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### Overcoming constraints for enhanced livelihood security among tribal farmers in South Odisha

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#### Abstract

The current research was conducted in the Rayagada and Gajapati districts of Odisha state during the academic year 2023-24. The main objective is to identify the problem encountered by the tribal farmers for livelihood security and to seek suggestion from the tribal farmers for livelihood security approach Within these two districts. The findings were indicated that the primary challenge faced by tribal farmers is the high cost of agricultural inputs, which received the highest mean score of 1.87 and ranked first. Additionally, significant problems highlighted by a majority of tribal farmers include uncertainty of rainfall (ranked second), high prevalence of pests and diseases (ranked third), pig attacks on farms (ranked fourth), and the lack of remunerative prices for farm produce and high price fluctuations (ranked fifth). Other issues identified by the tribal farmers include Inadequate irrigation facilities for farming as well as to maintain livestock (ranked sixth), high cost of inputs even to take small enterprises (ranked seventh), lack of credit on investing in other income-generating activities (ranked eighth), lack of awareness and government encouragement about the subsidiary occupations/alternative enterprises(ranked ninth), dearth of education facilities (ranked tenth), dearth of health care services. (ranked eleventh), and poor accessibility of extension agencies for technical guidance (ranked twelfth). The suggestions are assured supply of basic living amenities like water, fuel etc. stood first ranked, followed by coverage of insurance and health programmes for tribal farmers and governments assistance be provided in creation of assets like land, house etc. ranked second and third, respectively. Social structures like school, hospitals, transportation etc be created (fourth rank), provide fencing protecting from pig attack in farm (fifth rank), more livelihood development projects in rural areas be encouraged (sixth rank) and awareness about different government schemes be created (seventh rank).

**Keywords:** Agriculture, tribal farmers, socioeconomic factors, livelihood security

#### Introduction

India, categorized as a developing nation, witnesses a significant portion of its populace, approximately 78%, reliant on agriculture as their primary income source (Jatav and Naik, 2023) [2]. Livelihood denotes the amalgamation of skills, assets, and actions essential for sustaining one's means of living, representing individuals' efforts to support themselves for survival and progress (Pandey *et al.*, 2017) [1]. Both the Central and State Governments have launched various initiatives aimed at ameliorating the socio-economic conditions of the tribal populace in the country. Notably, the Tribal Sub Plan Strategy (TSP Strategy), operational since 1974-75, stands as one such initiative. These endeavours have yielded discernible improvements for Scheduled Tribes across multiple indicators like literacy, health, and livelihood (Rathour *et al.*, 2022) [3]. Over the past two decades, the tribal population has remained relatively stable, with approximately one in ten Indians belonging to Scheduled Tribes. Odisha, a state in India, hosts 62 distinct

tribes out of the 437 tribes found across the country. These tribal communities collectively constitute around 6 million individuals, representing roughly 22.43% of Odisha's total population (Bala *et al.*, 2020) [5]. In Mayurbhanj, tribal population comprises 58.72%, while in Malkangiri it is 57.83%. Similarly, in Rayagada, tribal population constitutes 55.99%, Nabarangapur 55.79%, and Gajapati 54.29%. Gajapati district ranks fifth in terms of tribal population, with Kondha (14.86%), Saora (32.21%), and Shabar (50.84%) being the major tribal groups (Acharya, 2018) [4]. Rayagada district, meanwhile, ranks third in tribal population, with Kondha constituting 17% of the population. The gender ratio in Gajapati is 1042 females for every 1000 males, with a literacy rate standing at 54.29%. In terms of livelihoods, around 86.99% of the population relies on agriculture. Rayagada district houses a population of 832,019 people, of which 473,379 belong to tribal communities, making it primarily a tribal-inhabited district, with tribal population accounting for 57.52 percent. Among

tribal communities, the Kondha tribes are predominant, representing the seventh-largest tribal population in India. The Kondha community constitutes 17% of Odisha's tribal population, with a growth rate of 16.61% from 2001 to 2011. In Rayagada district, the Kondha tribe constitutes 23.68 percent of the state's Kondha population, experiencing a growth rate of 17% during the same period. The tribe exhibits a notably low literacy rate of 6.39%, with male literacy slightly surpassing that of females (Swain *et al.*, 2022) [6]. Each area possesses unique characteristics and requires a tailored strategy to enhance agricultural development. This study stands out from previous research by analysing detailed data at the micro-level to identify factors impeding the sustainable livelihoods of tribal households (Mishra *et al.*, 2023) [7].

### Methodology

The research was carried out in Gajapati and Rayagada districts of Odisha, intentionally chosen for their inclusion in the study. Using random sampling technique, three blocks were chosen from each district, and within each block, three villages were selected. These areas were specifically targeted due to their substantial population of tribal farmers. Ten tribal farmers were randomly chosen from each village, resulting in a total of 180 respondents. The study employed a descriptive and diagnostic research design within the field of social research. An interview schedule was formulated with input from Agricultural Extension experts and was pre-tested prior to data collection. Data were collected from respondents through personal interviews. Appropriate statistical analysis was applied to the data to derive valid conclusions.

### Results and Discussion

The data from Table 1 indicate that the primary challenge faced by tribal farmers is the high cost of agricultural inputs, which received the highest mean score of 1.87 and ranked first. This is ranked as the most severe issue, indicating that the cost of inputs such as seeds, fertilizers, and machinery is a major concern for farmers, potentially affecting their profitability. Additionally, another significant problem highlighted by a majority of tribal farmers include uncertainty of rainfall (mean score of 1.84, ranked second). This indicates that the unpredictability of rainfall is a significant concern, likely impacting crop yields and agricultural productivity. High prevalence of pests and diseases (mean score of 1.77, ranked third) another major problem. Pest and disease outbreaks can significantly reduce crop yields and quality, posing a constant threat to agricultural productivity. Pig attacks on farms (mean score of 1.75, ranked fourth), and the lack of remunerative prices for farm produce and high price fluctuations (mean score of 1.69, ranked fifth) are another major constraint face by tribal farmer in my study area. Pigs can cause significant damage to crops and livestock, posing a threat to farmers' livelihoods and Fluctuating prices and inadequate returns for agricultural produce can undermine farmers' income stability and financial security. Other issues identified by the tribal farmers include Inadequate irrigation facilities for farming as well as to maintain livestock (mean score of 1.66, ranked sixth). Insufficient access to irrigation can severely limit agricultural activities, particularly in regions

dependent on rainfall or lacking proper irrigation infrastructure. High cost of inputs even to take small enterprises (mean score of 1.55, ranked seventh) is another type of constraint faced by tribal farmer. High input costs can act as a barrier to entry for small-scale entrepreneurs, hindering their ability to establish or sustain their livelihood. Lack of credit on investing in other income-generating activities (mean score of 1.29, ranked eighth) is another primary challenge faced by tribal farmers in my study area. Limited access to credit can impede farmers' ability to invest in alternative income-generating activities, potentially perpetuating dependence on agriculture alone. Lack of awareness and government encouragement about the subsidiary occupations/alternative enterprises (mean score of 1.25, ranked ninth) is a another kind of challenges faced by tribal farmer. There are many scheme which is beneficial to the tribal community but they are not aware about those scheme because of their low level of education, social participation and mass media utilization. This suggests a need for increased awareness and government support for diversifying livelihood options beyond traditional agriculture. Dearth of education facilities (mean score of 1.13, ranked tenth), dearth of health care services. (mean score of 1.11, ranked eleventh), and poor accessibility of extension agencies for technical guidance (mean score of 1.09, ranked twelfth) are another constraints face by tribal farmer. Inadequate educational facility leads to limited access to knowledge and skills necessary for both agricultural and non-agricultural sector which hindering their ability to enhance productivity and efficiency to sustain their livelihood. Poor access to healthcare services can adversely affect the health and well-being of rural communities, impacting productivity and quality of life. Limited access to extension services hampers farmers' ability to access technical knowledge, timely information, decision making ability and resources necessary for improving agricultural practices and productivity.

A perusal of the data presented in Table 2 reveals that the suggestion assured supply of basic living amenities like water, fuel etc. be made expressed by mean score of 1.70 stood first. It underscores the critical importance placed on ensuring access to essential resources like water and fuel in rural areas. This indicates a strong consensus on the necessity of addressing these fundamental needs for improving living standards. Coverage of insurance and health programmes for tribal farmers and governments assistance be provided in creation of assets like land, house etc. ranked second with mean score of 1.69. It indicates a strong support for extending insurance and health programs to tribal farmers. This reflects an acknowledgment of the specific needs and vulnerabilities of this particular demographic group. Governments assistance be provided in creation of assets like land, house etc. ranked third with the mean score of 1.67. It provides support for government intervention in facilitating the creation of assets like land and housing. It reflects a recognition of the role government can play in providing opportunities for asset ownership and economic stability in rural areas. Social structures like school, hospitals, transportation etc. be create ranked fourth with the mean score of 1.64. The creation of social structures such as schools, hospitals, and transportation infrastructure ranks fourth. This suggests that while

recognized, there might be other pressing issues deemed more urgent or critical by respondents. Provide fencing protecting from pig attack in farm ranked fifth with the mean score of 1.62. It highlights the challenges faced by tribal farmers, such as protecting their farm and livestock from wildlife threats, but suggests that other interventions might be considered more critical. More livelihood development projects in rural areas be encouraged ranked

sixth with the mean score of 1.54. This suggests that while livelihood development is valued, it might not be perceived as an immediate priority compared to other interventions. Awareness about different government schemes ranked seventh with the mean score of 1.48. That indicates a perceived need for more effective communication and outreach efforts to inform rural tribal communities about available government programs and support.

**Table 1:** Problems encountered by the tribal farmers for livelihood security

(n=180)			
Sr. No.	Statements	Mean score	Rank
1	Uncertainty of rainfall	1.84	2
2	Inadequate irrigation facilities for farming as well as to maintain livestock.	1.66	6
3	High cost of inputs even to take small enterprises	1.55	7
4	High cost of agricultural inputs	1.87	1
5	High prevalence of pest and disease	1.77	3
6	Lack of awareness and government encouragement about the subsidiary occupations/alternative enterprises	1.25	9
7	Lack of credit to invest on other income generating activities	1.29	8
8	Lack of remunerative prices for farm produce and high price fluctuation.	1.69	5
9	Poor accessibility of extension agencies for technical Guidance.	1.09	12
10	Dearth of education facilities.	1.13	10
11	Dearth of health care services.	1.11	11
12	Attack of pigs in the farm	1.75	4

**Table 2:** Suggestion of the tribal farmers for better livelihood security approach

(n=180)			
Sr. No.	Statements	Mean score	Rank
1	Assured supply of basic living amenities like water, fuel etc. be made	1.70	1
2	Social structures like school, hospitals, transportation etc. be create.	1.64	4
3	Governments assistance be provided in creation of assets like land, house etc.	1.67	3
4	More livelihood development projects in rural areas be encouraged.	1.54	6
5	Coverage of insurance and health programmes for tribal farmers.	1.69	2
6	Awareness about different government schemes be created.	1.48	7
7	Provide fencing protecting from pig attack in farm	1.62	5

**Conclusion**

The study's findings indicate that the primary challenge faced by tribal farmers is the high cost of agricultural inputs ranked first. Additionally, significant problems highlighted by a majority of tribal farmers include uncertainty of rainfall (ranked second), high prevalence of pests and diseases (ranked third), pig attacks on farms (ranked fourth), and the lack of remunerative prices for farm produce and high price fluctuations (ranked fifth). The suggestion assured supply of basic living amenities like water, fuel etc. stood first ranked, followed by coverage of insurance and health programmes for tribal farmers and governments assistance be provided in creation of assets like land, house etc. ranked second and third, respectively. Social structures like school, hospitals, transportation etc. be create (fourth rank), provide fencing protecting from pig attack in farm (fifth rank), more livelihood development projects in rural areas be encouraged (sixth rank) and awareness about different government schemes be created (seventh rank).

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