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Opinion: Strengthening India's Mineral Policy : Dr P K Jain

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Mineral exploration activities can't be viewed in the same way as mining but a high cost, high risk endeavour

As indicated in recent discussions by public officials, India's unexplored mineral potential area is a cause for concern. Extreme reliance on import of non- bulk minerals such as Cobalt, Lithium and Zinc only intensifies the lost opportunity to look inward, especially considering the fact that we have hardly explored our reserves in comparison to other part of world having similar geological setup. With each passing financial year, it seems more and more that deep seated mining for critical and strategic minerals is our only solution. As many have pointed out, mineral exploration activities can't be viewed in the same as way mining. Being a high cost, high risk endeavour, it is unlikely that private players will enter the market without encouraging incentives. Since FY15, only 7% of the auctioned mineral blocks were sought for deep seated minerals, none of them for the deep seated mining of Zinc, Cobalt or Molybdenum or PGM. The demand for these deep seated minerals goes beyond traditional industry trends- we need these resources to build a stable foundation for sustainable infrastructure and development to support our younger generation. The vision of a carbon free green future can only be realized with the help of planning that relies on sustainable materials and renewable energy. Copper, Zinc, Lithium and Nickel are of crucial importance to solar and wind energy, which we simply cannot afford to overlook. The current policy inclination indicates a hopeful future for harnessing our mineral potential- the National Mineral Policy of 2019 commits to reducing our import dependence for these minerals by prioritizing exploration activities as envisaged in National Mineral Exploration Policy 2016. Policy framework for optimal mineral extraction must not only encourage exploration and mining, but also focus on the state of naturally occurring deposits and their spread under the earth's surface- these minerals often run laterally, beyond the boundaries of traditionally auctioned mining blocks. As we move towards a policy dispensation that encourages deep seated mining, we must formulate a regime that optimizes the potential of these mineral resources. One such option is to allocate the desired portion of land additional to the leased area to the auctioned parties, subject to conditions of profit or revenue sharing with the government as suitable. A similar approach to this has previously been adopted for the oil and gas industry. The open acreage licensing policy gives interested players the freedom to bid for their acreage areas of choice, conditional to their compliance with the prescribed revenue sharing models. In line with this, a contiguous approach to the allocation system for the mining of deep seated minerals would encourage the full realization of mineral deposits in their naturally occurring form. Furthermore, the system of auctioning mining land must be augmented. The prevailing maximum area limit per player is a perilous contradiction to the right to do business and the vision of exploring our country's mineral potential. With a system that maintains transparency between players and the government, there is no reason to impose a limit on the area of land that can be allocated to each rule-abiding player. Finally, the bid parameters for allocating blocks can be revised to lend weightage more appropriately to expenditure commitments and revenue sharing in order to encourage participation, District Mineral Foundation (DMF) and National Mineral Exploration Trust (NMET). Apart from the obvious benefits of revenue creation for the government, this will also contribute to national employment and savings on foreign exchange for import of minerals and metals. The formula for bid parameters can also include incentives for originators other than government to stimulate scientific research among potential players. This measure will also combine the benefits of a firstcome-first-serve basis of land allocation, which is prevalent in most of India's mining competitors. India's current mineral policy framework has all the elements to achieve a vibrant mining industry that nurtures the country's economy in return. These reforms, if implemented, can be what elevates our economy to fulfilling our visions of being a self-sustaining giant.

(Author is former chief mineral economist and consultant, Indian Bureau of Mines(IBM), Nagpur. Views are personal)

Source: Economic Times

Central Government Giving Top Priority to Mineral Exploration & Development of Northeast, Says Union Minister Shri Pralhad Joshi

Ministry of Mines is making continuous efforts to encourage mining activities pan India. Accordingly, to further encourage exploration activities in the mineral rich North East region, the first "Northeast Geology & Mining Ministers' Conclave was held on today at Niathu Resort, Chumukedima, Dimapur, Nagaland. In the event, North-East Mines and Coal Ministers' committee put forward their concerns and demands before the Union Minister of Mines, Coal and Parliamentary Affairs, Shri Pralhad Joshi. Addressing the same, Shri Pralhad Joshi said that the North East region has been accorded top priority for development under the Prime Minister's agenda of transforming India. North-Eastern Region is the focus point of India's 'Act East Policy'. Geological Survey of India (GSI) has taken up 108

projects in NER on different mineral commodities during the last five years and 23 mineral exploration projects on various commodities in NER in current field season 2022-23. The Government is also funding projects through National Mineral Exploration Trust (NMET), Shri Joshi added. Two mineral exploration projects of limestone & Iron ore of Nagaland funded by NMET have been already completed. NMET is also providing financial assistance for procurement of machinery/ laboratory equipment/ instruments etc. to State DGMs upto 10% of the total approved exploration projects in year. A Joint Working Group has been constituted by Ministry of Mines for different states to resolve several issues related to the process of auctioning.

Assuring NE region of complete support, Shri Pralhad Joshi further stated that the Ministry through GSI and Indian Bureau of Mines (IBM) can organize training program for state Geologist and other functionaries for their capacity building. Such programs can be organized by GSI in its Shillong Centre or GSITI at Hyderabad as per the convenience of States.

However, Shri Pralhad Joshi also stated his concerns regarding auctioning process in the NE region and urged the state governments to resolve the issues pertaining to auction in different states of North East region. He added that the establishment of resources and their successful auction will bring economic prosperity through revenue augmentation, employment generation, industry influx which will further lead to overall growth and development of the NER. The successful auctioning of the blocks can also act as a catalyst to bring other financing sources to the region.

Later addressing the media, - the Union Minister said the government is also keenly examining the environmental implications of coal and oil exploration while also ensuring that the rich mineral resources are properly exploited for the benefit of the region. Shri Sanjay Lohiya, Additional Secretary, Ministry of Mines made his remarks stating that the Ministry is focused on increasing the pace of exploration of minerals in the country as well as on auction of mineral blocks. GSI is focusing on completing National Baseline Geoscience Data Generation programme in the country and has increased focus on exploration of critical minerals in the NE region. Recently three projects of more than Rest. 10 crore have been sanctioned from NMET to the state of Assam. He added that the Ministry of Mines and its bodies GSI, IBM, MECL will be extending full support to the state governments. Expressing hope, Shri Lohiya said that this conclave will go a long way in improving mining and geological activities in the region.

Source: pib.gov.in

States not keen on mining surveillance

States have shown a lackluster attitude towards installation of mining surveillance system for detection of illegal mining, according to a report by the Comptroller and Auditor General of India (CAG)

In a report released on Thursday, CAG said that in the absence of the surveillance system instances of levy of penalty at rates lower than the royalty involved remained undetected.

“The states did not install a system of proper recording of details of illegal mining as evident from the fat that vital details like names of mineral detected, volume of mineral illegally mined and detected, amount of royalty involved, quantum of penalty levied were not captured in the offence reports," it said.

Titled ‘Compendium of Asset Accounts of Mineral And Energy Resources in State 2020-21’, the report said: “None of the states installed a separate MSS for detection of illegal mining of minor mineral as suggest by the GoI (Government of India) except for some states opting for drone technologies for monitoring illegalities on case to case basis."

The report further said that several states could not provide any data relating to illegal mining.

The mining surveillance system (MSS) is a satellite-based system developed by the Indian Bureau of Mines and the union ministry of mines.

According to the report, apart from the development of the surveillance mechanism for detection of illegal mining of major minerals, Centre has taken a number measures like amendment of the MMDR Act to provide for stringent penal measure, enable special courts in states, period reports on illegal mining from states. It said that state governments have been suggested to install similar MSS mechanism for controlling illegal mining of minor minerals.

The CAG report further highlighted that most of the states did not institute a system of ascertaining the stock of minor minerals including riverine resources. Similarly, the average sales prices of these minor mineral and riverine resources were not being monitored by the states, it added.

Further, the survey showed that most of the states have not prepared a comprehensive minerals map of the respective state.

“States may be encouraged to prepare the mineral maps as it would be the first step towards effective management of mineral resources."

Another major finding of the report was that states did not have a readily available database of district mineral foundations (DMF). Some states could not provide district wide DMF data even till the finalization of the state reports, it said.

“A number of major mineral bearing states like Karnataka, Maharashtra, Telangana, did not have the figure of DMF realizable for the year 2020-2021."

Further, in cases where state government provided DMF realizable, there were gaps in DMF realized leading to shortage or non-realization of DMF like Chhattisgarh, Jammu and Kashmir, Meghalaya, Punjab and Rajasthan.

Source: MINT

India should leverage southern Africa's rare earth mineral resources: Exim Bank report

The report, titled 'Reinvigorating India's Engagements with Southern Africa,' was released in Johannesburg this week as part of the CII-Exim Bank Regional Conclave on India-Southern Africa Growth Partnership.

India needs to form strategic alliances with southern African countries where critical rare earth minerals are produced, as the world looks to the continent to fulfil the ever-increasing demand for them, a report by India Exim Bank has suggested.

The report, titled 'Reinvigorating India's Engagements with Southern Africa,' was released in Johannesburg this week as part of the CII-Exim Bank Regional Conclave on India-Southern Africa Growth Partnership.

Development finance institutions from India and the African Development Bank should work closely with the governments of the southern Africa countries to understand the needs of these commercial Rare Earth Elements (REE) development attempts and support the companies to develop the value chain from end to end, the report said.

The region is richly endowed in lithium, graphite, cobalt, nickel, copper, and other rare earth minerals.

All of these are essential for building the global green economy of the future and they also comprise new market opportunities for net-zero transitions. Thus, India could play a significant role in the African mining value chain to optimise benefits from the demand for battery and electric value chain, it said.

The report also suggested that India could benefit from this in its own moves towards a greener economy.

India could set up joint exploration activities for securing critical mineral assets. Indian state-run companies can form joint venture to secure minor mineral assets such as lithium and cobalt that could fuel India's plan from mass adoption of electric vehicles by 2030.

Strategic investment funds or import credit lines could be set with respective countries by signing MOUs to ensure India's import requirements for cobalt and lithium, the report said.

REEs have unique physical and chemical properties that make them indispensable in the manufacture of high-technology products and has prompted them to be classified as critical metals.

Countries like South Africa, Madagascar, Malawi, Namibia, Mozambique, Tanzania, and Zambia have significant quantities of neodymium, praseodymium, and dysprosium. While relatively abundant, these elements are less minable than common ores.

They can have direct technical applications or be used to facilitate the production and refinement of common high-technology products. Access to a steady supply of rare earth elements is key to the national security and economic viability of many countries across the world, the report said, adding that he world's REE market is largely controlled by China.

However, other major consumers are keen to establish alternative supply chains to ensure reliable and consistent supply at predictable prices. Africa has the potential mineral resource to compete in the global arena. However, the development of mineral resources must be supported by business models that enable maximum benefit to the country or region.

The major REE consumers like the US, the EU, Canada, Australia, Japan, and South Korea are exploring options to develop alternative REE supply chains. Africa is one of the regions targeted as an alternative source of REE commodities, which presents African countries with the opportunity to develop their own REE value chains, it said.

The report said that with India and SADC sharing strong and deep ties of cooperation, this was one of the ways in which they could forge mutually useful collaborations.

Source: MoneyControl

Union Minister Prahlad Joshi to Push for Coal Mining in Northeast India

The Ministry of Coal invests in coal exploration in the Northeast region.

Northeast Geology and Mining Ministers' Conclave and made some announcements regarding the mining sector in the region. The meeting was held in the Niathu Resort of Chümoukedima. And the Union Minister announced the release of an amount of Rest 5 Crs. This fund will be utilized for exploration of coal and to add strength to this department.

He mentioned that he has an expectation of good performance and results from the Northeastern states in the direction of coal exploration. He also announced further financial support to states which can submit reports of exploration and needs more money to continue.

He asked the state governments to take up necessary steps towards proper land acquisition and compensation towards the goal. He also mentioned the rising demand for power and its doubling till the year 2040.

He also mentioned the top priority for development of Northeast under the Prime Minister's agenda with the focus point of India's 'Act East Policy'.

"NE region has great potential and there should be huge growth in the region in the coming years, he said while urging the ministers to take keen interest in research and exploration.

Joshi said the Center is keenly examining the environmental implications of coal and oil exploration while also ensuring that the rich mineral resources are properly exploited for the benefit of the region," said the Union Minister.

"The Geological Survey of India (GSI) is focusing on completing the National Baseline Geoscience Data Generation program in the country and has increased focus on exploration of critical minerals in the NE region," Prahlad Joshi added. The GSI has undertaken 108 projects in the North eastern States in the last five years. 23 mineral exploration projects are in process in 2022-23.

Source: Sentinelassam.com

With an abundance of mineral reserves, India has significant growth potential in drilling & exploration space

India has significant scope for drilling and exploration as India has a large number of unexplored new mines of coal, iron ore and bauxite, and considerable opportunities exist for future discoveries of sub-surface deposits.

It has been estimated that the obvious geological potential (OGP) blocks contain around 1,000,000 sq. km of gold, 3,000,000 sq. km of diamond, 1,600,000 sq. km of base metals, 8,000 sq. km of PGEs, and 5,000 sq. km of iron ores. A rough estimate indicates that less than 2% is mined and less than 10% is explored. The Reserve to Resource ratio, which according to mineral exploration standards should be greater than 50 percent, is low for the majority of minerals. It is 17% for bauxite, 14% for copper, 24% for iron, 14% for lead-zinc, 8% for limestone, and 30% for chromite, among others; calling for a set of highly concentrated and efficient exploration strategies aided by constructive policies.

Effective policymaking: A catalyst for growth

India ought to take a page from the policies of numerous other nations and formulate her own policy based on OGP areas to stimulate the mining industry by speeding up mineral exploration. The mineral exploration and mining industry have a substantial impact on the local population, industry, especially mineral-dependent industries, employment, and overall wealth. Recent amendments to the Mines and Minerals (Development and Regulations) Act-1957 in the year 2021 aimed to bring out the potential of the mineral sector, such as to increase the revenue of the State, increase employment, maintain the continuity of mining operations, increase production, time-bound operationalisation of mines, increase the speed of exploration and auctioning of mineral resources, and lastly to resolve the long-standing issues that have slowed the mining sector.

This is a positive step that is likely to bear fruit. These legal and regulatory reforms in the mineral exploration and mining industry have established a sustainable road map with the objective of doubling mineral output over the next seven years and increasing the sector's contribution to GDP to 2.5%. The Mineral Laws Amendments Act of 2020 is revolutionary and investor-friendly. Mining is officially recognised as a legal entity, allowing for the easy transfer of mining leases.

The implementation of a new auction procedure will provide openness, eliminate discretion, reduce bureaucratic delay, and facilitate the selling of mineral rights. The establishment of a District Mineral Foundation (DMF) will serve the interests of mining-related operations and overcome local opposition to mineral exploration and mining. Exploration initiatives will receive a boost from the National Mineral Exploration Trust's (NMET) emphasis on offering additional financial assistance to the government and private sectors to enhance technologies.

Recently, the Indian government opened OALP Bid Round-VIII, providing 10 blocks for international competitive bidding, thereby sanctioning the unrestricted selling of crude oil and natural gas extracted from these blocks. Consistent with the government's 'Minimum Government 'Maximum Governance' strategy, OALP under the National Seismic Programme announced by the Government of India is primarily aimed at reducing the dependence on Oil and Gas imports by 10% over several years. The decision bolsters our otherwise meagre exploration budget as compared to countries such as Canada, EU, Australia and China, and is set to increase the mining sector's GDP contribution from 1.75% to 2.50% by integrating over 500 non-coal blocks into the fold with the support of the central and state governments. Moreover, OALP also relieves several exploratory restrictions by empowering private entities with the relevant data and permissions to conduct explorations at their discretion; a monumental development to truly unlock the vast resources at our nation's disposal.

Focused coal exploration: A potential contributor to sustained growth

In 2022, India's coal production is anticipated to expand by 6.6%, to 864.8 million tonnes (Mt), following a 6.8% increase in 2021. It is anticipated that 93.9%, or 811.91 Mt, of the total, will be thermal coal and the balance will be metallurgical coal. During H1 2022, India produced 460.4 Mt of coal, an increase of 15.1% year-over-year. This was mostly the result of increased output from the country's two largest producers,

who account for approximately 85-90 percent of the nation's overall production.

The Indian government has taken several steps in recent years to increase the domestic coal supply and reduce reliance on imports, including the approval of 100 percent FDI in August 2019 and the amendment of the Mines and Minerals (Development and Regulation) Amendment Act 2021 in March 2021, which prioritizes mineral safety. In the meantime, the government has also been systematically auctioning off coal blocks while incentivizing speedy progress toward bringing them into service by reducing its share. The Indian government had auctioned over 47 coal mines to private parties as of June 2022. In March of 2022, 122 additional coal mines were put up for commercial auction. By the end of the second quarter, 31 businesses had submitted 38 offers.

In March 2021, the Mines and Minerals (Development and Regulation) Amendment Act 2021 was revised, moving the country's mining industry one step closer to mineral safety. It allows 50% of captive mines' coal and lignite to be sold once their own needs have been met, with additional royalties paid to the state government. In addition, the new legislation permits a prospecting license-combined mining lease (PL-combined ML), so boosting the coal and lignite stocks available for allocation. The measure also allows players with or without previous coal mining experience to participate in coal mine auctions.

Furthermore, the Indian government has future plans to lessen import dependence by increasing domestic manufacturing. The reliance on our own natural resources has gone up in the recent times caused by global uncertainty mainly due to the Russia- Ukraine conflict. India's coal production is anticipated to increase at a CAGR of 7.5% over the forecast period (2022-2026), reaching 1,153.3 Mt by 2026, as a result of the launch of a number of forthcoming projects and favourable regulatory reforms. These government policies and investment in domestic natural resources will further boost 'Aatmanirbhar Bharat' initiative for the industry.

With coal continuing to be the biggest source of energy in the country by a mile, the recent performance of the Indian mineral exploration sector is to be commended. Backed by numerous government-led policies, the proactive players of the sector have ensured the aforementioned seismic increase in coal production and are well on their way to alleviating longstanding concerns such as energy poverty, while supporting organised and unorganised non-power industries like Cement, Fertilizer, Sponge Iron, and Aluminium; thereby heavily contributing to the holistic development of the Indian economy.

Source: Times of India

Author: Vikas Jain Promoter & Managing Director, South West Pinnacle Exploration Limited (SWPE)

Deep-sea mining efforts gear up to meet clean energy demands amid concerns

- *Polymetallic nodules present in the deep-sea bed contain nickel and cobalt among other metals that are vital for the production of batteries needed to power electric vehicles. The demand for these metals has increased, in order to meet net-zero targets.*
- *India's deep-sea mining machine Varaha-1, engineered at the National Institute of Ocean Technology, successfully completed a field test at 5,270 metres in the Central Indian Ocean.*
- *This is an exploration test and commercial mining would begin only when the UN-affiliated International Seabed Authority (ISA) comes up with a mining code accepted by all parties, including India.*
- *Several countries, companies, NGOs, coalitions and environmentalists are against deep-sea mining, citing possible negative impacts on marine biodiversity. But the ISA has recently granted permission for a commercial company to begin mining trials in the Clarion-Clipper ton Zone (CCZ) in the Pacific Ocean.*

In April 2021, Cdr. Gopakumar K. and his colleagues from the National Institute of Ocean Technology (NIOT) reached the central Indian Ocean with Varaha-1, a deep-sea mining machine. The 9.5-tonne machine was carefully lowered into the ocean waters using a high strength umbilical cable. It weighs 3.5 tonnes in the water due to the buoyancy. The test spot has a depth of about 5,200-5,300 metres. The sea conditions were calm. At sea however, the conditions can change with little notice, making this attempt challenging. The descent of the mining machine to the seabed generally takes about 3.5 -4 hours.

This spot, where the large machine was lowered, is part of the 75,000 sq. km. area (about 50 times the size of the National Capital Territory of Delhi) in the Central

Indian Ocean, allocated to India by the International Seabed Authority (ISA), for conducting exploratory deep-seabed mining. Varaha-1, designed and engineered at NIOT, reached a depth of 5,270 metres to mine polymetallic nodules from the seabed as part of a test. The objective of this attempt was to test all the functionalities of Varaha -1. The test objective was met, and the design validated in the field trials. Gopakumar and his team returned with confidence and are preparing for the next stage of testing and system development.

India is allotted 75,000 sq.km. by the International Seabed Authority (ISA) to conduct exploratory deep sea mining. Photo from the National Institute of Ocean Technology (NIOT).

What are polymetallic nodules and what is the need to mine them?

The sea, on the surface, can appear vast, yet monotonous to a regular human's eye. But fascinating new species are being discovered every day and new uses of ocean resources are being experimented. The ocean bed has tonnes of potato-sized rocks formed over millions of years, called polymetallic nodules. These nodules contain nickel and cobalt among other metals, that are vital for the production of batteries needed to power electric vehicles. In the pathway to get to net-zero and phase out fossil fuels, attaining electric vehicle (EV) targets have become a priority for all the countries. This in turn, has increased the demand for metals like nickel and cobalt.

"The world's appetite for cobalt and nickel has gone up. The onshore mining possibilities for these metals are shrinking and there is also turmoil in the Democratic Republic of Congo at present, which is the known source of cobalt on land. However, even these resources are not adequate to meet the huge demand for cobalt to service the enormous demand of EVs that are envisaged in meeting our climate change goals. Polymetallic nodules, rich in copper, cobalt and nickel, thus become the alternate source of abundance," explains Gopakumar, lead of the Varaha-1 engineering project at NIOT.

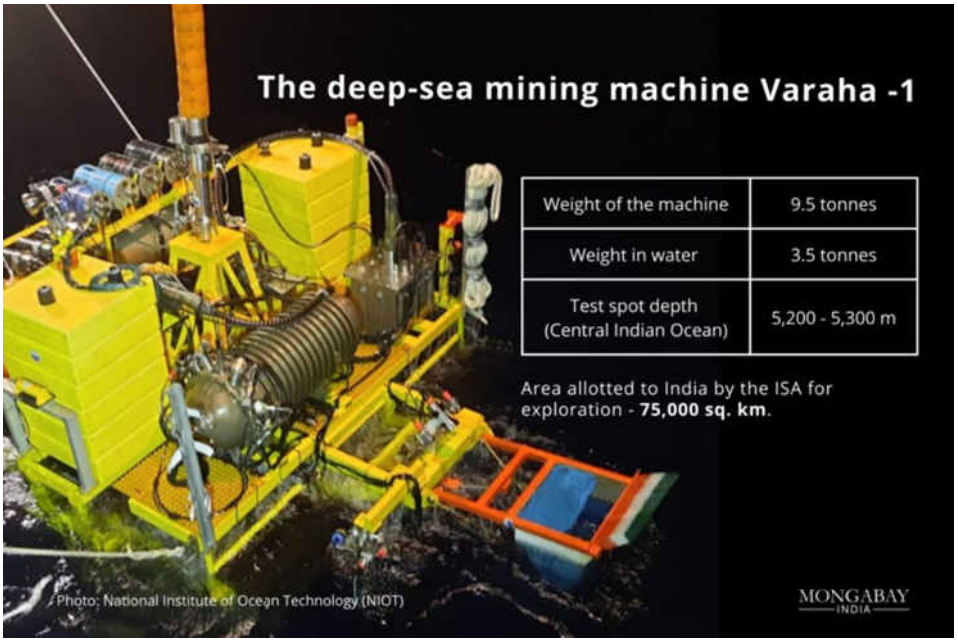
"An estimate indicates about 380 million metric tonnes (MMT) of nodules are available on the seabed, in the area allocated to India. Even if we can mine three MMT per year for 20 years, which brings it up to 60 MMT, it's only one-sixth of the total available nodules," G. A. Ramadass, Director of NIOT, tells Mongabay-India, painting a picture of the abundance of this resource. "Mapping the resources and mining them sustainably would help us meet our battery needs," he adds.

A push from the Deep Ocean Mission by the Ministry of Earth Sciences (MOs) at an estimated cost of Rest. 4,077.0 crores (Rest. 40.77 billion) to support the Blue Economy Initiatives, has deep sea mining as one of the important components. "An Integrated Mining System will be also developed for mining Polymetallic Nodules from 6,000 m depth in the central Indian Ocean. The exploration studies of minerals will pave the way for commercial exploitation in the near future, as and when commercial exploitation code is evolved by the International Seabed Authority," reads the Deep Ocean Mission plan on the MOs website. A video published by MOs that shows the development of Varaha-1, also stresses that eco-friendly exploitation of resources is its objective.

When the ISA (made up of 167 member states including India) comes up with a mining code for commercial exploitation, for the first time ever in human history, machines would move on the seabed, sucking up these polymetallic nodules and transporting them to the surface. Metals from these nodules would be extracted and used for EV batteries. It has taken decades of research, negotiations and regulations to get here.

These potato-sized rocks are called polymetallic nodules. They are found in the seabed. The demand for these nodules has gone up because they contain metals like cobalt and nickel, essential for electric vehicle batteries. Photo by Priyanka Shankar/Mongabay.

Varaha-1 began its journey in 2010 and the research and data collection began even earlier, in 1994, by the scientists of National Institute of Oceanography. Now, the future of mining doesn't look uncanny, as the ISA granted an approval in September 2022, for a mining trial to commence in the Clarion-Clipper ton Zone (CCZ) in the Pacific Ocean. The UN-affiliated intergovernmental body responsible for both overseeing mining in international waters and for protecting the deep sea, granted permission for test mining trials in the vast abyssal with rich biodiversity. The company undertaking these trials, expects to apply for its exploitation license next year and if approved by the ISA, to begin mining without further delay.



While this milestone signals progress in deep sea mining efforts, environmentalists, NGOs and some companies are countries are against deep-sea mining, citing possible negative impacts on marine biodiversity.

The sustainability paradox

"We've mapped more of Mars than our own planet's deep sea!" say ecologists in favour of a moratorium on deep sea mining. They worry that with so many unknowns about the deep sea, we cannot predict the possible impacts of mining on marine biodiversity and the carbon cycle. "There is a reckless and an irresponsible rush to allow commercial deep-sea mining without understanding its implications fully," Emma Wilson, Advocacy Programme Officer, Deep Sea Conservation Coalition (DSCC), an alliance of organisations working to promote the conservation of biodiversity on the high seas, tells Mongabay-India. DSCC has an 'observer' status at the ISA meetings.

Mining machines like Varaha-1 will move on the seafloor, collecting the nodules along with some soil, a quantity of around 40-50 kilograms per second, and push these nodules via riser pipes, all the way up to the top to the vessel (ship). After the metallic rocks are separated, the remaining water and sediments will be released back into the ocean at a different depth, below the photic zone (the part of the ocean that receives sunlight, thereby allowing phytoplankton to perform photosynthesis).

This mechanism is what worries those in favour of the moratorium.

"If the sediment plumes are released at a different depth, the sunlight is restricted to some depths. This will affect the phytoplankton, zooplankton and some midwater fauna. Therefore, we are advising the mining designers to release sediment plumes closer to the seabed, to mitigate the environmental impact," shares Nagender Nath, former Chief Scientist at the National Institute of Oceanography, who has been studying marine minerals and specialising in marine geology for decades.

"Polymetallic nodules are critical for food-web integrity and that their absence will likely result in reduced local benthic biodiversity," finds a 2021 study published in Nature. Thus, the question arises, is mining for the purpose of clean energy, while leaving an impact on the marine environment, really sustainable?

The deep-sea mining machine at the National Institute of Ocean Technology office in Chennai. This machine will move on the seafloor, collecting the nodules along with some soil, a quantity of around 40-50 kilograms per second. Photo from NIOT.

Article published by **Priyanka Shankar**

Source : **Mongabay**

India needs legal framework for closing mines and power plants

- *Over the next few years, India is going to decommission thermal power plants and dispose of coal mines on a large scale.*
- *In case of disposing of coal mines and closing thermal power plants, the estimates say that millions of people will lose their livelihood. There will be a huge amount of land which needs closure or repurposing. Similarly, several toxic materials coming out of power plants will need to be taken care of.*
- *Decommissioning a TPP will cost billions of dollars but it is not factored into the financial calculations while setting up the TPP.*

India is on the way to decommissioning thermal power plants (TPP) and disposing of coal mines at a large scale in the coming few years. However, the country has no legal framework on how this transition will take place. Estimates say that due to these measures, millions of people will lose their livelihood, a large amount of land would need closure or repurposing and several toxic materials need to be taken care of.

In the process of disposing coal mines, the country will deal with more than 100,000 hectares of land, which will need proper closure or repurposing. Similar challenges will occur with the decommissioning of around 50-60 giga watt (GW) of TPPs in the next 10 years or so. With the decommissioning of TPPs, another 20,000 ha of land will be available. How will this transition happen and who will monitor the process? There is no clarity.

These are a few pertinent questions related to India's energy transition. These questions were raised by a two-part study, done by iForest, a Delhi-based, non-profit environmental research organisation. Its first part "Just transition of coal-based power plants in India: A policy and regulatory review" appeared on October 12 and gives an estimate of TPPs closure in the next 20 to 25 years. It also talks about the challenges posed by the closure of TPP. Similarly, the second study "Just Transition of Unprofitable and End-of-life mines: A Legal Assessment" talks about possible challenges that may come with the closure of mines. This study was launched on October 20 in a virtual event.

Closure of mines

The coal mining scenario is changing. India is trying to utilise its economies of scale. At present, 75 percent of India's coal is produced by a limited number of mines. When it comes to Coal India Limited (CIL), the largest public sector coal producer of the country, 75% of its coal comes from 35 large mines. Now CIL is thinking about increasing the coal production to reach 1 billion tonnes from 50-70 high yielding mining projects and close the unprofitable mines. In this emerging scenario, the country will have to deal with closure of several coal mines, repurposing of the land and lakhs of people becoming jobless. All these developments need proper planning and execution, says the study.

About the changing scenario, founder and CEO of iForest Chandra Bhushan says that the target is to focus on large mines. In that context, CIL is also thinking about closing unprofitable mines. "Any unplanned closure of mines has major negative implications on environment, land degradation, local economy, and social stability. A well-planned and managed transition of such mines can be win-win for the industry, workers, affected communities and the environment," he adds.

When it comes to closure or repurposing of mines, there are three types of mines: abandoned mines, end of life mines, and many unprofitable mines. To estimate the scale of closures, researchers have used the Right to Information Act and analysed other publicly available data. They have explored about 358 mines in seven states – Jharkhand, Chhattisgarh, Madhya Pradesh, Maharashtra, Odisha, West Bengal and Uttar Pradesh.

Out of these 358 mines, researchers managed to get financial data of 305 mines, which included 199 unprofitable mines and 106 profitable mines. Out of 199 unprofitable mines, 60 are opencast, 126 are underground and 13 fall in the mixed category.

Other than these, there are about 293 mines already abandoned or discontinued, the report says, quoting a response of the Coal Ministry given in the parliament.

Analysing the unprofitable mines, researchers have concluded that these employ at least 100,000 formal workers (department or contractual) and around 150,000-200,000 informal workers. It also includes a large area of 137,000 ha with unprofitable coal mines. This vast area of land will be available for closure or repurposing from unprofitable mines.

To explore possible frameworks through which the vast land, and livelihood of hundreds of thousands of people will be taken care of, researchers have looked at a large number of laws related to labour, environment, finance and land with respect to the coal mines.

The lead author of this report Srestha Banerjee says, "We have looked at many environmental laws including Air Act, Water Act, Forest Conservation Act, Environmental (Protection) Act and also guidelines on mine closure."

While underlining that the environmental management is largely part of mining operations and not the closure, she adds, "While a three-year monitoring period for air and water management is specified in closure guidelines, there remains vagueness on the role of authorities, such as State Pollution Control Boards. There is no obligation for undertaking environmental risk assessment during closure, an important factor for environmental remediation. Considering the multi-faceted issues related to coal mine closure under the principles of a just transition, the current laws and regulatory mechanisms remain inadequate, and require reform measures to be undertaken to facilitate a just closure and transition process."

The report has made several recommendations including reforms in the Coal Bearing Areas (Acquisition and Development) Act, 1957 and the issuance of guidelines regarding the terms of leasehold and land transfer, development of a comprehensive mine closure framework along with developing a social transition framework that is aligned with just transition goals etc.

Reacting to these recommendations, the secretary in the Ministry of coal, Anil Kumar Jain says that these are very sensitive issues and should be handled carefully. He admitted that there was a lacuna in this act and it does not talk about whether the land will be denotified after mining

or not. He talked about the cabinet decision, which came a year ago on the repurposing or the use of the Coal Bearing Areas (CBA) lands which are not required for coal mining. The decision delegated power to coal companies.

Regarding the mine closure framework, he informed that the government is in touch with the World Bank. Admitting that the existing framework is just for technical closure purposes, he informed that the World Bank is bringing expertise from the developed world to the table. They are offering a loan and the government is yet to take a call on whether it wants to avail the loan or not. If the government agrees to avail the loan, a pilot study will be done using the knowledge the World Bank will come with. Otherwise, the bank will share the technical knowledge. He was speaking during the launch of the report.

Decommissioning of thermal power plants

The problem with the disposal of lands and other related issues is not limited to closure of mines but also with closure of coal-based- thermal power plants. India is staring at a large-scale decommissioning of TPPs. Around 50-60 GW of TPPs will be decommissioned in the coming ten years itself.

The iFOREST report says that India's coal fleet is aging fast. About 20% of the current capacity is primed for decommissioning as their average age is more than 35 years. Generally, 25 years is the norm to decommission a TPP. Decommissioning a TPP in a just transition context entails a complex set of technical, environmental, social and economic interventions, Chandra Bhushan says.

The report on TPP decommissioning raises serious questions by saying that in India, there are no laws that mandate decommissioning and repurposing of a coal TPP. The focus of energy sector legislations, policies and regulations in India has been on planning, designing, construction, operations and renovation of generation capacity. The issues related to end-of-life management have not been addressed adequately.

However, the rate of decommissioning of power plants is already picking up. Around 126 coal-based power generating units aggregating a capacity of 11,995-Megawatt (MW) have been retired from operations between March 2016 and June 2021 due to techno-economic and comercial considerations, the report said.

At present, about 210-Gigawatt (GW) of coal-based capacity is operational in India. Of this, about 58% of the operational capacity (across 230 units) is new and under a decade old. If the Ministry of Power's advisory to retire a plant after 25 years gets implemented, 44 GW of TPP will have to be retired by 2025. In the next decade, between 2026 and 2035, 32 GW of TPP will see its retirement. The report says that maximum retirements will be witnessed between 2036 and 2040 when 83 GW of capacity will need to go out from India's fleet of energy generation.

The retirement of TPPs will also release the large chunks of land available with them. As per the report, an area of 8,850 ha of land will become available by 2030. In the following five years, another 12,230 ha of land will become available. This will increase substantially to 45,273 ha in 2036-40.

The report underlines that the power plant land area is estimated to be equally split between centre, state and private sector power generation companies (GENCOs), at 33% each.

As laws and regulations in India do not firmly establish the clean-up and remediation requirements, there is a risk of plant sites being left abandoned. This is especially true if GENCOs are financially stressed and do not have adequate resources to remediate or repurpose/redevelop, says lead author Mandvi Singh from iForest.

There is another catch with the land issues. Forest land is often diverted for TPP development. Referring to the Ministry of Environment, Forest & Climate Change, the report informs that about 11,435 ha of forestland has been diverted for TPPs since the enactment of the Forest (Conservation) Act, 1980. What will happen to this land?

Similarly, there is concern about the livelihood of the people who are associated with these TPPs. As per the estimate, 1.92 lakh formal and informal workers would lose employment by 2030. The loss of employment will gradually increase in coming decades when more and more TPPs get decommissioned. As per the estimate, around 3.98 lakh formal and informal workers would lose employment in the next decade. Beyond 2040, another 2.48 lakh workers are likely to become unemployed due to the closure of TPPs.

The report underlines that there are no dedicated guidelines under the labour Codes or ensuing central or state policies and regulations for planning a "just labour transition" especially when the TPPS get decommissioned.

The report also deals with many other challenges including financial regulation and the disposal of toxic materials. Decommissioning a TPP will cost billions of dollars but it is not factored into the financial calculations while setting up the TPP. "Our back-of-the-envelope, broad-level estimate is that about Rest. 1,100 billion (at current prices) would be required to decommission India's total coal-based capacity and Rest. 239 billion will be needed by 2030 to close plants that are older than 25 years. But, no funds are kept aside by the power plant owners for end-of-life activities, Mandvi Singh says.

imilarly, there is a limited understanding on how the hazardous material will be disposed of. After a PIL filed by a Chennai-based environmental researcher Dharmesh Shah, the National Green Tribunal (NGT) directed the MoEF&CC, the Central Electricity Authority (CEA) and CPCB to work towards this. As a result, the draft guidelines were formulated in July 2021.

Giving the background of his PIL, Shah says, "We looked at bidding contracts and processes that follow. We learned that decommissioning of a TPP is not as simple as just pulling the plug. But this is happening as of now. In the context of regulations, decommissioning requires minimal paperwork. The board of directors of a company just has to declare the decommissioning and then they have to intimate the CEA about their decision. Subsequently, the TPP gets deleted from the installed capacity database. We realised that Indian regulation does not demand any environmental and social impact assessment of decommissioning."

While talking to Mongabay-India, he said that there are several toxic components used in a typical power plant, such as polychlorinared biphenyl, fly ash, mercury and lead etc. A clear-cut guideline is needed on how these materials will be disposed and who will be responsible for it, he added.

Source: Mongabay

Measuring the impact of mining on deep sea ecosystems

What are the likely environmental impacts of deep-sea mining? Rahul Sharma, former Chief Scientist at NIO, Goa, with 40 years' experience in the field of exploration and exploitation of deep-sea minerals answers, "On the seabed, there could be mortality of organisms along the collector track. The potential impact due to discharge of tailings (plumes) at mid-water depths could range from the mortality of zooplankton, depletion of oxygen by bacterial growth on suspended particles and effects on fish behaviour and mortality caused by the sediments or trace metals, to impacts on deep-diving mammals. The surface discharge and movement of vessels could also have effects on marine mammals due to noise, oil spills and waste disposal."

The group of scientists who worked on environmental assessments in the central Indian Ocean, conducted baseline studies in the nodule areas and has created an extensive database for the central Indian Ocean. They have conducted experiments to understand the deep sea before and after a disturbance is created. Sharma's study published earlier this year, says that a reduction in biomass was noticed after the disturbance but, "subsequent monitoring over a period of 8 years showed that restoration and recolonisation process had started and that the initial impacts were getting masked by natural variability in the environmental conditions."

More studies are coming up around the world, demonstrating the negative environmental impacts of deep-sea mining.

Noise pollution from the activity is said to impact the marine ecosystem. A 2018 study that assessed a previously ploughed (mined) area found that, even 26 years after a small-scale sediment disturbance, the carbon stock present in the area that was not ploughed for nodules, was higher than the ploughed track. Another 2022 study states that it is essential to first close the scientific gaps related to deep-seabed mining to prevent serious harm.

"We need more studies, and we need time for this. Until then, a moratorium is needed. We must first learn about the deep sea before we study mining impacts. The deep sea plays a crucial role in climate regulation, which we are yet to understand fully. It's important to pursue this knowledge for the sake of knowledge and not for the sake of exploitation. A big lesson we've learned from land-based mining is that the extractive industries have many unanticipated risks. Before opening up the largest mining operation in the history of humankind it is important to explore alternatives," Wilson asserts.

The negotiations at ISA are ongoing and the authority is yet to come up with all the regulations and a code. However, there are complaints about the lack of transparency in ISA. The New York Times published an investigative story which revealed that a commercial company's executives received confidential information from the ISA in 2007 about important mining areas. "Apart from the lack of transparency, the voting structure at the ISA is also weighted in favour of mining. There is still a lot of disagreement among countries and parties," shares Wilson.

Balancing energy needs and biodiversity conservation

With a heavy dependence on polymetallic nodules to steer a green energy revolution, and many countries and environmental NGOs calling on a moratorium, it's unclear what the next steps for commercial mining look like in India.

"Efforts should be made for sustainable mining. This is one form of deposit where before even mining has begun for economic purposes, the regulations at the international level are strict. Even for exploratory mining/ testing the guidelines were strict. 'Common heritage to humankind', is the principle we need to operate with, and all the world nations have a share in these minerals," Nath asserts.

"We have to decide whether we can meet our future requirements with available resources which are also getting exhausted very fast, or look for new resources, especially those that can contribute towards green energy. Any developmental activity has its impact on the environment, but it is upto us to find ways of balancing the requirement of mankind with environmental conservation. The ingenuity of the human mind is capable of finding solutions to every problem and that is how we have evolved and reached where we are," concludes Sharma.

Article published by : **Sandhya Sekar**

Source: **Mongabay**

AM Mining India completes acquisition of debt-ridden Uttam Galva Steels

AM Mining India Pvt Ltd, part of ArcelorMittal and Nippon Steel joint venture, completed the acquisition of Uttam Galva Steels Ltd, a downstream steel manufacturer in Maharashtra.

AM Mining India Pvt Ltd, part of Arcelor Mittal and Nippon Steel joint venture, on Thursday completed the acquisition of Uttam Galva Steels Ltd, a downstream steel manufacturer in Maharashtra.

This follows the recent approval by the National Company Law Tribunal, Mumbai, for AM Mining's resolution plan for Uttam Galva Steels Ltd, under the Insolvency and Bankruptcy Code (IBC).

The company statement said that Uttam Galva Steels was a strategic addition to

Arcelor Mittal and Nippon Steel joint venture, which also operates ArcelorMittal Nippon Steel India (AM/NS India) that has robust downstream capabilities, thus increasing domestic market opportunities.

Uttam Galva informed the stock exchanges that the monitoring committee at its meeting held today approved reconstitution of the board.

Uttam Galva Steels has its manufacturing facilities at Khopoli, with an annual capacity of 1.2 million tonnes per annum (MTPA). The company is understood to have a wide basket of downstream value-added products, catering to various industries and distribution segments.

Commenting on behalf of the ArcelorMittal and Nippon Steel joint venture, Dilip Oommen, executive vice president, ArcelorMittal, said, "I warmly welcome Uttam Galva Steels' employees into the fold of the ArcelorMittal and Nippon Steel joint venture family. Together, we will embark on a journey of collaboration and excellence to produce smarter steels for our discerning customers."

Source: **Busniess Standard**

SWASTHA

A GEMCOKATI EMPLOYEES INITIATIVE

Only the wise make time for leisure…

In our modern society the word leisure has been greatly manipulated, corrupted and also misused. We can console ourselves by saying that humans have become more ignorant now, when actually they are supposed to be the most aware in the entire history of human civilization due to the availabity of every resource at their disposal.

The Greek word for leisure is (scholé), in English which means school. To the Greek mind, the primary function of leisure was not necessarily recreational, but to expand one's awareness and understanding of the world.

When most of us hear about the word leisure, we immediately think of lounging around doing nothing. We assume it as the absence of any activity and grab it as an opportunity to completely shut down. Historically the meaning of leisure is freedom for intellectual or creative pursuits. It wasn't about simply killing time or distracting the mind. It was engaging in a pursuit that both challenges us and relaxes us. Logically speaking leisure isn't work, but ideally it is something we have to work to make time for.

In today's rat race culture, we are really afraid to risk even one minute of our time for leisure. We think our work will suffer if we step away from it. We feel guilty about being idle. At times we wonder if we're mindlessly on a pursuit of something that has no purpose.

French philosopher Montaigne writes the truly wise must be as intelligent and expert in the use of natural pleasures, as in all the other functions of life. So, the sages lived gently yielding to the laws of our human lot with relaxation and versatility, thus going best with a strong and noble mind. There is nothing more notable in Socrates than, that he found time when he was an old man to learn music me. and dancing, and thought it as time well spent."

There is nothing to feel guilty about for making time for leisure and stillness. It's not reckless, it's nourishing. It's replenishing. It's joy, and it's admirable. "it's in leisure," the Roman poet Ovid said, "that we reveal what kind of people we are."

Learning a new language, a new skill, pursuing a creative hobby, solving a puzzle, journaling your thoughts and journey of life, whatever it is, make the time, let it relax and strengthen you that leads to ultimate fulfilment. Of course, you need it, you deserve it and you own it. So…. Enjoy your leisure time.

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