



The Iron Ore Market: A Sea of Change

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The Economic Environment 2007-2008

The USA - Europe



	2007	2008
□ The USA's GDP:	+2.5%	+2.7%
□ The Euro Area's GDP:	+2.3%	+2.2%

✓ *Soft Landing in the USA (Hopefully)*

✓ *Strong Growth in Europe (3% Q1)*

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China



	2007	2008
□ GDP:	+9.8%	+9.7%
□ IP :	+12% to +13%	

✓ *GDP could come down to 8% over the next years.*

✓ *The New Economic Superpower (\$2.7 trillion)*

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China



□ Growth Drivers:

- 2008 Olympics
- The Chinese Diaspora
- The World's Factory
- Inland Settlement

✓ *Search for Sustainable Long-term Growth*

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India and Japan

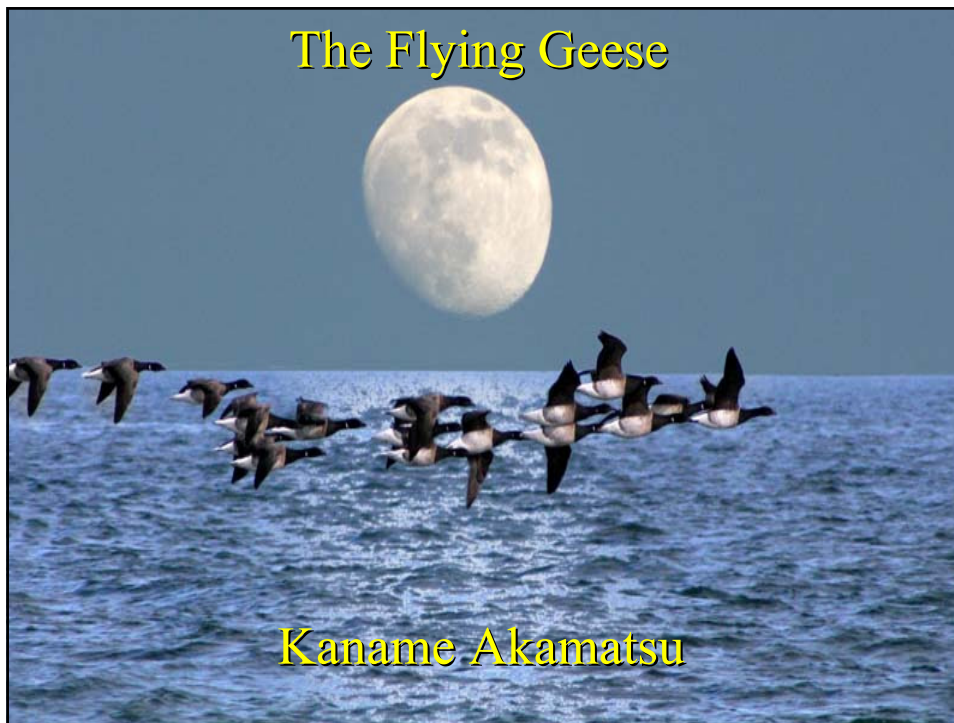


	2007	2008
□ India's IP:	+6.5%	
□ India's GDP:	+8.0%	+7.8%
□ Japan's GDP:	+2.2%	+2.3%


✓ *India is becoming the "new China."*

✓ *Japan is growing again.*

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The Flying Geese: 2006/2007

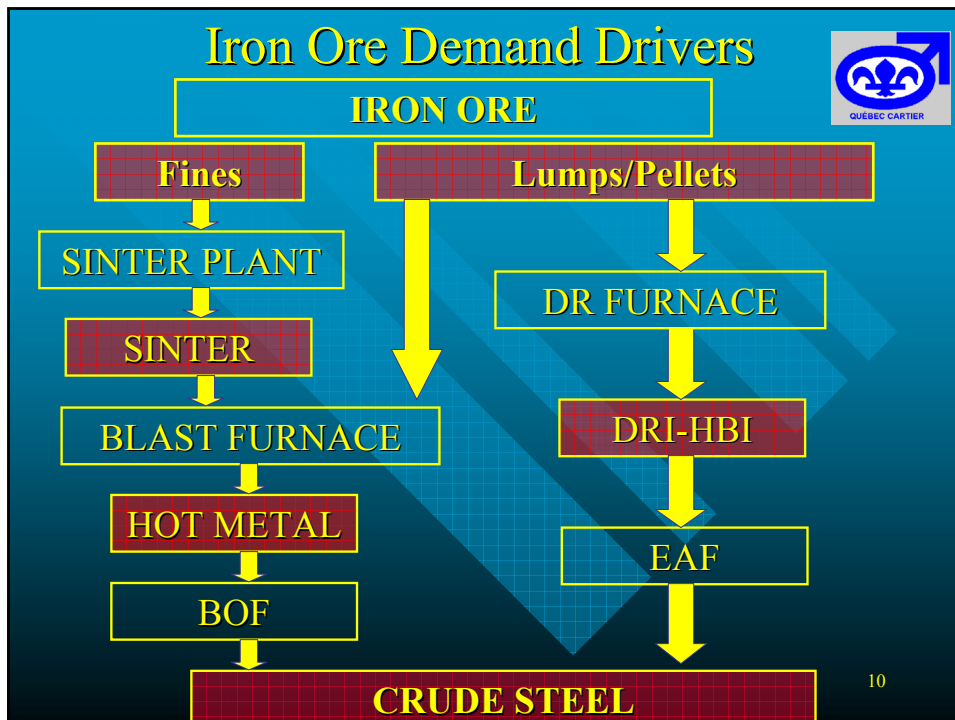


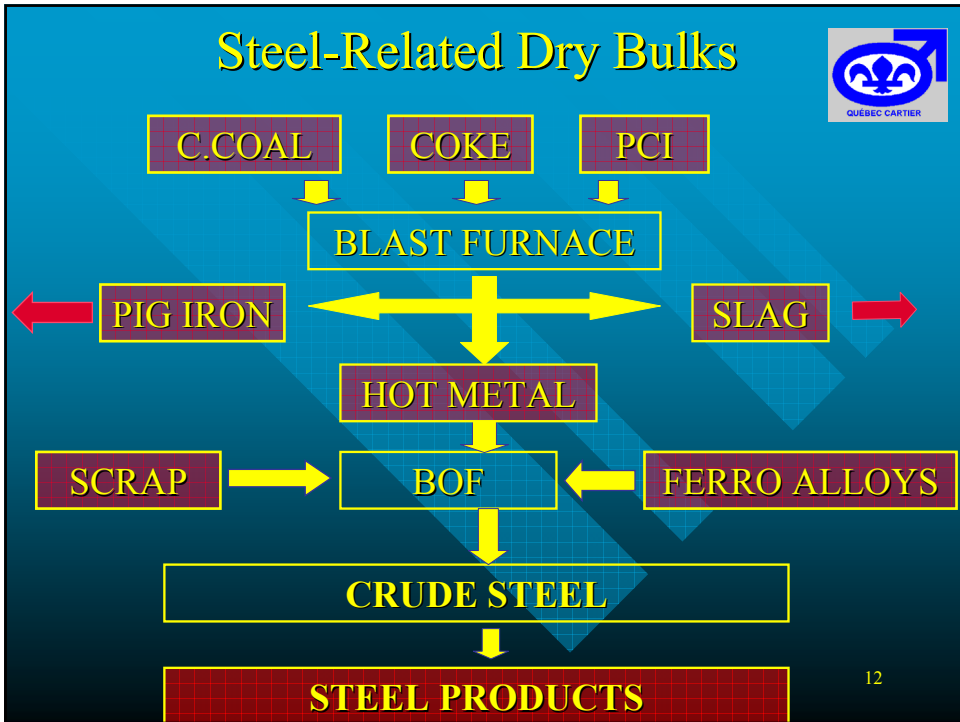
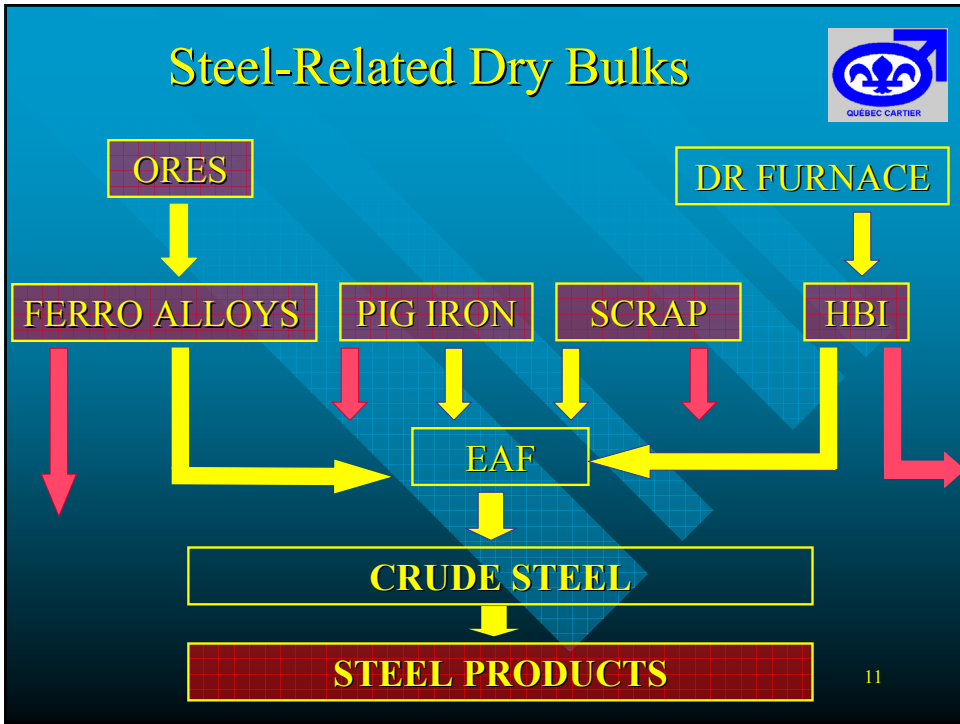
- Japan
 - USA
 - CHINA
- India
- EU

✓ The world's economy is being driven by China.
✓ How long ?

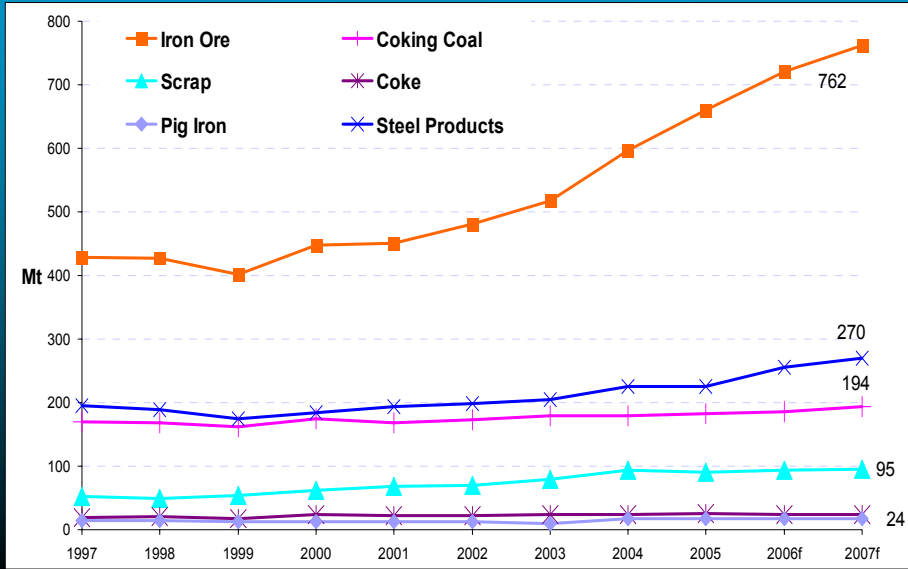
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Crude Steel, Hot Metal, and DRI





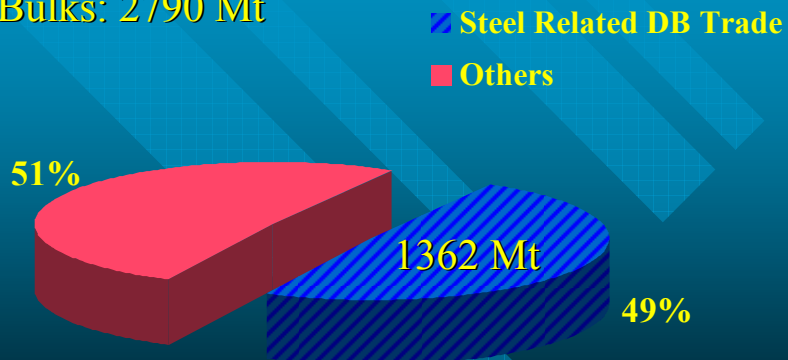
The Seaborne Trade of Steel-related Dry Bulks



Steel Related Dry Bulk Trade 2007f



Total Bulks: 2790 Mt



✓ About 49% of dry bulk trade is steel-related.

World Crude Steel Production



Year	Mt	Δ%
2002	905	+6
2003	972	+7
2004	1069	+10
2005	1130	+6
2006	1236	+9
2007	1313	+6
2008	1396	+6

Cumulative (02-08)	
Mt	Δ%
491	+54

✓ *Record World Production*

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European Crude Steel Production



Year	Mt	Δ%
2002	207	+1
2003	212	+2
2004	225	+6
2005	220	-2
2006	233	+6
2007	236	+1
2008	237	+1

Cumulative (02-08)	
Mt	Δ%
30	+15

✓ *Slow Production Increase*

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Chinese Crude Steel Production



Year	Mt	Δ%
2002	182	+21
2003	222	+22
2004	281	+27
2005	349	+24
2006	423	+21
2007	487	+15
2008	545	+12

Cumulative (02-08)	
Mt	Δ%
363	+199

✓ *Record Production Levels*

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Indian Crude Steel Production



Year	Mt	Δ%
2002	31	+2
2003	32	+3
2004	33	+3
2005	38	+15
2006	43	+13
2007	47	+9
2008	52	+11

Cumulative (02-08)	
Mt	Δ%
21	+68

✓ *High Growth Levels*

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Hot Metal Production



World			China		Cumulative		Cumulative	
Year	Mt	Δ%	Mt	Δ%	World		China	
					Mt	Δ%	Mt	Δ%
2002	611	+6	169	+16	405	+66	346	+205
2003	658	+8	202	+19				
2004	725	+10	258	+28				
2005	785	+8	330	+28				
2006	879	+12	404	+22				
2007	948	+8	465	+15				
2008	1016	+7	515	+11				

✓ Record Levels
✓ Dominance (68%)

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Hot Metal Production Europe



Year	Mt	Δ%	Cumulative	
			(02-08)	
			Mt	Δ%
2002	116	+1	11	+10
2003	119	+3		
2004	123	+3		
2005	120	-2		
2006	125	+4		
2007	125	+0		
2008	127	+2		

✓ Slow Production Growth

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DR Production



Year	World	MENASA
	Mt	Mt
2002	46	15
2003	50	15
2004	54	17
2005	56	18
2006	60	19
2007	69	23
2008	79	26

Cumulative (02-08)	
World	
Mt	Δ%
33	+72

Cumulative (02-08)	
MENASA	
Mt	Δ%
11	+73

✓ *Very Strong Growth*
 ✓ *Many New Projects*

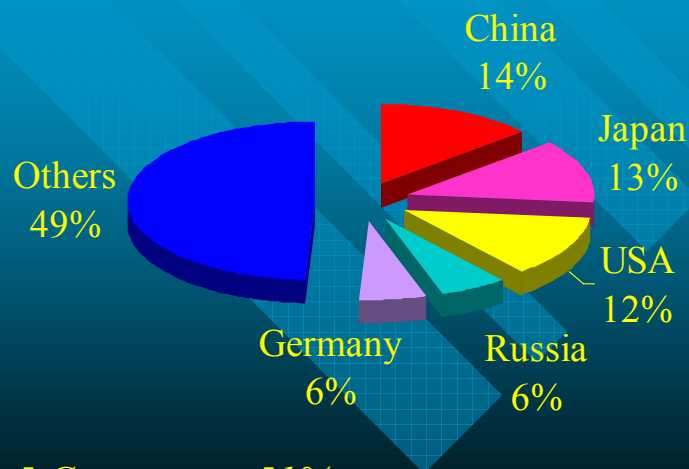
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MENASA: Middle East-North Africa-South Africa

Steel Production Concentration 1997



□ World Steel Production: 799 Mt



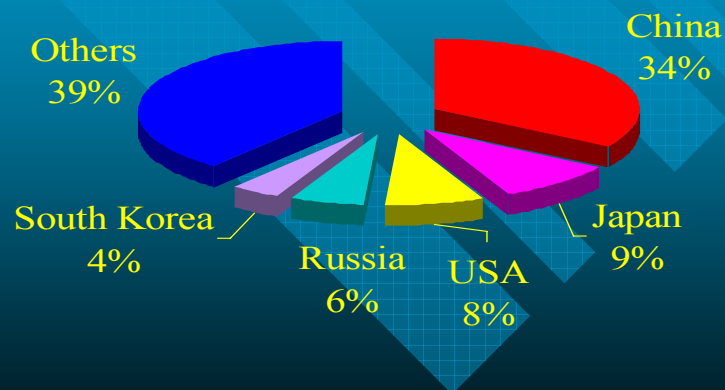
✓ *Top 5 Countries = 51%*

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Steel Production Concentration 2006



□ World Steel Production: 1236 Mt



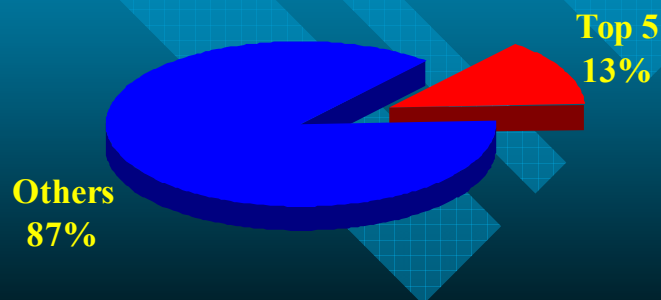
✓ *Top 5 Countries = 61%*

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Producer Concentration 1997



- World Steel Production: 799 Mt
- Top 59: 440 Mt (55%)
- Top 5: 106 Mt



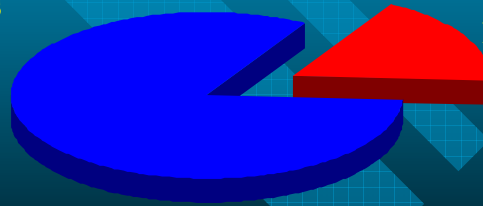
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Producer Concentration 2006



- World Steel Production: 1236 Mt
- Top 59: 775 Mt (63%)
- Top 5: 215 Mt

Others
83%



Top 5
17%

- ✓ *The steel industry is still very fragmented.*
- ✓ *Consolidation will continue.*

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Apparent Steel Consumption



Region	2007	2008	Δ %	Δ %
	Mt	Mt	06/07	07/08
EU 27	187	191	+1.5	+1.9
Other Europe	30	32	+6.5	+6.4
World	1179	1251	+5.9	+6.1
China	403	443	+13.0	+10.0
World Ex China	776	808	+2.5	+4.1

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Iron Ore Demand and Production

Iron Ore Production



World		
Year	Mt	Δ%
2002	1095	+5
2003	1204	+10
2004	1363	+13
2005	1536	+13
2006	1760	+15
2007	1851	+5
2008	1972	+7

Cumulative World	
Mt	Δ%
877	+80

✓ *Record Production*

Iron Ore Production



Australia			Brazil		Cumulative Australia		Cumulative Brazil	
Year	Mt	Δ%	Mt	Δ%	Mt	Δ%	Mt	Δ%
2002	187	+3	215	+2	167	+89	170	+79
2003	216	+12	233	+8				
2004	238	+10	255	+9				
2005	265	+11	278	+9				
2006	291	+10	313	+13				
2007	309	+6	345	+10				
2008	354	+15	385	+12				

✓ *Record Production*

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Chinese Iron Ore Production



China			Cumulative China	
Year	Mt	Δ%	Mt	Δ%
2002	231	+6	+374	+162
2003	261	+13		
2004	335	+28		
2005	420	+25		
2006	570	+36		
2007	590	+4		
2008	605	+3		

✓ *Record Production*
✓ *Low Fe Content: 33%*

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Indian Iron Ore Production



India		
Year	Mt	Δ%
2002	86	+9
2003	99	+15
2004	121	+22
2005	146	+21
2006	146	+0
2007	151	+3
2008	163	+8

Cumulative India	
Mt	Δ%
+77	+90

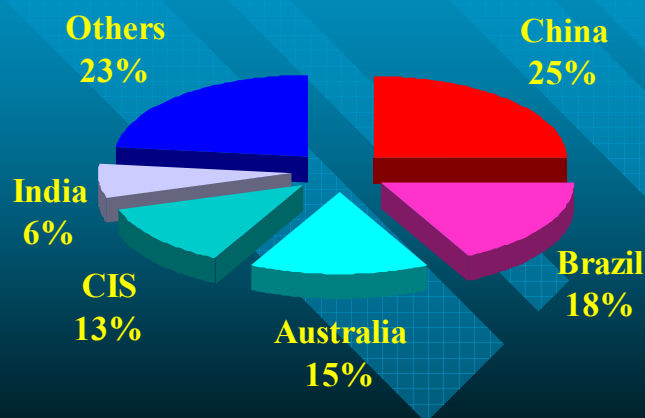
- ✓ *Record Production*
- ✓ *Export Restrictions*

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World Iron Ore Production 1997



□ World Production: 1 070Mt



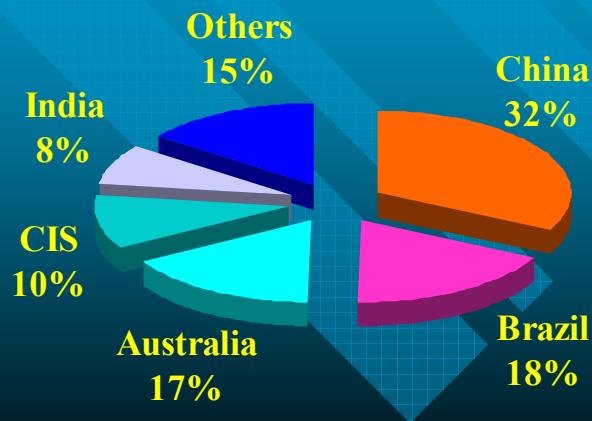
✓ *Top 3 countries: 58%*

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World Iron Ore Production 2006



□ World Production: 1 760 Mt



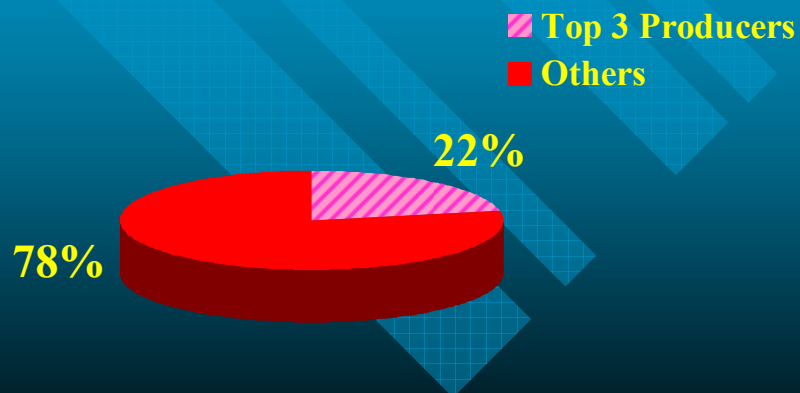
✓ *Top 3 countries: 67%*

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Iron Ore Production Concentration 1997



□ Total Production: 1070 Mt



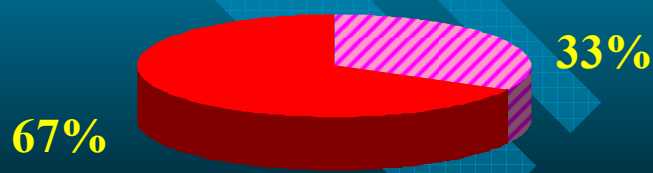
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Iron Ore Production Concentration 2007(e)



□ Total Production: 1851 Mt

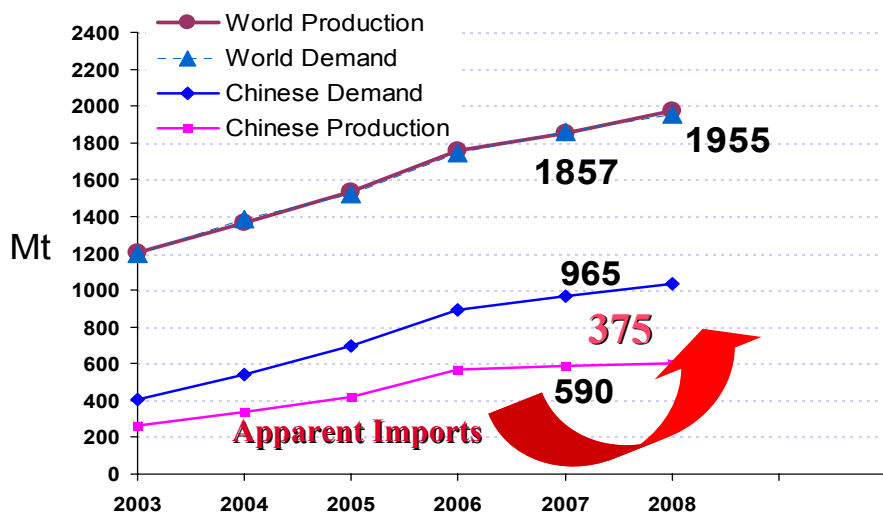
■ Top 3 Producers
■ Others



✓ *Concentration has increased.*

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Iron Ore Demand and Production



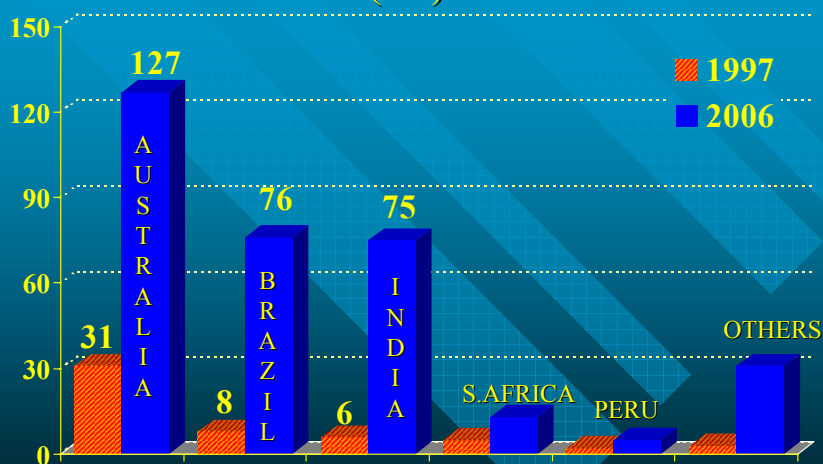
Chinese Imports of Iron Ore Forecasts



- 2007: 350 – 375 Mt
- 2010: 500 – 510 Mt
- 2007 – 2010: 43% to 46% increase

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China's Iron Ore Imports by Source (Mt)



✓ 1997-2006: 55 Mt to 326 Mt (+492%)

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Iron Ore Industry Tendencies



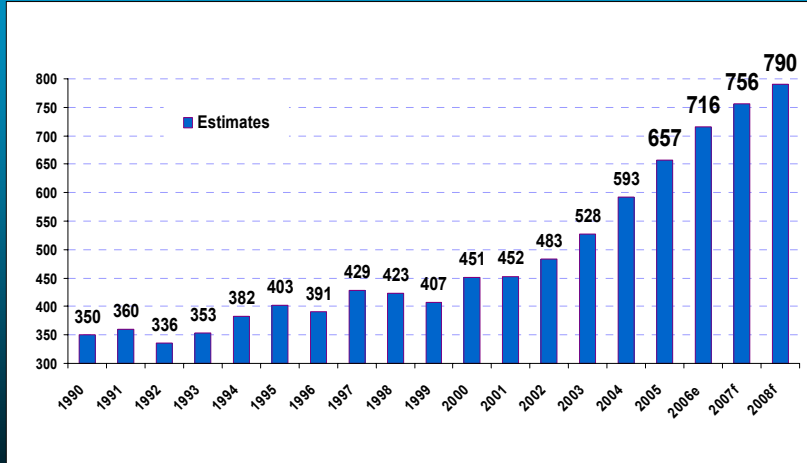
- Privatization
- Disintegration
- Consolidation
- Internationalization
- Diversification
- Reintegration
- Expansion

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The Seaborne Trade of Iron Ore

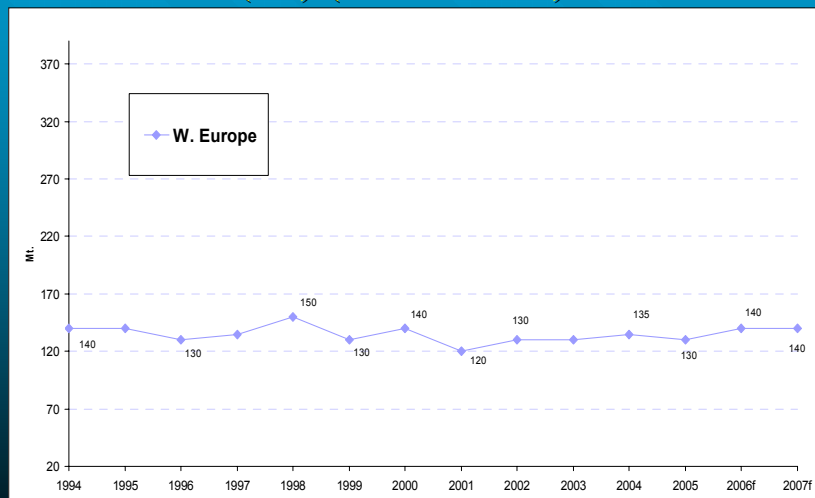


Seaborne Trade Estimates (Mt)



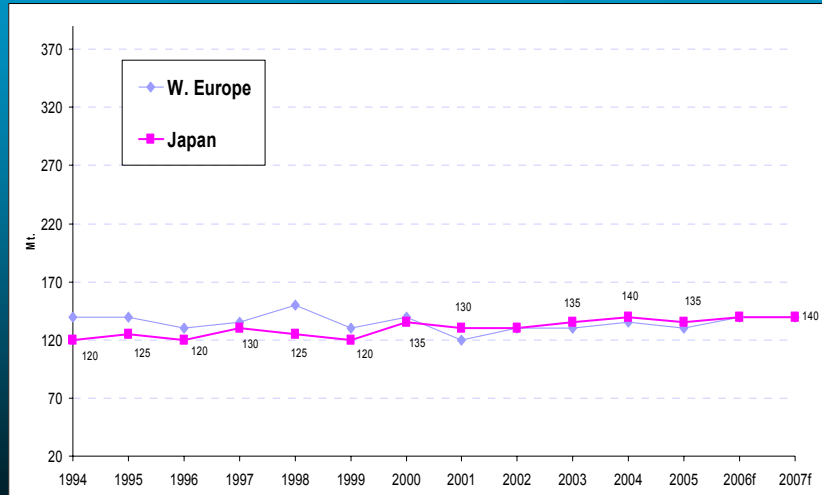
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The Seaborne Trade of Iron Ore (Mt) (1994 – 2006)



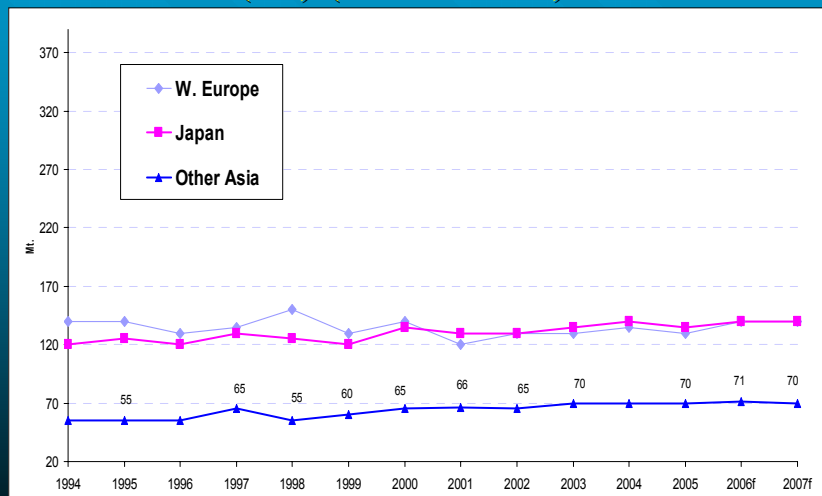
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The Seaborne Trade of Iron Ore (Mt) (1994 – 2006)



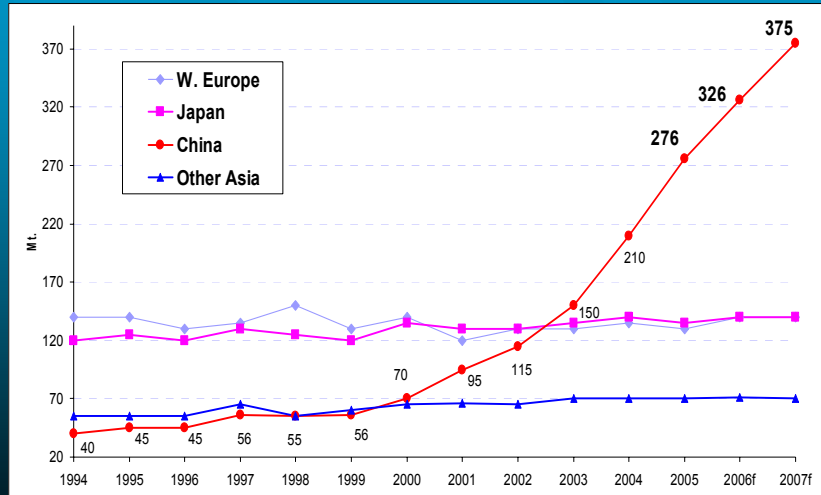
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The Seaborne Trade of Iron Ore (Mt) (1994 – 2006)



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The Seaborne Trade of Iron Ore (Mt) (1994 – 2006)



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The Seaborne Iron Ore Market (Mt)



Various Estimates:

Year	From:	To:
2006	710	725
2007	750	785
2008	790	840
2010	930	950

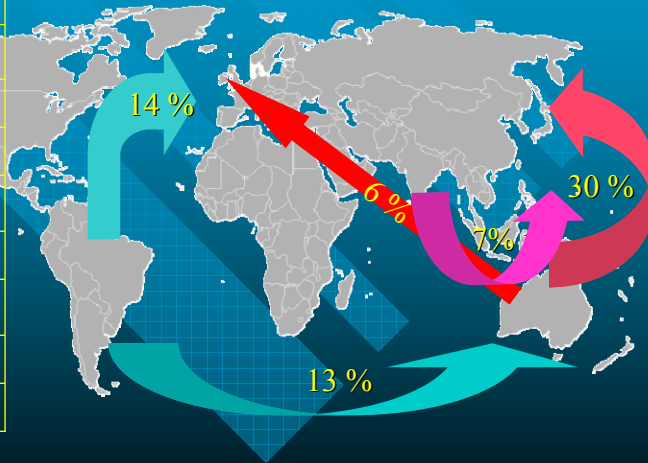
✓ *The Market will attain record levels.*

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Major Iron Ore Flows 1997



1997	Mt
Brazil-Europe	60
Brazil-China	11
Brazil-Asia	56
Australia-Europe	26
Australia-China	33
Australia-Asia	129
India-China	11
India-Asia	31



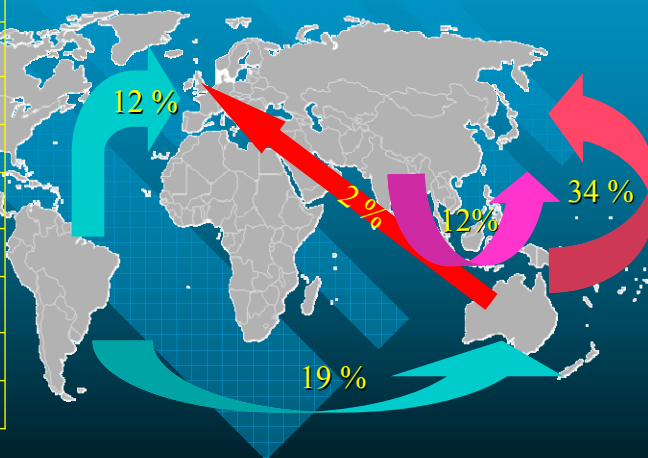
Total Seaborne Trade: 428 Mt

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Major Iron Ore Flows 2005



2005	Mt
Brazil-Europe	77
Brazil-China	59
Brazil-Asia	123
Australia-Europe	11
Australia-China	117
Australia-Asia	228
India-China	57
India-Asia	78



Total Seaborne Trade 662 Mt: +55%

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Flow Tendencies (97-05)

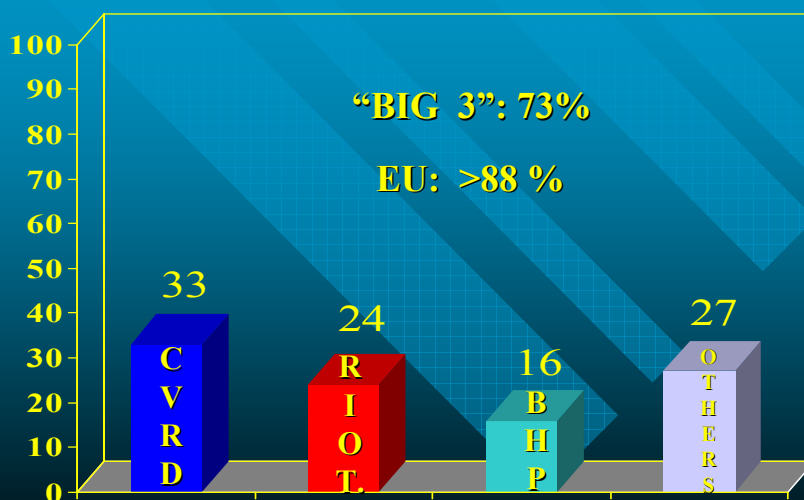


	Asia	Europe	China
Australia	+77%	-58%	+255%
Brazil	+120%	+28%	+436%
India	+152%	+3%	+418%

✓ *Paradigm Shift*

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2006 Seaborne Market Shares (%)

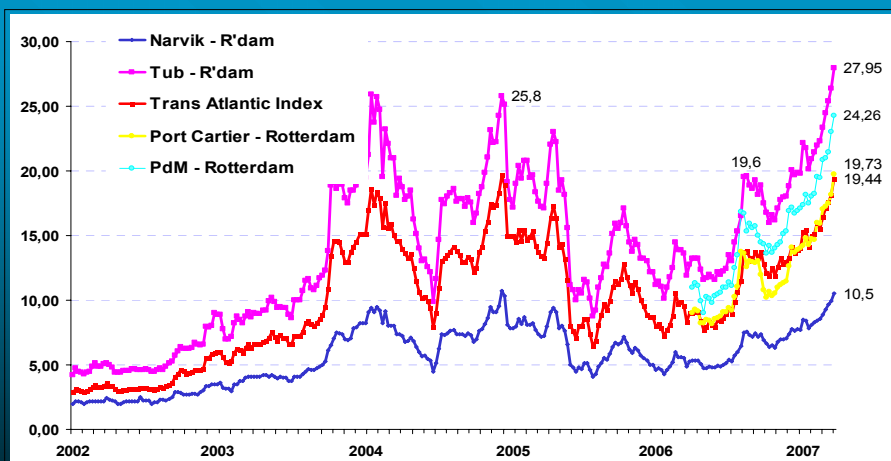


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Freights for Main Transatlantic Routes

Main Atlantic Routes (USD/mt)



- ✓ *Volatility has increased.*
- ✓ *The market is higher than historical levels.*



Iron Ore Prices

Oligopoly vs. Oligopsony



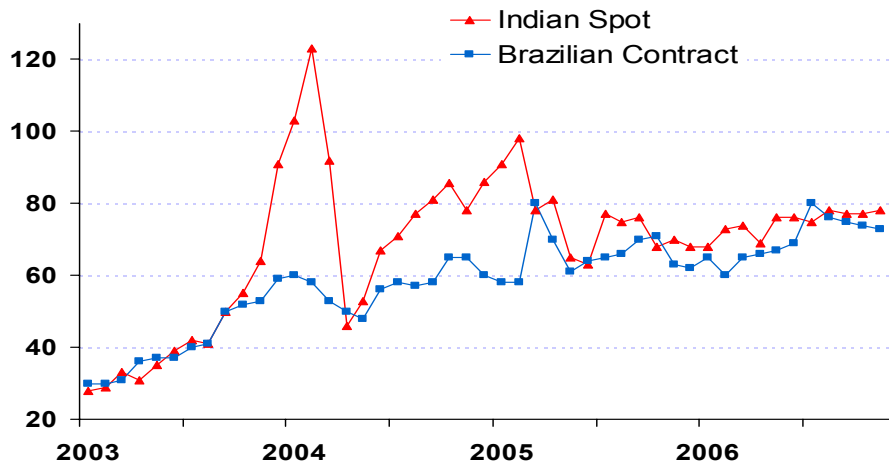
Fewer Sellers



Fewer Buyers

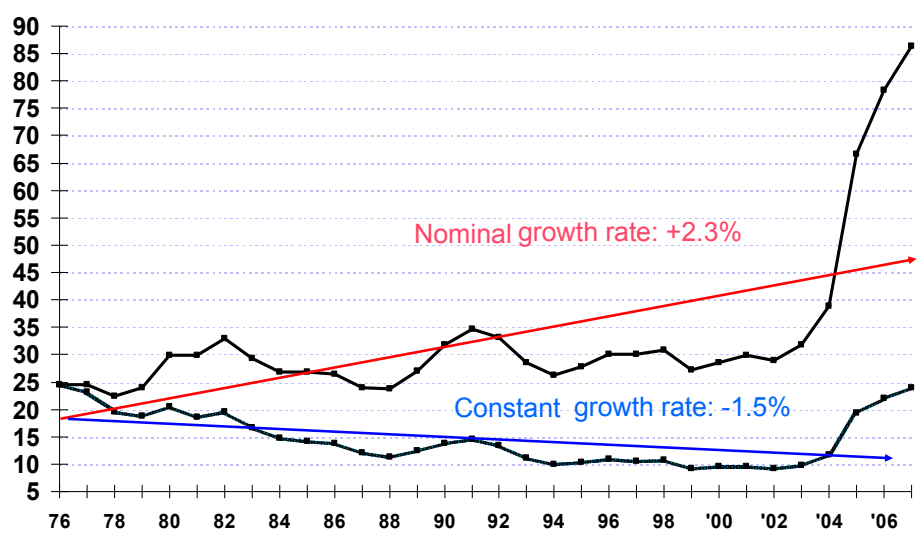
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Spot Prices USD/T CIF China



✓ Spot Prices are higher than contract prices.⁵⁵

Canadian Concentrate Price 1976 to 2007 (US ¢/MTU)





Prices Itabira Fines (Fob)



Year	2003	2004	2005	2006	2007
Cents DMTU	31.04	36.45	62.51	74.39	81.46
% change	8.46	17.4	71.5	19.0	9.5

- ✓ *Since 2003 the price has increased by 162%.*
- ✓ *Long Term Trend : 2004 Price +40%*

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Conclusions



Conclusions 2006 - 2007



- China continues to drive the iron ore market.
- Iron ore demand continues to attain record levels.
- Security of supply is very important.
- The freight market is higher than historical levels.
- Disruptions could tighten the market.

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Conclusions 2006 - 2007



- Fines
 - Very Strong Demand
- Lump ore
 - Availability and quality are decreasing.
 - Very Strong Demand

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Conclusions 2006 - 2007



- The pellet market is:
 - Strong in Europe.
 - Steady in China.
 - Steady in the USA.
 - Very strong in the DRI sector.

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Conclusions 2007-2010



- New capacity coming on stream until 2010:
 - Up to 45 Mtpy of Pellets
 - Up to 400 - 410 Mt of Mining Capacity
 - Delays and cost over-runs are probable.
 - Dot-com mining and pelletizing are increasing.

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Conclusions 2007-2010



- Vertical integration will accelerate.
- Tight Supply for 2007 =>2009
- Supply-demand balance to return after 2009.

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Conclusions 2007-2010



- Lower Barriers to Entry
- New Players (some are better than others)
- Many projects will not see the light of day.

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