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Profile of Gajapati district Tribal and their livelihood through farming systems adoption

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Abstract

Odisha is one of the most tribal-dominated states having 9.59 million tribal populations out of out of 41.97 million population of Odisha and more than 47% of tribal people live in rural areas depend on agriculture for their livelihoods. A study was done in Gajapati district to identify different tribal communities live in the district and their lively hoods through adoption of different farming systems. In Gajapati district, there are nine tribal communities (Saora, Tharua, Jatapu, Kandha, Lodha, shabar lodha, Kondadora, Bhuyan, and Sounti) live in seven blocks. These tribes produce paddy (padadhan), ragi, janna (a millet), sugarcane, turmeric, ginger, maize, minor millets like kosla and kangu, and pulses like red gram, bodhei, kulthi (horse gram), biri (black gram), kandul (redgram), and dangarani, and maintains a variety of livestock, including cows, bullocks, buffaloes, goats, sheep, and poultry. They grow variety of vegetables in kitchen garden and occasionally practice fishing. Goats and chickens, in particular, are raised for consumption and ceremonial sacrifices to the deities. The land less tribal earns their lively hood through working as labor.

Keywords: Tribal, farming system, livelihood, tribal farmer's difficulties

1. Introduction

India is the second-largest country with a significant tribal population after Africa, encompassing 432 documented scheduled tribal communities. In India, Odisha is one of the most tribal-dominated state having 62 distinct tribal communities (Demographic Profile of Scheduled Tribes in Odisha from 1961 to 2011). In Odisha, out of total population of 41.97 million, 9.59 million belongs to tribal and more than 47% of these tribal individuals reside in rural areas, relying primarily on agriculture for their livelihoods. Over 70% of Odisha's tribal population makes their living from farming. The state has 10 agro climatic zones with a variety of agro climatic conditions, from plain river basins to high altitude Ghat regions yielding a wide variety of goods with seasonal benefits. Though the tribal population is significant, the literacy rate among them in Odisha is 52.24%. The socio-economic landscape reveals that 46.66% of the rural population is below poverty line, while the urban areas have even higher poverty rate of 70.45%.

The North eastern Ghat zone of Odisha which include Gajapati district is characterized with 22.84% of tribal communities (Huke *et al.*, 2023) ^[9]. In Gajapati district,

there are 7 blocks, and it is home to 9 tribal communities, namely Saora, Tharua, Jatapu, Kandha, Lodha, shabar lodha, Kondadora, Bhuyan, and Sounti (Demographic Profile Of Scheduled Tribes in Odisha 1961 - 2011). Traditional methods and practices are employed in agriculture, by the tribal farmers which is mostly subsistence farming. Establishing a consistent and dependable source of income is essential to improve the social and economic status through implementation of contemporary agricultural technology (Kumari and Chauhan, 2021) ^[25]. Taking a farming system approach that integrates the raising of cattle, poultry, fisheries, and crops will increase the profitability, productivity, sustainability, and resource recycling that raises the standard of life of tribal families form a viable approach. In this paper, an attempt has been made to present different farming systems that are followed by tribal of the district and ways to improve their economic condition.

2. Gajapati district

The Gajapati district having 4325 km² area located between latitudes 18o45' and 19o40' north and longitudes 83o50' and

84o25' east with its headquarters at Paralakhemundi is bordered in the south by Andhra Pradesh, east by Ganjam district, west by Rayagada district, and north by Kandhamal district. Inceptisols and Entisols (Behera *et al.*, 2016)^[4]. The district is administratively divided into seven blocks *viz.*, Gumma, Kashinagar, Mohana, Paralakhemundi, R. Udayagiri, Raigada and Nuagarh. This district experiences an average daily high temperature ranging from 14 °C to 40°C and an average annual rainfall ranging from 1320 to 1520 mm. The dominant soil types are sandy loam textured Alfisols. Paddy is the primary crop grown in the district and other significant crops grown are Maize, Ragi, Oilseeds, Pulses, Potato, and Sugarcane.

3. Tribals of Gajapati district

The district is having 0.58 million tribal population consisting of 9 tribal communities, which include Saora, Tharua, Jatapu, Kandha, Lodha, shabar lodha, Kondadora, Bhuyan, and Sounti, totaling 3.13 lakh tribal individuals (Table 1). Among them, 60.33, 18.40, 78.25, 42.14, 10.93, 44.56, and 57.32 thousand people reside in Gumma, Kashinagar, Mohana, Nuagarh, Paralakhemundi, R. Udayagiri, and Raigada, respectively. In all these blocks, the female population exceeds the male population.

Table 1: Block wise Distribution of Scheduled Tribals in Gajapati

Block	Name of Tribal
1. Gumma	Saora, Tharua, Jatapu, Kandha, Lodha.
2. Kashinagar	Shabar, Lodha, Saora, Kandha, Kondadora, Jatapu, Bhuyan, Sounti.
3. Mohana	Kandha, Shabar, Lodha.
4. Paralakhemundi	Shabar, Lodha, Saora, Kandha, Kondadora, Jatapu, Bhuyan, Sounti.
5. R. Udayagiri	Saora, Kandha, Shabar, Lodha.
6. Raigada	Saora, Kandha, Sounti.
7. Nuagarh	Saora, Kandha.

(Demographic Profile of Scheduled Tribes in Odisha from 1961 to 2011).

4. Community wise tribal profile

4.1. Bhuyan: The Bhuyan tribe practice shifting cultivation, known as Kamana by converting a designated portion of forest land for cultivation (Biringa). At the individual family level, Paudi Bhuinya families have ownership rights for cultivating Biringa. However, once it is left fallow, the land becomes communal property belonging to the village. In the second year, it is termed as Kaman, and in the third year, it transforms into Guda. They cultivate pulses like black gram, horse gram, beans, pumpkins, etc., in Biringa, ragi and small millets in Kaman, and paddy, Nigers, and small millets in Guda. They cultivate paddy in Billa or Jami, which is individually owned on a permanent basis. These irrigated lands are highly regarded as the finest and are of considerable value. They practice kitchen gardening.

The Bhuinya community maintains a variety of livestock, including cows, bullocks, buffaloes, goats, sheep, and poultry. Goats and chickens, in particular, are raised not only for consumption but also for ceremonial sacrifices to the deities. Special attention is given to the care of chickens and goats to protect them from wild animals.

4.2. Jatapu: The Jatapu is said to be a civilized section of

the Kondhs, who speak Kondh language on the hills and Telugu on the plains and are now practically a distinct tribe. These tribes are divided into several exogamous totemic septs (Vansas) named after natural objects. Khonds rely on lowland paddy agriculture (garavu) close to the foothills and slash and burn (podu) farming on the hills around their habitat. Those without access to land have resorted to becoming wage workers and agricultural labourers. These tribes produce janna (a millet), turmeric, zinzer, kangu (a millet), kosla (a millet), alasi (nizer), bodhei, kulthi (horse gram), biri (black gram), and red gram, among other things. There are some uplands close to the hillside where they grow semi-pea, jhudung (cow-pea), kandul, maize, and chillies. They practice kitchen gradening.

4.3. Kandha: The people of Kandha practise plough cultivation, or "nela," in valleys and lowlands and shifting cultivation, or "dahi," on hilltops and hills. They grow crops on three different types of lands for paddy cultivation: "Sarada" (suruda keta), "Berena" (jodi keta), and "dhipa" (upper land) (depa keta). In hilly areas, they grow crops such as Kandala (kanga), Jununga (judungaga), Biri (masangaga), alongside various crops like paddy (kudinga), ragi (tedi), maize (jaylaka), black gram (biridi), horse gram (karpaka), sesamum (rasi), mustard (saras), and beans (sainga). They adopt kitchen gardening.

The Kandhas practices hunting during rituals due to hunting prohibitions. Fishing, once a sporadic activity, has also become an occasional pursuit.

4.4. Kondadora: The Khondadora community relies primarily on agriculture for their subsistence, supplemented by various other activities such as wage labor in both agriculture and industry, livestock rearing, forest gathering, seasonal hunting, fishing, services, sharecropping, and small business ventures. A segment of the population, particularly those facing economic challenges, sustains their livelihood through the trade of bullocks and cows. Additionally, they engage in a traditional folk art known as "ghungunadia," involving the exhibition of decorated oxen, musical performances, and the collection of money or grains through door-to-door visits. Their main crop, grown on wetlands, is rice. They grow hill paddy (padadhan), ragi, sugarcane, turmeric, ginger, minor millets like kosla and kangu, and pulses like red gram, bodhei, kulthi (horse gram), biri (black gram), dangarani, and biri. They grow maize, kandul, jhudung (cow pea), and semi (pea) on arid areas close to hill slopes. Every house hold grows kitchen graden.

4.5. Lodha: The Lodha community, previously engaged in shifting cultivation, has transitioned to settled agriculture. The paddy remains a primary crop, the cultivation of Sabai grass is identified as the most lucrative. The Lodha people have a strong affinity for livestock and animal domestication. Typically, they domesticate cows, bullocks, goats, and raise poultry. These animals primarily serve ceremonial sacrifice purposes and contribute to their own consumption.

4.6. Saora: The Saora community practices terrace farming and shifting cultivation. Saoras are typically known as shifting cultivators, and concurrently possess advanced

knowledge in terrace farming. They showcase a remarkable level of indigenous proficiency, creativity, and technological prowess in constructing terraces equipped with integrated water management systems. They grow a variety of minor millets, cereals, and pulses in the cleared and farmed regions, but mostly rice in terraced fields. The dynamic land is referred to as "bagado," and the farming practice is known as "bagado chas." Every family possesses several plots of cleared land, situated either on hill slopes or hilltops. The land itself, along with timber, fruit trees, and wildlife, holds immense value for the Saora people, akin to the significance of life. They enhance their income through intermittent hunting, fishing, wage labor, and continuous gathering from the forest throughout the year. They also raise a variety of animals for agricultural uses, rituals, and human sustenance, including bullocks, buffaloes, cows, pigs, goats, and poultry.

4.7. Sounti: The Sounti community cultivate paddy, as their main crop in low-lying areas. In high land regions, they grow oilseeds like til and mustard along with pulses like kulthi (horse gram), biri (black gram), mung (green gram), and arhar. They also grow ragi and a number of minor millets including kosla, kangu, and janna. Additionally, in their kitchen gardens, they cultivate maize, chili, and a variety of vegetables. Many of the Sounti people are marginal farmers and sharecroppers, often engaging in various occupations such as wage labor in agriculture and construction to support their livelihoods. They also practice animal husbandry, raising cows, goats, and fowls. Occasionally, they participate in hunting and fishing activities in nearby rivers and streams.

4.8. Shabar Lodha: The Shabar Lodha, also known as Lodha Shabar, commonly acknowledged that the word lubdhaka, which means trapper or fowler, is where the tribe got its name. They regard Lord Jagannath as their ultimate deity and trace their lineage back to Byadha or Kirata, the Savara king Viswabasu. This community group mostly engages in hunting, food gathering, and forest collection. The entire population of this tribe is 516402, and 53.29% of its members are literate.

4.9. Tharua: There are other names for the artisan group known as the Tharua, such as Tharua-Bindhani and Tharua Kumbhar. They live in either discrete hamlets within multi-ethnic communities or uni-clan homogeneous villages. They have a nuclear, patrilocal, and patrilineal family structure. The Tharua community observes several important festivals and ceremonies, such as Magha Para, Gameta biswakarma Puja, Randia, Gamha, and Makar Sankranti. This community's main sources of income include wage labour, stone cutting, engraving, pottery, and farming. There are 9,451 people living in this neighborhood overall, and 50.44% of them are literate.

5. Livelihood

Tribal people commonly referred to as adivasis, have historically relied on shifting agriculture and gathering of edible forest products as their primary source of income. The customary, usufructuary rights of tribal over land and forests served as the foundation for the traditional

subsistence system. By using a highly diverse production pattern and changing cropping, sustainability was guaranteed. Tribal people embraced established agriculture, mostly in the uplands, as shifting cultivation started to diminish in the second decade of the 20th century. This system of cultivation though has lower physical output than monocrop farming, but offered scope of reduced chance of total crop failure. This type of cultivation of crops has served the food consumption basket which was nutritionally balanced and has another benefit of such a livelihood arrangement (Padhi and Panigrahi, 2011)^[13].

The Lanjia Saora tribe usually practices traditional agricultural wisdoms, shifting cultivation, food gathering and traditional hunting (Sabar, 2017)^[15]. Shifting agriculture, the Lanjia Saora people's traditional means of sustenance, has lost its profitability due to the combined effects of deforestation, ecological imbalance, and decline. As a result, the economy has emerged as the backbone of the community.

The primary sources of income for the Bhuyans are agricultural farming and extracting materials from the surrounding forest (Bhowmick, 2020)^[5]. In addition, besides as worker in MNREGA.

The Jatapu community cultivation is the mainstay of their subsistence economy. They mostly rely on lowland paddy agriculture (garavu) close to the foothills and slash and burn (podu) farming on the hills around their habitat. People without land have resorted to become wage earners and agricultural workers.

The Kandha community receives food, fuel, fodder, and other necessities for everyday home usage from the forest. This community grows food in the Dangar land, which is a hilly area typically found in the foothills. They also rely on the forest to harvest various fruits, vegetables, seeds, green leaves, shoots, tubers, roots, stems, flowers, and mango kernels during the different growing seasons. Cereals like Mandia (Ragi, Finger Millet), Kosala (foxtail millet), pulses like Kandlo (tuar, pigeon pea), biri (black gram), Kolath (horse gram), and oilseeds like castor and linseed are among the main crops grown in the Kutia Kandha. For the most part, local technology are used to grow and safeguard the crops (Ojha 2019)^[17].

Sounti tribal community practices cultivation, livestock and forestry. The lives of indigenous people were therefore inherently based on a system of "property" rights over woods and land. As a result, the "carrying capacity" of the livelihood system was often limited, supporting sparse people in relation to the area of the "territory" (Padhi and Panigrahi 2011)^[13].

6. Strategy for Livelihoods Enhancement

One of the biggest issues in the tribal territory is soil and water erosion. Rainwater erosion can be minimised by taking steps to obstruct and limit the flow of water, such as planting plants through cover crops and garbage lines or creating engineering features like bunds. The initiative includes traditional methods of conserving soil and water, such as bench terracing, stone bunding, earthen ponds (katta), earthen bunding, and check dams (Arora *et al.*, 2022)^[3]. Maintaining the water balance in the watershed region depends on collecting rainwater using the proper water harvesting technology. The different options include

groundwater recharge structures, in situ rainwater collection, and native rainwater harvesting (Anonymous 2007)^[2].

Shifting agriculture is practiced on Revenue Forest Land, which is separated into delimited, undemarcated, and unclassified forests. The majority of mixed tree species with the ability to fix nitrogen are favoured for the forest area. Fruit crops can also be cultivated on dry terrain wherever facilities are available.

In order to achieve sustainable crop production, the programme strategy must prioritise the management of natural resources and enhanced production technologies. This includes developing new crop varieties, modifying cropping sequences and rotations, improving crop husbandry practices, utilising biofertilizer, managing with inexpensive inputs, and converting podu (Imadi *et al.*, 2016)^[10]. The key technological interventions for low land are use of high yield varieties, row plantation and maintenance of plant population, use of the green manuring also uplands are irrigation development by farm ponds and percolation tank, crop substitution with non paddy crops (maize, ragi, pigeon, oil seed), Improved planting techniques like line sowing, padar land are intercropping and mixed cropping, line sowing and timely weeding, focus of legume on crop rotation for nitrogen fixation (Anonymous 2007)^[2].

Livestock is acknowledged to play a significant part in the socioeconomic and cultural lives of tribal people; in fact, pigs, chickens, or goats are necessary for all social, cultural, and religious activities. Most cattle are raised for manure and drought. According to the main study, low livestock output is mostly caused by outdated breeds, subpar housing, nutrition, and animal health, as well as an indigenous method of treating animal illness (Sarkar 2020)^[16].

It is suggested to adopt strategies such as educating people about the potential and breadth of aquaculture, promoting intensive and semi-intensive aquaculture in tanks and ponds, supporting Self-Help Groups (SHGs) in pursuing aquaculture as a source of income, and offering support for marketing and training. Improvements to the community's and FARD department's animal health services, breed improvement, technological testing, and technical support are all programme components for the growth of livestock and aquaculture.

6. Conclusion

In Gajapati district, nine tribal communities - Saora, Tharua, Jatapu, Kandha, Lodha, shabar lodha, Kondadora, Bhuyan, and Sounti live in seven blocks. They produce paddy, janna (a millet), turmeric, zinzer, kangu (a millet), kosla (a millet), alasi (nizer), bodhei, kulthi (horse gram), biri (black gram), and red gram and maintains a variety of livestock, including cows, bullocks, buffaloes, goats, sheep, and poultry and grow variety of vegetable in the backyard. Mostly, the crops are raised under rainfed condition; it is essential to practice soil and water conservation and develop water storage structures. As the farmers are adopting traditional methods of crop cultivation and rearing animals and poultry, there is a need to adopt innovative technologies for increased income from these avocations.

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