ISSN No:-2456-2165

Planning Proposals for Eco Village Development of Chikani Village Sangamner

[1]Kokate Megha D. (M.Tech Urban Planning)
Asst. Prof. Amrutvahini COE, Sangamner
The University of Pune, Sangamner Maharashtra, India

[2] Satpute Pravin C. (ME Structure)
Asst. Prof. Samarth Group of Institution COE, Belhe
The University of Pune, Belhe, Maharashtra India

Abstract:- In the current village governance scenario, the Panchayatraj framework expects greater participation of villagers in village structure growth planning & management. Nature is exhausted, largely due to our unsustainable use of natural resources, energy and food. “"An Eco-Village is a sustainable human society that is in harmony with all aspects of life, including cultural, environmental and social.".”.

Eco village development is necessary for reduction in usage of fossil fuel and increase in usage in renewable energy shifting to public transport system and non-motorize transport, usage of bio-fuels, advance hybrid or electric vehicles. Usage of energy efficient applications, improve insulation, active and passive solar designs, usage of natural building materials. Degraded land planting, efficient fertilizer use, and irrigation. Composting of organic wastes and waste minimization. Expanded rainwater harvesting, water storage and conservation techniques, water re-use and re-cycling techniques.

Present study looks for Planning Proposals for Eco Village development for Chikani Village in Sangamner Taluka which is having 16km from Sangamner city. There are 702 households and 2481 residents including 1255 male and 1242 female in the village (2011). Farming is the main occupation of villagers along with some small land holders go through “Vidi vavsay”. The total area of village is 619 hectares. The villagers have to go to Sangamner city for completing their basic needs and have to pay more time and more money. The standards of living of people in urban area are increasing day by day than rural people. Thus we think of a subject which will enhance the living standard of villagers. To overcome this problem, prepare a proposals of Eco-Village Development for Chikani Village, in this planning prepare ground touch proposals to cover following units for Sustainable development of village.

Organic Farming, Green Building, Waste Management, Rural Empowerment, Garden Facility, Rural Education and Well and Safely connected road network.

Furthermore, the paper concludes with Ecologically developed village will definitely help in rising the living standards of the people and also create hygienic environment to live in.

Keywords:- *Sustainable Development, Organic Farming, Waste Managements, Landscaping Design, well and safely connect road network.*

I. INTRODUCTION

"An Eco-Village is a sustainable human community in harmony with all facets of life, including economic, environmental and convivial dimensions." The Panchayat raj program expects a more preponderant involution of villagers in the village organization developmental orchestrating & administration.

Design of each village with a long-term vision centred on the village's current demographic, convivial, cultural, inculcative status and taking due account of the village's agricultural, economic, industrial, and ecological potential. The aim is to ensure that the village's natural resources are not negatively affected, and are maintained for future generations.

This Paper helps us create awareness about Organic farming in villagers and thus empowering them to get back to nature and get back to villages.

II. STUDY AREA

For the desired project problem, considered the Chikani Village. The Chikani village is situated at northwest of Sangamner, Dist.: Ahmednagar. It is connected to NH-13 at distance of 16 kms and is connected to Sangamner city. The village having temperate climate. The average annual temperature is 25.2degree celcious . Limited buses are the only mean of connectivity to village. NO railway lines are provided. There are 702 households and 2481 residents including 1255 male and 1242 female in the village (2011 senses). Farming is the main occupation of villagers along with some small land holders go through “Vidi vavsay” whereas large land holders (zamindar) go through Horticulture and livestock.

ISSN No:-2456-2165

Fig 1

III. STUDY OBJECTIVES

The objectives of Study are as follows:

- To understand the principles of Eco-village, Sustainable development techniques, Green building technique.
- To Design planning proposal for eco-friendly development with necessary social & physical infrastructure.
- To develop techniques for alternative energy through solar & biogas.
- To proposed green spaces & plantations with Agro based activities

IV. SCOPE OF STUDY

Eco-village work is a increasing area of interest. Different issues have already been posed and related findings have been reported, but there is still a need to relate these results and to take more measures to organize the research area. Work in Society has developed a database to tackle this need, which is now running in a beta-version and accepts new contributions and corrections. This is seen as a step towards overcoming the clear deficit in assessing performance of eco-villages and their relevance to other social contexts.

V. METHODOLOGY USED FOR STUDY

An ideal planning and evaluation of the system can be achieved through study approach flow analysis. These systems have been preliminary developed to support different aspect of planning process. Various factors are to be considered while running the project. These considered factors will gives us clear idea about the project and the phases coming under project.

Fig 2

VI. PRESENT SCENARIO

After studying the present situation of the village collect the data related to basic amenities of villagers:

Sr. No.	Amenities	Available in Chikani Village	Not Available
1	**Educational building**	School	College
2	**Basic Amenities**	Water Supply	Underground Drainage Line
3	**Road Network**	Gravel and WBM	Concrete road
4	**Public Amenities**	Public transit	Private bus service, Railway Station
5	Bank Facility	--	Commercial Bank, Cooperative Bank, ATM
6	Infrastructure	--	Shopping Complex

Table 1

ISSN No:-2456-2165

Fig 3

VII. LITERATURE REVIEW

A. Indian Scenario:

In the recent past the Indian rural society has undergone considerable change, particularly since the Independence as a result of a series of land reform laws that have accelerated the pace of this change. But the fact is we are not getting the better results Indian government had been promoted several policies for the development of Indian villages, one reason for the failure of rural development schemes has been the lack of a holistic focus on the village as a unit. Separate flagship schemes targeting different sectors such as health, education and livelihood have been launched in the past, but met with limited success. Table no 2. shows the eco-villages in India.

Sr. No.	Name of Eco-villages	State
1.	Hiware-Bazaar	Maharashtra
2.	Govardhan	Maharashtra
3.	Punsari village	Gujarat
4.	Ankapoor	Telangana
5.	Kumbalangi village	Kerala

Table 2

B. Elements For Eco-Village Development

For successful eco-village development there is need of elements which can make the village more sustainable. Elements for successful eco-village development as shown in figure.4

ISSN No:-2456-2165

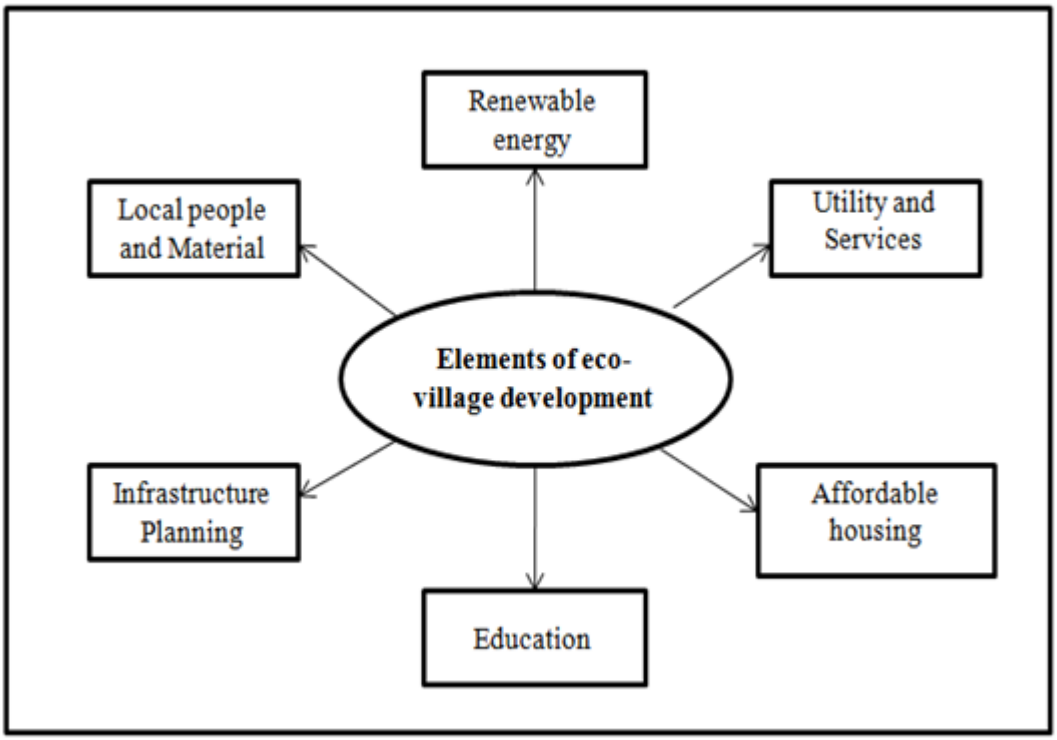

Fig 4

- Renewable Energy: An Eco-Village is practically outside of the electrical grid, but if it is of economic benefit, it can add to it. The normal renewable energy sources are sun, wind, water, methane and hydrogen from electrolysis, unless geothermal energy is easily available. At the end of the anaerobic cycle, the Eco-Village also plans to investigate the import of additional wet garbage from nearby towns, the production of methane and the modification of soil building.

- Utilities and Services: The city owns and manages its public utilities and essential services, which form a large part of its economic base and will help ensure an Eco-Village never has to float loans or bond issues to fund improvements They must be open in management and accounting, and financially stable as set by the government.

- Affordable Housing: Eco-Village customers should have access to, and access to, zero-interest loans.

Facilitate affordable housing, may engage in the construction of their own homes under direct oversight, ensuring compliance with the quality building requirements of the region.

- Education: The ultimate educational goal is to establish knowledge of the economic and ecological sustainability structures. The building process will create boarding schools and an Eco-Village College as early as possible.

- Infrastructure planning: Water is to be obtained mainly from rain, and from ambient humidity condensed from enclosures of greenhouses and wastewater treatment systems.. Planning of drainage line through the village up to sewage treatment plant. Providing water treatment plant for village and also road network.

- Local People, Local Materials: Whenever practicable, local citizens and local resources are employed in the building process, and other work on an Eco-Village. This program holds recycling money within the society. When there is no local supply of people and resources, they are taken from as near as possible, preferably from family-owned, community-supported businesses. This policy will primarily decide what materials are used. When used for architectural ceramics correct local stone and soils and clays. Wood is purchased locally owned timber stand and lumber mill for doors and cabinets, and is dried by solar-kiln. This policy will primarily decide what materials are used. When used for architectural ceramics correct local stone and soils and clays. Wood is purchased locally owned timber stand and lumber mill for doors and cabinets, and is dried by solar-kiln. Where appropriate, recycled materials are used too.

C. Guidelines For Eco-Village Development:

The Guidelines for Eco-Village Development are as follows:

- *Ecological Sustainability and Resource Consciousness:*

Any "waste product," in the environment, is food for something else. Natural process cycles and their applications to human activities are used in the purification and reuse of sewage effluent, the processing of building waste and other solid waste, the composting of organic materials for soil construction, the recycling of rainwater into groundwater aquifers by injection.

ISSN No:-2456-2165

➢ *Community:*

A stable community is a "full-service environment," which means all the usual functions and attractive services are incorporated into the footprint of a city. Such are obviously more primitive for a population of 5,000 than for a city of 200,000, but Village should have all the basic needs. Regional special needs and services are provided.

➢ *Self-Determination:*

A stable society has a good government of the local (village) Ideally, this entails implementing the Eco-Village as soon as possible, with the residents regulating land growth, water, electricity and other crucial issues. A stable society recognizes, and maintains, that it is ideal, sustainable scale. When pressure exists to expand beyond a reasonable size the Eco-Village is spinning off a new culture. (This was also achieved by ancient Greek city-states) The survival of the Group concerns the existence of all living things within it, both human and non-human.

➢ *Social Conscience and Socio-Economic Equity:*

A safe community: offers equal education, jobs, housing and health opportunities for everyone. Emphasizes ownership of the house, through self-help services to assist individuals in constructing their own homes under safe conditions and clear quality control.

➢ *Encouraged at all levels: Citizen access and participation:*

Local, National, Bioregional. Global. Ideally, all environmental issues are handled locally and operate in the sense of the regional drainage basin, as well as the wider national and international scenes. The village provides leadership for the future, where leadership is described as, "creating new opportunities and possibilities for others."

➢ *Beauty:*

In all its facets a healthy society is lovely.

- Parks and grounds
- Construction materials and colour
- Three-dimensionality
- Views, internal and external
- Village focal points, political, educational, industrial, recreational etc.
- Greenbelts and water catchments, forest buffer and urban wilderness.

➢ *Strong stability of the local economy:*

- Public services in the City.
- Regional economics focused on efficient use, not wasteful work..
- Insurance, educational network, bank and credit union, and inter-and intra-Eco-Village transport networks are owned and controlled by the public.

D. Policy Formulation For Eco Village Development:

"A policy is a concept, strategy or course of action which governs.

Don'ts	Do's
1.No Pesticides, fungicides, herbicides, chemical fertilizers.	1. Use permaculture and organic methods.
2.No genetically engineered food- animals at this time.	2.Develop and use perennial crops or foods.
3. No banks or territorial franchises.	3. Encourage the nearby businesses.
4. No gases which deplete the air or ozone.	4. Requires natural heating and cooling.
5. No cars inside town.	5. Provide appropriate local transportation.
6. No pollution which is produced locally.	6. Soil, air, and water are respected.
7. No community land fill/incinerator.	7. Tackling the waste issue seriously.
8. No economic, intellectual, or spiritual.	8. Always search for socio-economic justice of liberty and poverty.

Table 3

VIII. PLANNING PROPOSALS

After studying the present situation of the Chikani village, current any development and Government policies implemented if any have led to the proposed conceptualization for the Eco-village development of village. All along the locations have been identified for development. It is proposed to use natural resources like solar energy, wind energy and systems like rain water harvesting, solid waste management. The use of such system and planning of Chikani Eco village development highlight the different units which is as follows:

Different units considered for development and planning:

➢ *Educational hub.*
➢ *Health centre.*
➢ *Water supply*
➢ *Road network.*
➢ *Gram panchayat Building.*
➢ *Bus stand.*
➢ *Shopping complex.*
➢ *Bank.*
➢ *Drainage.*
➢ *Community centre.*

ISSN No:-2456-2165

A. Educational Hub:

To enhance the interest of children and villagers against education, planning proposal for Educational hub is prepared. The point of Eco-development is kept in mind while providing planning proposal. Provision of solar energy and green building concept is used for planning. Total Built up area 2553 Sq.m. and plan one Nursery, Primary and Secondary School and Jr. College and Library.

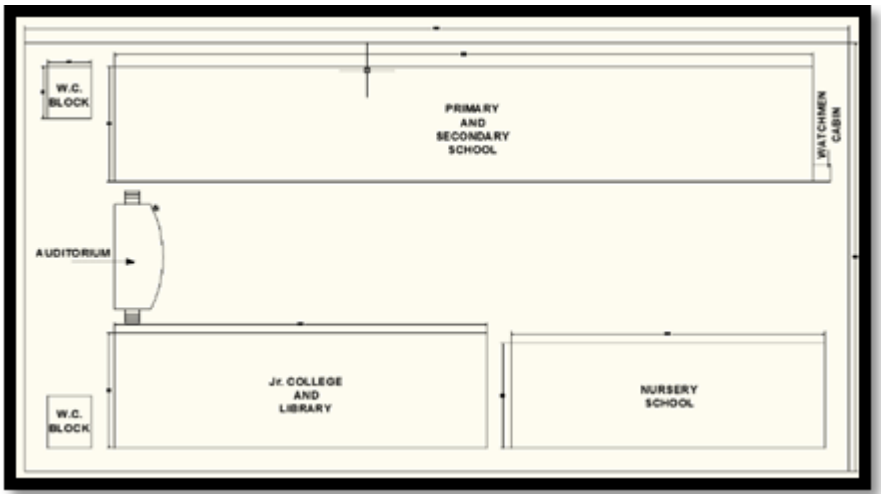

Fig 5

B. Health Centre

For provision of healthy life to villagers plan one health centre including medical facilities. For this proposal consider total plot area 321sqm.and plan two general ward one for ladies and one for gents and one operation Theatre. Detail planning of health centre shown in drawing.

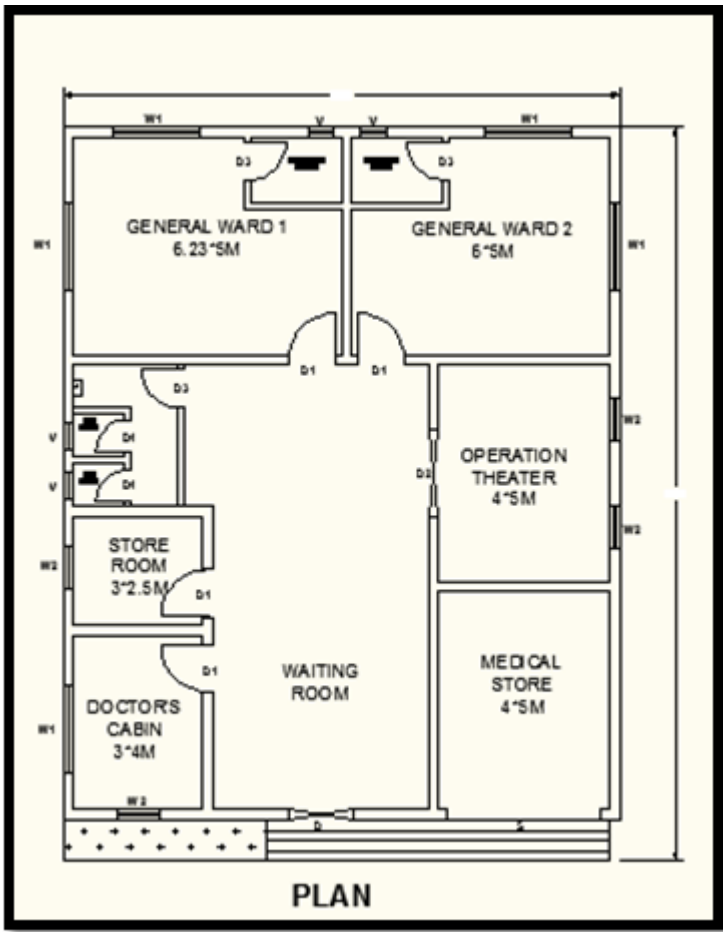

Fig 6

ISSN No:-2456-2165

C. Water Supply And Drainage Line

In Chikani Village provide treated water to villagers only there is no underground drainage network so for healthy atmosphere point of view required to plan underground drainage network.

D. Road Network

Road plays vital role in development of villages and ultimately in development of nation. Also to develop communicational facility and transportation facility improved road network is essential. The current condition of available road is poor and roads are narrow. So to enhance the quality of road and to reduce maintenance cost provision of cement concrete road (9M wide) is suggested.

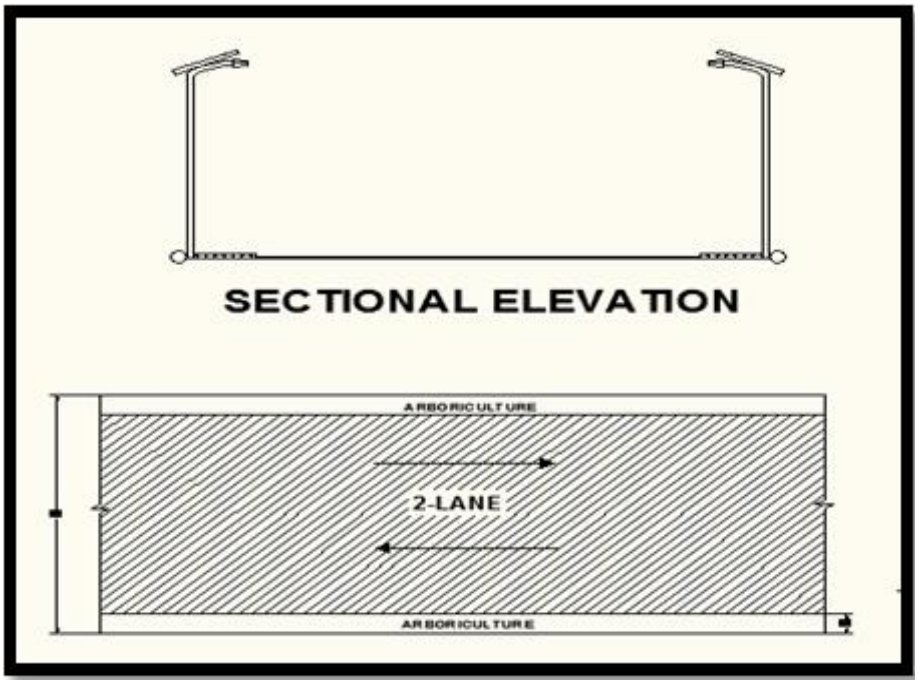

Fig 7

E. Gram Panchayat Building

The total workup of any village is made through Gram panchayat office. A building having all technology is an indication of "Development". Planning proposal is prepared for new building of office and it includes rain water harvesting, solar panels which is relevant to Eco village development. For this planning consider at actual area of land.

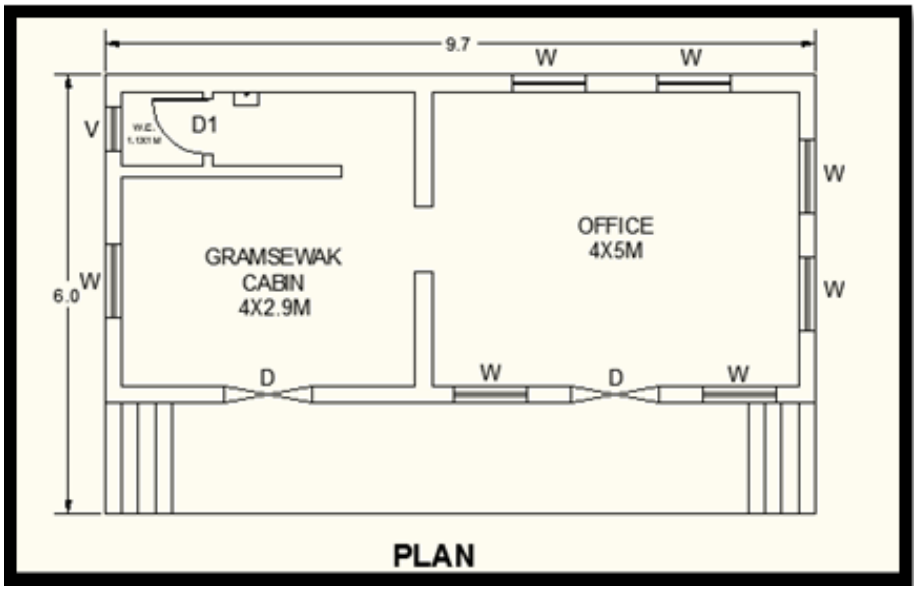

Fig 8

ISSN No:-2456-2165

F. Bus Stand:

The village is facing problem like lack of communicational facility. This problem leads to undeveloped village. To overcome this problem provision of bus-stand is made. The capacity of this stand is such that 2 buses can be operated at one time. Simple RCC structure is provided. Area covered under bus stop 24.5 Sqm.

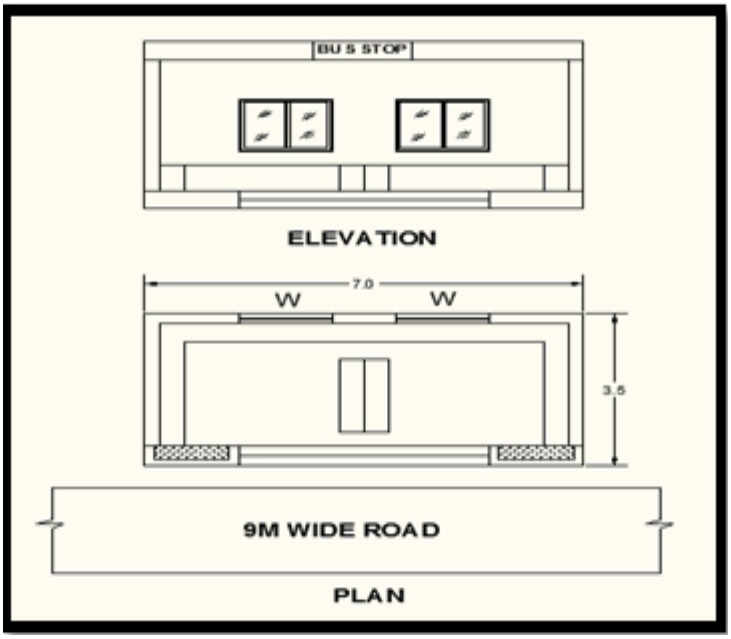

Fig 9

G. Shopping Complex:

Economy generation is main objective of any multitude. A keenly planned small shopping complex are provided to generate economy for villagers. The shopping complex planning includes Rain water harvesting and use of solar energy. Total area 158.36 Sqm.

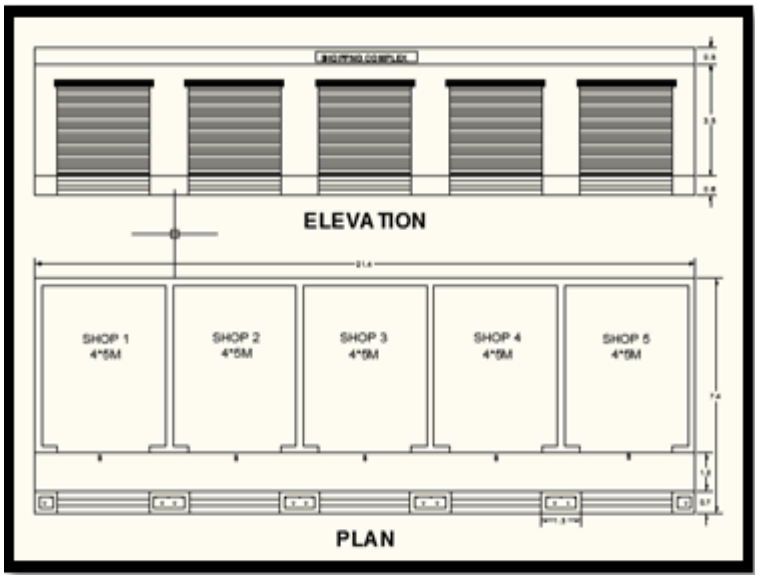

Fig 10

H. Bank:

Savkari is one of the biggest problem faced by villagers to avoid this problem several act is published by Indian government. But still the execution of such act is very poor. And also due to lack of awareness of such act people get victims of savkari. To reduce the problem due to such activity provision of bank is made. The building of bank includes A.T.M. facility.

ISSN No:-2456-2165

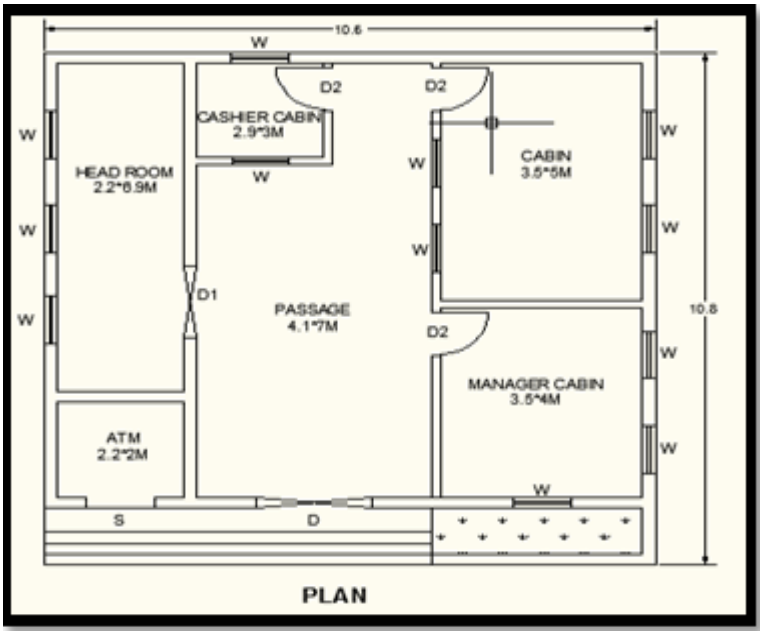

Fig 11

IX. PROJECT COST

Following calculations for determination of approximate estimate of the project are done by using "Plinth area method". And unit plinth area rates are plotted from manual made by Director Rural development and Panchayat raj.

Sr. No.	Particular	Area (m^2)	Cost /m^2	Total Cost (Rs)
1.	Land	2553.92	-	-
2.	Nursery	160.5	12778	2050869/-
3.	Primary& Secondary School.	529.2	13527.5	7158753/-
4.	Jr. college	281.7	13620.03	38,36,762.45/-
			TOTAL	13,046,384.4/-

Table 4:- Details of cost for educational hub

Sr. No.	Particular	Area (m^2)	Cost/ m^2	Total cost (Rs.)
1.	Land	370.12		
2.	Health center building	205.11	15623.17	3,204,469.83/-
			TOTAL	3,204,469.83/-

Table 5:- Details of Cost for health center

Sr. No.	Road width(m)	Length in (km)	Cost in lakhs per km	Total cost in lakhs
1.	Land			
2.	9 M wide road	1.131	5550000	6,277,000
			TOTAL	6,277,000/-

Table 6:- Details of Cost for development of road

(NOTE: Solar street lights of 15 watts are provided at spacing of 50M)

Sr. No.	Particulars	No. of poles	Cost / pole	Total cost(Rs)
1.	For 9m wide road	32	17000	544,000/-
			TOTAL	544,000/-

Table 7:- Cost for Street light.

ISSN No:-2456-2165

Sr. No.	Particular	Area (m^2)	Cost per m^2	Total cost (Rs)
1.	Land	58.2	--	--
2.	Gram panchayat building	43.65	13212.89	576,742.86/-
			TOTAL	576,742.86/-

Table 8:- Details of Cost for gram panchayat building

Sr. No.	Particular	Area (m^2)	Cost per m^2	Total cost (Rs)
1.	Land	24.5	--	--
2.	Bus stand shelter	21	13879.71	291,473.91/-
			TOTAL	291,473.91/-

Table 9:- Details of cost for bus stand

Sr. No.	Particular	Area (m^2)	Cost per m^2	Total cost (Rs)
1.	Land	158.36	--	--
2.	Shopping complex building	143.38	11014	1,579,187.32/-
			TOTAL	1,579,187.32/-

Table 10:- Details of cost for shopping complex

Sr. No.	Particular	Area (m^2)	Cost per m^2	Total cost (Rs)
1.	Land	114.48	-	-
2.	Bank building	103.88	13722.63	1,425,506.8/-
			TOTAL	1,425,506.8/-

Table 11:- Details of cost for bank

Sr. No.	PARTICULARS	COST IN (Rs)
1.	Cost for Educational hub	1,30,46,384.4/-
2.	Cost for Health center	32,04,469.83/-
3.	Cost for Development of road network	62,77,000.0/-
4.	Cost for Solar street lights	5,44,000.0/-
5.	Cost for Grampanchyat building	5,76,742.86/-
6.	Cost for Bus stand	2,91,473.91/-
7.	Cost for Shopping complex	15,79,187.32/-
8.	Cost for Building of bank	14,25,506.8/-
	TOTAL	2,69,44,765.1/-

Table12:- Details of total project cost.

ISSN No:-2456-2165

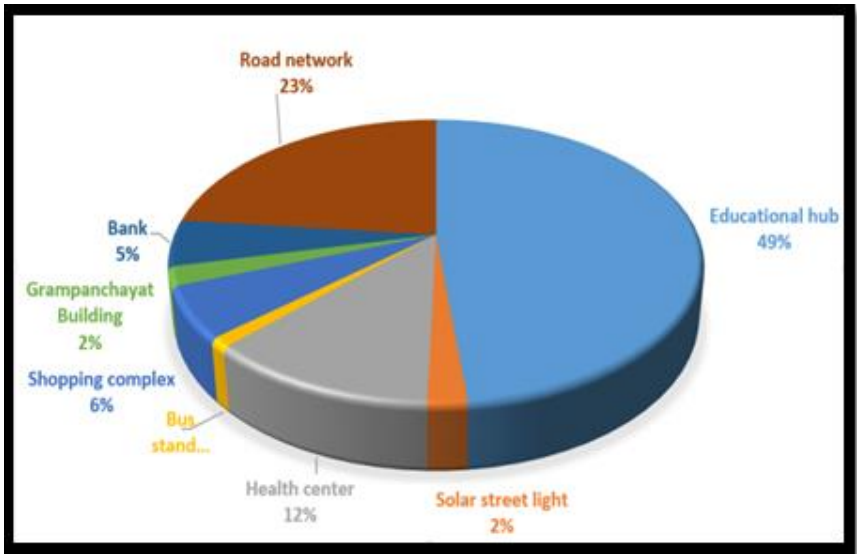

Fig 12:- Unit wise cost of project

X. CONCLUSION

- Now-a-days urbanization is major issue facing in India so people are migrating from rural areas to urban area hence it is necessary to develop villages without affecting ecology.
- The main objective of our project is to give planning proposal for eco-friendly residential development with necessary social & physical infrastructure.
- Improvement of education facilities in village is one of the areas identified at the top of the priority list so steps should be taken to improve the rural education by providing good infrastructure facilities nearby village.
- Eco village development helps to improve the standard and quality of living of the backward and tribal families through a holistic and enabling program approach.
- Ecologically developed village will definitely help in rising the living standards of the people and also create hygienic environment to live in.
- Eventually it will help in the overall development of village and increase the beauty of village.

ACKNOWLEDGEMENT

I am heartily thankful to the Chikani Grampanchayat Officer, whose encouragement, Guidance and support from the initial to the final level enable us to develop and understanding of this subject and for their detailed and constructive comment and for important support though out this work.

REFERENCES

[1]. Phil Hawes Ph.D., "A Pathway to Eco-Villages" 28 March, 2015
[2]. Somrat Kerdsuwana,"Krongkaew Laohalidanonda, Woranuch Jangsawang Sustainable Development and Eco-friendly Waste Disposal Technology for the Local Community", 2015 International Conference on Alternative Energy in Developing Countries and Emerging Economies
[3]. Mahardhika Akhmad Nusantara, Malikusworo Hutomo and Helmi Purnama "Evaluation and Planning of Mangrove Restoration Programs in Sedari Village of Kerawang District, West Java: Contribution of PHE-ONWJ Coastal Development Programs" International Conference on Tropical and Coastal Region Eco-Development 2014 (ICTCRED 2014)
[4]. The national environmental services center, "green building" Tech brief.
[5]. Gregory C. Malhoit "The Rural Perspective on the Concept of Educational Adequacy" A Publication of the Rural School and Community Trust July 2005.
[6]. Mulpuri Chandrashekhar, and Gauranga Das "Integrated water conservation and protection scheme for rural location" 3rd International Conference on Civil, Biological and Environmental Engineering (CBEE-2016) Feb. 4-5, 2016 Bali (Indonesia)
[7]. Hildur jackson "What is eco village?", Based on working papers presented at the Gaia trust education seminar thy, Denmark in September 1998.
[8]. Maharashtra pollution control board "Invitation for Expression of intrest Short listing of environmental agencies For preparation of eco-village development plan" 25th Oct., 2010
[9]. LI Mingb, LI Shuguob "Development Strategy Research of Modern Eco-Agriculture on the basis of constructing the Rural Circular Economy-For the Example of Shandong Province" Energy Procedia 5 (2011) 2504–2508