



SOCIO-ECONOMIC AND RESOURCE PROFILE ANALYSIS OF BILAIKANI STUDY VILLAGE

(An Outcome of VDSA Project)

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**Mukesh Kumar Sinha
Prabhakar Nanda
Ashwani Kumar
Surya Narayan Biswal**



Directorate of Water Management
(Indian Council of Agricultural Research)
Bhubaneswar-751 023, Odisha

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Bilaikani Village: An Overview

The village Bilaikani is a small village located in 20° 37' N and 83° 35' E in Puintala block of Balangir district of Odisha. The village is located 18 km away from Balangir town and 4 km away from Mahimunda *gram panchayat*. It is surrounded by villages Mahimunda and Jamjharam in the west, Duhel and Falsapadar in the east, southern part is bounded by Hirlimal Mountain and Telpalli on the northern side.

Majority of people in the village derive their livelihoods from agriculture and allied activities. The village is dominated with *Chasi* (cultivator) families. Paddy is the principal crop in the *Kharif*, black gram and green gram mostly cultivated in the *Rabi* season. Due to the successful introduction of watershed project, the runoff rainwater congestion in low land have been alleviated. Rainwater conservation in ridges has been taken up in watershed development project. The process of farm mechanization is taken up slowly, as few cultivators initiated the use of tractors, harvesters, and threshers in cultivation.

The efforts of women to become self-sufficient is commendable as they formed several SHGs to undertake the work of village social institutions and collect the non-timber forest products (NTFPs) such as *Mahua* flower and *Kendu* leave from the village common field and supplement their household income. The status of women is also reflected from the village sex ratio, which is much better than the district and state level.

The social bondage in the village is strong and there is religious tolerance, which is reflected from the general participation of people during religious events. Both *X-Mas* and *Ram Navami* have been observed with devotion and spirit. Majority of people belong to Hindu community. Multi caste system prevails in the village. *Chasi* (cultivators) are the common culture. *Agria*, *Kulta*, *Dumal*, *Gonda* are the highly populated caste and affluent in the village. The *Agria* and the *kulta* are generally large and medium farmers where the *Dumal* and *Gonda* belongs to small and labour class. However presence of caste occupation visible during traditional rituals in the temple works and cremation formalities.

The access of market and communication network is moderate, however, the basic amenities of health, sanitation, drinking water are still far from the satisfaction. It is observed that development schemes are not very effective in addressing the problems of poverty, health and employments. More targeted efforts are needed to realize the potential of development scheme in the village.

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 Bilaikani of Balangir 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.

2. The District Balangir

2.1. History

Balaram Deo, the 12th king of Patna, established Balangir. The town of Balangir was used as the headquarters of the feudal state.. It is said that the town being founded by Balaram Deo was named after him as Balaramgarh, from which the present name Balangir has been derived. There is, however, no recorded evidence is available to support this theory.

The district of Balangir is flanked in the north-west by the Gandhamardan hill, and in the north-east traverses of it. It is the land of *Tantrik* culture. It is also notable for having experimented in the republican Ramai Deo. Ramai founded the kingdom of Patna in the 14th century, which within a short span of his military career becomes the head of the cluster of eighteen Garhs. The Chauhan rule ended with the merger of the state of Patna and Sonapur with Odisha on 1st January, 1948. The district was formed on 1st of November, 1949. Sonapur was carved out as a separate district on 1st of April, 1993. Sonapur was previously a sub-division of Balangir district.

2.2. Location

The district of Balangir is flanked in the north-west by the Gandhamardhan Hills, a name of Ramayana fame, while the north-east by the rock infested Mahanadi. The district is bounded by Sonapur in the east, Nuapara in the west, Kalahandi in the south and Bargarh in the north. The district of Balangir is named after the headquarter town of Balangir which lies between 20^o11'40"-21^o05'08" North Latitude and 82^o41'15"-83^o40'22" East Longitude. The district is situated in the valley of rivers like Ang & Tel. The important tributaries of Tel are Lanth, Sonegarh & Suktel. It is the nature's cradle for tribes like *Kutia*, *Khonds*, *Binjhals* and *Gands*. The district is famous through centuries for the *Bhulias* and *Kastias*, master craftsman who work excellent motifs on cotton and Tassar fabrics.

2.3. Demographics Features

According to Census of India 2011, the population of Balangir district is 1,648,574 comprising 831,349 of male population and 817,225 of female population with a sex ratio of 983. The provisional data of census suggests a

density of 251 in 2011 compared to 203 of 2001. Total area under Balangir district is about 6,575 sq. km.

2.4. Special Characteristics

The district has a number of places of tourist interest. The famous Hari Shankar temple attracts tourists round the year. Traditional hand-woven textiles and naive tribal life also allure ethnic tourists. A drive to any place of tourist interest in the district always calls for passing through a forest cover. All these together make the visit to Balangir a rewarding experience.

Agriculture is the main source of livelihood as it engages two-third of the district population. Paddy is the main crop cultivated in the district. Most of the areas are under single cropping. Many people migrate to cities like Hyderabad and Raipur for work. Around 50 per cent of the women involve in agro-based activity. Substantial percentage of rural women supplements the household income through Non-Timbers Forest Produce (NTFP) like *Kendu* leaf, *Mahua*, Broom and collection of various forest products. Since last few years, a number of Self Help Group (SHG) are activated by Govt. to supplement the livelihoods of rural women. Nearly 61.06 per cent of the rural families in the district are estimated to be living Below Poverty Line (BPL). It is observed that Balangir district ranks very low in terms of Human Development Index at 0.546; it occupied a position of 21 among 30 districts of Odisha. Its performance is relatively better in terms of Gender Development Index at 0.518 (Rank 16) and Infrastructure Development Index at 100.24 (Rank 15).

2.5. Climate and Rainfall

The climate of this district is generally hot and moist sub-humid and one of the most drought prone areas not only in the state but also in the country. Balangir receives an average annual rainfall of 118.8 cm which is around 30 per cent less than the average annual rainfall of the state. During the summer (April to June) the temperature remains at 45°C to 48°C. The Titilagarh subdivision is infamous for high temperature in Asia. The farming activities therefore suffer in a harsh climatic condition such as less rainfall and high temperature. Irrigation facilities of the district are inadequate in the absence of any major project.

2.6. Language

The main communicative language of Balangir district is *Kosli* or *Sambalpuri*. Hindi is also considered as language for communication. The languages English and Oriya are also used but mostly for official purpose. Being a part of Odisha, Oriya is used as medium of education in school. English is also used for higher education.

2.7. Biodiversity

The district is traversed by many hill streams and is interspersed with the evergreen woodlands, the shelter of Bison and Sambar. The main forest area stretches along the western boundary bordering the Nuapada and Kalahandi districts then turns to the east running parallel to the Gandhamardan range. This forest track is broken by occasional clearings and small settlements, but it mostly consists of thick vegetation in which bamboo of excellent quality grows. Sal, Sahaj, Piasal, Dhaura and Ebony form the principal timber. The crest of the range of Gandhamardan hills is fine plateau, some ten miles long, with an average height of 3000 feet. Most part of this district lies on the north-west bank of the river Tel, which forms the boundary between this district and the district of Kalahandi, Sonepur, Boudh and Kandhamal.



Fig. 1: Paddy straw used as protective materials from sun heat

3. The Village Bilaikani

3.1. History

The village Bilaikani was established prior to the emergence of Balangir as a district. The name Bilaikani literally means to 'Bilai' and 'Kani' which means the cat and ear respectively. Thus, the people of the village though don't know the exact reason for such name but speculates that the name is derived from the huge ear of a cat which used to live in the village.

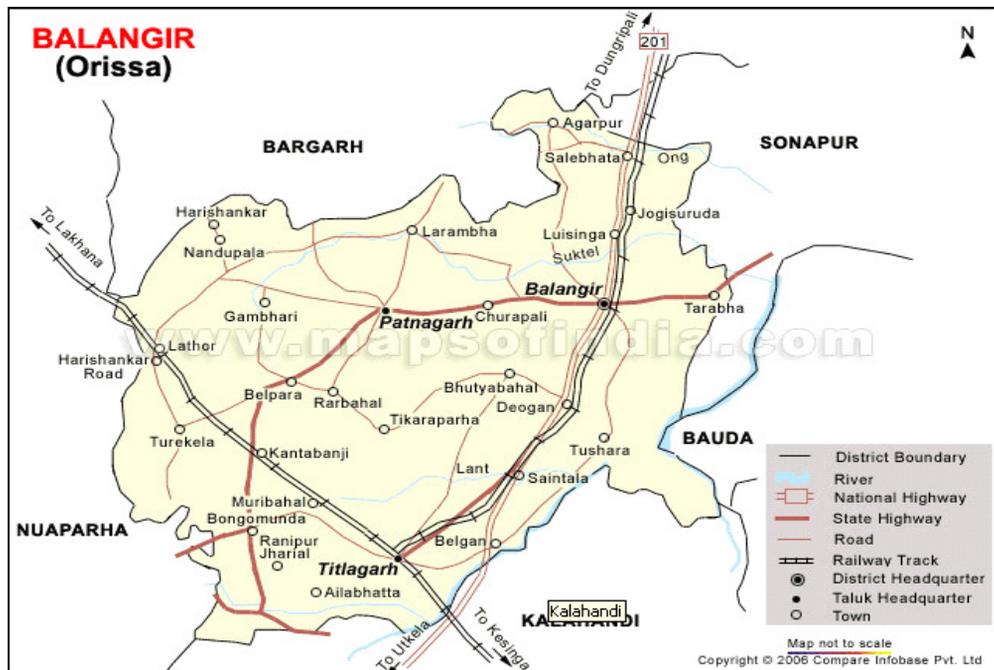


Fig. 2: Map showing blocks of Balangir district

3.2. Location

The village Bilaikani $20^{\circ} 37' N$ and $83^{\circ} 35' E$, falls in the Puintala block of Balangir district in Odisha. The village is about 18 km away from Balangir town and 4 km from *gram panchyat* Mahimunda. It is surrounded by village Mahimunda and Jamjharam in west, Duhel and Falsapadar in the east; southern part is bounded by Hirlimal Mountain and Telpalli in the northern side.

3.3. Road Connectivity

Though, the village is covered under *Pradhan Mantri Gram Sadak Yojna* the condition of the roads connecting the village and within the village is pathetic as there is still lack of proper infrastructure which leads to vulnerable conditions of the roads.

3.4. Significant Events in History of Bilaikani

Village development process was initiated in the village Bilaikani long back. Some of the achievements has been documented and year-wise important milestone are presented in Table 1.

Table 1 : Important Milestones of Development in Village

| Year | Events |
|----------------|--|
| 1800 | Establishment of the village |
| 1936 | First time <i>Ramlila</i> started in the village |
| 1941 | Small pox outbreak |
| 1952 | First primary school established |
| 1953 | Weekly market started |
| 1964 | First dug well |
| 1965 | Establishment of community centre |
| 1972 | First electrification in the village |
| 1980 | First tube well |
| 1985 | Middle school was set up |
| 1993 | First <i>Aanganwadi</i> |
| 1994-96 | Severe drought |
| 1995 | First television set comes to the village |
| 2002 | First telephone connected to the village |
| 2003 | Sapneshwar Watershed Project started |
| 2003 | District Watershed Project initiated |
| 2006 | NREGS came into existence |
| 2008 | First work of NREGS started |
| 2008 | PCC road constructed |
| 2010 | Weekly market closed in the village |
| 2011 | VDSA office came into existence |

The perusal of Table1 reveals that the village is established long back, in fact prior to the period when the town of Balangir used to be the headquarters of the feudal state of Patna. Developmental activities in true sense started in the village in the year 1952 when the first primary school was opened in the village. In 1972, the village received electricity. The village was globally connected with the introduction of first television and first telephone connection in the year 1995 and 2002, respectively. Many government programmes like MNREGS, PDS, and PMGSY have been also introduced from time to time in the village whereas government institutions like community centre, *Aanganwadi* were also established in the year 1965 and 1993, respectively. As the district is infamous for its high temperature, many watershed projects are introduced in different villages of Balangir. In Bilaikani, in the year 2003, two watershed projects, Sapneshwar Watershed Project and District Watershed Project, were started which brought development impact in the villages.



Fig. 3: Tribal Household and the member of family

3.5. Demographic Structure

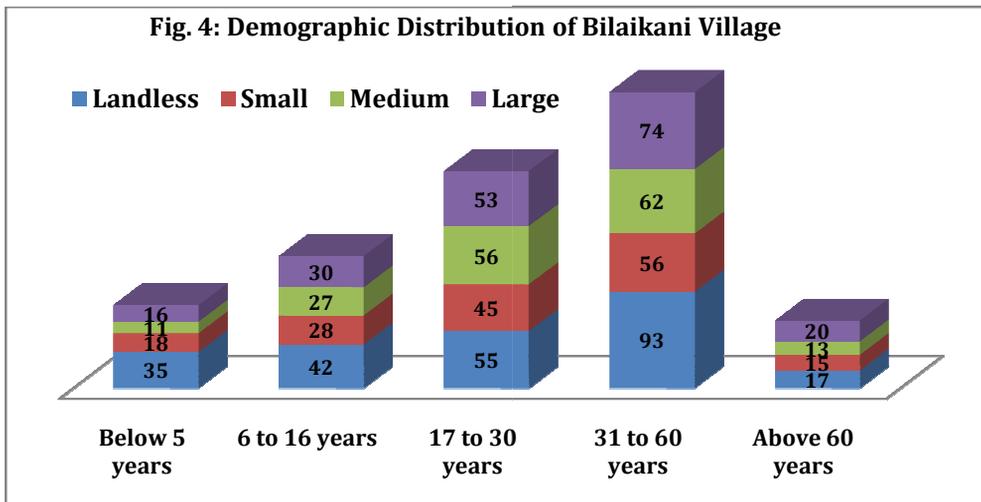
The total population of Bilaikani is only 766, represented by 171 households of different farm size class. There are 62 households, which fall under labour category and 41 are the large farm category. Household head seems to be younger in the age of 31 years, which shows young minds having major role in farm decision making. In general, the households are male-dominated (94%).

The educational background of the village is very poor. The average years of education of the village is 4.97 and ranges between 4.18 for labour category to 6.20 for large farmers. The average age of education is gradually increasing when we move across the strata, from labour to large farmers. Thus, it seems that a positive correlation exists between land ownership and years of education. It also reflects resourced famers are able to get education for longer periods. The average family size of the village is 4.51; labour farmers are having lower size (3.90) families than large farmers (4.85). In Bilaikani, poor economic status due to non-ownership of land, acts as a hinder to pursue higher education and maintain good health standards (Table 2).

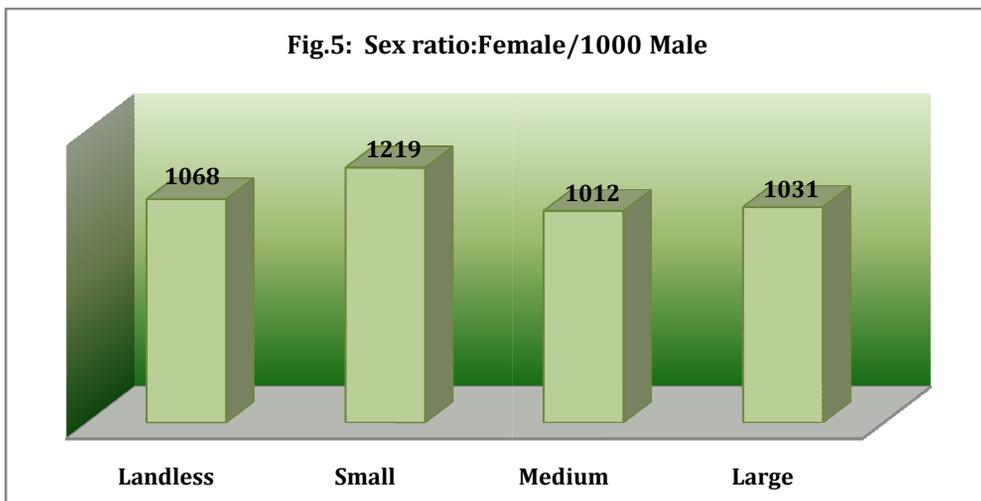
Table 2: General characteristics of households in Bilaikani village

| Particulars | Households | | | | |
|----------------------------|------------|-------|--------|-------|-------|
| | Labour | Small | Medium | Large | All |
| Total population | 242 | 162 | 169 | 193 | 766 |
| Male | 117 | 73 | 84 | 94 | 368 |
| Female | 125 | 89 | 85 | 99 | 398 |
| Number of households | 62 | 32 | 36 | 41 | 171 |
| Age (years) | 29.38 | 30.48 | 32.14 | 33.38 | 31.23 |
| Education (years) | 4.18 | 4.46 | 5.15 | 6.20 | 4.97 |
| Family size (nos) | 3.90 | 5.06 | 4.69 | 4.85 | 4.51 |
| Male-headed households (%) | 91.94 | 96.88 | 94.44 | 95.12 | 94.15 |
| Sex ratio (per 1000 male) | 1068 | 1219 | 1012 | 1031 | 1075 |

As per the demographic distribution of village Bilaikani, 494 persons are in earning age group (17-60 years), out of which 245 are male and 249 are female. It constitutes 64.4 per cent of total population of village. Within the age bracket 17 to 60 years, 148 are from labour class and 101 belong to small farmer category, who have little or no land for cultivation. These two groups share 32.5 per cent of total population. It can be interpreted that non-ownership of land is restricting their livelihood options which compel them to remain idle. This is one of the causes of wide spread poverty in the village.



The total population of Bilaikani is 766, out of which 368 are male and 398 are female. The sex ratio of village is 1081 females against of 1000 male. The sex ratio is better in the village in comparison to the district. The district level sex ratio of Bolangir is 984 females against of 1000 males. The sex ratio among small farmer household is the highest (1219), followed by labour households (1068). Across the categories female members dominate over male. This must be considered as a major positive shift from other villages of Kalahandi, Balangir and Koraput (KBK) region.



3.6. Status of Education

Status of education in village is satisfactory with an overall 73 per cent literacy rate. Male population has better literacy rate (85.63%) than literacy of female population (62.50%). Across farm holdings, male population under large farmers, are highly literate, with 92 per cent. As the size of holding goes down, the level of education also comes down considerably (Table 3). As regards the literacy among females not vary much among the labour class and large households.

Table 3: Literacy rates across different categories of households in Bilaikani village

| Particulars | Households | | | | |
|-------------|------------|-------|--------|-------|-------|
| | Labour | Small | Medium | Large | All |
| All | 67.63 | 71.53 | 74.68 | 81.92 | 73.76 |
| Males | 79.21 | 80.00 | 91.25 | 92.05 | 85.63 |
| Females | 56.60 | 64.56 | 57.69 | 71.91 | 62.50 |

Where educational infrastructure is concerned, the village has one Primary school and one Upper Middle School. The first primary school was established in 1952, whereas the stone for the first upper middle school was laid in 1985. Other than these, there is no other educational institution to provide higher education or vocational training to the students.



Fig. 6: Upper Middle School of the village

3.7. Social Structure

The social structure of Bilaikani is male dominated, as observed in most parts of the country. Majority decisions are taken by the males. The female group of the village are active when it comes to earning a share in the livelihood of the household or forming Self Help Groups. The females are aware of sanitation related matters and believe in educating their children.

3.8. Community and Caste Structure

With respect to the community structure, majority of the households in Bilaikani village belongs to Hindus, who constitutes 74.40 per cent of the total population and rest 25.60 per cent are Christians. Among Christians, 46.88 per cent are small households followed by labour households (33.33 %). Most of the large farmer categories are under Hindu religion (Table 4).

Table 4: Distribution of households by community in Bilaikani village

| Particulars | Households | | | | |
|-------------|------------|-------|--------|-------|-------|
| | Labour | Small | Medium | Large | All |
| Hindu | 66.67 | 53.13 | 83.33 | 95.00 | 74.40 |
| Christian | 33.33 | 46.88 | 16.67 | 5.00 | 25.60 |

The social distribution of Bilaikani reflects that the Other Backward Castes (OBCs) are the most dominating group as 71.01 per cent of households belong to this category followed by 26.63 per cent of the population by Scheduled Castes (SCs). In the village, 87.50 per cent of the large farmer households are OBCs and 36.07 per cent of labour households are SCs, the Forward Castes (FCs) are very less, i.e., 0.59 per cent (Table 5). As per the social segmentation most of the villagers are *Chasis* (cultivators). Besides, few family are of Brahmin, *Lohar*, *Dhobis* also found in the village.

Table 5: Distribution of households by social group in Bilaikani village

| Social Group | Households | | | | |
|-----------------------|------------|-------|--------|-------|-------|
| | Labour | Small | Medium | Large | All |
| Scheduled Castes | 36.07 | 25.00 | 33.33 | 7.50 | 26.63 |
| Scheduled Tribes | 0.00 | 0.00 | 2.78 | 5.00 | 1.78 |
| Forward Castes | 1.64 | 0.00 | 0.00 | 0.00 | 0.59 |
| Other Backward Castes | 62.30 | 75.00 | 63.89 | 87.50 | 71.01 |

Among the 'Chasi' castes with the surname of *Agria, Kultra, Dumal, Gonda* are the highly populated and affluent in the village. The *Agria* and the *Kultra* are generally large and medium farmers where the *Dumal* and *Gonda* belongs to small and labour class. The people of other castes are very limited in the village. In the recent past, transformation of religion is an issue for the village. A large section of Hindus who originally belonged to *Gonda* group accepted Christianity as their religion. Despite the presence of caste system in the village, the social segmentations is not prominent. The caste occupations and rituals are visible during religious function and cremation time.

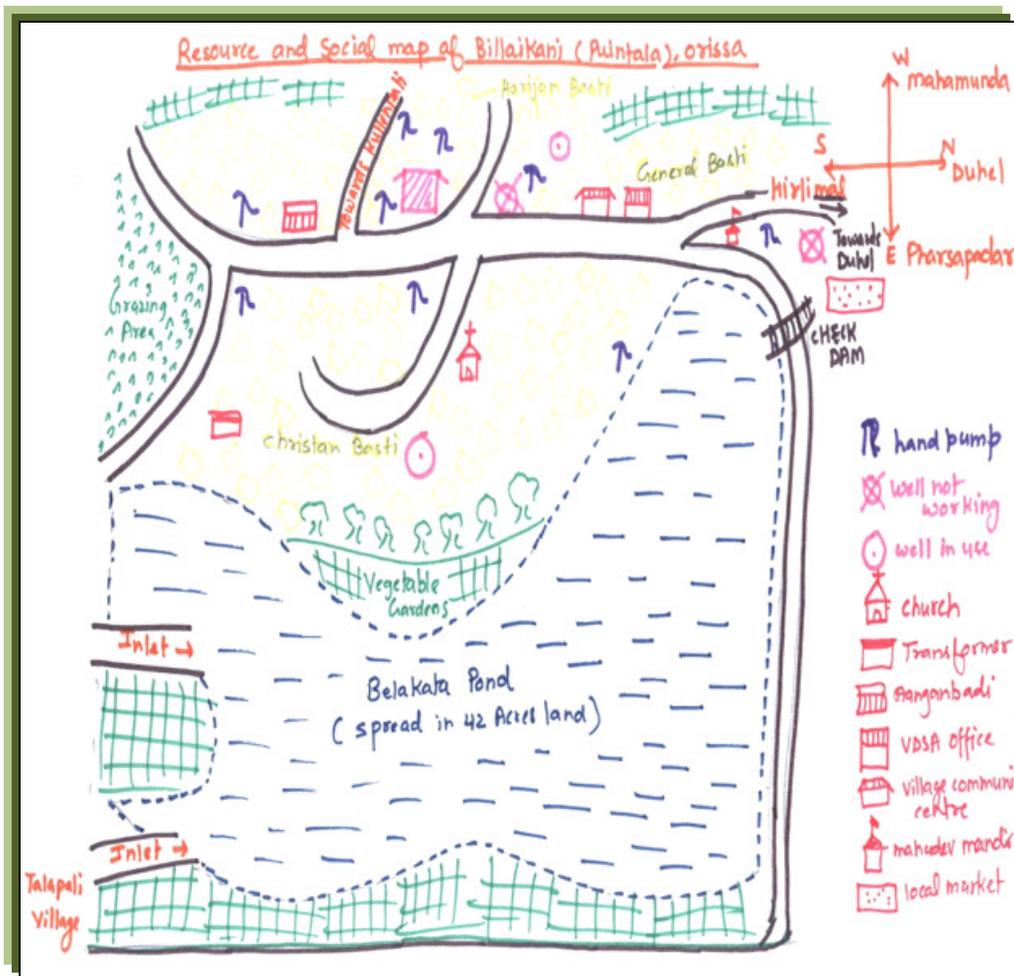


Fig. 7: Social & Resource Map of Bilaikani village

3.9. Culture

The culture of Bilaikani is one of the distinctive features of the village. Both Hindus and Christians reside in the village with mutual co-operation and co-ordination. For Christians, a make shift church is built in middle of the village. Festivals like *Good Friday* and *X-Mas* are celebrated by Christian community in full devotion and spirit. During these festivals community feast is organized and after completion of rituals, prayers are offered in the Church. All the Christian families mutually contribute as per their capacity to organize the feasts. The Hindus in the village celebrates *Nuakhai* and, *Ramnavami* in full fervour. During *Nuakhai*, as the name suggests, the farmers of the village offer the newly harvested crop, especially paddy to God and Goddess before they use it for the first time in the season. During *Ramnavami*, the village community hall becomes the centre of attraction. The villagers irrespective of caste, age, and gender participate in *bhaja* and, *kirtan* with traditional musical instruments. The program continues for a prolonged 9 days. Apart from these festivals, the fest of *Rath Yatra* is also celebrated by the residents of Bilaikani. However, the villagers do not organize the *Rath Yatra* in their village; but they go to Mahimunda with their new born to offer prayers to the trios. They have a belief that the new born baby below one year must touch *the Rath* (holy chariot) to get the divine blessing of Lord Jagannath.



Fig. 8: Villagers celebrate Good Friday at the village church.

One can also witness the cultural richness of the people of Bilaikani on every Sunday when the villagers either Hindu or Christian gather at the village community hall for performing *kirtan* (worshipping with music). After that, the elderly people review all the happenings of the village during the week. In the process a stipulated fine is charged to those who are found guilty of any wrong doing. The collected funds then are spent on the welfare activities of the village.

3.10. Migration

Like other KBK village, Bilaikani is also affected by incidence of migration. Almost 10.88 per cent people live outside the village for different reasons. The daily wage employment is one of the worst causes for forcing villagers to go out, which constitutes about 55.95 per cent of total population, followed by education and other miscellaneous reasons. The percentage of people leaving the village is more amongst small farmers (18.52%) followed by labour class (11.98%). These figures are 3 to 4 times higher compared to large farmers. The migration among medium farmers for daily wage employment is higher (70.59%) compared to labour households (58.62%) and small farmers (50%). In spite of large size of land holding (37.50%), large farmers migrate to other areas and prefer to do daily wage work. The migration for education purpose is very less, i.e., 10.71 per cent; but 10.34 per cent labour class and 13.33 per cent of small farmer migrate for education, which indicates peoples' eagerness to get education. (Table 6)

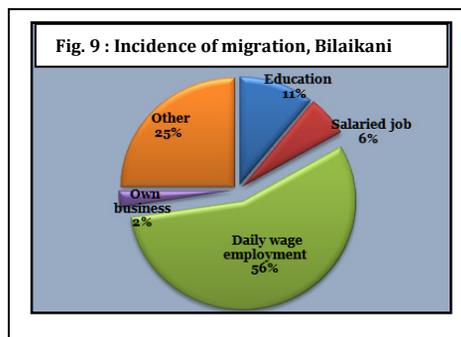


Table 6: Incidence of migration in Bilaikani village

| Particulars | Households (%) | | | | |
|---------------------------------------|----------------|-------|--------|-------|-------|
| | Landless | Small | Medium | Large | All |
| Out-migration | 11.98 | 18.52 | 10.06 | 4.02 | 10.88 |
| Purpose of living outside the village | | | | | |
| Education | 10.34 | 13.33 | 5.88 | 12.50 | 10.71 |
| Salaried job | 0.00 | 0.00 | 5.88 | 50.00 | 5.95 |
| Daily wage employment | 58.62 | 50.00 | 70.59 | 37.50 | 55.95 |
| Own business | 3.45 | 3.33 | 0.00 | 0.00 | 2.38 |
| Searching job | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Others | 27.59 | 33.33 | 17.65 | 0.00 | 25.00 |

4. Agriculture

Agriculture is the sole farm activity for earning livelihood in the village. Small farmers and labour class follow single cropping pattern due to their inferior quality of land and erratic rain fall while larger farmers depend on non-farm activities due to non-availability of assured source of irrigation facility.

4.1. Landholding and Land-use Pattern

Most of the agricultural lands are owned by medium and large farmers. The average size of land holding is 3.16 acre which ranges from 0.15 acre by labour class to 9.74 acre by large farmers. About 27.74 per cent agricultural land has the irrigation facility in the village. The percentage of fallow land is about 4.42 per cent. The operated land area gradually increases, when we move across labourers to large farmers (0.37 acre in case of land less and 9.33 in case of large farmers). The large and medium farmers have maximum irrigated area (27-28%) followed by small (21.24%) and labour (13.27%) category of farmers. Table 6 reflects that there is a wide-spread disparity in distribution of land in the village.

The average operational land (3.14 acre) in the village is slightly less than the size of holding (3.16 acre). Total irrigated area is 27.74 per cent and permanent fallow is 4.42 acre in the village. Across the categories of farmers, irrigated area varies from 13.27 per cent with labours to 21.41 per cent for small farmers and 28.87 per cent for large farmers.. Permanent fallow is also highest among large farmer 5.01 acres and 2.52 per cent lowest in small farmers.

Table 7: Landholding pattern across households in Bilaikani village

| Particulars | Households | | | | |
|-----------------------------|------------|-------|--------|-------|-------|
| | Landless | Small | Medium | Large | All |
| Size of land holding (acre) | 0.15 | 1.24 | 2.58 | 9.74 | 3.16 |
| Operated land (acre) | 0.37 | 1.40 | 2.42 | 9.33 | 3.14 |
| Irrigated area (%) | 13.27 | 21.41 | 27.07 | 28.87 | 27.74 |
| Permanent fallows (%) | 0.00 | 2.52 | 3.13 | 5.01 | 4.42 |

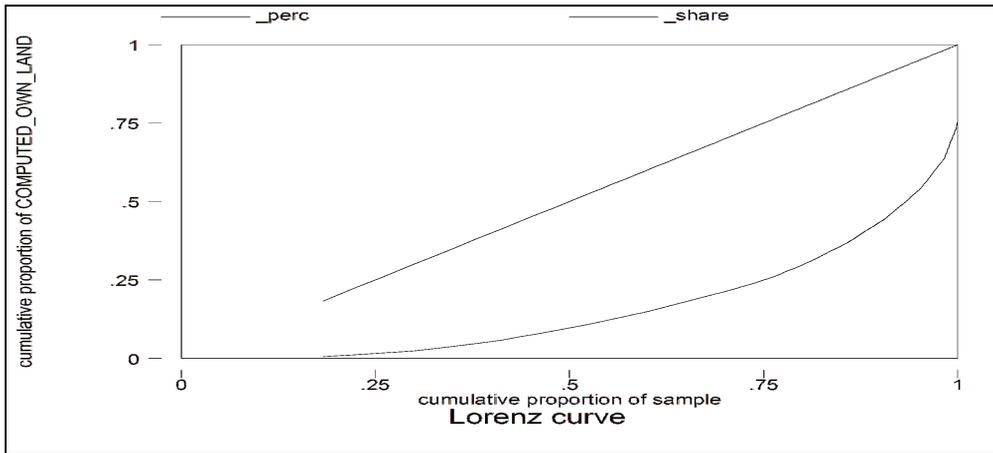
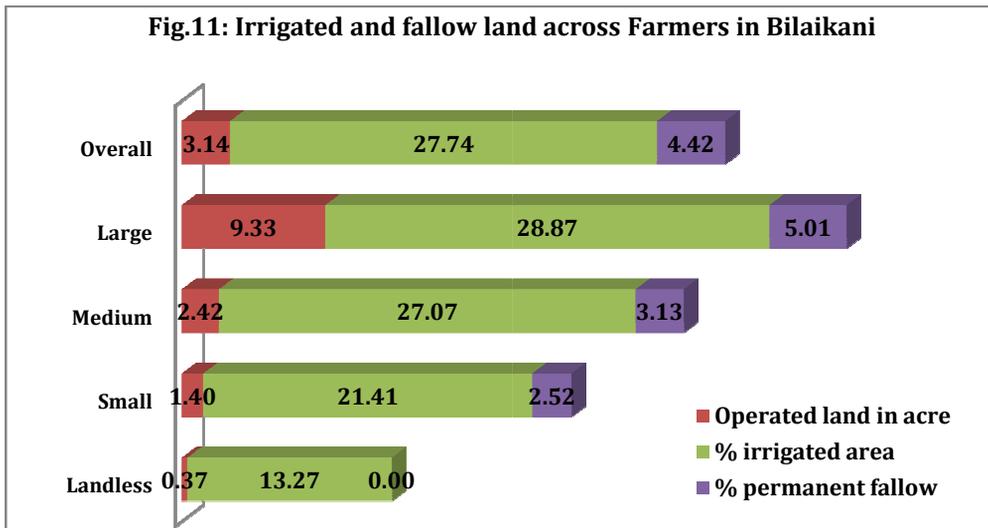


Fig. 10: Lorenz curve of own land distribution in Bilaikani village



Though the average size of land holding is more for the medium and large farmers, these farmers are not fully involved in agricultural activities. Mostly the large and medium farmers leased-out their land to landless and small farmers to cultivate, while 58.72 per cent of operated lands of the landless category are leased-in. Though, the labour class farmers work day and night in the field they cannot own the total harvested crop as they have to share a sizeable amount with the landlord as land tenure. This further curtails the income of labour class, which trap them in the vicious cycle of poverty.

Table 8: Incidence of tenancy in Bilaikani village

| Particulars | Households | | | | |
|-----------------------------------|------------|-------|--------|-------|------|
| | Labour | Small | Medium | Large | All |
| Percentage household leasing land | | | | | |
| Leased-in | 6.45 | 9.38 | 0.00 | 0.00 | 4.09 |
| Leased-out | 0.00 | 0.00 | 5.56 | 7.32 | 2.92 |
| Share in operated land | | | | | |
| Leased-in | 58.72 | 11.19 | 0.00 | 0.00 | 3.43 |
| Leased-out | 0.00 | 0.00 | 6.31 | 4.45 | 4.19 |

4.2. Soil and Irrigation



Fig. 12: Sapneshwar pond, the lifeline.

In terms of soil fertility, generally 3 types of soil are found in the village: sandy loam soil, rocky soil and black cotton soil. Out of these, black cotton soil is mainly used for agriculture and vegetation purpose, and largely found in the low lands. Prior to 2001, irrigation and the availability in the village of water

were in a deplorable state. With the introduction of the watershed project in the village in 2002-03, the scenario is changing gradually. With the help of the villagers and other stake holders the *Swapneswar* Watershed Association is formed in the village and entrusted the responsibility of watershed development. Through development of watershed, the ground water level increased in open dug well. The *Swapneswar* pond in the village was used for recharging groundwater. The pond facilitates irrigation to 344 hectares of land area. The village had a problem of heavy water logging in the lowland areas which restricted the cultivation of paddy in *Kharif* in those areas. Under this mission, major intervention were made to control the problem and now paddy could be successful cultivated in those areas. The whole project is carried on under the supervision of District Water Mission of Bolangir through Additional Central Assistance (ACA) in revised long term action plan.



Fig. 13: Vegetable cultivation through earthen well system.

4.3. Crops and Cropping Pattern

There are two Cropping seasons, *Kharif* and *Rabi* in the village . Although paddy is the principal crop cultivated during *Kharif* season, some other vegetables like ridge gourd, tomato and ladies finger are also cultivated during kharif season. In fact the production of ridge gourd is so much in the village that the villagers confidently mention that in the season one can find the ridge gourds of Bilaikani in every market of Bolangir district. During *Rabi* season black gram and green gram, *Harada* (*Arhar*) are the main crops that the farmers of

Bilaikani like to cultivate. Besides these crops, some farmers take up leafy vegetables in the backyard of the house during *Rabi* season. After the implementation of watershed project, farmers started to cultivate leafy vegetables even after the *Rabi* season, which ensures a good source of income to the farmers. The changing cropping pattern in the Bilaikani village has been shown in Table 9.

Table 9: Changing cropping pattern in Bilaikani village

| Crop season | 1970 | 2010 | |
|-------------|----------------------------|---------------|----------------------|
| | Minor millets | <i>Kharif</i> | <i>Rabi</i> |
| | <i>Sua</i> (small millets) | Paddy | Black gram |
| | | Ridge gourd | Green gram |
| | | Tomato | <i>Harda (Arhar)</i> |
| | | Ladies finger | Leafy vegetables |



Fig. 14: Cropping of green leafy vegetables

4.4. Preferences for Crop Varieties

Based on the seed characteristics like yield, irrigation-need, fertilizer-need, crop duration and taste of produce, the farmers in the Bilaikani village select

the variety for cultivation. In Bilaikani, paddy has become main crop in kharif season from 1990 onwards. The preferred seed varieties of paddy are: 'Swarna' (first preference) and 'Pooja' (second preference), and '1009' (third preference) for paddy cultivation, as shown in Table 10.

Table 10: Preference of Bilaikani farmers for different seed varieties

| Paddy variety | More Yield | Less Irrigation | Less Fertilizer | Less Duration | Good Taste | Rank |
|---------------|------------|-----------------|-----------------|---------------|------------|--------|
| Pooja | | | | | | Second |
| 1009 | | | | | | Third |
| Swarna | | | | | | First |

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

4.5. Livestock

Small village Bilaikani has a sizable livestock population. There are 241 cattle, 198 goats and 303 poultry available in the village. Other livestock such as buffalo (20) and sheep (11) are less in number. Large farmers keep more poultry and cattle in comparison to other size class holdings (Table 11).

Table 11: Total population of livestock in Bilaikani village

| Livestock | Households | | | | |
|-----------|------------|-------|--------|-------|-----|
| | Labour | Small | Medium | Large | All |
| Cattle | 51 | 47 | 54 | 89 | 241 |
| Buffalo | 0 | 2 | 0 | 18 | 20 |
| Goat | 36 | 50 | 68 | 44 | 198 |
| Sheep | 1 | 8 | 2 | 0 | 11 |
| Poultry | 72 | 57 | 61 | 113 | 303 |
| Other | 0 | 2 | 4 | 0 | 6 |

The average size of cattle per household is 1.41, whereas goats play an important part for the households with an average number of 1.16 per household in the village. Poultry is also a good option for the residents with the average of 1.77 which is the highest among livestock. Buffaloes constitute only

0.12 per household in the village (Table 12). The holding of buffalo is more among large farmers as 18 out of 20 buffaloes are owned by them. Large farmers have major share in livestock holding, i.e., 34 per cent with them. The medium farmers have an average size of livestock species of 1.89 followed by 1.56 of the small farmers' category. In value terms, 61.61 per cent of livestock are of cattle followed by 24.14 per cent of goat. In total value terms (Rs. 15,764.15) large farmers are having highest value of livestock .

Table 12: Average size of livestock holding in Bilaikani village

| Livestock | Households | | | | |
|-----------|------------|-------|--------|-------|------|
| | Landless | Small | Medium | Large | All |
| Cattle | 0.82 | 1.47 | 1.50 | 2.17 | 1.41 |
| Buffalo | 0.00 | 0.06 | 0.00 | 0.44 | 0.12 |
| Goat | 0.58 | 1.56 | 1.89 | 1.07 | 1.16 |
| Sheep | 0.02 | 0.25 | 0.06 | 0.00 | 0.06 |
| Poultry | 1.16 | 1.78 | 1.69 | 2.76 | 1.77 |
| Other | 0.00 | 0.06 | 0.11 | 0.00 | 0.04 |

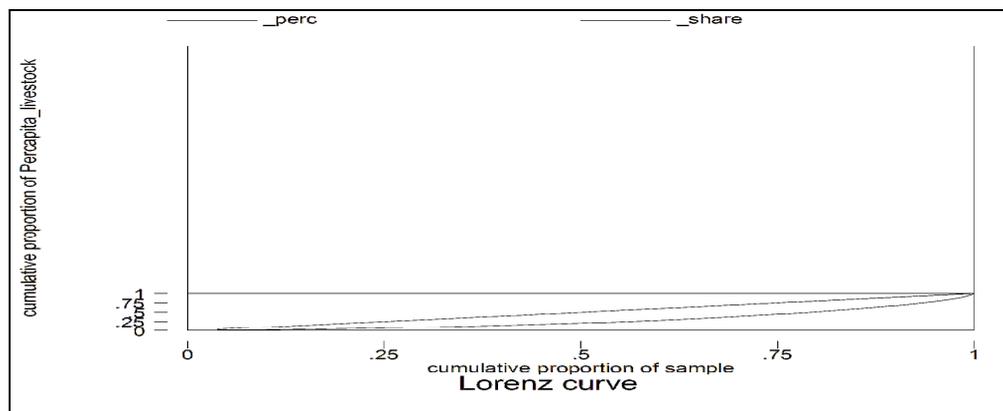


Fig. 15: Lorenz curve for per capita livestock in Bilaikani

4.6. Farm Machinery and Implements

Due to undulated topography, power tiller is not an option for ploughing. Mostly people are using traditional wooden plough for ploughing purposes. There are three tractors in the village, which are used for both ploughing and transportation of farm products. Others use tractors on rent basis. Pumps and bore well are present with all the categories of farmers. About 31.71 per cent of

large farmers have motors (Table 13). Tractor constitutes large percentage of value of farm implements and average value with large farmers is Rs. 27,826. Farmers use other manual equipment also in the different stage of cultivation.

Table 13 : Percentage of households having farm machinery in Bilaikani village

| Particulars | Households | | | | |
|-----------------------|------------|-------|--------|-------|-------|
| | Landless | Small | Medium | Large | All |
| Tractor | 1.61 | 0.00 | 0.00 | 4.88 | 1.75 |
| Harvester & Threshers | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Irrigation motor | 1.61 | 12.50 | 19.44 | 31.71 | 14.62 |
| Borewell | 0.00 | 3.13 | 2.78 | 2.44 | 1.75 |



Fig. 16: Farm Mechanisation and Traditional storage of seeds the village

5. Economic Status

The people of the village mostly depend upon rain fed agriculture and rearing cattle for their livelihoods. Majority of farmers in this village cultivate only paddy and the rest rear cattle. Overall economic condition of majority farmers is bad. After the watershed project, some farmers started cultivation of vegetables in their fields, which is helpful them to increase their income.

5.1. Sources of Income and Occupational Diversification

Agriculture is the main occupation of this village. Some landless people are working as daily laborers for maintaining their livelihood. Other different occupations that people adopt for their livelihood are masonry (builder), carpenter, pasture, and business. Although, 64.4 per cent of total population is of earning age group, only 35.23 per cent are the working population. About 74.27 per cent are collectively engaged in cultivation and as agricultural workers. This is followed by 21.69 per cent of non-farmer workers. In spite of large presence of cattle and goats, dairy never was considered as a livelihood option by the people.

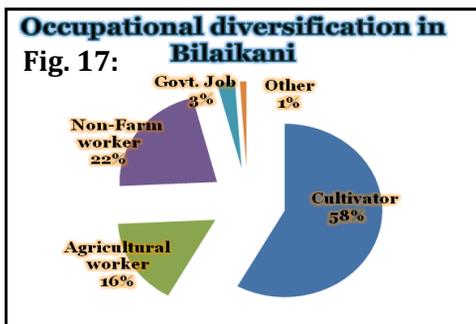


Fig. 18: Household items used in kitchen

Across the categories, cultivators and non-farm workers exist in every farm class. The data shows that the cultivation practices are increasing based on the level of holdings with farmers from labour class towards large farmers. The case is reverse for non-farm workers, as the holding increases, non-farm work decreases. This clearly reflects that farm holders do not need to go outside for work and they are engaged in their own land for their livelihood.

Table 14: Occupational diversification in Bilaikani village

| Particulars | Landless | Small | Medium | Large | All |
|--|----------|--------|--------|-----------|-----------|
| Working population (No.) | 85 | 52 | 65 | 68 | 270 |
| Share of particulars in total working population | | | | | |
| Cultivator | 25.88 | 63.46 | 73.85 | 78.57 | 58.09 |
| Dairy | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Agricultural worker | 47.06 | 5.77 | 1.54 | 0.00 | 16.18 |
| Non-Farm worker | 27.06 | 28.85 | 21.54 | 10.00 | 21.69 |
| Government Job/others | 0.00/0 | 1.92/0 | 3.08/0 | 7.14/4.29 | 2.94/1.10 |

A Participatory Rural Appraisal (PRA) was conducted in the village and it is found that large farmers earn about 60 per cent of their income from non-agriculture activities, while deriving about 40 per cent of their income from agriculture. In the case of medium farmers, 80 per cent of the income accrued from agriculture, 10 per cent from private and government jobs and the remaining 10 per cent from other sources. The landless farmers earn maximum portion of their income working as laborers both on-farm and off-farm, which contributes about 50 per cent to their income, and the remaining 50 per cent is from performing agricultural activities in their fields, salaried jobs, etc.



Fig. 19: PRA study in progress in Bilaikani.

According to the perception of the villagers, the households in Bilaikani could be classified into different income classes as follows:

- 24 per cent of total households are in 'rich' or 'well-off' category,
- 21 per cent of households are in 'average' or 'medium' category, and
- 55 per cent of households are in 'poor' category.

6. Healthcare and Sanitation

6.1. Drinking Water

People of Bilaikani village are totally dependent upon government tube wells for drinking water. There are 10 tube wells out of which 9 are working perfectly. The number of tube wells is not sufficient, but having no other alternative to overcome the crisis, the people face lots of impediments to collect a bucket full of drinking water.



Fig. 20: Watershed pond: multi-faceted use for cleaning, bathing, crops and cattle.

6.2. Healthcare

The health infrastructure in the village is in a poor state. The community health scheme has *ASHA worker* (Josada Bdhia) and *Anganwadi worker* (Basant Rout) assisting in the village health activities. Through *Anganwadi schemes* the village children (below 5 years) get free meals and regular vaccination. Under *Janani Surakhya Yojana* an ANM from Mahimunda visits to the village in case of emergency. The nearest PHC is located in Mahimunda, 4 km away from the village. There is no registered medical shop in the village. The village grocery shop keeper maintains to keep few medicines for common illnesses.

6.3. Sanitation

A majority of the people in the village are using nearby field and pond for their sanitation purpose. Only four households of this village are having their own toilet. All the people uses pond water for bathing, cleaning their dresses and bathing of their cattle shed. Pond area of 44 acre



Fig.21: Hand pump for bath/drink

(Watershed project) fulfills all the needs of the people in this regarding. In the month of April to July the pond dried and in this period of time people are using water of well situated in their own field.



Fig. 22: Fighting for basics needs, forget sanitation.

7. Markets, Transport and Communication

7.1. Markets

The nearest market for villagers of Bilaikani is situated in Duhel which is only 2-3 km away. The people of Bilaikani depend upon Duspur and also Mahimunda markets which are around 7 km and 4 km away, respectively. For vegetable products, villagers mostly depend upon Mahimunda, Duspur and Bolangir.

7.2. Transport

For transportation purpose people use bicycles and two wheelers only. There are only three tractors in the village, which are used for the purpose of cultivation as well as transportation of agricultural products at the harvesting season (like paddy). Basically people are depending on bicycle and two wheelers for selling of their vegetable throughout the year. The village Bilaikani has good connectivity with the district headquarter (Bolangir), *Panchayat* office (Mahimunda) with concrete road. Well maintained road is connecting the hospital, police station and nearest market. From district headquarter to Bilaikani, one can find bus services 4 times a day at regular intervals of time.

7.3. Communication

Bilaikani has better access to the outer world in comparison to the other villages of Balangir. There are 4 mobile towers in 5 km periphery. Almost all the households have mobile set. There are about 50 TV sets in the village. The mode of TV connection is through terrestrial antenna and dish TV. The regional broadcasts from Sambalpur and *Doordarshan* are favorites among the viewers. The use of radio is declining day by day as other advanced mode of communication comes to village. People do not subscribe any news paper regularly in the village. As most of the people are uneducated and news paper subscription is minimal. Regional newspapers like *Sambad* and *Dharitri* can be available in Mahimunda 4 km from the village.

7.4. Electric Supply

In 1972, for the first time electricity facility was made available in this village. Now there are 25 registered consumers in the village. But the actual figure is much more than this. Maximum people are using electricity from their nearby houses on monthly fixed rent basis. The village road is provided with proper electric lighting.

8. Welfare and Development Programs

Several welfare programmes of the central and state governments are in operation in Bilaikani village. These include:

8.1 Development Programs

- *Aanganwadi*
- *Annapurna Antyodaya Yojna*
- Crop Production Programmes (For the development of Horticulture)
- Cotton Development Programme
- Drought and Flood Relief Programme
- *Indira Awas Yojna*
- Mid Day Meal Scheme
- Mahatma Gandhi National Rural Employment Guarantee Scheme
- National Rural Health Mission
- National Watershed Programme
- Old Age Pension
- Public Distribution System
- Pension for Physically Challenged persons
- *Pradhan Mantri Gram Sadak Yojna*
- *Shiksha Abhiyan*
- Self Help Groups
- Widow Pension
- *Janani Suraksha Yojna*

8.2 Development indicators

| Particulars | Number |
|-----------------------------------|---------------|
| Primary School | : One |
| Upper Middle School | : One |
| High School | : No |
| Vocational Training Centre | : No |
| Primary Health Centre | : No |
| Homeopathic dispensary | : No |
| Hospital | : No |
| <i>Anganwadi</i> Centres | : One |
| Tractors | : Three |
| Bank | : One |
| Drinking Water Supply | : No |
| Electric Supply | : Erratic |
| Radio Sets | : --- |
| TV Sets | : 50 |
| Public Hand Pumps | : -- |
| Post Office | : No |
| Telephone Land Line | : No |
| Mobile Phone | : Yes |
| Agricultural Input Shop | : No |
| Agricultural Market | : No |
| Procurement Centre | : No |
| Primary Agri. Coop. Society | : No |
| Farmers Club | : No |
| Library | : No |
| PDS | : No |
| Village agriculture worker office | : No |

9. Households Preference for Different Public Institutions

There are *Public schools, Anganwadi kendra* and community centre within the village and other infrastructure such as post office, police station, markets, hospital, *Krishi Vigyan Kendra* and Public Distribution System are not available in the village and are located outside the village. Hospital for health, school for education, KVK for agri-knowledge, community centre and *Anganwadi* for minimum basics are the first five priority of the villagers.

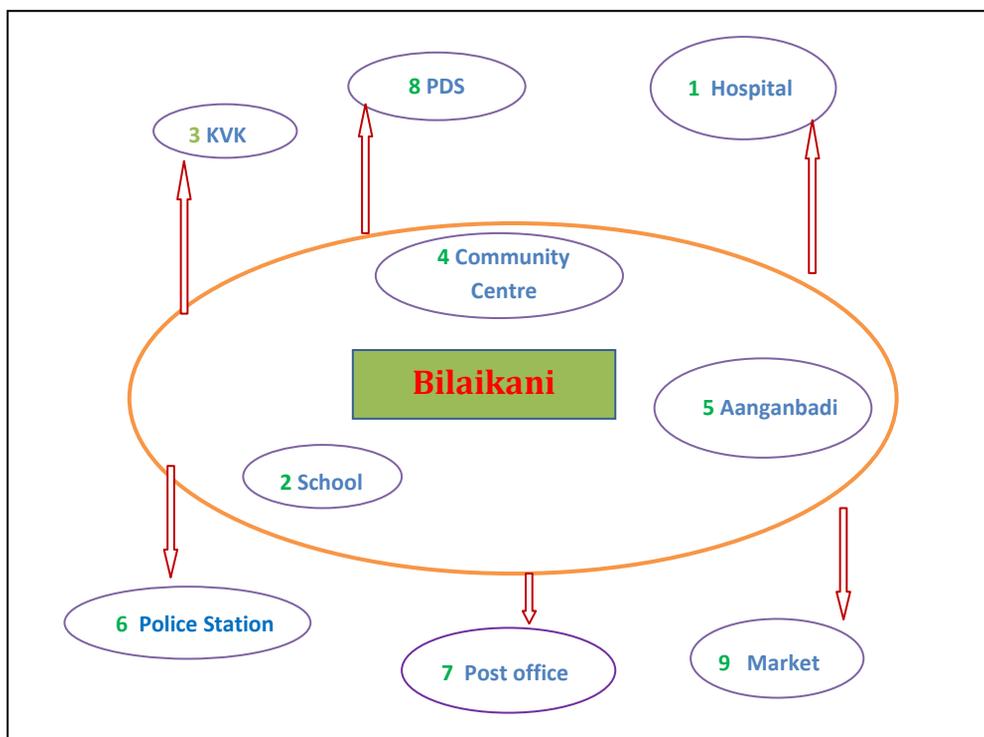


Fig. 23: Households' preference for different public institutions and their location.

Note : 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.

The *Anganwadis* are Government sponsored child- and mother-care centres as well as part of Intensive Child Development Scheme (ICDS) to combat child hunger and malnutrition. They aim 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 their children for proper growth and development. In Odisha, 66 per cent of child deaths occur in the first month itself, therefore, the role of the *Anganwadis Kendra* is most essential to ensure health care of the babies.

To facilitate the health programs, an ASHA worker and an *Anganwadi* worker have been appointed in the village. Through *Anganwadi* the village children (below 5 years) get free meal and regular vaccination. Under *Janani Surakhaya Yojana* an ANM from Mahimunda visits to the village in case of emergency. So, the villagers have to wait for the arrival of the ANM. The nearest PHC is located in Mahimunda, 4 km away from the village.

Participatory method of farmer interaction was used to record farmer perception on agricultural practices, tools, technology and dynamics over the period of time in the village. The farmers generously responded on the agri-indicators like soil fertility, fertiliser use, crops grown, cropped area, ground water level, irrigation, migration, horticulture, livestock, diseases, forest and wildlife, 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 and presented in pictorial form in the given Table 16.



Fig.24: Intensive vegetable cultivation in the study village

Table 15 : Agricultural biodiversity and Crop ecological dynamics during 1970-2010 in Bilaikani village

| Indicators | 1970 | 1990 | 2010 | Reasons |
|----------------------------------|---|---|---|--|
| Soil Fertility |  |  |  | Chemical intervention |
| Number of crops |  |  |  | Availability of water and upland farming started later |
| Fertilizer use |  |  |  | Decreasing soil fertility |
| Area of cultivation (Per capita) |  |  |  | Increasing population |
| Horticulture |  |  |  | More vegetables production |
| Irrigation |  |  |   | Government initiative |
| Migration |  |  |  | Lack of employment and education opportunities |
| Ground water level |  |  |  | Less rain |
| Livestock |  |  |  | Increased government initiative |
| Diseases |  |  |  | More Chemicals intervention in food crop |
| Forest |  |  |  | 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.

10. Opportunities

- With availability of water for irrigation from the large pond of Belakata, the village has potential to diverse its crops.
- Bilaikani is big vegetable producer village in the block especially in the green guard production, as it has well prospective in other vegetables production as cucumber, tomato, brinjal, cabbage etc.
- High number of working SHGs can add in the growth of the village.
- Women of the village are involved in small businesses like collection and selling of *Mahua* flowers, *kendu* leaves green vegetables etc and contributing in the income of the household.
- A vegetable market can boost the economy of Bilaikani as the production of different vegetables is more in the village.

The existing problems of the village are as follows:

- Lack of participation of women in decision making
- Gender discrimination as girls are not allowed to go out for education
- No property ownership to female
- Lack of awareness about the hygiene and sanitation practices
- Lack of healthcare infrastructure and personnel, Lack of Toilets facility
- Lack of transport facilities
- Inadequate drinking water facility
- Erratic electricity supply
- Difference in wage rate for female and males despite same working hours
- Lack of educational infrastructure and personels in the village.
- No government market (Mandi) is nearby so traders or mediators take benefit in selling of crops. It causes distress among the farmers.
- No government initiative for canal renovation.

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Authors

