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# An Approach towardsRurbanisation for Kotambi Village

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**ABSTRACT-***The Government of Gujarat has launched the project titled : "VishwakarmaYojana – An Approach towards Rurbanisation", Which has been undertaken by the Gujarat Technological University. In this YojanaRurbanisation has been done for the proposed village. Rurbanisation Means Having Urban Facilities in the rural areas. This can be done with the help of UDPFI guidelines. Kotambi village has been allotted to us and under this, We surveyed the village, Data has been collected and after considering the UDPFI guidelines, GAP Analysis has been found out. Completing this, We have proposed different facilities which are lacking in the village with adequate design such as Lowcost Terafilwater filter,Public toilet, Community hall, PHC, Rehabilitation of mahavediyatempleand Repair and maintenance of secondary school.*

***Key words:*** *Rurbanisation, urban facilities in rural areas, GAP analysis, rehabilitation, repair and maintenances*

## I. INTRODUCTION

India is second largest population country in the world .Total 70% of India's population (750 million) live in its 6 million villages. Occupies an area of 5 sq. km average village has 200-250 households, and. Most of this is farmland, and it is typical to find all the houses in one or two storey. Villages are spaced 2-3 km apart, and spreading out in all directions from the city markets. The market centers are typically spaced 35-45 km apart. Each such Centre serves a catchment of around 200-350 villages in a radius of about 25 kms. As the population and the economy is growing, several large villages are in continuous change to cities and market centers. People in village areas should have the same quality of life as is enjoyed by people living in a sub city and city areas. Further there are cascading effects of poverty, unemployment, poor and inadequate infrastructure in village areas on city centers causing slums and consequential social and economic tensions manifesting in economic deprivation and city poverty. Hence Village Development which is concerned with economic growth and social justice, improvement in the living standard of the village people by providing adequate and quality social services and minimum basic needs becomes essential. The present study deals with the same.

VishwakarmaYojana would provide "Design to Delivery" solution for development of villages in 'City' areas. 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, and Telecommunication & Other), Social infrastructure facilities (Education, Health, Community Hall, Library, Recreation Facilities & other) and renewable energy (Rain water harvesting, Biogas plant, Solar Street lights & Other) for Sustainable development.

"India lives in its villages" –Mahatma Gandhi. By this Vishwakarmayojna project government, want technical solution of the problem of villages at the engineering point of view. In this project the common problem of village are solved by the engineering students. Through various government departments are involved in various infrastructural development works, a holistic view and modern solutions (aesthetic, vaastushastra) etc. can be provided by new engineers under vishwakarmayojna. The students with this view do study of village.

## II. METHODOLOGY

GTU under which the project of vishwakarmayojana allocated to students. Project contents are study of objective which was then followed by the literature review and visit of village to get current scenario of village. Then data receive from responsible person of village dwellers as well as committee member. After that techno economic survey under which the visit of ideal village was done. Under the scheme Kotambi village were allocated to students by university. In first visit collected some basic information and data took photographs. After that the techno economic survey was done, in that social, socio-economical and physical information & data were noted, with the help of sarpanch, talati, village dwellers, principal. The data were then analyse and detail study of requirement, suggestion and recommendation were carried out depending on infrastructure planning, social planning, physical planning and renewable resources technique. And after calculating gap analysis found that some infrastructure facilities were not available like Terafilwaterfilter,Public toilet, Community hall, PHC, Rehabilitation of mahavediyatempleand Repair and maintenance of secondary school.

## A. OBJECTIVES OF STUDY

The main objective of our of project work are:

- To collect the basic data of village.
- To understand the current scenario of infrastructure through techno-economic survey.
- To analyze the current rural development scenario through GAP analysis.
- To give the suggestions and recommendations for sustainable development.

## III. STUDY AREA


***Fig: Satellite view of kotambi***

| | |
|---|---|
| **Taluka Name** | Waghodia |
| **District** | Vadodara |
| **State** | Gujarat |
| **Language** | Gujarati and Hindi, Marathi, English |
| **Current Time** | 12:18 PM |
| **Date:** | Monday , Nov 28,2016 (IST) |
| **Time zone:** | IST (UTC+5:30) |
| **Elevation / Altitude:** | 33 meters. Above Seal level |
| **Telephone Code / Std Code:** | 02668 |
| **Assembly constituency :** | Vaghodia assembly constituency |
| **LokSabha constituency :** | Vadodara parliamentary constituency |
| **Pin Code :** | 391510 |
| **Post Office Name** : | Jarod |

**About Kotambi:**

- Kotambi is a Village in WaghodiaTaluka in Vadodara District of Gujarat State, India. It is located 20 KM towards East from District headquarters Vadodara. 13 KM from. 133 KM from State capital Gandhinagar.
- Kotambi Pin code is 391510 and postal head office is Jarod.
- Rahkui ( 3 KM ) , Intoli ( 3 KM ) , Kamrol ( 3 KM ) , Bhaniyara ( 4 KM ) , Amrutpura ( 4 KM ) are the nearby Villages to Kotambi. Kotambi is surrounded by Vadodara Taluka towards west ,SavliTaluka towards North , HalolTaluka towards East , AnklavTaluka towards west.
- Vadodara ,Padra , Umreth , Karjan are the nearby Cities to Kotambi.

**Physical & Demographical Growth**

- Kotambi Village, with population of 3740 is Waghodia sub district's the 5th most populous village, located in Waghodia sub district of Vadodara district in the state Gujarat in India.
- Total geographical area of Kotambi village is 20 km2 and it is the 3rd biggest village by area in the sub district. Population density of the village is 192 persons per km2.
- Nearest town of the village is Vadodara and distance from Kotambi village to Vadodara is 14 km. The village has its own post office and the pin code of Kotambi village is 391510.

 

- The village comes under Kotambi panchayat. Waghodia is the sub district head quarter and the distance from the village is 27 km. District head quarter of the village is Vadodara which is 14 km away. 1 square kilometer (5%) of the total village's area is covered by forest

## IV. DATA COLLECTION

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

### A. Primary Data Collection

Primary data collection includes visit of village, overview of village and document collection, information of village population, village map and other details from village authority. Organized the meeting with talati, sarpanch, deputy sarpanch and collect the rural issues from them. While visiting the village snapshot or photographs were taken such as water distribution system, road network, bus stand, education facilities, post office, dairy, panchayat building and other essential services.

***Fig: Houses in Village***

***Fig: Road in Village***

***Fig: Milk Dairy house***

***Fig: Water Tank, water purification center& panchayat building***

### B. Secondary Data Collection

Secondary data collection includes the techno economic survey. In techno economic survey 10 questionnaires which is filled by sarpanch, talati, panchayat member, school principal, village dweller and local guardian. By the techno economic survey and visit of village Kotambi the following problems are identified.water supply system,
There are following structures need to build up to Progress of village and there people:

- Physical Infrastructure Facilities should needed Such as: Houses, Communication facilities, Electricity, Drainage Line, Water Lines, Road Network, etc.
- Social Infrastructure Facilities should needed such as: Primary Schools, hospitals, community Housing, Public toilet facilities etc.
- Socio-Cultural Infrastructure Facilities should needed such as: Community hall, Library, Auditorium, Recreational activities, etc
- Sustainable Infrastructure Facilities should needed such as: Natural Resources (petrol, diesel), Solar system, Biogas plant, Rain Water Harvesting, etc.

 

## V. GAP ANALYSIS

| Facilities | Planning Commission/UDPFI Norms | Village Name: | Kotambi | |
|---|---|---|---|---|
| | | Population: | | 3740 |
| | | Existing | Required as per Norms | Gap |
| **Social Infrastructure Facilities** | | | | |
| **Education** | | | | |
| Anganwadi | Each or Per 2500 population | 2 | 2 | **0** |
| Primary School | Each Per 2500 population | 1 | 2 | **-1** |
| Secondary School | Per 7,500 population | 1 | 1 | **0** |
| Higher Secondary School | Per 15,000 Population | 0 | 0 | **0** |
| College | Per 125,000 Population | 1 | 0 | **1** |
| Tech. Training Institute | Per 100000 Population | 0 | 0 | **0** |
| Agriculture Research Centre | Per 100000 Population | 0 | 0 | **0** |
| **Health Facility** | | | | |
| Govt/Panchyat Dispensary or Sub PHC or Health Centre | Each Village | 0 | 1 | **-1** |
| PHC & CHC | Per 20,000 population | 0 | 0 | **0** |
| Child Welfare and Maternity Home | Per 10,000 population | 0 | 0 | **0** |
| Hospital | Per 100000 Population | 0 | 0 | **0** |
| **Public Latrines** | 1 for 50 families (if toilet is not there in home, specially for slum pockets & kutcha house) | 0 | 8 | **-8** |
| **Physical Infrastructure Facilities** | | | | |
| **Transportation** | | **Adequate** | **Inadequate** | |
| Pucca Village Approach Road | Each village | Yes | No | |
| Bus/Auto Stand provision | All Villages connected by PT (ST Bus or Auto) | 1 | 1 | **0** |
| **Drinking Water (Minimum 70 lpcd)** | | **Adequate** | **Inadequate** | |
| Over Head Tank | 1/3 of Total Demand | Yes | No | **Having 1,75,000 Litre Capacity Tank** |
| U/G Sump | 2/3 of Total Demand | No | Yes | **Required 1,00,000 Litre Capacity Tank** |
| **Drainage Network** | | **Adequate** | **Inadequate** | |
| Open | No | - | - | |
| Cover | Yes | Yes | No | **Adequate** |

| | | | | |
|---|---|---|---|---|
| **Waste Management System** | | **Adequate (No)** | **Inadequate (Yes)** | **Inadequate** |
| **Electricity Network** | | **Adequate (Yes)** | **Inadequate (No)** | **Adequate** |
| | | | | |
| **Socio- Cultural Infrastructure Facilities** | | | | |
| **Community Hall** | Per 10000 Population | 0 | 1 | **-1** |
| **community hall cum Public Library** | Per 15000 Population | 0 | 1 | **-1** |
| **Cremation Ground** | Per 20,000 population | 1 | 1 | **0** |
| **Post Office** | Per 10,000 population | 1 | 1 | **0** |
| **Gram Panchayat Building** | Each individual/group panchayat | 1 | 1 | **0** |
| **APMC** | Per 100000 Population | 0 | 1 | **-1** |
| **Fire Station** | Per 100000 Population | 0 | 1 | **-1** |
| **Public Garden** | Per village | 0 | 1 | **-1** |
| **Police post** | Per 40,000Population | 0 | 1 | **-1** |
| | | | | |
| | | ESR cap | 49866.66667 | |
| | | Sump cap | 99733.33333 | |
| | | Lat | 18.7 | |

## VI. RECOMMENDATIONS

A suggestion or proposal as to the best course of action, especially one put forward by an authoritative body.

- Old water tank is in bad condition. so It must need maintenance to increasing It's life duration.
- Road network near gram panchayat was damaged during flood. So It should need the proper maintenance.
- It should be increase the depth of the pond as per the requirement and also proper cleanliness of pond.
- Primary school was damaged cause having old structure like sayajiraogayawat's time. So It should maintenance Some of slab side And some of Need recreate room.
- It should need to proper maintenance of leakage in water supply pipes.

**According to UDPFI norms**

- **Secondary school:** According to UDPFI norms per 7500 population one secondary school are required and in Kotambi village 3744 population(from census 2011) so we recommend to provide one secondary school.
- **PHC or Health Centre:** According to UDPFI norms per village one PHC or Health centre are required so the provision of one PHC in each village.
- **U/G Sump:** According to UDPFI norms in Kotambi village One U/G sump of 100000 lit capacities is exist. So one extra overhead tank of 100000 lit capacity is to be recommend.
- **Public Toilet Block:** We recommend to provide eight public toilet block in village According to UDPFI norms 1/50 families.
- **Community Hall:** According to UDPFI norms per village one Community hall are required so the provision of one PHC in each village.

We have prepared gap analysis based on planning commission and UDPFI Norms. From the gap analysis following physical, social, and renewable source of energy amenities have been proposed as the primary requirements of the village and to be developed as soon as possible.

## VII RECOMMENDED DESIGNS

**SOCIAL INFRASTRUCTUREDESIGN :**

- **Design Of Social Infrastructure – Public Toilet Facilities**

 

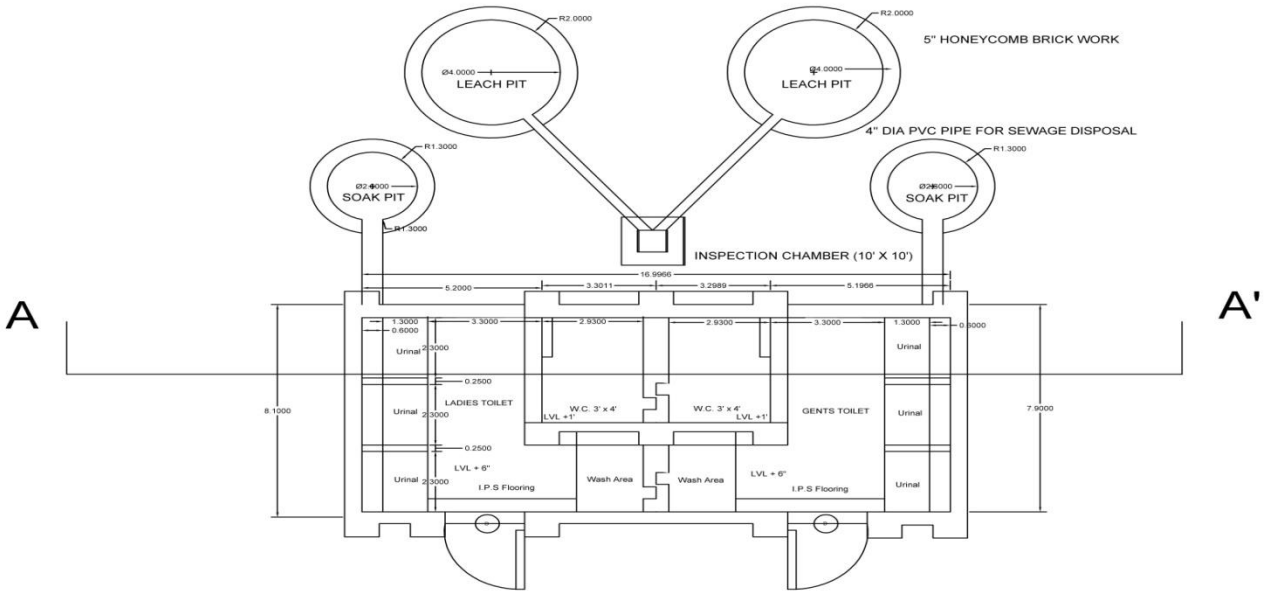


**FIG. PLAN OF PUBLIC TOILET**

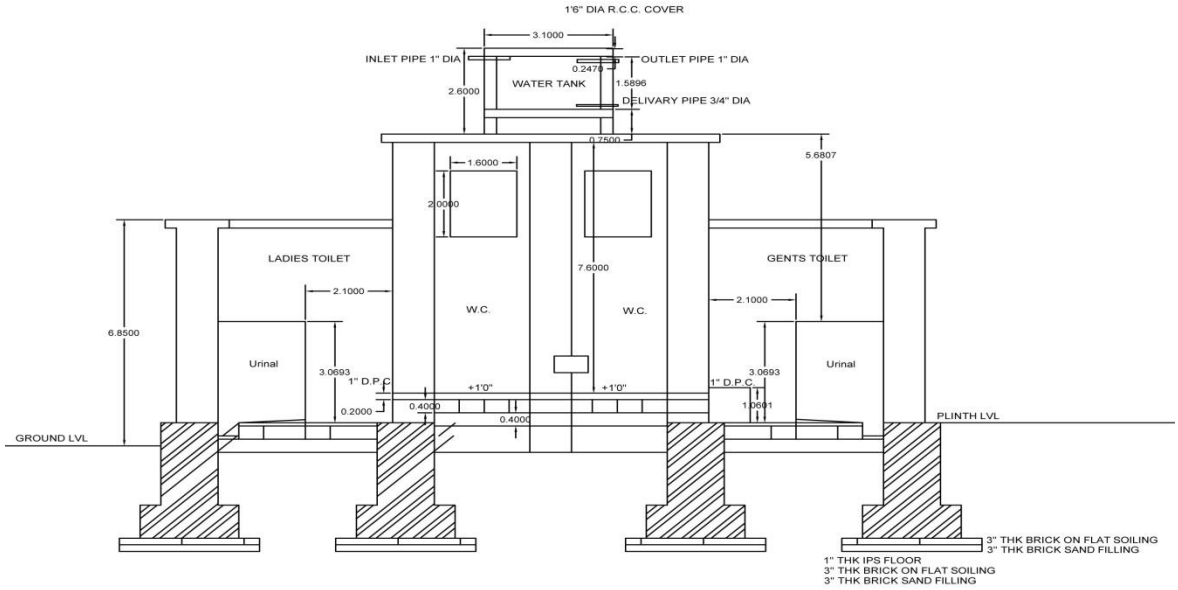


**FIG SECTION OF PUBLIC TOILET**

| ITEM No. | DESCRIPTION OF ITEM | Qty | Rate | Per Unit | Estimated Amount |
|---|---|---|---|---|---|
| 1 | Total | | | | 97715.8 |
| 2 | DEDUCTION (a)9.09% contractor's profit of (A) | | | | 9771.58 |
| 3 | ADD Carriage @5% | | | | 4889.79 |
| 4 | Cost Of Labour | | | | 42000 |
| 5 | Cost Of Materials | | | | 68651 |
| 6 | Total Final Cost | | | | 2230283.17 |

 

**SUSTAINABLE DESIGN/ REPAIR & MAINTENANCE OF EXISTING INFRASTRUCTURES :**

- **DESIGN OF WATER TANK ABOUT 70 $m^3$ REPAIR &MAINTENANCE:**

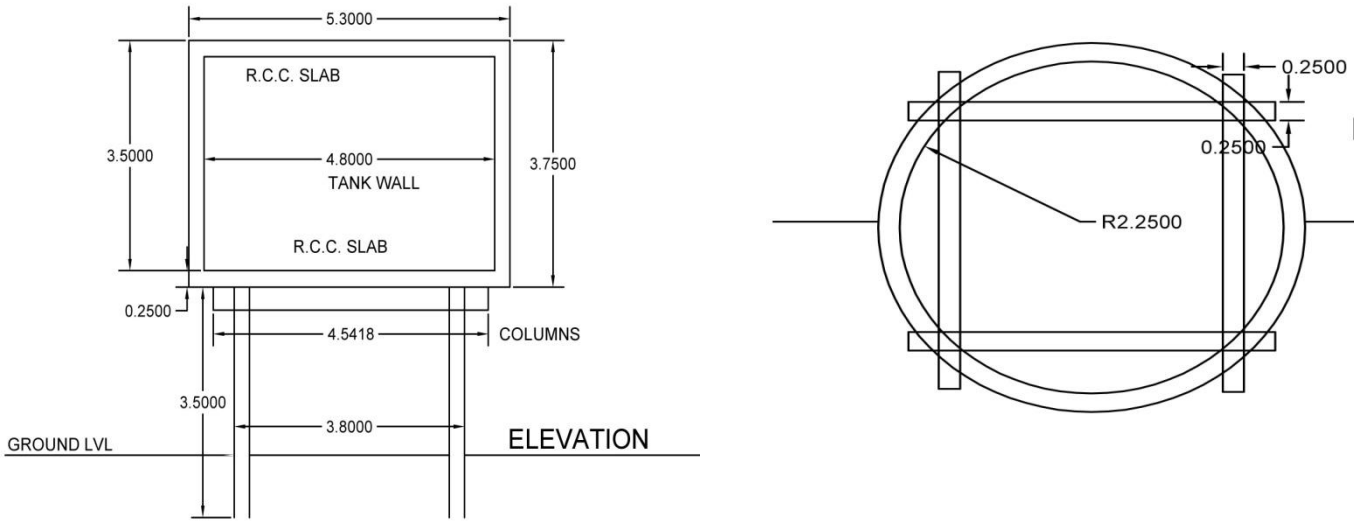


**FIG. SECTION AND PLAN OF ESR**

| Descriptions | Amount |
|---|---|
| Labour Cost Rs. | 10050 |
| Material + Labour Cost Rs. | 17840 |
| Add 1 . 5 % Water Charge Rs. | 267.6 |
| Add10 % Contractor's Profit Rs. | 1784 |
| Rate Of 74.6 m^2 | 19891.6 |
| Rate Of 1 m^2 | 266.64 |
| Says | 267 |

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