



ZEST FERRO BENEFICATION (P) LTD

Never Ending Zeal



Never Ending Zeal

ZEST FERRO BENEFICATION (P) LTD

No 287 , Ward No: 23 , Sy No 121 / 1B, Py No 114 , 18 Hulikunte Village ,
Kumarswamy temple road Sandur-583119 / Bellary-Dist / Karnataka



IRON & MANGANESE BENEFICIATION PLANT

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Web Site : www.zfbpl.in





ABOUT ZEST FERRO BENEFICIATION PRIVATE LIMITED

Zest Ferro Beneficiation Private Limited is a leading player in the mining industry, specializing in beneficiation process plants, trading, and transportation. With 18 years of experience, we have established ourselves as a consistent and prominent organization.

BUSINESS PORTFOLIO

- Iron Ore and Manganese Ore Beneficiation.
- Trade and Supply of Iron and Manganese Ore.
- Trading of Sponge Iron, Slag Sand, Manganese Ore, Quartz, and others.
- Trading of Iron Ore Scrap (Domestic).
- Transportation.
- Establishing Iron and Manganese Ore Sintering Plant.
- Establishing reduction roasting unit for manganese oxide and manganese dioxide.
- Establishing the Red brick plant (Effective utilization of iron ore tailings)

OUR STRENGTHS

With vast experience and in-depth knowledge of beneficiated ore for mineral based industries requirements, Zest has:

- Carved a niche for itself in the market.
- Emerged as a brand name synonymous with quality and quality in the sector.

LEADERSHIP AND MANAGEMENT

Our organization is led by a young, focused, and ambitious leadership team. Our management comprises industry professionals from various fields, including:

- Mining and Geology.
- Finance and Strategy.
- Sound technical background and dedicated team.
- Human Resources.

OUR MISSION

Zest endeavors to be a cost and quality front-runner by achieving total integration in its operations across beneficiation and trading. We maneuver an infrastructure-intensive network and exercise integrated quality management processes aimed at satisfactorily meeting customer requirements.

COMMITMENT TO SUSTAINABILITY AND RESPONSIBILITY

In addition to striving for technological excellence and quality superiority, our group prioritizes the well-being of our people and the planet. We are deeply committed to enhancing safety, health, and environmental protection in all aspects of our operations.

OUR CORE VALUES:

Safety First: Ensuring the well-being and security of our employees, contractors, and communities.

Health and Wellness: Promoting a healthy work environment and supporting the physical and mental well-being of our people.

Environmental steward ship: Minimizing our ecological footprint, conserving natural resources, and protecting biodiversity.

OUR APPROACH:

- We integrate sustainability and responsibility into our business strategy, adopting best practices and innovative solutions to:
- Reduce risks and prevent accidents
- Foster a culture of safety and wellness
- Minimize environmental impacts and promote eco-friendly practices
- Engage with stakeholders and communities to promote mutual understanding and benefit

OUR GOAL:

To be a responsible and sustainable business leader, setting new standards for safety, health, and environmental protection in our industry.

ZEST PRESENT INFRASTRUCTURE AND ADVANTAGES

STRATEGIC LOCATION

- Located in the core mining area of Sandur, Bellary District, Karnataka
- Surrounded by 25 mining leases within a 20 km radius

PLANT CAPACITY AND INFRASTRUCTURE

- Beneficiation plant capacity: 100 TPH, expanding to 250 TPH
- Plant spread across 15 acres of land and acquiring additional 20 acres on lease

TECHNICAL EXPERTISE

- All 3 promoter-directors have a technical background
- Experienced technical team with 18 years of expertise in beneficiation processes

EASY DISPOSAL OF LOW-GRADE IRON ORE FINES

- Good relations with Cement Plants for low-grade iron ore fines
- Plans for a mud brick plant in progress

LOGISTICS AND TRANSPORTATION ADVANTAGES

- Beneficiation plant location surrounded by 3 railway sidings
- 24-hour transport bypass facility within 5 km from the project site

PLANT LOCATION:-

PROJECT ADDRESS:-

Ward No: 23 , No: 287, Sy No: 121/1 Py No: 109, Sy No: 121/2 Py No: 114, Sy No: 115 Py No: 1115, Sy No: 118/1 Py No: 116, Sy No: 118/2 Py No: 117, Sy No: 118/3 Py No: 118, 18 Hullikunte Village , Kumarswamy Temple Road , Sandur -583119 , Bellari-Dist, Karnataka .

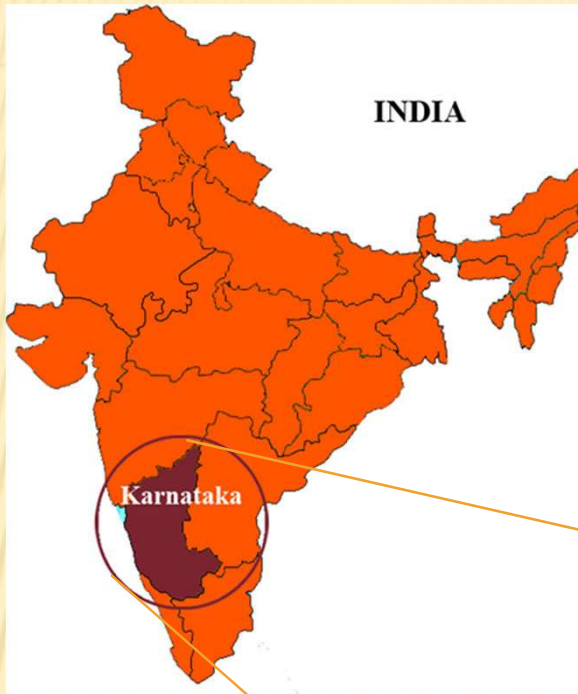
EXISTING LAND AND EXPANSION LAYOUT



PROJECT LAYOUT FOR 0.8 MTA

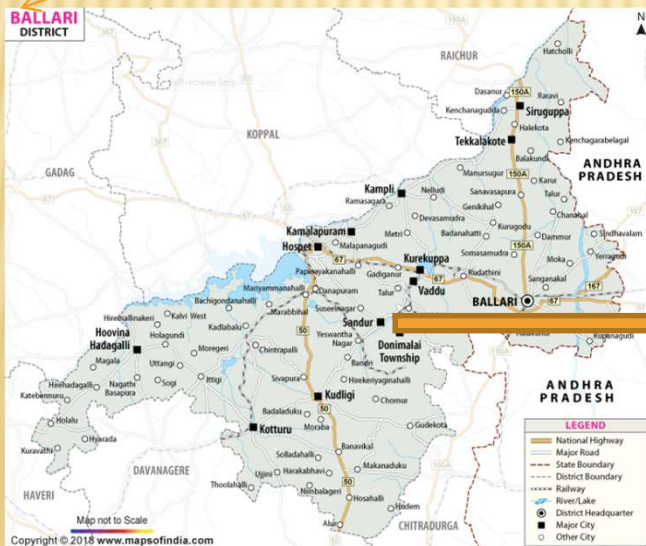


PROJECT LOCATION :-



INDIA , KARNATAKA

KARNATAKA , BELLARI DIST



**ZEST FERRO BENEFICIATION
(P) LTD ,SANDUR**

**IRON & MN
BENEFICIATION PLANT**

MANGANESE ORE RAW MATERIAL SOURCES :-

- Sandur Manganese and Iron ore Limited. Sandur
- Bharath Parik & Co Davanagere
- Yarri Thatta Mines and Co Harapanahalli
- KLCI Tumkur
- Alfa Minerals (Shivaganga Chitradurga) and Others



IRON ORE RAW MATERIAL SOURCES :-

- Sandur Manganese and Iron ore Limited. Sandur
- NMDC Ltd Sandur
- Karnataka State Minerals Corporation . (MML) Sandur
- Karnataka State Minerals Corporation . (TIOML) Sandur
- Vesco Sandur / BKG Ltd Sandur / VNK Menon Pvt Ltd Sandur
- SKME Pvt Ltd Sandur
- Gavisiddeshwara Mines
- ZTC Mining & Chougale Mines
- KLCI Tumkur
- Ramamurthy Praveen Chandra Mines Hosadurga & Others



MARKET POTENTIAL FOR BENEFICIATED ORE

LOCAL DEMAND

- 70 sponge iron plants in Karnataka, with 40 in Bellary District
- 8 integrated steel plants and 6 pelletization plants in Bellary District



OUT-OF-STATE CUSTOMERS

- Goa : 4 sponge plants and 1 pellet plant
- Andhra Pradesh : 20 sponge plants
- Tamil Nadu : 8 sponge plants
- Maharashtra : 5 sponge plants
- Gujarat : 10 sponge plants

CLIENT LIST MANGANESE ORE AND IRON ORE :-

- AIM Metallic Gujarat.
- M B Smelters Private Limited Hindupur AP
- Kirloskar Ferrous Industries Limited Hospet/ Hirhyur
- Singhal Enterprises Private Limited ,Raighad
- A - One Steel And Alloys Private Limited, bellari
- Mayine Ferro LLP , Andhrapradesh
- M.S.Minerals & Metals Raipur
- Krishnaping Alloys Limited , Raipur
- SLR Metaliks Limited Hospet
- Indsil Hydro Power And Manganese Limited , Kerala
- Akshara Industries Limited Tamilnadu
- Shreeyam Power and Steel Industries Ltd
- Shree Shyam Sponge And Power Limited
- Sri Raghavendra Ferro Alloys Pvt Ltd Hindupur AP
- Mayine Ferro LLP Hindupur AP
- MSP Sponge Iron Limited Raighad
- A R Mine's Industries Raipur
- Mahavir Ferro Alloys Mahabubnagar AP
- Sky Alloys And Power Pvt Ltd Chattisghad
- Sai Chemicals Private Limited Raipur
- Chhattishgarh Steel And Power Ltd Chattisghad
- S R Alloys , Madhya Pradesh
- Sri Vari Traders Kerala



OUR MAJOR BENEFICIATED IRON ORE CONSUMING PLANTS: 60000-80000 MTS PER MONTH

- MAJOR SPONGE IRON PLANTS
- MAJOR PELLET PLANTS FOR IRON ORE FINES CONSUMPTIONS

SI NO	PLANT DETAILS	ORE REQUIRED
1	Xindia Pvt Ltd , Koppal	Iron Ore fines (Fe: 58-64%)
2	BMM Ispat Ltd , Hospet	Iron Ore fines (Fe: 58-64%)
3	Minera Private Limits , Bellari	Iron Ore fines (Fe: 58-64%)
4	Janki Corp Ltd , Bellary	Iron Ore fines (Fe: 58-64%)
5	Vinayaka Steel Limited , Karimnagar AP	Iron Ore fines (Fe: 58-64%)
6	Welspun Corp Limited Gujrath	Iron Ore fines (Fe: 58-64%)
7	Vedenta Limited , Goa	Iron Ore fines (Fe: 58-64%)
8	Mandvik Pellet Pvt Limited , Goa	Iron Ore fines (Fe: 58-64%)

SI NO	PLANT DETAILS	ORE REQUIRED
1	PVSR Steel and Power Pvt Limited , Bellary	Iron Ore Lumps Fe: 58- 62 % , Ti: 78-80 %
2	Vanaya Steels Limited , Hospet	Iron Ore Lumps Fe: 58- 62 % , Ti: 78-80 %
3	RPA Ferro Industries Pvt Ltd, Dharwad	Iron Ore Lumps Fe: 58- 62 % , Ti: 78-80 %
4	Supra Steel and Power Pvt Ltd , Bellary	Iron Ore Lumps Fe: 58- 62 % , Ti: 78-80 %
5	Agni Steels Pvt Ltd , Erodu, TN	Iron Ore Lumps Fe: 58- 62 % , Ti: 78-80 %
6	Noble Ispat & Enerigies Limited , Bellary	Iron Ore Lumps Fe: 58- 62 % , Ti: 78-80 %
7	Hariom Pipes Industries Limited , Ananthpur	Iron Ore Lumps Fe: 58- 62 % , Ti: 78-80 %
8	Akshara Industries Pvt Ltd , Chennai TN	Iron Ore Lumps Fe: 58- 62 % , Ti: 78-80 %
9	Vinayaka Steel Limited , Karimnagar AP	Iron Ore Lumps Fe: 58- 62 % , Ti: 78-80 %
10	Sai Pavan Ispat Pvt Ltd , Bellary	Iron Ore Lumps Fe: 58- 62 % , Ti: 78-80 %
11	A-one Steels Pvt Ltd , Basai Bellary	Iron Ore Lumps Fe: 58- 62 % , Ti: 78-80 %
12	Shreeyam Power and Steel Industries, Gujrath	Iron Ore Lumps Fe: 58- 62 % , Ti: 78-80 %

MAJOR BLAST FURNACE FOR IRON ORE LUMPS CONSUMPTIONS AND MANY OTHERS

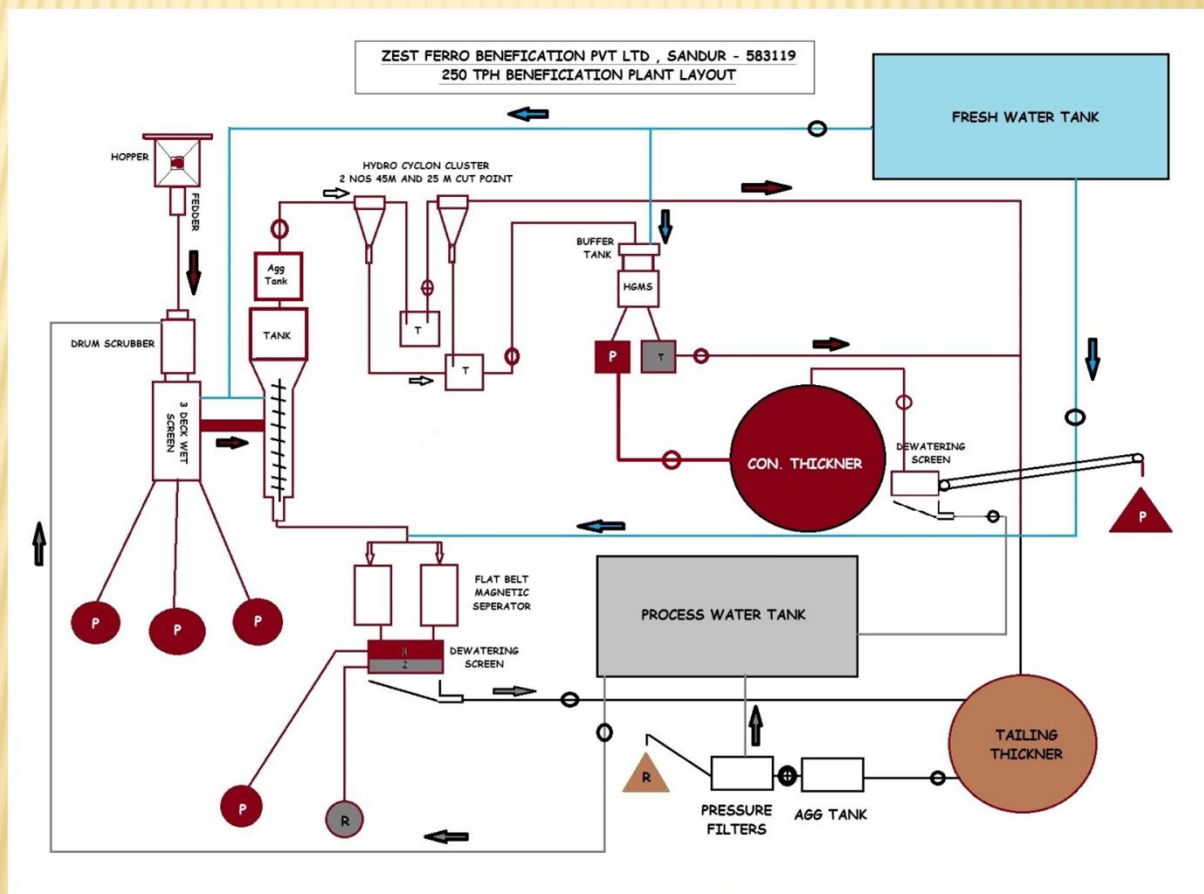
SI NO	PLANT DETAILS	ORE REQUIRED
1	Kirloskar Ltd , Koppal	Iron Ore Lumps Fe: 60- 64 % , Ti: 70-72 %
2	Kalayani Pvt Limited, Koppal	Iron Ore Lumps Fe: 60 - 64 % , Ti: 70-72 %
3	Vedenta Limited , Goa	Iron Ore Lumps Fe: 60 - 64 % , Ti: 70-72 %
4	Eletro Steel Pvt Ltd , AP	Iron Ore Lumps Fe: 62 - 64 % , Ti: 70-72 %
5	Satavahana Steel Limited , AP	Iron Ore Lumps Fe: 62 - 64 % , Ti: 70-72 %
6	Welspun Corp Limited Gujarath	Iron Ore Lumps Fe: 63 - 64 % , Ti: 70-72 %
7	Jindal Saw , Gujarath	Iron Ore Lumps Fe: 62 - 64 % , Ti: 70-72 %



BENEFICIATION PROCESS

Methods and Techniques adopted

- Various methods are employed in our beneficiation plant to enhance the Fe content of iron ore and reduce gangue content, including:
- Crushing and Screening
- Wet scrubbing and screw classification
- Density separation
- Magnetic separation
- Water recovery system
- Filtration



IRON AND MANGANESE ORE BENEFICIATION AND PROCESSING :-

IRON ORE CRUSHING AND SCREENING MACHINE

Mining and processing of iron ore involves coarse crushing and screening. Iron ore is beneficiated by crushing and then separating the iron from the gangue minerals through screening. This is usually so efficient that lower grade ore can be treated especially when the magnetite is quite coarse. Common iron ore crushers are jaw crusher, cone crusher and followed by screening to segregate in sizes.

ORE WASHING AND SCRUBBING

Once the ore is crushed further feed to drum scrubber, where all dissoluble impurities will be removed with scrubbing action, further feed to rinser with screen to segregate the material as required in different sizes.

SCREW CLASSIFICATION

The Screen under floe below 10 mm feed to screw classifier, the ore separation up to 150 Microns to – 100 mm will be separated followed with dewatering it will be separated. Below 150 microns will be send to cluster of hydro cyclone followed with spirals for finer material recovery.

HYDRO CYCLONE SPIRAL CLASSIFICATION MACHINE

The feed to hydro cyclone through the pump, up to 40 microns will be separated and the underflow feed to two stage spiral classification of close-circuit is conducted, with Magnetic separation in further.

MAGNETIC SEPARATION

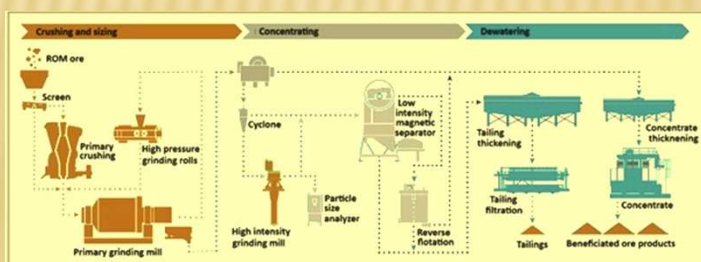
Magnetic separation is a process used to separate materials from those that are less or nonmagnetic. ... Magnetic separation has two major applications in mineral processing plants: The removal of tramp iron (which would deleteriously affect subsequent processes) from an ore stream.

THICKENER AND WATER RECOVERY PROCESS

Traditional iron ore beneficiation plants using washing, screening, and Magnetic separation processes require large volumes of process water. However, when a suitable large iron ore deposit is found in a location where rainfall is erratic and raw water sources are limited, innovative process designs are required to minimize water losses, maximize re-use of process water, and minimize raw water intake to ensure the project viability. The plant uses thickening system to maximize water recovery. At the process plant there 18 mt diameter traction thickeners. The net raw water usage has been minimized, and water losses on the PDF are at levels of between 0.43 to 0.69 m(3)/t deposited.

FILTRATION DEWATERING OF IRON ORE CONCENTRATES

An improved process for filter dewatering of an iron ore concentrate slurry produced from iron ore by selective flocculation followed by flotation wherein acid and then surface tension reducing agent of the sulfosuccinate class is added to the concentrate slurry before the slurry is filtered.



BENEFICIATION AND ITS ADVANTAGE :-

- Beneficiation is a **process which removes the gangue minerals from ore to produce a higher grade product, and a waste stream.** Beneficiation may involve physical processes.
- Ore beneficiation is a process by which valuable constituents of an ore are concentrated by means of a physical separation process. As one of the initial steps of extractive metallurgy, the main purpose is **to prepare the ore prior to downstream purification processes.**
- In the mining industry or extractive metallurgy, beneficiation is any process that **improves (benefits) the economic value of the ore by removing the gangue minerals, which results in a higher grade product (ore concentrate) and a waste stream (tailings).**
- Several methods/techniques such as **washing, jigging, magnetic separation, gravity separation, and flotation** etc. are used to enhance the Fe content of the Iron ore and to reduce its gangue content. These techniques are used in various combinations for the beneficiation of iron ores.
- Thus, higher the iron content in feed, the lower is the slag volume generated in blast furnace, which automatically **increases the productivity and reduces the coke rate.** One percent increase in iron content improves the productivity by 2% and reduces the coke consumption by 1%. We can utilize 95% of the ore . we can save huge amount on logistics in procuring concentrate ore.

BENEFITS OF BENEFICIATION/VALUE ADDITION

- **Creates Employment Opportunities:** Beneficiation stimulates economic growth, leading to job creation.
- **Increases Profit Prospects:** By producing higher-grade products, businesses can increase their profit margins.
- **Mitigates Trade Imbalances:** Beneficiation reduces trade deficits by increasing the value of exports.
- **Boosts GDP:** By increasing the value of exports, beneficiation contributes to a country's Gross Domestic Product (GDP).
- **Reduces Logistics Costs:** Beneficiation enables the utilization of 95% of the ore, reducing the need for costly logistics and procurement of concentrate ore.
- **Improves Productivity:** Higher iron content in feed reduces slag volume, increasing productivity and reducing coke consumption. A 1% increase in iron content improves productivity by 2% and reduces coke consumption by 1%.



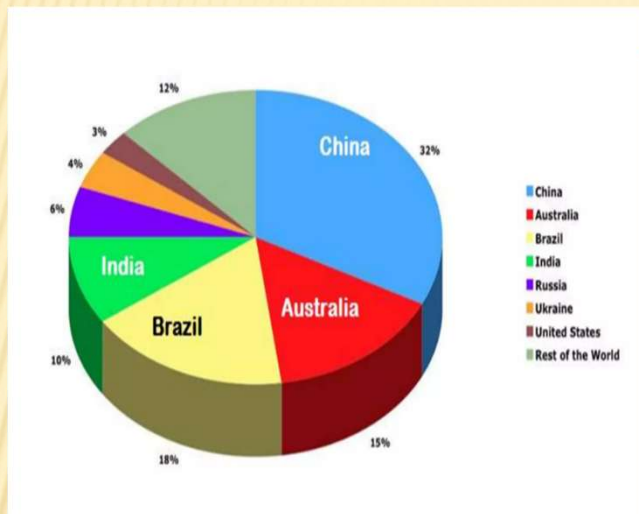
IRON ORE FINES

IRON ORE LUMPS

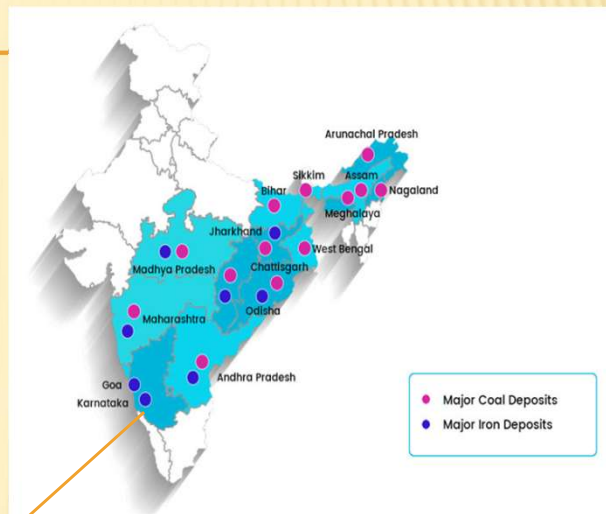


MAJOR IRON ORE DEPOSITS :-

WORLD WIDE DEPOSITS



DEPOSITS IN INDIA



IRON ORE DEPOSITS



IRON ORE DEPOSITS IN KARNATAKA & BELLARI - DIST



IRON ORE DEMAND AND AVAILABILITY

Karnataka's iron ore production is on the rise, with an estimated 43 million tons in 2021-22, expected to reach 50 million tones, and a consumption of 37 million tones. The state may increase output to 40-45 million tons from 38 million tones last financial year.

Several factors contribute to this growth:

- **Lifted Export Curbs:** The Supreme Court has lifted curbs on exports and eased sales norms, allowing Karnataka to start exporting iron ore.
- **Increased Clarity:** There is more clarity on production and sales aspects, enabling players to opt for a hybrid model of auctions and direct sales.
- **Growing Demand:** Karnataka's iron ore is in high demand, with the state producing 50 million tones, the second-highest in India after Odisha.

The demand and scope for iron ore in Karnataka are significant, driven by:

- **Domestic Demand:** Karnataka's iron ore is consumed by various industries, including steel, cement, and sponge iron plants.
- **Export Opportunities:** With the lifting of export curbs, Karnataka can now export iron ore to other countries, increasing its revenue potential.
- **Government Support:** The government has taken steps to enhance production and availability of iron ore, including policy reforms and incentives for miners.

India's iron ore requirements are expected to surge in the future, driven by the country's growing steel demand. The steel industry is anticipated to witness significant growth, fueled by the government's "Make in India" initiative, which aims to boost investments in construction, infrastructure, automobile, shipbuilding, and power sectors.

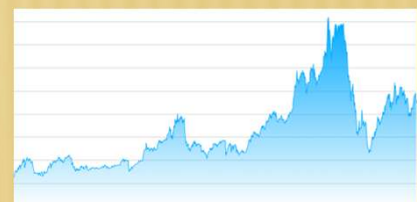
To meet this growing demand, India's iron ore production is expected to increase. Currently, the country has an estimated 6200 million tones of iron ore reserves, with the majority of deposits found in the eastern, central, and southern parts of India.

Some key factors driving the demand for iron ore in India include:

- **Growing Steel Demand:** India's steel demand is expected to increase, driven by infrastructure development, urbanization, and industrialization.
- **Shift towards Pelletizing:** There is a growing trend towards pelletizing iron ore fines, which is essential for efficient steel production.
- **Increasing Focus on Sustainability:** The Indian steel industry is shifting towards more sustainable production methods, which is driving the demand for high-grade iron ore products like pellets.

Overall, India's iron ore requirements are expected to increase significantly in the future, driven by the country's growing steel demand and the need for sustainable production methods.

India's iron ore production is expected to grow, driven by the rise in steel demand resulting from infrastructure projects supported by government funding. In 2024, India's iron ore production reached 290.5 million tones (Mt) and is forecasted to grow at a compound annual growth rate (CAGR) of more than 3% during 2024-2030.



SOME KEY STATISTICS ON INDIA'S IRON ORE PRODUCTION INCLUDE:

- **2023-24 production:** 277 million metric tonnes (MMT), a 7.4% growth from 2022-23.
- **2021-22 production:** Increased by 27% during April-January compared to the same period in the previous year.
- **Future growth:** Expected to decline at a CAGR of -1.3% from 2024 to 2030, reaching 235.2 million tons (Mt) by 2030.

The demand for beneficiated iron ore in steel industries is on the rise, driven by the need for high-quality raw materials to produce steel. Beneficiation improves the quality of iron ore by removing impurities, resulting in a higher-grade product that's essential for efficient steel production.

In India, the steel industry's demand for beneficiated iron ore is expected to increase, with the country's crude steel production projected to grow by 82% Approx. 300 MT steel by fiscal year 2030. To meet this demand, India's iron ore beneficiation capacity is expected to rise from 136 MT to 170 MT by FY30.

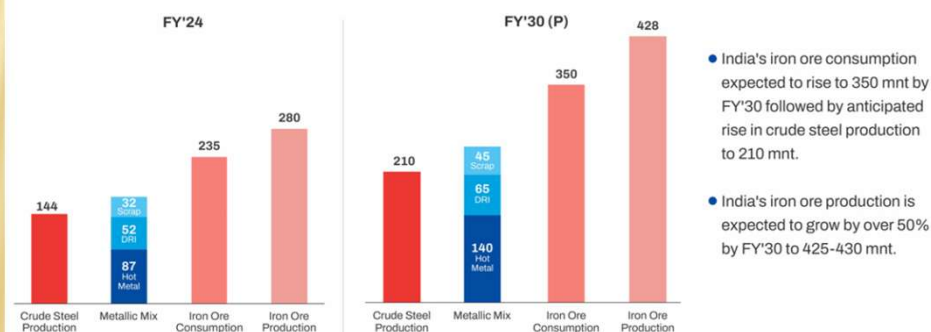
Globally, the shift towards sustainable steel production and the increasing adoption of direct reduced iron (DRI) technology are driving the demand for high-grade iron ore. DRI production requires high-quality iron ore with low impurities, making beneficiated iron ore an essential raw material.

KEY FACTORS DRIVING DEMAND:

- **Growing steel demand:** Increasing global steel production is driving the demand for high-quality iron ore.
- **Sustainability:** The shift towards sustainable steel production and the adoption of DRI technology require high-grade iron ore.
- **Quality requirements:** Steel producers need high-quality iron ore with low impurities to produce efficient steel.

Overall, the demand for beneficiated iron ore in steel industries is expected to continue growing, driven by the need for high-quality raw materials and the shift towards sustainable steel production.

India's iron ore consumption to rise 50% by 2030



UPCOMING PROJECTS

- RED BRICK PLANT .
- MANGANESE ORE SINTER PLANT.
- MANGANESE ORE REDUCTION ROSTING PLANT.

RED BRICK PLANT

For the effective utilization of iron ore tailing , Planning to setup a red brick plant.



MANGANESE ORE SINTER PLANT.

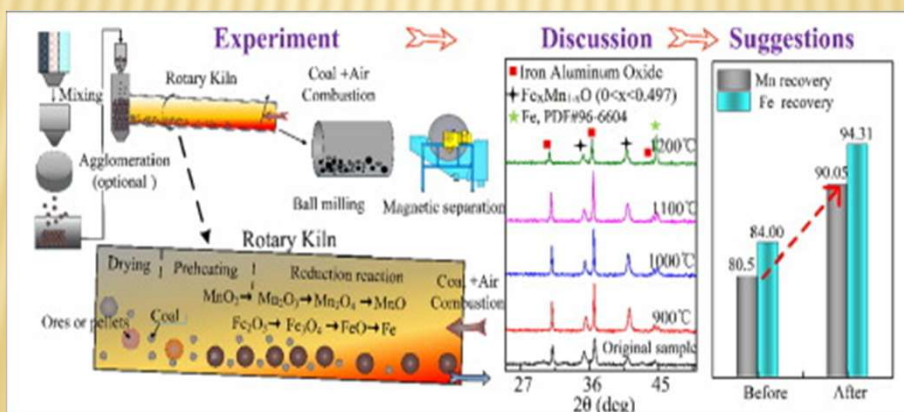


MN ORE



MANGANESE ORE SINTER

MANGANESE ORE REDUCTION ROSTING PLANT.



MNO



MNO2

PLANT & INFRASTRUCTURE (BENEFICIATION PLANT) :-





RAW MATERIAL & FINISH PRODUCT STORAGE AREA



Magnetite



Hematite



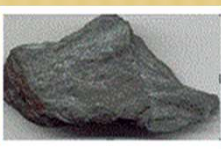
Goethite



Limonite

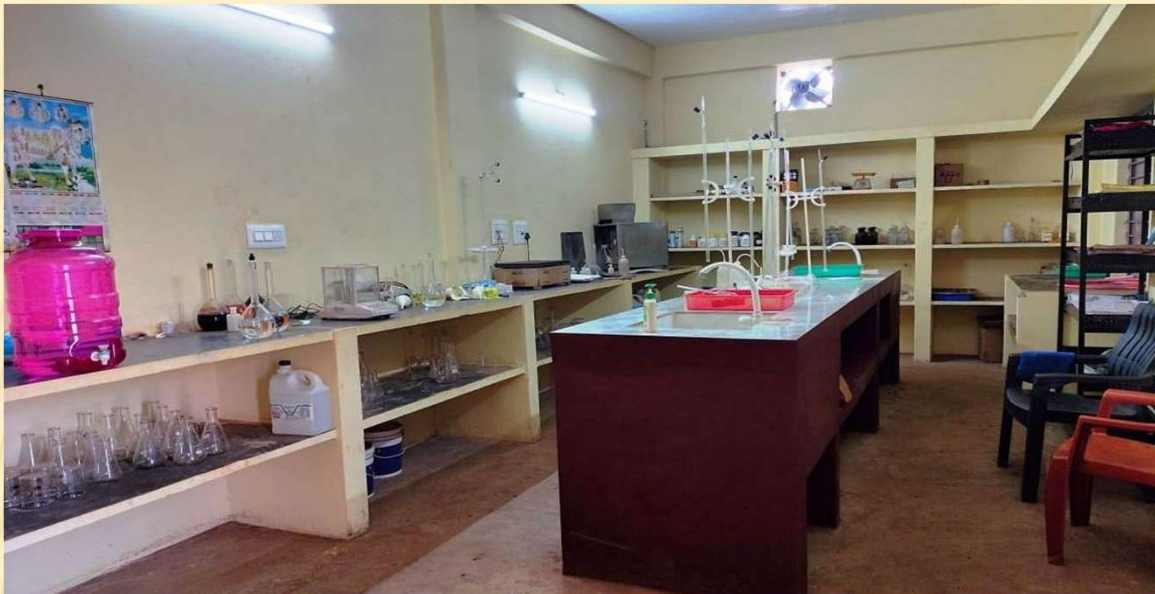


Pyrite



Siderite





IN HOUSE SAMPLING LABORATORY



SAMPLING FACILITY

ZEST - PLANTATION







TECHNICAL SOUND & DEDICATED TEAM

CORPORATE SOCIAL RESPONSIBILITY



EDUCATION AND HEALTH CAMPS

- **School Fee:** Provide school fee to poor local students, particularly those from disadvantaged backgrounds, to pursue higher education in fields related to mining and metallurgy.
- **Infrastructure development:** Support the development of educational infrastructure, such as schools and libraries, in local communities.
- **Health camps:** Organize health camps in local communities, providing free medical check-ups and treatment.

ENVIRONMENT

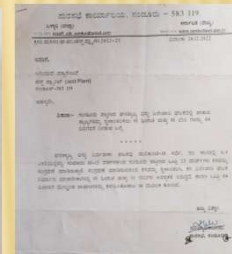
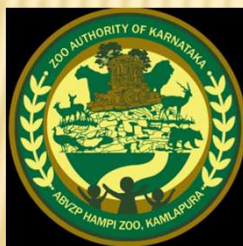
- **Reforestation:** Plant trees in areas affected by mining activities to restore the natural ecosystem.
- **Wildlife conservation:** Support conservation efforts for local wildlife, such as protecting habitats and preventing poaching.

COMMUNITY DEVELOPMENT

- **Infrastructure development:** Support the development of community infrastructure, such as painting schools, providing basic necessary to schools and study material.
- **Livelihood support:** Provide support to local communities to develop sustainable livelihoods, such as agriculture road and animal husbandry.

EMPLOYEE ENGAGEMENT

- **Volunteer programs:** Encourage employees to participate in volunteer programs, such as tree planting, health camps, and community clean-up initiatives.
- **Training and development:** Provide training and development programs for employees to enhance their skills and knowledge on CSR and sustainability.
- **Recognition and rewards:** Recognize and reward employees who contribute to CSR initiatives and demonstrate sustainable practices.





CERTIFICATE OF REGISTRATION



QUALITY



SAFETY



ENVIRONMENT



MISSION / SAFETY :-

To transform natural resources into prosperity and sustainable development and recycle of existing excavated iron ore mineral sources.

We motto is to put safety first in everything we do. We make safety a way of life, inside and outside the work place. We show genuine concern and take responsibility for our own safety and that of others. We truly believe that all injuries are preventable. We continually reassess risks and comply with rules and procedure.

OUR -COMMITMENTS :-

we are committed to becoming a premier Mineral Processing organization in our sector. To achieve this goal, the way we do our work is just as important as the work that we deliver. Our commitment to health, safety, environment and communities is fundamental to how we do business. Whether as an employee, consultant, contractor or supplier, our commitment to our organisation is guided by our five values of safety, teamwork, respect, integrity and excellence.

VISION :-

To be a leading value-adding iron ore processing unit and supplier to the secondary steel industry.

To ensure sustainable growth of the company by having synergy to all our supplying companies, while following best practice of corporate governance and promoting ecological balance and mineral conservation. To share developmental benefits with people living in & around our plant, while improving the welfare of employees. To ensure high level of customer satisfaction, to achieve standards of productivity by scientific mineral processing & adequate thrust on R & D, power consumption, environment standards, preservation of flora & fauna, water resources. To expand the mineral process activities in other minerals in & outside our area by acquiring new process system.



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THANKING YOU

