CONVERSATIONS: National Mineral Policy 2019 — balancing stakeholder interests and concerns

Economic Opportunities and Environmental Challenges Offered by India's New Mineral Policy

Ram Ranjan [*]

1. INTRODUCTION

India's National Mineral Policy (NMP) 2019 proposes to increase the mining of minerals by 200% in the next seven years. The objective is to reduce the trade deficit in the mineral sector by 50% and increase the share of manufacturing in the national GDP. An increase in domestic extraction of key minerals, such as iron, manganese and limestone, will certainly provide economic stimulus to the local regions besides offering a stable base to the manufacturing sector. The immediate benefits of domestic mineral extraction will be an increase in royalties to the state governments and employment and income generation due to forward and backward multiplier effects.

2. NMP AND RARE EARTH MINERALS

The NMP could focus more on the exploration and exploitation of rare earth minerals, which will become increasingly crucial to supporting home-grown strategic and commercial industries in the future. For instance, neodymium, which has strong magnetic properties, is crucial for miniaturization of electronic products (e.g. smartphones) and is an essential component in a range of products such as MRI scans, TVs, aircrafts and turbines. Similarly, India's push towards electric cars will require a steady supply of rare metals such as lithium, cobalt and neodymium. Currently,

[*] Department of Economics, School of Humanities and Social Sciences (SoHSS), Shiv Nadar University, NH - 91, Tehsil Dadri, Gautam Buddha Nagar, Uttar Pradesh, India 201314; ram.ranjan@snu.edu.in

India has only about 6% of global rare earth metals (at 7 MT) compared to China, which owns 36% (at 44 MT) (CNBC 2019). India does have a large reservoir of beach and sand minerals, at 35% of global reserves (The Economic Times 2016), and their exploitation can help support domestic industries. Production of strategically important monazite (which is a source of thorium) can further benefit from creation of processing and value adding ecosystems.

3. **MINING SECTOR'S CHALLENGES AND LIMITATIONS**

Jain (this issue), notes that the NMP is a win-win for the mining companies and the investors. However, for all these benefits to accrue, mining must be made corruption free, well-regulated, transparent, and the generated revenues invested in growth enhancing avenues. Global evidence indicates that mining revenues often get mismanaged. As a result, many mineral rich countries remain economically backward. Despite the strategic and commercial relevance of mining to countries, its long-term potential to support GDP growth is relatively small. The production value of non-coal minerals in India was only 27 billion USD in 2012 (2.1 per cent of GDP in 2010), whereas the same figure for China was 123 billion USD (1.8 per cent of GDP in 2010) (International Council of Mining and Metals 2014, 14). Currently, in developing countries, mining contributes not more than 5% per cent of GDP. Given the relatively small contribution of the mining sector to GDP, the trade-offs from growing mining activities need to be considered carefully.

4. **RECOGNIZING MINING'S IMPACT ON THE ENVIRONMENT**

Mining adversely impacts the environment and impairs its ability to provide ecosystem services. While the new policy identifies ecological hotspot regions as no-go areas, it may not be enough. Kumar and Basu (both in this issue) point out the need for a sustainable approach that addresses the vagueness in NMP and the 'resource curse' challenge.

Three environmental aspects of mining are worth noting:

- First, district level analysis of mining-driven deforestation suggests that districts that engaged in any type of mineral extraction (during 2001 and 2014) saw a net loss of 350 sq km of forest area compared to a non-mining district (Ranjan 2019, 32). Further, districts that engaged in coal, iron or limestone extraction suffered a larger loss of

450 sq km compared to those that do not produce these minerals. States rich in iron and coal, such as Odisha, Chhattisgarh, Madhya Pradesh, Karnataka and Jharkhand, account for 35% of country's forest cover. Therefore, any increase in mining will invariably lead to higher forest loss. The restoration costs of such large-scale forest degradation would become substantial and must be internalized within the cost accounting of private and government sectors that will benefit under the new policy.

- Second, deforestation and degradation of natural resources in India is also occurring due to the presence of non-mining related stressors, including urbanization, infrastructure development, climate change, natural hazards, population pressure, trade in timber and forest products, poverty and economic growth. The additional damages from mineral extraction in presence of these stressors can have a multiplier effect. Besides mining, farming is another major driver of deforestation. In India, agriculture still contributes 15% of GDP and employs more than 40% of the workforce (World Bank 2019). Allowing mining in agriculturally intensive regions would exacerbate the deforestation rate, directly as well as through a feedback process. The feedback process arises when mining affects soil and water quality, thereby reducing farm productivity. A loss in farm productivity promotes further clearing of forest lands.

- Third, a nexus invariably exists between the mining firms and the regulatory bodies; such nexus is sustained through direct and indirect political donations (Magat, Krupnick and Harrington 1986, chaps. 3 & 4). This nexus compromises the ability of the lawmakers to make and enforce stringent environmental regulations. The example of shale gas mining in rural Pennsylvania is worth studying, as it highlights the ineffectiveness of ex-ante economic cost-benefit analysis in protecting the environment and the local communities. Mining is often characterized by the use hazardous procedures that contaminate environment (such as radioactive leakages into water bodies, groundwater pollution or accidental spilling of chemicals or minerals into pristine environments). The Baotou region in China, which produces 85% of world's rare earth minerals, suffers from serious environmental pollution caused by leakages of reactive pollutants into water bodies. Every ton of rare earth metal production generates 2000 tons of reactive pollutants.

Early recognition in the NMP of the aforementioned consequences of mining will facilitate sustainable approaches in mineral extraction and ensure that irreversible environmental damages are minimized.

REFERENCES

CNBC. 2019. "Here's why China's trade war threat to restrict rare earth minerals is so serious." Accessed at https://www.cnbc.com/2019/05/30/heres-why-chinas-trade-war-threat-to-restrict-rare-earth-minerals-is-so-serious.html on December 16, 2019.

International Council on Mining and Metals. 2014. "The Role of Mining in National Economies" (2nd edition), October 2014. Accessed December 16, 2019. https://www.icmm.com/website/publications/pdfs/social-and-economic-development/romine_2nd-edition.

Magat, W.A., A.J. Krupnick, and W. Harrington. 1987. "Rules in the Making: A Statistical Analysis of Regulatory Agency Behavior," *The RAND Journal of Economics* 18 (3): 461-464.

Ranjan, R. 2019. "Assessing the Impact of Mining on Deforestation in India", *Resources Policy,* 60: 23-35. https://doi.org/10.1016/j.resourpol.2018.11.022.

The Economic Times. 2016. "India not realising potential of rare earth industry." Accessed December 16, 2019. https://economictimes.indiatimes.com/industry/indl-goods/svs/metals-mining/india-not-realising-potential-of-rare-earth-industry/articleshow/54940321.cms?from=mdr

World Bank. 2019. "Agriculture, Forestry and Fishing, Value Added (% of GDP)." Accessed December 16, 2019. https://data.worldbank.org/indicator/NV.AGR.TOTL.ZS on.