

## A STUDY OF EFFECTS OF MINING, URBANIZATION AND POLLUTION ON THE ARAVALLI HILLS OF GURUGRAM

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**Abstract:** Mining is a destructive activity for biodiversity which helps in providing fuels, minerals and raw materials. The paper discusses the Mining in Aravalli zone which has led to Urbanisation and Pollution, which is an aftermath of it. At present the Honourable Supreme Court of India has banned mining in the hills and the matter is under legal consideration. This paper takes an analytical approach in identifying the major effects and consequences of mining, urbanisation and pollution both environmentally and socially. This present paper also includes an on-field survey conducted among the locals residing there, and the findings of the same.

**Key Words:** Mining, Urbanisation, Pollution, Deforestation, Animal carcasses.

**Introduction:** The Aravali Range (also known as the Aravali Hills) is a range of mountains at a length of 800 km, passing through the states of Gujarat, Rajasthan, Delhi and Haryana. It is one of the oldest geographical formations in the world as it is believed to be formed due to the pre-Indian subcontinent collision with the Eurasian Plate. These hills contain a variety of minerals like quartzite, which is used to cover walls, as roofing tiles, as flooring, and stair steps, and many more. The process of extracting ore or minerals from the ground is known as mining. Since Aravallis was seen as a mining zone, urbanisation started happening in and around it. On one hand it has led to development in various sectors viz. social, economic, transport, educational, industrial, etc. but on the other hand it has led to many serious physical, chemical, biological and environmental concerns including climatic changes [Malik et al., 2010; Karanth et al. 2013; Yadav et al. 2014; Dutta et al. 2014; Kaur et al. 2014].

Due to rapid Urbanisation, the hills have been exploited for raw materials and have been polluted badly [Dutta et al., 2014]. Rapid and large scale deforestation may also induce climatic changes in the region [Kaur et al., 2014]. According to a law passed by the Municipal Corporation of Gurugram (then Gurgaon), dumping of animal carcasses was made legal on the hills in the year 2015-16. This open dumping of animal bodies became a serious issue, because the rotting bodies were source of numerous infections for the local animals and residents. The air quality was severely affected. Dead bodies of animals was dumped in open areas and vultures fed on them. The birds thus became susceptible to the diclofenac drug, which is usually administered to cattle as a painkiller. Though the drug was banned by the government, it is still used.

Numerous incidents of infections among the locals were reported and the root cause for them was found out to be the widespread pollution on the hills. The Aravallis is home to several wild animals, including

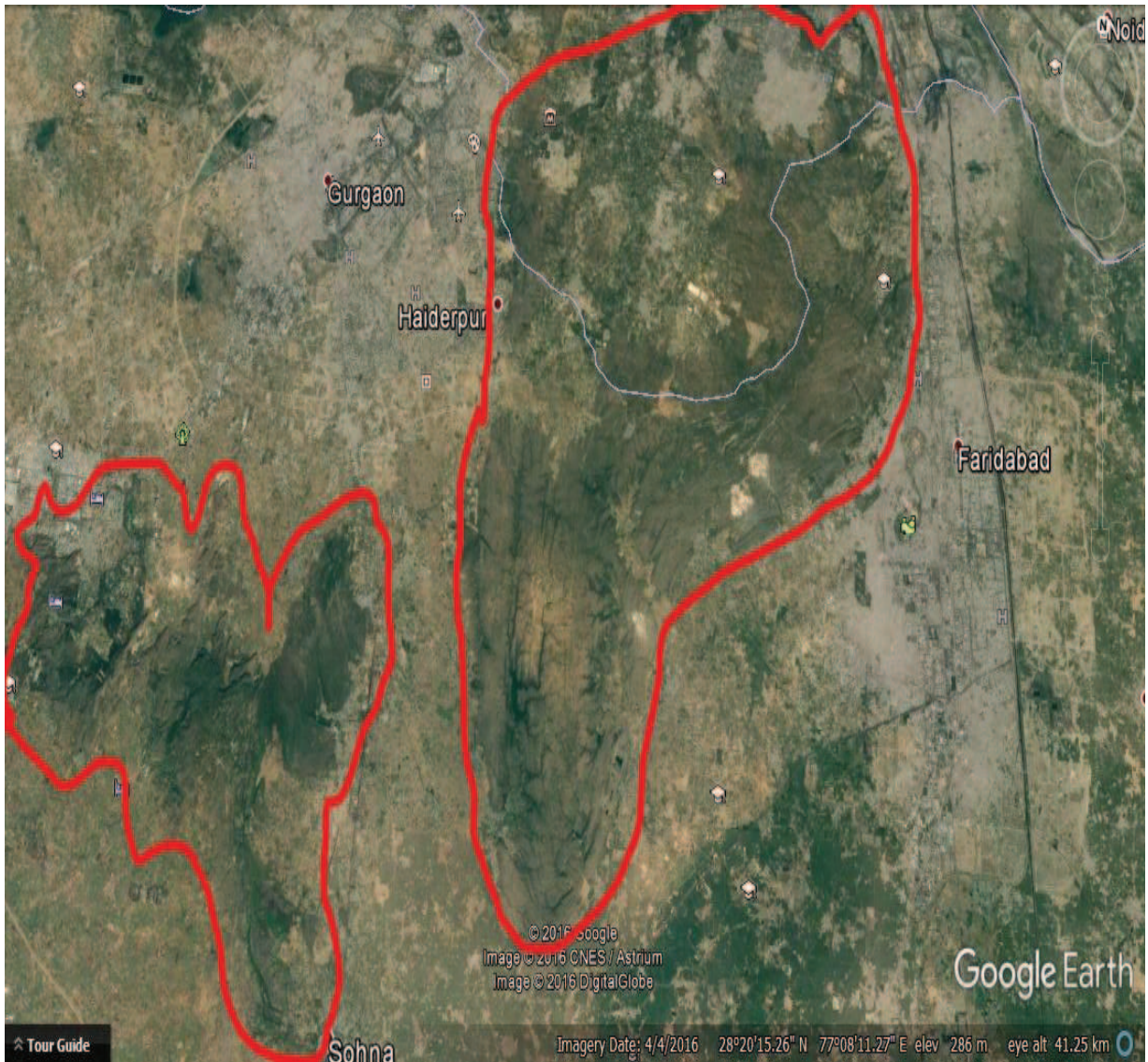
leopards, hyena, the Indian fox and several species of vultures among others. The spread of infections among all these animals could severely affect the ecosystem, and lead to many diseases and even death of these animals.

**Case study:** For more elaborate information and deep research, we went to the Aravalli range in Gurugram and personally questioned the locals about the situation in the hills. We questioned 12 people in total. Summary of questionnaire is given below:

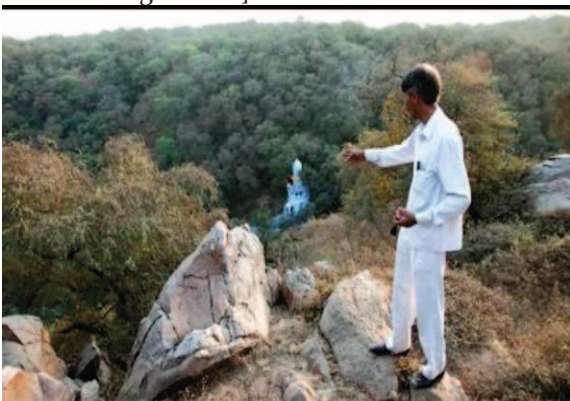
- 1) For how long have you been living here?  
Ans) 9 people out of the 12 questioned have lived there all life.
- 2) What is your main source of income?  
Ans) Some people were employed in the private sector, and some were also included in their own small businesses.
- 3) Was this place the same when you moved here? If no, then what changes have you seen?  
Ans) Majority of people agreed that the place has changed a lot.
- 4) What are the major problems faced by the residents?  
Ans) Land being acquired for buildings and residential areas. A lot of green areas gone brown due to deforestation. The groundwater level has also gone down significantly.
- 5) What do you think is the government doing to make life better here?  
Ans) The government hasn't done much about this issue, though people from NGO's have been doing a lot of work.
- 6) Are the government policies being implemented correctly?  
Ans) No, the government policies are not implemented well. There is still a lot of dumping that can be seen, although marble waste dumping has decreased.
- 7) What more policies do you want for yourself?  
Ans) We want the pollution to be removed as soon as possible as it is severely effecting the health of our

family members. Also, the occasional dust from mining activities also makes us uncomfortable. We need stringent laws and efficient implementation.

8) Are the local animals providing any threats to you?  
Ans) No, in fact humans are proving to be a threat to wildlife now.



[Source: Google earth]





[Actual site photographs taken by the authors]

**Discussions and conclusion:** It was observed during site visit that a lot of bio-diversity has been lost in the recent past owing to rapid urbanisation and stress of population growth. Although full recovery of the area may take a lot of time but continuous scientific research and sound environmental policies by the government in association with NGO's, public and other stakeholders would go a long way in the restoration of Aravalli and mitigation of the mining effects.

#### References:

1. Dutta, A., Grover, A. and Bhardawaj, A. (2014). An Assessment of Effects of Mining in the Aravali Range, India. *Science and Nature*, 63-66.
2. Karanth, K. K., Naughton-Treves, L., DeFries, R., & Gopalaswamy, A. M. (2013). Living with wildlife and mitigating conflicts around three Indian protected areas. *Environmental management*, 52(6), 1320-1332.
3. Kaur, A., Mendiratta, A., Mishra, A. and Bhardawaj, A. (2014). A Review of Current Research of Global Climatic Change Impacts. *Science and Nature*, 67-72.
4. Malik, V. K., Singh, R. K., & Singh, S. K. (2010). Impact of urbanization on groundwater of Gurgaon district, Haryana, India. *International Journal of rural Development and Management Studies*, 5(1).
5. Yadav, A., & Punia, M. (2014). Socio-economic and ecological transformations of the peri-urban region of Gurgaon: An analysis of the trickle-down effect in the post globalization era. *The International Archives of Photogrammetry, Remote Sensing and Spatial Information Sciences*, 40(8), 1269.

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