

Mining Engineers' Journal

Happy New Year 2025



Official Publication of Mining Engineers' Association of India

Price ₹100/-

Vol. 26

No. 6

MONTHLY

January - 2025



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Mining Engineers' Association of India

Flat-608 & 609, Raghava Ratna Towers, A-Block, VI Floor, Chirag Ali Lane, Abids, Hyderabad - 500001
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Mining Engineers' Journal

ISSN 0975 - 3001



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Dr P.V. Rao

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Correspondence Address

MEAI National Headquarters

Contact: **Secretary General,**
Mining Engineers' Association of India
F-608 & 609, Raghavaratna Towers, 'A' Block, VI Floor,
Chirag Ali Lane, Abids, Hyderabad - 500 001.
Ph.: 040-66339625, 23200510

E-mail : meai1957@gmail.com
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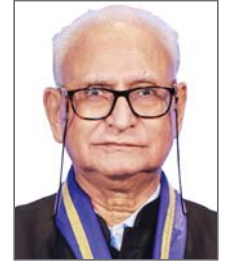
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President's Message.....

Dear members..

I wish all the members and their families a very happy and prosperous New Year! I hope you all have a year filled with achievements and new opportunities.

I also extend warm greetings for the 74th Republic Day of our beloved nation. Let's all fight against the communal and anti-national elements that are trying to undermine the unity of the nation and slow down the development process.

The country will also witness the joyous Kite Festival in Gujarat and most of the northern Indian states on Makar Sankranti, popularly known as Uttrayan.

In the 4th Council meeting held in Jabalpur, a suggestion was made to increase women's participation in the Council. Accordingly, a decision was taken in the 5th Council meeting held in Hutti to advise all Chapters nominating more than one Council member to preferably nominate at least one woman Council member for the upcoming election to elect the new Council for the term 2025-26. An advisory has already been issued. Chapters have also been advised to nominate one female office bearer or at least one female committee member while electing the next Executive Committees. Let's hope this change will attract more female life members, particularly in the year when we opted for "Women in Mining Industry" as the theme topic for Indian Mining Day (IMD).

After the Bangalore Chapter celebrated IMD on November 16, the Ahmedabad Chapter was finally able to celebrate it on December 13 this year. Thus, the sanctity of celebrating the event on one particular day across the country is compromised. Although the proposal to reschedule IMD was rejected in the last Council meeting, it still warrants a fresh relook.

Organizing an event exclusively by and for student members has been a missing priority. However, it is pleasing that the Ahmedabad Chapter showed some interest; meanwhile, the Rajasthan Chapter-Udaipur has raced ahead and finalized their plan to organize an event in February 2025. Now, I appeal to all Chapters with Student Chapters to respond and depute some student members from their Chapters to participate. They may need to manage sponsorships to cover these students' travel expenses. Let's hope this first-ever event meets with grand success.

Unfortunately, we could not plan an international event at our Association Headquarters nor could Udaipur and Jaipur Chapters organize such a program as offered jointly by them. I urge the organizing team to explore alternate venues and organize the event as soon as possible. I also urge Chairpersons of Udaipur and Jaipur Chapters to quickly make decisions and present their plans, preferably at the next Council meeting. Otherwise, we will miss the opportunity to organize an international event within this current Council's remaining term.

With the Best wishes!

S.N. Mathur
President



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EDITOR'S DESK



Dr. P.V. Rao
Editor, MEJ

The year 2024 has been an action-packed year for the Indian Mineral Industry. The Indian mineral industry is poised for significant developments driven by policy reforms and increased production initiatives.

Let us recapitulate the key highlights viz. a) The Ministry of Mines planned to auction over 100 blocks of critical minerals, including lithium and graphite, in early 2024, aimed at bolstering domestic supply chains for clean technologies. This initiative aims to strengthen India's position in the global mineral market. b) The reforms introduced by the Coal Ministry are expected to attract financial investments, enhancing project funding and operational efficiency in coal mining. c) Adani Enterprises is set to launch a copper production facility in Gujarat with an annual capacity of one million tonnes, which will help reduce reliance on imports. d) The National Mineral Development Corporation (NMDC) will commence gold mining operations in Australia, marking a strategic move to enhance India's global mining footprint. e) Anticipated infrastructure spending ahead of elections is expected to drive demand for minerals, reflecting a broader strategy to strengthen India's mineral sector, reduce import dependence, and support sustainable development goals.

In 2024, the Indian mineral industry underwent significant policy reforms aimed at enhancing exploration, production, and sustainability. These reforms collectively aim to modernize the sector, enhance investment opportunities, and align with global sustainability goals. Key reforms include

a) Mines and Minerals (Development and Regulation) Amendment Act introduced provisions for auctioning mineral concessions for 24 critical minerals, promoting transparency and private sector participation in mining operations, b) new exploration licenses were established for deep-seated and critical minerals, allowing for reconnaissance and prospecting operations, which is expected to attract more private investment in exploration activities, c) six minerals, including lithium and niobium, were removed from the atomic minerals list to encourage private sector involvement and boost production capabilities, d) the Central Government plans to auction over 100 blocks of strategic minerals like lithium and graphite, further strengthening domestic supply chains for clean technologies, and e) the introduction of a Green Mining Initiative aims to implement strict environmental standards and develop land rehabilitation programs, ensuring that mining practices are sustainable and ecologically responsible.

Reforms in mineral concessions include auction-based allocation, which mandates the auctioning of mineral concessions. This process removes discretionary powers from officials and ensures that licenses are granted based on competitive bidding. It promotes fairness and reduces corruption in resource allocation while allowing seamless transfer of clearances from previous lessees to new bidders. This transparency enables stakeholders to understand the regulatory status of mining operations.

The creation of District Mineral Foundations (DMF) ensures that a portion of mining revenues is directed towards community welfare, fostering accountability and trust among local populations affected by mining activities. Digital platforms such as the TS-eMining application facilitate real-time access to data regarding mineral concessions, improving governance and operational efficiency. This digital approach allows stakeholders to track applications and approvals transparently. These reforms collectively aimed to create a more accountable and efficient mining sector, aligning with global standards for transparency and governance.

The removal of end-use restrictions aims to enhance the efficiency and competitiveness of India's mineral sector while promoting sustainable economic growth. The advantages include a) by allowing minerals to be sold freely in the market, the policy attracts more bidders, including private investors, thereby increasing competition and investment in the mining sector, and b) the removal of restrictions promotes optimal mining practices, enabling miners to sell surplus minerals rather than being limited to specific end uses, c) better resource management and increased production efficiency, d) states can benefit from additional revenue as captive miners are allowed to sell up to 50% of their production in the open market, e) flexibility in mineral usage supports the establishment of industries around mining areas, fostering local economic development and job creation, and f) removing end-use specifications simplifies the auction process, making it more accessible for various stakeholders, particularly local communities and the environment. These challenges underscore the need for robust regulatory frameworks and community engagement strategies to ensure that these changes benefit both the economy and local communities while minimizing adverse effects on environmental and social structures.

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EDITOR

Dr. P.V. Rao
Off. : +91 (040) 23200510
Cell: +91 96180 91039
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NEWS FROM THE MINERAL WORLD

► Tata Steel operates an all-women shift in Noamundi iron mine

This shift will comprise women employees for all the mining activities including Heavy Earth Moving Machinery, shovel, loader, drill, dozer operators and shift supervision.

Tata Steel has started an all-women shift at its Noamundi Iron Mine from Monday. This initiative was part of the company move to create an equitable workplace and empowering women in traditionally male-dominated industries. This shift will comprise women employees for all the mining activities of the shift including Heavy Earth Moving Machinery, shovel, loader, drill, dozer operators and shift supervision.

DB Sundara Ramam, Vice President, Raw Material, Tata Steel said the company will continue to create more opportunities for women specially in the mining ecosystem. This initiative marks a significant addition to the 100 years of mining at Noamundi, he said.

In 2019, Tata Steel launched its diversity initiative "Women@Mines," making it the first company in India to deploy women in all shifts at its mines, following the Government of India's landmark relaxation of the Mines Act, 1952. Building on this, the company introduced the "Tejaswini" initiative, aimed at recruiting and training women from local communities to operate Heavy Earth Moving Machinery and participate in the mining ecosystem.

Under the "Tejaswini 2.0" programme launched in 2021, women from nearby communities were rigorously trained and inducted as HEMM operators. The initiative led to women deployed across roles such as dumper, shovel, dozer, grader, and drill operators. They underwent extensive training before joining the workforce in 2022

Businessline | December 16, 2024

► Saudi Arabia has extracted lithium from oilfield runoffs

Lithium Infinity, also known as Lihytech, a start-up launched out of King Abdullah University for Science and Technology, will lead the extraction project with cooperation from Saudi mining company Ma'aden and Aramco, Khalid al-Mudaifer told Reuters. Saudi Arabia has successfully extracted lithium from brine samples from national giant Aramco's oilfields and plans to launch a commercial pilot programme for direct extraction soon.

Riyadh: Saudi Arabia has successfully extracted lithium from brine samples from national giant Aramco's oilfields

and plans to launch a commercial pilot programme for direct extraction soon, the Saudi vice minister of mining affairs said on Tuesday.

Lithium Infinity, also known as Lihytech, a start-up launched out of King Abdullah University for Science and Technology, will lead the extraction project with cooperation from Saudi mining company Ma'aden and Aramco, Khalid al-Mudaifer told Reuters. "They are extracting lithium through their new technology they have developed in King Abdullah University for Science and Technology and they are in accelerated development in this regard," he said. "They're building a commercial pilot at the oil fields. So the brines that come out of the field will feed into this commercial pilot on a continuous basis," added Al-Mudaifer.

Lithium is a key component in the batteries of electric cars, laptops, and smartphones. Reuters previously revealed that Saudi Arabia and the United Arab Emirates' national oil companies planned to extract the mineral from oil runoffs. Other oil companies, including Exxon Mobil and Occidental Petroleum, plan to take advantage of emerging technologies to filter lithium from brine, as the world seeks to move away from fossil fuels.

The vice minister said that while the cost of extracting lithium from the brine runoffs from oil fields remained higher than the traditional method of extraction from salt flats, he expected that if lithium prices grew the project would soon be commercially viable. In a statement to Reuters on Wednesday in response to the story, Aramco said lithium was "an area of interest" for the company and that it was evaluating the presence of the metal in its fields and its extraction. It did not give further details.

KAUST and Ma'aden - which is majority owned by the kingdom's sovereign wealth fund - did not immediately reply to Reuters' requests for comments. Saudi Arabia, whose economy for decades has relied on oil, has spent billions on trying to turn itself into a hub for EVs as part of Saudi Crown Prince Mohammed bin Salman's attempts to find alternative sources of wealth.

Reuters | 18 December 2024

► Karnataka's new minerals tax stumps iron ore mining companies

NMDC Ltd, Vedanta Ltd, Sandur Manganese and Iron Ores Ltd are the largest operators of pre-auction era mines in Karnataka and will bear the brunt of the proposed tax.

Karnataka accounts for roughly 15% of India's annual iron ore production of about 280 million tonnes. A

OBITUARY



Sri T.N. Gunaseelan
(27.3.1965 – 3.12.2024)
Director, DMT Group

I am writing this obituary with great sorrow on behalf of the members of the Mining Engineers' Association of India (MEAI) to mourn the passing of our friend Sri Gunaseelan on December 3, 2024, in Kolkata. Sri Gunaseelan and I shared a long professional association as colleagues from 1989 to 2005 at Tata Steel, and later as partners and directors at SRG from 2006 to 2008. Our collaboration was renewed in 2014 when MEAI initiated the CRIRSCO program in India,

where he became a founding member of the National Committee for Reporting Mineral Resources and Reserves in India (NACRI). He made significant contributions to the preparation and finalization of the Indian Mineral Industry Code (IMIC) for reporting exploration results, mineral resources, and reserves, and he actively participated in training mineral industry professionals until his untimely passing.

Sri Gunaseelan graduated in mining engineering from IIT-BHU, India, and held a First Class Mine Manager's Certificate of Competency. He possessed over 30 years of invaluable experience in the mineral industry. After a decade at Tata Steel specializing in mining and ferroalloys, he co-founded SRG Consulting Services in 1998, the first mining consulting organization of its kind in India. Under his leadership, SRG evolved into part of the global DMT Group, which is involved in exploration, engineering, and consulting. He also co-founded DMT Indonesia and DMT South Africa and served on the Board of DMT UK. Together with myself, Sri Gunaseelan instituted the MEAI-SRG Information Technology Award in 2006 in memory of our dear colleague at Tata Steel and co-founder of SRG.

Throughout his career, Sri Gunaseelan held various roles including Project Director, Manager, and Team Member on numerous assignments. His work encompassed due diligence, conceptual studies, pre-feasibility studies, feasibility studies, bidding proposals, productivity improvement studies, computerized geological modeling, mine planning, and exploration projects. He worked on diverse minerals such as iron ore, coal, gold, manganese, copper, chromite, limestone, dolomite, and rock phosphate across projects on nearly every inhabited continent. His extensive travels included consulting projects in over 30 countries.

He was honored with several awards: The Eminent Engineer (Mining) Award from the Institution of Engineers (India) in 2015; the Young Achiever's Award from IIT-BHU Alumni in 2015; and the Mining & Entrepreneur Award from the Department of Mining Engineering at IIT-BHU in 2014. Sri Gunaseelan was a life member of MEAI and also served on its Council.

He is survived by his wife Smt. Rama Tekken and their only son Surit Tekken. The members of MEAI and my family extend their heartfelt condolences to his family and friends and pray for his soul to rest in peace.

(Dr. P.V. Rao)
Editor, MEJ

proposed legislative bill in Karnataka could triple the tax burden on miners operating pre-auction era iron ore mines, potentially squeezing their margins and triggering ripple effects on steel prices, according to experts. The Karnataka (Mineral Rights and Mineral Bearing Land) Tax Bill, 2024, introduced in the state legislature on Monday, aims to impose two new taxes: one on mineral-bearing land and another on mineral rights for mining leases. The bill has drawn sharp reactions from industry observers, as major players brace for its financial impact.

State-owned NMDC Ltd, along with private mining giants Vedanta Ltd and Sandur Manganese and Iron Ores Ltd, are the largest operators of pre-auction

era mines in Karnataka and will bear the brunt of the proposed tax. Together, these companies account for a significant portion of Karnataka's iron ore production, which makes up roughly 15% of India's annual output of 280 million tonnes, according to BigMint, a market intelligence firm.

For private companies like Vedanta and Sandur, this would mean paying a mineral rights tax equivalent to three times the royalty currently paid to the government. With royalties fixed at 15% of the monthly sales price published by the Indian Bureau of Mines (IBM), the proposed tax would hike production costs by 45%.

(Continued on Page 22)

COAL & MINES MINISTER, GOI SRI G KISHAN REDDY'S MEETING WITH MEAI REPS ON 22-12-2024



Felicitation to Sri G Kishan Reddy, Honourable Minister of Coal and Mines



Discussion with Sri G Kishan Reddy, Honourable Minister of Coal and Mines. (R-L): Sri G Kishan Reddy, Sri BRV Susheel Kumar, Sri M Narsaiah, and Dr PV Rao

MEAI representatives viz. Secretary General Sri M. Narsaiah, former Chairman of the MEAI Hyderabad Chapter Sri B.R.V. Susheel Kumar, and NACRI Co-Chair Dr. P.V. Rao met with the Honourable Coal and Mines Minister, Government of India, Sri G. Kishan Reddy, in his office in Hyderabad on December 22nd at 6 PM. The agenda for the meeting included:

- a) **Including MEAI as a Permanent Member in all Policy Formulation Committees** appointed by the Coal & Mines Ministry, Government of India.
- b) **Adoption of the Indian Mineral Industry Code (IMIC)** for reporting exploration results, mineral resources, and reserves as the reporting standard by the Coal & Mines Ministry, Government of India.

Upon learning from us about MEAI's significant strengths and valuable contributions to the mineral sector, the Honourable Minister agreed to include MEAI in the Policy Formulation Committees appointed by the Coal & Mines Ministry.

We then presented to the Honourable Minister the background and importance of adopting the CRIRSCO-recognized IMIC standard to successfully attract much-needed foreign investments in exploration and mining within the Indian mineral industry. We also discussed the current status of resource reports

made available to bidders by the Government of India during the auction of mineral and coal blocks, as well as the response from the Mines Ministry regarding the adoption of IMIC in India.

The Minister provided ample time for a patient hearing and inquired about the Mines Secretary's response to adopting IMIC in India. We informed him that during our detailed presentation to the Mines Secretary in his office—where CRIRSCO's Chairperson and representatives from the mineral industry were also present—the Mines Secretary appreciated MEAI/NACRI's efforts in developing India's internationally recognized reporting code and indicated that he would work on how it could be implemented in India.

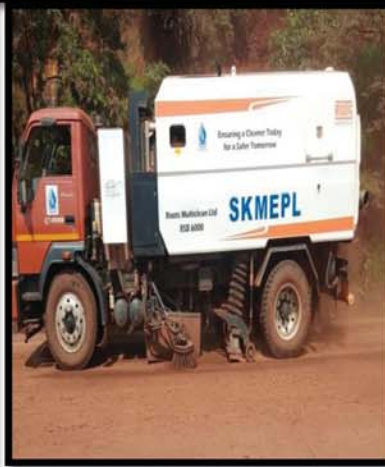
The Minister acknowledged MEAI's contributions to the Indian mineral industry and agreed to schedule another detailed meeting cum presentation with MEAI and other stakeholders in Delhi in the near future. We look forward to this upcoming event!

Our thanks are due to Sri B.R.V. Susheel Kumar, VC & MD of TGMDC, for taking special interest in facilitating this successful meeting with the Honourable Coal & Mines Minister in Hyderabad, at short notice.

(Dr. PV Rao)
Co-Chair NACRI



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Banglore-560052

Ph: +91 08022286954 E-mail : admin@skmepl.co



TIN AND ASSOCIATED STRATEGIC METALS IN INDIA

Dr. T.M. BABU

Abstract

Tin, is one of the ancient metals widely used but less known to people in general. In nature it occurs along with many rare and strategic metals like lithium, niobium, tantalum, tungsten and others. World is producing more than three hundred thousand tonnes of tin metal every year. Present Indian tin production is less than ten tonnes from only one place from Bastar region, Chhattisgarh state of Central India. To meet domestic requirement the country is importing about ten thousand tonnes of tin bearing metal alloys spending about Rs 15 to Rs 28 billion per year. About 83 million tonnes of tin ore resources containing about 103 thousand tonnes of tin metal is estimated from three states of Chhattisgarh, Orissa and Haryana as published. More than hundred tin bearing areas identified in India from northern Himalayas to south Indian states. There is scope to produce more tin and associated strategic metals in the country and could become self-sufficient if India could review, reorient and reorganize the exploration strategies and encourage domestic mining.

Key words: *Tin, lithium, niobium, tantalum, tungsten, world scenario, India hundred+ occurrences, exploration, mining, production scope*

1. INTRODUCTION

Tin is a soft, shining, silvery white metal easy to melt. As it is used mostly in combination with other metals, tin is not well known and familiar like gold, iron, copper, aluminum and other metals. Some people call it as invisible metal as it is hidden within other metals like copper and others used mainly as an alloy. Certain unique characters like its non-toxic nature, rust resistance, easy extractability and malleability make it one of the widely used among metals.

It is interesting to know many fascinating things about this less known, less studied but widely used invisible metal right from its birth deep inside the earth, finally to end up as consumer product to the end user. An important character of tin is its occurrence in nature closely associated with many rare and strategic metals like lithium, niobium, tantalum, tungsten and others. Thus, tin metal could be recovered along with many other metals to make it economically viable if planned properly with foresight, forethought and better understanding.

2. HISTORY

Pre-historic men after Paleolithic and Neolithic Rock ages, discovered copper, the first metal and started Chalcolithic era around 5000 BC. Then, after identifying tin and mixing it up with copper, commenced the Bronze age around 3000 BC. The ancient mining sites and bronze metallurgical artifacts recovered from various old civilizations like Ur in Mesopotamia, North east of Aswan in Egypt, Mohenjo-Daro, Chenchou Daro- Harappa of Indus valley and other areas stand testimony to the earliest metallurgical skills the man

acquired thousands of years ago. Recent research studies indicated that tin is the second most ancient metal, the man discovered after copper initiating the bronze age. No information is available about the person, who discovered this metal and precise date and first place of its discovery.

Bronze, the alloy of copper and tin creation was a significant milestone in human evolution. Instead of using copper as single metal the pre-historic man found it is beneficial to mix tin with it. For making articles, bronze alloy has advantages with more flexibility, adaptability, corrosion resistant properties. Right from making cooking utensils and eating plates of daily use, articles for preparing weapons like knives and arrow heads, bronze had wide applications. Thus, much before the discovery of iron around 1200 BC, bronze was in use for making all tools and weapons. Even after discovering iron, bronze was in wider use for several years, because iron was considered as inferior quickly rusting metal and was not as hard or durable as bronze. Thus, before creation of steel the copper and tin metals combination ruled the world in metallurgical industry, in various applications including coinage for trade and marketing.

Though tin mining and extraction centers were reported in several areas in the world, a well-documented tin mining center was at Cornwall, about 260 km south west of London in United Kingdom. It is dated back to Bronze age around 2100-1500 BC. Tin mining was active even during Roman period as there were historical references about tin production and trade of the Phoenicians, Greeks, Gaul and Romans. Around 14th century about 600 tonnes of tin is

Vice President-African Resources Group; (Ph: 9440843037 Email: babutm@hotmail.com)

reported to have been produced from here which increased to 9000 tonnes by early and middle part of 19th century. However, the output declined when low-cost tin production started in South East Asia as the world's principal source of tin. Following collapse of tin price in 1985 most of the tin mining from Cornwall was closed.

3. LESS KNOWN BUT WIDELY USED

Tin is used widely as an alloy with copper and other metals. Bell metal, gun metal, coinage-metal, babbitt metal, pewter metal and many such other metals invariably have tin content ranging from just about 1 % to 90%. The applications of this alloy of metals now ranges from making house-hold cooking utensils of daily use, toys for children, idols for worship in temples, bells in churches, fight wars for defense or kill people in making guns and bullets and war tanks. (fig. 1). Its extensive uses and applications are not known to many like an invisible sugar sweetener in cookies.

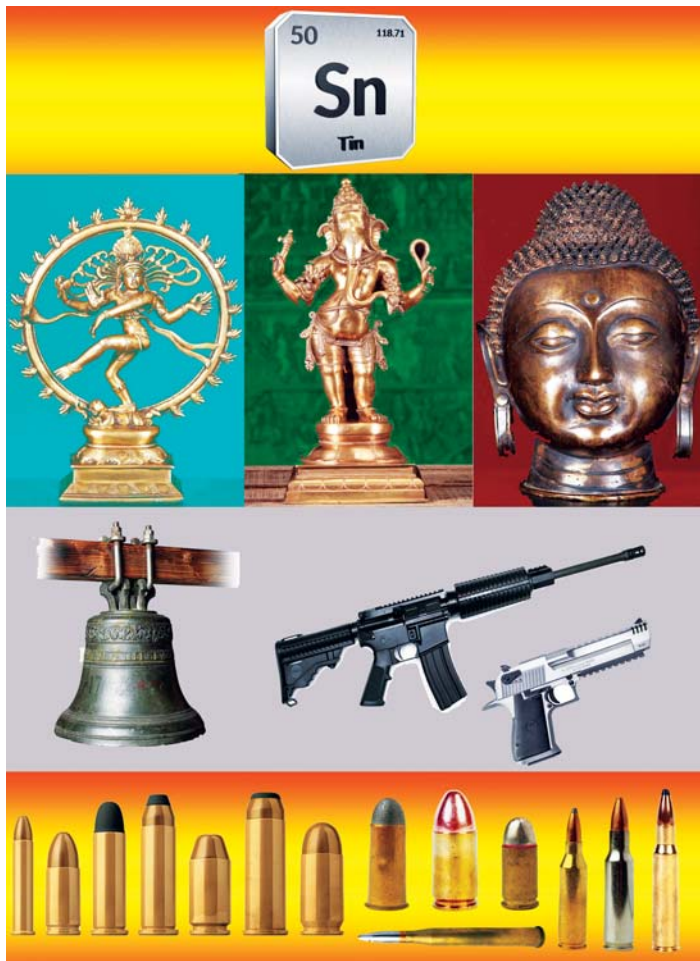


Fig. 1. Tin with Atomic No:50, Atomic weight:118.71 used in various alloys along with copper like bronze, for making idols for worship in temples, bell metal in churches, gun metal and bullets to kill people.

Another important use of tin is for making tin cans, tin containers and tin sheets. The iron or steel sheets are

layered and coated on both sides with tin to protect it from corrosion and rusting. Tin cans are used to store, preserve and transport food, liquids like beverages, paints, oils, condensed thickened milk and various solid food stuff like baby food, milk powder processed nutriment diets, or aerosol tins as air fresheners and insect killing sprays. (fig.2).



Fig. 2. Tin cans for storing, transporting and selling food, liquids, beverages, oils, paints to aerosol sprays, coins as money, ball bearings in industrial machines in moving parts.

Soldering is a process of connecting two metal surfaces together using a filler metal called solder. Tin is used as soldering metal in electrical, electronic, plumbing, automobiles and other industries. Tin-lead, Tin copper and Tin-Silver are common solder alloys. Soldering is commonly used in electronic industry for making and repairing printed circuit boards (fig. 3). Ancient Sumerian swords dated around 3000 BC is reported to have assembled the sharp blade with handles using hard tin soldering indicating its age-old applications.

In addition to these regular uses tin is also used in manufacturing float glass for windows, solar panels, TV screens and mobile touch screens. The glass is made to

float on liquid tin which is known as Pilkington process. Tin content is present even in tooth paste as tin fluoride or tin chloride which have antibacterial effects in the mouth to keep it fresh and drive out bad odor. Thus, practically tin is present as known or unknown ingredient in our daily life. It is difficult to find a house without any tin metal either as tin can or as water taps or as pharmaceutical product. It is not known to many that even human beings contain up to 0.29 milligrams of tin per liter of blood moving around in their bodies.

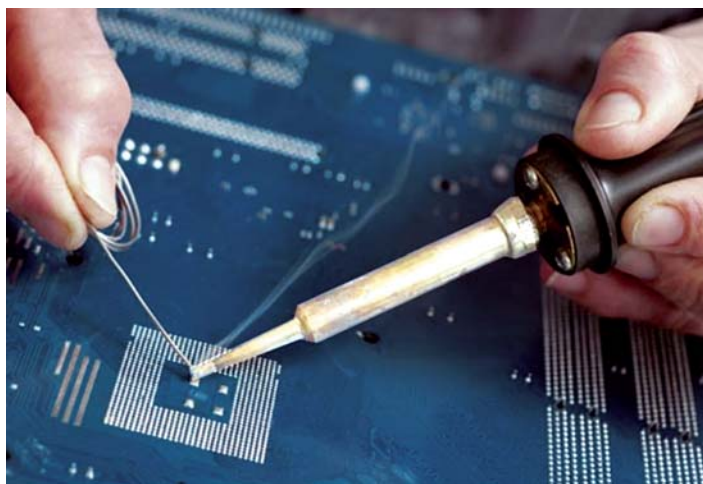


Fig.3. Tin as soldering metal in electrical and electronics industry for making and repairing printed circuit boards.

4. TIN OCCURRENCE

In nature tin metal occurs, mainly as tin oxide (SnO_2), forming as chief ore mineral cassiterite. Some people claim that, the mineral name was derived from “Kastira” the original name of tin in Sanskrit language of India. As described above tin is a bright white soft attractive shining metal. But in quite contrast, cassiterite, its ore mineral is black unattractive, unimpressive hard and heavy-high specific gravity mineral (Fig.4). It is not eye-catching mineral like other copper minerals which was first found by pre-historic chalcolithic man. Stannite is tin sulfide mineral occurs as grey to black metallic crystals with complex chemical formula as $(\text{Cu, Fe, Zn})_2 \text{SnS}_4$. Other tin sulfide minerals are Cyndrite ($\text{Pb}_3 \text{Sn}_4 \text{FeSb}_2 \text{S}_{14}$), Franckeite ($\text{Pb}_5 \text{Sn}_3 \text{Sb}_2 \text{S}_{14}$), and teallite (PbSnS_2). Likewise, there is a long list of tin bearing minerals starting with A- Arandisite-tin silicate mineral ending up to Z -Zvyagintsevite tin-gold-platinum bearing mineral. These minerals are rare and are of academic interest only.

Another characteristic feature of tin mineral is its occurrence is closely associated with many rare metals. In several areas tin is associated with lithium bearing minerals like lepidolite, spodumene, amblygonite and rare metals like niobium-tantalum minerals like columbite-tantalite, tungsten metal bearing wolframite-scheelite and others. In some African countries like DR Congo, Rwanda and others these tin ore minerals are called as “Three-Ts” which means Tin-Tungsten-

Tantalum metals bearing minerals. They call the associated minerals like columbite and tantalite as “Coltan”. Interestingly some of the associated minerals are more expensive than tin metal which could help in increasing the economic value and viability of tin mining and extraction. Critical examination and understanding the mineralogy of tin ores in an area is crucial for efficient extraction and processing of tin, as well as for assessing the economic viability of tin deposits.



Fig. 4. Cassiterite, the tin oxide, dark black, earthy non-good looking ore mineral concentrate when smelted produce eye catching attractive silvery white metal.

5. MAWAM -THE BIRTH

Earth crust contains about 27% silicon, 8 % of aluminum, 5% of iron, 4 % of Calcium and rest all other elements. But tin content in it is about 0.0002% or 2 parts per million. In earth science, the birth of tin is described by geologists in short as MAWAM which means **Mineralization Associated With Acid Magmatism**. Tin takes birth in deep interior crustal parts of earth moves upward towards the surface of the earth in selected silica rich granite and pegmatites mother rocks. Some call pegmatite is mother rock for tin and the granite is its grandmother. Within these rocks under selected conditions tin took birth in minerals as oxides, hydroxides, sulfides, silicates or as natural alloys with other metals.

Tin mineral formation takes place in several stages or phases. The initial phase is Potash metasomatism-or Micro-clinisation in which Potassium silicate will bring out some changes in the pegmatite magma leading to the formation of microcline felspar mineral. That will be followed by Soda metasomatism- or Albitisation where in albite mineral will be enriched. After these two phases the third crucial phase called as “greisenization” in which the liquid or vapors enriched with rare metals reacts through already formed minerals and breaks it into new minerals like quartz and muscovite leading to the formation of cassiterite the tin mineral, columbite, the niobium metal mineral, tantalite-the tantalum bearing mineral and wolframite the tungsten bearing ore mineral. Along with these minerals if the remaining liquid has enriched lithium, beryllium, fluorine metals corresponding minerals take birth.

Though pegmatite is mother rock of tin, every pegmatite will not have tin or the tin ore mineral cassiterite. For the formation of tin, the initial pegmatite magma should have enriched tin content and should undergo certain congenial geological conditions for crystallization. The long complex tin birth history for better understanding could be simplified in a different of steps of MAWAM as granitization, pegmatization, microclinisation, albitization and greisenization finally leading to the tin mineralization.

6. WORLD TIN OCCURRENCES

Tin is found almost in all continents in the world. (Fig. 5). But Asian countries are producing more tin than others. China has the highest tin resources base mainly in Gejiu, Wade-Giles Romanization Ko-Chiu city, Southern Yunnan sheng

province near Vietnam border. From these occurrences nearly 6 million tonnes of tin ore resources were estimated from China alone. Yunnan Tin company of China is the largest tin producer and Minsur is the second largest in the world. Then, more than 3000 km long and 400 km wide tin belt extending from China, Myanmar, Thailand, Vietnam, Malaysia and Indonesia is traced and called as a metallogenic belt. Australia, Africa and South American continents also have significant tin occurrences. It is estimated that the world has about 5.5 million tonnes of proved tin metal reserves and 15.4 million tonnes of tin concentrate resources. As per the present demand and supply there is enough tin resources in the world which could last for more than next 50 years. Tin bearing areas of the world are shown in table No. 1

Table No. 1 Main tin bearing areas, in several countries in the world.

No	Country	Tin mines, deposits-prospects
1	China	Yunnan tin belt, Gejiu, Wade-Giles, Ko-Chiu city, Southern Yunnan sheng-Chengfeng province near Vietnam border.
2	Indonesia	Offshore areas of Bangka island, Northern Sumatra, Belitung, Karinum and Kundur.
3	Myanmar	Man Maw Mining district in Wa state.
4	Brazil	Pitinga mine-northeast of Manaus-Mapuere region, Amazonas.
5	Bolivia	Andean Cordillera of Western Bolivia, Rondonia province, La paz, Oruro, Potosi. High plateau of Altiplano.
6	Peru	Minsur's San Rafael mine-in Mariategui region.
7	Australia	Tasmania. Renison Bell deposit, Greenbushes tin mine in Western Australia. Gibsonvale, Moolyella, Mount Bishchoof, the Herberton/Mount Garnet and Emmaville districts. Collingwood, Doradilla and Bynoe Harbour districts
8	Vietnam	Dong B c and Thanh Hoa
9	DR Congo	Bisie, Manono-Kitotolo Kivu, Rubaya,
10	Malaysia	Between the towns Georgetown and Melaka along the western coast of Peninsular Malaysia.
11	Thailand	Southern provinces of Malay Peninsula. Takua pa-Southern Thailand Omkoi, Nam Mae Lao valley, Chiang Rai province-northern Thailand, Piloc-West Thailand
12	Argentina	Catamarca, Jujuy, La Rioja, Salta and San Juan.
13	South Africa	Zaaipplaats mine of Bushveld complex area
14	USA	Kougarok and Sleitat mountains in Alaska state, Carolina Tin belt
15	Canada	East Kemptville mine in Nova Scotia, JC Smart and Mount Pleasant
16	Russia	Perevalnoye and Festivalnoye. Stanovoy mountain ranges Deputatskoe, Pykakaysky, Tigrinoe, Sherlovogorskaya, Verkhneye, Odinkoe,
17	UK	Cornwall-South west -London, Crofty tin mine
18	Portugal	Now Neves-Corvo complex
19	Kyrgyzstan	Tsentralnyi, Lesisty, Tashkoro and Ryzhyi
20	Afghanistan	Dayakundi province, Central Afghanistan. Khadir, Gaiti, Nili, Tagawlor, Kunak, Charkh, Sheng-Eskan, Shahrstan, Miramor



Fig. 5 Tin bearing and producing countries in the world.

7. WORLD TIN PRODUCTION

Now the world is producing about 310 thousand tonnes of tin metal per year. Of this China contributes about a hundred thousand, one third of world's production followed by Indonesia and Myanmar. These three countries produce more than half of world tin production. After Asia, South American countries and Australia are the main tin producers. But Indian tin production is less than 10 tons. International tin price fluctuates around US\$ 25,000 per ton.

International Tin Council (ITC) was formed in 1956 for tin producers and consumers to control tin market. In 1984 an Association of Tin Producing Countries was created and closed after 2001. Tin metal production is a small fraction of world's iron production of 2.6 billion metric tonnes, about 20.6 million tonnes of copper and about 5.74 million tonnes of aluminum per year. Country wise tin production is shown in table No. 2.

8. TIN IN INDIA

The bronze age artifacts using copper and tin as metal alloy was first recovered and reported in Mohandojaro-Harappa area in the northwestern part of ancient India known as Indus valley civilization. That significant settlement of humans started around 3000 BCE and continued till 1900 BCE. The bronze statue of the dancing girl recovered from that area now preserved in National Museum, New Delhi is dated around 2500 BC. Bronze coins, pillars, sculptures and statuettes of various religious icons recovered from different parts of India dated from 1st to 16th century found to contain tin metal. Bronze cooking utensils interiors were coated with tin to preserve food for longer periods. That good old practice as tradition is being continued even now in several parts of the country. Statues and many metallurgical objects recovered and preserved in museums speak for itself volumes about the use and utilization of tin and metallurgical skills the ancient Indians acquired.

Table No.2 Top ten tin producing countries in the world. (Source: Tin 2023: A Guide to Tin Production, Use Cases, And Economic Value-commodity.com)

No	Country	Tin production Metric tonnes
1	China	100,000
2	Indonesia	55,000
3	Myanmar	33,000
4.	Brazil	26,000
5	Bolivia	20,000
6	Peru	18,000
7	Australia	7,000
8	Vietnam	5,400
9	DR Congo	5,200
10	Malaysia	4,000
	Other countries	36.400
TOTAL		310,000

Exploration carried out by Geological Survey of India, State Government owned Mines departments and other organizations led to identification of several tin bearing areas from Himalayan Mountain regions of Jammu and Kashmir, Arunachal Pradesh of northern India, Bastar region of Chhattisgarh state in Central India to many southern states of South India as shown in table No. 3 and fig No. 6. But there is need to carry out detailed exploration and follow up feasibility studies to develop some of those occurrences into economically viable and mineable deposits. Out of these 114 occurrences even if ten prospects are converted into regular tin and rare metals producing mines Indian economy and GDP could increase substantially.

9. INDIAN TIN INDUSTRY

More than hundred years ago Tin Company of India Limited (TCIL) was established by Tata Steel in 1920 at Jamshedpur, East Singhbhum district which is now in Jharkhand state. It is catering to the needs of most of tin-can requirements for keeping processed foods, edible oils, paints, pesticides, battery, aerosols, bottle crowns and caps. TCIL offers tin-plate in cut sheet and coil form and as TFS in sheet form. It has an installed capacity of 379 thousand tonnes per annum. TCIL exports about 20 % of its tin products to different countries of South East Asia, Middle East and Europe.

GPT Steel Industries Limited located in Gandhidham, Kutch district, Gujarat, was established in 2003 for producing tin plate in coils and as sheets in India. It is the second largest

Table No. 3 Location of potential tin prospects in India. (compiled from book: Tin in India-1994).

No	State	District / Province	Occurrences	Number of occurrences
1	Chhattisgarh	Bastar province: Dantewada- Sukma districts	1)Mundwal, 2) Kudripal, 3)Jangarpal, 4)Bodavada, 5)Bedanpal, 6)Murugel, 7)Kikripal, 8)Govindpal, 9)Kachiras, 10)Berykupli, 11)Chuirwada, 12)Chitalnar, 13)Bhimsen-Murgel, 14)Tongpal, 15)Marjun, 16)Pushpal, 17)Bondey, 18)Madkamiras, 19)Chidpal-Kankapal, 20) Suryapal-Dondripal, 21)Botapara, 22)Korapal, 23)Parcheli, 24)Lakharas, 25)Kapanar, 26)Katekalyan, 27)Kondaras-dongri, 28)Kalepal, 29)Pinjupara, 30)Turem, 31)Rani-nala, 32)Bodenar, 33)Metapal, 34)Kawargaon, 35)Dummam nadi, 36)Jalapara, 37)Dharapara, 38)Bacheli, 39)Degalras, 40)Padapur, 41)Bainpal, 42)Nerli, 43)Kumararas.	43
2.	Orissa	Koraput Malkangiri	1)Mundaguda-Mittiguda, 2)Moho-podor-Salimi, 3)Vedurpalli, 4)Dammaguda	4
3	Haryana	Bhiwani	1)Tosham, 2)Khanak, 3)Rewasa	3
4	Bihar	Hazaribagh	1)Nurungo, 2)Simhatari, 3)Chappatand, 4)Pihra.	4
		Aurangabad-Gaya	1)Chakrabanda, 2)Dhanaras, 3)Dhakna wha, 4)Kanchanpur,	4
		Ranchi	1)Pahar Singha, 2)Johna Silli	2
		Singhbhum	1)Kalikapur	1
		Giridih district	1)Pihra area	1
5	Jharkhand West Bengal	Koderma	1)Mica- pegmatite belt	1
		Purulia	1)Belamu 2)Jabarban	2
		Bankura	1)Chhendapathar, 2)Kuilapal	2
6	Uttar Pradesh	Almora Chamoli &Pauri, Garwal, Mirzapur,Sonbhadra	1)Jalali, 2)Dudhatoli hill, 3)Kotibagar, 4)Nerueadadamar, 5)Harnakachar, 6)Bagarwa, 7)Baghisoti	7
7	Rajasthan	Jhunjhunu	1)Jhunjhunu area, 2)Nand Pahari, 3)Nehra Pahar, 4)Mahakhar, 5)Rijani hill, 6)Khanak	6
		Bhilwara Udaipur	1)Soniana, 2)Nathdwara, 3)Paroli, 4)Rajko-Sujanpur	4
		Ajmir-Pali	1)Pipaliya, 2)Govindgarh	2
		Alwar	1)Bandraul	1
8	Jammu-Kashmir	Udhampur, Kathua-Doda	1)Gandh-top, 2) Dudu, 3)Kaplas-Jamotha granite	3
9	Sikkim	North Sikkim	1)Singhik-Chungthang, 2)Chungthang-3)Lachen 4)Munsang	4
		West Sikkim	1)Chitre	1
10	Arunachal Pradesh	Lower Subansiri	1)Ranga valley	1
11	Himachal Pradesh	Kinnaur District	Nako region	1
12	Maharashtra	Bhandara	1)Goberwahi	1
13	Gujarat	Banaskanta	1)Hosainpur, 2)Palanpur	2
		Sabarkanta	1)Nadri	1
14	Karnataka	Dharwad	1)Dambal	1
		Gulbarga	1)Mukargavi, 2)Manglur Schist belt	2
		Raichur	1)Gabbur, 2) Sirwar	2
15	Andhra Pradesh	Visakhapatnam	1)Aduamunda	1
		Anantapur	1)Nayanivari-palli, 2)Korrepadu	2
16	Telangana	Khammam	1)Nandipadu, 2)Chunnamu-batti, 3)Lankapalli	3
17	Tamil Nadu	Tiruchinapalli	1)Kadavur	1
		Salem	1)Tiruchengodu	1
Total occurrences				114

tin plate producer of the country. The company manufactures tin plate, tin mill black plate. Rourkela Steel Plant established at Rourkela, Odisha with German collaboration is producing tin products under Steel Authority of India Limited from 1959. Kaira Can company limited was established at Anand in Gujarat mainly to cater to the needs of milk and dairy products around that area. It manufactures cans to all major dairies, processed food manufacturers and became a major exporters of tin metal cans and its components. The company is also a major exporters of tin metal cans, lids and associated components.



Fig.6 More than hundred tin bearing prospects and potentialities identified from several states in India. Locality names with district and province were furnished in table No. 3.

Hindustan Tin Works Limited plant is located at Bhigan-Sonepat, Haryana. It produces tin metal cans, tin metal sheets for diverse range of aerosol cans, food cans, beverage cans, baby food cans, health, beauty and luxury products. It exports tin metal products to more than 30 countries in Africa, Australia, Europe, Middle East, New Zealand, USA and to many South east Asian countries. Vardhaman industry Ltd is iron-steel and ferro alloys manufacturing company located at Bapraur, Patiala Rajpura, Punjab. Likewise, there are

several industries like JSW Ltd and others consuming and producing tin based products.

10. PRESENT STATUS IN INDIA

As per government’s Indian Mineral Year book published in 2023 by Indian Bureau of Mines, India has 83.73 million tonnes of tin ore resources containing about 1,02,413 tonnes of tin metal in Chhattisgarh, Haryana and Orissa states. Of these total resources 53.91 million tonnes of tin ore are located in Haryana, 29.79 million tonnes in Chattisgarh and about 15 thousand tonnes from Orissa state. Apart from these just three states no other tin resources have been estimated from other states. Till now 15 leases have been granted for tin exploration to Chattisgarh Mineral Development Corporation (CMDC) owned by state government of Chattisgarh, Raipur and Precious Minerals Smelting Ltd, (PMSL), a private company based in Jagdalpur town. PMSL established a smelting plant at Jagdalpur and producing tin metal (Fig.7)



Fig.7 Tin ingot-blocks produced by Precious Minerals Smelting Ltd (PMSL), a private company located at Jagdalpur, Chattisgarh state of central India.

Tin ore cassiterite mineral concentrate production is about 15 to 16 tonnes per year from Chhattisgarh state from central India from 6 reported sites. No mine production is reported from any other states of Haryana, Orissa where tin resources have been reported. From India about 6 to 7 tonnes of tin metal annual production is reported for last few years. But to meet the domestic demand the country is importing 10 to 11 thousand tonnes of tin bearing metal alloys spending about Rs 15 to Rs 28 billion per year.

Chhattisgarh Mineral Development Corporation Ltd (CMDC) purchases tin concentrates from local tribals, allowing them to dig and recover from their legally sanctioned lease or any other adjoining area. Hence, no mine workers were reported from the mine owned by the CMDC Ltd. Precious Minerals and Smelting Ltd reported just 8 workers on an average daily basis following the same method of buying tin mineral ore from local tribals. But a visit to this area indicate about thousand artisanal workers are involved in digging, panning and producing tin mineral concentrate in Chhattisgarh state calling it locally as "GOTI".

Per capita consumption of tin plate in developed countries is 8 to 12 kg and in developing countries it is nearly 5 kg. But in India the per capita tin plate is less than half kilo gram only. India's tin production now is just a tiny fraction of its demand as most of the country's requirement is being met by imports.

11. FUTURE SCOPE

The government should govern, fulfil the basic needs of people and facilitate wealth generation for a better living. But government should not involve directly in any commercial business ventures like ticklish and risky minerals exploration and mining activities investing public taxpayers' money. Though there are several examples, the recent classic case is gold mining mainly at Kolar-Karnataka as Bharat Gold Mines Limited (BGML) created by government of India. It incurred huge losses, finally closed unable to mine ending up in a mess with legal cases in courts with unresolved problems creating frustration to every person involved in gold mining in south India. Now in Chhattisgarh, the state government owned Chhattisgarh Mineral Development Corporation (CMDC) has tin mining permits. But it is not carrying out any mining activity at all. It is simply buying cassiterite, the tin ore mineral from poor local tribals. Those tribals recover tin ore by dangerous rat hole mining leading to many accidents and deaths in the hilly interior forest areas not known to general public outside that area. For quick money they are destroying their own fertile agricultural lands due to irregular diggings making their fields unusable grave yards. Precious Minerals and Smelting (PMSL), a joint venture company who got mining permits is also not carrying out any regular open cast or underground mining to recover tin ore for its smelter

located at Jagdalpur. All the tin ore is obtained from artisanal miners. There is a need to carry out regular systematic mining activity for recovering more tin and associated rare metals following safety and mineral conservation principles. Geological Survey of India recently declared and published in 62nd CGPB (Central Government Programing Board) that for year 2023-2024 total 81 areas will be taken up for tin and strategic metals investigations. Of these even if ten areas are economically viable for tin mining and production, it will bring positive outcome for the country.

12. LET NOT DATA DIE

Tin mineralization in Govindpal-Mundval areas of Bastar area of central India was discovered around 1973 during exploration for lithium. Later association lithium, niobium, tantalum and other rare metals association with it were established. For more than two decades exploration work was carried out by Geological Survey of India, State Department of Mines & Geology, Madhya Pradesh and Chhattisgarh State Mining Corporation, Mineral Exploration Corporation, Indian Bureau of Mines, Atomic Mineral Division, Orissa State Mines department involving more than 50 exploration geologists, geophysicists, geochemists and mining engineers. Present author of this article was one among those 50. Hundreds of pits, trenches, drill holes, hydraulic exploration mining operations were carried out collecting and analyzing thousands of samples from that area. Declaring it as national priority mission, United Nations Development Project (UNDP) collaboration was brought-in. Then French Geological Survey Bureau of Research of Geology and Minerals (BRGM) collaboration work was involved for this tin project, though France is not an important tin producing country. Exploration continued even after three GSI geologists died due to encephalitis, the brain malaria and other ill health conditions prevailing in that remote area. Now there is no single comprehensive compilation report or record or data base available for all the work done for several decades which could be used for follow up work. Bits and pieces of information as progress reports are found locked up in office racks. Persons who actively involved in tin exploration with dedication were retired and some even died. There is a need to establish a National Data Base center for tin and associated rare strategic metals about all the exploration work carried out in the country. Both positive and even negative results achieved after hectic exploration done to be made available for later review with change of times. If not done the information collected for years taking lot of pains will die and disappear forever.

13. EXTRACTION METALLURGY

About 150 km west of New Delhi, a tin deposit called as Tosham was found in Bhiwani district, Haryana state. Here tin is found associated with copper and tungsten metals. It was explored by GSI and MECL till 1994. Indian Bureau of

Mines (IBM) in 2023 publication Mineral Year book projected 53.91 million tonnes of tin ore resources from this deposit. But ironically not even one single ton of tin or tungsten or copper metal was mined and produced.

From Bastar-Chhattisgarh state recovering tin metal is not difficult a task. Even local tribals could extract tin metal placing cassiterite mineral on wood charcoal and blowing air into the fire. But recovering lithium, niobium, tantalum, yttrium and other rare metals which are more expensive than tin is not easy. In Kolar gold fields even though tungsten is found in the form of scheelite mineral not even one ton of tungsten produced till now. In 2022 from Hutti gold mine officials published about the presence of platinum, palladium and tungsten in underground mine. But till now no efforts are being made to produce even one gram of those metals. In India there are several metallurgical research laboratories and Center of Scientific and Industrial Research (CSIR). There is a need to develop rare metal extraction technology in the country to make many reported occurrences into economically viable and mineable deposits.

14. ZERO WASTE TECHNOLOGY AND VALUE ADDITION

Rare and useful metals content in any mineral deposit is a small fraction just 1% or less. Rest 99% of the materials mined is declared as waste calling it as Over burden, country rock, tailing rejected dumps and various other names. For mining a “cutoff grade” is declared which means below that grade, the material is useless non-ore and get rejected and dumped as of no value. In some chromite mine rejects of Orissa, substantial nickel and platinum group of elements were reported. In Panna, Madhya Pradesh, after recovering diamonds from the kimberlite the mill rejects found to contain high Potassium content which could become a good fertilizer product useful for agriculture, horticulture and floriculture. In Bastar tin area after recovering tin metal the rejected slag is found to contain niobium and tantalum which are more valuable than tin. There is scope to carry out extensive research to extract these less known and unknown metals to make the deposit economically viable. The added advantage of these mine rejects is its availability right at the surface without any additional money for re-mining. In mill reject tailing no expenditure is involved in crushing and grinding which is a high costing factor for recovering metals. The invisible nature and rarity of these strategic metals has advantage giving more scope to find unknown, undiscovered and unrecognized metals in the waste rejected mine dumps.

Before and at the time of mining or after mining, a comprehensive studies have to be carried out with an aim to achieve “**Zero-waste technology**”. In an ideal situation all the materials mined out could be utilized in one form or other like building materials or for road laying layers for the

benefit of local community employment for nation building. That will certainly change the economic viability of the mine. Further, there is possibility for value addition of the mined-out metals and materials to make it economically viable by improving its worth and cost.

15. LOCAL SOCIO-ECONOMIC ISSUES

Few years back BHP Group Limited, a large Australian multinational mining company was interested to mine and produce tin from Bastar region of Chhattisgarh state. After initial inspection visit, the company abandoned the deposit to take up any work due to prevailing left-wing Naxalite disturbances and clashes with Indian army prevailing there. In several places some locals with vested interests are against any sort of mining. They argue that miners from urban cities enter their homeland, destroy their houses, fields, livelihood, steal the mineral wealth hidden below their feet in the ground and finally disappear leaving them again poor once again. There is a need for any mining venture investor to understand the local problems and share a part of the profit earnings for local people’s upliftment providing them the basic necessities like food-clothing- shelter and employ them in development of the region for their benefit also. It is often neglected issue due to which there are many instances in the world wherein the mining was abandoned in mid-way due to local protests and socio-economic problems. Thus, it is necessary to understand and resolve those issues.

16. CONCLUSION

Though more than hundred tin and associated strategic metal occurrences identified and reported now, not enough efforts are being made to convert even a few of them into production mines. There is ample possibility to start at least ten new tin and associated rare metal mines in the country out of those hundred occurrences listed. Regarding tin and strategic metals, India still is regarded as a buried and unopened treasure or jewel box (fig.8).



Fig.8 Tin and strategic metal resources in India is considered as buried unopened treasure or jewel box which needs more attention to open it.

India has talented people of high caliber, and many investors are interested in mining ventures. Most of the Indian talent is being used by several international companies outside the

country to develop their own business and resources. Many Indian investors and entrepreneurs are migrating to other countries for mining. Now the government has to realize, rethink and reorient the mining and mineral policies, remove bureaucratic restrictions, hurdles and create people friendly environment.

Thus, by opening the buried jewel boxes, India could produce more tin and associated strategic metals in near future and improve the lives of people creating wealth. There is ample scope and good hope ahead.

17. ACKNOWLEDGEMENTS

I thank Dr. P.V. Rao for the encouragement to update about the past, present status and future scope for Tin in India hoping it will be useful to those who would like to know a bit more about this less known but widely used metal.

18. DEDICATION

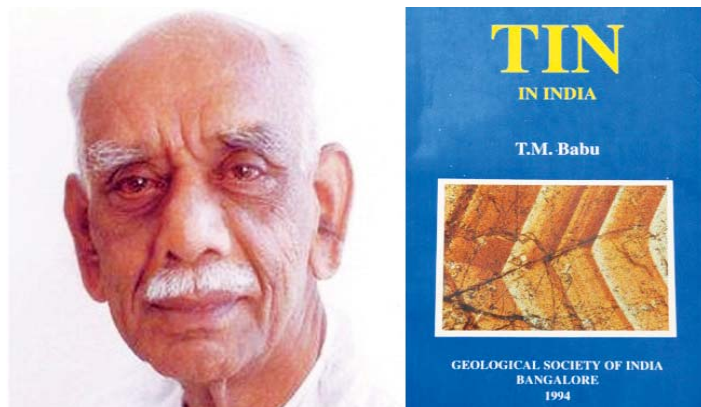


Fig. 9. This article dedicated to Dr. B.P. Radhakrishna who 30 years back, in 1994 published the book TIN IN INDIA which got government National Mineral Award and made the author as Tin Babu and Tin man of India.

This article is dedicated to **Padmasri Dr. B.P. Radhakrishna (1918-2012=94 yrs)**, President of Geological Society of India. About 30 years back he inspired and encouraged for publishing the first book on Tin in India in 1994 (Fig.9). Till now it is the only book describing tin occurrences and its characteristics in the country. That work got National Mineral Award from government of India and Narayanaswamy Award from Geological Society. Some news reporters nick named the book author as “TIN BABU” and “TIN MAN OF INDIA” as it is referred and projected even now in Google and YouTube media channels.

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(Continued from Page 10)

Vedanta and Sandur, mining 5.6 million tonnes and 3.8 million tonnes of iron ore annually, respectively, face substantial cost pressures. Smaller mining firms operating under pre-auction leases will also be affected, amplifying concerns across the sector. In comparison, public sector companies like NMDC will be taxed at 1.5 times the royalty rate, translating to a 22.5% cost increase. NMDC, which produces 13-14 million tonnes of iron ore per year in the state, is the largest public sector miner affected.

Auctioned vs non-auctioned mines

The proposed levy will narrow the cost gap between auctioned and pre-auction mines. The Mines and Minerals Development and Regulation (MMDR) Act, 2015, transitioned India’s mining allocation from an application-based system to an auction-based process.

(Continued on Page 30)

INDIAN MINING DAY CELEBRATIONS 2024

AHMEDABAD CHAPTER

Here's the corrected version of your text: The Ahmedabad Chapter celebrated Indian Mining Day with great enthusiasm and high spirits. All local centers of the Chapter (Bhavnagar, Kutch, and South Gujarat) observed the day at various mines in Gujarat. It was a matter of great pleasure that the mining fraternity celebrated Indian Mining Day in large numbers.

Ahmedabad Chapter Headquarters

The Ahmedabad Chapter Headquarters organized the program in the gracious presence of the MEAI President and other members. The welcome address was delivered by the Chapter Chairman, Sh. Swagat Ray. He congratulated all the members on the occasion of Indian Mining Day and emphasized the theme "Women in the Mining Industry." In his speech, he urged the audience to seek innovative solutions that could balance the essential extraction of mineral resources with preserving delicate ecosystems for a sustainable future, where economic prosperity goes hand in hand with environmental stewardship, social responsibility, and, of course, inclusion and diversity.

The Indian Mining Day Oath was sworn in by all members through Ms. Siddhi Patel, Mining Engineer at GMDC.

President MEAI, Sh. S. N. Mathur, congratulated all the members. He narrated the journey of the inception of Indian Mining Day by MEAI and elaborated on the key milestones achieved by women in the mining industry, inspiring the young team present. He recalled the commitment to envision a sustainable and responsible mining sector that will pave the way for a brighter, cleaner, and prosperous future.

The Ahmedabad Chapter invited Ms. Bandi Gayatri, Manager of Mining at Tata Steel, who was recently featured among the 100 Global Inspirational Women in Mining by WIM UK. Ms. Gayatri virtually addressed the attendees and inspired all women participants by sharing her journey and breaking stereotypes while working in an underground mine.

Various talks were delivered by participants. Ms. Masha, Assistant Manager at GMDC, spoke about the current state of women in the mining industry, hurdles faced by them, and how the industry can promote women's participation. Ms. Akansha Yadav, Management Trainee (Mining) at GMDC, explained underground coal gasification and its future aspects.

Mr. Ashutosh Gupta, Assistant Manager at GMDC, discussed ESG (Environmental, Social Governance) for the mining industry to ensure a sustainable future and responsible mining.

All speakers were felicitated. The program concluded with a vote of thanks presented by Ms. Gunjan Pande, Secretary of the Ahmedabad Chapter, followed by hi-tea.



Mr. Swagat Ray presenting welcome Oath address



Mr Swagat Ray, Mr. S N Mathur & Ms. Gunjan Pande taking IMD



Mr. S N Mathur, President addressing the Audience



Ms. Bandi Gayatri, addressing on IMD

various mines located in Gujarat. The celebrations included flag hoisting, IMD oath-taking, plantation drives, and seminars at multiple locations, reaffirming a commitment to safety, responsible mining practices, and environmental stewardship.

The event witnessed enthusiastic participation from officers, employees, contractual staff, workers, and union representatives, fostering unity and a shared purpose. The celebration successfully promoted awareness about Indian Mining Day and reinforced the company's commitment to safety, sustainability, and responsible mining practices.



Felicitation of Mr. S N Mathur on Dias by Mr. H M Patel

Glimpse of IMD Celebration at Kutch Local Centre



IMD celebration with Flag hoisting & Oath taking at GMDC Lignite Project Mata No Madh Kutch, Gujarat



Ms. Gunjan Pande presenting Vote of thanks



IMD celebration with Flag Hoisting at GMDC Lignite Project, Umarsar, Kutch, Gujarat



Speakers: Ms. Akansha Yadav, Ms. Maasha, Mr. Ashutosh Gupta presenting their talks on IMD



IMD Celebration with Oath taking & Plantation Drive at GMDC Bauxite Project, Bhatia, Gujarat

Celebration at Local Centers of Ahmedabad Chapter

On November 1, 2024, local centers of the Ahmedabad Chapter proudly celebrated Indian Mining Day under the aegis of the Mining Engineers' Association of India (MEAI) at

Glimpse of IMD Celebration at Bhavnagar Local Centre



Celebration at GHCL Khadsaliya Lignite Mine, Bhavnagar, Gujarat



IMD Celebration by South Gujarat Local Centre with organizing a Seminar on “Challenges in Opencast Lignite Mines of South Gujarat” accompanied by plantation program



Celebration at GMDC Lignite Project, Bhavnagar, Gujarat

Glimpse of IMD Celebration at South Gujarat Local Centre



Celebration of Indian Mining Day at GMDC Lignite Project, Tadkeshwar, Gujarat



Speakers: Mr. D B Gevariya, Mr. M A Nipane, Mr. M M Umariya presenting (Clockwise) & a partial view of audience

TAMIL NADU CHAPTER

Indian Mining Day (IMD) was being celebrated annually on 1st November, under the auspices of the Mining Engineers' Association of India (MEAI). Since 2013, MEAI has taken the initiative to observe IMD across various states in India, reflecting its commitment to highlighting the significance of the mining industry to the nation.

In Tamil Nadu, the Tamil Nadu Chapter ensures widespread participation by celebrating IMD in multiple locations across the state. This decentralized approach overcomes the logistical challenges of gathering all miners in a single venue while fostering greater community and industry engagement. For 2024, IMD programs were conducted on 1st, 8th and 11th November across Tamil Nadu at various locations like Chennai, Ariyalur and Salem, making the celebration more inclusive and impactful.

Chennai Zone

The Indian Mining Day (IMD) 2024 celebration for Chennai zone was organized by the Tamil Nadu Chapter on 11th November 2024 at Anna University. The event brought together industry leaders, academicians, scientists, professionals, students of Geology and Mining Engineering and researchers to reflect on the advancements and challenges in the mining sector.

The programme was organized by Prof. Dr. T. Subramani, Chairman of the Chapter and Head of the Department of Geology, Anna University. The program was inaugurated by Prof. Dr. G.R. Senthil Kumar, Mentor, Tamil Nadu Students Chapter and The Registrar of Tamil Nadu Open University. Thiru. N. R. Sankar, Manager (Mines), Tamil Nadu Minerals Limited (TAMIN), Chennai has participated in this program as the Chief Guest. The function began with the lighting of lamp.

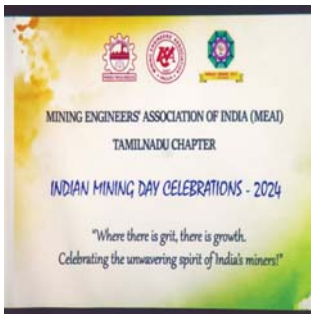


Inaugural Ceremony – Lighting of Lamp by the Guests and Students

He gave a talk on “Impact of Mining on Groundwater and Remedies for Sustainable Mining Practices – A case study from the Cement City of Tamil Nadu”.



IMD Pledge taken by the Participants



Inaugural Ceremony – Honouring the Guests of IMD Celebrations 2024

After honouring the guests, Indian Mining Day Pledge was taken by the participants. Professors and Mining Engineers motivated the students and highlighted the importance of sustainable mining practices. Scientists from the Central Ground Water Board (CGWB) have also participated in this event. A special talk was delivered by Dr. M. Senthil Kumar, a distinguished scientist from the Central Ground Water Board (CGWB), Chennai and the National Mineral Awardee (National Award Received from The President of India).



Special Talk by Dr. M. Senthil Kumar, Scientist, Central Ground Water Board (CGWB) and National Mineral Awardee

As a part of the Indian Mining Day celebrations 2024, Mining Quiz competitions were conducted for the students of Mining Engineering and Geology by Dr. E. Kumar and the Office bearers of the Students Chapter. The students have actively participated in this competition.



Quiz Competition Conducted for the Students of Mining Engineering and Geology

Finally, the guests of Indian Mining Day Celebrations on the stage have presented the prizes to the winners of the quiz competition. The program ended with the singing of National Anthem.



Flag Hoisted by Regional Transport Officer (RTO), Ariyalur



Safety Pledge taken by all the Mining Employees & Labours



Prize Distribution to the Students by the Guests



Welcome Address by Mr Vikram Pyus, DGM (Mines), M/s Chettinad Cement Corporation Limited, Keelapalur

Ariyalur Zone

Tamil Nadu chapter celebrated Indian Mining Day on 07.11.2024 at Ariyalur. Mine officials and employees from various organizations participated in this event. The RTO of Ariyalur graced the occasion as the Chief Guest.

As a part of the celebration, Blood Donation Camp and Eye Check-up Camp were organized. A total of 34 donors contributed blood as a noble gesture. Additionally, Health Awareness sessions and CPR training were provided to the participants. Various trade tests were conducted, including Safety Quiz, Safety Speech, Safety Slogan, and Safety Poster competitions. Prizes were distributed to the winners.



Honouring Chief Guest with Memento & Shawl



Chief Guest Releasing Driver's Safety Pass Book



Driver's Safety Passbook issued to Mine Drivers



Conducted Blood Donation Camp & Eye Check-up Camp



Conducted Blood Donation Camp & Eye Check-up Camp



Certificates issued to the 34 donors contributed blood voluntarily



Various trade test conducted like Safety Quiz, Safety Speech, Safety Slogan & Safety Poster



Special Woman Motivational Award given to Ms. Priyanka, Geologist, M/s UltraTech Cement Limited, Reddipalayam



Special Address by Mr. Nagendran, Sr.DGM (Mines), M/s The Ramco Cements Limited, Ariyalur



Distribution of Prizes to Trade Test Winners



MEAI Activities & Indian Mining Day brief by Mr. R. Kamaraj, DGM (Mines), M/s UltraTech Cement Limited, Reddipalayam



Vote of Thanks by Mr. Jayabharath Reddy, GM (Mines), +M/s The India Cements Limited, Dalavoi

Salem Zone

Indian Mining day, a day for recognizing, cherishing and celebrating the importance of Indian Mining community is being celebrated under the aegis of Mining Engineers Association of India. Every year, we celebrate Indian Mining

day on 1st of November all over India in a grand manner. This year 2024, it was celebrated on 3 days i.e. 1st, 8th and 11th of November. For Salem Zone, Indian Mining Day, was kick started with flag hoisting on 1.9.2024 at Mines Office of M/s India Cements Limited, Sankari Works. Flag was hoisted by Mr. S.Thangam, DGM (Engineering), M/s The India Cements Limited, Sankari followed by Indian Mining Day Oath. Several inter and intra department Executives shared their views on the importance of celebrating Indian Mining Day and its history to other executives and contractual employees. Sweets were distributed to all.



Flag Hoisted by Mr. S.Thangam, DGM (Engineering), M/s The India Cements Limited, Sankari

Safety Pledge taken by all the Mining Employees & Labours

On 7.11.2024 our Mining Department organized a meet with school students of Sankar Higher Secondary School, Sankari. Awareness about the importance of the Mining Industry, its impact on Indian Economy and Environmental

protection were explained by the Mining Executives. On this occasion, 200 saplings were distributed to the school children.



Distribution of saplings to Students of Sankar Hr. Secondary School, Sankari

On 8.9.2024, M/S India Cements Limited conducted “Mining Day Awareness Meet and Saplings Distribution to Sankar Hr. Secondary School students”. Main Guests of this event were Mr. Kanagasabapathy Rtd. AGM (Mines), M/s The India Cements Limited, Mr. M.R.Venkatesan, VT Officer Salem Zone and Mr. Ramesh, Mine Manager M/s TANMAG, Salem. Mr. S. Natarajan, AGM (Mines), M/s The India Cements Limited, Sankari and the Executive Committee Member of MEAI- TN Chapter welcomed the guests and the participants. Various mining personnel such as, Mine Managers, Small Mine Owners, Foremen and Geologists graced the occasion. Many interesting experiences and thought-provoking ideas were shared. After presenting memento as a token of love to all the guests attending the Zonal level event, the function ended on a happy note with our National Anthem.

Tirunelveli Zone

Indian Mining Day was celebrated at Tirunelveli Zone. M/s The Ramco Cements Limited, Pandalgudi has organized this function. Mine officials and employees from various organizations participated in the event. Mining Day Pledge was taken by the employees and officials. Flag hoisting was also done.



Safety Pledge was taken by all the mining Employees & Labours

(Continued from Page 22)

The new bill follows a landmark ruling by a nine-member constitutional bench of the Supreme Court in July, which clarified that states have the authority to tax mineral rights and mineral-bearing land within their territory, settling a decades-old dispute. The court also permitted states to recover past tax dues on mineral rights from as far back as 1 April 2005 but mandated the waiver of interest and penalties on such dues before 25 July 2024. To ease the burden, it allowed staggered payments over 12 years starting 1 April 2026.

Companies operating auctioned mines will face a minimal additional tax of ₹1 per tonne. Among them, JSW Steel, producing 8-9 million tonnes of iron ore annually in Karnataka, stands as the largest player in this category. Unlike pre-auction mine owners, companies winning mining rights through auctions pay a hefty premium—often exceeding 100% of the IBM’s monthly sales price—significantly increasing their operating costs. “This will bring some parity between auctioned and non-auctioned mines. Right now, non-auctioned mines are not paying any premium, so there is a high disparity in their cost structures,” said Dhruv Goel, the chief executive, BigMint.

Ripple effects on steel prices

The proposed tax hikes are expected to send shockwaves through the steel industry, as rising iron ore costs could erode margins for steelmakers and increase production costs. JSW Steel, India’s largest steelmaker by capacity, sources significant quantities of iron ore from NMDC and could feel the pinch of higher prices. The additional cost burden could also make domestic steel less competitive compared to cheaper imports, a growing concern for Indian steelmakers already grappling with rising imports.

“This will, if enacted, have short term disruptions for miners and may have long term impact on their margins. They have the option to pass on the cost, which is not easy as it seems. The other likely thing is they may choose to cut down production to avoid paying more taxes,” Goel said. The tax could lead some miners to reduce or cease operations in Karnataka altogether, an industry executive warned on condition of anonymity. Shifting production to other states with lower taxes may become a viable alternative, potentially altering the competitive dynamics of India’s mining sector.

The Karnataka government is reportedly looking to generate 4,207.95 crore of additional revenue through mineral rights tax, along with an estimated 506 crore from taxes on mineral-bearing land.

Mint, Nehal Chaliawala | December 18, 2024

MEAI NEWS

MEAI HEADQUARTERS



Felicitation to Shri. Sanjay Kumar Pattnaik, Past President, MEAI on his visit to MEAI Headquarters on 16-12-2024



Felicitation to Shri. Pukhraj Nenival, Chairman, Jabalpur Chapter on his visit to MEAI Headquarters on 7-12-2024

BARAJAMDA CHAPTER

TATA STEEL **TATA**

@ WeAlsoMakeTomorrow



Anjna Tiwari



Bandi Gayatri

Tata Steel's Women Employees Featured in WIM UK's 2024

100 Global Inspirational Women in Mining

BELLARY-HOSPET CHAPTER

Caching classes held for Mining Mate aspirants

The Bellary-Hospet Chapter, in association with Mines Group Vocational Training Society (MGVTS), Sankalapur, Hosapete successfully conducted Coaching Classes for the candidates appearing for the "Mining Mate" Certificate Competency Examination held by DGMS, Dhanbad.

The offline Coaching Classes were conducted from 2-7 December, 2024 at the MGVTS, Hosapete. The sessions were held daily from 9:30 AM to 4:30 PM. Around 30 candidates from Karnataka and Kerala states attended the Classes.



Inauguration of the coaching classes on 2nd December, 2024 by eminent personalities Sri. K. Prabhakara Reddy, Sri. G. Lakshminarayana, and Sri. P.V. Rao, Secretary of the Chapter



The aspirants that were preparing for the Mining Mate Examination held in the month of December - 2024 highly appreciated of the free training program. The sessions were conducted by Mr. K. Krishnu, Vocational Training Manager at MGVTS, who presented over 1,000 Multiple-Choice Questions (MCQs) covering all syllabus.

Special assistance was provided to candidates unfamiliar in using computer, ensuring they gained the necessary skills to appear for the Computer Based Test (CBT) examination system.



The participants expressed great satisfaction about the classes, and the also expressed Gratitude to MEAI, Ballary-Hospet Chapter for organizing such classes at free of cost. Mr. Kalva Krishnudu, Manager, MGVTS Hosapete & Mr. S. Ravindra, Instructor, MGVTS Hosapete taken the classes for 6 days. Doubts clarification session was also taken place on the last day of Coaching.



All the candidates and the MGVTS, Hosapete conveyed Special Thanks to Sri. K. Madhusudhana, Past President MEAI & CEO, M/s MSPL Ltd., Sri. K. Prabhakarareddy, Council Member of MEAI, Sri. G. Laxminarayana Council Member of MEAI, Sri. S.H.M. Mallikarjuna, Chairman, BH Chapter, and Sri. P.V. Rao, Secretary, BH Chapter.

JABALPUR CHAPTER

Organized Technical discussion and Field Visit of Majhgawan Diamond Mining Project of NMDC Ltd. Panna M.P On 27.11.2024

The Executive Committee members of the Jabalpur Chapter visited the famous and the only active Diamond mine in Asia “Majhagaon Diamond Mining Project” of NMDC, which is located in the heart of City of Diamonds-PANNA in Madhya Pradesh. This project happens to be the only mechanized diamond mine in the country. The field visit was organized under the esteemed guidance of Shri Pukhraj Nenival, Regional controller of Mines, Jabalpur Region & Chairman of Jabalpur Chapter.

MEAI expresses special thanks with gratitude to Shri K Sreedhar (Project Head, Panna Diamond Mines), and Shri Suresh Wandhre (Head Mines-JK Cement Panna) for

his valuable support during the visit and hospitality. Shri Pratyendra Upadhyay, Secretary, Jabalpur Chapter and Shri Rajesh S Chaubey, Jt. Secretary, Jabalpur Chapter took enormous effort for the successful, Informative and gainful visit.

All the members expressed sincere thanks to the mine management for the unforgettable and once in a life time field visit.

Program was concluded with a vote of Thanks to NMDC management.



NAGPUR CHAPTER

Nagpur Chapter Chairman became Controller General (I/C) of IBM

Shri Peeyush Narayan Sharma took over the charge of Head of the Department as Controller General (I/C) at Indian Bureau of Mines, Government of India, Ministry of Mines on Wednesday, the 4th December, 2024.

The Indian Bureau of Mines (IBM) is a subordinate office under the Ministry of Mines. It is engaged in the promotion of scientific development of mineral resources of the country, conservation of minerals, protection of environment in mines, other than coal, petroleum and natural gas, atomic minerals and minor minerals. It performs regulatory functions with respect to the relevant provisions of Mines and Minerals (Development and Regulation) Act, 1957 and enforcement of the rules framed there under, namely Mineral Conservation and Development Rules, 1988/2017 and Mineral Concession Rules, 1960/2016 and Environmental (Protection) Act, 1986 and Rules made there under. It undertakes scientific, techno-economic, research oriented studies in various aspects of mining, geological studies, ore beneficiation and environmental studies.

Born and brought up at Bikaner, Rajasthan and graduated in Mining Engineering from M.B.M. Engineering College, Jodhpur, Rajasthan, Shri Peeyush Narayan Sharma started his professional career from Pyrites, Phosphates and Chemicals Limited (PPCL), A Government of India Undertaking, after passing out in 1988, as Assistant Manager (Mines) in an underground Pyrite mine and was part of the core team responsible for transition from the manual operations to mechanized mining, thereby boosting the productivity. He has also worked in underground Phosphorite Mines in Middle level and Senior Management positions and achieved record production and recovery from underground stopes and successfully implemented instrumentation for strata monitoring, for the first time in the mine. He passed Manager's First Class Certificate of Competency Examination (Unrestricted) in first attempt in 1993.

Joined Indian Bureau of Mines, through UPSC in August 1997, as Assistant Controller of Mines and worked in Technical Consultancy Division, IBM, Nagpur followed by Jabalpur, Goa and Ajmer Regional offices in IBM, Shri Sharma got promoted as Senior Assistant Controller of Mines in 2009 and associated with development of Sustainable Development Framework with Ministry of Mines since beginning.

Later he assumed the charge of Regional Controller of Mines, Hyderabad, in May 2011, post selection through UPSC. He played an important role to transform the office into a modern and smart office with corporate look and facilities garnering active support of team Hyderabad.

He also undertook many initiatives with the futuristic vision of IBM. Some of them are development of Star Rating System Templates for evaluation of footprints of Sustainable Mining and subsequent development of online portal, launched by Hon'ble Minister of Mines, in First National Conclave on Mines and Minerals held on 4-5 July 2015 at Raipur. This

is the first initiative undertaken towards the vision of self-regulation as the Star Rating Templates which are based on the self-assessment, wherein the auto assigning of the marks for various activities, undertaken by mine operators, is done through on-line system.

He further took initiatives, for adoption of Space Technology in the field of mining and day to day working of IBM by engaging with the National Remote Sensing Center (NRSC) at Hyderabad followed by an MOU signed between IBM and NRSC and successfully led the Pilot-Project undertaken in Tandur district of Telangana and Bellary-Hospet of Karnataka to establish the use of space technology in monitoring the various mining activities using satellite Imagery with the NRSC team.

He developed complete set of on-line templates for on-line processing of Mining Plan to start with, which was adopted as the base in the Mining Tenement System for this purpose.

Worked for a brief period as Technical Secretary, IBM at Nagpur in 2016 he got elevated to the post of Controller of Mines in 2017 and given the Charge of Mining Tenement System (MTS) an initiative undertaken for total transformation of functioning of IBM through technology driven digital Platform and played a pivotal role for successful implementation of the MTS project. He was also assigned additional charge of Controller Mines (Central Zone) and Controller of Mines (Planning & Co-Ordination) at Nagpur Headquarters of IBM.



Shri Peeyush Narayan Sharma took over the Charge of Controller General I/C, Indian Bureau of Mines, Ministry of Mines

After assuming the Charge of Chief Controller of Mines, Mineral Development & Regulation Division with effect from 1.5.2019, he has been associated with the Key Policy and Regulatory Reforms undertaken by Government of India. Shri Peeyush Narayan Sharma has made significant contributions to Indian Bureau of Mines throughout his illustrious career and now on 4th December, 2024, he ascended to the highest echelon of Indian Bureau of Mines and took charge as Controller General (I/C), Indian Bureau of Mines, Ministry of Mines as Head of the Department. His vision, expertise and leadership are expected to drive significant improvement in functioning of the department and the mining industries throughout the country. Large

number of members of Mining Engineers' Association of India, Staff and Officers of Indian Bureau of Mines and many other industry personnel congratulated Shri Sharma on this occasion for this prestigious achievement.

NEW DELHI CHAPTER

Annual General Body Meeting held on 14th December, 2024 at 11.00 am at the Central Services Officers' Institute, Chanakyapuri



The newly confirmed Executive Committee of New Delhi Chapter for 2024 – 2026 is given below:

1. Mr. Deepak Gupta, Chairman: Former DDG, DGMS and Director-Corp. Affairs with Fomento Group
2. Mr. VK Jain, Vice Chairman: Bachelor Degree in Mining Engineering from Indian School of Mines in 1970 and served in NMDC from 1971 to 2008 before retiring as Director
3. Mr. Ashis Dash, Secretary: He is a Mining Engineer from 2009 batch of IIT-ISM Dhanbad and currently working as Head - Policy Advocacy & Corp. Affairs with Vedanta Ltd. - iron & steel business
4. Mr. Navneet Kumar , Joint Secretary cum Treasurer: He is currently COO of SCMS under the aegis of FIMI
5. Mr. Ajit Singh, Member (Elected): He is President at Absolute Imaging Inc.(India), Noida, Uttar Pradesh, India
6. Mr. Arun Kalra, Member (Elected): He is Advisor Business Development at De Beers India Private Limited
7. Mr. Ramakant Tiwari, Member (Elected): He holds a Degree in Mining and served in Coal India
8. Mr. Amit Prakash Singh, Member (Elected): He is a graduate mining engineer and currently working for Tata Steel in Delhi
9. Mr. Sunil Kumar, Member (Elected): He is currently working for Council on Energy, Environment and Water (CEEW)

10. Mr. Anil Kumar Bhandari, Permanent Invitee: By virtue of being the past Chairman, Mr. Bhandari has retired from GSI as DDG and has also served in Ministry of Mines and FIMI.

RAJASTHAN CHAPTER-UDAIPUR

Report on the 2nd Rajasthan Mining Summit held on 12th September 2024

Theme: “New Avenues in Marketing, Export, and Financing for the Mining Sector in Rajasthan”

The 2nd Rajasthan Mining Summit was successfully organized on 12th September 2024 at the Udaipur Chamber of Commerce and Industry Auditorium. The event brought together over 150 delegates, including industry leaders, policymakers, and experts from across India, to explore new opportunities and challenges in the mining sector. The summit was supported by the Rajasthan Chapter-Udaipur Chapter, Udaipur Marble Processors Committee, Federation of Mining Associations of Rajasthan (FMAR), and CDO.



Shri Bhagwati Prasad Kalal, IAS, Managing Director, Rajasthan State Mines and Minerals Limited (RSMML), delivered the keynote address as the Chief Guest. He emphasized the state government's commitment to sustainable mining development and highlighted key initiatives such as:



- The draft Rajasthan Mining Policy, available for public consultation.

- The establishment of a Post Auction Facilitation Center in Jaipur to expedite the exploitation of mineral blocks.
- Opportunities for investment in rare earth elements and deep-seated minerals.
- The need for value addition and processing of minerals within the state to attract investment and generate employment.
- Government efforts to enhance the utilization of mining waste for sustainable development.

Shri M.L. Lunawat, President, Udaipur Chamber of Commerce and Industry highlighted the pain points of the mining sector and urged the government to address key challenges to create an investment-friendly environment.

Shri M.S. Paliwal, of the Chapter stressed the importance of zero-waste mining and the need to increase the export of mineral products from Rajasthan. He also encouraged innovation in mining practices and emphasized sustainable development.



Shri Rajendra Harlalka, Vice President, FMAR urged the government to create a suitable policy framework for enhancing the Ease of Doing Business (EODB) in the mining sector and promote the value addition of minerals.



Shri Abhay Agarwal, Controller of Mines (NZ), Indian Bureau of Mines presented key policy innovations in the mining sector introduced by the Central Government to facilitate growth and sustainability.

Shri P.R. Ameta, Additional Director of Mines, Government of Rajasthan discussed departmental initiatives to enhance EODB and streamline processes for the benefit of mining entrepreneurs.

Several eminent speakers delivered presentations during the technical sessions, sharing insights on topics like new avenues for financing, mineral export possibilities, and survey techniques. Key presentations included:

- Mr. Sudipto Mukherjee, Director, Natural Resource Consulting Limited (UK)
- Mr. Arnab Majumdar, Vice President, Mines and Metals Division, LSI Engineering and Consultants
- Mr. Abhinav Sengupta, Associate Director, Price water house Coopers
- Mr. Kalpataru Behera, Branch Manager, ECGC Limited
- Mr. Lalit Kumar Kiri, CMD, Kiri Oilfield Services Private Limited
- Mr. Prabhat Kumar Jha, Chief General Manager, NSIC (Zonal Office)
- Mr. Abhishek Rungta, Assistant Vice President, Resurgent India
- Mr. Mithilesh Kumar, Head, Centre for Sustainability, PHDCCI



A Knowledge Report on the Rajasthan Mining Sector was jointly released by PHDCCI and LSI Engineering and Consultants during the summit. The report focuses on the abundant mineral wealth of Rajasthan and provides strategic insights for enhancing exploration, mining, and processing activities.

Key Discussion Points:

- The need to effectively present Rajasthan's mineral wealth at national and international forums to attract global investors.
- Introduction of new survey, prospecting, and exploration techniques.
- Opportunities for exporting Rajasthan's mineral products.
- New financing avenues for the mining sector.
- Policy reforms aimed at streamlining processes for mining approvals and increasing ease of doing business.
- Dr. Pawan Talesara, Honorary Secretary General of UCCI, moderated the technical session, ensuring

smooth discussions between speakers and participants. R.K. Gupta, Resident Director of PHDCCI-Rajasthan, assured continued collaboration with the state government and industry stakeholders for the development of the mining sector in Rajasthan.



A view of Audience

The 2nd Rajasthan Mining Summit successfully brought together key stakeholders to discuss and chart a path for the future of Rajasthan’s mining sector. The participants emphasized sustainable development, innovation, and collaboration as the key drivers for growth in the industry.

Report on a Technical Talk



(L to R): Sh Asif M Ansari, Secretary MEAI-UDR, Sh AK Kothari, Former President MEAI, Sh RP Gupta, Former President MEAI & Sh Kan Singh Choudhary, Retd. VP & AED, Vedanta ~ HZL

Rajasthan Chapter- Udaipur organized a Technical Talk on 24th November, 2024 at 11:00 AM -1.00PM on a theme entitled “Contract formulation Execution Management Dispute Resolution and Arbitration” at MEAI-Chapter Office,

Udaipur. The keynote speaker on the occasion was Sh Kan Singh Choudhary, Retd. Vice President and Addl Executive Director (Mines) from Vedanta-Hindustan Zinc Limited (HZL) Konkola Copper mines, (KCM) Zambia delivered the lecture through elaborate PowerPoint presentation. He was welcomed by Sh RP Gupta and Sh AK Kothari, former Presidents of MEAI.

During the session, *Sh Choudhary* emphasized that contract formation should follow a professionally robust & meticulous processes/ Checks/ SOPs to ensure timely and budget-compliant project completion. He provided an in-depth analysis of various aspects of contract formation, management, dispute scenarios, and alternate dispute resolution methodologies through arbitration, arbitrators & finally the court of Law.



The question & answer session saw active participation from several participant notably the younger professionals, newer to the contract handling assignments in their respective working areas. Mr Ranjith Choudhary, Dr SK Vashisth & Mr RC Kumawat, raised queries as well as viewpoints pertaining to the above subject matter & also shared their insights from their working knowledge & experience. Sh KS Choudhary responded to the anxiety of several members to their satisfaction & improved understanding.



On this occasion *Sh AK Kothari*, former National President MEAI highlighted the importance of such discussions for professionals in the mining and geology sectors, fostering a culture of knowledge sharing and professional growth



Approximately 35-40 mining engineers and geo-scientists from various ambient stakeholder entities participated in the event



Presentation of Memento on the occasion to the Keynote Speaker Sh Kan Singh Choudhary by Dr Ranjit Choudhuri & Sh SD Acharya, Sr members of the Chapter.



The event came to conclusion with the formal vote of thanks delivered by the Secretary *Sh Asif M. Ansari*, while *Dr. S K Vashisth*, National Council Member conducted the proceedings seamlessly.



Vice President-I MEAI Visits Udaipur Chapter

Sh DB Sundara Ramam, Vice President-I, MEAI & Sh Sanjay Kumar Pattnaik, former National President, MEAI visited the Rajasthan Udaipur-Chapter on 22.11.2024, during their engagement at Udaipur with Vedanta-HZL. The purpose was to visit the Chapter and engage with the Chapter team to deliberate on MEAI growth potential vis-à-vis way forward, in consultation with the Chapter's leadership.



During the visit, Vice President-I also had engaging deliberations with the Executive Committee Members of the Udaipur Chapter to discuss and know the various activities being undertaken as well as the future programs. In the meeting he met Sh AK Kothari, Former National President MEAI, Sh DP Gaur, Vice-Chairman, Sh Asif M Ansari, Secretary, Dr SK Vashisth, National Council Member, Sh MS Paliwal, Ex-Chairman MEAI-Udaipur and others Sr members.



CONFERENCES, SEMINARS, WORKSHOPS ETC.

INDIA

1 Feb 2025: Seminar on Bridging of Advanced Technology for Sustainable Mining - Challenges ahead. Organized by Belgaum Chapter at Belgavi. For details contact: Shri. Amit Ghooli, Secretary, Belgaum Chapter at amitghooli86@gmail.com or 9901445823.

14-15 February 2025: National Conference on "Mining The Minerals: Way Forward Towards Atmanirbhar Viksit Bharat 2047". Organised by MEAI Hyderabad Chapter at Taj Deccan, Banjara Hills, Hyderabad. For more details Contact: Dr Sanjeev Kumar Sinha, Dy. General Manager (Mine Planning Division), NMDC Limited, Hyderabad, Mob. 8500667319/ Email: sinhask@nmcd.co.in OR Mr L Krishna, Secretary, Hyderabad Chapter, Mob. 9553939316/ Email: meaihydcha@gmail.com

15 Feb 2025: Surveyors Meet. Organized by Bellary-Hospet Chapter at Hosapet, Karnataka. For details please contact, Mr P Venkateswara Rao, Secretary, Bellary-Hospet Chapter at +91 9900256764

ABROAD

3-6 Feb 2025: Investing in African Mining INDABA. CTICC Cape Town, South Africa. Contact info@miningindaba.com.

18-19 Feb 2025: International Conference on Geology and Geophysics ICGG. Manila, Philippines. Website URL: <https://waset.org/geology-and-geophysics-conference-in-february-2025-in-manila>. Program URL: <https://waset.org/conferences-in-february-2025-in-manila/program>. Contact URL: <https://waset.org>

23-26 Feb 2025: MINEXCHANGE 2025 SME Annual Conference & Expo and CMA 127th National Western Mining Conference co-located with World Gold 2025. Colorado Convention Center, 700 14th St., Denver, CO 80202. Contact: cs@smenet.org

02-05 Mar 2025: PDAC 2025. Organised at Metro Toronto Convention Centre, 222 Bremner Blvd, Toronto, Ontario, Canada. Contact information: 416 362 1969 or info@pdac.ca.

09-12 Mar 2025: EnviroTech Athens - 2025 - The Gateway to Green Cement. Greece. Contact: enquiries@globalminingreview.com

7 - 9 Apr 2025: Underground Operators Conference 2025. Adelaide Convention Centre, Adelaide, Australia. Contact: 1800 657 985 or +61 3 9658 6100 (if overseas)

8-9 Apr 2025: International Conference on Geological Engineering ICGE. Rome, Italy. Website URL: <https://waset.org/>

geological-engineering-conference-in-april-2025-in-rome. Program URL: <https://waset.org/conferences-in-april-2025-in-rome/program>. Contact URL: <https://waset.org>

4-7 May 2025: CIM CONNECT. Montreal, QC, Canada. Organised by The Canadian Institute of Mining, Metallurgy and Petroleum. Contact Chantal Murphy, Conference Planner (Technical Program) at cmurphy@cim.org or +1-514-939-2710 ext. 1309.

7-8 May 2025: Mineral Resource Estimation Conference 2025. Perth, Australia. Contact: 1800 657 985 or +61 3 9658 6100 (if overseas)

20-22 May 2025: Global Resources Innovation Expo 2025. Brisbane, Australia. Contact: 1800 657 985 or +61 3 9658 6100 (if overseas)

21-22 May 2025: AUSTMINE 2025. Brisbane Convention and Exhibition Centre. Contact: Jason Berman, Event Director, jberman@etf.com.au, +61 2 9556 7991

Jun 2025: UK Mining Conference in Cornwall. Organised at Princess Pavilion, 41 Melvill Road, Falmouth, Cornwall, TR11 4AR, United Kingdom. Contact: +44 7885 131097 or info@ukminingconference.co.uk.

21-22 Jun 2025: International Conference on Oil, Gas and Petroleum Geology ICOGPG 2025. Vienna, Austria. Website URL: <https://waset.org/oil-gas-and-petroleum-geology-conference-in-june-2025-in-vienna>. Organised by World Academy of Science, Engineering and Technology.

22-23 Jul 2025: International Conference on Mining and Economic Geology ICMEG. Berlin, Germany. Website URL: <https://waset.org/mining-and-economic-geology-conference-in-july-2025-in-berlin>

10 - 13 Aug 2025: Application of Computers & Operations Research in the Mining Industry. #APCOM2025. PCOM Conference 2025, Perth Convention and Exhibition Centre, Perth, Western Australia. AusIMM T: 1800 657 985 or +61 3 9658 6100 (if overseas). Po Box 660 Carlton, VIC 3053, Ground Floor, 204 Lygon St, Carlton VIC 3053.

19-21 Aug 2025: International Conference on Mining, Material, and Metallurgical Engineering. Paris, France. Website URL: <https://mmmeconference.com/>. Organised by International ASET Inc.

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Secretary General, MEAI

Printed and Published by M. Narsaiah, Secretary General, Mining Engineers' Association of India, on behalf of Mining Engineers' Association of India and printed at Deepu Printers, Raghava Ratna Towers, Chirag Ali Lane, Nampally, Hyderabad - 500 001. and published at F-608 & 609, 'A' Block, VI Floor, Raghavaratna Towers, Chirag Ali Lane, Abids, Hyderabad - 500 001. Editor: Dr. P.V. Rao



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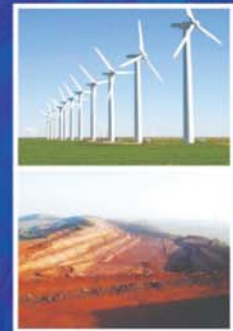


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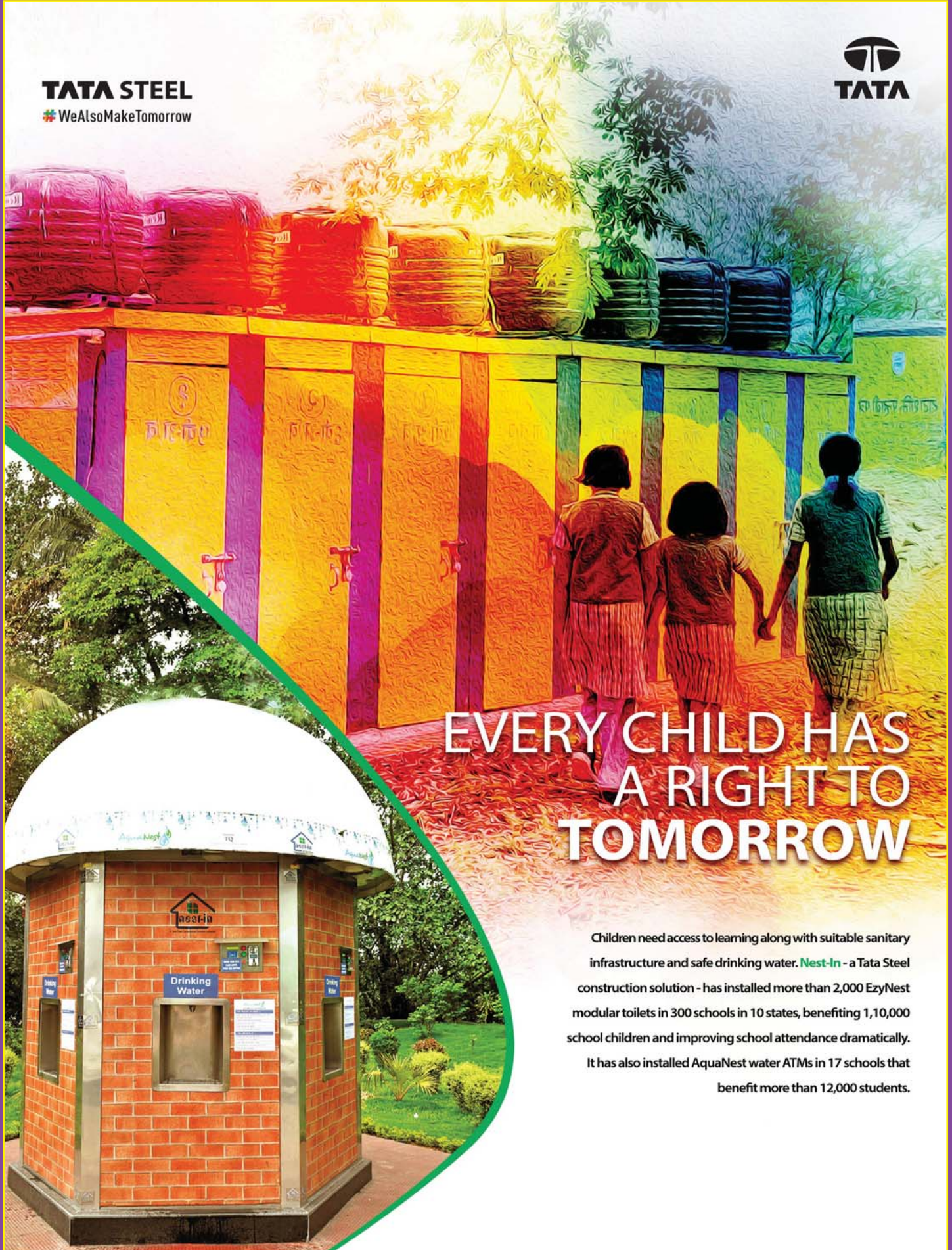
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