

Introduction to Concept of Smart Village

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Abstract: -- The Aim of the Smart Villages Initiative has been to identify the framework conditions necessary for the provision of energy services to villages to enable the livelihood opportunities, provision of services (healthcare, education, clean water, and sanitation) and empowerment embodied in the Smart Villages concept. For the betterment of villages by providing the basic infrastructure facilities the development plan proposals are prepared for the village "DIHEN" from old taluka of Surat district. For the preparation of plan proposals, smart village guidelines by govt. As Gujarat is understood properly, the information perceived by the representatives and the individuals are considered in making of the proposals. This project report deals with study and development of village as a smart village. We define smart village as bundle of services of which are delivered to its residence in an effective and efficient manner. "smart village" is that modern energy access acts as a catalyst for development in education, health, security, productive enterprise, environment that in turns support further improvement in energy access. In this report we focuses on improved resource use efficiency, local self-governance, access to assure basic amenities and responsible individual and community behavior to build happy society. We making smart village by taking smart decisions using smart development and services. 68.9% of our population lives in rural areas (census 2011).and the gap analysis is done on the basis of projected population of 2031. So that lack of facilities can be found out and it helps to prioritize the proposals.

I. INTRODUCTION

In India there are about five lakh villages and around 70% of our population resides in them and so the villages playing crucial role in bringing about overall development of the country. These villages can be flourished by giving good infrastructure, modern support and employment opportunities. Providing urban amenities in rural areas visualizes four types of availability: Physical, electronic, knowledge and economic network for sustainable development of villages.

SMART VILLAGE CONCEPT:

- i. According to the Smart Village Guidelines – A village which has foresight for the development and proper planning to keep the village clean, healthy, green, pollution free, crime free and disease free with co-ordination of various community development and welfare schemes of Government.
- ii. A village which makes the people "SAMRAS" and economically self-dependent by achieving determined goals for people's wellness and convenience.
- iii. Smart Village means a village which is aware to increase facilities for the citizen by taking decisions democratically and Smart Village means a village in which the youth, women, farmers, village artisans, backward and deprived people may get equal opportunity for development.

AIM OF THE STUDY

The basic need of the study is to identify present issue and problem related to infrastructure and other services. To study the norms and guidelines for development of core infrastructure and provide better infrastructure facility in Dihen Village.

OBJECTIVES OF THE STUDY:

- i. To survey socio-economic and physical features of the village for which smart proposals are to be finalise.
- ii. To understand the needs of villagers through interactive meetings.
- iii. To identify Feasibility and Effectiveness of the core Infrastructure facilities.
- iv. To prepare Proposals as per the Guidelines of Government of Gujarat.

SCOPE OF THE WORK:

The scope of this proposal is as follows-

- i. The area for planning covers Dihen villages. (Gamtal Area)
- ii. Only Physical planning proposals of village issues are taken into consideration.
- iii. Detailed Financial Analysis is not included in this report.

METHODOLOGY

The way to deal with make Proposals incorporates open meeting most in it. Gatherings with representatives prompt to learning about the present situation of village and as organization they clarify more suitable necessity. In the planning of recommendations there is commitment from all aspects of progressive system included i.e. TDO (Taluka Development Officer), Sarpanch (head of the village administration elected by people), Talati (appointed by state govt. to maintain the village revenue records) and afterward most vital village people, gave their recommendations which are further clarified. Digital survey includes the map and location of govt. structures in Village. The study structures are disseminated in the Village to examine the prerequisite at minor level.

DEMO GRAPHIC PROFILE:

Dihen is large village located in olpad of surat district, Gujarat with total 554 families residing. the dihen village has population of 2636 of which 1350 are males while 1286 are female as per population census 2011. In dihen village population of children with age 0 - 6 is 288 which makes up 10.93% of total population of village. Avg sex ratio of dihen village is 953 which is higher than Gujarat state avg of 919. Child sex ratio for the dihen as per census is 870, lower than Gujarat avg of 890.

AVAILABLE INFRASTRUCTURE FACILITIES:

- i. Shrimati maniben ranchhodji chahwala high school
- ii. (jkg. To 12th commerce)
- iii. Primary school (1 to 8th std.)
- iv. Aangan wadi kendra (2)
- v. Primary health center (1)

LITERACY

Total 1911 people in the village are literate, among them 1036 are male and 875 are female. Literacy rate (children under 6 are excluded) of dihen is 81%. 87% of male and 76% of female are literate here. Overall literacy rate in the village has increased by 6%. Male literacy has gone up by 5% and female literacy gone up by 8%.

Change in literacy rate 2001-2011 – Dihen

	TOTAL	MALE	FEMALE
CHANGE	6.1%	4.4%	8.1%
2011	81.4%	86.6%	76%

2001	75.3%	82.2%	67.9%
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*As per census 2011.

WORKERS PROFILE:

	Male worker	Female work	Total worker
Mainor Ma works	63%	43%	53% (1398)
Main works	51% (full tin	30%	81%
Marginal wor	11% (part tin	13%	24%

II. LITERATURE VIEW

1. Dr. Milind Kulkarni (2010): In India majority of the population still lives in villages. A lot of work needs to be done in making the villages clean. There are different aspects of clean village such as: water supply, sanitation, indoor air quality, solid waste management and renewable energy etc. All these aspects have different alternatives with the associated merits and demerits. In some aspects such as water supply, considerable work is done whereas in some areas like sanitation lot of work is required to be done. We can learn lot of lessons based on success and failure in adopting different alternatives. Keeping in touch with technology clean village projects should integrate technology and digital design, which will make the village not only clean but also smart. The paper discusses all these aspects with reference to Maharashtra and India. This discussion plans to give important inputs and alternatives to policy makers so that they can redirect and reformulate the policy. Engineering students can design and implement projects of clean and smart village which will help in their skill development. At the end paper gives recommendations for effective making of Clean and smart village.

2. Solar power energy solutions for Yemeni rural villages and desert communities (2016): According to UNDP Policy Note 2014, only 23% of Yemen rural community have access to electricity – having connected to national grid or use small isolated generating units – while the country is one of the richest in solar energy with over 3000 h per year clean blue sky. The objectives of this paper is to concentrate on the utilization and the cost effectiveness of photovoltaic solar energy for electrification of Yemeni

rural and desert communities, which will result in enhancing education, culture, science, medical services, and improve the living conditions in rural areas. Otherwise, energy poverty that is a facet of a multidimensional poverty in Yemen will persist because the possibility of connecting rural communities to the national grid, even in the next ten years, is invisible due to major political and financial problems that the country is facing. Moreover, PV energy is environmentally clean and has proved to be one of the best solutions for rural

electrification in many countries worldwide due to noticeable drop of PV systems prices with the advance in PV technology. Accordingly, it should be the best solution for rural electrification in Yemen as well. The paper demonstrates the cost effectiveness and the design procedure of utilization of solar energy for rural and desert communities in Yemen using a number of subsequent cases typical to Yemeni communities and provides also a practical study to support Bedouin backpackers.

3. Integrated biomass and solar town concept for a smart ecovillage in Iskandar Malaysia (2014): This paper presents a new integrated biomass and solar town concept that can serve as a global model for smart eco-villages in tropical countries. In this research, a renewable energy (RE)-based distributed energy generation (DEG) system for an eco-village driven by the “integrated biomass and solar town” concept was considered in order to optimise RE resource utilization. To design a cost-effective integrated biomass and solar town, a mixed integer linear programming (MILP) model was developed. The proposed model considers actual operation constraints due to biomass availability, weather variation, and restriction of the thermal plant. The application of this new concept on the Iskandar Malaysia (IM) case study with an average daily demand load of 16,900 kWh/d revealed that a 417 kW direct-fired biomass power generator, 412 kW biogas thermal power plant, 136 kW solar photovoltaic (PV) modules, and sodium sulphur battery with an energy capacity of 3046 kWh and power of 1530 kW were required. The annual cost of the integrated biomass and solar town was estimated to be approximately RM 3 million at an electricity cost of RM 0.48/kWh.

4. P. Sunitha, V. Sreedevi (Rural Education In India) 2013 :

It was once appropriately said by Mahatma Gandhi that —India lives in its villages!. People live in villages show the true image of ‘_real India’. However, due to absence of literacy and education, the rural India witnesses many disadvantages. This paper gives a large concern on Education System of Villages to Minimise Drop out ratio.

5. Niraj Kumar Roy (ICT–Enabled Rural Education in India 2012) :

This paper gives ideas to improve the rural education through ICTs, especially the computer based technologies. Also provide some recommendation for successful execution of the national policy for ICT in education in rural areas. There is no doubt in the near future’s development will be based on ICTs. However benefits of ICTs are not attained presume level in the rural areas. still the rural population living with minimum level of ICTs facilities especially the poorest of the poor. Both Government and NGOs are allocating huge fund for the development of ICTs and rural education .

6. Soumitro Chakravarty, Anant Kumar, Amar Nath Jha (Women’s Empowerment in India: Issues, Challenges and Future Directions 2013):

This working research paper attempts to understand the concept of women empowerment on a holistic basis and critically examine the efforts initiated towards empowering women with special emphasis upon the Self Help Groups (SHGs) based upon empirical work undertaken in the Ranchi district of Jharkhand state in India.

SOCIO – ECONOMIC SURVEY

The selection of the sample size is a very important prospect because the sample will represent the study area as a whole. For the study of delineated area, samples are considered according to their population. Total 52 households in different zones were contacted for this Survey to collect data about village existing situation and requirements. The survey form are collected by gram Sabha members from their respective zones.

SURVEY METHODOLOGY

Questionnaire were designed in such a way that every villagers can understand it easily. Survey forms given to the villagers were in Gujarati language.

Gap analysis of different infrastructures in Dihen village					
Sr. no	Smart feature	Planning commission/national building code(NBC) Norms	Required no. according to norms (population)	Existing no.	proposals

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			2011 (2636)	2021 (2794)	2031 (2961)			
1	Education							
	Anganwadi	One per 2500 population	Sufficient		2			
	Primary school	One per 4000 population	Sufficient		2		N/R	
	Secondary School	One per 15000 population	Sufficient		1		N/R	
2	Health							
	Sub-centre	One per 3000 population	Sufficient		1		Renovation Needed	
	PHC/CHC	One per 20000 population	N/R					
	Hospital	One per 80000 population						
3	Cleanliness							
	Organic waste	No organic waste disposal area			none		Waste Digester	
	Dumping site	dumping site available but not existing			none		Provide dumping site	
	Door to door waste collection	No door to door collection system			none		D2D Collection System	
4	Administration							
	Gram panchayat	Each individual	1		1		N/R	
	Record room	Available						

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	E-gram centre	Available	
5	Water facilities		
	Drinking water	All Houses Connected to water Pipe-line	
6	Need based proposals		
a	Garden		Proposal
b	Skill Development center		Proposal
c	Lake Development		Proposal

EXISTING AND PROPOSAL MAP OF DIHEN VILLAGE:



The condition of the existing aanganwadi structure is not as per requirement of NBC(national building code), thus it's renovation or reconstruction is needed.

Issues Identified in Aanganwadi –

Aanganwadi in Dihen are having all the facilities, like; proper sitting arrangements, good and healthy mid-day meal, electricity connectivity, women staff, toilets, etc. But some the issues were still there which are as follows –

No play area for children, they only have to play in that classroom

Children have to drink water provided through pipeline, no R.O facility was there

Gate of the toilets in the Aanganwadi was not good or broken

Requirements –

R.O. plant

Play area

Renovation required

AANGANWADI:



LAKE DEVELOPMENT:



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It is seen that lakes been major sources of accessible fresh water required well planned, sustainable and scientific effort to prevent their degradation.

It also increases the ground water table and also gives aesthetic view to villagers.

PRIMARY HEALTH CENTER:



PHC(primary health center) is not in a good condition so the development proposal for it needed.

Requirements in PHC –

Following are the requirements in the Primary Health Centre Kim –

Need Proper Lighting

Weekly Specialist (Paediatrician & Gynaecologist)

No Ramp For Stretcher

Computers Required

Maternity Home

R.O. Plant

Renovation Required

Solid Waste Collection and disposal:

For cleanliness in the village, various steps have to be taken by the Gram Panchayat to ensure the Door – to – Door Waste collection. Under the Swachata Abhiyan, tricycle, Shed for Solid waste, 2 mini pick-up tempo, and separate waste bin (for wet & dry) green and red (nondisposable waste) buckets have to be provided by the Gram Panchayat.



Other proposals:

Road development: As per the survey there is a need for the development of R.C.C. roads in the village to facilitate the transportation of public and vehicles in the village.

Skill development center: As per the socio-economy survey it has been found that majority women are engaged in the field works and there are no advancement for their development of their own personal skills,so it is necessary to give a better scope for their advancement and thus skill development centers are to be provided. Other than this,society should change the mentality towards the word “women”. Encouraging women to develop in their fields they are good at and make a career.



Garden development: This is the basic requirement of the people living in nearby area or for children and the other age groups people for spending their leisure times and thus it is

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required to develop a serene atmosphere and provide following facility for the same.

- i. Flora and fauna
- ii. Play area
- iii. Sitting arrangements
- iv. Mini fountains
- v. Sanitary services

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