



RESEARCH ARTICLE

SOCIO ECONOMIC IMPACTS OF CLAY MINING ON LOCAL LIVELIHOODS: A CASE STUDY FROM VELICHIKKALA, NEDUMPANA PANCHAYAT, KOLLAM DISTRICT, KERALA

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ABSTRACT

Man's use of environment many times can create several problems. Expanding human requirement and socio economic developments imposes ever increasing pressure on our resource base. English India clay Ltd worked at Velichikkala, kollam district engaged in mining and processing of china clay. Total reserves of clay both sedimentary and residual are 7.4 million tonnes. The Company produced different grades of kaolin. Although mineral resources are the important economic commodity for trade and commerce, mining and processing of mineral resources in Velichikkala created many socio- economic problems even after the mine was closed. This paper reports the findings of a study undertaken in to assess the socio-economic problems due to mining in Velichikkala, Kollam district.

INTRODUCTION

Mineral constitute the backbone of economic growth of any Nation. The progressive industrialization has increased the demand for minerals many fold and resulting in the tremendous production of minerals. Minerals are nonrenewable resources and are mostly found under the surface of earth and can be extracted only by mining. A mineral once taken from its deposit is lost forever. That is why much attention has been paid in recent years to their conservation and sustainable utilization. Kerala, a state having high population density and low per capita land availability is endowed with a number of mineral deposit such as clays, placers, silica and, limestone, lime shell, graphite etc. Although different types of clays are reported from Kerala, the state is known for high quality china clays of residual and sedimentary origin. These deposits are concentrated mainly in the midland and lowland regions where population density is low.

Study Area

The area is located in Velichikkala, 10th ward of Nedumpana Grama Panchayat of Kollam district which falls in 8^o 53' 34'' N latitude and 76^o 43' 21'' E longitudes (Survey of India toposheet no: 58 D/9). The location is depicted in Fig.1. The total mining area is about 8.5 acres. The clay mine is situated near the confluence of two small first order channels

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originating on either sides of Miyannur hill (the highest point in the area with an elevation of 108 m above mean sea level) with the Palliman river Ara major tributary of Ithikkara River. The longer side of the mine is almost parallel to the main power line passing through the western side of the mine. The study area is in Nedumpana Grama Panchayat. This Panchayat is constituted by two villages Nedumpana and Pallimon. Its Block Panchayat is Ithikkara. Block Panchayat divisions are Nedumpana, Puliya and Muttakkavu. District Panchayat divisions are Nedumpana and Ithikkara and belongs to Kollam Taluk. The total area of the Panchayat is 28.06 sq.km, which is bounded by Kareepra Panchayat in the north, Adichananalloor Panchayat in the south, Pooyappally Panchayath in the east and Trikkovilvattom and Kottamkara Panchayat in the west

MATERIALS AND METHODS

Data for the case study were obtained from both primary and secondary sources. Primary data were obtained through socio economics surveys. They were conducted using questionnaire in the surrounding areas of mining sites. Field visit have been conducted in clay mine and surrounding areas to collect data. Interview were held with the members of the Action council, company officials and local people. Study area is located using GPS. A base map of the study area was generated with the help of survey of India toposheet no 58 D/9 with a scale 1.50,000 with the help of the base map different types of maps was prepared using Arc GIS. Secondary data were collected from different sources like Vikasanarekha (Nedumpana Panchayat), data regarding land use changes has been collected from CESS (Centre for Earth Study Centre, Trivandrum) report.

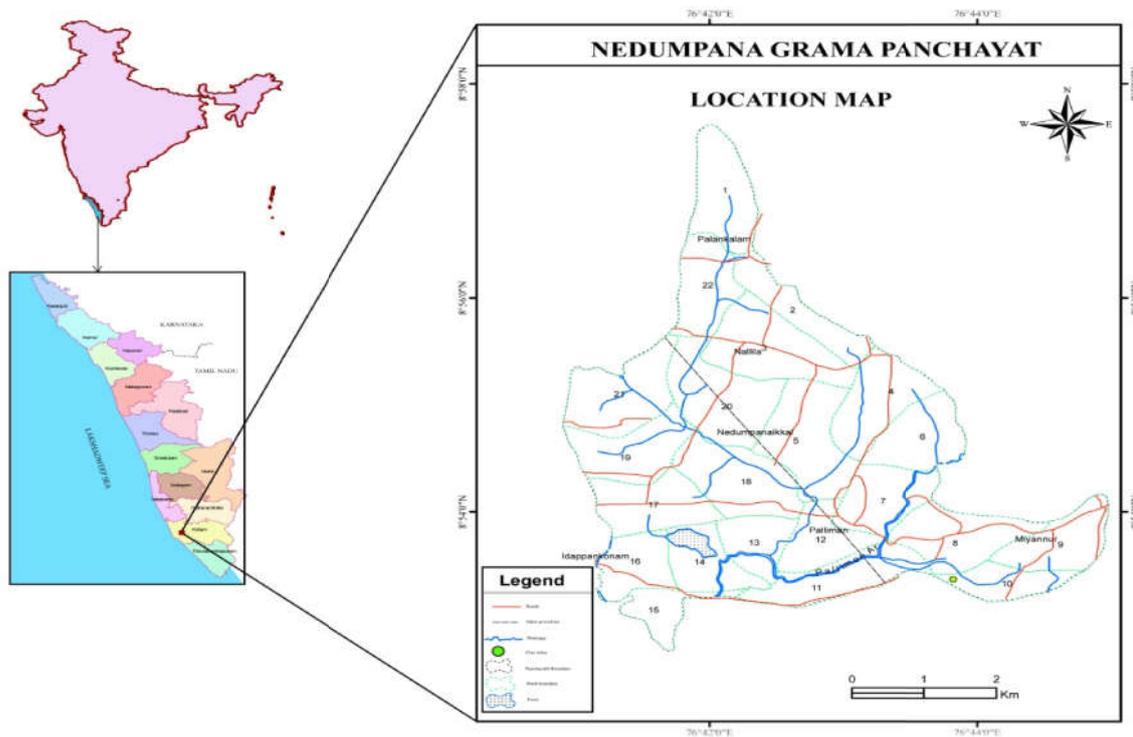


Fig. 1. From the base map different types of maps were prepared using Arc GIS

RESULT AND ANALYSIS

Socio Economic Problems

In the tradeoff between the socio-economic needs and environmental conservation generally the former takes the upper hand. In a situation where competing demand do occur, choice of the most environmentally viable activity is extremely difficult. The mining of clays from Velichikkala is not an exception. On the one hand the demand for construction material are to be met as these are some of the basic needs inherent in variable scale of development in the process the resource demand for such activities is bound to shoot up. China clay mining provide employment opportunities to a section of people in the area directly and several hundreds of labours of the user industries indirectly. More than 20 labours from the nearby areas are worked in the company. Therefore it is sure that economic base of the area enhanced at the time of functioning of company. In addition to the positive impact mining created many social and economic problems. So many local people were forced to leave from their land due to the commencement of the factory. Initially the company provided job to a section of people in the area. The employment potential of the mining was much less than claimed and very few locals are actually benefited. The workers from other area caused increased pressure on the locally available resources such as water, land, fuel wood etc. But however it is observed that more than 10 labours lost their job after the company was closed. It is also affected the health and livelihoods. It caused a division in communities over who benefits from the mine and who doesn't. Socio economic impacts mainly assessed through questionnaire survey. Fifty people were responded to the questions. 34 male and 16 females. Ten people from the age between 18-25, sixteen from 26-35 age group and twenty-four

people from the age 36-50. They are the local people living in the mining sites (Table 1).

Table 1. The structure of population and age of the respondents

Year	18-25	26-35	36-5	Total no of respondents
Sex				
Male	8	10	16	34
Female	2	6	8	16

Impact on Human Health

Open cast mining is more severe than underground mining on pollution. Local peoples and miners are persistently exposed to large concentration of dust, gaseous pollutants, high levels of noise and last but not the least accidents, which constantly pose a severe threat to people's life. The data on various health effects obtained from the current survey around the clay mining site illustrated in Figure-2. Health problems related to skin and respiratory disorder are widely prevalent in the area. Maximum of the respondents complained problem related to skin diseases and allergic disorders. Total of 20 respondents have skin problem which comprises of 12 men and 8 women, 14 respondents has respiratory and allergic problems with 8 men and 6 women. 6 respondents have hearing problems and 6 has eye problem. 4 have suffering from cancer, which comprises 3 men and 1 woman.

Impact on landuse and economic activities

The various economic activities of the individuals of sample households reveals that the members are engaged in diverse occupations. Agriculture is the most predominant activity among the population. 58 percent people are engaged in agriculture.

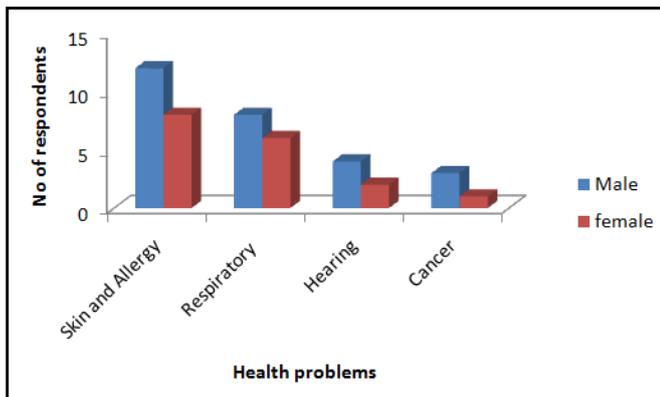


Fig. 2.

Table 2. Economic activities of the respondents

Occupation	Male	Female	Total	Percentage
Agriculture	19	10	29	58
Contract labourers	7	3	10	20
Govt. employees	4	2	6	12
others	4	1	5	10

In the mining zone half of the household own livestock. 20 percent people were contract labours in the company. They lost their job after the company was closed. 12 percent people have permanent employment in the govt sector (Shown in Table 2) Mining in Velichikkala caused physical disturbances to the landscape. Such disturbances caused degradation of land and socio-economic problems. Due to mining operations undertaken in the fertile or productive land, the areas available for cultivation, forestry and grasslands are reduced. These negatively affected the agricultural production. The area where clay mining is practiced is usually paddy lands which are generally devoid of any natural vegetation Fig. 3. shows the land use map of affected area.

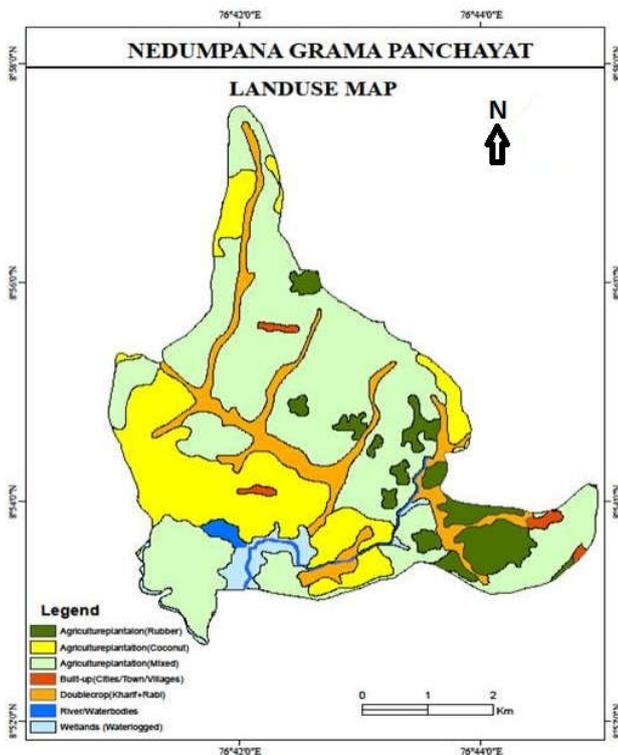


Fig. 3.

Clay mining is the process of scooping of soil that actively supports the agricultural activities of an area. The removal of naturally formed soil for clay mining affected the land use pattern. The top soil is usually fertile in nature. The present study also reiterates the fact that the top layer is several folds richer in N, P, K and other micro nutrient elements. But according to some farmers in the Velichikkala, the top soil of certain areas of paddy lands is unsuitable now for agricultural activity. Nearly 25 families near the mine mainly depend up on agriculture. Due to acid water and wastes material from mine, the soil fertility of the land reduced. These adversely affected the agricultural production.

Conclusion

The indiscriminate and unscientific mining of mineral resources lead to serious environmental problems. Therefore extraction of mineral resources has to be planned and extracted with utmost care for maintaining a balance with development and environmental management. The lack of sufficient scientific information regarding the reserve, rate of mining, details of user industries and also environmental problems consequent to mining is a major gap challenging the existing efforts to stream line the mining activities on an environmental friendly basis. In the case of China clay mining in Velichikkala also we can see some of these problems like water pollution, land degradation and socio economic problems even after the company were closed.

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