.5		3	33
		2	4		3	24
	Celling plaster	1	5.5	4		22
	Deduction of					
	D	0.5	1.2		2.1	1.26
	W	2.5	1		1.4	3.5
	Plaster parapet wall	2	5.5		0.9	9.9
		2	4		0.9	7.2
						17.1
10	Outside plaster	2	6.1		4	48.8
		2	4.6		4	36.8
						85.6
	Deduction of					
	D	0.5	1.2		2.1	1.26
	W	2.5	1		1.4	3.5
						80.84
11	Painting work inside	2	5		3	33
		2	4		3	24
	Celling paint	1	5.5	4		22
	Deduction					
	D	0.5	1.2		2.1	1.26
	W	2.5	1		1.4	3.5
	Painting on parapet	2	5.5		0.9	9.9
		2	4		0.9	7.2
12	White washing	2	6.1		4	48.8
	Outsize	2	4.6		4	36.8
	Deduction of					

	D	0.5	1.2		2.1	1.26
	W	2.5	1		1.4	5.5
13	Moisac tiles flooring					
	Area(5.5*4)					62
	Tiles area(0.6*0.6)					68
14	No. Of door &	1	1.2		2.1	2.52
	Window	5	1		1.4	7
	Painting of door &	2	1.2		2.1	5.04
	Window	10	1		1.4	14
						19.04

ABSTRACT SHEET

Sr No.	**Description of Item**	**Quantity (Cu.m)**	**Rs.**	**Total Cost In Rs.**
1	Excavation in ordinary soil	32.77	110	3604.7
2	BBCC (1:2:4)	5.33	120	639.6
3	Brick Work	28.71	1250	35887.5
4	Filling in plinth	9.9	125	1237.5
6	Brick Masonry	14.9665	4000	59866
7	RCC Slab & lintel	3.6375	1000	3637
9	Inside Plaster 12mm	17.1	250	4275
10	Outside Plaster	80.84	250	20210
11	Painting Work Inside	7.2	13	93.6
12	Painting Work Inside	74.24	150	11136
13	White Washing outside	80.84	150	12126
15	Wooden Doors & window			
	D	1	1000	1000
	W	5	750	3750
	Total			**157462.9**

13.4Gram Panchayat



MEASUREMENT SHEET								
SR.	**DISCRIPTION**	**NO**	**L**	**B**	**D**	**QTY.**	**T.QTY.**	**UNIT**
1	Excavation for foundation up to 1.5 m depth including sorting out and stacking of useful materials and disposing of the excavated stuffupto 50 Meter lead.							
	Dense of hard soil							
		2	9.140	0.6	1	10.968		

		3	7.800	0.6	1	14.040		
		1	2.610	0.6	1	1.566		
		1	2.450	0.6	1	1.470		
		1	0.620	0.6	1	0.372		
						28.416	28.146	Cu. M
2	Providing and laying Cement Concrete 1:4:8(1-Cement : 4 Coarse sand : 8 hand broken stone aggregate 40 mm nominal size) and curing complete excluding cost of Formwork.							
		2	9.140	0.6	0.15	1.645		
		3	7.800	0.6	0.15	2.106		
		1	2.610	0.6	0.15	0.235		
		1	2.450	0.6	0.15	0.221		
		1	0.620	0.6	0.15	0.056		
						4.262	4.262	Cu. M
3	Uncoursed Rubble Masonry with hard stone of approved quality in foundations & plinth in Cement Mortar 1:6 (1-Cement :6 Coarse Sand) including leveling up etc.							
		2	9.140	0.6	1.35	14.807		
		3	7.800	0.6	1.35	18.954		
		1	2.610	0.6	1.35	2.114		
		1	2.450	0.6	1.35	1.985		
		1	0.620	0.6	1.35	0.502		
						38.362	38.362	Cu. M
4	providing and laying cement concrete 1:2:4 (1-cement : 2-coarse sand : 4-graded stone aggregate 20mm nominal size) and curing, complete excluding cost of formwork in.							
		2	9.140	0.6	0.15	1.645		
		3	7.800	0.6	0.15	2.106		
		1	2.610	0.6	0.15	0.235		
		1	2.450	0.6	0.15	0.221		
		1	0.620	0.6	0.15	0.056		
						4.262	4.262	cu.m.
5	White stone belamasonary block in course in super-structure with stone of approved quality in cement mortar 1:6 (1 cement : 6 course sand) including racking							

	the joints etc. complete.							
		2	9.140	0.23	3.05	12.823		
		3	8.530	0.23	3.05	17.951		
		1	4.160	0.23	3.05	2.918		
		1	3.050	0.23	3.05	2.140		
		1	1.820	0.23	3.05	1.277		
		2	1.140	0.23	3.05	1.599		
		1	2.25	0.23	3.05	1.578		
						40.287		
	DEDUCT FOR OPENINGS							
		1	1.37	0.23	2.1	0.662		
		1	0.91	0.23	2.1	0.440		
		2	0.76	0.23	2.1	0.734		
		2	1.06	0.23	2.1	1.024		
		4	1.52	0.23	1.2	1.678		
						4.537		
	NET QTY.					35.750	35.75	Cu. M
6	Filling in foundations and plinth with murum or selected soil in layers of 20 cm thickness including consolidating each deposited layer by ramming and watering.							
		1	9.14	9	0.6	49.356		
						49.356	49.356	Cu. M
7	Providing and fixing 35 mm thick shutter for door windows including black enamelledm.s. but hinges with necessary screws using kutcha wood fully paneled including two coats of oil paint kutcha wood frame of 10 x 7 c.m. size etc complete(market rate)							
		1	1.37		2.1	2.877		
		1	0.91		2.1	1.911		
		2	0.76		2.1	3.192		
		2	1.06		2.1	4.452		
		4	1.52		1.2	7.296		
						19.728	30.405	Sqm.
8	Providing and laying ordinary cement concret1:2:4 (1- cement :2 coarse sand :4 graded stone aggregates 20 m.m. nominal size) and finishing smooth with curing etc complete including the cost of form work but excluding the cost of rein -							

	forcemeat for R.C.C Work							
		1	9.14	9	0.15	12.339		
						12.339		
	DEDUCT	0	0.000	0	0	0.000		
						0.000		
						12.339	12.339	Cu. M
9	providing H.Y.S.D Bar reinforcement for R.C.C. work including bending, binding and placing in position complete up to floor two level							
		12.339						
		12.339	100	0.8	1	987.120	1837.312	Kg
10	Providing mild steel reinforcement for R.C.C. work including bending, binding and placing in position complete up to floor two level.							
		12.34						
		12.34	100	0.2	1	246.780	246.780	Kg
11	providing and 15mm thick cement plaster in single coat on brick/concrete walls for interior plastering up to floor two level and finished even and smooth in.							
	(i) Cement mortar 1:3 (1 cement : 3 sand)							
		4	3.81		3.05	46.482		
		6	4.11		3.05	75.213		
		3	3.05		3.05	27.908		
		2	1.82		3.050	11.102		
		1	8.53		3.05	26.017		
		1	4.72		3.05	14.396		
		1	8.46	8.3		70.218		
						271.335		
	DEDUCTION FOR DOOR & WINDOW							
	QTY AS PER IT NO. 5			1	4.537	4.537		
	NET QTY					266.798	266.798	Sq. M
13	providing and fixing pvc rain water pipe of 50mm dia etc. complete (market rate)							

		4	0.6			2.400		
						2.400	2.4	Rmt
14	Providing Indian type water closet in toilet block							
		2				2.000	2	nos
15	Providing and fixing Vitreous tiles Of size 600 mm x 600mm in single piece fixing in flooring as per drawing and directed etc. comp.							
		2	3.81	4.11	---	31.318		
		1	4.72	5.18	---	24.450		
		1	1.82	3.05	---	5.551		
						61.319	61.319	sqmt

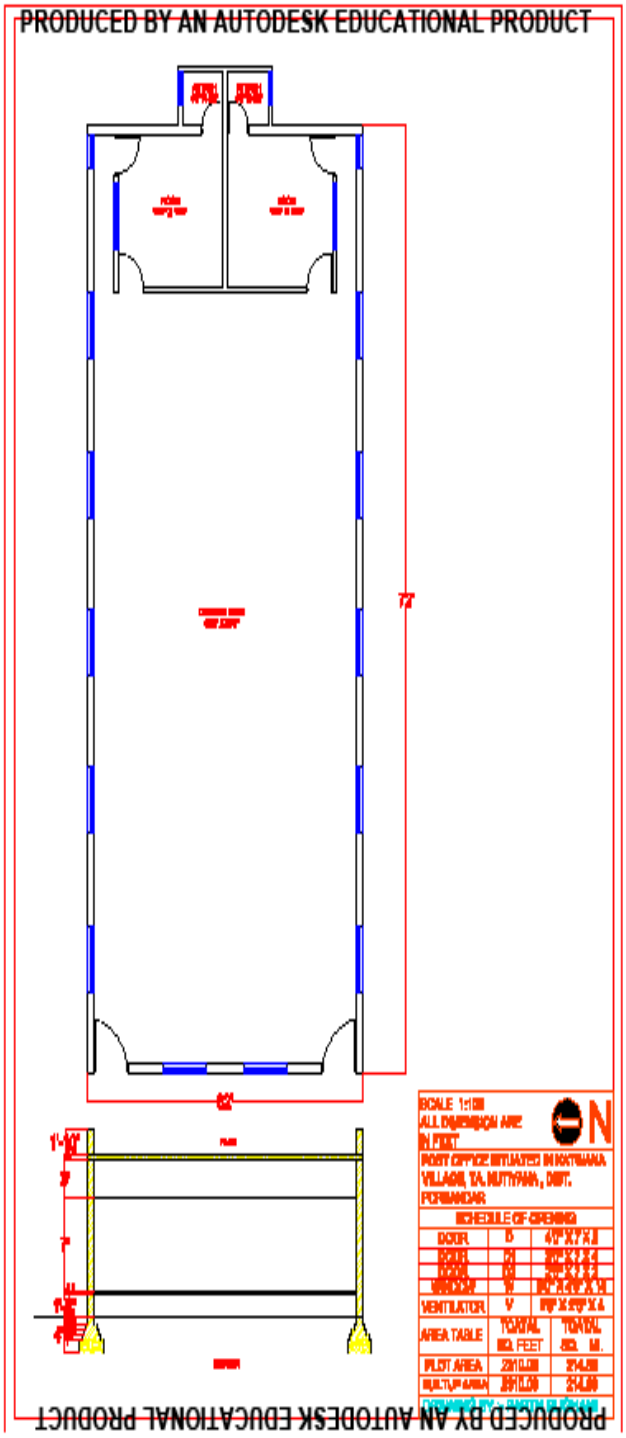
ABSTRACT

QTY.	DISCRIPTION	RATE	PER	AMOUNT
	ITEM NO. 1			
28.146	Excavation for foundation up to 1.5 m depth including sorting out and stacking of useful materials and disposing of the excavated stuffupto 50 Meter lead.			
	Dense of hard soil			
		100	Cu. M	2814.600
	ITEM NO. 2			
4.262	Providing and laying Cement Concrete 1:4:8(1- Cement : 4 Coarse sand : 8 hand broken stone aggregate 40 mm nominal size) and curing complete excluding cost of formwork.			
		1200	Cu. M	5114.400
	ITEM NO. 3			
38.362	Uncoursed Rubble Masonry with hard stone of approved quality in foundations & plinth in Cement Mortar 1:6 (1- Cement :6 Coarse Sand) including leveling up etc.			

							1500	Cu. M	57543.000
	ITEM NO. 4								
4.262	providing and laying cement concrete 1:2:4 (1-cement : 2-coarse sand : 4-graded stone aggregate 20mm nominal size) and curing, complete excluding cost of formwork in.								
							2000	cu.m.	8524.000
	ITEM NO. 5								
35.750	White stone belamasonary block in course in super-structure with stone of approved quality in cement mortar 1:6 (1 cement : 6 course sand) including racking the joints etc. complete.								
							3000	Cu. M	107250.000
	ITEM NO. 6								
49.356	Filling in foundations and plinth with murum or selected soil in layers of 20 cm thickness including consolidating each deposited layer by ramming and watering.								
							125	Cu. M	6169.500
	ITEM NO. 7								
30.405	Providing and fixing 35 mm thick shutter for door windows including black enamelledm.s. but hinges with necessary screws using kutcha wood fully paneled including two coats of oil paint kutcha wood frame of 10 x 7 c.m. size etc complete(market rate)								
							2500	Sqm.	76012.500
	ITEM NO. 8								
12.339	Providing and laying ordinary cement concret1:2:4 (1- cement :2 coarse sand :4 graded stone aggregates 20 m.m. nominal size) and finishing smooth with curing etc complete including the cost of form work but excluding the cost of rein -forcemeat for R.C.C work								
							2000	Cu. M	24678.000
	ITEM NO. 9								
							50	Kg	91865.600
	ITEM NO. 10								

246.780	Providing mild steel reinforcement for R.C.C. work including bending, binding and placing in position complete up to floor two level.								
							50	Kg	12339.000
	ITEM NO. 11								
266.798	providing and 15mm thick cement plaster in single coat on brick/concrete walls for interior plastering up to floor two level and finished even and smooth in.								
	(i) Cement mortar 1:3 (1 cement : 3 sand)						125	Sq. M	33349.750
	ITEM NO. 13								
2.400	providing and fixing pvc rain water pipe of 50mm dia etc. complete (market rate)								
							50	Rmt	120.000
	ITEM NO. 14								
2.000	Providing Indian type water closet in toilet block								
							1200	Nos	2400.000
	ITEM NO. 15								
61.319	Providing and fixing Vitriuos tiles Of size 600 mm x 600mm in single piece fixing in flooring as per drawing and directed etc. comp.								
							500	Sqmt	30659.500
									458839.850
							TOTAL		458839.850
	ADD 3% OF ELECTRIFICATION								13765.196
	ADD 5% OF PLUMBING & WATER SUPPLY								22941.993
									495547.038
						SayRs.			**495500.000**
(RUPEES FOUR LACS NINTY FIVE THOUSAND FIVE HUNDRED ONLY.)									
DATE									

13.4Community Hall



MEASUREMENT SHEET

SR.	DISCRIPTION	NO	L	B	D	QTY.	T.QTY.	UNIT
1	Excavation for foundation up to 1.5 m depth including sorting out and stacking of useful materials and disposing of the excavated stuffupto 50 Meter lead.							
	Dense of hard soil							
		2	20.420	0.6	1	24.504		
		2	10.670	0.6	1	12.804		
		1	4.400	0.6	1	2.640		
		3	0.910	0.6	1	1.638		
		3	5.150	0.6	1	9.270		
		1	8.000	0.6	1	4.800		
						55.656	55.66	Cu. M
2	Providing and laying Cement Concrete 1:4:8(1- Cement : 4 Coarse sand : 8 hand broken stone aggregate 40 mm nominal Size) and curing complete excluding cost of formwork.							
		2	20.420	0.6	0.15	3.676		
		2	10.670	0.6	0.15	1.921		
		1	4.400	0.6	0.15	0.396		
		3	0.910	0.6	0.15	0.246		
		3	5.150	0.6	0.15	1.391		
		1	8.000	0.6	0.15	0.720		
						8.348	8.350	Cu. M
3	Uncoursed Rubble Masonry with hard stone of approved quality in foundations & plinth in Cement Mortar 1:6 (1- Cement :6 Coarse Sand) including leveling up etc.							
		2	20.420	0.6	1.35	33.080		
		2	10.670	0.6	1.35	17.285		
		1	4.400	0.6	1.35	3.564		
		3	0.910	0.6	1.35	2.211		
		3	5.150	0.6	1.35	12.515		
		1	8.000	0.6	1.35	6.480		

						75.136	75.14	Cu. M
4	providing and laying cement concrete 1:2:4 (1-cement : 2-coarse sand : 4-graded stone aggregate 20mm nominal size) and curing, complete excluding cost of formwork in.							
		2	20.420	0.6	0.15	3.676		
		2	10.670	0.6	0.15	1.921		
		1	4.400	0.6	0.15	0.396		
		3	0.910	0.6	0.15	0.246		
		3	5.150	0.6	0.15	1.391		
		1	8.000	0.6	0.15	0.720		
						8.348	8.350	cu.m.
5	White stone belamasonary block in course in super- structure with stone of approved quality in cement mortar 1:6 (1 cement : 6 course sand) including racking the joints etc. complete.							
		2	20.420	0.23	3.05	28.649		
		2	10.670	0.23	3.05	14.970		
		1	4.400	0.23	3.05	3.087		
		3	1.060	0.23	3.05	2.231		
		3	5.150	0.23	3.05	10.838		
		1	8.000	0.23	3.05	5.612		
						65.387		
	DEDUCT FOR OPENINGS							
		2	1.37	0.23	2.1	1.323		
		4	0.91	0.23	2.1	1.758		
		2	0.76	0.23	2.1	0.734		
		2	0.6	0.23	0.6	0.166		
		15	1.52	0.23	1.2	6.293		
						10.274		
	NET QTY.					55.113	55.11	Cu. M
6	Filling in foundations and plinth with murum or selected soil in layers of 20 cm thickness including consolidating each deposited layer by ramming And watering.							

		1	20.42	10.67	0.6	130.729		
		1	0.91	4.5	0.6	2.457		
						133.186	133.19	Cu. M
7	Providing and fixing 35 mm thick shutter for door windows including black enamelledm.s. but hinges with necessary screws using kutcha wood fully paneled including two coats of oil paint kutcha							
	wood frame of 10 x 7 c.m. size etc complete(market rate)							
		2	1.37		2.1	5.754		
		4	0.91		2.1	7.644		
		2	0.76		2.1	3.192		
		2	0.6		0.6	0.720		
		15	1.52		1.2	27.360		
						44.670	44.68	Sqm.
8	Providing and laying ordinary cement concret1:2:4 (1- cement :2 coarse sand :4 graded stone aggregates 20 m.m. nominal size) and finishing smooth with curing etc complete including the cost of form work but excluding the cost of rein - forcemeat for R.C.C work							
		1	20.42	10.67	0.15	32.682		
		1	0.91	4.5	0.15	0.614		
						33.296		
	DEDUCT	0	0.000	0	0	0.000		
						0.000		
						33.296	33.3	Cu. M
9	providing H.Y.S.D Bar reinforcement for R.C.C.work including bending, binding and placing in position complete up to floor two level							
		33.296						
		33.296	100	0.8	1	2663.717	2664.000	Kg
		33.3						
		33.3	100	0.2	1	665.929	665.929	Kg

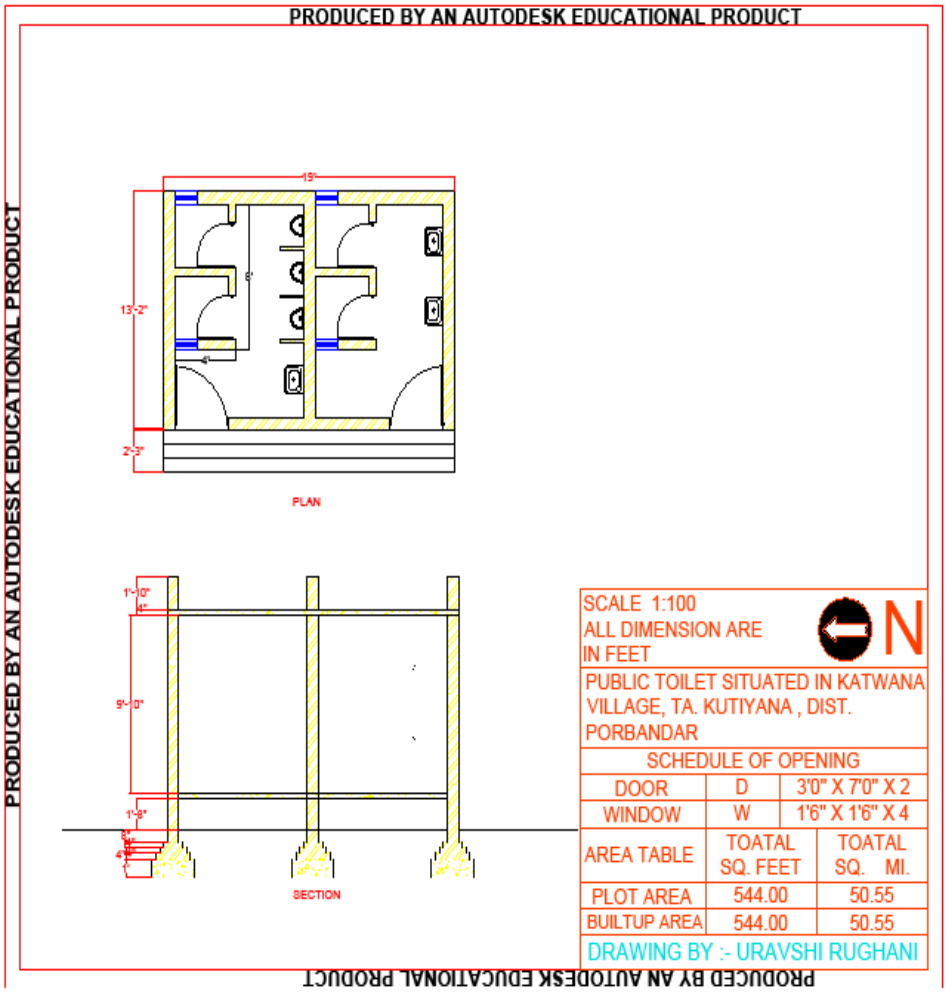
ABSTRACT

QTY.	DISCRIPTION	RATE	PER	AMOUNT
	ITEM NO. 1			
55.660	Excavation for foundation up to 1.5 m depth including sorting out and stacking of useful materials and disposing of the Excavated stuffupto 50 Meter lead.			
	Dense of hard soil			
		100	Cu. M	5566.000
	ITEM NO. 2			
8.350	Providing and laying Cement Concrete 1:4:8(1-Cement : 4 Coarse sand : 8 hand broken stone aggregate 40 mm nominal size) and curing complete excluding cost of Formwork.			
		1200	Cu. M	10020.000
	ITEM NO. 3			
75.140	Uncoursed Rubble Masonry with hard stone of approved quality in foundations & plinth in Cement Mortar 1:6 (1- Cement :6 Coarse Sand) including leveling up etc.			
		1500	Cu. M	112710.000
	ITEM NO. 4			
8.350	providing and laying cement concrete 1:2:4 (1-cement : 2-coarse sand : 4-graded stone aggregate 20mm nominal size) and curing, complete excluding cost of formwork in.			
		2000	cu.m.	16700.000
	ITEM NO. 5			
55.110	White stone belamasonary block in course in super-structure with stone of approved quality in cement mortar 1:6 (1 cement : 6 course sand) including racking the joints etc. complete.			
		3000	Cu. M	165330.000

` 133.190	Filling in foundations and plinth with murum or selected soil in layers of 20 cm thickness including consolidating each deposited layer By ramming and watering.			
		125	Cu. M	16648.750
	ITEM NO. 7			
44.680	Providing and fixing 35 mm thick shutter for door windows including black enamelled m.s. but hinges with necessary screws using kutcha wood fully panelled including two coates of oil paint kutcha wood frame of 10 x 7 c.m. size etc complete(market rate)			
		2500	Sqm.	111700.000
	ITEM NO. 8			
33.300	Providing and laying ordinary cement concret1:2:4 (1- cement :2 coarse sand :4 graded stone aggregates 20 m.m. nominal size) and finshing smooth with curing etc complete including the cost of form work but excluding the cost of reinforcement for R.C.C work			
		2000	Cu. M	66600.000
	ITEM NO. 9			
2664.000	providing H.Y.S.D Bar reinforcement for R.C.C. work including bending, binding and placing in position complete up to floor two level			
		50	Kg	133200.000
	ITEM NO. 10			
665.929	Providing mild steel reinforcement for R.C.C. work including bending, binding and placing In position complete up to floor two level.			
		50	Kg	33296.450
	ITEM NO. 11			
494.530	providing and 15mm thick cement plaster in single coat on brick/concrete walls for interior plastering up to floor two level and finished even and smooth in.			
	(i) Cement mortar 1:3 (1 cement : 3 sand)	125	Sq. M	61816.250

	ITEM NO. 12								
7.200	providing and fixing pvc rain water pipe of 50mm dia etc. complete (market rate)								
							50	Rmt	360.000
	ITEM NO. 13								
2.000	Providing Indian type water closet in toilet block								
							1200	nos	2400.000
	ITEM NO. 14								
221.841	Providing and fixing Vitriuos tiles Of size 600 mm x 600mm in single piece fixing in flooring as per drawing and directed etc. comp.								
							500	sqmt	110920.500
									847267.950
							TOTAL		847267.950
	ADD 3% OF ELECTRIFICATION								25418.039
	ADD 5% OF PLUMBING & WATER SUPPLY								42363.398
									915049.386
						Say Rs.			915000.000
DATE									
PLACE									

13.5Public Toilet



MEASUREMENT SHEET

SR	DISCRIPTION	NO	L	B	D	QTY.	T.QTY	UNIT
1	Excavation for foundation up to 1.5 m depth including sorting out and stacking of useful materials and Disposing of the excavated stuff up to 50 Meter lead.							
	Dense of hard soil							
		2	5.790	0.6	1	6.948		
		3	2.830	0.6	1	5.094		
						12.042	12.042	Cu. M
2	Providing and laying							

	Cement Concrete 1:4:8(1-Cement : 4 Coarse sand : 8 hand broken stone aggregate 40 mm nominal size) and curing complete							
	Excluding cost of formwork.							
		2	5.790	0.6	0.15	1.042		
		3	2.830	0.6	0.15	0.764		
						1.806	1.806	Cu. M
3	Uncoursed Rubble Masonry with hard stone of approved quality in foundations & plinth in Cement Mortar 1:6 (1- Cement :6 Coarse Sand) including levelling up etc.							
		2	5.790	0.6	1.35	9.380		
		3	2.830	0.6	1.35	6.877		
						16.257	16.257	Cu. M
4	providing and laying cement concrete 1:2:4 (1- cement : 2-coarse sand : 4- graded stone aggregate 20mm nominal size) and curing, complete excluding cost of formwork in.							
		2	5.790	0.6	0.15	1.042		
		3	2.830	0.6	0.15	0.764		
						1.806	1.806	cu.m.
5	White stone Bela masonry block in course in super-structure with stone of approved quality in cement mortar 1:6 (1 cement : 6 course sand) including racking the joints Etc. Complete.							
		2	5.790	0.23	3.05	8.123		
		3	3.580	0.23	3.05	7.534		
		2	2.100	0.1	3.05	1.281		
		4	1.140	0.1	3.05	1.391		

						18.329		
	DEDUCT FOR OPENINGS							
		2	0.91	0.23	2.1	0.879		
		4	0.76	0.23	2.1	1.468		
		6	0.45	0.23	0.45	0.279		
						2.627		
	NET QTY.					15.702	15.702	Cu. M
6	Filling in foundations and plinth with murmur or selected soil in layers of 20 cm thickness including consolidating each deposited layer by Ramming and watering.							
		2	2.51	3.58	0.6	10.783		
						10.783	10.783	Cu. M
7	Providing and fixing 35 mm thick shutter for door windows including black enameled ms. but hinges with necessary screws using kutcha wood fully paneled including two coats of oil paint kutcha wood frame of 10 x 7 cm. sized complete(market rate)							
		2	0.91		2.1	3.822		
		4	0.76		2.1	6.384		
		6	0.45		1.2	3.240		
						13.446	13.446	Sqm.
8	Providing and laying ordinary cement concret1:2:4 (1- cement :2 coarse sand :4 graded stone aggregates 20 mm. nominal size) and finishing smooth with curing etc. complete including the cost of form work but excluding the cost of rein - for cement for R.C.C work							
		1	5.79	4.03	0.15	3.500		
						3.500		

	DEDUCT	0	0.000	0	0	0.000		
						0.000		
						3.500	3.5	Cu. M
9	providing H.Y.S.D Bar reinforcement for R.C.C.work including bending, binding and placing in position complete up to floor two level							
		3.500						
		3.500	100	0.8	1	280.004	280.000	Kg
10	Providing mild steel reinforcement for R.C.C. work including bending, binding and placing in position complete upto Floor two level.							
		3.5						
		3.5	100	0.2	1	70.001	70.000	Kg
11	providing and 15mm thick cement plaster in single coat on brick/concrete walls for interior plastering upto floor two level and finished even and smooth in.							
	(i) Cement mortar 1:3 (1 cement : 3 sand)							
		2	5.56		3.05	33.916		
		4	3.58		3.05	43.676		
		4	2.1		2.1	17.640		
		8	1.14		2.100	19.152		
		2	2.51	3.58		17.972		
						132.356		
	DEDUCTION FOR DOOR & WINDOW							
	QTY AS PER IT NO. 5			1	2.627	2.627		
	NET QTY					129.729	129.729	Sq. M
12	providing and fixing pvc rain water pipe of 50mm dia etc. complete(market rate)							
		2	0.6			1.200		
						1.200	1.2	Rmt

13	Providing Indian type water closet in toilet block							
		4				4.000	4	Nos
14	Providing and fixing Vitreous tiles Of size 600 mm x 600mm in single piece fixing in flooring as per drawing and directed etc. comp.							
		2	2.51	3.58	---	17.972		
						17.972	17.972	Sqmt

ABSTRACT

QTY.	DISCRIPTION	RATE	PER	AMOUNT
	ITEM NO. 1			
12.042	Excavation for foundation upto 1.5 m depth including sorting out and stacking of useful materials and disposing of the excavated stuff upto 50 Meter lead.			
	Dense of hard soil			
		100	Cu. M	1204.200
	ITEM NO. 2			
1.806	Providing and laying Cement Concrete 1:4:8(1-Cement: 4 Coarse sand: 8 hand broken stone aggregate 40 mm nominal size) and curing complete excluding cost of formwork.			
		1200	Cu. M	2167.200
	ITEM NO. 3			
16.257	Uncoursed Rubble Masonry with hard stone of approved quality in foundations & plinth in Cement Mortar 1:6 (1- Cement :6 Coarse Sand) including levelling up etc.			
		1500	Cu. M	24385.500

	ITEM NO. 4			
1.806	providing and laying cement concrete 1:2:4 (1-cement : 2-coarse sand : 4-graded stone aggregate 20mm nominal size) and curing, complete excluding cost of formwork in.			
		2000	cu.m.	3612.000
	ITEM NO. 5			
15.702	White stone Bela masonry block in course in super-structure with stone of approved quality in cement mortar 1:6 (1 cement : 6 course sand) including racking the joints etc. Complete.			
		3000	Cu. M	47106.000
	ITEM NO. 6			
10.783	Filling in foundations and plinth with murmur or selected soil in layers of 20 cm thickness including consolidating each deposited layer by ramming and watering.			
		125	Cu. M	1347.875
	ITEM NO. 7			
13.446	Providing and fixing 35 mm thick shutter for door windows including black enameled m.s. but hinges with necessary screws using kutcha wood fully paneled including two coats of oil paint kutcha wood frame of 10 x 7 c.m. sized complete(market rate)			
		2500	Sqm.	33615.000
	ITEM NO. 8			
3.500	Providing and laying ordinary cement concret1:2:4 (1-cement :2 coarse sand :4 graded stone aggregates 20 m.m.nominal size) and finshing smooth with curing etc complete including the cost of form work butexcluding the cost of rein -for cement for R.C.Cwork			
		2000	Cu. M	7000.000
	ITEM NO. 9			
280.000	providing H.Y.S.D Bar reinforcement for R.C.C.work including bending, binding and placing in position complete upto floor two level			
		50	Kg	14000.000
	ITEM NO. 10			
70.000	Providing mild steel reinforcement for R.C.C. work including bending, binding and placing in position complete upto floor two level.			
		50	Kg	3500.000

	ITEM NO. 11								
129.729	providing and 15mm thick cement plaster in single coat on brick/concrete walls for interior plastering uptofloor two level and finished even and smooth in.								
	(i) Cement mortar 1:3 (1 cement : 3 sand)						125	Sq. M	16216.125
	ITEM NO. 12								
1.200	providing and fixing pvc rain water pipe of 50mm dia etc. complete (market rate)								
							50	Rmt	60.000
	ITEM NO. 13								
4.000	Providing Indian type water closet in toilet block								
							1200	nos	4800.000
	ITEM NO. 14								
17.972	Providing and fixing Vitreous tiles Of size 600 mm x 600mm in single piece fixing in flooring as per drawing and directed etc. comp.								
							500	sqmt	8986.000
									167999.900
							TOTAL		**167999.900**
	ADD 5% OF PLUMBING & WATER SUPPLY								**8399.995**
									181439.892
						Say Rs.			**181500.000**
(RUPEES ONE LACS EIGHTY ONE THOUSAND AND FIVE HUNDRED ONLY.)									
DATE									
PLACE									

Chapter: 14

14. Technical Options with Case Studies

14.1 Civil Engineering

14.1.2 Advanced Earthquake Resistant:

Understanding of earthquake and Basic Terminology:

Shock seismic disturbance submarine earthquake geological phenomenon quake earth tremor microseism seaquake tremor seism temblor.

Role & responsibilities of civil engineers :

The main objectives of earthquake engineering are:

- Foresee the potential consequences of strong earthquakes on urban areas and civil infrastructure.
- Design, construct and maintain structures to perform at earthquake exposure up to the expectations and in compliance with building codes.
- In this perspective, civil engineering can play crucial role by contributing to the disaster management field in two important ways: in the setting of design and safety standards, and the actual design and construction of infrastructure used to prevent damage and losses caused by hazards.

Guidelines for earthquake resistance contraction:

In addition to the main earthquake design code 1893 the BIS (Bureau of Indian Standards) has published other relevant earthquake design codes for earthquake resistant construction Masonry structures (IS-13828 1993)

• Horizontal bands should be provided at plinth, lintel and roof levels as per code

• Providing vertical reinforcement at important locations such as corners, internal and external wall junctions as per code.

• Grade of mortar should be as per codes specified for different earthquake zones.

• Irregular shapes should be avoided both in plan and vertical configuration.

• Quality assurance and proper workmanship must be ensured at all cost without any compromise.

In RCC framed structures (IS-13920)

• In RCC framed structures the spacing of lateral ties should be kept closer as per the code

• The hook in the ties should be at 135 degree instead of 90 degree for better anchorage ment.

• The arrangement of lateral ties in the columns should be as per code and must be continued through the joint as well.

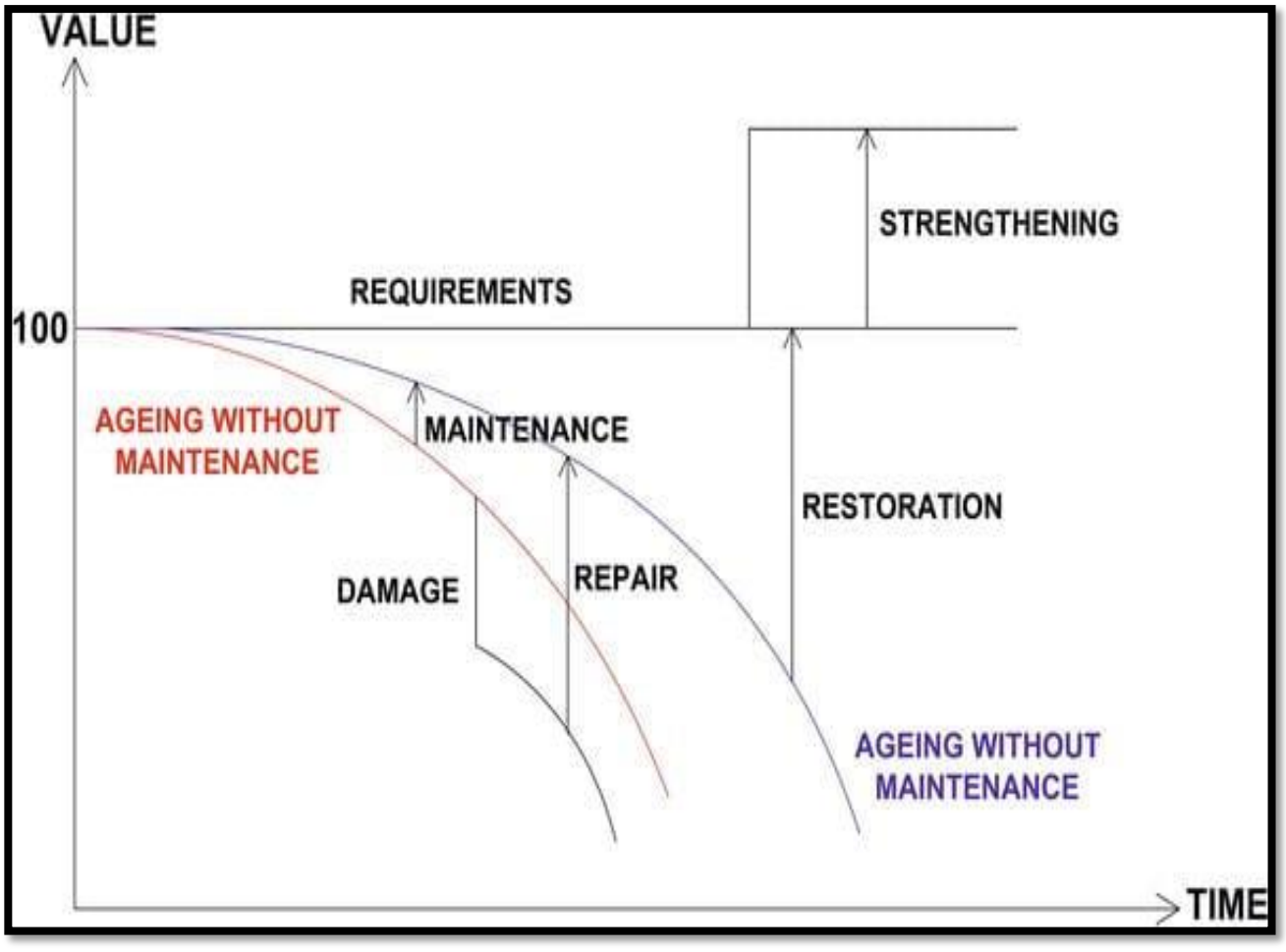
• Whenever laps are to be provided, the lateral ties (stirrups for beams) should be at closer spacing as per code.

14.1.2Seismic Retrofitting of Buildings

- **TRADITIONAL METHODS OF SEISMIC RETROFITTING:**

Traditional methods of seismic retrofitting fall essentially into two categories, one based on the classical principles of structural design which requires an increase of strength and stiffness, and the other based on mass reduction. Thus the first one tends to satisfy the design inequality by an increase of the capacity while the second one achieves the same result by a reduction of the demand. Since seismic design is different from ordinary design, both techniques may turn out to be quite ineffective as is shown in the following.

With reference to the first method, that is increase of strength and stiffness, the concept involved in its application can be understood using Figure 14.1.2.1. Suppose that the fundamental period of the structure is Tnr,to which corresponds a demand pseudo-acceleration terms, which the structure cannot satisfy. On applying a strength and stiffness increment, the fundamental period will shorten from Tnrto Tr,to which corresponds a demand much larger than the original one. It is, therefore, possible that the structure will be less safe in the new condition than in the original one.



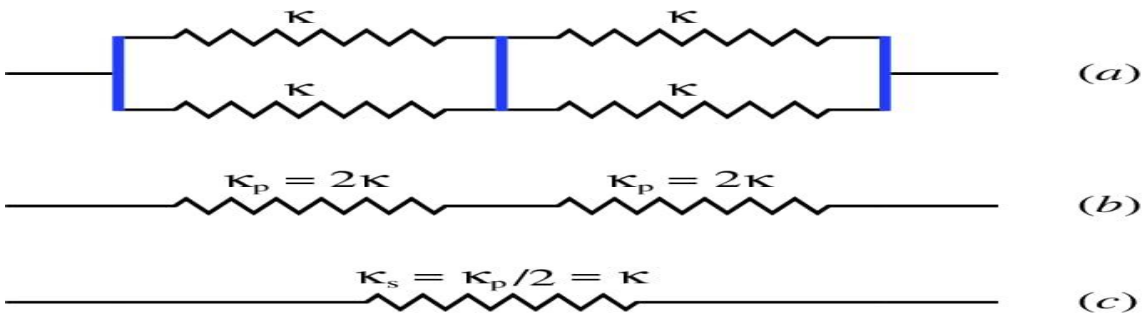
(Fig 14.1.2.1 Increase of the seismic demand following an increase of seismic resistance)

Only after stiffness and strength have been increased up to a level where the fundamental period corresponds to the constant branch of the design spectrum, is it possible to achieve a condition where the design inequality is satisfied. It is, therefore, evident that an attempt to increase the seismic resistance capacity in this way only results in an increase of the seismic demand. When, in the end, the procedure converges, it is at the expense of a considerable expenditure of resources.

✓ INNOVATIVE APPROACHES TO SEISMIC RETROFITTING

The main innovative methods of seismic retrofitting may be grouped into the following classes:
• Stiffness reduction
• Ductility increase
• Damage controlled structures
• Composite materials
• Any suitable combination of the above methods
• Active control.

For equal mass the 'stiffness reduction' produces a period elongation and a consequent reduction of the seismic action and therefore of the seismic strength demand. The stiffness reduction may be achieved by the principle of springs in series whereby the equivalent stiffness of two springs in series is smaller than either of the single springs as shown in Figure 6. In general it may be assumed that base isolation is a special case of the stiffness reduction approach. Although very effective, this method must be used with a pinch of salt. Too low a stiffness may result in large displacements, especially inter-story drifts, which may conflict with the functioning of the building and cause damage to non-structural components. Therefore deformability checks are always a must. Instances in which this method may not be effective are the cases of long period structures or of stiff structures on soft soils. In the first case the advantages gained by a reasonable increase in period may be negligible; in the second case the stiffness reduction may be counterproductive by leading to an increase of spectral ordinates. An application of the 'stiffness reduction method' will be shown in some detail in a further section.
A 'ductility increase' may be achieved locally by confinement of reinforced concrete flexural as well as compressed structural members. Although this method has a long history, it may now be applied easily using new materials such as fiber reinforced polymers (FRP). These materials are distinguishable by the type of fiber and the most common are denoted by CRP, GRP, ARP, indicating respectively reinforcement with carbon (C), glass (G) and aramid (A) fibers.



(Fig. 14.1.2.2 Stiffness reduction by the principle of springs in series)

CASE STUDY:-Sabiha Gökçen International Airport is one of the world most earthquake-proof buildings:-

One of the major airports to serve the historical city of Istanbul, it also happens to be one of the world's most earthquake-proof buildings. Called Sabiha Gökçen, it is one of the two international airports in Istanbul, Turkey, which is located near the North Anatolian fault.

It was designed by the engineering firm Ove Arup to have **300 base isolator systems** that can withstand an earthquake of up to a maximum of **8.0 Mw** (moment magnitude). The base isolators can reduce lateral seismic loadings by **80%**, which makes it one of the largest seismically isolated structures in the world.

One of the major features of the airport that makes it so earthquake-resistant is its so-called "triple friction pendulum device".

Architects Journal explains that "the whole terminal building sits on a platform that is, to a high degree, isolated from the ground below. This enabled the team to design the terminal almost as though it were situated in a non-seismic location, and to include features such as [structures with] large spans because the platform and pendulum devices mean that violent lateral ground movements will scarcely affect it."

The airport's triple friction pendulum bearing was manufactured by *Earthquake Protection Systems* (EPS). They use the principle of a basic pendulum to prolong a structure's isolation during serious earthquake events.

When an earthquake hits the structure, the airport's earthquake-proofing structures move with small pendulum motions. Earthquake-induced displacements occur primarily in the bearings, so lateral loads and movements transmitted to the structure are greatly reduced.

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

The main objective of this content is to make the student aware of the various construction techniques, practices and the equipment needed for different types of construction activities. At the end of this course the student shall have a reasonable knowledge about the various construction procedures for sub to super structure and also the equipment needed for construction of various types of structures from foundation to super structure.

- ✓ **High Performance Concrete**

Lafarge has developed a whole new family of concretes called Ductal. These concretes have high compressive and flexural strength, and their special characteristics enable the achievement of outstanding architectural feats. Ductal concrete incorporates strengthening fibers and opens the horizon to ultra-high performance due to its special composition which provides it with outstanding strength, six to eight times greater than traditional concrete (under compression)."Fiber-reinforced" means that it contains metal fibers which make it a ductile material. Highly resistant to bending, its great flexural strength means it can withstand significant transformations without breaking. Ducal also comes with organic fibers for applications with less load and for advanced architectural applications.

- ✓ **Foamed Aluminum**

"Light-as-air, stronger-than-steel materials are just beginning to shape our world. Foamed aluminum first emerged from the lab in the frame of a 1998 Karman concept car. Ten times stronger than traditional aluminum at just one tenth the weight, the material allows a more fuel-efficient vehicle. Its isotropic cellular structure helps the frame absorb shock and serves as an insulating firewall between the engine and the rest of the car. The foaming process can also be applied to steel, lead, tin, and zinc." The product is a high strength, extremely light weight material that possesses high durability, excellent finish and lasting value. The foam comes in an assortment of densities and sizes up to five feet wide and up to fifty feet long. It has numerous

applications including architectural, automotive, marine, military, aviation, transportation, electronics, appliances, and signage.

✓ **Aerogel**

Aerogel or "Air glass" is a transparent material that looks like glass, insulates better than mineral wool and is more heat resistant than aluminum. The material has many interesting properties and possible applications such as insulation in windows and solar collectors, windows in firewalls, a component in air-conditioning equipment, etc. Aerogel is molded, giving the possibility of getting different shapes: cylinders, cubes, plates of varying thickness etc. Chemically, Aerogel is composed of quartz and a great deal of air, making it fragile. The grains of quartz are small compared to the wavelength of light, giving Aerogel good transparency properties. At around 750°C (1380°F), it starts to shrink and slowly collapses to a piece of ordinary quartz. Aerogel can be cut with a band saw and holes can be drilled with a metal drill. It should be note that Aerogel is non-flammable and non-toxic.

14.1.4 Engineering Aspects Of Soil mechanics - Environmental Impact Assessment

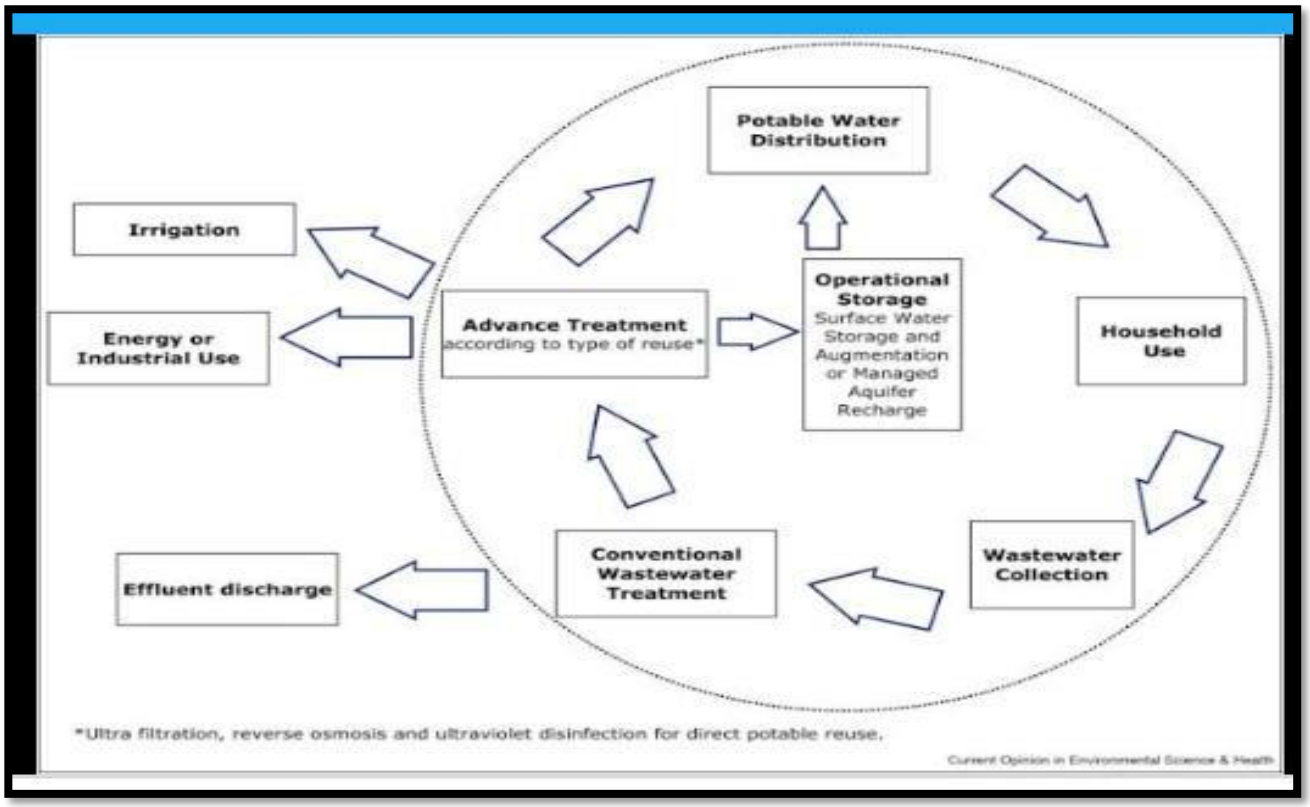
The study involved environmental impact assessment of upgrading of existing flow station dealing with different civil engineering works such as road network, housing, water supply, to name a few. Data was collected from Federal Environmental Protection Agency (FEPA), Department of Petroleum Resources (DPR) Port Harcourt, Nigerian Meteorological Department (NMD), Lagos, Rivers State Ministry of Environment and Natural Resources (RSMENR), Port Harcourt, Ahoada West Local Government Area (AWLGA), Akinima, Rivers State the Internet. Data collected was used to get an overview of the existing Environment. Relevant test of existing water, soil, noise and air samples were carried out. Comparisons were made with results of the test carried out and data of the area collected. Formal and informal interviews were also carried out with some of the inhabitants of the area. All these were done with the aim of assessing the impact the infrastructure had on the environment, and projection of the likely impact of the upgrading exercise. The study revealed that civil engineering infrastructure development projects impacted greatly on the environment especially in areas of noise pollution, water pollution, decrease in size of available land, etcetera. Based on the findings, recommendations were made for the elimination of the negative effects in some cases; and for amelioration of the effects in situations where it will be impossible to completely eradicate such effects.

our daily life environment in Nigeria relates to air, noise, sunlight, geological features, fauna, flora, landscape, etcetera. All these affect the economy of the country: if the environment is abused, daily life style (living and working conditions, etc.) will be affected; and this will in turn affect the economy. As there is need to protect the environment in every possible way, it must also be noted that the need for the existence of infrastructure as an indispensable part of any economy cannot be over emphasized. As those infrastructures come into existence, there are resulting positive effects as well as adverse effects, which in many cases tend to out-number the positive effects; and yet not

usually noticed. This inability to take cognizance of the adverse effects of civil engineering infrastructural development projects has become a source of worry to the environmentalists, civil engineers, and, indeed all stakeholders in the environment . Infrastructure development projects are of many types, and their impact on the environment are also very many and vary in magnitude and form depending on the type of civil engineering project. According to the procedural guideline on Environmental Impact Assessment (EIA) by the Federal Environmental Protection Agency , infrastructure projects should include but not limited to: Industrial estate development projects; Canalization and flood relief works; Dams and Hydropower to hold water;; Oil and gas pipe line installations; Solid waste management and sanitation projects; and Industries

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

This paper presents a study where sustainable development indicators (SDIs) for sludge handling and wastewater treatment systems were constructed in co-operation with a large Swedish water company. Results from a life cycle assessment, a risk assessment, an economic assessment and an uncertainty assessment were used as inputs for ranking technical options of sludge handling by use of multi-criteria analysis (MCA). The MCA included assessment of the different technical options, valuation of different, and often conflicting, aspects of sustainability and weighting of various criteria. On basis of the preferences expressed in the MCA, a number of SDIs and, when possible, targets for sustainable development, were formulated. The resulting SDIs reflected economic, environmental, technical and social aspects of sustainable development of sludge handling systems. Where possible, the coverage of the indicators was extended to the entire wastewater system.



(Fig 14.1.5.1 Resources, Conservation and Recycling)

Chapter: 15

Smart and/or Sustainable features of **Chapter 8 & 13 designs**, Impact on society. (For Allocated village development, villager's happiness, comfortable and for enhancement of the village) (**With the Smart village development Concept as per Your Idea and Village Visit, modern technology with innovation**).
With doing small changes, Period, Amount Expenditure and Benefit –

a) Immediately b) Within 1 year c) Long term (3-5 years) along with cost estimation.
b) If possible, List the sources of the funding available with the Village gram panchayat

- **Smart and/or Sustainable features of designs, Impact on society**

❖ **LED Street light :**

Katawana village have street light but some area required more light. If possible than we provide led light instead of normal street light.

❖ **Road construction in internal streets :**

Already most of area of Katawana village is covered under this category by Gram Panchayat from the available fund. So we proposed in some old area which is not consider by them and water and transportation issue arise in monsoon in this areas. So we proposed Block road construction in these areas.

❖ **Solid Waste Management**

As village has population 1830 so as aesthetic point of view it is necessary to keep the village clean & green. In the village there is no any type of management available in village for collection and dispose of solid waste. Due all the above reasons it is necessary to provide a basic facility of waste collection and dispose it at suitable dumping site.

❖ **Speaker System with CCTV Camera**

There is no facility available for alert or safety from thief using CCTV camera and emergency announcement using Speaker system. CCTV camera give safety and security of village dwellers from theft. Speaker system is use to arrange emergency meeting, to give hazard information, and other communication purpose.

- (For Allocated village development, villager's happiness, comfortable and for enhancement of the village) (**With the Smart village development Concept as per Your Idea and Village Visit, modern technology with innovation**).

First :To Provide hospital in village because it is necessary.

Second :To provide higher secondary school so maximum children get education.

Third :To provide solid waste management system in village.

Forth :To provide clear water facilities of villagers .

Fifth : Help them to understand about technologies and then understand new farming technologies.

With doing small changes, Period, Amount Expenditure and Benefit –

a) Immediately b) Within 1 year c) Long term (3-5 years) along with cost estimation.

b) If possible, List the sources of the funding available with the Village gram panchayat

- As immediately we should implement the design proposed by us from the available grant. Because for making any village smart or model, basic facilities are prime requirement of Village.
- For now we can‘t even think about the provision of latest technology in village until basic need fulfill.
- Villagers are also not aware or habitat for use of latest technology.
- Involvement of Gram panchayat or Sarpanch is prime requirement for village development.
- It is real fact that, from all our visits to Katawana village and interaction with member of gram panchayat we realize that they don‘t interested to lead the village in new path.
- Every sarpanch should get inspiration from sarpanch of Ranavav village (ideal village).
- So before all this thing we should take an action to such village sarpanch or panchayat member who are illiterate and not working toward villagers oriented.

Within 1 year:-

✓ From actual visit we saw that there is no any major scheme is implemented in village.
✓ Some Internal street road and Close Drainage work are not completed in village these all basic requirement are lack.
✓ Some of our proposed design like Internal road design by paver block, Bio gas plant can implement within one year

Long term (3-5years):-

✓ Form our proposed design long term development include those infrastructure which provide after few years.
✓ These facilities required more amount to implement.
✓ We proposed construction of, Post Office, CCTV camera. Currently they less requirement than above design, but after few year they need to construct it.
✓ Bio-Gas Plant should provide after completion of all basic facilities.

Chapter: 16

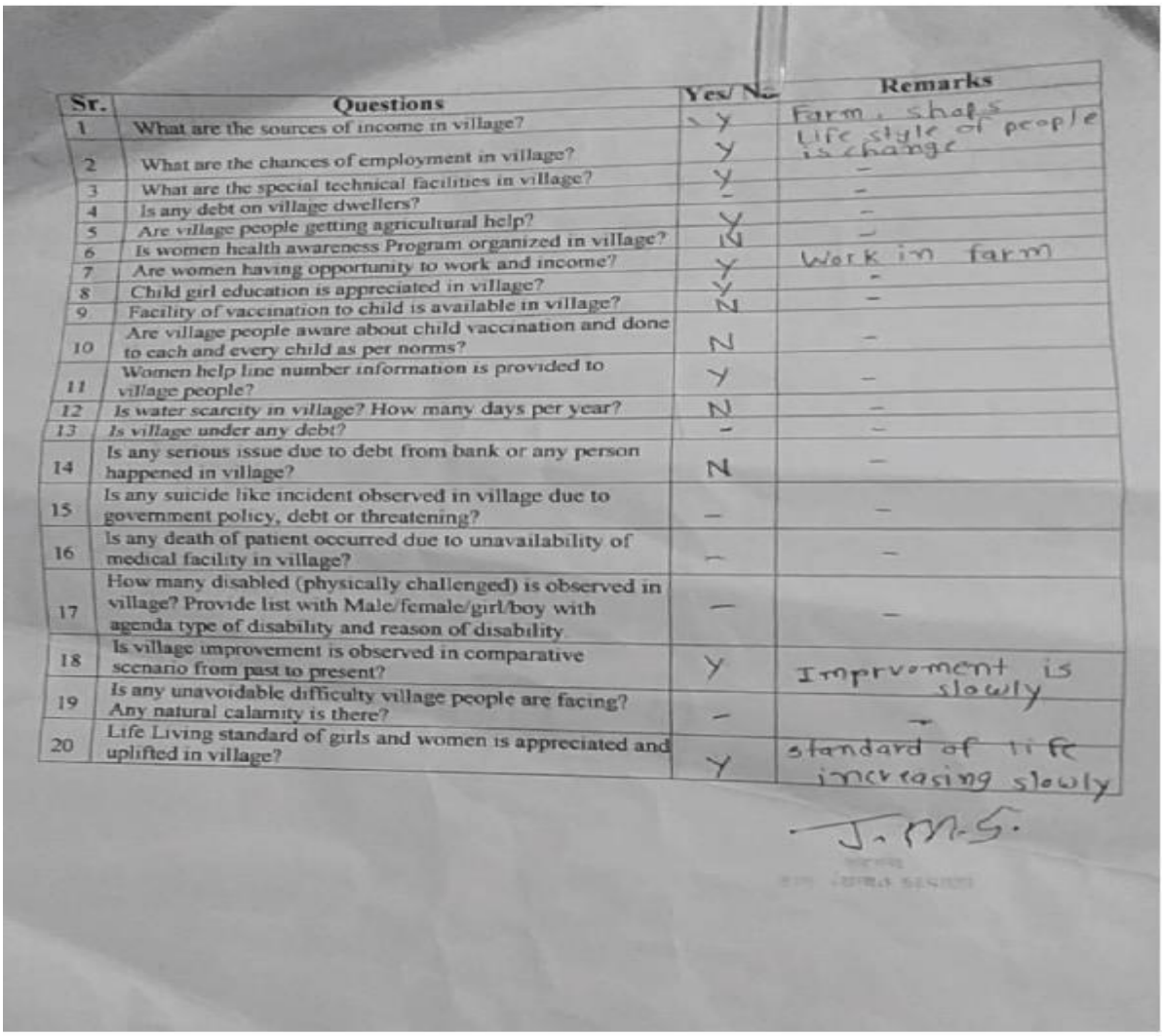
16.Survey by Interviewing With Talati And/Or Sarpanch

SURVEY BY INTERVIEWING WITH TALATI AND/OR SARPANCH

VishwakarmaYojana: Phase VIII

ALLOCATED VILLAGE SURVEY

An approach towards "Rurbanisation for Village Development"



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

J. M. S.

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

Chapter: 17

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

➢ Irrigation

- **METHODS OFIRRIGATION**

(i) Surface irrigation which includes thefollowing:
(a) Uncontrolled (or wild or free) floodingmethod,
(b) Border strip method,
(c) Check method,
(d) Basin method, and
(e) Furrow method.
(ii) Subsurface irrigation
(iii) Sprinkler irrigation
(iv) Trickle irrigation

(i) Surface Irrigation

In all the surface methods of irrigation, water is either ponder on the soil or allowed to flow continuously over the soil surface for the duration of irrigation. Although surface irrigation is theoldestandmostcommonmethodofirrigation,itdoesnotresultinhighlevelsofperformance. This is mainly because of uncertain in filtration rates which are affected by year-to-year changes in the cropping pattern, cultivation practices, climatic factors, and many other factors. As are silt, correct estimation of irrigation efficiency of surface irrigation is difficult. Application efficiencies for surface methods may range from about 40 to 80 percent.

(Fig 16.1 Surface irrigation)

(a) Uncontrolled (or wild or free) flooding method,
(b) Border strip method,
(c) Check method,
(d) Basin method ,and
(e) Furrow method

(ii) Subsurface Irrigation

Subsurface irrigation(or simply sub irrigation)is the practice of applying water to soils directly under the surface. Moisture reaches the plant roots through capillary action.

(Fig 16.2 Sub Surface irrigation)

Sometimes, when soil conditions are favorable for the production of cash crops.

- Impervious subsoil at a depth of 2 meters or more,
- A very permeable subsoil,
- A permeable loam or sandy loam surface soil,
- Uniform topographic conditions, and Moderate ground slopes.

(iii) Trickle Irrigation:

. (Fig 16.3 Trickle irrigation)

A well designed trickle or drip irrigation system benefits the environment by conserving water and fertilizer and requires little labor to use. Water is applied either on the surface, next to the plant, or subsurface, near the root zone.

Drip irrigation is a type of micro-irrigation system that has the potential to save water and nutrients by allowing water to drip slowly to the roots of plants, either from above the soil surface or buried below the surface. The goal is to place water directly into the root zone and minimize evaporation

(iv) Sprinkler Irrigation:

Sprinkler irrigation system allows application of water under high pressure with the help of a pump. It releases water similar to rainfall through a small diameter nozzle placed in the pipes. Water is distributed through a system of pipes, sprayed into air and irrigates in most of the soil type due to wide range of discharge capacity.

Advantages

- Eliminates water conveyance channels, thereby reducing conveyance loss.
- Suitable in all types of soil except heavy clay.

- Water saving up to 30% - 50 %.
- Suitable for irrigation where the plant population per unit area is very high.
- Helps to increase yield.
- Reduces soil compaction.
- Mobility of system helps system operation easy.
- Suitable for undulating land.
- Saves land as no bunds required.
- Soluble fertilizers and chemicals use are possible.
- Provides frost protection & helps in alteration of micro climate.
- Reduces labor cost.

(Fig 16.4 Sprinkle irrigation)

➢ Future Prospects

- India also has much less per capita water as compared to other leading agrarian countries. This problem is exacerbated because India has been exporting virtual water embedded in crops, which is marked by its feature of non-replenishment.
- Once it is exported, it cannot be recovered. Given this scenario, it is time to make a shift to micro-irrigation so that the efficient and judicious use of scarce water resources can be made.
- High initial costs deter farmers to adopt this technology. While big farmers can easily avail of this technology, the government should consider giving subsidies to small farmers to boost the adoption of this technology.

➢ Agricultural Activity

- The history of Agriculture in India dates back to Indus Valley Civilization and in some parts of Southern India, it was found to be practiced even before the Harappans.

- Today, India ranks second worldwide in farm output. The economic contribution of agriculture to India's GDP is steadily declining with the country's broad-based economic growth, yet, having nearly 50% of the population dependent on it for livelihood.
- Agriculture, along with fisheries and forestry, is one of the largest contributors to the Gross Domestic Product (GDP). As per the estimates by the Central Statistics Office (CSO), the share of agriculture and allied sectors (including agriculture, livestock, forestry, and fishery) is expected to be 17.3 percent of the Gross Value Added (GVA) during 2016-17 at 2011-12 prices.
- The Department of Agriculture and Cooperation under the Ministry of Agriculture is responsible for the development of the agriculture sector in India. It manages several other bodies, such as the National Dairy Development Board (NDDB), to develop other allied agricultural sectors.

Pradhan MantriKrishiSinchayeeYojana

The Indian Government encourages water conservation and its management to be at a high priority. In order to get this in motion, the Pradhan MantriKrishiSinchayeeYojana (PMKSY) was introduced with a vision of expanding irrigation coverage **(HarKhetkoPani)** and using the water more efficiently **(More Crop Per Drop).** This scheme will provide an end-to-end solution on source creation, distribution, management, field application, and other extension activities.

Objectives

1. Increasing accessibility of irrigation facilities and expansion of cultivable range under guaranteed irrigation areas (HarKhetkoPani)
2. Enhancing On-Farm water use efficiency to lessen wastage of water
3. Integrating the source, distribution, and efficiency of water through appropriate technologies
4. Enhancing and promoting the implementation of precision- irrigation and other water-saving technologies (More crop per drop)
5. Enhancing refilling of aquifers and present supportable water protection rehearses by investigating the attainability of reusing treated city-based water for peri-urban farming.
6. Peri-urban farming refers to farm units close to town which operate intensive semi- or fully commercial farms to grow vegetables and other horticulture, raise chickens and other livestock, and produce milk and eggs.

Ensuring integrated development of rained areas by different methods like:

- Regeneration of Groundwater
- Watershed approach for conserving water and soil
- Arresting runoff
- Providing livelihood and other NRM Activities (natural resource management)

Promoting extension activities for farmers and field workers like:

- Water Harvesting
- Water Management
- Crop alignment

Drawing in more noteworthy private investment in precision irrigation system framework. This will result in increased production and productivity which will further enhance farm income.

Future Prospects

- India needs a second green revolution to bring food security to its billion-plus population, to remove the distress of the farming community, and to make its agriculture globally competitive.
- To achieve these goals, yield rates of food grains, pulses, oilseeds, dairying and poultry, horticultural crops, and vegetables need to be enhanced; and forward-backward linkages of agriculture with technology, food processing industry needs to be strengthened to match soil to seed, and product to market.
- High productivity and better value addition by agro-processing are its key parameters.

➢ Agro Industry

- ✓ The Scheme of Mega Food Park aims at providing a mechanism to link agricultural production to the market by bringing together farmers, processors, and retailers to ensure maximizing value addition, minimizing wastage, increasing farmers' income, and creating employment opportunities, particularly in the rural sector.
- ✓ The Mega Food Park Scheme is based on the "Cluster" approach and envisages a well-defined agree/ horticultural-processing zone containing state-of-the-art processing facilities with support infrastructure and a well-established supply chain.
- ✓ 9 Mega Food Parks namely Patanjali Food and Herbal Park, Haridwar, Srini Food Park, Chittoor, North East Mega Food Park, Nalbari, International Mega Food Park, Fazilka, Integrated Food Park, Tumkur, Jharkhand Mega Food Park, Ranchi, Indus Mega Food Park, Khargoan, Jangipur Bengal Mega Food Park, Murshidabad, and MITS Mega Food Park Pvt Ltd, Rayagada are functional as on 30.06.2017.

Chapter: 18

18. Social Activities – Any Activates Planned By Students e.g Teaching Learning activities, awareness camp, business idea for SELF HELP GROUP OR ANY OTHER

Due to Covid-19 we are no able to plan any activity but we give the awareness about current situation of Corona and give some precaution and also we distributes mask and sanitizer.

Taken steps in allocated village related to existing situation

- They Maintain social distance with people
- Use of nose mask and sanitizer
- Maintaining hygienic condition
- Avoided travelling
- Drinking immunity booster

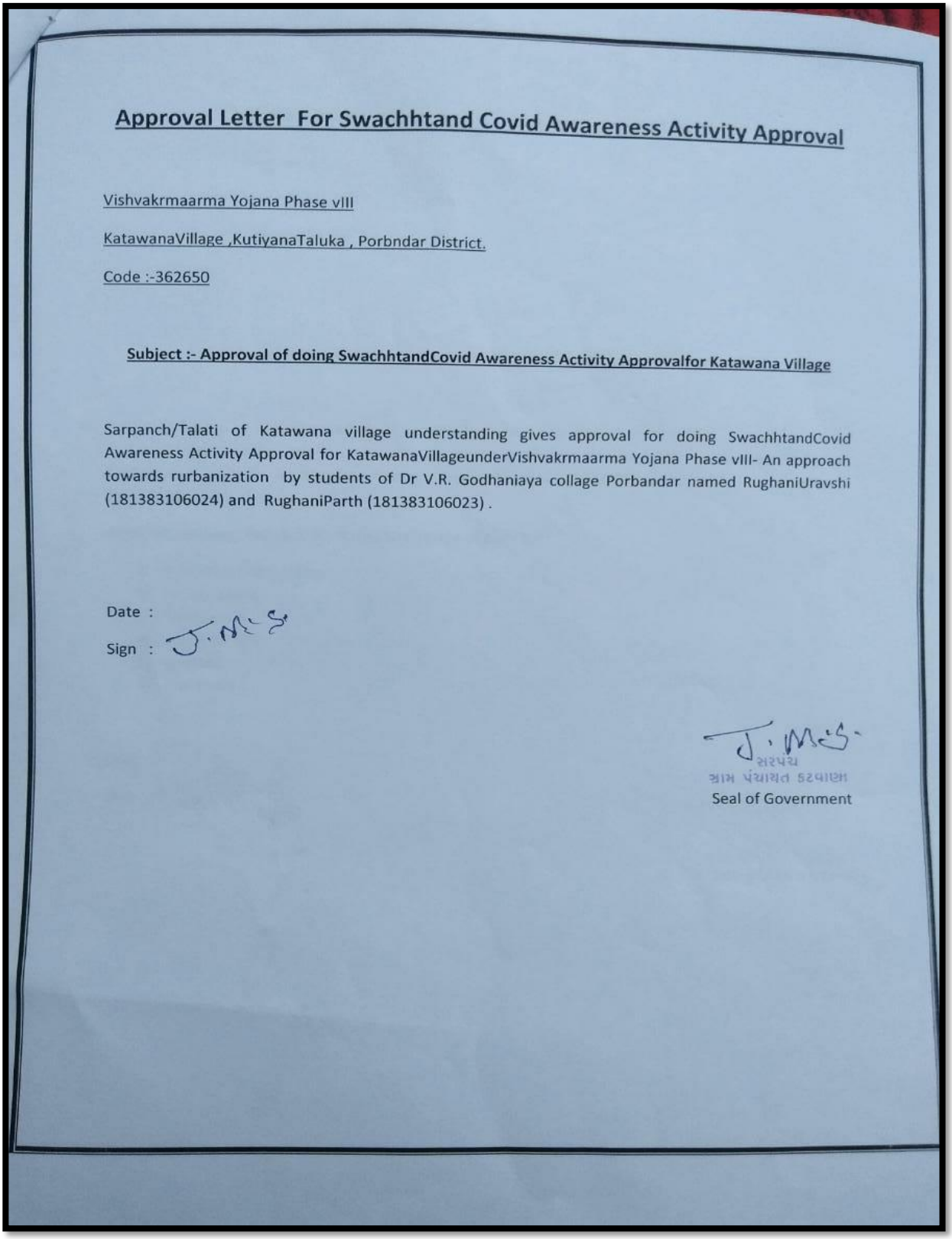
Activities Done by us for allocated village

Interaction with villagers and we explain them the severity of covid-19 & how dangerous it is. Villagers were not using mask and sanitizers so we distributed them sanitizers, mask and instructed them how to take precaution. Villagers still need to be made aware regarding pandemic situation and we get to know that in rural area people are still not taking this problem seriously. We told them though government has unlock the states and all activities are carried out in usual manners that doesn't mean the pandemic is over and we are virus free.

(Fig 18 Activity at village)

Approval Letter ForSwachhta&Covid Awareness Activity Approval:

1



Approval Letter For Swachhtand Covid Awareness Activity Approval

Vishvakrmaarma Yojana Phase vIII

KatawanaVillage ,KutiyanaTaluka , Porbndar District.

Code :-362650

Subject :- Approval of doing SwachhtandCovid Awareness Activity Approvalfor Katawana Village

Sarpanch/Talati of Katawana village understanding gives approval for doing SwachhtandCovid Awareness Activity Approval for KatawanaVillageunderVishvakrmaarma Yojana Phase vIII- An approach towards rurbanization by students of Dr V.R. Godhaniaya collage Porbandar named RughaniUravshi (181383106024) and RughaniParth (181383106023) .

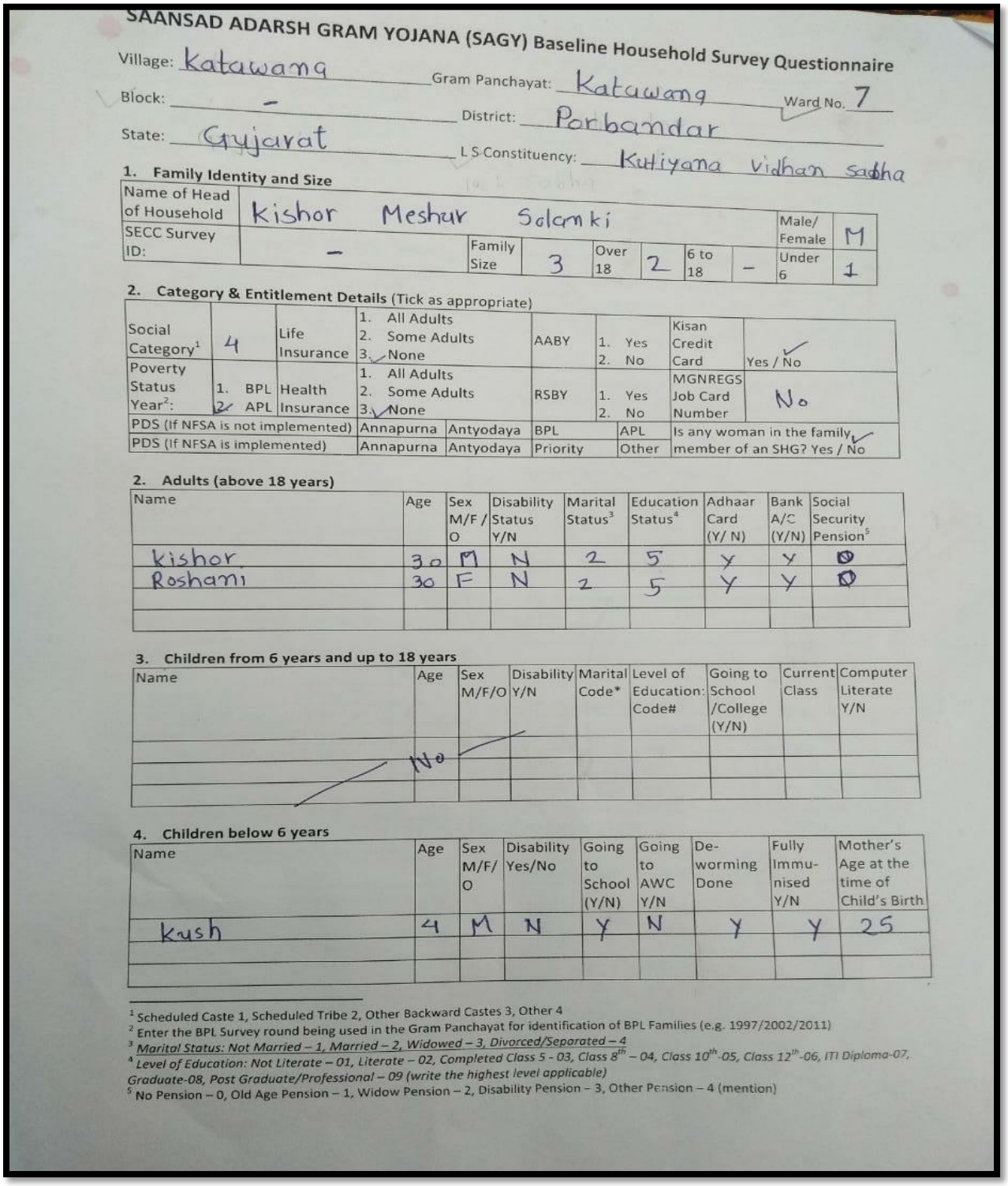
Date :

Sign :

સરપચ
ગ્રામ પંચાયત કટવાણા
Seal of Government

Chapter: 19

19.<<ALLOCATED VILLAGE>> SAGY Questionnaire Survey form with the Sarpanch Signature (Scanned copy attachment in the soft copy report and Original copy in hardbound report)



SAANSAD ADARSH GRAM YOJANA (SAGY) Baseline Household Survey Questionnaire

Village: Katawang Gram Panchayat: Katawang Ward No. 7

Block: - District: Porbandar

State: Gujarat L.S.Constituency: Kutiyana Vidhan Sabha

1. Family Identity and Size

Name of Head of Household	Kishor Meshur Solanki								Male/ Female	M
SECC Survey ID:	-	Family Size	3	Over 18	2	6 to 18	-	Under 6	1	

2. Category & Entitlement Details (Tick as appropriate)

Social Category[1]	4	Life Insurance	1. All Adults 2. Some Adults 3. ✓ None	AABY	1. Yes 2. No	Kisan Credit Card	Yes / ✓ No
Poverty Status Year[2]:	1. BPL 2. ✓ APL	Health Insurance	1. All Adults 2. Some Adults 3. ✓ None	RSBY	1. Yes 2. No	MGNREGS Job Card Number	No
PDS (If NFSA is not implemented)	Annapurna	Antyodaya	BPL	APL	Is any woman in the family member of an SHG? Yes / ✓ No		
PDS (If NFSA is implemented)	Annapurna	Antyodaya	Priority	Other			

2. Adults (above 18 years)

Name	Age	Sex M/F/O	Disability Status Y/N	Marital Status[3]	Education Status[4]	Adhaar Card (Y/N)	Bank A/C (Y/N)	Social Security Pension[5]
Kishor	30	M	N	2	5	Y	Y	0
Roshani	30	F	N	2	5	Y	Y	0

3. Children from 6 years and up to 18 years

Name	Age	Sex M/F/O	Disability Y/N	Marital Code*	Level of Education: Code#	Going to School /College (Y/N)	Current Class	Computer Literate Y/N
	No							

4. Children below 6 years

Name	Age	Sex M/F/O	Disability Yes/No	Going to School (Y/N)	Going to AWC Y/N	De-worming Done	Fully Immu-nised Y/N	Mother's Age at the time of Child's Birth
Kush	4	M	N	Y	N	Y	Y	25

[1] Scheduled Caste 1, Scheduled Tribe 2, Other Backward Castes 3, Other 4
[2] Enter the BPL Survey round being used in the Gram Panchayat for identification of BPL Families (e.g. 1997/2002/2011)
[3] Marital Status: Not Married – 1, Married – 2, Widowed – 3, Divorced/Separated – 4
[4] Level of Education: Not Literate – 01, Literate – 02, Completed Class 5 - 03, Class 8th – 04, Class 10th-05, Class 12th-06, ITI Diploma-07, Graduate-08, Post Graduate/Professional – 09 (write the highest level applicable)
[5] No Pension – 0, Old Age Pension – 1, Widow Pension – 2, Disability Pension – 3, Other Pension – 4 (mention)

SAANSAD ADARSH GRAM YOJANA (SAGY) Baseline Household Survey Questionnaire

5. Hand washing

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

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

7. Do members take Regular Physical Exercise

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

8. Consumption of Tobacco

	Smoking	Chewing
Adults	No	Yes
Children	-	-

9. House & Homestead Data

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

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

Source of Water		Distance
Piped Water at Home	Yes / No	4
Community Water Tap	Yes / No	4
Hand Pump (Public / Private)	Yes / No	N
Open Well(Public / Private)	Yes / No	No
Other (mention):		

11. Source of Lighting and Power

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

12. Landholding (Acres)

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

13. Principal Occupations in the Household

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

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

15. Agriculture Inputs

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

16. Agricultural Produce in a normal year (Top 3) No

Name	Unit	Quantity
-	-	-
-	-	-
-	-	-

17. Livestock Numbers No

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

18. What games do Children Play
Hide and seek, Kabadi, Cricket

19. Do children play musical instrument (mention)
yes

Schedule Filled By:
Principal Respondent: Dhanraj Natha Khodbhaya
Date of Survey: 20-5-21

Saansad Adarsh Gram Yojana (SAGY) Panchayat Details Survey Questionnaire

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

I. Basic Information

a. Gram Panchayat: Katawana

b. Block: _____

c. District: Porbandar

d. State: Gujarat

e. Lok Sabha Constituency: kutiya Vidhan sabha

f. Number of Wards in the Gram Panchayat: 7

g. Number of Villages in the Gram Panchayat: No

h. Names of Villages:

–

Demographic Information

Number of Households 114 Total Population 516 Male 260 Female 256

SC HHs 41 ST HHs – OBC HHs 475 Other HHs –

I. Access to Infrastructure / Facilities / Services

	Infrastructure Facilities / Services	Located within the GP Yes (Y)/No (N)	If located elsewhere (N), distance from the GP office
a.	ANM/ Health Sub Centre	N	16 Km
b.	Nearest Primary Health Centre (PHC)	Y	–
c.	Nearest Community Health Centre (CHC)	N	16 Km
d.	Nearest Post Office	N	16 Km
e.	Nearest Bank Branch (Any)	N	16 Km
f.	Nearest Bank with CBS Facility	N	16 Km
g.	Nearest ATM	N	16 Km
h.	Nearest Primary School	Y	16 Km
i.	Nearest Middle School	N	16 Km
j.	Nearest Secondary School	N	16 Km
k.	Nearest Higher Secondary School / +2 College	N	16 Km
l.	Nearest Graduate College	N	16 Km
m	Nearest ITI / Polytechnic Centre	N	16 Km
n	Kisan Seva Kendra	N	16 Km

1

Saansad Adarsh Gram Yojana (SAGY) Panchayat Details Survey Questionnaire

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

VII. Coverage of Villages under different Facilities & Services

	Parameter	Villages Status[1]	Names of Villages Covered	Names of Villages not Covered
a.	Piped Water Supply Coverage to Villages	Covered: yes Not Covered:	Yes Available - 100% Katawana	Katawana
b.	Hand Pump Coverage in Villages:	Covered: Not Covered: ✓	-	-
c.	Coverage under Covered Drains:	Covered: ✓ Not Covered:	Yes some area has covered drains Katawana	Katawana
d.	Coverage under Open Drains:	Covered: ✓ Not Covered:	Yes some area has open drains Katawana	Katawana
e.	Villages with Household Electricity Connection (Numbers)	Connected: ✓ Not Connected:	Yes Available - 100% Katawana	Katawana

VIII. Land and Irrigation

	Private Land	Area in Acres		Common Land	Area in Acres		Irrigation Structure	No.
a.	Cultivable Land	252.66	d.	Pasture / Grazing Land	-	g.	Check Dam	1
b.	Irrigated Land	195.22	e.	Forests/ Plantations	-	h.	Wells/Bore Wells	-
c.	Un-irrigated Land	57.44	f.	Other Common Land	22.37	i	Tanks /Ponds T P	2 1

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

Saansad Adarsh Gram Yojana (SAGY) Panchayat Details Survey Questionnaire

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

IX. Parameters relating to Households & Institutions

		Number
a)	Number of eligible Households for pension (old age, widow, disability)	-
b)	Number of Households receiving pension (old age, widow, disability)	-
c)	Number of eligible Households who are not receiving pension	-
d)	Number of Households eligible for Ration Card	114
e)	Number of eligible HHs having ration cards	114
f)	Number of households covered under RSBY (Rashtriya Swasthya Bima Yojana)	0
g)	Number of HHs covered under AABY (Aam Aadmi Bima Yojana)	0
h)	Number of active Job Card holders under MGNREGA	-
i)	Number of Job Card holders who completed 100 days of work during 2013-14	-
j)	Number of shops selling alcohol	0
k)	Number of BPL families	16
l)	Number of landless households	15
m)	Number of IAY beneficiaries	-
n)	Number of FRA[2] beneficiaries	-
o)	Number of Community Sanitary Complexes	1
p)	Number of Households headed by single women	-
q)	Number of Households headed by physically handicapped persons	-
r)	Total number of Persons with Disability in the village	-
s)	Number of SHGs	0
t)	Number of active SHGs	0
u)	Number of SHG Federations	0
v)	Number of Youth Clubs	0
w)	Number of Bharat Nirman Volunteers	0

Name and Signature of Surveyor and Respondent'

Surveyor	PRI Respondent (Preferably Gram Panchayat Chairperson)	Official Respondent (Preferably seniormost Government official in the Gram Panchayat)	Date of Survey
		ગ્રામ પંચાયત કડવાણા	20-5-21

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

4

SAANSAD ADARSH GRAM YOJANA (SAGY) Village Details Survey Questionnaire

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

I. Basic Information

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

-

Demographic Information

Number of Households 114 Total Population 516 Male 260 Female 256

SC HHs 41 ST HHs _____ OBC HHs 475 Other HHs _____

II. Access to Infrastructure/Amenities etc.

i.	Access to Infrastructure / Facilities / Services	Located in the Village Yes (Y)/No(N)	If located elsewhere (N), distance in kms from the village
a.	Nearest Primary School	Y	-
b.	Nearest Middle School	N	16 km
c.	Nearest Secondary School	N	16 km
d.	Kisan Seva Kendra	N	16 km
e.	Milk Cooperative /Collection Centre	Y	-
g.	Health Sub Centre	N	16 km
h.	Bank	N	16 km
i.	ATM	N	16 km
j.	Bus Stop	N	16 km
k.	Railway Station	N	30 km

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

1

SAANSAD ADARSH GRAM YOJANA (SAGY) Village Details Survey Questionnaire

i.	Access to Infrastructure / Facilities / Services	Located in the Village Yes (Y)/No(N)	If located elsewhere (N), distance in kms from the village
l	Library	N	16 km
m	Common Service Centre	N	16 km
n	Veterinary Care Centre	N	16 km

ii. Road Connectivity

a. Habitations connected by All-weather Roads - 3

If 3 mention the name of the habitations where not available: land, roads, sandy *(1-All 2-None 3-Some)*

iii. Drinking Water Facilities

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

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

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

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

iv. Coverage of Habitations under Waste Management System

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

If 3 mention the name of the habitations not covered:

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

If 3 mention the name of the habitations not covered:

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

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

v. Coverage of Habitations under Electrification

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

If 3 mention the name of the habitations not covered: 1

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

If 3 mention the name of the habitations not covered: 1

vi. Sports Facilities in the Village

a.Number of Play Grounds in the Village (minimum size 200 square meters): 0

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

vii. Education, ICDS

a. Number of Anganwadi Centres: 1

c. Schools (Number)

Primary Private: 0 Primary Govt.: 1

Middle Private: 0 Middle Govt.: 0

Secondary Private: 0 Secondary Govt.: 0

Higher Secondary Private: 0 Higher Secondary Govt: 0

2

SAANSAD ADARSH GRAM YOJANA (SAGY) Village Details Survey Questionnaire

viii. Land Category		Area in Acres		Land Category	Area in Acres		Irrigation Structure	No.
a.	Cultivable Land	252.66	d.	Pasture / Grazing Land	–	g.	Check Dam	1
b.	Irrigated Land	195.22	e.	Forests/ Plnatations	–	h.	Wells/Bore Wells	–
c.	Un-irrigated Land	57.44	f.	Other Common Land	22.37	I	Tanks /Ponds T P	2 1

ix. Entitlement Related Parameters		
1	Number of active Job Card holders under MGNREGA	–
2	Number of active Job Card holders who have completed 100 days of work	–
3	Number of shops selling alcohol	0
4	Number of BPL families	16
5	Number of landless households	15
6	Number of IAY beneficiaries	–
7	Number of FRA beneficiaries	–
8	Number of common sanitation complexes	1
9	Number of SHGs	0
10	Number of active SHGs	0
11	Existence of SHG Federation in the Village (Yes / No)	0
12	Number of Youth Clubs	0
13	Number of Bharat Nirman Volunteers	0

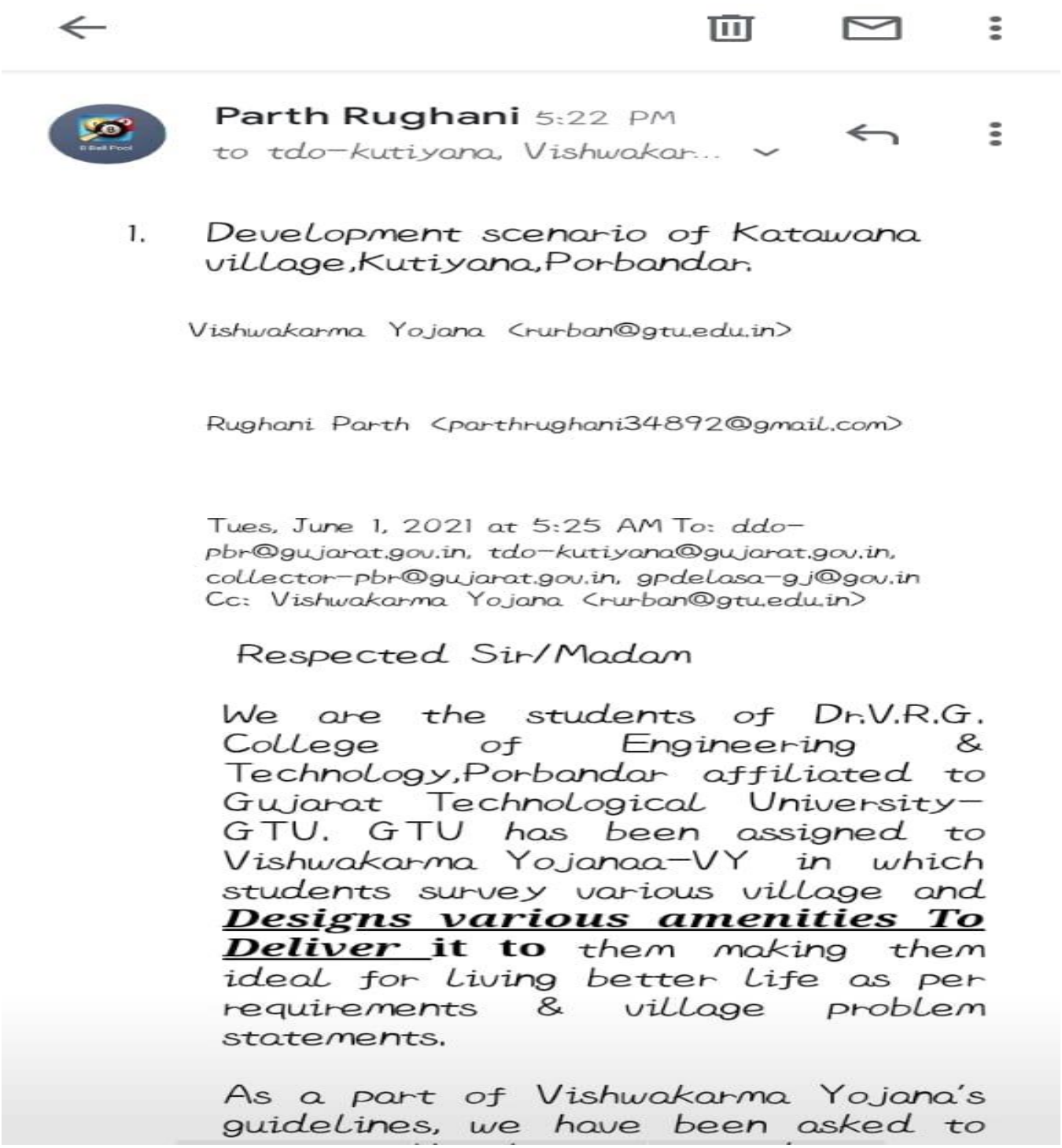
Name and Signature of Surveyor and Respondent'

Surveyor	PRI Respondent (Preferably a ward member from a ward that is fully or partially covered under the Village)	Official Respondent (Preferably seniormost Government official in the Gram Panchayat)	Date of Survey
		સરપંચ ગ્રામ પંચાયત કટવાણા	20-5-21

3

Chapter: 20

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



Parth Rughani 5:22 PM
to tdo-kutiyana, Vishwakar...

1. Development scenario of Katawana village,Kutiyana,Porbandar.

Vishwakarma Yojana <rurban@gtu.edu.in>

Rughani Parth <parthrughani34892@gmail.com>

Tues, June 1, 2021 at 5:25 AM To: ddo-pbr@gujarat.gov.in, tdo-kutiyana@gujarat.gov.in, collector-pbr@gujarat.gov.in, gpdelasa-gj@gov.in
Cc: Vishwakarma Yojana <rurban@gtu.edu.in>

Respected Sir/Madam

We are the students of Dr.V.R.G. College of Engineering & Technology,Porbandar affiliated to Gujarat Technological University-GTU. GTU has been assigned to Vishwakarma Yojanaa-VY in which students survey various village and ***Designs various amenities To Deliver*** **it to** them making them ideal for living better life as per requirements & village problem statements.

As a part of Vishwakarma Yojana's guidelines, we have been asked to

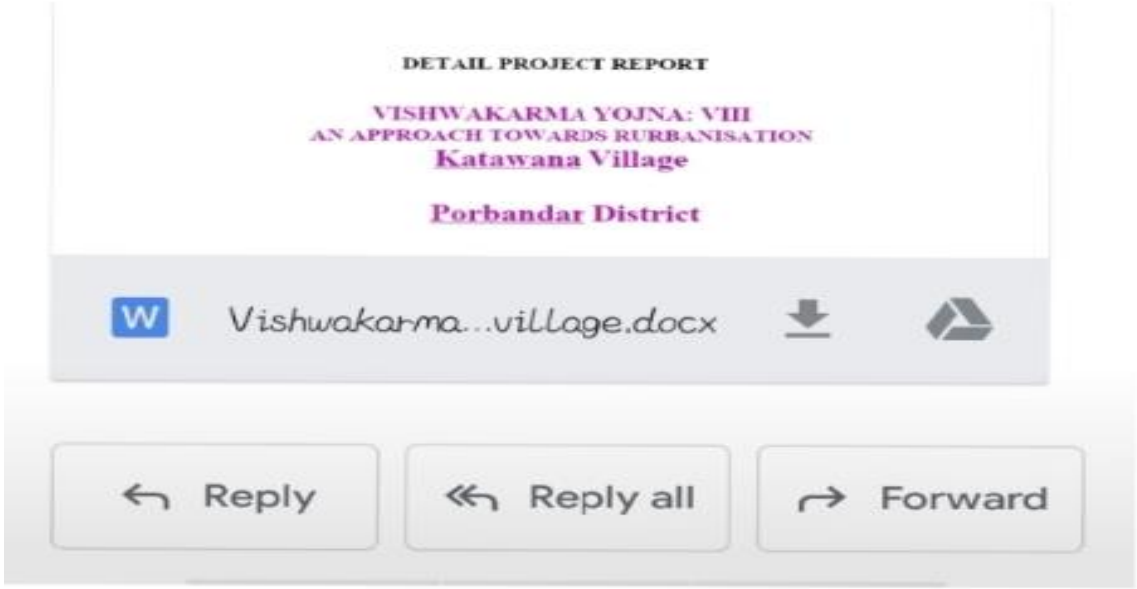
As a part of Vishwakarma Yojana's guidelines, we have been asked to inform all the respected officers about the our project in which we will shortly notify about Katawana Village profile of issues for development and our design work for them which is as below.

Village : Katawana		Population: 564 (As of Census 2011)
Key Issue	**Remark**	**Design Given**
Water Scarcity	Water storage capacity of ESR-UG is enough but Some time they suffering from water problem so if possible than use the water maximum.	· Rain Water Harvesting system · Proper Network of drainage to save rain water
Internal Road Network	During rainy season it gets muddy as well as safetyof integrated village is at risk due to no availability of street network.	· Proper road network
Biogas plant	Due to live stock there is stock of dung so we use this dung in biogas plant.	· Biogas plant
Toilet	Most of houses has the toilet but there is requirement of public toilet.	· Public Toilet
Aaganvadi	In school the Aaganvadi run so we provide a new Aaganvadi in village.	· Aaganvadi
Post office	Post office is needed for village if we provide Post office than people can deposited their money in post office	· Post office
Community hall	There is one community hall but the condition of the hall is not ok so its required a new community hall.	· Community hall
Speaker with CCTV camera	At time of any situation to alert the people we give the information them from speaker and for reducing crime camera help.	· Speaker with camera

Sr.No	Design Name	Period (Months)	Amount Expenditure	Benefit
1	Rainwater Harvesting	1		Utility Water Storage

Sr.No	Design Name	Period (Months)	Amount Expenditure	Benefit
1	Rainwater Harvesting	1		Utility Water Storage
2	Biogas Plant	2		Use of dung
3	ATM	3		Easy to deposited or withdrawn money
4	Septic Tank	1		Store the maximum water
5	Dustbin	1		For making hygienic condition in the village
6	Bus stand	3		For communication
7	Design of Speaker system with CCTV camera	1		Help in reduce the crime
8	Post office	6		For deposited and withdraw the money
9	Community hall	3		To organize events
10	Public Toilet	2		Sanitation
11	Aanganvadi	3		Education
12	Grampanchayat	6		Identification of village

Mail:rughaniparth34892@gmail.com
Mail:rughaniuravshi@gmail.com



Chapter: 21

21.Comprehensive report for the entire village

Concept

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

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

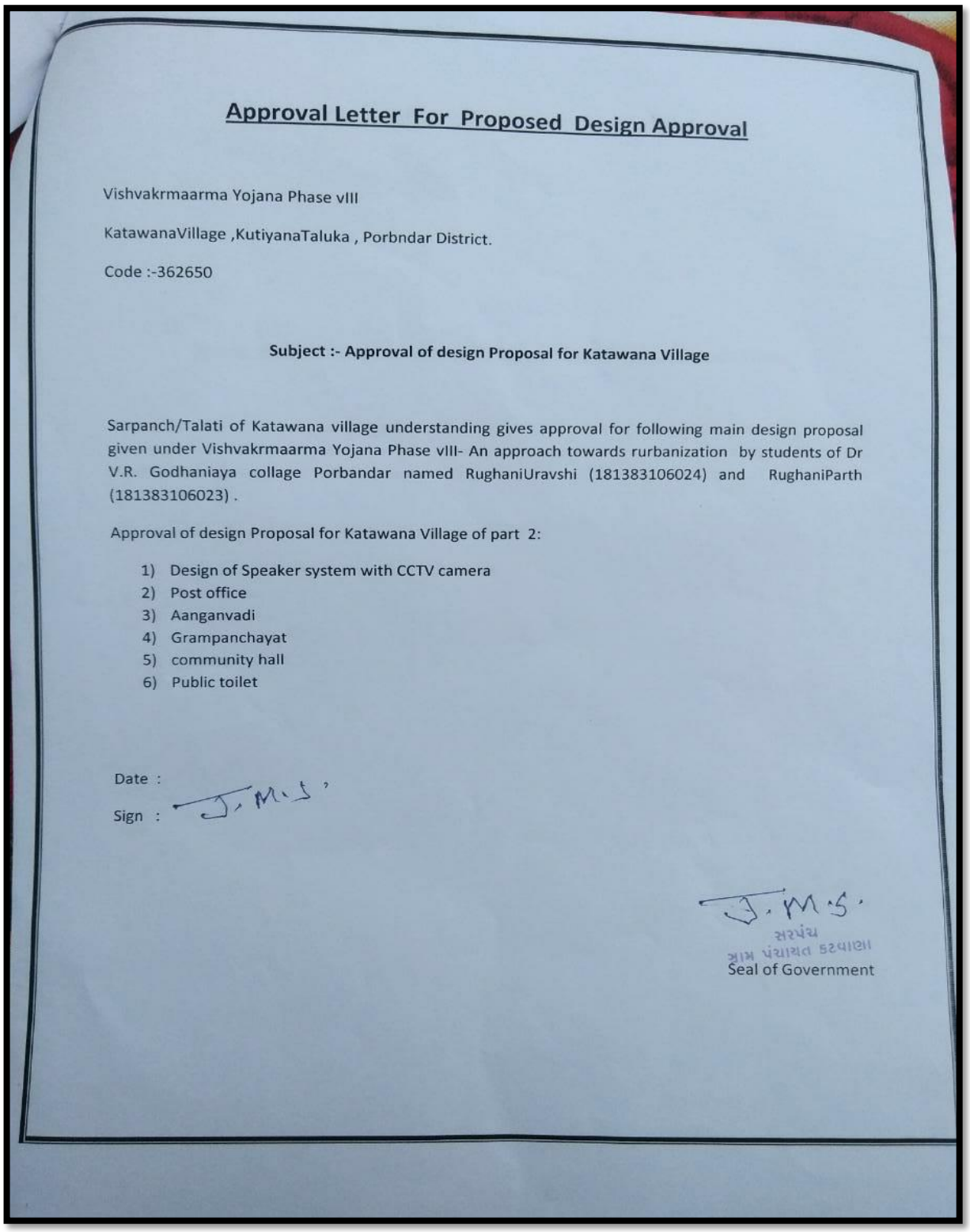
Nodal Officer Statement:

By providing this required facility to village, development and growth of village can be possible. So ultimately migration rate and urban city pressure can be reduced and livelihood of village dweller will increase.

All the design which is given as above are very helpful for future development of village and village people for their enhancement and prosperity. I admire these students to do work related to civil engineering people and hope these works is help to improve and understand their skills and make it even batter. I am sure they got deep knowledge about development of village and various infrastructure facility design of village. Lastly, we all enjoyed the informational as well as practical journey of civil engineering work.

Nodal Officer
Mr. Yash Dasani
Dr. V. R. Godhania Collage of Engineering & Technology

Sarpanch Letter giving information about the village development :



Approval Letter For Proposed Design Approval

Vishvakrmaarma Yojana Phase vIII

KatawanaVillage ,KutiyanaTaluka , Porbndar District.

Code :-362650

Subject :- Approval of design Proposal for Katawana Village

Sarpanch/Talati of Katawana village understanding gives approval for following main design proposal given under Vishvakrmaarma Yojana Phase vIII- An approach towards rurbanization by students of Dr V.R. Godhaniaya collage Porbandar named RughaniUravshi (181383106024) and RughaniParth (181383106023) .

Approval of design Proposal for Katawana Village of part 2:

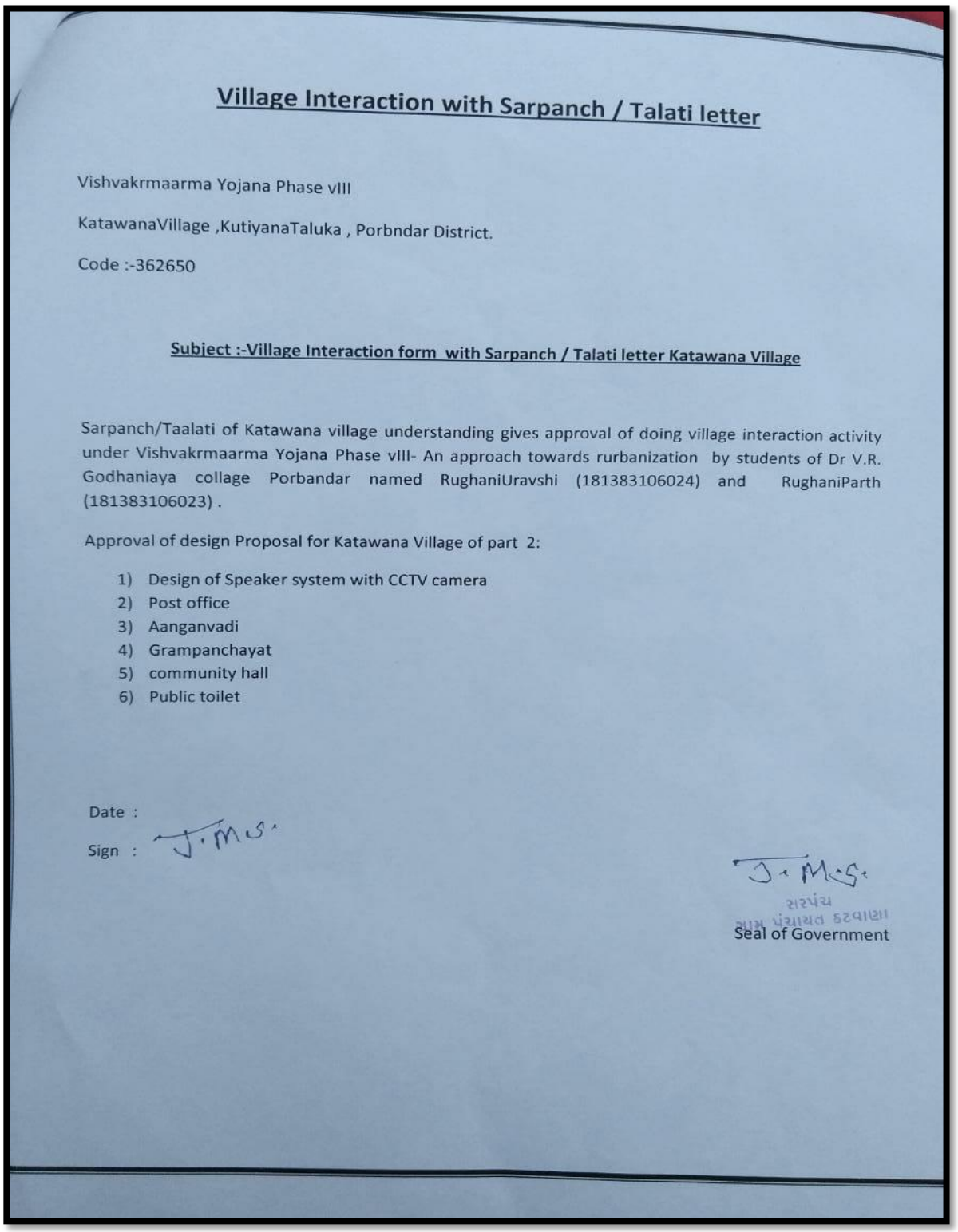
1) Design of Speaker system with CCTV camera
2) Post office
3) Aanganvadi
4) Grampanchayat
5) community hall
6) Public toilet

Date :

Sign :

સરપંચ
ગ્રામ પંચાયત કટવાણા
Seal of Government

Village Interaction WithSarpanch/ Talati letter



Village Interaction with Sarpanch / Talati letter

Vishvakrmaarma Yojana Phase vIII

KatawanaVillage ,KutiyanaTaluka , Porbndar District.

Code :-362650

Subject :-Village Interaction form with Sarpanch / Talati letter Katawana Village

Sarpanch/Taalati of Katawana village understanding gives approval of doing village interaction activity under Vishvakrmaarma Yojana Phase vIII- An approach towards rurbanization by students of Dr V.R. Godhaniaya collage Porbandar named RughaniUravshi (181383106024) and RughaniParth (181383106023) .

Approval of design Proposal for Katawana Village of part 2:

1) Design of Speaker system with CCTV camera
2) Post office
3) Aanganvadi
4) Grampanchayat
5) community hall
6) Public toilet

Date :

Sign : J.M.S.

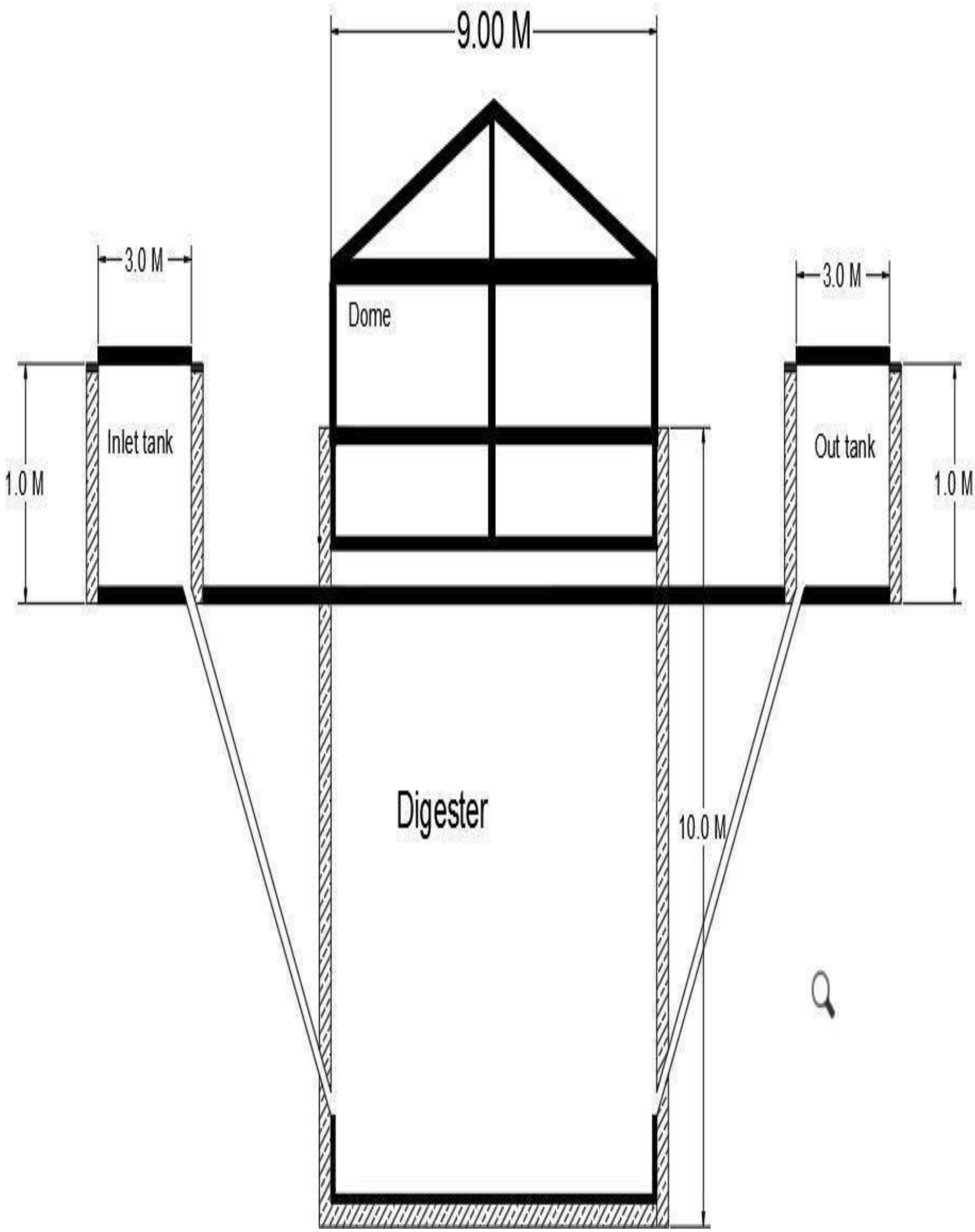
J.M.S.

સરપંચ

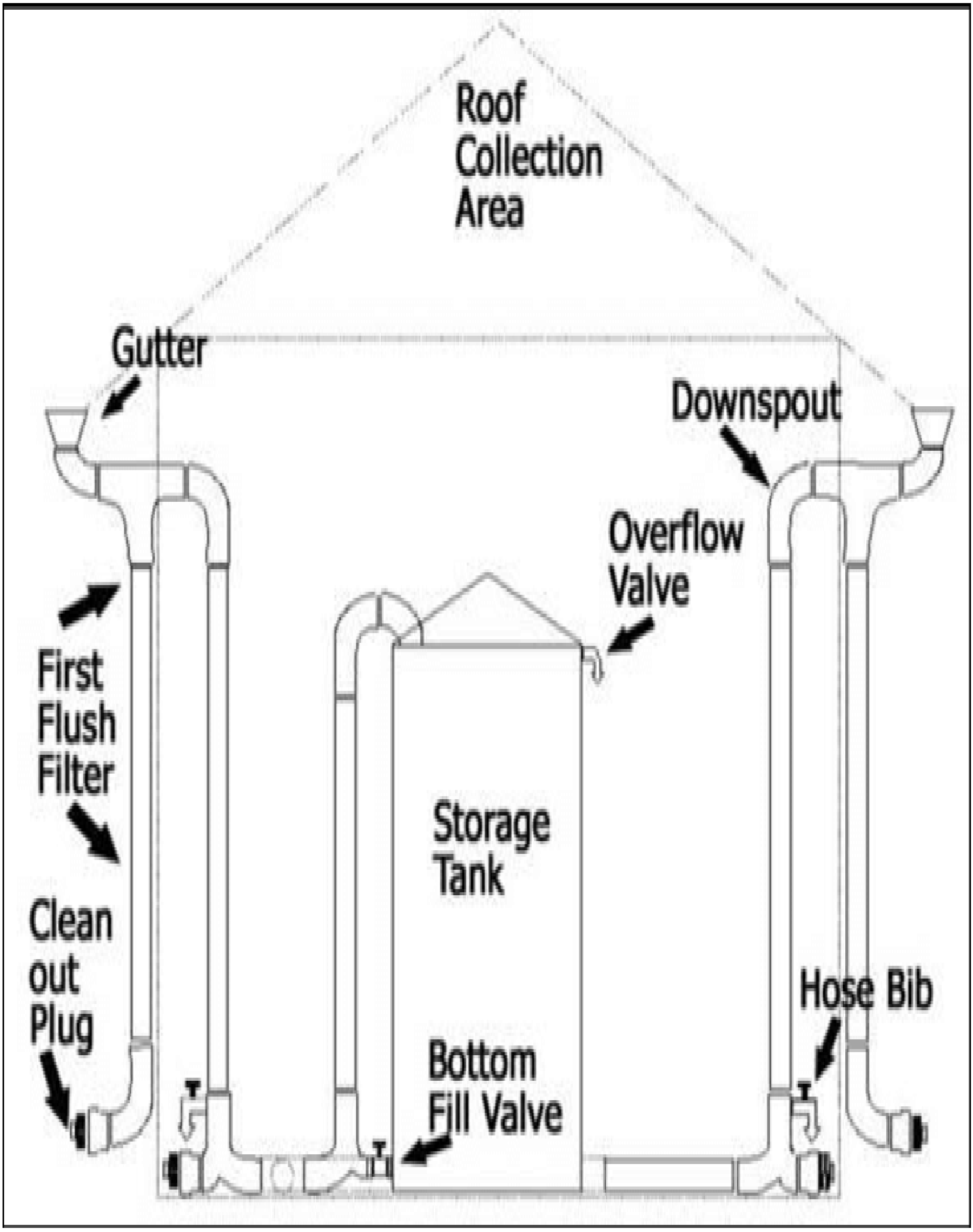
ગ્રામ પંચાયત કટવાણા

Seal of Government

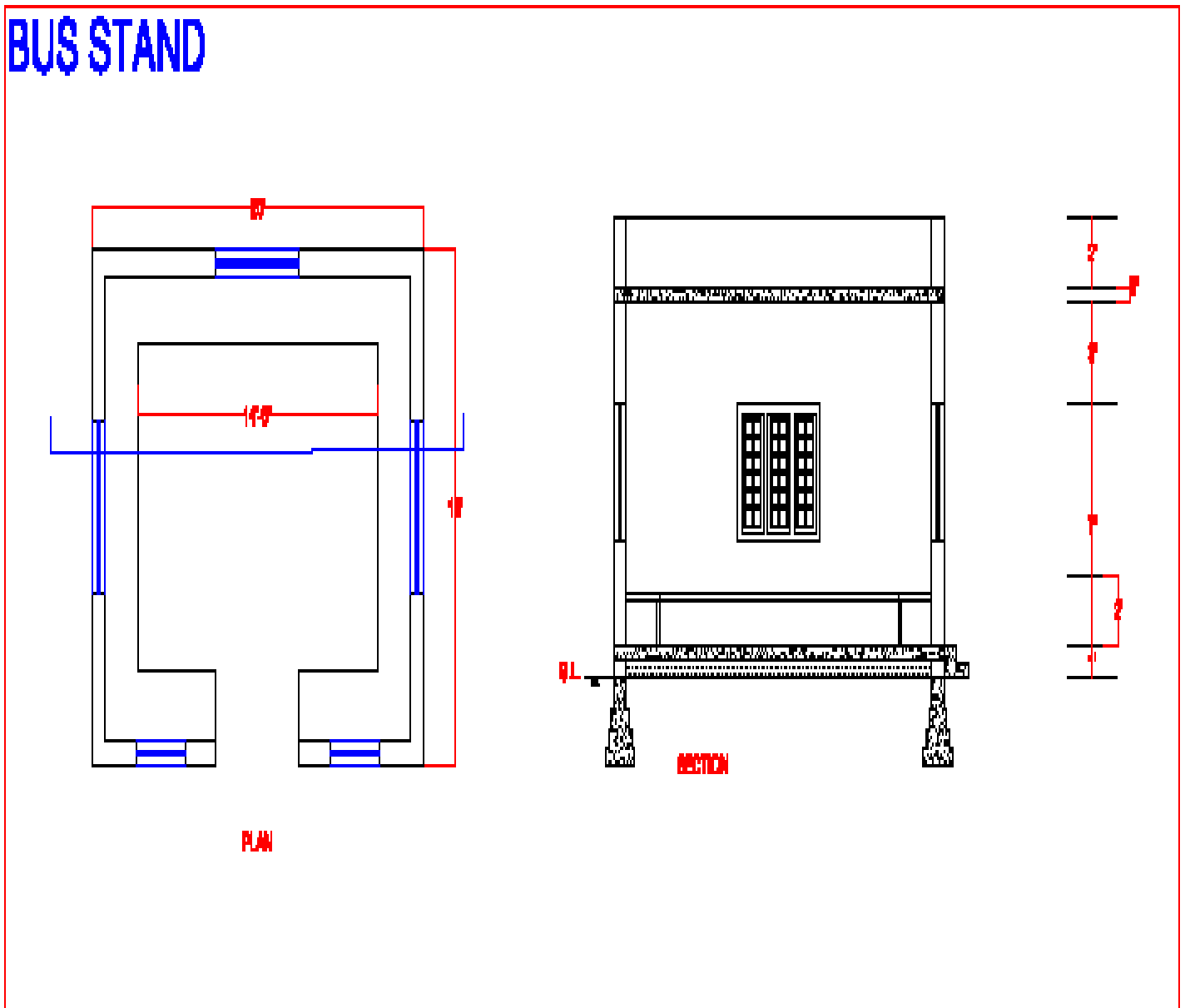
Biogas plant



Rainwater harvesting



- **Bus stand**



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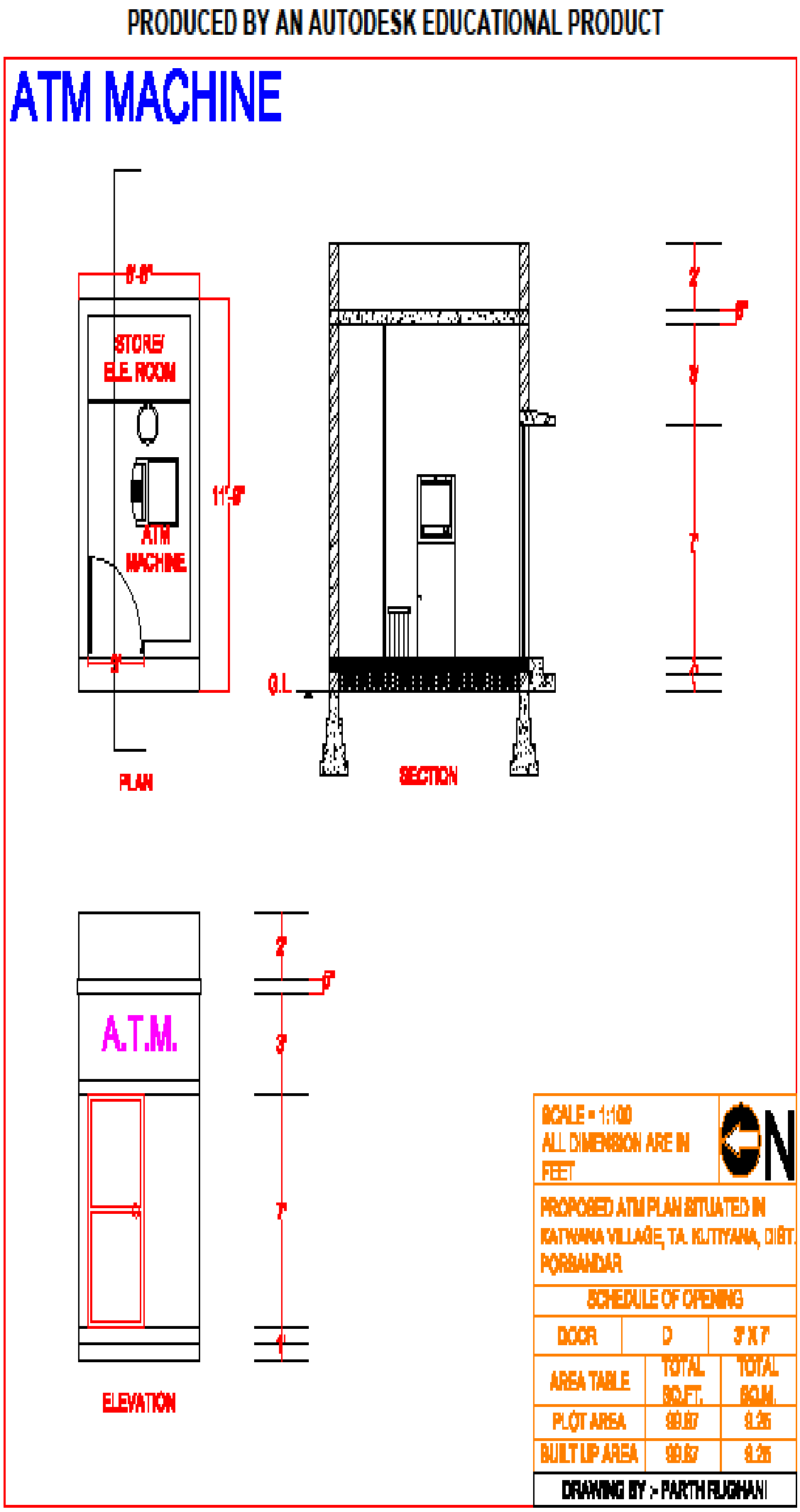
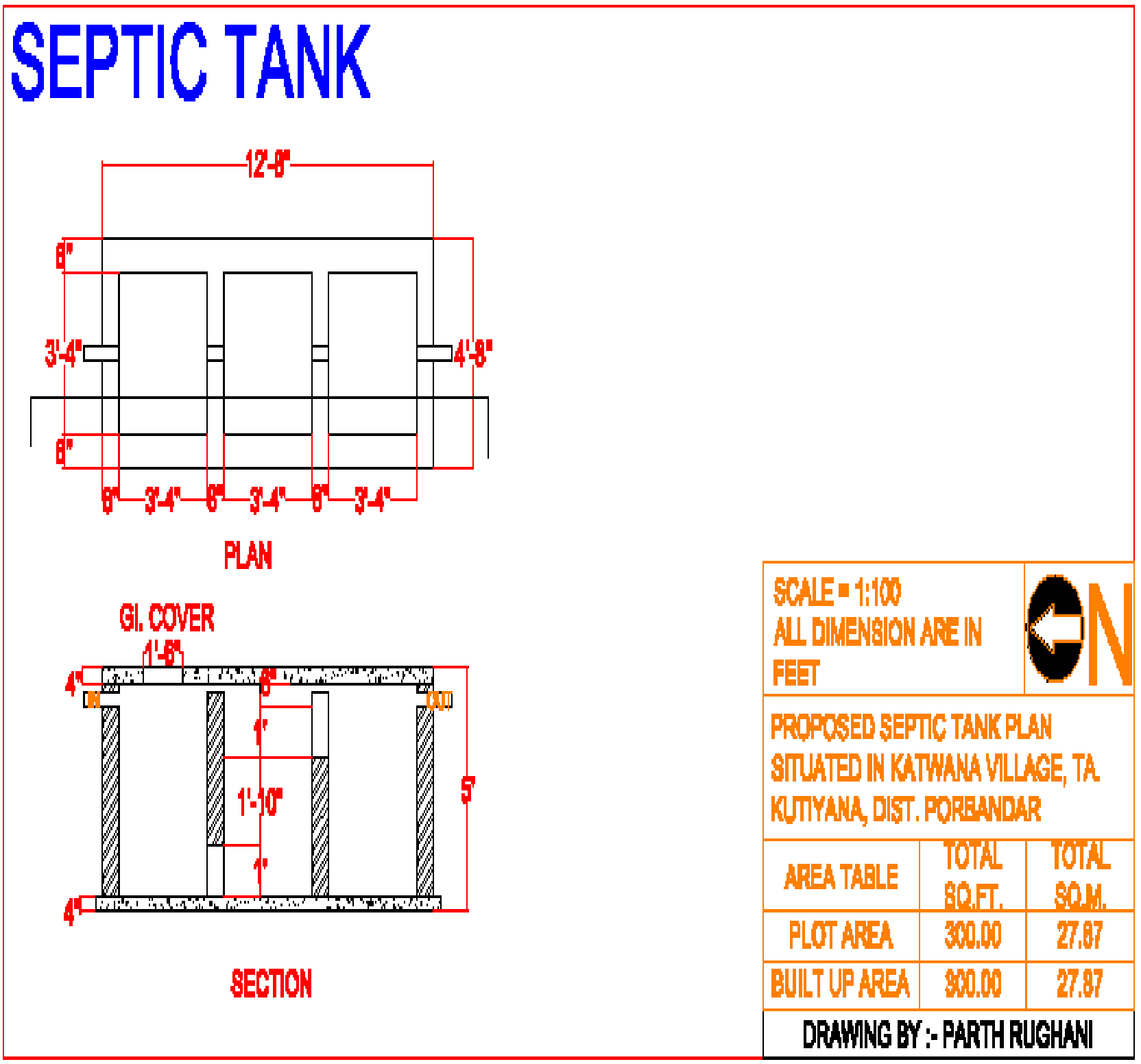
- **ATM**


PRODUCED BY AN AUTODESK EDUCATIONAL PRODUCT
ATM MACHINE
STORE/ ELE.ROOM
ATM MACHINE
PLAN
Q.L
SECTION
A.T.M.
ELEVATION
SCALE = 1:100
ALL DIMENSION ARE IN FEET
PROPOSED ATM PLAN SITUATED IN KATWANA VILLAGE, TA. KUTIYANA, DIST. PORBANDAR
SCHEDULE OF OPENING
DOOR D 3' X 7'
AREA TABLE TOTAL SQ.FT. TOTAL SQ.M.
PLOT AREA 99.857 9.276
BUILT UP AREA 99.857 9.276
DRAWING BY :- PARTH RUGHANI
PRODUCED BY AN AUTODESK EDUCATIONAL PRODUCT

- **Septic tank**



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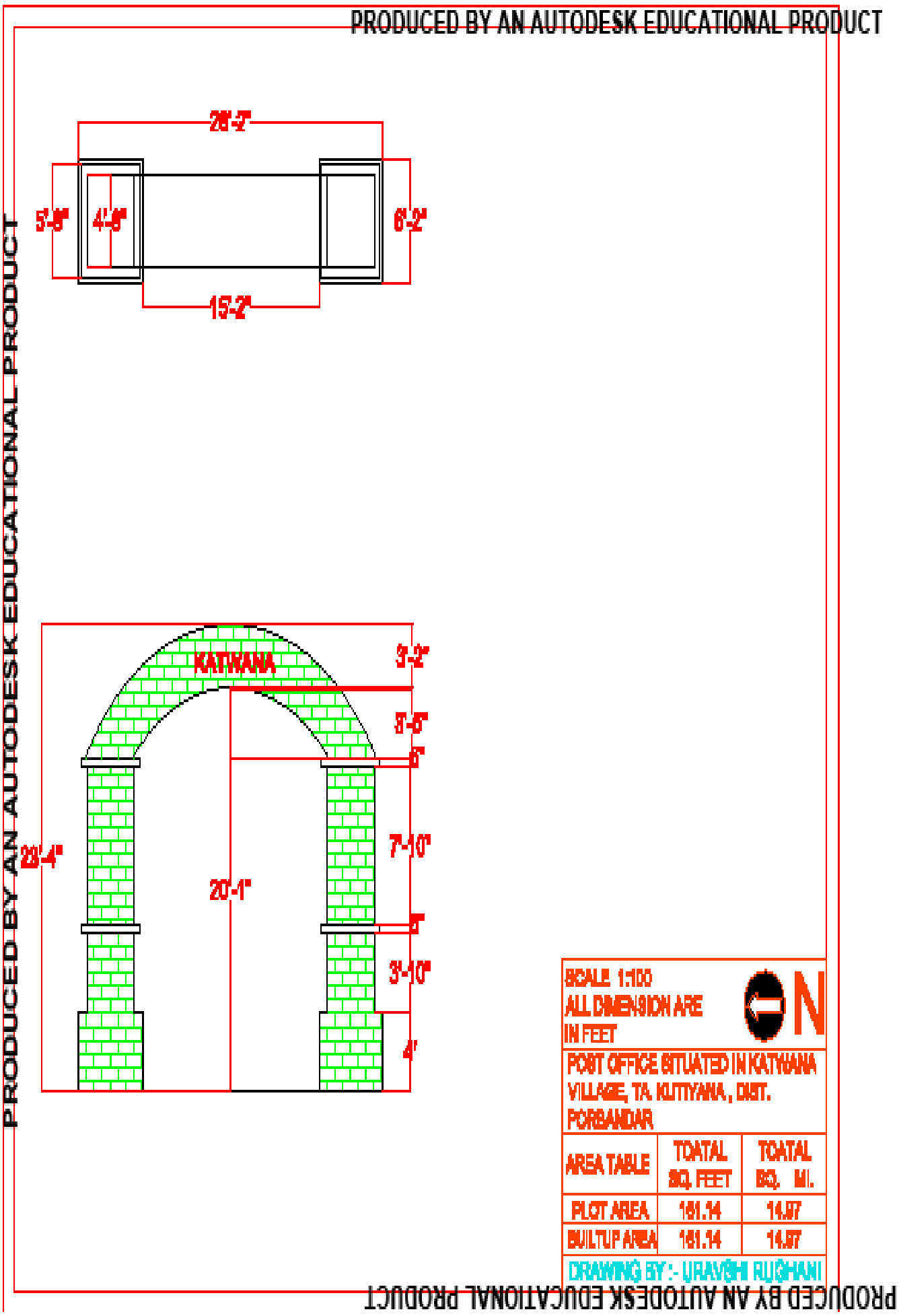
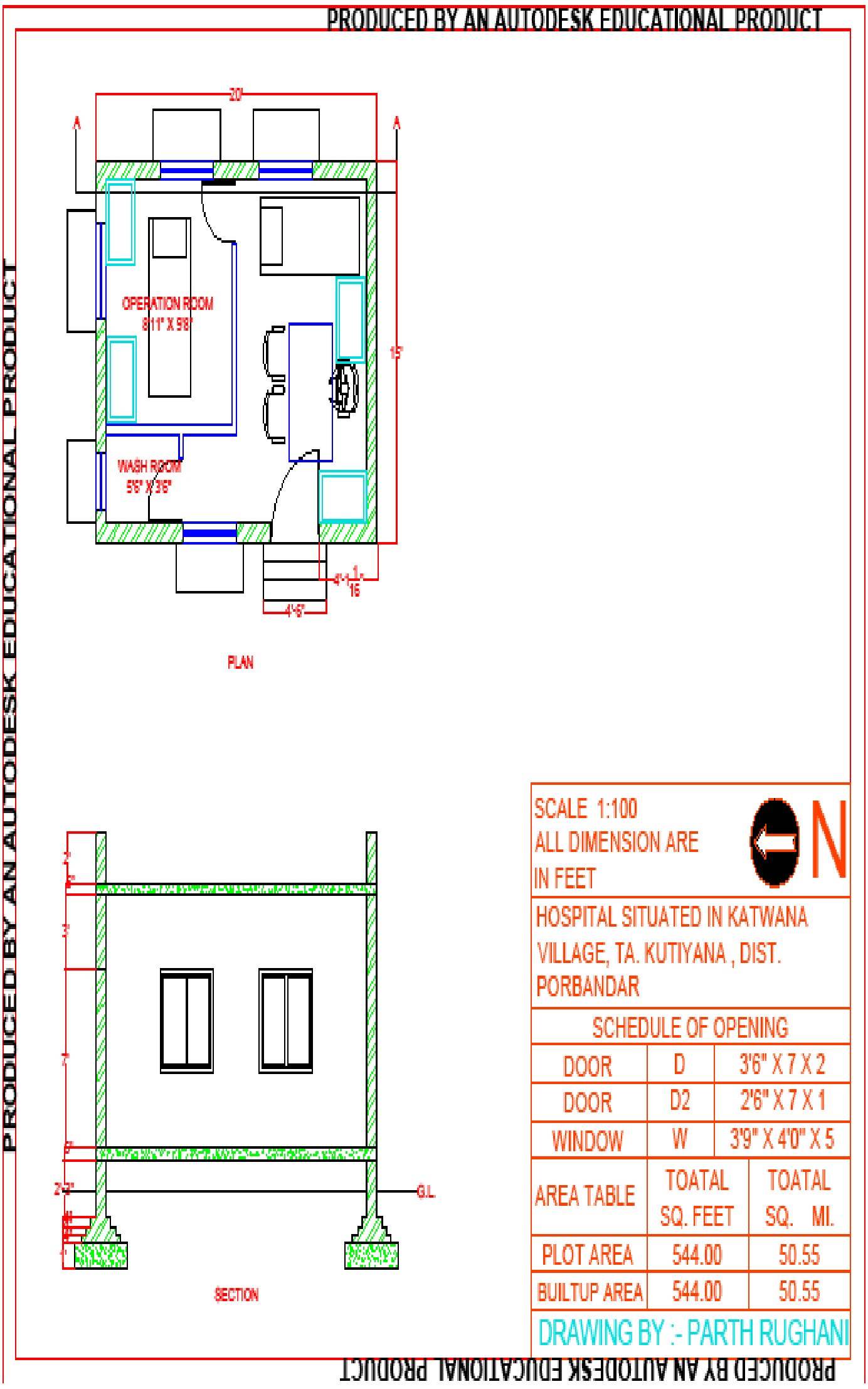
PRODUCED BY AN AUTODESK EDUCATIONAL PRODUCT

- **Entrance gate**



- **Hospital**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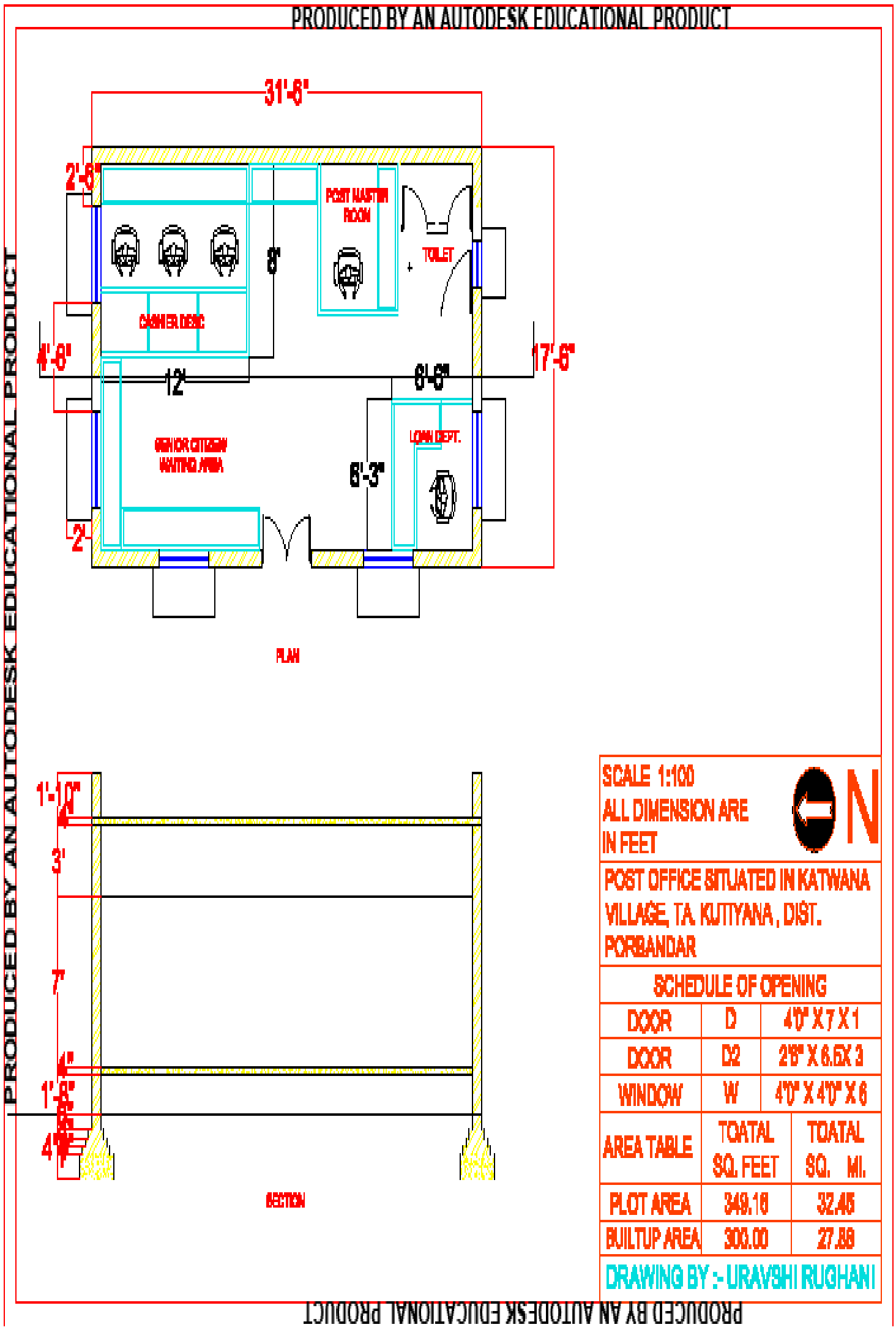
20'
A
A
OPERATION ROOM
8'11" X 9'8"
15'
WASH ROOM
5'6" X 3'6"
4'-1 1/16"
4'-6"
PLAN
2'-3"
G.L.
SECTION
SCALE 1:100
ALL DIMENSION ARE
IN FEET
N
HOSPITAL SITUATED IN KATWANA
VILLAGE, TA. KUTIYANA , DIST.
PORBANDAR
SCHEDULE OF OPENING
DOOR D 3'6" X 7 X 2
DOOR D2 2'6" X 7 X 1
WINDOW W 3'9" X 4'0" X 5
AREA TABLE TOATAL SQ. FEET TOATAL SQ. MI.
PLOT AREA 544.00 50.55
BUILTUP AREA 544.00 50.55
DRAWING BY :- PARTH RUGHANI
PRODUCED BY AN AUTODESK EDUCATIONAL PRODUCT

- Post office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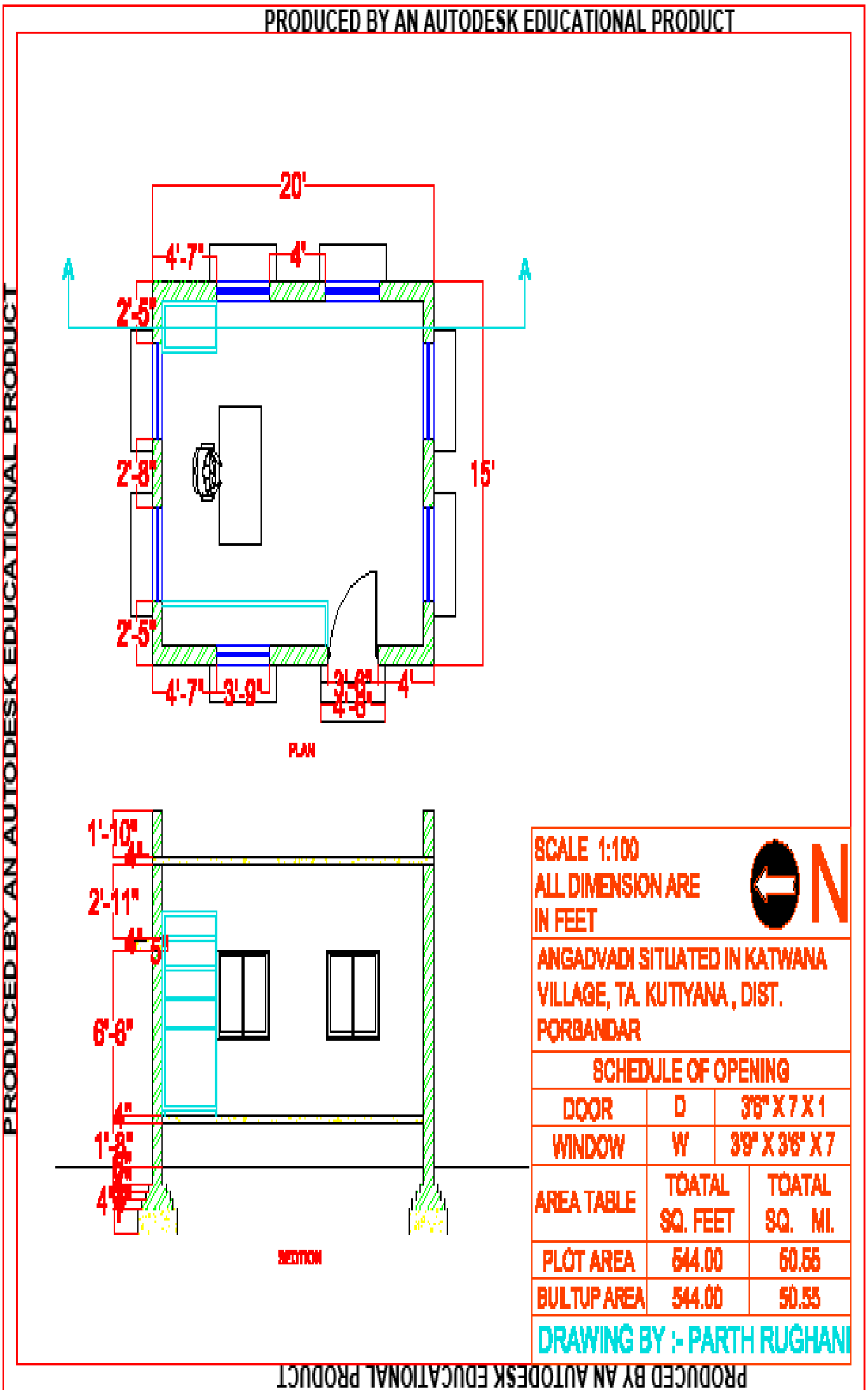
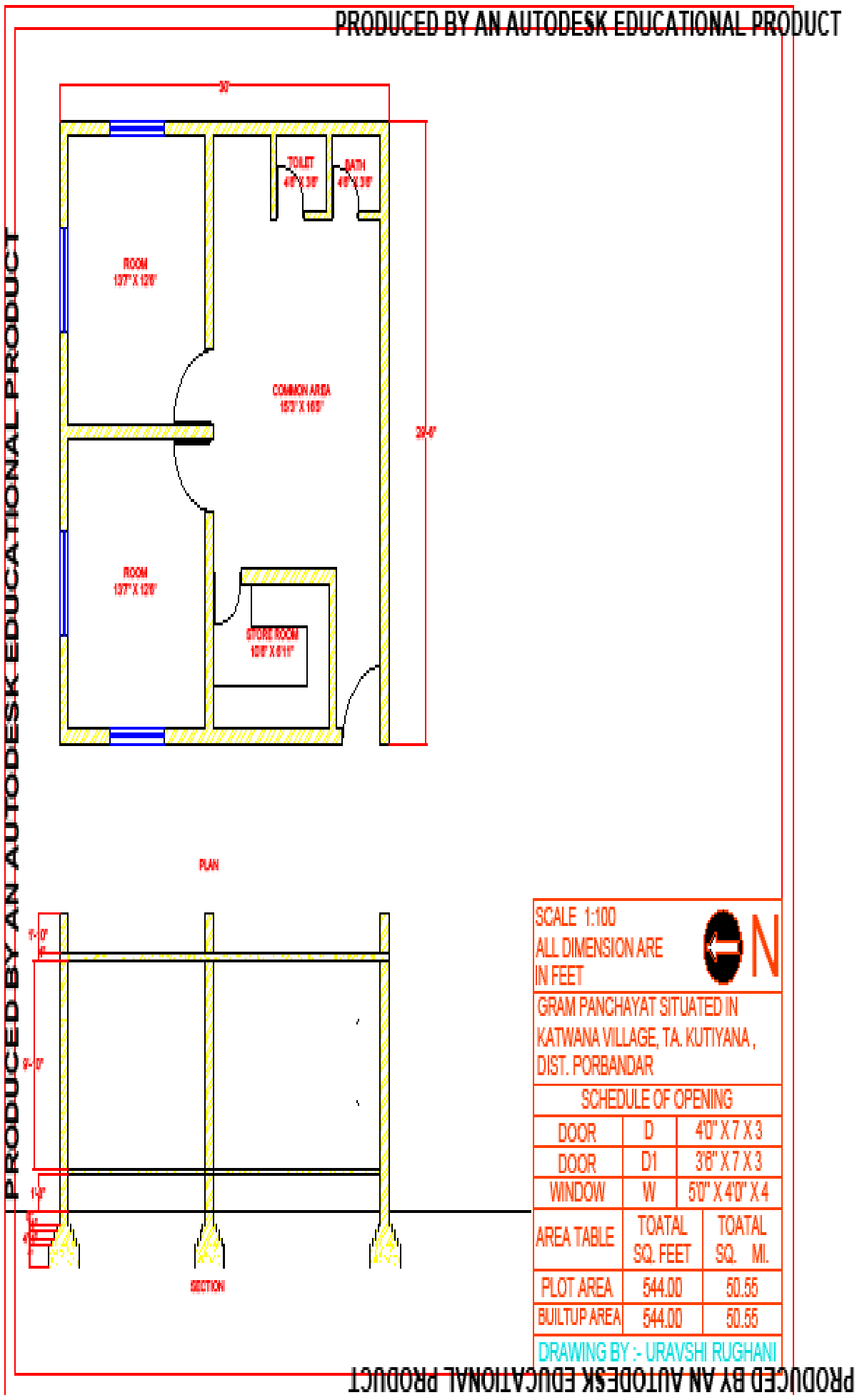
31'-6"
2'-6"
POST MASTER ROOM
TOILET
CASHIER DESC
4'-8"
12'
6'-6"
17'-5"
SENIOR CITIZEN WAITING AREA
LOAN DEPT.
6'-3"
2'
PLAN
1'-10"
3'
7'
1'-8"
4'
SECTION
SCALE 1:100
ALL DIMENSION ARE IN FEET
N
POST OFFICE SITUATED IN KATWANA VILLAGE, TA. KUTIYANA, DIST. PORBANDAR
SCHEDULE OF OPENING
DOOR D 4'0" X 7 X 1
DOOR D2 2'6" X 6.5X 3
WINDOW W 4'0" X 4'0" X 6
AREA TABLE TOATAL SQ. FEET TOATAL SQ. MI.
PLOT AREA 349.16 32.45
BUILTUP AREA 300.00 27.89
DRAWING BY :- URAVSHI RUGHANI
PRODUCED BY AN AUTODESK EDUCATIONAL PRODUCT

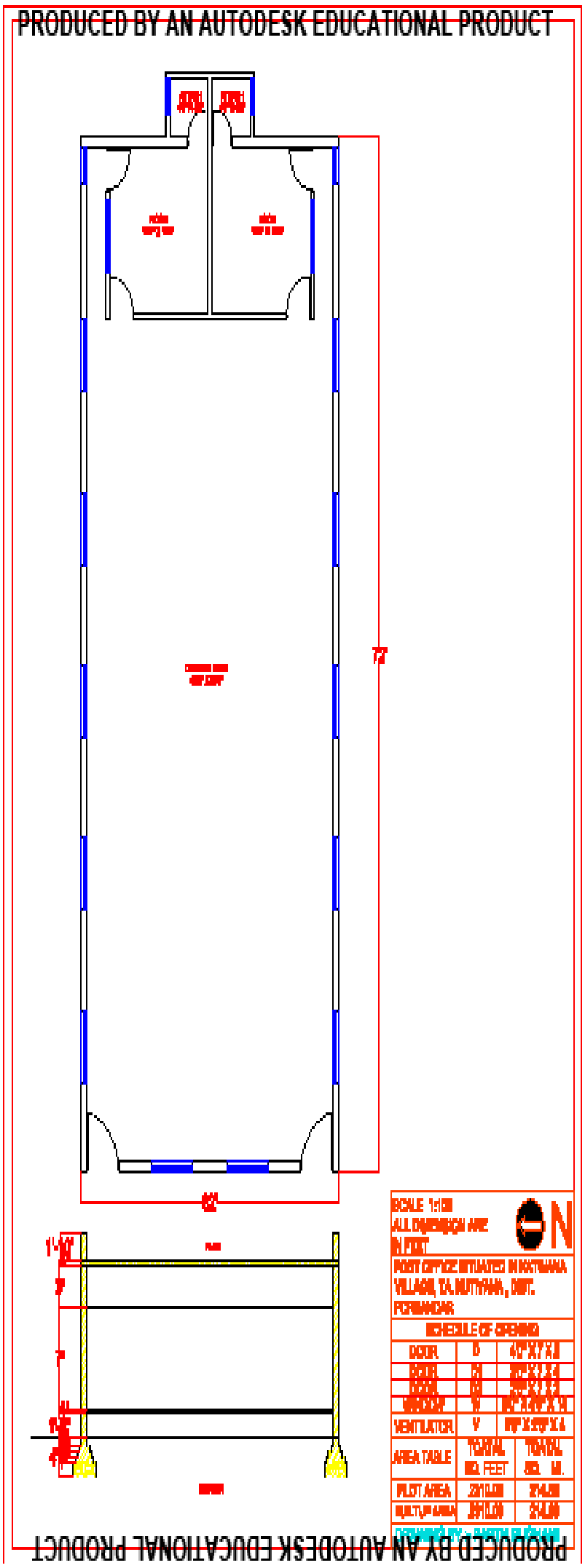
- Aaganvadi


PRODUCED BY AN AUTODESK EDUCATIONAL PRODUCT
20'
4'-7"
4'
2'-5"
A
A
2'-8"
15'
2'-5"
4'-7"
3'-9"
3'-8"
4'
4'-8"
PLAN
1'-10"
2'-11"
6"
5"
6'-8"
4"
1'-2"
4"
SECTION
SCALE 1:100
ALL DIMENSION ARE IN FEET
N
ANGADVADI SITUATED IN KATWANA VILLAGE, TA. KUTIYANA, DIST. PORBANDAR
SCHEDULE OF OPENING
DOOR D 3'6" X 7 X 1
WINDOW W 3'9" X 3'6" X 7
AREA TABLE TOATAL SQ. FEET TOATAL SQ. MI.
PLOT AREA 544.00 50.55
BUILTUP AREA 544.00 50.55
DRAWING BY :- PARTH RUGHANI
PRODUCED BY AN AUTODESK EDUCATIONAL PRODUCT

- Grampanchayat



- Community hall



- Public toilate