



# Farming Activities in Mining Regions of Odisha- A Case Analysis of Koraput District

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*Abstract:* The mining sector although leads to economic growth and development in society, also leads to huge environmental degradation. It also affects the farming activities to a greater extent. This study attempts to analyse the influence of bauxite mining on the agricultural activities of the mining and non-mining regions in the Koraput district of Odisha. The study is based on the primary data. It was observed that there was low productivity of crops in the mining region, producers could not also produce and sell vegetables in the market, whereas the producers in the non-mining region also earned by selling the vegetables. There is a need for policy actions to reduce the influence of mining activity on farming activities and ensure sustainable development.

**Keywords-** Bauxite mining, agricultural activity, productivity, yield

## I. INTRODUCTION

The primary activity of mineral extraction is therefore crucial on the one hand as far as economic development is concerned. Since it brings a lot of employment opportunities and income to the people engaged directly or indirectly with it and the development of the local region through the development of social overhead activities. On the other hand, it leads to environmental degradation and health deterioration of living organisms to a greater extent. It has been found that soil is polluted due to the deposition of dust due to mining which leads to changes in chemical properties and nutrient content of the soil. This ultimately affects the agricultural production and productivity of the peripheral region. The Koraput district of Odisha has the largest bauxite mine in Asia located at the Panchpatmali hills with 310 million tonnes of resources and a present capacity of 68.25 lakh tonnes per annum. Therefore, this paper attempts to study the influence of bauxite mining on farming activities in the Koraput district of Odisha.

## II. REVIEW OF LITERATURE

Many literatures regarding the impact of mining on agriculture and soil were consulted. Mining has adversely affected agriculture and human health (Hota and Behera, 2015). Open-cast mining reduced soil fertility and inhibited plant growth as well as reforestation (Ghose and Kundu,2003). Due to the deposition of coal dust and changes in landforms, the fertility of the soil has decreased. Due to the lack of soil fertility and low rainfall in that region, production is not being generated on agricultural land resulting in a decrease in farming practices (Guha, 2014). Due to the low agricultural productivity, the people of the mining region have also moved from farming to mining, and have earned a higher income, which compensates for the loss (Mishra and Pujari,2008). More mining operations have resulted in a larger clearance of forest, and mine waste dumps near bodies of water runoff into rivers, directly polluting agricultural fields through silting. The region's dairy

production has also been impacted by the absence of plantations, deforestation, land degradation, and contamination of the water and soil (Talule and Naik, 2014). There are fewer or no studies conducted in the bauxite mining region of Koraput regarding the impact of bauxite mining on agriculture. Therefore, this study tries to study the influence of bauxite mining on farming activities in the Koraput region of Odisha.

### III. DATA AND METHODOLOGY

This study is based on primary data collected from the households of the mining region and non-mining region of Koraput district. Two villages from the mining block of the district were chosen as the mining region located within a 5km distance from the Panchpatmali bauxite mines. The other two villages from the non-mining block were randomly chosen as the non-mining region of the district for the study area. The data were collected from 25 households in each of the villages with the use of structured questionnaires and analyzed using descriptive statistics.

### IV. RESULTS AND DISCUSSION

#### 4.1 Socio-economic profile of the sample households

The following section provides the socio-economic profile of the sample households of both the mining and non-mining regions:

**Table 4.1: Socio-demographic profile of the respondents**

	Mining region		Non-mining region	
<b>Marital status of the respondents</b>				
Married	42	84%	43	86%
Unmarried	8	16%	7	14%
<b>Gender of the respondents</b>				
Male	41	82%	28	56%
Female	9	18%	22	44%
<b>Social category of the respondents</b>				
OBC	0	0%	32	64%
SC	4	8%	10	20%
ST	46	92%	8	16%
<b>Religion of the households</b>				
Hinduism	48	96%	50	100%
Christianity	2	4%	0	0%

Source: Primary survey

**Table 4.2: The main occupation of the respondents**

Mining region			Non-mining region		
Casual Labour	3	6%	Business	1	2%
Dependent	1	2%	Casual Labour	5	10%
Farmer	15	30%	Dependent	7	14%
Housewife	3	6%	Farmer	20	40%
Mine Worker	28	56%	Housewife	16	32%
			Private Employee	1	2%
Total	50	100%	Total	50	100%

Source: Primary survey

From Table 4.2, it could be observed that 56 per cent of the respondents of the mining region were engaged in the nearby mines. The people were engaged in various kinds of jobs in the mine like maintenance workers, drivers, permanent employees in the company, etc. The engagement of people in this huge number proves

that mining activities create employment opportunities for people to a greater extent. After the mining activities, the people in the mining region depended on agriculture since it could be seen that 30 per cent of the respondents from the mining region were farmers. But farming was seen to be the major activity in the non-mining region constituting 40 per cent of the respondents. The dependent respondents and the housewives were found to be more in the non-mining region as compared to the mining region. The housewives of the non-mining region worked as casual labourers and agricultural labourers but with a very low frequency.

#### 4.2 The scenario of agriculture in both the mining and non-mining region

This paper tries to analyse various factors like ownership of cultivable land, land borrowed for the cultivation of crops, crops produced and crop yield in both mining and non-mining regions to study the impact of mining on agriculture.

**Table 4.3: Ownership of cultivable land of the households**

Ownership of cultivable land	Mining region		Non-mining region	
no	16	32%	8	16%
yes	34	68%	42	84%
Total	50	100%	50	100%

Source: Primary survey

Table 4.3 shows the status of ownership of cultivable land by the households of the mining as well as non-mining regions. It could be seen that around 84 per cent of the respondents of the non-mining region and 68 per cent of the respondents of the mining region had their cultivable land. There were more respondents in the mining region with no land constituting 32 percent of the total respondents but the proportion of such respondents was half in the non-mining region.

**Table 4.4: Land borrowed for cultivation by the households**

Land borrowed (in acres)	Mining region		Non-mining region	
0	49	98%	47	94%
1	1	2%	1	2%
2	0	0%	2	4%
Total	50	100%	50	100%

Source: Primary survey

Table 4.4 depicts the number of households that have borrowed land for cultivation. It was mainly observed that the households who were landless borrowed land for cultivation. In the mining region, only 1 respondent borrowed 1 acre of land out of the 16 landless respondents while in the non-mining region, 3 respondents borrowed land for cultivation out of the 8 landless respondents for cultivating various crops.

**Table 4.5: Number of households producing vegetables along with other crops**

Households producing vegetables	Mining region		Non-mining region	
no	50	100%	21	42%
yes	0	0%	29	58%
Total	50	100%	50	100%

Source: Primary survey

It could be understood that the respondents in the mining region did not prefer agriculture as a good occupation since they complained of the very low productivity in the region. The respondents of the mining region were found to producing only paddy, finger millet, and little millet to some extent. It was found that there were 32 respondents out of the 35 respondents in the mining region who cultivated crops for the sole purpose of self-consumption i.e., 91.42 per cent of the farmers of the mining region cultivated for self-consumption only. In contrast to this, all the 42 respondents having cultivable land in the non-mining region were found to be

cultivating various crops for commercial purposes and self-consumption as well. The farmers of the non-mining region were found to be mainly producing paddy, finger millet, and little millet along with a lot of vegetables like beans, brinjal, cabbage, cauliflower, tomato, potato, onion, flax seeds, sunflower, ginger, chilli, lady's finger, yam, etc. It was observed that no household in the mining region produced any vegetable and around 58 per cent in the non-mining region were engaged in vegetable production along with paddy and finger millet (Table 4.5).

The crop yield of paddy and finger millet which were the major crops of both the regions was calculated. It was found that the average paddy yield in the mining region was found to be 483.24 kg/acre whereas the average paddy yield in the non-mining region was found to be 770.44kg/acre. And, the average finger millet yield in the mining region was found to be 193.38 kg/acre whereas the average finger millet yield in the non-mining region was found to be 625.76kg/acre. So, it could be seen that there was lower productivity of both paddy and finger millet in the mining region than in the non-mining region.

## V. CONCLUSION

Bauxite mining being a major economic activity employed many people in the Koraput district of Odisha. The bauxite mining has significantly affected the agriculture sector of this region. Although few people had land with them, they could not get a minimum satisfactory amount of agricultural produce out of it. The yield of paddy as well as finger millet was found to be so low which were the major produced crops of the region. The low productivity of the crops in this region has led the local people of the mining region to shift towards other economic activities other than agriculture. Therefore, some policy measures should be taken by the government and mining companies to address the negative impact of mineral extraction on agriculture in mining regions.

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