DETAIL PROJECT REPORT

VISHWAKARMA YOJNA: VIII
AN APPROACH TOWARDS RURBANISATION
Jaska Village

Patan District

PREPARED BY

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GUJARAT POWER ENGINEERING AND RESEARCH INSTITUTE
MEHSANA – 382710

Prof. Pranavkumar D. Bhangaonkar
NODAL OFFICER

YEAR: 2020-21

GUJARAT TECHNOLOGICAL UNIVERSITY
Chandkheda, Ahmedabad – 382424 Gujarat

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CERTIFICATE

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

Detail Project Report for,

VILLAGE JASKA

DISTRIC PATAN

Under

Vishwakarma Yojana: Phase-VIII

in partial fulfillment of the project offered by

GUJARAT TECHNOLOGICAL UNIVERSITY, CHANDKHEDA

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

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College Stamp:	

ABSTRACT

India is facing a serious crisis of urban growth at the present time. Whereas urbanisation has been an instrument of economic, social and political progress, it has led to serious socio-economic problems. Crux of problem is people are migrating to urban area in desire of improved living standards, better health care, opportunities for social and cultural activities and better job opportunity. If such villages are developed that preserve and nurture the essence of rural community life with focus on equity and inclusiveness without compromising with the facilities perceived to be essentially urban in nature, thus creating a cluster of "Rurban Villages". Under guidance of Government of Gujarat, Gujarat Technological University has initiated a program “Vishwakrarma Yojana”

As per the criteria given by Vishwakrarma Yojana phase VIII, we have chosen the Jaska village of Patan district. Village is located 4 KM away from sub district headquarter Harij and 34 km away from district headquarter Patan. Population of this village is around 1329 with 277 houses and about 52 % literacy rate. The village is enclosed in 769.44 hectares. Harij is the nearest town to Jaska which is approximately 4KM away.

With preliminary information of village, it has basic facilities like Gram Panchayat building, School, etc. are in good condition. It is lacking in Bank facility and recreation centres. Drainage system is also functional.

For a proper development of village, some new facilities will be required and enhancing some basic facilities. Improved educational facilities, Water shed development, improved sanitation facilities, effective transportation may be needed to achieve vision of scheme. Some recreational facilities, modernised agriculture and effective transportation may also be required to make village sustainable with this perspective the relevant and required infrastructure are planned, designed and estimated.

Development of village will nurture the essence of rural community life with focus on equity and inclusiveness without compromising with the facilities perceived to be essentially urban in nature.

Keywords:

- Rurban
- Sanitation
- Smart village
- Sustainability
- Infrastructure

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

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ABBREVIATIONS

NGO	Non government organization
LPCD	Liters per capita per day
UTC	Coordinated universal time
SPV	Special purpose vehicle
UDPFI	Urban development plan formulation and implementation
CSR	Corporate social responsibility
SWOT	Strength weakness opportunities and threats
IST	Indian standard time
PHC	Public healthcare center
CCTV	Closed circuit television
RCC	Reinforced cement concrete
ICT	Information and communication technologies
NRI	Nonresident Indian
WIFI	Wireless fidelity
NHB	National housing bank
TDO	Taluka development officer
DDO	District development officer
MoUD	Ministry of urban development
SC	Schedule cast
ST	Schedule tribe

Chapter 1
Ideal village visit from District of Gujarat State (Civil & Electrical Concept)

1.1 Background and Study Area Location:-

Kukrana village shows awareness towards physical development as well as education of people. People of this village believe that ideal village is made by smart people. For satisfying this condition, sarpanch of this village on his own, goes on to ground to spread awareness about cleanliness in people of village.

People are also very active and aware of all th efforts our government is making in development of the country and they know that development of country will begin with the development of village.

According to Census 2011 information the location code or village code of Kukrana village is 509024. Kukrana village is located in Sami Tehsil of Patan district in Gujarat, India. It is situated 21km away from sub-district headquarter Sami and 35km away from district headquarter Patan. As per 2009 stats, Kukrana village is also a gram panchayat.. Harij is nearest town to Kukrana which is approximately 6km away.

Name :- Kukrana
Takuka:- Sami
District :-Patan
State :- Gujarat
PIN :- 384240
Elevation/Altitude:- 33 meters above sea level
Telephone code /std code:- 02733
Sarpanch name:-
Post office name:- Harij
Language:- Gujarati, Hindi, English
Population:- As per 2011,

Fig.1.1 Kukrana village google map

Population table 1.1

Total	Male	Female
2862	1470	1392

Total number of household:- 622

1.2 Concept of Ideal Village :-

An ideal village is a village having good facilities available like sanitation and drainage etc. So as to remove solid waste and rubbish of the village regularly into the compost pits or landfill area. An ideal village should have good road connectivity and good drainage system so that the dirty water of the village is properly drained away from residential area.

Education facilities:- This village has primary schools and High school. And for higher studies college are available near to this village. Free and compulsory Primary education is given to students

Medical facilities:- In this village clinical facilities for villagers and animals. Hence, there are dispensaries available for people and animals.

House:- The residential area in an ideal village are very neat and clean. The owners of these houses look to the house sanitation and house drainage. The houses have sufficient windows to let in air and light. Most of the houses are pakka houses.

Agriculture:- People of an ideal village are involved in farming activities and good in nature. They grow food crop and seasonal crop etc. Now they improve method of farming for more production of crop. There is plenty of agriculture land available

People:- People of an ideal village are decent and gentle. They have a sense of discipline and collaboration. They have a spirit of togetherness and they believe in living together.

Conclusion:- An ideal village makes all possible provision for development of its people. It is our main duty that we should develop every village of India. The ideal village will certainly help us in discharge our duty. In above concept used and develop other village in India. As development is must for every village.

1.2.1 Objectives of Ideal village:-

The developed village is called is model or ideal village. An ideal village all primary facility available

- Make the model/ideal village a “hub” that could attract resource for development of other villages in its vicinity.
- Provide easier, faster and cheaper access to urban to urban markets for shop, agriculture markets and other markets commodities produced in such market.
- Contribute towards social empowerment by engaging all section of the community in the task of village development.
- Create and sustain a culture of cooperative livings for inclusive and rapid development.
- Ideal/model village developed village is contribute nation economy growth of country.

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

1) Pothanikkad (kerala)

Pothanikkad village was first in the country to achieve a 100% literacy. Not only does the village boast of city standard high school, but it also has primary schools and private schools. Guess the number of people the village has educated. Well per the 2001 census there are 17563 residential living in the village.

2) Dharnai (Bihar) first fully solar power village

Dharnai a village in bihar, beat 30 years of darkness by developing its own solar powered system for electricity. With the aid of greenpeace, dharnai declared itself an energy independent village in july. In this village of 2400 residents living in this village.

3) Mawlynnong (Meghalaya)

Mawlynnong is small village located in Meghalaya state. In this village awarded the prestigious tag of 'cleanest village in Asia in 2003'.

1.2.3The Idea of a model Village

This concept note explores the idea of a model/ideal village and also need of adopt a SAGY(Sansad Adrash gram Yojana), Pradhanmatri Adrash Gram yojana like strategy,Technology,community involvement, sustainability and connectivity need to be key elements of any such village, and any efforts towards convergence must rely extensively on these approaches.

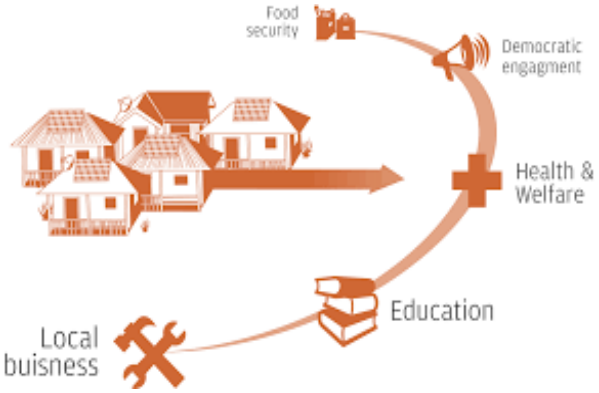


Fig 1.2:- Ideal Village Model

1.2.4 Ancient History Civil / Electrical concept about Indian Village / Other Countries Perspective and its Development

Civil concept Indian village:-

Gangadevipalli (Talangana) Village:-

Gangadevi or Gangadevipalli, is a village in Geesugonda mandal of Warangal Rural district in the Indian state of Telangana.
It is situated about 12 km away from the district headquarters of Warangal and has a population of 1277. The village has earned itself a reputation as a model village of the country. The village is governed by the village Panchayat.

Development activities

Gangadevipalli has earned several accolades from one and all for the villagers' collective efforts in developing the village. Some of the indicators of this development are 100% literacy,[4] complete alcohol prohibition, availability of toilets in every home, family planning for all households and fluoride free drinking water.

Development comities

Gangadevipalli has 13 committees. The committees play a major role in the village's everyday governance. One person from each household is involved in some committee or the other. His village is divided into 18 sectors. Each committee can consist of 11 to 25 members. A few of the committees and their functions are listed below

I) Education committee - Management of maintenance of schools.
II) Ganga dish committee - Issuance of cable connections to people.
III) Alcohol prohibition committee - To prevent the sale of alcohol in the village.

Public service

Drinking water plant:-

The villagers have established a drinking water project in the village through the help of non-profit organizations without any help from the government.

Free Cable TV:-

The cable TV network in this village is free. Each household pays an upfront deposit of Rs. 2200 to get a cable connection. This amount is deposited in a bank and the cable services are maintained using the interest ac of the Hyderabad wing of the Free Software Movement of India (FSMI), known as Swecha have undertaken a project with the co-operation of the villagers to set up a community Wi-Fi network. Apart from serving internet, the central hub of the Wi-Fi hub - a device known as Freedom Box, a server for hosting free rued on this amount. There are no monthly charges for using this service.

Free Community Wi-Fi:-

Volunteers and open-source software for protecting privacy on the internet.

Recognition

Recognized as the best panchayat in the country in 2007. A panel of judges presided by Mr. Subhash Kashap, the former General Secretary of Lok Sabha made this selection. The Academy of survey and research of rural India presented this award. Union minister Mr. Mani Shankar Ayyar was the chief advisor.

Foreign Countries of village:-

Bibury (England):-

Bibury is considered to be not only the most beautiful village in England but one of the most beautiful villages in the world as well as it is located in Gloucestershire in the costs world district what makes this village that special is the famous architectural conservation area known as Arlington row here you will find 17th century stone cottages with steeply pitched roofs surrounded by so much greenery – Castle combed located in Wiltshire the village of castle combed has two parts one on the narrow valley of by Brook and second is on the east on the road.

Electrical Concept Indian Village:-

Dharnai (Bihar) Village

Dharnai is a small village located in the Jehanabad district of Bihar, India. For almost 30years, Dharnai had not received electricity. Greenpeace India with the aim of empowering people with access to decentralized renewable energy set up a solar micro grid in the village, which was launched on July 20, 2014. This project was taken up by Greenpeace India in collaboration with BASIX and CEED.

Community engagement:-

It was not an easy job for the volunteers of the three organizations to set up this project. The first step was to identify the 'right' village. Sriwastwa explains, "Greenpeace came up with a few names and then it was our duty (BASIX) to send a shortlist based on the best village among those identified." It was also the task of the BASIX to organize the people, create awareness about the project, and the tariff details.

Tariff Charges:-

The electricity is charged at Rs 8 per unit. Most of the houses are provided with one light (6 watt) and one mobile charging point, the cost of which is Rs 75 per month. If you want an additional fan supply then it will cost another Rs 40.

Foreign Countries Village:-

Mustang village near Quetta for photovoltaic electrification is considered. This study is generalized to estimate the cost effectiveness as compared to grid electricity, consumption pattern, load, the community needs and requirements for all villages of Pakistan. A decentralized design of solar village electrification is proposed

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

- **Socio Economic:-**

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

This village has many infrastructure facilities such as bank, primary school, ITI collage,anganvadi, gram panchayat, well paved roads and RCC roads in all the village road network.

The village is having a very nice lake just beside the entrance gate with a temple opposite to it.

Fig 1.3 Bank photo


Fig.1.4 Entry gate

- **Economic profile:-**

Occupation details:-

- Farming
- Shopkeeper
- Employee
- Business
- Dairy
- Animal husbandry

- **Physical and Demographical Growth:-**

An ideal village, this village have all physical needs as well as social community needs share also satisfied. Main progress of this village from after 2009, there is Door to Door water supply was provide which were used for daily uses for domestic purpose.

Their street roads was made R.C.C material and also made bituminous pavement roads and it was reached at their home. In this village not any solid waste treatment plant so, they throw the solid waste at a dumping zone which was near the village.

- **Infrastructures facilities:-**

Wide roads are essential components of transportation. It provides door to door services.
By using several government grants and by collecting public funds, in whole area of village, in this village wide road network and road connectivity good to the state highway(SH) and major district road(MDR). Internal Streets are also provided with paver blocks and R.C.C. pavements.

Road infrastructure has been proved a key element in socio-economical development of people of village. Connectivity of the village with nearby villages and towns are been facilitated by such road network.

Table 1.2 Photos of Smart Village

Primary School

Public Park

Efficient Drainage Facility

Dudh Sarita

Public Urinals

Bank

Drinking Water Facilities

Post Office

Elevated Service Reservoir

Dust Bin

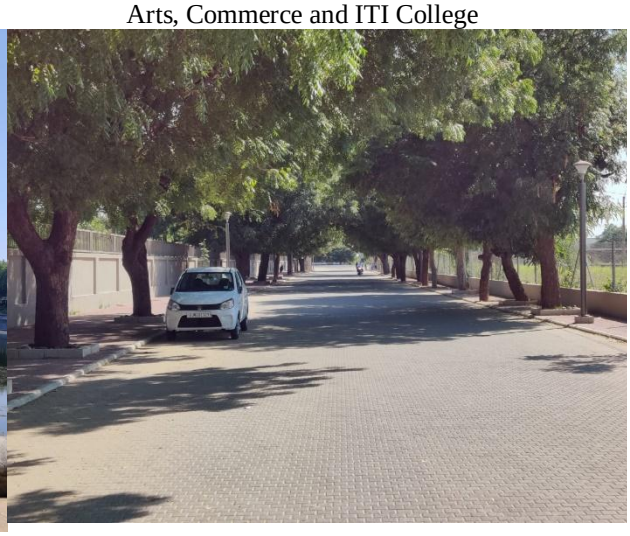
Village Panchayat

Community Hall

Health and Wellness Center

Arts, Commerce and ITI College

Harshidh Lake



Paver Block in whole Village

1.4 SWOT analysis of Ideal village:-

Table-1.3 SWOT Analysis

Strength	Weakness	Opportunities
1. Education 2. Road network 3. Grampanchayat building 4. Land 5. Post office 6. Bank	1. No cinema hall and recreation facilities 2. No public library 3. No waste solid management plant available in this village 4. Low wages	1. To make whole village digital and wi-Fi connected 2. To rise the living standards of people 3. Use modern technology

1.5 Future prospects of village:-

- The village should use advance technologies in agricultural, water-supply as well as for other fields.
- Rain water harvesting system should be installed in every household to conserve the water.
- E - Auction of Agro products.
- Recycling of drainage water.
- Agriculture sector is having easy database management system.
- Create awareness about new government schemes and planned meeting involving villagers.

1.6 Benefits of the visits of Ideal village:-

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

1.7 Electrical concept of Ideal village / Smart Village:-

- The various infrastructure facilities such as kaccha & pucca houses, schools, collages, hospitals etc are available in the village.
- The different surveys are made and analyze all the possible sustainable design to make a village an ideal village.
- The basic accommodations are must be available in the village such as; drainage facility, toilet blocks, solid waste management, gram panchayat, tap water, etc.
- Village is totally covered with 100% CC TV camera.
- Village is totally brightened with 100% led system.

Chapter 2
Literature Review – (Civil & Electrical Concept)

2.1 Introduction: - Urban & Rural

Urban Area:-

An urban area is a human settlement with high population and infrastructure facilities of built environment. Urban areas are created through urbanization and are categorized as cities, towns, or sub urban settlements are proper, planned settlements built up according to a process called urbanization. According to census 2011, there are 7,935 towns, 4,041 statutory town and 3,894 census towns

For the census of India 2011,

- A minimum population in urban area 5000.
- A density of population of at least 400 persons per sq.km.
- At least 75 per cent of the male main working population engaged in non-agriculture pursuits.

Rural Area:-

A rural area is a land that has few homes or other buildings, and not very many people. A rural areas population density is very low. Rural areas may develop randomly on the basis of natural vegetation and fauna available in a region. According to census 2011, there are 6, 40,867 villages in India. The area where more than 75% of male population is associated with agricultural activity is known as rural area

. An rural area with a population density of up to 400 per sq.km.

- An rural area minimum 75% of male working in involved in agriculture area. And rural area not boundaries of municipal boards.

Fig.2.1 Urban area

Fig .2.2 Rural area

2.2 Importance of the Rural Development :-

Rural development is necessary not only for an over-whelming majority of the population living in villages but the development of rural activities is essential to accelerate the pace of overall economic development ofthe country. Rural development has assumed greater

importance in India today than in the earlier period in the process of the development of the country.

It is a strategy package seeking to achieve enhanced rural production and productivity, greater socio-economic equity, and aspiration, balance in social and economic development. The primary task is to mitigate the hunger of about 70 percent of the rural population, providing adequate and nutritious food. Then follow an adequate provision of clothing and footwear, a clean house in a clean environment, medical care, recreational facility, education, transportation and communication.

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

An urban area is the region surrounding a city. Most inhabitants of urban area have non-agricultural jobs. The population density is quite high. Urban area very developed, meaning there is a density of human structure such as houses, commercial building, roads and railways. Urban area can refer to towns, cities and sub-urban. An urban area include the city itself as well as surrounding area. Many urban area are called metropolitan area, where two or more metropolitan area grow until they combine, the results may be knows as a megalopolis.

Rural area is opposite of urban area. Rural area often called 'the country.' Have low population density and large amounts of undeveloped area. Usually, the difference between a rural area and an urban area is clear. This is because improve technology has decrease the needs for agriculture works and partly because cities are offering greater economic opportunities.

2.4 Scenario: Rural / Urban village of India population Growth

Population Growth of India as Per Census 2011:

- For the first time since Independence, the absolute increase in population is more in urban area that in rural area.
- Rural – Urban distribution: 68.84% & 31.16%
- Level of urbanization increased from 27.81% in 2001 Census to 31.16% in 2011 Census.
- The proportion of rural population declined from 72.19% to 68.84% Table 3.1 Population of India Population (in Crore) 2001 2011 Difference India 102.9 121.0 18.1 Rural 74.3 83.3 9.0 Urban 28.6 37.7 9.1

Population Growth of Gujarat as Per Census 2011:

The government has started many programs aimed at improving the standard of living in villages or rural areas. To build rural infrastructure, the government launched a time-bound business plan for action Bharat Nirmanin2005. Under Bharat Nirman, action is proposed in the areas of Water Supply, Housing, Telecommunication and Information Technology, Roads, Electrification and Irrigation

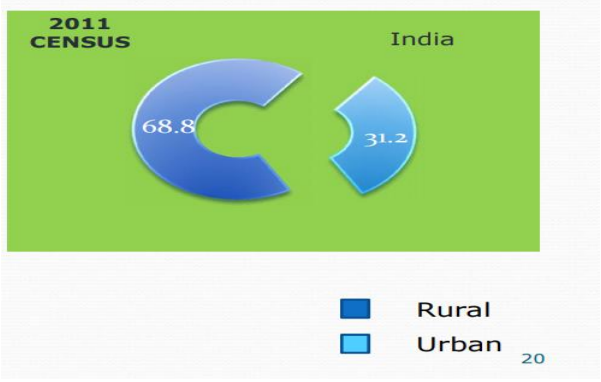


Fig 2.3 2011Census

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

2.5 Scenario: Rural / Urban India & Gujarat as per Census 2011 and latest population Growth

Gujarat Population 2011

- Total population 60,439,692
- Total population of male: - 31,491,260
- Total population of female: 28,948,432
- Total population growth in decade is 19.28%
- Out of total population of Gujarat, 42.60% people lives in urban region and rest in rural.

Table-2.1 Demographic data of Gujarat

Description	Rural	Urban
Population	57.14%	42.60%
Total Population	34,694,609	25,745,083
Male population	17,799,159	13,692,101
Female Population	16,895,450	12,052,982
Population Growth	9.31%	36.00%
Sex Ratio	949	880
Literates	21,420,842	19,672,516
Average Literates	71.71%	86.31%

Table-2.2 Population in %

Description	Rural	Urban
Population	54.77%	45.23%
Male Population	54.13%	45.87%
Female Population	55.43%	44.55%
Sex Ratio	948	899
Literates	77.09%	89.84%
Male Literates	86.39%	93.79%
Female Literates	67.38%	85.44%
Child population	12.10%	10.63%
Child Ratio	880	888

2.6 Rural Development Issues & Concerns:-

- Market unavailable
- Water problem
- Sewage system
- Lower education
- Poor Health services
- Migration to urban areas
- Lower living standards
- No transportation facility
- Less awareness
- Less income opportunity

Various Measures for Rural Development

- Sustainable development
- Higher living standards
- Enough basic physical amenities
- Sanitation facilities
- Higher education
- More job opportunities

2.7 Various infrastructure & guidelines/Norms for Villages for the provisions of Different infrastructure facilities:-

Minimum Physical Standards of Services:

Water supply: 100% population to be covered

- Piped water supply with sewerage: 150/135* lpcd.
- Piped water supply without sewerage: 70 lpcd.
- Public stand posts in the low-income settlements with a minimum supply of 40 lpcd.

Sanitation/Sewerage: 100% city area to be covered by sewerage system with treatment facilities in large urban centres

- Low cost sanitation methods for other urban areas.Large city: Full coverage by sewerage with treatment.
- Medium towns: Public sewers with partial coverage by septic tanks.
- Small town: Low cost sanitation methods.
- In low-income areas of large cities, community latrines may be provided.

Solid Waste Collection Disposal: All the solid waste generated should be collected and disposed

- 100% collection of generated waste, with its proper disposal.
- Hazardous wastes such as hospital wastes must be incinerated in all cases. Whereas mechanised composing and incineration is recommended for large urban centres, sanitary landfill method of disposal may be used in small and medium towns.

Primary Education: Fulfilment of national goal of niversalisation of elementary education for children up to 14 years of age.

- Provision of primary school in all areas of country as per the following guidelines:
  - At least three reasonably large all weather rooms with teaching material.
  - At least one teacher per class room/section.
  - One primary school for every 3000-4000 population.
- Area: 3 acres; seats/school; 300-400.
- In order to improve enrolments at the upper primary stage especially for girls, the walking distance of school should normally be 2 Kms. In case of primary schools this standard is 1 Km

Primary Health Care: Health for All

- Basic Health and family welfare services within 1-2 km. distance of residents.
- One Health Center for 20,000 population

Physical Norms and Standards as per Govt. Sponsored EIUS Programme:

1. Water supply : One tap for 150 persons
2. Sewerage : Sewer open drains with normal outflow avoiding accumulation of stagnant waste water
3. Strom water drains : To drain out storm water quickly
4. Community baths : One bath room for 20-50 persons
5. Community latrines: One latrines for 20-50 persons
6. Footpaths/lanes : Widening and paving of existing lanes to make room for easy flow of pedestrian, bicycles and handcarts, lane on paved paths to avoid mud and slush.
7. Street lighting : Poles 30 meters apart
8. Additional activities : Community facilities such as community centres, crèche, dispensaries, non- formal centres, parks, common work sheds-cum-raw materials depot for poor, common retail outlay for beneficiaries, municipal service centres for garbage disposal and maintenance have been added to the charter of activities of the EIUS programme

2.8 Ancient / Existing Electrical concept study as a Literature Review for village:-

The word rurban (rural +urban) refers to a geographic territory /landscape which possess the economic characteristics and lifestyles of an urban area while retaining its essential rural area features.
In India, the term rurban entered the official government literature through the Shyama Prasad Mukherji Rurban Mission (SPMRM) announced in the Union Budget 2014-15.
This was following the Rurban development model of urbanization of the rural areas, adopted in the state of Gujarat through which people living in the rural areas are given efficient civic infrastructure and associate services.

Living resource conservation has specific objective:-

- To maintain essential ecological processes and life support system on which human survival and development.
- To preserve biological diversity (the range of biological and genetic material).
- To ensure the sustainable utilization of species and ecosystems.

Sustainable Village Development concept

"Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs."

While the modern concept of sustainable development is derived mostly from the 1987Brundt land Report, it is also rooted in earlier ideas about sustainable forest management and twentieth century environmental concerns.

As the concept developed, it has shifted to focus more on economic development, social development and environmental protection for future generations.

Fig. 2.4 Sustainable development goals

It has been suggested that "the term 'sustainability' should be viewed as humanity's target goal of human ecosystem equilibrium (homeostasis), while 'sustainable development' refers to the holistic approach and temporal processes that lead us to the end of sustainability".

2.9 Other Projects / Schemes:-

Bachat Mandali:-

- Bachat mandali is a type of organization in which villagers invest their money. Bachat mandali provides facilities almost similar to bank.

- Villagers can invest their money in bachat mandali and withdraw their money whenever they want.
- Such schemes help the villagers to invest and secure their savings and they can avail the benefits of banking facilities such as loan and credits.

Dudh Mandali:-

- Development of and regulation over the co-operative societies in the state as well as implementation of the Gujarat co-operative societies Act 1961
- Preventing exploitation of the borrowers by the private money lenders under the Bombay money lender Act 1946 and in this way, regulation over the money lending.
- Development and regulation over the agriculture product market committees of the state and for the purpose, function of implementation of the Gujarat agriculture product market committees Act, 1963
- Implementation of the Gujarat ownership flat Act, 1973

Mahila Forum:-

- Mahila mandalas are voluntary services organizations which work for the betterment of the women in the villages in the India.
- These rural women are integrated in working together with the help of Gram sevikas, Mukhya sevikas, supervisor and program officer.
- Such activities help village women to enhance the qualities of leadership, team spirit and women empoverment.

➢ **The objectives of these Mahila Mandalas are:-**

- To make women self-reliant and conscious of their human and constitutional rights and to put pressures on the state for fulfilling its obligation towards its people.
- To nurture women's physical and emotional health.
- To provide vocational training and credit facilities to women for self-employment.
- To create a progressive space in society for all its deprived people and to specifically resist towards, sexism, religious chauvinism and homophobia.
- To work towards the creation of a society based on equality, freedom, democracy, diversity and peace.
- To create a sustainable and human mode of development through people's active involvement in rural areas.
- To enhance competency in woman and to develop self-confidence and self-respect.

➢ **Following are the schemes that are running or on board for the rural development by Indian Government:**

These schemes give opportunities to the villagers to develop themselves and their village in all aspects. Such schemes are easily accessible to all stake holders. The schemes are efficiently opted and adopted by many village Panchayat and villagers.

1. **Pradhan Mantri Gram Sadak Yojana(PMGSY)**
2. **Indira Awas Yojana**
3. **Pradhan Mantri Adarsh Gram Yojana**
4. **Mahatma Gandhi National Rural Employment Guarantee Act. (MGNREGA).**
5. **Swachh Bharat Mission (Gramin)(SBM)**

Chapter 3
Smart (Cities / Village) Concept as per your Idea and its Visit (Civil & Electrical Concept)

3.1 Introduction : Concepts, Definitions and Practices

Making a city "smart" is evolving as a strategy to ease the problems generated by the urban population growth and speedy urbanization. Yet little hypothetical research has sparingly discussed the phenomenon. To close the gap in the literature about smart cities and in response to the increasing use of the concept, this paper proposes an agenda to understand the concept of smart cities.

Based on the exploration of a wide and extensive array of literature from various disciplinary areas we identify eight critical factors of smart city initiatives: management and organization, technology, governance, policy context, people and communities, economy, built infrastructure, and natural environment.

- Strategic planning
- Mobility
- Hackathon
- Wi fi
- E – government
- E – transportation
- Technological resiliency
- Cyber defense
- Renewable energy

Fig. 3.1 Smart city

In Smart Village access to sustainable energy services acts as a catalyst for development – enabling the provision of good education and healthcare, access to clean water, sanitation and nutrition, the growth of productive enterprises to boost incomes, and enhanced security, gender equality and democratic engagement.

Definitions (Civil)

Smart village means all the necessaries facilities is developed in the village and no need to moves in city for any kind of requirement. Facilities like Bank, Punchayat building, Good road connectivity, Sanitation facility, ATM, Shopping center, Recreation center etc.

Practices (Civil):-

A 'Smart Village/Ward' encompasses sustainable and inclusive development of all sections of its Community, so. The 100 per cent achievement of the following basic amenities, they enjoy a high standard of living. Homes for all – with access to toilet, safe-drinking water, and regular power. Skills and Village Enterprise development with bank and market linkages gave more flexible access to youth. Has functional solid/liquid waste management system. For smart village Efficient public transportation system.

3.2 Bench Marks-Vision-Goals, Standards and Performance Measurement Indicators

Bench Marks:-

Bench mark has been designed to capture the key aspects of a city's transformation journey to become a smarter city. A smart city is characterized by a high level of community and citizen engagement, by its attractiveness for businesses and by efficient and sustainable city operations.

A. Transport

- Dedicated and physically segregated bicycle tracks with width of 2 m or more, one in each direction, should be provided on all streets with carriage way larger than 10 m.
- Continuous unobstructed footpath for 2 m wide on either side of all street with Row 12 m more.
- High quality and high frequency mass transport within 800 m (10-15-minute walking distance) of all residences in areas over 175persons / ha of built area.
- Maximum travel time of 30 minutes in small & medium size cities and 45 minutes in metropolitan areas

B. Spatial Planning

- 175 persons per Ha along transit corridors.
- 95% of residences should have daily needs retail, parks, primary schools and recreational areas accessible within 400m walking distance.
- 95% residences should have access to employment and public and institutional transport or bicycle or walk.
- At least 20% of all residential units to be occupied by economically weaker sections in each Transit Oriented Development Zone 800m from transits.
- At least 30% residential and 30 commercial / institutional in every TOD Zone within 800m of Transit Stations.

C. Water Supply

- 24 x 7 supply of water.
- 100% household with direct water supply connections.
- 135 liters of per capita supply of water.
- 100% metering of water connections
- 100% efficiency in collection of water related charges

D. Sewerage & Sanitation

- 100% households should have access to toilets
- 100% schools should have separate toilets for girls
- 100% households should be connected to the waste water network
- 100% efficiency in the collection and treatment of waste water.
- 100% efficiency in the collection of sewerage network.

E. Solid management

- 100% households are covered by daily door-step Collection system.
- 100% collection of municipal solid waste.
- 100% segregation of waste at source, i.e. bio- degradable and non-degradable waste 100% recycling of solid waste.

F. Storm storage

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

G. Electricity

- 100% households have electricity connection 24 x 7 supply of electricity.
- 100% metering of electricity supply.
- 100% recovery of cost
- Tariff slabs that work towards minimizing waste.

H. Health care facilities

- Availability of telemedicine facilities to 100% residents.
- 30 minutes emergency response time.
- 1 dispensary for every 15,000 residents.
- Nursing home, child, welfare and maternity, center - 25 to 30 beds per lakh population.

Vision:-

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

Goals:-

- Retain the Identity, culture and Heritage.
- Development plans based on People, Assets.

Standards and Performance Measurement Indicators:-

Having recognized that cities are the engines of growth and are drawing a million people every minute from rural areas, the Government has introduced the 'Smart City Challenge's, handing over the onus of planned urbanization to the states.

A smart city is a city that efficiently mobilizes and uses available resources (including but not limited to social and cultural capital, financial capital, natural resources, information and technology) for **efficiently :** improving the quality of life of its inhabitants, commuting workers and students, and other visitors [people] **,** significantly improving its resource efficiency, decreasing its pressure on the environment and increasing resiliency [planet]building an innovation-driven and green economy, and, [prosperity] fostering a well developed local democracy.

3.3 Technological Options:-

- **Smart Buildings –** security cameras, fire safety, electricity managements.
- **Smart Dairy**-Remote supervision and monitoring in open fields and barns.
- **Smart Farming-** Satellite data for farm activities.
- **Smart agriculture-** Smart agricultural equipment for crop production.
- **Smart Weather and Irrigation**-Weather water levels in dams.
- **Smart health care** –Smart beds and equipment to monitor patient.
- **Smart Education** – Interactive learning through videos.
- **Smart surveillance system –** CC cameras and sensors to detect robbery.
- **Smart Buildings** – security cameras, fire safety, electricity managements Smart Dairy.

3.4 Road Map and Safe Guards

To become a digital city, governments will need an appropriate set of solutions that will help them advance to the next stage of ICT maturity. The more a city takes advantage of the potential offered by ICT in terms of the provision of digital services and an integrated urban network, the higher its level of ICT maturity. In many ways, this is easier for newer cities in emerging markets, which are just now investing in urban infrastructure.

For example, Lusail City in Qatar, Masdar City in the UAE, and Songdo in South Korea are all making digital technology, networks, and apps a central part of how they operate and interact with citizens. By contrast, existing — or brownfield — metropolitan areas face clear challenges in moving up the ICT maturity ladder, as they need to modernize their existing infrastructure with embedded sensors and control systems and retrofit old buildings — a complicated and expensive process.

- The first step in establishing a road map for a smart city is to know why there is a need for a smart city initiative. This can be done by studying the city's demographics, including their sides who are the principal stakeholders in the city.
- The second step in establishing a smart city roadmap is by developing a policy that drives the whole initiatives. The policy needs to define the roles, responsibilities, strategies, and objectives of the smart cities.
- The third element in developing a smart city roadmap is engaging the citizens through the use of e-government and effective governance, which leads to the increase of efficiency and enhancing delivery of services.

3.5 Issues & Challenges:-

Climate change Human mobility, Population growth Ageing populations, Globalization of economy, demographics, risks and ecologies dependencies, Inequality and social tensions Technological developments Insecurity (e.g. energy, food, water), Geo-political changes Changing institutional and governance, Frameworks.

3.5.1 Urban Water and Sanitation Challenges: On site challenges

The conventional engineered wastewater treatment system is extremely expensive and requires complex operations and maintenance cost of expanding sewer networks, which are

very rudimentary or non-existent in many Indian cities. That is mostly started off as unplanned settlements. The total capital cost of establishing collection and treatment systems for the entire urban wastewater generated is much more than what the government plans to spend; as a result progress in increasing coverage is likely to be slow in the foreseeable future.

Offsite challenges

Analysis exhibits that macro factors such as FTA (Free Trade Agreement), cost sensitivity, and varied climatic and usage considerations directly impact operations in India. There exists immense opportunities for foreign companies owing to Commercially viable advanced technology Environmentally conforming solutions However, foreign companies need to overcome concern such as:-Lack of Indian experience to meet tender requirements, Different waste treatment procedure. In Europe treatment is done at source where as in India it is done at the end.

Role of Indigenous Technologies

A smart city is a blend of Infrastructure and Technology playing their respective roles in creating\a clean and energy efficient place with quick and easy access to services and digitization ofinformation. The smart city typically uses the ICT (Information & Communication Technologies) to create a two-way communication network between the citizens andGovernment. ICT helps the Government analyzing the demand pattern of the state and thuscreating a pool of resources to address the same online.

Electrical Hub Station / Electricity:-

Continuous power supply is a major element in the smart city development. For a continuous supply of power in the smart city it is very essential to have strong and smart transmission and distribution (T&D) systems but today's T&D systems seems to be inadequate to meet the increasing power demand therefore leaving a question on T&D's ability to supply adequate power to the upcoming smart cities. Supplying power to the smart cities will be a challenging task and how the masters of the power sector are going to address these challenges will be a thing to watch.

Key Issues in development of human being:-

Controversy is a lengthy discussion of an important question in which opposing opinions clash, debate and dispute. Controversy or dispute is a commencement of a conflict between statements of accepted fact and a new or unaccepted proposal that disagrees with, argues against, or debates the accepted knowledge or opinion. Controversies can range in scope from private disputes between two individuals to large-scale disagreements between societies.

Governmental Issues:-

Lack of Center-State Co-ordination:-

Fruitful implementation of a project can be done only if there is a co-ordination between various government bodies. There is a need of proper regulation when it comes to planning

for the development of smart cities. Both horizontal and vertical coordination is the requisite right now.

Financing:-

Smart cities project is not smartly privileged, unfortunately, when it comes to funding. Financing is said to be one of the biggest challenges when it comes to the smart city challenge. The total investment approved under the smart city plans of 90 cities has gone up to Rs. 1, 91,155 core (Source: Business world). Now, that's whopping. With the presence of state sponsored companies also the project seems to have no good start. Banks financing these projects as of now is the major reason of a considerable increase in the number of nonperforming assets. The government is recently taking steps to finance these projects by makingchanges in the budget and we hope the problem is addressed to soon.

Education / Job Opportunity Development:-

The idea of Smart villages based on Internet of Things Smart Education • Is the basic means to implement all the advancements in life. Educating people about the use of new technologies facilitates better implementation.

- It can be the force behind reducing the digital-divide which is far more prevalent in villages than the cities. The whole idea of Smart villages revolves around its people and how efficiently they make use of the components of a Smart village.
- They can be educated to participate in each and every activity of the village leading to a better lifestyle for its people and interactive videos can foster the learning in children and even adults. These canbe used to educate them to use the facilities provided in the Smart villages in the best way. The village schools can be equipped with Internet and other devices and learning can be made a fun activity turning the schools into Smart schools.

3.6 Smart Infrastructure:-

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Infrastructural Facility in Punsari – Smart Village:-

Five bore well and four hand pumps, a reverse osmosis plan and house to house piped connections to distribute chlorinated water. 66KVA- substation for electricity generation and 100% coverage of all streets with LED street lights. All 73 wells of the village regularly

recharged. Police station, post office, telephone exchange and primary health center. Atal Express minibus for villagers with free of charge commute of student.

Internet WIFI covering the whole village; future development of village proposed through GIS mapping. A public address system with 120 waterproof speakers for announcing communal information, bhajans, shocks, and Mahatma Gandhi's massages every street and nook of village under CCTV surveillance, which has helped drop the crime rate to 0%. Every family has a solid constructed home with personal lavatory.

3.7 Cyber Security:-

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

The benefits of Information and Computing Technologies (ICT) in a Smart City and of the Internet of Things are tremendous.

Smart energy meters, security devices, smart appliances for health and domestic life: these and more offer unprecedented conveniences and improved quality of life. City infrastructures and services are changing with new interconnected systems for monitoring, control and automation. These may include water and sanitation to emergency responders and disaster recovery.

3.8 District Cooling and Heating / Green Building

In the Southeast, air conditioners are almost crucial pieces of equipment for home comfort. However, it can be difficult to find the right air conditioner for your home, one that will provide enough cool air in the summer to cool your home without driving your energy costs through the roof. We can help! At Hammond Services, we can help you choose the perfect air conditioner for your home, install it professionally, and even maintain/repair it in the years ahead.

Green Buildings:-

Green concept includes use of Eco-friendly materials, energy conservation and preservation of environmental quality. Green concept is used to reduce adverse impact on environment due to man-made sources of pollution.

Aspects of green design:-

Sustainability, Eco-sensitivity, Energy efficiency, Climate-responsiveness, User-friendliness Cost-effectiveness.

3.9 Strategic Options for Fast Development:-

The strategic components of area-based development in the Smart Cities Mission are city improvement (retrofitting), city renewal (redevelopment) and city extension (Greenfield development) plus a Pan-city initiative in which Smart Solutions are applied covering larger parts of the city. Below are given the Deion's of the three models of Area-based smart city development.

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

India's Urban Water and Sanitation Challenges

Increasing population and climatic variation driven by climate change has led to water scarcity across world. As cited in United Nations Environmental programmer 2002, by 2025, 1.8 billion people will be living in countries or regions with absolute water scarcity about two-third of the world population, mainly in developing countries will face moderately to high water stress and half of the population will face problem due to water scarcity. Ongoing mismanagement of resources and wasteful behavior in India has led to the overexploitation of water resources, particularly groundwater.

Role of Indigenous Technologies:-

As per the bilateral agreement between the Government of India and European Commission, a research and development project was granted to Aligarh. Under the initiative, we have developed and deployed a low cost, eco-friendly, sustainable concept, easy to implement and maintain, a non-energy demanding technology. Aligarh is the lead partner in this whole consortium. This project started in 2013, completed in 2016 and is under the monitoring stage.

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

In the past "government as provider" approach, the priorities were to secure budget allocations and develop projects. The Housing Policy and the NCU statement implicitly give higher priority to two other requirements:

First, the reform of policies and regulations that now inhibit development initiatives by the people; and Second, more efficient resource management and the building of institutional capacity.

3.12 Smart Initiatives by District Municipal Corporation:-

A smart city is an urban area that uses different types of electronic data collection sensors to supply information which is used to manage assets and resources efficiently. This includes datacollected from citizens, devices, and assets that is processed and analyzed to monitor andmanage traffic and transportation systems, power plants, water supply networks, waste management, law enforcement, information systems, schools, libraries, hospitals, and other community services and recreation center etc.

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

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

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

Taiwan:-

Off-grid communities:-
Electrification is highly desired by all rural communities. Different international, national and local organizations use different indicators for measuring and reporting mini-grids or stand-alone systems. South Asian countries have been focusing on off-grid electrification of current trend for Rural Electrification (RE) at regional level

Solar power:-

In recent years, Taiwan is also catching up on promoting renewable energy throughout the country. According to SciTech Reports, 20% of the solar panels in the world are exported from Taiwan, making the country the second largest solar panel provider globally. Moreover, the current government has been planning on employing solar energy to public amenities and incorporate the green energy to people's daily lives.

Fig. 3.2 Solar Power

Wind Power:-

In addition, Taiwan's island geographic provides ideal wind power locations.[30] Since 2000, there have been 347 wind power systems constructed, yielding a total of 684.4 MW of storage nationwide.[31] The offshore wind power development has also been lately invested by world-renown companies such Northland Power Inc., and Copenhagen Infrastructure Partners etc.

Fig. 3.3 Wind Power

Thermal power:-

Besides wind power, the volcanic formation of Taiwan also provides the country with geothermal resources.

Hydropower:-

Hydropower is another crucial renewable energy in Taiwan and it is estimated that the current hydropower can provide 4500 MW per year. The system running is a combination of predominantly cascade, diversion and large accumulation types in order to handle the unpredictable typhoons and droughts.

Fig. 3.4 Thermal Power

Fig. 3.5 Hydro Power

Other power sources:-

Beyond natural resources, some tech companies invented alternative energies such as transforming pig dung into biogas power and excess wax apple wood sticks to biomass energy. The former can produce around 25 kW of energy and the technology was introduced in the Discovery Channel

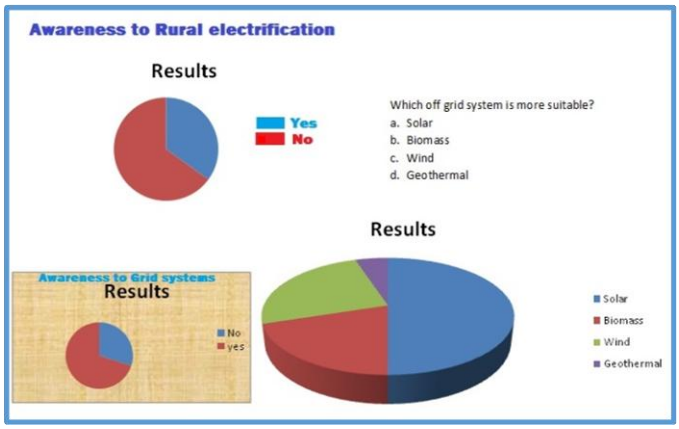


Fig. 3.6 Awareness to rural electrification

Chapter 4
Information About Jaska Village

4.1 Introduction

4.1.1 About JASKA Village

Jaska is a Village in Harij Taluka in Patan District of Gujarat State, India. It is located 37 KM towards west from District head quarters Patan. 14 KM from . 107 KM from State capital Gandhinagar

Jaska Pin code is 384240 and postal head office is Harij .

Tarora (4 KM) , Sarval (5 KM) , Ravad (5 KM) , Vaghel (5 KM) , Dantarvada (6 KM) are the nearby Villages to Jaska. Jaska is surrounded by Sami Taluka towards west , Bechraji Taluka towards East , Chanasma Taluka towards East , Patan Taluka towards East .

Radhanpur , Patan , Mahesana , Unjha are the near by Cities to Jaska.

The official language of Jaska

The native language of Jaska is Gujarati and most of the village people speak Gujarati . Jaska people use Gujarati language for communication. People there understand English and Hindi too.

Jaska village is located in the UTC 5.30 time zone and it follows indian standard time(IST). Jaska sun rise time varies 37 minutes from IST. The vehicle driving side in Jaska is left, all vehicles should take left side during driving. Jaska people are using its national currency which is Indian Rupee and its internationl currency code is INR. Jaska phones and mobiles can be accesed by adding the indian country dialing code +91 from abroad. Jaska people are following the dd/mm/yyyy date format in day-to-day life. Jaska domain name extension(cTLD) is .in.

The nearest railway station in and around Jaska

The nearest railway station to Jaska is Khambhel which is located in and around 17.3 kilometer distance. The following table shows other railway stations and its distance from Mamakudi.

Khambhel railway station	17.3 KM.
Chanasma Junction railway station	24.4 KM.
Patohan railway station	32.9 KM.
Patan railway station	32.9 KM.
Vrindaban Road railway station	36.4 KM.

Mehsana Junction

Nearest districts to Jaska

The other nearest district head quarters is mehsana situated at 51.6 KM distance from Jaska . Surrounding districts from Jaska are as follows.

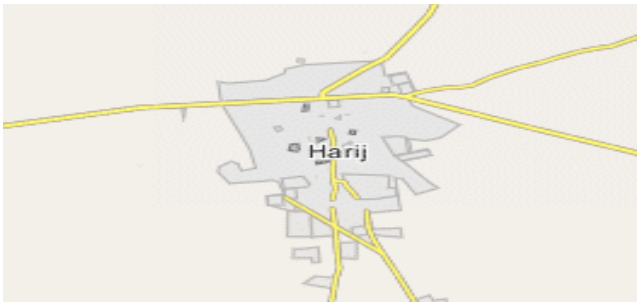
Mehsana (mehsana) district	51.6 KM.
Mansa (mansa) district	77.8 KM.
Banaskantha (palanpur) district	79.1 KM.
Gandhinagar (gandhinagar) district	86.2 KM.
Ahmedabad (ahmedabad) district	100.1 KM.

Patan District

Nearest town/city to Jaska

Surrounding town/city/TP/CT from Jaska‘s nearest town/city/important place is Harij located at the distance of 3.9 kilometer. Jaska are as follows.

Harij	3.9 KM.
Mandvi	16.9 KM.
Chanasma	23.9 KM.
Un	26.7 KM.
Radhanpur	33.5 KM.



Harij Town

Schools in and around Jaska

K P High School	3.9 KM.
Fatepur High School	17.3 KM.
Fatepura And Gram Jyoti Ub School	17.3 KM.
Prathmik School	17.3 KM.
Pratmik School	18.4 KM.


Jaska Primary School

4.1.2 Study justification/ need of the study

- Jaska village is very Backward in Development though it has internet and cctv facilities in the village.It is lacking in infrastructure facilities such as drainage is improper and road is not pleasant.
- The developmental work in villages that could undertake as per the need of the village in particular includes**.**

➢ **Physical infrastructure facilities**

(Water, Drainage, Road, Electricity, Solid waste Management, Storm Water Network.

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

- From the study about village and their problem The students will understand the real life problem and try to provide solution for developing better India
- Villagers get good, peaceful and easy life from full filled of basic requirement by modern solution

4.1.3 Study Area

- Jaska village is located in a very pleasant and typical Indian village environment.
- Village is situated in such place that we can see natural beauty of the earth specially in winter and monsoon
- There is a proper road network connecting Jaska with towns near by such as Harij.

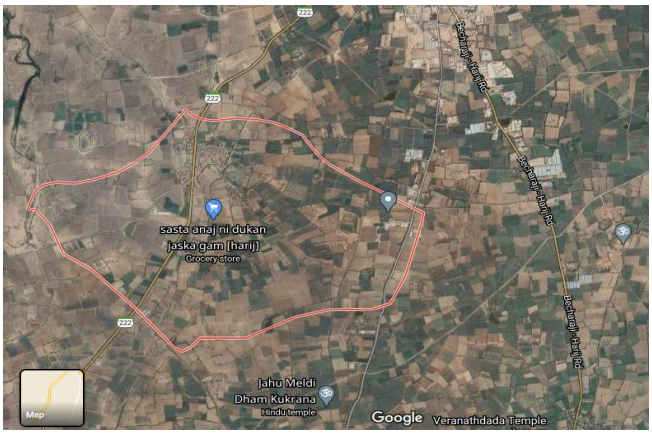


Fig. 4.1 Map of Jaska village

4.1.4 Objectives of the study

❖ **Creation of infrastructure - connectivity, civic and social infrastructure along with provision of alternative Economy generation is the key pillars that the concept hinges on.**

- **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 solid1 waste collection & dumping facilities.
- Electricity connections like street lighting that is energy efficient and eco-friendly Refurbishing of village lakes, water tanks and wells, construction of rain water harvesting structures for sustainable Development.

4.1.5 Scope of the Study

The study will focus the development trend, intensity of growth of the village, and find out the problems related to the physical development of the area and infrastructure services of the village. Project proposal and sustainability aspect not consider in micro level, it is only guide way. The study focused to only village Jaska.

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

4.1.6 Methodology Frame Work for development of village

Visits

For Techno-economic survey of village we took the visit of the Jaska village.

Interaction and Inquiry

During our first visit, we met DDO, Surpanch, TDO etc. we have asked about basic amenities like drinking water, electrification, sanitation, transport, health, education etc. By this interaction, we got information about basic amenities of village.

Survey

We visited the village and during our reconnaissance survey, we found very poor condition of the village so need so much development using modern technique so life of villages become easy.

4.1.7 List of Objects Available related to Civil Methodology

- Gram Panchayat Building
- School Building
- Water Tank facilities
- Drainage facilities
- Storm Water network
- Sanitation availability
- Solid waste Management facilities
- Road network

List of Objects Available related to Electrical Methodology

- Electricity Networks
- Use of non-conventional energy sources
- Irrigation system
- Street light facilities
- House hold electricity
- Electrical wiring method

4.2 JASKA VILLAGE STUDY AREA PROFILE

4.2.1Study Area Location

Table No. 4.1 Study Area Location

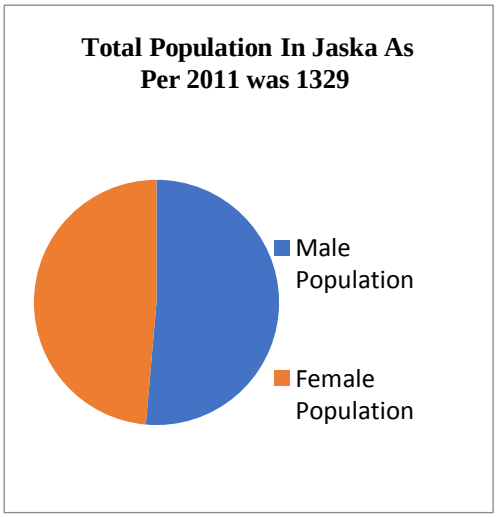
Locality Name	Jaska
Taluka Name	Harij
District	Patan
State	Gujatat
Language	Gujarati and Hindi
Time zone	IST (UTC+5:30)
Elevation / Altitude	51 meters. Above Sea level
Telephone Code / Std Code	02733
Assembly constituency	Chanasma assembly constituency
Assembly constituency	Dilipkumar Viraji Thakor
Lok Sabha constituency	Patan parliamentary constituency
Parliament MP	Dabhi Bharatsinh Shankarji
Serpanch Name	Thakor Ranguben Vesaji
Pin Code	384240
Post Office Name	Harij

Jaska Map

4.2.2Physical & Demographical Growth

Table No. 4.2 Census Data

Census Parameter	Census Data
Total Population	1329
Total No of Houses	277
Female Population %	48.6 % (646)
Total Literacy rate %	52.7 % (701)
Female Literacy rate	19.9 % (265)
Scheduled Tribes Population %	0.0 % (0)
Scheduled Caste Population %	27.7 % (368)
Working Population %	63.6 %
Child(0 -6) Population by 2011	187
Girl Child(0 -6) Population % by 2011	48.1 % (90)



- The total population of Jaska is1329 in 2011. Out of which 683 are males and 646 are females.
- The population of Children of age 0-6 years in Jaska village is 187 which are 14% of the total population. There are 97 male children and 90 female children between the ages 0- 6 years.
- In Jaska village out of total population of 1329 ,63.6% of population is working.
- There are 277 house in village.

Physical Growth water

- Treated Tap Water Supply all round the year and in summer also available. Un Covered Well, Deep well ,overhand storage tank undercover storage tank are other Drinking Water sources.

- This village has overhead water tank 50000 liter capacity and underground water tank of every house and common underground tank are capacity of 100000 liter

- And also home to home tap connection are available.

Drainage System

- No Propper drainage system running at present available in this village. preview drainage system damage due to heavy rain.

Transportation

- Public Bus service available at the main road of this village.. Nearest Railway Station is in Harij. Autos Available in this Village. Tractors Available in this Village. Animal Driven Carts are there in this Village.
- Pucca road, Kuccha Road, Macadam Road and Foot Path are other Roads and Transportation within the village.

4.2.3 Brief History

Jaska village situated in Patan. Cotton , Jowar & wheat are major agriculture commodities grow in this village. People of this village are living in very peaceful manner. This village having very proud history.

- Agriculture is the main profession of this village.
- Most of the people are labors.
- Still the village is waiting for industrial development, waste management and roads are the main concerns of this village.
- Young generation is attracted towards mobile, laptop and computer technology these days.
- If banks and finance institutes proved loan and other financial aid to the villagers, this village will see the real development.
- Medical and health services must be improved.

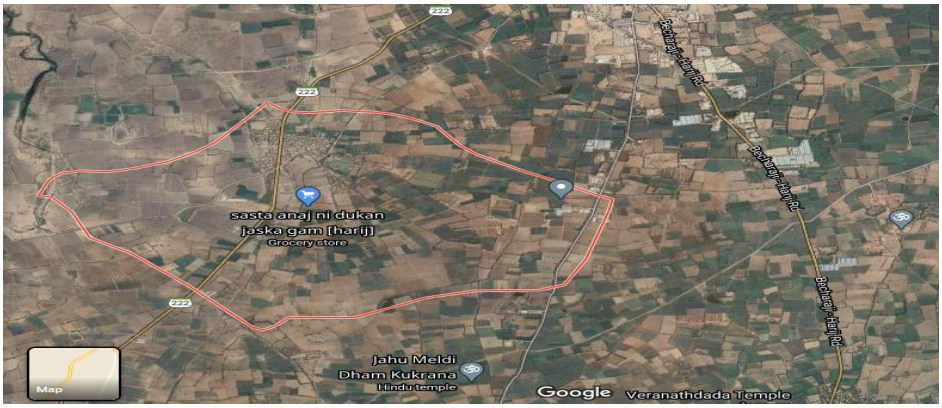
4.2.4 Economic profile / Banks

- Many of people are belong to BPL family
- Economy of the Jaska village was not good some middle class family there most of are teachers. Average monthly income of middle class family was not adequate.
- Animal husbandry was good income source for the villagers. people fulfilled the need from this. around 10 to 12 k pm get from sold milk
- Laboring work was high due not available of their own and people get labor charge 250rs per day if they find a work
- There is no bank facilities available in Jaska village

4.2.5 Social scenario

- Jaska is a undeveloped village and there was an available agricultural activity, labor activities and also available poor transportation facilities with the village are too clean and free from noise pollution.

4.2.6 Base Location map, Land Map, Gram Tal Map



4.2.7 Preservation of traditions, Festivals, Cuisine

The youth are encouraged to celebrate the festivals & they celebrate almost all festivals

1) Diwali
2) Uttarayan
3) Holi
4) Navaratri

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

- Most of the people of Jaska are involve in agriculture activity and animal husbandry possibility of the migration of the villagers are rare
- Migration of the villagers are due to finding job
- Most of the migration due to government job and work in the company
- Average 1 people from each house are work outside from the village for finding better job.

4.3 Data Collection Jaska

4.3.1Methods for data collection

- Data collected of village Jaska by the help of the villagers, sarpanch, talati , gramsevak etc
- We visit primary school and high school interact with students and teacher for the identify the present condition of the village. Student tell the problem they faced during study
- Interaction with villages give idea what they missed facility that improve daily life, what things that differentiate their life from urban life. what factor affect they agriculture field. Irrigation facility provided by the government and all other things.

Data collection is done by filling two forms namely:

1. Techno-economic survey form
2. Smart village survey form

Scanned copy of both forms is attached at last.

4.3.2Primary survey details

- Jaska is a village panchayat located in the Patan district of Gujarat state, India. The latitude and longitude are 23.8213° N, 72.5316° E of the Jaska. We had study about the basic amenities by in different category like education, social life, primary amenities, transportation facilities and economic growth of the village.
- Jaska pin code is 384240.

4.3.3 Average size of the House

- All houses are build in size of average is 30*30 foot. All houses are 1 floor only average. Made with bamboo and covered with mud.

- Total number of house in Jaska are 277.

Geo-Tagging of House

Jaska is a village panchayat located in the Patan district of Gujarat state, India.

Table No. 4.3 Goe-tagging of house

1	Village Name	Jaska
2	Taluka Name	Harij
3	District Name	Patan
4	state	Gujarat
5	Language	Gujarati
6	Co-ordinates	23.8213° N, 72.5316° E

4.3.4 No of Human being in One House

People of the Jaska mostly belong to joint family, average no of people in joint family was 8 to 9 and in general 5 person

4.3.5 Which Material used locally

- Low cost floor materials
- Stones
- Mood flooring
- Wooden floor
- Cement floor
- Mosaic Tile floor

Out Sourced Material

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

Labor work doing

- People that don't have agriculture land they source of income was labor work, major laboring work on farm.

- Many people have lots of agriculture land and they need labor for the farm

Any Costing

- Costing of material is carried out by personally or individual of house member and also any new construction are building up by govt. then there material costing is carried out by gram panchayat.

4.3.6 Geographical Detail

Table No. 4.4 Geographical Detail

Sr. No.	Description	Information/Detail
1.	Area of Village (Approx.) (In Hector) Coordinates for Location :	769.44 hector
2.	Forest Area (In hect.)	-
3.	Agricultural Land Area (In hect.)	-
4.	Residential Area (In hect.)	-
5.	Other Area (In hect.)	-
6.	Distance to the nearest railway station (in kilometers)	At Patan (36KM)
7.	Name of Nearest Town with Distance	Harij(6 KM)
8.	Distance to the nearest bus station (in kilometers)	Harij (6KM)

4.3.7 Demographical Detail

Table No. 4.5 Demographical Detail

Sr. No.	Census	Population	Male	Female	Total Number of House Holds
1.	2011	1329	683	646	277

4.3.8 Occupational Detail

Table No. 4.6 Occupational Detail

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

4.3.9 Agricultural Details / Organic Farming / Fishery

There major crops in the village are:

KHARIF CROPS

- In Village Kharif Crop is sown in June-July when rains first begin (Monsoon crop).
- Harvested in September-October.
- Requires lot of water and hot weather to grow.
- Example: Rice

RABI CROPS

- In Village Rabi Crop Sown in October-November
- Harvested in April-May.
- Requires warm climate for germination of seeds and maturation and cold climate for the growth.
- Example: Chickpeas, Tuarev ,adad, Potato, Tomato, Onion.

Male / Female Details

- As per 2011 census in Kanjha Jaska village male and female are 646 and 683 respectively.

Cast Wise Population Details / Which ID proof using by villagers

Table No. 4.7 cast vise population division

Caste	Population	Male	Female
Scheduled Castes	**368**	196	172
Scheduled Tribes	**0**	0	0
Other (General And OBC)	**961**	487	474

- Villagers use id poof as a aadhar card, ration card and election card all the villager are hold these documents
- Educated people contain pan card and driving licenses some family contain passport also

Occupation wise Details / Majority business

- The first occupation group is agriculture, second is labor working, and third is private sector job.

4.3.10 Physical Infrastructure Facilities

- Physical infrastructure facilities containing Drinking water, Transportation Facilities, Road network, Sanitary Facilities all are in normal conditions. But Drainage water system was damage due to heavy rain

4.3.11 Tourism development available in the village for attracting the tourist

- There is no such tourist attraction in the village for now but developments can be made to attract tourist such as by developing garden or any architectural building.

4.4 Infrastructure Details

4.4.1 Drinking Water / Water Management Facilities

- Drinking water management facilities in this village is well developed. All faliya of the village are separate underground as well as overhead tank for the continues water supply.some photograph of the village overhead tank and underground tank are below.

4.4.2 Drainage Network / Sanitation Facilities

5Drainage network was improper in this village

Fig 4.2 present condition of overhead and underground tank

4.4.3Transportation & Road Network

Local transportation facility are available, Road network is well developed connected to major town. condition is well developed of the village. some repair work of the main road is running at present.

Fig 4.3 present condition of road network

4.4.4 Housing condition

Housing conditions is Good in the entire village there are a few kuccha houses which are not used much and most of the houses are pucca.

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

In the village no such facilities are available

Fig 4.4 Primary School

4.4.6 Existing condition of Public building & maintenavce of existing public infrastructure

At present there was no ongoing work in the village.

4.4.7 Technology Mobile/ WIFI / Internet Usage Details.

Jaska is having wifi and internet facilities available and also has cctv cameras for security.

Fig 4.5 Wifi And CCTv Installed

4.4.8 Sports Activity as Gram Panchayat

There is play ground in the primary school and there are school organized sports activities.

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

Not available any above facilities in this village.

4.4.10Other Facilities

No other facilities are available in Jaska

4.5 Existing Institutions

4.5.1 Dudh Mandali

Villagers most of income are from dudh. A vasudhara milk cooperation collaborate the dudh mandali in this village.

Fig 4.6 DudhMandli

- Development of and regulation over the co-operative societies in the state as well as implementation of the Gujarat co-operative societies Act 1961
- Preventing exploitation of the borrowers by the private money lenders under the Bombay money lender Act 1946 and in this way, regulation over the money lending.
- Development and regulation over the agriculture product market committees of the state and for the purpose, function of implementation of the Gujarat agriculture product market committees Act, 1963
- Implementation of the Gujarat ownership flat Act, 1973

Fig 4.7 Gram Panchayat


Fig 4.8 Anganvadi


Fig 4.9 Temple

Fig 4.10 Bank

Chapter 5

Sustainable Technical Options with Case Studies of the Existing Village

5.1 Concept (Civil)

5.1.1 Advance construction techniques:-

The term '**advanced construction technology**' covers a wide range of modern techniques and practices that encompass the latest developments in materials technology, design procedures, quantity surveying, facilities management, services, structural analysis and design, and management studies.

Various Advance techniques:-

- Building information modeling (BIM).
- Construction Innovation Hub.
- Construction plant.
- Modern methods of construction.
- Site investigations and surveying.
- Substructure works..
- Smart technology.
- Robotics.
- GPS controlled equipment (3D design model)

Fig 5.1: Advance Technologies Used In Construction

5.1.2 Soil liquefaction:

- **What is soil Liquefaction**

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

The phenomenon is most often observed in saturated, loose (low density or uncompacted), sandy soils. This is because a loose Sand has a tendency to compress when a load is applied. Dense sands, by contrast, tend to expand in volume or 'dilate'. If the soil is saturated by water, a

condition that often exists when the soil is below the water table or sea level, then water fills the gaps between soil grains ('pore spaces'). In response to soil compressing, the Pore water pressure increases and the water attempts to flow out from the soil to zones of low pressure (usually upward towards the ground surface)

Abstract:

The Study of earthquake-related geological processes has become immensely necessary due to increasing danger on the life and the property of the people after an earthquake. Soil liquefaction following large earthquake is a major contribution to damage to infrastructure and economic loss. Assam has a history of great earthquakes in the past which makes Guwahati city vulnerable to be hit by another great earthquake like that of the 1897 or 1950 earthquake in the near future. So, the study of liquefaction potential of Guwahati city is of utmost importance. Demarcating areas that are susceptible to liquefaction hazard is important for evaluating and reducing the risk from liquefaction through appropriate mitigation. In the recent past, a few investigations were carried out for this purpose. Therefore, the present study purports to critically review the findings reported in the literature to reveal the liquefaction potential of Guwahati city. The critical evaluation brings out the anomalies associated with the liquefaction potential of some of the sites of Guwahati city. The Dispur area, some parts along the Guwahati-Shillong road (GS road) and the Bharalumukh area found to be highly vulnerable to soil liquefaction. However, further experimental investigations are required to evaluate the liquefaction potential of Guwahati city more accurately

Fig 5.2: Soil Liquifacation

5.1.3 Sustainable Sanitation

- **What Is Sustainable Sanitation**

Conventional approaches to wastewater management that regard wastewater as a waste, and often are dysfunctional, have serious drawbacks.
Sustainable sanitation aims at overcoming these drawbacks. It is not a certain technology, but an approach with certain underlying principles. There are a number of technologies (see for instance **sanitation systems**) that can be used to make sanitation and wastewater management more sustainable. The term "sustainable sanitation" in principle denominates the same as ecological sanitation, though the latter has a stronger focus on source separation.

The first and foremost principle is probably the one to recognize that excreta and wastewater are not a waste, but a valuable resource that can be reused and recycled. This is actually — to speak in a simplified way — the very basis of sustainability: to use resources wisely and without impairing the possibilities of future generations to meet their own needs.

Abstract: In 2017, the Joint Monitoring Program estimated that 520 million people in India were defecating in the open every day. This is despite efforts made by the government, Non-Governmental Organizations (NGOs), and multilaterals to improve latrine coverage throughout India. We hypothesize that this might be because current interventions focus mostly on individual-level determinants, such as

attitudes and beliefs, instead of considering all possible social determinants of latrine ownership. Given this, we ask two questions: what is the association between the amount of dwelling space owned by households in rural India and their likelihood of toilet ownership and what proportion of the variation in household latrine ownership is attributable to villages and states? We used multilevel modeling and found significant associations between the amount of household dwelling space and the likelihood of latrine ownership. Furthermore, considerable variation in latrine ownership is attributable to villages and states, suggesting that additional research is required to elucidate the contextual effects of villages and states on household latrine ownership. Thus, sanitation interventions should consider household dwelling space and village and state context as important social determinants of latrine ownership in rural India. Doing so could bolster progress towards Sustainable Development Goal (SDG) 6.

Fig 5.3: Sustainable Sanitation

5.1.4 Sustainable Transportation/System

The EU Transport Council has defined a Sustainable Transportation/System a system that:

6 Allows the basic access and development needs of society to be met safely and in a manner consistent with human and ecosystem health, and promotes equity within and between successive generations.

7 Is affordable, operates fairly and efficiently, offers choice of transport mode, and supports a competitive economy, as well as balanced regional development.

8 Limits emissions and waste within the planet's ability to absorb them, uses renewable resources at or below their rates of generation and uses non-renewable resources at or below the rates of development of renewable substitutes while minimising the impact on the use of land and the generation of noise.

9 Sustainable transportation: A transport system that is sustainable in the social, environmental and climate impact.

Abstract:

This paper examines the link between the transport infrastructure and the economic performance in the EU-28 countries, over the period of time 2000–2014, using panel data methods.

Firstly, we aim to provide the theoretical background of the transport infrastructure development, public sector performance and economic growth. The paper's key point is the detailed look at the components of transport infrastructure, analyzing the implications of the policy-makers based on a production function and in order to test the policy implication, factor analysis is also employed.

The results show significant effects from transport infrastructure components even after institutional and other factors are controlled for. From the path analysis results, the study confirm the alternative hypothesis, outlining the unidirectional long-run causality relationship between growth, transport infrastructure and Public Sector Performance. Transport infrastructure status (measured thought index of transport) has significant impact on economic development with coefficient estimate.

The public performance indicators influence the way to economic growth. On the one hand, the corruption, the regulatory environment, size shadow economy, infant mortality, income inequality, inflation and unemployment rate negatively affect the economic growth, and on the other hand there is a strong positive relationship between the quality of the judiciary, education achievement, life expectancy and economic growth.

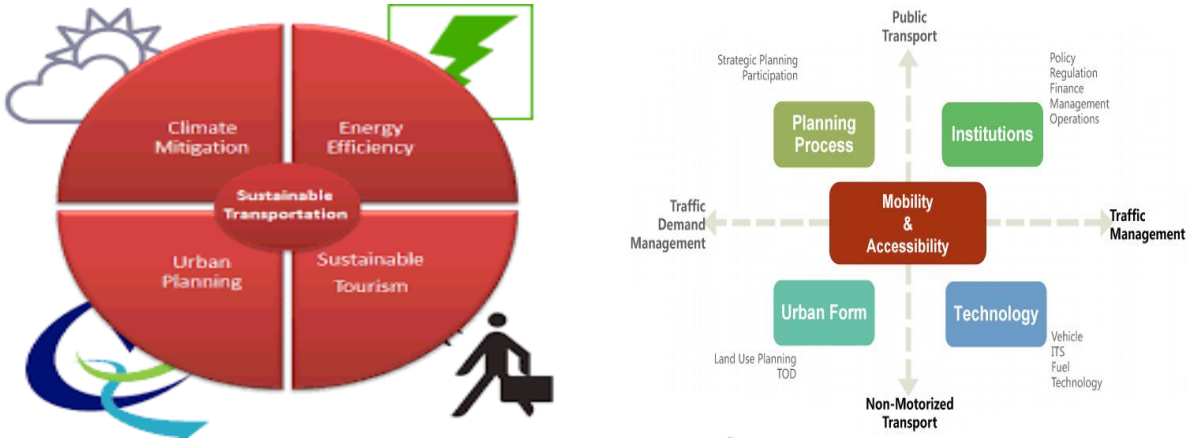


Fig 5.4: Sustainable Transport System

5.1.5 Vertical Farming

What Is Vertical Farming?

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

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

Abstract:

Recently, the application of Vertical Farming into cities has increased. Vertical farming is a cultivating vegetable vertically by new agricultural methods, which combines the design of building and farms all together in a high-rise building inside the cities. This technology needs to be manifest both in the agricultural technique and architectural technology together, however, little has been published on the technology of Vertical Farming. In this study, technology as one of the important factor of Vertical farming is discussed and reviewed by qualitative approach. In the first, identifying existing and future VF projects in Europe, Asia, and America from 2009 to 2016. Then a comprehensive literature reviewed on technologies and techniques that are used in VF projects. The study resources were formed from 62 different sources from 2007 to 2016. The technologies offered can be a guide for implementation development and planning for innovative and farming industries of Vertical Farming in cities. In fact, it can act as a basis for evaluating prospective agriculture and architecture together. The integration of food production into the urban areas have been seen as a connection to the city and its residents. It simultaneously helps to reduce poverty, adds to food safety, and increases contextual sustainability and human well-being.

Fig 5.5: Vertical Farming

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

The damage to the concrete due to corrosion of reinforcement is considered to be one of the most serious problems. It is an universal problem and property worth of crores of rupees is lost every years. Due to corrosion problem in bridges, buildings and other RCC structures, India incurs heavy loss of about Rs. 1500 cores annually. This paper deals with various causes of corrosion and remedial measures thereon.

Abstract:

This paper presents a conceptual framework aimed at implementing sustainability principles in the building industry. The proposed framework based on the sustainable triple bottom line principle, includes resource conservation, cost efficiency and design for human adaptation. Following a thorough literature review, each principle involving strategies and methods to be applied during the life cycle of building projects is explained and a few case studies are presented for clarity on the methods. The framework will allow design teams to have an appropriate balance between economic, social and environmental issues, changing the way construction practitioners think about the information they use when assessing building projects, thereby facilitating the sustainability of building industry.

Fig 5.6: Corrosion in RCC

5.1.7 Sewage Water Treatment

- What is sewage treatment
- Sewage treatment is the process of removing contaminants from wastewater and household sewage water. It includes physical, biological and sometimes chemical processes to remove pollutants. Its aim is to produce an environmentally safe sewage water, called effluent, and a solid waste, called sludge or biosolids, suitable for disposal or reuse. Reuse is often for agricultural purposes, but more recently, sludge is being used as a fuel source.
- Water from the mains, used by manufacturing, farming, houses (toilets, baths, showers, kitchens, sinks), hospitals, commercial and industrial sites, is reduced in quality as a result of the introduction of contaminating constituents. Organic wastes, suspended solids, bacteria, nitrates, and phosphates are pollutants that must be removed.
- To make wastewater acceptable for reuse or for returning to the environment, the concentration of contaminants must be reduced to a safe level, usually a standard set by the Environment Agency.

Abstract:

The basic needs of human survival, i.e. water, food & shelter are no more easily accessed resources. The ever-increasing demand of human being cannot be meet successfully through present conventional resources. The indiscriminate population explosion raises the demand of food and fodder for continue life on earth. Due to domestic waste, sewage and industrialization, our environment (rivers, ponds and other natural resources) is polluting. In Indiancontext, the situation is very drastically. The situations has only be handled by not throwing sewage directly to natural resources and reuse the treated water that ultimately reduces the overall demand of fresh water. However, 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; whichdoes 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 VatechWabag 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 upliftment for sending it to plant, which is a great achievement for itsengineers. 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 advice them to solve as soon as possible.

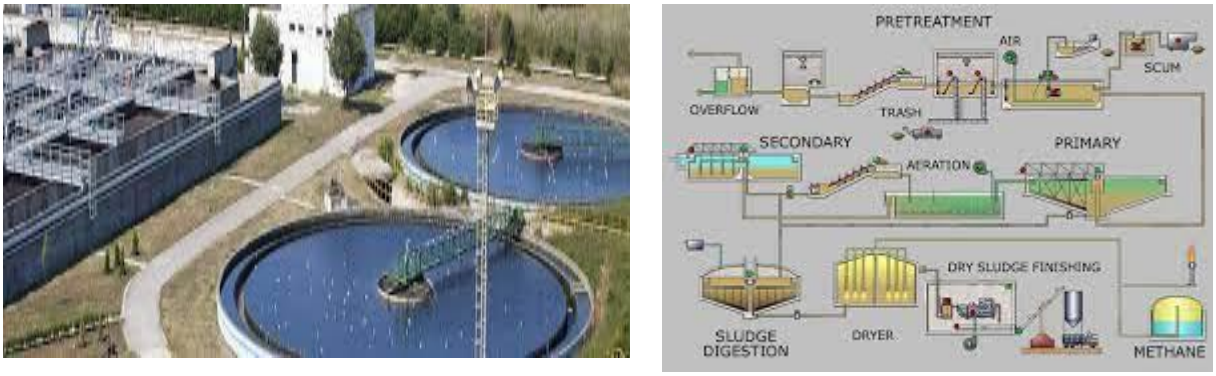


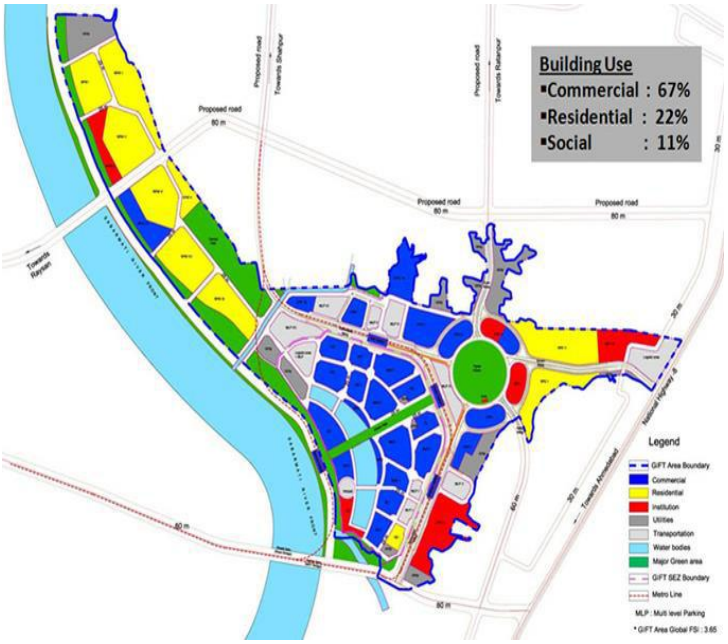
Fig 5.7: Sewage Water Treatment Plant

5.1.8 Case Study : GIFT City

Transportation Planning Aspect Of GIFT City:

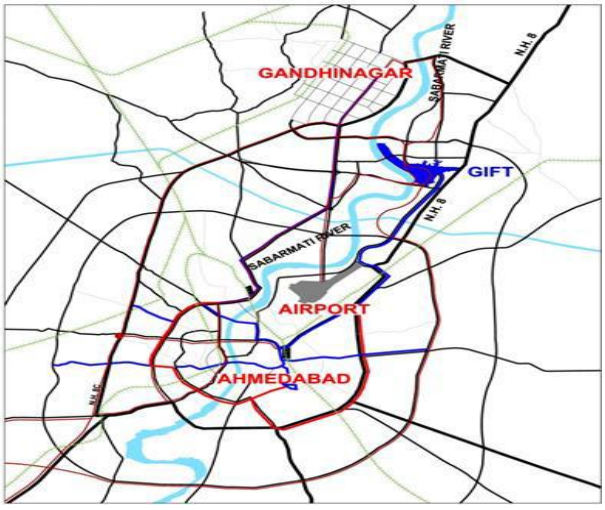
Abstract:

Gujarat International Finance Tec-City Company Limited (GIFTCL) is developing a financial Central Business District (CBD) namely GIFT City between Ahmedabad and Gandhinagar as a global financial and IT services hub, a first of its kind in India. GIFT City is being developed as a high quality commercial zone along with an ideal blend of residential and social facilities that optimise land and real estate values with global connectivity and generation next infrastructure.



GIFT City transport master plan aims at a transit oriented development based on walk to work approach, pedestrian friendly infrastructure with zero fatal accidents, easy and fast mobility with minimum conflicts and efficient public transport systems which reduce the per capita energy basket. In accordance with the GIFT City transport vision, the transport infrastructure has been planned to cater to the daily demand as well as that of the peak hour and Multi Level Parking (MLP) lots have been proposed at suitable locations in the GIFT city. To enhance the mobility and safety in GIFT city, various smart transport applications like advanced traveller information system, security and surveillance system, intelligent parking management system, parking guiding system, automatic vehicle location and tracking, real time travel response etc are planned. GIFT City transport master plan addresses the needs of all users of GIFT City, thereby it can be called as "User-Centred Smart Transport System" and its makes it possible for all GIFT City users to enjoy a world class life style in this vibrant global city. GIFT City smart transport planning parameters and design details are elaborated in this paper.

1. Introduction



Gujarat International Finance Tec-City (GIFT), a Global Financial and IT/ITES Hub in the State of Gujarat, a first of its kind smart city in India, is being developed by Gujarat International Finance-Tec City Company Limited (GIFTCL), a Joint Venture of Gujarat Urban Development Company Ltd. (GUDCL) and Infrastructure Leasing & Financial Services (IL&FS). GIFT is strategically located between Ahmedabad and Gandhinagar at a distance of about 12 kms from Sardar Vallabhbhai Patel International Airport and 8 kms from Gandhinagar. The site is in close proximity to the National Highway (NH-48). The location of GIFT City is shown in Figure .

GIFT City is being developed as a high quality commercial zone along with an ideal blend of residential and social facilities that optimise land and real estate values with global connectivity and generation next infrastructure. GIFT City is expected to be above or at par to all other international financial districts in terms of scale, scope, finest quality of infrastructure and life. GIFT City will encompass an area of 358 Ha (886 acres) with a total Built-up area ("BUA") of around 62 mn sft developed in three phases as Domestic Tariff Area (DTA) and Special Economic Zone (SEZ). The

predominant land use is Commercial 67%; Residential 22% and Social 11%. The GIFT City master plan is presented in Figure.

2.Transport philosophy

GIFT City aims at a transit oriented development based on walk to work approach, pedestrian friendly infrastructure with zero fatal accidents, easy and fast mobility with minimum conflicts and efficient public transport systems which reduce the per capita energy basket. In accordance to the various activities envisaged for GIFT, the mandate is not only to provide connectivity, but also to cater to the daily demand as well as that of the peak hour with an objective to achieve higher share of public transport. The transport infrastructure in GIFT City has been planned to achieve this objective. Multi Level Parking (MLP) lots have been proposed at strategic locations in the GIFT City. To enhance the mobility in the GIFT City, various facilities such as underpasses, elevated covered walkways with travellators have been planned for pedestrian comfort and safety. Activity nodes have been integrated with the pedestrian network to enhance the walking experience. The public transport system is being integrated effectively connecting Ahmedabad and Gandhinagar.

3.Travel demand estimation

3.1Daily trips

GIFT would act as a catalyst for development in its hinterland. The primary employment in GIFT is expected to give rise to equal number of secondary employment. The SEZ is expected to have an international clientele, and hence offices will be operating in multiple shifts. A second shift of work is considered in the processing area of the SEZ. 50% of the employment, primary and secondary, of the SEZ processing area is assumed to constitute in the second shift. The total number of trips generated due to office activity in the SEZ and non SEZ (DTA) areas are considered as incoming and outgoing trips.

3.2Peak hour trips

Trips due to office use are considered in the peak hour as office is the predominant landuse of GIFT. Since there are two shifts, the peak hour occurs in the overlap between the general and the second shifts. This is the duration when the general shift is ending, and the second shift is about to start. The number of trips in the peak hour is considered as one-way trips of the primary jobs of the general and second shifts. Secondary jobs are considered to occur in the off peak hours. It is easily appreciated that the peak direction of travel is that of the trips due to primary employment in general shift. Since there are a number of offices of varying kinds, it is assumed that the total number of trips due to

primary employment in the general shift would occur in two hours. For sake of convenience, the number of trips in the peak period is spread equally over two hours.

3.3Modal split

The vision of GIFT is to provide a robust and efficient public transport system in such a way that the modal split of the trips is 90:10 in favour of public transport. However, the present share of public transport in the modal split experienced in most Indian urban centres is in between 40-70%. Initiatives to boost public transit are undertaken nowadays. Appreciating the fact that it would take some time for people to shift from their personalized modes to public transport, a buffer is incorporated in the design of transport infrastructure. Keeping in view the 90:10 modal split, public transport is envisaged to cater to 90% of the trips. The share of private vehicles is designed as 25%, instead of 10%, so that a buffer is inbuilt into the system.

4.Public transport

GIFT would not only attract people from the nearby urban centres, Ahmedabad and Gandhinagar, but also encourage development in the nearby areas. Therefore, it is crucial to consider the development of the surrounding region of GIFT in design of transport infrastructure. Connectivity to the hinterland is considered while designing the public transport system for the city. Three corridors of Mass Rapid Transit (MRT) are planned to pass through the GIFT. These are essentially two MRT corridors, referred to as the West Corridor and the East Corridor. The West corridor branches out into two and rejoins near the north-west and south-west entry points. Thus, public transport connectivity is provided for the future realization of the skyline of tall buildings. The MRT stations (Refer Figure 3) are placed in maximum walking distance of 500m reach to the destinations. Bus Rapid Transit (BRT) system has also been proposed. Until MRT is operational, this would act as the medium of public transport connectivity. The bus stops are placed based on demand near major attraction points, such that they are located within 500m walking distance from the embarking/ disembarking points.

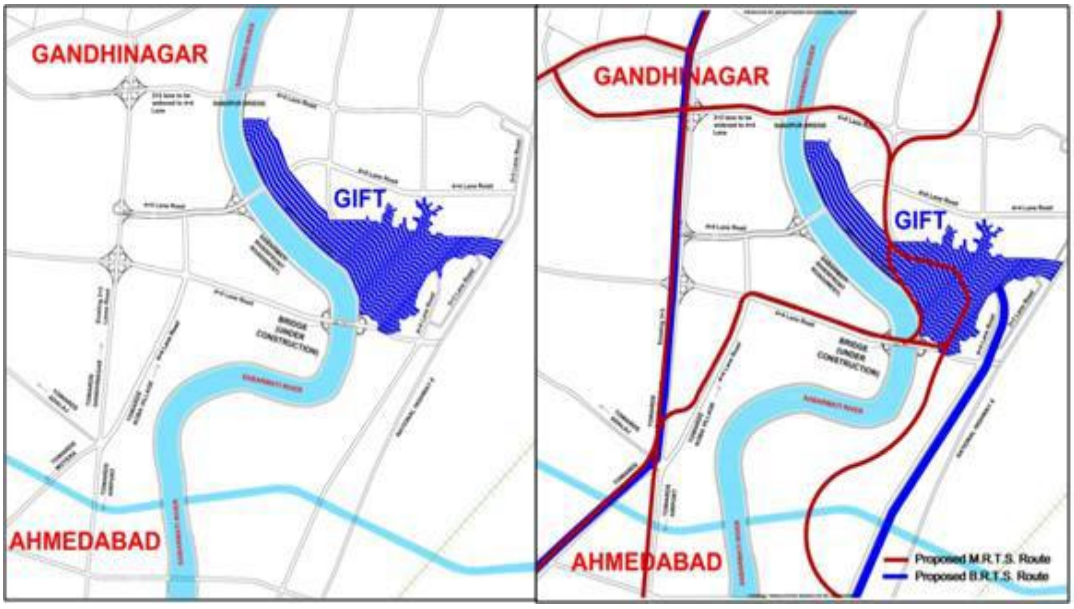
Fig: Proposed metro station in GIFT City

To achieve the envisaged public transport share of 90%, it is very essential to have a convenient and reliable public transportation system to GIFT City from the nascent stages itself. At present there is no public transport facility to GIFT City either from Ahmedabad or Gandhinagar and the proposed MRT & BRT operations to GIFT City may take some more time, considering GIFT City transport vision and realistic prevailing scenario, GIFT City started its own air-conditioned bus service from Ahmedabad (end point connected to the existitng BRT station at Visat, Ahmedabad)

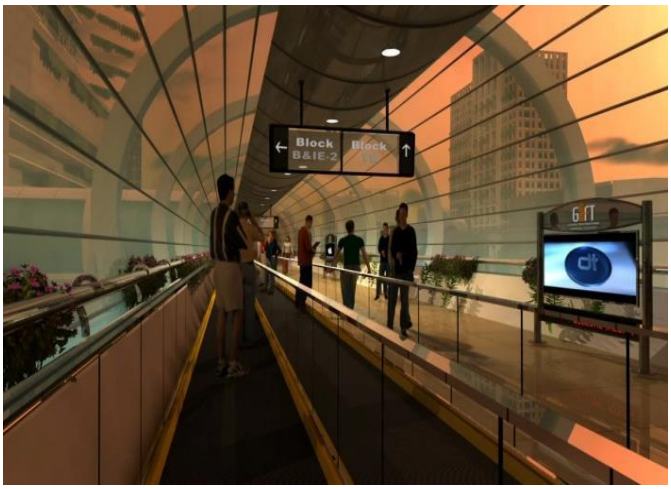
5. External connectivity

The influence area of GIFT City includes Ahmedabad, Gandhinagar and the surrounding Districts of Kalol, Saiz,Sanand, Mehmedabad and Dehgam. GIFT City will act as a catalyst for all round development in the entire region.

The major road network in the influence area includes National Highway 48 (NH-48) on the East, Ahmedabad-Gandhinagar Highway on the west passing through PDPU circle and Koba circle. Connectivity is proposed from all the sides in the form of bridges and major road corridors, apart from these, river front roads are proposed on either side of the Sabarmati River and are represented in below figure.



6. Internal transport



The principle behind design of movement within the GIFT City is to have dedicated corridors for vehicular movement, and movement in the internal areas would be mainly pedestrian with a provision for movement of emergency vehicles when required. There are five major entry points to GIFT Project, connected to the regional road network. The arterial transport corridor comprises of dual 4-lane main arterial road with dual 2-lane sub-arterial roads on either side. The five roads converge into a central roundabout, which is designed to effectively handle the total traffic volume entering from all directions. The radius of the rotary is designed at 200m. The length of the shortest section of the roundabout is 150m. Six lanes have been provided for carrying mixed traffic which enables to handle 8000 PCU/hour.

The other components of internal transport infrastructure include flyovers and underpasses for maintaining a conflict free movement within the GIFT City. Large green corridor is designed within the rotary consisting of 32 acre area for various social activities includes golf course, club etc. For the movement of pedestrian's between the central roundabout and the adjoining packages, pedestrian underpasses are planned. In the SEZ area, the network would be mainly for pedestrian movement and interspersed nodes that connect to the buildings in the enclave with elevated walkway and travelator connectivity.

7. Pedestrian facilities

Pedestrian walkways will be developed keeping in mind pedestrian safety and comfort. Street furniture will be included and activity centres introduced at nodes for making walking a safe and comfortable experience. Shady trees and comfortable ergonomic seating arrangements will be made. Level differences will be minimized for comfort of the elderly

The material suggested for pedestrian pathways is grass pavers which are not only comfortable to walk on, but also strong enough to carry the load of emergency vehicles such as fire tenders. In course of time when subsequent phases of development come into place, and demand of pedestrian infrastructure increases and hence, it has been envisaged to construct elevated walkways from major transport nodes such as MRT stations and multi level car parks for direct connection into buildings. These walkways will be covered and could even be air conditioned for complete pedestrian comfort. Walkability influence area around each MRT station is presented in Figure above.

8. Streetscape

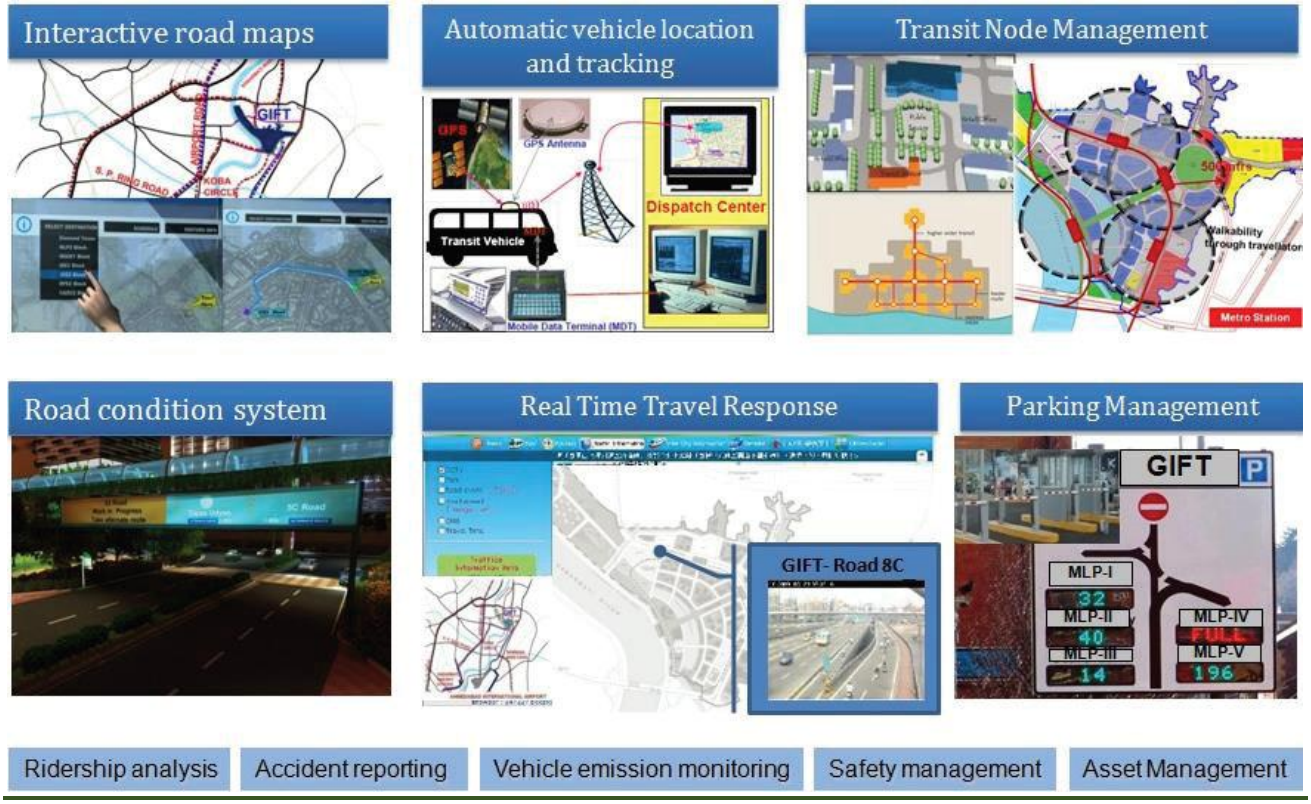
As GIFT City is proposed to be highly dense with commercial development, in the planning stage itself, sufficient buffer is left for making provision of taxi bay, bus stop, free flow of pedestrian movement including drop off and pick up from the respective buildings. By considering these, buffer 22 m is left from the edge of the carriageway to the building footprint. This area will also facilitates to lay the various utility infrastructures such as water, irrigation, automated waste collection, power, ICT corridors

9. Signage system

As GIFT City aims at high share of public transport, transit oriented development (walk to work approach) and pedestrianised oriented internal movement etc., the need for good signage to make these activities easier becomes more and more apparent. Considering these aspirations GIFT City developed GIFT City Signage System to "provide a clear visual language and graphic standards that can be universally understood, encourage walking and transit usage by offering quality multi-modal information, and provide consistent information across a broad range of environments in the city at par with best national and international standards." Armed with a novel design approach, which stressed on a seamless integration of information and user experience, the project focused on factors like progressive disclosure, predictability, importance of landmarks, human ergonomics – all lending it a unique touch. The system gives the information in a progressive manner, not just letting the user know the orientation through maps and distance with respect to time, but also with an indication, a physical reference, a pre-view to where the user's next step can lead, or simply put, a nudge further in the right direction. As a part of phase 1, few sign posts as per GIFT City signage system are erected on site and the same are presented in Figure below.

10. Smart transportation system

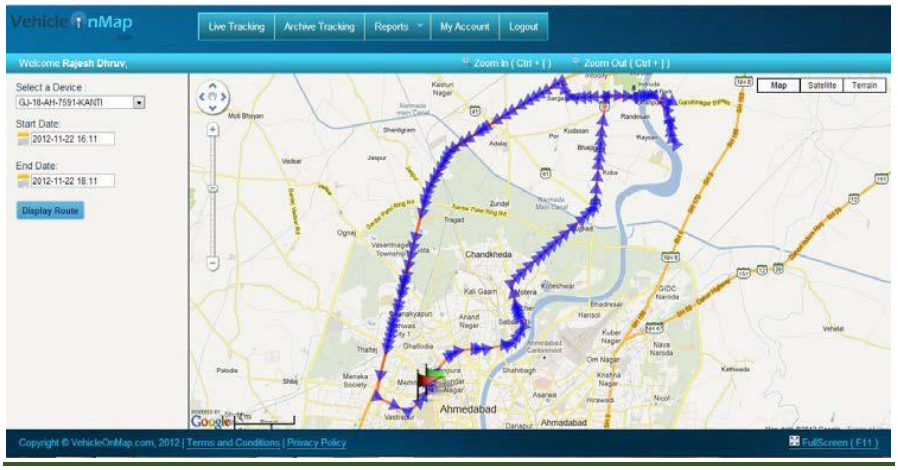
GIFT City, proposed smart transportation system improve transport outcomes such as transport safety, transport productivity, travel reliability, informed travel choices, environmental performance and network operation resilience. Due to the proposed development in GIFT City, the interest in smart transport comes from the problems caused by traffic congestion and a synergy of new information technology for simulation, real-time control, and communications networks.



From smart transport consideration it would include advanced traveller information system for communicating the information through variable message signs etc; security and surveillance system; intelligent parking management system to operating the parking areas; advanced public transport system to operate the MRT and BRT by sharing the information with the end users. The gambit of smart transport also includes automatic vehicle location and tracking, real time travel response etc.

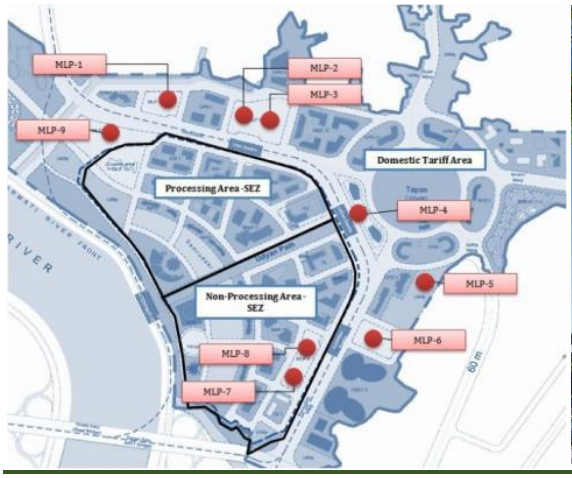
All the required provisions to facilitate smart transport applications in GIFT City are considered in the planning stage and itself and incorporated in the design stage forsuccessful implementation of smart transport system in the GIFT City. Illustrative example of proposed GIFT City smart transport system is shown in figure 10. As a part of phase wise smart transportation implementation GIFT City installed GPRS based real time vehicle trackers in all GIFT City vehicles.

The installation of these trackers resulted in better planning and fleet management and helping in speed checks of vehicles, accurate location, deviations in the journey paths(if any) etc. Glimpse of one such vehicle tracking application implemented in public transport is presented in figure above.



11. Parking philosophy

One of the most commonly faced problem in urban metros is parking. GIFT City has incorporated sufficient provisions in the GIFT City master plan and its development control regulations (DCR) so that there won't be any parking problems in the GIFT City.



As a part of GIFT City master plan, MLPs have been proposed at strategic locations (refer figure 12) so that there won't be any parking issues. As per the GIFT City DCR, parking requirement for different land uses are estimated by considering the parking norms. In addition to this, 10% for visitor and 20% for two wheeler parking need to be provided. The total requirement of parking as per DCR for all phases is approximately 1,50,000 Equivalent Car Spaces (ECS) out of which approximately 65,000 ECS need to accommodate in different common parking areas designated in the Master Plan.

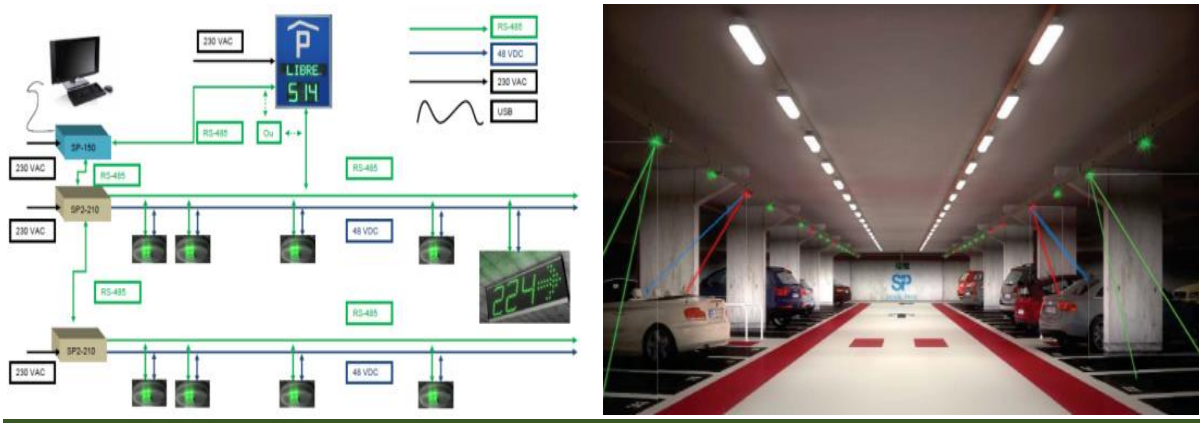
11.1 Multi level parking

As mentioned in the previous sections, GIFT City project is developing in a phased manner so development of required transport infrastructure also is being developed in the same manner. As a part of phase1 infrastructure development GIFT City is developing an MLP with a capacity of approximately 5400 Equivalent Car Spaces (ECS).

Parking Guidance System (PGS) and Parking Management Systems (PMS) are also part of the proposed MLP development.

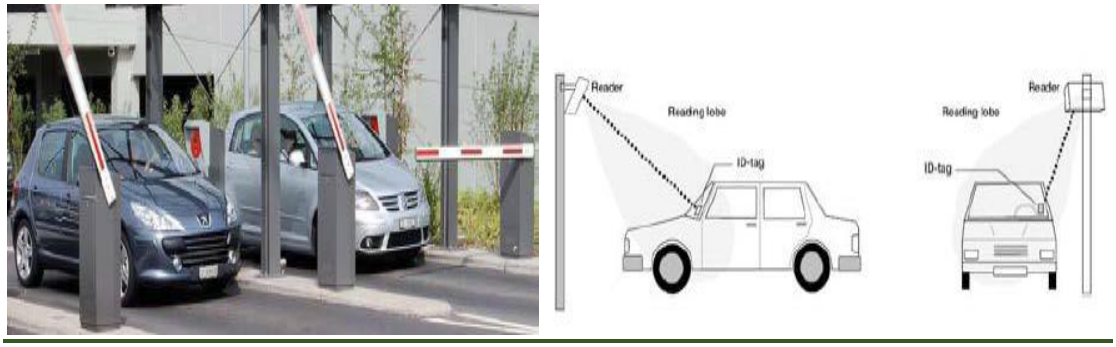
11.1.1 Parking guidance systems

Parking guidance systems basically, to assist drivers in efficiently locating available parking spaces, and hence minimising risk of associated delays within the car park and on the upstream road network. PGS shall monitor the parking spaces in real-time using ultrasonic sensors. Driveway sensors shall be installed in the main entrance to count the vehicle in real-time until the time it gets a parking. The sensor shall be ultra slim so that it will not affect the height limitations of the parking & Ultra flat no angle loosing visibility LED indications at entrances, ramps, crossings & parking places and shall provide a far view of clear parking spaces at least 60 meters. Visibility of LED lights can be adjusted thru the software installed on PC. The proposed PGS, system configuration and real time application images are shown in figure below



11.1.2 Parking management system

Parking Management System (PMS), mainly consists of access and revenue controls to assist operators in efficiently managing entry, exit and payment for use of the car park facility, by minimising both customer inconvenience and cost of fare recovery. Parking Management System comprises of gate entry barriers, long range RFID reader, entry station, exit station, cash terminal, handheld unit, pay on foot systems, central management station etc. The glimpses of the proposed units are presented in figures below.



12. Conclusions

GIFT City is based on Transit Oriented Development approach where metro stations are strategically located at the center of high-density commercial development with progressively lower-density development spreading outward from the center.

GIFT City transport plan envisages a modal split of 10:90 between private and public transport. However the system has been designed as 25%, private instead of 10%, so that a buffer is inbuilt into the system. To meet the envisaged public transport share and considering the prevailing conditions GIFT started its own public transport facility.

Its proposed to develop MLPs with total capacity of 50,000 ECS in GIFT. People coming by private vehicles can walk to their destinations after leaving their vehicles in these MLPs which are located strategically near the entry points on either side of the road.

Proposed smart transportation applications in GIFT City improve transport outcomes such as transport safety, transport productivity, travel reliability, informed travel choices, environmental performance and network operation resilience

GIFT City transport master plan addresses the needs of all users of GIFT City, thereby it can be called as "User- Centred Smart Transport System" and its makes it possible for all GIFT City users to enjoy a world class life style in this vibrant Global City.

Chapter 6

Swatchh Bharat Abhiyan (Clean India)

6.1 Which type of swatchhta needed in your village explaining Existing Situation with photograph:-

Swachh Bharat Abhiyaan:-

Swachh Bharat Mission is a mass movement for cleanliness launched on 2nd October 2014 by the Prime Minister of India. The Swachhta Abhiyan has turned into a National Movement with citizens now becoming active participants in cleanliness activities across the nation. The dream of a 'Clean India' once seen by Mahatma Gandhi is being realized with millions of people across the country joining the cleanliness initiatives of the government departments, NGOs and local community centers to make India clean as a part of this 'Jan Andolan'.

6.2 Guidelines for the process of the implementation in your village with Photograph:-

Mission Objectives:-

- Elimination of open defecation
- Eradication of Manual Scavenging
- Modern and Scientific Municipal Solid Waste Management
- To effect behavioral change regarding healthy sanitation practices
- Generate awareness about sanitation and its linkage with public health Capacity

Augmentation for ULBs to create an enabling environment for private sector participation in Capex (capital expenditure) and Ovex (operation and maintenance) Mission Strategy. The components is Rs. 62,009 Crore. The Government of India share as per approved funding pattern amounts to Rs. 14,623 Crore. In addition, a minimum additional amount equivalent to 25% of GoI funding, amounting to Rs. 4,874 Crore shall be contributed by the States as State/ ULB share.

The balance funds are proposed to be generated through various other sources of fund which are, but not limited to:-
Private Sector Participation

- Additional Resources from State Government/ ULB
- Beneficiary Share
- User Charges
- Land Leveraging
- Innovative revenue streams
- Swachh Bharat Kosh
- Corporate Social Responsibility
- Market Borrowing
- External Assistance

Mission Components:-
Household toilets, including conversion of insanitary latrines into pour-flush latrines

- Community toilets,
- Public toilets and urinals
- waste management
- IEC & Public Awareness
- Capacity building and Administrative & Office Expenses (A&OE)

6.3 Actual Activity Done by Students for making your village Clean with Photograph:-

While traveling doesn't throw any wrapper, paper or any dry waste on road. Keep it in your bag or pocket (as it is a dry waste you can keep them in your bag/pocket).

- Keep paper bags with yourself to store wet waste and throw them in dustbin only.
- Spitting on roads (as it can be the reason of viral disease).
- Avoid chewing Pan-Masala, Gutka and Tobacco.
- Avoid use of plastic bag.
- Follow government's rules and regulations.
- If someone is breaking the rule then make them aware of it.
- Spread awareness to keep our village clean.

Education start-ups can also partner with other schools for spreading awareness among the adults in rural areas. If the elderly populace of villages does not comprehend the value of education, they won't allow their children to study.

Fig 6.1: Swatch Bharat Abhayan

Chapter 7

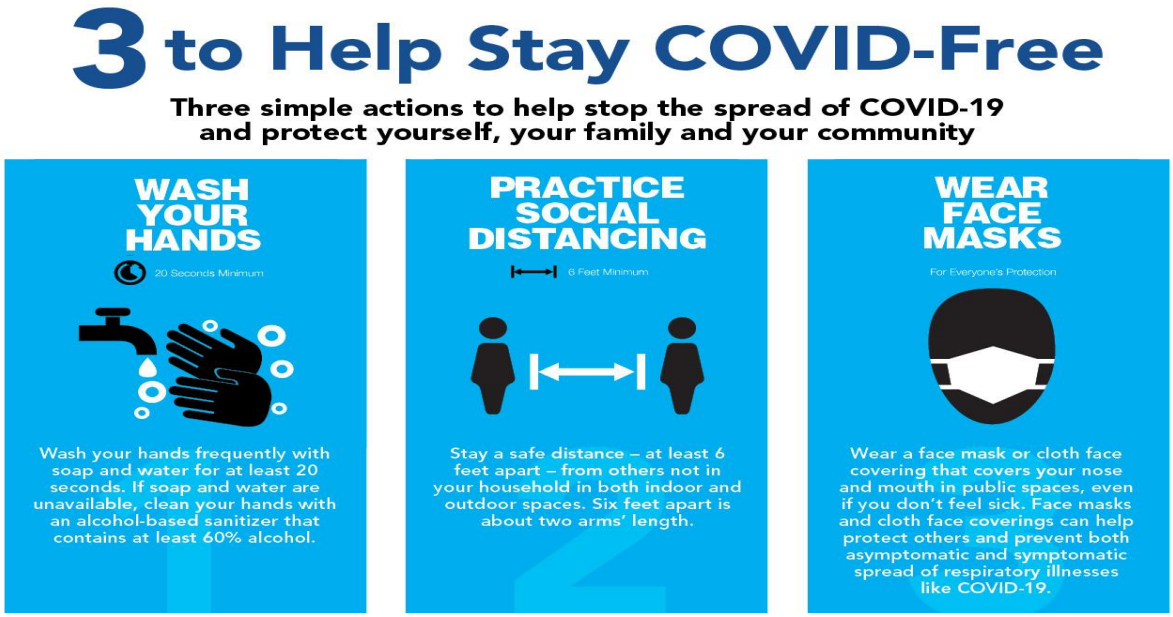
Village Condition Due To Covid-19

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

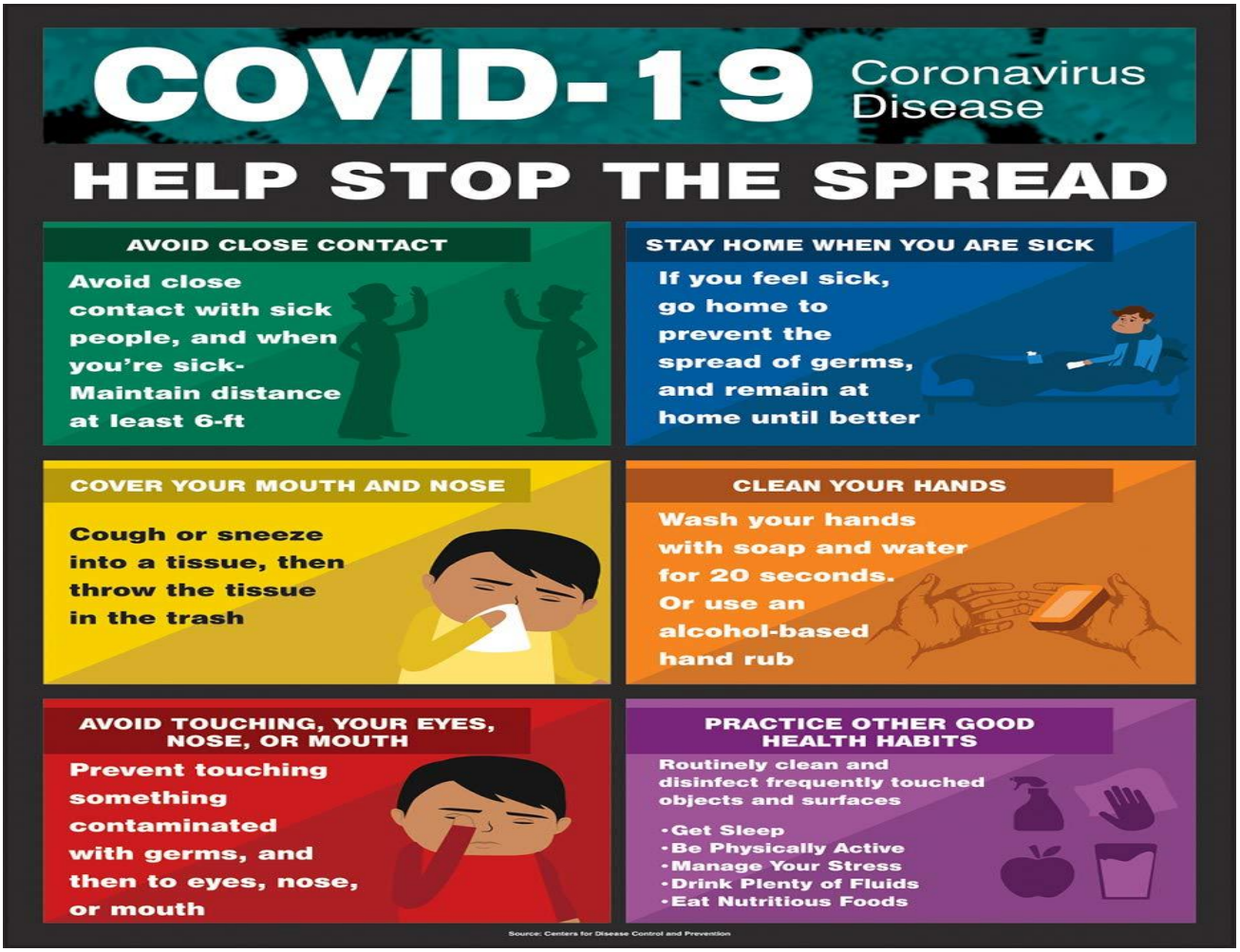
- Village locals were informed by the sarpanch and talati about the pandemic situation and were also informed about the norms given by Government to fight this situation.
- They then sealed the village border to stop the movement of villagers and also to restrict entry of others.
- With help of Government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

7.2 Steps taken by students while visiting the village:

- All the safety measures were taken by the students while visiting the allocated village.
- Mask was always on and we also washed our hands regularly.
- No litter was made while travelling.
- We kept social distance while interaction with everyone in the village be it the locals or the Sarpanch.



Source: https://falkschool.pitt.edu/complete-student-daily-health-chec



7.3 Any other Steps taken by students or villagers :

What to do to keep yourself and others safe from COVID-19:

- Maintain at least a 1-metre distance between yourself and others to reduce your risk of infection when they cough, sneeze or speak. Maintain an even greater distance between yourself and others when indoors. The further away, the better.
- Make wearing a mask a normal part of being around other people. The appropriate use, storage and cleaning or disposal are essential to make masks as effective as possible.

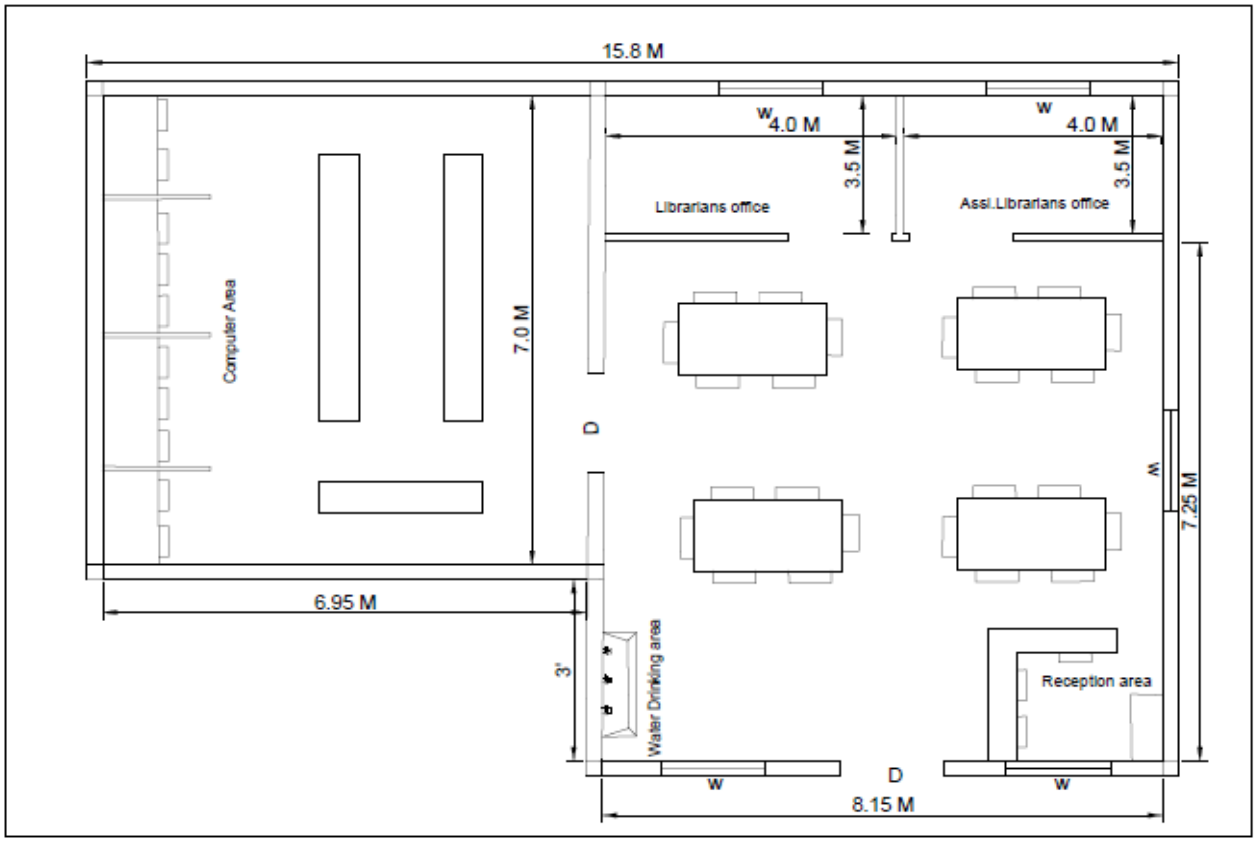
Here are the basics of how to wear a mask:

- Clean your hands before you put your mask on, as well as before and after you take it off, and after you touch it at any time.
- Make sure it covers both your nose, mouth and chin.
- When you take off a mask, store it in a clean plastic bag, and every day either wash it if it's a fabric mask, or dispose of a medical mask in a trash bin.
- Don't use masks with valves.

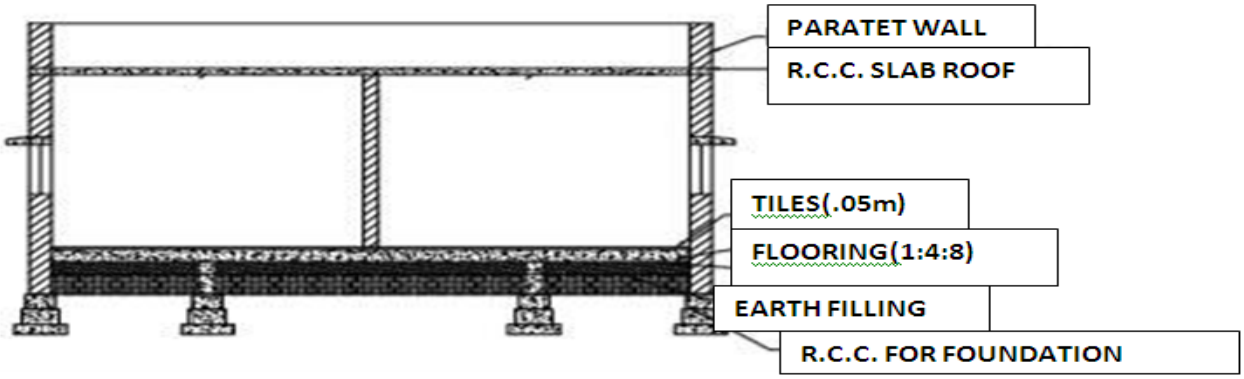
Chapter 8

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

8.1 Design I : Public Library (Smart Design)

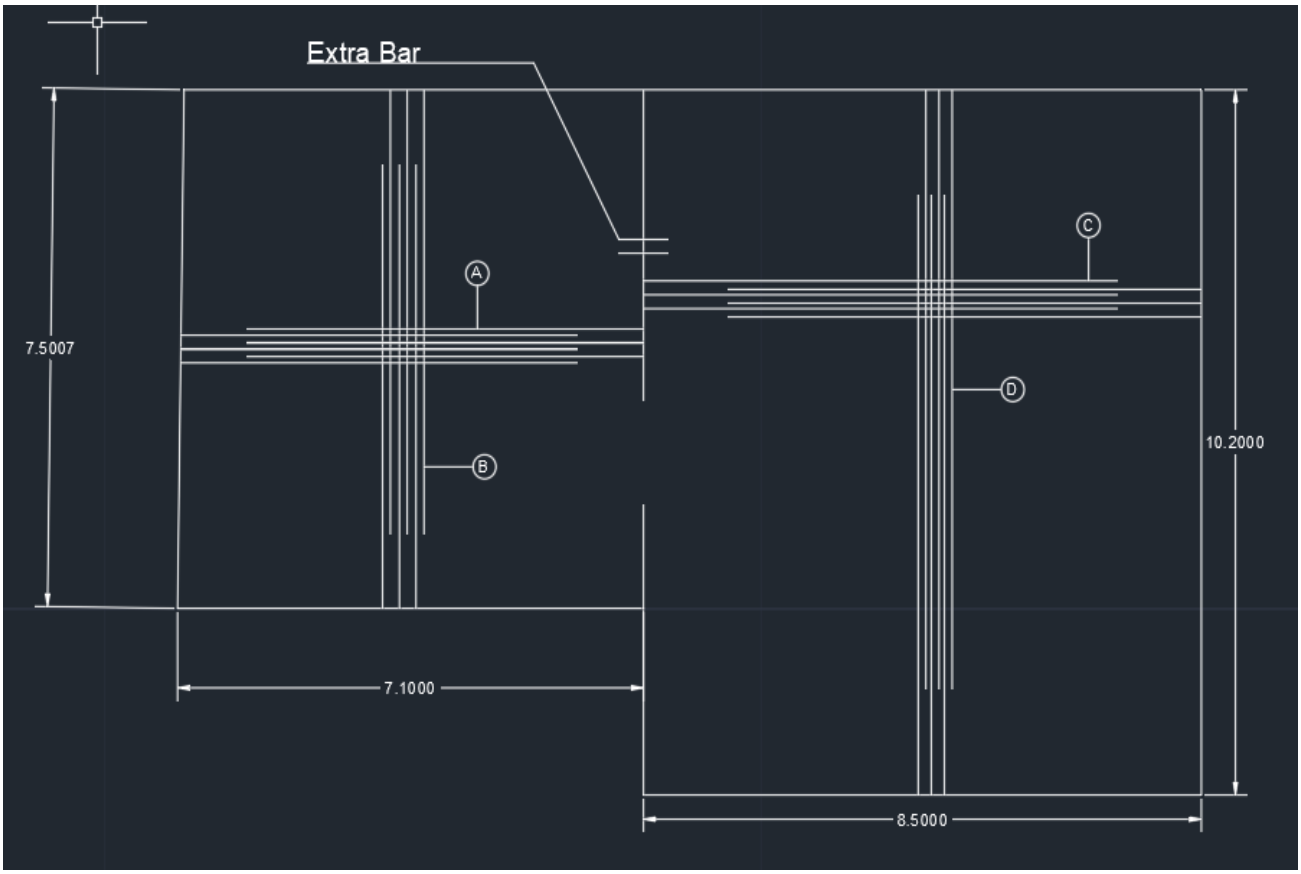


PLAN



ELEVATION

Fig 8.1: Plan and Elevation for Public Library



SPACING	
A	12mm @ 170mm C/C
B	12mm @ 160mm C/C
C	12mm @ 100mm C/C
D	12mm @ 120mm C/C

Fig: Slab reinforcement details

PROP. CONSTRUCTION WORK OF PUBLIC LIBRARY
AT, JASKA, TAL:-HARIJ, DIST:-PATAN

MEASUREMENT SHEET

CENTER LINE = 58.5m

ITEM	DESCRIPTION	NO	L	B/W	H/D	QUANTIY	UNITS
ITEM NO.:- 1							
	Excavation for						
	Foundation						
	L=57.6	1	57.65	0.9	1.2	62.262	Cu.m.
ITEM NO.:- 2							
	C.C. work in foundation						
	L=57.6	1	57.6	0.9	0.2	10.368	Cu.m.
ITEM NO.:- 3							
	Brick masonry work in						
	Foundation (L=58.5)						
	1st step						
	L=58.5 –2*(0.6/2)	1	57.9	0.6	0.1	3.474	Cu.m
	57.9						
	2nd step						
	L=58.5 –2*(0.5/2)	1	58	0.5	0.1	2.9	Cu.m
	58						
	3rd step						
	L=58.5–2*(0.4/2)	1	58.1	0.4	0.1	2.324	Cu.m
	58.1						
	4th step	1	58.2	0.3	0.7	12.222	Cu.m
	L=58.5 –2*(0.3/2)						
	58.2						
	Total Brick masonry					20.92	Cu.m.
	work in foundation						
ITEM NO.:- 4							
	Brick masonry work in						
+	super structure						
	L=58.5	1	58.5	0.3	3	52.65	Cu.m.

	Deduction for door &						
	Window						
	Door	1	1.5	0.3	2.1	0.945	Cu.m.
	Door 1	1	1.2	0.3	2.1	0.756	Cu.m.
	Window	6	1.5	0.3	1.2	0.54	Cu.m.
	Deduction for lintel						
	Door	1	1.5	0.3	0.1	0.045	Cu.m.
	Door 1	1	1.2	0.3	0.1	0.036	Cu.m.
	Window	6	1.5	0.3	0.1	0.045	Cu.m.
	Total Brick masonry						
	Work						
	50.283					50.283	Cu.m.
ITEM NO.:- 5							
	Brick masonry work in step						Cu.m.
	Step: 1	1	4	0.6	0.25	0.6	Cu.m.
	Step: 2	1	4	0.3	0.25	0.3	Cu.m.
					Total	0.9	Cu.m.
ITEM NO.:- 6							
	D.P.C at plinth level						
	For 300mm thick wall	1	58.5	0.9	0.3	15.795	cum
	Total					15.957	Cu.m
ITEM NO 7							
	EARTH FILLING						
	Seating portion	1	10.1	8.2	0.6	49.692	Cu.m
	Book portion	1	7.1	7	0.6	29.82	Cu.m
	TOTAL					79.512	Cu.m
8)INTERNAL PLASTER							
	Ceiling. Seating	1	10.1	8.2		82.82	
	Book portion	1	7.1	7		49.7	
	Walls. Seating	2	10.6		4	42.4	
		2	8.72		4	34.88	
		2	5		4	20	
		2	6.51		4	26.04	

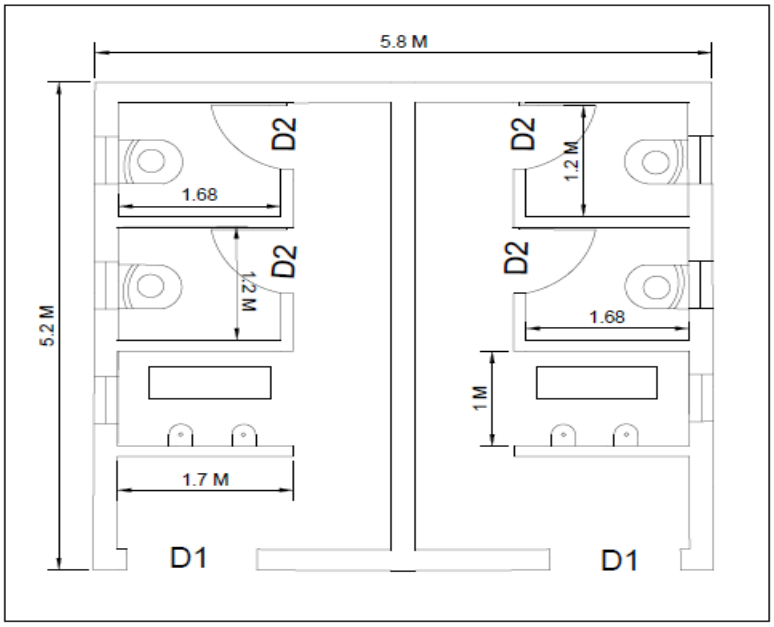
	TOTAL					255.84	**SQ.M**
ITEM NO.:- 9							
WHITE WASH PER ABOVE						255.84	SQ.M
ITEM NO 10							
	RCC WORK FOR SLAB	1	15.8	10.5	0.2	33.18	CU.M
	L=15.8						
	B=10.5						
	H=0.2						

PROP. CONSTRUCTION WORK OF PUBLIC LIBRARY AT, JASKA, TAL:-HARIJ, DIST:-PATAN

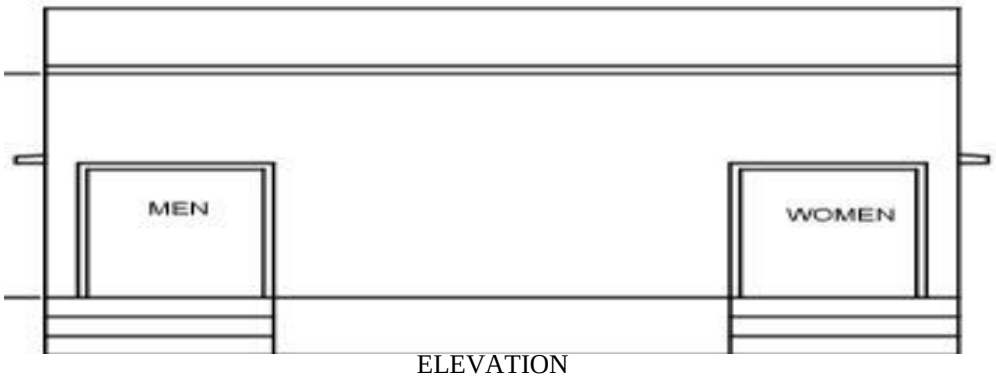
ABSTRACT SHEET

Sr.	Item description	Quantity	Rate	Per	Amount
1	Excavation work	62.262	155	Cu.m.	9,651
2	P C.C	10.386	3000	Cu.m.	31,158
3	Brickwork in foundation	20.92	3200	Cu.m.	66,944
4	Brickwork in superstructure	50.282	3500	Cu.m.	1,75,987
5	Brickwork in steps	0.9	3200	Sq.m.	2,880
6	DPC at plinth level	15.957	4900	Cu.m.	78,189
7	Earth filling	79.512	50	Cu.m.	3,976
8	Internal plaster	255.84	150	Sq.m.	38,376
9	White wash	255.84	25	Sq.m.	6,396
10	Rcc work for slab	33.18	8800	Cu.m.	2,91,984
				Total Rupees	7,05,541
				Contingency 05.00% Rupees	35277.0255
				10% contractor charges	70,554
				2% water charges	14110.8102
				Total Amount Rupees	8,25,482
				Say Rupees	8,25,482

8.2 Design II : Public Toilet (Physical Design)



PLAN



ELEVATION

Fig 8.2: Plan and Elevation for Public Toilet

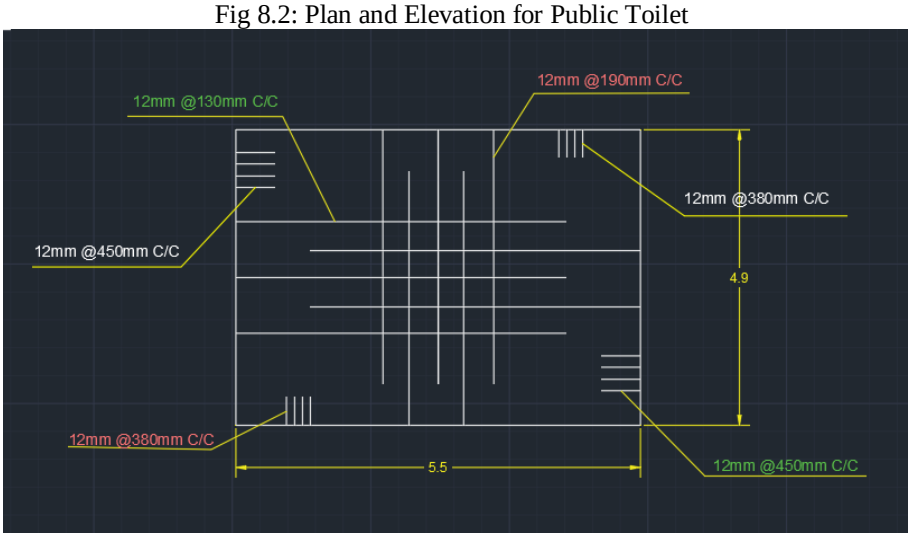


Fig : Slab Reinforcement Details

PROP. CONSTRUCTION WORK OF PUBLIC TOILET AT, JASKA, TAL:-HARIJ DIST:-PATAN							
MEASUREMENT SHEET PUBLIC TOILET							
CENTER LINE = 40.7 m							
ITEM	DESCRIPTION	NO	L	B/W	H/D	QUANTIY	UNITS
ITEM NO.:- 1							
	Excavation for						
	Foundation						
	L=39.5	1	39.5	0.9	1.2	42.66	Cu.m.
ITEM NO.:- 2							
	C.C. work in foundation						
	L=39.5	1	39.5	0.9	0.2	7.11	Cu.m.
ITEM NO.:- 3							
	Brick masonry work in						
	Foundation (L=40.7)						
	1st step						
	L=40.7-8*(0.6/2)	1	38.3	0.6	0.1	2.298	Cu.m
	38.3						
	2nd step						
	L=40.7-8*(0.5/2)	1	38.7	0.5	0.1	1.935	Cu.m
	38.7						
	3rd step						
	L=40.7-8*(0.4/2)	1	39.1	0.4	0.1	1.564	Cu.m
	39.1						
	4th step	1	39.5	0.3	0.7	8.295	Cu.m
	L=40.7-8*(0.3/2)						
	39.5						
	Total Brick masonry					14.092	Cu.m.
	work in foundation						
ITEM NO.:- 4							
	Brick masonry work in						
+	super structure						
	L=40.7m	1	40.7	0.3	3.5	42.735	Cu.m.

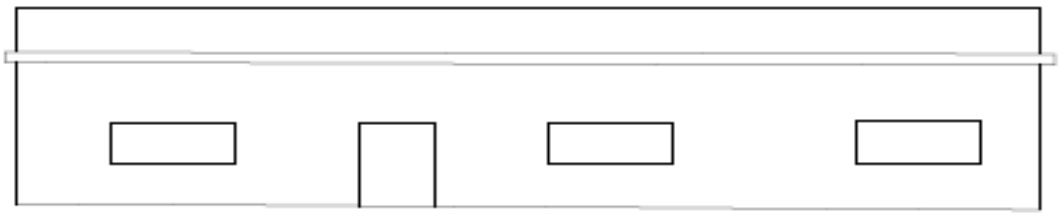
	Deduction for door &						
	Window						
	Door	2	1.2	0.3	2.1	1.512	Cu.m.
	Door 1	4	0.8	0.3	2.1	2.016	Cu.m.
	Ventilator – V	6	0.5	0.3	0.5	0.45	Cu.m.
	Total					3.978	Cu.m.
	Deduction for lintel						
	Door 1	2	1.2	0.3	0.1	0.072	Cu.m.
	Door 2	4	0.8	0.3	0.1	0.096	Cu.m.
	Ventilator – V	6	0.5	0.3	0.1	0.09	Cu.m.
	Total					0.258	Cu.m.
	Total Brick masonry						
	Work						
	42.735 -4.236					38.499	Cu.m.
ITEM NO.:- 5							
	Brick masonry work in step						Cu.m.
	Step: 1	2	1.5	0.3	0.25	0.225	Cu.m.
	Step: 2	2	1.5	0.3	0.25	0.225	Cu.m.
					Total	0.45	Cu.m.
ITEM NO.:- 6							
	D.P.C at plinth level						
	For 200mm thick wall	1	22	0.7	0.6	9.24	cu.m
	For 300mm thick wall	1	22	0.9	0.9	17.82	cum
	Total					27.06	Cu.m
ITEM NO 7							
	EARTH FILLING						
	Wc	4	1.7	1.2	0.6	4.896	Cu.m
	Wide area	2	4.9	0.9	0.6	5.292	Cu.m
	At Enterance	2	1.7	0.6	0.6	1.224	Cu.m
	Urinals	2	1.7	1	0.6	2.04	Cu.m
	TOTAL					13.452	Cu.m
8). PLASTER							
		4	3		3.5	42	Sq m
		8	0.9		3.5	25.2	Sq.m
		12	1.7		3.5	71.4	Sq.m

		5	5.2		3.5	91	Sq.m
		4	5.8		3.5	81.2	Sq.m.
	TOTAL					310.8	Sq.m.
ITEM NO.:- 9							
WHITE WASH PER ABOVE						310.8	Sq.m.
ITEM NO 10							
	RCC WORK FOR SLAB	1	5.2	5.8	0.15	4.524	Cu.m
	L=5.2						
	B=5.8						
	H=0.15						

PROP. CONSTRUCTION WORK OF PUBLIC TOILET					
AT, JASKA, TAL:-HARIJ DIST:- PATAN					
ABSTRACT SHEET					
PUBLIC TOILET					
Sr.	Item description	Quantity	Rate	Per	Amount
1	Excavation work	42.66	155	Cu.m.	**6612.3**
2	P C.C	7.11	3000	Cu.m.	**21330**
3	Brickwork in foundation	14.092	3200	Cu.m.	**45094.4**
4	Brickwork in superstructure	38.499	3500	Cu.m.	**134746.5**
5	Brickwork in steps	0.45	3200	Cu.m.	**1440**
6	D.P.C at plinth level	27.06	4900	Cu.m.	**132594**
7	Earth filling	13.425	50	Cu.m.	**671.25**
8	Plastering	310.8	150	Sq.m.	**46620**
9	Whitewash	310.8	25	Sq.m.	**7770**
10	Rcc work for slab	4.524	8800	Cu.m.	**39811.2**
				Total Rupees	**436689.65**
				Contingency 05.00%	**2183.44825**
				10% contractor charges	**43668.965**
				2% water charges	**8733.793**
				Total Amount Rupees	**491275.8563**
				Say Rupees	**491275.86**

8.3 Design III : Skill Development Center (Social; Design)

PLAN



ELEVATION

Fig 8.3: Plan and Elevation for Skill Development Center

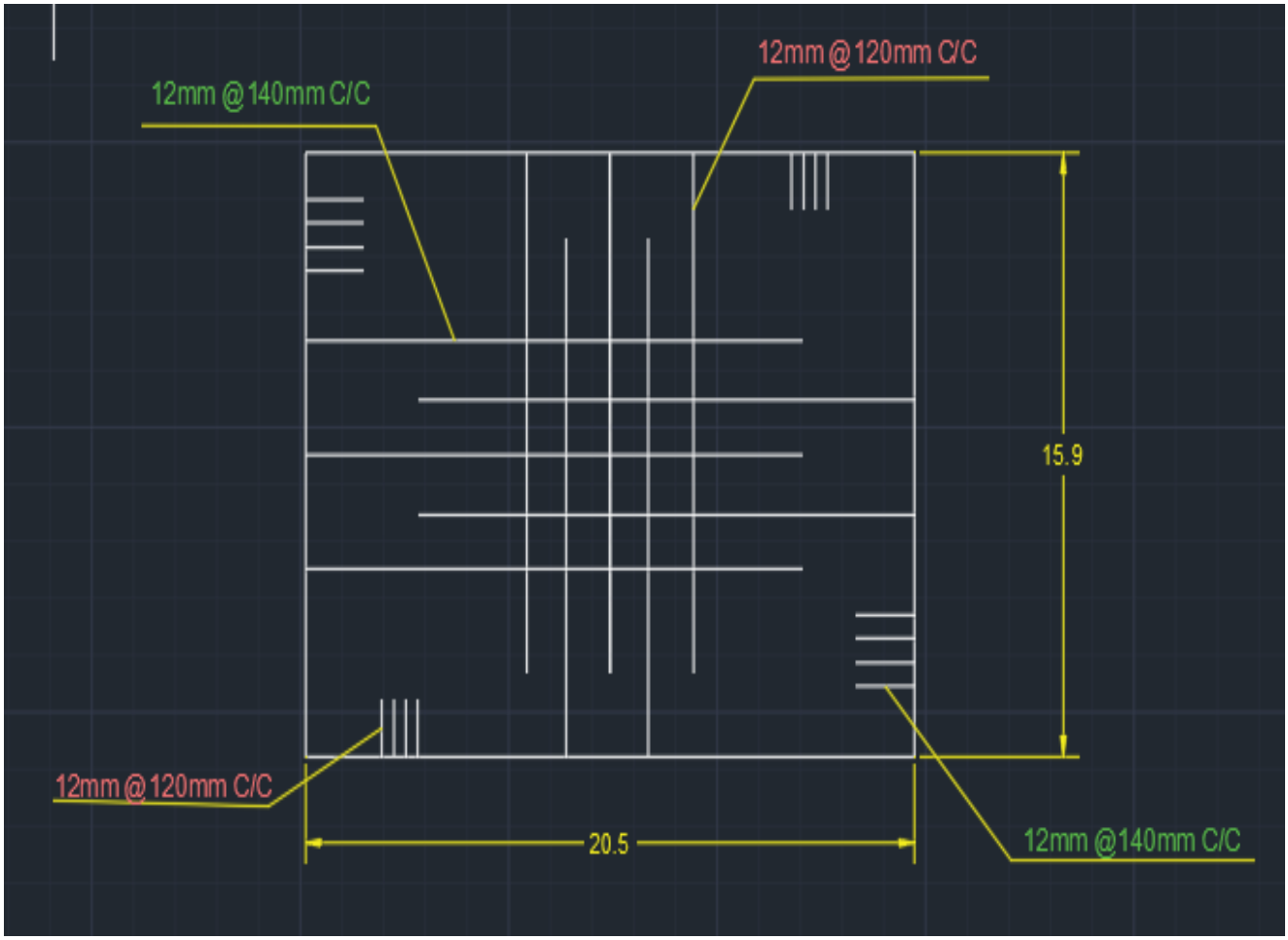


Fig : Slab Reinforcement Details

PROP. CONSTRUCTION WORK OF SKILL DEVELOPMENT CENTER AT, JASKA, TAL:-HARIJ, DIST:-PATAN							
MEASUREMENT SHEET							
CENTER LINE = 97.8m							
ITEM	DESCRIPTION	NO	L	B/W	H/D	QUANTIY	UNITS
ITEM NO.:- 1							
	Excavation for						
	Foundation						
	L=96.9	1	96.9	0.9	1.2	104.652	Cu.m.
ITEM NO.:- 2							
	C.C. work in foundation						
	L=96.9	1	96.9	0.9	0.2	17.442	Cu.m.
ITEM NO.:- 3							
	Brick masonry work in						
	Foundation (L=97.8)						
	1st step						
	L=97.8 –6*(0.6/2)	1	96	0.6	0.1	5.76	Cu.m
	96						
	2nd step						
	L=97.8 –6*(0.5/2)	1	96.3	0.5	0.1	4.815	Cu.m
	96.3						
	3rd step						
	L=97.8–6*(0.4/2)	1	96.6	0.4	0.1	3.864	Cu.m
	96.6						
	4th step	1	96.9	0.3	0.7	20.349	Cu.m
	L=97.8 –6*(0.3/2)						
	96.9						
	Total Brick masonry					34.788	Cu.m.
	work in foundation						
ITEM NO.:- 4							
	Brick masonry work in						
	super structure						
	L=97.8	1	97.8	0.3	3	88.02	Cu.m.
	Deduction for door &						
	Window						
	Door	1	1.5	0.3	2.1	0.945	Cu.m.
	Door 1	3	1.2	0.3	2.1	0.756	Cu.m.
	Window	8	1.5	0.3	1.2	0.54	Cu.m.

	Deduction for lintel						
	Door	1	1.5	0.3	0.1	0.045	Cu.m.
	Door 1	3	1.2	0.3	0.1	0.036	Cu.m.
	Window	8	1.5	0.3	0.1	0.045	Cu.m.
	Total Brick masonry						
	Work						
	85.653					85.653	Cu.m.
ITEM NO.:- 5							
	Brick masonry work in step						Cu.m.
	Step: 1	1	4	0.6	0.25	0.6	Cu.m.
	Step: 2	1	4	0.3	0.25	0.3	Cu.m.
					Total	0.9	Cu.m.
ITEM NO.:- 6							
	D.P.C at plinth level						
	For 300mm thick wall	1	97.8	0.9	0.3	26.406	cum
	Total					26.406	Cu.m
ITEM NO 7							
	EARTH FILLING						
	Acticity Area	1	15	15.3	0.6	137.7	Cu.m
	Store Room	1	5	7	0.6	21	Cu.m
	Washroom	1	5	3	0.6	9	Cu.m
	Office	1	5	4	0.6	12	Cu.m
	TOTAL					179.7	Cu.m
8)INTERNAL PLASTER							
	Ceeling	1	20.2	15.6		315.12	
	Walls	2	15		3	45	
		4	15.3		3	45.9	
		6	5		3	15	
	TOTAL					421.02	Sq.m.
ITEM NO.:- 9							
WHITE WASH PER ABOVE						421.02	Sq.m.
ITEM NO 10							
	RCC WORK FOR SLAB	1	20.5	15.9	0.2	65.19	Cu.m
	L=20.5						
	B=15.9						
	H=0.2						

PROP. CONSTRUCTION WORK OF SKILL DEVELOPMENT CENTER AT, JASKA, TAL:-HARIJ, DIST:-PATAN					
ABSTRACT SHEET					
Sr.	**Item description**	**Quantity**	**Rate**	**Per**	**Amount**
1	Excavation work	104.65	155	Cu.m.	16,221
2	P C.C	17.44	3000	Cu.m.	52,320
3	Brickwork in foundation	34.78	3200	Cu.m.	1,11,296
4	Brickwork in superstructure	85.65	3500	Cu.m.	2,99,775
5	Brickwork in steps	0.9	3200	Sq.m.	2,880
6	DPC at plinth level	26.4	4900	Cu.m.	1,29,360
7	Earth filling	179.7	50	Cu.m.	8,985
8	Internal plaster	421.02	150	Sq.m.	63,153
9	White wash	421.02	25	Sq.m.	10,526
10	Rcc work for slab	65.19	8800	Cu.m.	5,73,672
				Total Rupees	12,68,187
				Contigency 05.00% Rupees	63409.3625
				10% contractor charges	1,26,819
				2% water charges	25363.745
				Total Amount Rupees	14,83,779
				Say Rupees	14,83,779

8.4 Design IV: Public Garden (Heritage Design)

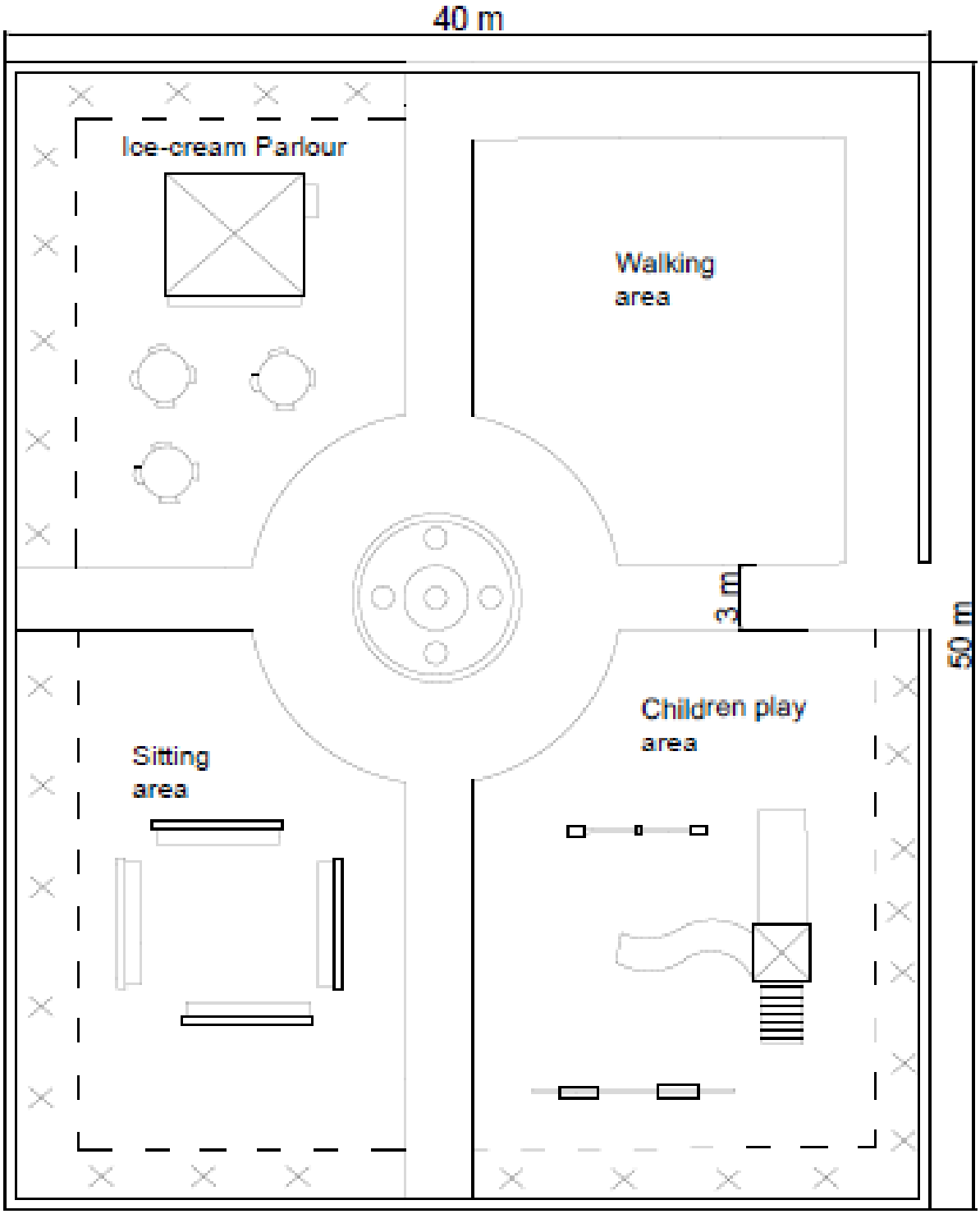
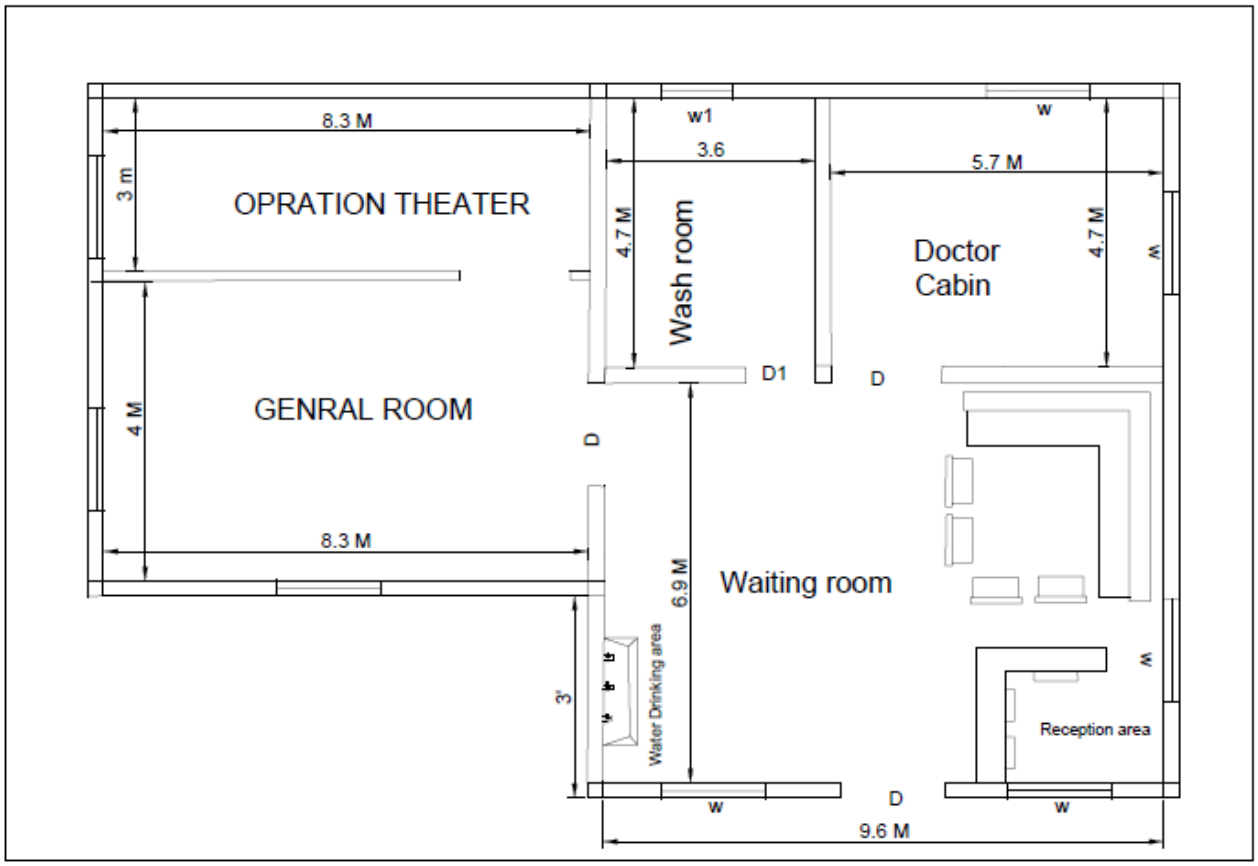


Fig 8.4: Plan for Public Garden

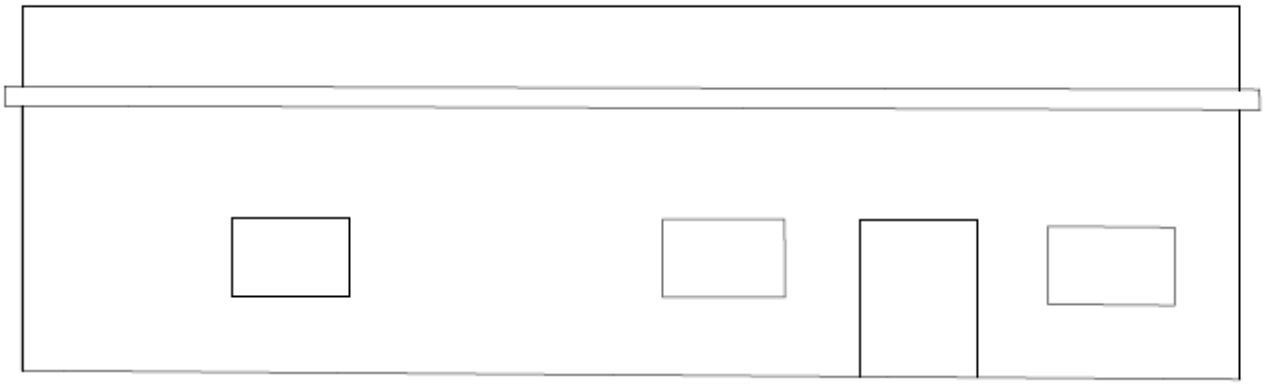
PROP. CONSTRUCTION WORK OF PUBLIC GARDEN							
AT, JASKA, TAL:-HARIJ, DIST:-PATAN							
MEASUREMENT SHEET							
NO.	DESCRIPTION	NO.	L(mt)	B(mt)	H	Unit	TOTAL
1	EXAVATION						
	FOR WALL	1	180	0.3	1.3	cum	70.2
2	PCC						
	FOR WALL	1	180	0.3	0.3	cum	16.2
3	BRICK MASONARY	1	180	0.3	1.5	Sqm	81
4	STEEL RAILING	1	180		0.5		90
5	PLASTER	1	180	0.2		sqm	36
6	LANDSCAPING	1	40	50			2000

PROP. CONSTRUCTION WORK OF PUBLIC GARDEN					
AT, JASKA, TAL:-HARIJ, DIST:-PATAN					
ABSTRACT SHEET					
SR NO	DESCRIPTION	QTY	RATE	PER	AMOUNT
1	EXCAVATION	70.2	151	m3	10600.2
2	P.C.C	16.2	3300	m3	53460
3	MASONARY	81	3500	m3	283500
4	STEEL RAILING	90	2590	m2	233100
5	PLASTER	36	150	m2	5400
6	LANDSCAPING	2000	215	m2	430000
		Total			1016060.2
		Contractor profit=10%			101606.02
		contingencies = 5%			508030.1
7	TOTAL				1625696.32

8.5 Design V: Public Healthcare Center (Sustainable Design)

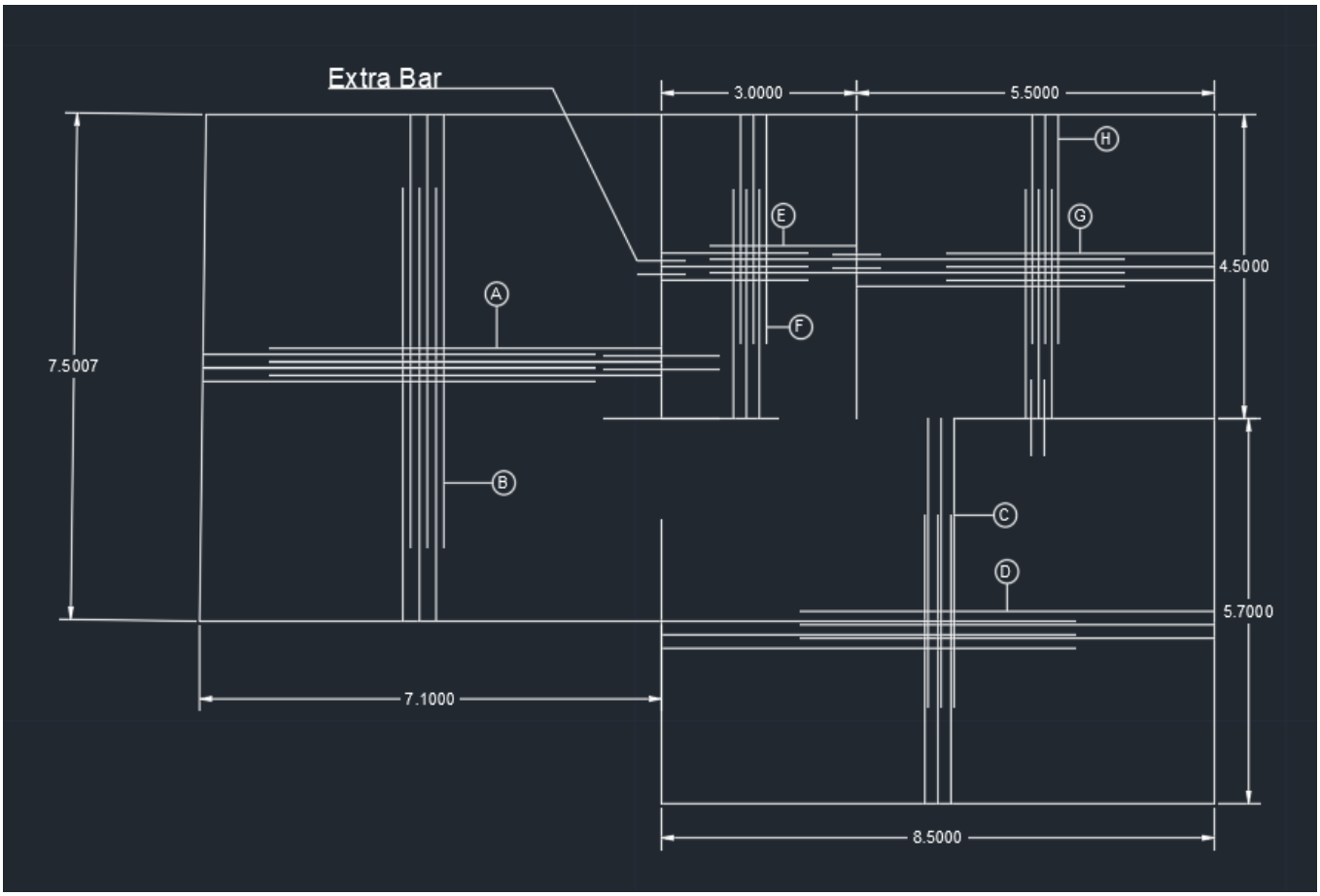


PLAN



ELEVATION

Fig 8.5: Plan and Elevation for Public Healthcare Center



SPACING	
A	12mm @ 170mm C/C
B	12mm @ 160mm C/C
C	12mm @ 160mm C/C
D	12mm @ 210mm C/C
E	12mm @ 300mm C/C
F	12mm @ 270mm C/C
G	12mm @ 300mm C/C
H	12mm @ 300mm C/C

Fig : Slab Reinforcement Details

PROP. CONSTRUCTION WORK OF PUBLIC HEALTHCARE CENTER AT, JASKA, TAL:-HARIJ, DIST:-PATAN							
MEASUREMENT SHEET							
CENTER LINE = 70.3m							
ITEM	DESCRIPTION	NO	L	B/W	H/D	QUANTIY	UNITS
ITEM NO.:- 1							
	Excavation for						
	Foundation						
	L=69.7	1	69.7	0.9	1.2	75.276	Cu.m.
ITEM NO.:- 2							
	C.C. work in foundation						
	L=69.7	1	69.7	0.9	0.2	12.546	Cu.m.
ITEM NO.:- 3							
	Brick masonry work in						
	Foundation (L=70.3)						
	1st step						
	L=70.3 –4*(0.6/2)	1	69.1	0.6	0.1	4.146	Cu.m
	69.1						
	2nd step						
	L=70.3 –4*(0.5/2)	1	69.3	0.5	0.1	3.465	Cu.m
	69.3						
	3rd step						
	L=70.3 –4*(0.4/2)	1	69.5	0.4	0.1	2.78	Cu.m
	69.5						
	4th step	1	69.7	0.3	0.7	14.637	Cu.m
	L=70.3 –4*(0.3/2)						
	69.7						
	Total Brick masonry					25.028	Cu.m.
	work in foundation						
ITEM NO.:- 4							
	Brick masonry work in						
+	super structure						
	L=70.3	1	70.3	0.3	3	63.27	Cu.m.
	Deduction for door &						
	Window						

	Door	3	1.5	0.3	2.1	0.945	Cu.m.
	Door 1	1	1.2	0.3	2.1	0.756	Cu.m.
	Window	9	1.5	0.3	1.2	0.54	Cu.m.
	Deduction for lintel						
	Door	3	1.5	0.3	0.1	0.045	Cu.m.
	Door 1	1	1.2	0.3	0.1	0.036	Cu.m.
	Window	9	1.5	0.3	0.1	0.045	Cu.m.
	Total Brick masonry						
	Work						
	60.9					60.903	Cu.m.
ITEM NO.:- 5							
	Brick masonry work in step						Cu.m.
	Step: 1	1	4	0.6	0.25	0.6	Cu.m.
	Step: 2	1	4	0.3	0.25	0.3	Cu.m.
					Total	0.9	Cu.m.
ITEM NO.:- 6							
	D.P.C at plinth level						
	For 300mm thick wall	1	70.3	0.9	0.3	18.981	cum
	Total					18.981	Cu.m
ITEM NO 7							
	EARTH FILLING						
	GENERAL ROOM	1	7.1	7	0.6	29.82	Cu.m
	WAITING ROOM	1	6.4	8.2	0.6	31.488	Cu.m
	Washroom	1	3.5	3	0.6	6.3	Cu.m
	Office	1	3.5	4.9	0.6	10.29	Cu.m
	TOTAL					77.898	Cu.m
8)INTERNAL PLASTER							
	Ceiling	1	7.5	7.4		55.5	
		1	8.6	10.5		90.3	
	Walls	2	7.1		3	21.3	
		2	7		3	21	
		4	8.2		3	24.6	
		2	9.9		3	29.7	
	TOTAL					221.4	Sq.m.
ITEM NO.:- 9							

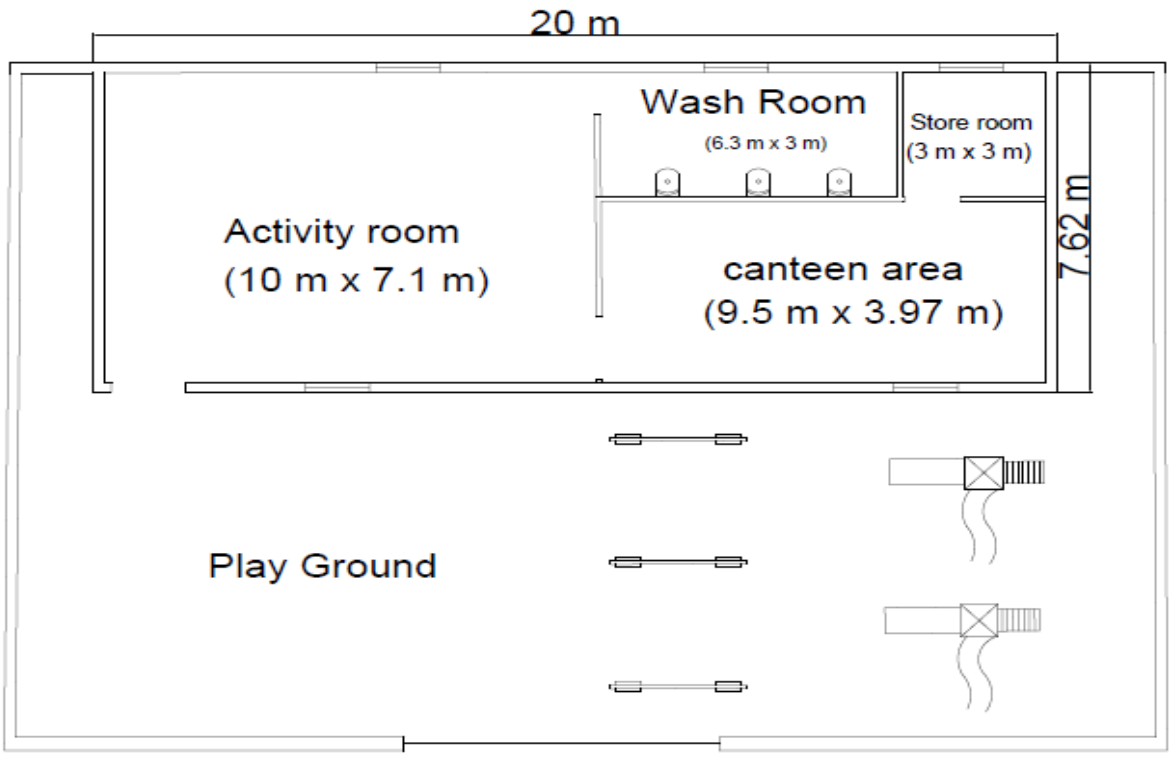
WHITE WASH PER ABOVE						221.4	Sq.m.
ITEM NO 10							
	RCC WORK FOR SLAB 1	1	8.4	10.5	0.2	17.64	Cu.m
	L=8.4						
	B=10.5						
	H=0.2						
	RCC WORK FOR SLAB 1	1	7.4	7.5	0.2	11.1	Cu.m
	L=7.4						
	B=7.5						
	H=0.2						
TOTAL SLAB WORK						28.74	Cu.m

PROP. CONSTRUCTION WORK OF PUBLIC HEALTHCARE CENTER AT, JASKA, TAL:-HARIJ, DIST:-PATAN

ABSTRACT SHEET

Sr.	Item description	Quantity	Rate	Per	Amount
1	Excavation work	75.28	155	Cu.m.	11,668
2	P C.C	12.55	3000	Cu.m.	37,650
3	Brickwork in foundation	25.1	3200	Cu.m.	80,320
4	Brickwork in superstructure	60.9	3500	Cu.m.	2,13,150
5	Brickwork in steps	0.9	3200	Sq.m.	2,880
6	DPC at plinth level	18.98	4900	Cu.m.	93,002
7	Earth filling	77.9	50	Cu.m.	3,895
8	Internal plaster	221.4	150	Sq.m.	33,210
9	White wash	221.4	25	Sq.m.	5,535
10	Rcc work for slab	28.74	8800	Cu.m.	2,52,912
				Total Rupees	7,34,222
				Contigency 05.00% Rupees	36711.12
				10% contractor charges	73,422
				2% water charges	14684.448
				Total Amount Rupees	8,59,040
				Say Rupees	8,59,040

8.6 Design VI: Anganvadi (Socio-Culture Design)



PLAN

Fig 8.6: Plan for Anganvadi

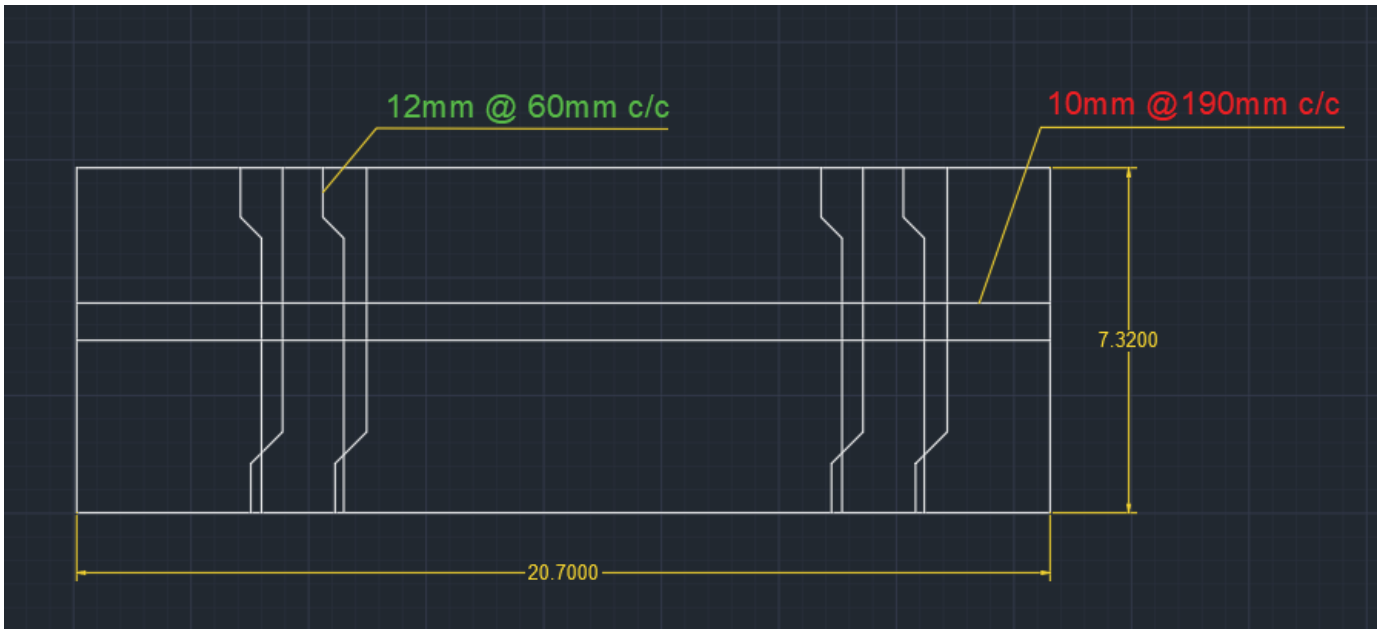


Fig : Slab Reinforcement Details

PROP. CONSTRUCTION WORK OF ANGANVADI AT, JASKA, TAL:-HARIJ, DIST:-PATAN							
MEASUREMENT SHEET							
CENTER LINE = 61.36 m							
ITEM	DESCRIPTION	NO	L	B/W	H/D	QUANTIY	UNITS
ITEM NO.:- 1							
	Excavation for						
	Foundation						
	L=60.76	1	60.76	0.9	1.2	65.6208	Cu.m.
ITEM NO.:- 2							
	C.C. work in foundation						
	L=60.76	1	60.76	0.9	0.2	10.9368	Cu.m.
ITEM NO.:- 3							
	Brick masonry work in						
	Foundation (L=61.36)						
	1st step						
	L=61.36 –4*(0.6/2)	1	60.16	0.6	0.1	3.6096	Cu.m
	60.16						
	2nd step						
	L=61.36 –4*(0.5/2)	1	60.36	0.5	0.1	3.018	Cu.m
	60.36						
	3rd step						
	L=61.36 –4*(0.4/2)	1	60.56	0.4	0.1	2.4224	Cu.m
	60.56						
	4th step	1	60.76	0.3	0.7	12.7596	Cu.m
	L=61.36 –4*(0.3/2)						
	60.76						
	Total Brick masonry					21.8096	Cu.m.
	work in foundation						
ITEM NO.:- 4							
	Brick masonry work in						
+	super structure						
	L=61.36	1	61.36	0.3	3	55.224	Cu.m.
	Deduction for door &						
	Window						
	Door	1	1.5	0.3	2.1	0.945	Cu.m.
	Door 1	2	1.2	0.3	2.1	0.756	Cu.m.
	Window	5	1.5	0.3	1.2	0.54	Cu.m.

	Deduction for lintel						
	Door	1	1.5	0.3	0.1	0.045	Cu.m.
	Door 1	2	1.2	0.3	0.1	0.036	Cu.m.
	Window	5	1.5	0.3	0.1	0.045	Cu.m.
	Total Brick masonry						
	Work						
	52.86					52.857	Cu.m.
ITEM NO.:- 5							
	Brick masonry work in step						Cu.m.
	Step: 1	1	4	0.6	0.25	0.6	Cu.m.
	Step: 2	1	4	0.3	0.25	0.3	Cu.m.
					Total	0.9	Cu.m.
ITEM NO.:- 6							
	D.P.C at plinth level						
	For 300mm thick wall	1	61.36	0.9	0.3	16.5672	cum
	Total					16.5672	Cu.m
ITEM NO 7							
	EARTH FILLING						
	ACTIVITY ROOM	1	12	7.02	0.6	50.544	Cu.m
	STORAGE ROOM	1	7.1	7.02	0.6	29.9052	Cu.m
	WASHROOM	1	3.5	2.5	0.6	5.25	Cu.m
	TOTAL					85.6992	Cu.m
8)INTERNAL PLASTER							
	Ceeling	1	19.4	7.02		136.188	
	Walls	2	19.4		3	58.2	
		4	7.02		3	21.06	
		2	3.5		3	10.5	
	TOTAL					204.888	Sq.m.
ITEM NO.:- 9							
WHITE WASH PER ABOVE						204.888	Sq.m.
ITEM NO 10							
	RCC WORK FOR SLAB 1	1	20	7.62	0.2	30.48	Cu.m
	L=20						
	B=7.62						
	H=0.2						

PROP. CONSTRUCTION WORK OF ANGANVADI AT, JASKA, TAL:-HARIJ, DIST:-PATAN					
ABSTRACT SHEET					
Sr.	**Item description**	**Quantity**	**Rate**	**Per**	**Amount**
1	Excavation work	65.62	155	Cu.m.	10,171
2	P C.C	10.94	3000	Cu.m.	32,820
3	Brickwork in foundation	21.81	3200	Cu.m.	69,792
4	Brickwork in superstructure	52.86	3500	Cu.m.	1,85,010
5	Brickwork in steps	0.9	3200	Sq.m.	2,880
6	DPC at plinth level	16.57	4900	Cu.m.	81,193
7	Earth filling	85.7	50	Cu.m.	4,285
8	Internal plaster	204.88	150	Sq.m.	30,732
9	White wash	204.88	25	Sq.m.	5,122
10	Rcc work for slab	30.48	8800	Cu.m.	2,68,224
				Total Rupees	6,90,229
				Contigency 05.00% Rupees	34511.455
				10% contractor charges	69,023
				2% water charges	13804.582
				Total Amount Rupees	8,07,568
				Say Rupees	8,07,568

8.2 Reason for Students Recommending this Design

Primary surveys were conducted at allocated, ideal & smart village. After analyzing and comparing various infrastructural facilities of villages, above design were proposed (refer 8.1 of chapter 8)

Reasons of proposal of designs in allocated village

Problem	Solution
• Improper Sanitation Facilities • Unhealthy and unhygienic environment	Public Toilet
• Poor quality of labour skills, less productivity. • No new skill learning and growth opportunities	Skill Development Center
• Lack of Public Library • No internet facilities available	Library
• Existing structure was in poor condition • Lack of toddlers development	Anganvadi
• Lack of Recreational facility • Lack of tourist attraction	Public Garden
• Lack of medical facilities • Lack of health awareness	PHC

8.3. About designs Suggestions / Benefit of the villagers

Benefits	Proposed Design
• Better Sanitation facility • Healthy Environment	Public Toilet
• Personal and industrial growth • New growth opportunities and learning	Skill Development Center
• Better village education • Development of education	Library
• New infrastructure • Toddlers developement	Anganvadi
• Imporve mental health & promote relaxation • Tourist attraction	Public Garden
• Villagers will get better healthcare at lower coat • Spreading of awareness of health and hygine	PHC

Chapter 9

Proposing Design For Future Developement Of The Village For The Part-II Design

The foremost goal of the Vishwakarma Yojana is that to develop villages by providing all the basic amenities people require for a healthy living. And also to stop or reduce migration of village people to towns and cities. And to do so we recommended some new facilities to be added to this village but these are just basic facilities and for the Part II of this project we would like to recommend the following:

- Improvement in educational facilities.
- Improvement in sanitation facilities.
- Improvement in medical and health facilities.
- Improvement in water supply and irrigation facilities
- Development of recreational facilities.
- Improvement in transportation facilities.
- Improvement in drainage and internal streets.
- Provision of higher studies.
- Small scale business should be acknowledged and should be appreciated.
- Banking and ATM facilities should also be provided.

For part 1 we have added following Designs:

1. Public Library
2. Public Toilet
3. Skill Development Center
4. Public Garde
5. Public Healthcare Center
6. Anganvadi

For part 2 we are planning to add following Designs:

1. Compost pit
2. Post office
3. Chabotra
4. Bus Stand
5. ATM Machine
6. Bank

Chapter 10

Conclusion of the Entire Village Activities Of the Project

Village visits of Ideal Village Kukrana and Smart Village Ruppur, the idea and scenario of a model villages were been developed and rationale was built for allocated village Jaska.

During visits of the ideal and smart villages Various amenities and Civil-Electrical infrastructures like Educational buildings, transportation facilities, water availability and distribution, use of smart technologies and use of renewable resources at rural level are been observed and studied.

Jaska village was visited thoroughly to refer the geographical features, demographic survey, socio-economic surveys and available and required infrastructural facilities. Data collected through both personal interviews and interactions with local authorities, analyzed for exploring the gaps in infrastructure facilities required as per UDPFI guidelines.

Based on Gap analysis, the essential and necessary infrastructures like public library and public toilets are proposed along with required measurements and costing. Design of other essential infrastructures is considered as future scope of study.

Smart Village can solve their problem by can become a smart village example to other village too. According to UDPFI norms, lacking in basic amenities and Smart Amenities can be provided.

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.

And the development of village to smart village will lead to the overall development of villagers and will help them in many ways and not only this development will help develop village but also the nation as whole.

Chapter 11

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Chapter 12

Annexure Attachment

12.1 Survey form of Ideal Village

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

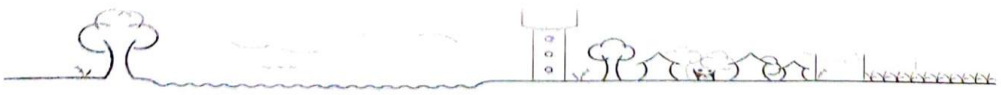
Name of Village:	Kukrana
Name of Taluka:	Sami
Name of District:	Patan
Name of Institute:	GPERI
Nodal Officer Name & Contact Detail:	Sadanand Sahu
Respondent Name: (Sarpanch/ Panchayat Member/ Teacher/ Gram Sevak/ Aaganwadi worker/Village dweller)	
Date of Survey:	

1. **Demographical Detail:**

Sr. No.	Census	Population	Male	Female	Total House Holds
i)	2001				
ii)	2011	2862	1470	1392	622

2. **Geographical Detail:**

Sr. No.	Description	Information/Detail
i)	Area of Village (Approx.) (In Hector) Coordinates for Location:	999.76 hectares
	Forest Area (In hect.)	–
	Agricultural Land Area (In hect.)	
	Residential Area (In hect.)	
	Other Area (In hect.)	–
	Water bodies	Pond
	Nearest Town with Distance:	Harij (5 Km)



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

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

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

7. **Data Collection From Village**

Village Base Map Available: Hard Copy/Soft Copy	

	Condition:				
	Public Library (With daily newspaper supply: Y/N) Location: Condition:	No			
	Public Garden Location: Condition:	No			
	Village Pond Location: Condition:	2- Major Center Good	Yes		
	Recreation Center Location: Condition:	No			
	Cinema/ Video Hall Location: Condition:	No			
	Assembly Polling Station Location: Condition:	Yes Primary school Good	Yes		
	Birth & Death Registration Office Location: Condition:	Panchayat Building Good	Yes		
If any of the above Facility is not available in village than approx. distance from village: .....kms.					
Suggestions if any:					
N.	**Other Facilities**				
	Post-office	Yes	Yes		
	Telecommunication Network/ STD booth	No			

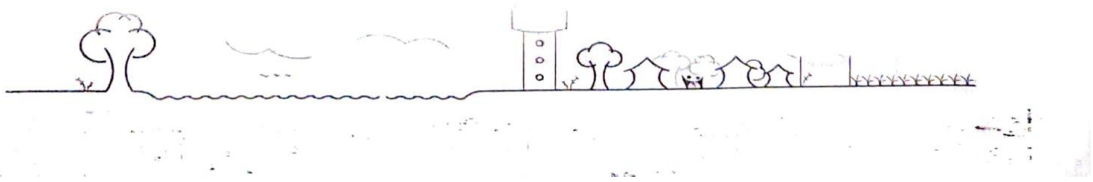
K.	**Health Facilities:**				
	Sub center/ PHC/ CHC /Government Hospital/ Child welfare & Maternity Homes (If Yes than specify No. of Beds) Condition:	CHC	Yes		
	Private Clinic/Private Hospital/ Nursing Home	No			
	If any of the above Facility is not available in village than approx. distance from village: ..5.....kms.				
Suggestions if any:					
L.	**Education Facilities:**				
	Aaganwadi/ Play group	3 Nos.	Yes		
	Primary School	1	Yes		
	Secondary school	1	Yes		
	Higher sec. School	No			
	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.				
Suggestions if any:					
M.	**Socio- Culture Facilities**				
	Community Hall (With or without TV) Location:	Yes	Yes		

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

5. **Social Infrastructural Facilities:**

Sr. No.	Descriptions	Information/ Detail	Adequate	Inadequate	Remarks

E.	**Road Network :All Weather/ Kutchha (Gravel)/ Black Topped pucca/ WBM**				
	Village approach road	Yes	Yes		
	Main road	Yes	Yes		
	Internal streets	Yes	Yes		
	Nearest NH/SH/MDR/ODR Dist. in kms.	5.5 Km.			
Suggestions if any:					
F.	**Transport Facility**				
	Railway Station (Y/N) (If No than Nearest Rly Station---Kms)	Harij (6 Km)	Yes		
	Bus station (Y/N) Condition: (If No than Nearest Bus Station---Kms)	Harij (6 Km)	Yes		
	Local Transportation (Auto/ Jeep/Chhakda/ Private Vehicles/ Other)	Yes	Yes		
Suggestions if any:					
G.	**Electricity Distribution**				
	(Y/N) Govt./ Private (Less than 6 hrs./ More Than 6 hrs)	Government UGVCL	Yes		
	Power supply for Domestic Use	24 hr. Available	Yes		
	Power supply for Agricultural Use	6-8 hr Available	Yes		
	Power supply for Commercial Use	24 hr. Available	Yes		
	Road/ Street Lights	10 hr.	Yes		



3. Occupational Details:

Name of Three Major Occupation groups in Village	1. Farming. 2. Animal Husbandry 3. Labour.

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	Available — — — Available Available	Yes Yes 	 No	
Suggestions if any:					
B.	**Water Tank Facility**				
	Overhead Tank	Capacity:	20000		
	Underground Sump	Capacity:	100,000		
Suggestions if any:					
C.	**Drainage Facility**				
	Available (Yes/ No)	No			
Suggestions if any:					
D.	**Type of Drainage**				
	Closed/ Open	closed	Yes		
	If Open than Pucca / Kutchcha	—			
	Whether drain water is discharged directly in to Water bodies/ Sewer plants	water bodies	Yes		
Suggestions if any:					

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

8. **Additional Information/ Requirement:**

Sr. No.	Descriptions	Information/ Detail	Remarks
1.	**Repair & Maintenance of Existing Public Infrastructure facilities(School Building, Health Center, Panchayat Building, Public Toilets & any other)**	Panchayat Building Needs Repair	
2.	**Additional Information/ Requirement**	Traffic Problem at approach Road	

9. **Smart Village Proposal Design**

Sr. No.	Descriptions	Information/ Detail	Remarks
1.			

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

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

સરપંચ
ગ્રામ પંચાયત
તા. હારીજ, જિ. પાટણ

12.2 Survey form of Smart Village

Techno Economic Survey

Vishwakarma Yojana: Phase VIII

SMART VILLAGE SURVEY

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

Name of District:	Patan
Name of Taluka:	Chanasma
Name of Village:	Ruppur
Name of Institute:	GPERI
Nodal Officer Name & Contact Detail:	Prof. Sadanand Sahu
Respondent Name: (Sarpanch/ Panchayat Member/ Teacher/ Gram Sevak/ Aaganwadi worker/Village dweller)	Madhuben Pravinchandra Mehta Jigar M. Patel
Date of Survey:	

I. DEMOGRAPHICAL DETAIL:

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

II. GEOGRAPHICAL DETAIL:

Sr. No.	Description	Information/Detail
1.	Area of Village (Approx.) (In Hector)Coordinates for Location:	1090/029/02/88
2.	Forest Area (In hect.)	65/05/51 Gauchar
3.	Agricultural Land Area (In hect.)	897/08/94
4.	Residential Area (In hect.)	10/80/52
5.	Other Area (In hect.)	-
6.	Distance to the nearest railway station (in kilometers):	16 Km

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

III. OCCUPATIONAL DETAILS:

Name of Three Major Occupation groups in Village	1. Farming 2. Job 3. Business
Major crops grown in the village:	1. Mustard 2. Cotton 3. Castard

IV. PHYSICAL INFRASTRUCTURE FACILITIES:

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

Suggestions if any:					
B.	**Water Tank Facility**				
	Overhead Tank	Capacity: 50,000	Yes		Good
	Underground Sump	Capacity: –	–		
Suggestions if any:					
C.	**The Type of Drainage Facility**				
	A. UNDERGROUND DRAINAGE 1 2 B. OPEN WITH OUTLET C. OPEN WITHOUT OUTLET	Yes (closed)	Yes		V. Good
Suggestions if any:					
D.	**Road Network :All Weather/ Kutchha (Gravel)/ Black Topped pucca/ WBM**				
	Village approach road	300 m	Yes		All weather
	Main road	300 m	yes		All weather
	Internal streets	23	Yes		All weather
	Nearest NH/SH/MDR/ODR Dist. in kms.	300 m			All weather
Suggestions if any:					
E.	**Transport Facility**				
	Railway Station (Y/N) (If No than Nearest Rly Station---Kms)	No (16 km)			
	Bus station (Y/N) Condition: (If No than Nearest Bus Station---Kms)	No (4 Km)			
	Local Transportation (Auto/ Jeep/Chhakda/ Private Vehicles/ Other)	Jeep/ Auto/ chakda	Yes		Connecting near village
Suggestions if any:					
F.	**Electricity Distribution**				
	(Y/N) Govt./ Private (Less than 6 hrs./ More Than 6 hrs)	Govt. (UGVCL)	Yes		24x7 Available

3

Gujarat Technological University, Ahmedabad, Gujarat

Vishwakarma Yojana: Phase VIII
Techno Economic Survey

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

Suggestions if any:

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

Suggestions if any:

H.	**Main Source of Irrigation Facility:**				
	TANK/POND	Pond	Yes		Good
	STREAM/RIVER				
	CANAL				
	WELL	well	Yes		Proper
	TUBE WELL.				
	OTHER (SPECIFY)				

Suggestions if any:

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

V. SOCIAL INFRASTRUCTURAL FACILITIES:

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

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Suggestions if any:

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

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

Suggestions if any:

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

	Credit Cooperative Society Agricultural Cooperative Society Milk Cooperative Society Fishermen's Cooperative Society Computer Kiosk/ e-chaupal / Mills / Small Scale Industries	Milk Cooperative society Good	Village	Yes	
	Other Facility				

Suggestions if any:

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

VI. SUSTAINABLE /GREEN INFRASTRUCTURE FACILITIES:

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

VII. DATA COLLECTION FROM VILLAGE

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

VIII. ADDITIONAL INFORMATION/ REQUIREMENT:

Sr. No.	Descriptions	Information/ Detail	Remarks

1.	Repair & Maintenance of Existing Public Infrastructure facilities, School Building Health Center Panchayat Building Public Toilets & any other	NU	
2.	Additional Information/ Requirement		
3.	During the last six months how many times CLEANING .....Daily..... 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

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

12.3 Survey form of Allocated Village

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:	Patan
Name of Taluka:	Harij
Name of Village:	Jaska
Name of Institute:	GPERI
Nodal Officer Name & Contact Detail:	Prof. Sadanand Sahu
Respondent Name: (Sarpanch/ Panchayat Member/ Teacher/ Gram Sevak/ Aaganwadi worker/Village dweller)	Thakor Rangubeen Vesrji
Date of Survey:	

I. DEMOGRAPHICAL DETAIL:

Sr. No.	Census	Population	Male	Female	Total Number of House Holds
1.	2001				
2.	2011	1319	683	646	277

II. GEOGRAPHICAL DETAIL:

Sr. No.	Description	Information/Detail
1.	Area of Village (Approx.) (In Hector)Coordinates for Location:	769.94 hectares
2.	Forest Area (In hect.)	
3.	Agricultural Land Area (In hect.)	14 hectare
4.	Residential Area (In hect.)	5 hectare
5.	Other Area (In hect.)	
6.	Distance to the nearest railway station (in kilometers):	27 Km.

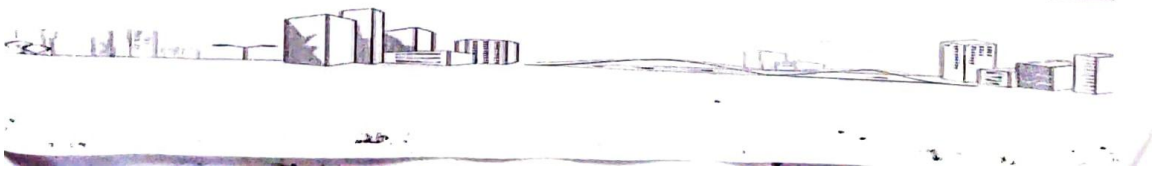
7.	Name of Nearest Town with Distance:	Harij (4Km)
8.	Distance to the nearest bus station (in kilometers):	Harij (4Km)
9.	Whether village is connected to all road for the any facility or town or City?	Yes

III. OCCUPATIONAL DETAILS:

Name of Three Major Occupation groups in Village	1. Farmer 2. Labour 3. Dairy Business
Major crops grown in the village:	1. Bajra 2. wheat 3. Cotton

IV. PHYSICAL INFRASTRUCTURE FACILITIES:

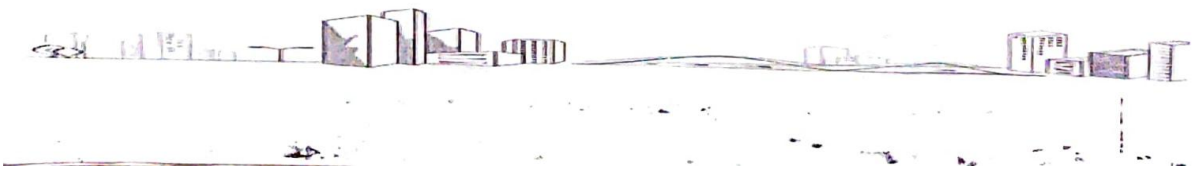
Sr. No.	Descriptions	Detail	Adequate	Inadequate	Remarks
A.	**Main Source of Drinking water**				
1.	**PIPED WATER** Piped Into Dwelling Piped To Yard/Plot Public Tap/Standpipe Tube Well Or Bore Well	Canal	Yes		
2.	**DUG WELL** Protected Well Un Protected Well	Protected well	Yes		
3.	**WATER FROM SPRING**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



Gujarat Technological University, Ahmedabad, Gujarat

Vishwakarma Yojana: Phase VIII
Techno Economic Survey

	Other(Specify)Lake/ Pond	Pond	Yes		
Suggestions if any:					
B.	**Water Tank Facility**				
	Overhead Tank	Capacity: 50,000	Yes		
	Underground Sump	Capacity: 150,000	Yes		
Suggestions if any:					
C.	**The Type of Drainage Facility**				
	A. UNDERGROUND DRAINAGE 1	Yes	Yes		
Suggestions if any:					
D.	**Road Network :All Weather/ Kutchha (Gravel)/ Black Topped pucca/ WBM**				
	Village approach road	Pucca	Yes		All weather
	Main road	Pucca	Yes		All weather
	Internal streets	C.C.	Yes		All weather
	Nearest NH/SH/MDR/ODR Dist. in kms.	3.2 Km			
Suggestions if any:					
E.	**Transport Facility**				
	Railway Station (Y/N) (If No than Nearest Rly Station---Kms)	Chanasma 27 Km	Yes		
	Bus station (Y/N) Condition: (If No than Nearest Bus Station---Kms)	Harij 4 Km	Yes		
	Local Transportation (Auto/ Jeep/Chhakda/ Private Vehicles/ Other)	Auto / Private car	Yes		
Suggestions if any:					
F.	**Electricity Distribution**				
	(Y/N) Govt./ Private (Less than 6 hrs./ More Than 6 hrs)	Government UGVCL	Yes		



	Power supply for Domestic Use	24hr	Yes		
	Power supply for Agricultural Use	6-8 hrs	Yes		
	Power supply for Commercial Use	24 hrs	Yes		
	Road/ Street Lights	10 hrs	Yes		
	Electrification in Government Buildings/ Schools/ Hospitals	Yes	Yes		
	Renewable Energy Source Facilities (Y/ N)	No	-		
	LED Facilities	Yes	Yes		
Suggestions if any:					
G.	**Sanitation Facility**				
	Public Latrine Blocks If available than Nos.	No			
	Location Condition				
	Community Toilet (With bath/ without bath facilities)	No			
	Solid & liquid waste Disposal system available	No			
	Any facility for Waste collection from road	No			
Suggestions if any:					
H.	**Main Source of Irrigation Facility:**				
	TANK/POND STREAM/RIVER CANAL WELL TUBE WELL. OTHER (SPECIFY)	Bore well	Yes		
Suggestions if any:					
I.	**Housing Condition:**				
	Kutchha/Pucca (Approx. ratio)	Pucca - 70%. Kutchha - 30%.	Yes		

4

V. SOCIAL INFRASTRUCTURAL FACILITIES:

Sr. No.	Descriptions	Information/ Detail	Adequate	Inadequate	Remarks
J.	**Health Facilities:**				
	ICDS (Anganwadi)	Yes - 1	Yes		
	Sub-Centre	No			
	PHC	No			
	BLOCK PHC	No			
	CHC/RH	No			
	District/ Govt. Hospital	No			
	Govt. Dispensary	No			
	Private Clinic	No			
	Private Hospital/	No			
	Nursing Home	No			
	AYUSH Health Facility	No			
	sonography /ultrasound facility	No			
	If any of the above Facility is not available in village than approx. distance from village: 5 ...kms.				
Suggestions if any:					
K.	**Education Facilities:**				
	Aaganwadi/ Play group	Yes - 1	Yes		
	Primary School	Yes - 1	Yes		
	Secondary school	No			
	Higher sec. School	No			
	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.
Suggestions if any:	

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

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

Suggestions if any:

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

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

Suggestions if any:

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

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VI. SUSTAINABLE /GREEN INFRASTRUCTURE FACILITIES:

Sr. No.	Descriptions	Information/ Details	Adequate	Inadequate	Remarks
1.	Adoption of Non-Conventional Energy Sources/ Renewable Energy Sources	No			
2.	Bio-Gas Plant Solar Street Lights Rain Water Harvesting System	ND			
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	No			
3.	Any NGO working for village development	No			
4.	Any natural calamity in the village during the last one year: EARTHQUAKES FLOODS CYCLONE DROUGHT LANDSLIDES AVALANCHE OTHER (SPECIFY)	No			

VIII. ADDITIONAL INFORMATION/ REQUIREMENT:

Sr. No.	Descriptions	Information/ Detail	Remarks
1.	Repair & Maintenance of Existing Public Infrastructure facilities, School Building Health Center Panchayat Building Public Toilets & any other	No.	
2.	Additional Information/ Requirement		
3.	During the last six months how many times CLEANING .....1..... 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

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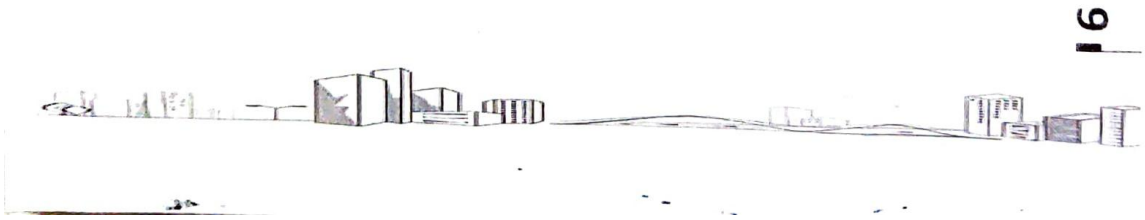
તા. હારીજ જિ.પાટણ



12.4 Gap Analysis of the Allocated Village:

Village Gap Analysis					
Village Facilities	**Planning Commission/UDPFI**	**Village Name** : Jaska			
		Population : 1329			
	Norms	**Existing**	**Requirea s per Norms**	**Future Project Design**	**GAP**
Social Infrastructure Facilities					
Education					
Anganwadi	Each of per 2500 population	1	2	-	-1
Primary School	Each Per 2500 population	1	1	-	0
Secondary School	Per 7,500 population	0	1	-	-1
Higher Secondary School	Per 15,000 Population	0	1	-	-
College	Per 125,000 Population	0	0	-	-
Tech. Training Institute	Per 100000 Population	0	0	-	-
Agriculture Research Centre	Per 100000 Population	0	0	-	-
Skill Development Center	Per 100000 Population	0	0	-	-
Health Facility					
Govt/Panchyat Dispensary or Sub **PHC or Health Centre**	Each Village	0	1		**-1**
Primary Health & Child Health Center	Per 20,000 population	-	1	-	-
Child Welfare and Maternity Home	Per 10,000 population	-	0	-	-
Multispecialty Hospital	Per 100000 Population	-	-	-	-

Public Latrines	1 for 50 families (if toilet is not there in home,	0	**2**		**-2**
Physical Infrastructure Facilities					
Pucca Village Approach Road	Each village	adequate	-	-	-
Bus/Auto Stand provision	All Villages connected by	inadequate	-	-	-
Drinking Water (Mini. 70 lpcd		adequate	-	-	-
Over Head Tank	1 /3 of Total Demand	adequate	**1**	-	-
U/G Sump		inadequate	**1**	-	-
Drainage Network - Open		adequate	-	-	-
Drainage Network - Cover		adequate	-	-	-
Waste Management System		adequate	-	-	-

Socio- Cultural Infrastructure Facilities					
Community Hall	Per 10000 Population	**0**	**1**	-	**-1**
community hall and Public Library	Per 15000 Population	**0**	**1**	-	**-1**
Cremation Ground	Per 20,000 population	**0**	**1**	-	**-1**
Post Office	Per 10,000 population	**0**	**1**	-	**0**
Gram Panchayat Building	Each individual/group	**1**	**1**	-	**0**
APMC	Per 100000 Population	**0**	**0**	-	**0**
Fire Station	Per 100000 Population	**0**	**0**	-	**0**
Public Garden	Per village	**0**	**1**	-	**-1**
Police post	Per 40,000Population	**0**	**1**	-	**-**
Shopping Mall	Shops are available	**no**	-	-	-
Electrical design					
Electricity Network	**UGVCL**	Adequate	250 kv Substation		
Any Smart Village Facility					
Technology					
		ESR cap	**0**		
		Sump cap	**0**		

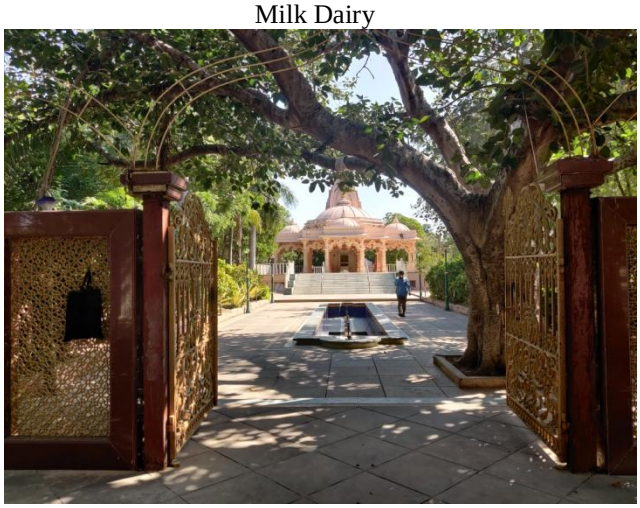
12.5 Summary of All Village Design Part I & Part II

Sr. No.	Village Name	Branch	Part-I Designs	Part-II Designs
1	Kimbuva	Civil Engineering	• Public Toilet • Skill Development Center • Public Garden • Water Tank for Animals • Post Office • Public Library	• Bank • Primary Healthcare Center • Septic tank • Community hall • Bio gas plant • Rain water harvesting
2	Jaska	Civil Engineering	• Public Library • Public Toilet • Skill Development Center • Public Garden • Public Healthcare Center • Anganvadi	• Compost pit • Bank • Chabootra • ATM • Bus stop • Post office
3	Taleti	Civil Engineering	• Public Toilet • Bus Stand • Public Health • Center • Community Hall • Rain water Harvesting System • Public Garden	• Higher secondary school • Skill development center • Dudh mandali • Bio gas plant • Public library • Women's club

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

Milk Dairy

Village Info



Temple

Garden

Pump

Lake

Lake Gate

Playground

ITI Collage

ITI collage gate

Village gate

Primary school gate

Anganvadi

Elevated tank

Gram panchayat

Drinking water

Primary school

Post office

Sitting area

Sitting area

Bank

Paved road

Drainage system

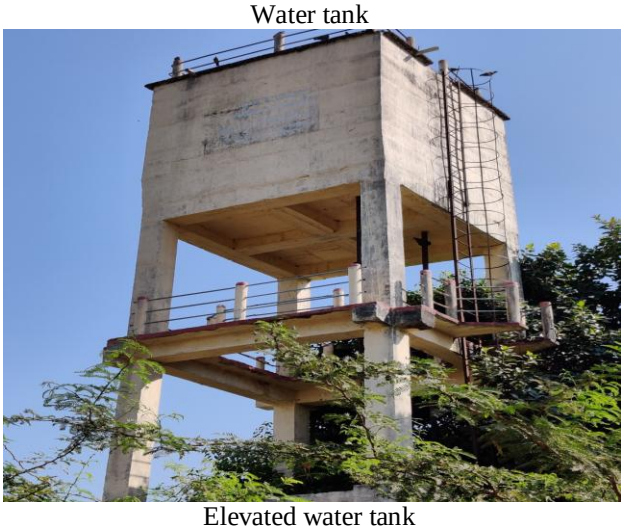
Primary school

Primary school

Sump

Water tank

Temple



Elevated water tank

Bank

Milk dairy

Community centre

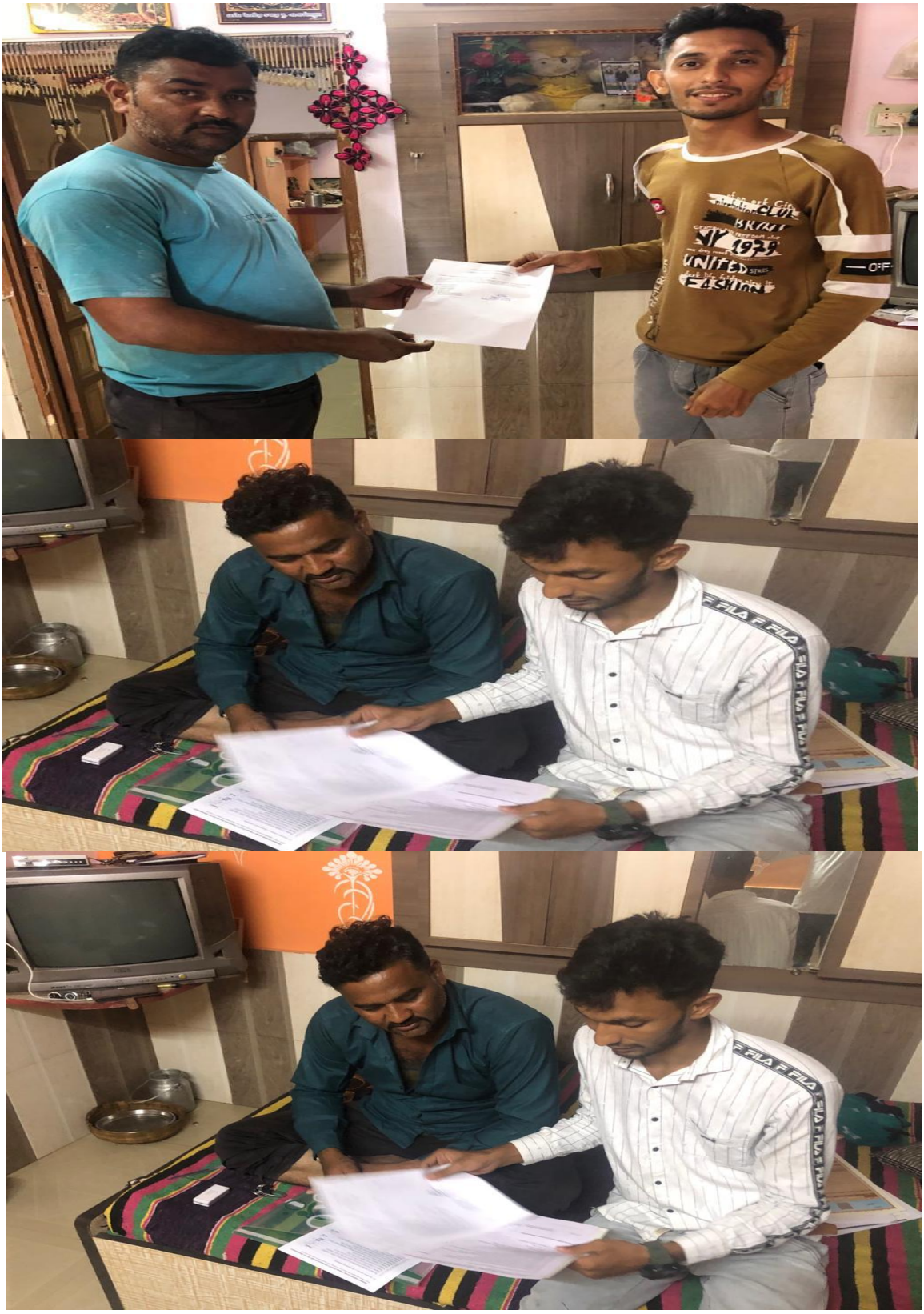
Panchayat Building

Community centre

Anganvadi

Gram panchayat building

12.7 Village Interaction with sarpanch Report with the photograph



Photos of letter giving to Sarpanch

12.8 Sarpanch Letter giving information about the village development

VISHWAKARMA YOJANA PHASE VIII

VILLLAGE: JASKA DISTRICT: PATAN

SUBJECT: Approval of designs proposal for Jaska village.

I Thakor Ranguneb Vershiji sarpanch of Jaska village give approval for the following design proposals given under the Vishwakarma Yojana Phase VIII an approach towards Rurbanization by students of GPERI Collage Mehsana named Aditya Rathod and Aman Memon.

Designs are as follow:

1. Public Library
2. Public Garden
3. Public Toilet
4. Anganvadi
5. Skill Development center
6. Public Healthcare Center

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તા. હારીજ જિ.પાટણ

12.9 Comprehensive report preparation as per format

Village visits of Ideal Village Kukrana and Smart Village Ruppur, the idea and scenario of a model villages were been developed and rationale was built for allocated village Jaska.

During visits of the ideal and smart villages Various amenities and Civil-Electrical infrastructures like Educational buildings, transportation facilities, water availability and distribution, use of smart technologies and use of renewable resources at rural level are been observed and studied.

Jaska village was visited thoroughly to refer the geographical features, demographic survey, socio-economic surveys and available and required infrastructural facilities. Data collected through both personal interviews and interactions with local authorities, analyzed for exploring the gaps in infrastructure facilities required as per UDPFI guidelines.

Based on Gap analysis, the essential and necessary infrastructures like public library and public toilets are proposed along with required measurements and costing. Design of other essential infrastructures is considered as future scope of study.

Smart Village can solve their problem by can become a smart village example to other village too. According to UDPFI norms, lacking in basic amenities and Smart Amenities can be provided.

By providing required amenities to village, development of village can be possible.

As the sole aim of this project is the development of the village as whole, for that certain civil structures are proposed:

1. Public library
2. Public toilet
3. Public Healthcare Center
4. Public Garden
5. Skill Development Center
6. Anganvadi

After addition of these structures the village would be on its way to development and not only development in terms of appearance but also the standard of living will improve.

Public library an Skill development Center will help villagers especially the students for better learning and developing their skills for their own development.

Adding better connectivity will help villagers to be in contact with ht urban areas for better understanding and gaining knowledge of the different government schemes for future development.

Addition of public toilet will ensure healthy, hygienic and safe environment for the people living in the village.

While the public toilet added will ensure safe environment addition of PHC will help maintain the health and treat ill people and also provide medications in the village at a minimal or no cost.

For a healthy environment people need not only be healthy physically but also mentally and a good garden having greenery and aesthetic view can help in that and also by adding public garden a tourist attraction is developed.

Children's and toddlers are an important part of the village and their education and wellbeing is of utmost importance and by adding a good Anganvadi the motive can be achieved.

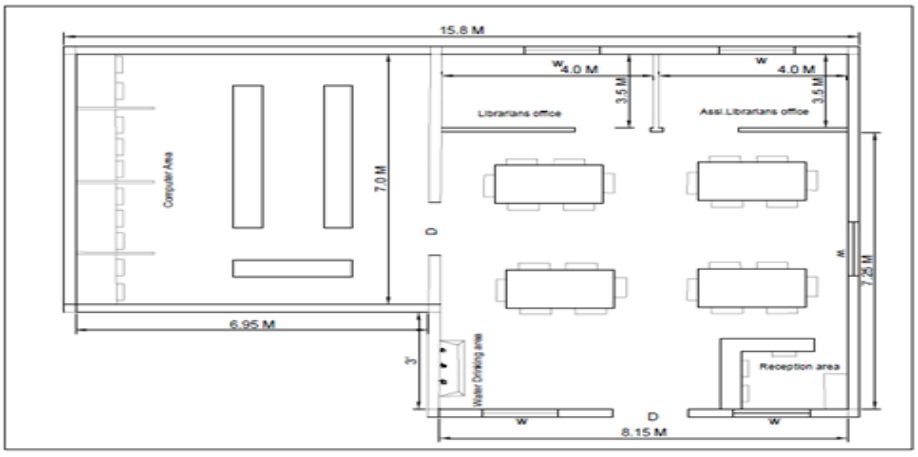
As it can be seen in these difficult pandemic time the PHCs are working very efficiently in treating infected persons and also vaccinating other peoples and therefore addition of such building can be very much useful.

And the development of village to smart village will lead to the overall development of villagers and will help them in many ways and not only this development will help develop village but also the nation as whole.

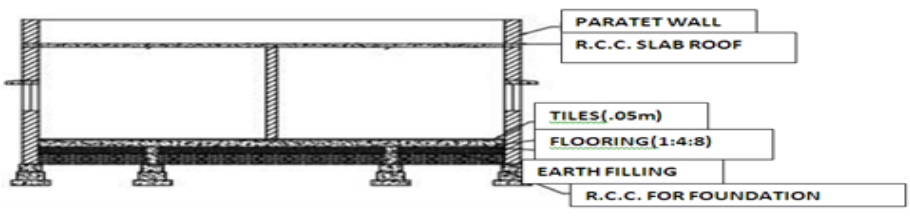
Village: Jaska, District: Patan

Designs

1. Public library

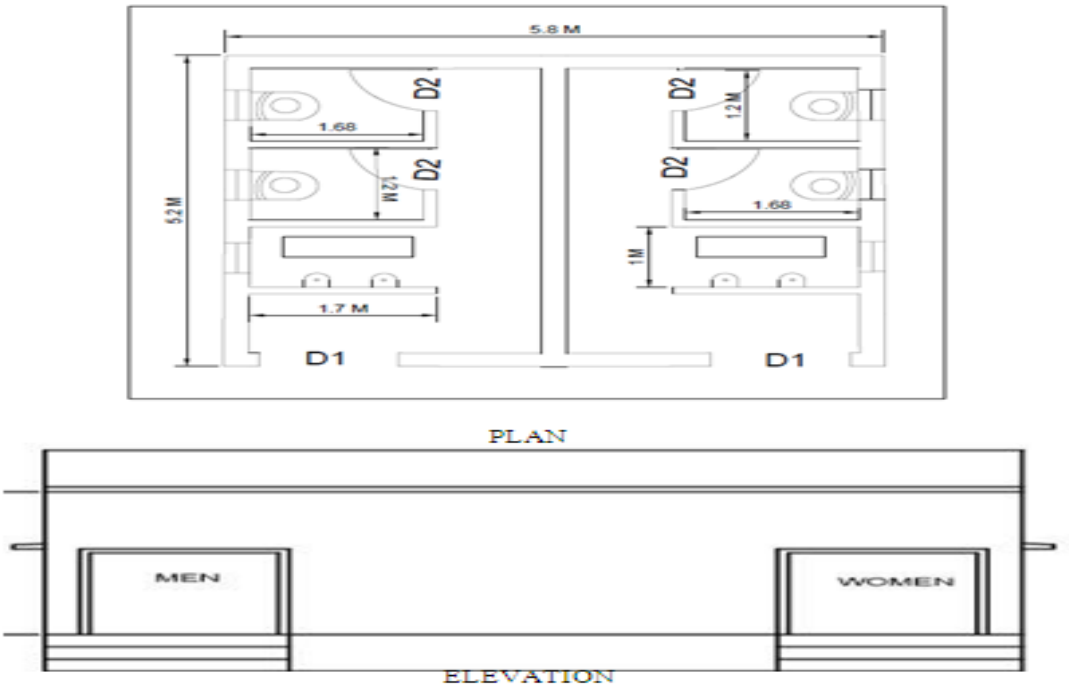


PLAN



ELEVATION

2. Public toilet

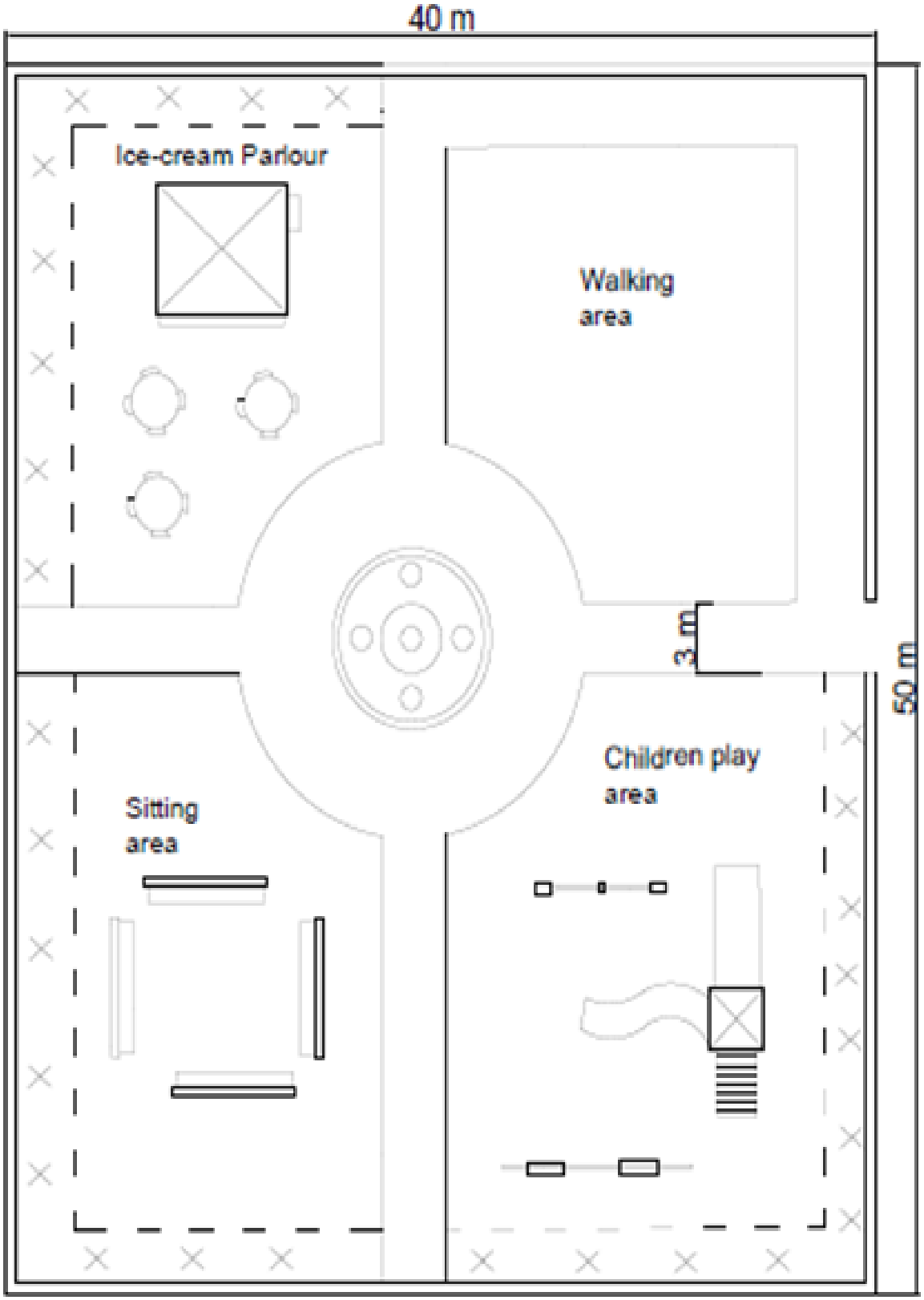


3. Public Healthcare Center

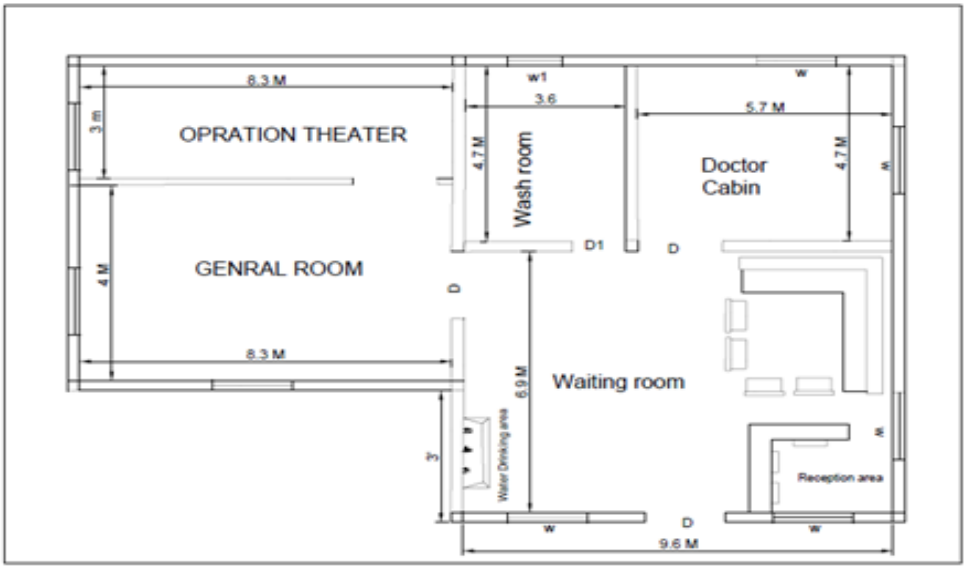
PLAN

ELEVATION

4. Public Garden



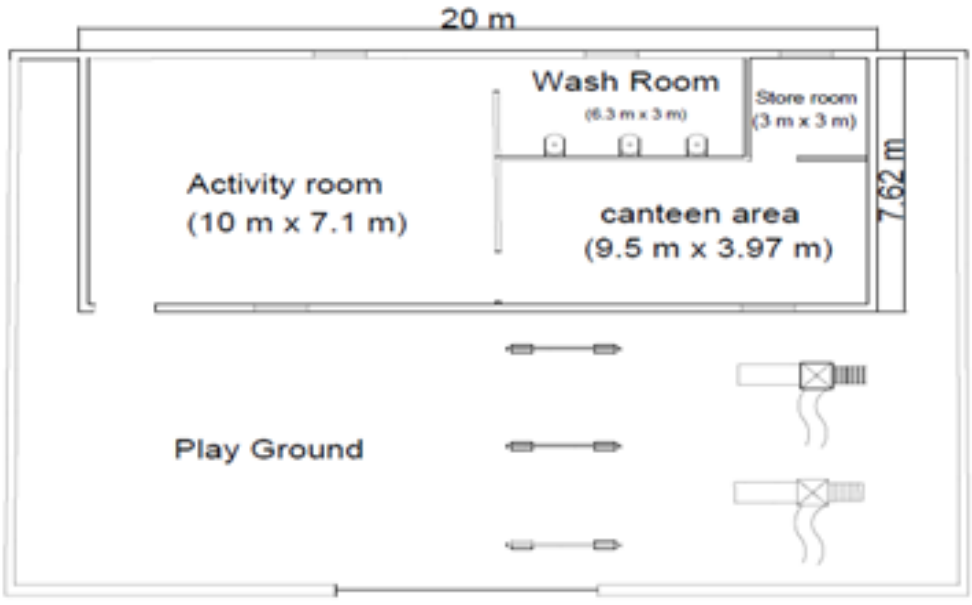
5. Skill Development Center



PLAN

ELEVATION

6. Anganvadi



Chapter 13

From the Chapter- 9 Future Designs of the Aspects

13.1 Design Proposals

13.1.1 Civil Design 1- Compost Pit

Compost pit:

The village would get the great benefit of hygiene and cleanliness because of compost pit. Compost pit would reduce greenhouse gases, improve soil quality, help clean up contaminated soil of the village which is due to randomly thrown waste on the land , help to control erosion, and would make and save money.

Advantages of compost pit:

According to the Environmental Protection Agency, composting has additional benefits for the Environment beyond reducing the amount of waste going into landfills:

- Reduces Toxins: Soils that have been exposed to toxic matter, such as fuels or pesticides, regenerate into healthy soil faster if composted soil is added to the mix. Composting prevents the spread of these contaminants into water sources and nearby plants, meaning that not only the soil, but also the water and plants in the area will be healthier.
- Reduces Pollution: Composting keeps organic matter out of landfills, reducing the amount of methane production happening in garbage disposal areas.
- Prevents Erosion: Compost strategically placed can eliminate or reduce erosion near water, on hills, the side of the road and even at golf courses and playing fields. Promote Healthy Growth: Soils, trees and plants in areas with compost are healthier. Incidences of plant diseases and pests that kill or damage plants and trees are lower when the soil has composted matter in it.

According to the Composting Council, composting also:

- Mitigates climate change (global warming).
- Reduces greenhouse gases.
- Reduces water pollution.
- Manages storm water.

Disadvantages of Compost pit:

Many people are reluctant to take up composting for the following reasons; however, simple solutions can remedy these small inconveniences.

- It's easier to simply throw away scraps in the garbage. It may seem easier at first, but once you are in the habit of composting, it truly takes no extra effort. While getting used to it, consider how you're lessening the impact on the environment with those few extra steps to your backyard compost pile or bin. Try using a compost bucket or a big bowl in your refrigerator to collect scraps, which will minimize your trips to the compost pile and keep insects out of your collection of scraps.

- Animals may get into the compost. An open compost pile may attract unwanted visitors, but there are a number of homemade bin solutions and bins available for purchase that can eliminate interested animals.
- Composting smells. While many people believe this myth, composting (when done correctly) only has an earthy odor.

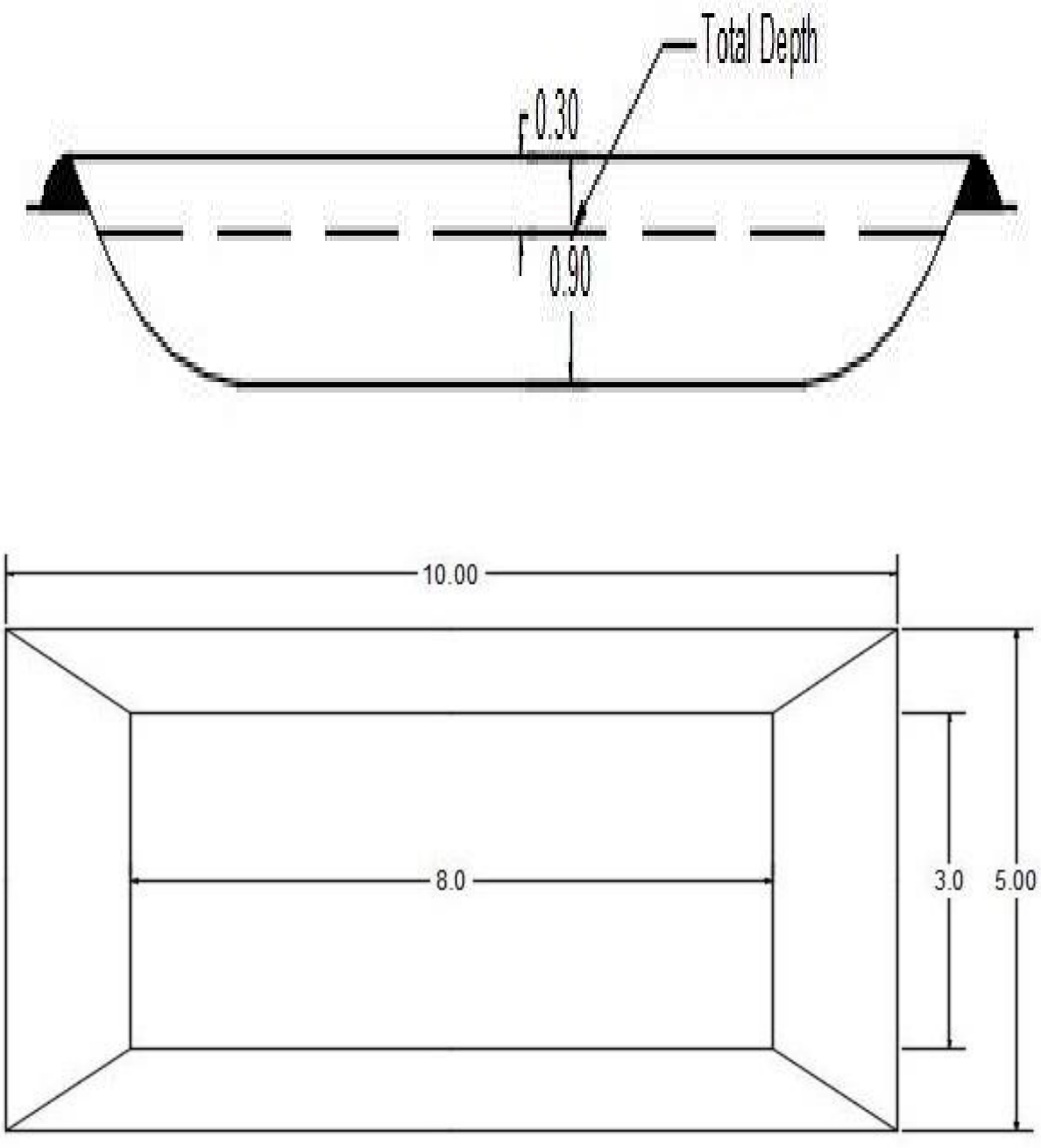


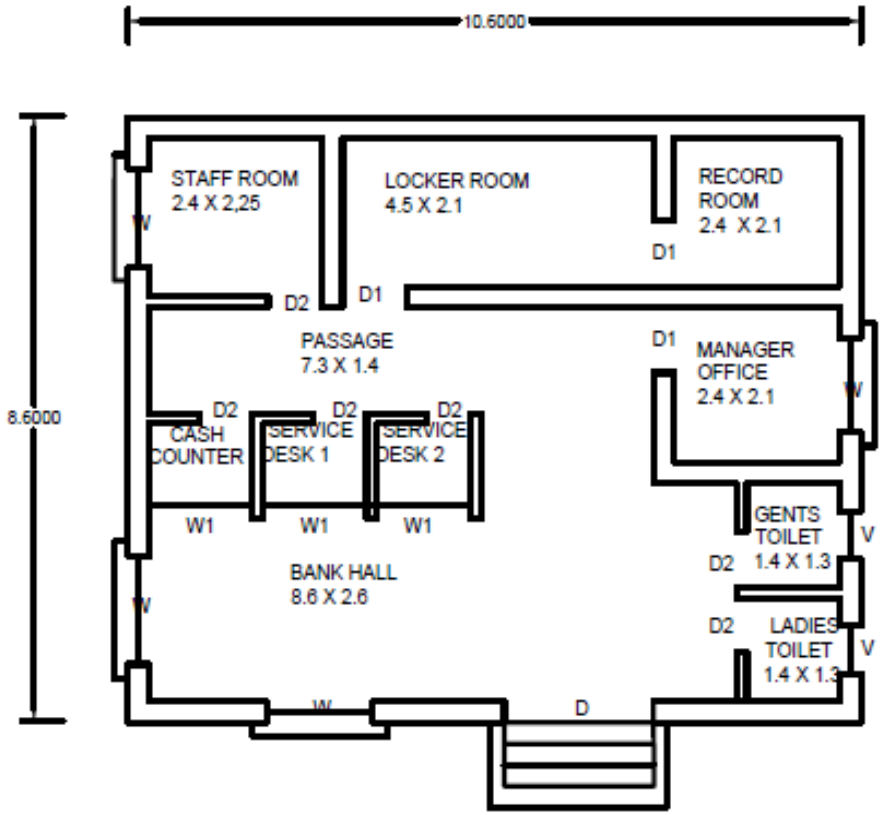
Fig 13.1: Plan and Section Of Compost Pit

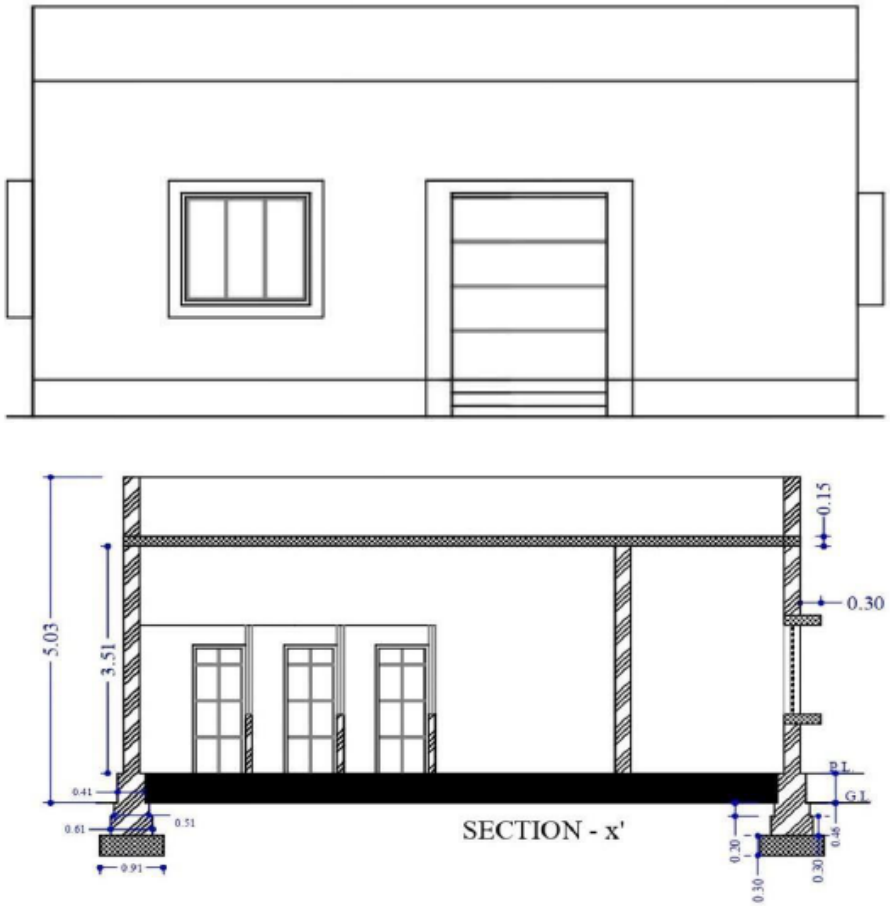
Note: All the dimensions are in Meter

PROP. CONSTRUCTION WORK OF COMPOST PIT						
AT, JASKA, TAL:-HARIJ, DIST:-PATAN						
Measurement Sheet						
Item no.	**Item description**	**No.**	**L (m)**	**B (m)**	**H (m)**	**Qnty. (m^3)**
1	Excavation In Foundation : L=10+(2*0.5) =11 m B=5+(2*0.5) =6 m H=0.9+0.1 =1 m	1	11	6	1	66
2	PCC in Flooring (1:3:6): L=11 m B=6 m H=0.1 m	1	11	6	0.1	6.6
3	Brick Masonry For Wall: L=11-(2*0.5) =10 m B=0.2 m H=1 m	4	10	0.2	1	0.8

PROP. CONSTRUCTION WORK OF COMPOST PIT					
AT, JASKA, TAL:-HARIJ, DIST:-PATAN					
Abstract Sheet					
Item no.	**Particulars of items**	**Quantity (m^3)**	**Rate**	**Per**	**Amount Rs.**
1	Excavation In Foundation	66	150	m^3	9900
2	PCC in Flooring	6.8	3200	m^3	21760
3	Brick Masonry For Wall	8	3200	m^3	25600
Total					57260
				Contingency 05.00% Rupees	2863
				10% contractor charges	5,726
				2% water charges	1145.2
				Total Amount Rupees	66,994
				Say Rupees	**66,994**

13.1.2 Civil Design 2- Bank





Particulars	Size
D	2.31X 2.16
D1	0.93X 2.16
D2	0.77X 2
W	1.54X 1.39
W1	0.93X 1.39
V	0.46X .62

Fig 13.2: Plan, Elevation and Section of Bank

Note: All the dimensions are in Meter

PROP. CONSTRUCTION WORK OF BANK						
AT, JASKA, TAL:-HARIJ, DIST:-PATAN						
Measurement Sheet						
Item no.	**Item description**	**No.**	**L (m)**	**B (m)**	**H (m)**	**Quantity**
1	Excavation for foundation	1	58.85	0.91	0.81	43.38
2	P.C.C. in foundation	1	58.85	0.91	0.3	16.07
3	Brick work in foundation					
	1 step	1	55.8	0.61	0.2	6.81
	2 step	1	56.3	0.51	0.3	8.61
	3 step	1	56.8	0.41	0.46	10.71
	Total =					26.13
4	Brick work in superstructure					
	Brick work (.3)	1	56.2	0.3	3.5	59.01
	Brick work (.15)	1	14.4	0.15	3.5	7.56
	Total =					66.57
5	Deduction from wall					
	D	1	2.31	0.3	2.16	1.50
	D1	3	0.93	0.3	2.16	1.81
	D2	6	0.77	0.3	2	2.77
	W	4	1.54	0.3	1.39	2.57
	W1	3	0.93	0.15	1.39	0.58
	V	2	0.46	0.15	0.62	0.09
	Total =					9.31
6	R.C.C. lintel & chajja				0.15	
	Door	1	2.43	0.23	0.15	0.08
	Door 1	3	1.21	0.23	0.15	0.13
	Door 2	6	1.06	0.23	0.15	0.22
	Window for (.3)Wall	4	1.82	0.23	0.15	0.25
	Window for (.15)Wall	1	1.82	0.1	0.15	0.03
	Window 1	3	0.1	0.23	0.15	0.01
	Ventilation	2	0.76	0.23	0.15	0.05
	Window chajja	4	1.82	0.3	0.15	0.33
	Door chajja	1	2.44	1.52	0.15	0.56
	Total =					1.65
7	Parapet wall		38.4	0.3	0.91	
8	Outside plaster	2	10.6		4.572	96.93
		2	8.6		4.572	78.64
	Total =					175.56
9	Deduction from outside plaster					
	Door	1	2.13		2.29	4.88
	Window	4	1.52		1.37	8.33
	Total =					13.21
10	Inner side plaster					

	Staff room	2	2.4		3.5	16.80
		2	2.25		3.5	15.75
	Locker room	2	4.5		3.5	31.50
		2	2.1		3.5	14.70
	Record room	2	2.4		3.5	16.80
		2	2.1		3.5	14.70
	Cash counter	2	1.5		3.5	10.50
		2	1		3.5	7.00
	Service desk 1	2	1.5		3.5	10.50
		2	1		3.5	7.00
	Service desk 2	2	1.5		3.5	10.50
		2	1		3.5	7.00
	Manager office	2	2.4		3.5	16.80
		2	2.1		3.5	14.70
	Gents toilet	2	1.4		3.5	9.80
		2	1.3		3.5	9.10
	Ladies toilet	2	1.4		3.5	9.80
		2	1.3		3.5	9.10
	Bank hall	1	8.6		3.5	30.10
		2	2.6		3.5	18.20
	Passage	2	7.3		3.5	51.10
		2	1.4		3.5	9.80
	Parapet	2	8.3		0.91	15.11
		2	10.3		0.91	18.75
	Total =					375.102
11	Ceiling plaster					
	Staff room	1	2.4	2.25		5.4
	Locker room	1	4.5	2.1		9.45
	Record room	1	2.4	2.1		5.04
	Cash counter	1	1.5	1		1.5
	Service desk 1	1	1.5	1		1.5
	Service desk 2	1	1.5	1		1.5
	Manager office	1	2.4	2.1		5.04
	Gents toilet	1	1.4	1.3		1.82
	Ladies toilet	1	1.4	1.3		1.82
	Bank hall	1	8.6	2.6		22.36
	Passage	1	7.3	1.4		10.22
	Total =					65.65
12	RCC For Slab	1	10.6	8.6	0.2	18.232

PROP. CONSTRUCTION WORK OF BANK					
AT, JASKA, TAL:-HARIJ, DIST:-PATAN					
Abstract Sheet					
Item no.	**Particulars of items**	**Quantity (m^3)**	**Rate**	**Per**	**Amount Rs.**
1	Excavation for foundation	43.38	150	m^3	6507
2	PCC	16.07	3200	m^3	51424
3	Brick work in foundation	26.13	3200	m^3	83616
4	Brick work in superstructure	57.26	3500	m^3	200410
5	R.C.C. lintel & chajja	1.63	8800	m^3	14344
6	Outside plaster	162.15	150	m^2	24322.5
7	Inner side plaster	375.102	150	m^2	56265.3
8	Ceiling plaster	65.65	150	m^2	9847.5
9	Marble flooring	85.49	500	m^2	42745
10	White wash	537.25	25	m^2	13431.25
11	RCC Slab	18.23	8800	m^3	160424
12	Wood work for door & window	35.94	7800	m^2	280332
	Total =				943668.55
				Contingency 05.00% Rupees	47183.428
				10% contractor charges	94,367
				2% water charges	18873.371
				Total Amount Rupees	11,04,092
				Say Rupees	**11,04,092**

13.1.3 Civil Design 3- Chabtooro

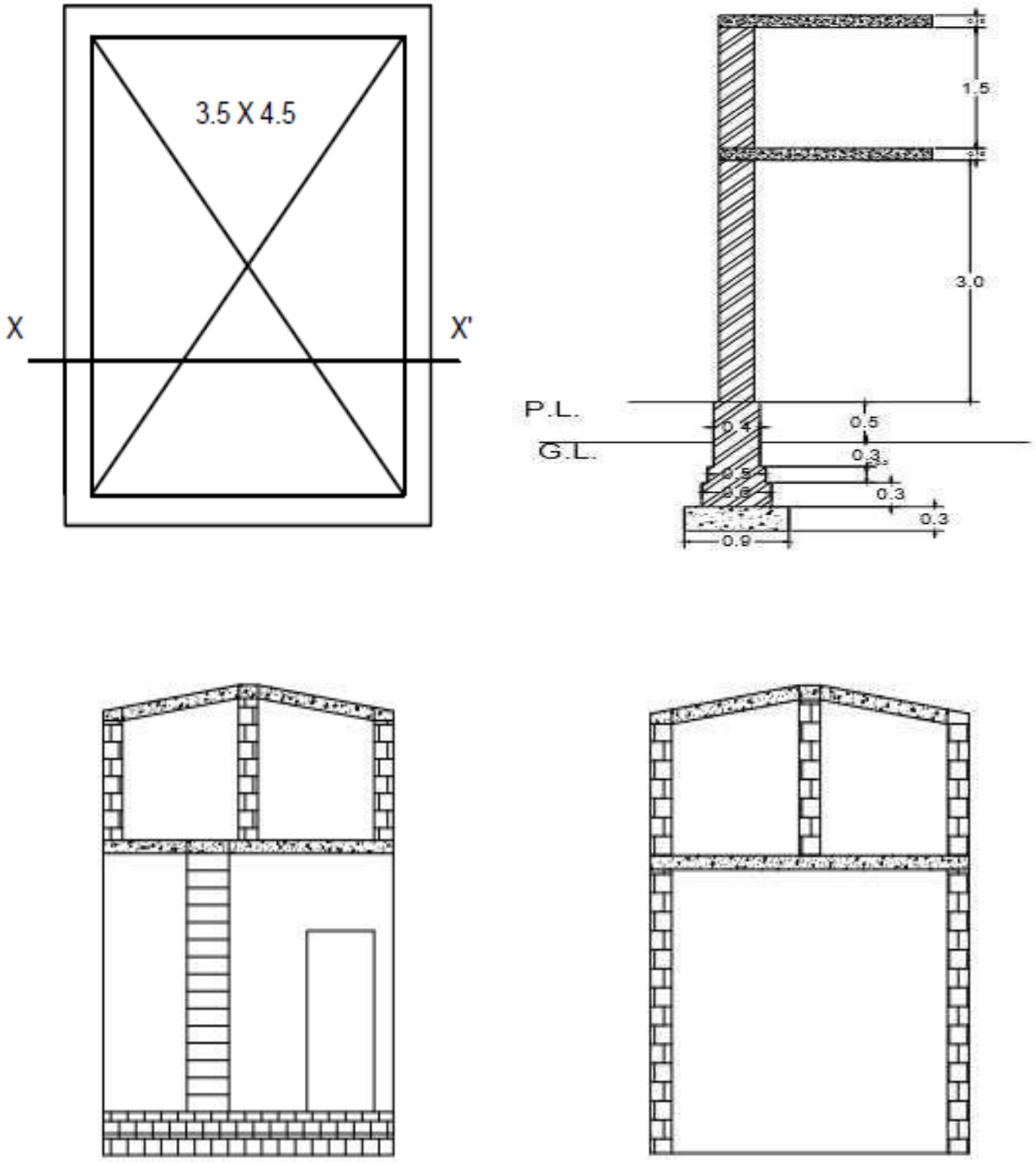


Fig 13.3: Plan, Elevation and Section of Chabootro

Note: All the dimensions are in Meter

PROP. CONSTRUCTION WORK OF CHAAOOTRO						
AT, JASKA, TAL:-HARIJ, DIST:-PATAN						
Measurement Sheet						
Item no.	**Item description**	**No.**	**L (m)**	**B (m)**	**H (m)**	**Qnty. (m^3)**
1	Excavation for the foundation in Soft ordinary soil. Total length = 16 m		16	0.9	1.1	15.84
2	Providing and laying Foundation concrete (P.C.C.) (1:4:8) at Foundation		16	0.9	0.3	4.32
3	Providing and laying Brick masonry at foundation up to G.L.					
	1st Footing		16	0.6	0.3	2.88
	2nd Footing		16	0.5	0.3	2.4
	3rd Footing Upto G.L.		16	0.4	0.3	1.92
	Brick masonry up to P.L.		16	0.4	0.5	3.2
	Total brickwork =					10.4
4	Providing refilling of the ordinary soil in foundation trenches.	Refilling = Total Excavation – (P.C.C. + Brick masonry of 1st – 3rd footing + Brick masonry upto G.L.) = 4.237 cu. m.				
5	Providing and refilling of the Yellow soil up to the Plinth level.	Refilling = 4.5 cu. m.				
6	Providing and laying Brick masonry up to the bottom of the Slab. Total length = 16 m	1	16	0.3	3	14.4
	Deduction	1	0.8	0.3	2.1	0.504
	Brick masonry 1st slab to 2nd slab	5	0.3	0.3	1.5	0.135
	Total brickwork =					15.039
7	Providing and Laying R.C.C. (1:2:4) work for 1st slab	1	3.5	4.5	0.15	2.3625
	Providing and Laying R.C.C. (1:2:4) work for 2nd slab	1	3.5	4.5	0.15	2.3625
	R.C.C. Chajja (1:2:4)	1	0.95	0.6	0.15	0.0855
	Total R.C.C. (1:2:4) Work =					4.8105

8	inside plaster Total length	2	3.5		3	21
		2	4.5		3	27
	Deduction	1	0.8		2.1	1.68
	Total inside plaster =					49.68
	outside plaster up to 1st slab	2	3.5		0.5	3.5
		2	4.5		1.5	13.5
	Plaster for brick masonry column up to 1st to 2d slab	2	3.5		1.5	10.5
		2	4.5		1.5	13.5
	Deduction	1	0.8		2.1	1.68
	Total outside plaster =					42.68
9	Flooring		3.5	4.5		15.75

PROP. CONSTRUCTION WORK OF CHABOOTRO AT, JASKA, TAL:-HARIJ, DIST:-PATAN Abstract Sheet					
Item no.	**Particulars of items**	**Quantity**	**Rate**	**Per**	**Amount Rs.**
1	Excavation for a foundation in soft ordinary soil.	15.83	150	m^3	2374.5
2	Providing and laying Foundation concrete (P.C.C.) (1:4:8) at the foundation.	4.32	3000	m^3	12960
3	Providing and laying Brick masonry at foundation and plinth.	10.4	900	m^3	9360
4	Providing refilling of the ordinary soil in foundation trenches.	4.237	110	m^3	466.07
5	Providing and refilling of the Yellow soil at the Plinth level.	4.5	212	m^3	954
6	Providing and laying Brick masonry up to the bottom of the slab	15.039	3600	m^3	54140.4
7	Providing and Laying R.C.C. (1:2:4) work	4.8105	9000	m^3	43294.5
8	Providing 12 mm thick cement plaster in C.M. (1:4)	92.36	150	m^2	13854
9	Providing and fixing tile flooring	15.75	700	m^2	11025
Total =					148428.47
	Contingency 05.00% Rupees				7421.4235
	10% contractor charges				14,843
	2% water charges				2968.5694
	Total Amount Rupees				1,73,661
	Say Rupees				**1,73,661**

13.1.4 Civil Design 4- ATM

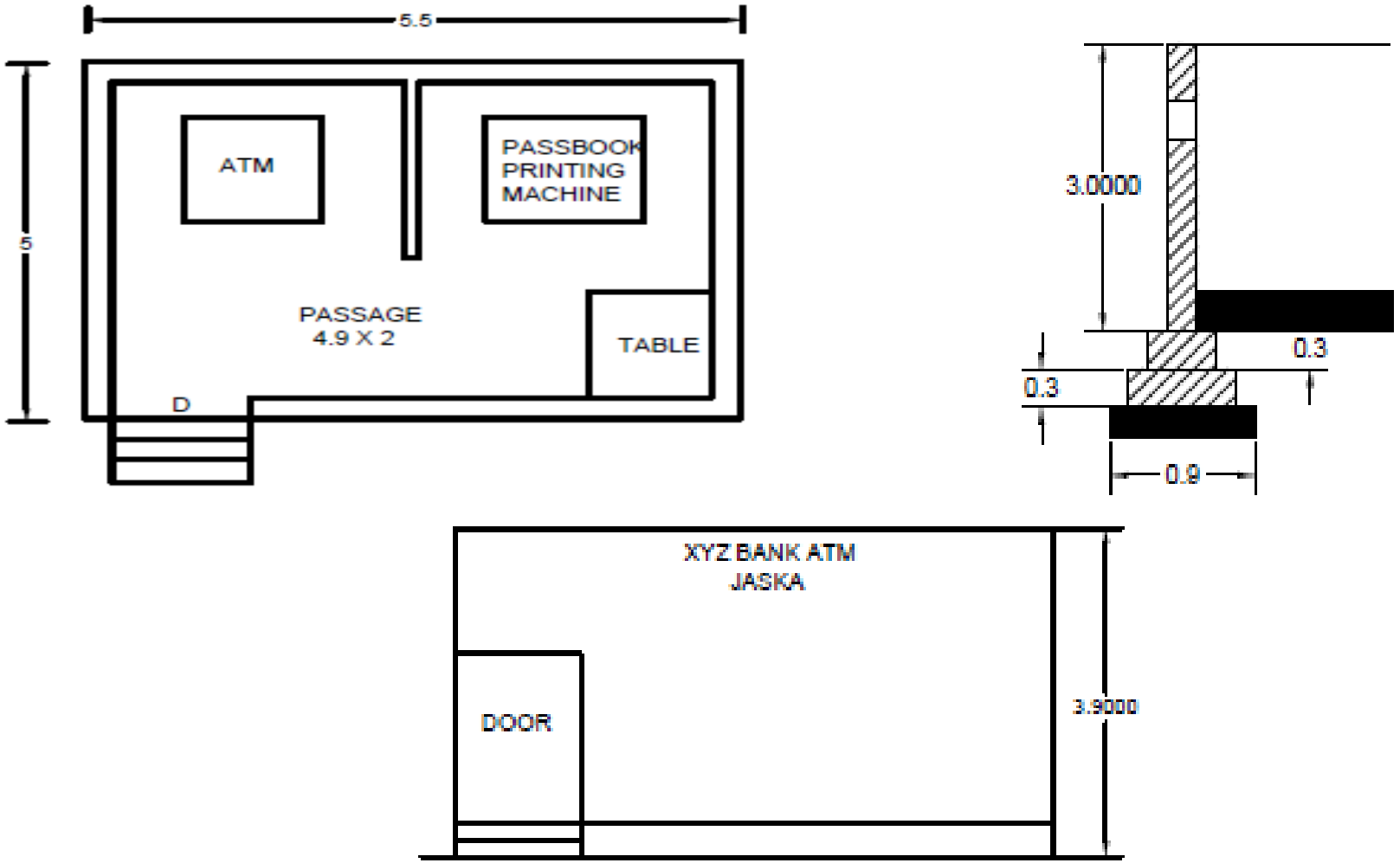


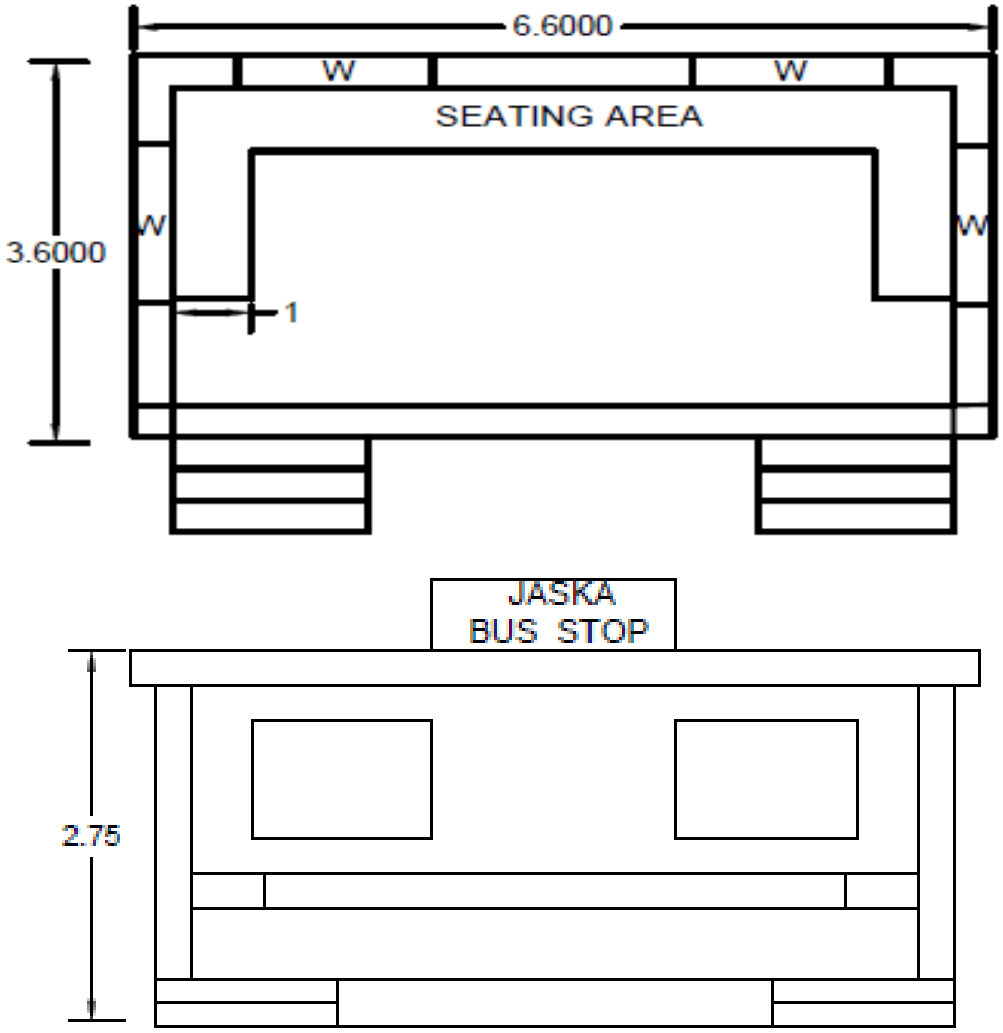
Fig 13.4: Plan, Elevation and Section of ATM

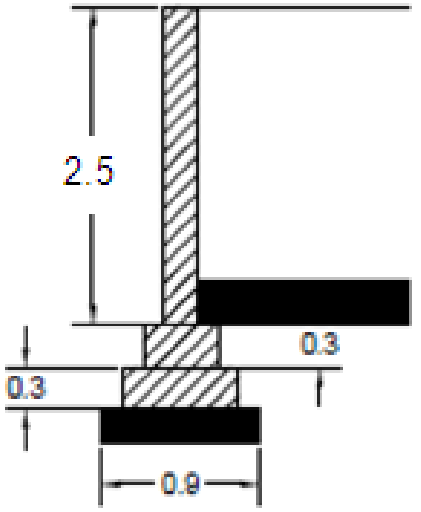
Note: All the dimensions are in Meter

PROP. CONSTRUCTION WORK OF ATM						
AT, JASKA, TAL:-HARIJ, DIST:-PATAN						
Measurement Sheet						
Item no.	**Item description**	**No.**	**L (m)**	**B (m)**	**H (m)**	**Quantity**
1	Excavation for foundation	1	23.35	0.9	1.2	25.22
2	PCC for Foundation	1	23.35	0.9	0.2	4.20
3	Brick Masonry in Foundation					
	1 step	1	23.2	0.6	0.3	4.176
	2 step	2	23.3	0.4	0.3	2.796
	Total =					6.972
4	Brick Masonry in Super structure	1	23.35	0.3	2.5	17.5125
	Total =					17.5125
5	Brick Masonry in Steps					
	Step 1	1	1.5	0.25	0.6	0.225
	Step 2	1	1.5	0.25	0.3	0.1125
	Total =					0.3375
6	Internal Plaster					
	wall	2	4.9		3	29.4
		2	4.4		3	26.4
		2	2.5		3	15
	Ceiling	1	4.9		4.4	21.56
	Total =					92.36
7	External Plaster					
	wall	2	5.5		3.15	34.65
		2	5		3.15	31.5
	Total =					66.15
8	White wash					
	Internal	Same as internal plaster				92.36
	External	Same as external plaster				66.15
9	RCC slab	1	5.5	5	0.15	4.125

PROP. CONSTRUCTION WORK OF ATM					
AT, JASKA, TAL:-HARIJ, DIST:-PATAN					
Abstract Sheet					
Item no.	**Particulars of items**	**Quantity**	**Rate**	**Per**	**Amount Rs.**
1	Excavation work	25.22	155	m^3	3909.1
2	P C.C	4.2	3000	m^3	12600
3	Brickwork in foundation	6.97	3200	m^3	22304
4	Brickwork in superstructure	17.51	3500	m^3	61285
5	Brickwork in steps	0.34	3200	m^3	1088
6	Internal plaster	92.36	150	m^2	13854
7	External plaster	66.15	150	m^2	9922.5
8	White wash	158.51	25	m^2	3962.75
9	Rcc work for slab	4.125	8800	m^3	36300
	Total Amount				165225.35
	Contingency 05.00% Rupees				8261.2675
	10% contractor charges				16,523
	2% water charges				3304.507
	Total Amount Rupees				1,93,314
	Say Rupees				**1,93,314**

13.1.5 Civil Design 5- Bus Stop





Particulars	Size
Window Opening	1.5 X1

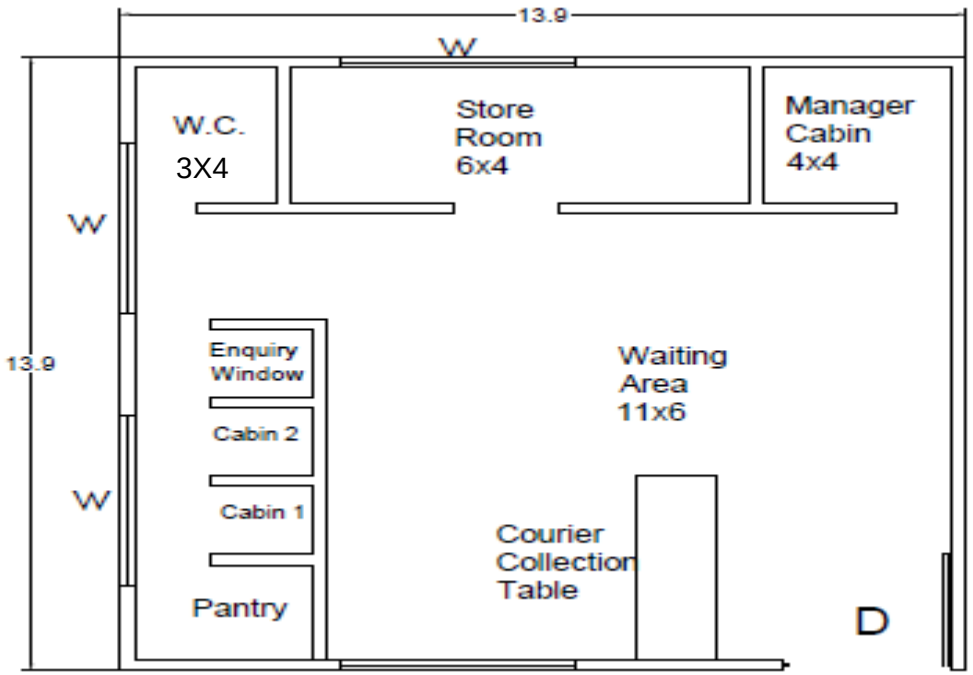
Fig 13.5: Plan, Elevation and Section of Bus Stop

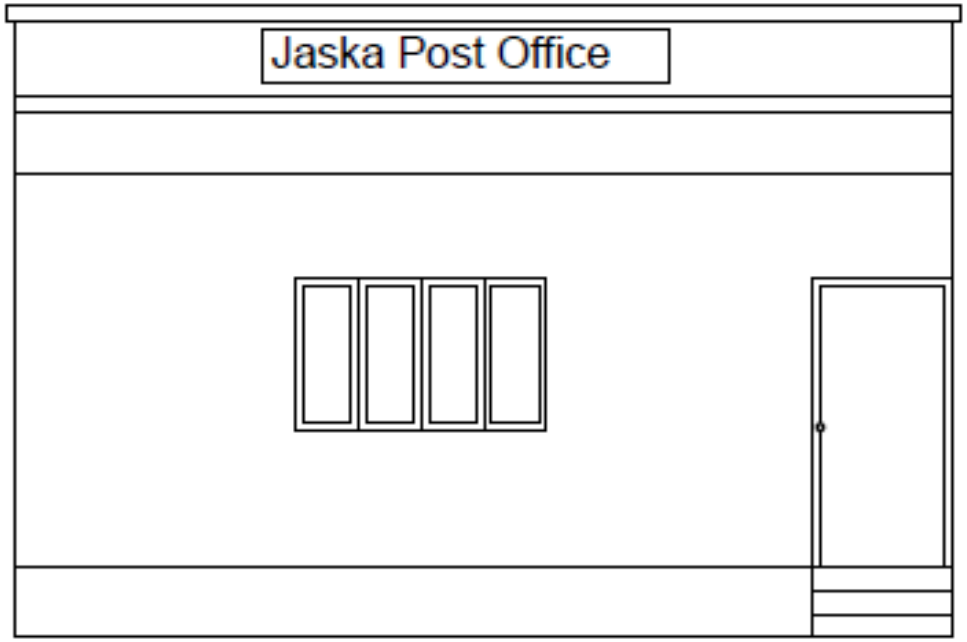
Note: All the dimensions are in Meter

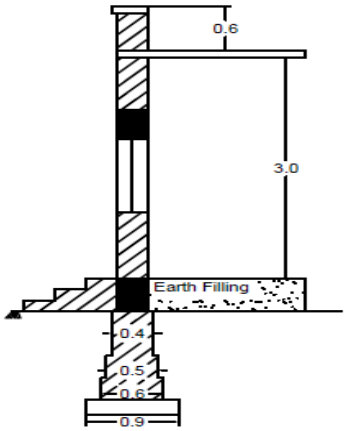
PROP. CONSTRUCTION WORK OF BUS STOP						
AT, JASKA, TAL:-HARIJ, DIST:-PATAN						
Measurement Sheet						
Item no.	**Item description**	**No.**	**L (m)**	**B (m)**	**H (m)**	**Quantity**
1	Excavation for foundation	1	19.2	0.9	1.2	20.74
2	PCC for Foundation	1	19.2	0.9	0.2	3.46
3	Brick Masonry in Foundation					
	1 step	1	19.2	0.6	0.3	3.456
	2 step	2	19.2	0.4	0.3	2.304
	Total =					5.76
4	Brick Masonry in Super structure	1	19.2	0.3	2.5	14.4
	Deduction	4	1.5	0.3	1	1.8
	Total =					12.6
5	Brick Masonry in Steps					
	Step 1	2	1.5	0.25	0.6	0.45
	Step 2	2	1.5	0.25	0.3	0.225
	Total =					0.675
6	Internal Plaster					
	wall	1	6.3		2.5	15.75
		2	3.3		2.5	16.5
	Ceiling	1	6.3		3.3	20.79
	Total =					53.04
7	External Plaster					
	wall	1	6.6		2.75	18.15
		2	3.6		2.75	19.8
	Total =					37.95
8	White wash					
	Internal	Same as internal plaster				53.04
	External	Same as external plaster				37.95
9	RCC slab	1	6.6	3.6	0.15	3.564

PROP. CONSTRUCTION WORK OF BUS STOP					
AT, JASKA, TAL:-HARIJ, DIST:-PATAN					
Abstract Sheet					
Item no.	**Particulars of items**	**Quantity (m^3)**	**Rate**	**Per**	**Amount Rs.**
1	Excavation work	20.74	155	m^3	3214.7
2	P C.C	3.46	3000	m^3	10380
3	Brickwork in foundation	5.76	3200	m^3	18432
4	Brickwork in superstructure	12.6	3500	m^3	44100
5	Brickwork in steps	0.675	3200	m^3	2160
6	Internal plaster	53.04	150	m^2	7956
7	External plaster	37.95	150	m^2	5692.5
8	White wash	90.99	25	m^2	2274.75
9	Rcc work for slab	3.564	8800	m^3	31363.2
	Total Amount				125573.15
	Contingency 05.00% Rupees				6278.6575
	10% contractor charges				12,557
	2% water charges				2511.463
	Total Amount Rupees				1,46,921
	Say Rupees				**1,46,921**

13.1.6 Civil Design 6 - Post Office







Particulars	Size
D	1.2 X 2.1
W	1.5X 2

Fig 13.6: Plan, Elevation and Section of Post Office

Note: All the dimensions are in Meter

PROP. CONSTRUCTION WORK OF POST OFFICE						
AT, JASKA, TAL:-HARIJ, DIST:-PATAN						
Measurement Sheet						
Item no.	**Item description**	**No.**	**L (m)**	**B (m)**	**H (m)**	**Quantity**
1	Excavation for foundation	1	74.8	0.9	1.2	80.78
2	PCC for Foundation	1	74.8	0.9	0.2	13.46
3	Brick Masonry in Foundation					
	1 step	1	75.7	0.6	0.3	13.626
	2 step	1	76	0.5	0.3	11.4
	3 step	1	76.3	0.4	0.3	9.156
	Total =					34.182
4	Brick Masonry in Super structure	1	76.6	0.3	2.5	57.45
	Total =					57.45
5	Deduction for door & Windows					
	Door D	1	1.2	0.3	2.1	0.756
	Windows W	3	2	0.3	1.5	2.7
	Total=					3.456
6	Brick Masonry in Steps					
	Step 1	1	1.5	0.25	0.6	0.225
	Step 2	1	1.5	0.25	0.3	0.1125
	Total =					0.3375
7	DPC at Plinth level	1	77.5	0.3	0.05	1.1625
8	Internal Plaster					
	wall	2	13.3		3	79.8
		2	13.3		3	79.8
		1	13.3		3	39.9
	Ceiling	1	13.3		13.3	176.89
	Total =					376.39
9	External Plaster					
	wall	2	13.9		3.75	104.25
		2	13.9		3.75	104.25
	Total =					208.5
10	White wash					
	Internal	Same as internal plaster				376.39
	External	Same as external plaster				208.5
11	RCC slab	1	13.9	13.9	0.15	28.9815

PROP. CONSTRUCTION WORK OF POST OFFICE					
AT, JASKA, TAL:-HARIJ, DIST:-PATAN					
Abstract Sheet					
Item no.	**Particulars of items**	**Quantity**	**Rate**	**Per**	**Amount Rs.**
1	Excavation work	80.78	155	m^3	12520.9
2	P C.C	13.74	3000	m^3	41220
3	Brickwork in foundation	34.182	3200	m^3	109382.4
4	Brickwork in superstructure	54	3500	m^3	189000
5	Brickwork in steps	0.34	3200	m^3	1088
6	DPC at Plinth Level	1.1625	4900	m^3	5696.25
7	Internal plaster	376.4	150	m^2	56460
8	External plaster	208.5	150	m^2	31275
9	White wash	584.9	25	m^2	14622.5
10	RCC work for slab	29	8800	m^3	255200
	Total Amount				716465.05
	Contingency 05.00% Rupees				35823.2525
	10% contractor charges				71,647
	2% water charges				14329.301
	Total Amount Rupees				8,38,264
	Say Rupees				**8,38,264**

13.2 Reason for Students Recommending this Design

Primary surveys were conducted at allocated, ideal & smart village. After analyzing and comparing various infrastructural facilities of villages, above design were proposed (refer 13.1 of chapter 13)

Reasons of proposal of designs in allocated village

Problem	Solution
• Improper Waste Management Facilities • Unhealthy and unhygienic environment	Compost Pit
• Lack of Banking Facilities • Lack of finance	Bank
• For bird feeding and aesthetic appearance • Lack of tourist attraction	Chabootro
• Lack of Banking Facilities • Lack of instant finance and money transfer facilities	ATM
• Lack of Transport Facilities • Lack of connectivity to major cities	Bus Stop
• Lack of Postal Facilities • Lack of connectivity	Post Office

13.3 About designs Suggestions / Benefit of the villagers

Benefits	Proposed Design
• Better Waste Management facility • Healthy and hygienic environment	Compost Pit
• Personal and industrial growth • Financial stability	Bank
• Better village Appearance • Tourist attraction	Chabootro
• 24 X 7 Money Transfer and Withdrawal Availability • Instant financial settlements	ATM
• A Better Transport Connectivity • Connectivity to major cities	Bus Stop
• Old age people of village could avail their pension from this facilities • Better connectivity	Post Office

Chapter14

Technical Options with Case Studies

14.1 Civil Engineering

14.1.1 Advanced Earthquake Resistant

Understanding of Earthquake and Basic Terminology:

Earthquake is well-defined as an unexpected ground shaking produced by the release of massive stored strain energy at the interface of the tectonic plates.

- Focus:-It is the point in the earth from point at the seismic waves originate.
- Focal Depth:-It is the vertical distance between Focus and epicenter.
- Epicenter:-It is the point on surface of the earth from vertically above the origin of an earthquake.

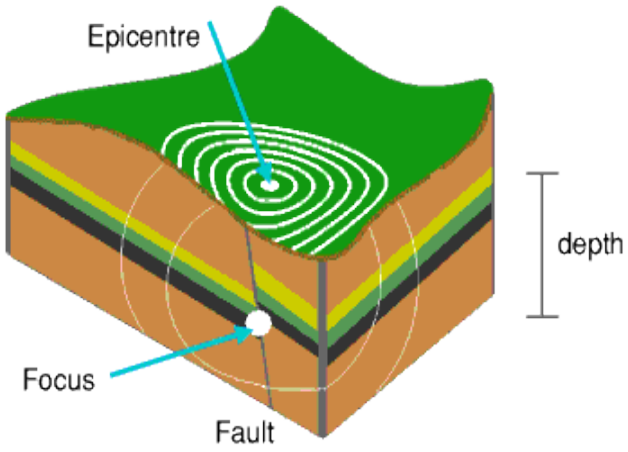


Fig 14.1: Earthquake Understanding

MODERN-DAY CONSTRUCTION METHODS FOR EARTHQUAKE RESISTANT BUILDINGS

The Prestressed concrete components in seismic risk resistant construction which ensures proper relationship between different elements of a structure. But this methodology have been generally implemented in New Zealand.

Shape-memory alloys This demonstrate exceptional characteristics desirable in a seismic risk resistant building. They have a capability to disintegrate considerable energy without permanent deformation or considerable destruction. Generally common shape memory alloys are makeup of metal blends comprising, nickel titanium, copper-aluminum-nickel and copper-zinc-aluminum-nickel. This is more suitable for extensive applications.

Seismic Dampers In Seismic Dampers are the diagonal braces in a moment resisting frame which is used for efficient lateral load resisting scheme. In modern area the structural seismic retort to control have taken the lead to the alternative of these bracings with seismic dampers. These dampers behaves similar to the hydraulic shock absorbers in cars considerably in case the sudden jerks are engaged in the hydraulic fluids and only small is transferred to the chassis of the car. In this case the seismic energy is conveyed through it and dampers is absorbed a small part of it and decrease the magnitude of the force which is acting on a structure. Generally used types of seismic dampers are included the friction dampers (energy is fascinated by surfaces within the friction between them rubbing beside each other), viscous dampers (energy is absorbed by silicone-based fluid passing between piston-cylinder structure), and yielding dampers (energy is fascinated by metallic components that produce). The friction dampers were delivered in an 18-story RC frame structure in Gurgaon, India.

Steel Plate Shear walls Shear walls are deemed as an important component of a lateral load resisting systems and steel is known for its flexible behavior. Merging these two attractive properties, an efficient load resisting system was established and has noticed wide applications in North America and Japan. These walls are intended and also, they turn as a bend as an alternative of buckling below the action of lateral loads. The walls are substantially lighter and thinner; thus, they reduce the building weight. So, these walls not needed to be cured and consequently, it leads to increase the speed of the construction process.

Carbon Fibers The tensile features and the constant nature of a spider web was studied by many researchers in Japan. This is theworld's first seismic reinforcement structure made of carbon fiber material. An seismic risk Resistant Building Rendered with Carbon Fabric and it is redolent of a giant spider web has been erected in Nomi City of Ishikawa Prefecture in Japan.

Fig 14.2:Shape-memory alloys

Fig 14.3:Seismic Dampers

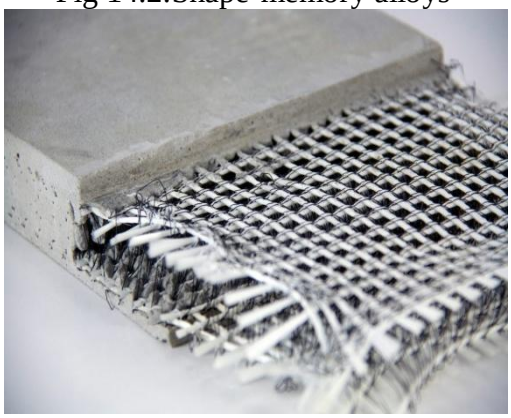


Fig 14.4:Carbon Fibers

Fig 14.5:Steel Plate Shear walls

14.1.2 Seismic Retrofitting of Buildings

Retrofitting is the addition of new technology or features to older systems, for example: home energy **retrofit**, the improving of existing **buildings** with energy efficiency equipment. seismic **retrofit**, the process of strengthening older **buildings** in order to make them earthquake-resistant.

Need for Seismic Retrofitting:

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

CLASSIFICATIONS OF RETROFITTING:

There are two classifications of it such as;

1. Retrofitting of reinforced concrete structures &
2. Retrofitting of masonry structures.

RETROFITTING OF REINFORCED CONCRETE STRUCTURES:

There are several techniques are available for the reinforced concrete structures such as;

JACKETING OF STRUCTURAL MEMBERS:

Fiber-reinforced polymer sheets are used by modern jacketing techniques and for enhancing the strength of deficient members that have much higher strength than steel.

For the strengthening of deficient structural members, there are various jacketing techniques are available such as;

CONCRETE JACKETING:

By placing reinforcing steel rebar around its periphery and then concreting is widely adopted which is called concrete jacketing and this is for enlargement on existing structural members like column and beam. This method increases the member stiffness and its size.

Fig14.6 Concrete jacking

STEEL JACKETING:

With steel angles, channels and bands jacketing of columns and beams is done.

Fig14.7 Steel jacking

FIBER REINFORCED POLYMER JACKETING:

This is a modern technique for enhancing the strength and this technique is based on composite materials such as carbon and glass fiber reinforced polymer. Using these high strength sheets retrofitting of structures can

be done with much ease by using this technique and because of high tensile strength composite materials are excellent options to be used as external reinforcing.

ADDITION OF EXTRA STRUCTURAL MEMBERS:

Developing the strong alternative load path is another method and inclusion of reinforced concrete shear walls possibly in between the columns. This method requires less disturbance in the existing building and in this method only shear wall is added right from the foundation level.

ADDITION OF ENERGY DISSIPATION DEVICES:

The energy devices like shock absorbers this method is a highly effective approach in seismic retrofitting, these devices are installed in this method and in the field of seismic retrofitting energy dissipation devices has shown a great promise.

RETROFITTING OF MASONRY STRUCTURES:

To make the existing structure more resistant to seismic activity, soil failure or ground motion due to earthquakes the retrofitting of masonry structure is the modification of existing structure and these techniques are also applicable for other natural hazards like winds from thunderstorms and tornadoes, etc.

There are many techniques of masonry structures as given below;

ADDING NEW SHEAR WALLS:

For retrofitting of non-ductile reinforced concrete frame buildings and added elements can be precast concrete element and at the exterior of the building new elements are placed. It is not preferred in the interior of the structure.

ADDING STEEL BRACING:

When large openings are required it is an effective solution and potential advantages due to higher strength and stiffness and the amount of work is less.

BASE ISOLATION:

For the passive building vibration control it is the most powerful tool and isolation of superstructure from the foundation is known as base isolation. Base isolation gives some advantages that isolate buildings from ground motion and lesser damage to the structure.

MASS REDUCTION TECHNIQUE:

By removal of one or more stories this may be achieved and removal of mass will lead to a decrease in the period which will increase the required strength.

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

The Indian **advanced construction techniques** industry is experiencing a period of fast growth. Aiming to overcome the housing problem, it also has to face the dual challenge of fulfilling the needs of the client and maintain the quality standards.

At the same time, the up-gradation of technology through the adoption of new techniques has become necessary to survive in a tough competitive environment.
The traditional methods of construction are inadequate in executing the work speedily with economy and quality. The construction industry in India must switch over to advanced construction techniques to achieve its goal in "minimum time with maximum efficiency".

ADVANCED CONSTRUCTION TECHNIQUES – NECESSITY

1. The building construction activity, especially the residential and commercial complex is highly labour intensive with very little mechanization. Approximately 35% of the total construction cost is spent on labour.
2. The labourers have their limitations and may fail to meet the time limits. The quality of workmanship, too, differs from person to person. Hence, quality standards cannot be maintained. Wastage of material is considerably high as it is handled and utilized manually.
3. The objective of the construction organizations should be 'speed and economy'. This cannot be achieved with labour oriented advanced construction techniques.
4. Only studying and adopting modern industrial techniques and equipment is the solution. By this, one can save material, reduce labour expenses, and increase the speed of work, leading to the economy in construction.
5. Though the scope of the subject is vast, in this chapter we shall discuss only the advanced techniques to be used in advanced construction techniques activities.

EQUIPMENT USED FOR SMALL AND MEDIUM CONSTRUCTION WORK

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

- Chain and pulley block.
- Grouting pumps.
- Sprayers for painting work.
- Tile cutters.

- Portable hand drilling machines.
- Horizontal trolleys, wheelbarrows.
- Pumps.
- Vibrators for compaction of concrete, surface vibrators.
- Auto ramming concrete block machine.
- Sand washing machine.
- Vertical lifts, hoists, winches.
- M.S. tubular scaffolding, and formwork.
- Concrete mixers.
- Cranes.
- Earth excavators.
- Earthmovers.

1. The engineer in-charge should study, develop, and implement the advanced techniques, to improve the quality of work, with speed and economy. Some of the techniques are listed below
2. The different work stages through which basic material is converted into the finished product, maybe studied.
3. The relation between different work stages are established as a flowchart.
4. Works are planned and executed according to the work and time study.
5. Planning and execution of the activities ís done according to bar charts, C.P.M., and P.E.R.T.
6. Suggestions are put forth, discussed, and implemented to improve quality.
7. Prefabricated and precast units are utilized, wherever possible.
8. Admixtures and plasticizers are used for concreting and water-proofing.
9. 'Design mix and weigh batching' are used for mass concreting.
10. Easily detachable lightweight tubular structures are used.
11. Modern methods of curing are adopted.
12. Advanced adhesives and chemicals are used.
13. Simultaneous execution of the activities are arranged.
14. Work is executed in shifts.
15. Activities are crashed.
16. Task work is delegated to the laborers along with incentives.

45.4 VARIOUS TECHNIQUES, EQUIPMENTS AND THEIR ADVANTAGES IN BUILDING CONSTRUCTION

SR. NO.	USE OF TECHNIQUE/ EQUIPMENT	WORK ACTIVITY	ADVANTAGES
01	Precast lintel and chajja	Masonry work above lintel level	Saving of time
02	Providing cavities in masonry during execution	Concreting of hold fast for doors and windows	Breaking of concrete block/brick is avoided, which saves labour time
03	Wheel barrows, trolleys cranes, chain pulley block	Shifting/lifting of any type of material	Shifting by manual head load is avoided. Maximum output with minimum efforts
04	Prefabricated units	Doors, windows, grills, walls, slabs, etc.	Fast erection, saving of time in casting and curing
05	Steel shuttering material	All centering work	Works out to be cheaper as more repetition is possible
06	Auto ramming block machine (For mechanical compaction)	Casting of concrete blocks for masonry	Increases the production and quality remarkably
07	Sand washing machines	Concreting, masonry, plastering	Decrease in silt content, results into better plastering and uniform higher strength concrete
08	Small capacity concrete mixers	Concreting at upper floors	Portable, speed and quality is maintained without extra consumption of cement
09	Sand screening machines	Masonry, plastering etc.	Time saving for screening and less wastage of sand

Source:https://1.bp.blogspot.com/advance-buinding-construction.webp

USE OF COMPUTER IN BUILDING CONSTRUCTION TECHNOLOGY

With the evolution of computer technology, the dimensions of the computer have shrunk while increasing its power and speed. The advanced technology of computers has valuable applications in building construction. They are

- Construction management.
- Structural design.
- Estimation and costing
- Architects and interior designers in pune.
- Financial management.

OTHER BUILDING CONSTRUCTION TECHNIQUES – TECHNOLOGY

Some new, cost-effective and time-saving techniques used in building advanced construction technology are

1. LIGHTWEIGHT BLOCKS & CONCRETE

The density of normal concrete varies from 2200 to 2600 kg/m3 while that of lightweight concrete varies from 300 to 1850 kg/m³.

Advantage

- Reduction of dead load.
- Increases the progress of work.
- Lowers the handling cost.
- This leads to a lighter structural design.
- Advantageous for structures resting on weak soils.

2. FERROCRETE TECHNIQUES

Ferrocrete consists of wire mesh and cement mortar. The wire mesh is spaced closely & impregnated with a rich cement mortar mix.

Advantages

1. It has got a higher ratio of tensile strength to weight and superior cracking behavior compared to R.C.C.
2. It can be used for septic tanks, water tanks, fishing boats, roofs and wall panels for low-cost housing, bio-gas digesters, silos, kitchen otta, door and window frames, cupboard, etc.
3. It is cheaper than conventional concrete.

3. EARTH MOVING MACHINES

For mass excavation works & a huge amount of filling, earthmoving machines are useful. They save considerable time & manpower.

Advantages

- Save time.
- Cost-effective.
- Save manpower.
- Useful for mass excavation & filling basements, canals, etc.

4. SLIP TUNNEL FORMWORK TECHNIQUES

For mass concreting of high rise buildings, slip tunnel formwork can be used.

Advantages

- Save the de-shuttering & shuttering time.
- More number of repetitions for formwork
- More accuracy in work.
- Reduce labour.
- Overall quality increases, with a reduction in cost.
- Most suitable for identical vertical lifts.

5. PRECAST COMPONENTS

They are factory-made components of the building which are joined to form the structure.

Advantages

- Controlled quality of the final product.
- Better curing and higher strength due to mechanization.
- Saves space for raw material stackings.
- Reduces the requirement of skilled labour.
- Increase in construction speed due to symmetrical and simple joining methods.
- Saves, total project time.
- Dependability of the activities can be nullified & most of the activities can be taken up simultaneously.

Fig 14.8: Advance Construction Equipments

14.1.4 Engineering Aspects of Soil mechanics - Environmental Impact Assessment

The Need for an Environmental Impact Assessment

An Environmental Impact Assessment is a formal method of judging the impact that any new developmental project would have on the environment and its constituents. This can include changes that the project would create in the physical aspects of existing geography, chemical changes to the atmosphere including air and water, biological changes that affect plant, animal and human life, cultural impact of a project on the society in the area, and other socio-economic effects that the project can have.

Such an assessment allows problems to be foreseen, so that the design and planning of the projects is modified to reduce any negative effects. It is now fashionable to build **green buildings** which have a positive effect on the environment.

There is historical precedent for the now mandatory Environmental Impact Assessments (EIA). Past efforts by governments have resulted in bans on activities that caused noxious odours, garbage dumps were positioned at places far away from habitation, and commercial activities were restricted to town centers.

Objectives of Environmental Impact Assessment

The objective of an EIA is to predict the environmental impact project would have on all aspects of the environment. Once this is done, a study has to be made to see if the impacts can be reduced in any way. The project has then to be modified to suit the local environment and all predictions and likely options presented to decision makers for final decisions.

You can gain a better understanding of EIA by understanding how any typical **project** can affect the environment of a particular area. Take for example the building of a new road in a city.

The alignment of the road may require that certain lands have to be leveled or new embankments created. Cutting of the land and the new embankments would affect the geography of the area and probably upset its drainage pattern. This would require re-planning existing methods of treating the run-off and could cause existing watercourses to be modified. The new road may require the removal of existing green cover and this could affect the living conditions in that area. The traffic going through that area can cause pollution problems from vehicles which also includes an increase in sound pollution. The emissions from the vehicles can affect already existing atmospheric pollutants which in turn could affect human health, animal health and affect greenery in the area. The road may affect existing structures in the area which may have to be removed and can cause changes in the economic wellbeing of the persons who are using those structures.

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

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

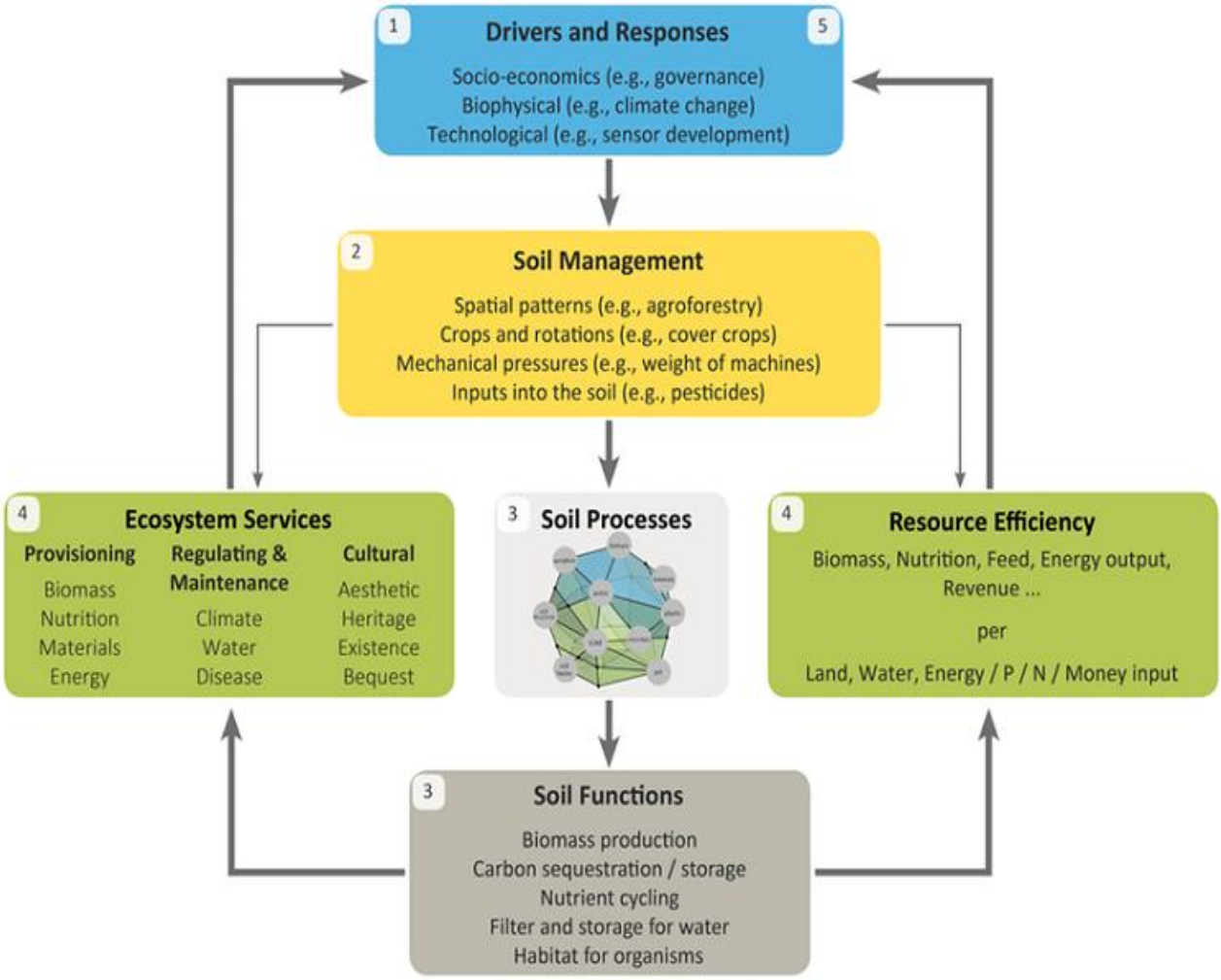


Fig14.9: Environmental Impact Assessment

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

Sustainable water supply does not mean to find reliable and resilient approaches to various human needs for water for that does exhaust the **water sources** and the local economy nor have long term negative impact on the environment.

Sustainable water systems should provide adequate water quantity and appropriate water quality for a given need, without compromising the future ability to provide this capacity and quality. Water systems in the realm of sustainable development may not literally include the use of water, but include systems where the use of water has traditionally been required. Examples include waterless toilets and waterless car washes, whose use helps to alleviate water stress and secure a sustainable water supply.

Accessing the sustainability features in water supply, that is to say, the three-fold goals of economic feasibility, social responsibility and environmental integrity, is linked to the purpose of water use. Sometimes, these purposes compete when resources are limited; for example, water needed to meet

the demands of an increasingly urban population and those needs of rural agriculture. Water is used (1) for drinking as a survival necessity, (2) in industrial operations (energy production, manufacturing of goods, etc.), (3) domestic applications (cooking, cleaning, bathing, sanitation), and (4) agriculture. Sustainable water supply is a component of integrated water resource management, the practice of bringing together multiple stakeholders with various viewpoints in order to determine how water should best be managed. In order to decide if a water system is sustainable, various economical, social and ecological considerations must be considered.

The Basics: Water Sources

Surface water

Surface freshwater is unfortunately limited and unequally distributed in the world. Almost 50% of the world's lakes are located in Canada alone (UNEP, 2002). In addition, pollution from various activities leads to surface water that is not drinking quality. Therefore, treatment systems (either large scale or at the household level) must be put in place.

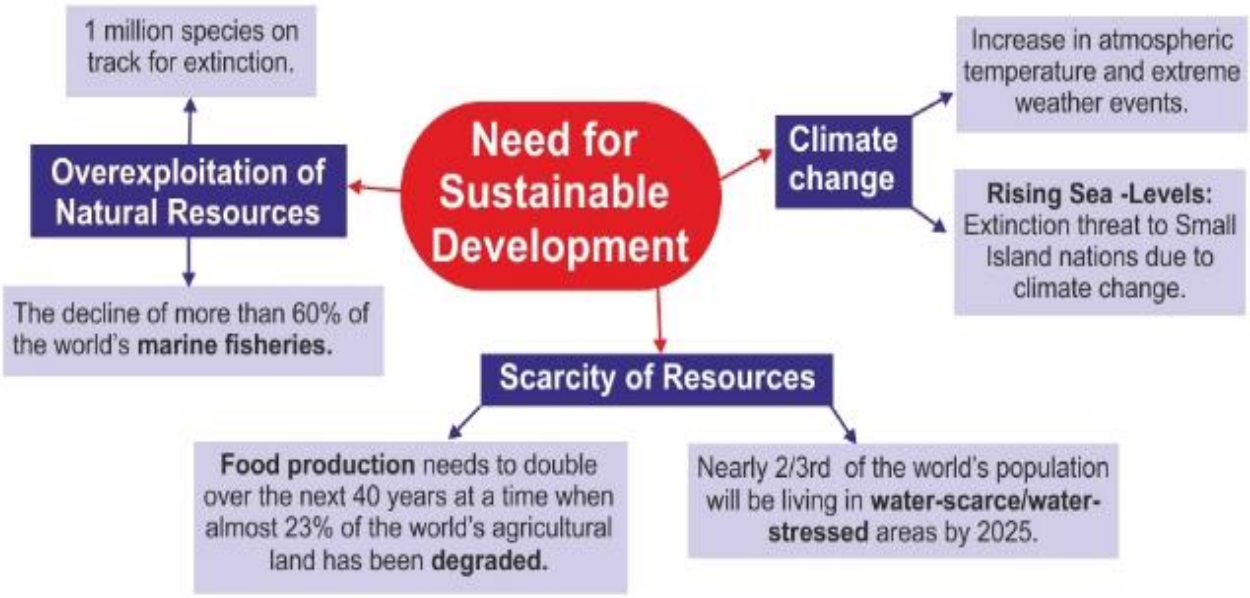
Structures such as dams may be used to impound water for consumption. Dams can be used for power generation, water supply, irrigation, flood prevention, water diversion, navigation, etc. If properly designed and constructed, dams can help provide a sustainable water supply. The design should consider peak flood flows (historical and projected for climate change), earthquake faults, soil permeability, slope stability and erosion, silting, wetlands, water table, human impacts, ecological impacts (including wildlife), compensation for resettlement, and other site characteristics. There are various challenges that large-scale dam projects may present to sustainability: negative environmental impacts on wildlife habitats, fish migration, water flow and quality, and socioeconomic impacts resulting from resettled local communities. A sustainability impact assessment should therefore be performed to determine the environmental, economic and social consequences of the construction.

Groundwater

Groundwater accounts for greater than 50% of global freshwater; thus, it is critical for potable water (Lozan et al, 2007). Groundwater can be a sustainable water supply source if the total amount of water entering, leaving, and being stored in the system is conserved. There are three main factors which determine the source and amount of water flowing through a groundwater system: precipitation, location of streams and other surface-water bodies, and evapotranspiration rate; it is thus not possible to generalize a sustainable withdrawal or pumping rate for groundwater (USGS, 1999). Unsustainable groundwater use results in water-level decline, reduced stream flow, and low water quality, jeopardizing the livelihood of effected communities. Various practices of sustainable groundwater supply include changing rates or spatial patterns of ground-water pumpage, increasing recharge to the ground-water system, decreasing discharge from the groundwater system, and changing the volume of groundwater in storage at different time scales (USGS, 1999). A long-term vision is necessary when extracting groundwater since the effects of its development can take years before becoming apparent. It is important to integrate groundwater supply within adequate land planning and sustainable urban drainage systems.

Rainwater Harvesting

Collecting water from precipitation is one of the most sustainable sources of water supply since it has inherent barriers to the risk of over-exploitation found in surface and groundwater sources, and directly provides drinking water quality. However, rainwater harvesting systems must be properly designed and maintained in order to collect water efficiently, prevent contamination and use sustainable treatment systems in case the water is contaminated. A number of drinking water treatments exist at point-of-use, each with advantages and disadvantages. These include solar treatment, boiling, using filters, chlorination, combined methods such as filtration and chlorination, flocculation and chlorination. Although technically given the Earth's surface and precipitation, rainwater harvesting can meet global water demand, the solution can most practically be a supplement to sustainable water supply systems given a level of uncertainty (especially with climate change), and competing land-use applications.



Sewage System Sustainable Development

In **India**, only a third of all urban households are connected to a piped **sewer system**. About 80 percent of **sewage** from Indian cities goes untreated.

Four Effective Processes to Treat Wastewater

- Physical Water Treatment. In this stage, physical methods are used for cleaning the wastewater.
- Biological Water Treatment. This uses various biological processes to break down the organic matter present in wastewater, such as soap, human waste, oils and food.
- Chemical Water Treatment.
- Sludge Treatment.

Sewer Network – The Present Indian Scenario

The proper sewerage system includes collection of sewage from source of generation through sewer network, treatment using appropriate available economical technology to the prescribed disposal standards and safe disposal to natural water bodies.

There are two systems available in general for Waste Water Collection and Disposal, viz. (i) Separate System – sewage and storm water are collected separately & sewage is treated for safe disposal and (ii) Combined System – sewage and storm water are collected together in same drain & treated together. Presently the separate system is preferred due to its technical and economical advantages. Hence, in India also, nowadays almost all the sewer networks are designed for separate systems.

Almost 80% of India's population does not have proper sewer systems1 . As many as 55% of rural households defecate in the open and about 12.6% of urban households defecate in the open. This number is higher for slums, with 18.9% of households defecating in the open2 . Even under the Swatch Bharath Mission also it is observed that as per the 2011 census around 8 million households of the 4,041 statutory towns in India have no access to toilets and continue to practice open defecation. Sanitation facilities are almost absent in rural areas, where around 69% of India's population resides.

Approximately 45 percent of the population (8.1 million people) in urban Delhi (total population of 18 million) which is world's second populist city, has no access to a centralized sewerage system. There are around 2,200 unsewered colonies in the capital region until recent years.

As per the census 2011, only about a third of urban India households covered with piped sewer network.

The above all facts clearly show the pathetic situation of rural and urban areas in terms of basic requirement of sanitation. Hence two third urban population is not having proper sewer network systems and rural folk is almost away from sewer collection system.

The following are the major disadvantages or challenges being faced due to lack of proper sanitation facilities.

i. Population affected with health issues and ultimately affecting GDP of the country
ii. The ground and surface water sources are being polluted and hence water supply is becoming costly & inadequate

The major reasons for inadequate sewer networks / sanitation facilities are as follows.

i. Insufficient funds
ii. Improper design approaches & management of sewer network systems 2 Various gaps in the design criteria and management of sewer networks observed during the 50 years experience of TCE in various sewerage projects is discussed below.

Fig 14.10:Sewage System In India

Waste Water Sustainable Development

Wastewater is any **water** that has been contaminated by human use. **Wastewater** is "used **water** from any combination of domestic, industrial, commercial or agricultural activities, surface runoff or storm water, and any sewer inflow or sewer infiltration". **Wastewater** can contain physical, chemical and biological pollutants.

Wastewater treatment

It is a process used to remove contaminants from wastewater or sewage and convert it into an effluent that can be returned to the water cycle. Once returned to the water cycle, the effluent creates an acceptable impact on the environment or is reused for various purposes (called water reclamation).The treatment process takes place in a wastewater treatment plant (WWTP).There are two kinds of wastewater: domestic and industrial; both types of wastewater are treated at the appropriate wastewater treatment plant. For domestic wastewater (also called municipal wastewater), the treatment plant may be called a Water Resource Recovery Facility (WRRF) or a Sewage Treatment Plant (STP). For industrial wastewater, treatment either takes place in a separate industrial wastewater treatment plant, or in a sewage treatment plant (usually after some form of pre-treatment).

Processes commonly used are designed to achieve phase separation, oxidation or polishing. Types of wastewater treatment plants include sewage treatment plants, industrial wastewater treatment plants, agricultural wastewater treatment plants and leachate treatment plants.

Fig 14.11: Waste water

The treatment of wastewater is part of the overarching field of sanitation. Sanitation also includes the management of human waste and solid waste as well as storm water (drainage) management The main by-product from wastewater treatment plants is sewage sludge which is usually treated in the same or another wastewater treatment plant. Biogas can be another by-product if anaerobic treatment processes are used

Process

The processes involved in waste-water treatment include physical processes such as settlement or flotation and biological processes such as aerated lagoons, activated sludge, or bio-films in trickling filters. Other physical methods such as filtration through sieves may be used in specialized circumstances such as de-watering waste-water sludge.

To be effective, sewage must be conveyed to a treatment plant by appropriate pipes and infrastructure, and the process itself must be subject to regulation and controls. Some wastewaters require specialized treatment methods. At the simplest level, treatment of sewage and most wastewaters is carried out through separation of solids from liquids, usually by sedimentation. By progressively converting dissolved material into solids, usually a biological floc, which is then settled out, an effluent stream of increasing purity is produced.

Phase separation

Phase separation transfers impurities into a non-aqueous phase. Phase separation may occur at intermediate points in a treatment sequence to remove solids generated during oxidation or polishing. Grease and oil may be recovered for fuel or saponification. Solids often require dewatering of sludge in a wastewater treatment plant. Disposal options for dried solids vary with the type and concentration of impurities removed from water.

Clarifiers are widely used for wastewater treatment.

Sedimentation

Solids such as stones, grit, and sand may be removed from wastewater by gravity when density differences are sufficient to overcome dispersion by turbulence. This is typically achieved using a grit channel designed to produce an optimum flow rate that allows grit to settle and other less-dense solids to be carried forward to the next treatment stage. Gravity separation of solids is the primary treatment of sewage, where the unit process is called "primary settling tanks" or "primary sedimentation tanks." It is also widely used for the treatment of other types of wastewater. Solids that are denser than water will accumulate at the bottom of quiescent settling basins. More complex clarifiers also have skimmers to simultaneously remove floating grease such as soap scum and solids such as feathers, wood chips, or condoms. Containers like the API oil-water separator are specifically designed to separate non-polar liquids.

Primary settling tank of wastewater treatment plant

Oxidation

Oxidation reduces the biochemical oxygen demand of wastewater, and may reduce the toxicity of some impurities. Secondary treatment converts organic compounds into carbon dioxide, water, and biosolids through oxidation and reduction reactions. Chemical oxidation is widely used for disinfection.

Aeration tank of an activated sludge process at the wastewater treatment plant

Biochemical oxidation

Secondary treatment by biochemical oxidation of dissolved and colloidal organic compounds is widely used in sewage treatment and is applicable to some agricultural and industrial wastewaters. Biological oxidation will preferentially remove organic compounds useful as a food supply for the treatment ecosystem. Concentration of some less digestible compounds may be reduced by co-metabolism. Removal efficiency is limited by the minimum food concentration required to sustain the treatment ecosystem.

Chemical oxidation

Chemical (including electrochemical) oxidation, also known as advanced chemical oxidation, is used to remove some persistent organic pollutants and concentrations remaining after biochemical oxidation. Disinfection by chemical oxidation kills bacteria and microbial pathogens by adding hydroxyl radicals such as ozone, chlorine or hypochlorite to wastewater. These hydroxyl radical then break down complex compounds in the organic pollutants into simple compounds such as water, carbon dioxide, and salts.

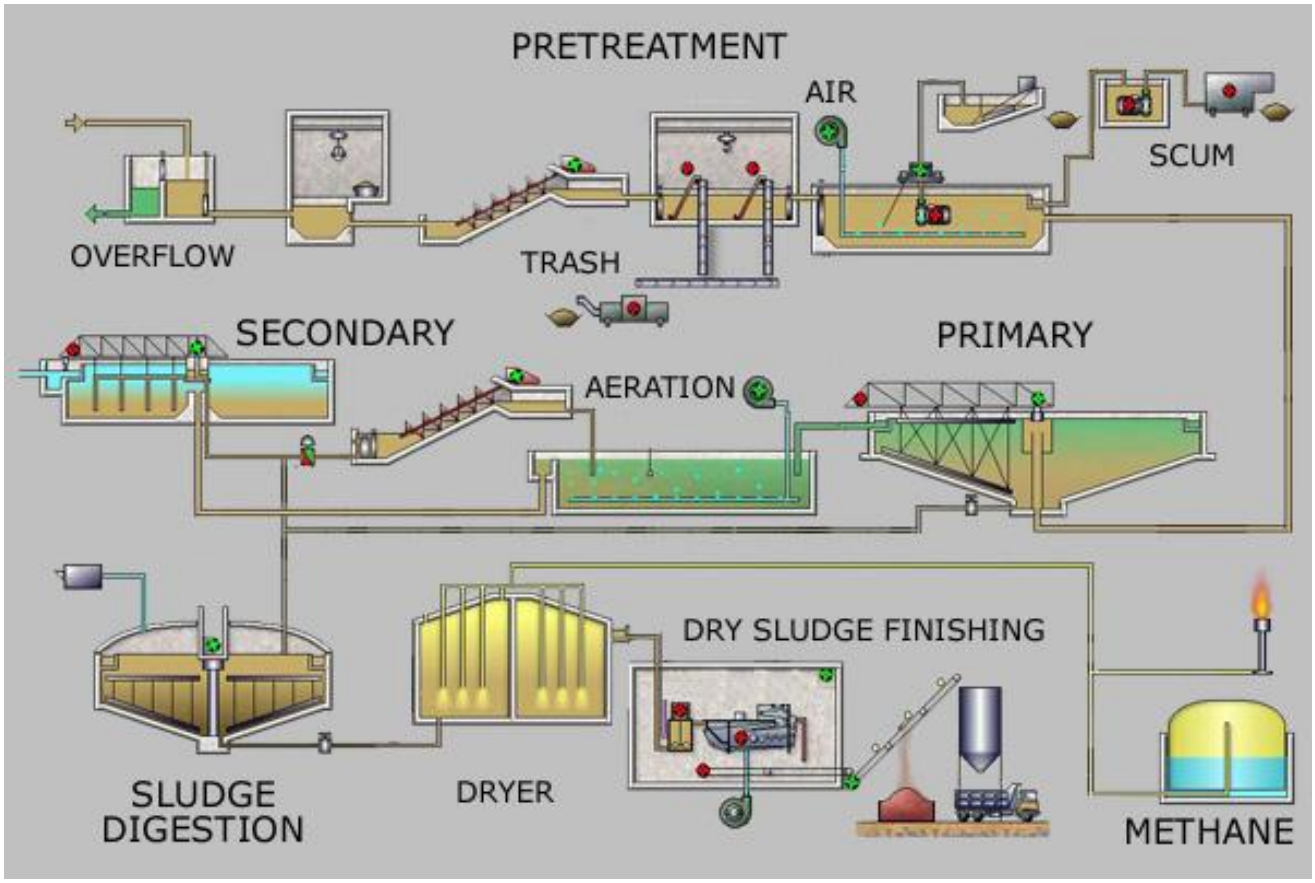


Fig 14.12: Flow Diagram of Pretreatment

Case Study: Waste to Energy Plant, Nashik, Maharashtra

Place: Nashik, Maharashtra
Scale: Daily 10 to 15 tons of food and vegetable waste from approximately 500 restaurants and 10 to 20 tons of septage from 400 community toilets are collected by trucks and delivered to the plant
Implementing mode: Design – Finance - Build – Own – Operate – Transfer (DFBOOT)
Implementing agency:
The Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH
Area: 6000 sq.m, provided by Nashik Municipal Corp (NMC).
Processing Capacity: 30 Tonne/day
Capital Cost: INR 8.02 Crore (INR 6.8 Cr from GIZ and 1.2 Cr from M/s Vilholi Waste Management System Pvt LtD
Operational since: December, 2017
O&M: NMC will give INR 5 lakh per annum for management
Power Generation: 3300 kWh/day

Project Background:

Like many cities in India, the city of Nashik is also struggling with citywide Solid Waste and Wastewater management. Therefore, there is an urgent need for an integrated approach to solid waste and wastewater management on the one hand and control of Green House Gas (GHG) emissions on the other hand. The Waste to Energy Project in Nashik is one such solution through co-processing of septage (faecal sludge) with organic solid waste and generating energy to create a sustainable business model.

This project is an attempt to showcase a viable business model for implementation of waste to energy projects through a Public Private Partnership (PPP) and is built on a comprehensive financial and operational model. The plant is planned to treat biodegradable waste and septage generated in the city and generate energy through biogas for feeding it into the Maharashtra power grid.

The project in Nashik opens possibilities to develop and replicate sustainable Waste to Energy technology with the potential of reducing investment costs for the public sector and to achieve sustainability in operation. The project closes the loops by creating additional benefits like reduction of carbon footprint and resource efficiency, which for India is of rising economic and environmental importance.

Treatment Technology:

Organic waste and septage is treated separately. The screened organic waste is fed to a crusher and then mixed with septage to form slurry. The slurry is continuously agitated and forwarded to the digester. Option of pasteurization of septage using excess heat is kept open for further use of excess digestate to produce organic fertiliser. The co-fermentation process takes place in the bio-digester. After purification and reduction of moisture the gas is sent to a Combined Heat and Power (CHP) unit.

Performance:

Daily 10 to 15 tons of food and vegetable waste from approximately 500 restaurants and 10 to 20 tons of sewage from 400 community toilets is collected by trucks and delivered to the plant. Approx. 2,500m3 biogas and subsequently 3,300 kWh of electricity is produced per day. The generated power is fed into the power grid. The nutrient-rich effluent from the earlier treated sewage can be used as moisturizing agent in the composting process, thus closing the loop of recycling and reusing waste.

Chapter 15

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

Sr. No.	Facility Name	Implementation Period	Estimated Cost (Rs)	Benefits
1	Public library	Long Term	8,25,482	• The first and foremost benefit is getting free books. • Availability of all kinds of books. • A disciplined area to study. • Free internet. • Foster literacy of all kinds.
2	Public toilet	Immediately	4,91,275	• Availability of Proper Sanitation Facilities • Can be used by other people visiting village. • Creation of healthy environment.
3	Public Healthcare Center	Immediately	8,59,040	• Primary Medical facilities are available. • Most useful during times of any pandemic. • Helps spread awareness about health and hygiene.
4	Public Garden	Long Term	16,25,696	• Enhances the aesthetic view of village. • Maintains Greenery in village. • Gives older age people a good place to spare time. • Safe place for children's to play. • Tourist attraction.
5	Skill Development Center	Within 1 Year	14,83,779	• A good place for all villagers to learn new skills. • Safe place for women to start and small business. • Computer room for students. • Good studying place for students. • Can be used for public display of new skills and competition can be arranged.

6	Anganvadi	Immediately	8,07,568	• Best place for toddlers to play and learn. • Availability of afternoon lunch for poor children. • Toddlers development.
7	Bank	Immediately	11,04,092	• Villagers would no longer have to go to city areas for banking facilities. • Villagers can gain knowledge of loan and other credit facilities. • Instant finances can be obtained.
8	ATM	Within 1 Year	1,93,314	• 24 X 7 availability of money • Easy access to withdrawal of funds. • Can also be used for fund transfer. • Passbook printers are also available.
9	Chabootro	Long Term	1,73,661	• Bird feeding • Increase in humanity in villagers • Aesthetic appearance of village improves. • Tourist attraction.
10	Post Office	Within 1 Year	8,38,264	• Postal facilities are available for villagers. • Withdrawal of Pension is available for old age village people. • Other post schemes are available for villagers like savings account etc. • Better connectivity to other government facilities.
11	Bus Stop	Within 1 Year	1,46,921	• Better connectivity • Safe place for waiting for transport. • Connectivity to major cities. • Availability of better roads.
12	Compost Pit	Within 1 Year	66,994	• Better waste management facilities for villagers. • Can be used as natural fertilizer after composting. • Better hygiene. • Healthy environment.

Chapter 16
Survey By Interviewing With Talati And/or Sarpanch

Gujarat Technological University, Ahmedabad, Gujarat

Vishwakarma Yojana: Phase VIII
Survey with Interviewing

SURVEY BY INTERVIEWING WITH TALATI AND/OR SARPANCH

Vishwakarma Yojana: Phase VIII

ALLOCATED VILLAGE SURVEY

An approach towards "Rurbanisation for Village Development"

CHAPTER- 16

Sr.	Questions	Yes/ No	Remarks
1	What are the sources of income in village?		Agriculture, Milk dairy
2	What are the chances of employment in village?		Service, farming
3	What are the special technical facilities in village?		Nothing
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?	Yes	
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?	yes	
12	Is water scarcity in village? How many days per year?	NO	
13	Is village under any debt?	NO	
14	Is any serious issue due to debt from bank or any person happened in village?	NO	
15	Is any suicide like incident observed in village due to government policy, debt or threatening?	NO	
16	Is any death of patient occurred due to unavailability of medical facility in village?	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.	5	
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?	NO	

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

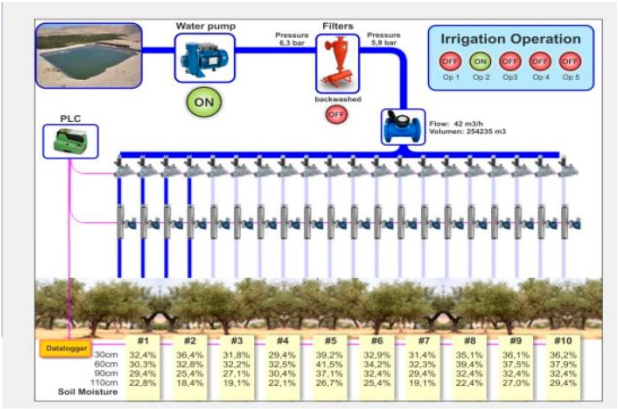
Administration queries/ Difficulties:
GTU VY Section
Contact No – 079-23267588
Email ID: rurban@gtu.edu.in

Chapter 17
Irrigation / Agriculture Activities And Agro Industry, Alternate Techniques And Solution

1. Optimized Subsurface Irrigation System: The Future of Sugarcane Irrigation

Full Text Available Climate change may harm the growth and yield of sugarcane (Saccharum officinarum L. without the introduction of appropriate irrigation facilities. Therefore, new irrigation methods should be developed to maximize water use efficiency and reduce operational costs. OPSIS (optimized subsurface irrigation system is a new solar-powered automatic subsurface irrigation system that creates a phreatic zone below crop roots and relies on capillarity to supply water to the root zone. It is designed for upland crops such as sugarcane. We investigated the performance of OPSIS for irrigating sugarcane and evaluated its performance against sprinkler irrigation under subtropical conditions. We conducted field experiments in Okinawa, Japan, over the period from 2013 to 2016 and took measurements during spring- and summer-planted main crops and two ratoon crops of the spring-planted crop. Compared with sprinkler irrigation, OPSIS produced a significantly higher fresh cane yield, consumed less irrigation water and provided a higher irrigation water use efficiency. We conclude that OPSIS could be adopted as a sustainable solution to sugarcane irrigation in Okinawa and similar environments.

2. GSM Based Irrigation Control And Monitoring System



Irrigated agriculture is one of the primary water consumers in most parts of the world. With developments in technology, efforts are being channeled into automation of irrigation systems to facilitate remote control of the irrigation system and optimize crop production and cost effectiveness. This paper describes an on-going work on GSM based irrigation monitoring and control systems. The objective of the work is to provide an approach that helps farmers to easily access, manage and regulate.

3. Condensation irrigation a system for desalination and irrigation

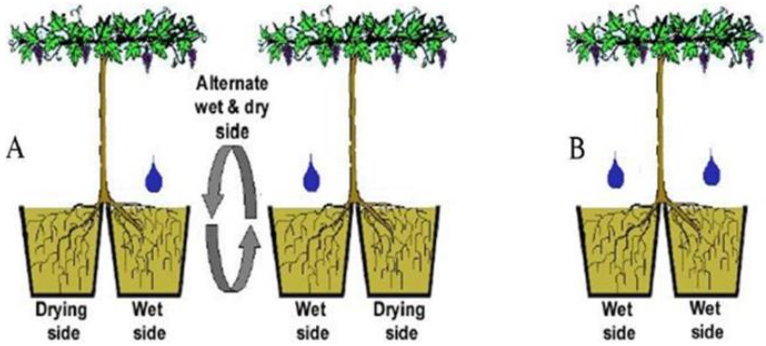
condensation irrigation is a system for both desalination and irrigation. The principles is that humidified air is let into an underground horizontal pipe system, where the air is cooled by the ground and humidity falls out as fresh water. The humidification could e.g. be achieved by evaporation of seawater in solar stills or any other heat source. By using drainage pipes for underground air transportation the water percolates into the soil, thereby irrigating the land. This study focuses on drinking water production, which means that humid air is led into plan pipes where the condensed water is collected at the pipe endings. Numerical simulations gave a study-state diurnal mean water production of 1.8 kg per meter of pipe over a 50 m pipe. Shorter pipes result in a greater mean production rate. Since the heat transfer of drainage pipes would be greater, current study indicates that condensation irrigation is a promising method for desalination and irrigation. Performed studies in condensation irrigation started at LTU in 2003. Current paper reports the initial theoretical work on the system.(Author)

4. Energy alternatives for irrigation pumping: an economic analysis for northern India.

ILO pub-WEP pub. Working paper presenting an economic analysis of alternative energy sources for irrigation pumping in Northern India - considers economic and technical aspects of photovoltaic pumping systems, solar energy systems, electric power, dual-fuel and diesel engines, Biogas and wind power; discusses economic and social development aspects. Abbreviations, bibliography, glossary and tables.

5. Alternate partial root-zone drying irrigation improves fruit quality in tomatoes

Alternate partial root-zone drying (PRD) irrigation and deficit irrigation (DI) are water-saving irrigation strategies. Here, comparative effects of PRD and DI on fruit quality of tomato (Solanum lycopersicum L.) were investigated. The results showed that the irrigation treatments had no effect.



6. An improved delivery system for bladder irrigation.

Occasionally, urologists may see patients requiring temporary bladder irrigation at hospitals without stocks of specialist irrigation apparatus. One option is to transfer the patient to a urology ward, but often there are outstanding medical issues that require continued specialist input. Here, we describe an improved system for delivering temporary bladder irrigation by utilizing readily available components and the novel modification of a sphygmomanometer blub. This option is good for bladder irrigation in patients with moderate or severe gross hematuria due to various causes. In this prospective study from March 2007 to April 2009, we used our new system in eligible cases. In this system, an irrigant bag with 1 L of normal saline was suspended 80 cm above the indwelled 3-way Foley catheter, and its drainage tube was inserted into the irrigant port of the catheter. To increase the flow rate of the irrigant system, we inserted a traditional sphygmomanometer bulb at the

top of the irrigant bag. This closed system was used for continuous bladder irrigation (CBI) in patients who underwent open prostatectomy, transurethral resection of the prostate (TURP), or transurethral resection of the bladder (TURB). This high-pressure system is also used for irrigation during cystourethroscopy, internal urethrotomy, and transurethral lithotripsy. Our 831 eligible cases were divided into two groups: group 1 were endourologic cases and group 2 were open prostatectomy, TURP, and TURB cases. The maximum and average flow rates were evaluated. The efficacy of our new system was compared prospectively with the previous traditional system used in 545 cases. In group 1, we had clear vision at the time of endourologic procedures. The success rate of this system was 99.5%. In group 2, the incidence of clot retention decreased two fold in comparison to traditional gravity-dependent bladder flow system. These changes were statistically significant (P = 0.001). We did not observe any adverse

7. Drip irrigation using a PLC based adaptive irrigation system

Most of the water used by man goes to irrigation. A major part of this water is used to irrigate small plots where it is not feasible to implement full-scale Evapotranspiration based irrigation controllers. During the growth season crop water needs do not remain constant and varies depending on the canopy, growth stage and climate conditions such as temperature, wind, relative humidity and solar radiation. Thus, it is necessary to find an economic irrigation controller that can adapt .

8. Decision support system for surface irrigation design

The SADREG decision support system was developed to help decision makers in the process of design and selection of farm surface irrigation systems to respond to requirements of modernization of surface irrigationâ€"furrow, basin, and border irrigation. It includes a database, simulation models, user-friendly interfaces, and multicriteria analysis models. SADREG is comprised of two components: design and selection. The first component applies database information, and through several si...

9. An experimental study on the grape orchard: Effects comparison of two irrigation systems

Full Text Available Table grape (Vitis vinifera cultivars is a major cash crop in the Nashik district of India, which requires irrigation water throughout the year as per demand instantly. Canal irrigation is the adopted irrigation systems in the study area, but canal irrigation has got several serious disadvantages, such as mismatching rotation schedules and crop water demands, water allotment system and restrictions on the use of efficient irrigation methods. The storing the canal water in the farm pond instead of directly applying to the field using the free flooding method is alternate solution to overcome the disadvantages of the canal irrigation system. Once the canal

water storing in the pond, it increases the possibilities to use the advance irrigation system like drip, subsurface, sprinkler etc. to enhance water use efficiency. The comparative study between the canal water directly applying for the field and canal water storing in the farm pond then use for irrigation, executed through the field experiments carried out on the grape orchard during a period April 2013 to March 2016. Results have been evaluated based on grape yield, water-productivity, berry size, and biomass. Water productivity (kgÂ·m-3 with respect to water delivery to crop through the pond irrigation method was found 37% higher than the canal irrigation method during the study period. Based on the results, this study recommended the use of the farm pond to store the canal water and use it as per crop demand using advance irrigation systems.

10. Automated Irrigation System for Greenhouse Monitoring

The continuous requirement for the food needs the rapid improvement in food production technology. The economy of food production is mainly dependent on agriculture and the weather conditions, which are isotropic and thus we are not able to utilize the whole agricultural resources. The main reason is the deficiency of rainfall and paucity in land reservoir water. The continuous withdrawal water from the ground reduces the water level resulting in most of the land to come under the arid. In the field of cultivation, use of appropriate method of irrigation plays a vital role. Drip irrigation is a renowned methodology which is very economical and proficient. When the conventional drip irrigation system is followed, the farmer has to tag along the irrigation timetable, which is different for diverse crops. The current work makes the drip irrigation system an automated one, thereby the farmer doesn't want to follow any timetable since the sensor senses the soil moisture content and based on it supplies the water. Moreover the practice of economical sensors and the simple circuitry makes this project as an inexpensive product, which can be bought even by an underprivileged farmer. The current project is best suited for places where water is limited and has to be used in limited quantity.

11. Ring Irrigation System (RIS design through customer preference representation)

Full Text Available In agricultural field, irrigation is one of the most interesting considerations affecting the rate of plant growth and development. Micro-irrigation as the dripping or sprinkle method is one of the irrigation types that applies the small amount of water for fulfilling the humidity requirement. The most important factors affecting the demand of water for plants are soil conditions and effect of climatic factors. With less human labour required, to improve the irrigation method from the recent days, analyzing water used or water permeation automatically through the soil moisture has been raised as the interesting topic. Proposed in this research is the ring irrigation system (RIS which is introduced as an alternative channel for emitters that drip water

directly onto the soil at the plant root zone where the soil conditions before and after watering can be quickly detected by the sensors. This RIS can be used for the potted plant, green house, or other small farm fields. Product design and development (PDD is applied in this research for assisting the designer to understand and create the RIS prototype properly according to the customerâ€™s requirements where the suggested functions obtained will be added and tested.

12. The Impact of Regular and Periodic Irrigation on the Fertility and Productivity of an Ordinary Chernozem of the Azov Irrigation System

The effect of regular and periodic irrigation on the fertility and productivity of an ordinary chernozem cultivated under different conditions within the same cereal-fodder crop rotation is discussed. The investigation object is located in the area of the Azov irrigation system on the second terrace of the Don River in Rostov oblast. Irrigation water for the system is taken from the Veselovsk water reservoir. Its salinity is 1.7-2.1 g/dm3, and the salt composition is sulfate-sodium. The field experiments were performed in 2006-2013 on three experimental plots. Two of them were regularly irrigated; the third plot was periodically irrigated with alternation of 2-year-long periods with and without irrigation. Our study proved that periodic irrigation could be applied in the chernozemic zone. This new irrigation mode contributes to the preservation of the natural soil-forming process and stops the development of unfavorable processes typical of the lands irrigated with water of inadequate quality. In eight years of cultivation of the ordinary chernozem with periodic irrigation, the soil humus content increased by 10% (from 3.80 to 4.15%), and the yield reached 66.0 t/ha of fodder units. This was 9% higher than the yield obtained upon regular irrigation without agroameliorative measures and 12% lower than the yield upon regular irrigation in combination with soil-protective measures. Our data suggest that periodic irrigation is promising for the chernozemic zone, because it ensures lower water loads and preservation of the irrigated chernozems.

13. Control system design for concrete irrigation channels

Concrete channels find use at the periphery of irrigation networks, for expansion and to replace small earthen channels given the relative ease of maintenance and elimination of seepage losses. In design, it is important to account for control system performance when dimensioning the channel infrastructure. In this paper, the design of a distributed controller is investigated in terms managing water-levels, and thereby the depth profile (i.e., amount of concrete) needed to support peak flow

Chapter 18

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

Awareness Campaign: Corona Virus Pandemic & Mask and Sanitizer Distribution

During these difficult times it is very much necessary for the people of the village to have information about the ongoing pandemic situation due to Covid 19. The main aim of this awareness program is to make people aware about the seriousness of this virus and ways to tackle the situation if anybody is suffering from the same and also the ways to stay safe. Instead of going out people should stay home and wear mask while going out and frequently wash their hands.

Following the above instructions villagers would be safe from the virus. Not only this people should also use sanitizer frequently.

Since the outbreak of this Covid 19 virus here is a shortage of both masks and sanitizer also there is increase in price of both products. So we thought we should help people by providing them with face mask and sanitizers. We plan to provide one bottle of sanitizer to each family in the village and free mask per person.

Encouraging Women for Different Mhila Udhyog

Currently there is shortage of masks and sanitizers and talking about mask it can be made at home and other thing is that group of few women who knows how to operate sewing machine can start small business of making mask in the village .

Doing this work they will be serving their village and also earn a bit during this difficult lockdown time where people have lost their jobs and are unemployed.

Awareness about Vaccination

Government of India has started vaccinating people against Corona virus and it has shown successful decrease in daily cases of corona virus but we cannot fully vaccinate people of India if they are not willing to get vaccinated due to misguided information and rumors about vaccine that is being given to them such as:

- The vaccines aren't safe because they were developed quickly
- The vaccines can lead to long-term effects.
- You can get COVID-19 from the vaccines.
- I've already had COVID-19, so I don't need to get vaccinated.
- The COVID-19 vaccines will alter your DNA.
- The COVID-19 vaccines will kill you.

All the above are false information given to village people but our government and all the doctors and other front line workers are working very hard to overcome this situation and to get people vaccinated as early as possible.

To get villagers vaccinated government has set up vaccination camps at the PHCs in villages and the villages not having PHCs are given nearest PHC as vaccination center.

The main aim of this awareness program is to give proper knowledge to the villagers about the vaccine and benefits of getting vaccinated.

The benefits of getting vaccinated:

- The vaccine reduces your risk of infection.
- The vaccine protects against severe illness.
- The vaccine will help us get rid of mask.
- The vaccine will help reconnect with our friend and family

Overall vaccine will help us go back to our normal life which we were having before the Corona virus outbreak.

Chapter 19

SAGY Questionnaire Survey form with the Sarpanch Signature (Scanned copy attachment in the soft copy report and Original copy in hardbound report)

SAANSAD ADARSH GRAM YOJANA (SAGY) Baseline Household Survey Questionnaire

Village: Jaska Gram Panchayat: Jaska Ward No. — Grampanchayat

Block: — District: Patan.

State: Gujarat L S Constituency: Chanasma

1. Family Identity and Size

Name of Head of Household	Naresh bhai Kanti bhai Parmar							Male/ Female	M
SECC Survey ID:		Family Size	5	Over 18	5	6 to 18		Under 6	

2. Category & Entitlement Details (Tick as appropriate)

Social Category[1]	SC	Life Insurance	1. All Adults ✓ 2. Some Adults 3. None	AAJBY	1. Yes 2. No	Kisan Credit Card	Yes / No
Poverty Status Year[2]:	1. BPL 2. APL	Health Insurance	1. All Adults 2. Some Adults 3. None	RSBY	1. Yes 2. No	MGNREGS Job Card Number	
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]
Naresh bhai Kanti bhai	48	M	N	Y		Y	Y	N
Chandanben Naresh bhai	43	F	N	Y		Y	Y	N
Urvashi ben Naresh bhai	23	F	N	[illegible]	10th	Y	Y	N
Jaydeep bhai Naresh bhai	22	M	N	[illegible]	B.E	Y	Y	N
Nirul bhai Naresh bhai	20	M	N	[illegible]	B-A			

3. Children from 6 years and up to 18 years

Name	Age	Sex M/F/O	Disability Y/N	Marital Code*	Level of Education: Code#	Going to School /College (Y/N)	Current Class	Computer Literate Y/N

4. Children below 6 years

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

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

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

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

SAANSAD ADARSH GRAM YOJANA (SAGY) Baseline Household Survey Questionnaire

5. Hand washing

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

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

7. Do members take Regular Physical Exercise

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

8. Consumption of Tobacco

	Smoking	Chewing
Adults	NO	NO
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	~~Door Step~~ / Common Point / ~~No Collection System~~
Homestead Land: Yes / ~~No~~	Kitchen Garden : Yes / ~~No~~
Compost Pit: Individual/ Group/ ~~None~~	Biogas Plant: Individual/ Group/ None

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

Source of Water		Distance
Piped Water at Home	Yes / ~~No~~	200 m
Community Water Tap	Yes / ~~No~~	300 m
Hand Pump (Public / Private)	Yes / ~~No~~	200 m
Open Well(Public / Private)	Yes / ~~No~~	100 m
Other (mention):		

11. Source of Lighting and Power

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

12. Landholding (Acres) Hectare

1. Total	669.97	2. Cultivable Area	
3. Irrigated	250-16	4. Uncultivable	

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

18. What games do Children Play
Outdoor games

19. Do children play musical instrument (mention)
No

Schedule Filled By:

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: Jaska
b. Block: —
c. District: Patan
d. State: Gujarat
e. Lok Sabha Constituency: Chanasma
f. Number of Wards in the Gram Panchayat: 1
g. Number of Villages in the Gram Panchayat: 1
h. Names of Villages:
Jaska

Demographic Information

Number of Households 277 Total Population 1329 Male 683 Female 646

SC HHs _____ ST HHs _____ OBC HHs _____ Other HHs _____

I. Access to Infrastructure / Facilities / Services

	Infrastructure Facilities / Services	Located within the GP Yes (Y)/No (N)	If located elsewhere (N), distance from the GP office
a.	ANM/ Health Sub Centre	N	5km
b.	Nearest Primary Health Centre (PHC)	N	5km
c.	Nearest Community Health Centre (CHC)	N	5 km
d.	Nearest Post Office	N	5km
e.	Nearest Bank Branch (Any)	N	5km
f.	Nearest Bank with CBS Facility	N	5 km
g.	Nearest ATM	N	5km
h.	Nearest Primary School	Y	
i.	Nearest Middle School	Y	
j.	Nearest Secondary School	N	5km
k.	Nearest Higher Secondary School / +2 College	N	5km
l.	Nearest Graduate College	N	5km B.A
m	Nearest ITI / Polytechnic Centre	N	5km
n	Kisan Seva Kendra	N	

Saansad Adarsh Gram Yojana (SAGY) Panchayat Details Survey Questionnaire
(Note: Please aggregate information from village level questionnaires wherever relevant)

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

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: 1

b. Number of villages without Angan Wadi Centres —

Names of such villages: —

c. Schools (Number)

Primary Private: — Primary Govt.: 1

Middle Private: — Middle Govt.: 1

Secondary Private: — Secondary Govt.: —

Higher Secondary Private: — Higher Secondary Govt: —

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)	—	—	—	—	GOVT	—	—
b.	Kerosene	—	—	—	—	GOVT	—	—
c.	Other (mention)	—	—	—	—	GOVT	—	—

Saansad Adarsh Gram Yojana (SAGY) Panchayat Details Survey Questionnaire
(Note: Please aggregate information from village level questionnaires wherever relevant)

VII. Coverage of Villages under different Facilities & Services

	Parameter	Villages Status[1]	Names of Villages Covered	Names of Villages not Covered
a.	Piped Water Supply Coverage to Villages	Covered: Yes Not Covered: –	Jaska	
b.	Hand Pump Coverage in Villages:	Covered: Yes Not Covered: –	Jaska	
c.	Coverage under Covered Drains:	Covered: Yes Not Covered: –	Jaska	
d.	Coverage under Open Drains:	Covered: Yes Not Covered: –	Jaska	
e.	Villages with Household Electricity Connection (Numbers)	Connected: yes Not Connected: –	Jaska	

VIII. Land and Irrigation

	Private Land	Area in Acres		Common Land	Area in Acres		Irrigation Structure	No.
a.	Cultivable Land		d.	Pasture / Grazing Land	—	g.	Check Dam	
b.	Irrigated Land	250.16	e.	Forests/ Plantations		h.	Wells/Bore Wells	
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)	10-15
b)	Number of Households receiving pension (old age, widow, disability)	10-15
c)	Number of eligible Households who are not receiving pension	0
d)	Number of Households eligible for Ration Card	0
e)	Number of eligible HHs having ration cards	275
f)	Number of households covered under RSBY (Rashtriya Swasthya Bima Yojana)	0
g)	Number of HHs covered under AABY (Aam Aadmi Bima Yojana)	160
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	33
l)	Number of landless households	—
m)	Number of IAY beneficiaries	—
n)	Number of FRA[1] beneficiaries	—
o)	Number of Community Sanitary Complexes	—
p)	Number of Households headed by single women	0
q)	Number of Households headed by physically handicapped persons	4
r)	Total number of Persons with Disability in the village	5
s)	Number of SHGs	0
t)	Number of active SHGs	0
u)	Number of SHG Federations	0
v)	Number of Youth Clubs	0
w)	Number of Bharat Nirman Volunteers	0

Name and Signature of Surveyor and Respondent'

Aman Memon A.Y.Memon			
Surveyor	PRI Respondent (Preferably Gram Panchayat Chairperson)	Official Respondent (Preferably seniormost Government official in the Gram Panchayat)	Date of Survey

SAANSAD ADARSH GRAM YOJANA (SAGY) Village Details Survey Questionnaire

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

I. Basic Information

a. Village: Jaska
b. Ward Number: –
c. Gram Panchayat: Jaska
d. Block: –
e. District: Patan
f. State: Gujarat
g. Lok Sabha Constituency: Chunakhmy
h. Number of Habitations / Hamlets in the Gram Panchayat: 1
i. Names of Habitations / Hamlets: Jaska

Demographic Information

Number of Households 277 Total Population 1329 Male 683 Female 646

SC HHs _____ ST HHs _____ OBC HHs _____ Other HHs _____

II. Access to Infrastructure/Amenities etc.

i.	Access to Infrastructure / Facilities / Services	Located in the Village Yes (Y)/No(N)	If located elsewhere (N), distance in kms from the village
a.	Nearest Primary School	Y	–
b.	Nearest Middle School	Y	–
c.	Nearest Secondary School	N	5km
d.	Kisan Seva Kendra	N	5km
e.	Milk Cooperative /Collection Centre	Y	–
g.	Health Sub Centre	N	5km
h.	Bank	N	5km
i.	ATM	N	5km
j.	Bus Stop	Y	–
k.	Railway Station	N	96km

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

SAANSAD ADARSH GRAM YOJANA (SAGY) Village Details Survey Questionnaire

I.	Access to Infrastructure / Facilities / Services	Located in the Village Yes (Y)/No(N)	If located elsewhere (N), distance in kms from the village
l	Library	N	
m	Common Service Centre	N	5km.
n	Veterinary Care Centre	N	5km.

ii. Road Connectivity

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

If 3 mention the name of the habitations where not available: Same

iii. Drinking Water Facilities

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

If 3 mention the name of the habitations not covered:

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

If 3 mention the name of the habitations not covered:

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

If 3 mention the name of the habitations not covered:

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

If 3 mention the name of the habitations not covered:

v. Coverage of Habitations under Electrification

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

If 3 mention the name of the habitations not covered:

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

If 3 mention the name of the habitations not covered:

vi. Sports Facilities in the Village

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

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

vii. Education, ICDS

a. Number of Anganwadi Centres: 1

c. Schools (Number)

Primary Private: - Primary Govt.: 1

Middle Private: - Middle Govt.: 1

Secondary Private: - Secondary Govt.: -

Higher Secondary Private: - Higher Secondary Govt: -

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	450	d.	Pasture / Grazing Land	—	g.	Check Dam	
b.	Irrigated Land	250.16	e.	Forests/ Plnatations		h.	Wells/Bore Wells	
c.	Un-irrigated Land	200	f.	Other Common Land	20	I	Tanks /Ponds	1

ix. Entitlement Related Parameters		
1	Number of active Job Card holders under MGNREGA	—
2	Number of active Job Card holders who have completed 100 days of work	—
3	Number of shops selling alcohol	—
4	Number of BPL families	130
5	Number of landless households	—
6	Number of IAY beneficiaries	—
7	Number of FRA beneficiaries	—
8	Number of common sanitation complexes	—
9	Number of SHGs	—
10	Number of active SHGs	—
11	Existence of SHG Federation in the Village (Yes / No)	—
12	Number of Youth Clubs	—
13	Number of Bharat Nirman Volunteers	—

Name and Signature of Surveyor and Respondent'

Amin Memon A.Y.Memon Surveyor	PRI Respondent (Preferably a ward member from a ward that is fully or partially covered under the Village)	R.Y.T Official Respondent (Preferably seniormost Government official in the Gram Panchayat)	Date of Survey

Chapter 20

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

GPERI

RATHOD ADITYA <171040106036@gperi.ac.in>

Development scenario of village Jaska, Taluka: Harij, District: Patan

RATHOD ADITYA <171040106036@gperi.ac.in> Thu, Jul 1, 2021 at 1:02 PM
To: ddo-pat@gujarat.gov.in, mam-patan@gujarat.gov.in

Respected Sir/Madam,

We are students of **Gujarat Power Engineering And Research Institute, Mehsana** affiliated to **Gujarat Technological University-GTU**.GTU has assigned us the project named **Vishwakarma Yojana** in which we have surveyed various villages and designed various amenities to make them ideal for living and get a better life as per requirements and village problem statements. as a part of Vishwakarma Yojana's guidelines, we have been asked to inform all the respective officers about our project in which we will shortly notify about **Jaska** llage profile of issues for development and our design work for them which is as below.

Sr. No.	Facility Name	Implementation Period	Estimated Cost (Rs)	Benefits
1	Public library	Long Term	8,25,482	The first and foremost benefit is getting free books. Availability of all kinds of books. A disciplined area to study. Free internet. Foster literacy of all kinds.
2	Public toilet	Immediately	4,91,275	Availability of Proper Sanitation Facilities Can be used by other people visiting village. Creation of healthy environment.
3	Public Healthcare Center	Immediately	8,59,040	Primary Medical facilities are available. Most useful during times of any pandemic. Helps spread awareness about health and hygiene.
4	Public Garden	Long Term	16,25,696	Enhances the aesthetic view of village. Maintains Greenery in village. Gives older age people a good place to spare time. Safe place for children's to play. Tourist attraction.
5	Skill Development Center	Within 1 Year	14,83,779	A good place for all villagers to learn new skills. Safe place for women to start and small business. Computer room for students. Good studying place for students. Can be used for public display of new skills and competition can be arranged.
6	Anganvadi	Immediately	8,07,568	Best place for toddlers to play and learn. Availability of afternoon lunch for poor children. Toddler's development.
7	Bank	Immediately	11,04,092	Villagers would no longer have to go to city areas for banking facilities. Villagers can gain knowledge of loan and other credit facilities. Instant finances can be obtained.
8	ATM	Within 1 Year	1,93,314	24 X 7 availability of money. Easy access to withdrawal of funds. Can also be used for fund transfer. Passbook printers are also available.
9	Chabootro	Long Term	1,73,661	Bird feeding. Increase in humanity in villagers Aesthetic appearance of village improves. Tourist attraction.
10	Post Office	Within 1 Year	8,38,264	Postal facilities are available for villagers. Withdrawal of Pension is available for old age village people. Other post schemes are available for villagers like savings account etc. Better connectivity to other government facilities.
11	Bus Stop	Within 1 Year	1,46,921	Better connectivity. Safe place for waiting for transport. Connectivity to major cities. Availability of better roads.
12	Compost Pit	Within 1 Year	66,994	Better waste management facilities for villagers. Can be used as natural fertilizer

Chapter 21
Comprehensive report for the entire village

Village visits of Ideal Village Kukrana and Smart Village Ruppur, the idea and scenario of a model villages were been developed and rationale was built for allocated village Jaska.

During visits of the ideal and smart villages Various amenities and Civil-Electrical infrastructures like Educational buildings, transportation facilities, water availability and distribution, use of smart technologies and use of renewable resources at rural level are been observed and studied.

Jaska village was visited thoroughly to refer the geographical features, demographic survey, socio-economic surveys and available and required infrastructural facilities. Data collected through both personal interviews and interactions with local authorities, analyzed for exploring the gaps in infrastructure facilities required as per UDPFI guidelines.

Based on Gap analysis, the essential and necessary infrastructures like public library and public toilets are proposed along with required measurements and costing. Design of other essential infrastructures is considered as future scope of study.

Smart Village can solve their problem by can become a smart village example to other village too. According to UDPFI norms, lacking in basic amenities and Smart Amenities can be provided.

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.

As the sole aim of this project is the development of the village as whole, for that certain civil structures are proposed:

1. Public library
2. Public toilet
3. Public Healthcare Center
4. Public Garden
5. Skill Development Center
6. Anganvadi

7. Compost Pit
8. Bank
9. Chabootra
10. ATM
11. Bus stop
12. Post Office

After addition of these structures the village would be on its way to development and not only development in terms of appearance but also the standard of living will improve.

Public library an Skill development Center will help villagers especially the students for better learning and developing their skills for their own development.

Adding better connectivity will help villagers to be in contact with ht urban areas for better understanding and gaining knowledge of the different government schemes for future development.

Addition of public toilet will ensure healthy, hygienic and safe environment for the people living in the village.

While the public toilet added will ensure safe environment addition of PHC will help maintain the health and treat ill people and also provide medications in the village at a minimal or no cost.

For a healthy environment people need not only be healthy physically but also mentally and a good garden having greenery and aesthetic view can help in that and also by adding public garden a tourist attraction is developed.

Children's and toddlers are an important part of the village and their education and wellbeing is of utmost importance and by adding a good Anganvadi the motive can be achieved.

Addition of compost pit will help villager to keep village clean and it's by product will be used in fields as fertilizers.

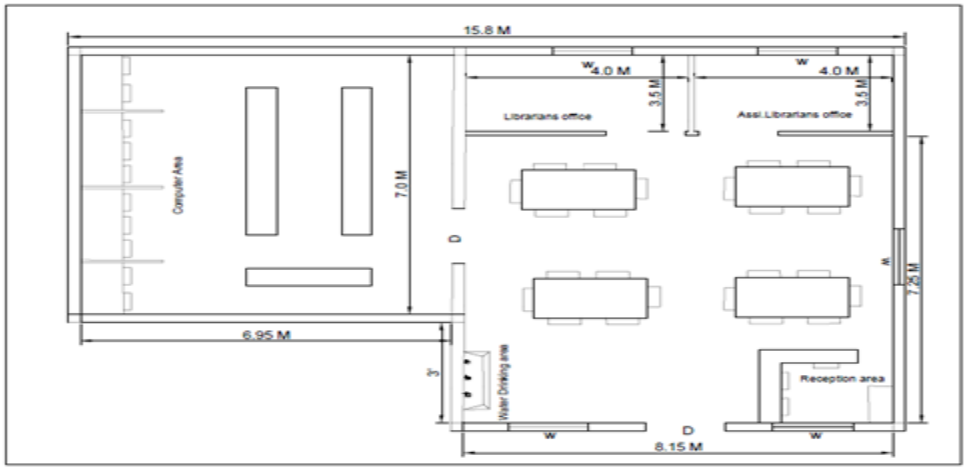
As it can be seen in these difficult pandemic time the PHCs are working very efficiently in treating infected persons and also vaccinating other peoples and therefore addition of such building can be very much useful.

And the development of village to smart village will lead to the overall development of villagers and will help them in many ways and not only this development will help develop village but also the nation as whole.

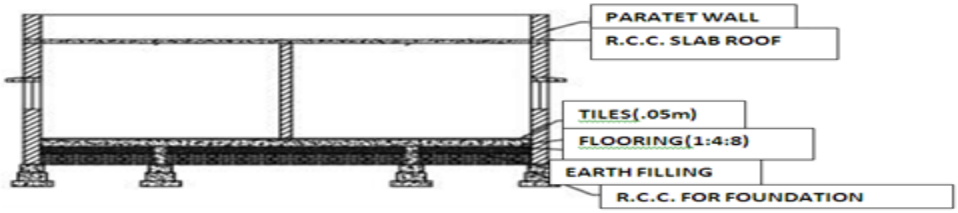
Village: Jaska, District: Patan

Designs

1. Public library

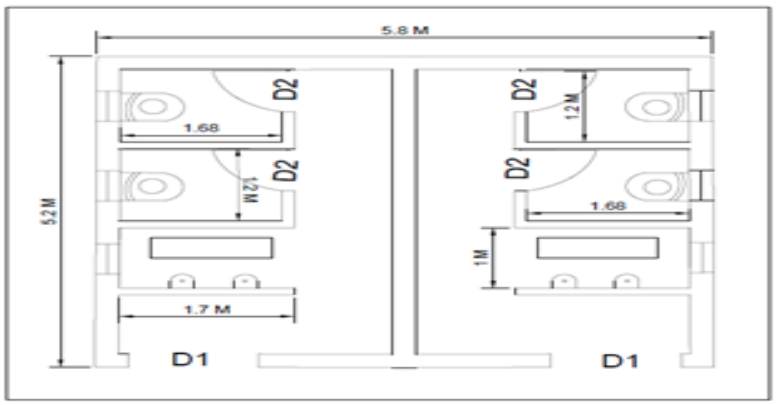


PLAN

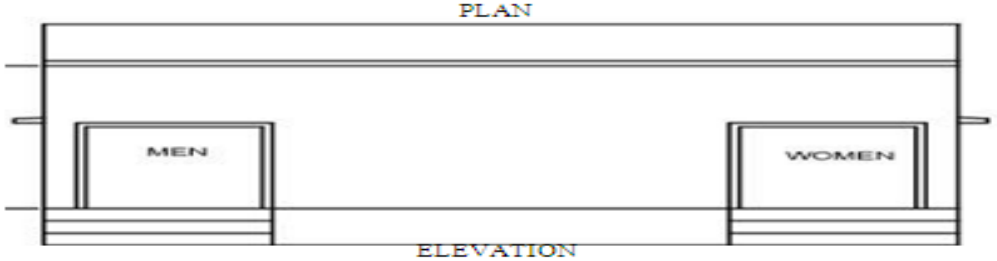


ELEVATION

2. Public toilet

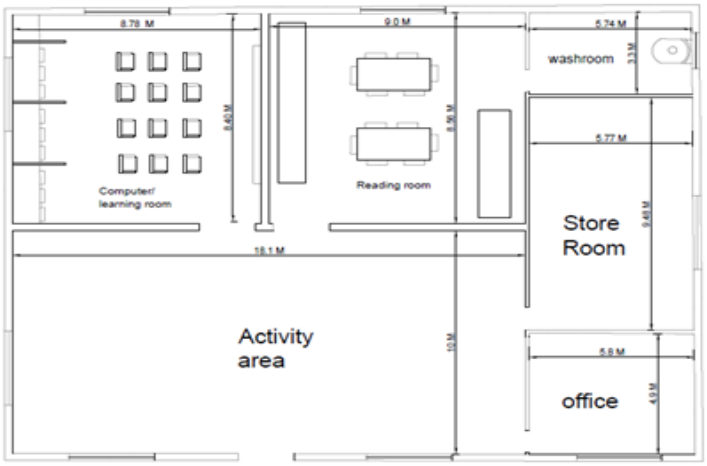


PLAN



ELEVATION

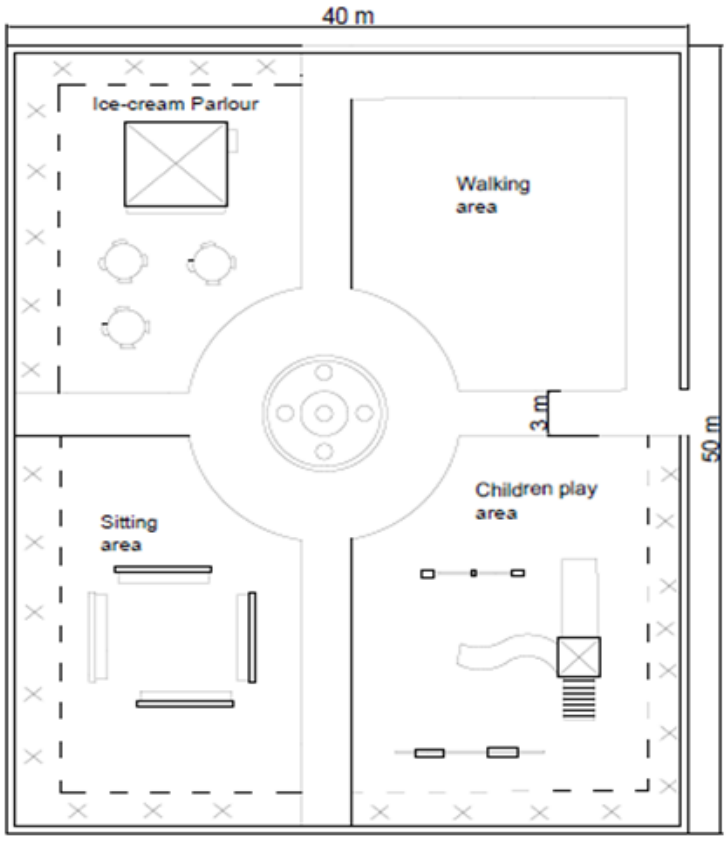
3. Public Healthcare Center



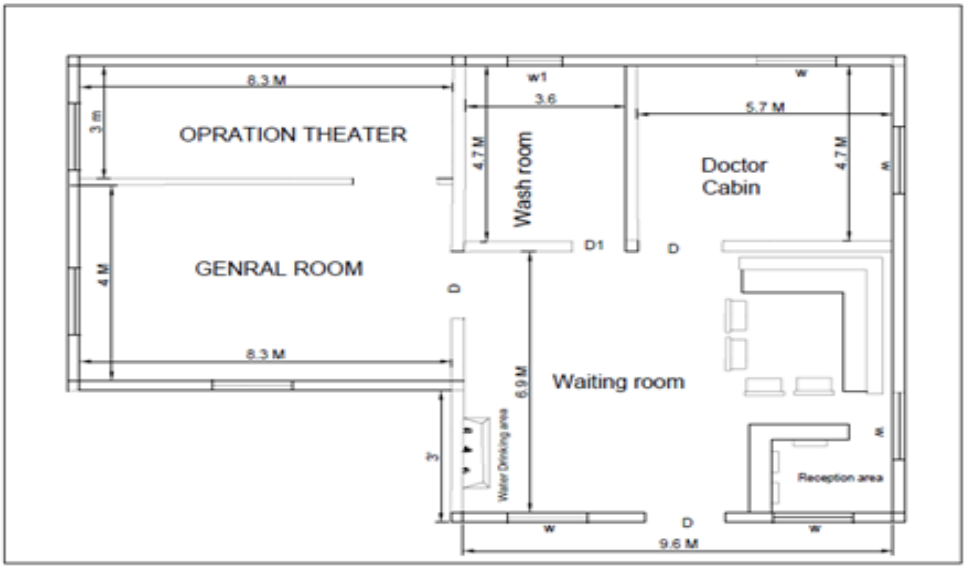
PLAN

ELEVATION

4. Public Garden



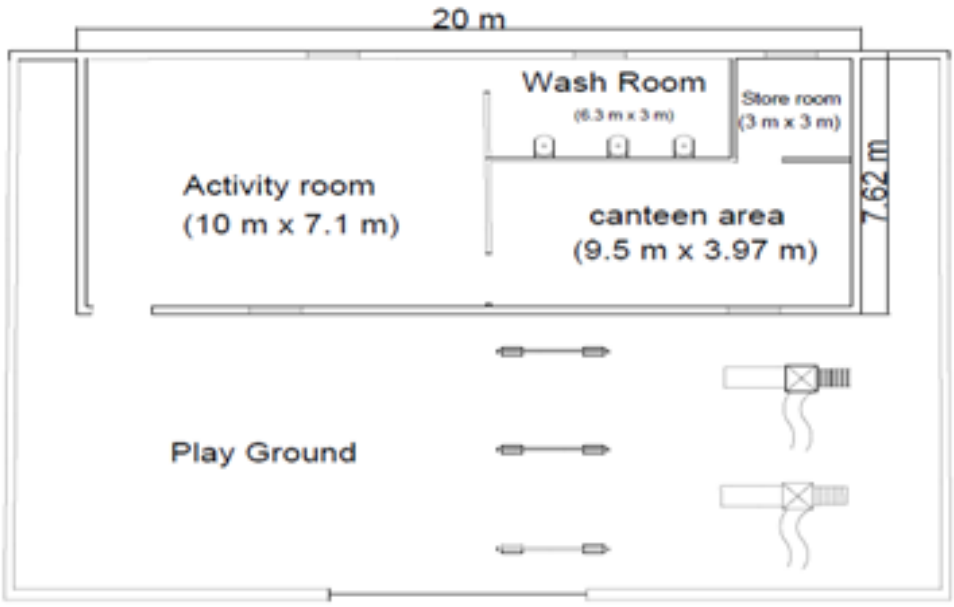
5. Skill Development Center



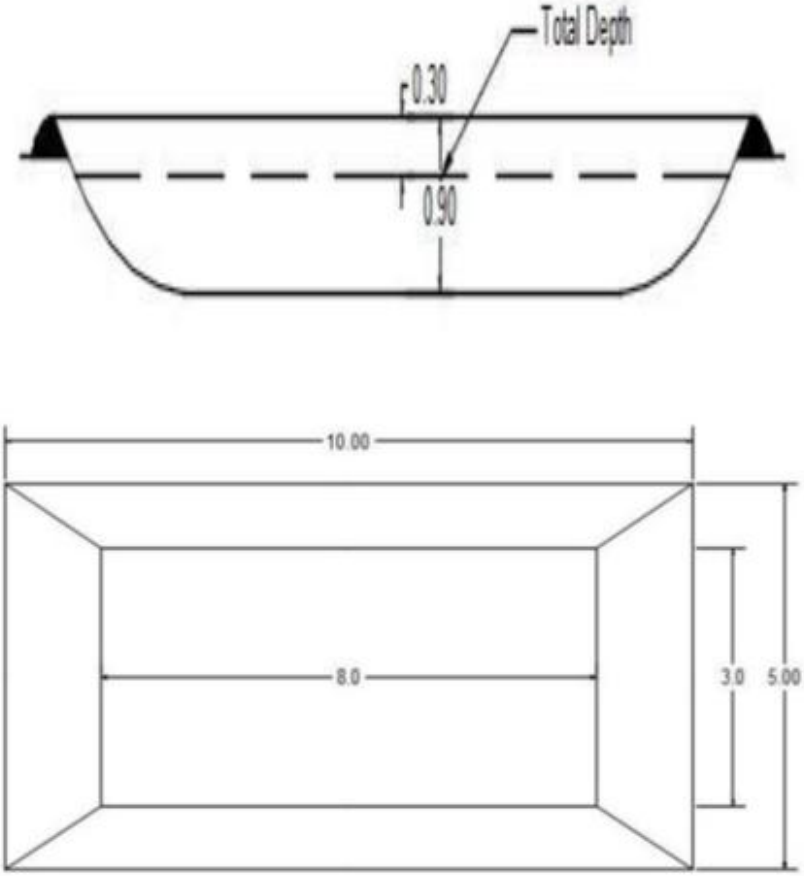
PLAN

ELEVATION

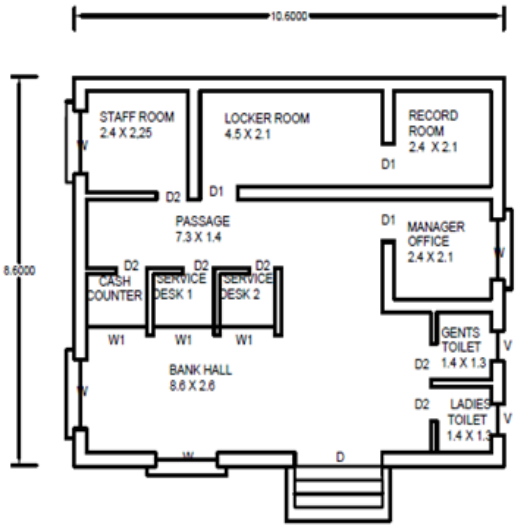
6. Anganvadi



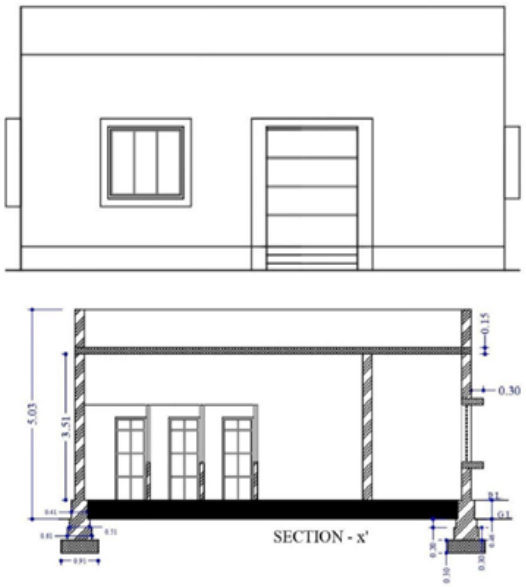
7. Compost Pit



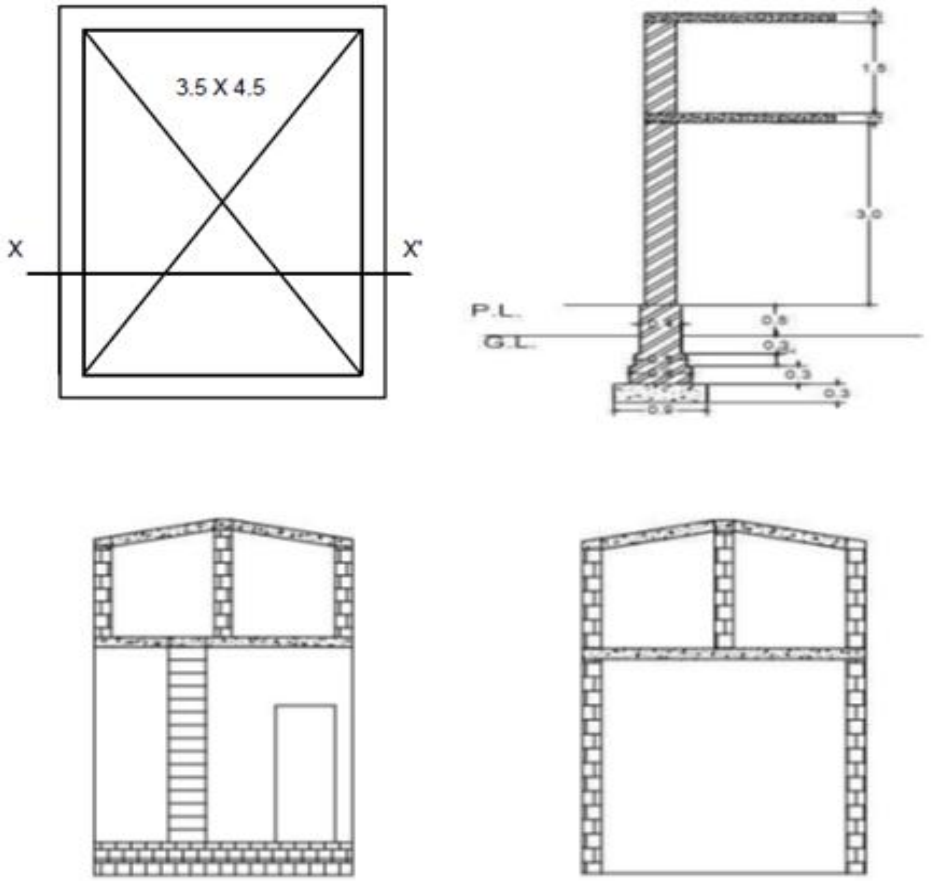
8. Bank



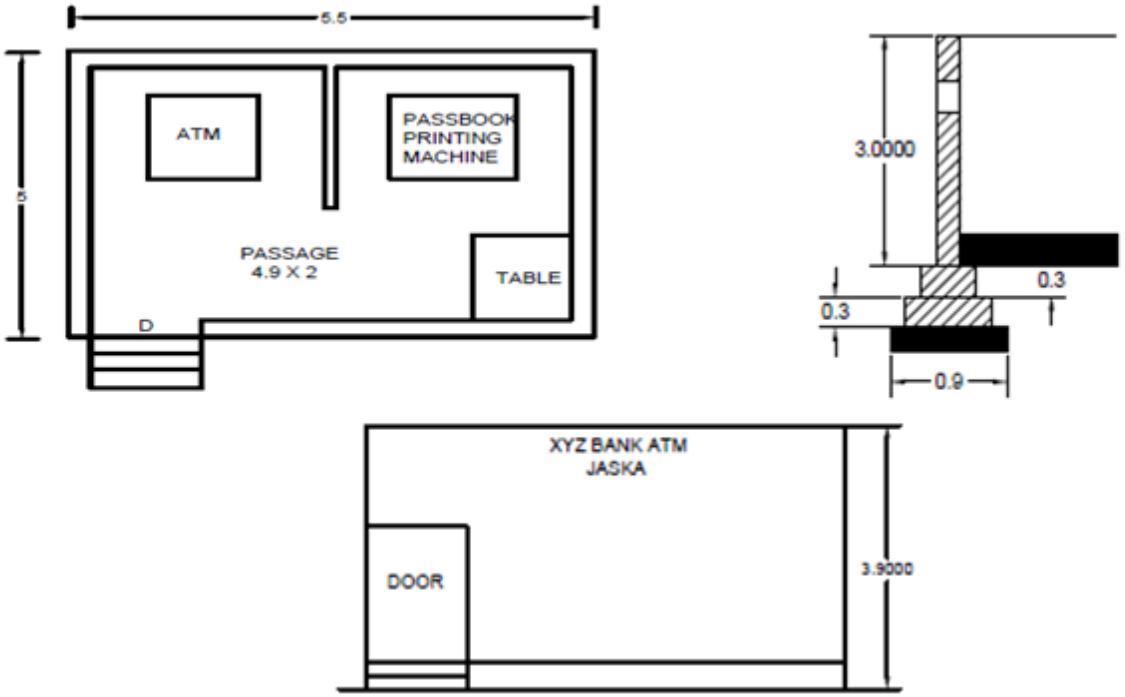
Particulars	Size
D	2.31X 2.16
D1	0.93X 2.16
D2	0.77X 2
W	1.54X 1.39
W1	0.93X 1.39



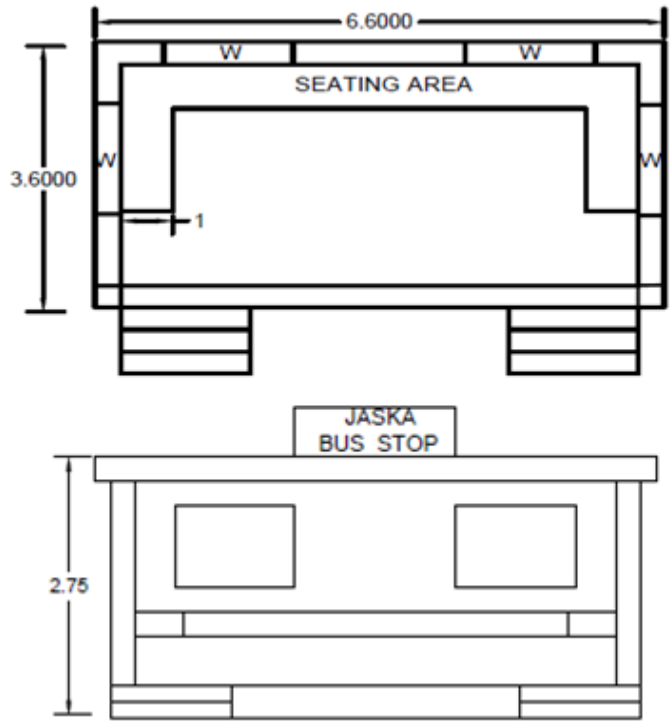
9. Chabootra

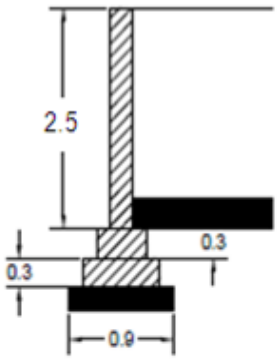


10. ATM



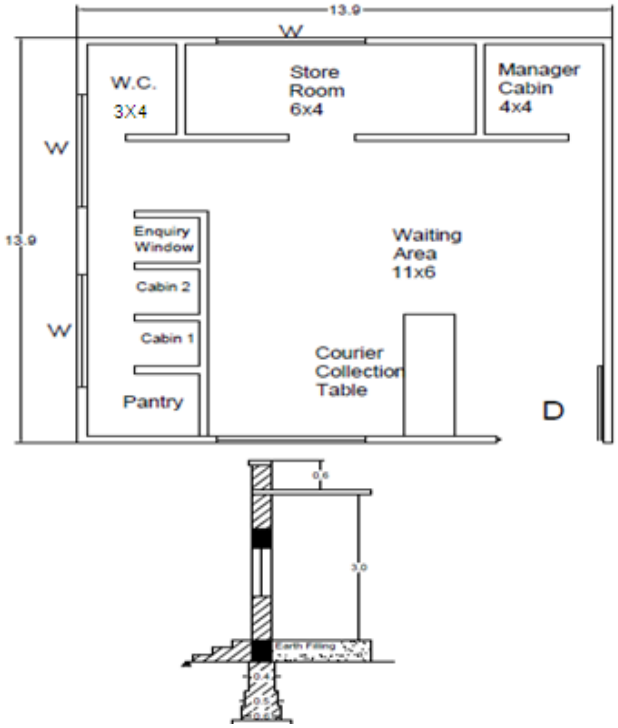
11. Bus stop

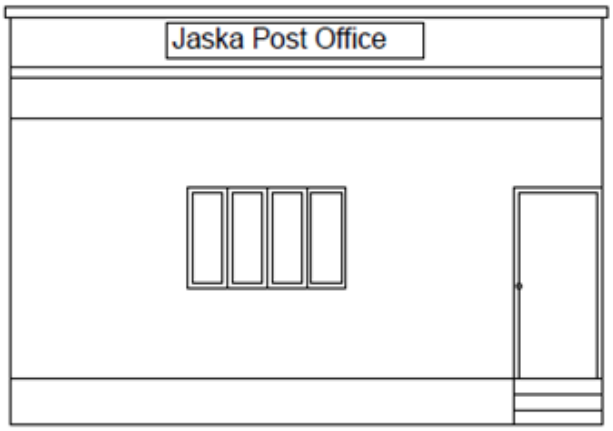




Particulars	Size
Window Opening	1.5 X1

12. Post Office





Particulars	Size
D	1.2 X 2.1
W	1.5X 2