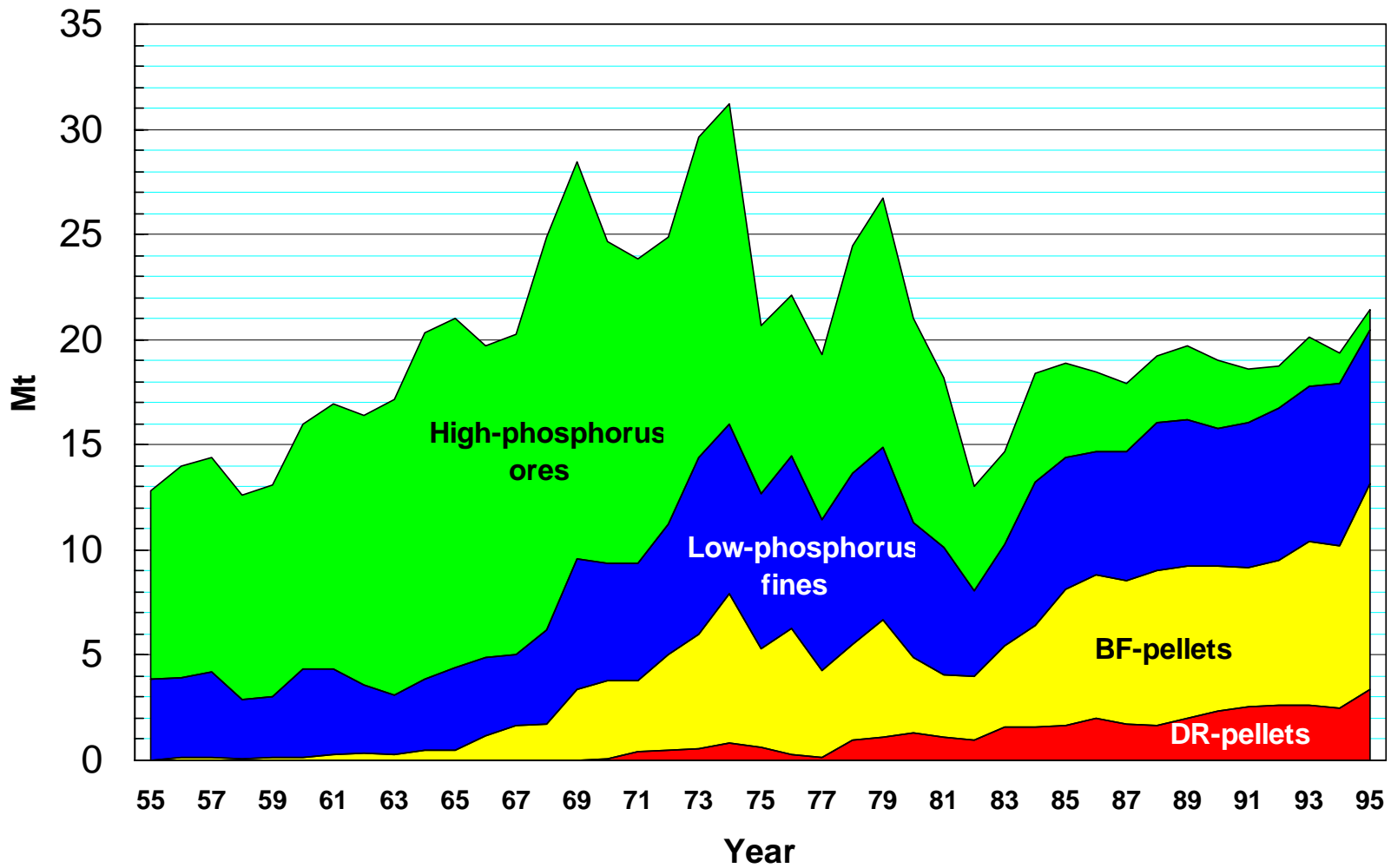


LKAB

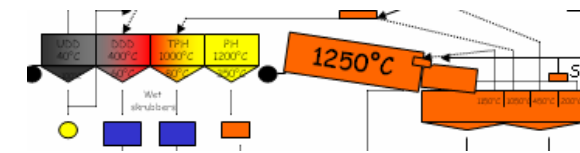




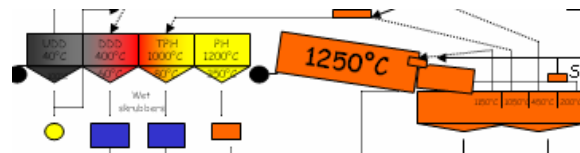
LKAB 1955-95: Transition from high-P ores to pellets



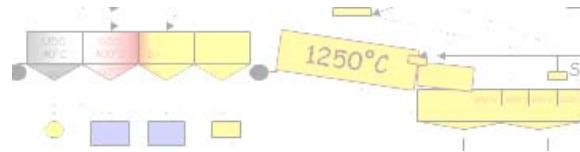
Kiruna



- **1982** **3.9 Mton**

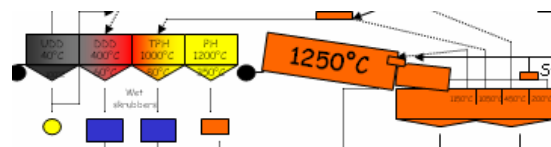


- **1995** **5.0 Mton**



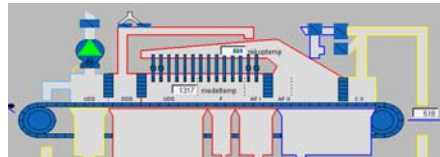
- **2008** **5.0 Mton**

Svappavaara

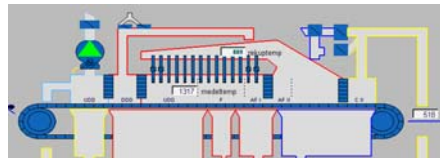


- **1968** **3.8 Mton**

Malmberget

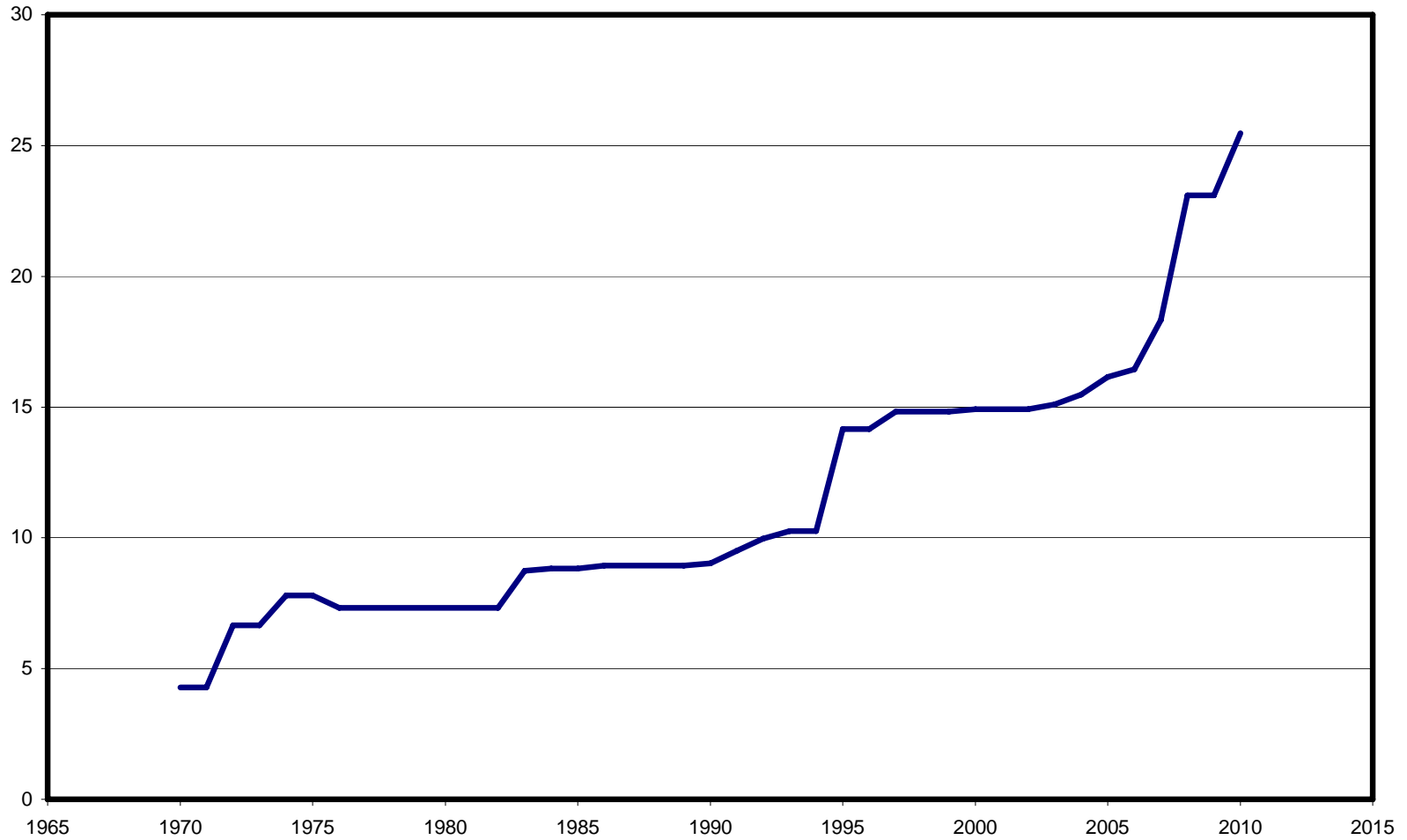


- **1973** **4.1 Mton**



- **2006** **2.5 Mton**

Pellet capacity in LKAB



Kiruna

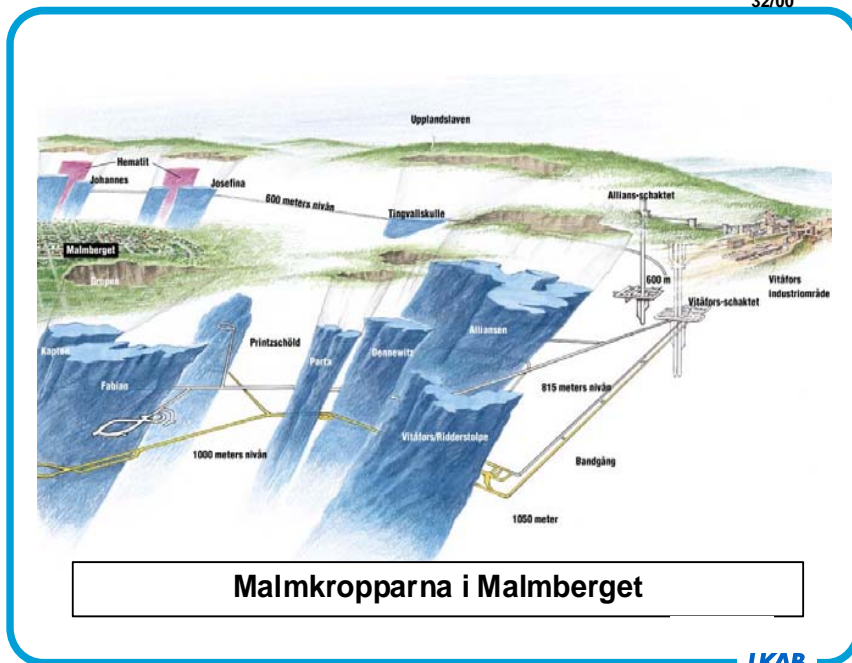


New pelletizing plant

Production units - MINES.

Malmberget.

32/00

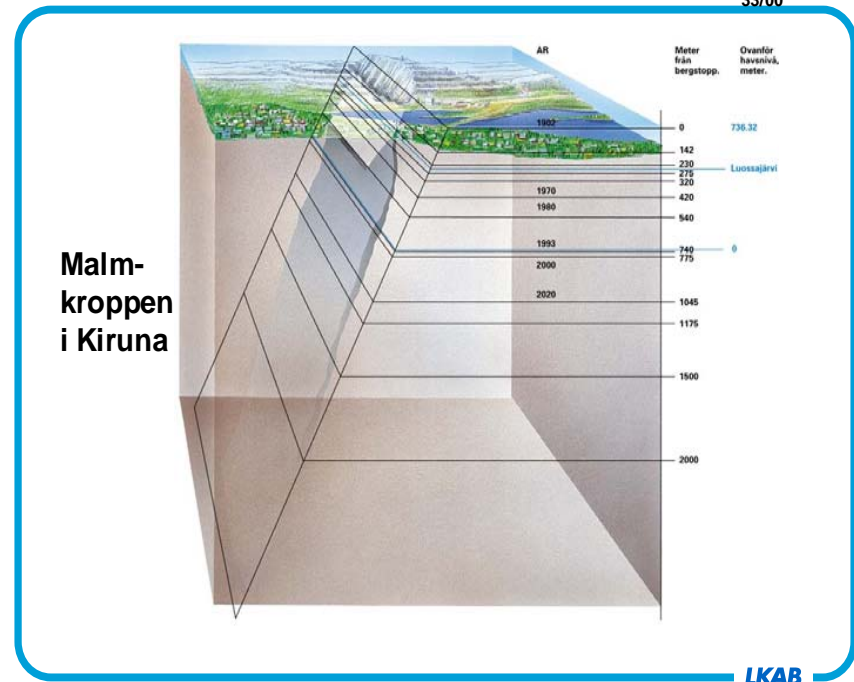


Iron ore :14 Mton/year.

Future : 16,5 Mton/year,

Kiruna.

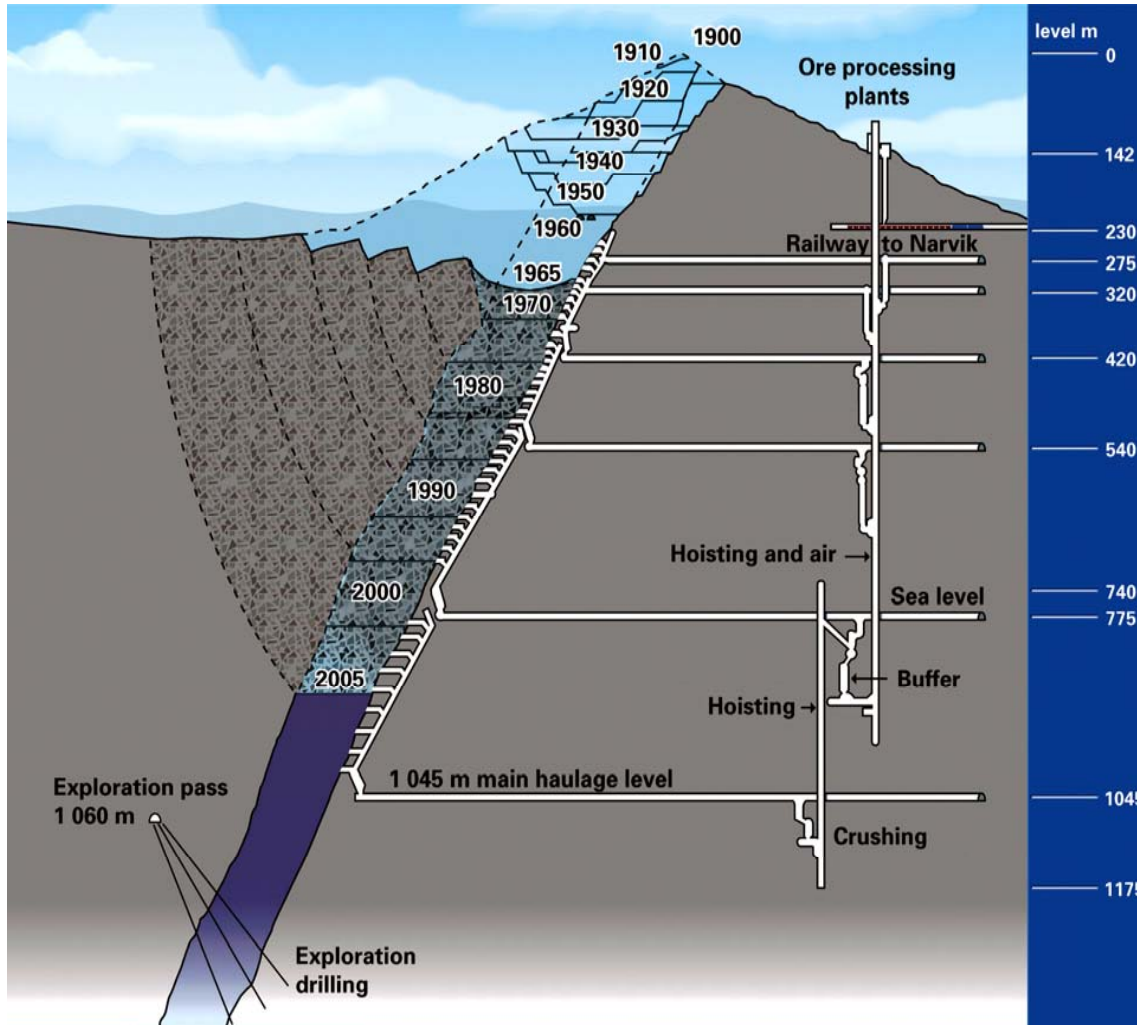
33/00



Iron ore :25 Mton/year.

Future : 35 Mton/year.

Kiirunavaara orebody.

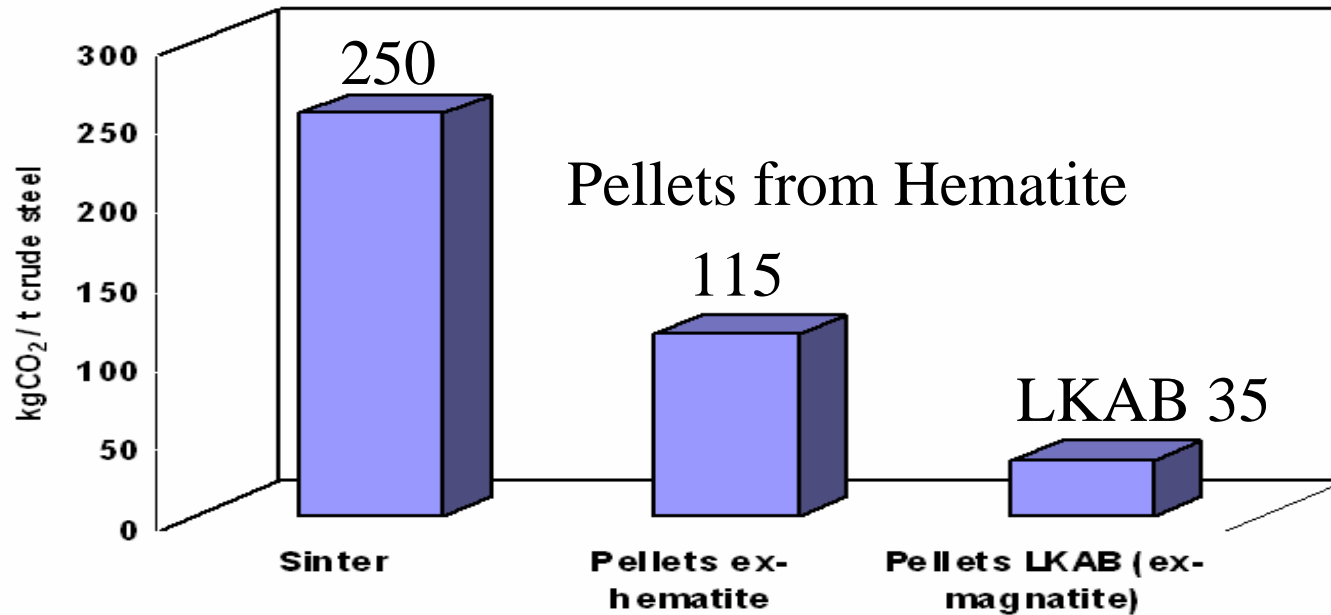


Magnetite Ore

- **Easy to up-grade**
 - **Magnetic separation**
 - **Concentrate 71.5 % Fe**

- **Fuel in the pelletising process**
 - **Saves more than 10 kg of oil or equivalent**

CO₂-emissions from mine to sinter and pellets expressed as kg CO₂/ton crude steel

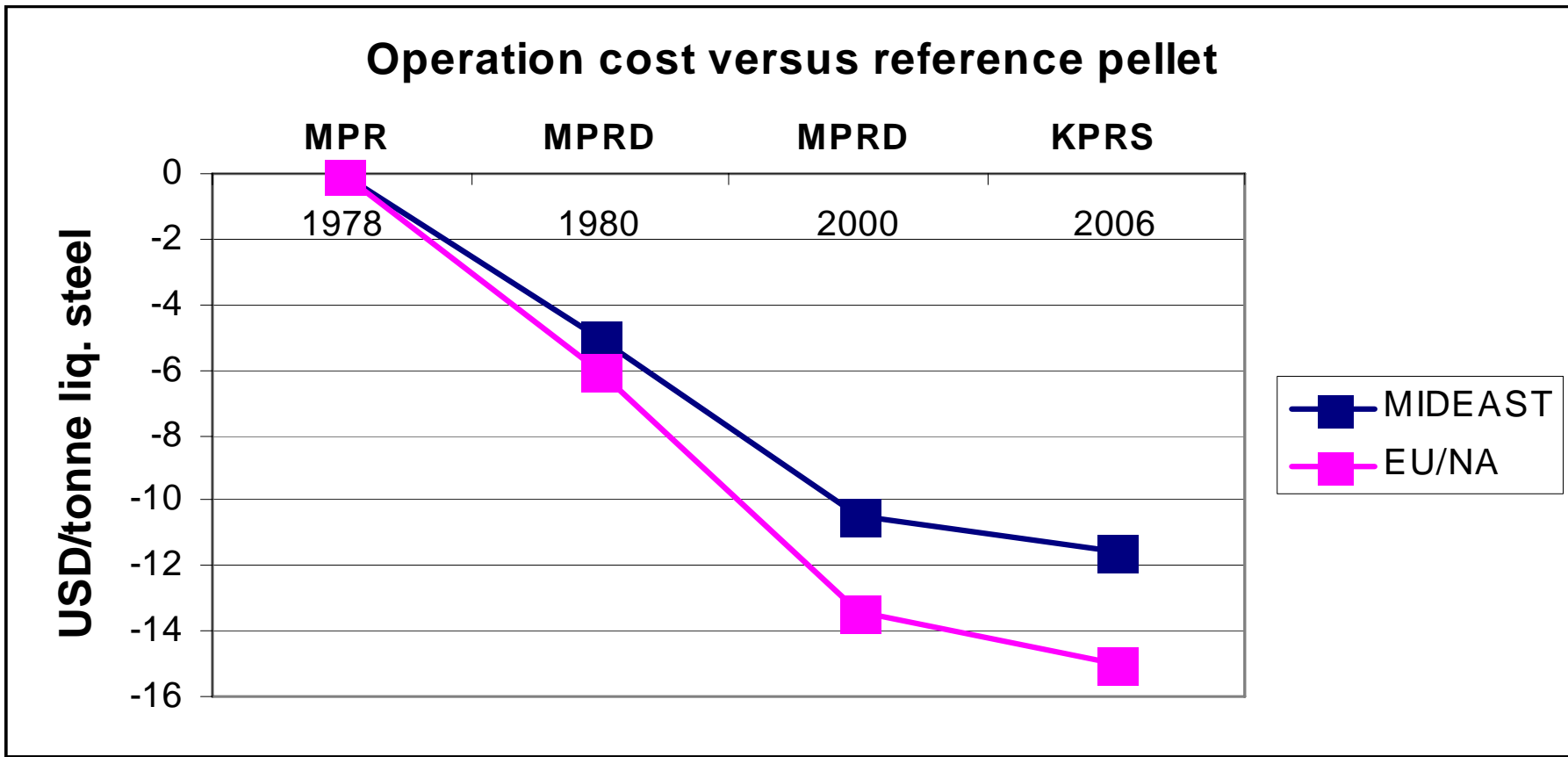


Total emissions from mine to crude steel in a modern integrated steel works is of the order **2000 kgCO₂ / t crude steel**, assuming all CO₂-emissions from production of raw materials (sinter, pellets, coke, lime, scrap,...) to side products (heat, gas, slag,...) are attributed to the crude steel.

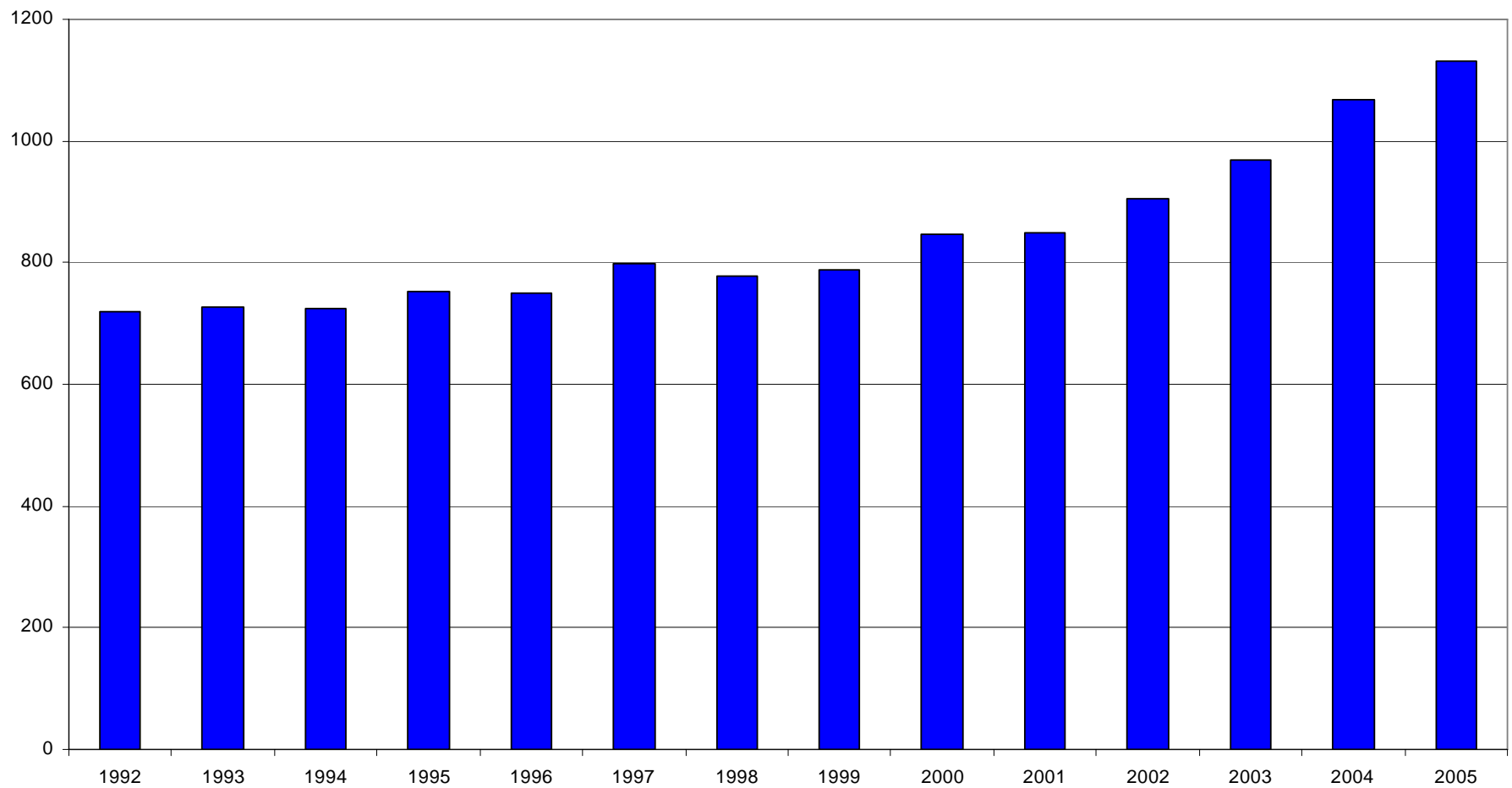
LKAB DR-pellets history

Product	MPR	MPRD	MPRD	KPRS
Year	1978	1980	2000	2006
Fetot	67.8	67.1	67.6	67.9
Fe2+	0.3	0.3	0.2	0.2
Mn	0.04	0.04	0.06	0.06
P	0.013	0.015	0.025	0.025
CaO	0.15	1.10	1.05	0.90
MgO	0.32	0.80	0.75	0.65
Al2O3	0.53	0.40	0.19	0.17
SiO2	1.43	1.20	0.85	0.70
TiO2	0.32	0.25	0.14	0.14
V2O5	0.20	0.30	0.21	0.20

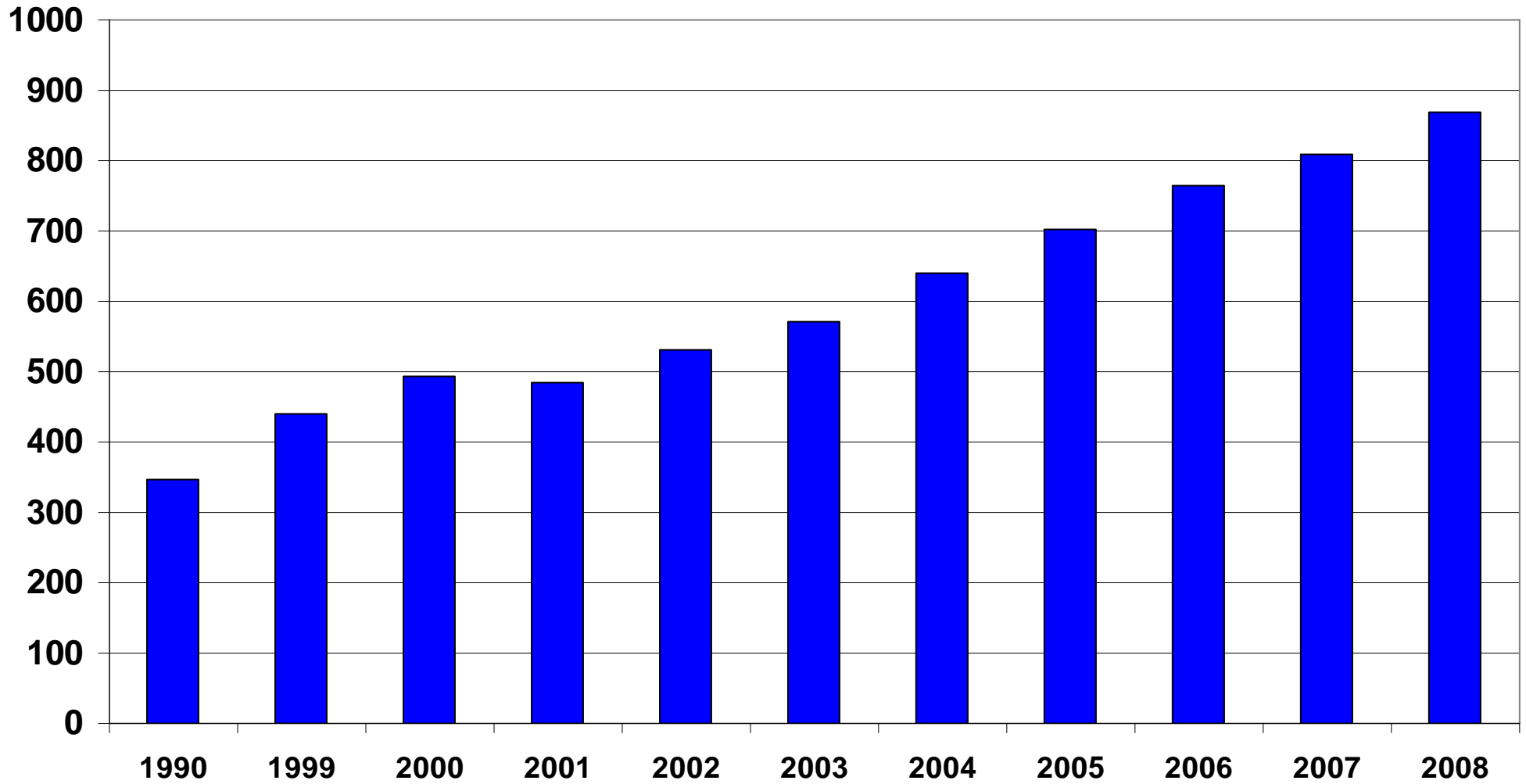
Influence of pellets development (price level of 2005)



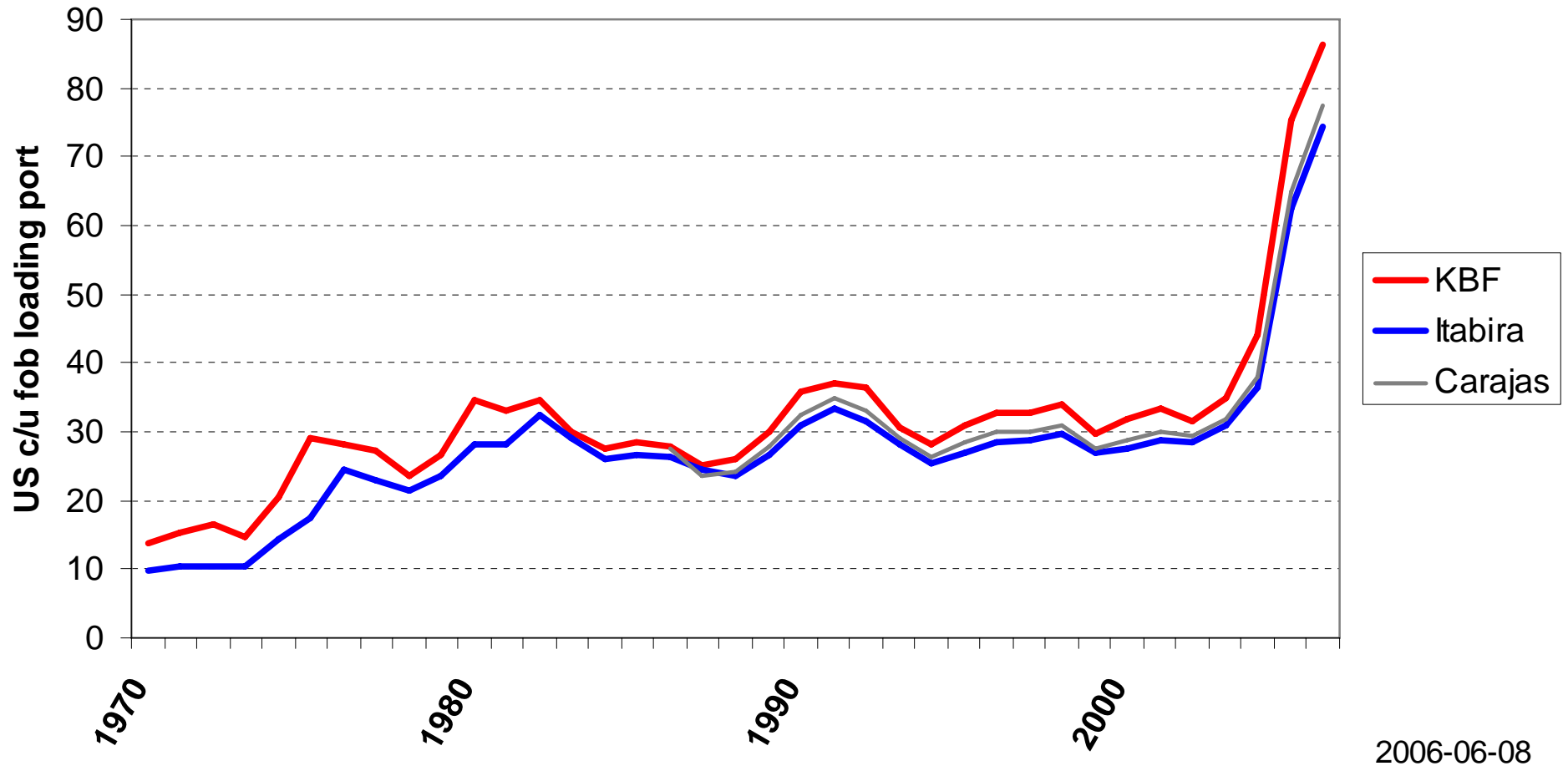
World Crude Steel Production



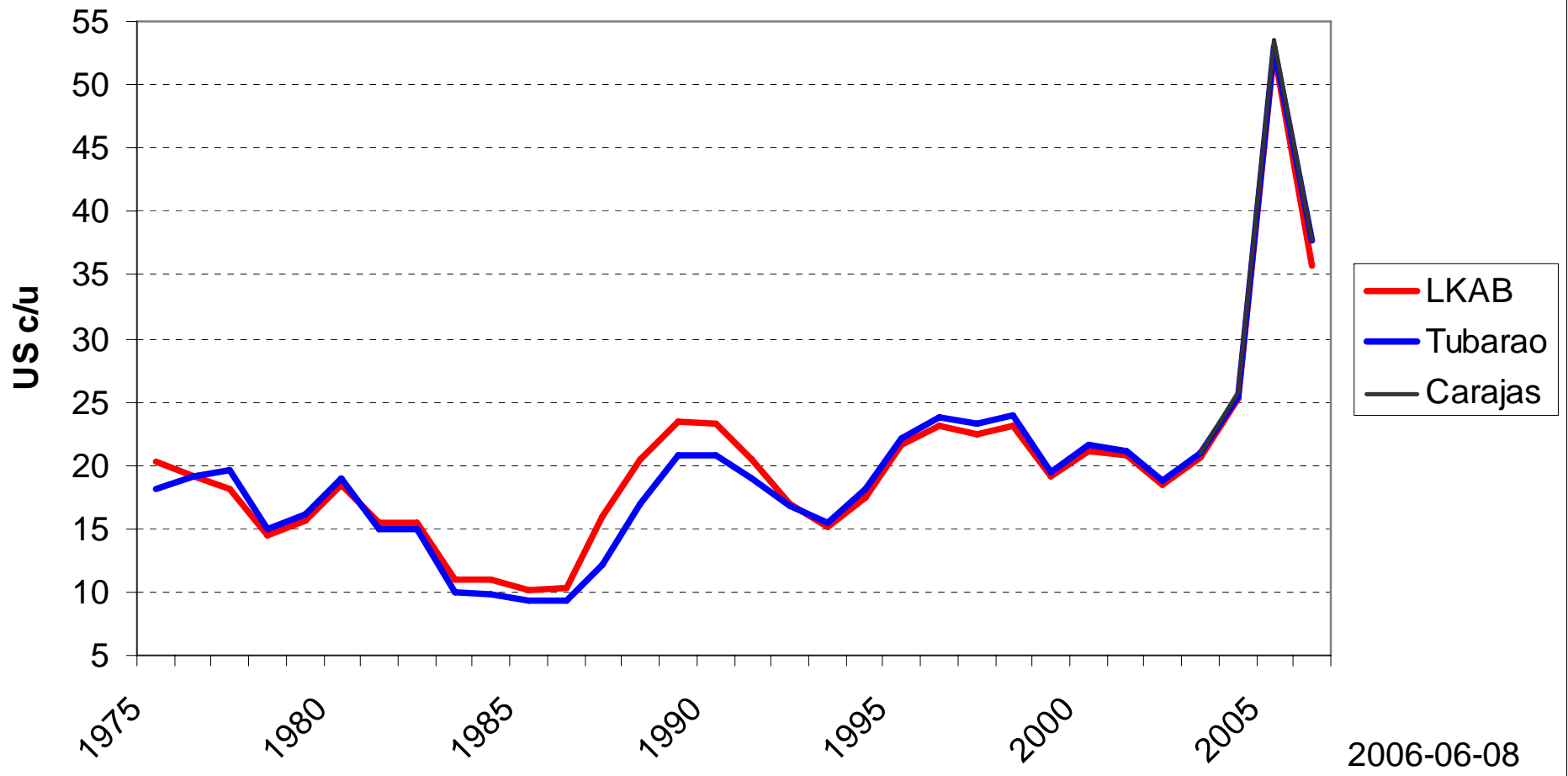
Iron Ore Export



Price of Sinter Feed 1970 - 2006

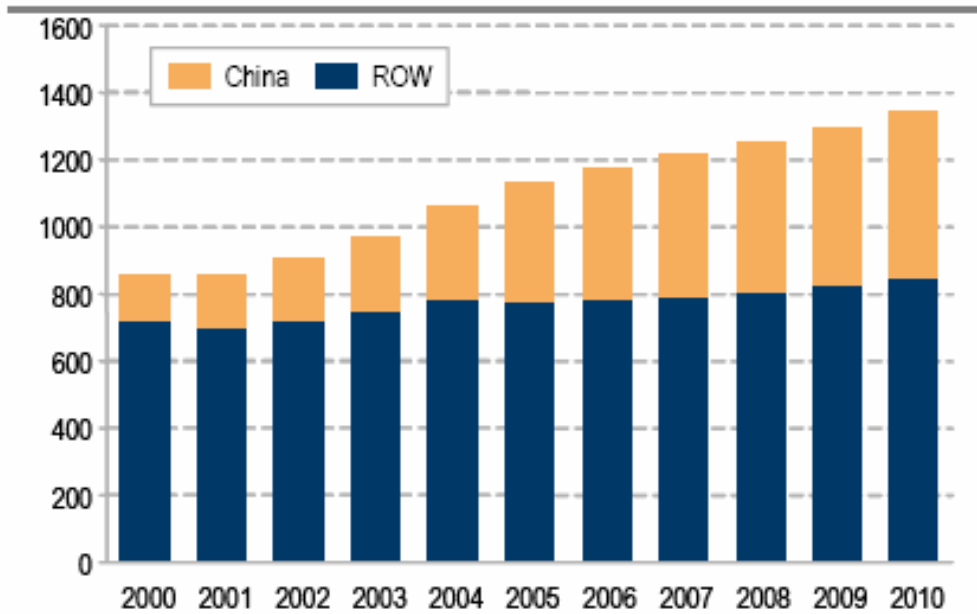


"Pellet Gap" 1975 - 2006



Crude steel production forecast to 2010

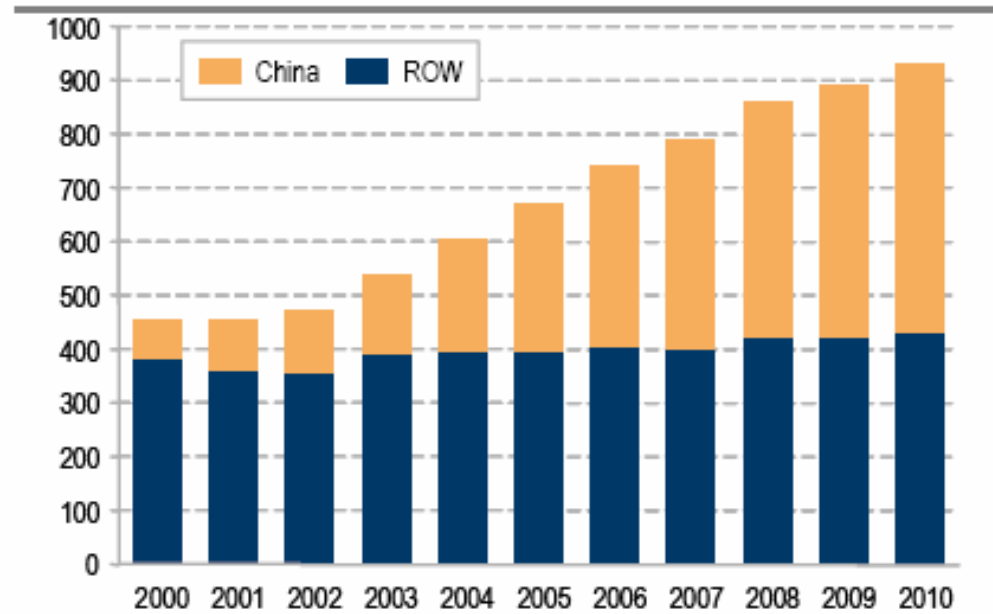
Millions of tonnes



Source: TEX Report, Credit Suisse estimates

Iron ore seaborne trade forecast to 2010

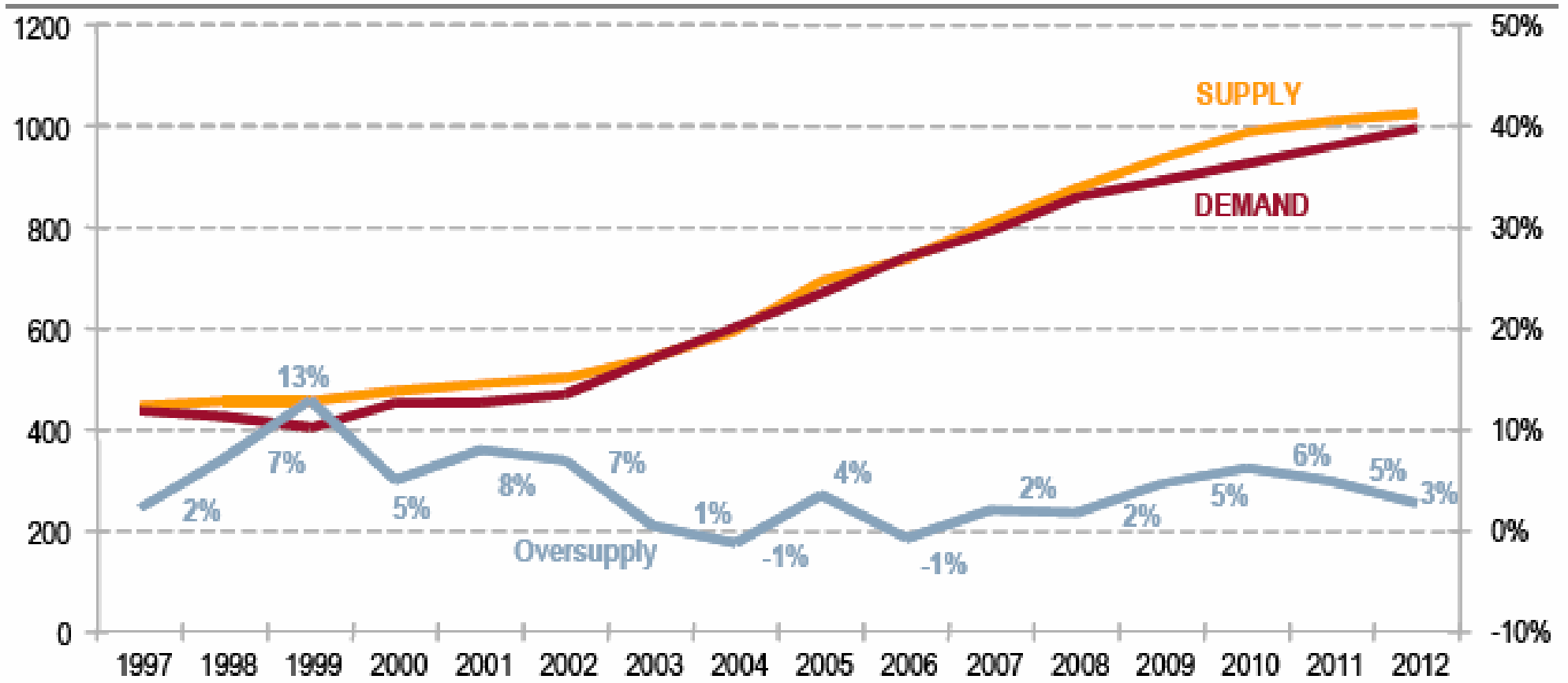
Millions of tonnes



Source: TEX Report, Credit Suisse estimates

Supply and demand balance of seaborne traded iron ore

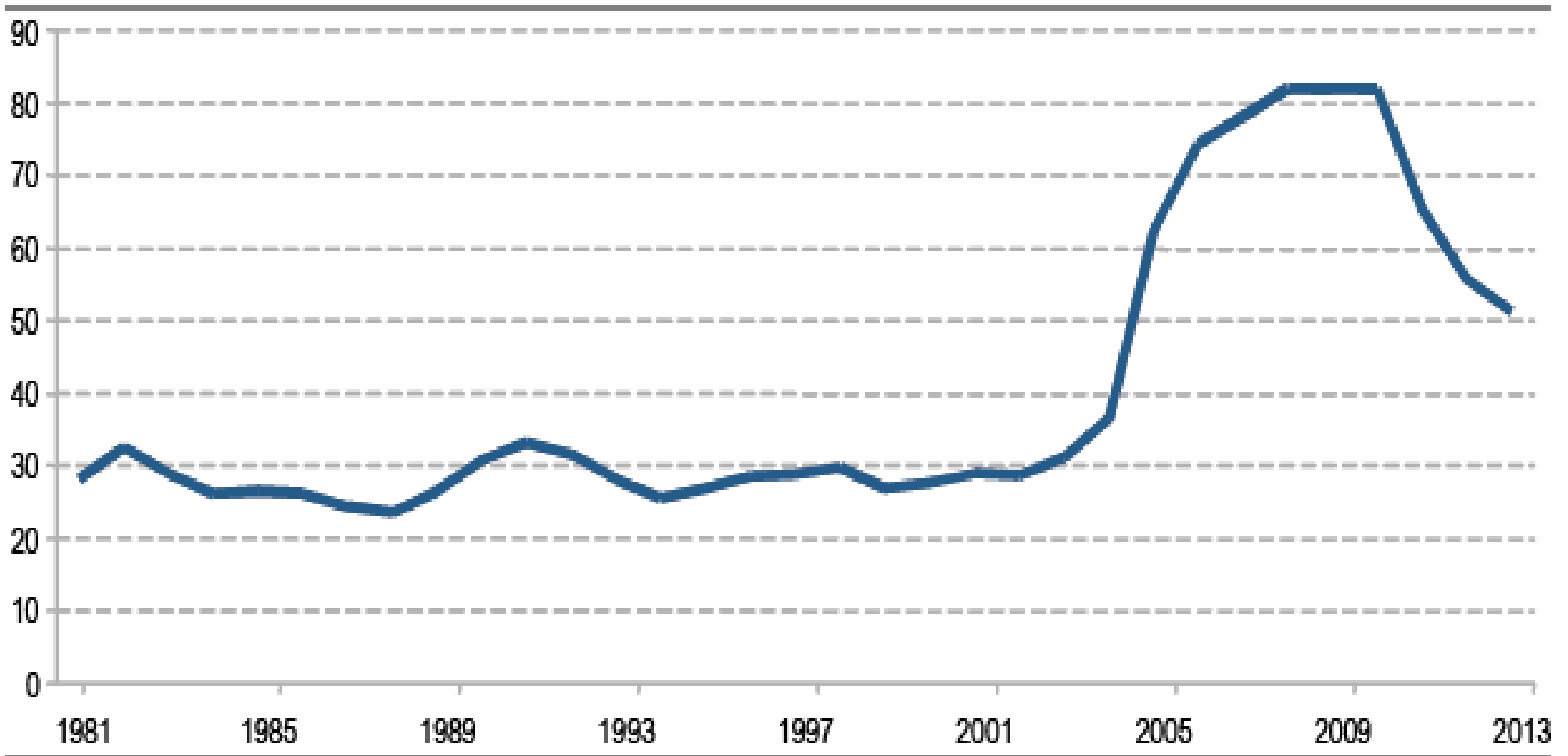
Millions of tonnes, oversupply as a %



Source: TEX Report, Credit Suisse estimates

Iron ore price assumptions up to 2013 (Brazilian fines to Europe/FOB)

US\$/c/Fe unit, unless otherwise stated



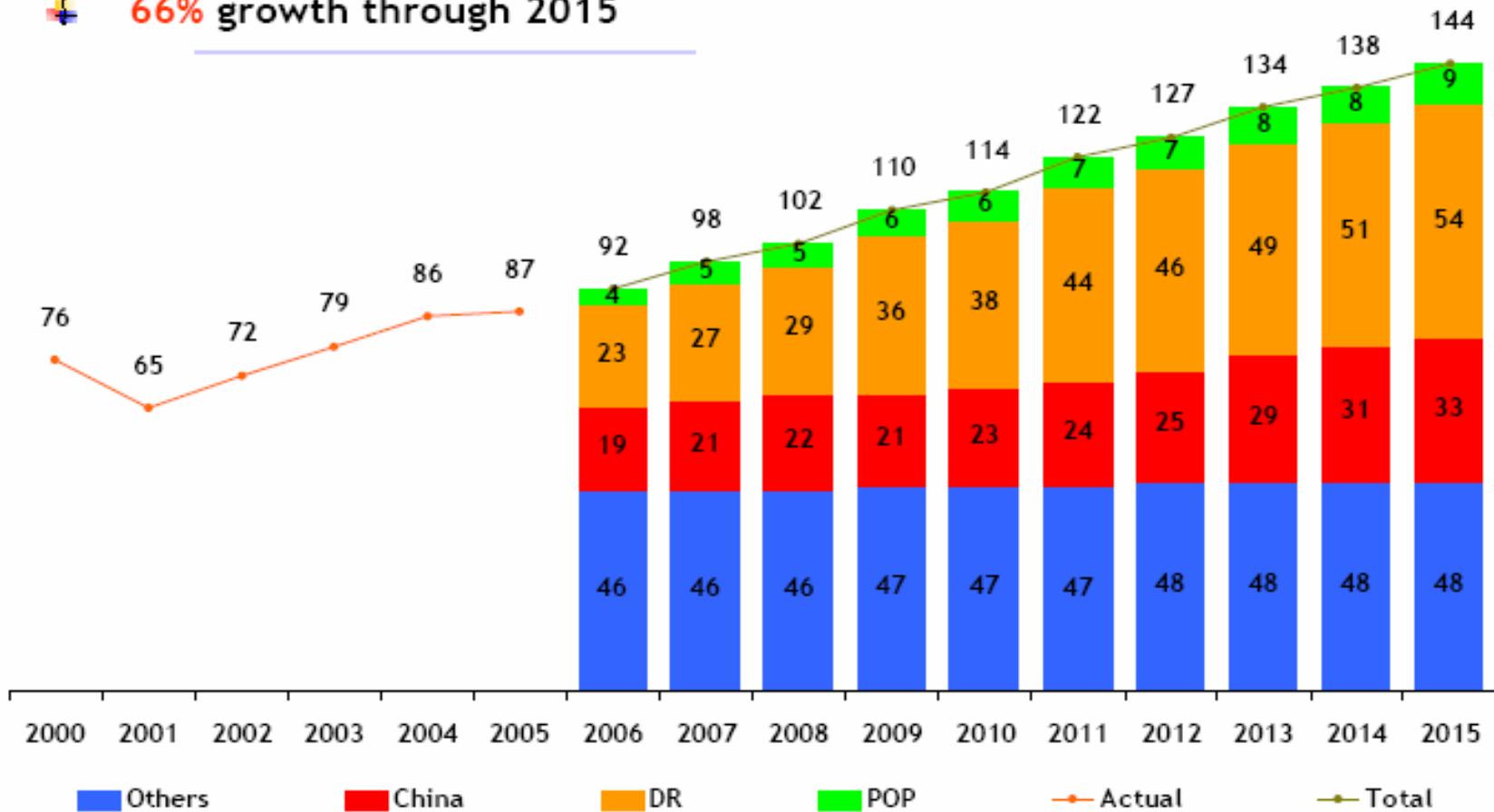
Source: CVRD, Credit Suisse estimates

A well balanced market...

million tonnes	2002	2003	2004	2005	2006f	2007f	2008f	2009f	2010f
Total Seaborne Demand	477	528	600	666	737	774	819	874	945
Yoy change (mt)	27	51	73	66	71	37	44	55	71
% Change y-o-y	6.5%	10.6%	13.7%	10.9%	10.7%	5.0%	5.7%	6.7%	8.2%
Total Ex-China	366	380	392	391	404	403	409	416	422
% Change y-o-y	1.8%	3.8%	3.3%	-0.4%	3.4%	-0.2%	1.5%	1.7%	1.4%
Supply									
Australia	176	199	222	253	279	296	341	379	412
Brazil	169	187	205	225	250	287	313	333	343
Canada	20	20	17	20	21	22	22	22	22
India	47	51	67	82	90	85	70	65	65
S.Africa	25	25	26	27	28	31	35	40	43
Sweden	14	16	17	18	18	19	21	22	23
Others	25	29	46	46	43	41	39	39	39
Total Seaborne Supply	477	527	601	672	730	781	840	900	947
Implied balance	0	0	0	6	-8	7	22	26	2

Seaborne pellet consumption, million tonnes

66% growth through 2015

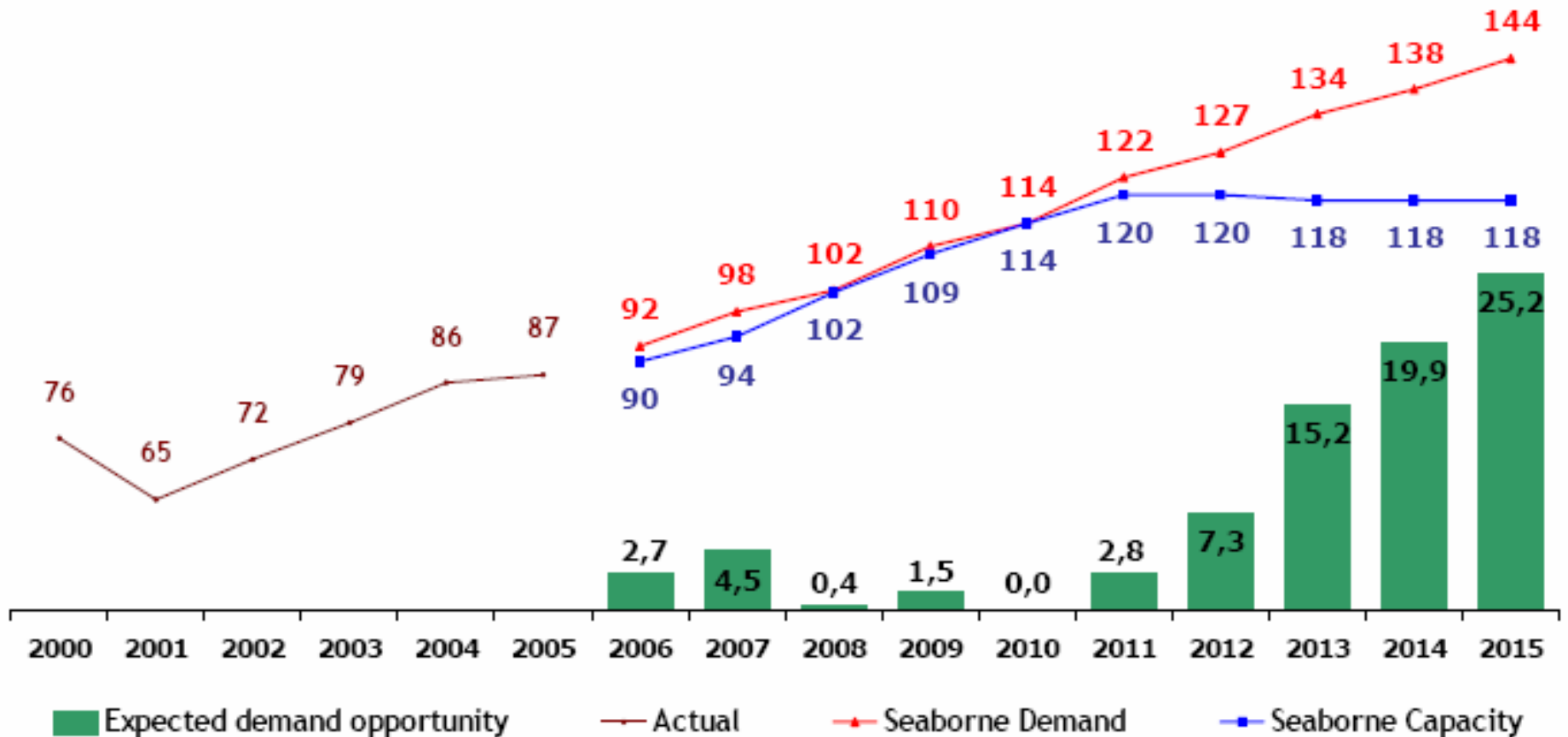


Source: Samarco

POP - India, Brazil, CIS, Pakistan, Malaysia, Indonesia and South Africa

DR - Middle East, Egypt, Libya, Mexico and Venezuela

Comparison of demand forecast to the offer already confirmed

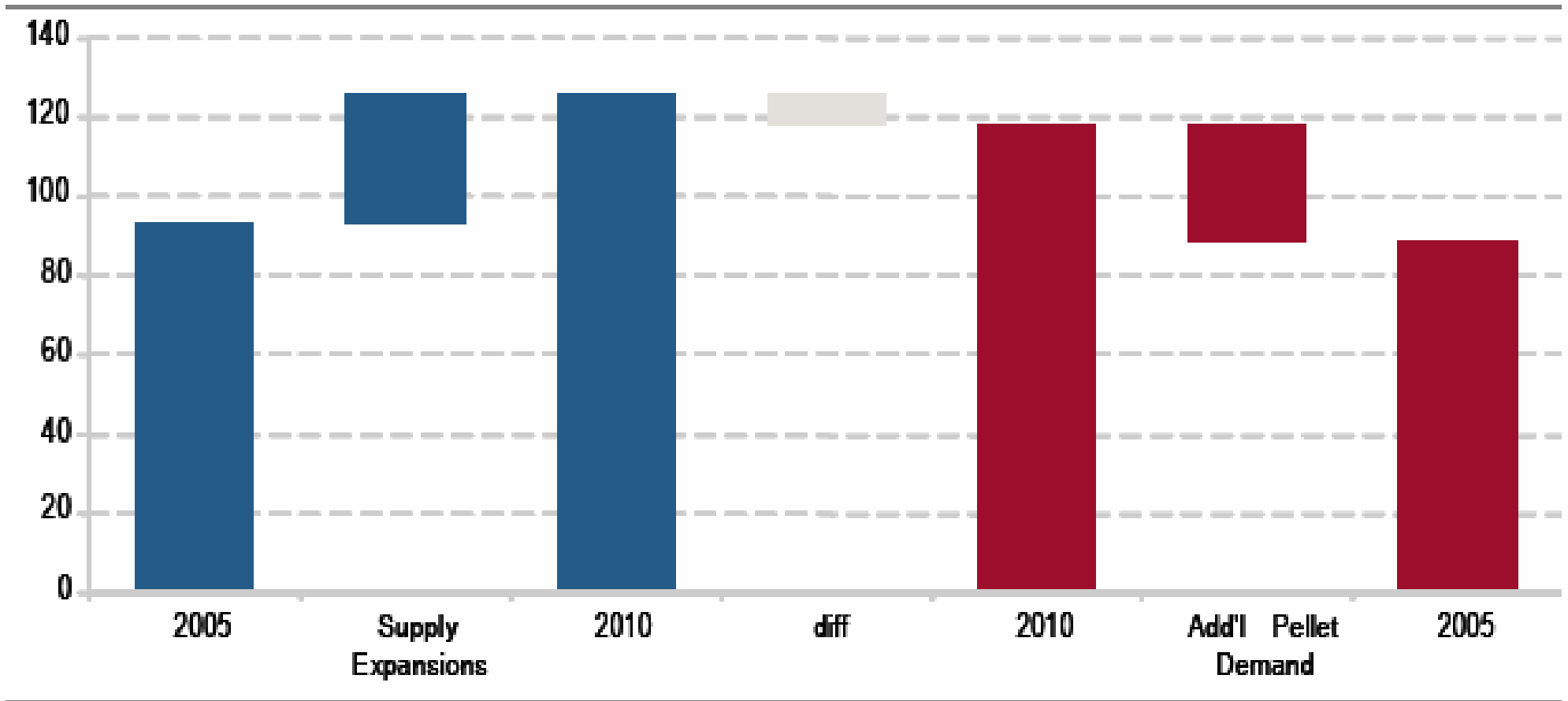


Source: Samarco

Metal Bulletin's 14th Iron Ore Symposium

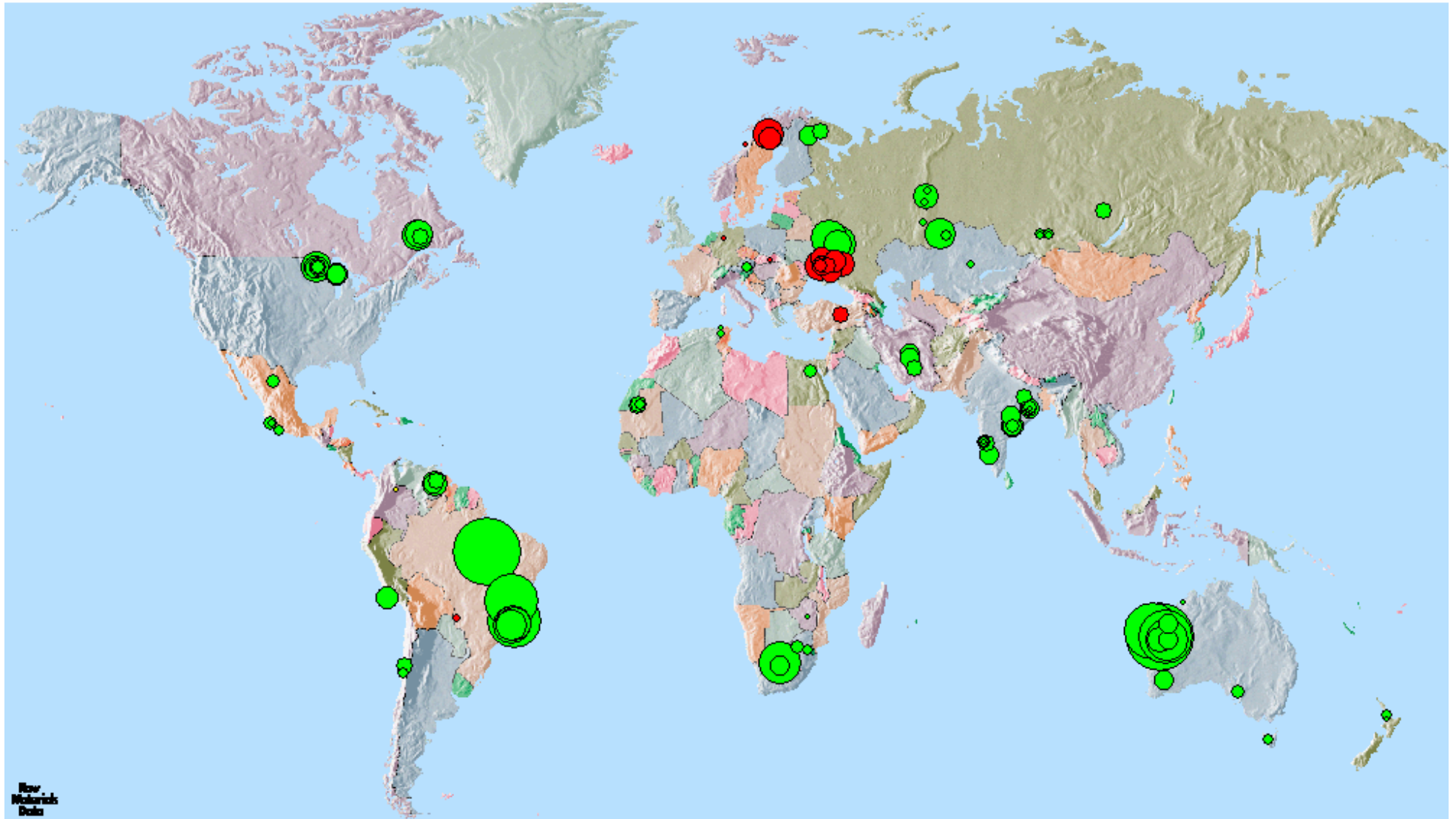
Pellet Seaborne trade - Supply x Demand through 2010

Million tonnes



Source: Credit Suisse estimates

Iron ore 2004, world mine production by producer. Type colours.

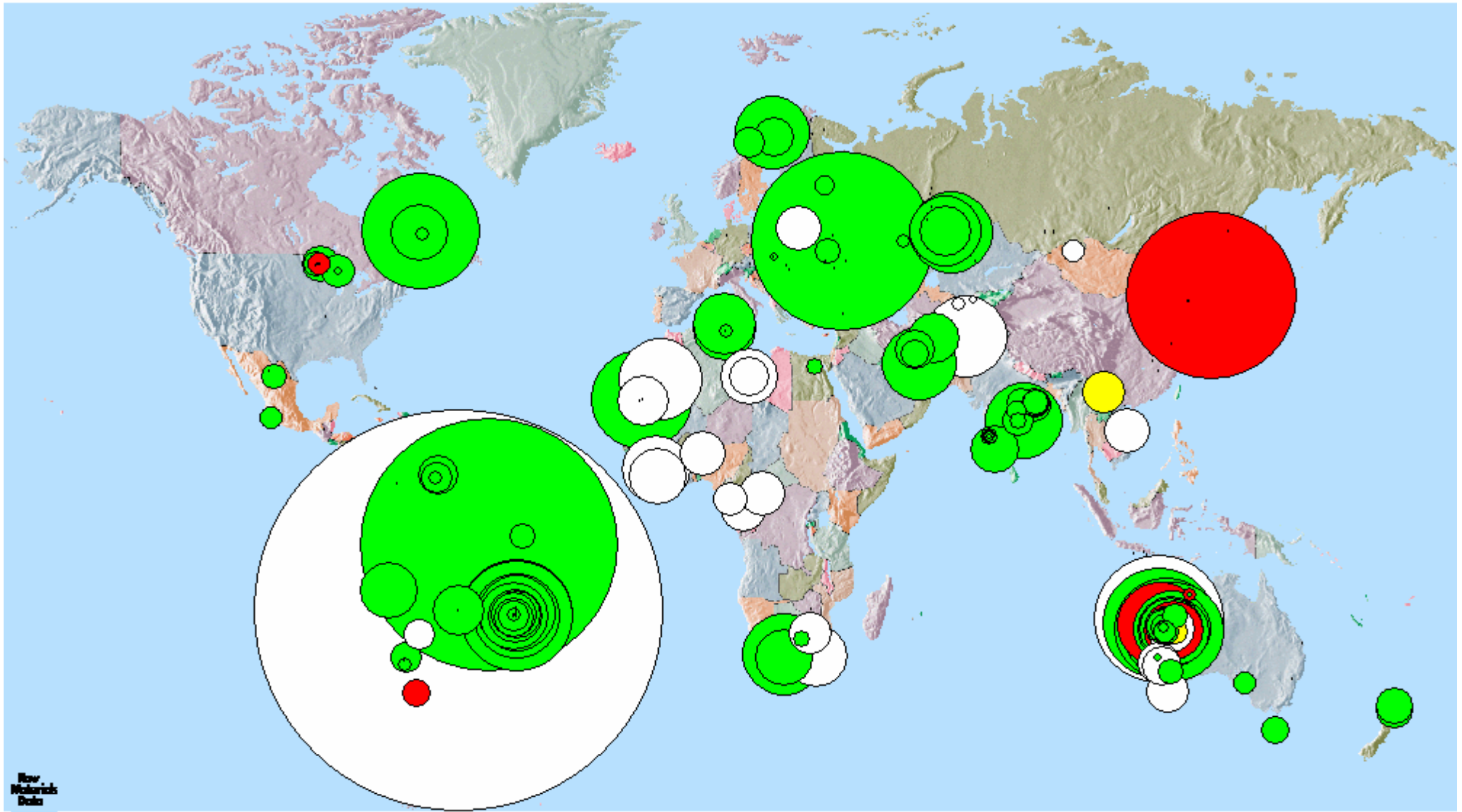


Raw
Materials
Data

Type ● open pit ● underground ● mixed open pit / underground ○ others (placer, tailings, offshore)

Source: Raw Materials Data. Copyright: Raw Materials Group, Stockholm, 2005

Mines of the world. Sized by ore ~~reserves~~. Filter: Iron ore.



Raw Materials Data

Status ○ feasibility/prefeasibility ● under construction ● in operation ● closed/inactive ● other/unknown

Source: Raw Materials Data. Copyright: Raw Materials Group, Stockholm, 2005

Threats

- **Continued steel capacity increase in China but less growth in demand**
- **Less growth than expected in India**
- **Rapid increase in iron ore production capacity**

Pellet Plant Project

- **Samarco**
- **LKAB**
- **MBR**

- **CVRD**
- **IOC**
- **GIC**

- **5 Australian projects based on magnetite**