



SOIL MINING IN BUNDELKHAND REGION: AN ANALYSIS

ARBIND KUMAR GUPTA

Banda University of Agriculture & Technology, Banda, Uttar Pradesh, India

*Corresponding Author, E-mail: arbind4gupta@gmail.com



Bundelkhand region of central India situated between longitude 78°20'N and 81°40'N and latitude 23°20'E and 26°20'E, bordering Uttar Pradesh state in the north and Madhya Pradesh state in the south. The region is divided into 13 districts covering seven districts of Uttar Pradesh (Banda, Chitrakoot, Hamirpur, Jalaun, Jhansi, Lalitpur and Mahoba) and six districts of Madhya Pradesh (Chhatarpur, Datia, Damoh, Panna, Sagar and Tikamgarh).

Soils of Bundelkhand region are complex and highly variable due to diverse parent materials, physiographic land features, and erratic rainfall. Based on soil texture Bundelkhand soils have been broadly grouped into four major types i.e. Mar, Kabar, Paruwa and Rakar. Major problems challenging agriculture in Bundelkhand region are water deficiency, low soil fertility, soil erosion, inappropriate land distribution, depleting ground water resources and unscientific cultivation practices.



In the Bundelkhand region of Uttar Pradesh, most of the households earn very low income due to a number of mutually enforcing factors. People of this region often migrate to other states in search of employment and food. The most often mentioned factor is the extreme water scarcity in the region though the situation is more complex than that. The region is characterized by the omnipresence of shallow soils that rest directly on the bedrock. About 50-70% of the land in Bundelkhand upland and intermediate zone are not suitable for agriculture. The region receives rainfall for a very short period of three months with average annual rainfall of 850 mm. This limits the scope of irrigated agriculture in the area though water from rivers flowing through this region such as Ken, Betwa and Yamuna are utilised to meet domestic requirements as well as for irrigating farm fields of some areas.

Soil is one of the most valuable gifts of nature to each and every living form on earth as it is closely connected with their food system. Hence, it is our duty to use this precious natural resource wisely for the larger benefit of the society and also to ensure sustainable agricultural development. However, when agriculture provides low return and no longer supports the subsistence farmers are forced to choose other cost-effective activities utilizing their farmland. Incidentally, conversion of fertile agriculture lands to brickyards, and removal of soil from

agriculture fields for developmental activities like making of Expressways are seriously challenging the farm based livelihoods in Bundhelkhand agriculture (Figure 1). While digging water conservation ponds in and around the agriculture field farmers generally sell 50-60 percent of the mined soils. Also, top soil harvested from agricultural lands is being used in the construction and shaping of canals under the Ken-Betwa River Linking Project of central government which connect various districts of Madhya Pradesh and Uttar Pradesh through canals.

Small and marginal farmers of Budelkhand started selling out the top soil (10m depth) of their farmlands to contractors for fast cash while, some large farmers of the region purchase land from small farmers for soil mining process. Since the formation of one inch of soil requires thousands of years, loss of top soil to this much extent would definitely going to create huge impact on the agriculture based food system of the region in the future. It is well known that soil mining and land degradation have inseparable connectedness. Unscientific mining always caused land degradation, accompanied by subsidence and consequential mine fires and disturbance of the water table leading to topographic disorder, severe ecological imbalance and damage to land use patterns in and around mining regions in India (Saviour, 2012; Soni and Vyas, 2015)



Figure 1. Soil removal for the construction of expressways in the Banda district of Bundelkhand (Source: Author)



Utilization of clay for building purposes has a long history and bricks are one of the cheapest construction materials in rural India even now. Studies in the clay mining regions of Bundelkhand showed deterioration of lands at a faster pace with declining crop productivity and profitability. Also there is an exceptional increase in the infrastructural needs of the region as a result of the increase in the clay extraction process. Brick making has become a lucrative business in many districts of Uttar Pradesh viz., Jhansi, Banda, Hamirpur, Chhatarpur. The growing brick industry has replaced many farmlands as brick kilns in these areas. This shift has adversely affected the entire landscape causing irreversible damages to soil, hydrology and ecological balance of this area. Many of the mined areas remain barren and reduce the extent of agriculture along with the emergence of serious problem of water scarcity (Sweta and Adi, 2021).

CONCLUSION

Now, it's concluded that the indiscriminate mining of top soil from agricultural lands for small scale brick production, personal profit and earn money have resulted in the deterioration of the physico-chemical and biological properties of soil resulted negative impacts to the environment. This has resulted in the reduction of soil productivity and in turn affecting the land use pattern of that area. Eco-restoration of the mined land will be ensured by the mine owners and provision of strict punishment/penalty should be there.

A portion of revenue earned from mining in area should be reserved for the infrastructural development and Research purposes of the area directly. All relevant stakeholders in the mining sector including Forest Department, Environmental Department, Mining Department, District Administration, Mine Owners and Land Owners among others should strengthen collaboration among themselves for effective enforcement and compliance of the mining rules & regulations and implementation of Eco-restoration. Forest Department, Environmental Department, Mining Department, District Administration can play leading roles in the facilitation process.

REFERENCES

- Soni, K. and Vyas, N. 2015. A Study of Occupational Health and Safety Related Practices in Mining Companies of Southern Rajasthan: A Systematic Review, IJARIE 01 (04): 92-103.
- Saviour, M.N. 2012. Environmental Impact of Soil and Sand Mining: A Review, International Journal of Science, Environment, 01 (03): 125-134.
- Sweta, S. and Adi, V. K. 2021. Utilization of Abandoned Mine Soil in Making Bricks to Be Used for Construction Activity, International Journal for Research in Applied Science & Engineering Technology (IJRASET), 09(IX): <https://doi.org/10.22214/ijraset.2021.37393>
