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DIRECTORATE FOR SCIENCE, TECHNOLOGY AND INDUSTRY
STEEL COMMITTEE

DSTI/SU/SC(2006)31
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INDIA

STEEL-MAKING RAW MATERIALS
Issues, Policy and Outlook

Joint India/OECD/IISI Workshop, New Delhi (India), 16-17 May 2006

Presentation by Mr. Prafull Sharma, Head of Research, Parijat Consulting (India).

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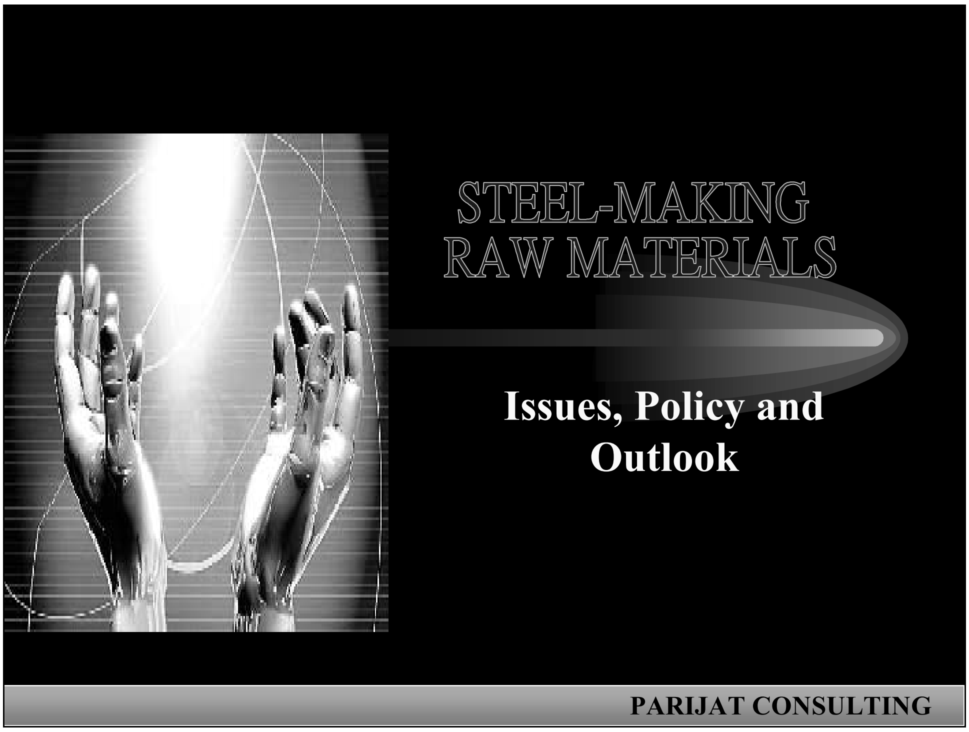
STEEL-MAKING
RAW MATERIALS
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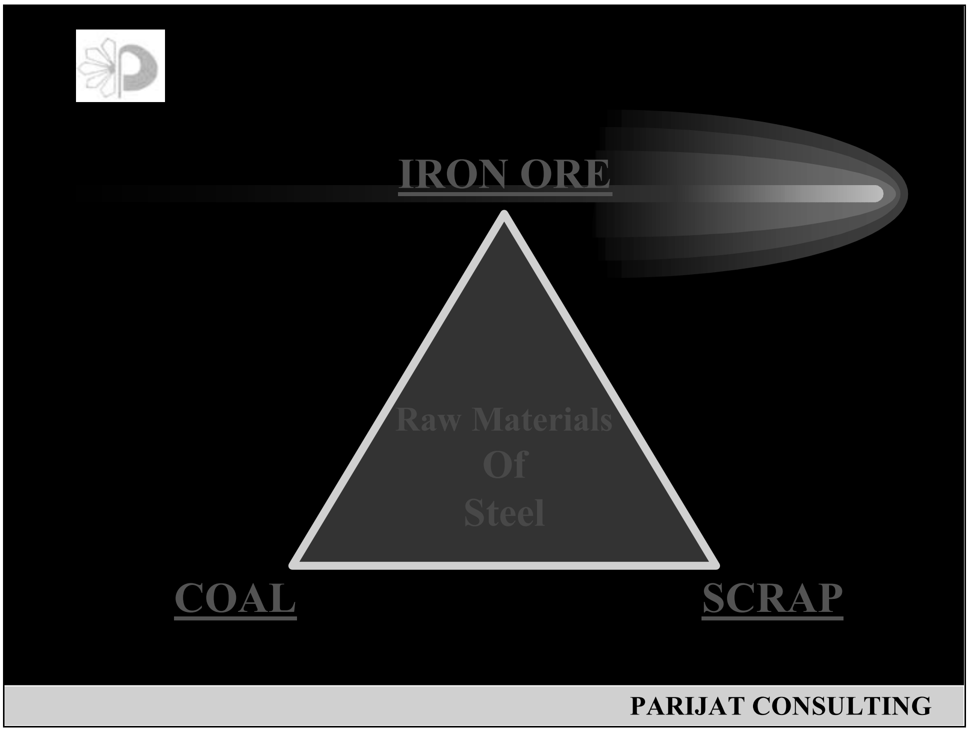
IRON ORE
Raw Materials
Of
Steel
COAL
SCRAP
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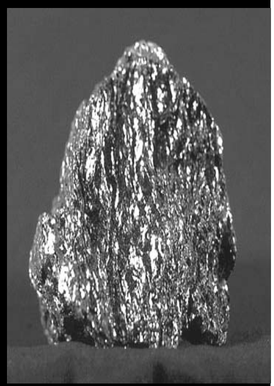
IRON ORE

Global scenario in 2005

- Reserve base: 370 million tonnes
- Iron ore reserves: 160 billion tones
- Production: 1250 million tonnes
- Major producers - Brazil, China and Australia



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World largest iron ore producers, 2005

Company	Base	Capacity(mt/yr)
CVRD	Brazil	299.3
Rio Tinto	UK	173
BHP Billiton	Australia	144.1
Privat Intertrading	Ukraine	45.8
IUD – Donbass	Ukraine	38.4
Anshan I&S works	China	36.8
Anglo Amercian	South Africa	32.4
LKAB	Sweden	28.9
Mittal steel	Various	27.9
CVG	Venezuela	26.9

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Global iron ore resources

Countries	Reserve	Reserve base
United states	6900	15000
Australia	18000	40000
Brazil	21000	6200
China	21000	46000
India	6600	9800
Russia	25000	56000
Ukraine	30000	68000
South Africa	1000	2300
Sweden	35000	7800
Sub-total	133000	306900
% of total	83	83
Other countries	30500	70900
Total	160000	370000

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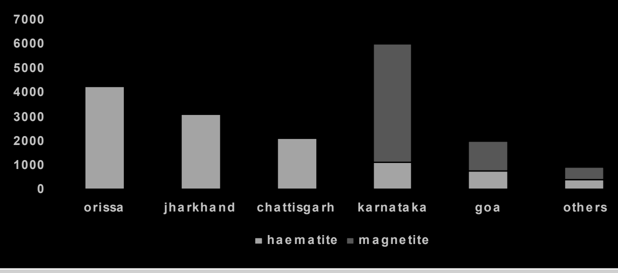
Indian scenario

- Production - 142 mt
- Consumption - 46 mt
- Iron ore reserves – 17 billion tonne
- Reserves location



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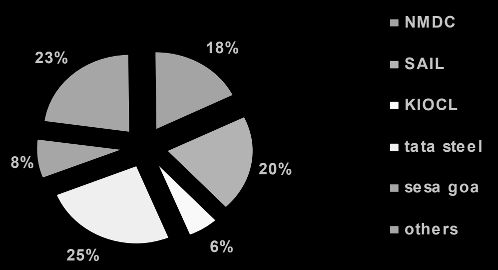
India mining capacity

- Iron ore reserves – 18 billion tonnes
- Total capacity of mines - 110 million tonnes



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State & distribution iron ore mines

	No of mines
India	215
Public	37
Private	178
Andhra Pradesh	3
Chatisgarh	9
Goa	47
Jharkhand	15
Madhya Pradesh	6
Karnataka	57

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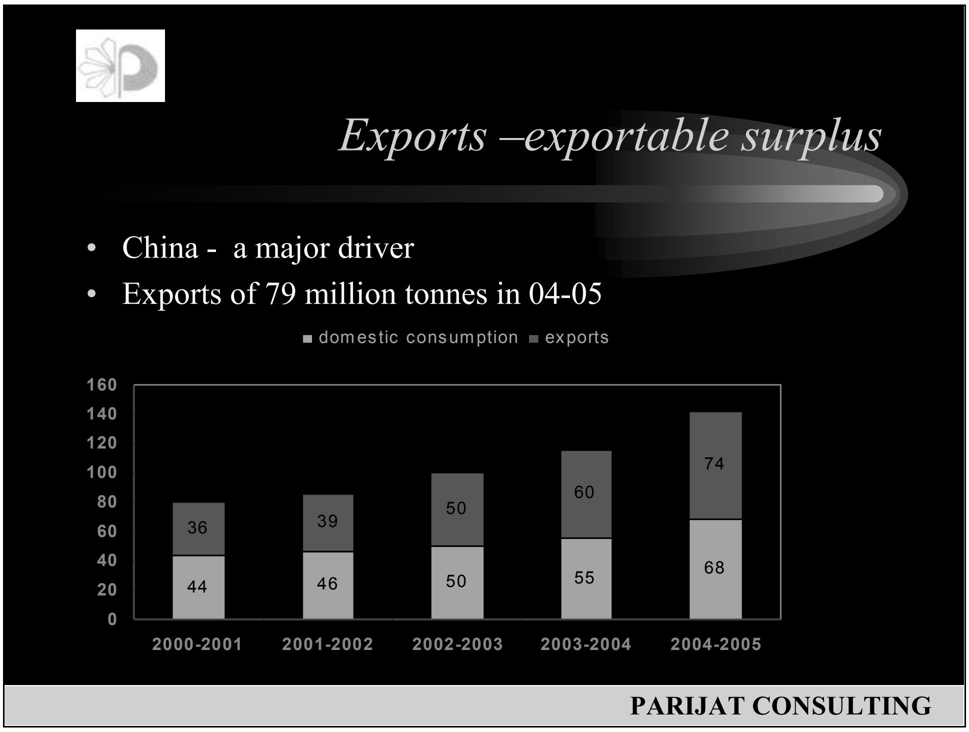
Exports –exportable surplus
• China - a major driver
• Exports of 79 million tonnes in 04-05
domestic consumption
exports
160
140
120
100
80
60
40
20
0
36
44
39
46
50
50
60
55
74
68
2000-2001
2001-2002
2002-2003
2003-2004
2004-2005
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Country-wise iron ore exports
Taiwan
S. Korea
others
5%
2%
5%
5%
Europe
22%
61%
Japan
china
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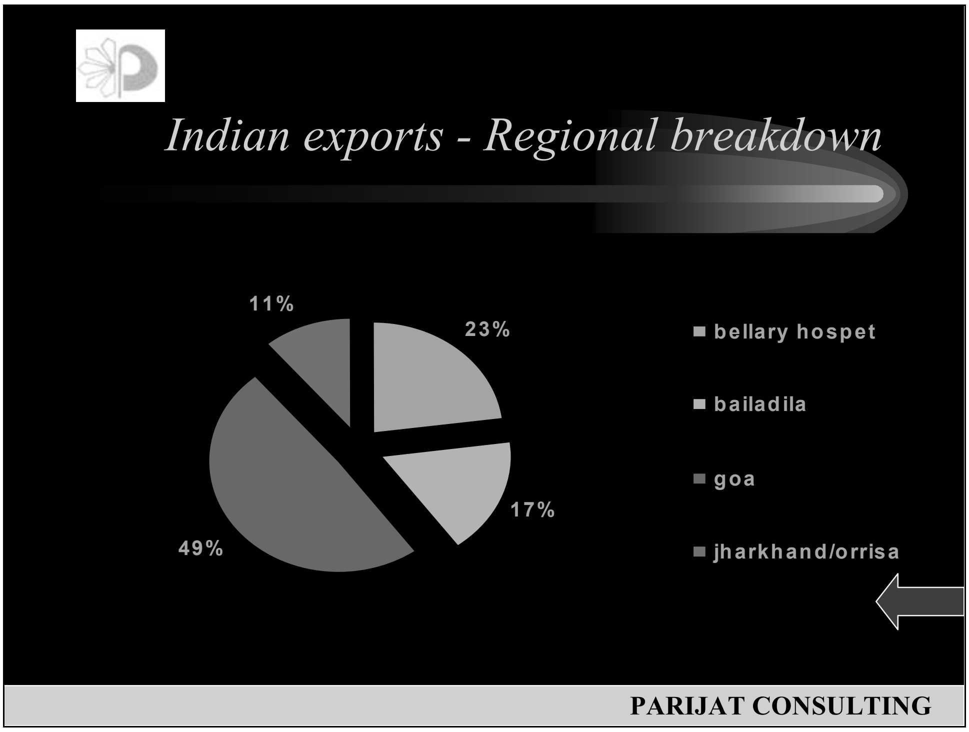
Indian exports - Regional breakdown
11%
23%
17%
49%
bellary hospet
bailadila
goa
jharkhand/orrisa
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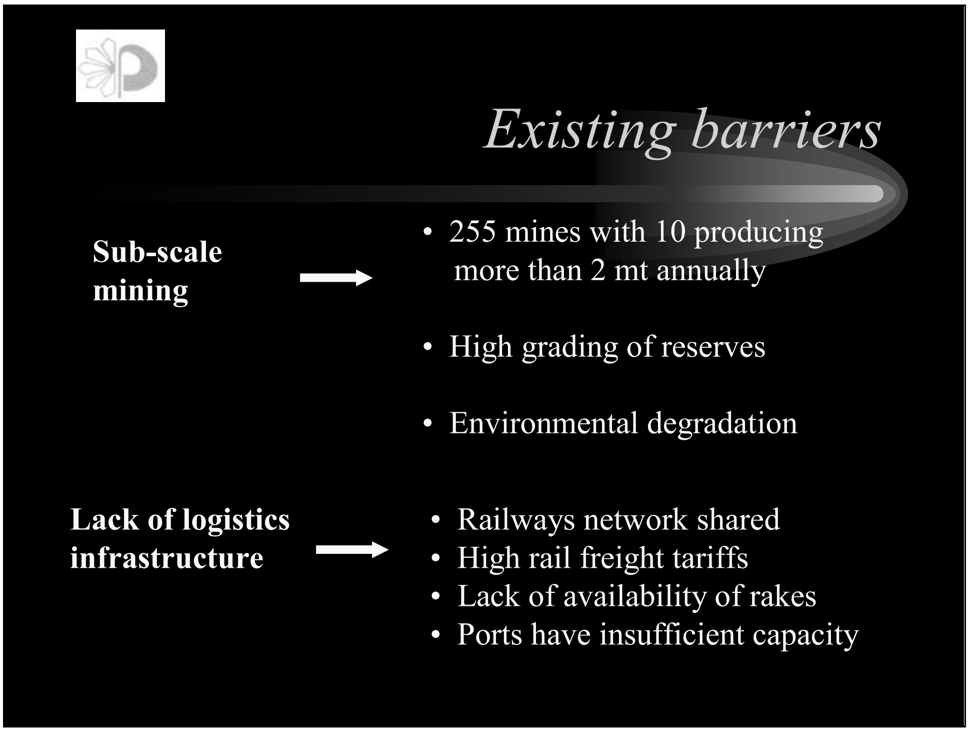

Existing barriers
Sub-scale mining
• 255 mines with 10 producing more than 2 mt annually
• High grading of reserves
• Environmental degradation
Lack of logistics infrastructure
• Railways network shared
• High rail freight tariffs
• Lack of availability of rakes
• Ports have insufficient capacity

Contd..

Regulatory hurdles/delay → Delay in obtaining approvals for mining i.e. PLs, MLs, forest and environment clearances

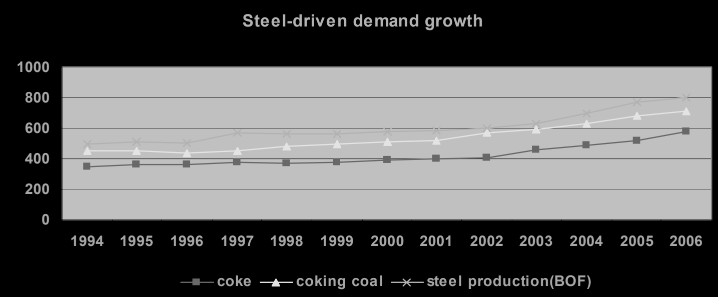
Absence of merchant iron ore market →

- Captive mining
- Spot sales where surplus available

COKING COAL

Demand

- Global demand – 680 million tonnes
- Expected global demand in 2006 - 715 million tonnes



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Supply

- Australia - largest supplier of coking coal
  - Account 55 per cent of the total supply
- Japan - largest buyer of coking coal

Capacity

- Additional capacity of 30 million in 2 years
- In long term significant capacity will be added
  - BHP billiton to increase capacity from 58 to 100 mt by 2010
- Therefore 2005-2006 existing capacity will have a bear the burden of increasing demand

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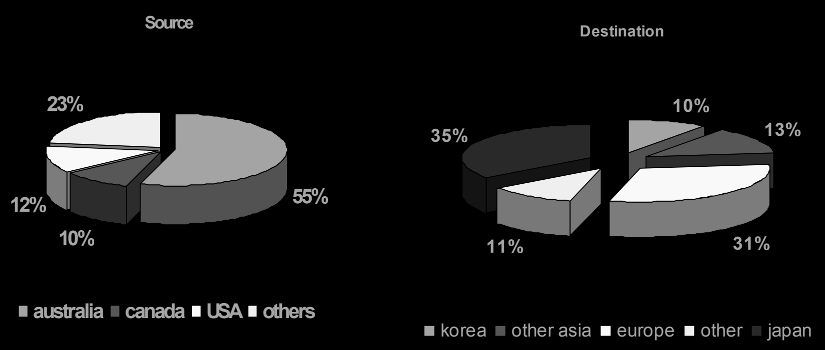
Coking coal:source and destinations



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Indian scenario

- Reserves in India – 16 billion tonnes
- Total demand – 27.5 mt
- Domestic production - 11 mt
- Domestic consumption - 13 mt

Demand to be met by imports (Australia)

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Foreign collaboration

To meet country growing demand for coal

- Technology up gradation
- Bilateral cooperation
- Bringing financial assistance

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Coke
• Key inputs in steel making
• An important source of fuel
• Scarcity of coal in India and abroad
– Astronomically high coke prices
– Demand –supply mismatch
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China impact
• China - largest manufacturer and exporter
– Coke supplies restricted
– Government restriction and trade barriers
– Global prices to determine coke prices in India
• Production- consumption mismatch
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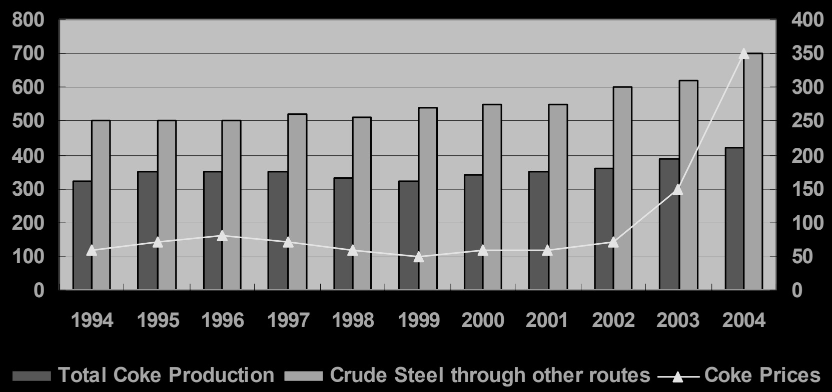
Growing coke consumption and prices



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Indian scenario

- Production - 7.6% CAGR since 2000-2001
- 62% production through BF route
- Sources of coking coal in India
  - In house captive source
  - Non-captive source (imports)
- Major users of coke in India
  - Tata steel
  - SAIL
  - RINL
  - SMEs

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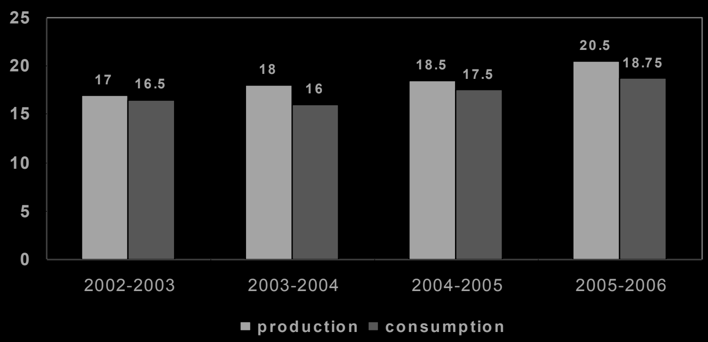
Scarcity of coke in India

- Highly dependent on coke imports
- 5-6 mt capacity addition by 2008-09.



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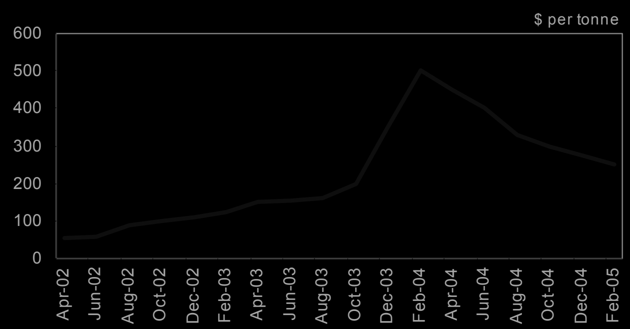
Coke prices India

- Global prices and Landed cost to determine coke prices
- Average price to remain Rs13000 –15000 per tonne in 05



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Scrap

- Main input – EAF/ IF route
- Global scrap demand : 432-465 million tonnes
- Major sources: junked automobiles, ships

Scrap Prices

- Domestic prices to depend on global prices
  - Landed cost of scrap
- scrap prices will remain - Rs 13,000-15,500 per tonne

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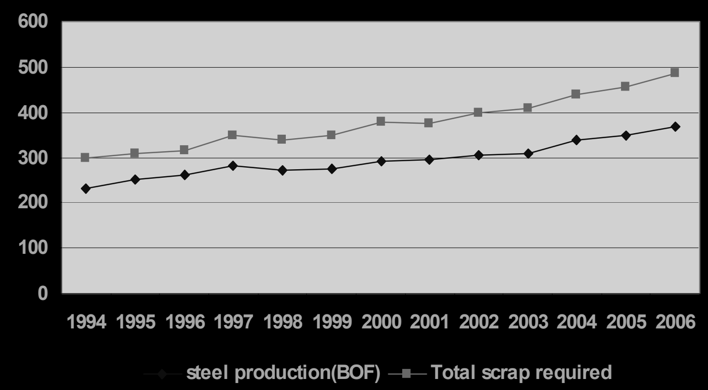
Global scrap consumption



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Indian scenario
• Scare commodity in India
• Lack of quality scrap generated
• Consumption – 8 million tonnes
• Production – 6 million tonnes
• Inherent limitation in scrap generation
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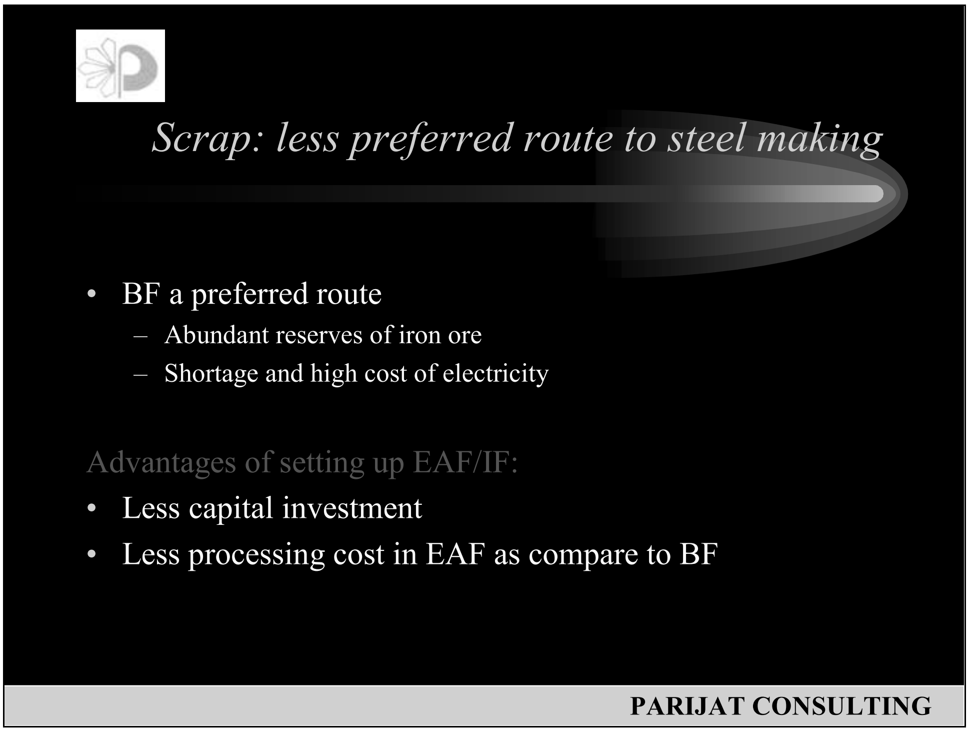
Scrap: less preferred route to steel making
• BF a preferred route
– Abundant reserves of iron ore
– Shortage and high cost of electricity
Advantages of setting up EAF/IF:
• Less capital investment
• Less processing cost in EAF as compare to BF
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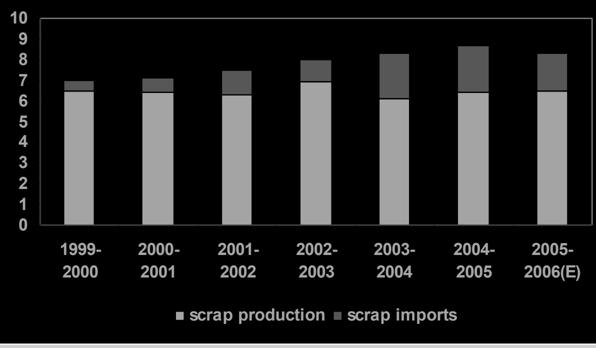
Scrap imports

- Imports in 2005: 1.5 –2.5 million tonnes
- Highly dependent on imports



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Ship breaking in India

- India ship breaking – one of the biggest in the world
- Main source of indigenous scrap generation
- Low labour cost – key competitive advantage

Problems

- Losing market share to Bangladesh
- Ship brought in for breaking are shrinking
- High freight rate

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National steel policy - 2005

Objective
- Targets a production of 110 mt by 2020
- Adequate infrastructure for mines
- Enhance capacity of existing ports and opening of new ports
- Ensuring availability of rail wagons
- Duty free import of raw material for export – advance licensing scheme

	Production	Consumption	Imports	Exports
2019-2020	110	6	26	90
2004-2005	38	2	4	36
CAGR	7.3%	7.1%	13.3%	6.9%

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Government initiatives

Iron ore

- Encourage iron ore trading
- Encourage investing in an additional minings and beneficiation capacity
- Long-term export supply of iron ore would be confined to a maximum of five-year contracts.
- Captive mining leases for private companies
- Recommend renewal of existing leases
- DEPB factor

Contd..

Coking coal

- Domestic coking coal to be blended with imported coal
- Developing and adapting new technologies
- Encourage investment in washing & beneficiation of coal
- Encourage invest for capacity addition
- Government would encourage joint ventures and equity participation coal companies.

SWOT

Strength •Availability of iron ore •Mature production base •Abundance of quality manpower	**Weakness** •Unscientific mining •Coking coal dependence •Low R&D investment •Inadequate infrastructure
Opportunities •Unexplored rural market •Consolidation •Exports	**Threats** •Protectionism in the west •Dumping by competitors

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Barriers for Indian steel

Logistics infrastructure →

- High rail freight
- Port/shipping bottlenecks

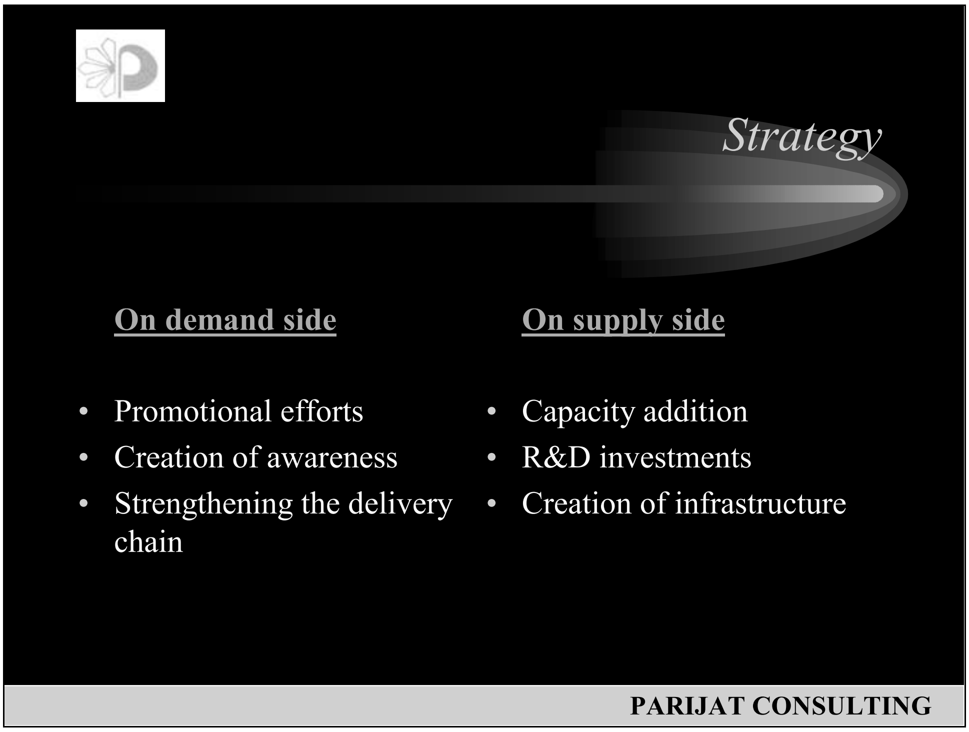
Coking coal and coke availability and cost →

- Indian coal has high ash
- Exposure to availability & prices of coking coal in international market
- Competition for seaborne hard coking

Contd..

Iron ore availability →

- Hugh in country reserves
- Captive resource policy
- Sub-optimal mining
- Insufficient investment & development


Strategy
On demand side
• Promotional efforts
• Creation of awareness
• Strengthening the delivery chain
On supply side
• Capacity addition
• R&D investments
• Creation of infrastructure
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Factors for India to reach full potential
• Accelerate infrastructure development
• Continuous expansion and development of domestic steel industry
• Mining improvement - iron ore


Thank you
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