DETAIL PROJECT REPORT

VISHWAKARMA YOJNA: VIII
AN APPROACH TOWARDS RURBANISATION
VAV Village
SURAT District

PREPARED BY

STUDENT NAME	BRANCH NAME	ENROLLMENT NO
GAJWANI VARUN MANOJ	CIVIL ENGINEERING	180063106022
KANUNGO NURULAINKHAN MUBASSHIR AHMEDKHAN	CIVIL ENGINNERING	180063106046

COLLEGE NAME:

BHAGWAN MAHAVIR COLLEGE OF ENGINEERING & TECHNOLOGY, SURAT.

NODAL OFFICERS NAME:
Asst. Prof. Dixit Chauhan
Lecturer, Civil department

YEAR:2020-21

GUJARAT TECHNOLOGICAL UNIVERSITY
Chandkheda, Ahmedabad– 382424 Gujarat

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LECTURER CIVIL ENGG DEPARTMENT

Year: 2020-21

Gujarat Technological University,
Chandkheda, Ahmedabad– 382424 Gujarat

CERTIFICATE

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

Detail Project Report for,
VILLAGE: VAV
DISTRICT: SURAT

Under

Vishwakarma Yojana: Phase-VIII

in partial fulfillment of the project offered by

GUJARAT TECHNOLOGICAL UNIVERSITY,CHANDKHEDA

During the academic year
2020-21.

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

STUDENT NAME	BRANCH NAME	ENROLLMENT NO
GAJWANI VARUN MANOJ	CIVIL ENGINEERING	180063106022
KANUNGO NURULAINKHAN MUBASSHIR AHMEDKHAN	CIVIL ENGINNERING	180063106046

Date of Report Submission:	
Principal Name and Signature:	**Dr. VINEET GOEL**
VY-Nodal Officer Name and Signature:	**Asst. Prof. Dixit Chauhan**
Internal(Evaluator) Guide Name and Signature:	**Asst. Prof. Dixit Chauhan**
College Name:	**BHAGWAN MAHAVIR COLLEGE OF ENGG & TECHNLOGOY**
College Stamp:	

ABSTRACT:

The Government of Gujarat has launched Vishwakarma Yojana: An Approach towards Rurbanisation‖ for development of villages which is implemented by Gujarat technological University. Vishwakarma Yojana would provide Design to Delivery‖ solution for development of villages in City areas.

In this Project, we describe the ecosystem for a village and then map out an integrated design procedure for building an Ideal Village. We define an Ideal Village as a bundle of services which are delivered to its residents and businesses in an effective and efficient manner. Computing, communication and information technologies play a major role in design, delivery and monitoring of the services. The selected village is surveyed, data has been analyzed for the village and an Infrastructure facility has been found out by this Yojana with the help of UDPFI guidelines.

Our village name is Vav which is located in Kamrej taluka, Surat district. Which is around 17 km from the center of the city Surat.The existing conditions of the village is like 70% of the pakka houses and 30% other kutcha house and the all the condition of the houses is average. The village have all the facilities like school higher secondary and excelled in all but some of the facilities like colleges, ITI are missing

By seeing the condition of our village we have thought of designing rainwater harvesting for Panchayat building, sewage treatment plant, Led street light, post office and police chowki in the village.

Our future scope for the village development to give the plan of the existing building which are not in a good condition and to give the necessity and plans which are to be there in the village

Key Words: - Vishwakarma Yojana, Urbanization, Rurbanisation, Village Development, Infrastructures.

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CONTENT

LIST OF TABLES

LIST OF FIGURES

ABBREVAATION

NH	**National highway**
SH	**State highway**
Lit.	**Liter**
LPCD	**Liter per capita per day**
RCC	**Reinforced cement concrete**
PHC	**Public Health Center**
NA	**Not Available**
VY	**Vishwakarma Yojna**
IT	**Information Technology**
USAID	**United Agency for International Development**
R & D	**Research & Development**
ATIS	**Automatic Terminal Information Service**
ITMS	**Intelligent Transit Management System**
BRTS	**Bus Rapid Transport System**
DPR	**Detailed Project Report**
MOU	**Memorandum of Understanding**
APMC	**Agricultural Produce Market Committee**
KW	**Kilo Watt**
KM	**Kilo Meter**
GDP	**Gross Domestic Product**

Chapter 1

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

1.1 Background & Study Area Location:

- **Background:**

Baben village, which is located 36 km from **Surat city**. Here the villagers have all the facilities that one living in the city does. This village is also attached by having bardoli nagar palika nearer to its boundary. It is around 2.1 km away from bardoli. Distance between sub districts (bardoli) to Baben is 2.1km. Here we the 8 students who visited ideal village selected in our district as Baben village, Near Bardoli on 12th September. We reached at morning 9 am to village baben & went to gram panchayat. There we met wise sarpanch Bhaveshbhai Naginbhai Patel because sarpanch was on a meeting. Then we also visited Talati Shri A.V.Vishwabharan Sir. They give us information about their basic Amenities that are available in this Baben village

Fig 1.1 Meeting with the vice Sarpanch

- **Study Area Location:**

Fig 1.2 Village map

• **Latitude:**	21.1378786
• **Longitude:**	73.0966019
• **Land Area:**	465 Hector
• **District:**	Surat

• **Taluka** :	Bardoli
• **Village:**	Baben

1.2 Concept: Ideal Village

Live case study of Ideal village:

What is ideal village?

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

Baben:

Baben village is spread over the land of area about 660 hectares. According to the 2011, Baben's population is 15610 among them only 700 people are basically belongs to the origin of Baben and remaining are migrate to the other states. We visited the Baben village, Surat, Gujarat to understand how the village has been transformed in all these years in 2007. After electing the sarpanch, the village is began to be developed that credit goes to Mr. Bhavesh N. Patel, Talati Mr. A.V. Vishambharam and his 19 panchayat member. These are responsible for all this efforts. Currently Mr. Bhavesh N. Patel is assigned to the post of Deputy Sarpanch and this year his wife is declared as sarpanch Mrs. Falguni Bhavesh Patel. Baben village got the "Best gram panchayat of the year" award in 2011.

Fig 1.3 Entrance of Baben village

1.2.1 Objectives:

A model village project has the following important objectives:

- **Creation of infrastructure:**

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

- **Demographical Growth:**

  As water is a basic need for all, Panchayat itself manage the water supply for each household. For storage purpose Panchayat having 7 overhead water tanks with the capacity

varying from 20,000 to 1.5 lac litre within the area. They provide 160 LPCD water. They are using ground water as a source of water. They have provide water 6 hours daily and for the purification of water chlorination process is conducted. The charge each household only 10 rupees per year for water supply.

Fig 1.4 Overhead tank Fig 1.5 Lake with Sardar vallabhbhai patel statue

To collect solid waste from each household door to door collection by three tricycle and one tempo trailer is done. All the Waste is disposed at the Bardoli Nagar Panchayat disposal site where the fertilizer is prepared from the waste. Bardoli Nagar Palika charge Rs.30,000 per year for disposing the waste on their site. Baben village, which is located some35 km from Surat city. Here villagers enjoy all the facilities that one living in the city does. The 2-km road from Bardoli to Baben gives a commuter the feeling of passing through a highway. This is because the village road is 12 metre wide and is well lit with street lights.

Fig 1.6 Solid waste collection vehicle of Baben

Baben village, which is located some35 km from Surat city. Here villagers enjoy all the facilities that one living in the city does. The 2-km road from Bardoli to Baben gives a commuter the feeling of passing through a highway. This is because the village road is 12 metre wide and is well lit with street lights. This road has not been laid with government money, but the fund for it was raised through various ingenious schemes by the villagers. Baben Census Town has total administration over 3,146 houses to which it supplies basic amenities like water and sewerage. As a developed destination, it has drawn immigrants from a dozen states of the country and today out of a total population of 15,600, Baben has just 900 natives and the rate of unemployment is zero.

Fig. 1.7 Gram panchayat office

The Baben Census Town has population of 15,610 of which 8,642 are males while 6,968 are females as per report released by Census India 2011. Population of Children with age of 0-6 is 2121 which is 13.59 % of total population of Baben (CT). In Baben Census Town, Female Sex Ratio is of 806 against state average of 919. Moreover Child Sex Ratio in Baben is around 822 compared to Gujarat state average of 890. Literacy rate in Baben town is 65%. 10211 out of total

15610 population is literate here. Among males the literacy rate is 71% as 6173 males out of total 8642 are educated however female literacy rate is 57% as 4038 out of total 6968 females are literate in this Town. According to the Census of India,

Table 1 Population Cenus

Year	Population	No. of Households	Male	Female
2001	8377	1592	4576	3801
2011	15610	3146	8642	6969

- **Basic Physical Infrastructure**:

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

- **Basic Social Infrastructure**:
- Health and Education facilities should be provided and ensure proper delivery of facilities to village dwellers. Promote integrated development of rural areas with provision of quality housing, better connectivity, employment opportunities and supporting physical and social infrastructure. Reduce migration from rural to urban areas due to lack of basic services and sufficient economic activities in rural areas. Internal roads within village settlement, Efficient Mass Transportation systems to improve connectivity between urban and rural areas, Public transportation facilities that need to be developed like bus stops, transport depot etc.
- **Identification of sanitation facilities that need improvement**:

Sewerage and drainage line for household connection, door to door solid waste collection & dumping facilities refurbishing of village lakes, water tanks and wells, construction of rain water harvesting structures for sustainable Development. Development of socio culture facilities like community hall, public library, recreational activities and repairing of existing amenities repair & maintenance of Existing Public Buildings like Gram Panchayat, Public Library, School Buildings, Health Centre, and Public Toilet Block & Other.

1.2.2 Example / Live Case studies of ideal village of India/Gujarat

➢ **Punsari - The village with Wi-Fi, CCTVs, AC classrooms and more**

Punsari is located approximately 80 kilometers away from the state capital of Gandhinagar in Gujarat. It has had phenomenal success in the past decade under the leadership of a visionary and missionary Sarpanch (village headman) Mr. Himanshu Patel (who served as the Sarpanch from 2006 to 2016). The village has received several awards from the state as well as national government for its outstanding achievements and has become extremely popular across the country. This was the most important reason that motivated the author to visit and study this model village personally, to understand and explore how this transformation was made possible. The village has 23 communities with a population of 6000, including only 350 people living below the poverty line. Most of the people in the village are dependent on agriculture and milk production for livelihood. The major crops cultivated in the village are cotton, wheat, and potato. The trajectory of development can be broadly divided into five headings. Infrastructure Development. The most important concern in rural development is to provide basic amenities to each person living in the rural area. Punsari stands out in this regard as it has constructed a reverse osmosis plant and since then provided house-to-house piped connections to supply

chlorinated water. It also has its own 66 KVA substation for electricity generation and 100 per cent coverage of all streets with LED streetlights. A public address system with 120 waterproof speakers for announcing information and spreading messages has been another striking feature of this village. The village headperson uses this public announcement system to share what s/he thinks, plans, and is doing at the gram Panchayat. The entire village has been put under CC TV surveillance, which has helped to bring down crime rate to almost zero per cent. Each household has a personalized lavatory and the whole village has a well-designed drainage and storm water disposal system. Atal Express is a free bus service available for commutation to all the villagers. Punsari is the first fully Wi-Fi-covered village in India. There are also plans to do GIS mapping for the better implementation of many government schemes. Some of the popular national banks and their ATM centers are now available as well. Education. Education for all and free for all is the mantra this village has aspired to adopt. Punsari has five primary schools and four secondary schools. The class rooms in these schools are fully equipped with CCTV cameras, LED screens used for teaching, mineral water plants, separate toilets for girls and boys, computer labs, and well-stocked libraries. Mid-Day Meals program of the central government has been successfully implemented. Availability of these basic amenities within the premises of schools has also helped to reduce the dropout rate to zero. Health, Sanitation & Women Empowerment. Punsari has a 24/7 primary health center equipped with a pharmacy and a library. It also has a 24/7 maternity ward to encourage institutional deliveries in the village. In fact, the village has been successful in achieving the goal of 100% institutional deliveries. It has also been able to materialize the objective of 100% immunization and zero per cent infant and maternal mortality rate. The waste collection system offers door-to-door collection service. The street polluters are heavily fined. There are 109 women self-help groups in the village, which has helped and changed the lives of more than 1200 women involved in them. They provide vocational training in order to make women self-reliant. Democratic Governance. A team of 22 full-time and 47 part-time employees along with the elected officials of the gram Panchayat under the leadership of village headperson run this local unit. The village has developed an effective mechanism to redress grievances through a toll-free number. A complaint register is maintained in order to ensure timely grievance redress. A co-ordination committee involving elected representatives and government officials works tirelessly to achieve the goals of good governance.

1.2.3 The Idea of a model/Smart Village:

"A model village is a sustainable community that is able to generate and maintain the resources necessary to improve its level of wellbeing by strengthening the sustainability pillars of livelihood, infrastructure and services."

- A model village should have a water supply for every house with a proper drainage system. Hand pumps, wells, ponds can be a source of getting water.
- A village should have at least two schools, primary and secondary, along with proper housing.
- Proper road (pucca road) should be there for transporting goods and people from one place to another.
- Medical services and ambulance for 24 hours. More than one hospital should be built

1.2.4 Ancient History Civil / Electrical concept about Indian Village / other

Countries Perspective about village and its new Development:

There is sufficient evidence to suggest that the village was one of the important settlements in ancient India. The Rig Veda talks about the gram to which various families owed their allegiance. Valmiki's Ramayana talks of two types of villages – the ghosh and the gram. The ghosh was smaller than the gram and was also known as vraja, or brij (signifying a cattle farm). Both types of villages had their officials, called the mahattar. There is also a reference to a senior official called gramani or gramik. The Mahabharata talks of different types of settlements, for example, ghosh or brij (cattle farm), palli (small hutments), gram (villages around the forts or durgs), kharvata or pattan (towns), and pur, puri, nagar (cities of different types). The villages were linked with one another, culturally, socially and administratively.

1.3 Detail study (Socio economic, physical, demographic and infrastructure details) Of Ideal village / Smart Village with photograph:

- **Socio economic:**

The main source of income for the village people is agriculture, jobs, self-employed. Around 300 hector is agriculture land and around 60percent of people are engaged in agricultural while 25 percent are engaged in jobs & others are self-employed. The village also has a degree and diploma engineering college, a school and a restaurant. The village has its own ambulance. A big sugar factory & Higher Educational facilities is available for better employment, due to self-reliance new development of residential area is taking place. Many types of crops are to be farmed in the village like Wheat, Banana, Ladies-Finger, Bringer, Cucumber, Chili etc.

Fig 1.9 Sugar cane crop

Fig 1.10 School and College in Baben

1.4 SWOT analysis of Ideal village / Smart Village:

Strength	Weakness	opportunity	Threats
Outstanding location of the practice.	Community perception	Build out of additional exam lanes	Aging of senior founding surgeon
Reputation of the providers	Dated appearance of main location	Add new lines of service	New competitor in town
Effective providers	Highly leveraged balance sheet	Set up rental contracts with sub specialists	Recent merger of two competitors
Maturity of key staff member	Above average overhead ratio	Expand retail sales	Loss of key provider
Dominant market share	Underulization of physical space	Expand referral relation with primary care providers	Hospital has developmental planes with competition
Wall developed referral network	Ineffective practice management system	Open satellite location in neighboring community	Expansion of offering by multispecialty group practice

Table-2 SWORT Analysis

1.5 Future prospects of Development of the Ideal village / Smart Village:

By seeing the kind of the village and the infrastructure we get to know about the new concept which we can try something new which is a problem or can say issue coming in the ideal Village.According to our view public things about the village is a big prospect in the upcoming future if the thinking changes the automatically the development gets its way.

1.6 Benefits of the visits of Ideal village / Smart Village:

The visit to the Ideal village gives a wide idea about the place its geography, socio economic, infrastructure details. It explain us or gives an idea regarding the new things and futuristic things that could be a necessity for the village in next few year, thus this visit to the ideal Village is a good idea for starting the work regarding the viswakarma yojana

1.7 Electrical / Civil aspects required in Ideal village / Smart Village:

According to the study Ideal village deals with the proper availability of service to people to their means regardless of achieving their means for sustainable developments for various achievements of goals for village development

Chapter 2

Literature Review

2.1 Introduction: Urban and Rural village concept:

"Urban village typically would mean a well-planned set up with a village concept of being fairly self-sufficient and not having the need to travel long distance to get daily things done. What is most important, perhaps, is that it's intended to tackle the problem of increasing population in cities."

- Gaigongdin Gangmei

The concept uses the social and physical morphology of the traditional rural village as an inspiration for creating better functioning communities. The urban village movement has been influenced by Ebenezer Howard's Garden City ideals which also emphasize environmental determinism in relation to community. Urban design techniques such as public space and pedestrian are employed to facilitate the development of community by encouraging human interaction. This philosophy shares many attributes with the new urbanism school of thought.

Fig 2.1 Urban Areas of India

- **Concept of Rural development:**

Development can be defined as a process of directed change towards some objectives which are accepted as desirable goals. It means the continual improvement of the quality of human life. However, development has often been conceived in economic terms as sustained economic changes are necessary for the achievement of many social goals. The traditional concept of development meant only economic growth of the nation and its citizens.

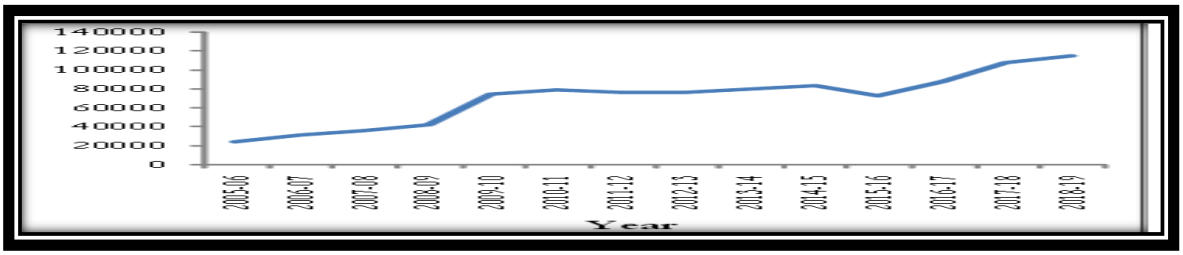

Fig 2.2 Year wise budgetary allocation to ministry of rural development

According to the Census of India (2011), those areas where population is below 5000 and population density less than 400 per square kilometre are considered as villages or rural areas. In such areas at least 75 per cent of the males of the working population are engaged in agrarian sectors (Census of India, 2011). If we come to talk about the concept of development, it is an emergent property of the economic and social system.

Fig 2.3 Rural areas of India

2.2 IMPORTANCE OF RURAL DEVELOPMENT:

Rural development has always been a matter of concern for government of any nation. Though there is a marked difference between the severity of development issues of developed and developing nations of the world, still the common agenda of rural development tops the hit list of national developmental concerns of any country. In India, there are 6,40,867villages. The Father of the Nation, Mahatma Gandhi said that, “India lives in its villages”. It is true because 68.84 per cent of our country’s population of whom about 75 per cent of them are dependent on agriculture, lives in villages (Census of India, 2011). Hence we can well imagine that a majority of the development agendas in India cater to rural issues and have the motto of rural development. In order to meet different challenges in rural areas, rural development interventions are made by development agencies concerned. Thus, this project will aim to discuss the concept of rural development, its priority in India and agriculture being an integral part of it, importance of rural development indicators and the global inventory of indicators, the concept of Model Villages in India, how they are the micro embodiments of the global inventory and lastly, the recent national initiative of Sansad Adarsh Gram Yojana which is in tandem with the concept of Model Villages. The article also provides suggestions and explores future scope for improvisation of the existing rural development programmes in order to make them more effective.

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

In India, the "rural sector" means any place as per the "latest census" which meets the Following criteria:

- A population of less than 5,000
- Density of population less than 400 per sq. km and more than "25 per cent of the male.

- 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.

Fig 2.4 Ancient Rural Villages of India

In other countries the rural/village definition can see below:

Statistics Canada defines rural for their population counts. This definition has changed over time, typically it has referred to the population living outside settlements of 1,000 or less inhabitants. The current definition states that census rural is the population outside settlements with fewer than 1,000 inhabitants and a population density below 400 people per square km (Statistics Canada, 2007). The U.S. Census Bureau, the USDA's Economic Research Service, and the Office of Management and Budget (OMB) have come together to help define rural areas, as comprise open country and settlements with fewer than 2,500 residents; areas designated as rural can have population densities as high as 999 per square mile or as low as 1 person per square mile.

Following the criteria in force in Mexico and established by the Political-Administrative Division, municipalities are classified into three groups:

1. Urban municipalities with a population over 15,000
2. Semi urban municipalities with a population of 2,500 to 15,000
3. Rural municipalities with populations less than 2,500 inhabitants.

In Britain, "rural" is defined by the government Department for Environment, Food and Rural Affairs (DEFRA), using population data from the latest census, such as the United Kingdom Census 2001. These definitions have various grades, but the upper point is any local government area with less than 26% of its population living in a market town ("market town" being defined as any settlement which has permission to hold a street market). A number of measures are in place to protect the British countryside, including green belts.

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

Census 2011 is the 15th Census of India since 1872.

Census 2011 was held in two phases:

• House listing & Housing Census (April to September 2010)

• Population Enumeration (9th to 28th February 2011)

• Reference Date: 0:00 Hours of 1st March 2011

• In Snow Bound areas the Population Enumeration was conducted from 11th to 30th September 2010 •Reference Date: 0:00 Hours of 1st October 2010

➢ **Data Highlights- Census 2011**

Population (In Crore):

	2001	**2011**	**Difference**
India	102.9	121.0	18.1
Rural	74..3	83.3	9.0
Urban	28.6	37.3	9.1

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

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

As per details from Census 2011, Gujarat has population of 6.04 Crores, an increase from figure of 5.07 Crore in 2001 census. Total population of Gujarat as per 2011 census is 60,439,692 of which male and female are 31,491,260 and 28,948,432 respectively. In 2001, total population was 50,671,017 in which males were 26,385,577 while females were 24,285,440. The total population growth in this decade was 19.28 percent while in previous decade it was 22.48 percent. The population of Gujarat forms 4.99 percent of India in 2011. In 2001, the figure was 4.93 percent.

Recently as per Gujarat census data, 83.92% houses are owned while 13.54% were rented. In all, 65.95% couples in Gujarat lived in single family. In 2011, 57.87% of Uttar Pradesh population had access to Banking and Non-Banking Finance Corporation. Only 3.13% of Uttar Pradesh population had internet facility which is likely to improve in 2021 due to Jio. 6.10% of family in Uttar Pradesh owned car while 34.14% owned two wheller. In few months we will also get details of election data for Gujarat.

➢ **Gujarat Population 2020**

As per projection, population of Gujarat in 2020 is 7.04 Crore.

Description	**2011**	**2001**
Approximate Population	6.04 Crores	5.07 Crore
Actual Population	60,439,692	50,671,017
Male	31,491,260	26,385,577
Female	28,948,432	24,285,440
Population Growth	19.28%	22.48%
Percantage of total Population	4.99%	4.93%

Table 4 Gujarat Population 2020

2.6 Rural Development Issues - Concerns – Measures:

Problems faced for Rural Development in India:

1. The financial, manpower and managerial resources devoted to the implementation of rural development programs are utterly inadequate.
2. Better implementation of rural development programs can be ensured only if those responsible for actual implementation are paid reasonably well, appropriately trained, and sufficiently motivated. But this has not been done as yet.
3. It is being increasingly observed that the objectives of one program conflict with those of others, and there is no institutional mechanism for reconciling them. Consequently, many programs utterly fail in fulfilling their objectives. In addition, they also affect other programs.
4. In many cases, instruments of rural development are not properly selected, and their levels are not consistent with the objectives they seek to achieve. This results in the wastage of valuable public resources, and unnecessary delays in achieving the objectives.
5. Honesty, hard work, helping others, thrift and such other virtues indirectly help in economic development. In the Indian context, not much attention has been paid to this aspect of development.
6. Observance of rituals, lack of rational decisions in economic matters, spending huge amounts of money on marriage, birth or death ceremonies, prevalence of the caste system and the joint family system in the rural areas and illiteracy are some of the factors which arrest the rural development in India
7. The political parties have a vital role to play in rural development. But unfortunately this role

   has not been effectively realized by any democratic political party so far. The political parties, today, are guided more by party interests rather than by national interests.

- **Various Measures for Rural development**

Future policy will be built around the three thematic axes. For each axis a range of measures will be available. In the new Regulation, conditions under which the measures can be implemented have been streamlined and simplified.

- **Measures under Axis 1 (Improving the competitiveness of agricultural and forestry sector)**

Competitiveness requires that a reasonable balance is found between farm viability, environmental protection, and the social dimension of rural development. To enhance competitiveness investment support for physical capital will remain important. At the same time investments in human and social capital will be ever more important to enable agriculture and forestry to remain an innovative and dynamic sector contributing to growth in rural areas.

Under this axis, measures fall into three groups:

- Human resources
- Physical capital

- Food quality

➢ **Measures under Axis 2 (Improving the environment and the countryside)**

Payments under Axis aim at ensuring the delivery of environmental services by agro-environment measures in rural areas, and preserving land management (including in areas with physical and natural handicaps). These activities contribute to sustainable rural development by encouraging the main actors (farmers, foresters) to keep up land management so as to preserve and enhance the natural space and landscape. Measures are in the following groups under Axis 2

- **Sustainable use of agricultural land**

Farmers play an essential role in providing environmental services and therefore, payments may be given to farmers who sign up voluntarily to agro-environmental commitments for a minimum period of five years.

- **Sustainable use of forestry land**

Forestry is an integral part of rural development and support for sustainable land use should encompass the sustainable management of forests and their multifunctional role. In this context, support will be available for the first afforestation of agricultural land, first establishment of agroforestry systems on agricultural land.

➢ **Measures under Axis 3 (quality of life in rural areas and diversification of the rural economy)**

A central objective of Axis 3 is to have a 'living countryside' and to help maintain and improve the social and economic fabric, in particular in the more remote rural areas facing depopulation.

➢ **There are three groups of measures under Axis 3:**

- Diversification of the rural economy within this, three measures will be available: diversification into non-agricultural activities which will be available to a member of the farm household, support for business creation and development, which will be available only to micro-enterprises, and encouragement of tourism activities.
- Improvement of the quality of life in rural areas within this group, two measures are available: the support for the setting up of basic services for the economic and rural population (including cultural and leisure activities) concerning a village or group of villages, and related small scale infrastructure and the conservation and upgrading of the rural heritage.
- Training, skills acquisition and animation Training and information actions will be available for the rural population to achieve the objectives of increasing economic diversification and improving the quality of life of rural areas. Also support will be available for skills acquisition and animation of rural areas and the implementation of local development strategies by public-private partnerships different to the Leader local action groups.

2.7 Renewable energy source planning particularly for villages:

Biogas based power units can be a reliable decentralized power generation option in the country. In Order to promote the route of power generation specifically in the small capacity range (3 kw to 250kw), based on availability of large quantity of animal wastes and wastes from

forestry, rural based industries (agro processing), kitchen wastes etc ,a number of project of different capacities and application will be taken up developing manpower, establishing a proper arrangement of operation & maintained and large-scale dissemination.

Fig 2.5 Biogas plant dome

2.8 Sustainable Development:

Sustainable developement is a process for meeting human development goals while sustaining the ability of natural systems to continue to provide the natural resources and ecosystem services upon which the economy and society depends.

The main goal of sustainable Development in below:-

Fig 2.6 Sustainable development goals

2.9 Other Projects / Schemes of Gujarat / Indian Government

Rural Roads:

Transportation facility provide to village population so use people in road in one place to other place easily transportation.

Rural Housing:

Housing is one of basic requirements for human survival. For a Shelter less person, possession of a house brings about a profound social change in his existence, endowing him with an identity, thus integrating him with his immediate social milieu. The Ministry of Rural

Development is implementing prathanmantri awas yojana and constructed residential awas in rural area.

Irrigation:

There is a definite gap between irrigation potential created and the potential utilized. Under Bharat Nirman it is planned to restore and utilize irrigation potential of 10 lakh hectare through implementation of extension, renovation and modernization of schemes along with command area development and water management practices. There are considerable areas in the country with unutilised ground water resources. Irrigation potential of 28 lakh hectare is planned to be created through ground water development. The remaining target for creation of irrigation potential of 10 lakh hectare is planned to be created by way of minor irrigation schemes using surface flow.10 lakh hectare of irrigation potential is also planned by way of repair, renovation and restoration of water bodies and extension, renovation and modernization of minor irrigation schemes

Telephone Connections:

There is no land line phone available in this village. Mobile phone network was available 1KM away from village till 2009. The proper use of mobile phone started in 2010.telecom connectivity constitutes an important part of the effort to upgrade the rural infrastructure. Under the Bharat Nirman Programme, it will be ensured that 66,822 revenue villages in the country, which have not yet been provided with a Village Public Telephone (VPT), shall be covered.

Rural Electrification:

Many villages still receive only 2 to 6 hours of electricity per day which needs to drastically improve to empower the villages of India.

Rural credit:

Banking services need to be popularized and credit should be available for basic services like agriculture.

Projects / Schemes by Government sector:

- ✓ IRDP(Integrated Rural Development Program)
- ✓ SGSY(Swaranjayanti Gram Swarozgar Yojana)
- ✓ NRUM(National Rurban Mission)
- ✓ Pradhan Mantri Gram Sadak Yojana
- ✓ Indira Aawas Yojana
- ✓ Mahatma Gandhi National Rural Employment Guarantee Act-2005 DRDA(District Rural Development Agency)
- ✓ PURA(Provision of Urban Amenities in Rural Areas)
- ✓ PMGSY(Pradhan Mantri Gram Sadak Yojana)
- ✓ NRDWP(National Rural Drinking Water Programme)
- ✓ JNNURM(Jawaharlal Nehru National Urban Renewal Mission)
- ✓ IWDP (Integrated Wasteland Development Programme

Projects / Schemes by Private sectors:

- ✓ Intensive Agricultural Area Programme
- ✓ Intensive Agricultural District Programme
- ✓ High Yielding Varieties Programme
- ✓ Rural Industries Project

Chapter 3

Smart Cities Concept ideas and its visit

3.1 Introduction

3.1.1 Concept:

Smart Cities Mission is an urban renewal and retrofitting program by the Government of India with a mission to develop 100 cities all over the country making them citizen friendly and sustainable. The Union Ministry of Urban Development is responsible for implementing the mission in collaboration with the state governments of the respective cities.

- A smart is the integration of technology in to a strategic approach to sustainability.21st century has brought with it a new global trend of ”sustainable urban development” and this concept adds new dimensions to urbanization which require a quick need to upgrade existing cities.
- The concept of a smart city is a relatively new one.
- Through the years, with the significant contribution from various technologies like computer science, information technology, remote sensing, advance multimedia world etc.

3.1.2 Definitions of smart cities:

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

A city “connecting the physical infrastructure, the IT infrastructure, the social infrastructure, and the business infrastructure to leverage the collective intelligence of the city”

A city that monitors and integrates conditions of all of its critical infrastructures, including roads, bridges, tunnels, rails, subways, airports, seaports, communications, water, power, even major buildings, can better optimize its resources, plan its preventive maintenance activities, and monitor security aspects while maximizing services to its citizens. “The use of Smart Computing technologies to make the critical infrastructure components and services of a city—which include city administration, education, healthcare, public safety, real estate, transportation, and utilities—more intelligent, interconnected, and efficient”

3.2 vision - goals, standards, and performance measurement indicators:

The vision of smart cities is the urban centre of future, made safe, secure environmentally green, and efficient because all structure – whether for power, water, transportation etc.

Smart cities Standards into 3 main levels, Strategic, Process and Technical

- **Level 1:** Strategic: These are smart city standards that aim to provide guidance to city leadership and other bodies on the “process of developing a clear and effective overall smart city strategy”. They include guidance in identifying priorities, how to develop a roadmap for implementation and how to effectively monitor and evaluate progress along the roadmap.
- **Level 2:** Process: Standards in this category are focused on procuring and managing smart city projects – in particular those that cross both organizations and sectors. These essentially offer best practices and associated guidelines.

- **Level 3:** Technical: This level covers the myriad technical specifications that are needed to actually implement Smart City products and services so that they meet the overall objectives.

➢ **What is performance measurement? (PM)**

PM is a management technique that organization uses for regular monitoring and reporting of the performance of various programmes, departments, or work units. It is concerned with not only how much is being done, but also how efficiency of what quality. The City Managers' Association of Gujarat (CMAG) with technical assistance from International City/County Management Association (ICMA) and financial assistance from USAID had undertaken a programme to introduce benchmarking as an analytical tool for policy makers to support the decision-making process in 2000. The performance assessment in this programme was applicable to all infrastructure aspects that come under the jurisdiction of a municipality and the financial aspects.

- Quantitative indicators that can be presented with a number.
- Qualitative indicators that can't be presented as a number.
- Leading indicators that can predict the outcome of a process
- Lagging indicators that present the success or failure post hoc
- Input indicators that measure the amount of resources consumed during the generation of the outcome.
- Process indicators that represent the efficiency or the productivity of the process
- Output indicators that reflect the outcome or results of the process activities
- Practical indicators that interface with existing company processes.
- Directional indicators specifying whether or not an organization is getting better.
- Actionable indicators are sufficiently in an organization's control to effect change.
- Financial indicators used in performance measurement and when looking at an operating index.

3.3 Technological Options:

People are increasingly migrating from rural to urban areas. By 2050, about 86 percent of people in developed countries and 64 percent of people in developing countries are expected to live in cities. Because cities will absorb future population growth, it is crucial to use resources more efficiently.

➢ **Key points of smart technology:**

1. Smart energy:

By using renewable energy sources, manage water supply and have a waste management system, cities can reduce pollution and use less energy.

2. Smart mobility:

Smart mobility strives to find more sustainable transport options. Walking, cycling and combined mobility are a few of the solutions that partially could solve the problem.

3. Smart infrastructure:

Smart infrastructure creates the fundament for all smart solutions. By using new technology to convert raw data into information, urban and regional development can be planed and designed to fit future demand.

4. Smart public services:

By connecting city residents and authorities using innovative communication technology, cities can become safer, cleaner and the general city standard will improve.

5. Smart care:

To adapt to changes in population demographics, the development of smarter healthcare services will provide quality services also in the future. Smarter care will reduce costs and connect users within the healthcare industry to provide necessary patient information.

3.4 road maps and safe guards:

- Roadmap Design Principles:
- Build a vision of where the public safety community wants to go, determine what technologies are needed to get there, and provide a route for achieving the vision.
- Make R&D decisions based on capability requirements and priorities set by the public safety community.
- Assume that public safety may have to adjust operations to fully realize the benefits of new technologies.
- Leverage ongoing efforts by other partners to develop and implement the roadmap. This approach will allow PSCR to focus resources to complement and not duplicate ongoing efforts.
- Enable public safety to meet generational and public expectations.
- Identify R&D project opportunities in light of the evolution of technology capabilities and gaps forecasted by working group participants.

➢ **Safeguard for smart cities:**

Safeguarding our upcoming Smart Cities in India against cyber threats is essential if we want to fully exploit the benefits of a smart city. IT infrastructure will form the backbone of Smart Cities' infrastructure. Reliance on IT infrastructure makes it vulnerable to Cyber Threats if safeguards are not put in place in the planning stage itself.

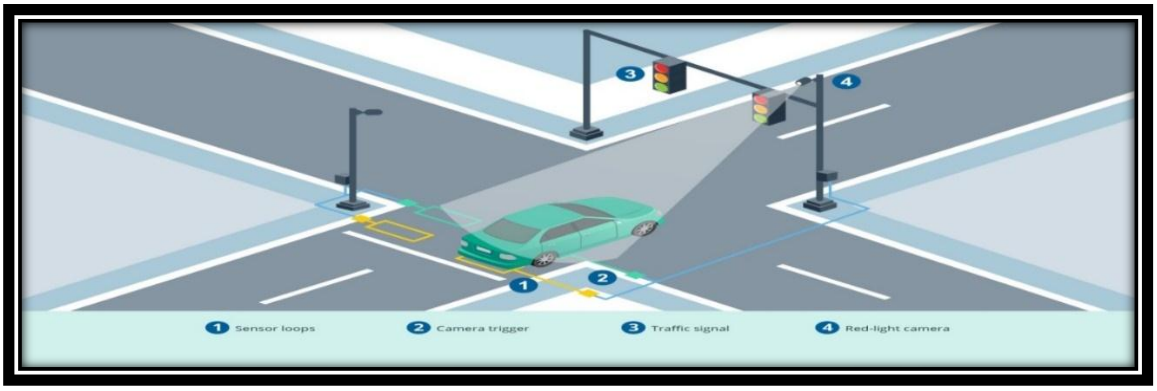

Fig 3.1 Safeguards for smart Cities

A smart city environment will have networked utilities such as power supply, water supply, e-governance for its citizens, intelligent traffic management system, networked emergency services etc. Majority of the Smart City implementation will have a networked ICT backbone requiring network security. Technology will play a key role in the development of smart cities which lends itself open to cyber threats if safeguards are not incorporated in the planning stage. The smart cities will have to be built with concurrent cyber threat safeguards.

"Privacy by design" is an equally necessary means to ensure that smart cities do not devolve into surveillance programs. Privacy by design means that technology manufacturers and municipal purchasers must work together at all stages of product development to build privacy safeguards into smart cities technologies. It is not enough to bolt privacy safeguards onto completed tools at the last minute.

3.5 Issue and challenges:

- The High Power Expert Committee on Investment Estimates in Urban Infrastructure has assessed a Per Capita Investment Cost (PCIC) of $685 for a 20 yr. period.
- The total estimate of investment requirements for the smart city comes to $113 billion over 20 years (with an annual escalation of 10 percent from 2009-10 to 2014-15) Land acquisition, foreign direct investment and other questions still remain unresolved.
- The prospect of heavy sums of private sector finance, either domestic or foreign will be a challenge. These concerns mean many projects may not be commercially viable at the starting time.
- The failure of a PPP is often due to due to lack of realistic objectives, financial management, project governance, and equality in risk management

Fig 3.2 Five Challenges for smart cities

- The establishments that help cities manage electricity, water, waste, traffic flows, municipal operations, and city services are becoming increasingly complex and can be expensive.
- Although the return on investment may be attractive, complexities often make it challenging for cities to kick-start their Smart City projects.

- To develop smart cities in India, there is a need to address challenges relating to political alliance, financing and stakeholder management.
- Successful implementation of smart city solutions needs effective horizontal and vertical coordination between various institutions involving institutions providing various municipal amenities as well as effective coordination between central government (MoUD), state government as well as local government agencies on various issues related to financing, sharing of best practices and sharing of service delivery.
- Other challenges for India include merging technology with law enforcement.
- There is no point in installing high tech traffic signals if its implementation cannot be enforced. India will also have to find ways of encouraging private investment for infrastructure required for a smart city.

3.6 Smart Infrastructure - Intelligent Traffic Management:

➢ **Smart Infrastructure:**

Smart Utilization of Surat city's potential for enhancing quality of life for the citizens by providing equal access to best quality physical infrastructure, social infrastructure and mobility through leveraging state of the art technology: thus making Surat a futuristic global city with focus on enhancing economy, protecting the ecology and preserving the identity and culture of the citry.

➢ **Intelligent Traffic Management:**

Surat is implementing a city wide integrated system – "Intelligent Transit Management System" (ITMS), to manage diverse set of transportation needs for the city – this includes: (a) public transport and (b) vehicles related to civic services like Solid Waste Management, Drainage, Heavy Engineering, Emergency Services etc. ITMS is planned to bring in best-in-class operational effciency and automation to the operational capability of city in respect to transport.

Fig 3.3 BRTS in Surat

Surat is the first city in Gujarat, and the second in India, to launch real time transit information with Google Maps. The new Google Transit feature will enable people in Surat to get real-time updated information on Surat Sitilink's transit routes. Commuters in Surat can simply type in their location and destination in Google Maps to get information about which bus to take and more importantly – they will be able to see when the next bus is arriving at the closest stop.

Also, commuters will be able to get an estimation of how long the trip is going to take and if the bus they are planning to take is delayed. The new feature is available on both Android and iOS apps of Google Maps and users can also find the information by searching a bus stop on Google.

3.7 Cyber Security:

Cyber security is the body of technologies, processes and practices designed to protect networks, computers, programs and data from attack, damage or unauthorized access. In a computing context, security includes both cyber security and physical security.

Ensuring cyber security requires coordinated efforts throughout an information system.

Elements of cyber security include:

- Application security
- Network security
- Operational security
- Information security
- End-user education

3.8 Redevelopment:

1. Surat Metro Rail Project:

As directed by Govt. of Gujarat, Detailed Project Report (DPR) for Surat Metro Rail project-Phase-I was prepared by Surat Municipal Corporation through DMRC (Delhi Metro Rail Corporation). Accordingly, DPR with Estimated Amount of Rs.12020 Crores is approved by Govt. of India in March 2019. The proposed Network of Surat Metro (Phase-I) is shown in the map below:

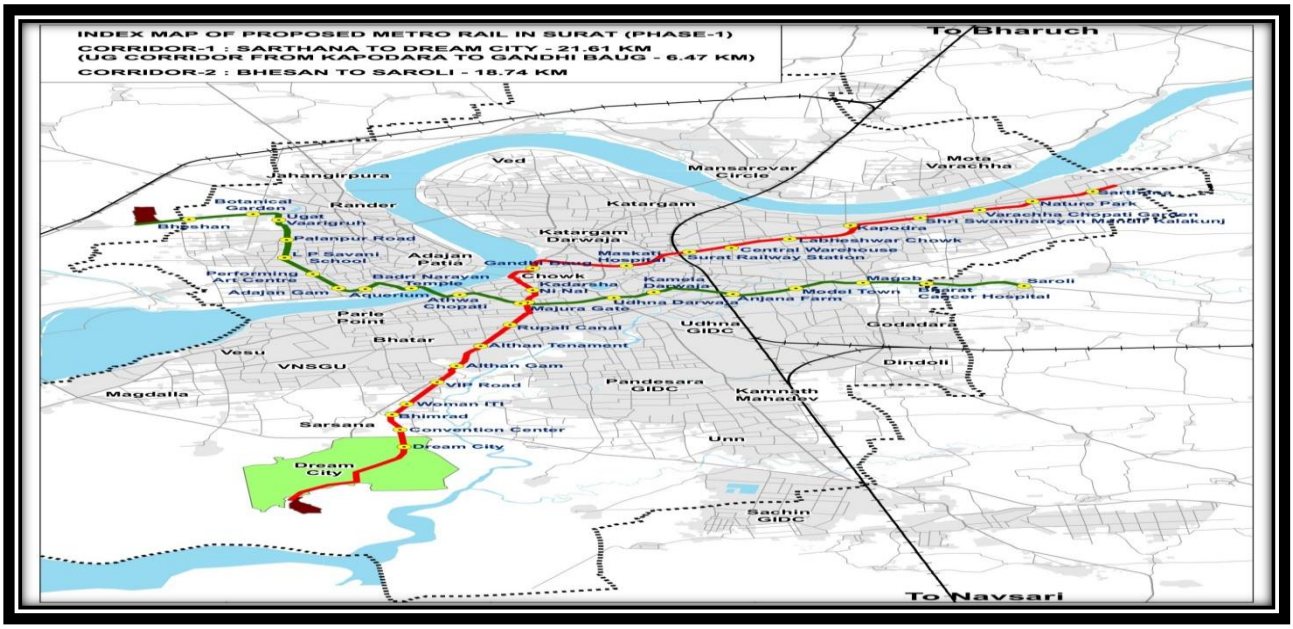

Fig 3.4 Surat Metro Rail Project

As per approved DPR, total 38 metro stations are planned in 2 metro corridors with total length of 40.35 Kms including underground metro route for 6.47 Kms. Corridor-1 : Sarthana to

DREAM city (Khajod) and Corridor-2 : Bhesan to Saroli. Total implementation period for the project is 5 years starting from year 2019-20. As per approval of State Govt., implementation of metro project shall be carried out by GMRC (Gujarat Metro Rail Corporation, formerly known as MEGA) which is a 50:50 joint SPV of Govt. of Gujarat & Govt. of India.

2. Surat Railway Station - Proposed Redevelopment - MMTH Project:

Surat railway station is strategically located on one of the busiest railway routes connecting metro cities of New Delhi and Mumbai. It observes heavy passenger flows of around 2.5 Lacs passengers daily and hence becomes a critical point of interchange between different public transit modes.

Under the directions of Government of India through Ministry of Railways, MOU has been signed on Dt.17/08/2016 among Indian Railway Stations Development Corporation (IRSDC), Gujarat State Road Transport Corporation Limited (GSRTC) and Surat Municipal Corporation (SMC). These three parties have jointly agreed to develop a Multi Modal Transportation Hub (MMTH) at Surat Railway Station/Gujarat on DBFOT basis of PPP model. Project will be implemented through a joint venture Special Purpose Vehicle (SPV) with name of Surat Integrated Transportation Development Corporation Ltd (SITCO) incorporated under Companies Act on Dt.17/10/2017.

This is the first of its kind of infrastructure development where all the three levels of Government i.e. Central (Railways), State (GSRTC) and Urban Local Body (SMC) are forming a joint venture and pooling their combined land area of about 2.9 Laces Sq. Mt. to integrate different modes of transport i.e. rail, city bus, metro rail (future), long distance bus services, auto, taxi and private vehicles etc. for the maximum convenience of the passengers through seamless connectivity across all modes and provide international class of travel comfort. This will enhance the common man’s experience and will reduce the overlapping of facilities and provide more compact services with maximum convenience. Conceptual Master Plan of the proposed development has been agreed and all parties have agreed in principle to pool in their land for 90 years lease period for the integrated development of the MMTH. This project is expected to be trendsetter in the country.Currently, different options of project re-structuring are being discussed among all 3 stakeholders to get the most competitive bid offers. Estimated Cost of mandatory part of MMTH project is Rs.895 Crores (excluding cost of commercial development, which will be in developer’s part).

3.9 Strategic Option for Fast Development:

Smart Infrastructure involves applying this to economic infrastructure for the benefit of all stakeholders. It will allow owners and operators to get more out of what they already have, increasing capacity, efficiency and resilience and improving services. It brings better performance at lower cost. Gaining more from existing assets is the key to enhancing service provision despite constrained finance and growing resource scarcity. It will often be more cost-effective to add to the overall value of mature infrastructure via digital enhancements than by physical enhancements – physical enhancements add `more of the same', whereas digital

enhancements can transform the existing as well. Smart Infrastructure will shape a better future. Greater understanding of the performance of our infrastructure will allow new infrastructure to be designed and delivered more efficiently and to provide better whole life value.

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

More than 90% of the urban population has access to drinking water, and more than 60% of the population has access to basic sanitation. However, access to reliable, sustainable, and affordable water supply and sanitation (WSS) service is lagging behind. Are the Services Reliable? No Indian city receives piped water 24 hours a day, 7 days a week. Piped water is never distributed for more than a few hours per day, regardless of the quantity available. Raw sewage often overflows into open drains. Are the Services Technically and Financially Sustainable? Less than 50% urban population has access to piped water. The Non-Revenue Water (NRW: due to leakages, unauthorized connections, billing and collection inefficiencies, etc.) is huge, estimated between 40-70% of the water distributed. Operations and maintenance cost recovery through user charges is hardly 30-40%. Most urban operations survive on large operating subsidies and capital grants.

3.11 Initiatives in village development by local self-Government:

Rural Local Governments (or Panchayat Raj Institutions)

- Zilla Panchayat
- Mandal or Taluka Panchayat
- Gram Panchayat

Initiation by Local People:

- Organizing programe for increase literacy for peoples of village.
- Providing enough information regarding to using of various facilities.
- Peoples have to learn various things regarding how to keep facilities in good condition.

3.12 Smart Initiatives by District Municipal Corporation:

➢ **Smart Street Lightning and monitoring system:**

Project Brief

- Total 90,000 fittings across city
- Conservation – 1.5 Cr units/year
- Conversion so far – 55,000 fittings
- Electricity Bill Savings: Rs. 9 Cr./year
- Longer life than conventional light
- Low Ultra Violet and Infrared Radiation

Fig 3.5 Led Street light in Surat

2. Biogas Plant for Organic Waste:

- Treatment of 50 TPD of organic waste.
- Decentralized Model.
- Location: APMC market, Surat.
- Reduction of transportation cost & revenue generation in form of energy.
- Compost: 5 TPD Biogas: 7200 m3 /day
- Liquid Fertilizer: 2.1 TPD
- Captive Power Plant: 140 kw

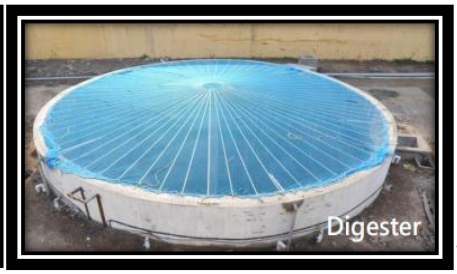

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Fig 3.6 Tipping Floor & crusher **Fig 3.7 Digester**

3.13 Any projects contributed working by government:

- The panchayat raj system is a three-tier system with elected bodies at the village, taluka and district levels.
- The modern system is based in part on traditional panchayat governance, in part on the vision of Mahatma Gandhi and in part by the work of various committees to harmonize the highly centralized Indian governmental administration with a degree of local autonomy.
- The result was intended to create greater participation in local government by people and more effective implementation of rural development programs.
- Although, as of 2015, implementation in all of India is not complete the intention is for there to be a gram panchayat for each village or group of villages, a tehsil level council, and a zilla panchayat at the district level.

3.14 How to implement other countries smart villages project in Indian Village context:

Each village should have following 5 basic amenities in 5 year:

1. Roads
2. Electricity
3. Water
4. Hospitals
5. Schools

Basic amenities of for smart village from other countries are:

1. Schooling: smart class rooms can improve the quality of education by providing access to a large amount of educational resources.
2. Health Care: improving information available on the availability, location and cost of various types of health care.

CHAPTER 4

ALLOCATED VILLAGE – VAV, KAMREJ

4.1 Introduction:

4.1.1 Introduction about Vav Village Details:

Vav is a Village in Kamrej Taluka in Surat District of Gujarat State, India. It is located 17 KM towards East from District headquarters Surat. 2 KM from Kamrej. 261 KM from State capital Gandhinagar.Vav Pin code is 394326 and postal head office is Vav Kathodara.
Kamrej (3 KM) , Pasodara (3 KM) , Kathodara (3 KM) , Nansad (3 KM) , Simadi (4 KM) are the nearby Villages to Vav. Vav is surrounded by Palsana Taluka towards South, Surat Taluka towards west, Chorasi Taluka towards west, Bardoli Taluka towards East.
Surat, Navsari, Ankleshwar, Vyara are the nearby Cities to Vav.
Vav Local Language is Gujarati. Vav Village Total population is 7053 and number of houses are 1504. Female Population is 47.9%. Village literacy rate is 76.3% and the Female Literacy rate is 34.1%.

Population:

Census Parameter	Census Data
Total Population	7053
Total No of Houses	1504
Female Population %	47.9 % (3376)
Total Literacy rate %	76.3 % (5382)
Female Literacy rate	34.1 % (2405)
Scheduled Tribes Population %	30.2 % (2127)
Scheduled Caste Population %	9.7 % (681)
Working Population %	38.4 %
Child(0 -6) Population by 2011	755
Girl Child(0 -6) Population % by 2011	47.3 % (357)

Table 5 Population of Allocated Village

4.1.2 Need of The Study:

The need of the study is to provide the basic requirements of people in the village and for Rurban Development of the village. For this purpose the information of the village is collected based on different categories such as Education, Water Facilities, Drainage Facilities, Transportation Facilities, Primary Health Care, Bank Facilities, Public Toilets, Community hall and other amenities.65% of the population of the country lives on agriculture which contributes only 15 % to the country's GDP. If we compare this with China which has a similar sector contribution to the GDP, only 30% of people depend on agriculture whereas in country like USA just 2% of the people are dependent on agriculture. Rurbanisation addresses this concern and imbalance by providing alternate jobs to rural masses dependent upon agriculture.So it is very important to develop rural area compare to urban one.

4.1.3 Study Area:

Study area mainly includes study of Vav Village which is situated at Kamrej Taluka in Surat District of Gujarat State, India. It also includes some sub-villages like olpad, Puna,Mahuva,Mandvi etc .The Vishwakarma Yojana is aimed to Rurban development of the

village. For that purpose study area is decided for taking detail information of the village. The study area includes education, social life, basic needs of the person, economic growth of village, transport facilities etc.Education includes various facilities like Anganwadi, Primary School, Secondary School, Higher Secondary School, College etc. Medical Facility includes study of Gov. / Panchyat Dispensary, Health Centre, PHC & CHC, Child Welfare and Maternity Home, Hospital etc.

4.1.4 Objective of the study:

Following are the various objectives of study…….

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

4.1.5 Scope of the study:

By studying the present status and techno-economic survey of Vav village in Surat districts of the Gujarat state in terms of basic services, public amenities, other infrastructural facilities for the need of the people and to prepare a report on the expected socio-economic growth of the area with the consultation of TDO, DDO and Sarpanch; will help full in providing better facilities and services in village.From the gap analysis, development strategies for village development will be proposed and planning proposals for Physical infrastructure, Social Infrastructure and Renewable energy Source will be suggested for the village.The study will focus the development trend, growth of the village, and find out the problems related to the physical development of the area and infrastructure services of the village.

4.1.6 Methodology:

- First of all we studied what are the various goals and different objectives and aspect of Vishwakarma Yojana and also studied various basic definitions related to the project like rural area, urban area, urbanization etc.
- After this we contacted our village (Pali) surpanch, talati mantri and different gram-panchyat members.

- Than after we frequently visited the Pali village for the purpose of collecting various data related to various facilities and amenities and survey of different aspects related to physical, infrastructural, social facilities.
- Gap analysis is done based on data collected through survey of village. And various suggestions are made by us on development of village. And based on this suggestions we will design proposed facilities in the village according to the need and population of that village.

4.2 Study Area Profile

4.2.1 Study Area Location with brief History land use details

Vav village is located in Kamrej Tehsil of Surat district in Gujarat, India. It is situated 3km away from sub-district headquarter Kamrej and 21km away from district headquarter Surat. As per 2009 stats, Vav village is also a gram panchayat.

Connectivity of Vav

Type Status
Public Bus ServiceAvailable within village
Private Bus ServiceAvailable within <5 km distance
Railway StationAvailable within 10+ km distance

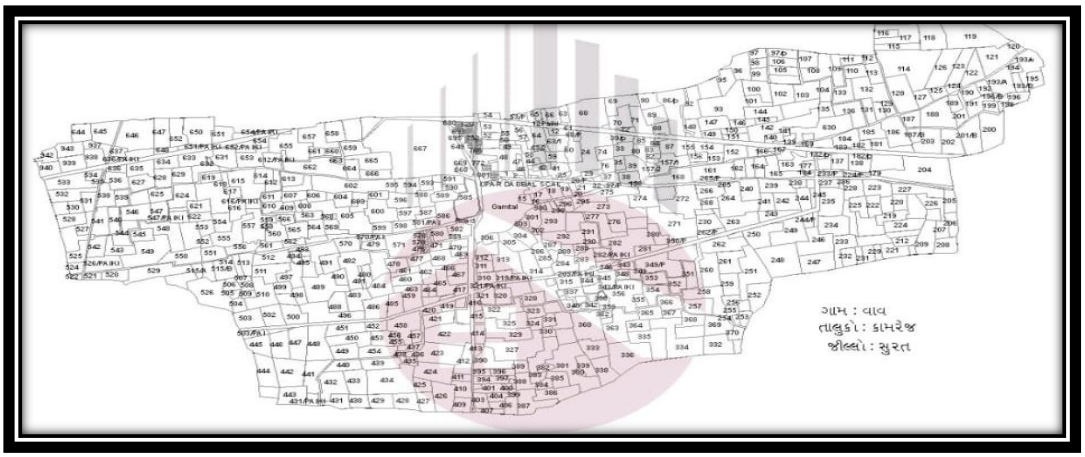
Table 6 Connectivity status of Village

According to Census 2011 information the location code or village code of Vav village is 524129.The nearest railway station to the Vav village is the Surat station which is more than 10 kilometers away. The nearest airport to the village is the Surat airport which is more than 30 kilometers away from the village.

Vav people use Gujarati language for communication. Surat is the nearest statutory town of the village Vav, which is 21 kilometers away from the village. Gujarat is the nearest statutory town of this village lies within the state of Gujarat and situated with the distance 21 kilometers away from village.

Fig 4.1 Satellite Distance of village

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



4.2.3 Physical & Demographical Growth:

Vav is a Village in Kamrej Taluka in Surat District of Gujarat State, India. It is located 17 KM towards East from District head quarters Surat. 2 KM from Kamrej. 261 KM from State capital Gandhinagar .Vav Pin code is 394326 and postal head office is Vav Kathodara .
The total geographical area of village is 1350.83 hectares. Vav has a total population of 7053 peoples as per 2011 census. There are about 1504 houses in Vav villages. Surat is nearest town to vav which is approximately 20km away.

4.2.4 Economic generation profile / Banks:

The main occupation of village is Agriculture. The villagers are dependent on agriculture for economic aspects. The mostly 90 % people are connecting with agricultural activity. They produce many type of crop in farms. Sugarcane is main crop taken by villagers. After agriculture, now they started a job outside a village like sugar factory worker, Driver, Laborers etc. And also new small scale business started at home in village.

4.2.5 Actual Problem faced by Villagers and smart solution:

Actual problem

- There is no solid waste management facility in village
- Bus Pick up stands condition is Very bad.
- Public health center is in very bad condition
- Post office is also not there
- Police station is also not available in the village
- There is 70% pakka house in the villages and 30% kaccha house in the villager
- All the houses condition is average

We would like to suggest few smart solution for development of villages like,

- Rain Water harvesting For Panchayat Building.
- Renovation of Bus stop.
- Bio-gas plant for sustainable energy sources.
- LED Street Light.

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

In the village Vav all the festivals are celebrated whether it is Navratri or Ganesh chaturthi or any festival people of the village. People in the village are very supportive to each.

4.2.7 Migration Reasons / Trends:

Main reason is job, people don't like to travel a lot for work so they prefer to migrate

4.3 Data Collection of Vav Village with Photograph/Graphs/Charts/Table):

4.3.1 Method of data collection

There are two methods for data Collection.

Primary Method

This survey is done with the collection of basic information about village facilities, such as:

- Visit of village, overview of village, document collection.
- Information of village population.
- Village map and other details from village authority.
- Organized the meeting with talati, sarpanch, deputy sarpanch and collect the rural issues from them.
- Data collected from Taluka District Office, Panchayat Office of Vav Village.

Secondary Method

Data Collected from Sarpanch, Panchayat member, Village dwellers, school teacher, Anganwadi worker & small industries workers.

Data collection is the process of gathering and measuring information on targeted variables in an established systematic fashion, which then enables one to answer relevant questions and evaluate outcomes. The data collection component of research is common to all fields of study including physical and social sciences, humanities and business. Data collection is done by gathering information from the respected authorities of Vav village.

The various dignitaries involved from gram panchayat office are:

Sarpanch: Mr. Prakash Bhaliya

Talati:Mr.Jayant Ahir

4.3.2 Primary details of survey:

Collection of Data:

- Population data (as per census)
- Literacy or illiteracy
- Socio-economic status
- Family composition

House Hold Information:

- Occupation data
- Basic amenities
- Family composition
- Facility of water

Sewage System:

- Type of sewage system
- Is It Underground Or Open Drainage?
- Disposal of sewage waste.
- Number of houses with proper drainage facility.
- Solid Waste Management
- Amount of waste generated.
- Method of collection of solid waste
- Disposal of solid waste.

Education:

1) Anganwadi
- How Many Students are involved
- How Many Classroom available
- How Many Teachers are available
- No. of Students in Class Room
- Availability Of Play Ground

2) Primary school
- No of Primary Schools available
- How Many Classrooms are available
- How Many Teachers are available
- No. of Students in Class Room
- Availability of Play Ground

3) Secondary school
- No Of Primary School available
- How Many Student involved
- How Many Classrooms available Many Teachers are available No. of Students in Class Room
- Availability of Play Ground

4) Vocational Courses
- ITI College
- Diploma college

Health Centre:

- Special ward
- I.C.U
- General ward
- Operation theatre
- Is there any health awareness camp organized timely?
- No of hospital

Rain Water Drainage:

- Availability of storm water storage system.
- Need of storage system.
- Amount of rain.

General Toilet Facility:

- Number of general toilet available.
- Working condition of toilets

Transportation Data:

- No of Main Roads
- No of Approach Road
- Types of Road
- Kutchha Road
- R.C.C. Road
- Bituminous Or W.B.M. Road
- Which Vehicle Is Used For Making Trip?
- Rail Facility 6) Modes of Transport
- Public
- Intermediate
- Private

Telecom:

- Land Line and Mobile
- Internet E-Gram project

4.3.3 Average size of the House - Geo-Tagging of House:

According to our survey the average size of the house is 12 * 36 feet
Vav,Gujarat.https://maps.app.goo.gl/xbxvi9g8nqUSa8Uc6

4.3.4 No of Human being in One House:

According to our survey the data that we have collected it we have got the information that there are around 3 to 4 members for house. There are approximately 1500 houses in the village.

4.3.5 Material available locally in the villagers:

The materials that were available in the village this all the things that are available in the cities like cement , aggregate because it is not very far away from Surat city.

4.3.6 Geographical Detail:

Vav village situated in tehsil Kamrej district Surat and in state of Gujarat India. the total geographical area of a village is 1350 hectares population density of the village is around 15 persons per hectare. Total number of household in is 1504. Sub of the district headquarter is Surat and is 16 km away from the village. Pin code of Vav is 394326.Vav Village Total population is 7053. Female Population is 47.9%. Village literacy rate is 76.3% and the Female Literacy rate is 34.1%.

4.3.7 Demographical Detail - Cast Wise Population Details / Which ID proof using by villagers:

Census parameter	Census data
Total population	7053
Total no of house	1504
Female population	3376
Total literacy rate	5382
Female literacy rate	2405
Scheduled tribes population	2127
Scheduled caste population	681
Working population%	38.4%
Child	755
Girl child	357

Tb- 7 Demographical Details of Village

4.3.8 Occupational Detail - Occupation wise Details / Majority business:

According to our survey the main occupation. The villages are dependent on his agricultural and second is the job and third is the self-employment around 90% of The villages are dependent on agriculture and the rest and present our job and self-employed people living there.

4.3.9 Agricultural Details / Organic Farming / Fishery:

People living in the vav village depend on the different types of crops like sugarcane vegetables in Nilgiri and in from certain times they have also started their dragon fruit cropping in agricultural and according to the survey approx 90% people are dependent on agricultural and 10% are on job and self employed

4.3.10 Physical Infrastructure Facilities - Manufacturing HUB / Ware Houses:
Yes there are 1 or 2 factories nearby in the village as it is very near to the city.

4.3.11 Tourism development:
Tourism development available in the village for attracting the tourist.No there is no such kind of tourism activities available near the village or in the village for attracting The tourist.

4.4 Infrastructure Details (With Exiting Village Photograph):
4.4.1 Drinking Water / Water Management Facilities:
The main source of water is from the pipe water that is piped water into dwelling, pipe to yard of the plot, public tab in and all these facilities are available in their household and there are also overhead tanks are also available with around 3 overhead tanks are available with capacity of 100000 litre and underground sump are also available there.

Fig 4.3 Drinking water/ Water Management Facility

4.4.2 Drainage Network / Sanitation Facilities:
There is a large proportion of the villagers having the toilets in their houses and all the drainage facilities in their house.They also have the public toilets in the villages and the all the drainage are covered very less are open available seen near The village.

4.4.3 Transportation & Road Network:
The main road to reach the village is WBM which is adequate. The internal road in the village are R.C.C road and adequate. The internal street roads are WBM, R.C.C & Pavement blocks.The approach roads to the village are maintained and internal linking roads are also in goodcondition

Fig-4.4 Transportation and Road Network

4.4.4 Housing condition:

There are a total 1504 houses in the villages and there is 25% kaccha and 75% pucca houses in the village so we can see that the condition of the houses is quite good but mostly needed to convert into the pakka house.their physical as well as economic condition are very poor although the under Pradhan mantri awas Yojana scheme 350 houses will be developed in next one or two years

Fig 4.5 Housing Condition

4.4.5 Social Infrastructure Facilities:

Health, Education, Community Hall, Library Villages having 5 nos of Anganwadi ,5 nos of primary school ,5 nos of secondary school and 3 nos of higher secondary schools in the village and there is no iti available in this village.

Fig 4.6 Social Infrastructure Facility

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

In Village 25% Houses Condition is Very Poor, but 75% Houses Condition is Very good.

There are total 4 public buildings at village. They are as under,

- Panchayat building
- Primary school
- Aanganwadi
- Public health center

4.4.7 Technology Mobile/ WIFI / Internet Usage Details:

According to our service people are having mobiles and internet connection but the Wi-Fi that should be available in each village to make a smart will it is not available here.

4.4.8 Sports Activity as Gram Panchayat:

No, there is no such kind of sports activity conducted in the gram panchayat and the condition of the ground is also very poor.

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

According to our survey there is no social cultural facilities like public garden and recreational facilities are available in the village, all these things are required in the village but according to the norms public gardens are made on per 100000 population.

4.4.10 Other Facilities (e.g. like foot path development-Smart toilets Coin operated entry, self-cleansing, waterless, public building):

No, other facilities like footpath develop smart toilets coin-operated entry and self-cleansing, waterless, public buildings are available in the village.

4.4.11 Any other details:

There are public distribution systems, STD booth, pharmacy medical shop, Bank and ATM facility, agricultural cooperative society, milk cooperative society.

4.5 Electrical Concept:

4.5.1 Renewable energy source planning particularly for villages:

No, there are no such kind of renewable energy which is used by the village only some people are having the renewable energy sources like solar panels on their houses which are a private houses.

4.5.2 Irrigation Facilities:

According to our data the main source of irrigation facility is a canal and tubewell.

4.5.3 Electricity Facilities with Area:

Yes, electricity facilities are available , power supply for domestic use is given 24 hours,power supply for agricultural uses given 12 hours, power supply for commercial use is given 24 hours, rolled and streetlights are 8 hours, electrification government building is schools in hospitals is also than an LED facilities are also available.

4.6 Existing Institution like - Village Administration - Detail Profile:

4.6.1 Bachat Mandali:

Mandali is which keep all the data of the cost which is used by gram Panchayat for the development of the village

4.6.2 Dudh Mandali:

Dudh mandali is also available there

4.6.3 Mahila forum:

Mahila forum is also made but the members are not there to take the responsibility

4.6.4 Plantation for the Air Pollution:

Plantation in the villages is very common but the pollution in the villages very less so we don't have any such kind of need for plantation for air pollution because villagers plants are already there.

4.6.5 Rain Water Harvesting - Waste Water Recycling:

Yes, rainwater harvesting is available in the village and it is done by recharging the borewells in wastewater recycling this not available because this plant is not available in the village.

Chapter 5

Technical Options with Case Studies : (FOR ANY ONE TOPIC, Take a new concept design , prototype model with actual costing)

5.1.1 Advance construction techniques:

India's construction sector is assessed at Rs.4000 billion or $100 billion. As a result of government spending, private investments as well as foreign direct investment, has made India number one of the top ten spending nations on construction in the world. We manufacture more than 250 million tons of cement and are second only to China. A recent report "Global Construction 2020", estimates that India will be the third largest global construction market after China and USA. In order to improve the standard of living of her population, one of the key hurdles that faces today's India is to overcome the challenge of infrastructure bottlenecks. Consequently the federal government has announced our 11th five years plan which allocates 9% of the GDP to infrastructure projects. The National Planning commission - an apex federal body has estimated an allocation of $515 billion which is equivalent to Rs.23 trillion to infrastructure sectors over the next five years. This includes construction of Roads, Highways, Airports, Bridges, Ports, Railways as well as water supply and sanitation amongst few others. The 12th five years plan projects an investment of 10% of the national GDP into infrastructure which equates to a staggering $1 trillion or equivalently Rs.45 trillion.

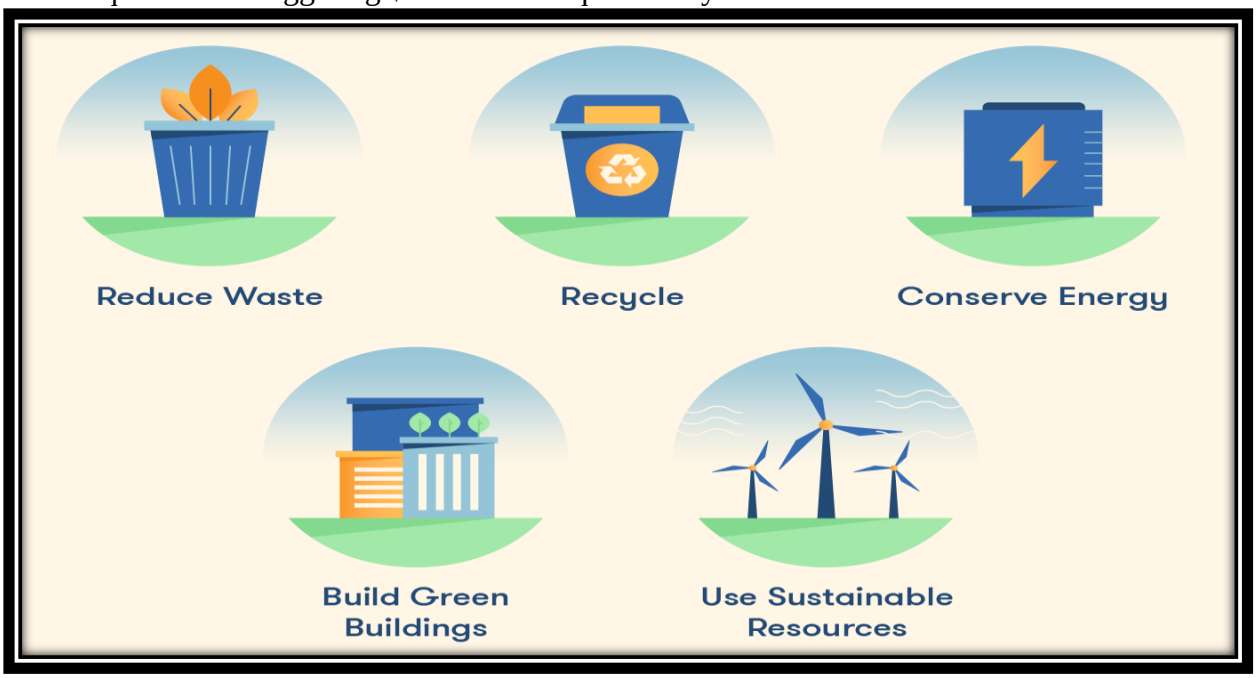


Fig 5.1 Advance construction techniques

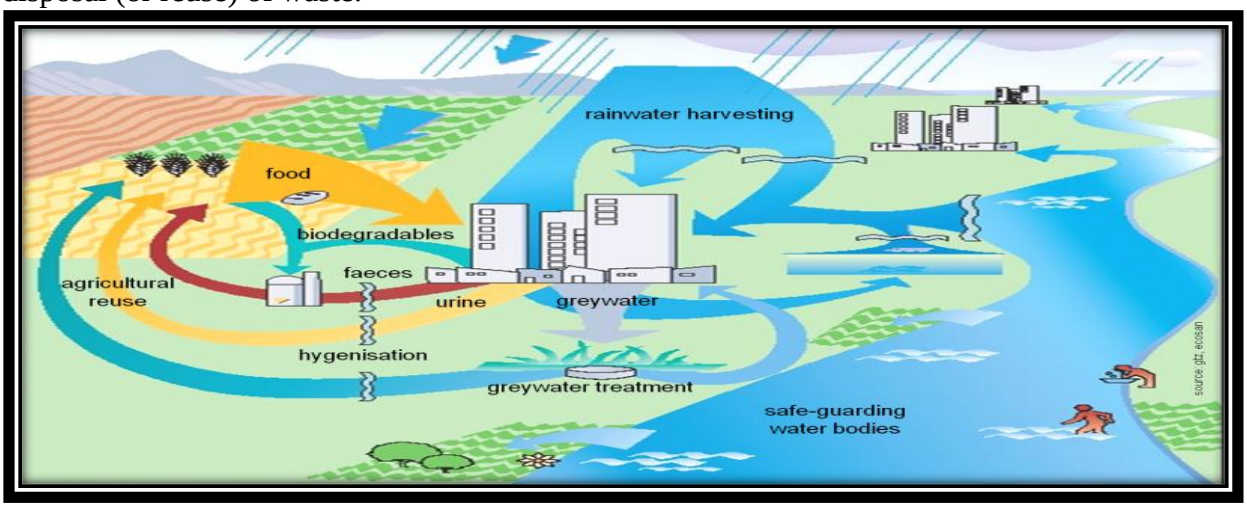
5.1.2 Soil Liquefaction :

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. Type of soil causes liquefaction: Poorly drained fine-grained soils such as sandy, silty, and gravelly soils are the most susceptible to liquefaction.

5.1.3 Sustainable Sanitation :

Sustainable sanitation is a sanitation system designed to meet certain criteria and to work well over the long-term. Sustainable sanitation systems consider the entire "sanitation value chain", from the experience of the user, excreta and wastewater collection methods, transportation or conveyance of waste, treatment, and reuse or disposal. The Sustainable Sanitation Alliance (SuSanA) includes five features (or criteria) in its definition of "sustainable sanitation": Systems need to be economically and socially acceptable, technically and institutionally appropriate and protect the environment and natural resources. 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 :

Transport infrastructure consists of the fixed installations necessary for transport and includes roads, railways, airways, waterways, and terminals. Transport is vital to the well-functioning of economic activities and a key to ensuring social well-being and cohesion of populations. Transport ensures everyday mobility of people and is crucial to the production and distribution of goods. Adequate infrastructure is a fundamental precondition for transport systems. In their endeavor to facilitate transport, however, decision-makers in governments and international organizations face difficult challenges. These include the existence of physical barriers or hindrances, such as insufficient or inadequate transport infrastructures, bottlenecks and missing links, as well as lack of funds to remove them. Solving these problems is not an easy task. It requires action on the part of the governments concerned, actions that are coordinated with other governments at international level.

5.1.5 Vertical Farming :

Vertical farming is the practice of growing crops in vertically stacked layers. It often incorporates controlled-environment agriculture, which aims to optimize plant growth, and soilless farming techniques such as hydroponics, aquaponics, and aeroponics. Some common choices of structures to house vertical farming systems include buildings, shipping containers, tunnels, and abandoned mine shafts. As of 2020, there is the equivalent of about 30 ha (74 acres) of operational vertical farmland in the world. The modern concept of vertical farming was proposed in 1999 by Dickson Despommier, professor of Public and Environmental Health at Columbia University. Despommier and his students came up with a design of a skyscraper farm that could feed 50,000 people. Although the design has not yet been built, it successfully popularized the idea of vertical farming. Current applications of vertical farming coupled with other state-of the-art technologies, such as specialized LED lights, have resulted in over 10 times the crop yield than would receive through traditional farming methods. The main advantage of utilizing vertical farming technologies is the increased crop yield that comes with a smaller unit area of land requirement. The increased ability to cultivate a larger variety of crops at once because crops do not share the same plots of land while growing is another sought-after advantage. Additionally, crops are resistant to weather disruptions because of their placement indoors, meaning less crops lost to extreme or unexpected weather occurrences. Because of its limited land usage, vertical farming is less disruptive to the native plants and animals, leading to further conservation of the local flora and fauna. Vertical farming technologies face economic challenges with large start-up costs compared to traditional farms. In Victoria, Australia, a “hypothetical 10 level vertical farm” would cost over 850 times more per cubic meter of arable land than a traditional farm in rural Victoria. Vertical farms also face large energy demands due to the use of supplementary light like LEDs. Moreover, if non-renewable energy is used to meet these energy demands, vertical farms could produce more pollution than traditional farms or greenhouses.

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

In the case of Reinforced concrete structure the ingress of moisture or air may lead to corrosion of steel, cracking and spalling of the concrete cover thereby reducing durability of the concrete structure . Repair has been suggested as the protective solution for damaged structure due to corrosion. Corrosion of reinforcing steel is a significant economic and safety problem, preventing many buildings from attaining their design life. It is now a must look into field as corrosion of reinforcing steel is seen almost in every 10 out of 100 constructions within a life of 10 years. Nowadays the increase content of pollutants in the city atmosphere has very much affected the lifespan of RCC structures. The increased content of pollutants include a very high rates of Sulphates and Chlorides which when these mixes with rain water and falls over these structures and damages the visible parts. Prevention : Corrosion of steel in reinforced concrete structures can be divided into four different categories, based on how they provide protection: 1. Alternative reinforcement and slab design method includes materials that electrically isolate the steel from the concrete and create a barrier for chloride ions, materials that protect steel galvanic-ally, and materials that have significantly higher corrosion thresholds than conventional reinforcing steel. Concrete slabs have been designed without any internal reinforcement. 2. Barrier methods protect reinforced concrete from corrosion damage by

preventing water, oxygen, and chloride ions from reaching the reinforcement and initiating corrosion. 3. Electrochemical methods use current and an external anode to protect the reinforcement, even when the chloride ion concentration is above the corrosion threshold. 4. Corrosion inhibitors offer protection by raising the threshold chloride concentration level, by reducing the permeability of the concrete, or by doing both. Sewage treatment plant: Sewage treatment plant is a plant where waste water is treated. Sewage treatment is the process of removing contaminants from municipal wastewater, containing mainly household sewage plus some industrial wastewater. Physical, chemical, and biological processes are used to remove contaminants and produce treated wastewater (or treated effluent) that is safe enough for release into the environment. A by-product of sewage treatment is a semi-solid waste or slurry, called sewage sludge. The sludge has to undergo further treatment before being suitable for disposal or application to land. Sewage treatment may also be referred to as wastewater treatment. However, the latter is a broader term that can also refer to industrial wastewater. For most cities, the sewer system will also carry a proportion of industrial effluent to the sewage treatment plant that has usually received pre-treatment at the factories to reduce the pollutant load. If the sewer system is a combined sewer, then it will also carry urban runoff (stormwater) to the sewage treatment plant. Sewage water can travel towards treatment plants via piping and in a flow aided by gravity and pumps. The first part of the filtration of sewage typically includes a bar screen to filter solids and large objects that are then collected in dumpsters and disposed of in landfills.

5.1.7 Sewage Treatment Plant:

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

- **Components of Sewage Treatment Plant:**
  - Pumping of Sewage
  - Primary Treatment
  - Secondary treatment
  - Tertiary Treatment

- **Pollutants in sewage:**
  - BOD(Bio Chemical Oxygen demand)
  - COD(Chemical Oxygen demand)
  - TSS(Total Suspended Solids)
  - PH

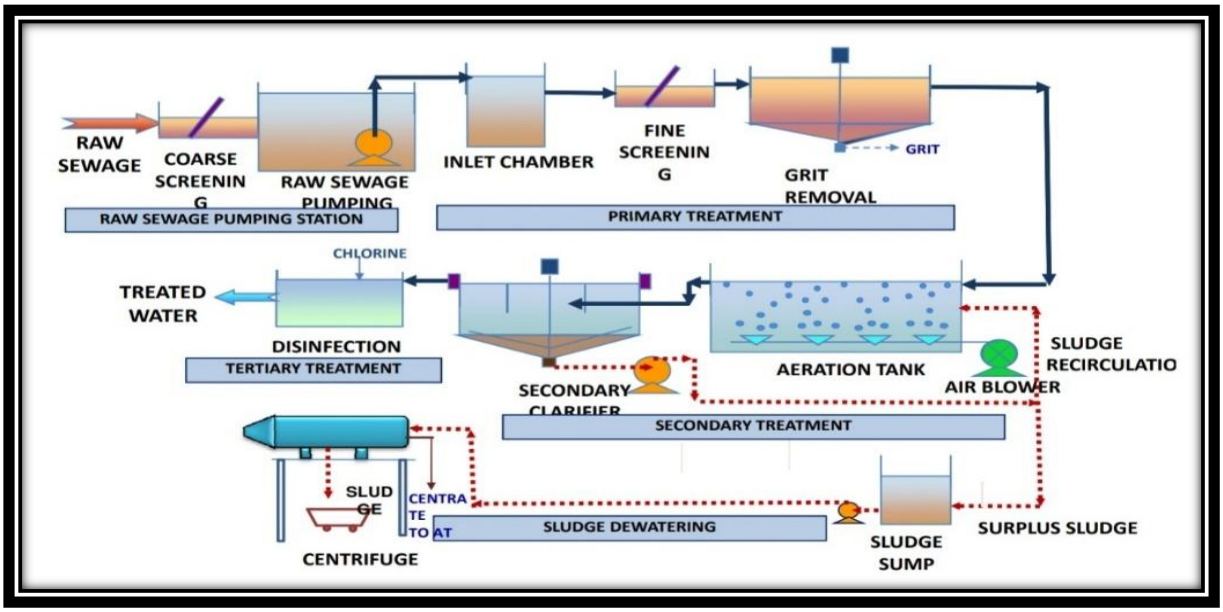


Fig 5.2 Typical Flow diagram of Sewage Treatment plant

- **Primary Treatment:**
  - Fine Screening
  - Grit Removal
  - Primary Clarification
- **Screening:**
  - **Objective**: Removal of coarse solids
  - **Types of screens**: Fine / medium / coarse
  - **Cleaning of screens** : Manual / mechanical
  - **Benefits** : Protection of pumps
  - **Coarse Screening**: 20mm clear spacing in bars
  - **Fine screening** : 6mm clear spacing in bars

Fig 5.2.1 Screening

- **Grit Removal:**
  - **Objective** : Removal of inorganic solids e.g. pebbles/ sand/ Silt to protect moving Mechanical equipment
  - **Principle**: Gravity separation (a) effective size 0.15mm (b) specific gravity – 2.65
  - **Types** : Manual grit removal - Rectangular channel Mechanical grit removal - Circular tank
  - **Grit removal**
  - **Mechanism** : Screw classifier / reciprocating classifier

- **Secondary Treatment:**
- **Biological treatment**
- **Sewage Treatment:**

Fig 5.2.2 Grit Removal

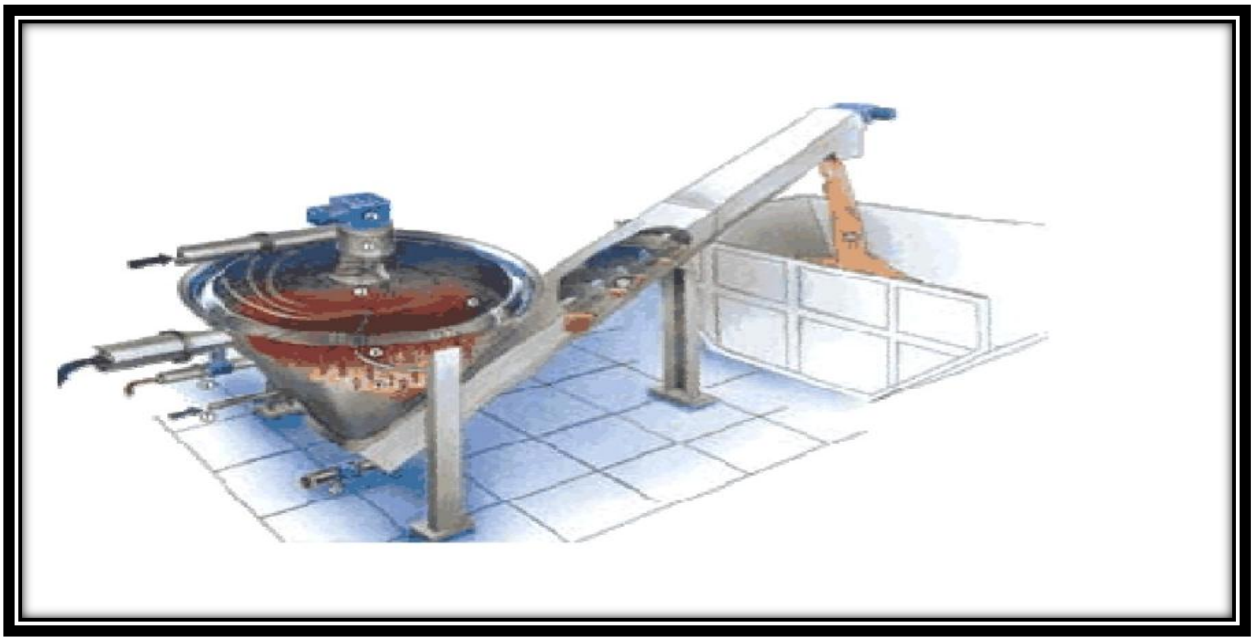


Fig 5.2.3 Grit Chamber with Classifier & washer

Method of Treatment - Aerobic, Anaerobic

- Aerobic-Sewage treatment in the presence of Oxygen-MBBR, SBR-where aerators/blowers aerators/blowers are installed-generally no smell during treatment.
- Anaerobic-Sewage treatment in the absence of Oxygen – UASB-No aerators/blowers are required-foul melt during treatment.

➢ **Various Sewage Treatment Technologies:**

- Activated Sludge Process (ASP)
- Up flow Anaerobic Sludge Blanket Reactor (UASB)
- Moving Bed Biofilm Reactor (MBBR)
- Sequential Batch Reactor (SBR)

➢ **Activated Sludge Process - ASP**

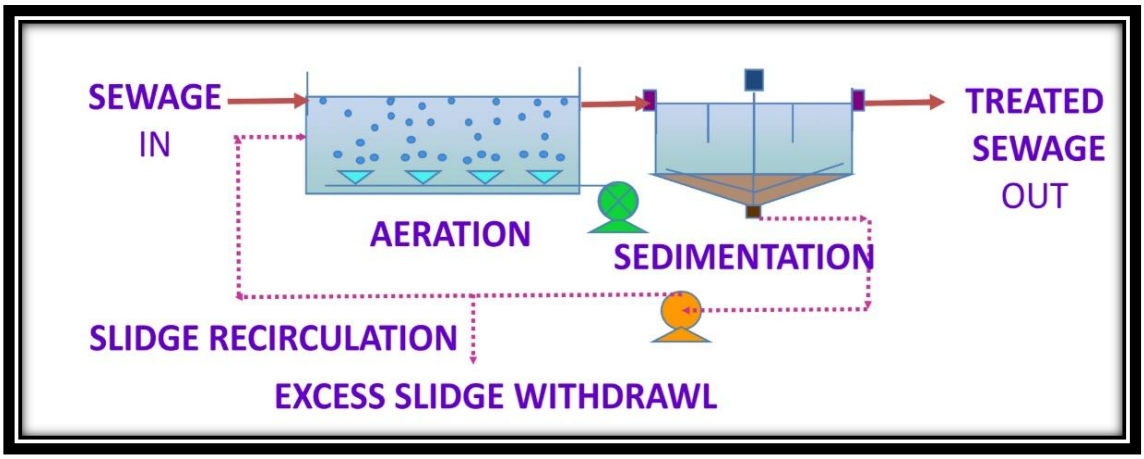


Fig 5.2.4 Activated Sludge Process - ASP

- Raw Effluent In
- Aeration
- Sedimentation
- Treated water out
- Sludge Recirculation
- Sludge withdrawal

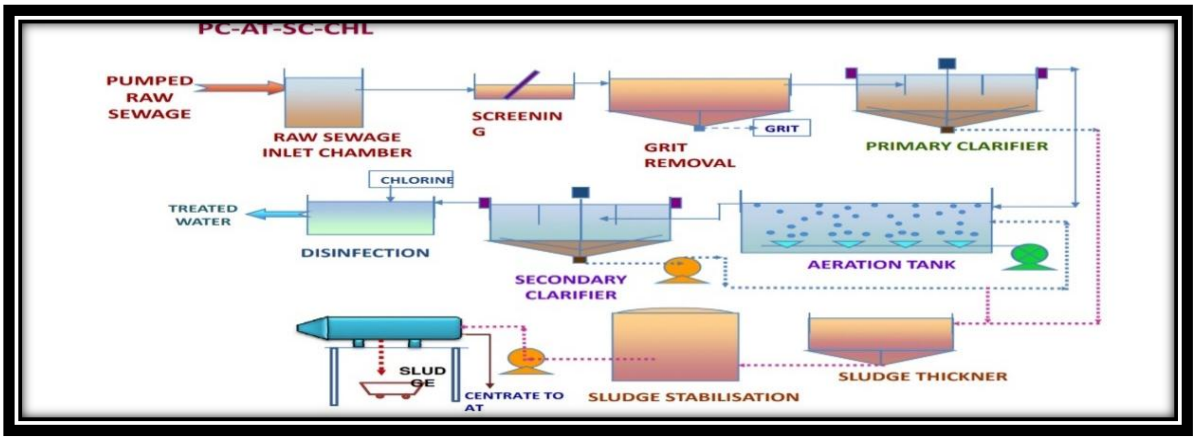


Fig 5.2.4 ASP – Flow Diagram

- **Activated Sludge Process (ASP) Technology:**
  - An activated sludge plant essentially consists of the following:

1) Aeration tank containing micro-organisms in suspension in which reaction takes place.
2) Activated sludge recirculation system.
3) Excess sludge wasting and disposal facilities.
4) Aeration systems to transfer oxygen
5) Secondary sedimentation tank to separate and thicken activated sludge.

- **Advantages:**
  - Can sustain seasonal variation.
  - Less land requirement than UASB.
- **Disadvantages:**
  - High energy consumption.
  - Foaming, particularly in winter season, may adversely affect the oxygen transfer, and hence performance.
  - Requires elaborate sludge digestion /drying/disposal arrangement.
  - More land requirement than SBR & MBBR.
  - Nitrogen and Phosphorous removal requires additional anoxic tank and > 3 times internal recirculation.

Fig 5.2.4Activated Sludge Process

- **Sewage treatment plant (STP): A case study of Delwas, Jaipur**

India treats only 20% of its sewage and rest fall directly into rivers causing severe problems. The Problem faced by government and scientists in India is the mentality of people about the sewage treated water. This paper focuses on the mentality of people and coup it with the present situation and effectively reduces the overall demand in scientific healthy manner. The main aim

of paper is to use the treated water in a way; which does not harm human and environment along with consideration of mentality of society. The work area is STP Delawas, PratapNagar, Jaipur, which is setup in 2006, and operation &management is under the charge of M/S Vatech Wabag Ltd. The survey for knowing people's concern conducted in Sitapura area is the source of knowledge about people's views. The STP collects water from 25Km surrounding with gravity flow & no pumping is use for sewage up lifting for sending it to plant, which is a great achievement for its engineers. The STP covers the area from Vidhyadhar nagar to Pratap Nagar, Sanganer. However, in study the authors also notice some illegal and careless practice of the plant and advise them to solve as soon as possible.

- **Methods to treat the waste water:**

1. Collection of sewage:

The STP of Delawas consist inlet section, which is common for both phase of STP. The raw sewagefirst collects here.

Fig 5.2.5 Inlet section of STP

2. Screening:

After commencement of water in inlet section it is screened through automated screens.Screens are inclined at an angle of 45 degree.

\

Fig 5.2.6 Showing automated screening

3. Grit separator:

After removing the solid waste from water, it transfers to grit chamber for removing the grit; the grit obtained from this chamber is highly nutritious for crops. The chamber is in shape for easy collection of grit. The whole process is fully automatic.

Fig 5.2.7 View of mechanism of Grit chamber

1. Primary Clarifier:

In primary clarifier, the sludgeremovesthrough gravity separation method. Then it transfers to secondary clarifier passing via aeration tank for activated sludge process.

Fig 5.2.8 Primary clarifier

2. Aeration Tank:

In aeration tank, oxygen is providing with the help of blower for survival of bacteria. A small quantity of sludge returned from secondary clarifier to aeration tank for activated sludge process. Air blowers are being operated with variable frequency drive (VFD). Man Machine Interface (MMI) is provided through programmable logic control system (PLC) for handling anaerobic sludge digester.

Fig 5.2.9 Aeration tank

3. Sludge digester:

The sludge collected at different steps of process sent to the sump and then to the digester dome. The sludge is dewatered by using centrifugal pumps and the thickened sludge is sent to dome for anaerobic digestion. This process gives biogas and digested sludge, which use as manure by localfarmers. The gas produce is using for revenue collection. The gas sent to CNG bottling plant, whichgives them cost price of 6.50 RSPNm3.

Fig 5.2.10 Sludge digester tank

For smooth running of plant and follow the BIS standards for treated water, lab is setup on the STP site. The laboratory is fully furnished and all necessary equipment's for testing water is available here. In this laboratory, the water is testing at every stage for ensuring the health of the STP.

Fig 5.2.11Showing disposal process of sludge.Fig 5.2.12 Innerview of laboratory set

- **Objective of the study:**

The chief objective of this case study is to check sustainable development with using treated water without any harmful cause to environment with the satisfaction of common residents of the area. By a keen study on STP Delawas, we try to understand its waste to energy generation, waste reduction & treated water consumption in an economical way.

Study Area:

The study area is confined to STP Delawas, Pratap Nagar,sector 28, Jaipur and nearby area for mass survey through Google form. The data collected from STP office is useful to analyse rather the treated water fit for any other use or not and relate this result to the result obtained from the online survey through Google form in the area to solve out the problem without harming environment and even not breaking sentiments of locals.

Chapter 6

Swatchh Bharat Abhiyan (Clean India)

What is swatch bharat abhiyan:

Swachh Bharat Mission, Swachh Bharat Abhiyan, or Clean India Mission is a country-wide campaign initiated by the Government of India in 2014 to eliminate open defecation and improve solid waste management. Phase 1 of the mission lasted till October 2019. Phase 2 will be implemented between 2020-21 and 2024-25.

6.1 Swatchhta needed in allocated village -Existing Situation with photograph:

Yes is needed as there door to door collection collection of the waste but then also public does beans are also required so that people can keep the cleanliness on the roads also and we have make them aware about the swachh Bharat abhiyan and to keep the cleanliness around them self also Here we have some photograph of the photograph that we have clicked.

Fig 6.1 Swatchhta needed in allocated village

6.2 Guidelines - Implementation in allocated village with Photograph:

Guidelines for Gram Panchayat/ Village Water and Sanitation Committee:

6.2.1 The Gram Panchayats have a pivotal role to play in the implementation of the programme. States may decide to channel the fund flow for activities at the GP level through the Gram Panchayat institution. All Institutions and Committees working within the GP framework have to prioritize sanitation within their programmes.

6.2.2 A Village Water and Sanitation Committee (VWSC) shall be constituted as a sub-committee of Gram Panchayat, for providing support in terms of motivation, mobilization, implementation and supervision of the programme. The VWSC should play a crucial role in the comprehensive and saturation approach to ODF Grams. The membership of a VWSC may have representation from each Ward of the GP and 6 more members. Women should form 50% of the members. There should be representation from SCs and STs and poorer sections of the society. This committee should function as a Standing Committee on Water and Sanitation ofthe Gram Panchayat and should be an integral part of the Village Panchayat. The composition and functions of the VWSC can be determined by the State Government.

6.2.3 A separate account may be opened for each Village and Water Sanitation Committee of a GP and “Sarpanch/Pradhan” of the GP should be the Chairperson of each VWSC. The Swachh Bharat Funds should be routed through the account of the VWSC/GP. The account shall be subject to audits held from time to time including Social Audit.

6.2.4 The GPs and the VWSCs shall endeavor to make their GPs ODF and Swachh at the earliest. States should recognize and conferawards to such GPs.
6.2.5 While the participation of the local bodies is advised, there shall be flexibility at the State and district levels to decide on the methodology of the implementation of the programme depending on local conditions and the role that the GPs and the VWSCs shall play Here we have seen door to door collections in the big cards that are carrying the garbage from village to the dump yard.

Implementation:

Here we have seen door to door collection of garbage and the big carts that are carrying the garbage from the door to the dump yard by village vehicle

Fig 6.2 Implementation

6.3 Activities Done by Students for allocated village with Photograph:

Due to covid 19 it was not possible to carry out any activities with the village people or to explain the village people so we have met the Talati and the gram panchayat members for various discuss regarding the village

Fig 6.3 Students meeting Talati

Chapter 7

Village condition due to Covid-19:

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

In March of 2020, the AMMACHI Labs field team members shifted their priorities from their normal work to making efforts to spread awareness and education on taking precautions again the spread of COVID-19.

They shared verified informational videos and explained preventative measures like proper hand-washing to the members of the village communities. In many places, cloth masks were made and distributed as well.

As it unfolded, at the levels of the districts, small and medium towns and rural areas, neither the elected representatives of local institutions (the Gram Panchayat, in particular) nor the widespread and established civil society organizations had any noteworthy role to play either in creating awareness about the pandemic, helping local quarantine centers or in keeping a vigil on and registering incoming persons to the local places and so on. Instead, as pointed out by a local NGO, police were deployed at these local levels severely undermining the relevance and propriety of local representatives.

As we know it was the hard time for India and especially where its backbone is villages, Many NGO and public serving department came into action for conserving village. The sarpanch of Vav village played an important part in explaining the people and making them the impact of this dangerous virus. The Gram Panchayat played an important role in making knowing the right meaning of social distancing and wearing of mask.

Fig 7.1 People with safety gears and following guidelines of Govt.

The sarpanch of village took the great initiative to hold various programs related handmade masks and necessity of wearing mask and social distancing.

7.2 Activities Done by Students for allocated village Clean with Photograph:

Student took a great initiative going to home to home in villages to spread the impact of this deadly virus. Various camps were done by the village local students to show the making of mask, using of sanitizers and social distancing.

7.3 Any other steps taken by the students / villagers:

A group of student taking seminar in Vav village of the people to teach the impact of covid19. They also took explained the important symptoms of the virus and informing the doctors of the symptoms if seen.
The Gram Panchayat appointed a special team of people that took the responsibility of daily need of villagers by door to door home service of Vegetables, Medicine, Groceries etc.` to ease the risk of mass gathering people and preventing to flow virus from one person to another.

- Self-care**:-** If you feel sick you should rest, drink plenty of fluid, and eat nutritious food.
- Stay in a separate room from other family members, and use a dedicated bathroom if possible. Clean and disinfect frequently touched surfaces.
- In village every should keep a healthy lifestyle at home. Maintain a healthy diet, sleep, stay active, and make social contact with loved ones through the phone or internet.
- Children need extra love and attention from adults during difficult times. Keep to regular routines and schedules as much as possible. It is normal to feel sad, stressed, or confused during a crisis. Talking to people you trust, such as friends and family, can help.
- If you feel overwhelmed, talk to a health worker or counsellor. Rural students in the PMKVY program created some hand-made artwork promoting safety and awareness for their communities.

Chapter 8

Sustainable Design Planning Proposal (prototype Design) Part -1:-

8.1 Design Proposals:-

In Tachometric survey done by us, we observed that the basic facilities required in a village are Physical infrastructure, Social infrastructure, Socio-cultural infrastructure. Physical infrastructure includes sources of drinking water, Water Tanks, Drainage systems, Road networks, Electricity distribution, Sanitation facilities and irrigation system. Social infrastructure includes Schools, colleges, Aanganwadi, Hospitals, sub centers, Clinics. Sociocultural facilities include Community halls, public library, public garden, pond, recreation center, cinema hall, Assembly polling station, Birth and death registration office, etc.

8.1.1 Sustainable Design: ATM

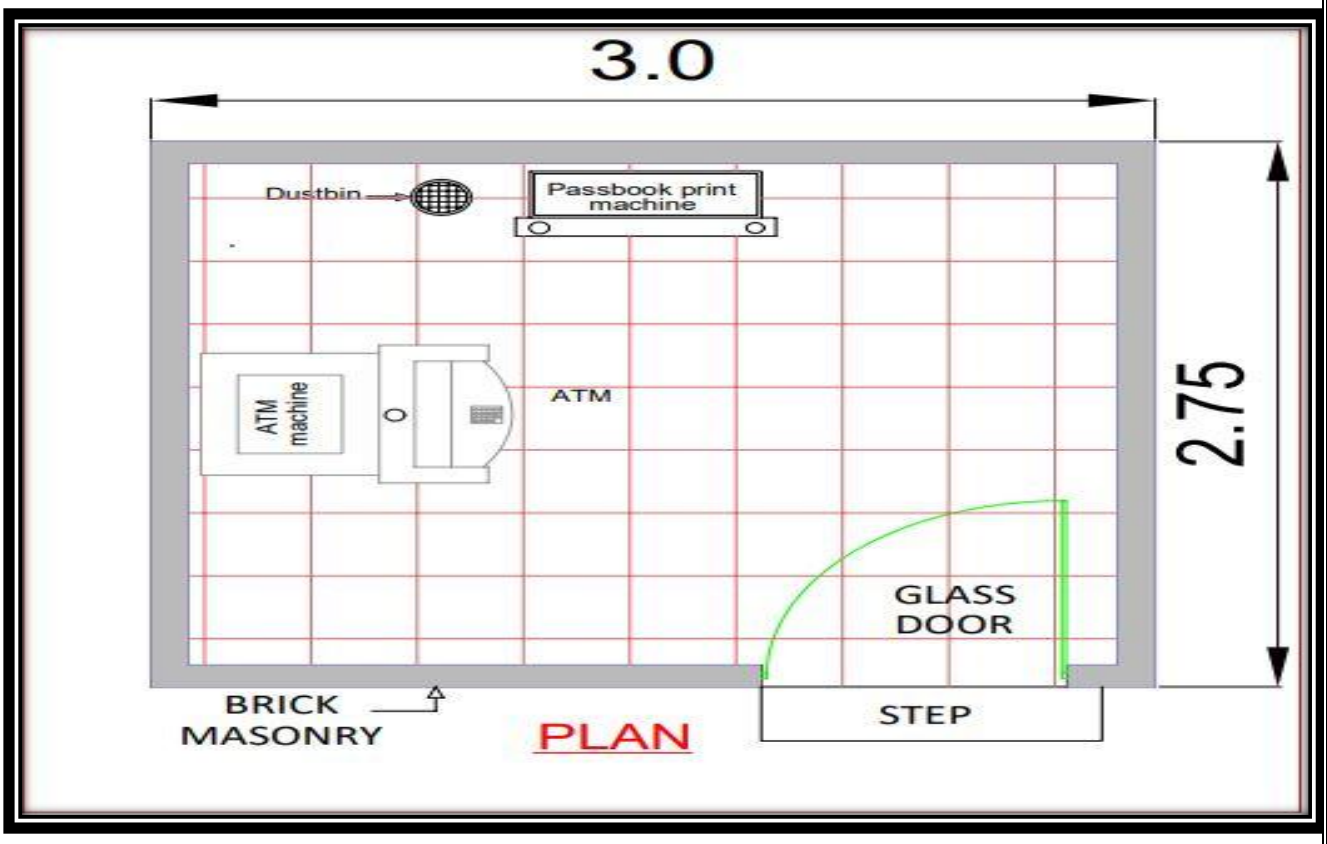


Fig 8.1 (a) Plan of ATM

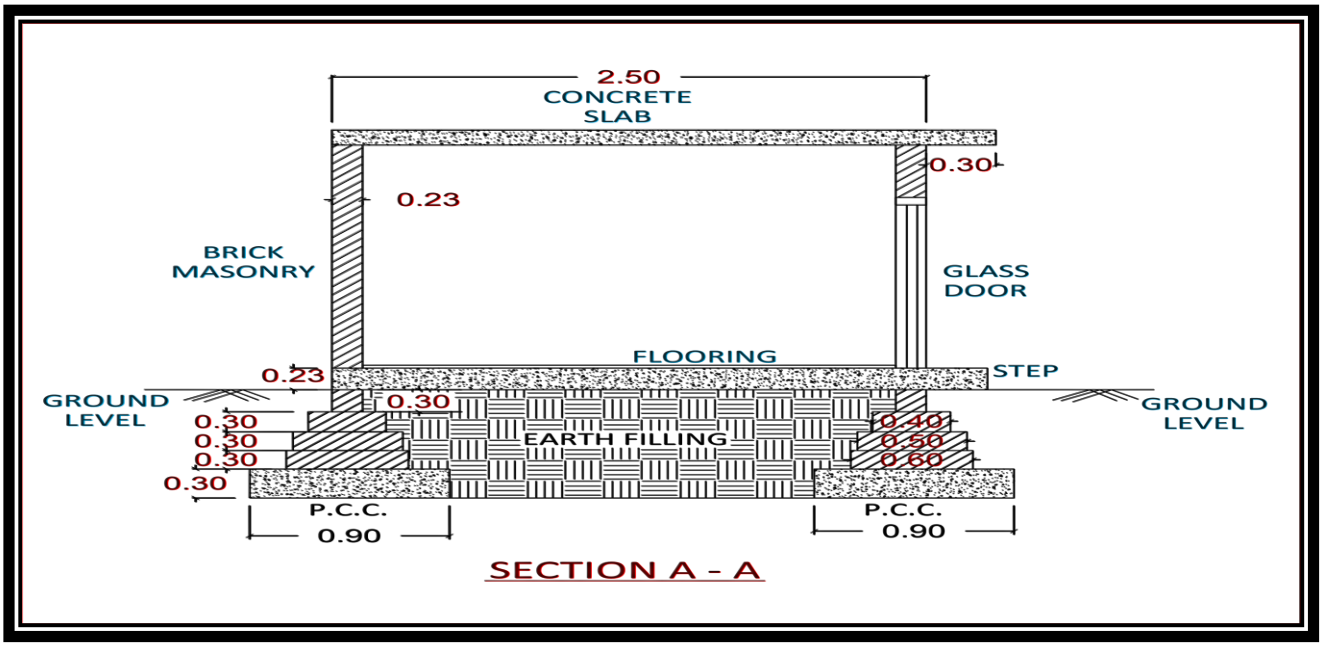


Fig 8.1 (b) Section of ATM

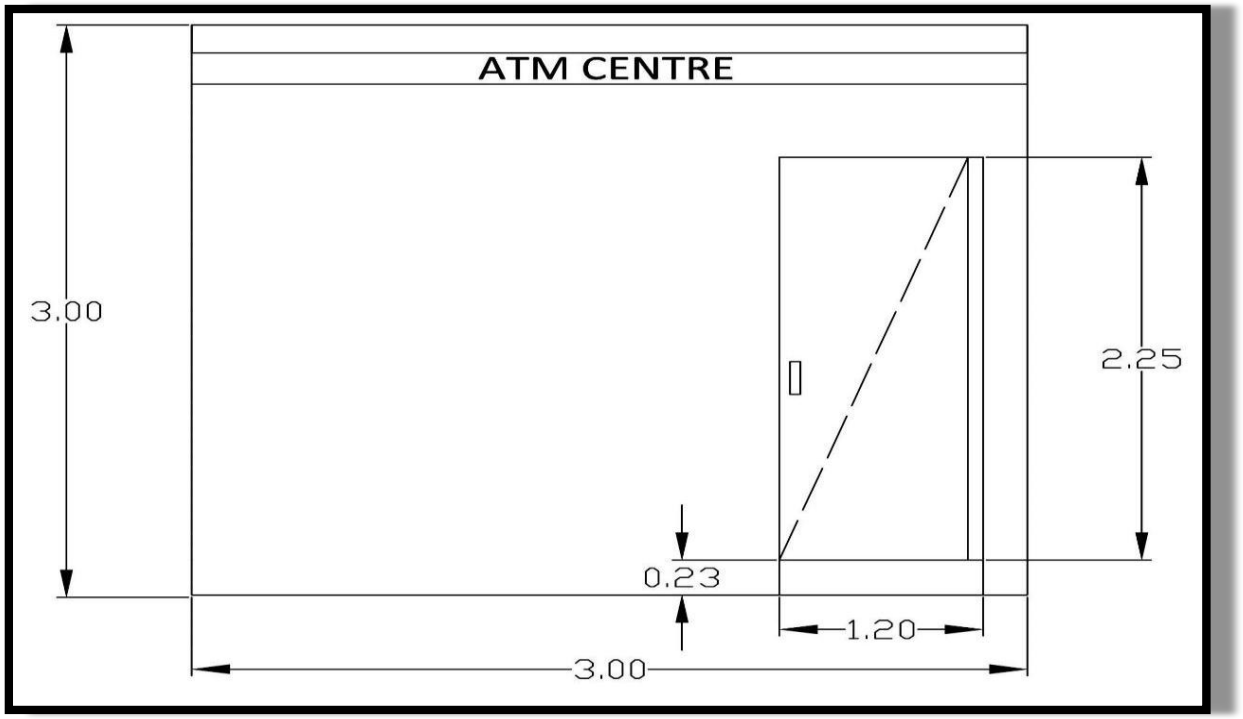


Fig. 8.1 (c) ELEVATION

Table-8 Measurement sheet of ATM

Sr. No	Description (by Center line Method)	No	Length L (m)	Width B (m)	Height H (m)	Quantity	Total Quantity
1	**Excavation**	**1**	**11**	**0.90**	**1.5**	**14.85**	**14.85 m^3**

2	**P.C.C. 1:4:8**	**1**	**11**	**0.90**	**0.30**	**2.97**	**2.97 m^3**
3	**Brick Work up to GL**						
	For step 0.60 m	**1**	**10.7**	**0.60**	**0.30**	**1.92**	
	For step 0.50 m	**1**	**10.45**	**0.50**	**0.30**	**1.56**	
	For step 0.40 m	**1**	**10.25**	**0.40**	**0.30**	**1.23**	
	For step 0.23 m	**1**	**10.14**	**0.23**	**0.30**	**0.70**	**5.41 m^3**
4	**Earth filling in GL**	**1**	**2.5**	**2.0**	**1.5**	**7.5**	**7.5 m^3**
5	**Cement concrete fo flooring**	**1**	**3.00**	**2.80**	**0.23**	**1.93**	**1.93 m^3**
6	**Brick Work up to Slab**	**1**	**10.14**	**0.23**	**2.62**	**6.11**	
	Deduction for Door and frame	**1**	**1.30**	**0.23**	**2.35**	**-0.71**	**5.4 m^3**
7	**RCC work for Slab**	**1**	**3.00**	**2.80**	**0.15**	**1.26**	**1.26 m^3**
8	**Tiles Flooring**	**1**	**2.54**	**2.34**		**5.94**	
	Door	**1**	**1.30**	**0.23**		**0.30**	**6.24 m^2**
A	**Skirting**	**3**		**3.0 m^2**		**9.0**	
		2		**2.5 m^2**		**5.0**	
	Deduction for Door	**1**		**1.30 m^2**		**-1.30**	**12.7 m^2**
9	**Glass Door wit Aluminum Frame**	**1**	**1.30**		**2.35**	**3.05**	**3.05 m^2**

10	**Smooth plaster 12cm thick inside and ceilings in C.M. 1:3**						
	Cabin	**2**	**2.54**			**5.08**	
		2	**2.04**			**4.08**	
	Ceiling	**1**	**2.54**	**2.54**		**6.54**	
	Deduction for door	**1**	**1.30**		**2.35**	**-3.05**	**12.65 m^2**
11	**Rough plaster outside 15cm thick**	**2**	**3.00**		**3.0**	**18**	
		2	**2.50**		**3.0**	**15**	
	Deduction for door	**1**	**1.30**		**2.35**	**-3.05**	**29.95 m^2**

Abstract sheet of ATM

Sr. no	Description	Total Quantity	Rate	Per Unit	Total Amount
1	**Excavation in foundation**	**14.85**	**85.90**	**m^3**	**1,275.60**
2	**P.C.C. 1:4:8**	**2.97**	**2324.00**	**m^3**	**6,902.30**
3	**Brick Work up to GL**	**5.41**	**3000**	**m^3**	**16,230.00**
4	**Earth filling in GL**	**7.5**	**50**	**m^3**	**375.00**
5	**Cement concrete for flooring**	**1.93**	**4250**	**m^3**	**8,202.50**
6	**Brick Work up to Slab**	**5.4**	**3500**	**m^3**	**18,900.00**
7	**RCC work for Slab**	**1.26**	**7800**	**m^3**	**9,828.00**
8	**Tiles Flooring and skirting**	**18.94**	**636**	**m^2**	**12,054.80**
9	**Glass Door with Aluminum Frame**	**3.05**	**3000**	**m^2**	**9,150.00**
10	**Smooth plaster 12cm thick**	**12.65**	**230**	**m^2**	**2,910.00**
11	**Rough plaster 15cm thick**	**29.95**	**300**	**m^2**	**8,895.00**
12	**Painting**	**42.6**	**250**	**m^2**	**10,650.00**
				Total :	**1,05,372.40**
				Add 5 % Contingency Charges:	**5,268.60**
				Add 2 % Work Establishment Charges:	**2,107.50**
				Add 3 % Electric Charges:	**3,161.20**
				Grand Total :	**1,15,909.70**

8.1.2 Physical Design:

POST OFFICE

As we have served we have seen a requirement of post office, so according to the requirement we have given design for 7.6*6.6 m

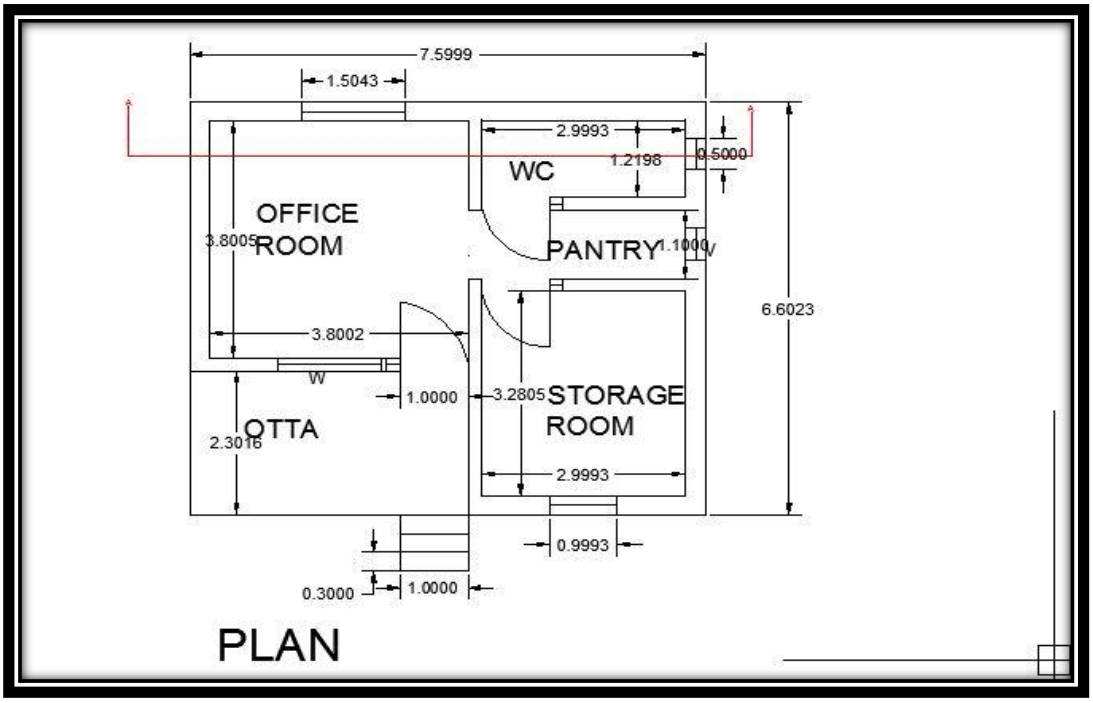


Fig 8.1.2 (a) Plan of Post Office

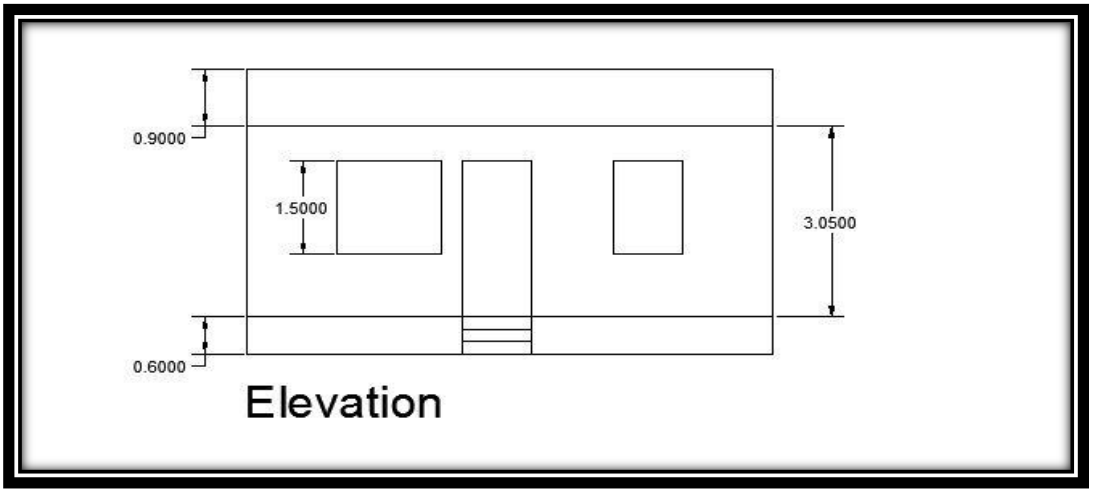


Fig 8.1.2(b) Elevation of Post Office

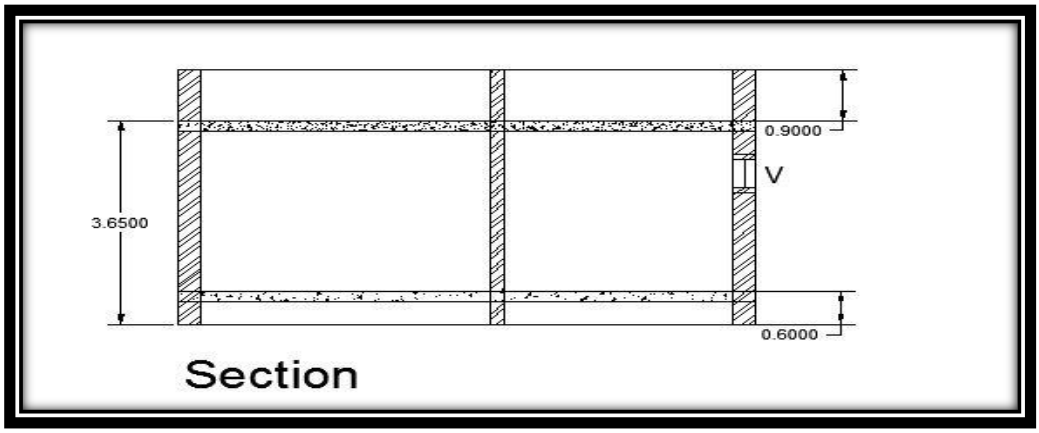


Fig 8.1.2 (c) Plan, Elevation, Section

TABLE NO 9 MEASUREMENT SHEET FOR POST OFFICE

SR NO	DECRIPTION	NO	L	B	H	Q
1	EARTHWORK IN EXCAVATION					
	LONG WALL L = 3.8+.3+2.3+0.3+0.9=7.5 H = 0.2+.3+.3+.3=1.1	3	7.5	0.9	1.1	22.275
	SHORT WALL TYPE 1 L= 3.8+0.3-0.9 =3.2	3	3.2	0.9	1.1	9.504
	SHORT WALL TYPE 2 L= 3+0.3-0.9 =2.4	4	2.4	0.9	1.1	9.504
						41.27
2	BRICK BAT CEMENT CONCRETE					
	LONG WALL	3	7.5	0.9	0.2	4.05
	SHORT WALL TYPE 1	3	3.2	0.9	0.2	1.728
	SHORT WALL TYPE 2	4	2.4	0.9	0.2	1.728
						7.506
3	BRICK MASONARY UPTO PLINTH IN C.M. 1:6					
	LONG WALL					
	FIRST STEP 7.5-2*0.2=7.1	3	7.1	0.5	0.3	3.195
	SECOND STEP 7.1-2*0.05=7	3	7	0.4	0.3	2.52
	THIRD STEP 7-2*2*0.05=6.9	3	6.9	0.3	0.85	5.27
	SHORT WALL TYPE 1					
	FS 3.2+2*0.2=3.6	3	3.6	0.5	0.3	1.62
	SS 3.6+2*0.05=3.7	3	3.7	0.4	0.3	1.332

	TS 3.7+2*0.05=3.8	3	3.8	0.3	0.3	2.908
	SHORT WALL TYPE 2					
	FS 2.4+2*0.2=2.8	4	2.8	0.5	0.3	1.68
	SS 2.8+2*0.05=2.9	4	2.9	0.4	0.3	1.392
	TH 2.9+2*0.05=3	4	3	003	0.85	3.06 22.95
	STEP					
	FS	1	1	0.9	0.20	0.18
	SS	1	1	0.6	0.20	0.12
	TS	1	1	0.3	0.20	0.06
						0.36
3	BRICK MASONARY UPTO SLAB LEVEL IN CM 1:6					
	LONG WALL	3	6.9	0.3	3	18.83
	SHORT WALL TYPE 1	3	3.8	0.3	3	10.26
	SHORT WALL TYPE 2	4	3	0.3	3	10.8
						39.69
4	DEDUCTION FOR DOOR & WINDOW					
	D1	5	1	0.3	2.5	3.75
	W1	1	1.5	0.3	1.5	0.675
	W2	2	0.5	0.3	0.5	0.15
	V	1	1	0.3	1.5	0.45
						5.02
5	DEDUCTION FOR DOOR & WINDOW LINTELS					
	D1	5	1.3	0.3	0.15	0.29
	W1	1	1.8	0.3	0.15	0.081
	W2	2	0.8	0.3	0.15	0.072
	V	1	1.3	0.3	0.15	0.058
						0.501
	DEDUCTION =39.69-3.97-0.443 =35.28					
6	SMOOTH PLASTER					
	PLSTER FOR WALL					
	OFFICE ROOM	4	3.8		3	45.6
	STORAGE ROOM	2	3		3	18
		2	3.2		3	19.2

	PANTRY	2	2		3	12
		1	1.1		3	3.3
	WC	2	3		3	18
		2	1.2		3	7.2
	CELLING PLASTER					
	OFFICE ROOM	1	3.8	3.8		14.44
	STORAGE ROOM	1	3.2	3		9.6
	WC	1	3	1.2		3.6
	PANTRY	1	1.1	2		2.2
						156.74
	DEDUCTION FOR PLASTER					
	D	5/2		1	2.5	6.25
	W1	2/2		1.5	1.5	2.25
	W2	½		1	1.5	0.75
	V	1/2		0.5	0.5	0.125
						9.375

ABSTRACT FOR POST OFFICE

Sr no	Description	Qty	Rate	Unit	Amount
1	Excavation of foundation up to 1.1m depth sorting out and stacking of useful materials and disposing of excavated stuff up to 50M lead	41.27	67.2	Cu.m	2773
2	Providing and laying cement concrete 1:3:6(1cement: 3coase sand: 6 graded stone aggregate 20mm. Nominal size) and curing complete excluding cost of formwork in foundation	7.506	2486	Cu.m	18645
3	Brick masonry work in common brunt clay building bricks having crushing strength not less than 35 kg/sq.cm in cement mortar 1:6(1 cement: 6 coarse sand) in foundation	22.95	3147	Cu.m	72223
5	Brick masonry in common brunt clay building bricks having crushing strength not less than 35 kg/sq.cm in cement mortar 1:6(1 cement: 6 coarse sand) in plinth	0.36	3650	Cu.m	1314
6	Providing 20mm thick cement plaster in single coat on rough side of single or half brick walls for interior plastering upto two level	35.28	134	Sq.m	4727.52

	and finished even and smooth in even mortar 1:4 (1cement: 4 sand)				
7	20mm thick outside double coat sand faced ceent plaster on walls upto height 3 m above ground level consisting of 12mm thick backing coat of CM 1:3(1 cement: 3 coarse sand) and 8mm thick finishing coat of CM 1:1(1 cement:1 coarse sand)etc complete	104.14	174	Sq.m	18120.36
8	Providing and laying tiles 6mm thick in flooring, treads of steps laid on a bed of 12mm thick cement mortar 1:3 (1-cement : 3-coarse sand) finishing with flush pointing in white cement.A) white Glazed tiles	29	906	Sq.m	26274
19	Providing and laying tiles 6mm thick in dedo and jointed with white cement slurry A) white Glazed tiles.	19.32	650	Sq.m	12558

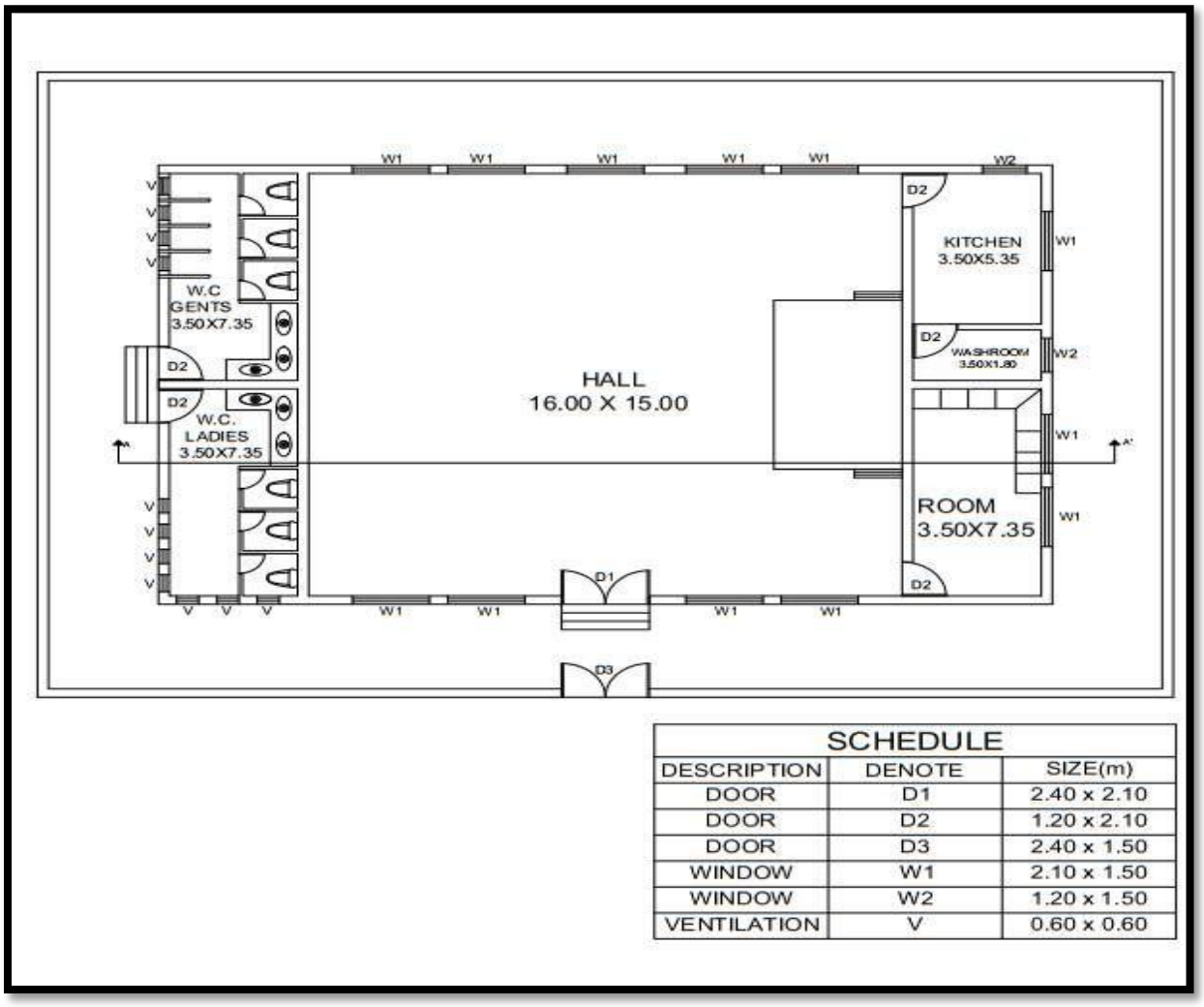
8.1.3 Social Design

COMMUNITY HALL

Community hall is proposed in village to enable organizing events such as marriages, seminars, blood donation camps, etc. as there is not any such building or structure already exist in a village.

Design details

There will be a large hall, working space and individual toilets for gents and ladies. There is also provision of kitchen and room. As for such a big span one way continues slab supported on 0.30 m thick walls is provided. There will be provide of compound wall of 0.2m thick.



SCHEDULE		
DESCRIPTION	DENOTE	SIZE(m)
DOOR	D1	2.40 x 2.10
DOOR	D2	1.20 x 2.10
DOOR	D3	2.40 x 1.50
WINDOW	W1	2.10 x 1.50
WINDOW	W2	1.20 x 1.50
VENTILATION	V	0.60 x 0.60

Fig 8.1.3(a) Plan of the Community Hall

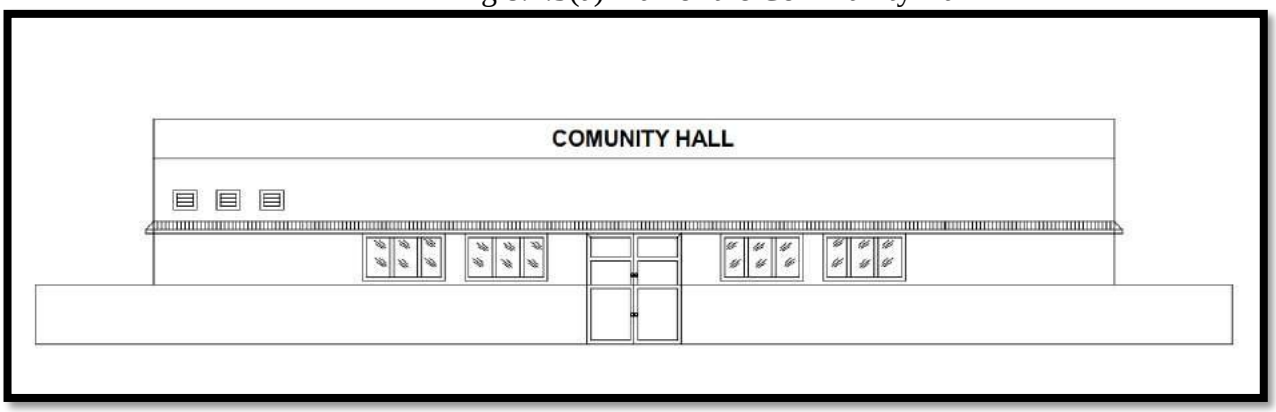
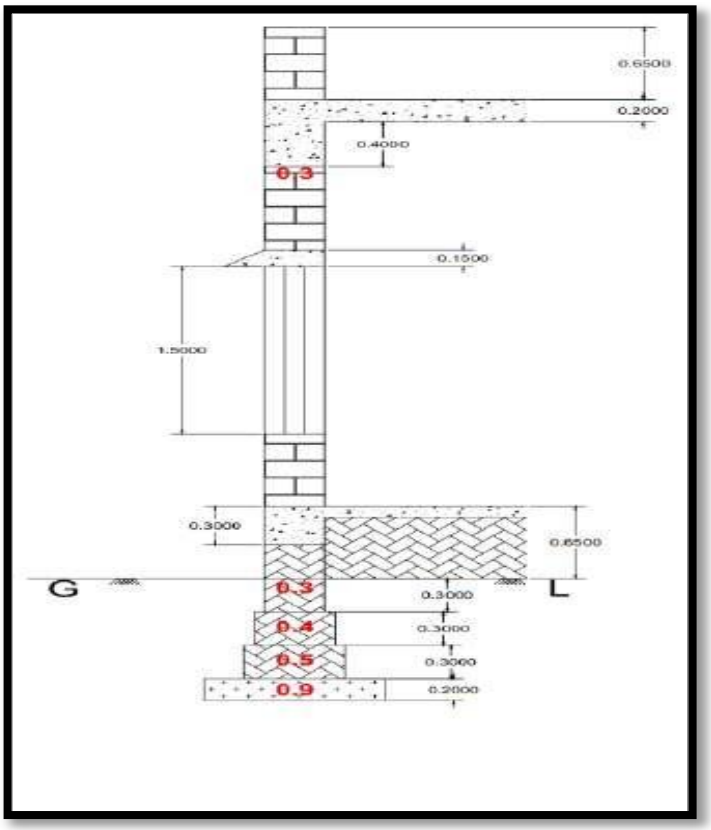


Fig 8.1.3(b)Front Elevation of Community Hall



Tb- 10 MEASUREMENT SHEEET FOR COMMUNITY HALL

SR. NO.	DESCRIPTION	NO.	LENGTH (M)	BREADTH (M)	HEIGHT (M)	QUANTITY
1	**Excavation in Foundation**					
	Compound Wall	**1**	**104.80**	**0.9**	**1.1**	103.75
	Internal Wall	**1**	**113.00**	**0.9**	**1.1**	111.87
	Total					215.62 m^3
2	**Plain cement concrete (P.C.C) in Foundation (1:4:8)**					
	Compound Wall	**1**	**104.8**	**0.9**	**0.2**	18.86
	Internal Wall	**1**	**113.0**	**0.9**	**0.2**	20.34
	Total					39.20

						m^3
3	**Brickwork in Foundation up to Plinth level**					
	Compound Wall					
	First step	**1**	**104.80**	**0.5**	**0.3**	15.72
	Second step	**1**	**104.80**	**0.4**	**0.3**	12.57
	Third step	**1**	**104.80**	**0.3**	**0.3**	9.432
						37.722 m3
	Internal Wall					
	First step	**1**	**113.0**	**0.5**	**0.3**	16.95
	Second step	**1**	**113.0**	**0.4**	**0.3**	13.56
	Third step	**1**	**113.0**	**0.3**	**0.8**	27.12
						57.630 m3
	Steps:					
	First	**1**	**2.4**	**0.9**	**0.15**	0.324
	Second	**1**	**2.4**	**0.6**	**0.15**	0.216
	Third	**1**	**2.4**	**0.3**	**0.15**	0.108
	Steps:					
	First	**1**	**2.7**	**0.9**	**0.15**	0.54
	Second	**1**	**2.7**	**0.6**	**0.15**	0.36
	Third	**1**	**2.7**	**0.3**	**0.15**	0.18
						1.376 m3
	Total					96.73 m3
4	**Brickwork in superstructure in cement mortar 1:6**					
	Compound Wall	**1**	**104.8**	**0.3**	**1.50**	47.16
	Internal Wall	**1**	**113.0**	**0.3**	**3.00**	103.86
						151.02 m3
	Deduction for Door/Ventilation:					
	D1	**1**	**2.40**	**0.3**	**2.10**	1.512
	D2	**4**	**1.20**	**0.3**	**2.10**	3.024
	D3	**1**	**2.40**	**0.3**	**1.50**	1.080
	W1	**11**	**2.10**	**0.3**	**1.50**	10.395
	W2	**2**	**1.20**	**0.3**	**1.50**	1.080
	V	**8**	**0.60**	**0.3**	**0.60**	0.864
						(-) 17.955 m3
	Total					113.00 m^3
5	**RCC Work**					
	Slab	**1**	**24.20**	**15.6**	**0.20**	75.50

				0		
		1	**24.20**	**15.60**	**0.15**	56.62
	Beam	**7**	**15.60**	**0.3**	**0.40**	13.15
		4	**15.60**	**0.3**	**0.30**	5.62
	Lintel					2.00
	Total					150.84 m^3
6	**2 cm thick marble flooring**					
		1	**16**	**15**		240.00
		4	**3.50**	**7.35**		102.90
	Total area					343.00 m^2
7	**Smooth plaster on inside walls and ceiling in cm (1:3)**					
	Compound Wall	**2**	**30.4**		**1.5**	91.20
		2	**21.4**		**1.5**	64.20
		2	**31.0**		**1.5**	93.00
		2	**22.0**		**1.5**	66.00
						314.40 m^2
	Inside of the wall	**8**	**3.50**		**3.60**	100.80
		8	**7.35**		**3.60**	211.68
		2	**16.00**		**3.60**	115.20
		2	**15.00**		**3.60**	108.00
						535.60 m^2
	Outside of the wall	**2**	**24.20**		**3.50**	169.40
		2	**15.60**		**3.50**	109.20
						278.60 m^2
	Ceiling	**4**	**3.50**	**7.35**		102.90
		1	**15.00**	**16.00**		240.00
						342.90 m^2
	Deduction for Door/Ventilation:					
	D1	**2**	**2.40**		**2.10**	10.08
	D2	**8**	**1.20**		**2.10**	20.16
	D3	**2**	**2.40**		**1.50**	7.20

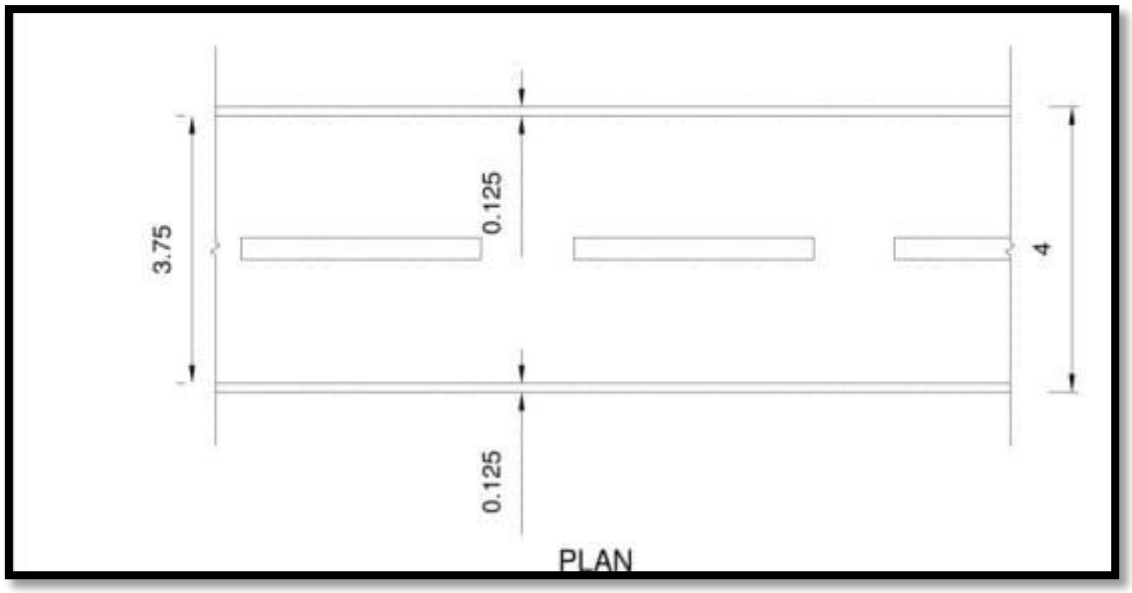
	W1	**22**	**2.10**		**1.50**	69.30
	W2	**4**	**1.20**		**1.50**	7.20
	V	**16**	**0.60**		**0.60**	5.76
						(-) 119.70 m^2
	Total					1352.90 m^2
8	**Earth filling in Excavation**					
	Total excavation for walls					215.62 m^3
	Brickwork up to G.L.					(-)39.20 m^3
	PCC					(-)95.35 m^3
	Total					81.00 m^3

ABSTRACT SHEET FOR COMMUNITY HALL

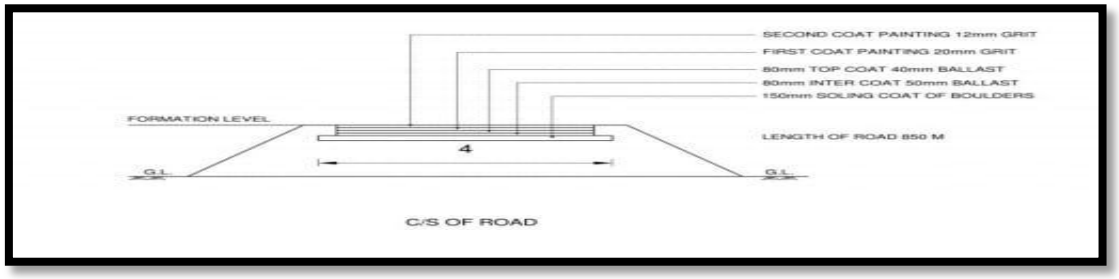
SR. NO.	PARTICULARS	QUANTITY	UNIT	RATE	PER	AMOUNT
1	Excavation in Foundation	215.62	m^3	85	m^3	18327.70
2	Plain cement concrete (P.C.C) in Foundation (1:4:8)	39.20	m^3	3000	m^3	117600.00
3	Brickwork in Foundation up to Plinth level	96.728	m^3	3200	m^3	309529.60
4	Brickwork in superstructure in cement mortar 1:6	113.00	m^3	3500	m^3	395500.00
5	RCC Work	150.84	m^3	8800	m^3	1327392.00
6	2 cm thick marble flooring	343.00	m^2	500	m^2	171500.00

7	Smooth plaster on inside walls and ceiling in cm (1:3)	1352.90	m^2	150	m^2	202935.00
8	Earth filling in Excavation	81.00	m^3	50	m^3	4050.00
	Total					25,46,834.30 Rs.
	Add 5% Contingencies					1,27,341.71 RS.
	Grand Total					26,74,176.00 Rs.
					say	26,74,500.00 Rs.

8.1.4 Road Design:-



(a) Plan of Road



Sr. No.	Description	No.	Length L (m)	Width B (m)	Height H (m)	Quantity	Total Quantity
	Box Cutting in a	1					
1	road crust (150 mm		850	4.0	0.3	1020 N^3	1020 N^3
	to 300 mm depth)						
	150 mm size	1					
2	boulders for bottom		850	4.0	0.15	510 N^3	510 N^3
	soling coat						
3	50 mm size ballast for inter coat for 80 mm thick compacted layer, Thickness of loose layer=8×1.5 =12×0 mm	1	850	3.75	0.12	382.5 N^3	382.5 N^3
4	40 mm size ballast for top coat Thickness ofloose layer=8×1.5 =120 mm	1	850	3.75	0.12	382.5 N^3	382.5 N^3
	20 mm size grit for bituminous first	1			1.35		
5	coat of painting (1.35 N^3 per 100		850	3.75	$\frac{}{100}$	43.031 N^3	43.031 N^3
	N^2)						
	12 mm size grit for bituminous second	1			0.75		
6	coat of painting (0.75 N^3 per 100		850	3.75	$\frac{}{100}$	23.90 N^3	23.90 N^3
	N^2)						
	Bitumen for first	1			220		

7	coat painting (220 kg per 100 N²)		850	3.75	100	7012.5 kg	7012.5 kg	
	Bitumen for first	1			220			
8	coat painting (120 kg per 100 N²)		850	3.75	100	3825 kg	3825 kg	
	Rolling for each	1						
9	layer with power roller 8 tonne to 12		850	3.75	1	3187.5 N²	3187.5N²	
	Tonne							

Table 10.1 Measurement & Abstract Sheet for road

Sr No	Description	Total Quantity	Rate	PER UNIT	Total Amount
1	Box Cutting in a road surface to proper slope and camber for making a base for road work including removing the excavated stuff and depositing on the road side slope Supplying 150 mm size boulders for bottom soling coat	1020 N^3	65.50	N^3	66810
2	Supplying 150 mm size boulders for bottom soling coat.	510 N^3	93.60	N^3	47736
3	Spreading the stone aggregate for rolling and W.B.M. including filling the interstices to required camber and gradient (excluding spreading of Blind age) (ii) 40mm to 63mm size aggregates (H.B.).	510 N^3	161	N^3	82110
4	Rolling and consolidating water bound macadam (except laterite and Kankar) including watering not exceeding 150mm thickness (Main layer including binding materials) including filling in depressions which occur during the process With power roller exceeding 8 tonne and not exceeding 12 tonne.	3187.5 N^3	10.90	N^3	34743.75
5	Supplying of crushed stone aggregates, chippings etc. of hard stone of following nominal size free of disintegrated pieces deleterious and organic mater (for Bitumen surface dressing etc.) and grading as per I.R.C. Code.(i) 50mm	382.5 N^3	293.00	N^3	112072.5

6	Spreading the stone aggregate for rolling and W.B.M. including filling the interstices to required camber and gradient (excluding spreading of Blindage)(ii) 40mm to 63mm size aggregates (H.B.)	382.5 N^3	161.00	N^3	61582.5
7	Rolling and consolidation of 50 mm size ballast including filling in depression which occur during the process, with power roller 8 tonne to 12 tonne.	3187.5N^2	17.10	N^2	54506.25
8	Supplying of graded stone aggregate of following sizes (for W.B.M. Road) Hand broken stone aggregate 40 mm size.	382.5 N^3	234.00	N^3	89505
9	Spreading the stone aggregate for rolling and W.B.M. including filling the interstices to required camber and gradient (excluding spreading of Blind age) (iii) 25mm to 50mm size crushed stone.	382.5 N^3	161.00	N^3	61582.5
10	Rolling and consolidation of 40 mm size stone aggregate including filling in depression which occur during the process, with power roller 8 tonne to 12 tonne.	3187.5N^2	17.10	N^2	54506.25
11	Supplying of crushed stone aggregates, chippings etc. of hard stone of following nominal size free of disintegrated pieces deleterious and organic mater (for Bitumen surface dressing etc.) and grading as per I.R.C. Code.(iv) 20mm.	43.031 N^2	413	N^2	17771.80
12	Spreading the stone aggregate for rolling and W.B.M. including filling the interstices to required camber and gradient (excluding spreading of Blindage)(iv) Chipping varying from 6mm to 25mm size.	43.031 N^2	161	N^2	6927.99
13	Rolling and consolidation of 20 mm size crushed stone aggregates including filling in depression which occur during the process, with power roller 8 tonne to 12 tonne.	3187.5 N^2	17.10	N^2	54206.25

14	Supplying of crushed stone aggregates, chippings etc. of hard stone of following nominal size free of disintegrated pieces deleterious and organic mater (for Bitumen surface dressing etc.) and grading as per I.R.C. Code.(v) 12mm.	23.90 N^2	330.00	N^2	7887
15	Spreading the stone aggregate for rolling and W.B.M. including filling the interstices to required camber and gradient (excluding spreading of Blindage)(iv) Chipping varying from 6mm to 25mm size	23.90 N^2	161.00	N^2	3847.9
16	Rolling and consolidation of 12 mm size grit including filling in depression which occur during the process, with power roller 8 tonne to 12 tonne.	3187.5 N^2	17.10	N^2	54506.25
17	Surface dressing one coat with paving bitumen using 18kg. bitumen per 10.0 Sq.M. with 0.15 cu.m. of stone chipping 12mm nominal size per 10.0 Sq.M. of road surface excluding roling and consolidation (stone chipping and bitumen shall be paid seperately) (more than 10 ton).	7012.5 kg	12.50	KG	87656.25
18	Rolling and consolidation of 12 mm size grit including filling in depression which occur during the process, with power roller 8 tonne to 12 tonne	3187.5 N^2	17.10	N^2	54506.25
19	Surface dressing one coat with paving bitumen using 18kg. bitumen per 10.0 Sq.M. with 0.15 cu.m. of stone chipping 12mm nominal size per 10.0 Sq.M. of road surface excluding roling and consolidation(stone chipping and bitumen shall be paid seperately) (more than 10 ton).	3825 kg	12.50	KG	47812.5
20	Rolling and consolidation of 12 mm size grit including filling in depression which occur during theprocess, with power roller 8 tonne to 12 tonne	3187.5 N^2	17.10	N^2	54506.25
TOTAL COST					10,55,083.9 RS

8.1.5 Smart Village:-

SKILL DEVELOPMENT CENTER

Programmes

- Skill Development
- Skill Enhancement
- Encourage Entrepreneurship
- Soft Skill

Goals of Skill development center in village

- The main goal is to create opportunities, space and scope for the development of the talents of the Indian youth and to develop more of those sectors which have already been put under skill development for the last so many years and also to identify new sectors for skill development.
- The emphasis is to skill the youths in such a way so that they get employment and also improve entrepreneurship.
- Provides training, support and guidance to farmers.
- To provide skills to women so that they become self-dependent.
    - To aware villagers regarding new development schemes for their betterment.
    - To initiate start-ups in village.

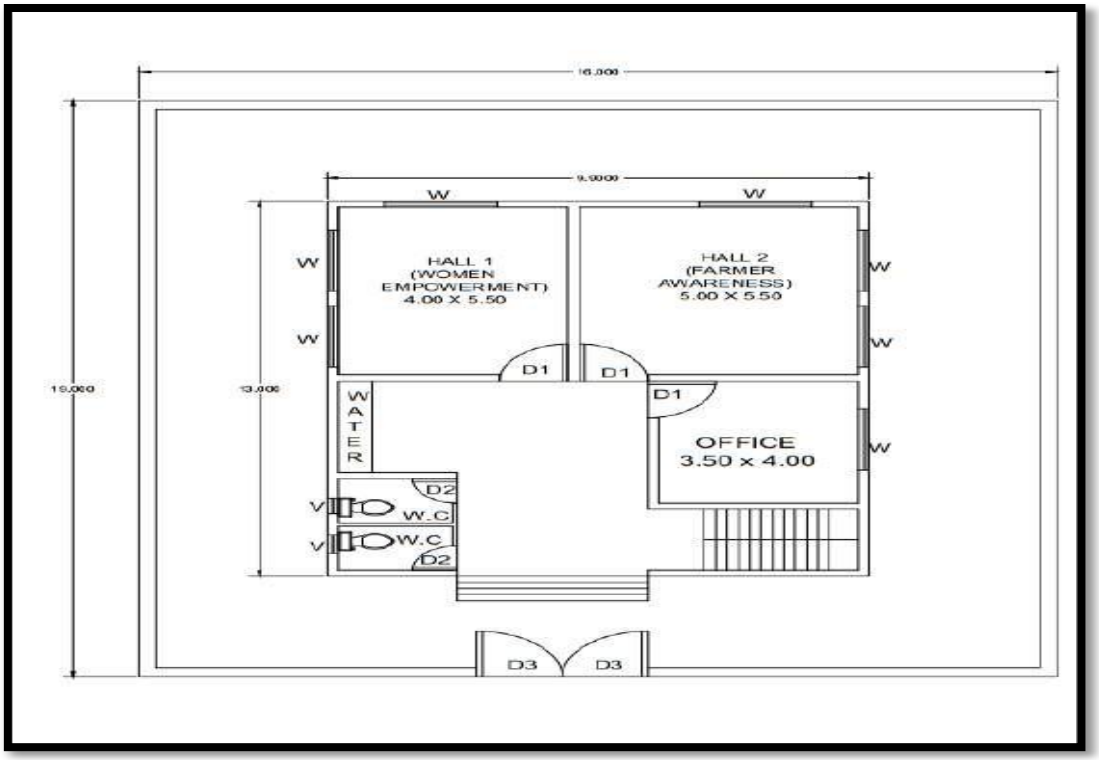


Fig 8.1.5 (a)Plan of the Ground floor of Skill Development Centre

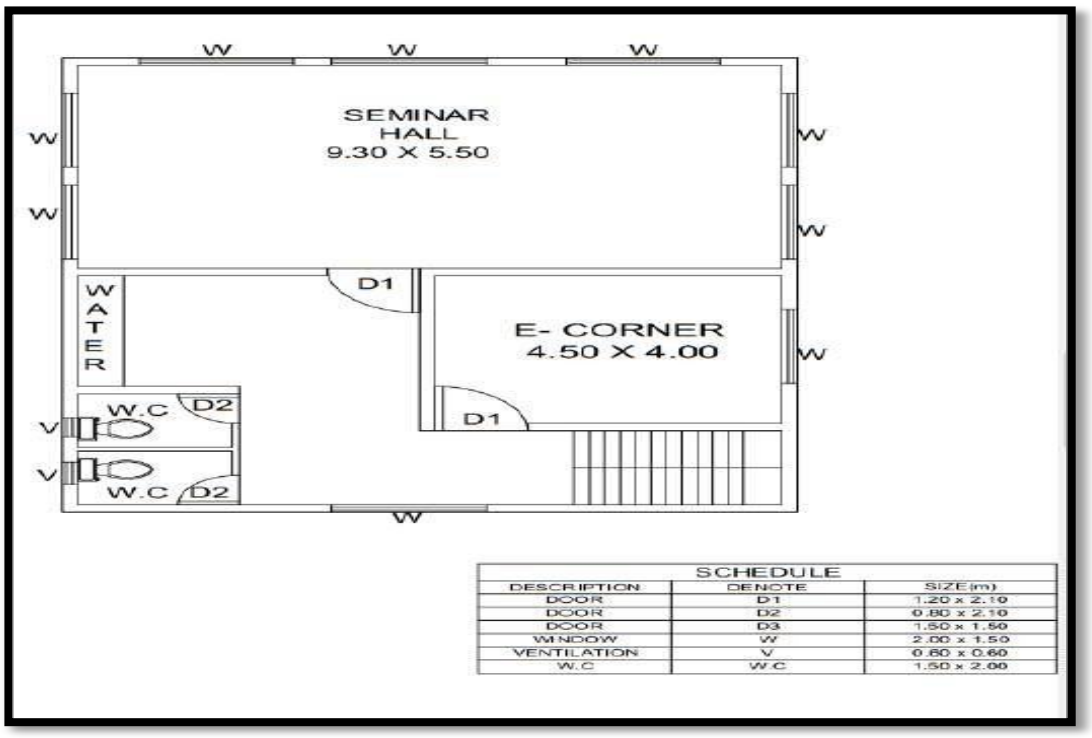


Fig 8.1.5(b) Plan of the First floor of Skill Development Centre

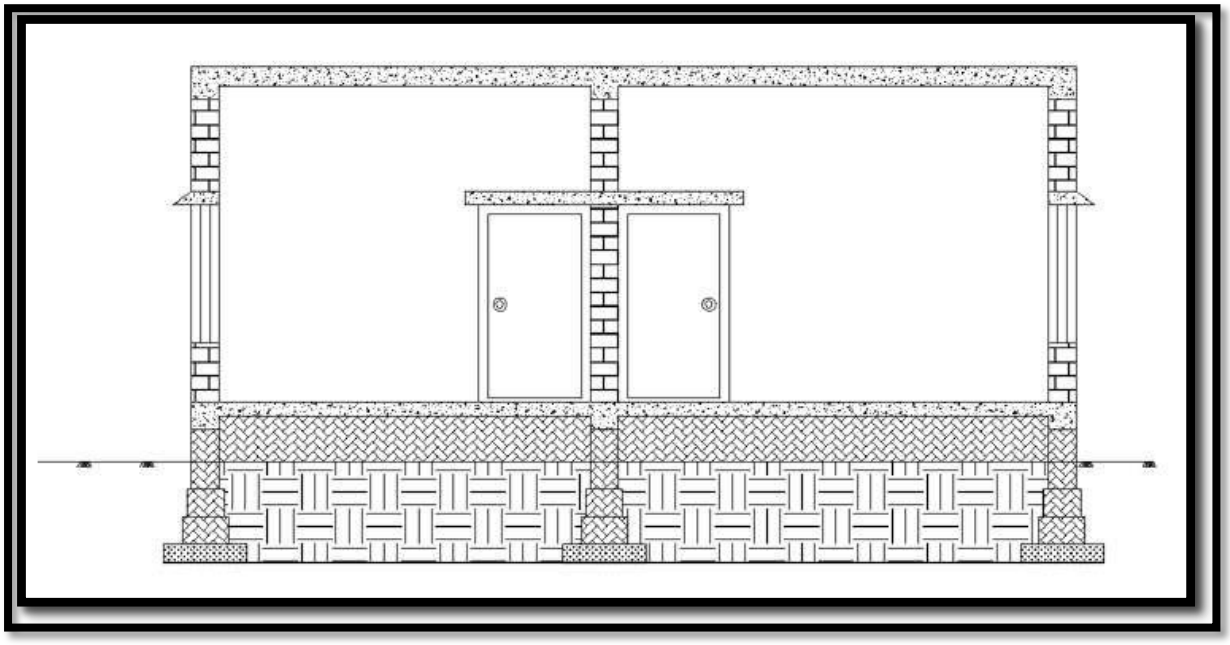
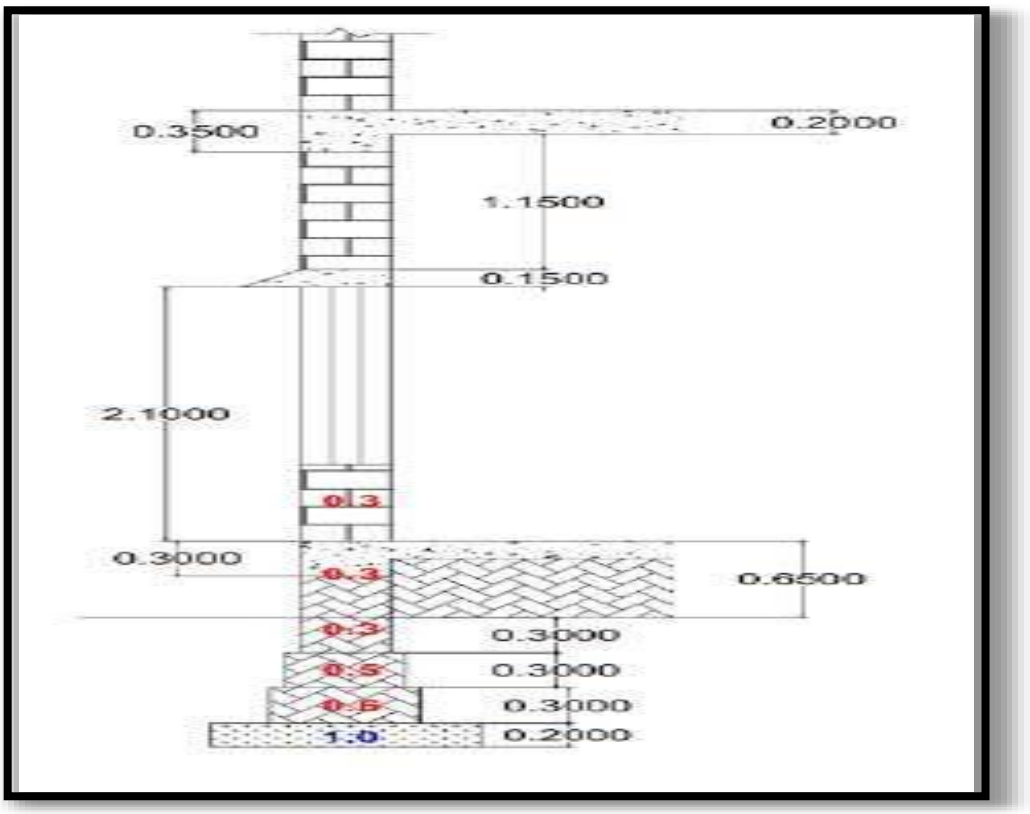


Fig 8.1.5(c) Elevation Section of AA'



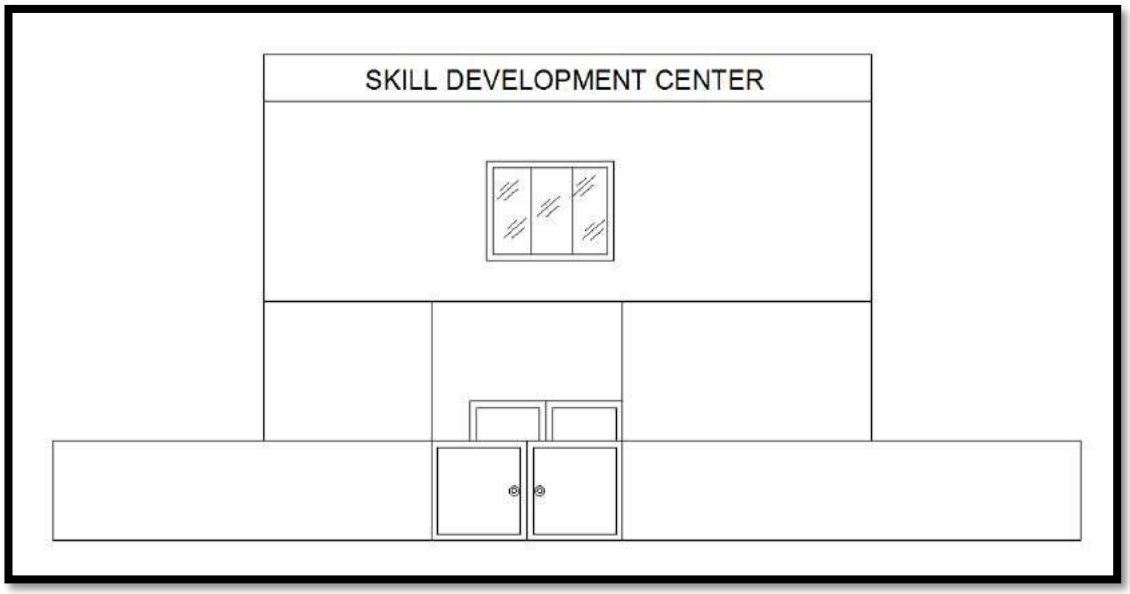


Fig 8.1.5(d) Section of footing and Elevation of Skill Development Center

Table 11 MEASUREMENT SHEET FOR SKILL DEVELOPMENT CENTER

SR. NO.	DESCRIPTION	NO.	LENGT-H(M)	BREAD THM)	HEIGH T(M)	QUANTITY
1	Excavation in					

	Foundation					
	Compound Wall	1	68.80	1.0	1.1	75.68
	Internal Wall	1	67.40	1.0	1.1	74.14
	Total					150.00 m^3
2	Plain cement concrete (P.C.C) in Foundation (1:4:8)					
	Compound Wall	1	68.80	1.0	0.2	13.76
	Internal Wall	1	67.40	1.0	0.2	13.48
	Total					27.24 m^3
3	Brickwork in Foundation up to Plinth level					
	Compound Wall					
	First step	1	68.80	0.6	0.3	12.40
	Second step	1	68.80	0.5	0.3	10.32
	Third step	1	68.80	0.3	0.3	6.19
						28.90 m^3
	Internal Wall					
	First step	1	67.40	0.6	0.3	12.13
	Second step	1	67.40	0.5	0.3	10.11
	Third step	1	67.40	0.3	0.85	17.18
						39.50 m^3
	Steps:					
	First	1	3.5	0.9	0.15	0.472
	Second	1	3.5	0.6	0.15	0.315
	Third	1	3.5	0.3	0.15	0.157
						0.945 m^3
	Total					69.345 m^3
4	Brickwork in superstructure in cement mortar 1:6					
	Compound Wall	1	68.80	0.3	1.50	30.96
	G.F. Wall	1	69.50	0.3	3.50	72.98
	F.F. Wall	1	64.85	0.3	3.50	68.10
						172.05 m^3

	Deduction for Door/Ventilation:					
	D1	5	1.20	0.3	2.10	3.78
	D3	1	3.00	0.3	1.50	1.35
	W	16	2.00	0.3	1.50	14.50

	V	4	0.60	0.3	0.60	0.432
						(-) 19.962 m^3
	Total					152.10 m^3
5	RCC Work					
	Slab	2	9.90	13.00	0.20	51.48
		1	9.90	13.00	0.10	12.87
	Beam	6	9.90	0.3	0.15	2.673
		3	13.00	0.3	0.15	1.755
		3	9.90	0.3	0.2	1.782
		3	13.00	0.3	0.2	2.340
	Lintel					2.00
	Stair					10.00
	Total					85.00 m^3
6	2 cm thick marble flooring					
		2	9.00	12.00		216.00
	Total area					216.00 m^2
7	Smooth plaster on inside walls and ceiling in cm (1:3)					
	All Compound Wall					101.40 m^2
	All Inside of the wall (G.F. + F.F)					278.35 m^2 + 267.40 m^2
	All Outside of the wall					320.60 m^2
	Ceiling					225.10 m^2
	Deduction for Door/Ventilation:					
	D1	10	1.20		2.10	25.2
	D3	2	3.00		1.50	9.00
	W	32	2.00		1.50	96.00
	V	8	0.60		0.60	2.88
						(-) 133.10 m^2
	Total					1060.00 m^2

8	Earth filling in Excavation					
	Total excavation for walls					150.00 m^3
	Brickwork up to G.L.					(-)69.34 m^3
	PCC					(-)27.24 m^3
	Total					53.42 m^3

ABSTRACT SHEEET FOR SKILL DEVELOPMENT CENTER

SR. NO.	PARTICULARS	QUANTITY	UNIT	RATE	PER	AMOUNT
1	Excavation in Foundation	150.00	m^3	85	m^3	12650.00
2	Plain cement concrete (P.C.C) in Foundation (1:4:8)	27.24	m^3	3000	m^3	81720.00
3	Brickwork in Foundation up to Plinth level	69.345	m^3	3200	m^3	221870.40
4	Brickwork in superstructure in cement mortar 1:6	152.10	m^3	3500	m^3	532350.00
5	RCC Work	85.00	m^3	8800	m^3	748000.00
6	2 cm thick marble flooring	216.00	m^2	500	m^2	108000.00
7	Smooth plaster on inside walls and ceiling in cm (1:3)	1060.00	m^2	150	m^2	159000.00
8	Earth filling in Excavation	53.42	m^3	50	m^3	2671.00
	Total					18,66,261.40 Rs.
	Add 5% contingencies					93,313.07 RS.

	Grand Total					19,59,574.47 Rs.
					say	19,60,000.00 Rs.

8.1.6 Heritage design

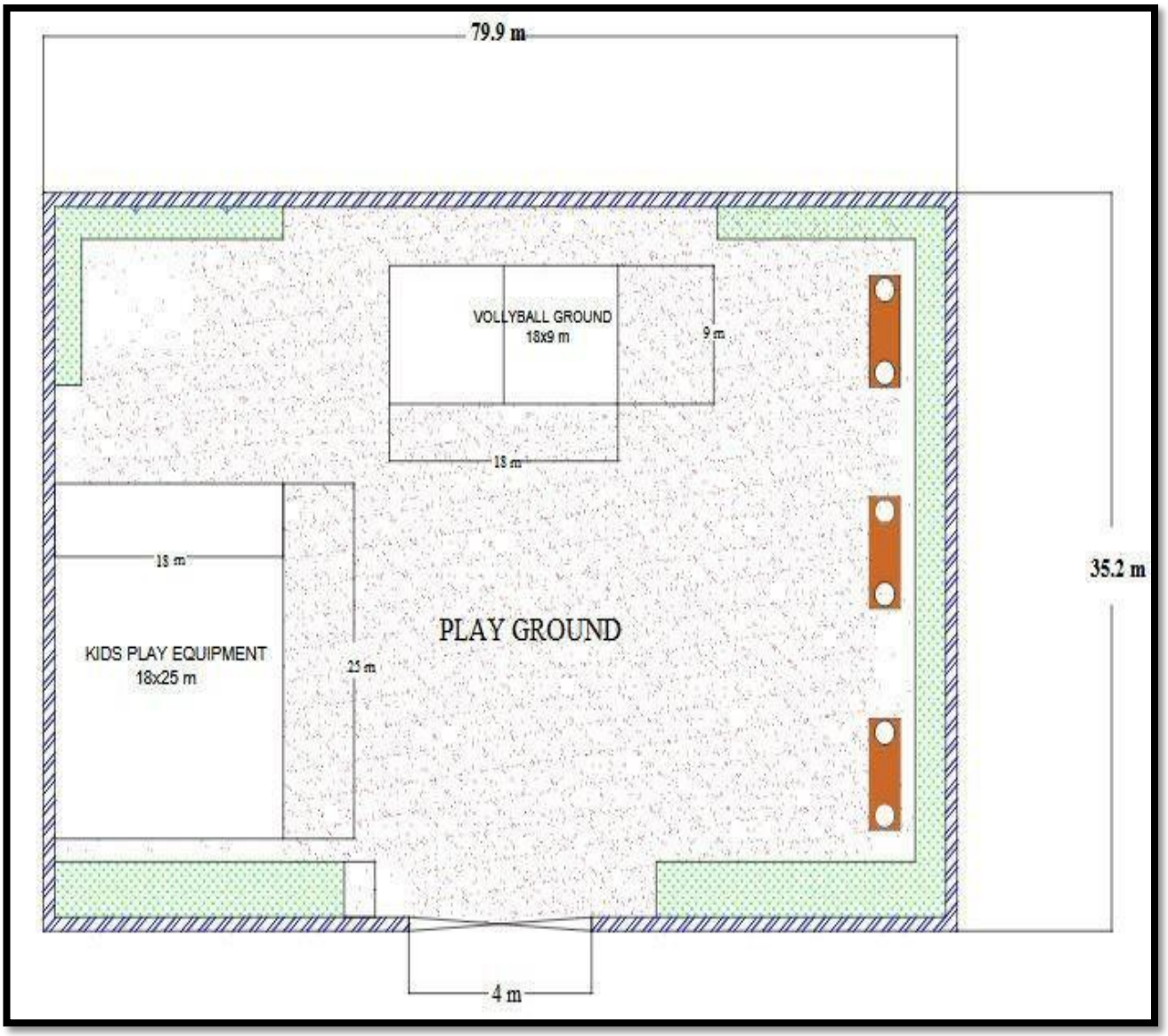


Fig no 8.1.6(a) plan of play ground

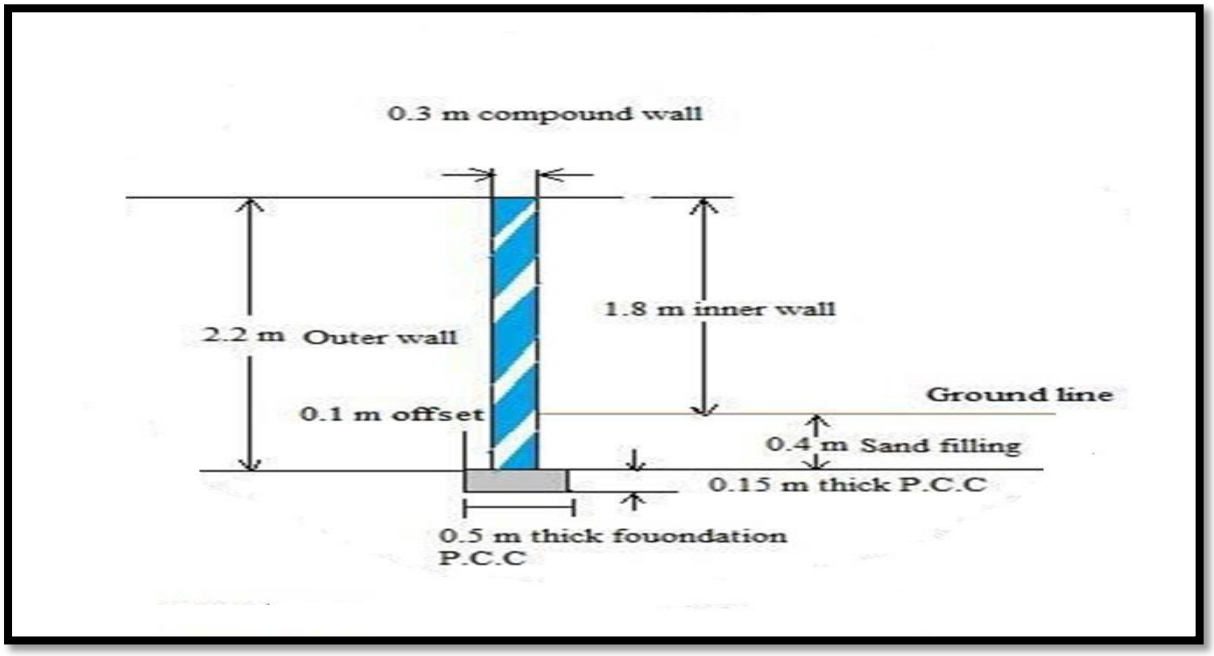


Fig 8.1.6(b)section of compound wall

Table 12 Measurement sheet of Village Playground with Compound wall

SR no.	Description	NOS.	Length(m)	Breadth (m)	Height (m)	Total Quantity
	Compound wall					
1.	**Excavation of foundation in soil** **Net centre line**	**1**	**229.60**	**0.5**	**0.55**	**63.14 m^3**
2.	**0.15 m thick P.C.C in foundation below of wall (1:3:6)**	**1**	**229.60**	**0.5**	**0.15**	**17.22 m^3**

3.	**Filling available excavated earth (excluding rock in trenches Plinth, sides of foundations etc. in layers not exceeding 20 cm in depth, consolidating each layer by ramming and watering.)**	**1**	**-**	**-**	**-**	**45.92 m^3**
4.	**First class brick masonry above ground line. (1:3:6)**	**1**	**229.60**	**0.3**	**2.2**	**151.54 m^3**
5.	**20 mm thick sand face cement plaster both side of compound wall. (1:3)**	**1**	**229.60**	**-**	**2.2**	**505.12 m^2**
6.	**20 mm thick sand face cement plaster on top of the compound wall. (1:3)**	**1**	**229.60**	**0.3**	**-**	**68.88 m^2**
7.	**For provide land scaping:- Grow trees and plant in garden area including watering**	**-**	**-**	**-**	**-**	**226.5 m^2**

Abstract sheet of compound wall

No.	Item	Qty.	Rate	Per	Amount R
1.	**Excavation in foundation(up to 1.5 m lift and 50m lead)**	**63.14 m^3**	**85.00**	**m^3**	**5366.90**
2.	**0.15 m thick Plain cement concrete (P.C.C) in foundation (1:3:6)**	**17.22 m^3**	**3200**	**m^3**	**55104.00**

3.	**Filling available excavated earth (excluding rock in trenches Plinth, sides of foundations etc. in layers not exceeding 20 cm in depth, consolidating each layer by ramming**	**45.92m3**	**49**	**m3**	**2250.08**
4.	**First class brick masonry above ground line. (1:3:6)**	**151.54m3**	**3200**	**m3**	**484928.00**
5.	**20 mm thick sand face cement plaster both side of**	**505.12m2**	**180.40**	**m2**	**91123.65**
6.	**20 mm thick sand face cement plaster on top of the compound**	**68.88 m2**	**180.40**	**m2**	**12425.95**
7.	**For provide land scaping:- Grow trees and plant, lawns in garden area including watering etc under**	**226.5 m2**	**650**	**m2**	**147225.00**
				TOTAL	**7,84,423.58 /-**
				ADD 2% CONTINGENCY	**15688.47 /-**
				ADD 3% WORK CHARGE ESTABLISHMENT	**23532.70 /-**
				GRAND TOTAL	**8,23,644.75 /-**

8.2 Recommendations of the Design:-

In Vesma-sadodra Village, all types of basic facilities like physical and social infrastructures, as mentioned above, are already available. But some of the socio-cultural facilities are missing. So in our report we have suggested some of the designs of the building as follow; • Public library • Children's playground • Biogas plant

8.3 Suggestions / Benefit of the Villagers:-

Vesma-sadodra village is a mini-hub of Education as it has many schools and colleges in it. So, by providing the facilities like Public library and Play ground, it can be proved very useful to the students living in the village. Also these facilities can be useful for other villagers. The Senior citizens living in the village can also use public library and Small children can use public play ground. To the extent that the introduction of biogas technology generates jobs and higher income while improving living conditions, it may be assumed that fewer rural inhabitants will be drawn away to urban centers in search of employment. While, as mentioned above, no accurate quantification is as yet possible concerning the effects of biogas technology on rural-urban migration. The permanent availability of cooking energy in a household with a well functioning biogas plant can have effects on nutritional patterns for the villagers. With easy access to energy, the number of warm meals may increase. Whole grain and beans may be cooked longer, increasing their digestibility, especially for children. Water may be boiled more regularly, thus reducing water-borne diseases and the people have good health.

Chapter 9

Future development of village:-

After completion of visit & data collection the project carried out in the current semester by the group members which includes the design of a basic facilities. .

For Future scope of VAV would be study over other different urban amenities that would be sustainable in rural areas. We are proposing the designs for Part II design in which following points should be considered

1. SUSTAINABLE DESIGN (CIVIL): Bio Gas Plant

Biogas is generated through a process of anaerobic digestion of organic materials from human and animal waste, crop residue, agro-industrial waste and other biomass materials.

2. PHYSICAL DESIGN (CIVIL): Maintenance of PHC

Primary Health Care, or PHC refers to "essential health care" that is based on scientifically sound and socially acceptable methods and technology. This makes universal health care accessible to all individuals and families in a community.

3. SOCIAL DESIGN (CIVIL): Road

The movement of passengers and goods is facilitated form one place to another by roads. Due to road facility travelling must be safe, time saving and comfortable.

4. SOCIO-CULTURAL DESIGN (CIVIL): Library

At present, there is no library in the village. Addition of one would provide a much required place of study as well as bookish leisure for the students and the older villagers alike.

5. SMART DESIGN (CIVIL): Solar Street Light

There are no street lights currently in the village. So, street lights would provide much needed illumination on the streets to the villagers at night.

Chapter: 10

Conclusion (Entire Village Project):-

For India's economy to be strong, the rural economy needs to grow. Rural areas are still plagued by problems of malnourishment, illiteracy, unemployment and lack of basic infrastructure like schools, hospitals, sanitation, etc. Our villages need to grow in tandem with cities and standard of life has to improve there for inclusive growth to happen. If rural India is poor.

With help Gap Analysis we conclude that some of different Smart Village facilities are required as basic or primary level which still lack in village. So according to Gap Analysis of Vav village, we observed condition of existing infrastructure facilities in village such as Primary school, Water tank, Road network, Drainage network, etc. Smart Village can solve their problem itself can become a smart village example to other village too. According to UDPFI norms, lacking in basic amenities and Smart Amenities can be provided as-

- Water Harvesting System
- Post Office
- Community Hall
- Skill Development Center
- Garden

By providing required amenities to village, development of village can be possible. So ultimately migration to the city from village will be reduced and livelihood of villagers will increase. So healthy and prosperous life can be possible for the villagers. Ultimate growth of village and people is base step for the development of country. India is developing country and GDP is highly depended on farming. As the development of village would be possible, farming techniques will increase and percentage of GDP will increase.

Vishwakarma yojana aims to procure development in villages without losing essence. After all the way to uplift our country is through developing the villages. The scheme would reinforce-wellbeing of people and further quality of living standard.

Chapter 11

Reference:

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2) G.B. Deshpandey, J.P. Nayak (2014) Nirali prakasan “Quantity surveying book”

3) National Building Code of india (2016)

4) S.S. Bhavikatt, M.V. Chltawadagi (2014) I.K. International Pvt. Ltd. “Building planning and drawing”

5) The Hindu news (15 October 2013) “The 15 must have basic amenities in Villages.”

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- www.smartvillage.gujrat.gov.in
- https://www.census2011.co.in/
- gujaratvillagedirectory@vlist.in- India
- swachhbharat.mygov.in
- deveopments-every-small-town-needs/story/239305.html
- http://www.onefivenine.com/india/villages/Surat/Kamrej/Vav
- https://villageinfo.in/gujarat/surat/kamrej/vav.html
- https://www.google.com/maps/place/Vav,+Gujarat/@21.242864,72.9595182,15z/data=!3m1!4b1!4m5!3m4!1s0x3be0443e120816bd:0xd67ebd7d7e7b59d0!8m2!3d21.2444323!4d72.9682017

Chapter 12:-Annexure

12.1 Scanned copy (for Part-I), Original (for–Part-II) Ideal Village Survey Form:

Gujarat Technological University, Ahmedabad, Gujarat

Vishwakarma Yojana: Phase VIII
Techno Economic Survey

Techno Economic Survey

For

Vishwakarma Yojana: Phase VIII

IDEAL VILLAGE SURVEY

An approach towards Rurbanisation for Village Development

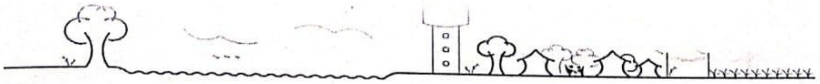
Name of Village:	Balen
Name of Taluka:	Bardoli
Name of District:	Surat
Name of Institute:	Bhagwan Mahavir Surat
Nodal Officer Name & Contact Detail:	
Respondent Name: (Sarpanch/ Panchayat Member/ Teacher/ Gram Sevak/ Aaganwadi worker/Village dweller)	F. B. Patel સરપંચ ગ્રામ પંચાયત બાલેન તા. બારડોલી, જી. સુરત.
Date of Survey:	

1. **Demographical Detail:**

Sr. No.	Census	Population	Male	Female	Total House Holds
i)	2001	8377	4576	3801	1599
ii)	2011	15610	8642	6968	5278

2. **Geographical Detail:**

Sr. No.	Description	Information/Detail
i)	Area of Village (Approx.) (In Hector) Coordinates for Location:	466 hec
	Forest Area (In hect.)	-
	Agricultural Land Area (In hect.)	282 hec
	Residential Area (In hect.)	140 hec
	Other Area (In hect.)	41 hec
	Water bodies	-
	Nearest Town with Distance:	Bardoli 1Km



Gujarat Technological University, Ahmedabad, Gujarat

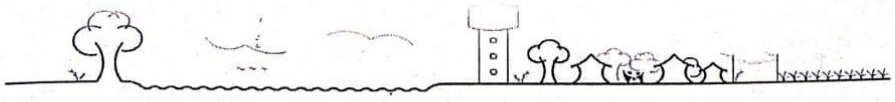
Vishwakarma Yojana: Phase VIII
Techno Economic Survey

3. **Occupational Details:**

Name of Three Major Occupation groups in Village	1. Farmer 2. Business 3. Job

4. **Physical Infrastructure Facilities:**

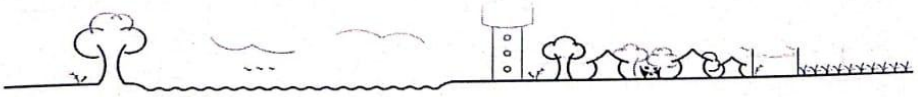
Sr. No.	Descriptions	Detail	Adequate	Inadequate	Remarks
A.	**Main Source of Drinking water**				
	• Tap Water (Treated/ Untreated) • RO Water • Well (Covered/ Uncovered) • Hand pumps • Tube well/ Borehole • River/ Canal/ Spring/ Lake/ Pond	NO Borwell Yes	- - Yes	- - -	- - -
Suggestions if any:					
B.	**Water Tank Facility**				
	Overhead Tank	Capacity:	40000	80000	
	Underground Sump	Capacity:	-	-	
Suggestions if any:					
C.	**Drainage Facility**				
	Available (Yes/ No)	Yes	Yes		under ground
Suggestions if any:					
D.	**Type of Drainage**				
	Closed/ Open				
	If Open than Pucca / Kutchcha				
	Whether drain water is discharged directly in to Water bodies/ Sewer plants				
Suggestions if any:					



Gujarat Technological University, Ahmedabad, Gujarat

Vishwakarma Yojana: Phase VIII
Techno Economic Survey

E.	**Road Network :All Weather/ Kutchha (Gravel)/ Black Topped pucca/ WBM**				
	Village approach road	All weather			All Weather
	Main road	yes			All Weather
	Internal streets	yes			All Weather
	Nearest NH/SH/MDR/ODR Dist. in kms.	yes			NH53 5Km
Suggestions if any:					
F.	**Transport Facility**				
	Railway Station (Y/N) (If No than Nearest Rly Station---Kms)	yes	–	–	1km Bardoli
	Bus station (Y/N) Condition: (If No than Nearest Bus Station---Kms)	yes	–	–	Balkan
	Local Transportation (Auto/ Jeep/Chhakda/ Private Vehicles/ Other)	yes	–	–	Auto / Private Vechile
Suggestions if any:					
G.	**Electricity Distribution**				
	(Y/N) Govt./ Private (Less than 6 hrs./ More Than 6 hrs)	yes	–	–	Govt 24h DGVCL
	Power supply for Domestic Use	yes	–	–	24 hr
	Power supply for Agricultural Use	yes	–	–	Fixed hours
	Power supply for Commercial Use	yes	–	–	24 hr
	Road/ Street Lights	yes	–	–	–



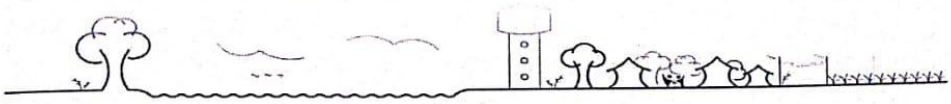
Gujarat Technological University, Ahmedabad, Gujarat

Vishwakarma Yojana: Phase VIII
Techno Economic Survey

	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			8 Nos
	Location Condition	good			
	Community Toilet (With bath/ without bath facilities)	yes			with Bath
	Solid & liquid waste Disposal system available	No			
	Any facility for Waste collection from road	yes			Kachha
Suggestions if any:					
I.	**Irrigation Facility:**				
	Main Source of Irrigation (Stream/River/ Canal/ Well/ Tube well/ Other)	yes	–	–	River Borwell & Canal
Suggestions if any:					
J.	**Housing Condition:**				
	Kutchha/Pucca (Approx. ratio)	Pucca	–	–	mines houses Kachha

5. **Social Infrastructural Facilities:**

Sr. No.	Descriptions	Information/ Detail	Adequate	Inadequate	Remarks



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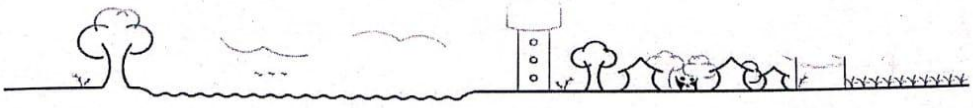
Vishwakarma Yojana: Phase VIII
Techno Economic Survey

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

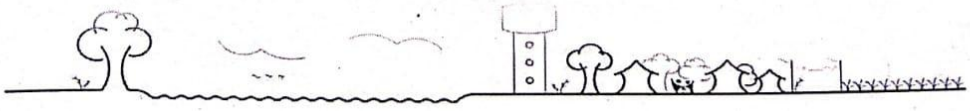
L.	Education Facilities:				
	Aaganwadi/ Play group	Yes	Yes		8Nos
	Primary School	Yes	Yes		1
	Secondary school	Yes	Yes		1
	Higher sec. School	Yes	Yes		1
	ITI college/ vocational Training Center				
	Art, Commerce& Science /Polytechnic/ Engineering/ Medical/ Management/ other college facilities	Yes	Yes		1 Engineering
	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	Yes	–	–



	Condition:				
	Public Library (With daily newspaper supply: Y/N) Location: Condition:	Yes – good	Yes		
	Public Garden Location: Condition:	Yes 2 NOS good	–	–	
	Village Pond Location: Condition:	Yes 1 Nos good	–	–	
	Recreation Center Location: Condition:	Yes 4 good	–	–	
	Cinema/ Video Hall Location: Condition:	–	–	–	
	Assembly Polling Station Location: Condition:	~~Panchayat~~ – ~~good~~	–	–	
	Birth & Death Registration Office Location: Condition:	Panchayat good			
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	Yes			



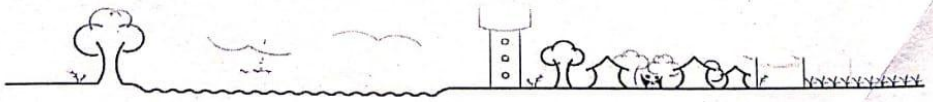
	General Market	small	yes		
	Shops (Public Distribution System)	-	-		
	Panchayat Building	yes	1 NOS		good
	Pharmacy/Medical Shop	yes	2-3		good
	Bank & ATM Facility	yes	3-4		good
	Agriculture Co-operative Society	yes	NOS		good
	Milk Co-operative Soc.	-			
	Small Scale Industries	-			
	Internet Cafes/ Common Service Center/Wi Fi	-			
	Other Facility	No			
Suggestions if any:					

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

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

7. **Data Collection From Village**

Village Base Map Available: Hard Copy/Soft Copy	yes



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

8. Additional Information/ Requirement:

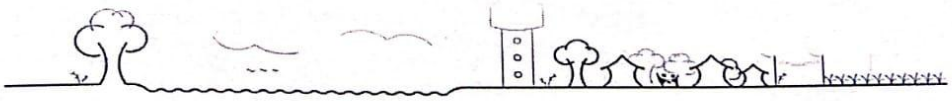
Sr. No.	Descriptions	Information/ Detail	Remarks
1.	Repair & Maintenance of Existing Public Infrastructure facilities(School Building, Health Center, Panchayat Building, Public Toilets & any other)		
2.	Additional Information/ Requirement	All facilities available	

9. Smart Village Proposal Design

Sr. No.	Descriptions	Information/ Detail	Remarks
1.			

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

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



12.2 Scanned copy (for Part-I), Original (for–Part-II) Smart Village Survey details:

Gujarat Technological University, Ahmedabad, Gujarat

Vishwakarma Yojana: Phase VIII
Techno Economic Survey

Techno Economic Survey

Vishwakarma Yojana: Phase VIII

SMART VILLAGE SURVEY

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

Name of District:	Surat
Name of Taluka:	Palsana
Name of Village:	Ena
Name of Institute:	Bhagwan Mahavir Surat
Nodal Officer Name & Contact Detail:	
Respondent Name: (Sarpanch/ Panchayat Member/ Teacher/ Gram Sevak/ Aaganwadi worker/Village dweller)	Kalpana. S. Choudary (Talati)
Date of Survey:	

તલાટી કમ મંત્રી
એના-ગોટીયા ગૃપ ગ્રામ પંચાયત
તા. પલસાણા, જિ. સુરત

I. DEMOGRAPHICAL DETAIL:

Sr. No.	Census	Population	Male	Female	Total Number of House Holds
1.	2001				
2.	2011	3777	1895	1882	888

II. GEOGRAPHICAL DETAIL:

Sr. No.	Description	Information/Detail
1.	Area of Village (Approx.) (In Hector)Coordinates for Location:	628.93 hect
2.	Forest Area (In hect.)	7.6 hect
3.	Agricultural Land Area (In hect.)	16.4 hect
4.	Residential Area (In hect.)	585.4 hect
5.	Other Area (In hect.)	12.7 hec
6.	Distance to the nearest railway station (in kilometers):	Bardoli 10Km

7.	Name of Nearest Town with Distance:	Bardoli 7.2Km
8.	Distance to the nearest bus station (in kilometers):	Bardoli 8Km
9.	Whether village is connected to all road for the any facility or town or City?	NH 53

III. OCCUPATIONAL DETAILS:

Name of Three Major Occupation groups in Village	1. Farming 2. Job 3. Auto-Rishha Driver
Major crops grown in the village:	1. Sugar cane Crop 2. Banana Plat 3. Mango Tree

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	yes			
	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	yes			
	Unprotected Spring				
	Rainwater				
	Tanker Truck				
	Cart With Small Tank				
4.	**SURFACE WATER (RIVER/DAM/ LAKE/POND/STREAM/CANAL/**				
	Irrigation Channel	yes			
	Bottled Water	No			
	Hand Pump				
	Other(Specify)**Lake/ Pond**	yes			

Gujarat Technological University, Ahmedabad, Gujarat

Vishwakarma Yojana: Phase VIII
Techno Economic Survey

Suggestions if any:					
B.	**Water Tank Facility**				
	Overhead Tank	Capacity:	✓		45000
	Underground Sump	Capacity:			
Suggestions if any:					
C.	**The Type of Drainage Facility**				
	A. UNDERGROUND DRAINAGE 1 2 B. OPEN WITH OUTLET C. OPEN WITHOUT OUTLET	yes	✓		
Suggestions if any:					
D.	**Road Network :All Weather/ Kutchha (Gravel)/ Black Topped pucca/ WBM**				
	Village approach road	yes	✓		
	Main road	yes	✓		
	Internal streets	yes	✓		
	Nearest NH/SH/MDR/ODR Dist. in kms.	yes	✓		
Suggestions if any:					
E.	**Transport Facility**				
	Railway Station (Y/N) (If No than Nearest Rly Station---Kms)	No	✓		
	Bus station (Y/N) Condition: (If No than Nearest Bus Station---Kms)	yes	✓		
	Local Transportation (Auto/ Jeep/Chhakda/ Private Vehicles/ Other)	Auto, Private	✓		
Suggestions if any:					
F.	**Electricity Distribution**				
	(Y/N) Govt./ Private (Less than 6 hrs./ More Than 6 hrs)	yes	✓		

3

Gujarat Technological University, Ahmedabad, Gujarat

Vishwakarma Yojana: Phase VIII
Techno Economic Survey

	Power supply for Domestic Use	yes			
	Power supply for Agricultural Use	yes			
	Power supply for Commercial Use	yes			
	Road/ Street Lights	yes			
	Electrification in Government Buildings/ Schools/ Hospitals	yes			
	Renewable Energy Source Facilities (Y/ N)	yes			
	LED Facilities	yes			
Suggestions if any:					
G.	**Sanitation Facility**				
	Public Latrine Blocks If available than Nos.	yes			
	Location Condition	good			
	Community Toilet (With bath/ without bath facilities)	yes			
	Solid & liquid waste Disposal system available	yes			
	Any facility for Waste collection from road	yes			
Suggestions if any:					
H.	**Main Source of Irrigation Facility:**				
	TANK/POND STREAM/RIVER CANAL WELL TUBE WELL. OTHER (SPECIFY)	✓ — — —			
Suggestions if any:					
I.	**Housing Condition:**				
	Kutchha/Pucca (Approx. ratio)	yes			

V. SOCIAL INFRASTRUCTURAL FACILITIES:

Sr. No.	Descriptions	Information/ Detail	Adequate	Inadequate	Remarks
J.	**Health Facilities:**				
	ICDS (Anganwadi)	yes	✓		
	Sub-Centre	yes	✓		
	PHC	yes	✓		
	BLOCK PHC	yes	✓		
	CHC/RH				
	District/ Govt. Hospital				
	Govt. Dispensary	yes	✓		
	Private Clinic				
	Private Hospital/ Nursing Home				
	AYUSH Health Facility				
	sonography /ultrasound facility				
	If any of the above Facility is not available in village than approx. distance from village: .....kms.				
Suggestions if any:					
K.	**Education Facilities:**				
	Aaganwadi/ Play group	yes 3			
	Primary School	yes 2			
	Secondary school	yes 1	✓		
	Higher sec. School	yes 1	✓		
	ITI college/ vocational Training Center	No			
	Art, Commerce& Science /Polytechnic/ Engineering/ Medical/ Management/ other college facilities	No			
	If any of the above Facility is not available in village than approx. distance from village: .....kms.				

5

Gujarat Technological University, Ahmedabad, Gujarat

Vishwakarma Yojana: Phase VIII
Techno Economic Survey

Suggestions if any:

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

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

Suggestions if any:

M.	Other Facilities	Condition	Location	Available (YES)	Available (NO)
	Post-office	Good		yes	
	Telecommunication Network/ STD booth				No
	General Market	Good		yes	
	Shops (Public Distribution System)	Good		yes	
	Panchayat Building	good		yes	
	Pharmacy/Medical Shop	good		yes(2)	
	Bank & ATM Facility	good		yes	
	Agriculture Co-operative Society	Good		yes	
	Milk Co-operative Soc.				No
	Small Scale Industries				No
	Internet Cafes/ Common Service Center/Wi Fi				No
	Youth Club				No
	Mahila Mandal	Good		yes	

Gujarat Technological University, Ahmedabad, Gujarat

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		yes	
	Other Facility				

Suggestions if any:

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

7

Gujarat Technological University, Ahmedabad, Gujarat

Vishwakarma Yojana: Phase VIII
Techno Economic Survey

VI. SUSTAINABLE /GREEN INFRASTRUCTURE FACILITIES:

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

VIII. ADDITIONAL INFORMATION/ REQUIREMENT:

Sr. No.	Descriptions	Information/ Detail	Remarks

8

1.	Repair & Maintenance of Existing Public Infrastructure facilities, School Building Health Center Panchayat Building Public Toilets & any other		
2.	Additional Information/ Requirement		
3.	During the last six months how many times CLEANING ..... FOGGING..... Drive was undertaken in the village?	cleaning daily fogging done in month	

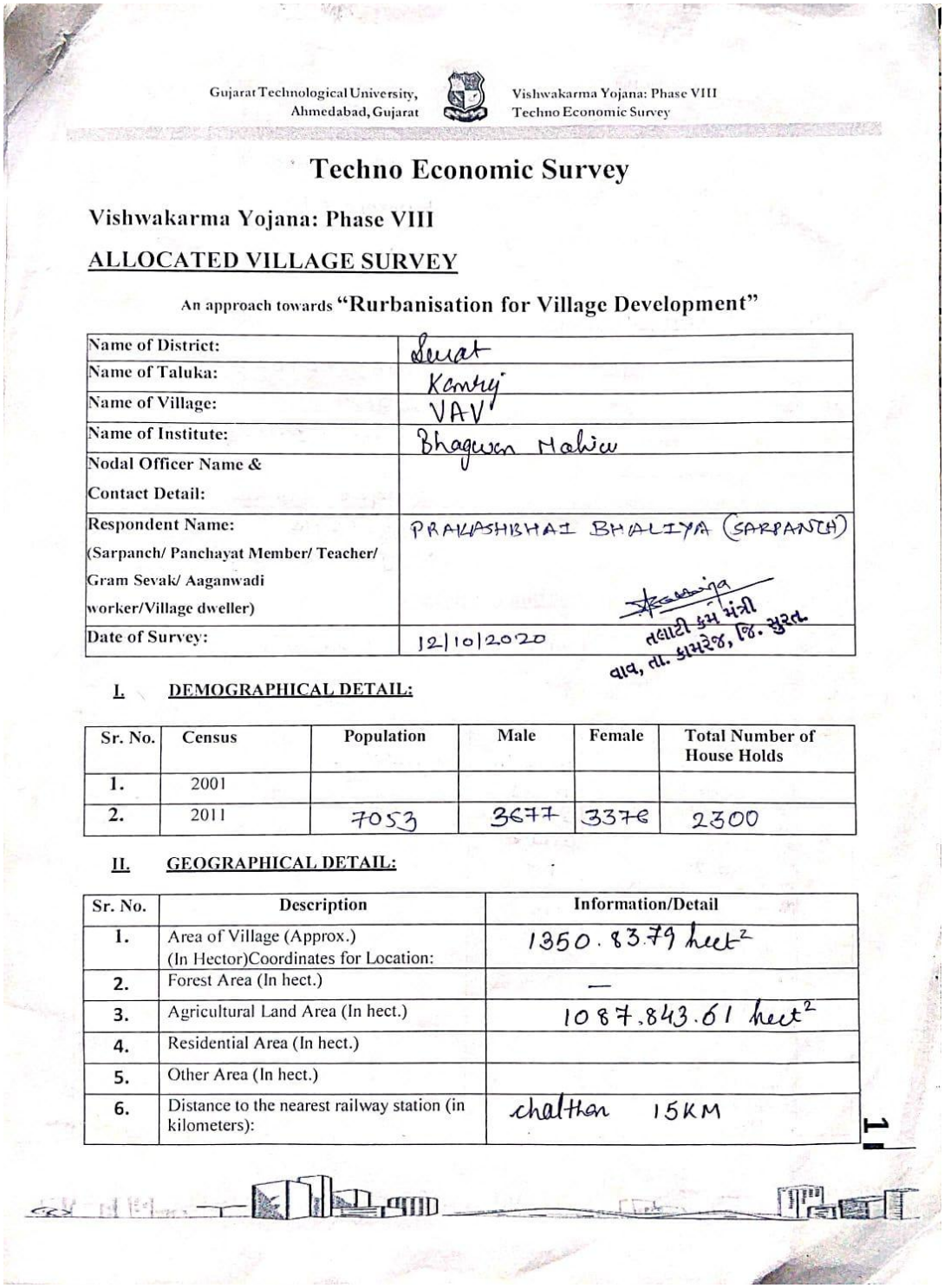
IX. Smart Village / Heritage Details

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

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

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

12.3 Scanned copy (for Part-I), Original (for–Part-II)Allocated Village Survey Form:



Gujarat Technological University, Ahmedabad, Gujarat

Vishwakarma Yojana: Phase VIII
Techno Economic Survey

Techno Economic Survey

Vishwakarma Yojana: Phase VIII

ALLOCATED VILLAGE SURVEY

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

Name of District:	Surat
Name of Taluka:	Kamrej
Name of Village:	VAV
Name of Institute:	Bhagwan Mahavir
Nodal Officer Name & Contact Detail:	
Respondent Name: (Sarpanch/ Panchayat Member/ Teacher/ Gram Sevak/ Aaganwadi worker/Village dweller)	PRAKASHBHAI BHALIYA (SARPANCH)
Date of Survey:	12/10/2020

તલાટી કમ મંત્રી
વાવ, તા. કામરેજ, જિ. સુરત.

I. DEMOGRAPHICAL DETAIL:

Sr. No.	Census	Population	Male	Female	Total Number of House Holds
1.	2001				
2.	2011	7053	3677	3376	2300

II. GEOGRAPHICAL DETAIL:

Sr. No.	Description	Information/Detail
1.	Area of Village (Approx.) (In Hector)Coordinates for Location:	1350.83.79 $heet^2$
2.	Forest Area (In hect.)	—
3.	Agricultural Land Area (In hect.)	1087.843.61 $heet^2$
4.	Residential Area (In hect.)	
5.	Other Area (In hect.)	
6.	Distance to the nearest railway station (in kilometers):	chalthan 15KM

1

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

III. OCCUPATIONAL DETAILS:

Name of Three Major Occupation groups in Village	1. AGRICULTURE 2. JOB 3. SELF EMPLOYEE

Major crops grown in the village:	1. Sugar cane 2. Vegetable 3. (Nilgiri) Ucekiptus

IV. PHYSICAL INFRASTRUCTURE FACILITIES:

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

2

Gujarat Technological University, Ahmedabad, Gujarat

Vishwakarma Yojana: Phase VIII
Techno Economic Survey

	Other(Specify)Lake/ Pond	–	–	–	–
Suggestions if any:					
B.	**Water Tank Facility**				
	Overhead Tank	Capacity:	3 NO	1,00,000	– –
	Underground Sump	Capacity:	3 NO	2,00,000	–
Suggestions if any:					
C.	**The Type of Drainage Facility**				
	A. UNDERGROUND DRAINAGE 1	YES			
Suggestions if any:					
D.	**Road Network :All Weather/ Kutchha (Gravel)/ Black Topped pucca/ WBM**				
	Village approach road	YES			
	Main road	NH-48 : WBM			
	Internal streets	C.C. Road / Paver Block (Good Condition)			
	Nearest NH/SH/MDR/ODR Dist. in kms.	NH-48 (old. NH-8) 0 km			
Suggestions if any:					
E.	**Transport Facility**				
	Railway Station (Y/N) (If No than Nearest Rly Station---Kms)	NO	20 km		
	Bus station (Y/N) Condition: (If No than Nearest Bus Station---Kms)	NO	8 km		
	Local Transportation (Auto/ Jeep/Chhakda/ Private Vehicles/ Other)				
Suggestions if any:					
F.	**Electricity Distribution**				
	(Y/N) Govt./ Private (Less than 6 hrs./ More Than 6 hrs)	GOVT.			

31

	Power supply for Domestic Use	24 Hr			
	Power supply for Agricultural Use	12 Hr			
	Power supply for Commercial Use	24 Hr			
	Road/ Street Lights	8 Hr			
	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 - 1			
	Location Condition	Good			
	Community Toilet (With bath/ without bath facilities)	NO			
	Solid & liquid waste Disposal system available	NO			
	Any facility for Waste collection from road				

Suggestions if any: If Govt. facilities collection of each gram, collaborate with the Gram Panchayat and collect waste and segregate in one place

H.	**Main Source of Irrigation Facility:**				
	TANK/POND				
	STREAM/RIVER	1			
	CANAL	CANAL			
	WELL				
	TUBE WELL.	TUBE WELL			
	OTHER (SPECIFY)	-			

Suggestions if any:

I.	**Housing Condition:**				
	Kutchha/Pucca (Approx. ratio)	75% Pucca 25% Kuchha			

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V. SOCIAL INFRASTRUCTURAL FACILITIES:

Sr. No.	Descriptions	Information/ Detail	Adequate	Inadequate	Remarks
J.	**Health Facilities:**				
	ICDS (Anganwadi)	YES	Adequate	NO - 5	
	Sub-Centre	1			
	PHC	1			
	BLOCK PHC	–			
	CHC/RH	–			
	District/ Govt. Hospital	– 8 km			
	Govt. Dispensary	–			
	Private Clinic	YES - 2			
	Private Hospital/	NO			
	Nursing Home	NO			
	AYUSH Health Facility	YES			
	sonography /ultrasound facility	NO			
	If any of the above Facility is not available in village than approx. distance from village: ..8.....kms.				
Suggestions if any:					
K.	**Education Facilities:**				
	Aaganwadi/ Play group	YES - NOS			
	Primary School	YES - 05			
	Secondary school	YES - 05			
	Higher sec. School	YES - 03			
	ITI college/ vocational Training Center	NO -			
	Art, Commerce& Science /Polytechnic/ Engineering/ Medical/ Management/ other college facilities	–			

– 8 km

51

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Vishwakarma Yojana: Phase VIII
Techno Economic Survey

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

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

If any of the above Facility is not available in village than approx. distance from village: .5.....kms. Post office Required

Suggestions if any:

M.	Other Facilities	Condition	Location	Available (YES)	Available (NO)
	Post-office	NO	Sta	NO	✓
	Telecommunication Network/ STD booth	1			✓
	General Market				✓
	Shops (Public Distribution System)	Good		✓	
	Panchayat Building	11		✓	
	Pharmacy/Medical Shop	11		✓	
	Bank & ATM Facility	11		✓	
	Agriculture Co-operative Society	11		✓	
	Milk Co-operative Soc.	11		✓	
	Small Scale Industries	—			✓
	Internet Cafes/ Common Service Center/Wi Fi	–	–	–	✓
	Youth Club	–	–	–	–
	Mahila Mandal	Good	–	–	✓

	Credit Cooperative Society Agricultural Cooperative Society Milk Cooperative Society Fishermen's Cooperative Society Computer Kiosk/ e-chaupal / Mills / Small Scale Industries	Good	–	·	✓
	Other Facility				

Suggestions if any:

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

71

VI. SUSTAINABLE /GREEN INFRASTRUCTURE FACILITIES:

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

VII. DATA COLLECTION FROM VILLAGE

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

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Vishwakarma Yojana: Phase VIII
Techno Economic Survey

VIII. ADDITIONAL INFORMATION/ REQUIREMENT:

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

IX. Smart Village / Heritage Details

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

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

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

12.4 Gap Analysis of the alloted village

Vishwakarma Yojana: Phase VIII				
Facilities	Planning Commission/UDPFI Norms	Village Name:	VAV, KAMREJ	
		Population:		7053
		Existing	Required as per Norms	Gap
Social Infrastructure Facilities				
Education				
Anganwadi	Each or Per 2500 population	5	4	**1**
Primary School	Each Per 2500 population	5	4	**1**
Secondary School	Per 7,500 population	5	2	**3**
Higher Secondary School	Per 15,000 Population	3	1	**2**
College	Per 125,000 Population	0	0	**0**
Tech. Training Institute	Per 100000 Population	0	0	
Agriculture Research Centre	Per 100000 Population	0	0	**0**
Health Facility				
Govt/Panchyat Dispensary or Sub PHC or Health Centre	Each Village	1	1	**0**
PHC & CHC	Per 20,000 population	0	0	**0**
Child Welfare and Maternity Home	Per 10,000 population	0	0	**0**
Hospital	Per 100000 Population	0	0	**0**
Public Latrines	1 for 50 families (if toilet is not there in home, especially for slum pockets & kutcha house)	1	1	**0**
Physical Infrastructure Facilities				

Transportation		**Adequate**	**Inadequate**	
Pucca Village Approach Road	Each village	yes		
Bus/Auto Stand provision	All Villages connected by PT (ST Bus or Auto)	yes		
Drinking Water (Minimum 70 lpcd)		**Adequate**	**Inadequate**	
Over Head Tank	1/3 of Total Demand	**Adequate**		**0**
U/G Sump	2/3 of Total Demand	**Adequate**		**0**
Drainage Network		**Adequate**	**Inadequate**	
Open		Yes	-	
Cover		Yes	-	
Waste Management System			**Inadequate**	
Electricity Network		**Adequate**		
Socio- Cultural Infrastructure Facilities				
Community Hall	Per 10000 Population	0	1	**1**
community hall cum Public Library	Per 15000 Population	0	0	**0**
Cremation Ground	Per 20,000 population	1	0	**-1**
Post Office	Per 10,000 population	0	1	**-1**
Gram Panchayat Building	Each individual/group panchayat	1	1	**0**
APMC	Per 100000 Population	0	0	**0**
Fire Station	Per 100000 Population	0	0	**0**
Public Garden	Per village	0	1	**1**
Shopping mall	Per 40,000 Population	0	0	**0**
Police post	Per 40,000Population	0	0	**0**

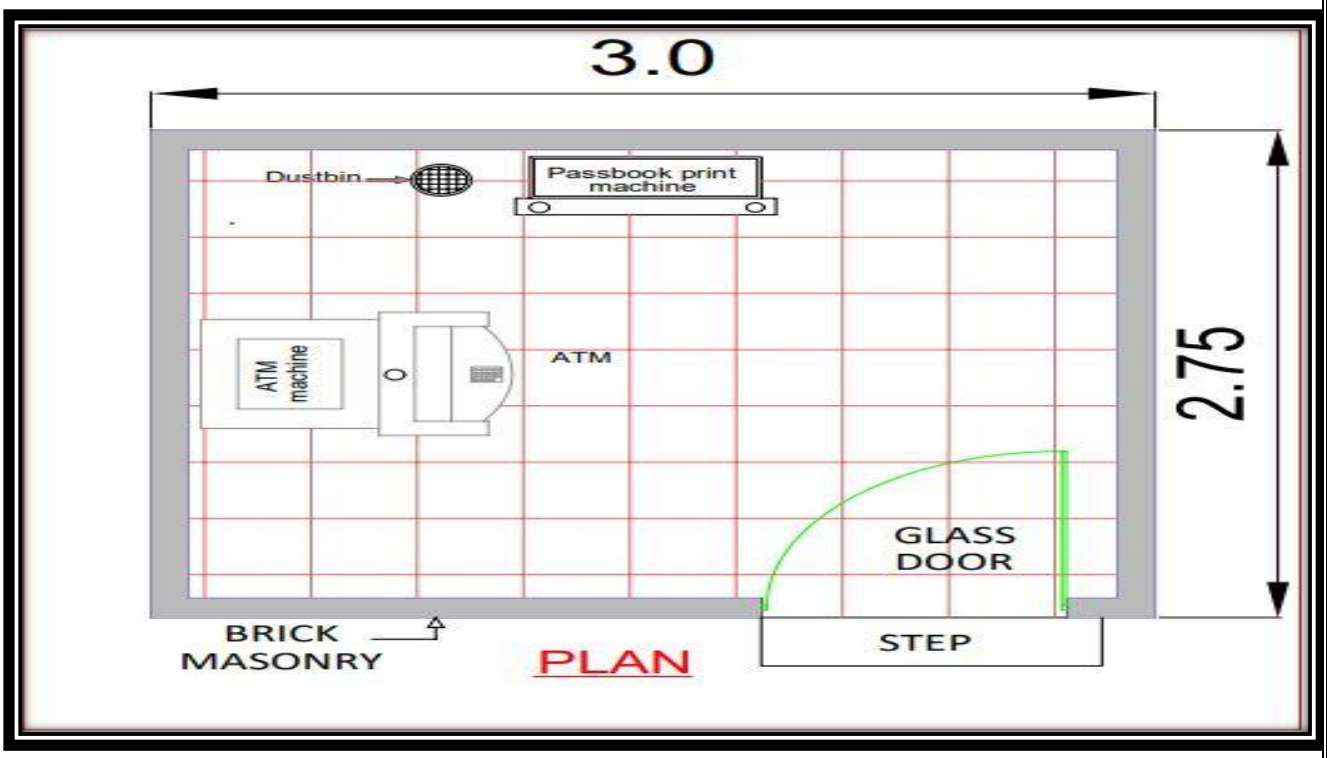
12.5 Summary Details of all the villages designs in table form part-I and part-II:

Sr. No.	Village	Discipline	DESIGN(Part-I)	DESIGN (Part-II)
1.	Palod, Mangrol	Civil	Bus Stand	Post office
			Garden	Rain Water Harvesting
			Library	Overhead water tank
			Community hall	Low Cost house
			Skill development center	Primary health center
			Village gate	Chabutra
2	Vav, Kamrej	Civil	Post Office	Bio Gas Plant
			Public Garden	Maintenance of PHC
			Water Harvesting System	Sewage Treatment Plant
			Community Hall	Library
			Skill Development Center	Road(Internal Road)
			-	-
3	Ten, Bardoli	Civil	Bio Gas Plant	Internal Street Road
			Primary Health Center	Primary School
			Post Office	Public toilet
			Public Library	Maintenance of Overhead Water Tank
			Agricultural Research center	Maintenance of Village Pond
			Village Gate	Community Hall
4	Madhi	Civil	Library	Maintenance Of Police Station
			Hospital	Public Garden
			River Front	Waste Water Treatment
			Fire Station	Medical Shop
			Village gate	Solid Waste Treatment
			Community Hall	Pucca Vegetable Market
5	Nani Naroli, Mangrol	Civil	Bio Gas Plant	Tank Design For Water Harvesting
			High School	Road section
			Public toilet	Child Welfare And maternity Home
			Community Hall	Public Garden
			Bank	Common Service Center
			Village Gate	Chabutra
6	Vankaner	Civil	Library	Lake Garden
			Skill Development Center	Science Development
			Community Hall	Cyber Café

			AnganWadi	Child Welfare And maternity Home
			Public toilet	Overhead Tank
			Village Gate	Super Market
Sr. no.	**Village**	**Discipline**	**Design (Part I)**	**Design (Part II)**
7	Kharach	Civil	Milk Collecting and Distributing Unit	Development Of Lake
			Design of Library	Primary School
			Design Of Clinic	Video Hall
			Design Of Overhead Water Tank	Medical Store
			Design Of Road	Youth Club
			Design Of Mahila Mndal	Public Garden
Sr. no.	**Village**	**Discipline**	**Design (Part I)**	**Design (Part II)**
8	Ilav	Civil	Design Of AnganWadi	Public Garden
			Design Of Girl's Primary School	Community Hall
			Design of Agro Storage Unit	Public Library
			Design of Milk Dairy Unit	Post Office
			Design Of Animal Shelter	Aro-Water Plant
			Design Of Public Toilet	Mahila Mandal

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

1. Sustainable Design: ATM



Plan of ATM

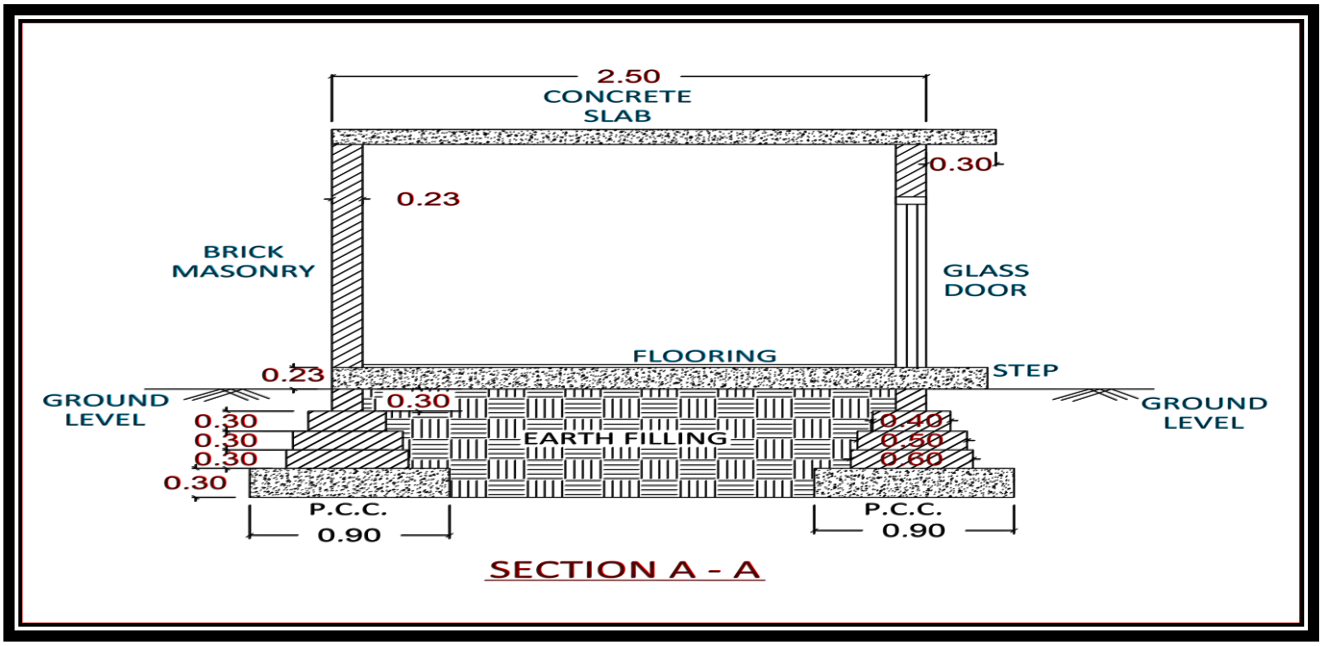
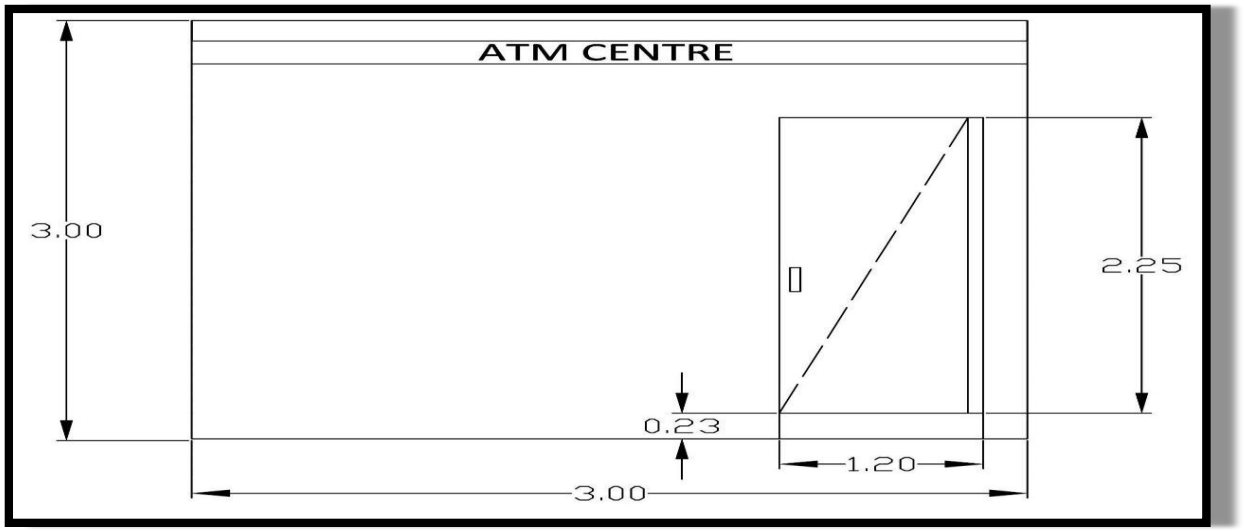
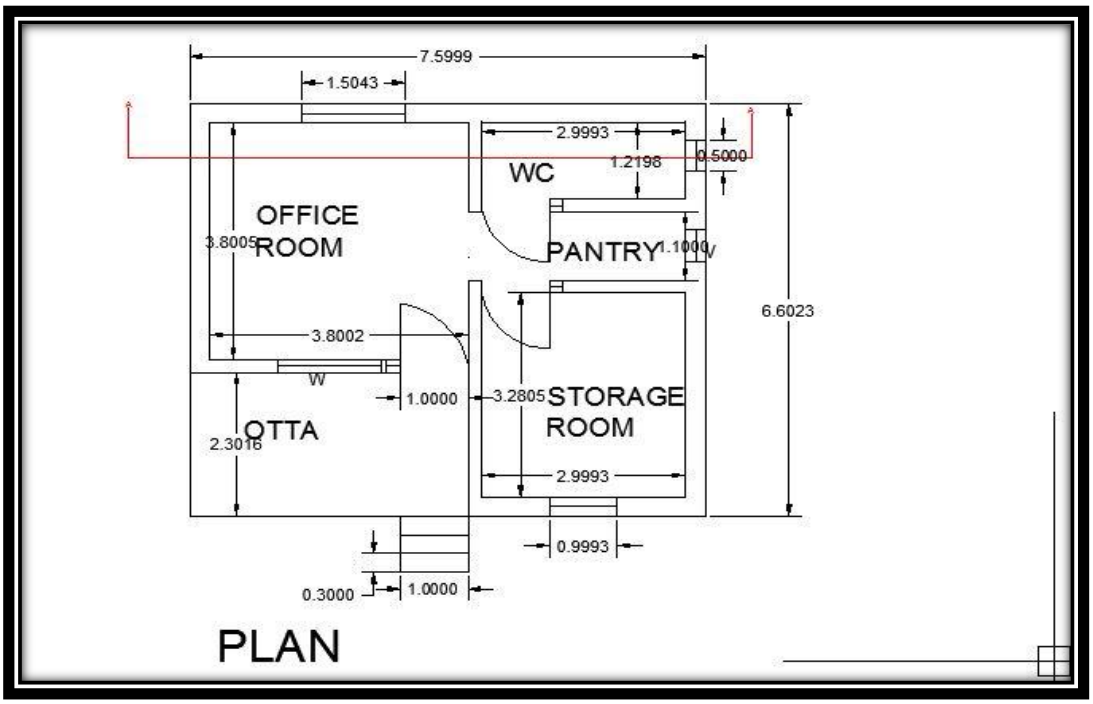


Fig 8.1 (b) Section of ATM

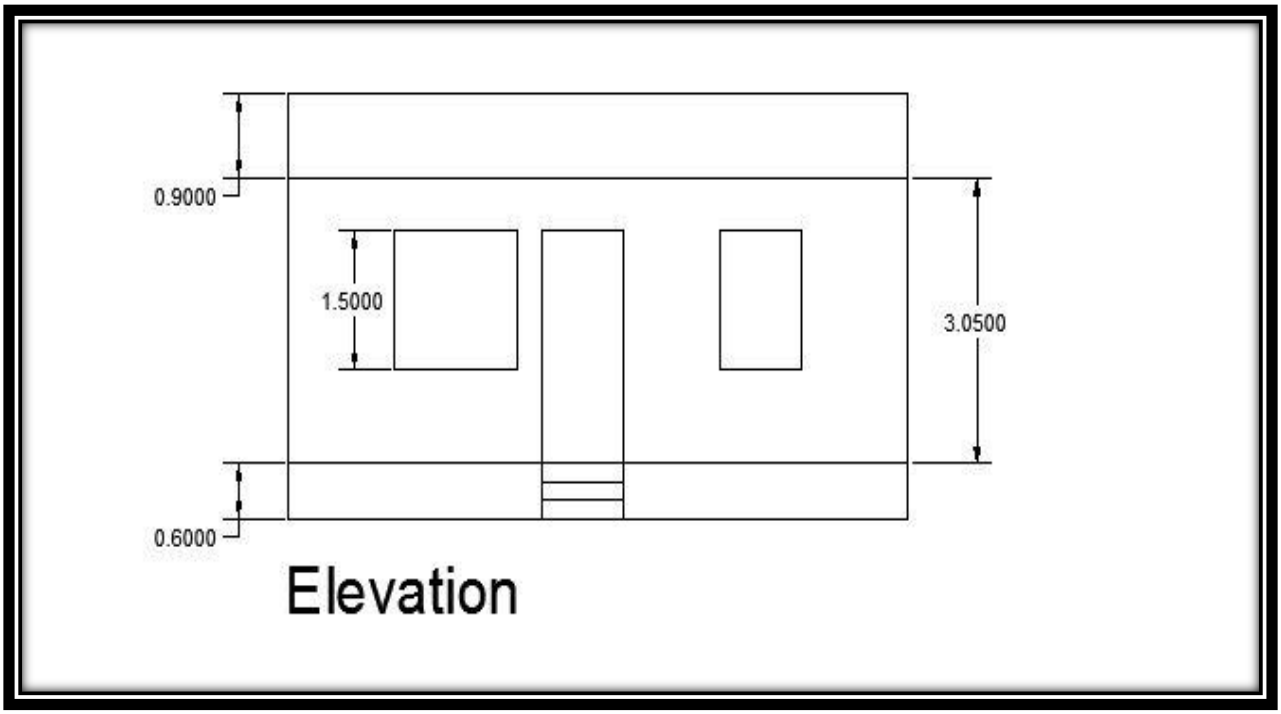


ELEVATION

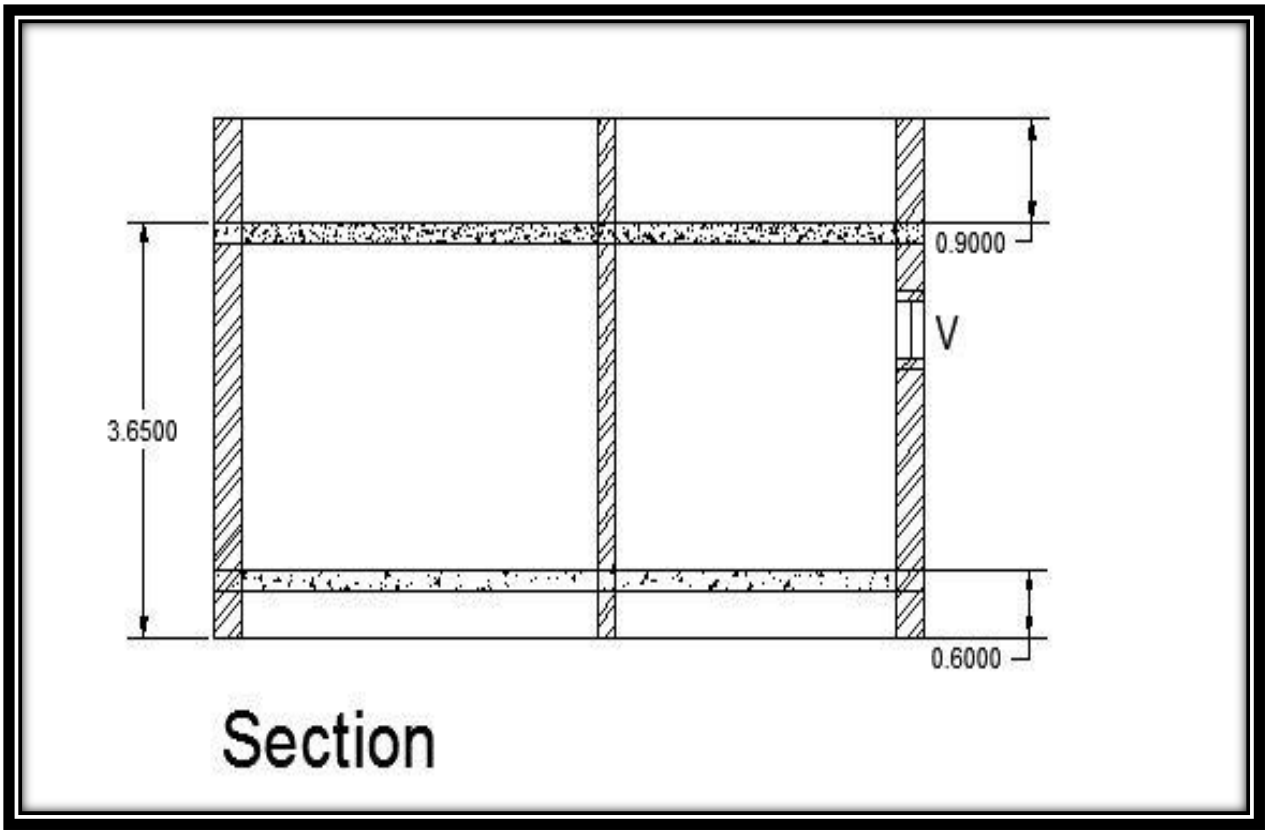
2. Physical design (Civil) - Post office



Plan of Post Office

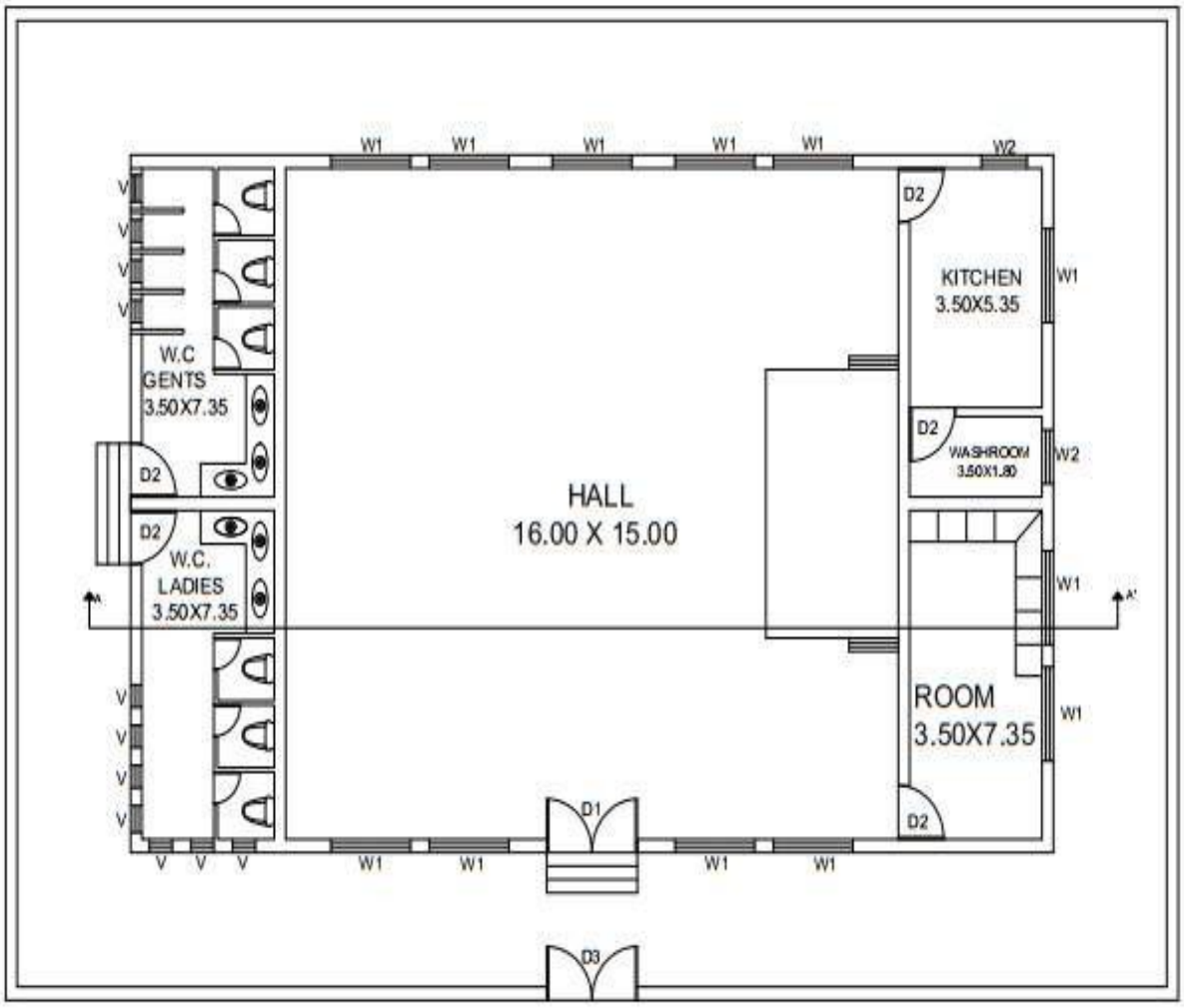


Elevation of Post Office

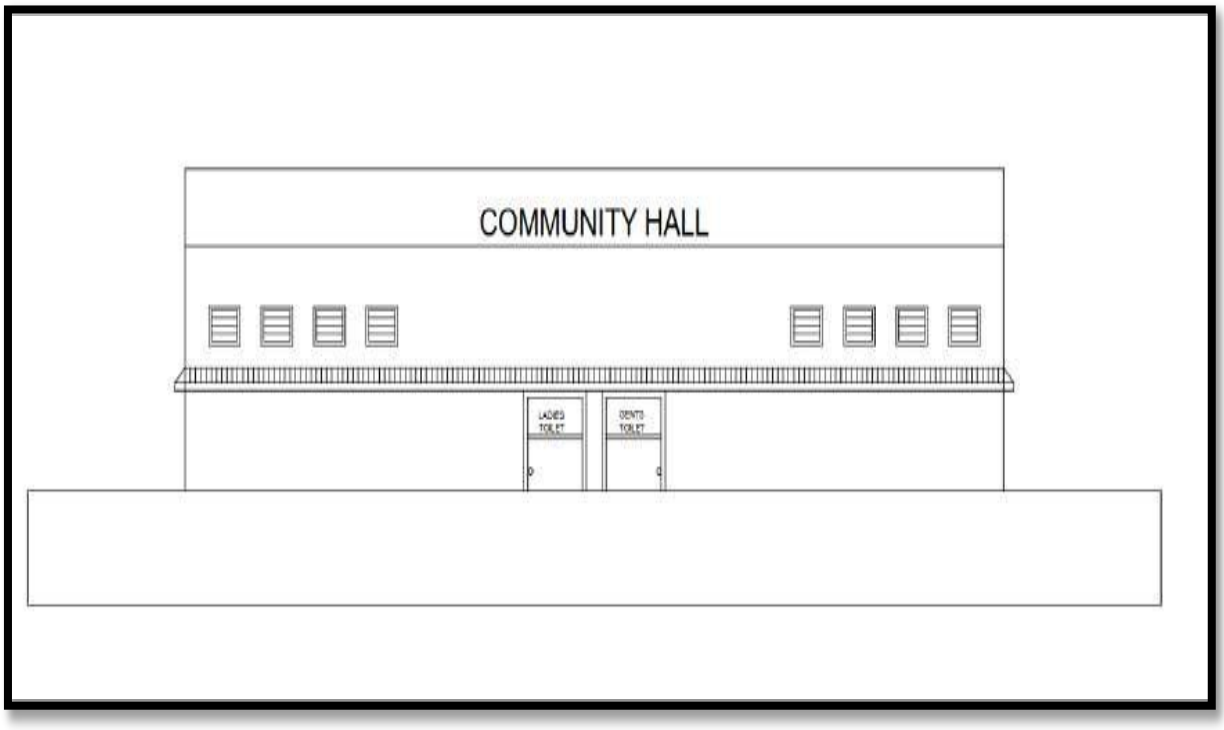


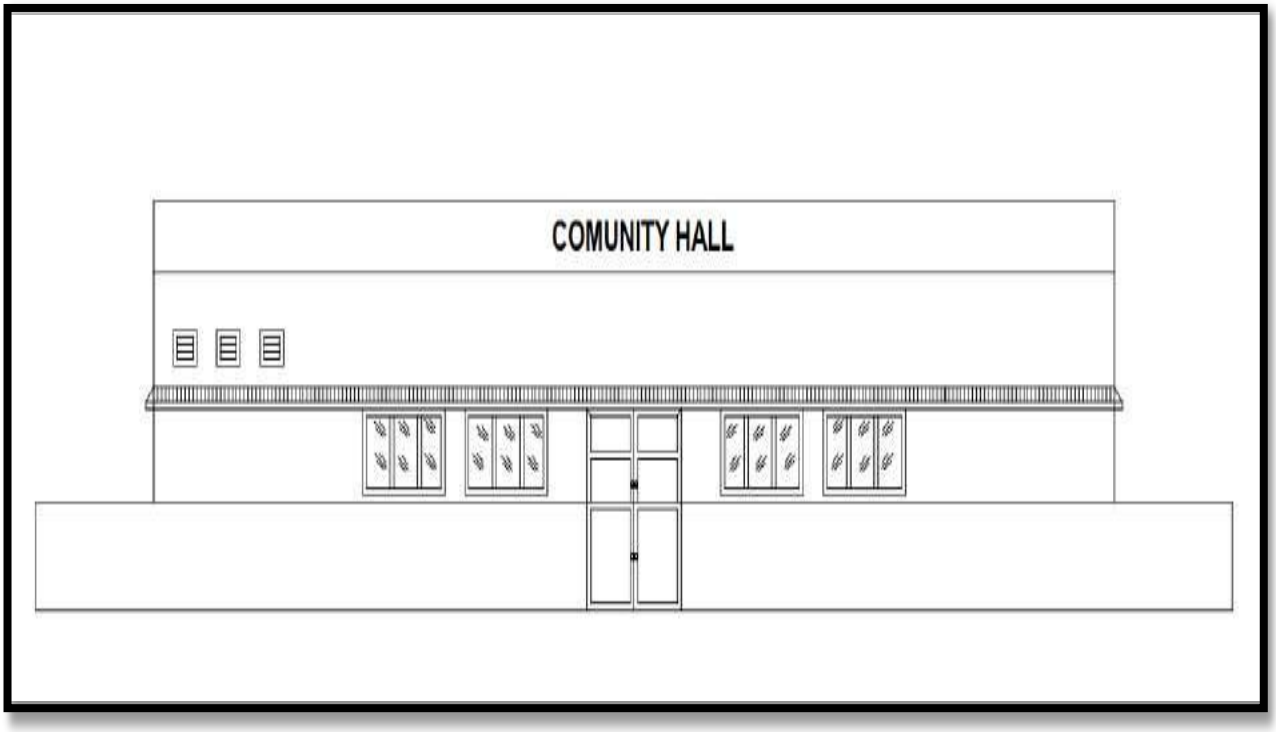
3. Social design (Civil) - Community Hall

Plan of the Community Hall and Side Elevation of Community Hall



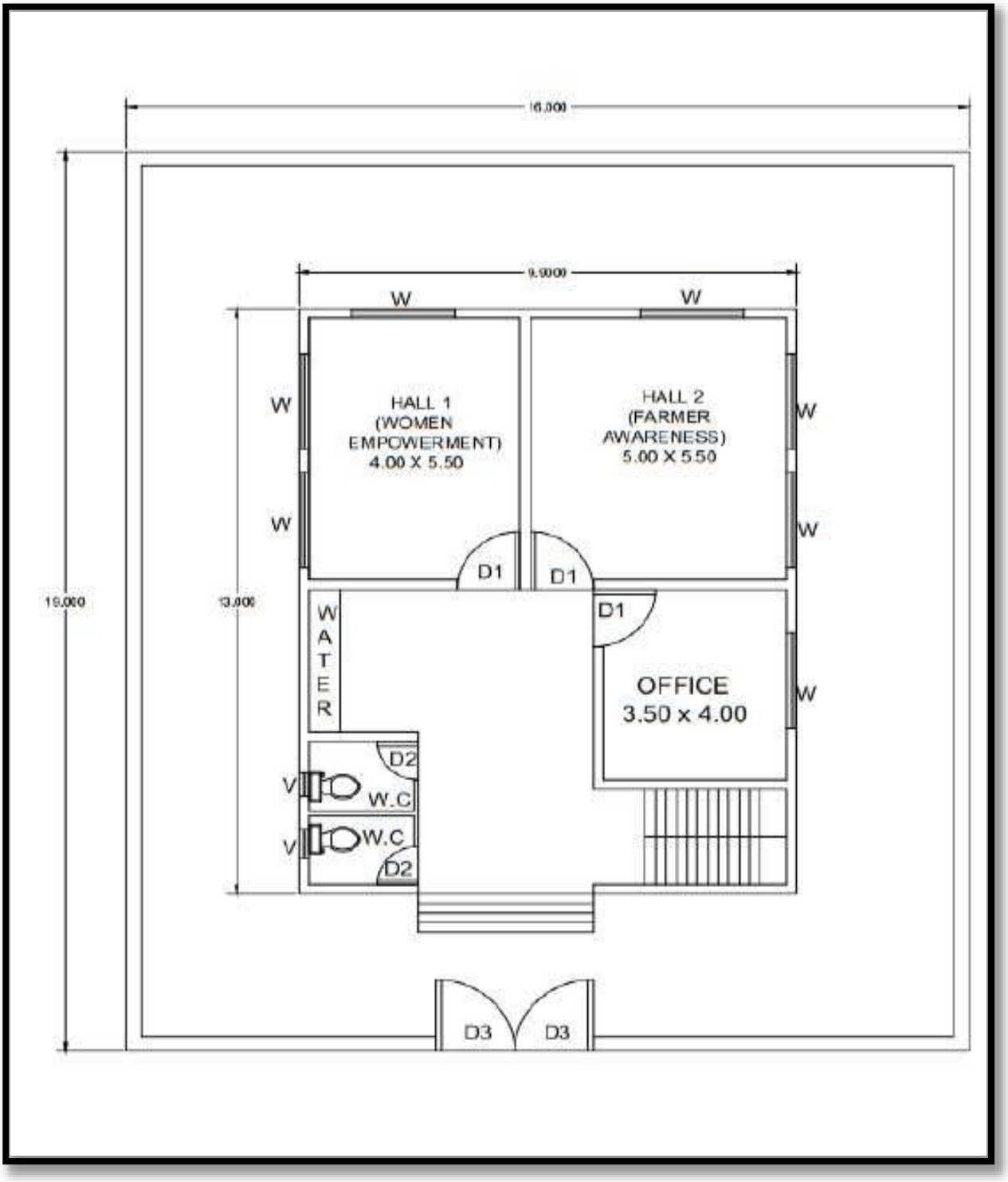
SCHEDULE		
DESCRIPTION	DENOTE	SIZE(m)
DOOR	D1	2.40 x 2.10
DOOR	D2	1.20 x 2.10
DOOR	D3	2.40 x 1.50
WINDOW	W1	2.10 x 1.50
WINDOW	W2	1.20 x 1.50
VENTILATION	V	0.60 x 0.60



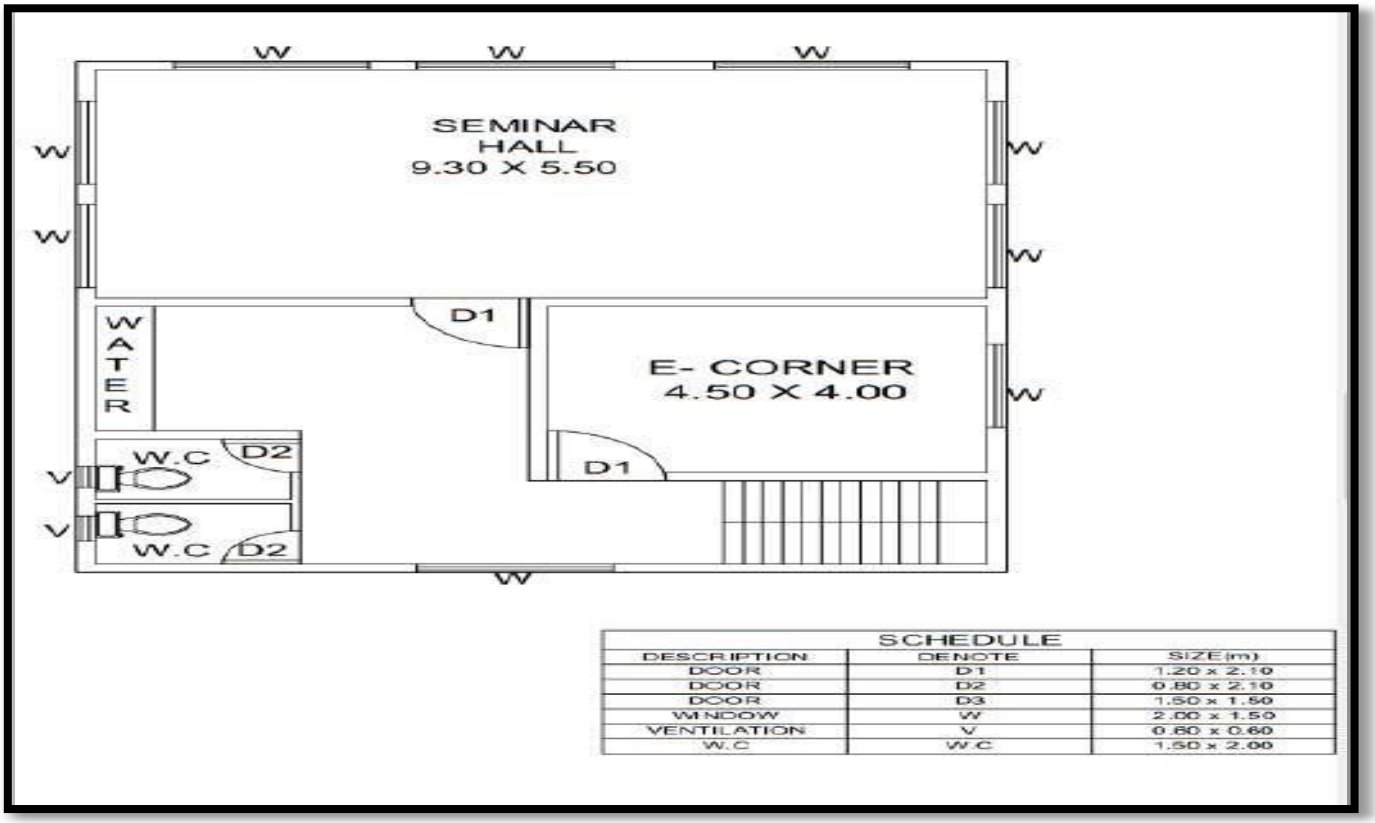


Front Elevation of Community Hall

4) Socio-Cultural design (Civil) – Skill Development Center



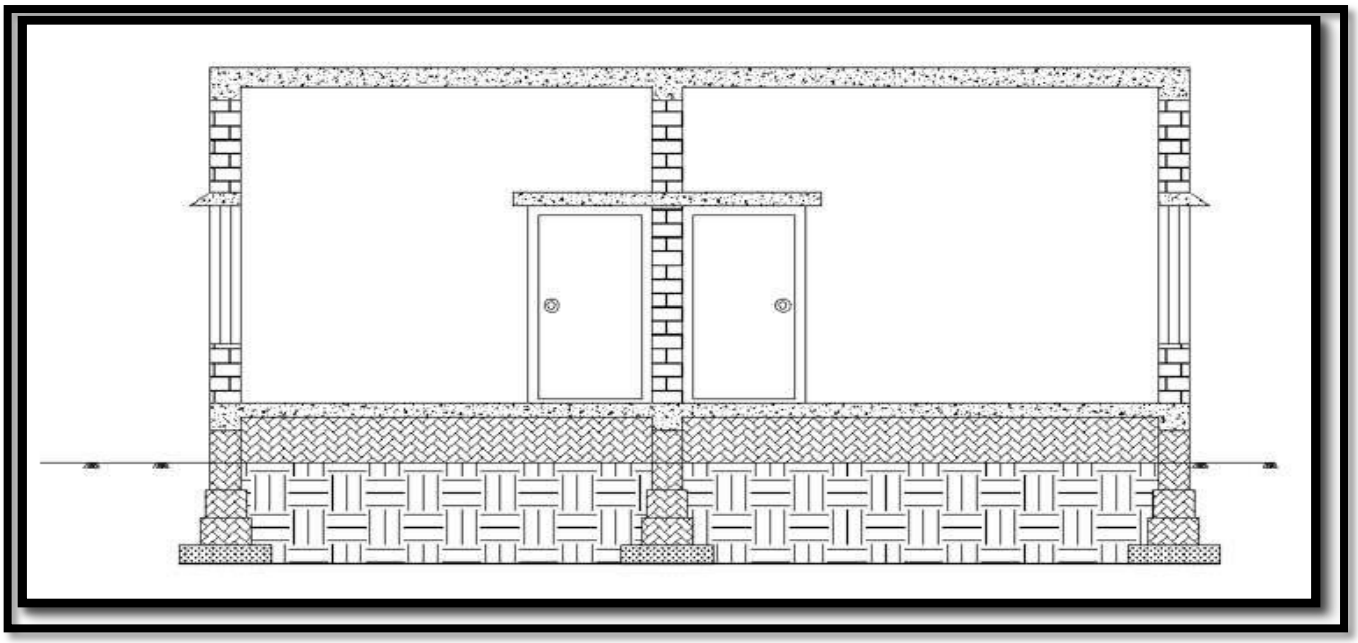
PLAN

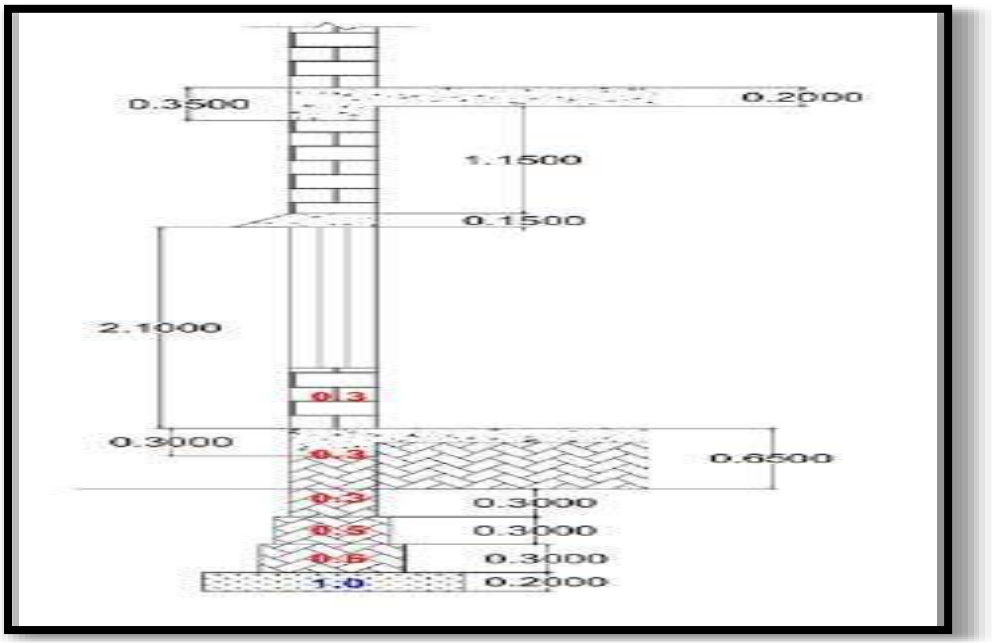


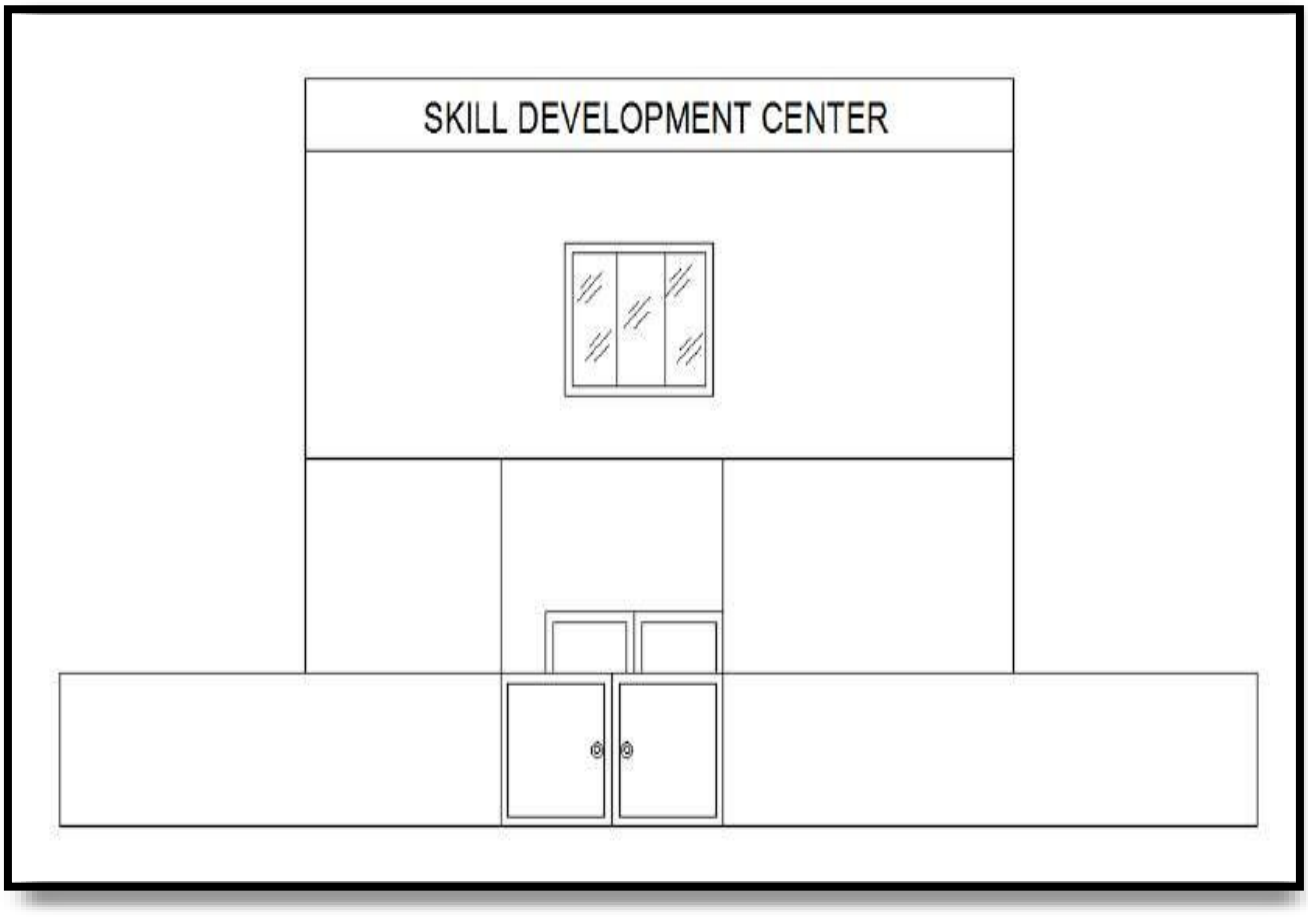
SCHEDULE

DESCRIPTION	DENOTE	SIZE(m)
DOOR	D1	1.20 x 2.10
DOOR	D2	0.80 x 2.10
DOOR	D3	1.50 x 1.50
WINDOW	W	2.00 x 1.50
VENTILATION	V	0.60 x 0.60
W.C	W.C	1.50 x 2.00

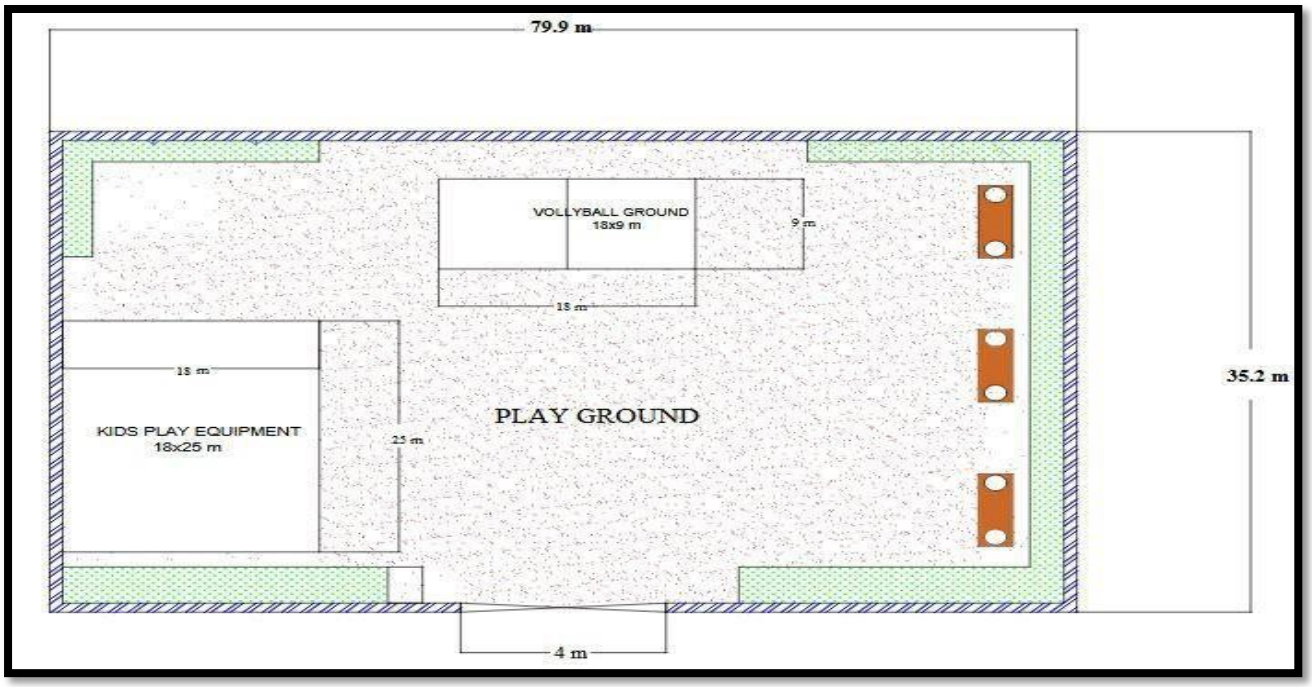
Plan of the First floor of Skill Development Centre



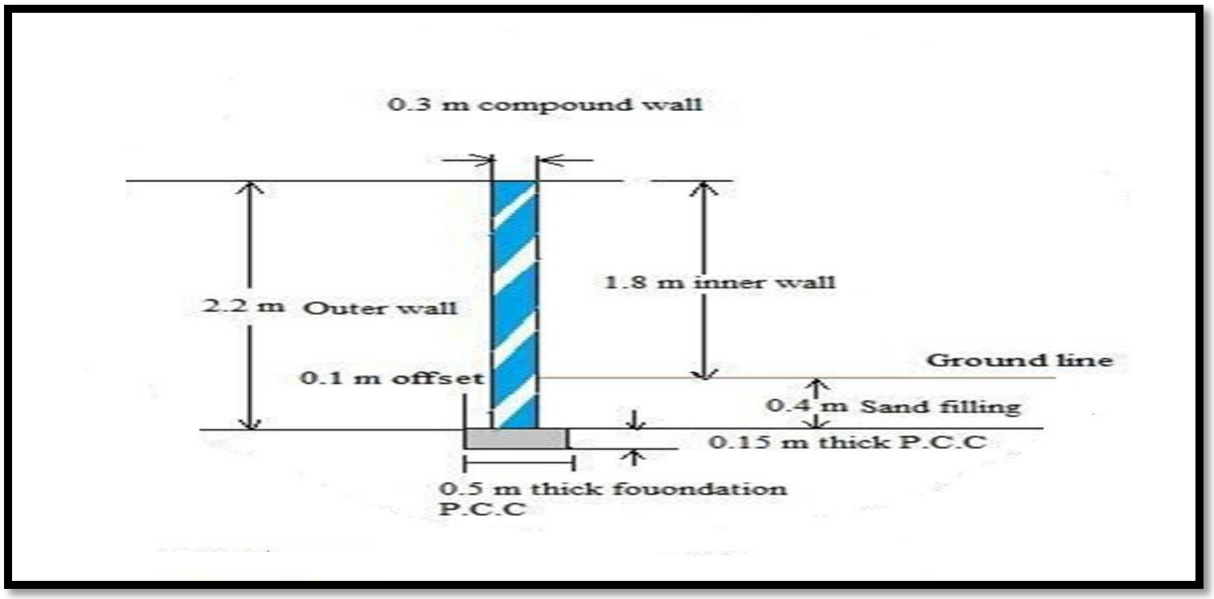

0.3500
0.2000
1.1500
0.1500
2.1000
0.3
0.3000
0.3
0.6500
0.3
0.3000
0.5
0.3000
0.5
0.3000
1.0
0.2000


SKILL DEVELOPMENT CENTER

5 Heritage design

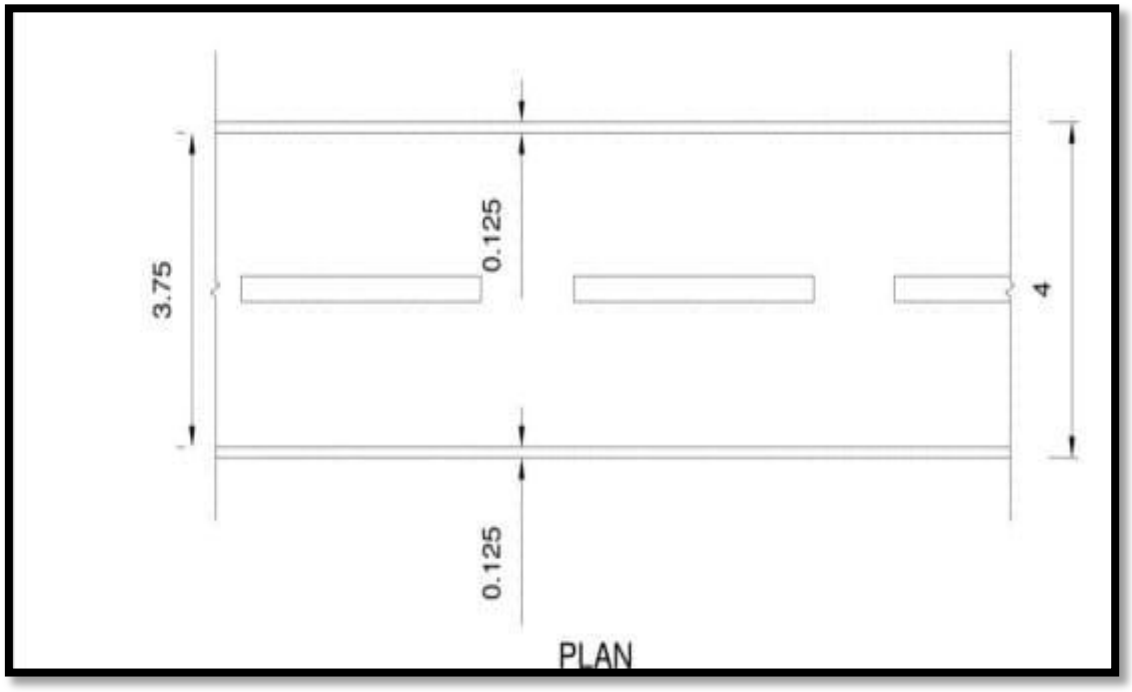


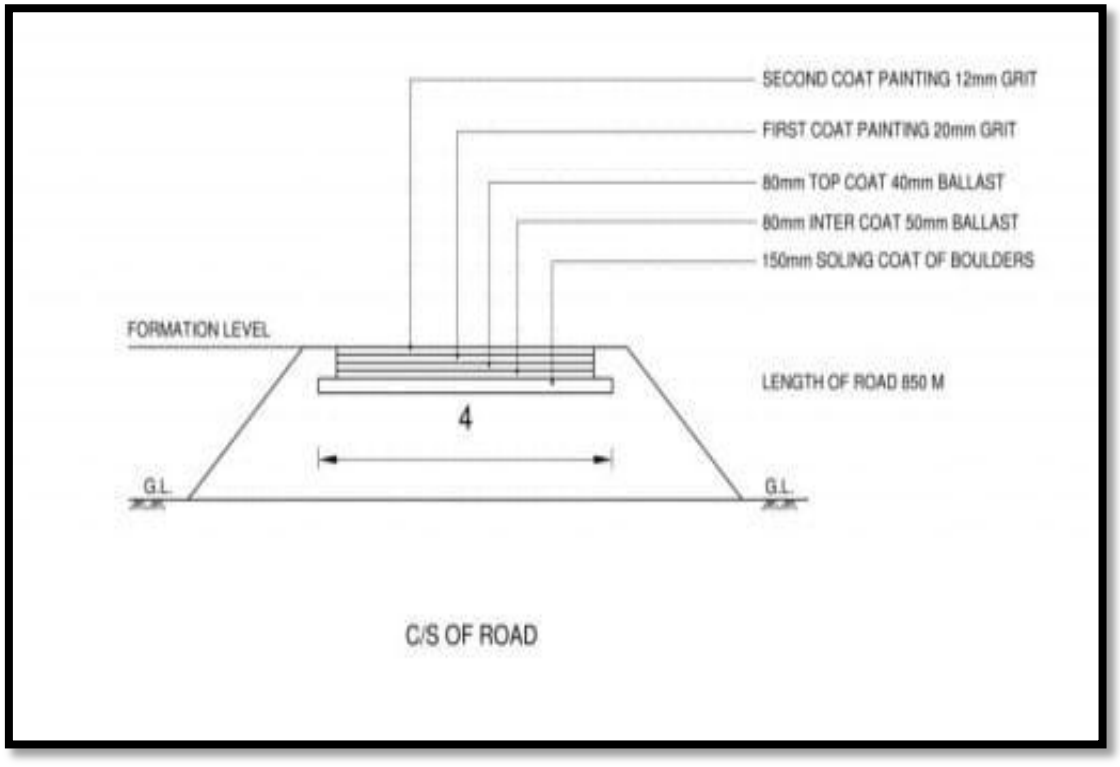
Plan



Section

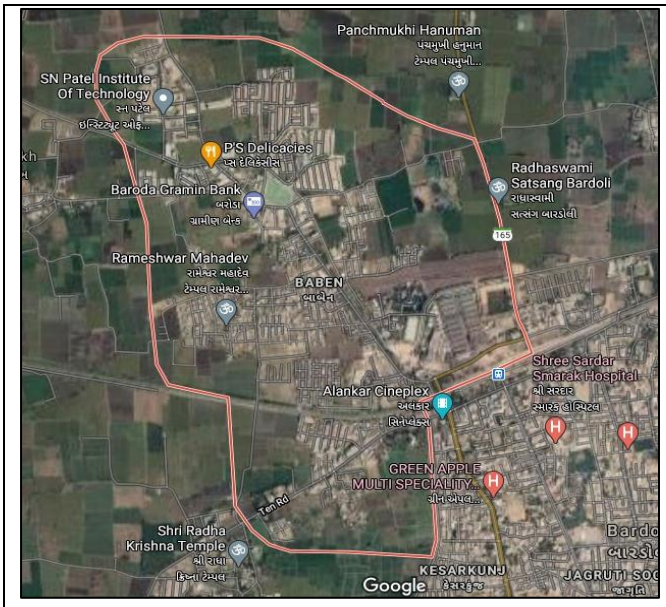
6 Road design





12.7 Summary of Good Photographs in Table format (Village visit, ideal, Smart Village or any):

Ideal Village Baben



Map of Baben

Lake city of Baben

Sugar Factory of Baben

Public toilet of baben

Water Tank of baben

Primary School and Playgroups of Baben

Entrance Gate of baben

Village road of baben

Smart Village – Ena

Main gate of Ena village

Google map of Ena village

Ena village water tank

Solid waste & road cleaning

Health care & panchayat ghar

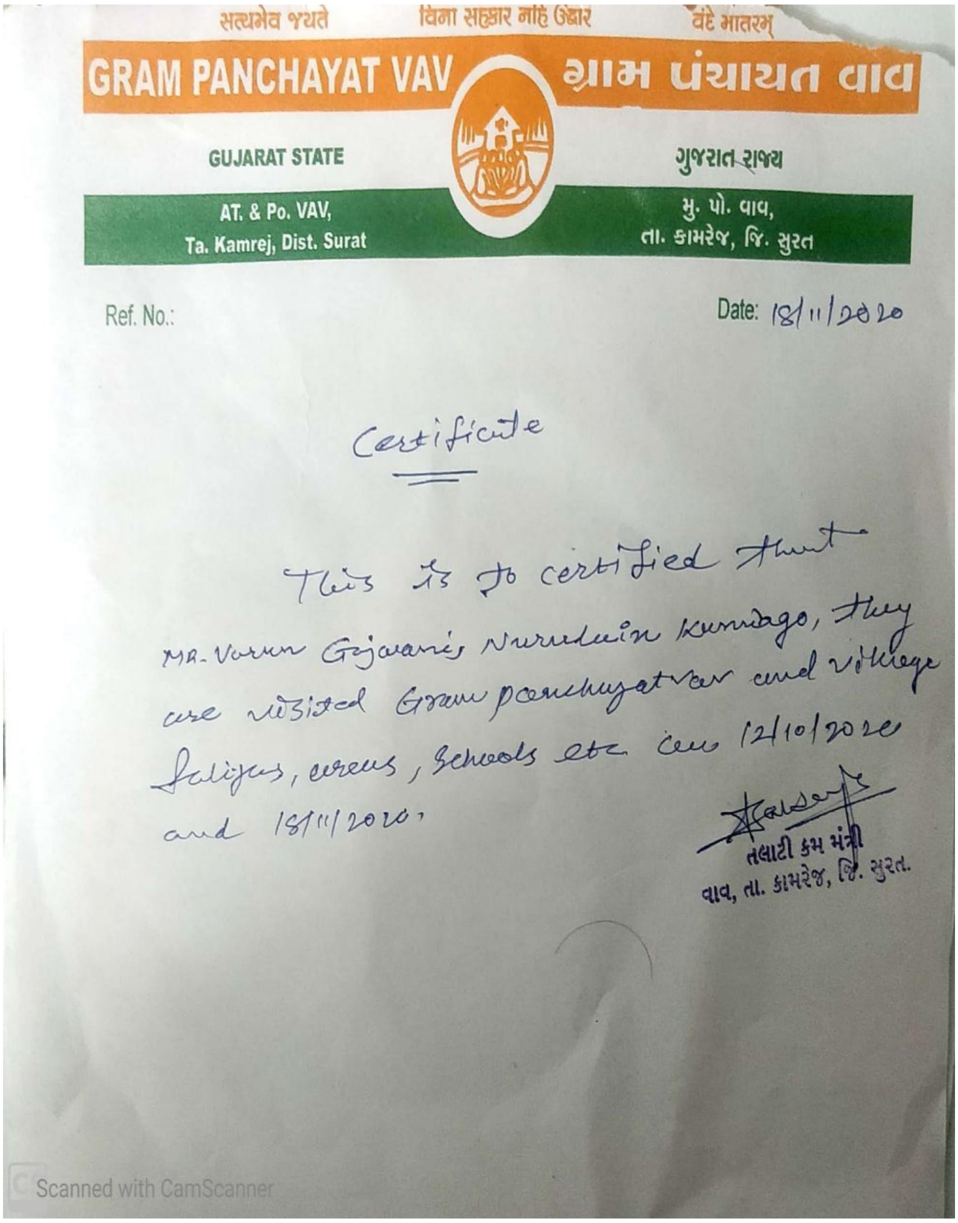
Banking

Education facility

12.8 Village interaction with sarpanch report

Here we have visited allocated village where we have met the gram panchayat members and discussed the condition of the vav village & after that we have visited the school, other internal roads and they gave their review about the village development

12.9 Sarpanch letter giving information about the village development:



सत्यमेव जयते विना सहकार नहि उद्धार वंदे मातरम्

GRAM PANCHAYAT VAV ગ્રામ પંચાયત વાવ

GUJARAT STATE ગુજરાત રાજ્ય

AT. & Po. VAV, Ta. Kamrej, Dist. Surat

મુ. પો. વાવ, તા. કામરેજ, જિ. સુરત

Ref. No.: Date: 18/11/2020

Certificate

This is to certified that Mr. Varun Gajjar's Nuruddin Kunnago, they are visited Gram panchayat vav and village faligas, areas, Schools etc. on 12/10/2020 and 18/11/2020.

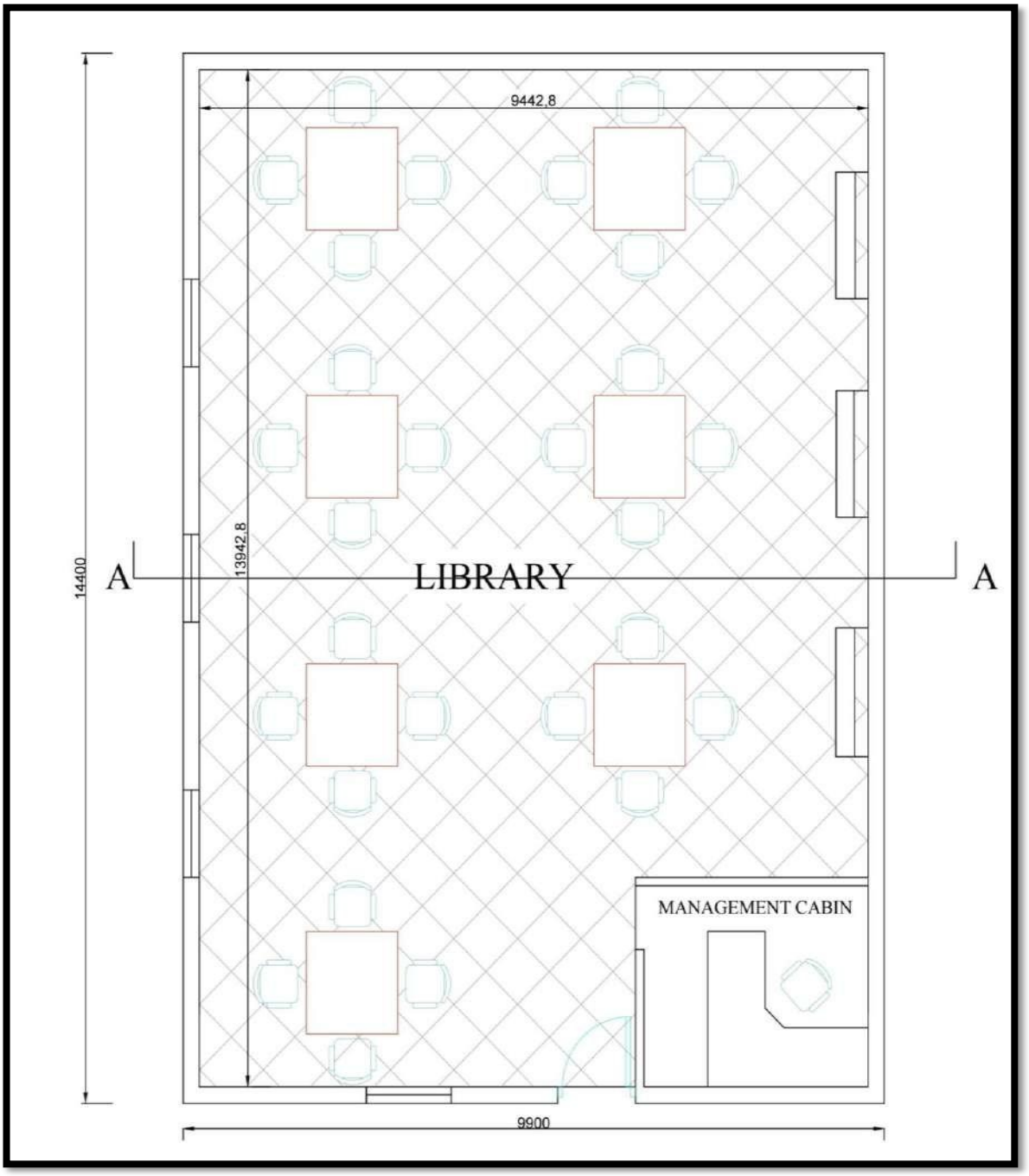
તલાટી કમ મંત્રી
વાવ, તા. કામરેજ, જિ. સુરત.

Scanned with CamScanner

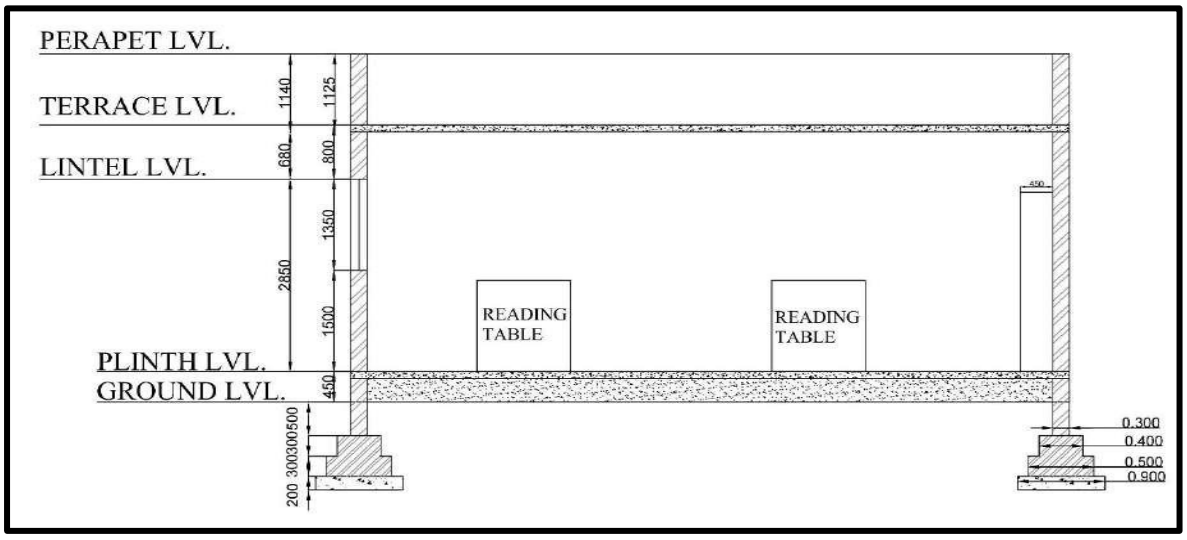
CHAPTER-13 Future Designs of the Aspects

13.1 Design Proposals

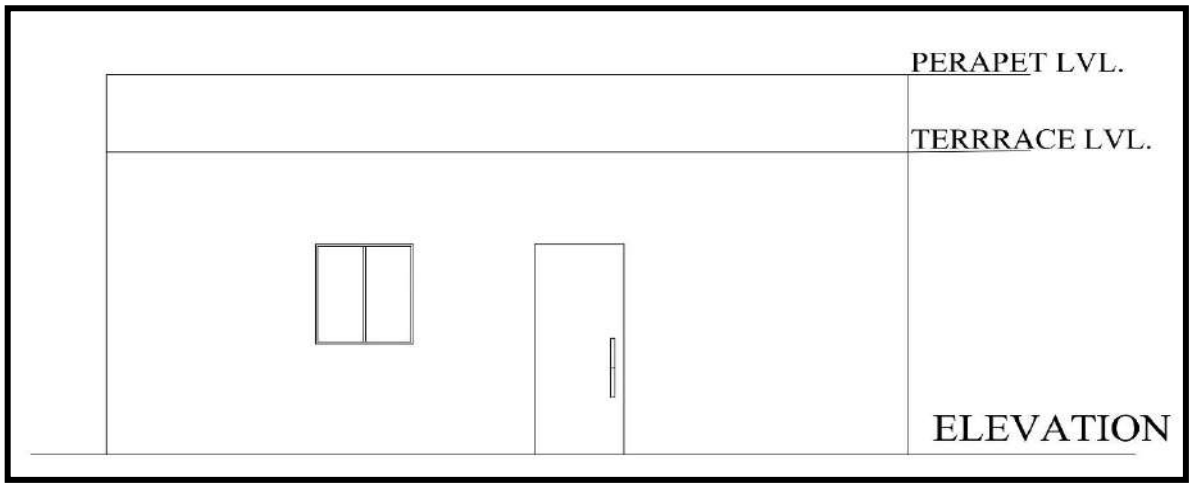
13.1.1 Civil Design 1 – Library



(a) PLAN



(b) SECTION



(c) ELEVATION

Table 13 MEASUREMENT SHEET FOR LIBRARY

Sr. no	Descriptions	No	Length (m)	Width (m)	Height (m)	Quantity	Total Quantity
1	Earthwork in excavation in Foundation						
	L=14+0.2+(2x0.45)=15.1 m	2	15.1	0.9	1.1	29.90	
	S=9.50+0.2-(2x0.45)=8.8m	2	8.8	0.9	1.1	17.42	47.32 m^3
2	**Brick Bat Cement Concrete (1:4:8) for foundation**						

	L = 15.1m	2	15.1	0.9	0.2	5.43	
	S = 8.8m	2	8.8	0.9	0.2	3.16	8.60 m^3
3	**Brick Masonry up to plinth in CM (1:6)**						
	L = 15.1-0.4 = 14.7m	2	14.7	0.5	0.3	4.41	
	L = 14.7-0.1 = 14.6m	2	14.6	0.4	0.3	3.50	
	L = 14.6-0.1 = 14.5m	2	14.5	0.3	0.85	7.395	
	S = 8.8+0.4 = 9.2m	2	9.2	0.5	0.3	2.76	
	S = 9.2+0.1 = 9.3m	2	9.3	0.4	0.3	2.23	
	S = 9.3+0.1 = 9.4m	2	9.4	0.3	0.85	4.79	
	Steps:						
	1^{st}	1	1.1	0.9	0.15	0.15	
	2^{nd}	1	1.1	0.6	0.15	0.10	
	3^{rd}	1	1.1	0.3	0.15	0.05	25.39 m^3
4	**Brick Masonry above plinth to slab in CM (1:6)**						
	L = 14.5-0.1 = 14.4m	2	14.4	0.2	3.0	17.28	
	S = 9.4+0.1 = 9.5m	2	9.5	0.2	3.0	11.4	28.68 m^3
	Deduction For Door/Window:						
	D1	1	1.1	0.2	2.1	0.46	
	W1	4	1.2	0.2	1.4	1.34	1.80 m^3
	Deduction for lintels above door & windows						
	D1	1	1.4	0.2	0.15	0.04	
	W1	4	1.5	0.2	0.15	0.18	0.22 m^3

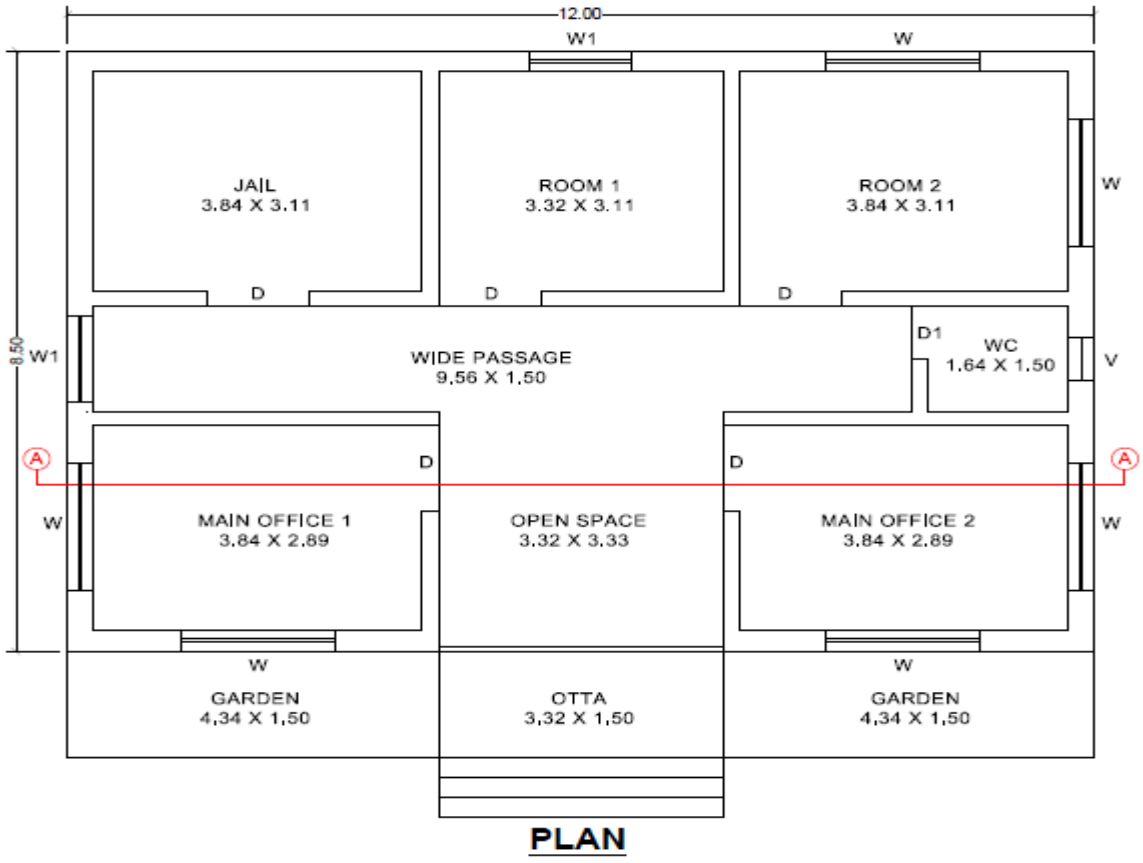
			Net Quantity = 28.68 - 1.80 - 0.22 =				26.65 m^3
5	Smooth plaster inside Rooms & Ceiling						
	Plaster For Wall	2	14		3	84	
		2	9.50		3	57	
	Ceiling	1	14	9.50		133	274 m^2
	Deduction:						
	D1	1/2	1.1		2.1	1.15	
	W1	4/2	1.2		1.4	3.36	4.51 m^2
				Net Quantity = 274 - 4.515			269.48 m^2
6	**Smooth plaster on outer wall**	2	14.4		3	86.4	
		2	9.9		3	59.4	
	Deduction for door & windows:					4.51	
				Net quantity= 145.8 – 4.51 =			141.28 m^2
7	White wash (inside)						
	Walls	2	14		3	84	
		2		9.50	3	57	
	Ceiling	1	14	9.50		133	274 m^2
	DEDUCTION						4.51 m^2
				Net quantity= 274 – 4.51=			269.4 m^2
8	**White wash (outside)**	2	14.4		3	86.4	
		2	9.9		3	59.4	145.8 m^2
	Deduction for door & windows:						4.515 m^2
				Net quantity= 145.8 – 4.515=			141.28 m^2

9	**Earth Filling in Plinth**	1	14	9.50	0.45	59.85	59.85 m^3
10	**Brick work for Parapet wall**						
	L = 23.9m	1	23.9	0.3	1.0	7.17	7.17 m^3

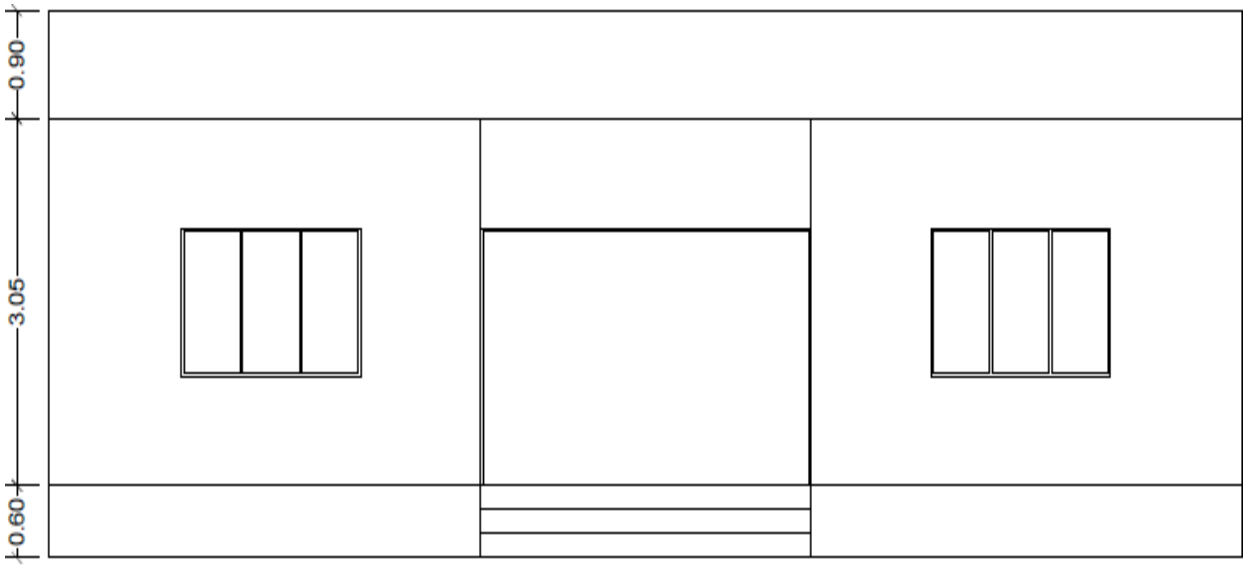
Table 13 ABSTACT SHEET FOR LIBRARY

Sr.no	Item Description	Quantity	Rate	Per	Amount
1	Earthwork in excavation in	47.32	90	m^3	4259.16
2	Brick Bat Cement Concrete (1:4:8) for foundation	8.60	2700	m^3	23230.80
3	Earth Filling in plinth	59.85	50	m^3	2992.50
4	Brick Masonry up to plinth in CM (1:6)	25.39	3200	m^3	81248.00
5	Brick Masonry above plinth to slab in CM (1:6)	26.65	3500	m^3	93282.00
6	Smooth plaster inside Rooms & Ceiling	269.48	150	m^2	40422.75
7	Smooth plaster on outer wall	141.28	150	m^2	21193.00
8	White wash (inside)	269.48	5	m^2	1347.50
9	White wash (outside)	141.28	5	m^2	706.50
10	Brick work for Parapet wall	7.17	3500	m^3	25095.00
				POLTotal :	2,93,777.00
				Add 1.5% Water Charge :	4,407.00
				Add 10% Contractor Profit :	29,378.00
				Grand Total :	3,27,562.00

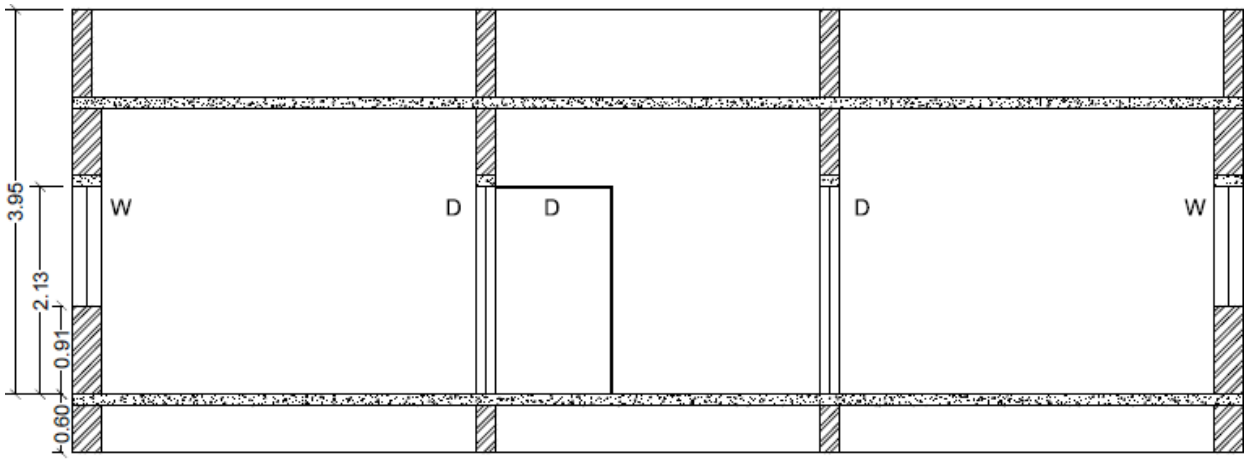
13.1.2 Civil Design 2 –Police Station



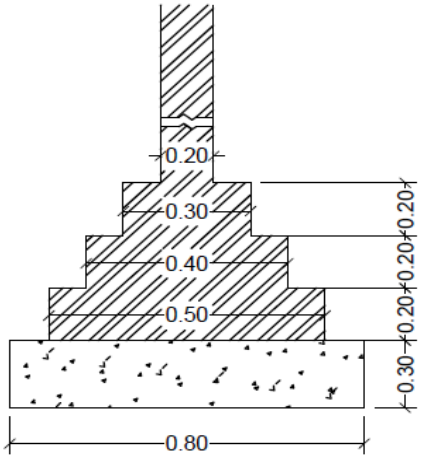
PLAN



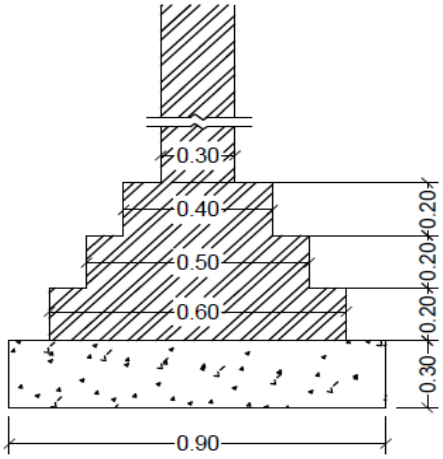
ELEVATION



SECTION A-A



200 MM WALL



300 MM WALL

TYPICAL WALL SECTION

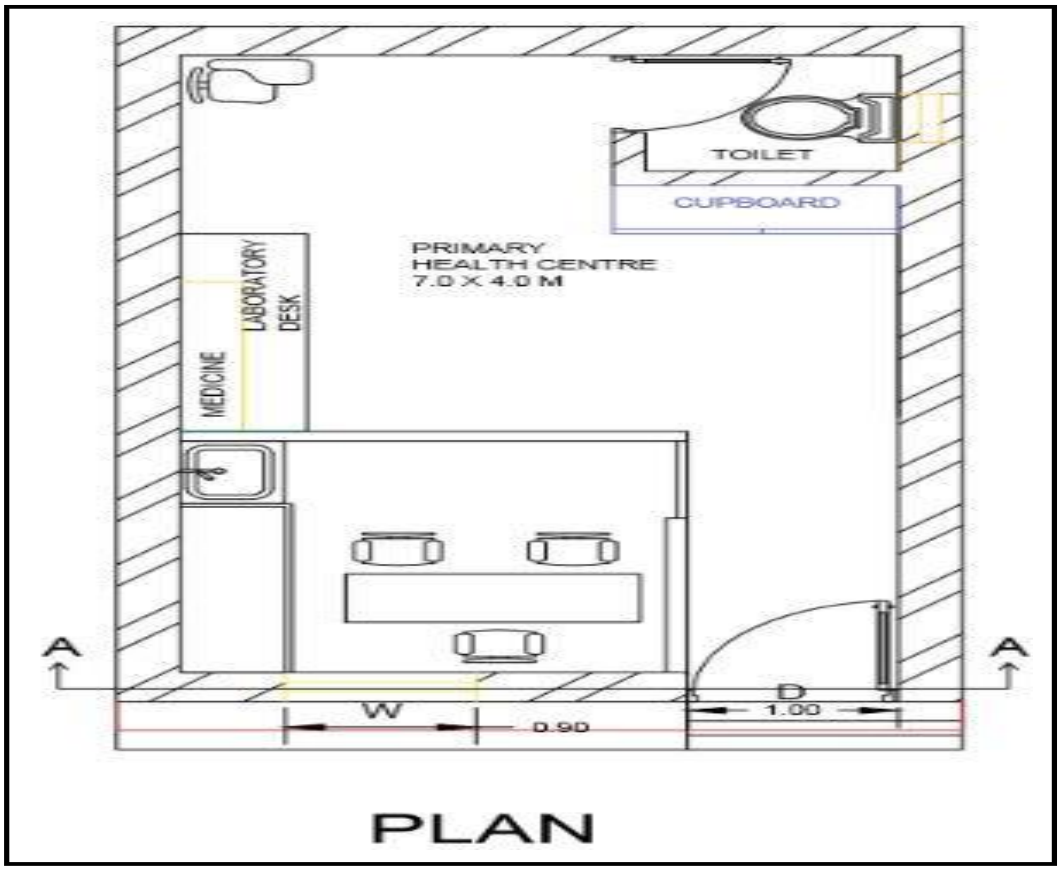
NOTE : ALL DIMENSION IN METER

SCHEDULE OF OPENING		
D	1.20 X 2.13	DOOR
D1	0.76 X 2.13	DOOR
W	1.80 X 1.22	WINDOW
W1	1.20 X 1.22	WINDOW
V	0.60 X 0.60	VENTILATION
STAIR DETAIL		
0.19	WIDE	RISER
0.28	WIDE	TREAD

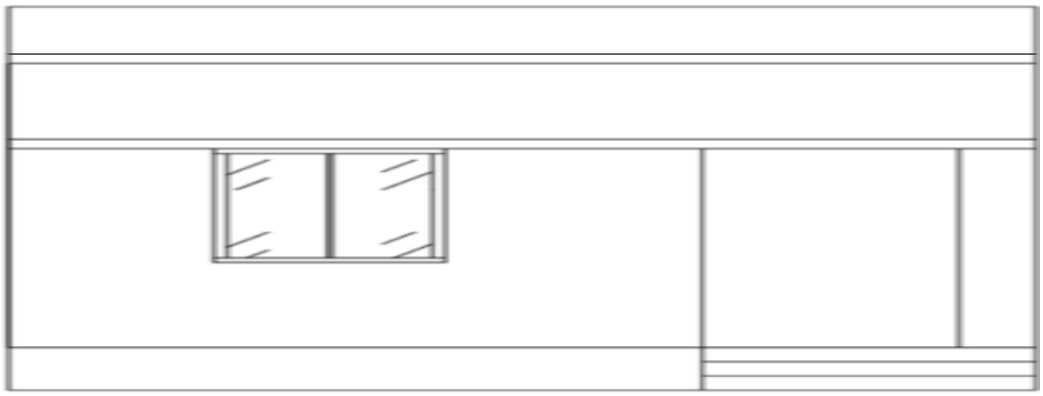
NO	Description	NOS	Length	Breadth	Height(m)	Total Quantity
			(m)	**(m)**		
1.	Excavation in Foundation:	1	58.85	0.9	1.1	58.261
	Net center line					
	length = 50.85					
2.	P.C.C in foundation	1	58.85	0.9	0.2	10.593
3.	Brick masonry up to plinth level					
	First step:- 59.90m	1	59.90	0.6	0.3	10.782
	Second step:- 60m	1	60.00	0.5	0.3	9.000
	Third step:- 60.10	1	60.10	0.4	0.3	7.212
	Fourth step:- 60.20	1	60.20	0.3	0.3	5.418
	Brick work for					
	steps					
	First step	2	1.1	0.9	0.15	0.297
	Second step	2	1.1	0.6	0.15	0.198
	Third step	2	1.1	0.3	0.15	0.099
	Net quantity					33.006
4.	Damp proof coarse(D.P.C)	1	60.5	0.3	-	18.15
5.	Brick masonry above plinth up to	1	58.85	0.3	3	52.965
	slab level					
	Deduction for door					
	D1	**7**	**1.1**	**0.3**	**2.1**	4.851

	D2	**1**	**0.9**	**0.3**	**2.1**	2.268
	Total deduction:-					(-7.119)
Deduction for R.C.C lintel (15cm bearing at eachend)						
	D1	7	1.4	0.3	0.15	0.441
	D2	1	1.2	0.3	0.15	0.216
	Total deduction:-					(-0.657)
	Net quantity:-					45.189
6.	R.C.C work for chajja & lintel					
	Chajja D1	7	1.4	0.6	0.15	0.882
	Lintel D1	7	1.4	0.3	0.15	0.441
	D2	1	1.2	0.3	0.15	0.216
						Total = 1.542
7.	R.C.C work for slab	1	7.8	5.9		0.10
8.	Smooth plaster inside the walls & ceilings					
	Chief's room	4	4.0	3	48	
	loby	2	4.0	3	24	
	Supervisor room	2	4.0	3	24	
	Infer conference room	2	4.0	3	24	
	Break room	2	4.0	3	24	
	Store room+ evidence room	2	4.0	3	24	
	D1	7	1.1	2.1	16.1	
	D2	1	0.9	2.1	3.78	
9	Outer face plaster	2	7.8	--	3.8	59.28
		2	5.9	--	3.8	44.84
						+130.12
10	Flooring work					
	Inside police station	1	8.2	2	-	22

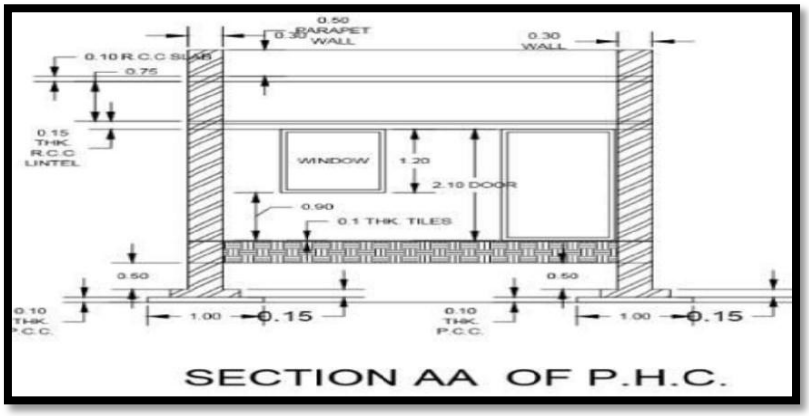
13.1.3 Civil Design 3 – Public Health Center



PLAN



ELEVATION



SECTION AA OF P.H.C.

Measurement sheet

SR	DISCRIPTION	No	L	B	H	TOTAL		
1	Excavation in	1	23.20	1.00	0.75	17.40		17.
	foundation							40
	Net centerLine length=23.20							
`2	P.C.C in foundation	1	23.20	1.00	0.1	2.32	**2.32**	
.								
3	Brick masonry up to plinth level							
	First step:-	1	23.20	0.8	0.15	2.784		
	Second step:-	1	23.20	0	0	6.960		9.744m^3
Brick work for steps								
	First step:-	1	1.	0.	0.15	0.189		
	Second step:-	1	1.	0.	0.15	0.126		
	Third step:-	1	1	0	0.15	0.063	0.378m^3	
	Net quantity:-						10.122m^3	
4	Damp proof coarse(D.P.C)	1	23.20	0.3	-	6.96$_{m^2}$	6.96 m^2	
5	Brick masonry above	1	23.20	0	3	-		20.88m^3
	plinth up to slab level			.3				

Deduction for door, window &ventilation							
	D	1	1.0	0	2.1	0	
				.		.	
				3		6	
	W	1	0.9	0	1.2	0.3	
				.		24	
				3			
	V	1	0.5	0	0.5	0.0	
						75	
	Total deduction:-						(-1.029m3)
	Deduction for R.C.C lintel (15cm bearing at each end)	1	23.20	0.3	0.1	10.66	(-10.696m3)
	Total deduction:-						(-11.725m3)
	Net quantity:-						9.155m3
6	R.C.C work for lintel	1	23.20	0	0.1	10.	10.696m3
7	R.C.C work for slab	1	7.8	5.9	0.10		4.6
8	Smooth plaster inside wall						
	LW	2	7	-		3	
	SW	2	4	-		3	
	Inside toilet	2	1.6	-		3	
	Ceiling plaster	1	7	4		-	
(+103.60m2)							
	Deduction for door & ventilation						
	D	½	1.1	-	2.1		
	W	½	0.9	-	1.2		
	V	1	0.5	-	0.5		
	Net quantity:-						101.76m2
9	Outer face plaster(upto top of parapet)	2	7.6	-	3.8		
		2	4.6	-	3.8		
(+92.72m2)							
Deduction for door, window&ventilation							
10	D	1	1.0	-	2.1		2.1
	W	1	0.9	-	1.2		1.08

	V	1	0.5	-	0.5		0.25
	Net quantity:-						
	Flooring work	1	7	4		-	28
11	Wood work for door/window (m2)						
	D	1	1.0	-	2.1		2.1
	W	1	0.9	-	1.2		1.08
12	Parapet wall brick work						
	LW = 7.6	2	7.6	0. .	0.8		3.65
	SW = 4.6	2	4.6	0	0.8		2.2
							(+ 5.86)

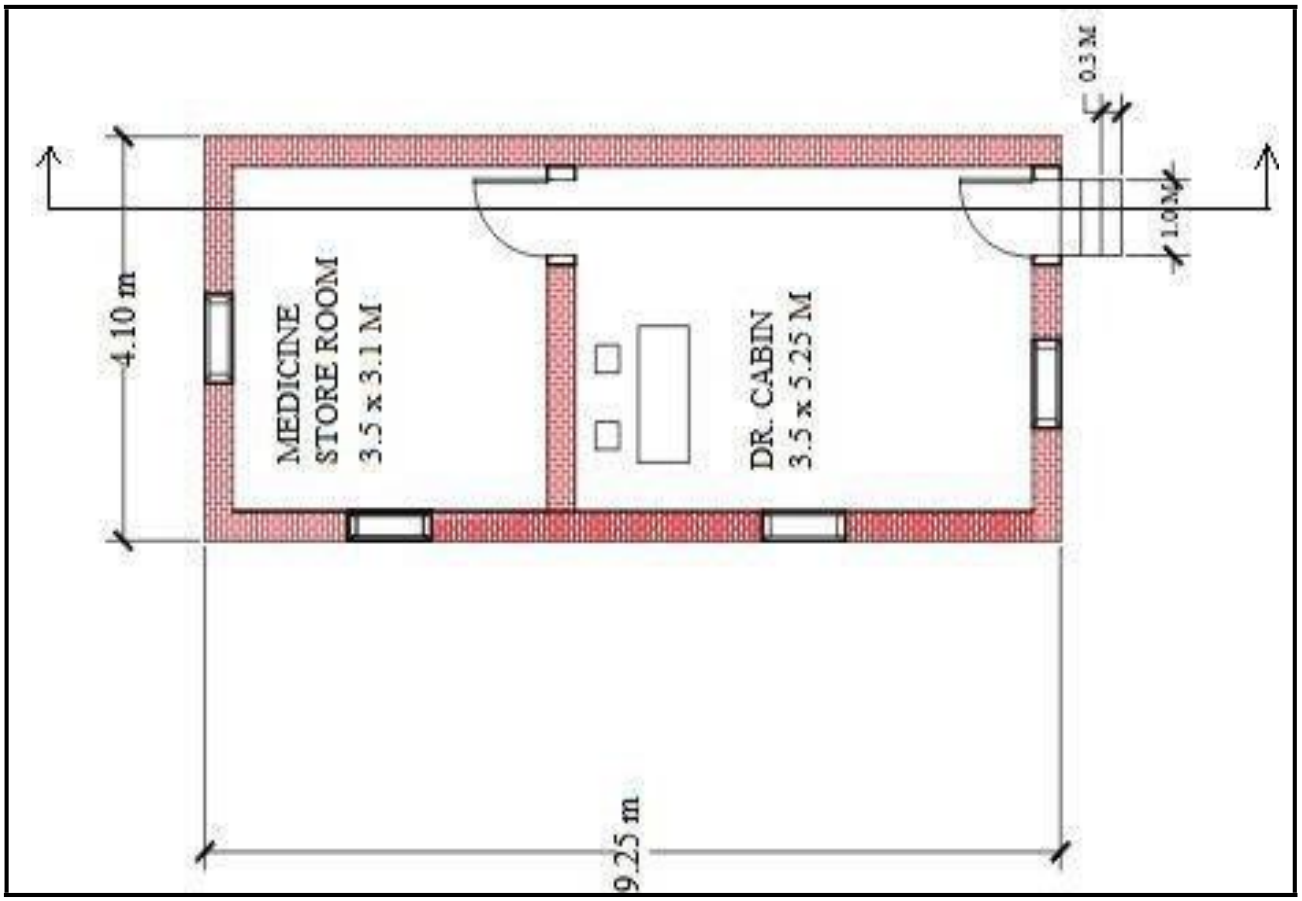
Abstract sheet

NO	ITEM	QTY	RATE	PER	RS
1.	Excavatioin foundation(up to 1.5 m lift and 50m lead)	17.40m^3	85.00	M3	1479.00
2.	Plain cement concrete (P.C.C) in foundation	2.32m^3	3200	M3	7424.00
3.	Brickwork in foundation upto plinth level	9.744m^3	3200	M3	31180.80
4.	Damp proof coarse(D.P.C) above plinth walls (1:2:4)	6.96m^2	150	M2	1044.00
5.	Brick work for steps	0.378m^3	3200	M3	1209.60
6.	Brickwork in Super structure in Cement mortar 1:4	9.155 m^3	3500	M3	32042.50
7.	R.C.C work for lintel (15cm bearing at each end)	10.696 m^3	8800	M3	94124.80
8.	R.C.C work in slab	4.6m^3	8800	M3	40480.00
9.	Smooth plaster on insid e walls and ceiling in C.M(1:3)	101.76 m^2	150	M2	15174.00

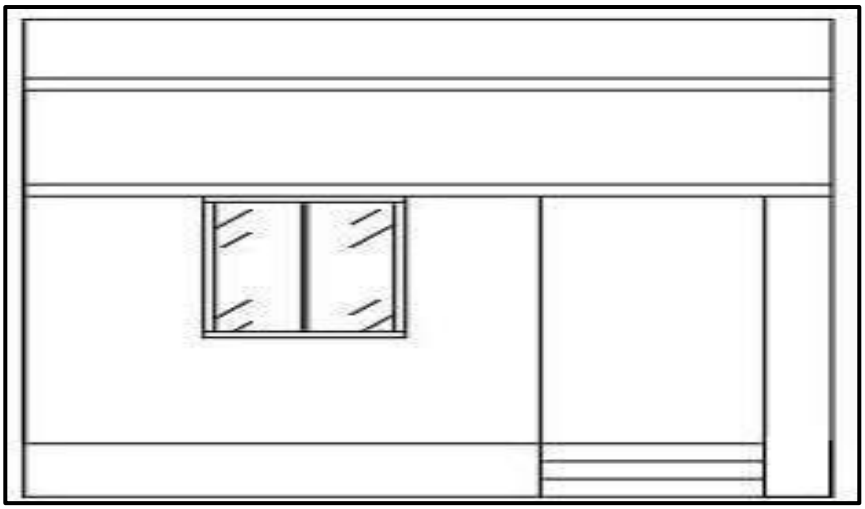
10.	Outside plaster (12mm thick in C.M 1:4)	89.29 m^2	150	M_2	13393.50
11.	Flooring work(0.1 thick marble flooring)	28m^2	400	M_2	11200.00
12.	Wood Work For Door Window providing and fixing door shutters made of Aluminium panel sheets3"x1.5" aluminium styles and rails and for pasted sealing with Aluminium frame, hinges, handles, tower bolts, etc..	2nos	2500	Nos.	5000.00
13.	Parapet wall brick work (0.3m wide& o.8m height)	5.86m	3200	M3	18752.00
				Total construction cost	2,71,292 Rs
				Add 3% Contingencies	8138.76 Rs
				Add 2% work charged establishment	5425.84Rs
				Grand total	2,84,756.60 Rs

13.1.4 Civil Design 4 – Veternity Hospital

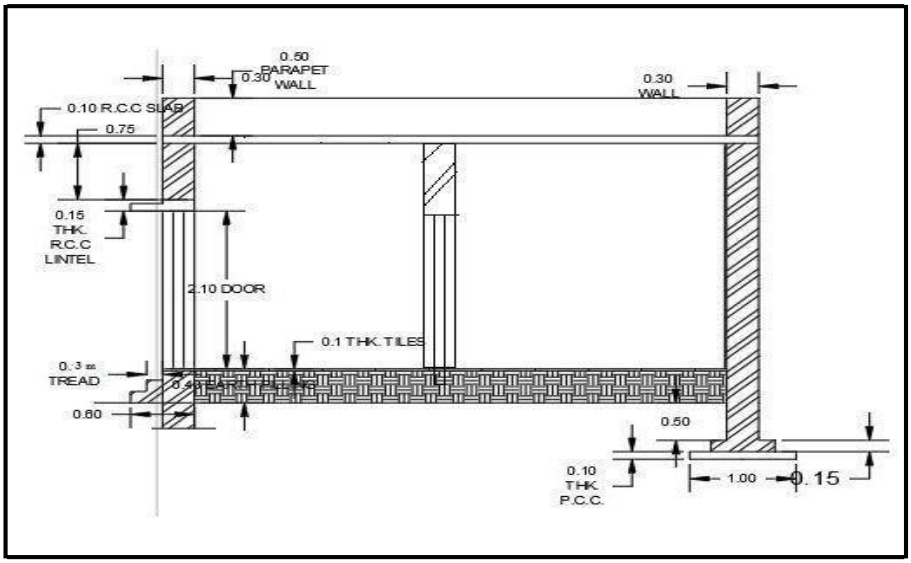
Animal	Nos.
Cow	37
Buffelows	68
Got	140
Ducks & Hens	340
Dogs & other	45
Total	630 Animal



(a) Plan



(b) Elevation



(c) Section

Table 15 Measurement sheet of veterinary hospital

SR	DISCRIPTION	NO	L	B	H	TOTAL	GRAND TOTAL

1	Excavation in foundation Net centre line length=58.60	1	58.60	1.00	0.75	43.95	43.95 m^3
2	P.C.C in foundation	1	58.60	1.0	0.1	5.86	5.86 m^3
3	Brick masonry up to plinth level						
	First step:-	1	57.80	0.8	0.15	6.936	
	Second step:-	1	57.20	0.6	0.5	17.16	24.10 m^3
	Brick work for steps						
	First step:-	1	1	0.9	0.15	0.135	
	Second step:-	1	1	0.6	0.15	0.090	
	Third step:-	1	1	0.3	0.15	0.04	0.270 m^3
	Net quantity:-						24.37 m^3
4	Damp proof coarse(D.P.C)	1	57.20	0.3	-	17.16	17.16 m^2
5	Brick masonry above plinth up to slab level	1	57.20	0.3	3	-	51.48 m^3
Deduction for door, window &ventilation							
	D	1	1.0	0.3	2.1	0.630	
	W	4	0.9	0.3	1.2	1.296	
	Total deduction						-1.926m3
	Deduction for R.C.C lintel (15cm bearing						-1.716m3

	at each end)						
	Total deduction:-						-3.2m3
	Net quantity:-						47.84 m3
6	R.C.C work for lintel	1	57.20	0.3	0.1	1.716	1.716 m3
7	R.C.C work for slab	1	4.1	9.25	0.10	3.793	3.793 m3
8	Smooth plaster inside wall						
	SW	4	3.5	-	3	42	
	LW	2	3.1	-	3	18.60	
	Ceiling plaster	1	4.1	9.25	-	37.93	
							130.03m2
9	Outer face plaster (upto top of parapet)	2	9.25	-	3.8		
		2	4.1	-	3.8	31.	
							101.46m2
10	Flooring work	1	8.35	3.5	-	9.23	29.23 m2
11	Wood work for door/window (m2)						
	D	1	1.0	-	2.1	2.1	
	W	4	0.9	-	1.2	4.03	6.42 m2
12	Parapet wall brick work						
	LW = 9.25	2	9.25	0.3	0.8	4.4	
	SW = 4.6	2	4.1	0.3	0.8	1.97	
							(+ 6.41 m3)

Table 15 Abstract Sheet for Veternity Hospital

NO	**Description**	**Qty.**	**Rate**	**PER**	RS

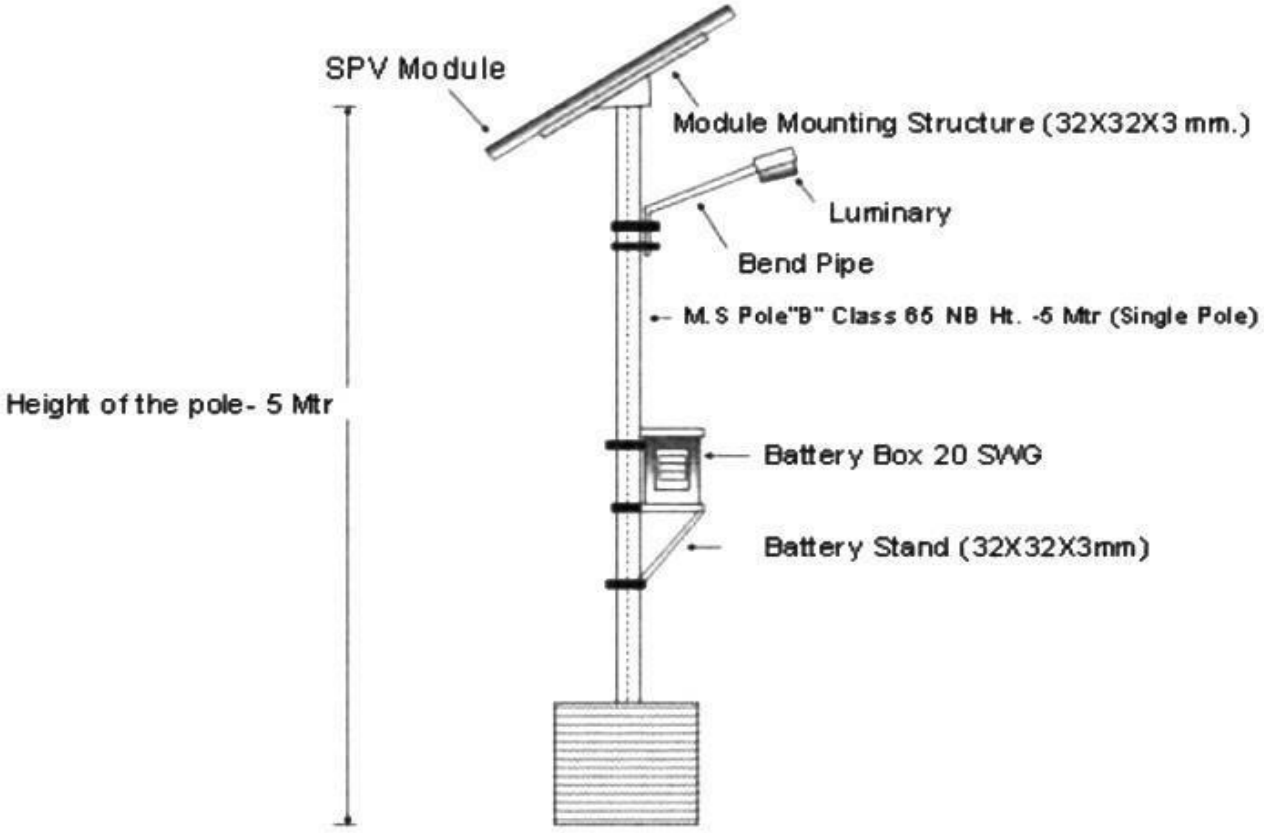
1. Excavation in foundation(up to 1.5 m lift and 50m lead)	43.95 m^3	85.00	M_3	3735.75
2. Plain cement concrete (P.C.C) in foundation (1:3:6)	5.86 m^3	3200	M_3	18752.00
3. Brickwork in foundation up to plinth level	24.10 m^3	3200	M_3	77120.00
4. Damp proof coarse(D.P.C) above plinth walls (1:2:4)	17.16 m^2	150	M_2	2574.00
5 Brick work for steps	0.270 m^3	3200	M_3	864.00
6. Brickwork in Super structure in Cement mortar 1:4	47.84 m^3	3500	M_3	167440.00
7. R.C.C work for lintel (15cm bearing at each end)	1.716 m^3	8800	M_3	15100.80
8. R.C.C work in slab	3.793 m^3	8800	M_3	33378.00
9. Smooth plaster on in side walls and ceiling in C.M(1:3)	124.66 m^2	150	M_2	18699.00
10. Outside plaster (12mm thick in C.M 1:4)	95.04 m^2	150	M_2	14256.00
11. Flooring work(0.1 thick marble flooring)	29.23 m^2	400	M_2	11692. 00
12. Wood Work For Door Window providing and fixing door shutters made of Aluminium panel sheets 3"x1.5" aluminium styles and rails and EPDN for pasted sealing with Aluminium frame, hinges, handles, tower bolts, etc..	2 nos	2500	Nos.	5000.00
13. Parapet wall brick work	6.41 m3	3200	M_3	20512.00

13.1.5 Civil Design 5 – Street Lighting

Why Street Light?

In 21st century electricity is must needed things and street light is dependent on electricity and street light is very useful in every season. In winter day is short and night is long so it will help people to go anywhere without fear of anything because patal village has forest area and there are some animals living. In monsoon season also very useful. Street light is useful of driver as well as pedestal and animal.

Design summary:



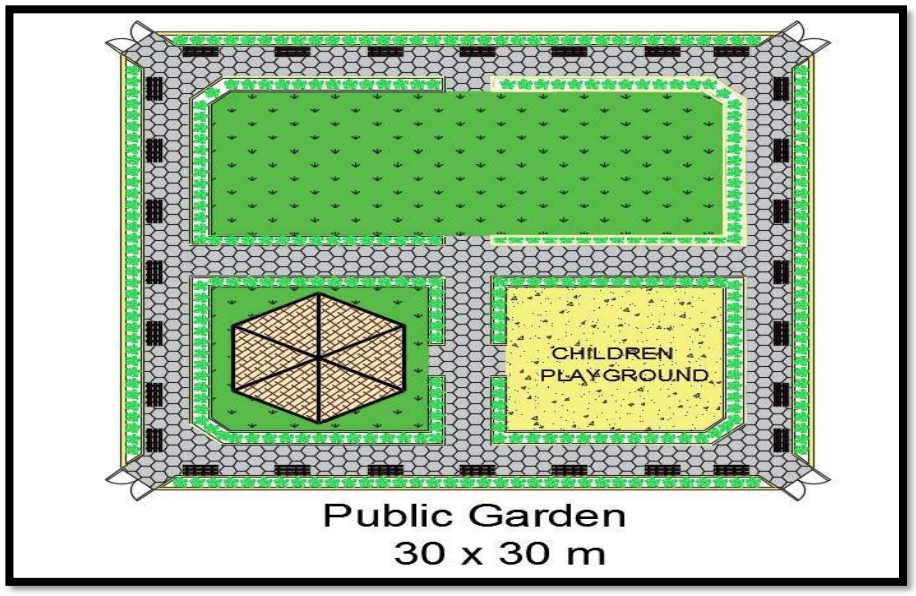
PLAN

Table-16 Cost of one street light rod

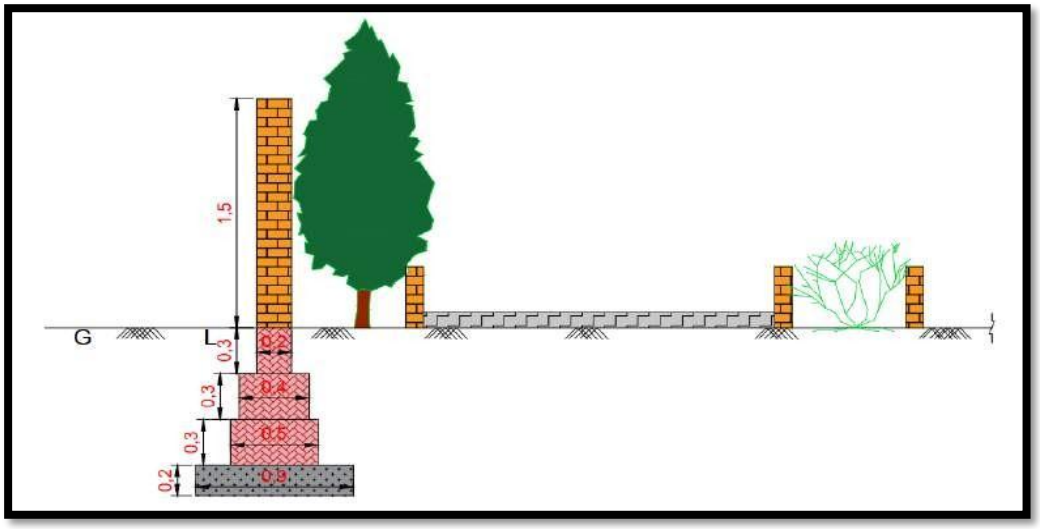
Sr. no.	Item description	Unit price	Quantity	Amount (Rs.)
1.	5KW, Single phase, on the top of rod, On grid Solar System	10000	1	10000
2.	Power cables, DC combiner & DC distribution box, Earthing of Solar system	12000	1	12000
3.	Bi-directional, Import/ Export KWh Metering system	18000	1	18000
4.	AC Distribution Box	18000	1	18000
			Total	58000/-

13.1.6 Civil Design 6– Public Garden

There is no availability of any garden or recreational design in village



(a) Plan (b) Section



SR. NO.	DESCRIPTION	NO.	LENGTH (M)	BREADTH (M)	HEIGH- T (M)	QUANTITY
1	**Excavation in Foundation**					
	Total C. L=109.20 m	1	109.2	0.9	1.1	108.10
	Total					108.10 m^3
2	**Plain cement concrete (P.C.C) in Foundation (1:4:8)**					
	PCC	1	109.2	0.9	0.2	19.65
	Total					19.65 m^3
3	**Brickwork in Foundation up to Plinth level**					
	First step	1	109.2	0.5	0.3	16.38
	Second step	1	109.2	0.4	0.3	13.10
	Third step	1	109.2	0.2	0.3	6.55
	Total					36.10 m^3
4	**Brickwork in superstructure in cement mortar 1:6**					
	Main Wall	1	109.20	0.2	1.5	32.76
	Another Wall	1	380.00	0.1	0.4	15.20
	Total					60.25 m^3

Table 17 ABSTARCT SHEET FOR PUBLIC GARDEN

SR. NO.	PARTICULARS	QUANTITY	UNIT	RATE	PER	AMOUNT
1	**Excavation in Foundation**	108.10	m^3	85	m^3	9188.50
2	**Plain cement concrete (P.C.C) in Foundation (1:4:8)**	19.65	m^3	3000	m^3	58950.00
3	**Brickwork in Foundation up to Plinth level**	36.10	m^3	3200	m^3	115520.00
4	**Brickwork in superstructure in cement mortar 1:6**	47.96	m^3	3500	m^3	167860.00
5	**Smooth plaster on inside walls and ceiling in cm (1:3)**	Approximate				25000.00
6	**Block filling inside**	Approximate				100000.00
	Total					4,76,518.50 Rs.
	Add 5% contingencies					23,825.25 RS.
	Grand Total					5,00,344.45 Rs.
					say	5,00,500.00 Rs.

CHAPTER-14 Technical Options with Case Studies

14.1 Civil Engineering

14.1.1 Advanced Earthquake Resistant :

An Earthquake is Earth's Shaking or in other words release of energy due to the movement of tectonic plates. This can be destructive enough to kill thousands of people and bring huge economic loss. This natural disaster has many adverse effects on earth like groundshaking, landslides, rock falls from cliffs, liquefaction, fire, tsunami etc. Buildings are highly affected by an earthquake, and in some cases they are shattered down to the ground level. When the ground shaking occurs beneath the building's foundations they vibrate in an analogous manner with that of the surrounding ground. The inertia force of a structure can develop shearing effect on it which in turn causes stress concentration on the connections in structure and on the fragile walls. This results in partial or full failure of structure. The excitement and prevalence of shaking depends on the orientation of the building. High rise structures have the tendency to magnify the magnitude of long time periodic motions when comparing to the smaller one. Every construction has a resonant prevalence which are the characteristics of structure. Taller buildings have a tendency for long time periods than shorter one which make them relatively more susceptible to damage. Hence, one has to be careful while performing the analysis of a tall structure. In order to analyze a tall structure many analysis procedures are valid like a) Equivalent static analysis, b) Response spectrum analysis, c) Linear dynamic analysis, d) Nonlinear static analysis or nonlinear pushover analysis and e) Nonlinear dynamic analysis. Soil structure interaction analysis is also essential to be considered. After identifying the soil type, analyzing procedure is selected to do the detailed analysis of the interaction between soil and structure. To reduce the seismic effects on tall buildings several equipment isused like dampers or base isolation process. In dampers viscous damper, friction damper, yielding damper, magneto rheological fluid dampers tuned mass damper or harmonic absorbercan be used. In base isolator magneto rheological elastomer, elastomeric bearing system, sliding system can be used.

14.1.2 Seismic Retrofitting of Buildings:

In recent times, reinforced concrete buildings have become common in India, particularly in towns and cities. Reinforced concrete (or simply *RC*) consists of two primary materials, namely concrete with reinforcing steel bars. Concrete is made of sand, crushed stone(called aggregates) and cement, all mixed with pre-determined amount of water. Concrete canbe moulded into any desired shape, and steel bars can be bent into many shapes. Thus, structures of complex shapes are possible with RC.A typical RC building is made of horizontalmembers (beams and slabs) and vertical members (columns and walls), and supported by foundations that rest on ground. The system comprising of RC columns and connecting beams iscalled a RC Frame. The RC frame participates in resisting the earthquake forces. Earthquake shaking generates inertia forces in the building, which are proportional to the building mass. Since most of the building mass is present at floor levels, earthquake-induced inertia forces primarily develop at the floor levels. These forces travel downwards – through slab and beamsto columns and walls, and then to the

foundations from where they are dispersed to the ground.lower storeys experience higher earthquake-induced forces and are therefore designed to bestronger than those in storeys above.

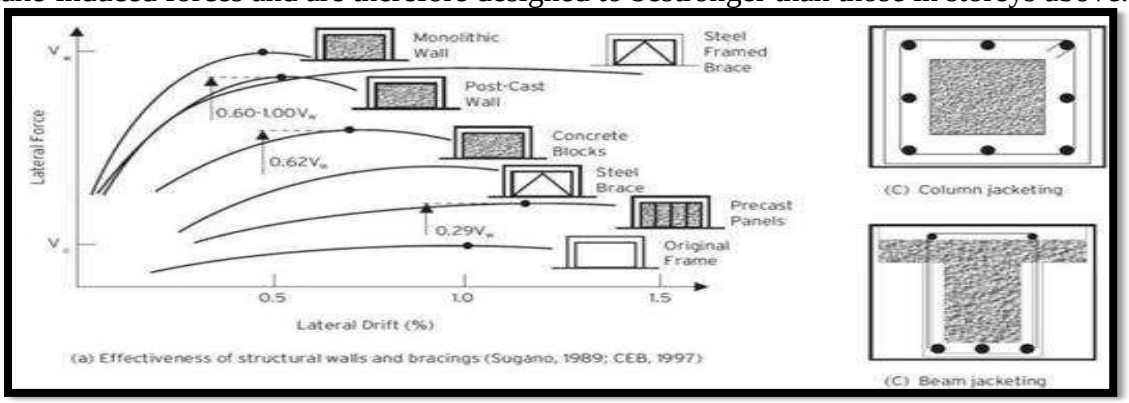


Fig. 14.1 CONVENTIONALSTRENGTHENING METHODS USEDFOR SEISMIC RETROFITTING

Addition of shear walls and bracings shown in Fig. 14.1 (a) is the most popular strengthening method due to its effectiveness, relative ease, and lower overall project cost compared to column and beam jacketing shown in Fig. 14.1(b) and (c), respectively. Relative effectiveness of various wall and bracing configurations are compared in Fig. 14.1(a). From this figure, it is seen that post-cast shear walls and steel braced frames are the most effective strengthening techniques

14.1.3 Advance Practices in Construction field in Modern Material,Techniques

To understand all how and about of super performing construction materials we must study materials according to their use from very root to tip. By that way we can easily conclude andinfer about the application, implementation and feasibility of that particular construction material. Elements of construction where these smart materials and techniques shall be implemented are: Foundation, Plinth, Beam, Column, Wall, Sill, Window, Door, Roof, Parapet, Skylights and Finishing Works. Construction materials are said to be super performingwhen they

- ✓ Save overall building energy
- ✓ Make building esthetically pleasing
- ✓ Cut cost of construction
- ✓ Easily available
- ✓ Increase life span of building
- ✓ Upgrade building quality
- ✓ Make the building safe for living

Some Super Performing Safe materials

a) Collapse preventing Structure
b) Bombproof fiber material
c) High pressure metal laminates
d) Stratified wood panels
e) Metafloor

Super Performing Materials

Advancements in Concrete

a) High Performance Concrete

Fig. 14.2 BRIDGE MADE OF HIGH PERFORMANCE CONCRETE

b) Light Transmitting Concrete

Fig. 14.3 TRANSLUCENT CONCRETE INUSE

c) Pervious Concrete

Fig. 14.4 USE OF WATER PERMEABLE CONCRETE

d) Aerated Concrete

Fig. 14.5 LIGHT WEIGHT CONCRETE

14.1.4 Engineering Aspects of Soil mechanics - Environmental ImpactAssessment:

Our daily life environment in Nigeria relates to air, noise, sunlight, geological features, fauna, flora, landscape and 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. The impact ofthese projects on the environment range from cumulative to long term and short term impacts; and include impacts on human beings and man-made features, agriculture, effects on flora,

fauna and geology, effects on land, effects on water, air and climate and, of course, the indirect and secondary impacts associated with the project. Environmental impact assessment may be said to be one of the vital steps required for careful planning and management of natural resources resulting from pressures placed on virtually all areas of

the earth from the need to provide food, water, minerals, fuel, and other necessities for such increasing number of people.In other to properly assess environmental impact of civil engineering infrastructural development projects, it is necessary to perceive the environment from the point of the view of the entire physical setting, experiencing a complex array of interrelationships compassing life and development. Since the environment itself is multi-dimensional in nature, it means that the circumstances that create (adverse) impacts on it are multi-dimensional; and therefore require some sort of multidimensional or multidisciplinary handling. It is therefore very necessary to involve as many disciplines as should be interested or connected to the environment as possible.These professionals will carry out comprehensive investigations prior to the actual project execution. These investigations are usually geared towards the matching of ecological and technological requirements of land use with the qualities of land and the effect of the proposeduse of such land on the environment.

14.1.5 Water Supply - Sewerage system - Waste Water - Sustainabledevelopment techniques:

a) Water Supply Development Techniques :

The water supply in India has increased greatly from 1980 to present. Still, many people lack access to clean water, toilets, and sewage infrastructure. Various government programs at national, state, and community level have brought rapid improvements in sanitation and the drinking water supply. Some of these programs are ongoing.

Challenges – As of 2010, only two cities in India — Thiruvananthapuram and Kota — get continuous water supply. In 2005 none of the 35 Indian cities with a population of more than one million distributed water for more than a few hours per day, despite generally sufficient infrastructure. Owing to inadequate pressure people struggle to collect water even when it is available. According to the World Bank, none have performance indicators that compare with average international standards] A 2007 study by the Asian Development Bank showed that in 20 cities the average duration of supply was only 4.3 hours per day.

Achievements –Navi Mumbai, a planned city with more than 1m inhabitants, has achieved continuous supply for about half its population as of January 2009. Badlapur, another city in the Mumbai Conurbation with a population of 140,000, has achieved continuous supply in 3 out of 10 operating zones, covering 30% of its population. Trivandrum, the capital of Kerala state with a population of 1,645,000 in 2011, is the largest Indian city and the only Million agglomeration that enjoys uninterrupted hygienic water supply. Malkapur, a town in Satara District of Maharashtra, is the first Indian town to provide 24*7 water supply with 100 percentcoverage. The program started in 2008 as a pilot project and soon covered the entire city. Theconnection is 100 percent metered with telescopic tariff.

Innovative approaches – A number of innovative approaches to improve water supply and sanitation have been tested in India, in particular in the early 2000s. These include community- led total sanitation, demand-driven approaches in rural water supply and a public-private partnerships to improve the continuity of urban water supply in Karnataka, and the use of microcredits in water supply and sanitation to women in order to improve access to water.

b) Sewerage System Development Techniques :

The United Nations has recognized 19 of the world's biggest megacities with a population of 10 million and above. From India, five of Delhi, Mumbai, Kolkata, Bangalore and Chennai are in the list. The historic city of Hyderabad is on the way to step into megacity family with a population of 9.5 million. The city is known for its rivers and lakes from the early19th century. The prominent among them is the river Musi, a tributary to river Krishna, originating from Ananthagiri Hills. The river travels 70 km upstream before entering Hyderabad near Rajendranagar, flowing west to east, bifurcate the old and new city on south and north of river Musi. The river traverses about 28km within the city limits and flows downstream, about 158km before joining the river Krishna, near Wazeerabad, Nalgonda District.

Status of Sewerage System – The first sewerage system with Sewage Treatment Plant (STP)facility for Hyderabad city dates back to 1931, covering an area of 54 sq. km with a population of 4, 68, 000, under the technical guidance of Sir Mokshagundam Visvesvaraiah. The system was meant to serve an area of 54 Sq.kms with 53 MLD capacity STP having a primary treatment facility. At that time Secunderabad had a sewerage system which was originally a combined system. Both the systems of Hyderabad and Secunderabad were amalgamated in the year 1964. Later in a phased manner, the sewerage system was upgraded during 1984, 1994 and 2004 with major interventions, particularly by laying certain trunk sewer mains network and construction of Sewage Treatment Plants (STPs).After transfer to HMWSSB, subsequentlymany improvements to the sewerage network were carried out, keeping in pace with the population growth and expansion of the city. The existing sewerage system covers approximately 90% of the erstwhile core MCH area of 169.3 sq.km.

Proposed NRCD Project Phase-II – Under phase-II the NRCD covers an area 574.59 Sqkm; it is divided into 10 catchments for locating the STPs and it is proposed for 610 MLD capacitySTP. The GoAP has forwarded the DPR proposals with the consent of 30% state share and requested the NRCD, MoEF, GoI to accord sanction to the project with 70% grant of GOI. Thetechnical appraisal was completed. The final sanction was deferred stating that the adequate budget allocation was not available with NRCD, MoEF, GoI.

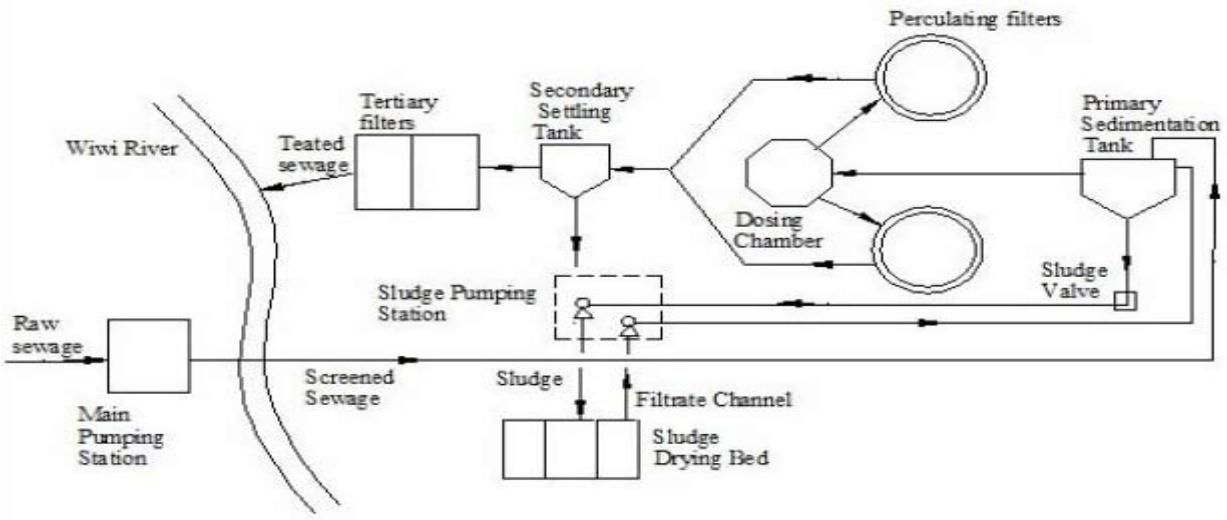


Fig. 14.6 PROPOSED SEWAGE TREATMENT PLANT (STP) UNDER NRCP PHASE

c) Waste Water Development Techniques

Water is an essential resource that is required to sustain life. Its availability has to be adequate, safe and easily accessible. Current trends in climate change and rise in human population has compromised water adequacy, availability and safety. Wastewater managers around the world have the responsibility to ensure that the effluent that is eventually released into the environment does not degrade the quality of the recipient water bodies. Attaining sustainability in wastewater management is top in the of Sustainable Development Goals' Agenda. All in all, the realization of a more sustainable wastewater management will require ahighly holistic and balanced approach in evaluating a particular management strategy's overallsustainability.

Wastewater Treatment Techniques – Treatment of wastewater can be undertaken in three stages: primary, secondary, and tertiary (or advanced). Primary or mechanical stage is designed to remove gross, suspended and floating solids from raw sewage that is direct from the source.It includes screening to trap solid objects and sedimentation by gravity to remove suspended solids that come from the catchment (Mannie and Bower 2014). Secondary stage is designed to remove the dissolved organic matter that escapes primary treatment. This stage comprises of microbes consuming the organic matter as food, and converting it to carbon dioxide, water,and energy for their own growth and reproduction (Tilley, 2014; Benammar et al., 2015; Dharmender et al., 2016). Generally, high-rate biological processes are normally characterized by relatively small reactor volumes and high concentrations of microorganisms compared with low rate processes (Mang and Li, 2010; Jeon et al., 2014; Sanjeev et al., 2014).

Advancement in Wastewater Treatment for Environmental Sustainability – To increase the efficiency of wastewater treatment, an additional stage has always been incorporated. Thetertiary wastewater treatment stage can remove more than 99 percent of all the impurities from sewage, producing an effluent of almost drinking-water quality status (Vymazal, 2009; Francisca et al., 2016). An application of a typical tertiary treatment process is the modification of a conventional secondary treatment plant to remove additional nutrients such as phosphorusand nitrogen.

a) Sustainable Development Techniques :

Sustainable development is the organizing principle for meeting human development goals while simultaneously sustaining the ability of natural systems to provide the natural resources and ecosystem services on which the economy and society depend. The desired result is a state of society where living conditions and resources are used to continue to meet human needs without undermining the integrity and stability of the natural system. Sustainable development can be defined as development that meets the needs of the present without compromising the ability of future generations to meet their own needs. Sustainability goals, such as the current UN-level Sustainable Development Goals, address the global challenges, including poverty, inequality, climate change, environmental degradation, peace, and justice.

Development of the concept – Under the principles of the United Nations Charter the Millennium Declaration identified principles and treaties on sustainable development, including economic development, social development and environmental protection.

Broadly defined, sustainable development is a systems approach to growth and development and to manage natural, produced, and social capital for the welfare of their own and future

generations. The term sustainable development as used by the United Nations incorporates both issues associated with land development and broader issues of human development such as education, public health, and standard of living.

generations. The term sustainable development as used by the United Nations incorporates both issues associated with land development and broader issues of human development such as education, public health, and standard of living.

Fig. 14.7 SCHEME OF SUSTAINABLE DEVELOPMENTOF THREE CONSTITUENT PARTS

Environmental – Environmental sustainability concerns the natural environment and how it endures and remains diverse and productive. Since natural resources are derived from the environment, the state of air, water, and the climate is of particular concern. The IPCC Fifth Assessment Report outlines current knowledge about scientific, technical and socio-economic information concerning climate change, and lists options for adaptation and mitigation. Environmental sustainability requires society to design activities to meet human needs while preserving the life support systems of the planet. This, for example, entails using water sustainably, using renewable energy, and sustainable material supplies (e.g. harvesting wood from forests at a rate that maintains the biomass and biodiversity).

Economics – It has been suggested that because of rural poverty and overexploitation, environmental resources should be treated as important economic assets, called natural capital. Economic development has traditionally required a growth in the gross domestic product. This model of unlimited personal and GDP growth may be over. Sustainable development may involve improvements in the quality of life for many but may necessitate a decrease in resource consumption. According to ecological economist Malt Faber, ecological economics is defined by its focus on nature, justice, and time. Issues of

intergenerational equity, irreversibility of environmental change, uncertainty of long-term outcomes, and sustainable development guideecological economic analysis and valuation.

Case Study On "SEISMIC RETROFITTING ON A 4-STOREY EXISTING RC BUILDING" :

The current structure, which were plan and developed by early coral arrangements, don't fulfilnecessities of current seismic code and configuration rehearses. It is perceived that the best strategy for diminishing the danger of harming structure is seismic retrofitting. Lately, there is a critical improvement of retrofitting methods. This examination features the standards of surveying and retrofitting of construction against seismic occasions. A three dimensional R.C.outline planned with direct versatile unique examination utilizing reaction range technique. The PC programming bundle STAAD Pro is utilized for elements examination strategy is utilized to evaluate the presentation of a built up solid structure.

Reason Behind This Case Study :-

According to the Seismic Zoning Map of IS 1893:2002, India is divided into five seismic zones,in ascending order of a certain zone factor which is assigned to them on the basis of their seismic intensity. The 4-storey RC Structure being analyzed in this particular project is the main institute building of NIT Rourkela, which is located in the least susceptible zone i.e. zone

II. However, considering that the primary structural system of the building is at least 50 years old, it was not designed according to the design provisions given in IS 1893:2002. Hence, it may fail in the event of any moderately strong tectonic activity in its vicinity. Studying the performance of the structure and suggesting suitable retrofit measures for the building would therefore be a necessity. Seismic retrofitting is the modification of existing structures to make them more resistant to seismic activity, ground motion, or soil failure due to earthquakes. Thisgoal maybe achieved by adopting one of the following strategies-

a) By reducing the seismic demands on members and the structures as a whole
b) By increasing the member capacities

Problem Formulation –

For performing the seismic analysis, an existing four- storey building is been considered. The existing structures consist of eight bays (rooms) spanning 3.5 meters . A projected slab cantilevered for 1.2 meters is provided in the structure. Floor height of existing structure is considered as 3.3 meters (clear span). The structure is situated in Seismic Zone II, as specified in IS 1893:2002 Seismic zones classifications, which has the seismic intensity of 0.10. The structure is considered as Ordinary Moment Resisting Frame (OMRF). Also, the structure is built on medium soil. The structure is then analyzed under seismic loading and the failing members are then retrofit using FRP Jacketing.

FIRST STOREY SECOND STOREY

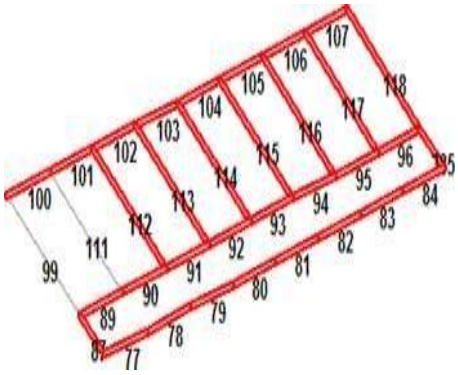


Fig. 14.8 FIRST STOREY BEAMS

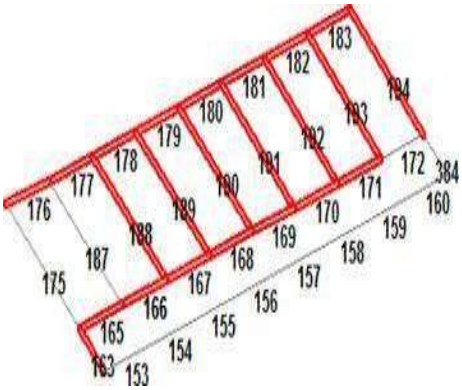


Fig. 14.9 SECOND STOREY BEAMS

THIRD STOREY

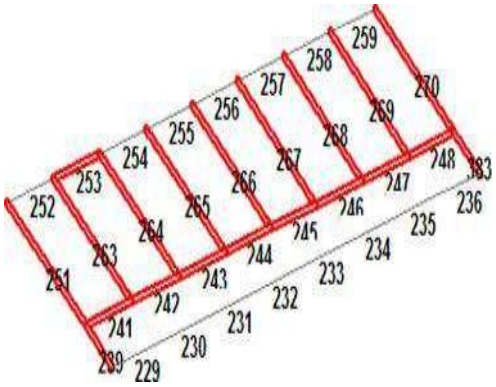


Fig. 14.10 THIRD STOREY BEAMS

FIRST STOREY

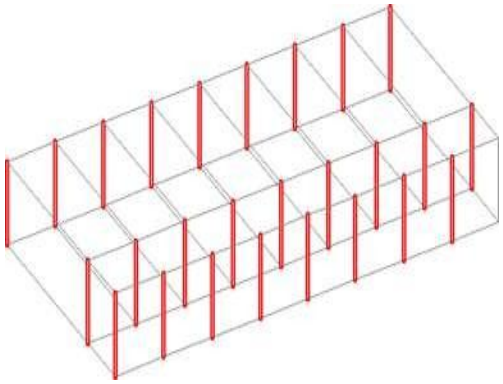


Fig. 14.11 FIRST STOREY COLUMNS

Second, Third and Fourth Storey Columns –

The objective of this study is the evaluation (seismic) of a four-storey RC framed structure, built about fifty years ago, on medium soil, in seismic zone-II, with seismic intensity 0.10 , using commercially used software STAADPRO V8i and retrofit the failing members using FRP jacketing. The existing structure is located in zone II and is not designed to resist earthquakes. The construction of the structure is not based according to the specifications mentioned in IS 1893:2002.

What They Did In This Project –

The existing structure is modeled in commercial software STAADPRO V8i and is subjected to seismic loading. The seismic performance of the structure is then analysed. Also, the Demandto capacity ration DCR is obtained for all the storey. The piles used for jacketing of failing members with FRP are then calculated. The failing members' efficiency is recalculated based on Demand-to-capacity ratio for maximum shear force generated under seismic loading. DCR= Demand/Capacity. The member is said to be

passing if the demand to capacity ratio does not exceeds unity (one). Conversely, the member is said to be failed if the demand to capacity ratioexceeds unity (one). The demand to capacity ratio is proved to be an important and key featurein determining whether the structural element is passed or failed under given loading exposure.In this project, flexure and shear checks are performed for all the structural members for which demand to capacity ratio is exceeding unity (ONE)

Results and Conclusion – The analysis of beams byEquivalent Static Method revealed that most of the beams failed in flexural capacity Then number of failing beams decreased withincreasing storeys. However,the number of beams failing inshear capacity were very less i.e. beams 23, 36, 40 in 1st storey; 112, 116, 118 in 2nd storey; 188, 192 in 3rd storeyFor columns too, the analysis revealed that most of them failed in flexural capacity but were safe in shear. Based on the above observations, the immediate need to counter deficiency in flexural capacity was identified and the FRP jacketing scheme was suggested only for beams, failing in flexure. Due to the high tensile strength and stiffness, stability under high temperatures and resistance to acidic/alkali/organic environments, carbon fiber was chosen as the FRP material to be used.

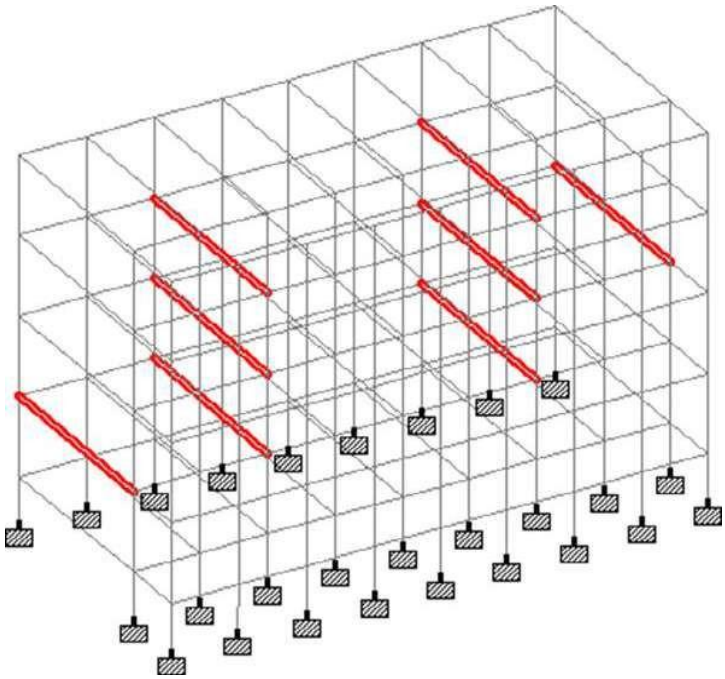


Fig 14.12 BEAMS FAILING IN SHEAR CAPACITY

CHAPTER-15 Sustainable features of Chapter 8 & 13 designs, Impact on society.

Sr. No	Design Name	Estimated Cost	Duration (months)	Requirement	Benefits
1	ATM	1,15,909.70 □	1-2	Within 1 year	- Emergencies that require monetary exchange
2	Post Office	2,76,380.00 □	1-2	Within 1 year	- For parcel service
3	Community Hall	26,74,500.0□	3	Within 1 year	- - To organise events
4	Skill development	19,60,000.0□	3-4	Long term (3-5 years)	- For village deveploment
5	Playground	8,23,644.75 □	1	Immediately	- For Recreational facility
6	Library	3,27,562.00 □	1-2	Long term (1-2 years)	- Education
7	Public health center	2,84,756.60 □	2	Within 1 year	- To get easier access to health facility etc.
8	Police station	619050.3 □	2-3	Within 1 year	- For future safety
9	Vetinary hospital	378592.00□	6-7	Long term (3-5 years)	- To get easy services for animals
10	Public Garden	500500.00 □	2-3	Within 1 year	- Recreational center
11	Solar street lightning	58000 □	12-14	Immediately	- To make proper use of solar power
12	Construction of Road	10.55.083.9□	10-12	Within 1 Year	- To make proper roads for internal transport

CHAPTER 16 Survey by interviewing Talati and sarpanch

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

CHAPTER 17 Fishery activities alternatives techniques and solutions

The Absolute Beginner's Guide to Fishing

This guide specifically covers spin fishing, which uses a rod with a spinning reel and lures or live bait to attract fish. For new anglers, it's one of the easiest ways to get outside with minimal investment, but fly-fishing, saltwater fishing, ice fishing, and other types of gear fishing that utilize different reels are all options that may interest you down the road.

Where should you go?

It's always best to talk to a real person about where to fish, as they likely have the most current and comprehensive information about local water. In a pinch, a crowdsourced fishing app like Fish brain or the more data-heavy Fish Angler provides good information on local spots. In general, lakes are a great option when you're just starting out—they usually have a bank or dock to fish from and often have a larger volume of hungry fish than you would find in a river. Lake fishing mostly involves species like bass, pan fish, or rainbow trout, while rivers are almost exclusively fished for salmon or trout species, like rainbow, cutthroat, or brown trout, among others

Fig. 17.1 CATCHING FISHES AT SEA SHORE

Etiquette

It's important to learn good fishing etiquette early be respectful of other anglers, the fish you catch, and the environment you're in. Don't crowd a spot that someone else is fishing: I like to give other anglers no less than 50 to 60 feet on the most crowded water and more than a couple hundred yards if there aren't many people around. Don't keep more fish than you can eat, and always adhere to leave-no-trace ethics. Be sure you know whether the section of the water you're on is catch and release, limited to artificial lures (no live bait), or fly-fishing only. You can't always count on a sign to tell you this information, so check a local regulation book or your state's forestry department's website for facts as well as updates on closures.

Ueful Skills

Knots

Below are a few basic knots you'll need to know to get started. As your fishing skills advance,a book of common fishing knots will be a good resource to have on hand. The most important knot in fishing is the improved clinch knot. This knot attaches your hookor lure to your line. Once you've nailed this one, you'll be ready to go.

Reading Water

It's helpful to know where fish may be hiding so you can target them better—in other words, "reading the water." In lakes, fish usually hang out in or around weeds and downed trees closeto shore. They might also congregate near drop-offs; for this reason, some lakes are easier to fish if you have access to a canoe or kayak. Similar tactics apply to rivers, where you'll want to look for places that may provide good cover—logjams or overhanging banks, for example— since a fish's main objective beyond finding food is hiding from predators

Small scale retail units

a) Eligibility criteria

- State fisheries corporations/ state fishermen federation, Fishermen Cooperative Societies, SHGs and private entrepreneurs should have proven track record and shouldbe recommended by the respective state fisheries departments.

b) Requirements

The components for the financial assistance in the small scale retail units are as follows, whereneed-based financial support will be provided by the Board:

- Vending stalls with requisite equipments
- Insulated fish boxes
- Deep freezer for storage
- Display arrangement
- Electronic balance
- Equipments for fish dressing and packaging
- Any other suitable items

Casting

Casting with a spinning reel is as simple and intuitive as winding up and chucking your lure asfar as you can, like throwing a baseball. Start with about six inches of line out the end of yourrod, with the reel below your dominant hand. A spinning reel employs a bail (a thin wire arm)to keep your line from coming out of the spool. In order to cast, you'll need to flip this bail, hold the line with your finger, bring the rod tip up and slightly behind you (think of the motionyou'd use to pick up a phone), and cast forward using your wrist and elbow. When your rod isvertical or just slightly forward from vertical, release the line to send your lure flying. Once your lure is in the water, flip the bail back over and begin reeling

Fig. 17.2 THROWOING FISHING NETS TO TRAP FISHES

Hooking

When hooking a fish, there are two things you want to prevent: the fish "spitting" out your lure, or your line breaking under the weight and power of the fish. To keep those two things from happening, you'll need to properly "set" the hook into the fish's mouth once it has bitten your lure or bait. This means setting it at the right time and with the right pressure: when you see your bobber sink or jerk, point your rod tip up and pull back with moderate pressure to keep the lure in the fish's mouth without ripping any part of its lip—good timing here will ensure the lure is firmly set in the lip rather than deeper in the mouth. Once you have a proper hookset, you'll need to focus on keeping your rod tip up while "playing" the fish—allowing the fish totire itself out while you try to keep it on your line. Cranking the fish in immediately after hooking it will often result in it breaking off, as the

fish's power and weight can often be greaterthan the strength of the line.

Fig. 17.3 TRAPPED FISHES

CHAPTER-18 Social Activities – Any Activates Planned By Students

Subject: Apology for not visiting the village due to this Covid – 19 pandemic.

Dear ma'am

I'm Varun Gajwani & Nurulain Kannungo writing an apologize for not visiting the village for social activities. We could not able to visit village for social activities and awareness regarding the project work because of this pandemic. We also asked sarpanch of village to allow us for visiting the village but he refused and said that currently they would not let anyone come from the outside of village. We try many times to visit the village for Current Project work DPR Part – II. For awareness camp, social activities, Survey and For Techno Economic Survey form. But we have done the village visit & interacted with some villagers & sarpanch .

Hope you understand our situation. Thank you for your invaluable support

CHAPTER-19 Vav Village SAGY Questionnaire

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	NO	
m	Common Service Centre	YES	
n	Veterinary Care Centre	NO	

ii. Road Connectivity

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

If 3 mention the name of the habitations where not available: yes - 1

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: 3 *(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: 1

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): NO

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

vii. Education, ICDS

a. Number of Anganwadi Centres: 05

c. Schools (Number)

Primary Private: _____ Primary Govt.: _____

Middle Private: _____ Middle Govt.: _____

Secondary Private: _____ Secondary Govt.: _____

Higher Secondary Private: _____ Higher Secondary Govt: _____

2

SAANSAD ADARSH GRAM YOJANA (SAGY) Village Details Survey Questionnaire

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

ix. Entitlement Related Parameters		
1	Number of active Job Card holders under MGNREGA	200
2	Number of active Job Card holders who have completed 100 days of work	15
3	Number of shops selling alcohol	00
4	Number of BPL families	YES -
5	Number of landless households	YES -
6	Number of IAY beneficiaries	YES -
7	Number of FRA beneficiaries	
8	Number of common sanitation complexes	Yes 1
9	Number of SHGs	10
10	Number of active SHGs	10
11	Existence of SHG Federation in the Village (Yes / No)	YES
12	Number of Youth Clubs	NO-0
13	Number of Bharat Nirman Volunteers	NO

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

SAANSAD ADARSH GRAM YOJANA (SAGY) Baseline Household Survey Questionnaire

Village: Vav Gram Panchayat: Vav Ward No.

Block: District: Surat

State: Gujarat L S Constituency:

1. Family Identity and Size

Name of Head of Household	Narashbhai Kalubhai Tailor							Male/ Female	M
SECC Survey ID:		Family Size	6	Over 18	4	6 to 18	2	Under 6	0

2. Category & Entitlement Details (Tick as appropriate)

Social Category[1]		Life Insurance	1. All Adults 2. Some Adults 3. None	AABY	1. Yes 2. No	Kisan Credit Card	No 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	
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]
Narshbhai	57	M	N	Y	SSC	Y	Y	
Pinakinbhai	54	M	N	Y	MSC	Y	Y	
Payalben	42	F	N	Y	HSC	Y	Y	
Rekhaben	43	F	N	Y	8th	Y	Y	

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
Nikunj	16	M	N		School	Y		Y
Bhavesh	18	M	N		School	Y		Y

4. Children below 6 years

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

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

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

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

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

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

SAANSAD ADARSH GRAM YOJANA (SAGY) Baseline Household Survey Questionnaire

5. Hand washing

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

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

7. Do members take Regular Physical Exercise

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

8. Consumption of Tobacco

	Smoking	Chewing
Adults		Yes
Children	No	NO

9. House & Homestead Data

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

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

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

11. Source of Lighting and Power

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

12. Landholding (Acres)

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

13. Principal Occupations in the Household

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

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

15. Agriculture Inputs

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

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

Name	Unit	Quantity

17. Livestock Numbers

Cows: 0	Bullocks: 0	Calves: 0
Female Buffalo: 0	Male Buffalo: 3	Buffalo Calves: 0
Goats/ Sheep: 0	Poultry/ Ducks: 0	Pigs: 0
Any other: Type _____		No. _____
Shelter for Livestock: Pucca / Kutcha / None		
Average Daily Production of Milk(Litres): 8 Lit		

18. What games do Children Play
- Cricket
- Volleyball
- Mobile games

19. Do children play musical instrument (mention)

Schedule Filled By:
Principal Respondent:
Date of Survey:

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: Vav

b. Block: _____

c. District: Surat

d. State: Gujarat

e. Lok Sabha Constituency: _____

f. Number of Wards in the Gram Panchayat: 1

g. Number of Villages in the Gram Panchayat: 1

h. Names of Villages: Vav

Demographic Information

Number of Households_____ Total Population 7053 Male _____ Female _____

SC HHs_____ ST HHs_____ OBC HHs_____ Other HHs_____

I. Access to Infrastructure / Facilities / Services

	Infrastructure Facilities / Services	Located within the GP Yes (Y)/No (N)	If located elsewhere (N), distance from the GP office
a.	ANM/ Health Sub Centre	YES	
b.	Nearest Primary Health Centre (PHC)	YES	
c.	Nearest Community Health Centre (CHC)	NO	13 km
d.	Nearest Post Office	NO	8 km
e.	Nearest Bank Branch (Any)	YES	
f.	Nearest Bank with CBS Facility	NO	8km
g.	Nearest ATM	YES	
h.	Nearest Primary School	YES	
i.	Nearest Middle School	YES	
j.	Nearest Secondary School	YES	
k.	Nearest Higher Secondary School / +2 College	YES	
l.	Nearest Graduate College	NO	8 km
m	Nearest ITI / Polytechnic Centre	NO	13 km
n	Kisan Seva Kendra	NO	8 km

1

Saansad Adarsh Gram Yojana (SAGY) Panchayat Details Survey Questionnaire

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

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

IV. Sports Facilities in the Gram Panchayat

a. Number of Play Grounds in the GP: Total _____ Public_____ Private_____

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

V. Education, ICDS

a. Number of Angan Wadi Centres: 05

b. Number of villages without Angan Wadi Centres –

Names of such villages: _____

_____

c. Schools (Number)

Primary Private: 3 Primary Govt.: 2

Middle Private: 1 Middle Govt.: –

Secondary Private: 1 Secondary Govt.: –

Higher Secondary Private: 2 Higher Secondary Govt: 1

VI. Public Distribution System

	Item	Private Contractor	Women's SHG	Gram Panchayat	Cooperative	Other (Mention)	Location in GP (mention Location)	If outside GP, Location & distance from GP HQrs)
a.	Cereal (Rice/ Wheat/ Millets)					FPS		
b.	Kerosene					FPS		
c.	Other (mention)					–		

Saansad Adarsh Gram Yojana (SAGY) Panchayat Details Survey Questionnaire

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

VII. Coverage of Villages under different Facilities & Services

	Parameter	Villages Status[1]	Names of Villages Covered	Names of Villages not Covered
a.	Piped Water Supply Coverage to Villages	Covered ✓ Not Covered	VAV	
b.	Hand Pump Coverage in Villages:	Covered ✓ Not Covered		
c.	Coverage under Covered Drains:	Covered ✓ Not Covered ✓	NO	
d.	Coverage under Open Drains:	Covered ✓ Not Covered ✓		
e.	Villages with Household Electricity Connection (Numbers)	Connected ✓ Not Connected	[illegible]	

VIII. Land and Irrigation

	Private Land	Area in Acres		Common Land	Area in Acres		Irrigation Structure	No.
a.	Cultivable Land	1067.8 Hect	d.	Pasture / Grazing Land	No Data	g.	Check Dam	0
b.	Irrigated Land	[illegible]	e.	Forests/ Plantations	[illegible]	h.	Wells/Bore Wells	0
c.	Un-irrigated Land		f.	Other Common Land		i	Tanks /Ponds	

[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

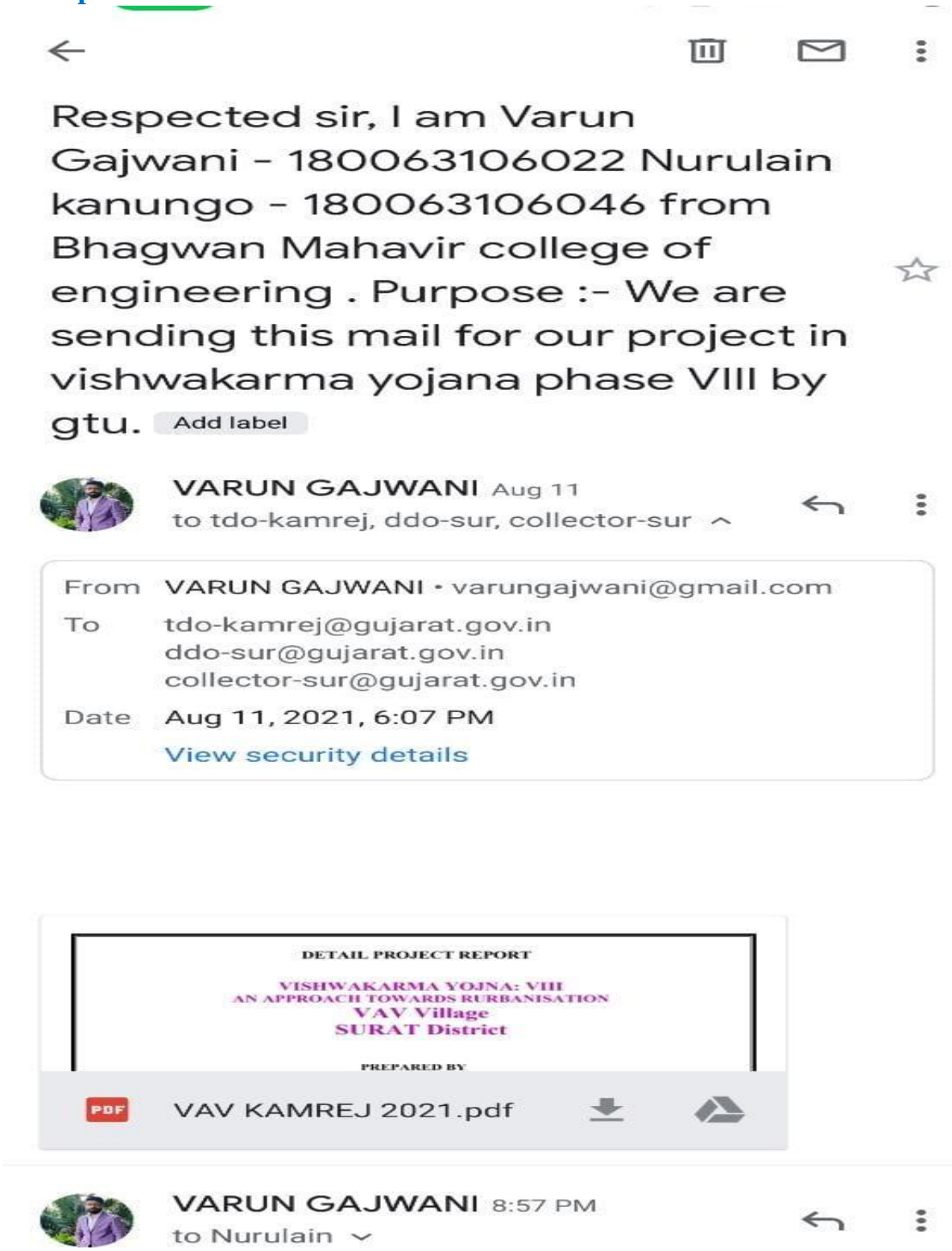
		Number
a)	Number of eligible Households for pension (old age, widow, disability)	75
b)	Number of Households receiving pension (old age, widow, disability)	66
c)	Number of eligible Households who are not receiving pension	3
d)	Number of Households eligible for Ration Card	.
e)	Number of eligible HHs having ration cards	.
f)	Number of households covered under RSBY (Rashtriya Swasthya Bima Yojana)	.
g)	Number of HHs covered under AABY (Aam Aadmi Bima Yojana)	.
h)	Number of active Job Card holders under MGNREGA	
i)	Number of Job Card holders who completed 100 days of work during 2013-14	.
j)	Number of shops selling alcohol	0
k)	Number of BPL families	423
l)	Number of landless households	
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	7
s)	Number of SHGs	10
t)	Number of active SHGs	10
u)	Number of SHG Federations	10
v)	Number of Youth Clubs	0
w)	Number of Bharat Nirman Volunteers	

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
		તલાટી કમ મંત્રી	

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

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



CHAPTER-21 Comprehensive report for the entire Village

A comprehensive report is intended to explore a topic or an idea in great detail. In this report details of entire village (Vav village) are covered.

Vav is a Village in Kamrej Taluka in Surat District of Gujarat State, India. It is located 17 KM towards East from District headquarters Surat. 2 KM from Kamrej. 261 KM from State capital Gandhinagar.Vav Pin code is 394326 and postal head office is Vav Kathodara.
Kamrej (3 KM) , Pasodara (3 KM) , Kathodara (3 KM) , Nansad (3 KM) , Simadi (4 KM) are the nearby Villages to Vav. Vav is surrounded by Palsana Taluka towards South, Surat Taluka towards west, Chorasi Taluka towards west, Bardoli Taluka towards East.
Surat, Navsari, Ankleshwar, Vyara are the nearby Cities to Vav.

Vav Local Language is Gujarati. Vav Village Total population is 7053 and number of houses are 1504. Female Population is 47.9%. Village literacy rate is 76.3% and the Female Literacy rate is 34.1%.

Population:

Census Parameter	Census Data
Total Population	7053
Total No of Houses	1504
Female Population %	47.9 % (3376)
Total Literacy rate %	76.3 % (5382)
Female Literacy rate	34.1 % (2405)
Scheduled Tribes Population %	30.2 % (2127)
Scheduled Caste Population %	9.7 % (681)
Working Population %	38.4 %
Child(0 -6) Population by 2011	755
Girl Child(0 -6) Population % by 2011	47.3 % (357)

List of facilities designed for Vav village are as follow:

1. ATM
2. Post Office
3. Community Hall
4. Skill Development Center
5. Road
6. Heritage Design
7. Library
8. Police Station
9. Public Health Center
10. Veternity Hospital
11. Street Lighting
12. Public Garden

1. ATM

Need & Benefits

ATMs are convenient, allowing consumers to perform quick self-service transactions such as deposits, cash withdrawals, bill payments, and transfers between accounts. Fees are commonly

charged for cash withdrawals by the bank where the account is located, by the operator of the ATM, or by both.
Cost of Construction : Rs 1,15,909.70/-

2. Post office
Need & Benefits
Communication and Business Services: In the early years, when communication facilities were few and undeveloped, India Post provided Indians with pioneering communication services delivering mail, telegrams and parcels. Generations of Indian are familiar with the humble postcard or the inland letter. Today, a host of premium services such as Speed Post, Express Parcel, Greeting Post and e-Post are on offer. Many services play a crucial role in the business world. The huge infrastructure of India Post is also being used for customized business solutions such as Express Parcel, Business Parcel, Business Post, Logistics Post and Bill Mail.
Cost of Construction Rs 7,21,535/-

3. Community Hall.
Need & Benefits
Village and community halls are the smallest buildings that can accommodate a sports programme alongside the customary social and arts pursuits. There are a wide variety of types and sizes, all with the following in common – a main activity and assembly space together with ancillary accommodation that might include additional small halls. Whatever the content, design must ensure that a full range of activities can be carried out without detriment to each other.It is vital to allow sufficient time to get the building brief right and to select an appropriate and accessible site at the heart of the community.The resultant building should be aesthetically pleasing and reflect the care taken to produce a quality facility capable of meeting the evolving needs of the community and the services it needs. A new stand-alone building is often the preferred solution but there are other options that may be more economical:
● Extension and upgrade of an existing community hall to improve environmental standards and permit more activities.
● Addition of a hall, store and revised circulation to a refurbished sports pavilion.
● Inclusion of a community hall in a sports and leisure centre.
● Planning for community use of new schools (primary or secondary) by upgrading some of the accommodation.
Cost of Construction Rs 26,74,500/-.

4. Skill development center
Need & Benefits
The training of villagers and migrants in a variety of craft skills can go a long way in improving their future lives. This is an issue that has been proposed and discussed over the last few decades with respect to the building industry, but the proposal has not been systematically implemented on a state-wide scale.
The small number of industrial training institutes and craft training centers that already exist have not been upgraded, and the whole issue of skill-based training of informal workers now needs to be re-evaluated. Instead of the government investing large sums of money in providing the necessary facilities, the responsibility needs to be shifted to the actual beneficiaries of sophisticated craft skills.
Cost of Construction Rs 19,60,000 /-

5. Heritage design

Need & Benefits

In helping shape our identity, our heritage becomes part of what we are. Our expression of this identity shows others what we value; it highlights our values and priorities.

Our heritage provides clues to our past and how our society has evolved. It helps us examine our history and traditions and enables us develop an awareness about ourselves. It helps us understand and explain why we are the way we are.

Heritage is a keystone of our culture that plays an important role in our politics, society, business and world view. It informs, influences and inspires public debate and policy both directly and indirectly.

Cost of Construction Rs 8,23,644.75/-

6.Library

Need & Benefits

In addition to providing materials, libraries also provide the services of librarians who are experts at finding and organizing information and at interpreting information needs.

Libraries often provide quiet areas for studying, and they also often offer common areas to facilitate group study and collaboration. Libraries often provide public facilities for access to their electronic resources and the Internet.

Cost of Construction Rs 3,27,562.00/-

7.Police station

Need & Benefits

A police station is an important institution of administration in a village because people can go to the police to report cases or inform about any mishappenings in their area like theft , accident, fight, injury etc.

Cost of Construction Rs 8,46,889/-

8.Public health care center

Need & Benefits

Primary Health Centre (PHCs), sometimes referred to as public health centres, are state-owned rural health care facilities in India. They are essentially single-physician clinics usually with facilities for minor surgeries. They are part of the government-funded public health system in India and are the most basic units of this system. As on 31 March 2019 there are 30,045 PHCs in India in which 24,855 are located on rural areas and 5,190 are on urban areas.

Cost of Construction Rs 2,84,756.60/-

9.Veternity Hospital

Need & Benefits

Veternity Hospitals should be provided for better health of the animals in the village. There timely vacation and proper health care leads to good product output of animals. It would also help for them to live longer life. Various diseases found in animals can be treated and they could remain healthy.

Cost of Construction Rs 4,06,271/-

10.Street lightning

Need & Benefits

Lighting arrangements may be used to identify the functions of different roads and create an urban design effect. ... Lighting is also necessary to illuminate bottle necks, bends and traffic calming features, to enable road users to see the potential obstacles and each other in the night to reduce the fear of crime.

Cost of Construction Rs 58000/-

11.Public garden

Need & Benefits

Public gardens have always enjoyed the respect of the communities in which they are located. They are resources for recreation, as well as education and research opportunities. In many communities, public gardens are an oasis and refuge from the hustle and bustle of the city, but this characteristic has also meant inherently that one has get to a garden in order to benefit from it. Today, public gardens must reach out to spread their benefits and address the recognized need and opportunity for their communities – merely maintaining their refuge will not suffice.

Cost of Construction Rs 5,00,500.00/-

12.Road design

Need & Benefits

Road as an essential public asset contributes to minimizing extreme poverty and improving quality of life through improving rural communities' access to basic rural infrastructure and amenities like safe drinking water, electrification, sanitation, hygiene, hospital, education and market

Cost of Construction Rs 10,55,083.9 /-