

# Integrated Development of Dabhari Village, Olpad, Dist. - Surat, using Town Planning Scheme

VAMINI VISHWAKARMA<sup>1</sup>, NEHA KATIYARE<sup>2</sup>, FAIZ KHAN<sup>3</sup>, FORAM PATEL<sup>4</sup>, BHARGAV SAVANI<sup>5</sup>,  
VIJAY KOTHARI<sup>6</sup>,

<sup>1,2,3,4,5</sup> Students, Civil Engineering, Gujarat, India

<sup>6</sup> Professor, Dept. of Civil Engineering, Gujarat, India

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**Abstract** –Rural Development is the core of the overall sustainable development of the nation. It is an important tool for the overall economic growth and for the enhancement, upliftment, and improvisation of rural areas. Planning in a proper way and proper manner is the key process for a village or a town to assure sustainable and integrated development. Town planning scheme is thus, a powerful mechanism and a well- coordinated tool for rural development and can help the rural areas to grow in a proper way and manner providing all the basic amenities and facilities. The paper describes the rural infrastructure of Dabhari village, Olpad, dist. - Surat, having all the basic amenities and facilities to be provided- with best planning, and minimal costs, which can results in economic and integrated development of the village.

**Key Words:** Town Planning scheme, Village Development, Rural Infrastructure, Sustainable and integrated development

## 1. INTRODUCTION

In rural areas, poverty is a big problem. More than 75% of the world's poor live in rural area. The rural people suffer deeper level problems than the urban counterparts and have much more limited access to basic services such as health, education, sanitation, water supply, infrastructure; thus they suffer disproportionately from even the basic amenities, facilities and illiteracy. Therefore, there is a need for planning, designing, providing all the services in rural areas. We have selected Dabhari village as for the redevelopment of a rural area in Gujarat. Dabhari is a village located in Olpad Taluka in Surat district of Gujarat State, India. It comes under Dabhari panchayat. Gandhinagar is the State capital and 260 km away from Dabhari village. Dabhari is located 29.5 km towards west from district headquarters, Surat. This paper thus, describes how best planning and minimal costs of infrastructure, development of rural areas can help to grow in a sustainable and economical manner.

### 1.1 Need for study

The need of the study is to provide the basic requirements of people in the village

- To study and analyze the existing problems and plans
- To provide basic amenities as examined such as- PHC, Gram panchayat, Community hall, Road network, Shantikunj, School, Community garden, Cricket ground, Market, Dairy, Fair price shop, etc.
- To ensure integrated development of village, people and environment by creating sustainable designed plans for all to optimum extent as possible

### 1.2 Aim

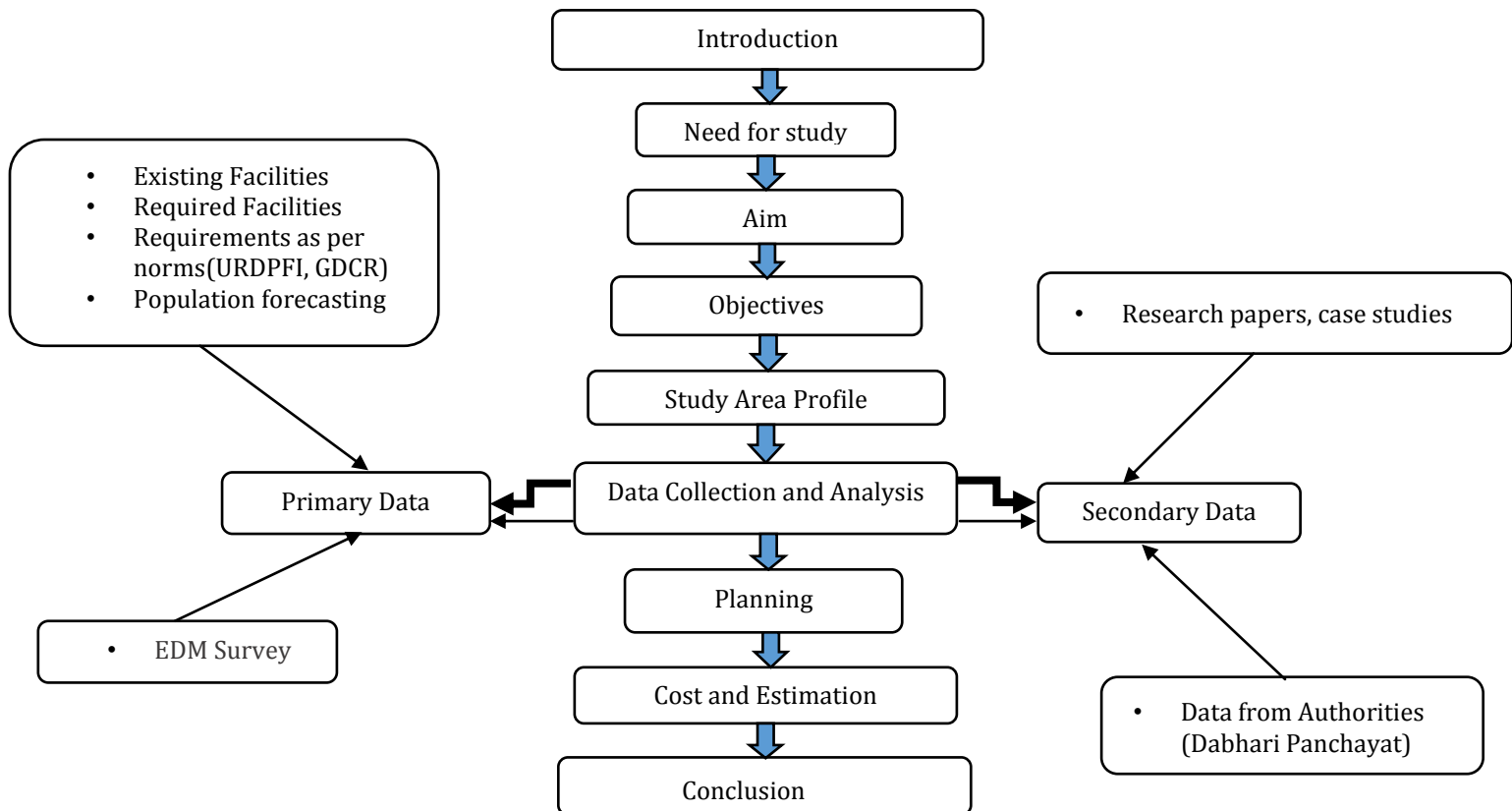
To study, analyze, plan and develop the whole area of Dabhari village of Taluka Olpad of District- Surat by applying proper criteria's of Town planning scheme.

### 1.3 Objectives

1. To study the existing problems of the village
2. To make Town planning scheme of Dabhari village using auto-cad software
3. To provide effective planning proposal

4. To provide basic amenities and facilities lacking in the village such as- PHC, Community hall, Gram panchayat, etc.
5. To provide cost and estimates

## 2. METHODOLOGY



## 3. STUDY AREA PROFILE

Dabhari village comes under the Panchayat of Pinjrat. Pinjrat Panchayat includes village- Dabhari, Dhanser, Tunda, Chhini, Mor, and Khosadiya. Pinjrat was divided into 4 panchayats as the population increased and thus- Panchayat1- Dhanser, Chhini, Panchayat2- Dabhari, Tunda, Mor, Panchayat3- Khosadiya, Panchayat4- Pinjrat (Main). Postal head office of Dabhari is in Rander.

**Table -1:** Study area Location

Village Name	Dabhari
Gram Panchayat	Dabhari
Block/Tehsil	Olpad
District	Surat
State	Gujarat
Pin code	395005
Area	138 hectares
Population	1056
Households	200
Nearest Town	Surat (29.5 km)



Fig -1: Map of India

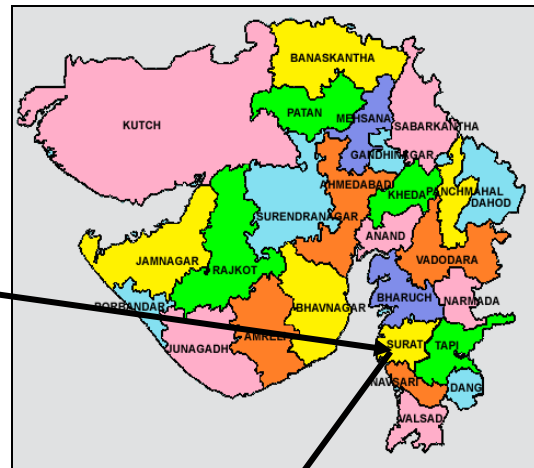


Fig -2: Map of Gujarat

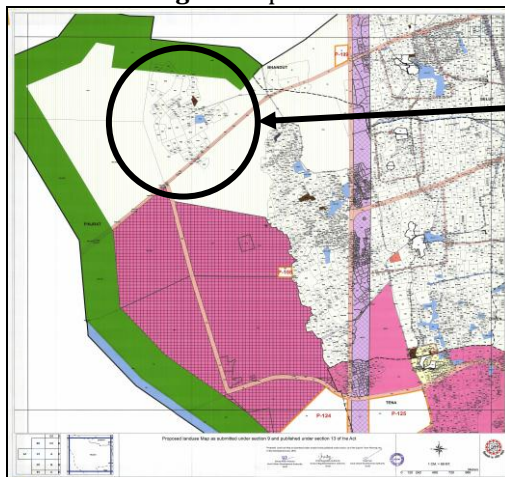


Fig -4: Map of Dabhari

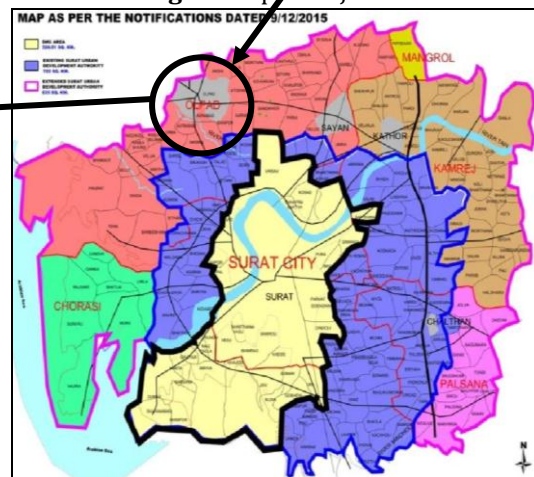


Fig -3: Map of Surat

## 4. DATA COLLECTION AND ANALYSIS

### 4.1 Data Collection

For the development of village, several data's were collected such as – problems of the village was defined, population forecast, infrastructural data's, questionnaire survey was done.

#### Problem Identification-

Why did we chose Dabhari village?

We chose Dabhari village, dist.-Olpad, Surat because we found

- The area of the Dabhari village for a proper development was accordingly as per the TP scheme and URDPFI Guidelines
- Problems were faced in the road networks linking to the village
- No basic amenities and facilities were available such as school, clinic, Health Centre, etc.
- People were much engaged in agricultural activities, rather than in any other activities for their living
- No drainage system was there to drain of the dirty water



**Fig -5:** Stagnant water pool



**Fig -6:** Houses of the village



**Fig -7:** Roads of the Dabhari



**Fig -8:** Lake used as washing area in village

**Population Forecast-**

Population forecast is an important factor for the future planning and development of the area.

Different types of Population forecasting methods are used to project the population depending upon the nature and characteristic of an area. From several methods, Arithmetic Increase method was chosen.

**Table -2:** Population forecast of Dabhari village

YEAR	POPULATION
2001	653
2011	1056
2021	1459
2031	1862

Males- 502

Females- 341

Children's- 213

Population Density - 766 person per km<sup>2</sup>

Population Forecasted – For year 2021=1459

**Questionnaire survey –**

From different methods of doing survey, we selected Questionnaire survey for our project.

A set of 13 questionnaire survey regarding the requirements, availability and maintenance of the village was done using Hogg and Tennis method for survey.

Some of the following questions were asked to the people of the village

1. Are people indulge in any other activity rather than agriculture for their living?
2. Is the water available fit for drinking?
3. How is the road network of the village (Dabhari)?
4. Proper water supply or not?
5. Is there any Health Centre available near the village?

#### Urban and Regional Development Plans Formulation and Implementation guidelines (URDPFI) and General Development Control Regulations (GDCR) norms-

According to these norms the requirement for planning and designing were done for the development.

#### 4.2 Data Analysis

##### 1. Questionnaire Survey Analysis-

- Around 90 people's responds were considered for the survey
- Social data was obtained through questionnaire survey manually and then by adding, data was obtained for further work
- By this survey, the conclusion was- that there were problems faced by the villagers, there were no basic amenities and facilities available such as improper road network, no drainage lines, no proper maintenance of school, no health center available, and thus we conclude and defined broadly the problems and used the tools of town planning scheme for the development of Dabhari village in a proper manner.

##### 2. Analysis Work-

As examined, the village lacked amenities and facilities, thus for fulfilling the requirements of the village planning of the infrastructure facilities, road network, drainage network, basic facilities of the village was planned with minimal cost, proper plans and proper work according to the Town Planning scheme (using URDPFI and GDCR guidelines) for the development of the village. The 2-D and 3-D plans were made using Auto-cad software and Revit software.

**Road Network-** A road network of 9m, 18m, and 36m was planned to provide in the village to link the village roads to the main road.

**Drainage network-** A drainage network consisting of water supply line (300 $\emptyset$ ), Storm water line (600 $\emptyset$ ), and drainage line (900 $\emptyset$ ) was plan to provide for the liquid waste management.

**Primary Health Centre-** To serve for the health services of the villagers.

**Community Hall-** To serve as for the large gatherings, functions, and celebrations

**Gram Panchayat-** To serve as an office for the head/sarpanch of the village, for holding meetings, discussions, etc.

**School-** To serve as for Educational purpose

**Market-** For the purpose of buying and selling products and other daily use items and also use as a source of income to many people

**Community Garden-** For the purpose of leisure time, walking, exercise and meditation purpose

**Cricket ground-** To serve as a recreational purpose and for sports use

**Shantikunj-** To serve as a place for meditation and relaxation

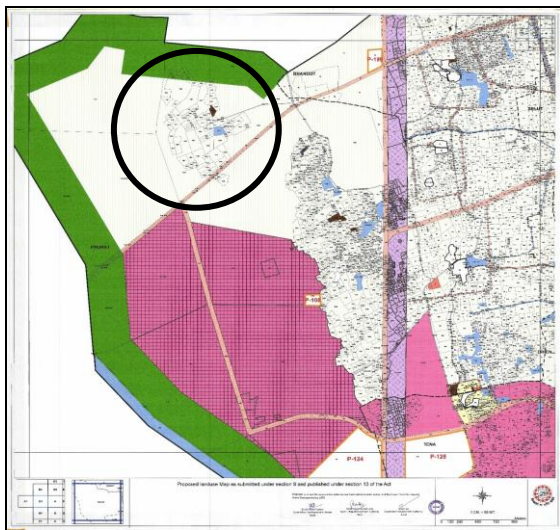


Fig -9: Location of selected village for TP Scheme

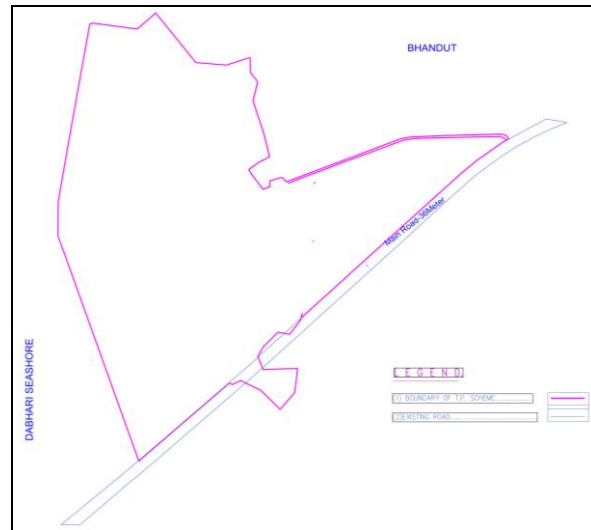


Fig -10: Auto-cad layout converted from map

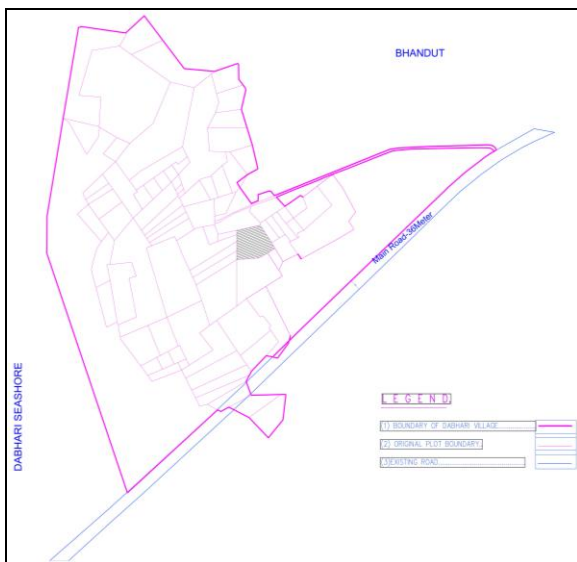


Fig -11: Layout Boundary Dabhari with Plots

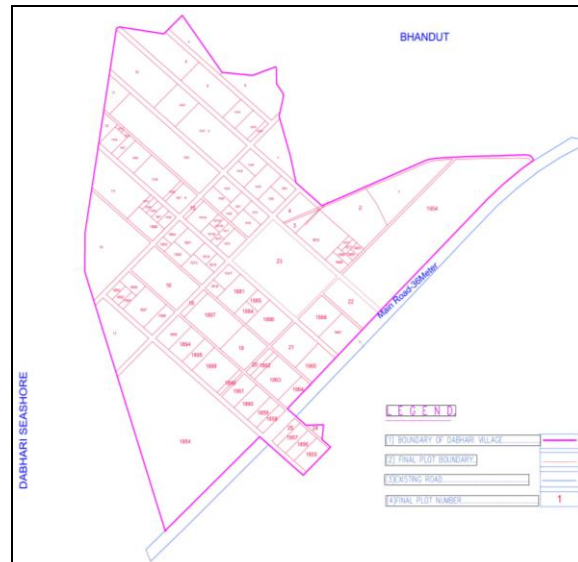


Fig -12: Layout of proposed TP scheme with final plots

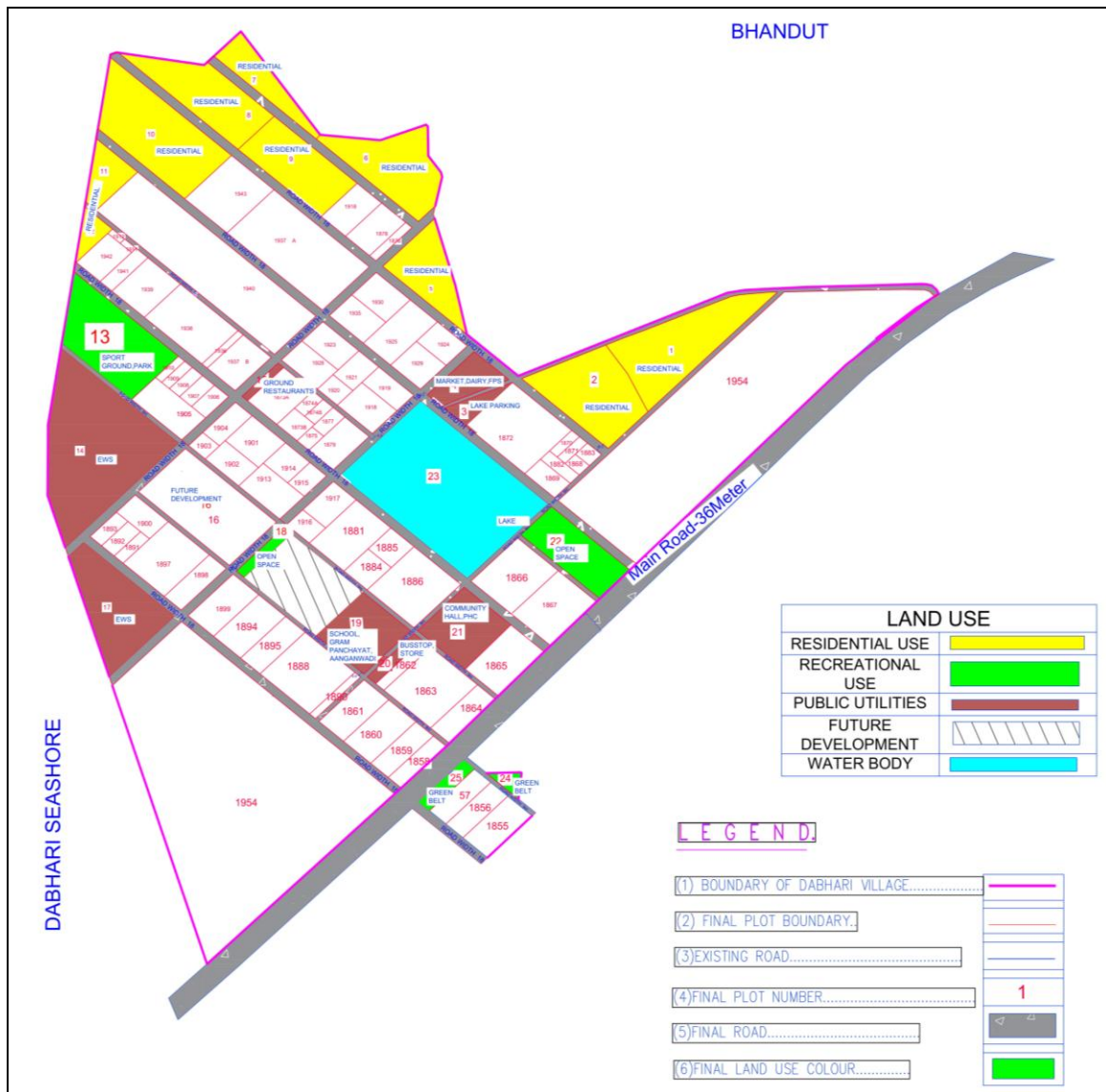


Fig -13: Layout/ plan showing different colors according to guidelines

Table -3: Final Division of Plots

SR NO.	PLOT NO.	AREA(m <sup>2</sup> )	PURPOSE
1	1, 2	60284.59	Residential
2	3	3779.82	Lake parking
3	4	8424.78	Market, Dairy, FPS
4	5, 6, 7, 8, 9, 10, 11, 12	14711.17	Residential
5	13	30180.66	Sports ground, Park
6	14, 17	84123.24	EWS
7	15	1477.922	Ground Restaurant
8	16	31396.21	Future development
9	18	2756.047	Open space
10	19	16486.528	School, Aanganwadi, Gram panchayat
11	20	2922.6	Bus stop, Store
12	21	16284.714	Community hall, PHC
13	22	17388.820	Open space
14	23	75725.820	Lake
15	24	1990.187	Green belt
16	25	3563.161	Green belt

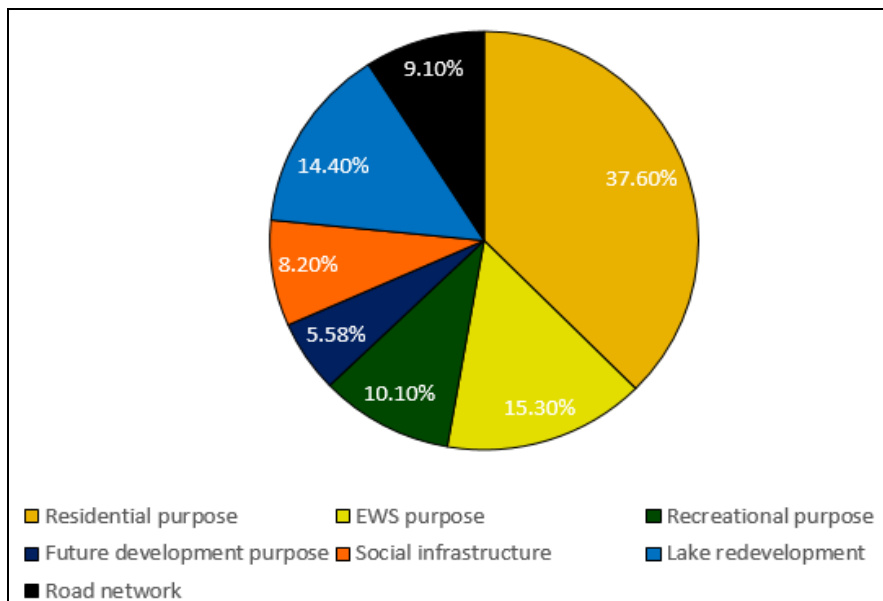


Chart -1: Land Use Structure of Dabhari

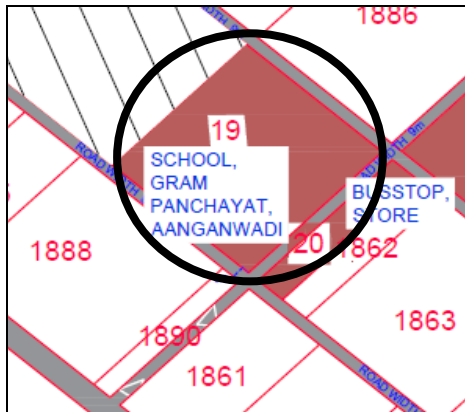
### 5. PLANNING PROPOSALS-

Planning proposals suggested are-

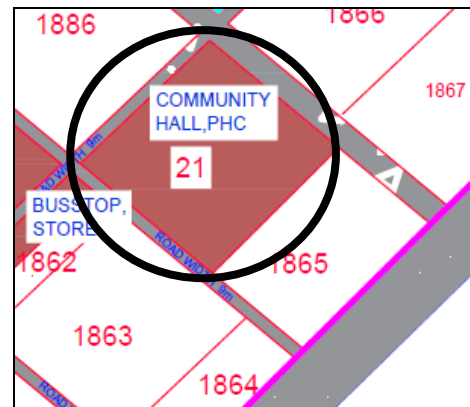
- 1) Primary Health Centre (PHC)
- 2) Community Hall
- 3) Gram Panchayat
- 4) School
- 5) Market
- 6) Community Garden
- 7) Cricket ground



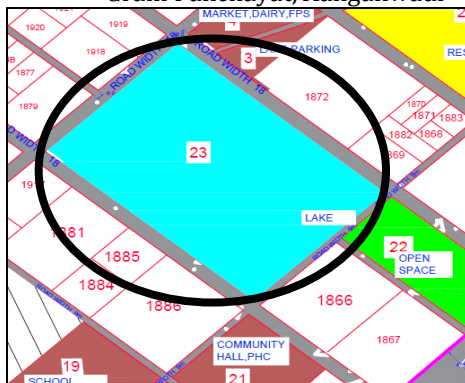
- 8) Shantikunj
- 9) Lake



**Fig -14:** Plot-19, allocated to School, Gram Panchayat, Anganwadi



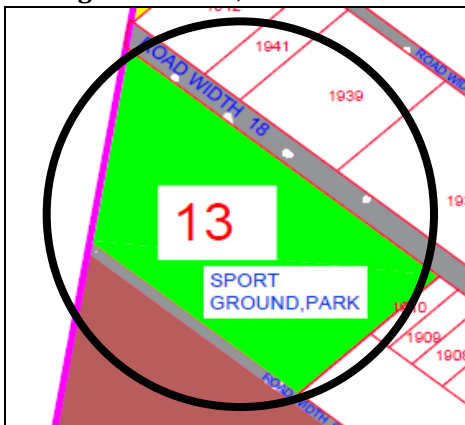
**Fig -15:** Plot-21, allocated to Community hall, Primary Health Centre



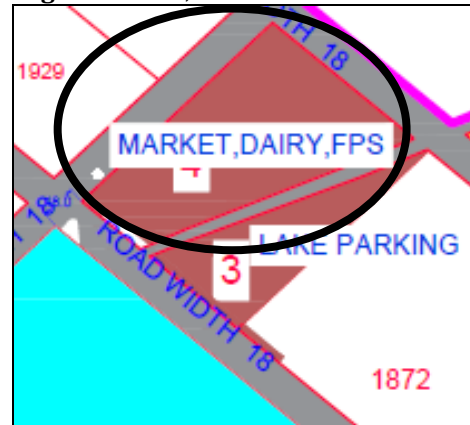
**Fig -16:** Plot-23, allocated to Lake



**Fig -17:** Plot-3, allocated to Lake Parking



**Fig -18:** Plot-13, allocated to Sports Ground, Park



**Fig -19:** Plot-4, allocated to Market, Dairy, FPS

PRIMARY HEALTH CENTRE (PHC)-  
 Building Area- 330.15 m<sup>2</sup>  
 Plot Area- 2238.64 m<sup>2</sup>

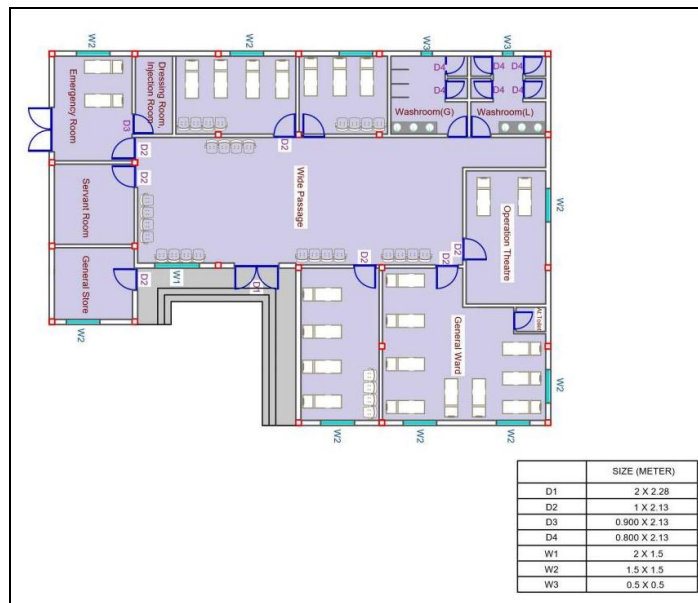
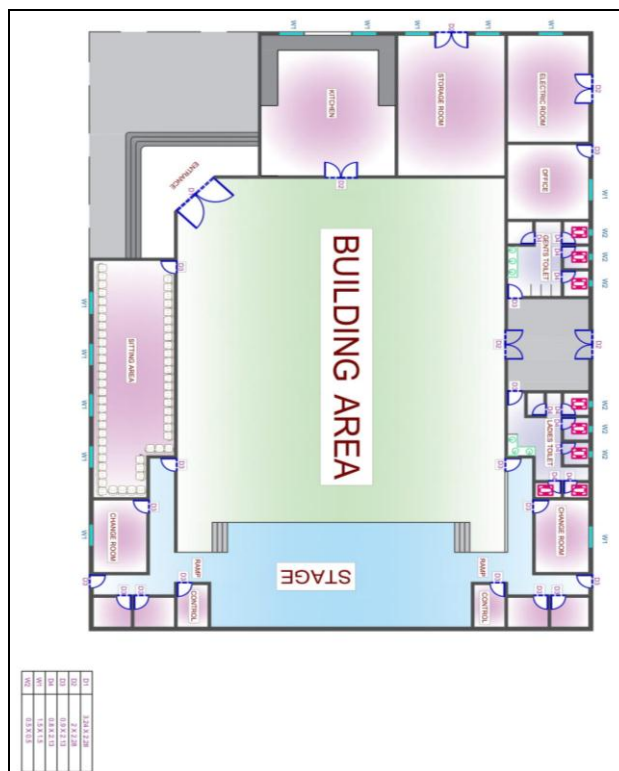


Fig -20: Primary Health Centre Layout

COMMUNITY HALL-  
 Building Area- 1200 m<sup>2</sup>  
 Plot Area- 8291.23 m<sup>2</sup>



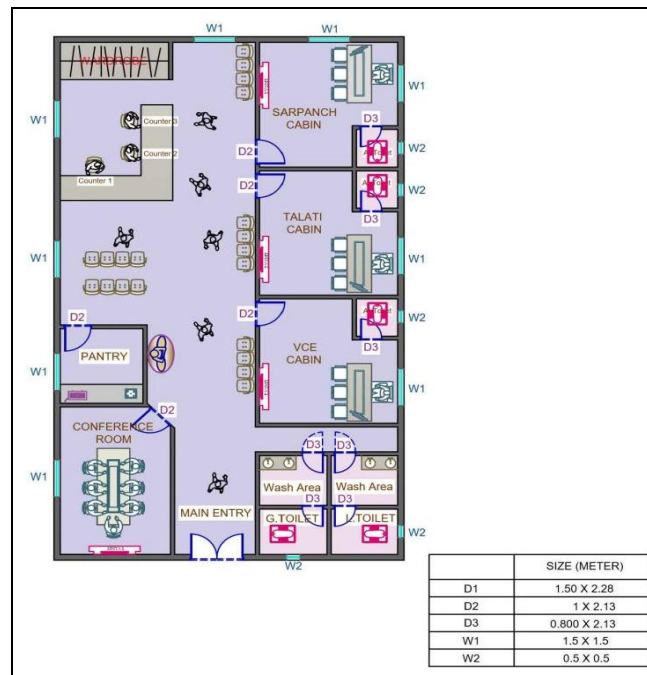


Fig -22: Gram Panchayat Layout

SCHOOL-

Building Area- 1020 m<sup>2</sup>

Plot Area- 10618.29 m<sup>2</sup>



Fig -23: School Ground Floor Layout

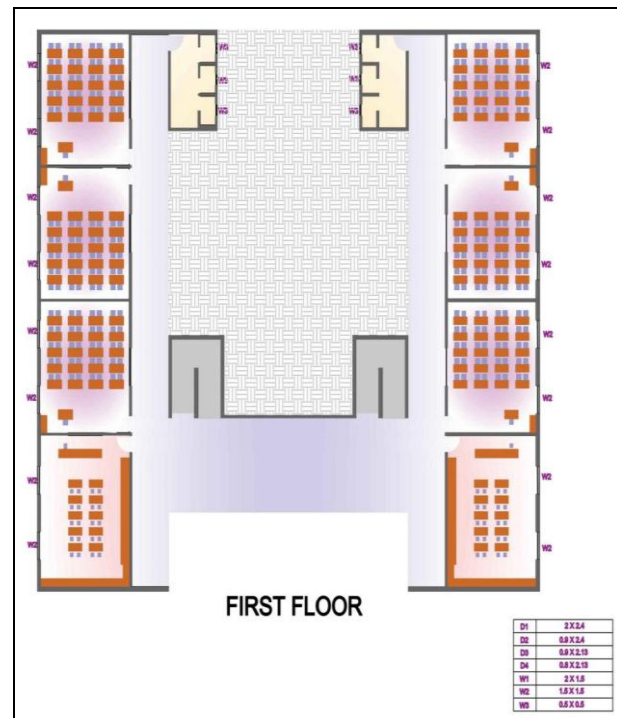


Fig -24: School First Floor Layout

MARKET-

Area- 1378.75 m<sup>2</sup>

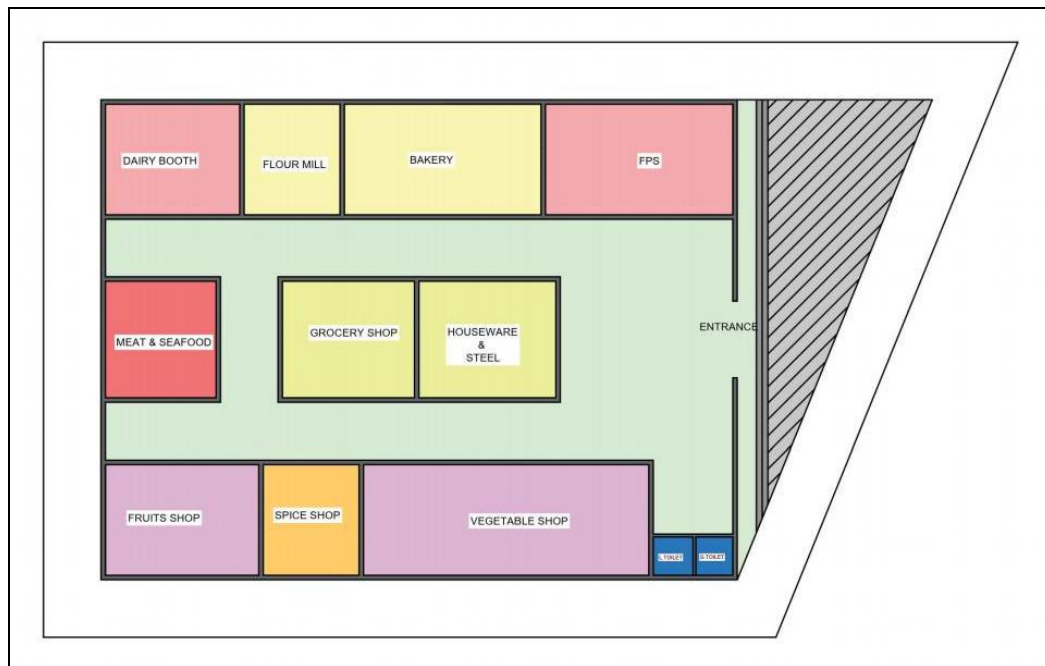


Fig -25: Market Layout

COMMUNITY GARDEN AND CRICKET GROUND-

Community Garden Area- 9213.05 m<sup>2</sup>

Cricket Ground Area- 19591.61 m<sup>2</sup>

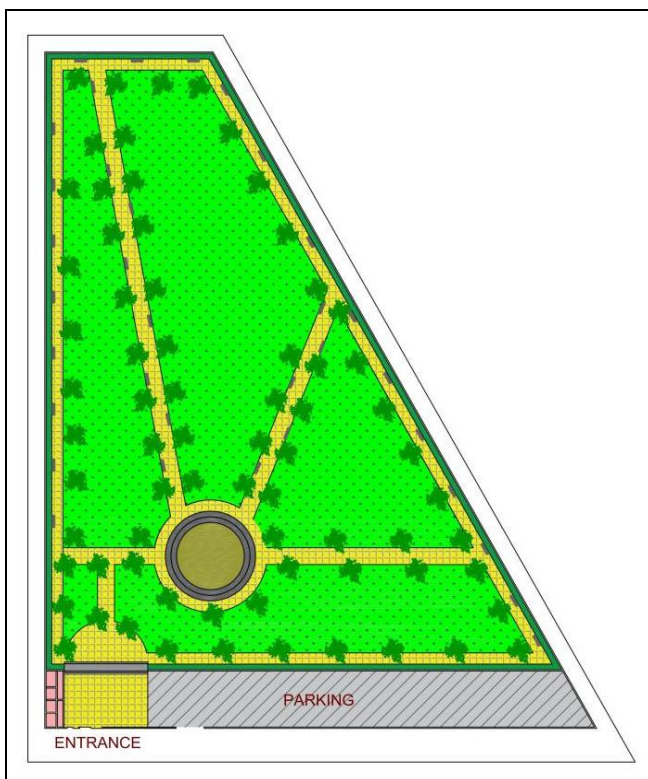


Fig -26: Community Garden Layout

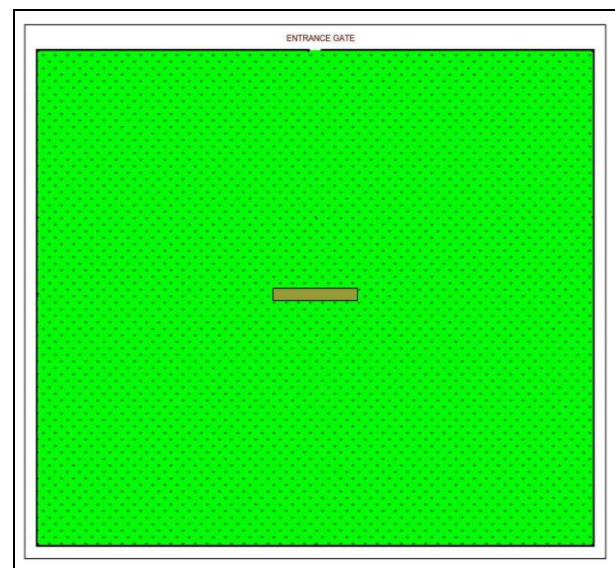


Fig -27: Cricket Ground Layout

SHANTIKUNJ-

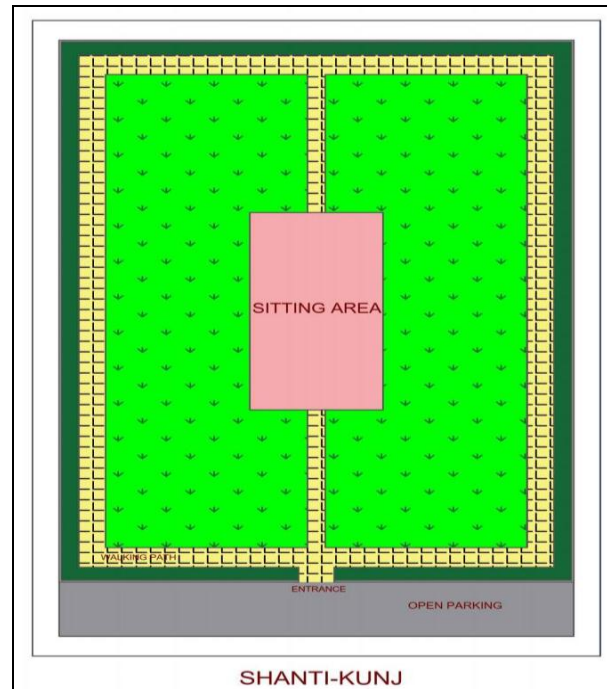


Fig -28: Shantikunj Layout

LAKE-

Lake Total Area- 75725.820 m<sup>2</sup>

The purpose of redevelopment of lake was-

1. As a spot for tourist attraction
2. As for the growth of the economy of the village
3. As for the growth of different sources of income rather than agriculture
4. For employment purpose
5. As a recreational use

The lake has a depth of 6m in an area of less than 10 hectare according to hydrological criteria of NCLP (Guidelines for National Lake Conservation Plan) guidelines

- The lake is provided with the followings-
  - Main entrance gate- For entrance of visitors
  - Emergency gate- For emergency exit
  - Ticket window- For purchasing tickets
  - Walkway- For people to walk all around the lake
  - Selfie zones- For taking selfies
  - Fountains- For aesthetic beauty of the lake
  - Restaurants- As eating zone
  - Boating- As a fun activity for visitors
  - Toilet, transformers, etc.

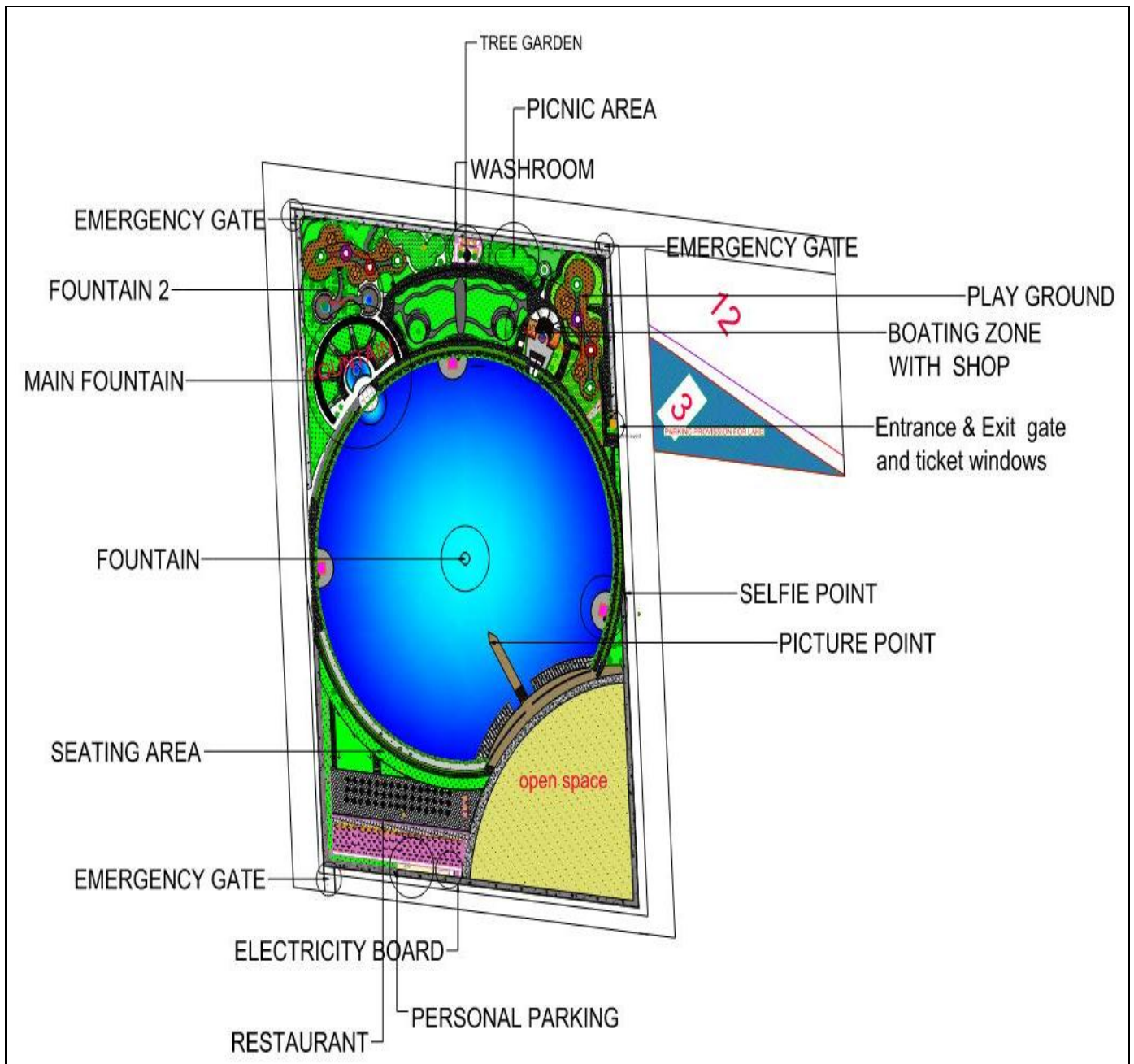


Fig -29: Layout of Lake

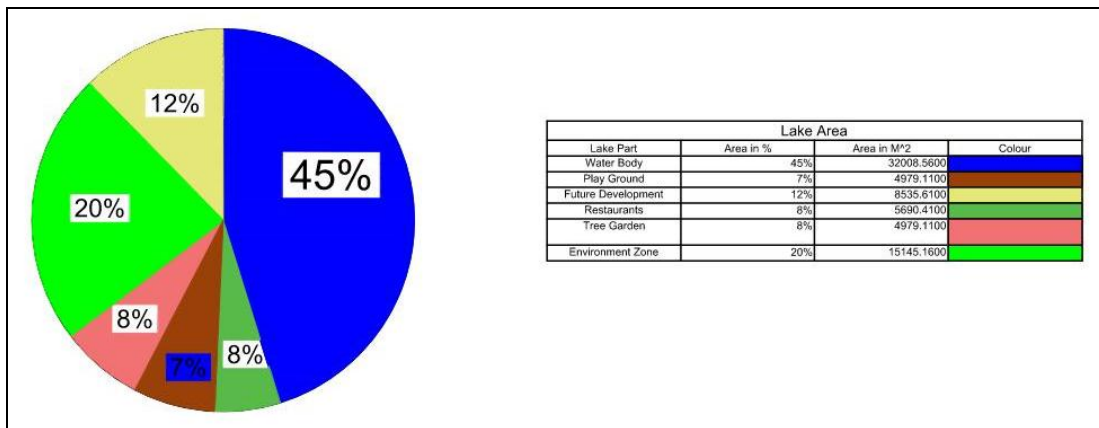


Chart- 2: Land Use structure of Lake

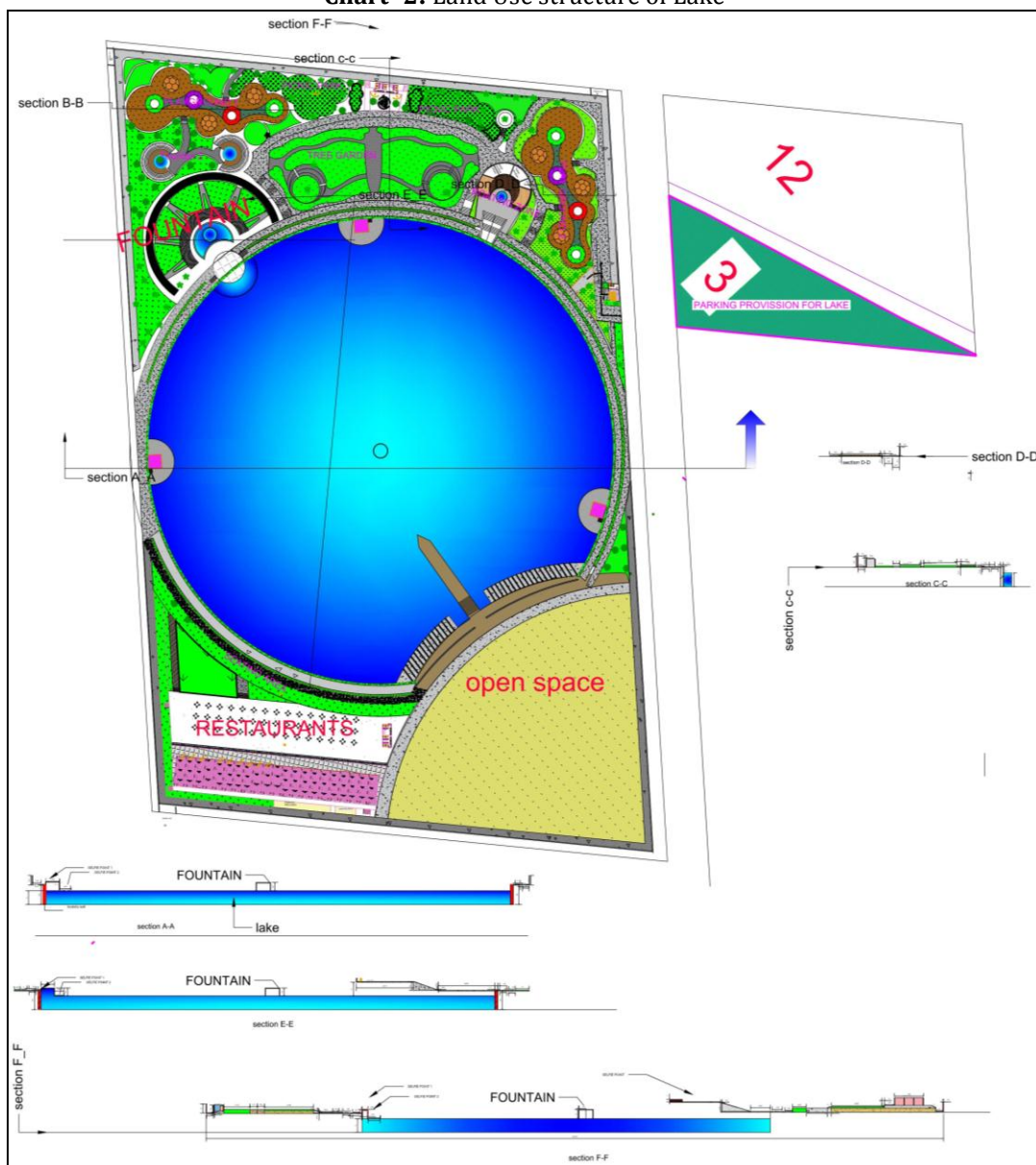


Fig -30: Sections of Lake

## 6. COST AND ESTIMATION

There are three methods of estimating a structure or a building, they are-

1. Long wall and Short wall Method
2. Centre line Method
3. Crossing Method

**Centre line method** was selected as for estimation of buildings/structure, as it is easy and accurate

**Table -4:** Abstract summary sheet of PHC and Community hall

SR NO	ITEM DESCRIPTION	RATE	PHC		COMMUNITY HALL	
			QUANTITY	AMOUNT	QUANTITY	AMOUNT
1	Excavation in foundation	205	81.09 m <sup>3</sup>	16623.45	131.28 m <sup>3</sup>	26912.4
2	PCC in foundation	2604	16.21 m <sup>3</sup>	42210.84	26.25 m <sup>3</sup>	68355
3	Brick masonry in foundation	3198	49.6 m <sup>3</sup>	158620.8	80.38 m <sup>3</sup>	257055.24
4	Brick masonry from G.L to P.L	3321	25.18 m <sup>3</sup>	83622.78	40.87 m <sup>3</sup>	135729.27
5	Earth filling in plinth	302	136.1 m <sup>3</sup>	41102.2	461.84 m <sup>3</sup>	139475.68
6	Brickwork in superstructure	3321	88.95 m <sup>3</sup>	295402.95	137.56 m <sup>3</sup>	456836.76
7	Plastering work	130	513.28 m <sup>2</sup>	66726.4	962.14 m <sup>2</sup>	125078.2
8	Ceiling plaster	95	292.28 m <sup>2</sup>	27766.6	923.61 m <sup>2</sup>	87742.95
9	RCC work	4937	60.83 m <sup>3</sup>	300317.71	163.27 m <sup>3</sup>	806063.99
10	Flooring	747	293.36 m <sup>2</sup>	219139.92	932 m <sup>2</sup>	696204
11	Wood work	3916	69.88 m <sup>2</sup>	273650.08	111.3 m <sup>2</sup>	435850.8
12	Parapet wall	3321	33.82 m <sup>3</sup>	112316.22	52.97 m <sup>3</sup>	175913.37
13	Outer plaster	130	296.66 m <sup>2</sup>	38565.8	561.48 m <sup>2</sup>	72992.4
	<b>TOTAL</b>			<b>16,76,065.75</b>		<b>34,84,210.14</b>
	Adding 10% Contractor's profit			1,67,606.57		3,48,421.01
	<b>TOTAL AMOUNT (in Rs)</b>			<b>18,43,672.32</b>		<b>38,32,631.15</b>



**Table -5:** Abstract summary sheet of Gram Panchayat and School

SR NO	ITEM DESCRIPTION	RATE	GRAM PANCHAYAT		SCHOOL	
			QUANTITY	AMOUNT	QUANTITY	AMOUNT
1	Excavation in foundation	205	63.17 m <sup>3</sup>	12949.85	155.06 m <sup>3</sup>	31787.3
2	PCC in foundation	2604	12.63 m <sup>3</sup>	32888.52	31.01 m <sup>3</sup>	80750.04
3	Brick masonry in foundation	3198	38.73 m <sup>3</sup>	123858.54	92.52 m <sup>3</sup>	295878.96
4	Brick masonry from G.L to P.L	3321	19.7 m <sup>3</sup>	65423.7	47.52 m <sup>3</sup>	157813.92
5	Earth filling in plinth	302	122.22 m <sup>3</sup>	36910.44	443.73 m <sup>3</sup>	134006.46
6	Brickwork in superstructure	3321	71.58 m <sup>3</sup>	237717.18	202.28 m <sup>3</sup>	671771.88
7	Plastering work	130	396.57 m <sup>2</sup>	51554.1	2482.9 m <sup>2</sup>	322777
8	Ceiling plaster	95	237.92 m <sup>2</sup>	22602.4	1189.09 m <sup>2</sup>	112963.55
9	RCC work	4937	41.24 m <sup>3</sup>	203601.88	287.9 m <sup>3</sup>	1421362.3
10	Flooring	747	238.65 m <sup>2</sup>	178271.55	1671.2 m <sup>2</sup>	1248386.4
11	Wood work	3916	36.42 m <sup>2</sup>	142620.72	181.53 m <sup>2</sup>	710871.48
12	Parapet wall	3321	26.52 m <sup>3</sup>	88072.93	63.59 m <sup>3</sup>	211182.39
13	Outer plaster	130	260.38 m <sup>2</sup>	33849.4	922.87 m <sup>2</sup>	119973.1
	<b>TOTAL</b>			<b>12,30,321.2</b>		<b>55,19,524.7</b>
	Adding 10% Contractor's profit			1,23,032.12		5,51,195.24
	<b>TOTAL AMOUNT (in Rs)</b>			<b>13,53,353.3</b>		<b>60,70,720.2</b>

## 7. CONCLUSIONS

- After studying all the aspects of town planning scheme and various aspects of development we conclude that TP scheme is mostly effective for management of land as because of people's participation to develop the area and fulfill their needs.
- The village (Dabhari) we selected lacked even the basic amenities and thus, with the help of town planning scheme we were clearly and broadly able to define the problems and tried to provide all the basic requirements, amenities and facilities in the village.
- With the help of Auto-cad software we made 2-D plans, with the help of questionnaire survey and population forecast we learnt how growth of the village in a proper manner can help in proper and planned development.
- With these plans made by our team, with proper, effective planning and design with minimum costs, this plans and designs can be helpful for the government as well as other organizations for further future development or for making TP schemes.

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