HIRA

Confederation of Indian Industry

Godawari Power & Ispat Limited

PRESENTATION ON "ENVIRONMENTAL BEST PRACTICES"

1: Project-1 Name: Enhances the production capacity of exiting sponge iron Kiln change in raw material mix.

2: Project-2 Name Linear iron ore (BMQ) grade to Use full iron ore Concentrate

Name of the Presenters:

1. **Mr. Mahendra Kashyap** – AGM (Environment)
2. **Mr. Hari Shankar Ginne** -Sr. Manager (Pellet Plant)
3. **Mr. Rahul Ambekar** –Manager (IMS)

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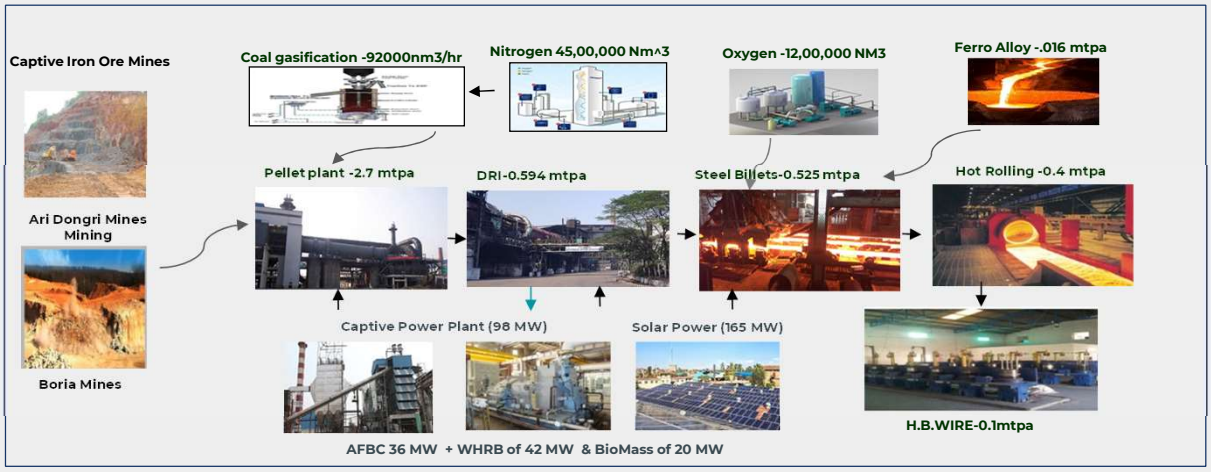
GPIL : An Overview

- A **Public Limited Company** – Listed at NSE & BSE; **Incorporated in 1999.**
- Pioneer constituent belonging to Raipur based **HIRA Group.**
- Dominant player in Steel industry. **Manufacturer of :**



Products

HIRA GODAWARI POWER & ISPAT

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Project-1: Enhancement the production capacity of exiting sponge iron Kiln from 0.495 MTPA to 0.594 MTPA by change in raw material mix.

BACKDROP..

Started Date :16.07.2021 - End Date :19.01.2024

Our integrated plant includes a sponge iron unit that being operated using the Direct Reduced Iron (DRI) process, relying on normal-grade iron ore, pellets, and coal. The presence of gangue in the iron ore and high ash content in the coal occupied significant equipment volume, limiting our production capacity to 0.495 million tons per year.

To increase production without adding new equipment in DRI, we focused on improving the quality of our raw materials. By leveraging our own pellet plants, we established an iron ore beneficiation plant to upgrade the iron content from 62% to 65% Fe. We also started using imported coal with a higher fixed carbon (FC)

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1: Project Name: The project enhances the production capacity of exiting sponge iron Kiln from 0.495 MTPA to 0.594 MTPA by change in raw material mix.

Project Overview

Raw Material Change

Replacing iron ore lumps with iron pellets in the kilns to increase productivity

Improved Coal Efficiency

Using imported coal to reduce specific coal consumption from 1.2 ton/t to 1.0 ton/t of product (17% reduction)

Capacity Increase

20% extra DRI production with the same kiln volume due to freed-up space from reduced coal usage

Key Takeaways

Production Boost
20% increase in DRI production capacity (from 0.495 MTPA to 0.594 MTPA) with existing infrastructure

Resource Efficiency
17% reduction in coal consumption through improved raw material mix

Environmental Impact
Significant reductions in ash burden and particulate emissions

Financial Success
Exceptional 24-month payback period on ₹40 crore investment

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Advantages with utilization of Pellet Ore & Low Ash Coal:

FEED ORE ANALYSIS		
	IRON ORE (Before)	PELLET (After)
FE (T) %	60-62	63-64
T.I.%	80	94
A.I %	14	4.5
Size	05-18	05-18
LOI%	2-4%	0.0-0.1%

COAL ANALYSIS		
	DOMESTIC (Before)	IMPORTED (After)
MOISTURE %	12	10
V.M %	30	26
ASH %	30	16
F.C %	40	58

IRON ORE + MIXED COAL (D+I)		
Before		
Production Capacity of SID	Ton	495000
Iron Ore @ 1.6 T/T	Ton	792000
Coal @ 1.2 T/T (Mixed Coal)	Ton	594000
Average Ash	%	0.30
Ash	%	178200

PELLET ORE + IMPORTED COAL		
After		
Proposed Production Capacity of SID	Ton	594000
Pellet @ 1.45 T/T	Ton	861300
Coal @ 1 T/T (Imported Coal)	Ton	594000
Average Ash	%	0.16
Ash	%	95040

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Project 1- Implementation Challenges & Solutions

DRI Plant Process Optimization

Challenges Encountered

•*Initial quality issues surfaced* during the planned production increase from 0.495 to 0.594 units.
•The primary challenge was to achieve sponge iron grade improvement while scaling up production simultaneously.

Training & Solutions

•Through a focused effort on optimizing process parameters(ie. Tempracher, Kiln Rotations), we successfully stabilized production and met both quality and quantity targets.
•We conducted internal meetings to provide targeted training for employees.
•The training focused on refining operational procedures and implementing new processes for interval-based quality and process checks.

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Increase In Revenue To Government:

The significant rise in DRI production efficiency, with the GPI increasing from 0.495 to 0.594, leads to higher output volumes. This expanded production base subsequently boosts government revenue through increased corporate, excise, and mineral development taxes.

Uniqueness of the Project

Zero Additional Resources
No extra water or coal consumption required

No Increased Waste
No additional waste burden on the environment

20% Production Increase
Same kiln producing significantly more DRI and WHRBpower with existing infrastructure

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Intangible Benefits:

Reduced Shutdown Days
More efficient operations lead to shorter production Campaigns days from 100 to 300+ days campaigns

Resource Optimization
Decreased fresh raw material and energy consumption per ton of product.

Equipment Longevity
Reduced wear and tear on equipment due to optimized operations.

Conclusion:-

In Our case there is neither any new set up nor physical expansion of capacity in the existing Sponge Iron plant comprising of kilns. The expansion in production capacity will be mainly due to change in coal from domestic to imported resulting in reduction of specific coal consumption from 1.2 to 1.0 As such there will not be any increase in coal.

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Project-2 : Linear iron ore (BMQ) grade to Use full iron ore Concentrate

BACKDROP..

Started Date:31.07.2021; End Date:01.07.2024

Our company has its own iron ore mines. The mining yields iron ore with varying quality. We get ore with 58-65% Fe content, and also with 25-40% Fe content. We cannot use the lower-grade ore directly, so we use it for mine backfilling. We also used to stock it in one place.

Iron Mines

Low grade ore stacking

We made many attempts to recover the Fe from this material. By processing the BMQ (Band and Magnetic Quartzite) material, we are able to recover ore in the range from 30%Fe to-65% Fe, which we are now using in our pellet plant.

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2-Project –BMQ Beneficiation Process

Beneficiation Plant Capacity

0.60 MTPA (Million Tons Per Annum) processing capacity for Banded Magnetite Quartzite at the Kachche Aridongri Iron Ore Mines

Input Material

Low-grade BMQ that cannot be directly used in steel plants without processing

Output Product

High-grade iron ore with approximately 63-65% FeT (Total Iron) content, suitable for steel production

Process Technology

Utilizes magnetic and gravity separation techniques to concentrate iron content while removing silica and other impurities

Fe 25% -40%

BMQ Iron Ore from Mines

BMQ Iron Ore

Wet Grinding-Ball mills

Screening (Screen

Beneficiation Magnetic separation (LIMS,MIMS,HGMS)

Tailing Thickener

Concentrate Thickener

Tailing Filtration (Filter press)

Concentrate Filtration (Filter press)

Tailing Yard/Back filling mines

Iron ore Concentrate

GPIL Pellet Plant

62% - 65%

Fe

Yield 40-45%

25% -40%

Financial Success

Exceptional 36-month payback period on ₹180 crore investment

The approximate conversion cost for the beneficiation process is ₹2000-2500 per ton, which covers key operational components like power, logistics, royalty and licensing fees, grinding media, and other consumables. This process results in an enhanced product quality, allowing it to be sold at a competitive market price ranging from ₹4500 to ₹5000 per ton.

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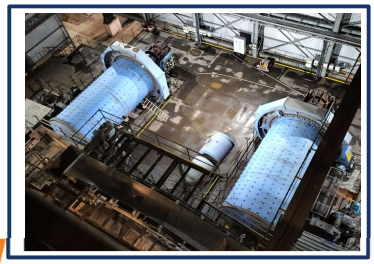
BMQ Beneficiation Plant at Aridongri-Mines



Grinding area Ball mills

Beneficiation area LIMS

Thickener

Pressure Filters

BMQ Beneficiation plant

This project's uniqueness lies in its innovative beneficiation process, which upgrades ore to a superior grade of 62-65% FeT. The method significantly enhances ore recovery from existing resources while simultaneously reducing overburden waste, minimizing the environmental footprint

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Project 2- Implementation Challenges & Solutions

BMQ Beneficiation Process Optimization

Challenges Encountered

Production issues arose in the beneficiation process due to varying feed quality (Fe content) from different equipment sections.
This led to discrepancies in product recovery and tailing loss.
To solve this problem, additional test works had to be conducted with the help of external agencies.
There were also issues with the power supply required for the project.

Training & Solutions

We solved the power supply issue by coordinating with the electricity board and installing a new power line.
We provided regular training to employees for plant operations.
We maintained quality by conducting regular quality checks.
Since our company has its own solar plant, we are contributing to environmental protection by supplying green power from the solar plant to our BMQ Plant.

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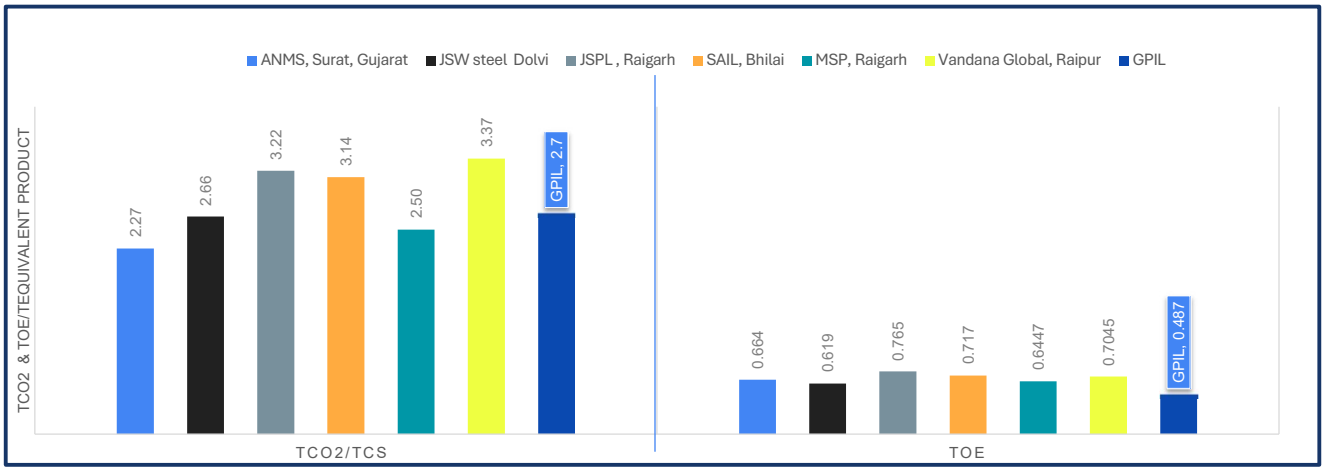
Alignment with National Standards : Energy & Emission performance

Confederation of Indian Industry

Godawari Power and Ispat Ltd. Aligned and taking steps to meet national benchmark in Energy and CO_2 emission protocol.



Sources:

1. *Ministry of Power, S.O.4491(E), 26th October, 2021 (https://beeindia.gov.in/sites/default/files/PAT%20CYCLE%207%20505%20DCs.pdf)*
2. *MINISTRY OF ENVIRONMENT FOREST AND CLIMATE CHANGE, G.S.R. 405(E); 23rd June, 2025 (https://moef.gov.in/storage/tender/1750856052.pdf)*

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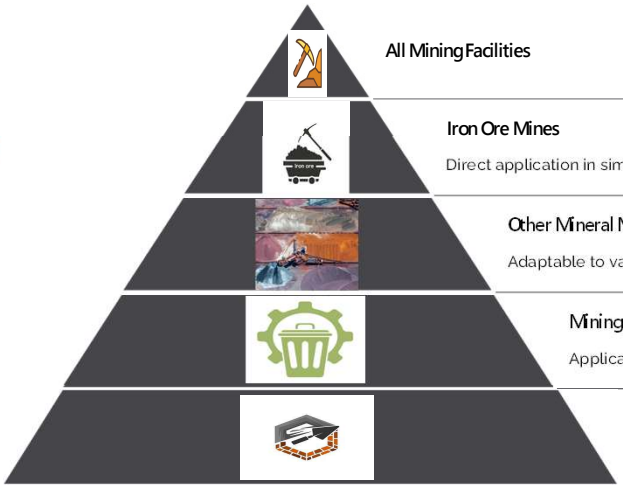
Replication Potential Across Indian Industry



All Mining Facilities

Iron Ore Mines

Direct application in similar operations

Other Mineral Mining

Adaptable to various low-grade ores requiring beneficiation

Mining Waste Management

Applicable to operations with significant waste disposal challenges

Potential for converting mining waste into usable construction materials

The BMQ beneficiation approach can be widely implemented across India's mining sector, offering a template for sustainable mining practices that align with both economic objectives and environmental responsibilities. This model demonstrates how regulatory changes can drive innovation and resource efficiency.

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GODAWARI POWER & ISPAT LTD :

CERTIFICATION

ISO 9001:2015

ISO 14001:2015

ISO 45001:2018

Great Place To Work. Certified

Great Place To Work Certified

ISO 50001:2018 (EnMS)

ISO 27001:2022 (ISMS)

ISO26000:2010 (CSR)

AWARDS

CII Supervisory Skills Competition 2025

GEEF Global Safety Award 2025

Steel Company of the year-2024

"India's Leading Listed ESG Entity" 2024

National Safety Award, 2024

National Safety Award, 2024

GEEF Global Safety Award 2025

Thank You

Team Members

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GROWING STRONGER TOGETHER

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