WORKSHOP
ON
EXPLORATION – KEY TO RESOURCE DEVELOPMENT

(9th October, 2018)

Realising the significance and importance of Exploration in the development of mineral resources, Federation of Indian Mineral Industries (FIMI) organised one-day Workshop on Exploration – Key to Resource Development on 9th October, 2018 where the representatives of Central and State Governments, DMGs, public and private sector units, consultants and academicians participated.

2. The Workshop was inaugurated by Shri Anil Mukim, Secretary, Ministry of Mines. It was moderated in forenoon by Shri Vikram Singh Gaur, Joint Secretary (NITI Aayog) and in the afternoon by Shri Bipul Pathak, Joint Secretary (Ministry of Mines). The afternoon session was chaired by Dr K. Rajeswara Rao, Additional Secretary (Ministry of Mines). Shri Ashis Dash, CEO, Sustainable Mining Initiative (SMI-FIMI), presented an outline of FIMI's Discussion paper on "Exploration – Key to Resource Development".

3. Following is the gist of discussions and the unanimous Recommendations adopted in the Workshop on Exploration – Key to Resource Development:

GIST OF DISCUSSIONS AND RECOMMENDATIONS

Preamble

4. It was noted that the resources of metals / minerals such as gold, lead / zinc, copper, nickel, PGMs, diamonds, REEs and

strategic minerals including tin, cobalt, lithium, germanium, tungsten, molybdenum, nickel etc. for which India is dependent on imports at present and is vitally concerned now and will be in future have not been fully explored and their potential realised because of lack of finances and the latest techniques. Strategic minerals / metals as well as precious metals occur usually in very low concentrations (<1% and in parts per million) in rocks. It is difficult to discover them and much more difficult to define their resource and resources. The success rate of discovery is 1 in 400 to 1 in 800 prospects. For diamond, the risk is much higher being – 1 in 1000. These materials need to be explored with modern concepts and techniques, tools and dedicated softwares by well trained professional teams for breakthrough requiring high investments.

DISCUSSIONS AND RECOMMENDATIONS

Preliminary

5. During the course of discussions in the forenoon session of Workshop, the moderator observed that like in other industries, land acquisition for mining is a major issue. In such a situation, can we think of including land owners as equity partners, as in Rajasthan where they have introduced a provision for giving a right of minor mineral concessions. He observed that since State DMGs have limited exploration capacity, can we imagine to have a Central authority to examine and process applications for exploration? Further, he suggested that, we should have a relook on the role of mining: whether it is to be just a revenue source or it should be a foundation for our economic / industrial growth, local area development and job creation.

6. He also highlighted that, with globalization and WTO, the world has become one market and trade deficit will always bleed the

economy and in this background he also highlighted that the Hon'ble Supreme Court in it's opinion in Presidential Reference No. 1 of 2012 has also held that –

> "***A fortiori, besides legal logic, mandatory auction may be contrary to economic logic as well. Different resources may require different treatment. Very often, exploration and exploitation contracts are bundled together due to the requirement of heavy capital in the discovery of natural resources. A concern would risk undertaking such exploration and incur heavy costs only if it was assured utilization of the resource discovered; a prudent business venture, would not like to incur the high costs involved in exploration activities and then compete for that resource in an open auction. The logic is similar to that applied in patents. Firms are given incentives to invest in research and development with the promise of exclusive access to the market for the sale of that invention. Such an approach is economically and legally sound and sometimes necessary to spur research and development. Similarly, bundling exploration and exploitation contracts may be necessary to spur growth in a specific industry.***"

Thus in this background it was felt that, there is a need to change the existing mining allocation regime to allow seamless transition from RP to PL to ML.

I – Principle of FCFS – Role of *Junior Exploration Companies* – Discussion

7. Most of discoveries in India are by chance or based on old workings such as lead and zinc in Udaipur; bauxite in East Coast ; chrome in Sukinda (Odisha); gold in Hutti, Kolar Gadag, Ramagiri fields in Karnataka, Andhra Pradesh and in parts of Jharkhand ; and copper in Malanjkhand (M.P.).

8. Out of four exploration agencies – GSI, MECL, States' DMG and mining companies (public and private) – only GSI has discovered 36 greenfield and 22 brownfields since 1947. Participants applauded GSI for its tremendous efforts in digitising

and placing its exploration reports and baseline geoscience data on its portal, which is one of the best, in the world.

9. It was observed that in Financial Year 2017-18, India's annual exploration expenditure was approximately US$ 0.17 billion by GSI, MECL and funds from NMET which was much smaller than a small country like Peru at US$ 0.56 billion. Moreover, it was taxpayers' money which was spent unlike resource-rich countries like Canada, Australia, Peru, etc. where the taxpayers' money is not spent on such risky ventures and who invite private explorers, popularly known as '*Junior Exploration Companies'* who raise finance in Stock Exchanges through venture capital, to undertake the risky jobs and provide incentives and baseline geoscience data.

10. It was observed that Rs. 345 crores spent between 2000-2015 on exploration was comparatively moderate resulting in low rate of discoveries by private sector. It was pointed out that Rs. 345 crores was spent on reconnaissance, where expenditure is generally less but RPs did succeed in making numerous discoveries by private sector. Some of the cases which have come to our notice are listed in the **Annexure**.

11. In the afternoon session, a suggestion was mooted from the Chair that the public sector exploration agencies could be encouraged to enter into joint venture (JV) with private companies for doing exploration. To this, it was pointed out that, the PSU will require to follow a tender procedure for selection of JV partner and in this way ultimately it may be that the best private company engaged in the exploration of a certain mineral may not get selected. Further, such an arrangement will be basically a contract drilling without any assurance of discovery, particularly in green field area. It may also result in to the waste of taxpayer's money.

12. It was noted that, prevailing unfavourable regime has not only forced the foreign companies to leave India but also driven away the domestic companies from exploration and development of mineral resources in other countries resulting in substantial flight of capital from India.

13. It was thus felt that India should adopt first-cum-first-served (FCFS) system which is prevalent in advanced and developing resource-rich countries. It was noted that whilst the regulations do vary between and within these regions, the spirit of FCFS for mineral exploration, where explorers have to commit minimum exploration expenditure, remains similar and entrenched.

Recommendation

14. Prospecting and mining should be recognised as independent activities with transferability of concessions playing a key role in mineral sector development. As in resource-rich countries, private companies, popularly known as '*Junior Exploration Companies'*, who are a small team of experienced geologists specialised in exploration of a mineral or a group of minerals and who raise funds from venture capital in stock exchange, should be engaged on FCFS basis to undertake detailed (greenfield) exploration by providing all available baseline geoscience data and incentives like security of tenure, seamless transition from RP to PL to ML as well as freedom to sell / transfer the concessions.

II – Taxation – Discussion

15. It was pointed out that the primary objective of exploration is to extract and sell a product at a competitive price, a price that justifies the investment in exploration and mining. Thus, mineral taxation plays a key role in exploration as well as overall growth of

the mining sector. The existing mineral taxation regime is not conducive to attract private / junior exploration companies to work in India. Mining industry in India is the highest taxed in the world with Effective Tax Rate as high as 64% of the profit for existing mines. If we add all the imposts that a mining unit pays, the total financial burden goes beyond 100% of the cost of a mineral.

16. In order to attract investment in exploration and mining, it is necessary to bring the taxes at par with international tax regime. In a competitive world, it is necessary that what we produce should be economically viable. The taxes imposed in India have all the ingredients to make domestic raw materials expensive. With the present day dispensations and uncertain commodity market around the world, a time may come when imports would be cheaper than buying raw materials in the domestic market.

Recommendation

17. Mineral taxation needs to be rationalized and brought at par with the mineral-rich countries, so as to boost exploration, sustain mining, as well as derive long-term benefits in terms of raw material security for the country.

III – Central Government to oversee Implementation of policy – Discussion

18. It was observed that one of the main reasons for the exploration policy being not successful despite provisions of MMDR Act as amended in December, 1999 was that the States played truants in converting RPs into PLs and PLs into MLs. There were enormous delays not only in the State DMGs where it took years to grant RP/PL/ML despite constant follow-up but also in States' departments of forest and environment. It was also emphasized

that the curriculum in geology and mining engineering should be brought in line with industry' needs at the ground level

Recommendation

19. The Central Government being the custodian of the Act and Rules, has to take the responsibility to see that the States follow the policy in true letter and spirit and adhere to time schedule by simplifying procedures etc. Further, large areas reserved for PSUs should be dereserved. There is also an urgent need to simplify the process for forest and environment clearances both at State and Central governments' level. It is emphasized that educational curriculum in geology and mining engineering should be brought in sync with the industry's requirements and needs.

IV – Captive mines limit the growth of mining industry – Discussion

20. The concept of captive mines for an industry is typical to India and has not been able to unleash the full potential of mining in India. Captive mining limits the scale of mining, ignores the laws of mineral conservation, leads to selective mining and wastage of resources. Since the area granted for captive leases is large, exploration activities are minimal and limited to the requirements of mineral processing plant(s). There is no benefit to the down-stream users of the products; inter-sectoral subsidy from mining sector (captive mine) is not passed on to them and hence no multiplier benefits.

Recommendation

21. The concept of captive mine to an industry or plant should be discouraged and slowly done away with as it limits the growth of mining industry and realise its full potential which will lead to zero waste mining and provide more jobs.

V – Size of mining lease to be such as to derive the benefit of scale – Discussion

22. Mining and smelting are economical and viable when an entrepreneur is able to achieve scale of operation. It is thus necessary that in future, unless the deposit is itself small, leases for Major Minerals should be granted over comparatively large areas of 5 sq. kms (500 hectares) or more for these minerals.

Recommendation

23. There should be no bar for an entrepreneur or a company to get any number of areas of 5 or more sq. kms in a State. Hoda Committee recommended 50–100 sq. km of area for mining lease in a State to a person or company.

CONCLUSION

24. In a strategy paper developed by Ministry of Mines in November 2011, "UNLOCKING THE POTENTIAL OF THE INDIAN MINERAL SECTOR", it has been reiterated that the Indian minerals sector holds a huge potential for all stakeholders, including the Central Government, state governments, community and the entire economy. With the right kind of support, the mining sector has the potential to:

- Add USD 210 billion to USD 250 billion to GDP by 2025, a growth of 10 to 12 per cent per annum. This includes USD 60 billion to USD 80 billion direct and USD 150 billion to USD 170 billion indirect contribution.
- Create 2 million to 2.5 million direct jobs by 2025, and an additional 11 million to 13 million jobs through indirect employment opportunities created in other sectors, thereby contributing 3 per cent to total employment.
- Contribute USD 55 billion to USD 70 billion of revenue to the central and state governments through corporate taxes, royalty and duty collections by 2025.

25. Had India initiated necessary steps and acted on time, by now, the country would have been on growth-path and the States would have benefited a lot. This would have created enormous opportunities and provided jobs to a large number of people which would have brought about a sea-change in socio-economic development. Today, we are on half-way journey. It is time that we do not waste away any opportunity to act and move in the direction which resource-rich countries have adopted for utilising their resources.

Annexure

SOME OF THE DISCOVERIES BY PRIVATE SECTOR DURING 2000-2015

A) Adi Gold Mining Pvt. Ltd.

1. Ascot Multi Metal Project was a world class deposit of copper having high gold and silver content discovered by Adi Gold Mining Pvt. Ltd. (Indian arm of a Junior exploration company Pebble Creek Mining Limited, Toronto) in Pithoragarh, Uttarakhand. The project finally did not take shape despite the company having made significant investment in the project as well as in CSR activities because forest and environmental clearances were not forthcoming even after years of waiting.

B) De Beers India Pvt. Ltd.

2. Discovered 56 kimberlites and lamproites – the primary source rocks for diamonds.

C) Deccan Gold Mines Ltd.

3. BIF hosted Ganajur Main gold prospect and 8 satellite auriferous BIF bodies in Dharwar-Shimoga Basin, Haveri district of Karnataka. DGML has completed the feasibility studies on Ganajur Main Gold deposit an year ago. The Feasibility gold Resource base (Resource + Reserve) is half million OZs of gold (~15 tonnes) of which ~300,000 OZs (10tonnes) has been classified as Proved Reserve. In year 2015 the Ministry of Mines has accorded approval to the Govt. of Karnataka for granting the ML over an area of 72 acres which covers the above stated Resource.
4. BIF hosted Mangalgatti and Bhavihal prospects in Dharwar-Shimoga Basin, Dharwad district of Karnataka.
5. 20 other BIF-hosted gold prospects spread between Haveri and Dharwad in Dharwar-Shimoga Basin in Karnataka.. All are new discoveries.

D) Geomysore Services (India) Pvt. Ltd.

Andhra Pradesh

6. 4 parallel very wide zones (up to 200 metres) of deep seated (Below 200 metres and up to 400 metres), granite-hosted, NNE-trending, NW dipping, drill tested, gold-deposits in the west block of Jonnagiri Gold Fields.
7. Chigarigunta – Peddapartikunta New Tract in South Kolar belt, Chittoor district.
8. Sadukonda Magnetite Iron ore deposit of 33% Fe grade (300 million tonnes of geological potential estimated)

Chhattisgarh

9. Granite hosted gold-bearing massive sulphide bodies and gold-quartz veins in Semarkachar-Bhagora Gold Field, Jashpur district.

Karnataka

10. Polymict conglomerate hosted gold in 3 prospects north of Hanni in Shimoga belt, Chikmagalur district.
11. Sheared magnetite gabbro hosted Manigatta-Syagattur 5km long mineralized zone, North Kolar belt, Kolar district.
12. BIF hosted Hirenagnur prospect in Hutti belt, Raichur district.
13. Granite hosted ENE-trending Yatkal Prospect in Hutti belt, Raichur district.
14. Granite hosted Ashoka prospect in South Hutti belt, Raichur district.
15. Palkanmardi-Chinchergi tract in Hutti belt, Raichur district.
16. Vadigehalli-Jaderi-Venkatapura prospect in North Kolar belt, Kolar district.

Madhya Pradesh

17. Kusera gold Field in Mahakoshal belt, Jabbalpur district.

Maharashtra

18. Mokabardi gold tract in Sakoli Fold belt, Nagpur district.

E) Hindustan Zinc Ltd.

19. PL applied by HZL in Karnataka for gold in 1999 and approved by Govt. of India in 2010 was yet to be executed by Govt. of Karnataka. Similarly, a ML for gold approved by Govt. of India in 2015 is yet to be executed by Govt. of Karnataka

F) Metal Mining India Pvt. Ltd.

20. Discovered gold deposit at Jagpura, Rajasthan. But 10 PL and one ML applications for gold of Metal Mining India Pvt. Ltd. were rejected and later reserved for RSMML (a State PSU) after expiry of RPs / PLs in 2008.

G) Mira Exploration Pvt. Ltd.

21. Copper deposit discovered in Chhattisgarh. LOI granted but Chhattisgarh Govt. stated that it cannot assure ML in case of adverse decision of the Committee set up for this purpose. Chhattisgarh has a policy of reservation in favour of CSMDC who then give contract to private parties.

H) Ramgad Minerals and Mining Limited (Baldota Group)

Andhra Pradesh

22. Diamond prospect found by RMML, but PL applied after RP in 2008 is under process.

Karnataka

23. Gold prospect in Nabhapura Central, Gadag District, Karnataka in 2012.
24. Gold prospect in Basappagudda, Gadag District, Karnataka in 2004.
25. Gold prospect in Suranagi, Gadag District, Karnataka in 2004.

Rajasthan

26. Rare Earths Element (REE) prospect in Kamthai, Barmer District, Rajasthan in 2015.

I) Rio Tinto Exploration India Ltd. and CRA Exploration

Andhra Pradesh

27. 15 diamond-bearing kimberlite discoveries in Anantapur district of Andhra Pradesh. Out of this 15, 7 kimberlites were the most diamond bearing kimberlites in South India.

Chattisgarh

28. One new diamondiferous kimberlite field discovered in Mahasamund Saraipali region of Chhattisgarh.

Madhya Pradesh

29. Bunder discovery in Bundelkhand region, Madhya Pradesh with an estimated diamond resource of 27 million carats is the largest diamond discovery in the world in the last 25 years. 16 new kimberlite / lamproite were found, out of which 8 form the Bunder Lamproite Complex.

Odisha

30. 12 kimberlites discovered in Nuapara region of Odisha, of which 2 are diamond bearing.

Rajasthan

31. Four copper prospects with low grade, but high tonnage potential in the Albitite Belt of Rajasthan. These were not explored in detail as copper economics was unfavorable then.
