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Research Bulletin 61

SOCIO-ECONOMIC AND RESOURCE PROFILE ANALYSIS OF SOGAR STUDY VILLAGE

(An Outcome of VDSA Project)

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Bhubaneswar-751 023, Odisha

2013

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Sogar village: An overview

Sogar village itself is a Gram Panchayat, spread over seven hamlets and comes under Kamakshyanagar block of Dhenkanal District. It is surrounded by Brahmani river in the east, Kamagar jungle in the west, Vendia Thali Mountain in north and Jhagadapada village in south. The village is connected by pacca road and 25 kms away from district head quarter.

The village falls under mid central table land having hot and moist sub humid climate. Mean annual rainfall 1350 mm and temperature ranges from 14^0C to 38.8^0C. Soils are light textured lateritic, medium textured red loam and mixed red and black soils. Resident mainly depends on agriculture for their livelihood. Paddy is the main crop of kharif season. Black gram, green gram and watermelon are produced as rabi season. Petty business, government service and daily wage labour are the key livelihood options available in the village.

The village population is 2050, spread across 428 households, where 51.17 % are landless farmer. 'Sahoos' are the dominating social group, who are generally oilmen. The large farmers have larger family size and better education standard compared to small and medium farmers. Villagers majority are in the earning age group of 17-60 year and have little land or no land. The wide spread disparity in land distribution is clearly visible and highly contributes to their poor economic status and non availability of agricultural livelihood options.

The cattle and buffalo are having sizable population, with an average of 1.17 and 0.06 per household. Small farmers are better as compared to large farmers. The present value of livestock per household has been worked out to be Rs. 4404 and was highest (Rs.11438) with large farmer and lowest (Rs.1894) with landless. There are four buffalo dairies, one cow diary and two goatary units are functioning in the village. Four poultry farms are also operative in sogar.

In the name of farm mechanisation, few electric motors, sprinkler, drip and some bore well are also available. Four tractors are available in the village. It seems that farm mechanisation in the village directly relates to the resource of the farmer. About 14.67 % of people are migrated from the village in search of better education and employment. Poor infrastructure of transport, agri-markets and communication makes the village in underdeveloped state, needs to be addressed in priority.

1. Introduction

A mega Project on **Tracking Change in Rural Poverty in Households and Village Economies in South Asia** is being undertaken by National Centre for Agricultural Economies and Policy Research (NCAP), New Delhi and International Crops Research Institute for Semi-Arid Tropics (ICRISAT), Hyderabad. For Eastern India, Directorate of Water Management Bhubaneswar is the implementing agency of the project in Odisha villages. The Project aims at understanding the dynamic process for reducing poverty in the poverty-laden agro-ecologies of Eastern India by tracking the households and village economies continuously. The Eastern region of India is one of the most poverty-laden regions in terms of both prevalence rate and total number of people below poverty line. Reducing poverty in Eastern India has been a big challenge and the successful implementation of this project is expected to contribute to our understanding of the complex poverty dynamism in the region.

The overall objective of the Project is to help evolve appropriate and effective strategies for accelerated reduction of poverty in Eastern India. Specific objectives of the project are:

- To enhance the availability of reliable household, individual and field-specific high frequency time series data in selected villages, and to address dynamics of economic, social, and institutional development at meso-level (e.g. district level), and
- To nurture policy analysis and strengthen capacity building for poverty reduction in the Eastern Region of India.

Collection of longitudinal data on households, individuals and field levels in selected villages is one of the major activities. Twelve villages have been selected for continuously tracking the changes in rural economies under the Project. The village Sogar of Dhenkanal district of Odisha is one of the selected villages. Before selection of sample households for continuous monitoring, the village census has been conducted in each selected village to understand the general and the socio-economic profile of the village.

This village profile is based on the village census carried out and qualitative information gathered by the project team.

1. The District Dhenkanal

Dhenkanal District is occupying a Central position in the Geo-Political map of Odisha. It lies between 85°58' E to 86 ° 2' E longitudes and between 20°29' N 21°11' N latitude. It has a total area of 4452 Sq Kms. The district has a population of 11, 92,948 as per 2011 Census. It is the District which touches the boundary of Keonjhar in the North, Jajpur in the East, Cuttack in the South and Angul in the West. The climate condition of the district is generally hot with high humidity during April and May and cold during December and January. The monsoon generally breaks during the month of June. The district is 99 km. away from capital Bhubaneswar on National Highway No. 42. Regular bus services connect Dhenkanal with Bhubaneswar, Cuttack, Puri, Rourkela, Sambalpur, Raipur, etc.

Fig. 1 : District map of Dhenkanal in Orissa

The river Brahmani flows in the west of the district as a boundary to Anugul district and then flows within the district bisecting it into two parts. The Valley of Brahmani River comprises major northern part of Dhenkanal and southern part of Kamakyanagar Sub-Division. The district is predominated by the

agricultural sector. Some large scale industries like Nilachal Refractories, Utkal Asbestos Ltd, Orissa Polyfibres Ltd, Shakti sugar are established in this district.

2.1 History of Dhenkanal

It is believed that the district derives its name from Dhenka, the Savara chief who reigned in the region. The district was influenced by the religious movement of Mahima Dharma. The district is marked by the presence of several pilgrim sites. The economy of the district is influenced by the large scale industries like the Orissa Polyfibres Limited, Nilachal Refractories, Shakti Sugar and Utkal Asbestos Limited. The forest and its products are also important components that influence the economy of the district. Rich in flora and fauna, the forests are home to a number of endangered varieties of plant species and animals. The forest is home to the elephants and the tigers.

Fig. 2: Field investigator interacting with farmers for data collection

2.2 Natural Sub division

Dhenkanal District is divided in to three natural divisions. Southern part is covered by hilly region, the fertile river valley with tributaries, and the northern hilly region. Most part of this district is covered with dense forest and a long range of hills. Therefore this district is called as the "Home of elephants and tigers of the country". This district has mainly five varieties of soil.

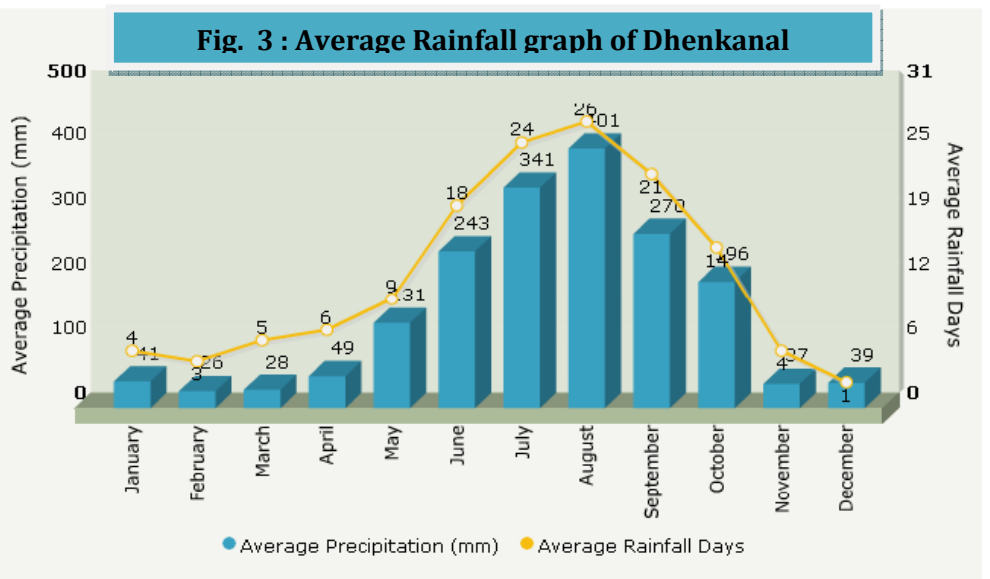
- Alluvial soil (Available in river valley).
- Red loam soil (Available in high Land).
- Sandy loan soil (Found in Yatches).
- Gravelly soil (Found in hill slopes).
- Cleaving loan soil (Found throughout the district)

The topography of Dhenkanal district is marked by the hilly regions and the valley formed by the river that flows in the district. The total population of the district is 11, 92,948. Agriculture and allied activities are the major source of livelihood in the district.

2.3 Climate and vegetation

The climate of this district is generally hot with high humidity during April and May and cold during December and January. The monsoon generally breaks during the month of June. The main forest products are timber, bamboo, firewood, and Kendu leaf. Normal rainfall of the district is 1421.1m.m and Actual rainfall received last year was 1300 mm. The pattern of rain fall support only two cropping season's kharif and rabi. Paddy is the major kharif crop and Maize, Ragi, Wheat, Mung, Biri ,Kulthi ,Till, Groundnut, Mustard, Jute, Potato, Sugarcane are among the Rabi crops.

Fig. 3 : Average Rainfall graph of Dhenkanal



3 The village Sogar

3.1 History

The villagers live on the bank of the river Brahmani from past centuries. With the growth of density of population, the dwelling centres get existed in different hamlets. On 1957, a tragedy of burning fire destroyed the rural thatched houses so that the villagers established their permanent settlement forming different hamlet. Earlier, Sogar village was executed under the Baruan Gram Panchayat. Since 14th Oct., 1983, Sogar got a separate recognition of new Gram Panchayat.

3.2 Location

Sogar comes under Kamakshyanagar block of Dhenkanal district. The village is surrounded by Brahmani river in the east, Kamagar jungle in the west, Vendia Thali mountain in north and Jhagadapada village in south. The village is connected by Paccha road to the district and block head quarter covering of 22 kilometres, 25 kilometres respectively.

3.3 Village Physical Feature

- Geographical area – 2016.69 acres
- Government land – 963.74 acres
- Village jungle – 18.71 acres
- Cultivable waste land – 68.5 acres
- Non-cultivable waste land – 148.4 acre

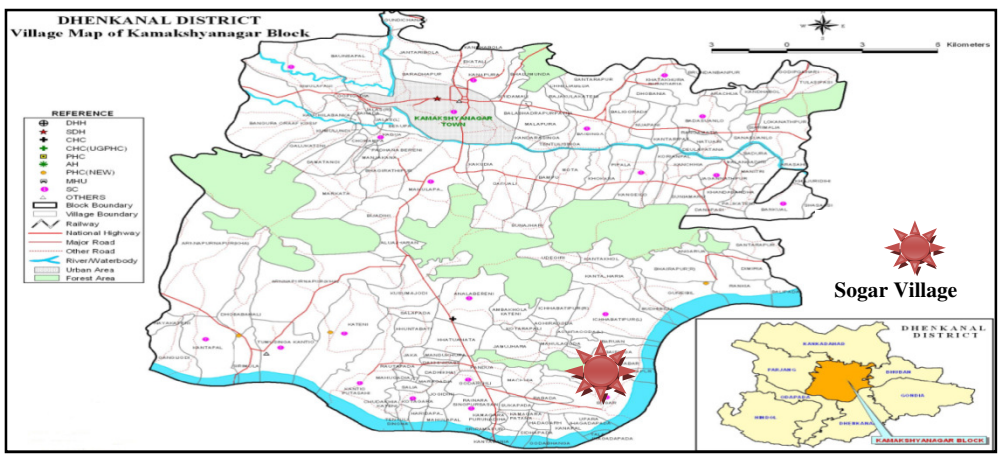


Fig. 4: Village map of Kamakhyanagar block, showing Sogar study village

3.4 Climate

The village falls under mid central table land having hot and moist sub humid climate. Mean annual rainfall is 1350 mm and mean max summer temperature is 38.8 and mean min winter temperature 14.0C. Soils in the area are light textured lateritic, medium textured red loam soils & mixed red and black soils.

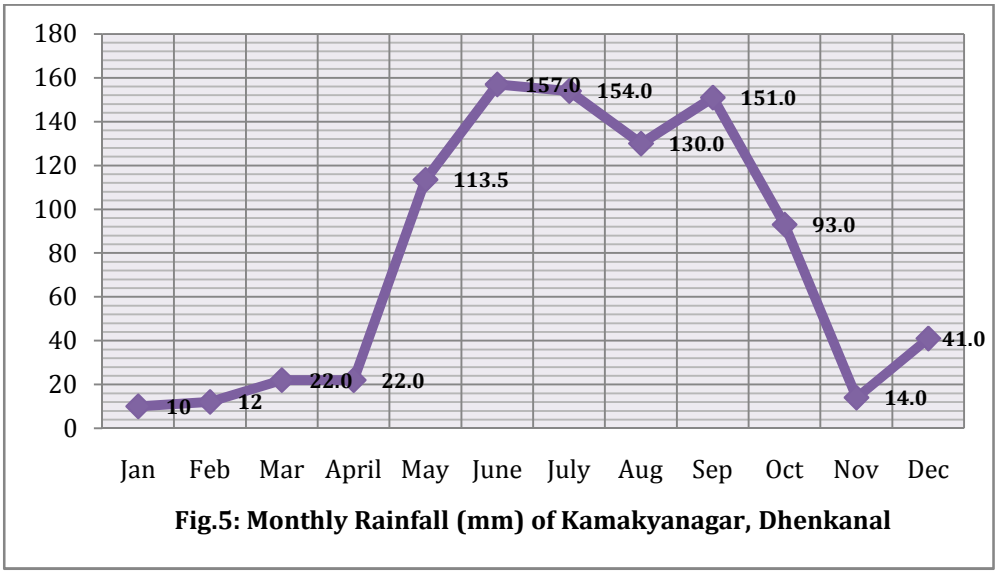


Fig.5: Monthly Rainfall (mm) of Kamakyanagar, Dhenkanal

3.5 Village infrastructure

Physical connectivity of the village with respect to agriculture and electronic infrastructure is moderate to poor. The infrastructures like lift irrigation, mandi. bank, cooperative, godown, grain bank, chilling centre, cold storage, village markets, post office, telegraph office, telephone exchange, telephone booth, internet café, tele education centre and tele medicine centre have been listed in table 1 and 2 and rated as easy, moderate and difficult as per the access of the facility to the village farmers.

Table 1: Average physical connectivity status to economic infrastructure

Sl. No.	Particulars	Remarks (Connectivity Status)
1	Distance of lift irrigation	Moderate
2	Distance of Mandi	Difficult
3	Distance of Bank	Moderate
4	Distance of Cooperative	Moderate
5	Distance of Godown	Moderate
6	Distance of Grain Bank	Difficult
7	Distance of Chilling Centre	Difficult
8	Distance of Cold Storage	Difficult
9	Distance of Village Market	Easy
10	Distance of DIC (District Information Centre)	Difficult
Percentage of stratified connectivity status		
Easy	**Moderate**	**Difficult**
10%	40%	50%

Table 2: Average physical connectivity status to electronic infrastructure

Sl. No.	Particulars	Remarks (Connectivity Status)
1	Distance of Post office	Easy
2	Distance of Telegraph office	Easy
3	Distance of Telephone exchange	Easy
4	Distance of PCO	Easy
5	Distance of Internet cafe (cyber cafe)	Difficult
6	Distance of IT Kiosk (e-Choupal)	Difficult
7	Distance of ATM Centre	Difficult
8	Distance of E-Bank facility(CBS)	Difficult
9	Distance of Tele Education Centre	Difficult
10	Distance of Tele-Medicine Centre	Difficult
Percentage of stratified connectivity status		
Easy	**Moderate**	**Difficult**
10%	40%	50%

3.6 Developmental milestones of Sogar village

The Village development process was initiated long back. Some of the achievements has been documented and year-wise important milestone are presented in table 3.

Table 3: Important Milestones of development in Sogar village

Year	Milestones
1911	Lower primary school started
1953	Upper primary school started
1957	Fire burnt the houses of Sogar village
1962	Middle English school started
1963	Post office started
1972	Village electrification started
1975	First private rice huller installed
1980	Homeo hospital inaugurated
1983	Sogar got recognition **as** separate Panchayat
1985	Union bank started transaction
1988	High school established
1992	Sogar veterinary hospital started
2004	Primary school got recognition of Nodal school
2006	Recognition of Bidi labour organization (Ministry of labour and Employment)
2007	Panchayat new office building work started
2007-08	Sarva Sikshya Abhiyan started
2010	Bati pond got renovated
2010	Kendubereni pond renovated
2010	VLS project started
2010	Panchayat meeting hall inaugurated Sogar village
2010	Rural water supply project inaugurated

4. Population and Village Society

4.1 Demographic Structure

The population of the village is not very thick, which is spread in seven 'Shahi's of different caste. The oil man caste with the surname Sahoo is the most dominated caste in the village. As per the VDSA census in year 2010, the population of the village was 2050. The total number of households in the village is 428. Out of them, 219 are landless farmers, which is 51.17 % of the total households followed by small, medium and large households. Among the four categories of farmers, average family size for large farmers was found to be 5.79 and the years of education was 8.56. The level of education is high for large farmers and they also have large family size. It is found that the general assumption of higher education leads to small family may not correct. The average year of education is 6.3, it shows most of people in the village were unable to complete secondary education.

Table 4 : General characteristics of household, Sogar

Particulars	Landless	Small	Medium	Large	All
Number	219	73	73	63	428
Age (Years)	28.43	30.16	32.45	33.30	30.34
Education (Years)	4.51	8.02	7.13	8.56	6.30
Family size (no.)	4.39	4.60	5.27	5.79	4.79
% headed by male	97.27	98.63	98.63	100.00	98.14
Female sex ratio per 1000 male	936	816	897	763	875

The sex ratios in the landless category (936) are better than the large farmers (763). Probably the literacy and farm size affects the family decision as the most of the household headed by the male in the village.

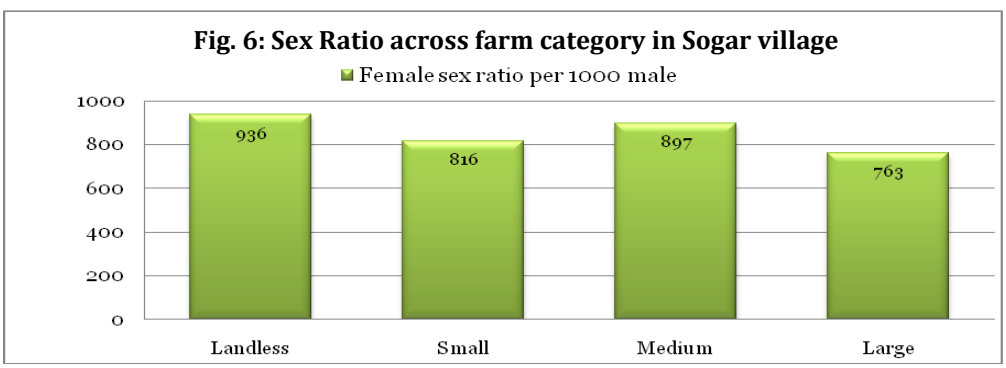


Fig. 6: Sex Ratio across farm category in Sogar village

4.2 Age-wise population distribution

As per the village demographic distribution, the maximum numbers of people belong to the age group of 31 to 60 years, which is found to be 780, followed by the age group 17 to 30 years. By combining these two groups, comparatively a large percent of population are in the earning age group. Out of this, a sizable population has little land or no land. The land distribution reflects that 514, out of 862, have no land or little land. So the wide spread disparity in land distribution is clearly visible in the village, which contributes to their poor economic status and non availability of agricultural livelihood options for them.

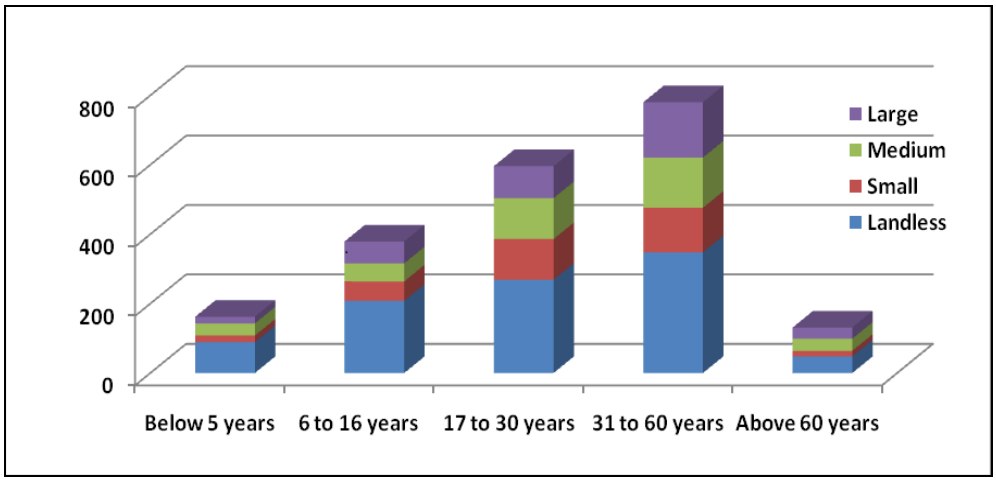


Fig. 7: Age wise population distribution in the village

4.3 Status of Education

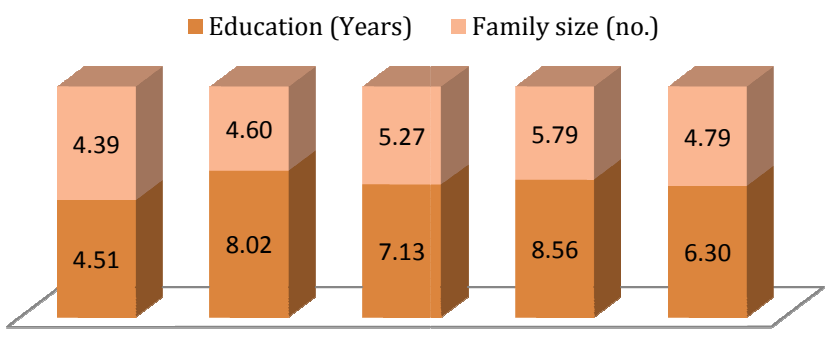
The overall literacy observed in the village was 81.91 percent. Male literacy is relatively better than female by 12 % in the village. Across families, landless farmer having less literatcy rate over the land holder which reduce their earning capacities and options livelihood. Most of the households among the large farmers are literate as both male and female literate percentage of this group dominates the other groups in literacy.

Table 5: Literacy rate across the farmers' category in Sogar village

Particulars	Landless	Small	Medium	Large	All
Male	80.39	94.92	88.48	96.97	87.61
Female	62.82	84.72	87.72	88.74	75.42
All	71.86	90.34	88.12	93.41	81.91

A positive correlation exists between family size and year of education in the village. Overall year of education in the village per family found to be 6.30 and the average family size of the village is 4.79. Medium and large farmers have larger family size in the village and their education year found to be 5.27 and 5.79 respectively. This indicates affluent farmers can afford better education in comparison to other households in the village.

Fig. 8: Family Size and Education in Sogar



4.4 Social structure

Though the people live in different hamlets, mutual brotherhood is marked in festivals and marriages. The traditional joint family system is widely prevalent while few people also maintain nuclear family structure. The male headed model of household is largely seen in the village. The lead role of earning is vested on senior male member, where others extend their support. The Earning options for female are limited, so they perform all the household works and look after the other members of family. Women take decision only when the male counterparts are absent. The awareness of better education is clearly realized by parents, as they used to send their daughters outside for higher education.

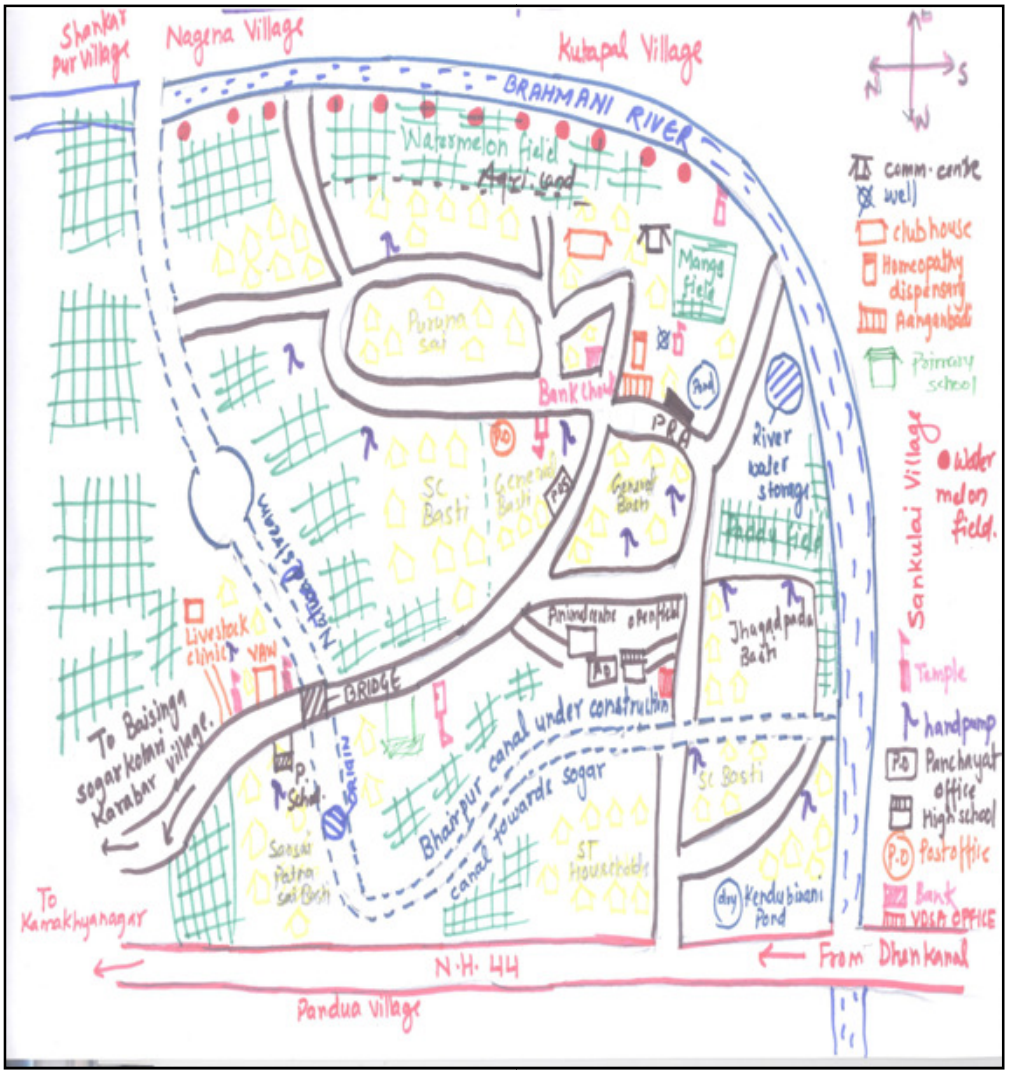


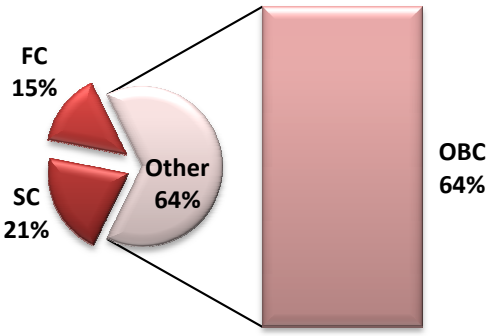
Fig. 9: Social and Resource map of Sogar village

4.5 Caste Composition

Sogar maintains the status of multi-caste structured village, where 'Sahoo', the oilmen caste is the most dominated. Besides oilman, Brahmin, Weaver, Gouda, Lohar, carpenter, Chasa live with mutual relation and co-operation. The occupation pattern is free from caste base. People engage in diversified occupation to maintain their livelihoods. Among the social groups, other backward classes (OBC) are highest in population in Sogar village, which

constitutes about 64.49 %. Most of the large, medium and small farmers are belong to this group. There is no presence of Schedule tribe (ST) community in Sogar village.

Fig. 10: Percentage distribution of social Structure



4.6 Culture

Sogar village got wide recognition for famous "Danda" folk dance, one of the ancient culture of Odisha. Even after modern invasion of culture, the villagers have kept the traditional culture alive by observing "Danda" in every year. Every hamlet has a 'Bhagabat tungi', where elderly persons gather in evenings to read and listen the Puranas and Bhagabata. Mahalaxmi festival, Kartikeswar festival and Dola purnima are the important festivals observed in the village. In Dola purnima, a procession with cultural dance and performance, marches across the village. Every hamlet of the village has a cultural committee to raise fund for observing cultural events annually. This fund is also used for grant loan to the needy villagers with nominal rate of interest.

Figure 11: Temple in the village

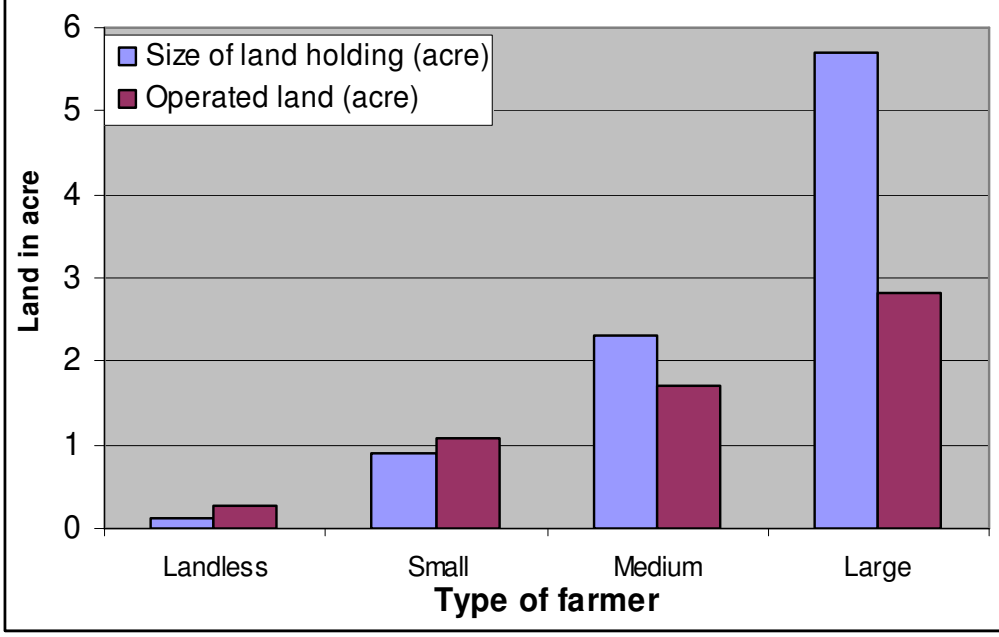
5. Agriculture and Livelihood options

Agriculture is the dominant farm activity for earning livelihoods in the village. Small and landless farmers practice single cropping pattern due to their inferior quality of land and erratic rain fall, while larger farmers depend on non-farm activities due non availability of assured source of irrigation.

5.1 Land holding and Land use pattern

Most of the fertile lands are owned by medium and large farmers. The average farm size in the village varies between 0.11 to 5.70 acres and average size of land holding in the village is 1.45 acre. Most of the lands have no irrigation facility. The percentage of non-irrigated land is almost 3 times higher than the irrigated land area. The operated land area gradually increases, from landless to large farmers (0.26 acres in case of land less and 2.83 in case of large farmers). Percentage irrigated area with the medium and small farmer is 6.87%.The permanent fallow land in the village is found to be 18.44%.

Fig. 12: Average size of landholding and operated land among different type of farmers in Sogar



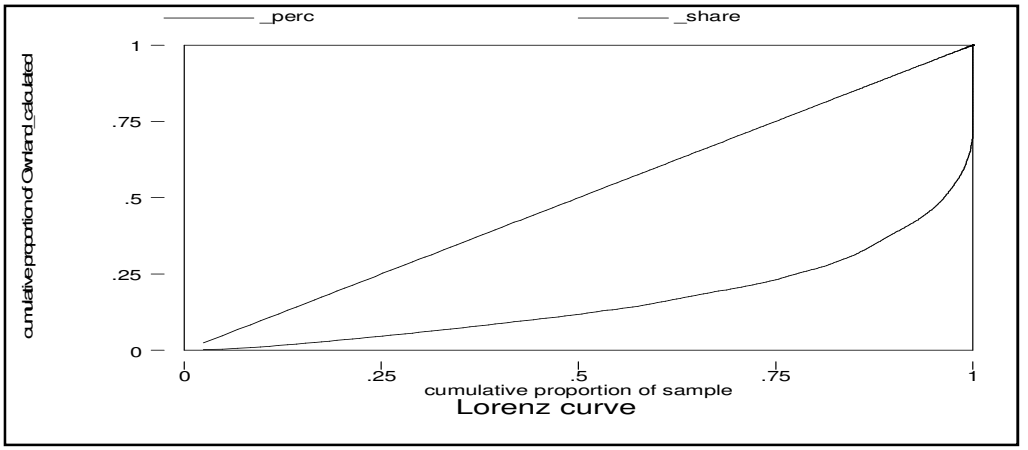


Figure 13: Lorenz curve of own land, Sogar

5.2 Soil and Irrigation

Hard and sandy loam soil is found in the village. Only the low land areas are fertile and having alluvial soil. About 60 percent of total lands are cultivable and rest of the land remains fallow throughout the year. Earlier, short duration paddy was grown in these lands, but now government is gradually initiating cashew plantation in these lands. There is no permanent irrigation facility available in the village. The sources of irrigation are open wells and farm ponds. One lift irrigation point is also available but presently it is not functioning due to shortage of electric wire. The canal system of irrigation is under construction.

Fig. 14 : Farm pond being used for watermelon

5.3 Crops and Cropping Pattern

Figure 15: Crop diversification through maize

The principal crops grown in the village are paddy and maize during kharif season and black gram, green gram, potato and water melon during rabi season. During preceding year, Maize was cultivated in 25 acres of land under crop diversification programme. This cultivation was undertaken as a demonstration under Rashtriya Krishi Vikash Yojana (RKVY) scheme with close supervision of Agriculture department. Watermelon is the major cash crop grown during the Rabi season and it covers about 40 per cent of cultivable land. Potato and other vegetables are grown in Rabi season but these covers less than 5 per cent of cultivable area in the village. Crops like Ragi, Sugarcane have been replaced by the crops like watermelon,

Table 6: Changing crop pattern in sogar

Crop season	1970	2010	
	Paddy	**Kharif**	**Rabi**
	Mandya (Ragi)	Paddy	Potato,onion
	Sua (small millets)	Maize	Blackgram
	Black Gram	Runner bean	Greengram
	Green Gram	Pumpkin	Horsegram
	Sugarcane		Watermelon
	Potato		Oilseed, sunflower

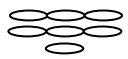
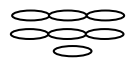
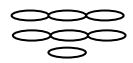
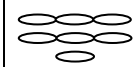
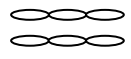
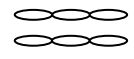
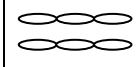
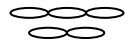
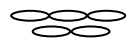
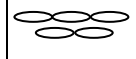
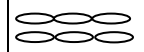
oilseed crops over the period of time. Some of the farmers used to practice mustard intercropping with groundnut. The farmer used to adopt transplanting method in low land and showing method in high land of paddy for crop cultivation.

5.4 Preference of paddy seed variety

Based on the seed characteristics like yield, irrigation-need, fertilizer-need, crop duration and taste of produce, the farmers in the Sogar village select the seed variety for cultivation. In Sogar, paddy is the main crop cultivated by the

farmers. The preferred seed varieties are: 'Swarna' (first preference) and '1025' (second preference), 'Lalita' (third preference) and 'Naveen' (fourth preference) for paddy cultivation, as shown in Table 7.

Table 7: Preference of seed variety by farmers of Sogar village

Paddy variety	More Yield	Less Irrigation	Less Fertilizer	Less Duration	Good Taste	Rank
Swarna						First
1025						Second
Lalita						Third
Naveen						Fourth

Note: Symbols are only indicators of change and do not depict the extent of that change in real terms with time.

5.5 Agriculture Dynamics and farmer economy in Sogar Village

Participatory method of farmer interacttion was used to record farmer perception on agricultural practices, tools and technology and dynamics over the period of time in the village. The Farmers positively responded on the agri-indicators like soil fertility, fertiliser use, crops grown, cropped area, ground water level, irrigation, migration, horticulture, livestock, diseases, forest and wild life, etc. in seventies, nineties and 2010 in the village. Possible cause for the changed dynamics was also recorded based on farmer experiences and recalled memories has been documented in the Table 8. The agri. component increased or decreased over the period shown in pictorial form over the period of time.

Table 8: Agricultural biodiversity and Crop ecological dynamics during 1970-2010 in Sogar village

Indicators	1970	1990	2010	Reasons
Soil Fertility				Chemical intervention
Number of crops				Lack of water, Demonstration effect
Fertilizer use				Decreasing soil fertility
Area of cultivation (Per capita)				Increasing population
Horticulture				More vegetables production
Irrigation				More investment in private boring, Government initiative
Migration				Lack of employment and education opportunities
Ground water level				Less rain
Livestock				Increased government initiative
Diseases				Intervention of chemicals in crops increased.
Forest				Lack of rain, Cutting of forests
Wild life				Decreasing forest and encroachment

Note: The symbols used in this table are only indicators of a change and do not depict the extent of change in real terms over time.

5.6 Livestock

The village has a sizable population of cattle and buffaloes. Cattle are the most preferred livestock option in Sogar**.** The average size of cattle is work out to be 1.17 per household against the average size of buffalo of 0.06 per household (Table 9).

Table 9: Average size of livestock holding, Sogar (no.)

Particulars	Landless	Small	Medium	Large	All
Cattle	0.66	1.08	1.79	2.32	1.17
Buffalo	0.01	0.00	0.19	0.14	0.06
Goat	0.17	0.14	0.03	0.46	0.18
Poultry	0.00	0.00	0.01	0.00	0.00
Other	0.00	0.00	0.00	0.32	0.05

The per household herd size of both cattle (2.32) and buffalo (0.14) are better with large farmers and declines with the declining size of farm showing directly proportional relationship with land holding and livestock rearing. The present value of livestock per household has been worked out to be Rs. 4404. The livestock value with large farmer is high of Rs. 11438 and declines with farm size (Table 10). There are four buffalo diaries; one private cow diary and two goatary units are functioning in Sogar village. Four poultry farms are operative with market linkage facility.

Table 10: Share of different livestock species in total livestock value, Sogar (%)

Particulars	Landless	Small	Medium	Large	All
Cattle	87.01	90.31	87.93	85.15	86.96
Buffalo	5.54	0.00	10.70	4.58	5.88
Goat	7.45	9.69	0.39	7.49	5.83
Poultry	0.00	0.00	0.98	0.00	0.27
Other	0.00	0.00	0.00	2.78	1.06
Total value (Rs.)	1894.29	3252.05	7013.70	11438.10	4403.86

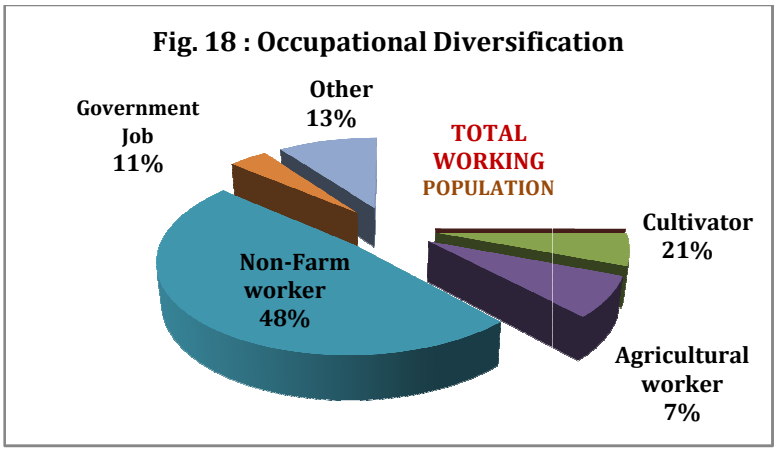
Women's role in a family is to take care of all the livestock owned by household in the village. Every day the livestock go out for grazing in the open and Go char field under responsibility of a watch man called *Gouda*. He is not paid in cash but in kind once in a year for his service by the livestock owners.

Fig. 16: Gauda in the way to Gochar field for grazing animals in Sogar

There is no livestock market in this village. The weekly livestock markets are held in Kamakhyanagar and Dhenkanal which are about 25 kms from Sogar where people usually go to sell and purchase livestock. There is a government veterinary center in the village with a trained staff to facilitate artificial insemination of domestic livestock. There is institutional arrangement for milk marking in the village in collaboration with Odisha milk federation (OMFED). This arrangement provides loans for livestock, marketing and storage of milk.

Fig. 17: Livestock aid centre with trained staff and available facilities in the village

5.7 Income diversification



Due to limited irrigation facility, agriculture is unable to serve the need of the farm households. Most of the population arranges their livelihood from different type of non-farm activities which is about 48% of total working population. 64.19 % of landless and 41.86 % of small farmers earn their livelihood by performing non-farm works as they have few lands to cultivate. The same is also true for large farmers as their lands having poor irrigation facility. In case of medium farmers, the livelihoods depend on agriculture and non-farm works which is 34.09%. Agriculture comes second while providing livelihoods which is about 27.85 %, out of which 20.96 % are cultivators and 6.89 % are agricultural workers. (table11)

Fig. 19: Bidi making: Alternate livelihood

Table 11: Occupational diversification in Sogar village

Particulars	Landless	Small	Medium	Large	All
% working population	33.37	38.69	36.03	33.74	35.7
Share in total working population					
Cultivator	7.74	22.48	34.09	36.43	20.96
Agricultural worker	9.68	3.88	9.85	0.71	6.89
Non-Farm worker	64.19	41.86	34.09	28.57	47.54
Government Job	5.16	17.05	12.88	18.57	11.39
Other	13.23	14.73	9.09	15.71	13.22

5.8 Farm Machinery and Implements

Sogar is one of the traditional villages having underdeveloped farm mechanisation. Almost 11 percent farmers are having electric motors and only 3.27 percent have sprinkler and drip irrigation facility. Four tractors are available in the village and very few bore well are also installed by the villagers (Table 12).It is found that farm mechanisation in the village is directly correlates with the income of the farmer. Well endowed medium and large farmers having better farm equipments like irrigation motors, sprinkler and bore well while the landless and small farmers are having limited access of these equipments.

Fig. 20: Tractor getting loaded with FYM

Fig. 21 Vehicle for agri-operations

Table 12: Percent of household having agricultural machinery in Sogar

Particulars	Landless	Small	Medium	Large	All
Tractor	0.00	0.00	1.37	3.17	0.70
Threshers	0.00	0.00	0.00	1.59	0.23
Irrigation motor	1.37	15.07	21.92	26.98	10.98
Sprinkler and drip irrigation	0.00	0.00	9.59	11.11	3.27
Bore well	0.00	0.00	2.74	0.00	0.47

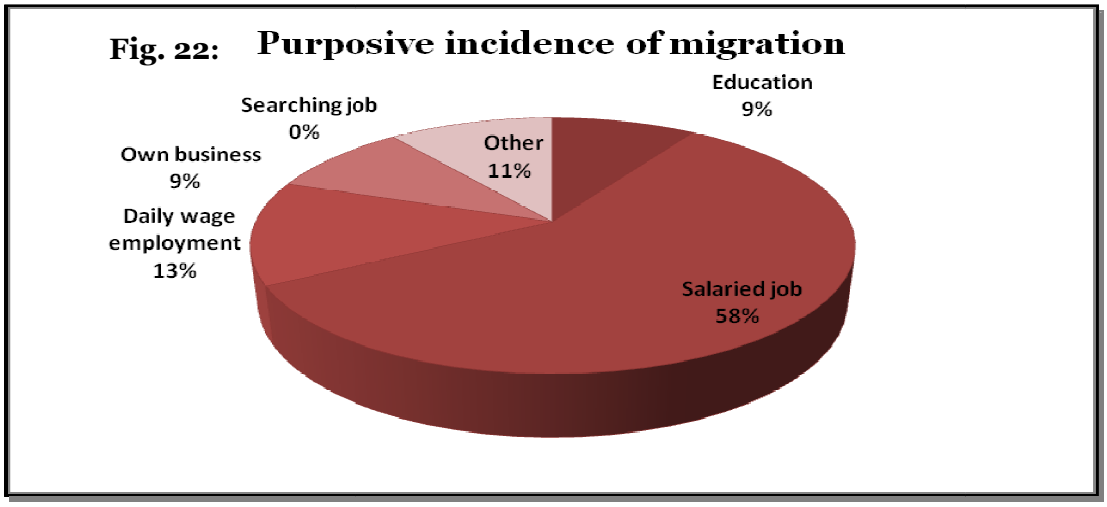
Table 13 depicts the overall average value of machinery per household, which is Rs. 18260, and among them the highest average amount of Rs. 47144 with large farmers followed by medium (Rs. 35510), small (Rs. 20347) and landless farmers (Rs3505).

Table 13: Share of machine in total value of machine, Sogar (%)

Particulars	Landless	Small	Medium	Large	All
Tractor	0.00	0.00	7.72	15.15	8.32
Threshers	0.00	0.00	0.00	0.34	0.13
Irrigation Motor	5.08	7.10	6.19	4.68	5.68
Sprinkler and drip irrigation	0.00	0.00	1.45	1.76	1.15
Bore well	0.00	0.00	0.42	0.00	0.14
Other	94.92	92.90	84.21	78.07	84.58
Total value (Rs.)	3505	20347	35510	47144	18260

5.9 Migration

About of 14.67 % of people are used to living outside the village. Among them 49.81 % are living outside for doing salaried job followed by 19.77 % for education. The reason of migration is to get better education and employment. Salaried jobs are highly preferred by the landless migrants. It constitutes 57.89 % followed by 52.17 % of medium farmers.



6. Health care and Sanitation

6.1 Drinking water

Hand pump and open well are the source of drinking water for the villagers. At present, 10 numbers of hand pumps are functioning to provide the drinking water and 5 numbers of government open wells are available as source of drinking water for the villagers. Besides this, 14 numbers of private open wells are complimenting the source of drinking water for the villagers.

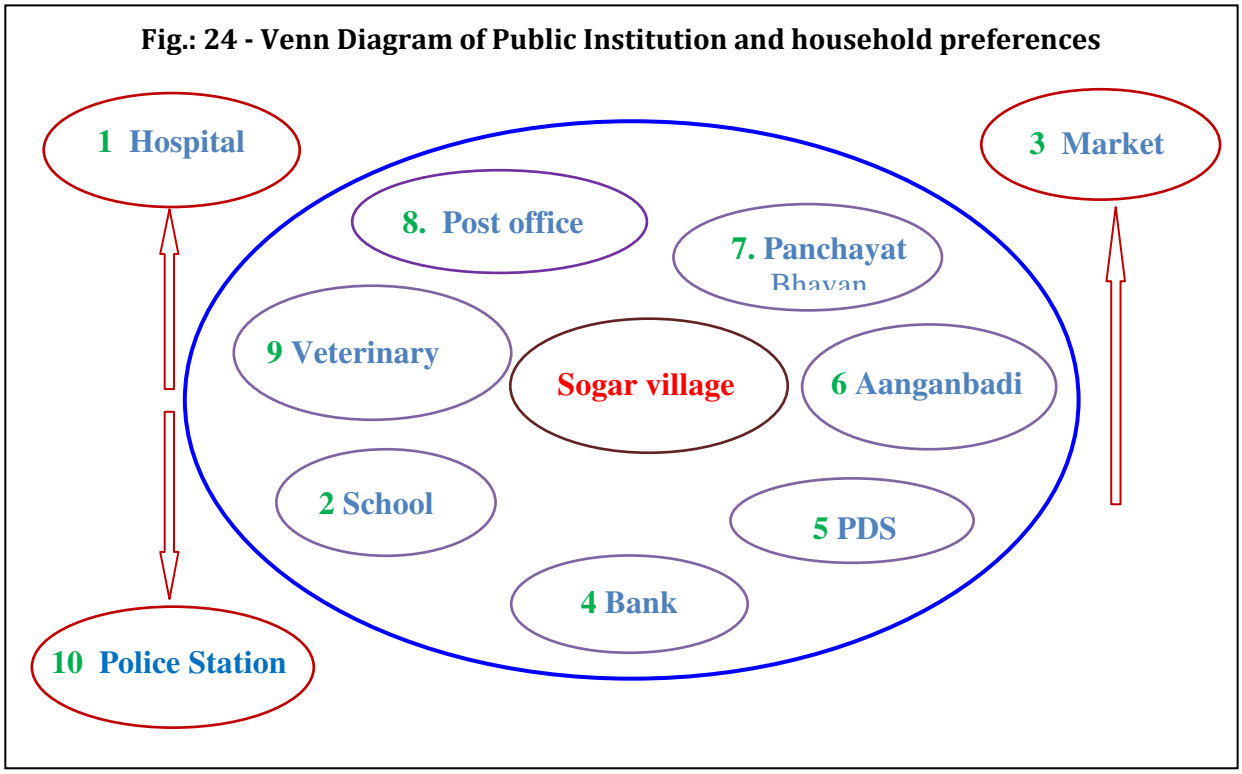
Fig. 23 : Queue for quenching thrust

6.2 Electricity

The village electrification is made under Rajiv Gandhi Grameen Vyudutikaran Yojana (RGVY) .Under this scheme even BPL families are eligible to get the electric connection, but still some of the households are yet to get the benefit. Since 1972, Sogar village has been electrified. At first instance, only seven households were having electricity connection. Presently, more than 60% of households have electricity connections. Two hamlets namely Harijan sahi and Lohara sahi are yet to be electrified. The rural water supply is electrified and has been operating from the date 10.1.2011. There is no subsided electricity supply to the farmers of Sogar village. Farmers are using diesel and kerosene to run their irrigation pumps.

7. Public Institution Structure

Fig.: 24 - Venn Diagram of Public Institution and household preferences



Notes: The number in the circle shows the preferential ranking of that institution by the villagers, and length of arrow depicts the relative distance from village.

7.1 Public Institution and Utility based Ranking

Medical facility is not available in Sogar village and villagers give it the first rank in their preference of services. The veterinary hospital is ranked ninth which operational in the village to cater to the animal health and services. However, the condition of this veterinary hospital is found to be wanting. It lacks many essential facilities and is struggling to cater to the needs of farmers.

The villagers rank school as second important institute in the village and give priority to the education. For higher education, the villagers send their kids to Bhubaneswar. The village has a branch of scheduled commercial bank (Bank of India). It is ranked fourth in the preference list and almost all the villagers have their accounts with this branch. The bank offers many types of services including short- and long-term loans to cater the fund needs in the village.

To provide postal services in the village and its neighboruring areas, a post office is operative since 1963, which ranked seventh according to its usability by the villagers. Besides this, Sogar village has a good network of modern information and communication systems. It has 4-5 mobile cell phone towers of almost all major cell-phone service providers. Sogar has, public distribution shops (PDS) in the Panchayat and villagers gave it fifth rank for its importance in their life. Government

targets its schemes like Antyodya and Annapurna to distribute food grains and other subsidized items to below poverty line (BPL) and above poverty line (APL) families.

The villagers give sixth rank to Aanganbadi, and seventh rank to Panchayat bhavan on the basis of importance of the institutes. The market is outside the village and villagers give it third rank as it is very important for their daily life. The police station plays least important role in villagers' life and villagers give it tenth rank as there are very less incidences of loot and robbery.

7.2 Anganbadi Kendra

The anganbadis are govt. sponsored child and mother-care centre as well as part of Intensive Child Development Scheme (ICDS) to combat child hunger and malnutrition. It aims at improving the nutritional and health status of children in the age group of 0-6 years, reducing incidence of child mortality and school drop-outs, and enhancing the capability of mothers to look after normal health, primary education and nutritional needs of her children for proper growth and development.

Fig. 25: Anganbadi centre and child activities in Sogar village

6.3 Panchayat

The local body institution not only facilitates their own routine activities but also facilitate to organize different farmers oriented awareness programs to discuss their problems at their doorstep. In this connection, training cum demonstration and farmers interactive session was organized for them. Gates foundation team visited the sites to interact them and one village office is also operational in the village.

Fig. 26: Field Activities in panchayat bhawan, Sogar

8. Transport, Market and Communication

8.1 Transport

The approach road to Sogar (Dhenkanal–Kamaskhya Nagar road) is 5 km away from the village. Cycle and motor cycle is the frequently used means of transport. There is no passenger bus or vehicles running from Sogar to Dhenkanal. The nearby railway station is at Dhenkanal, which is 25 kms away from Sogar. People face lots of difficulties to travel outside for studies, employment and to do business.

Fig. 27: Cycle and auto as transport means

8.2 Market

There is no agricultural market is functioning in the Sogar village. Eleven petty business stalls are in operation to fulfill the daily consumption need of the villagers. On 1982, there was a weekly vegetable market operating in the village but that market has been closed down due to poor market linkage. At present, villagers are dependent on Anlabereni weekly market (12 km away) to fulfill the domestic vegetable need of the villagers. Villagers are frequently transacting in the market in "Pandua" to fulfill the daily needs. There is no procurement centre in this village, so the mediators (petty business man) continue to be the only option to sell harvested paddy every year at a devaluated rate. For sell and purchase of agricultural products, fertilizers, farm implements the farmers have to go Dhenkanal by hiring vehicles.

Fig. 28: Grocery cum vegetable market

8.3 Communication

Villagers use television, newspapers as main source of information, entertainment and awareness. A cable operating system is operational in the village. Doordarshan and few regional Oriya channels are most tuned medium. Oriya news papers such as the Samaj, Dharitri is available for few households on demand. The farmer depends on Kamakshyanagar agriculture office and Dhenkanal agriculture office for agricultural technical information. Three private mobile towers are functioning to provide easy mobile service to the villagers. Even in the modern times post office is still widely used as the source of communication.

9. Problems and opportunities in Sogar

Creating employment by setting up agro processing units in the village will generate more income and ensure self-sufficiency in food production. There are number of other rural infrastructures, which need considerable improvement as irrigation, power supply, roads, and transport, storage and marketing facilities. The construction of wells, tube wells, and purchase of diesel or electric pumps will increase irrigation facilities which will influence the diversification of the cropping pattern. Micro-financing through formation of self-help groups should be given due importance as already more than fifty SHGs are working in the village.

To effectively design and implement development programmes within the village, it is important to identify and understand the problems that exist in the village and their implications. These are as follows.

- Lack of participation of women in decision making
- Discrimination among the people on the basis of caste
- Discrimination among boy and girl education as girls are not allowed to go out of the village for education
- No property ownership to female
- Lack of awareness about the hygiene practices
- Lack of healthcare personals
- Lack of transport facilities
- Lack of reliable markets for vegetables
- In adequate knowledge and skills in improved production
- Lack of improved early maturing improved seed varieties
- Low soil fertility
- Lack of irrigation facilities
- Lack of proper livestock management practices
- Lack of good transport facility as poor conveyance and poor roads
- Lack of storage facility
- Lack of primary health care facility especially for females
- Inadequate drinking water facility
- Inadequate food processing facility in the village.
- Lack of Toilets facility
- No market in the village
- Erratic electricity supply

10. Infrastructural facilities in Sogar

Particulars		Number
Primary School	:	One
Upper Middle School	:	One
High School	:	One
Vocational Training Centre	:	No
Primary Health Centre	:	No
Homeopathic dispensary	:	One
Hospital	:	No
Veterinary aid Centre	:	One
Auxiliary Nurse Mid-Wife	:	One
Ashas (medical helpers)	:	Two
Anganwadi Centres	:	Six
Private Chemist Shop	:	Two
Tractors	:	Three
Power tiller	:	One
Auto rickshaw	:	Six
Bus Service	:	No
Bank	:	One
Drinking Water Supply	:	Yes
Electric Supply	:	Yes
Radio Sets	:	Yes
TV Sets	:	Yes
Public Handpumps	:	Yes
Post Office	:	One
Telephone Land Line	:	Yes
Mobile Phone	:	Yes
Agricultural Input Shop	:	One
Agricultural Market	:	No
Credit Society (PACS)	:	No
Procurement Centre	:	No
Farmers Club	:	Yes
Library	:	Yes
PDS	:	One

Success Story

Dhenkanal watermelons cool off Bhutan

Water melon proved lucrative water saving crop options. Farmers have shifted to watermelon cultivation from the regular paddy in the wake of heavy demand for the fruit. More than 5,000 farmers have this year grown watermelons in over 1,140 acres of land near the banks of the river Brahmani and the Ramiala. Baidyanath Sahoo, who is heading the watermelon farmers' association, said in Sogar and nearby villages farmers are exporting watermelons to Bhutan in large quantities. Recently, traders from Bhutan purchased 500 tonnes of watermelon from these villages. They use the fruit for multiple purposes and skin of the fruit is used for medicinal purposes unlike in India where it is thrown away. The buyers from Bhutan deposited money in the accounts of farmers two weeks before their arrival and transported the watermelons from Dhenkanal after realisation of the amount. Besides Bhutan, farmers are exporting watermelons to West Bengal, Assam and Siliguri. Baidyanath said it costs Rs 350 to grow a quintal of watermelons and the price varies as per the variety. They start cultivating the fruit in October and the crop season ends in April. However, farmers lamented that though the demand for the fruit has been rising, banks are reluctant to extend any help and Rashtriya Krishi Bima Yojana does not cover fruits.

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Authors