Raw Materials

Iron ore

Introduction

As per the Survey conducted by the Indian Bureau of Mines(IBM) in April 1995, India had 10,052 million tonnes of Recoverable reserves of Heamatites and 3,408 Million Tonnes of Magnetite. While Zone'A' comprising of Bihar & Orissa is the largest Heamatite Ore bearing Zone in the country with reserves of 5,951 Million Tonnes consisting mainly of Medium Grade & Low Grade Ore (Iron content 65% and below), Madhya Pradesh has the largest quantity of High Grade Ore reserves(Iron content greater than 65%) in the country at 570 Million Tonnes. Karnataka has the highest reserves of Magnetite at 2,784 Million tonnes followed by Andhra Pradesh and Goa.

The details of Recoverable reserves of Heamatities and Magnetite is as under:

RECOVERABLE RESERVE OF HEAMATITE AS ON 01.04.1995

(Unit : In million tonnes)

S. No	Zone/ State	High Grade Ore (Fe +65%)	Medium grade ore(Fe 62-65%)	Low grade ore (Fe below 62%)	Unclassified	Other Not Known	Blue dust black iron	Total
1.	Zone A							
	Bihar	24	1594	844	144	-	51	2657
	Orissa	280	1916	737	350	-	11	3294
		304	3510	1581	494	-	62	5951
2.	Zone B							
	Madhya-pradesh	569.9	480.7	517	397.4	14.1	18.9	1998
	Maharashtra	7.3	128.7	46.80	32.2	12.0	-	227
		577.2	609.4	563.8	429.6	26.1	18.9	2225
3.	Zone C							
	Karnataka	299.9	600.8	73.1	94.2	3.5	0.5	1072
4.	Zone D							
	Goa Region	2.5	219.5	469.1	34.1	8.1	11.4	744.7
5.	Zone E							
	Andhra Pradesh	14.3	1.90	31.70	2.6	0.3	-	50.8
	Rajasthan	-	0.28	7.68	1.0	0.04	-	9
		14.30	2.18	39.38	3.6	0.34	-	59.8
Grand Total		**1197.9**	**4941.88**	**2726.38**	**1055.50**	**38.04**	**92.8**	**10052.5**

RECOVERABLE RESERVES OF MAGNETITE(AS ON 1.4.95)

Unit : In Million Tonnes

S.No.	State	Metallurgical	Coal washery grade	Foundry	Unclassified	Other/ not known	Total
1	Andhra Pradesh	37.87	--	--	380.0	--	417.87
2.	Bihar	--	4.93	--	0.21	0.08	5.22
3.	Goa	98.33	--	--	64.48	0.40	163.21
4.	Karnataka	1162.69	--	--	1615.77	5.40	2783.86
5.	Kerala	36.08	--	--	--	--	36.08
6.	Maharashtra	0.19	--	--	--	--	0.19
7.	Rajasthan	--	--	0.30	--	--	0.30
8.	Tamil Nadu	1.07	--	--	--	--	1.07
Total		**1336.23**	**4.93**	**0.30**	**2060.46**	**5.88**	**3407.80**

Production and Despatches :

Production of Iron Ore (including concentrates) during the year 2001-2002 is estimated at 80.99 million tonnes as against 79.2 million tonnes in the previous year. State-wise production figures indicate that Chhattisgarh would continue to be the leading Iron Ore producing State accounting for 20.31 million tonnes (25.1%) of the total production during 2001-2002 followed by Karnataka with 18.78 million tonnes (23.2%), Orissa with 14.49 million tonnes (17.9%), Goa with 14.30 million tonnes (17.7%) and Jharkhand with 12.56 million tonnes (15.5%). The remaining production of about 0.55 million tonnes would be from Madhya Pradesh, Maharashtra, Andhra Pradesh and Rajasthan. Iron Ore for internal consumption and export would be 45.6 million tonnes and 34.43 million tonnes respectively.

Production and despatches of Iron Ore from 1995-96 to 2001-2002 are given below:

(Quantity - million tonnes) (Value - rupees in crores)

Year/Period	Production		Despatches		
	Qty.	Value	Total	For Internal Consumption	For Exports
1995-96	67.4	1355.30	65.3	37.2	28.1
1996-97	68.2	1479.56	67.7	38.2	29.5
1997-98	75.7	1819.70	74.2	40.5	33.7
1998-99	72.2	1855.95	69.3	38.8	30.5
1999-2000	74.9	1923.66	71.5	41.0	30.5
2000-2001(P)	79.2	2096.27	77.4	45.3	32.1
2001-2002(E)	80.99	2143.64	79.87	45.58	34.29

P – Provisional.
E – Estimated (Comprises the recorded figures upto July,2001 and estimated for August, 2001 to March, 2002).

Iron Ore Exports

The exports of iron ore from 1996-97 to 2000-2001 are given below :

(Qty. in million tonnes)

Year	Qty.	Value (Rs. Crore)
1996-97	27.6	1706.44
1997-98	29.5	1769.66
1998-99	22.3	1615.50
1999-2000	15.7	1175.32
200-2001	20.2	1633.80

CHROMITE ORE

Reserves:

As per the latest Inventory, the total recoverable reserves of Chromite ore are provisionally estimated at 97 million tonnes, of which over 95 percent of reserves are confined only to Orissa State.

Production:

Production of Chromite in 2001-2002 is estimated at 19.67 lakh tonnes as against 19.52 lakh tonnes in 2000-2001. Orissa continues to be the major producing State accounting for 19.47 lakh tonnes (99%) of the total production.

Despatches:

Estimated despatches of Chromite during 2001-2002 are 17.08 lakh tonnes of which 9.61 lakh tonnes (56%) would be for internal consumption and 7.47 lakh tonnes (44%) for export.

Production and despatches of Chromite during the year 1995-96 to 2001-02(E) are given below:

Year/Period	Production		Despatches		
	Quantity ('000 t)	Value (Rs. Crores)	Total ('000t)	For Internal Consumption ('000t)	For Exports ('000 t)
1995-96	1,700	356.82	1,597	1,121	476
1996-97	1,456	289.47	1,224	698	526
1997-98	1,515	304.55	1,343	936	407
1998-99	1,418	282.34	1,289	904	385
1999-2000	1,738	346.72	1,570	869	701
2000-2001(P)	1,952	351.08	1,725	1,113	612
2001-2002(E)*	1,967	340.18	1,708	961	747

(P) – Provisional (E) – Estimated

Note:* Estimated (comprises the reported data upto July, 2001 and estimated for August, 2001 to March, 2002)

Exports:

Keeping in view the limited reserves of Chromite ore in the country, only certain grades of Chromite Ore are allowed for export. The export Policy of Chromite Ore for 2001-02 is as follows:

Export ceilings of Chromite Ore for the year 2001-02:

No.		Ceiling in lakh tonnes
i)	Low Silica friable/fine chromite ore with chromium oxide not exceeding 52% and silica exceeding 4% **And** Chromite lumps containing chromium Oxide not exceeding 40%	4.00
ii)	Beneficiated Chromite concentrates (average feed grade to be less than 33% Cr203)	No ceiling

MANGANESE ORE

Reserves:

As per the latest inventory, the recoverable reserves of Manganese ore are estimated at 167 million tonnes. The major reserves in the country are of blast furnace grade. The reserves of ferro-manganese grade are very limited to about 19.75% of the total reserves.

Production:

Production of Manganese ore during 2001-2002 is estimated at 1.56 million tonnes at par with that of the previous year. Orissa, Maharashtra, Madhya Pradesh and Karnataka are the principal producing States together accounting for 94% of the total production of Manganese ore in 2001-2002.

Despatches:

Estimated despatches of manganese ore during 2001-2002 are 1.48 million tonnes of which 1.27 million tonnes would be for internal consumption and 0.21 million tonnes for export.

Production and despatches of Manganese Ore during the year 1995-96 to 2001-2002 are given below:

Year/Period	Production		Despatches		
	Quantity ('000 t)	Value (Rs. Crores)	For internal consumption ('000t)	For Exports ('000t)	Total ('000t)
1995-96	1,837	159.88	1,597	199	1,796
1996-97	1,871	176.07	1,551	249	1,800
1997-98	1,640	117.69	1,457	220	1,677
1998-99	1,538	173.83	1,259	202	1,461
1999-2000	1,586	193.09	1,296	320	1,616
2000-2001(P)	1,556	190.01	1,271	207	1,478
2001-2002(E)*	1,560	190.50	1,274	208	1,482

(P) – Provisional (E) – Estimated
Note: *Estimated (comprises the reported data upto July, 2001 and estimated for August, 2001 to March, 2002)

Exports:

Export Policy of Manganese ore is decided keeping in view the need for conserving high grade ores. Alongwith this, effort is also made to replace the export of ores with export of value added items.

For the year 2001-2002, the maximum ceiling of Manganese ore allowed for export are as follows:-

No.	ITEM	Ceilings (in lakh tonnes)
i)	Medium Grade Manganese Ore/ blended ore containing 46%-49% manganese only with not less than 0.24% Phos.	0.25] With in overall Ceiling of 1.50 Lakh tonnes
ii)	Medium Grade Maganese Ore/blended ore containing 38% to 46% manganese and more than 0.15% Phos. OR Medium Grade Manganese ore/ blended ore containing 38% to 46% manganese and more than 0.10% Phos.	1.25] With in overall Ceiling of 1.50 Lakh tonnes
iii)	Low grade manganese ore/blended ore containing less than 38% manganese.	4.00
iv)	Manganese ore fines below 12 mm in size containing less than 44% manganese.	1.50

FERRO ALLOYS

Introduction:

The Indian Ferro Alloy Industry is more than four decades old, and produces Bulk and Noble Ferro Alloys. Although this Industry is not as old as the Steel Industry, its capacity has increased substantially.

India is bestowed with adequate resources of all basic raw materials required for production of Manganese, Silicon and Chrome Alloys. Most of the Ferro Alloy units have been set up in the States of Andhra pradesh, Karnataka, Madhya Pradesh, Maharashtra and West Bengal due to availability and/or proximity of the raw materials.

Capacity and Performance of the Industry:

Ferro Alloys is a power intensive industry. The total load of the Industry has grown almost 8 to 9 times from 130 MVA in the mid sixties to over 1000 MVA. The installed capacity of the Industry is now 1.5 million tonnes of Bulk and Noble Ferro Alloys. The capacity of Manganese Alloys is around 700,000 tonnes, Ferro Silicon 1,75,000 tonnes and Ferro Chrome/Charge Chrome about 600,000 tonnes and Noble Ferro Alloys viz., Ferro Molybdenum, Ferro Vanadium, Ferro Tungsten, Silico Magnesium, Ferro Titanium, Ferro Phosphorous, etc. around 20,000 tonnes. The capacity utilization ranges from 50 to 55% only. The production growth rate is negligible due to stagnation in the Steel demand and production in the country. Although the industry has adequate potential to step up its exports, and hence also its capacity utilisation, it has been hindered by the prohibitive costs of power in the country.

The Ferro Alloy Units have incorporated the latest technology in order to use non- metallurgical grade ores both lumps as well as fines, after necessary beneficiation and agglomeration. The Units have also incorporated effective pollution control measures, in the form of gas cleaning, deoxidizing and waste heat recovery.

Production of major bulk and noble ferro alloys during the last five years is given hereunder:

Year	Quantity(in lakh tonnes)
1995-96	7.96
1996-97	6.94
1997-98	7.91
1998-99	7.24
1999-2000	7.29
2000-2001	9.02

Export of Ferro Alloys:

Export which were around 15% of the production when the liberalized policy was introduced in 1991-92, are now around 35% of the total production. In terms of value, exports which were about Rs.250 crore had crossed Rs.500 crore in 1997-98.

However, there was a slow down in the exports during 1999-2000, dropping to Rs.392.5 crore, due to global recession in the steel industry. The export of ferro alloys touched an all time high of Rs.554.6 crore during 2000-2001.

The Industry has already established itself as a regular exporter of High Carbon Ferro Chrome/Charge Chrome and Silico Manganese. It has potential to export Manganese Alloys, Ferro Silicon, Ferro Vanadium, Silico Magnesium, etc. The reputed exporters have obtained 9002 certification. Details of export of ferro alloys for last five years are given hereunder:

Year	Quantity(in lakh tonnes)	Value(Rs. in crore)
1995-96	2.20	500.0
1996-97	2.11	407.9
1997-98	2.59	504.5
1998-99	2.48	519.0
1999-2000	2.06	392.5
2000-2001	2.70	554.6

CONSUMPTION OF COKING COAL

During 2000-01, consumption of coking coal in SAIL steel plant (including IISCO), VSP and TISCO was as under:-

	SAIL	**VSP**	**TISCO**
Indigenous Sources	5.14	0.09	2.21
Imports	6.25	1.82	1.27
Total	**11.39**	**1.91**	**3.48**

CONSUMPTION OF NON-COKING COAL

During the year 2000-01, SAIL Steel Plants (including IISCO) consumed 4.45 million tonnes of non-coking coal, while VSP consumed 1.71 million tonnes and TISCO ,1.06 million tonnes of non-coking coal..