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MAY 2022



Geonesis

Indian Mining & Exploration Updates



K.G.F

India's gold bowl that the British looted for 121 years

KGF: India's gold bowl that the British looted for 121 years

Records claim that the British extracted about 900 tonnes of gold from KGF

South star Yash starrer KGF Chapter 1 did wonders at the box office, while KGF Chapter 2 has been breaking all records worldwide. The makers have already announced that KGF Chapter 3 will follow the success of the first two films in the franchise and will take the story forward. While the film has been grabbing eyeballs, there is one question --What is KGF? Is there a huge goldfield there even today? Did the people working in the KGF gold mine really had to endure such hellish torture? What does the real KGF look like on today's date?

KGF i.e. Kolar Gold Field is located about 90 km away from Bengaluru, the capital of Karnataka. This gold mine in the Kolar district of Karnataka was used to spew gold at one point in time. The history of this mine is more than a century old and it is said that the Britishers used to extract gold from here. According to the records related to the history of KGF, the gold hunt started here in the 1700s itself. A report by British officer John Warren states how the British used to rule this gold mine. Warren in his report wrote, that after killing Tipu Sultan in the battle of Srirangapatna of 1799, the British gave the entire empire to the Maharaja of Mysuru, but the British government retained all the rights to this gold-spewing land in Kolar.

This land was the perfect example of why India was called the 'Golden Bird'. Records claim that the British extracted about 900 tonnes of gold from this soil. Earlier, Kings had also made attempts to extract gold from here but they did not have the resources for such a big mine, so their efforts failed. However, during the British period, the excavation lasted for 121 years. There were about 30 thousand Indian labourers, as shown in the film. In the beginning, the British exploited the Indian labourers a lot.

The report further states that the British officer John Warren became so eccentric about this

gold in Kolar that he made all the efforts to extract gold from here with the help of some equipment. In this effort, many Indian labourers were exploited and oppressed. They were subjected to various kinds of torture. When the high officials came to know that Warren was not getting much success in extracting gold, the mining was stopped for a few years.

Then in 1871, the attempt to extract gold from the KGF started again. Michael Fitzgerald Levelle, a retired officer of the English army, started this work, after reading Warren's report. He got some surveys done in KGF and based on the results of it, he took permission to excavate here again in 1873. By 1875, the work of extracting gold from KGF started. In spite of being dark inside the mine, the passion of Levelle engulfed the Indian labourers in the light of lanterns and candles. The resources were running out, at that time wooden shafts were used to get into the mines which was not a safe way. The greed of the British to extract more gold pushed the Indian labourers into hell. According to an estimate, hundreds of labourers lost their lives in the process of extracting gold. The statistics state that in 121 years of mining, about 6000 labourers lost their lives.

The British government took control of the KGF, and built big bungalows for its officers which are still present here. The British government changed the KGF to mini London. It was the first mine in the country that was running properly. Then KGF started supplying its own electricity and became prosperous in a few years.

You will be surprised to know that Kolar is the first city in the country where electricity was first supplied. In 1889, the British started the production of electricity by installing hydro-power plants so that there would be no problem



with gold mining. For convenience, a modern city was established here, where clubhouses were built, golf courses were built, and magnificent roads were built. At that time, people started calling this area Mini London.

This mini London was settled by KGF workers but all these amenities were only for those English officers who used to rule. Many were working in KGF's deep mine with 47-48 degree temperature and more than 90 per cent humidity area. The workers had to live together in a 10 by 10 hut called Coolie Lens. Due to the high temperature inside the gold mines, the rocks used to explode themselves and many workers died at the same time. People of KGF say that instead of getting the dead bodies of the workers out, they were buried by putting in coffins. KGF employees working for more than 30 years, V C Ganesan narrated the tales of atrocities on the workers of KGF during the British period and said that even when the government took over these gold mines, there was no major change in the standard of living of the workers.

The work of extracting gold from KGF continued uninterrupted. In 1947, India became independent but even after that, the workers of KGF could not be free from the slavery of the British till 1956. After that, the state government took over control. In the year 1972, the Government of India formed a public sector



unit named Bharat Gold Mines Limited, which took over the gold mining operations in KGF.

As time passed, the gold started getting more below the surface. In the early 1900s, where gold was being found at a distance of 1 km from the surface, by the year 1980, it went to 3 km depth from the surface, that is, about 10 km from the ground. At that time KGF became the second deepest gold mine in the world.

The name of the deepest mine built in KGF was Champion Reef. To go down about 3KM from the ground, a unique lift was made called Shaft in the British era. Many such shafts are still seen around KGF Mines which is now closed after the closure of the company. The shaft which went to the deepest, its name was Gifford shaft. It was through these shafts that workers went down to the mine and from there the gold was brought to the ground.

When the gold started disappearing from sight, the work of extracting it became more cumbersome. Then one day, suddenly BGML closed KGF. That date was 28 February 2001. It was argued that the gold reserves in the mine were almost exhausted. According to BGML, it was a loss deal to extract gold from KGF in the 1990s itself.

Source: Indiatvnews

Minister Pralhad Joshi urges states to increase pace of exploration of mines

Coal and Mines Minister Pralhad Joshi on Wednesday asked states to increase the pace of exploration of mineral blocks to give a push to the goal of self-reliant India, adding that Rs 8.8 crore was released by the Centre as incentive in the last financial year in favour of 14 state governments.

Joshi also said six mines funded by the National Mineral Exploration Trust (NMET) were auctioned by four state governments in FY'22 with revenue generation stream of Rs 1.63 lakh crore.

The Minister urged the State Governments to speed up exploration and mining activities," the mines ministry said in a statement.

The recent reforms undertaken in the mining sector are based on the views obtained from state governments, Joshi added.

In FY'22, NMET received the highest-ever release of funds of Rs 125 crore and approved projects cost of Rs 748 crore.

Joshi was chairing the fourth governing body meeting of NMET here on Wednesday.

He said as a fully autonomous body, funds will not be a limiting factor for NMET operations.

During the last financial year, NMET performed exceedingly well in terms of sanctions of projects and providing funds to exploration agencies, surpassing the performance of previous years.

NMET was set up in 2015 with a view to increase mineral exploration in the country. The governing body of NMET lays down the broad policy framework for the functioning of the trust and to review its working.

Source: Financial Express

Govt moves ahead with proposal to merge Coal India arm with MECL

The government is moving ahead with a proposal to merge Coal India arm CMPDI with the Mineral Exploration and Consultancy Ltd (MECL) and will prepare a cabinet note on the same.

The government is moving ahead with a proposal to merge Coal India arm CMPDI with the Mineral Exploration and Consultancy Ltd (MECL) and will prepare a cabinet note on the same.

Central Mine Planning & Design Institute Ltd

(CMPDI) is the planning and design arm of Coal India Ltd (CIL).

The mines ministry, in a letter to the CMDs of MECL and CMPDI, sought details such as profitability, turnover, current order books and current position of manpower of the companies in preparation of the merger.

The government "has approved the merger of MECL and CMPDI. In order to work out the modalities for preparation of the cabinet note, the... information may be provided to the

Ministry of Mines," the official memorandum said.

The information sought also includes the authorised capital and paid up capital, details of assets, establishments and valuation, among others.

In a letter to Coal Minister Pralhad Joshi, All India Association of Coal Executives (AIACE) Principal General Secretary P K Singh Rathor welcomed the move but expressed concerns on how the merger will take place.

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Industry Opinion

Voice of Mineral & Mineral Sector

Increase in the price of gold began 6 months ago - 1700 USD per Oz to now 2000US\$. This trend should have been taken note of by the MoM and urged the States to Auction all the drilled gold resource blocks (drilled by Govt agencies) for developing them into mines. At the same time, Section 10A2B should have been restored and asked the States to grant PLs and MLs to permit the private sector & PSUs to progress the gold resource blocks (drilled and defined by them) to mining stage. Instead of doing that the MoM is content with the States auctioning G4 stage blocks for granting CLs. There have been very few takers for such G4 blocks. Would you say, all these are too much to expect from IAS heading Bureaucracy at the Ministry ?? After all, the Minister is happy with an IAS managing the GSI, an organization having the largest number of Geologists and Geophysicists in our country. IAS is the Panacea for all the Hills!! Not plate tectonics. Right??

Bidders are billionaires and they too, barring a few, want FCFS system to replace the Auction mode. Billionaire companies outbid millionaires and commit to pay high premium for acquiring either CL or ML. Did any company who has acquired a CL sought financial help from MoM, so far? Where was the need for extending financial help to doing exploration by billionaire concession holders?. MoM is indulging in all sorts of gimmicks to attract investors without getting rid of the Auction System which is the main hurdle for a large number of investors interested in exploration and mining of non-bulk metalliferous minerals in the country. Auction system is highly Partisan and is vesting the mineral wealth in the hands of a few very wealthy companies, leading to inequitable distribution of mineral resources of our nation. Apex court has recently warned the States and MoM against encouraging bidders from committing to share 100% and over 100% revenue with the Govt



Suggestion By:

Dr. V N. Vasudev,

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Upcoming Events

MBD 2022



INTERNATIONAL CONFERENCE & EXHIBITION

ON

MINERAL BUSINESS DEVELOPMENT

PROSPECTS AND CHALLENGES OF MINERAL BASED PRODUCTS AND UTILIZATION OF WASTES FOR THE 'MAKE IN INDIA' INITIATIVE

ORGANIZED BY



MINERAL INFORMATION & DEVELOPMENT CENTRE (MDC), INDIA

IN ASSOCIATION WITH



FEDERATION OF INDIAN MINERAL INDUSTRIES (FIMI), INDIA

HIGHLIGHTS OF MBD-2022

- **CONFIRMATION FROM MORE THAN 30 MINERAL COMPANIES OF INDIA AND ABROAD**
- **TECHNICAL DELIBERATIONS UNDER INDUSTRIAL MINERALS, FERROUS & NON-FERROUS MINERALS AND WASTE UTILIZATION**
- **MORE THAN 30 ABSTRACTS RECEIVED SO FAR**
- **EXHIBITION OPPORTUNITIES FOR EQUIPMENT MANUFACTURERS, TECHNOLOGY SUPPLIERS AND MINERAL PRODUCERS**
- **EXCELLENT OPPORTUNITY TO MEET MINING COMPANIES AND MINERAL PRODUCERS**

Date: November 10-12, 2022

Venue: Hotel Radisson Blue, Nagpur, India

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On the proposal to separate CMPDI from CIL, Rathor had earlier said "there will a huge problem regarding adjustment of employees and executives because both organisations have different salary structure. So, such proposal coming in mind also deserves to be discarded." AIACE -- an association of serving and retired

executives of Coal India -- had sought wider consultation over the proposal to separate the state-run firm's exploration, planning and design arm from the company.

The AIACE had earlier alleged that the proposed move to split CMPDI from Coal India is aimed at "clearing the deck" for private

consultancy companies.

MECL functions under the Ministry of Mines with 100 per cent government holding, for systematic exploration of minerals.

Coal India accounts for over 80 per cent of domestic coal output

Source: Economic Times

Govt asks SC to allow iron ore exports from Karnataka

"In other parts of the country, there is no restriction on export of iron ore. The restriction imposed in Karnataka was under extraordinary situation prevailing then because of unprecedented illegal mining. However, as the situation has changed, the court may allow export to bring these mines on par with the other states," it said in its affidavit.

The Central government has told the Supreme Court that it may allow export of iron ore to bring the mines in Karnataka at par with other states and also align the operation of these mining plants with the rest of the country.

Supporting the stand of the miners from Karnataka to allow them to export their stocks of iron ore, the mines ministry told the apex court that the situation has improved since the ban was imposed in the state due to illegal mining and encroachment of forest land. The improvement is manifest from various SC-appointed CEC reports, it

In other parts of the country, there is no restriction on export of iron ore. The restriction imposed in Karnataka was under extraordinary situation prevailing then because of unprecedented illegal mining.

However, as the situation has changed, the court may allow export to bring these mines on par with the other states," it said in its affidavit.

According to the Central government, the regulatory mechanism has also changed since 2015 when the amendments were made to the Mines and Minerals (Development and Regulation) Act. The new rules provided for allocation of mineral concessions through a transparent process of auction and stringent penal provision for effective deterrence, introduction of star ratings for sustainable mining and administrative measures by launching the mining surveillance system, including drone survey, it pointed out.

The Central government's response came after the top court had asked it to clarify its stand on the export of extracted iron from Karnataka to rescue the mining industry which is under stress. The mining companies had claimed that they were dying and facing closure due to their stocks not getting sold or receiving genuine prices due to ban on export in Karnataka while steel companies, on other hand, were importing iron ore and making huge profits.

The Federation of Indian Mineral Industries, Southern Chapter, had asked the SC to do away with e-auction norms for mining leases situated in the districts of Ballari, Tumakuru and Chitradurga districts.

Stating that a dual regime was not required in Karnataka vis-a-vis the rest of the country, the industry body pointed out in Odisha, lessees have access to an open market and are not constrained to sell the ore by e-auction to a closed group of buyers, and can even export the ore. However, leaseholders in Karnataka were not granted similar relaxation. It asked the top court to discontinue the e-auction mandated through a judgement in 2013 for the sale and purchase of iron ore in Karnataka.

The Supreme Court had in 2012 banned the export of iron ore pellets from Karnataka to check environmental damage in the state and fixed maximum permissible annual production limit at 35 MMT for the A and B category mines.

Source: Financial Express

India is a rich source of rare earths, but still imports. US collaboration can help change that

India is 100% import dependent on critical minerals. We need mining reforms, US partnership.

The fourth US-India 2+2 dialogue between S. Jaishankar, Rajnath Singh and Antony Blinker,

Llyod Austin this month put the focus back on building cooperation on supply chain resilience, trade partnership for critical and emerging technology to deal with issues of climate, economy and pandemic impact.

Out of all these areas of discussion enhancing India-US partnership, the critical minerals and emerging technology are the major need of the hour for their green future goals.

Rare earth elements and critical minerals :

According to the International Union of Pure and Applied Chemistry, ‘Rare Earth Metals are a family of 17 elements in the periodic table, which involve 15 Lanthanides group elements, along with Yttrium and Scandium. They were discovered in 18th-19th century, with Yttrium being the first and Promethium the last discovered rare earth element.’

These elements are divided into two forms: Heavy and Light Rare Earth Elements. Light rare earth elements are uncritical being abundantly available, while heavy elements are more critical due to their high demand and less availability. Among LREEs, Neodymium is the most critical one as it is extensively used in all mobile phones, medical equipment and electric vehicles. It is important for the manufacturing of permanent magnets that are used in wind turbines and data storage systems. The heavy elements like, dysprosium, yttrium and cerium are critical for clean energy technologies, however, due to their limited supply, they have a small market.

strategic partnership, after their defence and trade relations. The green future partnership began taking shape since the India-US energy dialogue in 2005, which set up five working groups focusing on emerging technologies and renewable energy, besides oil, gas, coal, energy efficiency, and civil nuclear.

Although the two countries have different resource endowments and capabilities, their green future has potential to build a more developed, resilient and sustainable clean energy supply chain. The difference in their preferences was reflected in the Donald Trump administration’s decision to withdraw from the Paris Agreement, while India announced its continued commitment the same year. But the cooperation continued and got most strengthened with the announcement of the Strategic Energy Partnership (SEP) in 2018 that emphasised US-India engagement expansion through government and industry channels. As part of SEP, US-India established four technical pillars focusing on oil and gas; power and energy efficiency; renewable energy; and sustainable growth. The pillars of SEP were recognised by the joint statement by Trump and PM Naren-

Proceedings convened by 40 world leaders. The summit involved the US-India joint statement launching the ‘Climate and Clean Energy Agenda 2030 Partnership’. As part of this partnership, the US set its target to reduce greenhouse gas emissions by 50-52 per cent below 2005 levels by 2030, and India shared its objective to install 450 GW of renewable energy by 2030.

Critical mineral resilience

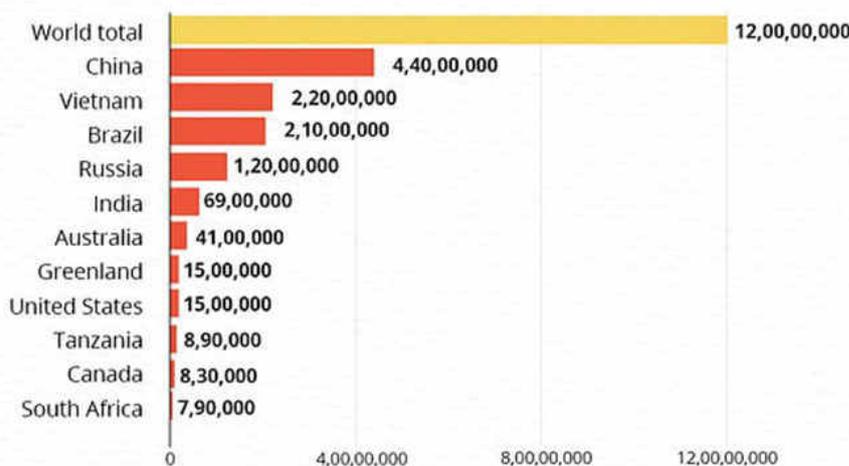
In the current scenario of increasing supply chain vulnerabilities and global semiconductor crisis, the world is looking for alternatives and initiatives in the form of resilience. In the case of India and the US, both have become increasingly active in their path to secure a supply chain of critical minerals and elements in the past decade. Recently, both have introduced acts and legislation prioritising the domestic manufacturing capacity that requires secured access to critical elements like the US Compete Act and the Indian Semiconductor Mission. Be it their bilateral or multilateral arrangements, every dialogue involves critical minerals and emerging technology as points of discussion.

Critical minerals are already developing as a new base for US-India multilateral collaboration, as seen in the “Quad critical and Emerging Technology Working group”, which aims to develop supply resilience among Quad members—India, US, Japan, and Australia.

The focus on critical minerals supply chain began primarily after the China-Japan Senkaku-Diaoyu island dispute (2010), which was followed by a rare-earth embargo imposed by China. This was taken as a serious threat by the US, European Union and Japan because they were the major importers of rare earths. This made the US House of

WHERE ARE THE WORLD’S LARGEST RARE EARTH RESERVES

Reserves in metric tonnes of REO (rare earth oxides) as of 2020



Source: U.S. Geological Survey

A greener future

Energy security and shift to a green future have been at the core of the India-US

dra Modi in February 2020.

The US, under President Joe Biden, rejoined the Paris agreement in 2021 and organised the virtual summit on Climate Summary of



Representatives pass H.R. 761 that declared rare earths as essential for economic growth and national security.

The US critical minerals vulnerability got more acute with the US-China trade war (2018), when China retaliated against US-imposed tariffs by restricting the export of rare earths and other critical minerals to China. The Covid-19 pandemic caused global semiconductor shortage added to the growing global critical minerals vulnerability. There have been multiple strategic initiatives announced by the US to develop its domestic critical minerals mining, such as the Strategy

to Secure and Reliable Supplies of Critical Minerals (2017), On shoring Rare Earth (ORE) Act (2020), US Compete Act (2022), and others.

In the case of India, the economy continued to slow down due to the pandemic. India, as a reservoir of 49 major critical and non-fuel minerals, as reported by the Council on Energy, Environment, and Water (CEEW) and the Ministry of Science & Technology, can be a sustainable source for the manufacturing sector. Despite having a rich deposit of monazite on beach sand, India is 100 per cent import dependent for its rare earth supplies due to its

mining being restricted to public sector undertakings (PSUs), particularly, the Indian Rare Earth Limited (IREL) and Kerala REL. The reforms in the Indian mining and downstream sector of critical minerals can boost not only its domestic high-tech manufacturing, but also its green future goals.

In the growing US initiatives to reduce reliance on Chinese raw materials and critical minerals, the India-US strategic partnership is the need of the hour. India, with its mining reforms, and the US with its increasing strategic initiatives, can enhance their supply chain resilience.

SEVENTEEN RARE EARTH ELEMENTS

Rare earth name	Discovery year	Atomic name & number	Light/heavy REE	Critical/ Uncritical
Yttrium	1788	Y-39	Heavy	Critical
Cerium	1803	Ce-58	Light	Excessive
Lanthanum	1839	La-57	Light	Uncritical
Erbium	1842	Er-68	Heavy	Critical
Terbium	1843	Tb-65	Heavy	Critical
Ytterbium	1878	Yb-70	Heavy	Excessive
Holmium	1878	Ho-67	Heavy	Excessive
Scandium	1879	Sc-21	Heavy	Critical
Samarium	1879	Sm-62	Light	Uncritical
Thulium	1879	Tm-69	Heavy	Excessive
Praseodymium	1885	Pr-59	Light	Uncritical
Neodymium	1885	Nd-60	Light	Critical
Dysprosium	1886	Dy-66	Heavy	Critical
Europium	1886	Eu-63	Heavy	Critical
Gadolinium	1886	Gd-64	Heavy	Uncritical
Lutetium	1907	Lu-71	Heavy	Excessive
Promethium	1947	Pm-61		

Source: Author



About Author:



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India expects 350 million tonnes of private mine coal output by 2030

The private coal mines, together with those allocated to state-owned firms, are anticipated to produce between 80Mt and 85Mt in 2021-2022.

India anticipates private coal mines to provide 350-400 million tonnes (Mt) of coal by the end of this decade, reported Reuters citing a senior coal ministry official.

The projected increase in production would help the country reduce its reliance on imports, the official told an industry conference.

In 2020, India opened the coal mining sector to private firms following a prolonged period of lobbying. Among these firms were Vedanta and Adani Enterprises.

More than 90% of India's coal imports are from Indonesia, Australia and South Africa.

Amid high global prices, India reduced imports in recent months and increased dependence on state-controlled mining company Coal India.

The miner aims to produce 670Mt of coal in 2021-2022.

Indian Ministry of Coal Additional Secretary M Nagaraju was cited by the news agency as saying that the coal mines auctioned to private firms, together with those allocated to state-run companies, are expected to produce 80Mt-85Mt in 2021-22.

Nagaraju also said that production from these

mines is expected to surge nearly 60% to 130Mt-135t during the year ending March 2023

Last month, the Indian Ministry of Coal auctioned 42 coal mines under the commercial coal mining auction process. These mines have a combined capacity of 86Mtpa.

Last year, India's Ministry of Coal asked Coal India to diversify its operations and invest in areas such as electric vehicles and charging stations, as well as participate in overseas tenders seeking coal.

Source: Reuters

India's gold mine output 1.6 tonnes in 2020; may rise to 20 tonnes/year: WGC

The World Gold Council (WGC) launched a report titled 'Gold Mining in India', as part of a series of in-depth analysis on the Indian gold market.

Regulation) Act and introduction of the National Mineral Policy and National Minerals Exploration Policy.

"If this trend continues, India's mine production is expected to increase in the coming years. That said, we see this materialising only over the longer-term as potential investors will, for the foreseeable future, wait to see how successfully the new policies will be implemented and how effective they will be," Somasundaram said. He mentioned that gold mining has the potential to provide significant sustainable socio-economic development for India, not just through investment in exploration and mining for gold, but also through the legacy of training a skilled workforce.

"Furthermore, mining helps to bring

infrastructure investment to a region, initiating and supporting associated service industries, many of which often persist long beyond the working life of the mine." It is only when investors can see real evidence of India managing its gold mining assets more efficiently that we can expect inward investment to emerge. And at that point, the country's gold mining sector will enjoy a much brighter future," Somasundaram said.

On the three problem areas, the WGC report said that the process of securing approval for a mining licence is usually lengthy, involving multiple agencies and requires 10-15 approvals for a single licence." Applications are often subject to substantial delays, leading to a lengthy and costly hold-ups in project development. All of this dissuades investment, particularly from multi-national companies who can invest their resources into countries with similar geological perspective but with less legacy burden," the statement said.

Import tax on mining equipment and other direct and indirect taxes remain high compared to other countries." In the absence of domestically produced alternatives, project developers have little option other than to import specialist mining equipment, much of which comes from a small number of manufacturers. High import taxes increase capital cost and deter development," it said.

The report pointed out that many of the key gold mining areas are in remote locations in states with poorly developed infrastructure. In particular, inadequate road and rail links can make moving materials to and from sites difficult and costly. As a result, there has been limited investment in gold exploration over the past 15 years.

However, WGC said that in recent years the Indian government has proposed and implemented various policy changes to help develop India's gold mining sector by addressing the most problematic areas. In March 2015, the

Parliament approved an amendment to the Mines and Minerals (Development and Regulation) Act 1957 (MMDR), which allowed private companies to bid for mining leases via a competitive auction process and extended the period for major mining leases from 30 to 50 years.

In June 2016, government approved the National Minerals Exploration Policy (NMEP) in an attempt to stimulate mining exploration, while in March 2019 the government announc-

ed the implementation of the new National Mineral Policy (NMP 2019) in an attempt to reduce bottlenecks and encourage development in the sector. This policy applies to non-coal and non-fuel minerals and aims to increase the value of minerals produced in India by 200 per cent over a seven-year period.

According to data published by the Ministry of Mines, India's current defined gold reserves total 70.1 tonnes. "88 per cent of India's gold reserves are in the state of Karnataka; a further

12 per cent are situated in Andhra Pradesh and an insignificant amount (less than 0.1t) are found in Jharkhand," the report said. Since its restart in 1947, through to 2020, Hutti Gold Mine, located in the Raichur district of Karnataka, has produced some 84 tonnes of gold and is currently the only significant gold producer in India.

Source: Business Standard

India urges states to boost coal imports for next three years

The decision comes amid fuel crisis in the country as coal inventories touched their lowest pre-summer levels in nine years.

The Indian Government has directed its states to boost coal imports to meet the required demand, for the coming three years, reported Reuters citing four sources.

The decision by the government comes amid a severe fuel crisis as the country's coal inventories reached the lowest pre-summer levels in the past nine years.

Said to be the second-largest coal importer in the world, India is expected to significantly add to the global demand for coal during the next three years.

This is due to a longer timeline set up by Indi-

an Power Minister R K Singh, seeking to increase coal imports.

A power ministry official, who attended Singh's meeting with state officials, said: "The states were asked to continue importing because the private sector will take till at least early 2025 to produce significant output."

Another ministry official said that the states were urged to sign long-term deals for coal imports to reduce prices while ensuring supply.

The states were also asked to purchase rail wagons to help address logistics problems.

Last month, the Indian government said it 'achieved a significant reduction in import despite a surge in power demand', as a result

of key reforms.

One of the state officials at the meeting said: "Only last year, they told us to cut down imports.

"Now they want us to import as much as we can and are saying there are supply constraints. This is a very confusing, mixed signal."

Last month, a senior coal ministry official was reported by Reuters as saying that India is expected to produce 350-400 million tonnes (Mt) of coal from private coal mines by the end of this decade.

More than 90% of India's coal imports are from Australia, Indonesia, and South Africa.

Source: Mining Technology

FIMI appoints Hindustan Zinc CEO – Arun Misra as Chairman of Sustainable Mining Initiative

As a chairman, the focus will be to facilitate long-term viability of sustainable mining operations

The Federation of Indian Mineral Industries (FIMI), a leading mining body, has appointed Arun Misra, CEO and Whole-Time Director, Hindustan Zinc, as its Chairman of Sustainable Mining Initiative- A Sustainable Committee of

FIMI during an event in Bhubaneswar. Arun Misra currently also serves as the Chairman of the International Zinc Association.

Hindustan Zinc, India's largest and the world's second-largest zinc-lead miner, is an industry leader with over five decades of mining and smelting experience. As a fully integrated player with a keen focus on delivering holistic

value to its stakeholders, the company is committed to safe, smart, and sustainable operations.

On the occasion, Arun Misra said, "We must value the resources provided by mother earth both above the ground (agriculture) and below



the ground (minerals). Minerals are not only vital inputs in our daily lives but also necessary for India's growth have always believed that India is blessed with a plethora of mineral resources which will play an important role in realizing the dream of Aatma Nirbhar Bharat.

As a Chairman of Governing council of Sustainable Mining Initiative of FIMI, my focus will be on mineral conservation while creating a sustainable environment and enabling mines to become net zero. My efforts have and will continue to be dedicated to this growth journey."

The Indian mining sector is now at a crucial stage following the greenfield and brownfield mine auctions. Given that the country's current mining ecosystem is dynamic, it is imperative

that all stakeholders, including policymakers and the industry, adopt global best practices and collaborate in order to ensure long-term sustainability for the sector.

The Federation of Indian Mineral Industries (FIMI), established in 1966, is a national apex body that seeks to promote the interests of all mining, mineral processing, metal making, and other mineral-based industries. FIMI has more than 400 direct members and 25 regional associations which represent local small mining units across the country.

Following Arun Misra's appointment as Chairman of Sustainable Mining Initiative, FIMI has hosted the Sustainable Mining Summit 2022 from 28th – 29th April 2022 at Hotel Mayfair Lagoon in Bhubaneswar. The summit's prima-

ry aim was to put together a roadmap for sustainable mining in India.

They emphasised on how our mines need to compete with global mines in terms of productivity, efficiency & safety as well as environment management and developing skilled workforce to handle imported sophisticated mining equipment.

Various stakeholders, including government agencies, regulators, industry stalwarts, practising managers, NGOs, academicians, and strategists, came together during the summit to deliberate these issues afflicting the Indian mining industry as it inches closer to a new era in its history.

Source: HZ India

Fast-track mining rights allocation to revive ailing sector, Centre urges SC

While the mining lease was sought with respect to the 947.046 hectare Thakurani B-Block Iron Ore Mines, the company has alleged that the state government has been failing to comply with the central government's and high court's repeated directions.

The central government on Thursday urged the Supreme Court to revive the ailing mining sector, considering the cascading effect it is likely to have on the economy, especially in the aftermath of the coronavirus pandemic. Any further delay in allocation of mineral resources will have an adverse impact on mineral production, the ministry of mines told the apex court.

After the expiry of mining leases in 2020, till date 27 mines have been auctioned, of which 26 have started production, it said. The Odisha government has also initiated the auction process for Thakurani-B iron ore block in Keonjhar district, which has mineral reserves of approximately 275.49 million MT of high quality ore. Continuity of production from these mines will significantly contribute towards the supply of raw material to iron ore-based industries, it said.

The ministry's response came on an appeal by

Sarda Mines (SMPL) seeking direction to the Odisha government to execute a mining lease deed in its favour for the remaining 10 years of the 30-year renewal period it was entitled to under the terms of the Orissa High Court's earlier orders of 1991 and 1998.

While the mining lease was sought with respect to the 947.046 hectare Thakurani B-Block Iron Ore Mines, the company has alleged that the state government has been failing to comply with the central government's and high court's repeated directions.

SMPL, which was a supplier of high-quality ore to the Naveen Jindal-led JSPL plant, had acquired the mining lease for 20 years from August 2001 to 2021 for the Thakurani iron ore mine. However, the environment clearance (EC) was granted only in 2004, and mining operations were stopped for want of EC beyond March 2014. In January 2020, SMPL had paid '933.60 crore for excess production of iron ore and resumed mining operations.

The government, while seeking impleadment in the case, said renewal beyond the stipulated period would be tantamount to following the old regime of first-come-first-serve basis and in defiance of the 2015 amended provisions

that envisage public auctioning to ensure fairness and transparency and provide for a fixed tenure of 50 years for the mining leases. " ... the whole auction regime will fall flat on its face as the same do not find support of any of the provisions of the amended Act ... tenure for grant of mining lease cannot be changed/ moulded as per the whims and fancies of the lessee," the affidavit said. It said auctioning also ensures the best price for the minerals as the successful bidder has to pay additional revenue (auction premium) to the state government in addition to royalty.

If SMPL's prayers are allowed, it will have "pan-India ramification", solicitor general Tushar Mehta told the SC, adding that the earlier orders cannot be held to be binding now when there has been a change in law.

A Bench led by Chief Justice NV Ramana on Thursday sought a response from SMPL, which objected to the government's impleadment in the case. Earlier, the apex court had asked the Odisha government to maintain status quo with regard to the mining auction and not to take any coercive action against the mining company till the next date of hearing.

How ending mining would change the world

Mining fuels the modern world, but it also causes vast environmental damage. What would happen if we tried to do without it?

If you can't grow it, you have to mine it" goes the miner's credo. The extraction of minerals, metals and fuels from the ground is one of humankind's oldest industries. And our appetite for it is growing.

Society is more dependent on both greater variety and larger volumes of mined substances than ever before. If you live in a middle-income country, every year you use roughly 17 tonnes of raw materials – equivalent to the weight of three elephants and twice as much as 20 years ago. For a person in a high-income country, it is 26 tonnes – or four and a half elephants' worth.

Extracting new materials continues to be cheaper than re-use for many substances, leading some experts to sound the warning about the increasing pressure of mines on the natural world. A growing chorus is concerned that environmental toll of mine-caused pollution and biodiversity loss, as well as the social impacts caused to local communities, could sometimes outweigh the benefits of mining.

But what if we stopped extraction of fossil fuels and minerals entirely? What if, in order to better protect the environment, humanity decided the contents of the Earth's crust were off limits?

Workers in the Democratic Republic of Congo's deep cobalt pits would drop their shovels, colossal bucketwheels in Germany's brown coal mines would cease to strip mine

It's an unlikely scenario, to be sure, and one that would cause hardship for many people – particularly if it happened suddenly. But imagining a world without access to the underground allows us to examine how dependent we have become on this ongoing extraction. It also invites us to consider the frivolousness with which we often then throw these materials away, and to examine the overlooked potential in this waste as a source of new materials.

So could considering the end of mining help to

change how we use materials today?

Victor Maus, a researcher in geoinformatics and sustainability at the University of Economics and Business in Vienna, Austria, has spent the last three years poring over satellite images of the Earth's surface to estimate the total area humans currently give over to mining. The results surprised him. "It's a country-sized area, and that's just with the mines that are reported," he says.

You might also like:

- The industry creating a third of the world's waste
- The new use for old coal mines
- The environmental case for buying a coal mine

The land size of mining had never been surveyed by satellite before, making it tricky to train a computer how to identify mines from thousands of photos. Maus and his team therefore had no choice but to make his estimates by eye, and spent hours tracing polygons around the shapes of open pits, shafts and waste tailings ponds. "I was seeing polygons in my sleep," he says.

Above ground, he found, mining sites covered around 100,000 sq km (38,600 sq miles), larger than Austria or five times the size of Wales. "And that's just the mines that are active," says Maus.

Mining is also one of the most basic forms of enterprise, and many locations are unreported. "In reality, the world's total mining area is even larger."

In a world of no mining, ghost towns would be created almost overnight

On the first day of a world that stopped mining, the activity across this collective expanse would grind to a halt. Workers in the Democratic Republic of Congo's deep cobalt pits would drop their shovels, colossal bucketwheels in Germany's brown coal mines would cease to strip mine, and the small boats in the Mekong delta would stop sucking

up sands.

The first shockwave would be to jobs. Across the world, ending mining would terminate an estimated four million formal jobs in the industry. And the toll wouldn't stop there.

"There's a number of [further] people that rely indirectly on mining sites that would make it greater," says Eléonore Lèbre, who researches the social impacts of mining from the University of Queensland. More than 100 million livelihoods in work connected to artisanal mining – groups and individuals that mine on smaller scale, often informally – would be lost.

Lèbre's research has involved studying the effect of mine closure on towns in remote Australia. "In rural areas, where there might have been mining operations for decades, you have communities that have grown to depend on them." In a world of no mining, ghost towns would be created almost overnight.

These impacts wouldn't stay confined to those communities for long. By day seven, massive ripples would be felt in society. "Energy would be the chief worry," says John Thompson, a mining consultant and professor of sustainability based in Vancouver. "And coal would be the first to go."

Coal is heavy and bulky, so it moves around the world in short supply chains – often going straight from mine to power plant. "Because it takes up so much space, power stations don't have much to rely on in terms of stockpiles," he says. The constant conveyor belt would empty very quickly if mining came to an end.

With 35% of the world still relying on coal for electricity, few countries would escape a sudden energy crisis. However, coal use for electricity generation is not equal the world over – it is 15% in Europe, 63% in China and 84% in South Africa – so energy inequality between countries would soon be felt.

To cope with this cut off from electricity, governments might begin looking to the past. The UK's mining strikes of the 1970s, where



rolling blackouts and electricity rations were enforced, could be used as a form of damage control. "The three-day-week policy could make a comeback," says Thompson, referring to how the UK government reduced working and manufacturing to three days instead of five to handle the electricity shortage from the strikes and the oil crisis of 1973.

An indirect, but crippling effect of such electricity drops in the modern day would be the cut to communications. The internet, many of whose servers still rely on coal-powered electricity, would be slashed or reduced. Mobile phone networks might hang on for longer, but with less electricity in the grid, charging devices could become a luxury. Corded land lines, which are connected to centralised telephone exchanges, would last longest – at least as long as back-up generators and batteries could keep them going.

We mine vastly more sand than anything – Aurora Torres

Soon after, bulky materials would become scarce. Stocks of sand and gravel, which are essential ingredients for making concrete, are relatively shallow. Reserves of the two would be depleted within two to three weeks, says Thompson.

"Sand and gravel are the most mined solid materials by mass," says Aurora Torres, who researches the environmental pressures of sand use at the Catholic University of Louvain, Belgium. "We mine vastly more sand than anything." The UN estimates we get through 40-50 billion tonnes of sand per year. (*Read more about the world's extraordinary demand for sand.*)

There is some capacity to recycle used concrete, but the rate at which we use fresh concrete far outstrips current recycling rates. There would also be quality concerns. "Most recycled concrete is 'downcycled' to lower-grade uses such as road building," says Torres. So while there would be a rush to implement better recycling processes, in the short-term, the building of new homes would plummet.

Meanwhile, the temperature in existing homes would become increasingly uncomfortable as

gas stores began depleting after a handful of weeks, reducing power for heating and cooling. In economies that rely on gas-fired power stations for electricity such as the United Arab Emirates (95%), Russia (45%), the US (41%) and the UK (36%), blackouts would become more frequent. Any plastics production able to remain working would be restricted to recyclables as its gas feedstock disappeared.

But there is more to modern society than energy and buildings. "It's after about two months that things would get really interesting, as the mining halt would hit metals," says Thompson. Many mined metals are traded through exchanges in London and New York, where numbers and figures swapped over the trading floor denote the real-life movement of physical stockpiles between warehouses all over the world. For copper, an excellent conductor which is essential for almost all electronics, stockpiles would dwindle to nothing in around six to 10 weeks, Thompson estimates.

This would lead the price of metals to skyrocket. "It's not hard to imagine that theft would increase at this point," says Thompson. When the copper price rose to all-time highs in the 2010s, crime rose with it. Buildings, street-lamps, train lines – anything with copper in – were stripped of their cables for resale. Theft might increase for all the industrial metals – copper, iron, aluminium, zinc, lead and nickel – which by mass account for 98% of all mined metals. The shortage would reveal how much this handful of metals have become the life-blood of society.

The production of petrol, diesel, plastics and road asphalt would come to end. And with them, the fossil fuel age

Most countries mine something. China, Australia and the US are the global leaders for production value of raw materials, but extraction makes up a far larger share of the economy for some other nations. In at least 18 countries, metallic minerals and coal account for more than half of all exports; for some of these, it's more than 80%. In a no-mining-of-metals scenario, the entire economies of countries such as Suriname with its industrial gold mining, the Democratic Republic of Congo, where cobalt is

king, and Mongolia, a leading exporter of copper, would be at risk.

Simon Jowitt, an economic geologist at the University of Nevada, Las Vegas, does not mince words on what he thinks the end of metals mining would look like. "It would be the end of society as we recognise it today," he says, noting that we mine more now than we ever have before.

A good example of our increasing reliance on a wide array of metals is the average mobile phone, says Jowitt. In the 1980s, a mobile needed 20 or so different elements. A new smartphone today needs more than twice that. "Modern life is simply minerals- and metals-intensive. We wouldn't be having this conversation without them," he quips via video call from his home in Nevada.

Around three months after the end of mining, stockpiles of rare earth metals and other metals useful to technology would be finished, leading to worrying trends for the pharmaceutical, car, electronics and construction industries. This would lead to massive unemployment that on "a never-before-seen scale", says Thompson.

Pressure would soon increase to redirect all metals recycling into renewables

Just in time for the collapse of supply chains, oil reserves would finally run out. The US's strategic petroleum reserve, the largest fallback oil stockpile in the world, contains 730 million barrels of oil stored in salt caverns across the country – enough for three months at most. The production of petrol, diesel, plastics and road asphalt would come to end. And with them, the fossil fuel age.

After a handful of months, global food supplies would be in crisis. An estimated 50% of food production depends on synthetic fertilisers, which are made up of varying formulas of phosphorus, potassium and natural gas. Lower crop yields could lead to food shortages. "Particularly in countries where climate doesn't support food production," says Thompson.

Nuclear fuel is stocked months in advance, so it could be up to a year before society ran out of nuclear power. Renewables, however, would be the ultimate kingmakers. Nations with the



highest renewable power generation per person would be at a huge advantage. Iceland and Norway, which both source nearly all their power from hydroelectric and geothermal sources, would be among the best equipped nations to ride out the socio-economic storm.

In a cruel twist of fate, though, despite huge demand for new renewable power, deployment rates of wind and solar power would slump. The paradox of renewables is that, in their current form, they need unprecedented volumes of non-renewable mined materials.

"Increasing renewables, while it means fewer fossil fuels out of the ground, means large upticks in battery metals such as cobalt and nickel," says Thompson. Solar panels demand large amounts of silicon for the semiconductors in their cells. Wind turbines need rare earth metals such as neodymium for powerful magnets that generate electricity with the turn of the blades.

Pressure would soon increase to redirect all metals recycling into renewables. "We do recycle a fair amount already," says Jowitt. "Most of the base metals and a handful of other elements are already recycled at their end-of-life by a rate of more than 50%."

Other metals that are critical to renewables, however, such as rare earths, are "lost by design", he says. "The way we currently use them is inherently non-recyclable." This is because technologies use tiny amounts of more and more elements, all in different ways, making it difficult to separate them to get the individual metals out.

There may also be the development of new biomaterial that could mimic or replace the role of metals – John Thompson

But even if technology developed to extract these tiny quantities of rare earth metals, it's unlikely that it would meet the amount needed to vastly expand renewable energy. "The metals demand is already set to exceed current production many times over," says Jowitt. According to the World Bank, in a world on track to keep global warming below 2C, the annual production of graphite, cobalt and lithi-

um will be five times higher by 2050 than today's production.

There is also a huge inequality in the current distribution of already-extracted metals across the world. Most mined and processed metals are in use in the Global North, where they have been imported, meaning populations in the Global South would have less access to recyclable material. The richest 20% of the global population have access to 60-75% of the world's in-use metal stock per capita, according to one study, a spread even more unequal than carbon emissions inequality. A new world with no mining would have to think carefully about equal access to materials.

An unprecedented rush for research could lead to breakthroughs in recycling technology and circular design, however. "Products would be designed so that they last longer or so that they can be taken apart more easily, and the components returned into the system," says Thompson. This would be an about-face for the tech industry, which today creates produces batteries that are notoriously difficult to recycle. Research might be funnelled into methods of gleaning metals without mining, such as the electrolysis of seawater and brines. "There may also be the development of new biomaterial that could mimic or replace the role of metals," says Thompson. "Luckily these would probably be more recyclable.

Meanwhile, energy production might need to adapt to smaller, more decentralised systems, probably using already-invented tech. Last year, the environmental campaign group Seas At Risk imagined a society in 2050 that had banned mining in 2020. Bereft of a constant supply of metals, the blueprint completely overhauls the electricity grid, with a transition from large, metals-heavy solar and wind farms to decentralised and low-tech distribution. "Direct hydro- and wind-power were other age-old technologies that made their comeback, not only for industrial applications but even for water-powered household devices," it says. Instead of large lithium-ion batteries, compressed-air systems, thermal energy storage and gravity batteries become the champions of energy storage.

A mine that is abandoned can have chronic pollution for hundreds if not thousands of years – Éléonore Lèbre

Seas At Risk argues for the importance of rethinking energy consumption in a no-mining scenario, as well as for careful environmental policy. Without a clear vision, controversial biofuel production might make up the energy shortfall, with vast areas of land given over to forestry practices to provide wood as a source of building materials, energy and biofuels.

But the work wouldn't stop there. For Lèbre, who researches mine closure, the closed mines themselves would be a huge source of concern. If all mining stopped there would still be an area at least the size of Austria with degrading and in some cases dangerous levels of heavy metals. "Mining is a process of entropy. We are bringing material from locked-up concentrations underground and letting them out into the world."

Ensuring the clean-up and and rehabilitation of these areas would be vital. Mines usually operate at depths below the water table, which need to be constantly dewatered using pumps. When a mine is abandoned, the ground water gradually refloods underground passages and mineral seams over many months, creating acidic reservoirs of water. Above ground, meanwhile, tailings ponds and piles of low-grade ore with traces of heavy metals lie in wait. "All of this material is exposed to water and oxygen," says Lèbre. Exposing such elements to, well, the elements, wreaks havoc on ecosystems, soils and water supplies through acid leaching. "A mine that is abandoned can have chronic pollution for hundreds if not thousands of years," says Lèbre.

Cleaning up a mine consists of reducing water acidity, detoxifying the soil and treating waste before reintroducing flora and fauna to the site. It's a lengthy, expensive process and can cost billions for a single, large mine. Avoiding an environmental catastrophe, and cleaning all the world's mines at once, would cost hundreds of billions or even trillions.



Mining is not going anywhere anytime soon: in fact, experts predict a new surge in metals and aggregate mining over the coming decades

Global inequalities would be seen in this mining clean up too. Maus, in his tracing of polygons across the map, has discovered that the majority of reported mines are located in the tropics, one chapter of a larger shift of mining from the Global North to the Global South over the last century. In a world that ended mining, these regions would have the bigger burden of the clean-up projects.

With healthy soils and water re-established,

though, eventually nature would return to mining sites. Wastes and tailings ponds, meanwhile, could present an opportunity to access metals. "Most of a mine's desired elements are [the very same] pollutants present in the waste," says Lèbre.

Mining is not going anywhere anytime soon: in fact, experts predict a new surge in metals and aggregate mining over the coming decades. With the exception of a handful of elements, such as lead and tin, the extraction of all metals is even increasing on a per capita basis, notes Jowitt.

Warranting more concern, perhaps, is the fact

that more mining will likely create more land impacts. Mining and biodiversity researcher Laura Sonterand her colleagues recently warned that mining the materials needed for renewable energy will increase the threats to biodiversity. Without careful planning, these new threats could surpass those avoided by climate change mitigation.

Perhaps in time, the concept of material footprints, as an addition to carbon footprints, will catch on with governments, as they increasingly realise how much care we need to take of all our non-renewable resources.

Source: BBC

SWASTHA

A GEMCOKATI EMPLOYEES INITIATIVE

Learning the difference between reacting and responding - A must as it plays a major role in the life's out comes.

Two words that get used commonly in our day to day lives without realization is 'react and respond'. In the first go both the words seem to have the same meaning and may sometimes indicate that each is a synonym for the other. But if we go deeper into understanding the two words, we realize that there is a profound difference in the meaning of both especially when challenging situations are thrown at us from time to time.

If we see the Latin root of 'react' is – "back + action, to do, to perform". It means that you are taking action back at something or someone.

In contrast, the Latin root of 'respond' is "back + answer". The key take away is that you are answering back to someone or something usually in words.

Through millions of years of evolution humans are wired to react in certain ways to the situations they face from time to time. The focus on reaction is based on our survival instinct because as humans, living in the dense forests as well understanding that we are much

weaker than other wild ferocious animals living in close proximity, there was no time to ponder and deliberate before taking action as by that time our ancestors would likely be killed.

Even after millions of years of being out of the wild environment as well as difficult surroundings and living in this safe and technology centered environment our old wiring in our brains are still guided to perceive every challenging situation as a threat to our survival and trigger our fight or flight reaction (not response), thus increasing our chances of living another day, passing our genes and propagating our species.

When we face modern day challenges and obstacles, the same instinctive reactions arise, which involves threat to our self-identity, self-esteem, self-worth, our goals, desires and aspirations, our need to be in control of everything around us, need to please everyone, fear of failure, desperately wanting to see ourselves nothing short of a perfectionist, which is a delusion in reality.



We need to learn the hard truth, what worked in the cave man age does not work in 21st century. Here lies the critical distinction how these two words are used and in turn how it impacts our lives.

Our reactions based on our primitive instincts to the modern day complexities rarely leads to positive outcomes, but in contrast adds to disrupting the alignment of the natural way of flow of a wonderful gift of life.

Thankfully as a part of human evolution we are perfecting our "executive functions" associated with memory, analysis, planning, problem solving and decision making.

Now the Latin root of response says, by



answering in words with the help of our evolved brain we can engage in deliberate thinking and thoughtful decision making which guides our behavioral responses to every situation we face. Responses produce much more positive and desirable outcomes compared to those in which we react. Saying is easy, but it all takes awareness, determination and time for our evolved brain to override our primitive brain and better serve our interests and goals in the complex world we live.

Here are practical ways to respond instead of reacting...

Understanding the common situations where your emotions are flaring up, and your reactions are imminent, we can prepare ourselves to intervene and stop the reaction before it occurs.

After realizing and recognizing when an unexpected situation arises and hitting the “pause” button, gives you several seconds to interrupt the information and doesn’t force you to react.

Deliberately putting yourself in uncomfortable

situations frequently and then responding instead of reacting is an age old practice of great wise men that passed through, is an amazing virtue.

Finally, with the control of the self in our own hands rather than outside we can play to its strengths and based on careful analysis of the circumstances, make a deliberate decision about how best to respond to the situation in a way that will lead to the best possible outcome for us as well as others.

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