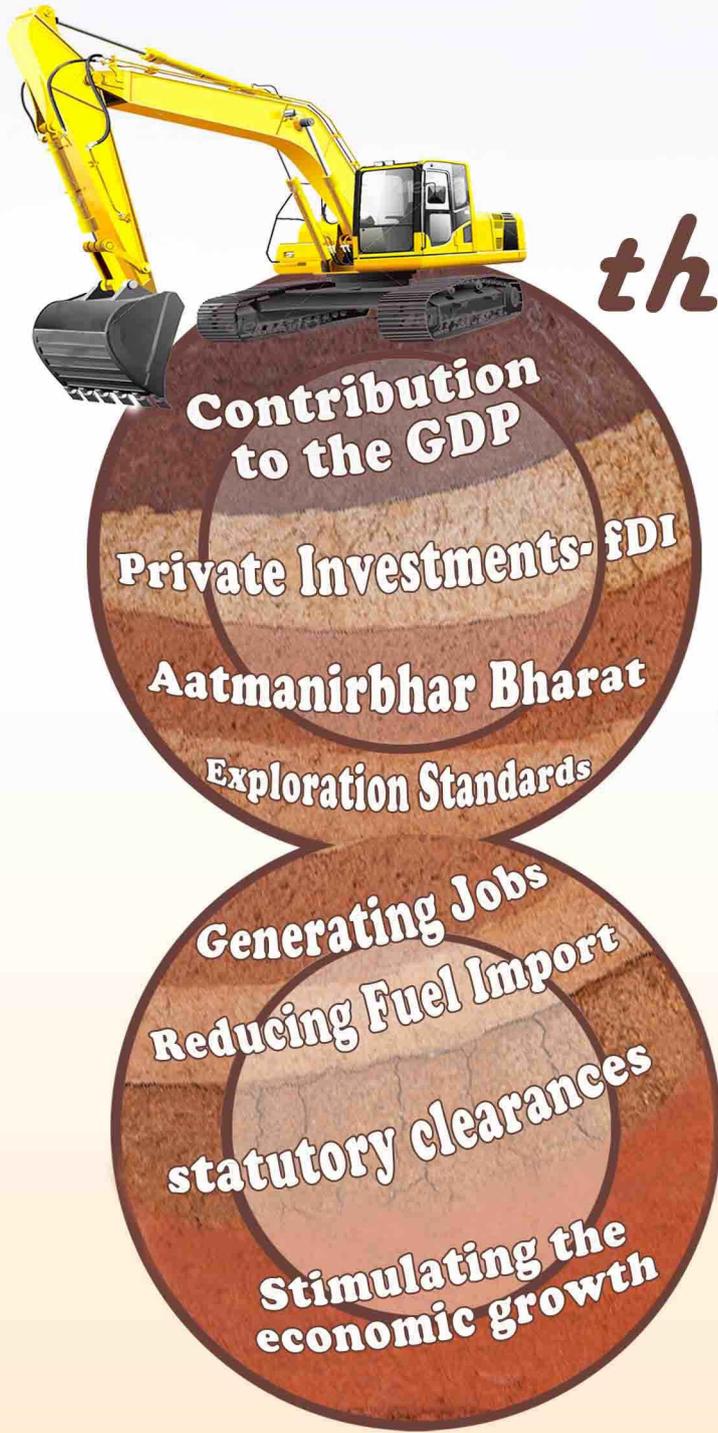


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Indian Mining & Exploration Updates



Structural Reforms in Mining Industry



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PROPOSED MINING REFORMS IN A MONTH; AT LEAST 500 BLOCKS TO BE AUCTIONED IN 2-3 YEARS: JOSHI

The slew of reform proposals include amending the contentious provisions of 10A(2)(b) and 10A (2)(C) of the MMDR Act, a move that would pave the way for auctioning of around 500 potential leases stuck in legacy issues now.

The Centre is planning to come out with the proposed mining reforms in a month or so and the auction of mineral blocks will kickstart two to three months after the amendments take place, Coal and Mines Minister Pralhad Joshi has said. The mines ministry had earlier sought suggestions from the general public, mining industry and other stakeholders on the proposed reforms in the Mines and Minerals (Development and Regulation) Act, 1957.

"We want to bring these reforms very shortly...In another month or so reforms (proposed mining reforms) should come out," Joshi said in an interview to .

The government, he said, is looking into the feedback it has received on the proposed reforms and stressed that the Centre wishes to auction at least 500 mineral blocks in the coming two to three years.

The slew of reform proposals include

amending the contentious provisions of 10A(2)(b) and 10A (2)(C) of the MMDR Act, a move that would pave the way for auctioning of around 500 potential leases stuck in legacy issues now.

Section 10A(2)(b) deals with leases where reconnaissance permit or prospecting licence were granted while 10A(2)(c) relates to grant of mining leases.

Joshi said there is mixed opinion on 10A(2)(b) and 10A (2)(C) of the Act and stressed that it does not want to go into the details on the same.

The mines minister was of the view that the Centre would have to convince state governments before the auction of mineral blocks as the mines ministry was just the policy maker and "rest (with regard to auction) is with the state government."

Under the Aatmanirbhar Bharat scheme, the Centre had in May announced enhancing private investments in the mineral sec-

tor and bringing in other reforms.

In order to implement the announcements, the mines ministry has proposed legislative amendments to the MMDR Act, 1957 for undertaking structural reforms in mineral sector with the objective of accelerating growth and employment generation.

The proposals include increasing mineral production and employment generation by redefining the norms of exploration for auction of mineral blocks and ensuring seamless transition from exploration to production.

They also include resolving legacy issues to move towards an auction only regime for allocation of mineral resources, removing the distinction between captive and non-captive mines, developing a transparent National Mineral Index and clarifying the definition of illegal mining, among others.



GOVERNMENT COMING UP WITH MANY STRUCTURAL REFORMS IN MINING SECTOR TO REALISE ITS TRUE POTENTIAL: PRALHAD JOSHI

Union Minister for Coal and Mines Pralhad Joshi said that the Government is coming up with many structural reforms in the mining sector to realise its true potential. Shri Joshi was addressing the 15th edition of Global Mining Summit and International Mining & Machinery Exhibition today.

"The proposed structural changes in the mining sector aim to increase participation of the private sector in mineral exploration,

redefine the norms of exploration for auction of mineral blocks to ensure a seamless transition from exploration to production. They will also redefine the standard of exploration required for auctioning of blocks for prospecting license-cum mining lease and open acreage licensing policy for allocation of mining rights which will give a major boost to the production of minerals in the country", Shri Joshi said.

Highlighting the proactive reform approach of the Government, Shri Joshi said that March, 2020 was a significant period during which leases of large number of working mines expired and they had to be auctioned immediately. The Government took a proactive and biggest industry-friendly step of

transferring all statutory clearances to the new lessees by promulgating an ordinance. This was a major step to ensure seamless production of raw materials.

Shri Joshi said that the results of this particular reform have been encouraging and with this ordinance in place, recently Odisha has completed the successful auction of large number of iron ore mines. However, some of the successful bidders are trying to evade the process of auctions by delaying the production. He added that such cases will be dealt seriously and in coordination with the state government, the Ministry is contemplating to bring stringent provisions in the act so that non serious players are terminated and barred from future auctions.

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The Government is fully committed to ensure that the auction of mineral resources of the country is a complete success and it generates revenue and employment for the state governments.

Shri Joshi said that the mining industry is a core to India's growth ambition of USD 5 trillion. India is endowed with vast natural resources and the industry has contributed in many ways to the country's economy like direct contribution to the GDP, indirect contribution through development of downstream industries and employment.

He said that in view of mining sector's interlinkages with industrial development, the government has also shifted its priorities in terms of availability of raw material, managing the country's economy and natural resources. It is government's priority to ensure that the regulatory environment is conducive to ease of doing business with simpler, transparent and time-bound procedures for doing business.

Elaborating upon the recent mining and coal sector reforms undertaken by the government

, Shri Joshi said that apart from generating jobs, reducing dependence on fuel import and stimulating the economic growth, the opening of the coal sector to private players will garner hefty capital investment in the country over next 5-7 years.

FDI caps in the mining and exploration of metal and non-metal ores have been increased to 100% under the automatic route. The Geological Survey of India has almost doubled its exploration activity by implementing about 400 mineral exploration projects on various mineral commodities.

Govt examining stringent provision in Mining Act to bar non-serious players from future auction

Union minister Pralhad Joshi on Wednesday said the Centre is contemplating stringent provision in the Mining Act so that non-serious players are terminated and barred from the auction of mines in the future.

While addressing the 15th edition of Global Mining Summit and International Mining & Machinery Exhibition, coal and mines minis-

ter Joshi said that recently Odisha has completed the successful auction of large number of iron ore mines.

However, some of the successful bidders are trying to evade the process of auctions by delaying the production, he informed.

"Such cases will be dealt seriously, and in coordination with the state government, we are contemplating to bring stringent provision in the Act so that non-serious players are terminated and barred from future auctions," the minister said.

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This was a major step to ensure seamless production of raw materials and the results of this particular reform have been encouraging, he added.

GOA GOVT BLINKS FIRST, SHOWS WILLINGNESS TO AUCTION IRON ORE MINES

Goa CM Sawant's announcement is a marked departure from the State government's policy which, till date, has resisted auctions fearing it may open the gateway for entry of 'unknown mining companies'.

The Goa government has signalled a change of heart and a willingness to auction dormant leases in a bid to restart mining in the state, halted since March 2018 after the Supreme Court cancelled Goa's mining renewals.

On return from Delhi, where he held a meeting with the Union home minister Amit Shah, also attended by the ministers of mines and petroleum, Goa chief minister Pramod Sawant said that a 'solution' through auctions was being considered.

"We will come out with a solution through auctions. We want the mining activity to resume once again. So thinking of all this we have arrived at a consensus that we can work out a similar solution," Sawant told reporters.

Sawant's announcement is a marked departure from the State government's policy which, till date, has resisted auctions owing to what former chief minister Manohar

Parrikar described as 'inviting unknown business interests, who are often referred to as mining mafia, to carry out and undertake mining activities.'

Mining in Goa is stuck in a deadlock with the Supreme Court directing that the state issue fresh leases and the MMDR Act in its current form mandating that any grant of fresh leases should be through a process of auction.

Auctions could throw open Goa's mines, hitherto held by a handful of family run companies, to bigger players from across the country.

Sawant admitted that the Goa government was reluctant to opt for auctions, but hastened to add that it was only because of the interests of the mining workers, truckers, etc who he feared might be offloaded with new players entering the industry and not to protect the interests of the existing mine owners.

"We were worried about the local workers, truck owners, machinery owners, farmers, etc. If tomorrow someone from outside wins a bid then would these people who were



onboard with the existing operators, be left behind? Hence we were trying for a different solution (than auction)," Sawant said.

Goa's mining industry lobby, the Goa Mineral Ore Exporters Association, mainly consisting of family-owned businesses which were granted the mining concessions by the erstwhile Portuguese colonial regime and has run the mines since then has remained guarded while responding to the change of stance.

"We are awaiting a joint meeting being scheduled by the Union of India with the state government and the industry in order to find a legally prudent solution considering legal and technical aspects of Goa mining," the GMOEA said in a statement.

COAL MINISTRY TO AWARD COAL MINES AUCTIONED FOR COMMERCIAL MINING IN 7-10 DAYS

The coal ministry is likely to award 19 coal mines auctioned for the first time ever within 7-10 days, once the due diligence is over. The government had offered 38 coal mines for commercial mining auction but interest came in only for 19 mines where some of the highest bids were received from companies like Aditya Birla Group, Adani Group, Vedanta, JSPL amongst others.

CNBC-TV18 also learns that the govern-

ment is going to issue a tender for re-bid of 3 coal mines which received only one bid each. The ministry is also in the process of identifying coal mines for the next auction in January or February next year. The coal ministry has a bank of 38 coal mines which are fully explored.

The initial assessment of the ministry is that smaller coal mines are generating higher interest from coal trading companies, as they benefit with a higher margin. Interestingly, the coal ministry had

offered 38 coal mines with about 250 million tonnes per annum capacity but interest was received only for 19 coal mines which only have a yearly capacity of 50 million tonnes.

The Aditya Birla group companies have placed the maximum highest bids for 3 coal mines, followed by 2 mines each were bid highest by Adani group companies, and 2 new players - JMS Mining and Aurobindo realty and infra.

NEW INDIAN MINING REFORMS TO BE ANNOUNCED IN NEXT 6 – 8 WEEKS

In addition to the announcement on opening commercial coal mining to private players and unlocking 500 blocks in non-coal minerals, the government of India has recently announced that the new mining reforms will get adopted in the statute book in next 6 – 8 weeks. The government is laying down a robust framework to enhance productivity

and reduce environmental impact with a specific focus on sustainability to be embedded at the core of the mining operations. This was announced by Shri Anil Kumar Jain, Secretary, Ministry of Coal, Government of India on 12 November 2020 in a CEOs Virtual Roundtable on 'Propelling the Mining Industry forward through Sustainable Technologies to enable 'Aatma Nirbhar Bharat', organised by Federation of Indian Chambers of Commerce & Industry (FICCI) and supported by thyssenkrupp.

ogy solutions including green mining, coal ash ponds and other newer technology vehicles that can further accelerate the productivity with the economy of scale and also better environmental performance," said Jain. Currently, India imports coal from countries including Australia, Indonesia and South Africa. With the commercialisation of coal blocks announced as a part of the Aatma Nirbhar Bharat Scheme, India is set to keep the coal imports at a minimum level. According to Jain, the adoption of new-age technologies in Indian mines with high capacity can self-sustain domestic energy requirements and significantly reduce the environmental impact. These new-age innovative technologies also have the potential to empower the country to become an export hub for coal.

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During the virtual roundtable, Jain had an open dialogue with CEOs to understand how mining firms can adopt to the changing environmental conditions and optimise the various streams of operations through innovative technology solutions while complying with the requisite standards of safety and health. With the quantum of reserves in the country, India has a huge scope to increase the contribution of the mining sector and adopt a higher degree of mechanisation, e.g. environment-friendly continuous mining that can enable significant growth in the short term.

The panel discussion also highlighted that

with the commercialisation of mines, more investment would be flowing from the private players on upgradation of infrastructure near the mining vicinity, thereby retaining the skill set in states. In the next 5 – 6 years, the mining sector is said to increase direct employment by 700 000 and indirect employment by over 2 million, creating a major boost for India's economy.

Commenting on the technology innovations in the mining sector, Vivek Bhatia, Managing Director and CEO of thyssenkrupp Industries India, added: "A broad range of technologies are available today which can ensure competitive mining while ensuring minimal environmental impact even permitting the elimination of blasting in several cases. These technology solutions provide a continuous mining system that can work round the clock along with conveyor systems without any intermediate handling, improving operational safety and reducing OPEX significantly. Additionally, the life cycle cost of such systems is significantly lower than the present systems along with improved carbon footprints." While the industry has been evolving over the last two decades, progress in terms of higher efficiency and better social and environmental performance has been hampered by a number of factors, including the persistence of conventional technologies and business models. The major costs in the present system of mining in India largely consist of drilling, blasting, fuel and consumables. With the adoption of modern systems, the cost of drilling and blasting can be avoided and OPEX cost can be significantly reduced by employing electrically operated continuous systems.



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"We expect commercialisation of mines to bring competitiveness and a level-playing field between public sector undertakings and private players. Our aim is to encourage industry players to adopt sustainable technol-

GOVT WORKING TOWARDS ATMANNIRBHARTA IN MINING & STEEL TO MAKE INDIA A GLOBAL MANUFACTURING HUB: STEEL MINISTER

Talking about reforms in the mining sector, Pradhan said the shift away from nomination system has helped in equal distribution of revenue to respective states

The mining, coal, and petroleum sectors have received a lot of focus from the government towards reform and development in the past few years, oil and steel minister Dharmendra Pradhan has said.

"Our steel consumption per capita has grown over the years and our market has gained more capability," he said speaking at the virtual national mining summit organized by PHD Chamber of Commerce and Industry

today.

Talking about reforms in the mining sector, Pradhan said the shift away from nomination system has helped in equal distribution of revenue to respective states. He asserted that there is a need to exploit, access, and monetize natural resources and at the same time leveraging technology.

He said monetization of mineral resources is essential along with cost optimization and it should be done keeping in mind the profitability of the investor. Pradhan emphasized



that while India is becoming self-reliant, we need to make India a global manufacturing hub for which we need to monetize mineral resources of the country.

THROWING OPEN COMMERCIAL COAL MINING WITHOUT A WATCHDOG IN PLACE

The recent amendment on reform in the coal sector allows, for the first time, private industrialists to mine coal without any end utilisation limitations. However, some questions remain.



By Shivanand Pandit

The writer is a tax specialist, financial adviser, guest faculty and public speaker based in Goa

To restructure the dynamics of the Indian coal segment, the Government of India started the auction of coal mines for mercantile sale of coal. The Union minister of parliamentary affairs, coal and mines proclaimed that it targets driving the coal sector towards a market economy, self-reliance and a greener future. As part of the declarations made by the government as per the Atmanirbhar Bharat initiative, the auction of 41 coal blocks for commercial quarrying was launched by the prime minister of India in June 2020. The decision was earlier suggested by means of the Mineral Laws Amendment Ordinance, 2020.

Out of 41 coal mines, 11 are located in

Madhya Pradesh, followed by nine each in Chhattisgarh, Odisha and Jharkhand and three in Maharashtra. The size of the mines varies and 31 mines have coal reserves up to 500 million tonnes, four mines have reserves of 500 to 1,000 million tonnes, three mines have reserves of 1,000 to 1,500 million tonnes and remaining three mines have reserves of 1,500 to 2,000 million tonnes. The aggregate peak rated capacity of all mines is 225 million tonnes per annum.

The e-auction of coal mines saw an aggressive fight and many corporate entities proposed great rewards. Therefore, the government is of the opinion that the enduring prospect of the private sector's involvement in coal mining is encouraging. Forty-two business entities participated in the auction, out of which 40 were private players. Some of the prominent corporate bigwigs that grabbed

blocks include Adani Enterprises, Vedanta, Hindalco Industries, JMS Mining, EMIL Mines and Minerals Resources and Jindal Steel and Power. Altogether 76 bids were received for 23 mines, while two or more bids have been received for 19 mines and were found entitled for opening procedural bids. As per the Union Ministry of Coal, all the blocks can produce a total income of approximately Rs 7,000 crore per annum and generate more than 69,000 job opportunities once they are operationalised.

For the first time, private industrialists have been permitted to mine coal for commercial mining purposes without any end-utilisation limitations. Therefore, coal mined can now be sold without any restrictions and there is no condition that it should be expended only for the firms' personal consumption. In the recent decision, the government allowed private entities to take part in the tendering process with a decreased upfront sum. It also

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allowed the adjustment of the upfront amount against royalty, generous operating competence considerations and 100 percent foreign direct investment to usher in the turning point for India's energy sector.

As per the new decision, private players have to pay a portion of income from sale of coal to the government instead of a fixed amount per tonne. Although initially auction of 41 coal mines was announced by the Union coal ministry, it was subsequently cut down to 38. The due date for furnishing technical offers by the eligible companies was September 29, 2020. The auction commenced on November 2, 2020 and ended on November 11, 2020.

While numerous resource rich nations like China, Indonesia and the United States of America focused on the power sector in their post-Covid economic stimulus packages, India focused on opening up the mining sector, which is the start point of the industrial and manufacturing procedure. Coal block auctions invite applicants to excavate blocks by offers and they have to share a portion of the amount of coal sales with the government. State governments bestow leasing rights on the winning bidders to mine a coal block for a specific time period.

India has an extensive history of commercial mining for approximately 245 years. Of late, in the 20th century, the government noticed that the growing energy or power needs of the country were not attracting capital investments from private players. Also, some private coal miners were following odd mining practices and providing inferior working settings for labour. Therefore, the government decided to nationalise private coal mines and it was done in two stages from 1971-1973 which gave birth to the Coal Mines (Nationalisation) Act, 1973. The Act restricted coal mining activities largely to government units.

India is the world's fourth biggest country in respect of availability of coal reserves. However, India's yearly import of coal is approximately 240 million tonnes amounting to Rs 1.7 lakh crore. Due to non-availability of superior coking coal, which is a primary raw material for steel, almost the full requirement of coking coal is being imported by India. In 2017, a High Powered Expert Committee was founded to scrutinise the effectiveness and imminent encounters in coal mining auctions. The Committee suggested a steady shift from the distribution of coal blocks for personal consumption to distribution of blocks for commercial mining. According to the Committee, commercial mining would

Coal Block auction : stated advantages

- ◆ A significant step to make India self-reliant in energy segment and boost industrial progression.
- ◆ To contribute approximately 15 percent of India's estimated gross coal production in 2025-2026
- ◆ Employment generation for more than 3,00,000 crore rupees of capital investment over the next five to seven years
- ◆ Contribute Rs.20,000 crore as revenue annually to state governments
- ◆ Hundred percent foreign direct investments likely to bring in global practices, modern technologies and automation in mining processes.
- ◆ Self-reliance with replacement of imports by independent thermal power plants and captive power plants
- ◆ To guarantee persistent coal stocks for industries with superior consistency
- ◆ Marching towards a free market structure with implementation of the National Coal Index
- ◆ Greater flexibility in coal production schedule—atleast 65 percent of scheduled production every year and 75 percent in a block of three years
- ◆ Coal ministry to share accountability in getting statutory approvals and agency hired to liaise with states or regulatory authorities
- ◆ Floor price of coal mines has been set competitively at four percent of the revenue share
- ◆ No financial and technical criterion for bidders ; new companies are allowed to participate in the auction process

assist in exploiting locally accessible reserves which would facilitate the availability of coal at an inexpensive price and reduce dependency on imports.

NEED FOR A WATCHDOG

Although the government has found a friendly audience for coal blocks that it had decided to make available for the private sector, one essential element of the sector is still absent and this is the lack of a proper watchdog for the coal sector. Without an emboldened and autonomous regulator, no sector can succeed and private sector involvement minus an independent controller is a recipe for disaster. Sovereign authorities like the Telecom Regulatory Authority of India and the Directorate General of Civil Aviation, who administer the sectors that have private sector participation and public-private contest, have evidenced the significance of the principle of self-governing regulation. Therefore, a resource extraction segment seriously needs an independent controller compared to other sectors.

The mining industry has plenty of environmental concerns such as the disruption of lives, livelihoods and lifestyles of local

inhabitants. Therefore, an independent national authority is necessary to address all ecological consequences, to guarantee scientific mining to safeguard coal layers and frame regulations so that those with permits stick to their defined zones.

Earlier, when demand from China for iron ore was high, a majority of the participants violated rules because of non-existence of a controlling mechanism. Also, the former Karnataka Lokayukta, Justice Santosh Hegde, penned a hard-hitting fact-finding report about illegitimate mining. Hence, the Government of India should keep the fundamental and sensitive coal sector away from irregular and sporadic issues such as illegal export, transportation across state boundaries, extension outside sanctioned entitlements, etc. Thus, a liberated regulator is long due and must be the principal priority for the government.

THE WAY FORWARD

Even though the present auction for commercial coal mining got enthusiastic response, it may lower the interest of private business barons to invest in mining rights due to acute

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demand shrinkages, low capacity utilisation in most of the industries and non-stop uncertainties or fears about the immediate future of the corporate sector. In addition, with upsurge of low-priced renewable energy choices, rising international tendency of departure from coal fired businesses and due to stringent environmental standards being accepted worldwide, only those Indian entities who are suffering because of scarcity of quality coal may show interest. Moreover

, there have been reports of hostility by several states to the government's decision to give out mines for development which might impact livelihoods in many tribal dominated regions in Jharkhand and Chhattisgarh.

However, the commercial coal mining is likely to generate millions of direct and indirect job opportunities and trillions of rupees as revenue and capital investment.

Importantly, the government has to take

many forceful initiatives to address the troubles of the sector, including bidders' worries.

The concerned ministry should not just focus on bringing competition to the coal mining segment and making more coal available. It has to focus on transparency strictures and developmental obligations. Coal might be a dirty fuel but efficient regulation, adoption of technological enhancements, robust plans and proper implementation of strategies can give it some shine.

THERE IS A PATH TO PROSPERITY FOR INDIA'S COAL-DEPENDENT TOWNS, BUT IT'S TOUGH

-By Mayank Aggarwal

Journalist (Contributing Editor) at Mongabay India **Mongabay-India is a conservation and environment news and features service that aims to bring high quality, original reports from nature's frontline in India. As the India-specific portal of the global news platform mongabay.com, this website follows the format of Mongabay's dedicated Indonesia and Latin America news outlets. Rhett A. Butler founded mongabay.com in 1999 out of his passion for tropical forests. He named the site Mongabay after an island in Madagascar.**

India is a coal-dependent economy and is home to many towns and cities whose entire economy is directly or indirectly based on coal.

A latest study by an environment think tank, iForest, cites examples of such towns and cities highlighting how deeply connected to coal, the economy of such regions is.

The study states that the concept of "just transition", which focuses on justice to communities and environment impacted by coal mining, is a perfect opportunity for India if a blend of good economics and politics is considered.

However, community rights leaders and experts note that it is a difficult path and the activities of the government so far fail to inspire confidence.

A study of Jharkhand's major coal mining district, Ramgarh, shows that mining activities are shrinking and about 50 percent of mines in the region are either "closed down" or temporarily discontinued because of various factors like unprofitability. Now, this means trouble for a town like Ramgarh whose entire economy, directly or indirectly, is coal-dependent. Moreover, the recent study reveals that remaining mines, many of which are also unprofitable, have a life left of "about 10- 25 years, and there are very few new ones in the pipeline" as a result of which

the coal mining activities in the district will phase out in next 10-20 years "making it a perfect case for a prospective just transition."

However, the question that worries the experts is whether the authorities are ready for such a transition in Ramgarh or other such cities.

As a concept, "Just Transition" – where the transition to a clean energy economy is fair and just to the affected communities and the environment – is yet to gain traction in a coal-dependent country such as India. But, if planned well, the transition policy can be a perfect blend of good economics and politics, while addressing a plethora of issues faced by mono-industry coal towns like Dhanbad or Korba.

In Ramgarh, according to the study published in the book, "Just Transition in India: An inquiry into the challenges and opportunities for a post-coal future", one in four households derives some sort of earning directly from mining and related activities but this is largely informal and does not provide a decent income. The study was done by the International Forum for Environment, Sustainability and Technology (iForest), a think-tank working on environmental and sustainability issues.

It also highlights that coal mining dependence is quite concentrated in certain parts of the district and only "seven percent of the

households had a member with a formal job in coal mining or related industry". But it emphasised that coal mining has not "benefitted the region in terms of social and physical infrastructure" as Ramgarh has "extremely poor primary healthcare infrastructure, with a nearly 50 percent deficit in the required number of primary healthcare centres." The same story repeats in the context of education and clean drinking water.

The study emphasises that a focus on coal mining and related industry over decades has "stymied the development of other sectors and the diversification of the economy" and other sectors like "agriculture, forestry, fisheries" have suffered due to "undue focus on coal mining"

It shows that even "just transition" as a concept is yet to gain attention, in the current situation of coal-mining dependent Indian towns like Ramgarh, there is an economy-wide opportunity to "reverse the resource curse in coal mining areas."

However, the study argued that "this does not mean that coal mines can be closed quickly" – instead, it states that the mines must be "closed in a planned manner so that there is minimum social and economic disruption" and side-by-side, the "new economy, and infrastructure will have to be built to support and enhance the livelihoods of those dependent on coal."

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Just transition is vital for a coal-dependent economy like India

The lessons from such a study are critical for policymakers because the Indian government is planning a massive increase in coal production and cutting down of imports. This enhancement in coal production is going to trigger a similar story for the environment and communities in many other small towns and cities where coal is abundant as a resource or mining is ongoing.

Amarendra Das of the School of Humanities and Social Sciences at the Indian government's National Institute of Science Education and Research (NISER), said that a transition that is just for community and environment is a tricky issue right now. "For people whose lives are directly or indirectly related to mining, such as contractors or labourers, the future is uncertain once mining is finished in their region. The best way forward is to invest in human capital especially because the development index in most of the mining region is quite low," Das told Mongabay-India.

Das's concerns were echoed by Ilyas Ansari of the Karampura Bachao Sangharsh Samiti who is fighting for rights of people impacted by coal mining in Jharkhand.

"In India, wherever mines are opened, people are primarily dependent on agriculture. Once mining starts, their lands are destroyed and they are left with nothing but compensation which quickly gets over. There is no sustainable solution for their livelihood as they get no jobs from the mining companies. Once mining is finished, the land becomes barren while water bodies are either destroyed or left polluted," said Ansari while adding that the story is no different in Jharkhand.

Ansari said that there are rules that mandate that companies and government authorities reclaim the land but nothing of such sort has ever happened in their area despite decades of mining.

"Now, the government is pushing for coal mining wherein private companies will only work for profits without any concern for the communities living nearby or the environment. The worst part is that there is none to take care of the people or take control of their rehabilitation work," Ansari told Mongabay-India.

A focused approach is critical for Just Transition

India is not alone grappling with just transition. There is no standardised approach as every area brings its unique issues. This concept of just transition found a mention in the preamble of the Paris Agreement in 2015 as well.

In 2016, Canada announced phasing out of traditional coal-based power by 2030 and by April 2018, the government launched a task force on "just transition" for Canadian coal power workers and communities to better understand the impacts of phasing out coal and the support required for those affected. The members of the task force visited mining-dependent areas and interacted with all stakeholders and developed recommendations for a sustainable transition away from coal.

A similar story has played in European nations like Germany where a dedicated agency has been appointed for addressing the issue to provide a blueprint for just transition of the coal workers and mining region and look at issues related to job creation in those areas.

Chandra Bhushan, who is President and Chief Executive Officer (CEO) of iForest said, "Just transition is an imperative for India as we have only 20-30 years to phase-out coal-based power to avoid catastrophic impacts of climate change."

"This is a very short time to transform coal mining areas and coal-dependent industries. If we do not start planning for a post-coal future now, our coal-dependent regions will face major economic and social disruptions in the coming years. By putting just transition at the centre of its climate mitigation plan, India can send a strong signal to the world that it is willing to play a leadership role in climate change," Bhushan told Mongabay-India.

He emphasised that a just transition will not only help India push for global collective action, but it will also help build a sustainable and resilient economy in the coal-dependent regions. "Coal mines should be closed in a planned fashion so that India's energy security is not affected, climate goals are met, and the local communities benefit from a just transition," Bhushan said.

But experts in India point out that action on achieving a just transition is something that is missing in India and in many places there

is not even a discussion. It is not just phasing out of coal that could lead the transition, but in some cases, the adoption of clean energy like renewables can also drive it – aspects that need much discussion with those involved.

"I have not seen one even one single satisfactory case where land was returned to people after the mining or it was rehabilitated. Whether coal or iron ore, every mine in Jharkhand has to be returned after a particular time. But the experience, so far, has only been unsatisfactory" social rights activist Xavier Dias, who is the former editor of Mines, Minerals & Rights, told Mongabay-India.

iForest's programme lead Srestha Banerjee, however, said that "people in the coal mining areas have been burdened by poverty and under-development for decades" and a just transition is an opportunity to reverse this.

"These districts suffered due to coal mining and are now suffering because of its unplanned closure. However, experiences from around the world show that just transition can be a win-win for the environment and the economy if it is planned and managed well," said Banerjee.

Solutions are many but a strong will is missing

What is required to make sure a transition is just? This is a critical question for which there are no set answers. The iForest study states that for just transition, state governments will have to develop a new vision and action plan, using a long-term output-outcome based planning process and it should be done with wider stakeholder consultation to avoid any major social or political disagreements in due course.

NISER's Amarendra Das notes that there is a "solution in form of DMF (District Mineral Foundation fund) but so far in the majority of the places, the money that is collected under DMF remains unutilised or used for mega infrastructure projects."

"I believe the power to use DMF should be with sarpanch (village head) rather than senior officials and that money should be used for skill development of the locals. This can be a sustainable way ahead to help the communities and the environment. A set of measures are required to reclaim the land and make it suitable for agriculture," said Das.

He argued that "a lot of scientific involvement and technical support is also required to

address environmental concerns including cleaning degraded water bodies” as at present “we only do lip service to such concerns or to use of the DMF” while the solution is to “reclaim land and invest in human capital.”

The study, meanwhile, states that to achieve just transition, a planning architecture must be developed at the district-level defining timeframe, establishing an inclusive

transition planning mechanism, providing alternative employment opportunities for formal and informal workers in the short-term, planning economic diversification, including industrial restructuring, improving social and physical infrastructure and identifying financial resources to support the whole process of a just transition.

The study stated that for “just transition” to

work, support is needed from various quarters including a strong national and state government policy and financial support, a diverse coalition among stakeholders, local engagement, economic diversification and social security planning, social and physical infrastructure development and serious public and private sector investment.

STEELMAKERS PUSH FOR IRON ORE EXPORT BAN; MINERS SAY SHORTAGE ARTIFICIAL

Union Minister Dharmendra Pradhan recently said the government is considering imposing a short-term ban on exports of iron ore in wake of domestic shortage

The steelmakers in the country have demanded iron ore export ban as the shortage resulted in a spike in prices of raw material as well as steel. According to an executive in a large steel company, about 35-40 per cent of the iron ore produced in the country has been exported, primarily to China, as the Indian steelmakers struggle to meet their raw material requirements.

India's iron ore production in the April-September period at 47 million tonnes (MT)

has witnessed a sharp de-growth of 50 per cent over the same period last year. This has been mainly on account of the change in hands of the expired iron ore mines, numerous evacuation issues and delays in clearances. The exports have witnessed a sharp rise of 63 per cent to 22 MT in the same period.

The iron ore supply, particularly in Eastern India has been affected as the mines which transferred, have not reached their full pro-

duction levels. Even Odisha's 19 auctioned iron ore mines this year, only five mines are in operational, in which four mines are of JSW Steel whereas other mines yet to start iron ore mining. There are certain mining leases which need to bring up for auctions. JSW has earlier requested the government to look at the possibility of having a state-owned company to mine the ore from these 14 non-operational mines along with the mines whose leases are expired.

INDIA TO LAUNCH DEEP-SEA EXPLORATION EXERCISE, EARTH SCIENCES DEPT TO ALLY WITH ISRO, DRDO ON MINING PROJECT

KEY HIGHLIGHT

◆ The Earth Sciences ministry plans to launch the exploration mission in 3-4 months' time to look for poly-metallic sulphides (PMS)

◆ Poly-Metallic Sulphides contain iron, copper, zinc, silver, gold, platinum in various constitutions

◆ The International Seabed Authority earlier approved 10,000 sq. km for India with a 15-year PMS exploration plan along the Central Indian Ridge (CIR) and Southwest Indian Ridge (SWIR) region of the Indian Ocean

With many a feather in its space research cap, India now plans to launch an ambitious 'Deep Ocean Mission' to explore the minerals, energy and marine diversity of the underwater world under the aegis of the Ministry of Earth Sciences (MoES), reports PTI. While there have been numerous endeavours by mankind to explore the great oceans, a

vast part of them still remains unexplored.

M Rajeevan, Secretary - Ministry of Earth Sciences - told PTI that the required approvals for the exercise are being obtained for the “futuristic and game-changing” mission, and it is likely to be launched in the next 3-4 months.

Purpose and cost of the mission:

It is perceived that the exploratory exercise will:

◆ Give a boost to efforts to explore India's vast Exclusive Economic Zone and Continental Shelf

◆ Will lead to the designing, development and demonstration of human submersibles

◆ Will help explore the possibility of deep-sea mining and developing necessary technologies



◆ Will enhance India's presence in the Indian Ocean. It is important to note that other players like China, Korea and Germany are active in the Indian Ocean area in this activity. Last week, China live-streamed footage of its new manned submersible parked at the bottom of the Mariana Trench. This was part of its mission into the deepest underwater valley on the planet, though it could not reach the farthest point that could have broken the record set by American explorer Victor

Continued on Page 9

Vescovo in April-May 2019 with 5 deep ocean dives in a submersible, each within a gap of 10-12 hours of the other.

How much will this deep-sea exploration cost India?

The mission will also involve developing technologies for different deep ocean initiatives and is expected to cost over ₹4,000 crores.

Other departments as stakeholders:

Though the MoES will spearhead the activity, it is really a multi-disciplinary exercise and will involve other government departments like the Defence Research and Development Organisation, Department of Biotechnology, Indian Space Research Organisation (ISRO), Council for Scientific and Industrial Research (CSIR). It is an intense scientific activity and some of the technologies involved will be developed by organisations such as the ISRO and DRDO.

What geographic zone can India explore in the deep?

In September 2016, India signed a 15-year contract with the International Seabed Authority (ISA) for exploration of Poly-Metallic Sulphides (PMS) in the Indian Ocean.

The ISA is an institution set up under the Convention on Law of the Sea to which India is a Party.

The 15-year contract formalised India's exclusive rights for exploration of PMS in the allotted area in the Indian Ocean.

The ISA earlier approved 10,000 sq. km for India with a 15-year PMS exploration plan along the Central Indian Ridge (CIR) and Southwest Indian Ridge (SWIR) region of the Indian Ocean.

Where do these minerals come onto the seabed?

Poly-Metallic Sulphides (PMS), which

contain iron, copper, zinc, silver, gold, platinum in variable constitutions, are precipitates of hot fluids from upwelling hot magma from the deep interior of the oceanic crust, discharged through mineralized chimneys. PMS in the Ocean Ridges have attracted worldwide attention for their long term commercial as well as strategic values.

Why this exploration now?

Scientists say that only 20% of the seafloor and only 70% of the land surface on Earth has really been explored by man. The aim of this planned activity is to be prepared when rules are formalised in this area. The deep oceans frontier is yet to be explored. We have been working on it on a piecemeal basis but the thrust is to carry out work on mission mode, the official added. The mission will also involve the procurement of more advanced deep-sea vessels for explorations. The existing vessel Sagar Kanya is nearly three-and-half decades old.

AS INDIA'S LARGEST COALFIELD EXPANDS, IT IS PUTTING ODISHA'S FOREST COVER AND WILDLIFE UNDER THREAT

Chhendipada area in Angul district of Odisha is marked by large patches of green cover comprising forests of large tree species like Sal and others. The forest department has also installed signboards at several areas on the Angul-Deogarh road crossing through Chhendipada, warning (and also certifying) the travellers that these forests host elephants.

Notwithstanding the rich flora and fauna it harnesses, this zone, adjacent to the Bamur Forest Range, is also rich in coal reserves and falls under the Talcher coalfield. Talcher coalfield is known to be India's largest repository of coal and often referred to as the "black diamond" of the state.

Talcher region is known in the country for hosting the largest deposits of power grade coal. According to Mahanadi Coalfield Ltd, a subsidiary of Coal India Ltd, Talcher coalfield hosts the highest geological reserve of coal in India measuring upto 51.220 billion tonnes.

The coal from Talcher is supplied to southern and western Indian states for power generation. The central government and the Odisha government are now working towards developing rail lines between Talcher with Paradip port in Odisha to boost its transportation to other states via sea-route.

In June Prime Minister Narendra Modi launched the auction of 41 coal blocks of India to boost the economy that was impacted by the coronavirus outbreak. Of the 41, nine are from Odisha and of those eight are in Angul district alone and fall under the Talcher coalfield.

All these coal blocks like Chhendipada I, Chhendipada II, West Radhikapur and others are almost adjacent to each other and pose the same threat to the rich biodiversity as well as to the farming land which may soon be destroyed. But the question is whether the transition will lead to any improvement in the lives of the local people.

"The soil of Chhendipada is fertile while it also has a good quality of forests," Dilip Sahu, a resident of Chhendipada and district president of Odisha Jungle Manch of Angul district, told Mongabay-India. "It also has a good population of elephants, deer and wild boars. Chhendipada landscape comprises farming as well as forest lands. Due to the coal mining proposals, the greenery, human habitations are likely to vanish from the area like the other big mines of Talcher."

"Some people are raising their voice against coal mining and many are likely to give away their land and villagers to the mining firms and government due to the better prices

of the land given for the prized land," he said. "This area has already seen serious opposition from people for some coal blocks like Machkatta for which the mining firm had to backtrack."

Sahu said that the forests of Chhendipada host elephants which are even seen in the day while wild boar and deer are also rampant in the forest areas. He stated that sal trees are predominantly present in the forest areas of the proposed coal blocks. In 2019, a leopard was also sighted in Chhendipada forests.

Forest clearance related documents of the Union Ministry of Environment, Forest and Climate Change of an auctioned mined claimed that the region is home to plant species such as acacia, bahada, barabakulia, mahul, teak, neem, eucalyptus and 15 other species. The vegetation there is classified as tropical moist deciduous forest type.

Villagers of Chhendipada said that by the virtue of the underground coal reserves and anticipation of land acquisition, the land prices in the area have gone up. Janaki Sahoo, a villager from Barpada village said that land is an important wealth now for the villagers.

"In the past few years, we have seen an

Continued on Page 10

escalation of prices of the land here,” Sahoo told Mongabay-India. “Several people bought land there due to the rich coal repository. Several middlemen emerged into the area and land became a new wealth for the people of Chhendipada.”

Government to acquire land

With the learning from the earlier experiences of coal mining in Talcher, villagers expect a large number of villages, farming land, forest lands to be taken away by the government and the mining firms to pave way for the excavation of land for coal mining. Most of the opencast coal mining planned for the area is set to degrade the topsoil by drilling and causing massive in-depth blasting of the mining zone.

Close to 32,000 acres (130 sq km) of land including 1,384 acres of forest land in the nine coal blocks in Odisha have been chosen for allocation for commercial mining. Experts claim that close to 15,000 families are likely to see displacement from their original place due to the mining activities when the land would be acquired from them. They also raise questions of the vanishing of local canals and adding pollution burden to the nearby Brahmani river.

“Most of the coal blocks are located in densely populated areas fearing displacement of at least 15,000 families,” Sankar Prasad Pani, a lawyer at the National Green Tribunal, told Mongabay-India. “The government’s own data shows that many small streams and nallas like Shingada, Goudani, Tikira, Gambhari which used to feed the local agricultural land and the nearby rivers will vanish for all time to come and have an impact on the major rivers like Brahmani.”

Experts point to the impact that the proposed mining can have on nearby water bodies.

“Brahmani River is the most polluted river in Odisha which passes through Angul district and the prime reason for this is coal mining,” Ranjan Panda, a water expert from Odisha, told Mongabay-India. “The new proposed mining in nine new blocks will add to the water scarcity in the region. A number of local streams draining into Brahmani are most likely to be lost forever into the mining areas, affecting the water availability and quality of water of Brahmani.”

He said that at a time when India committed towards promotion of renewable energy in the Paris Agreement, it should refrain from relying largely on coal for energy. “Coal mining has serious implications on the

groundwater levels, local water bodies and the ecology,” Panda said. “It paves the way to make the region water-scarce besides its potential to cause air pollution.”

Lessons from the past

At present, there are 10 coal mining projects undergoing in Talcher. Many of the projects were expanded by fully displacing several villages.

For instance, Rakash village in Angul district is another village which is now all set to be engulfed into coal mining. Land acquisition is almost done and full partial payments have also been made.

70-year-old Ishwar Chandra Bagata from the Rakash village said, “We are going to be displaced to a village named Bolepur.”

“We have heard that plotting of the new area has been done,” Bagata said. “We will soon be displaced to the other village due to the expansion of coal mining activities. Most of us have received compensation while few are yet to receive the second instalment.”

Several villages in the past in Talcher have been fully taken over and razed for mining displacing thousands of original inhabitants of the area and the expansion spree is still continuing in India’s largest coal reserve zone. Many of them have been shifted to new areas with the promises of better amenities, compensation for land and houses.

Rampant pollution

Most of the villagers lying in close proximity of the operational mining areas have suffered the most during the coal mining activities. Rampant air and water pollution have made the lives of several villagers in close proximity miserable and also affected their health conditions.

In addition to coal mining activity, the complementary industries and units like rail siding (where the coal is loaded into trains), coal washeries and others also add much air pollution and make the lives of people living nearby miserable.

Chotiahati village in South Balanda, which is close to the railway siding in Talcher, suffers serious air pollution. Thousands of trucks loaded with coal but uncovered move around the village throughout the day and thus there is always a cloud of black dust.

“A lot of dust is created due to the movement of trucks loaded with coal as most of them are uncovered,” complained Mangal Gagarai, a resident of the Chotiahati village. “The

mining company is sprinkling water on the roads but due to regular movement of trucks, the water gets dried very fast creating a dark black cloud of coal dust throughout the day.”

The village is inhabited by incoming migrants and the Adivasi population of Ho community. It comprises several kuccha houses and unpaved roads. Dust from the railway siding settles down on the roofs of their houses. Several villagers complained of breathing issues due to air pollution, a consequence of mining activities at Talcher.

Not only air pollution, but contamination of water is also visible in the area. Tentulei is another village in Talcher which bears the brunt of mining-related activities. The villagers explained to Mongabay-India that how fertile land in the village is ruined due to the blackish industrial waste effluent coming out from the nearby coal washery that enters their agricultural fields and village lands and ponds, polluting them with toxic water.

Studies conducted in the region have hinted towards a heavy toll that the coal mining has taken on the human population, especially their health and livelihood.

A study on Talcher coal mining by a team of National Institute of Technology, Rourkela and financially supported by the NITI Aayog claimed that though the mining activities boosted the economy it forced the population there to live in a highly polluted environment. It also highlighted that many farming lands were taken for mining and it was the landless villagers who suffered the most.

The government officials claim that they are taking adequate steps to control pollution in the district especially in mining-affected areas. Siddharth Shankar Swain, who is the Collector of the Angul district, told Mongabay India that the district administration had been ensuring that all trucks plying on roads are covered on top, their wheels are washed during exist points and water is sprinkled in the mining-affected areas regularly.

“We also undertake discussions with the State Pollution Control Board and other stakeholders on how to reduce pollution in the area. In the next meeting of the District Mineral Foundation, I have made discussing pollution mitigation as an important agenda for the meeting,” he said. He, however, added that for the new coal block allocations not much work has started now but the socio-economic survey of some of the areas would start soon.

ESSEL MINING HIGHEST BIDDER FOR RADHIKAPUR COAL BLOCK

It is estimated that the block will generate annual revenue of `466.58 crore upon attending the peak rate capacity of 5 MT per annum.

Essel Mining and Industries Limited (EMIL), a part of the Aditya Birla Group, has emerged as the highest bidder for Radhikapur (East) coal mine in Talcher coalfield area of Angul district. This was the second coal block in Odisha auctioned in the fifth day of commercial coal mine sale on electronic platform on Friday. The e-auction witnessed stiff competition from companies like Adani Enterprises, Jindal Steel and Power Ltd (JSPL) and Nalco vying for Radhikapur (East) mine. Spread over an area of 10.16 sq km, the coal block has a net proved reserve of 176.33 million tonne (MT) of fossil fuel.

It is estimated that the block will generate annual revenue of `466.58 crore upon attending the peak rate capacity of 5 MT per

annum. As per the mining plan submitted by the previous lessees, the annual mining capacity of the coal block is 5 MT. The Radhikapur (East) received a final offer of 16.75 per cent (pc) from EMIL against the floor price of 4 pc.

On November 2, the first day of coal block auction, Vedanta Limited had offered the highest 21 pc revenue share over the reserve price of 4 pc for Radhikapur (West) coal block in Talcher coalfield area. EMIL was also one of the bidders, the others being Adani Group's Chendipada Collieries and JSPL, for Radhikapur (West) having a geographical reserve of 312 MT of coal.

A total of 17 coal mines have been auctioned in the 11th tranche under the Coal Mines (Special Provisions) Act, 2015 till



Friday. While 38 coal mines were initially put on auction, the Coal Ministry received technical bids for 23 coal blocks. The remaining blocks did not get any response from the market.

INDIA'S LARSEN & TOUBRO LANDS LARGEST MINING EQUIPMENT ORDER



The Construction and Mining Equipment business of Larsen & Toubro (L&T) has secured one of the biggest orders in its history to supply 46 units of Komatsu Mining Equipment to Tata Steel.

In a statement, the company, one of India's leading engineering, procurement and construction projects, manufacturing, defence and services conglomerates, states that the order consists of 41 units of Komatsu HD785-7, a 100-ton dump truck; three units of Komatsu WA900-3E0, a nine-cum wheel loader; and two units of Komatsu D275A-5R, a 410HP crawler dozer.

It adds that the scope of work for the contract includes the supply of equipment and a full maintenance contract for up to 60,000 hours

of equipment operation. It did not specify the contracts' values.

"Komatsu's superior products and L&T's seamless support over the years, paved the way for securing this prestigious order and we look forward to partnering India's largest steel producer - Tata Steel, in their growth journey," says S N Subrahmanyam, CEO and managing director of Larsen & Toubro, commenting on the order.

26 of the 46 units will be deployed at Tata Steel's iron ore mines in Joda, Noamundi and Khondbond in Odisha, while 20 units of Komatsu's 100-ton dump trucks will be deployed at Tata Steel's West Bokaro coal mines in Jharkhand.

Arvind K Garg, executive vice President and head - Construction & Mining Machinery Business, L&T, adds that the company is "delighted to receive this prestigious order from our esteemed client, Tata Steel for their iron ore and coal mines".

Tata Steel operates captive coal mines at Jharia & West Bokaro, in the state of Jharkhand, located within 200km from Jamshedpur, while its iron ore units are located in Noamundi, Joda, Khondbond and Katamati in the states of Jharkhand and Odisha.

Shares of Larsen & Toubro moved higher by 4 percent to Rs 1,126 on the Bombay Stock Exchange following the company's announcement about the Tata Steel order. Furthermore, the conglomerate's management expects domestic ordering activity to gain traction in the second half (October-March) of the current fiscal year 2020-2021, given the Indian government's continuous focus on infrastructure and an uptick in economic indicators and tax revenues.

India's Oil and Steel Minister, Dharmendra Pradhan, recently stated at the Virtual National Mining Summit organised by the PHD Chamber of Commerce and Industry, that reforms in the mining sector have helped to distribute revenue equally to respective states. He asserts that there is a need to exploit, access, and monetise natural resources, and at the same time, leverage technology.

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CM NAVEEN PATNAIK LAUNCHES TWO CUSTOMER INTEGRATED MANAGEMENT SERVICES OF ODISHA MINING CORPORATION

Odisha Chief Minister Naveen Patnaik on Tuesday launched the Customer Integrated Management Services (CIMS) and Stockyard Management System (SMS) applications of Odisha Mining Corporation (OMC).

OMC is currently one of the fastest growing public sector undertakings of the country in the mining sector.

The Chief Minister said that the OMC has demonstrated its customer-focus vision and integrity of the stockyard management.

These two applications will transform online sales process and despatch management with transparency and efficiency, taking root in the system under the 5T framework, he added.

Describing OMC as a flagship public sector company of the state and one of the oldest public sector companies with a history of over six decades, he said that it has significantly contributed to the development of the state.

He appreciated the role of OMC during the Covid pandemic and its support to the Chief Minister’s Relief Fund and various welfare measures.

Saying that mining is a sensitive sector with large socio-economic and environmental implications, he praised the commitment of

OMC for its social responsibility with support to schemes like Aadhaar, Adarsh Vidyalyayas, sports etc.

He also commended the PSU for its large scale forest conservation activities and endeavours to make all its mines to be rated five-star by the Indian Bureau of Mines (IBM).

Steel and Mines Minister Prafulla Kumar Mallik said that the OMCs committed to realise the Chief Minister’s vision to make it one of the most efficient and responsible corporate organisations.

It may be mentioned here that the CIMS redefines the customer engagement of OMC.

Customers will now get access to a separate dashboard for registration, evaluating order and stocks, get weekly dispatch report, order status, region-wise total sale, grievance status and mineral wise dispatch history.

CIMS is integrated with the i3MS of the state government, e-auction platform of MSTC,



SAP of OMC to ensure a seamless integration for end-to-end customer service.

The SMS has been deployed at OMC’s Baliparbat stockyard within its flagship Daitari Iron Ore mines.

The key components of the system include unmanned weighbridges, transport scheduling, digital identification, parking management, weighment automation, real-time reporting, multi-point mobile applications for real-time data reconciliation.

OMC has been consistently performing in terms of ore production and sales revenues in the last few years. It is expected that OMC is on its path to cross 20 million tonnes per annum iron ore production.

POTASH FROM NON-CONVENTIONAL SOURCES USING A NEW PATENTED TECHNOLOGY

India is basically an agrarian country which is now a leading producer of food grains, post Green Revolution. It contributes in feeding a large global starved population in large parts of Asia, & Africa.

And fertilizers were the key vehicles in boosting the crop yield. However, a perusal of fertilizer consumption, types of fertilizers used in different agro-climatic regions of India, crop yields indicate that there is still immense potential in boosting the production of different types of fertilizers. To understand what needs to be done in filling the gap between requirement and production, I would present the steps that can be taken to initiate a business of manufacture of Potash fertilizer from a non conventional source through a US Patented technology. This would not only lead to bridging the gap between requirement and production and in turn bring down the drain of precious foreign exchange but for an entrepreneur, would open avenue of a very promising business that would carry the tag of early bird.

The three principal fertilizers in India is Urea, Phosphatic and Potassic fertilizer which provide N, P & K – the three major plant nutrients. As of now, India is fertilizer importing country. Through its 57 large and 64 medium to small fertilizer producing units within the country, India produces Urea, Phosphate & some Mixed fertilizers, but that total production does not meet the demand and hence India imports these. However, in case of Potassic fertilizer, the import is 100% as there is no commercially viable deposit of Potash beds except one in Rajasthan which does not appear to be very promising. India buys Potash fertilizer at an approx rate of US\$ 310-320.00 per ton, ex-Vancouver.

The application of various fertilizers is governed by the soil chemistry, the crops grown, and agro-climatic regions of the country. At this stage I will not dwell with the types of fertilizers that are actually needed for crop growth as per the soil types in different states and agro climatic conditions. I will only emphasize here at this stage that there is a severe gap in the quantum of fertilizers used and the quantum that ideally should be used.

India produced 21.6 million tons of Urea from 30 of its Urea producing units in 2013. In the same year it produced 8.3m.t of DAP from 12 of its fertilizer units and 7.7 m.t of SSP from 85 fertilizer producing units. But entire requirement of Potassic fertilizer

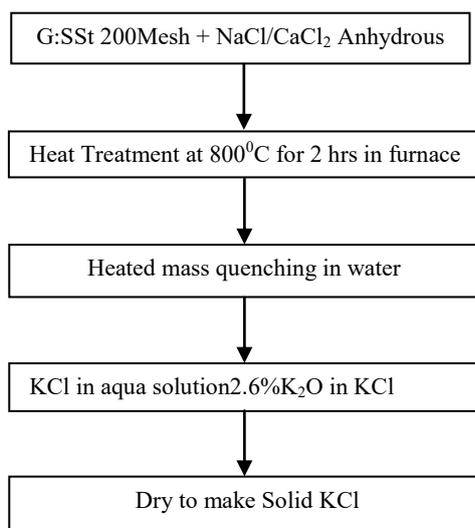
(mostly Muriate of Potash-MOP) was imported. The present global Potash fertilizer production, mining and marketing is controlled by a Cartel of 13 countries, dominated by Canada/Belarus/ Russia/Germany etc. These 13 countries supply to 160 countries across the globe. India's requirement is nearly 4-5 million tones per annum at present and the country is buying at an approximate price of US\$320.00 per ton. SO THERE IS A HUGE BURDEN ON THE FOREIGN EXCHANGE OF INDIA and any effort to enter into Potash fertilizer business based on raw material from alternate source may be a business bonanza.

ALTERNATE SOURCE OF POTASH

In 1980s extraction of Potash for Potassic fertilizer from an alternate source named as Green Sand (Glauconitic sediments) was first developed by India and US Patent at Lab scale was obtained. The matter ended there. No Indian Industry came forward to take the Lab scale Patent to Pilot Plant scale and Commercial scale patent. This was confirmed to me by the Scientists from AMPRI, Bhopal, who hold the Patent.

Glauconite is a phyllosilicate mineral with the composition of $(K,Na)(Fe,Al,Mg)_2(Si,Al)_4O_{10}(OH)_2$. The Potash from this mineral can be extracted and processed to a level for the manufacture of Potash fertilizer. A very simplified chemistry of the process of extraction of K_2O from Glauconitic sediment at Lab scale is given below:

(1).

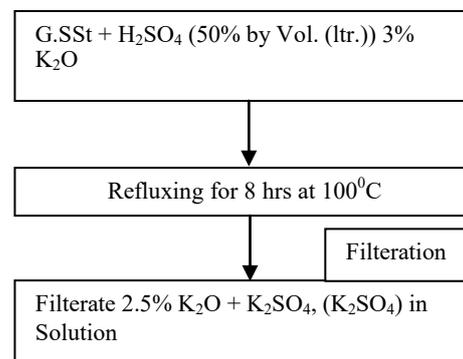


1. DAL = Direct Acid Leaching

2. Grinding, Hydrocyclone, Magnetic Separation
® 63% recovery at 6% K_2O

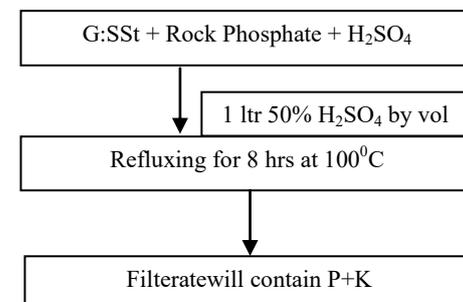
3. The technology is there but details at this stage not provided by the scientist.

(2).



Acid leaching was done in combination with NaCl $CaCl_2$ & the acid was H_2SO_4 / H_3PO_4 & the recovery was varying from 80% - 96%

(3).



G:SSt = Glauconitic Sand stone

Till date this source of Potash is not being tapped anywhere in the world as the raw material is there but the technology for extraction was not known till 2018. But soon this will happen and an overseas Company attempted to start the commercial production from their own patented process, from alternate source but had to put on hold due to some corporate reasons. This process known as K-Max process is still available for development of a plant to produce Potash on commercial scale.

◆ The R&D efforts in some countries continued and finally in 2018 an Australian company did develop a US patented technology at Commercial levels which could extract K_2O from Glauconitic sediments and upgrade it to the desired level for application in the manufacture of MOP (Muriate of Potash) and SOP (Sulphate of Potash). The Potassic fertilizer thus produced is expected to be cheaper than Potassic fertilizer produced

Continued on Page 14

from Potash drawn from the Potash beds in Halite /Evaporite deep seated sequence going down to depths of around 500- over 1000 m, b.g.l. On an average it costs between \$100-150 per ton in 2013 to take potash from Saskatchewan to Vancouver where it sold @ approx. \$ 550 per ton

Potash fertilizer from this non conventional source will induce a revolution in the global fertilizer industry & particularly the Indian and the Chinese fertilizer industry. At this stage I will touch upon in very brief the immense significance of Potash in the agriculture production of India & many other countries. Of the 3 Primary MACRO-NUTRIENTS – N.P.K needed by plants, the required quantity, is supplemented by fertilizers. Potash is needed to enhance the crop yield, provide drought, frost, pest resistance to the plants.

Potassium in Soil- Total K in soil frequently exceed 20000 ppm. Nearly all of this is in the structural component of soil minerals & is not available for plant growth. Because of large difference in soil parent materials and the effect of weathering of these materials, the amount of K supplied by soil vary. Therefore, the need for K in a fertilizer program varies across the country.

Soils with less than 130kg/ha of K₂O is categorized as Low, 130-335 kg/ha as Medium & above 335 kg/ha as High.

- ◆ Three forms of K exist in soil viz (A) Unavailable (B) Slowly available or fixed (C) Readily available. (A) Unavailable Potassium : Depending on soil type approx. 90-98% of the total soil K is found in this form. Felspar & Mica are the minerals that contain most of the K. Plants cannot use these crystalline soluble form. Prolonged weathering of these minerals can break them down into K & other minerals and this would be very-slow process.

However from a small fraction it moves to slowly available pool of K & other fraction to readily available pool .(B) Slowly available Potassium: This is thought to be trapped between layers of clay minerals, & is frequently referred as fixed K. Growing plants cannot use much of those slowly available K during a single growing season but these can act as reservoir for readily available K. This slowly available K varies in amount depending upon the dominant soil type & cannot be measured by routine soil testing procedure.

- ◆ (C) Readily available Potassium: It is present as dissolved in soil water held on surface of clay particles and between the layers of clay minerals. The K in former site is readily available for plant growth. The mobility of dissolved K is governed by root up take, K-fertilizer applied, soil moisture and temperature.
- ◆ Between 2004-05 & 2009-10, the total fertilizer consumption increased by 43% while that of food grain by 10% only. The consumption of K in the last 27 years from 1971-72 to 2008-09 has increased from less than 2kg/ha to 17.1kg/ha i.e by 15 kg/ha.
- ◆ Genetic improvement of crops for quantum jump in yields may take long time to fructify. Essentials of scientific agronomies like sowing time, seed, plant protection measure, water management etc are already a part of extension program.
- ◆ In the scenario of shrinking land & water resource, bulk of the increase in production will have to come from scientific use of fertilizer. In this context importance of K will go a long way in correcting the nutrient content.
- ◆ Importance of K is evident from the fact that it is involved in more than 60

Enzymatic systems in the plant and is required for the synthesis of proteins, vitamins, starch & cellulose.

The company holding patent of K-Max process is willing for a JV investment in Australia.

- ◆ Company X is an exploration company focused on developing K-rich glauconitic deposits in West Australia.
- ◆ Company aims to define a substantial resources base & investigate how best to recover K from a mineral which till now is not known to contribute K for fertilizer industry on a commercial scale.
- ◆ Exploration has confirmed the presence of a world class resource for Glauconitic sediments
- ◆ Company X focused on developing the D-Trough Project as a major supplier of fertilizer in Australia and in the markets of India and China.
- ◆ It controls an extensive tenement holding of some 2900 sq.km in Western Australia.
- ◆ It was granted US Patent for the processing Glauconitic sediments in 2018.
- ◆ Company X would be open to a JV in their Potash fertilizer development and production business.
- ◆ Apart from Muriate of Potash (MOP), Sulphate of Potash (SOP) the company aims to produce Phosphatic Fertilizer, High Mg SOP etc. It would be pertinent at this stage to stress that India imports about 90% of its raw material for the production of Phosphatic fertilizer (includes SSP, DAP, MAP, NPK etc).

I will strongly advocate a tie up with this company as it will enable you to venture into some more high tech, strategic minerals .

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COVID-19 EFFECT: AUCTIONED MINES FACE LEASE DEED HURDLE IN ODISHA

SUCCESSFUL BIDDERS FOR IRON ORE AND MANGANESE MINES SURRENDER ASSETS IN ODISHA

As per the agreement, the new lessees will have to produce 80 pc of the rated capacity in the first year which comes around 48 MT, sources in the mining industry said.

The State may not get the desired revenue from the 20 working iron ore and manganese mines auctioned before March this year with the COVID-19 pandemic playing the spoil sport.

With the State fetching an unexpected higher premium averaging at 106 per cent in a frenetic bidding, the highest offer being 154 per cent for Siljora-Kalimati Iron Ore and Manganese block, the expected revenue from these mines at 80 per cent production over the rated production capacity last year was around Rs 5,000 crore.

The mineral production from these mines in 2019-20 was about 60 million tonnes (MT). As per the agreement, the new lessees will have to produce 80 pc of the rated capacity in the first year which comes around 48 MT, sources in the mining industry said.

Three successful bidders - Socied De Fomento Industrial Private Limited, winner of Nadidih iron ore block, Vishal LPG Industries (Nadidih iron ore and manganese

block), Tarama Apartment Pvt Ltd (Teherai iron ore and manganese block) - surrendered their blocks by forfeiting security deposits as they found it unsustainable.

Jindal Steel and Power (JSPL) and Shyam Ores Jharkhand Private Limited, winners of Guali and Jilling-Langalota iron ore blocks respectively, have not executed the lease deed with the State government yet. Of the 15 mines, 12 lessees including JWS Steel, ArcelorMittal and Kashvi International have filed returns to the State government reporting that they have started production.

JSW Steel with four mines and ArcelorMittal with one are reported to have produced 30 pc of the rated production capacity by the end of October. The entire production is for captive consumption. Despite having four mines, JSW Steel is buying iron ore from the open market to meet its captive demand, informed sources. ArcelorMittal too has a similar story.

The remaining six lease holders of

merchant mines have not yet started sale of minerals despite huge demand both from domestic and export markets, sources added. Attributing the low production of iron ore to disruptions made by COVID pandemic, a merchant miner said execution of lease deeds were completed in some cases in July and August.

"In such a force majeure situation, the government understands the difficulties of lease holders to operate new mines. A clear trend of production will emerge by the end of December," a miner said.

With production of steel picking up, demand for raw materials from sponge iron, pellet, and pig iron manufacturers are also steadily increasing. The new lease holders will try to make up for their shortfall in production in the next four five months.

The State government will not lose much as the old stocks of the previous mines owners are removed from their stockyard on which royalty will be earned, the sources said.

CHOWGULE AND COMPANY APPOINTS RAJEEV BORA AS CEO OF MINING DIVISION

Chowgule and Company, a part of the Goa-based Chowgule Group, has appointed Rajeev Bora as the Chief Executive Officer of its mining division following the firm recently winning the bid for commercial mining of coal from Sahapur (East) mine in Madhya Pradesh. A veteran of the mining industry, Bora will be responsible for leading the group's renewed focus on mining and creating a large national footprint for the business, Chowgule and Company Pvt Ltd (CCPL) said in a release on Monday.

"Rajeev is a seasoned expert in the mining industry. His on-field experience, strategic vision and professional approach will be invaluable as we take our mining division into its next phase of growth.

"With the government bringing in structural reforms in the mining sector and our recent coal block win, his role will be critical in diversifying into newer commodities and acquisition and development of new assets,

Padma Chowgule, Chairperson and Managing Director of CCPL, said.

The group currently has mining operations in Goa and Karnataka, and three sophisticated plants with capacity to produce and export over five million tons of finest iron ore and pellets every year, according to the company release.

The group has presence in some 14 sectors, including mining, shipbuilding, boat building, ship repairs, construction chemicals and automobile dealerships, among others.

Bora has over 22 years of experience in the mining industries in India, Zambia, and Armenia.

"I am honoured to be a part of the Chowgule



Group. The mining sector is presently on the cusp of some major changes, and it is important for us to relook at our operations and strategy to achieve robust, sustainable growth in the years ahead," Bora said on his appointment.

COAL IMPORTS TO INCREASE IN THIRD QUARTER THIS FISCAL: INDIA RATINGS

The company said in its monthly report on India's coal sector that coal offtake continued to recover strongly in October 2020 to 54.5 million tons (mt), higher by 8.7 per cent month-on-month (mom) and 20.1 per cent y-o-y

India's coal demand will continue to improve year-on-year (yoy) as the end-user industrial activities gradually gain pace with unlocking and inventory levels at power stations being normalized, according to India Ratings (Ind-Ra), a research agency.

The company said in its monthly report on India's coal sector that coal offtake continued to recover strongly in October

2020 to 54.5 million tons (mt), higher by 8.7 per cent month-on-month (mom) and 20.1 per cent y-o-y.

This was driven by a strong recovery in domestic power demand in October 2020 which rose by 11.4 per cent y-o-y as against 3.8 per cent in September after six consecutive months of a low demand.

The increased demand was also partially

fed by the inventory built at power stations. Also, domestic coal production continued to improve in October 2020 to 50.7 mt, higher by 15.6 per cent month-on-month and 13.9 per cent y-o-y.

"The output in 2HFY21 is likely to be supported by higher overburden removed in 1HFY21, about 7 per cent year on year, from open cast mines (around 94 per cent of total production)," the firm said in a statement.

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"A big Thanks to all our Readers & Subscribers for your tremendous support throughout our journey."

-Team Geonesis