

METHODOLOGIES ADOPTED FOR MITIGATION OF IMPACT OF MINING ON ENVIRONMENT

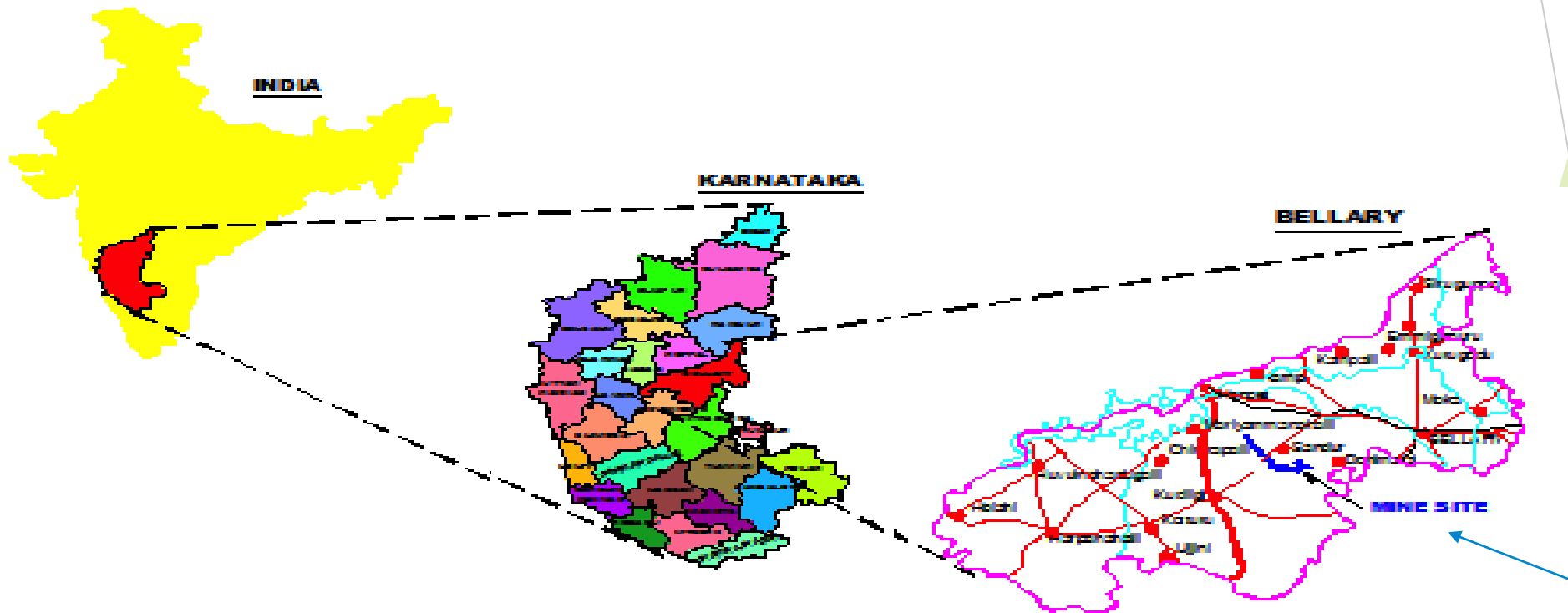


by -

*The Sandur Manganese & Iron Ores Limited
(SMIORE)*

INTRODUCTION

- SMIORE - ML No.2678 & 2679 - Manganese Ore and Iron Ore - 2,000 hectares (1750 Ha Forest and 250 Ha Revenue) in Ramanadurg & Swamimalai Blocks, Sandur Taluk, Ballari District, Karnataka State.



LOCATION MAP
SHOWING SMIORE ML AREA

INTRODUCTION



- ▶ Mining operations since 1907 (110 years). By SMIORE from 1954 (63 years)
- ▶ Production - 1.60 MTPA of Iron Ore and 0.30 MTPA of Manganese ore.
- ▶ Manganese Ore occurs in pockets and pods with a size range of few metres to about 100 metres. Requires huge excavations of over -burden. Average ratio of ore to over-burden is 1:12. There are 13 active and 27 inactive pits.
- ▶ SMIORE's both Mining Leases - Category 'A' – 47 % of area (2000 Ha) of all 22 A Category Mines (4260 Ha) put together.

RECOGNITION BY JOINT TEAM AND CENTRAL EMPOWERED COMMITTEE CONSTITUTED BY THE HON'BLE SUPREME COURT OF INDIA



“It is observed that (a) the Joint Team has not found any illegality vis-a-vis the sanctioned lease boundaries, (b) the owners of the Lessee Company have voluntarily handed over more than 2000 Ha of forest land owned by them to the State Government and which has no parallel in the State, and (c) the Lessee Company has an excellent track record of undertaking mining operations in accordance with the law”

- CEC & Joint Team, after detailed investigation into illegal mining, in Report dated 10th November 2011 to Hon'ble Supreme Court.

TREE PLANTATION



- ▶ As per norms of Forest Department, required to plant 2 trees for 1 tree cut in ML.
- ▶ In 63 years 1.66 lakh trees cut.
- ▶ SMIORE has Planted 33 lakh with survival rate of 65 - 70%.
- ▶ SMIORE maintains green cover over an area of 250 hectares – 15 % (out of 1750 Ha forest area) in the form of nurseries, dedicated plantations and avenue plantation.

AFFORESTATION



- 1. 33 Lakh trees planted In the last 25 years and ensured 60 - 70% Survival**
- 2. 15 % of Forest land ML area (NPV & CA paid) maintained as green zone**

SMIORE NURSERY



KTIO MINES DUMP NO.D1 BEFORE DUMP TERRACING



AFTER COIR MAT



DUMP NO D1, PLANTATION ON COIR MAT , AREA - 1.29 Ha COMPLETED 30.05.13





INNOVATIVE MEASURES

- ▶ *Water sprinklers for plantations on dumps.*
- ▶ *Unique Drip Irrigation System.*
- ▶ *Protection & safeguarding natural course of water in valleys – 1.2 Mtr dia 750 Mtr long pipe line in valley before dumping of Over Burden.*

SMIORE, ML No. 2580, KTIO Mine Dump No D 9, Pipe line work in progress





Dump over pipeline laid in the valley - protection of natural water course

Drip Irrigation using plastic mineral water bottles and buckets



Drip Irrigation System



Extra Effort for Protection & Management of Environment



- ▶ **ICFRE R & R Plan for SMIORE budget Rs 45 crore.**
- ▶ **Plan implemented by SMIORE – Rs 72 crore (60 % Higher).**
- ▶ **Additional 2.5 Cr spent to protect & safeguard natural flow of water by laying 1.2 Mtr dia pipeline for 750 Mtr, before dumping over burden.**

Supplementary Environment Management Plan



Sl	Description	Unit of Measurement	Nos	Length (Metres)	Quantity
1	Toe wall cement Masonry	M ³	16	5510	19111
2	Toe wall Dry	M ³	27	11503	29231
3	Garland drain	M ³	50	25212	40932
4	Geo textile	Ha	42	0	46.16
5	Plantation on dumps	Ha	49	0	144.11
6	Retaining wall	M ³	15	12680	27518
7	Silt settling tank- 20X10X3	No's	26	0	26
8	Silt settling tank-30X15X3	No's	34	0	34
9	Loose boulder check dam	M ³	99	2637	3956
10	Earthen check dam	M ³	9	244	3430
11	Stone masonry check dam	No's	26	644	1870
12	Rain water harvesting pit	No's	53	0	48600
13	Gully plug	M ³	215	140	5322
14	Mine drain/ Pit drain	M ³	3	1443	2770
15	Avenue plantation	Ha	0	0	25.03
16	Safety Zone Green belt development	Ha	0	0	65.64
17	Afforestation of mined out area and associated activities	Ha	0	0	1281.75

Garland Drains



Extensive pitching to improve the functioning & life of drain

Extensive Garland Drains



Cement Masonry Toe Wall



Toe walls are built at the bottom of dumps to arrest the flow of silt.

The length of the Toe walls constructed -about **15,500m**.

Cement Masonry Toe Wall



Coir Matting on Dumps



Coir Matting of dumps before plantation.

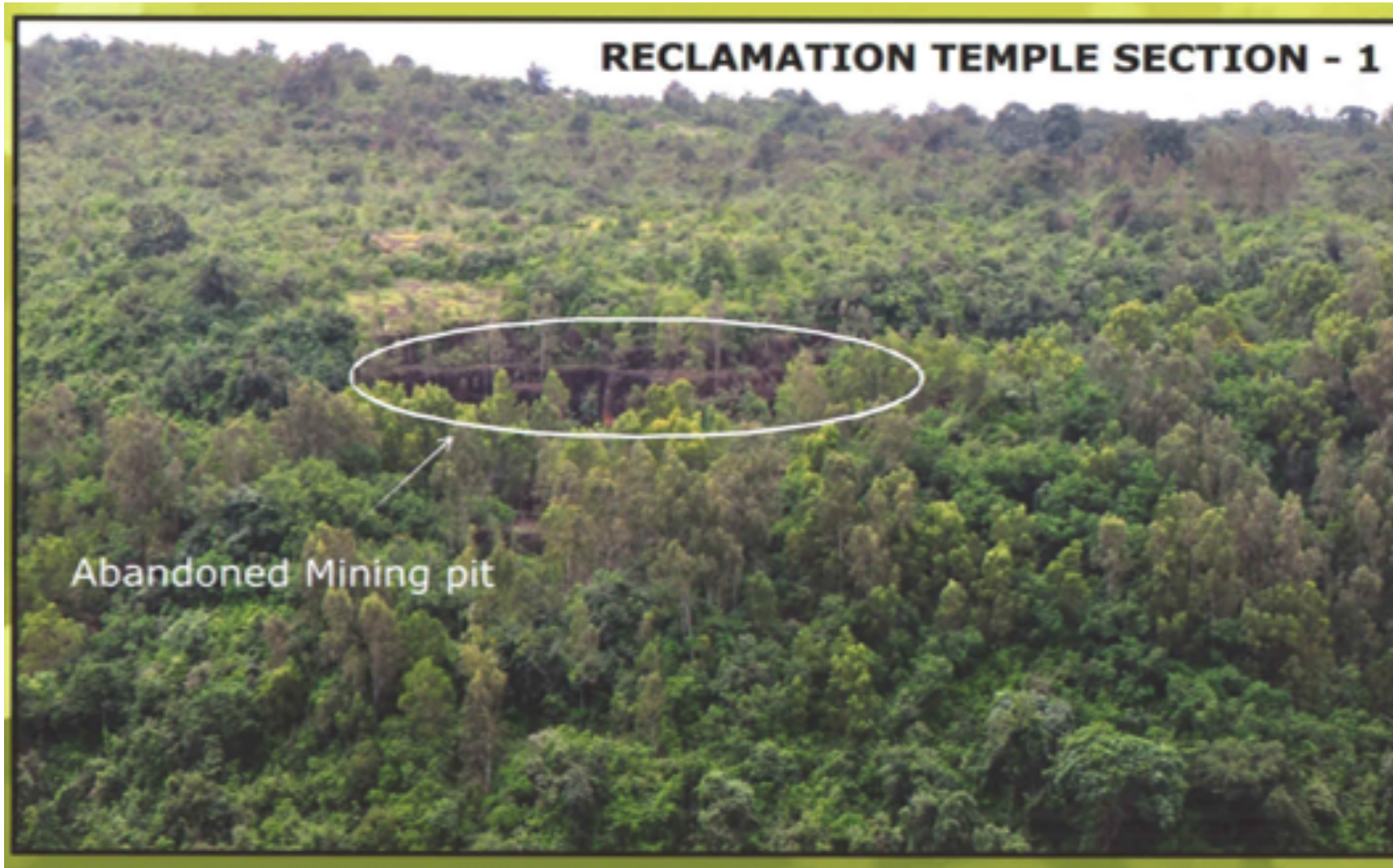
Result of effective coir matting and Water Sprinklers



Greening of dumps



RECLAMATION, REHABILITATION & AFFORESTATION



SMIORE, ML No. 2580, RMK Mine Dump No D 20, Pipe line work in progress



LAYING OF PIPELINE IN VALLEY AT RMK SECTION



SMIORE Philosophy and Ethos



- ▶ SMIORE believes in protecting environment which includes quality of life of human beings living around the mining area.
- ▶ SMIORE is committed in doing its best for the area and its people.

MINING/FOREST LAND RETURNED/ GIFTED TO GOVT



- Y. R. Ghorpade, former Ruler of Sandur and founder chairman of SMIORE, gifted to the Karnataka Government 4,132 acres of his personal land, with mining rights, in 1973.
- M. Y. Ghorpade former CMD of SMIORE gifted 150 acres of his personal valuable land within the town limits of Sandur to the Karnataka Government for development of a 'Tree Park' for the benefit of Sandur children, in 2011. SMIORE to develop the same in association with Forest Department. Initial contribution of ` 5 lakh made.

SMIORE's COMMUNITY HEALTH CENTER - AROGYA



EYE CARE - AROGYA



FREE SCHOOLING IN MINING CAMPS



MIRROR & EMBROIDERY PRODUCTION UNIT



Lambani tribal women at Sandur Kushala Kala Kendra



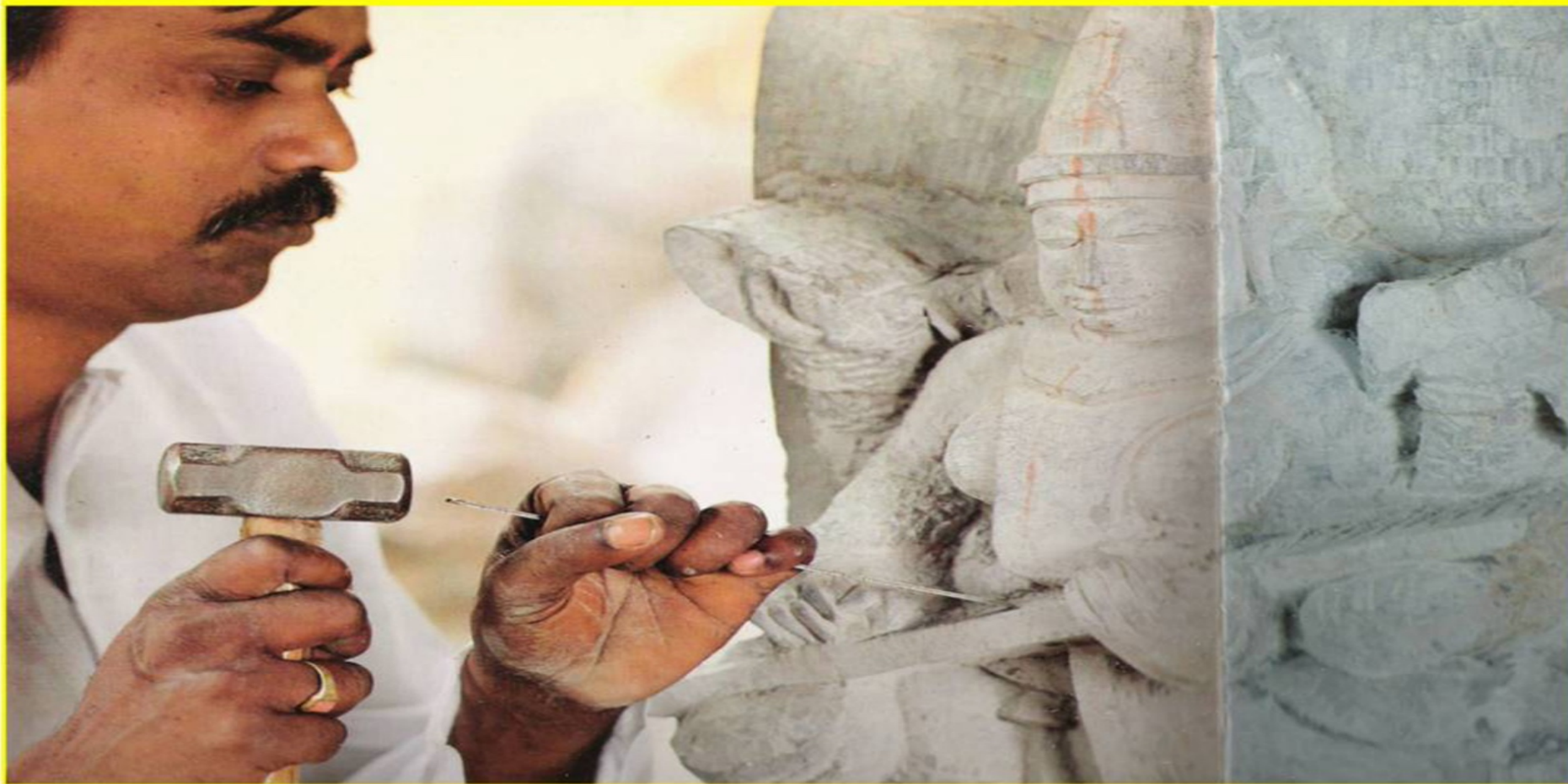
KHADI WEAVING



REWARDS AND RECOGNITIONS FOR SKKK



STONE SCULPTURE



SMIORE'S ADARSHA COMMUNITY CENTER & KALYANAMANTAPA







GAS CONNECTIONS

- ▶ Subsidised Gas Connections - 90 to 60% subsidy on Govt. subsidised rates given to employees - to prevent use of fire wood for cooking
- ▶ Free Gas Connection at Company's cost given to villagers in buffer zone - Joint programme with forest department

SMIORE ODF Programme 2017-18



- ▶ Sanitation programme started in 2015-16. Built more than 100 toilets in the form of public toilet blocks at Kammathuru village, Shri Kumarswamy temple and Narasinmhaswamy temple, and about 90 toilets for schools in and around Sandur.
- ▶ Taken up Swachh Bharat Abhiyan ODF programme in Kammathuru & Navalatti villages of Sandur Taluk - 430 individual toilets (150 nearing completion and balance 280 in 2017-18)
- ▶ Public toilet block by Smiore - Free use, maintained , kept clean 24x7 water & lighting , approach road and surroundings kept clean & lit to ensure safety and usage at night.
- ▶ Company's Welfare to council, educate and convince villagers to use toilets
- ▶ From a mere 70 to 80 people in 2015-16, Now more 1200 people using tolets in Kammathuru village

PUBLIC TOILET BLOCKS AT KAMMATHURU VILLAGE



INDIVIDUAL TOILETS BUILT AT SREE KUMARASWAMY TEMPLE, SANDUR



PUBLIC TOILET/BATH BUILT AT SREE KUMARASWAMY TEMPLE, SANDUR





Ranganathittu Bird Sanctuary



Adopted by The Sandur Manganese & Iron Ores Limited – for betterment of facility and maintenance

An Initiative of Karnataka Tourism for improvement of Tourist Destinations

ಕರ್ನಾಟಕ
ಒಂದು ರಾಜ್ಯ. ಹಲವು ಜಗತ್ತುಗಳು.

Karnataka
One state. Many worlds.

Founder Patron M. Y. Ghorpade said



Six months before his demise our founder patron presented his will to SMIORE Board:

“All that we get (earn) from the soil of Sandur in one form or the other should be primarily used to benefit Sandur... The Mining Lease is something that has to be held in trust for the benefit of those who are working so hard for so many years, with so much faith and determination. This is not anybody’s private property, but a sacred social responsibility, in which each one of us has to function as Trustee for the toiling work force. I was able to win the full confidence of the labour who were convinced that nothing contrary to their common interest will be done, and everything will be done in the most transparent manner. This faith and commitment has remained at the core of the philosophy of the Company (SMIORE) and has not been eroded all these years. This is my greatest satisfaction in life.”



The Sandur Manganese & Iron Ores Limited

THANK YOU