

A light blue world map is positioned in the background behind the title text, centered on the Atlantic Ocean.

Global Scrap Markets – Impacts of growing Crude Steel Production

Joachim Schröder

Research & Consulting Group AG · Gwattstr. 1 · CH-8808 Pfäffikon SZ

Tel: +41 (55) 4201555 · Fax: +41 (55) 4201556

E-Mail: j.schroeder@rcg-ag.com

www.rcg-ag.com



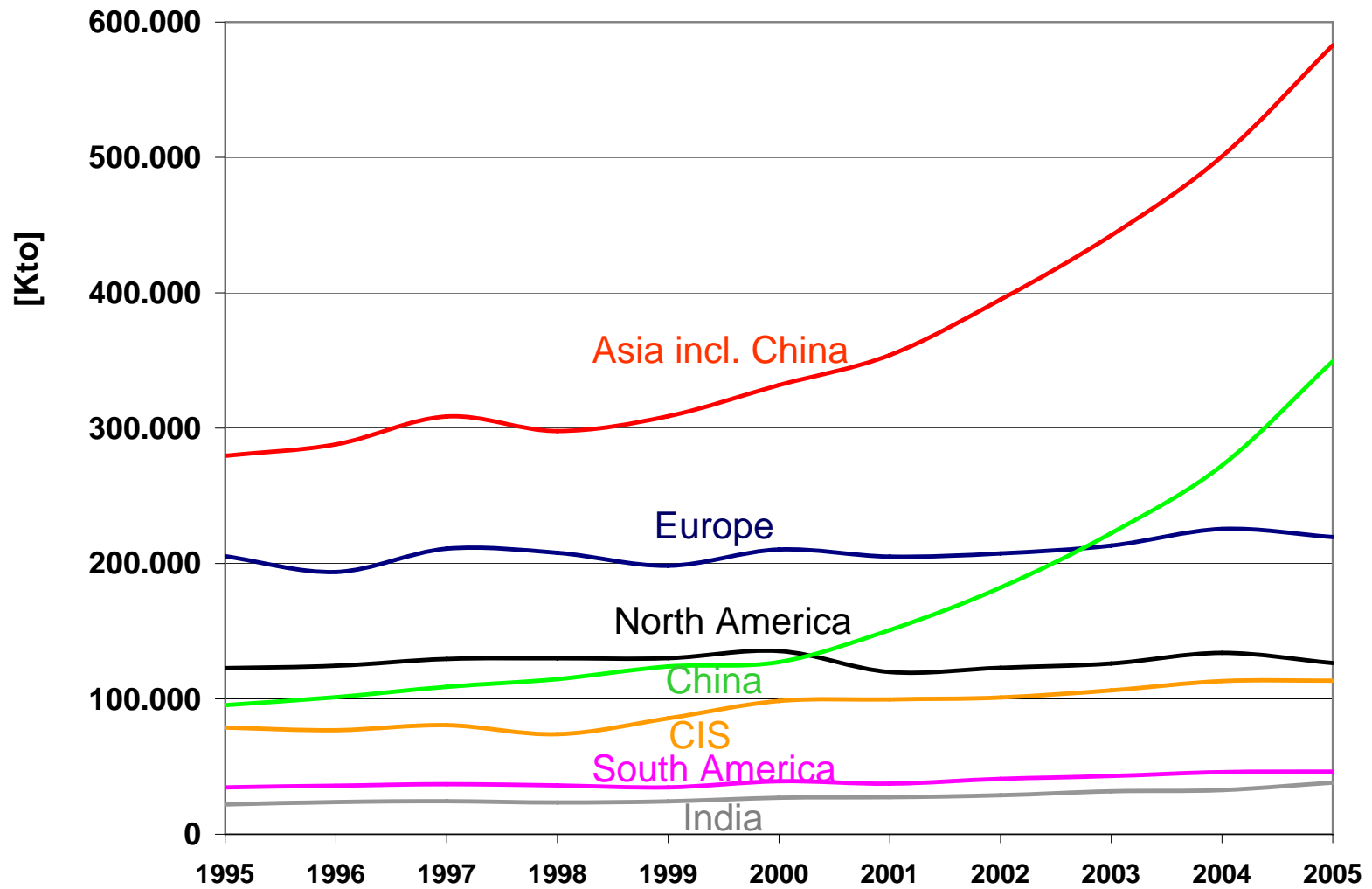
Research & Consulting Group (RCG)

- Specialised in consulting steel producers, traders and manufacturers
- 15 years of expert knowledge in steel-related consulting
- Focussed on market analysis of the EU-25 and CIS countries and sales strategies
- 50 references in this area
- Close cooperation with relevant European steel associations
- External research partner EUROMETAL

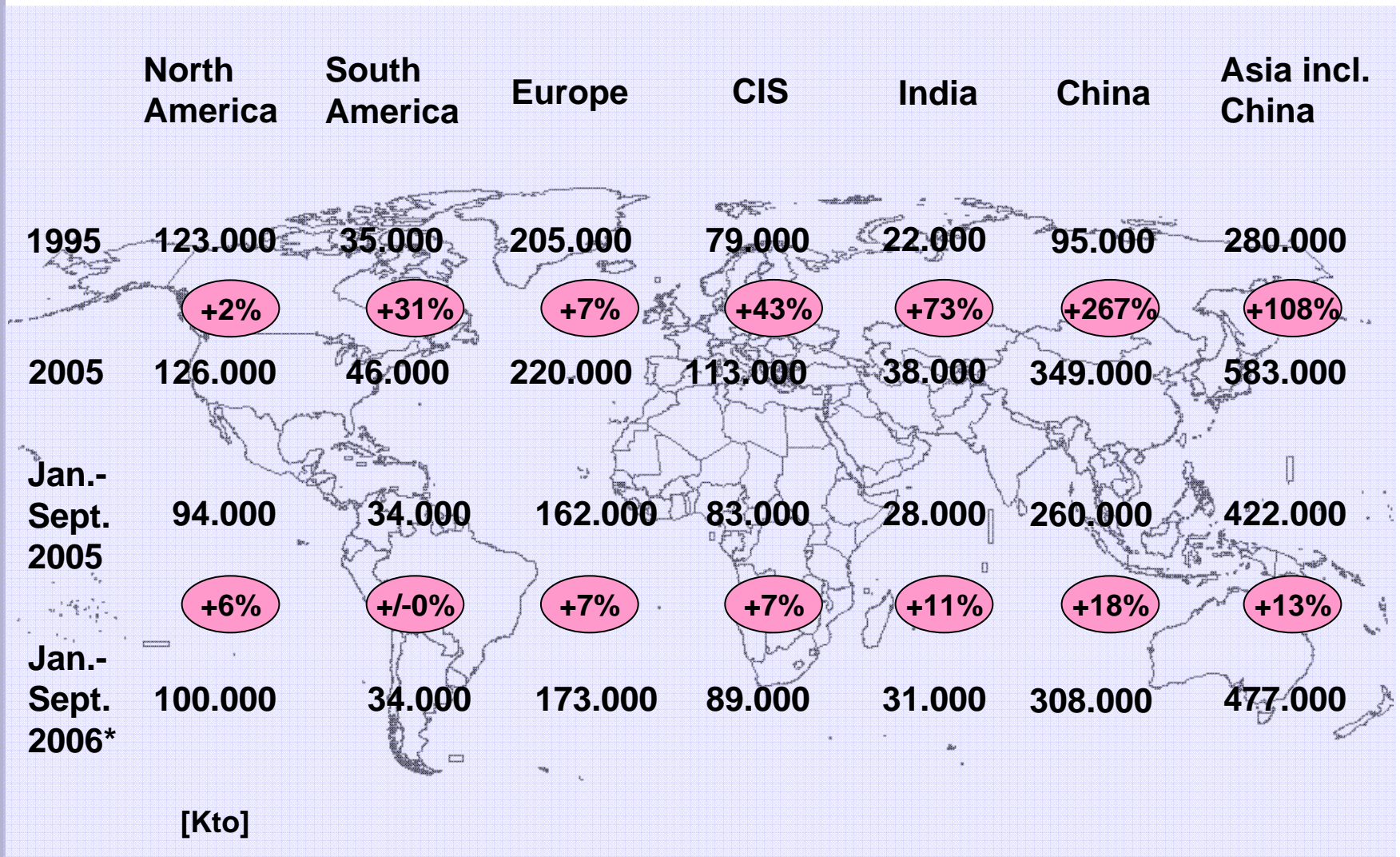
Agenda

- I. Crude steel production
- II. Scrap demand
- III. CIS` competitive advantages are resources

Development of crude steel production in different regions: Rapid growth in China. Stagnation in Europe and North America.

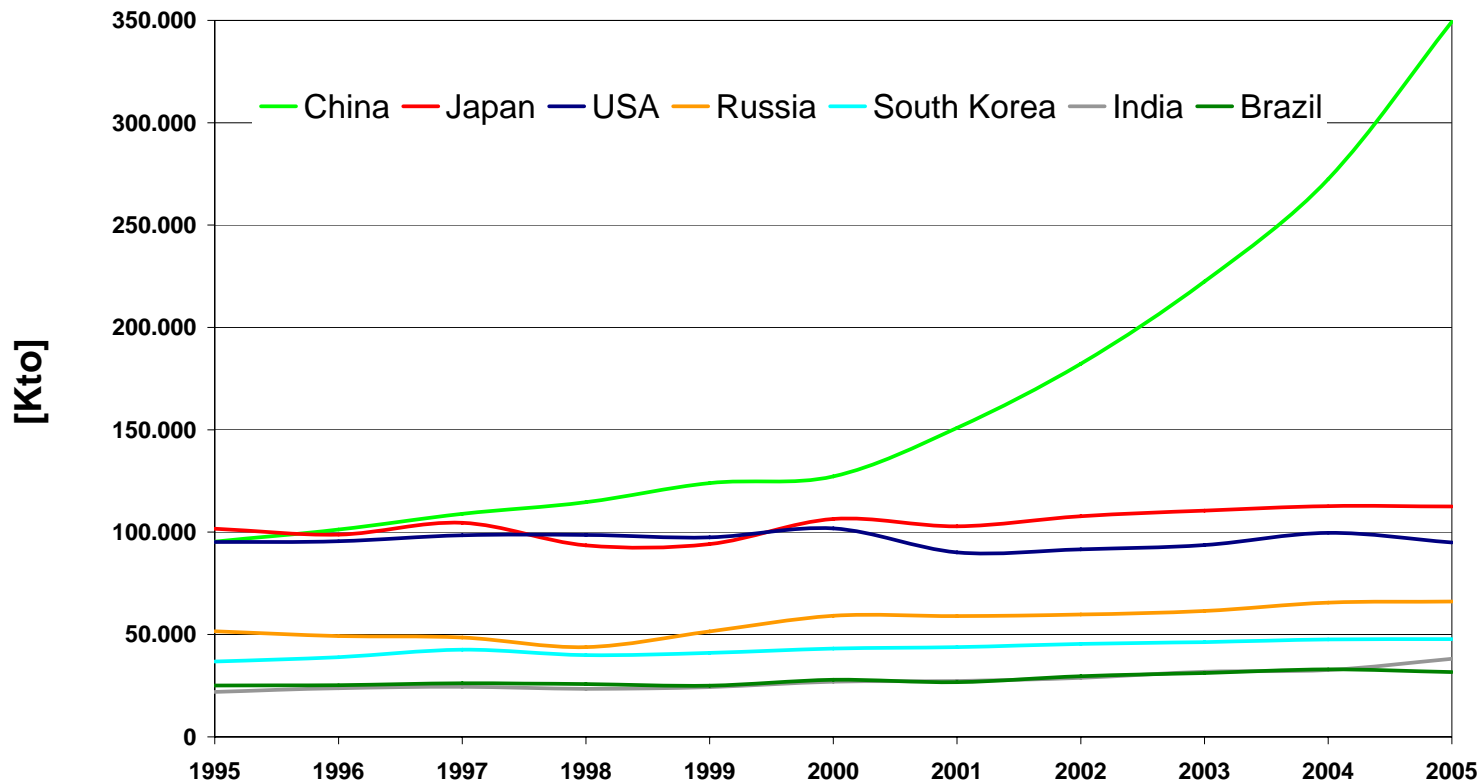


Development of worldwide crude steel production



* Available data. Differences to real production possible.

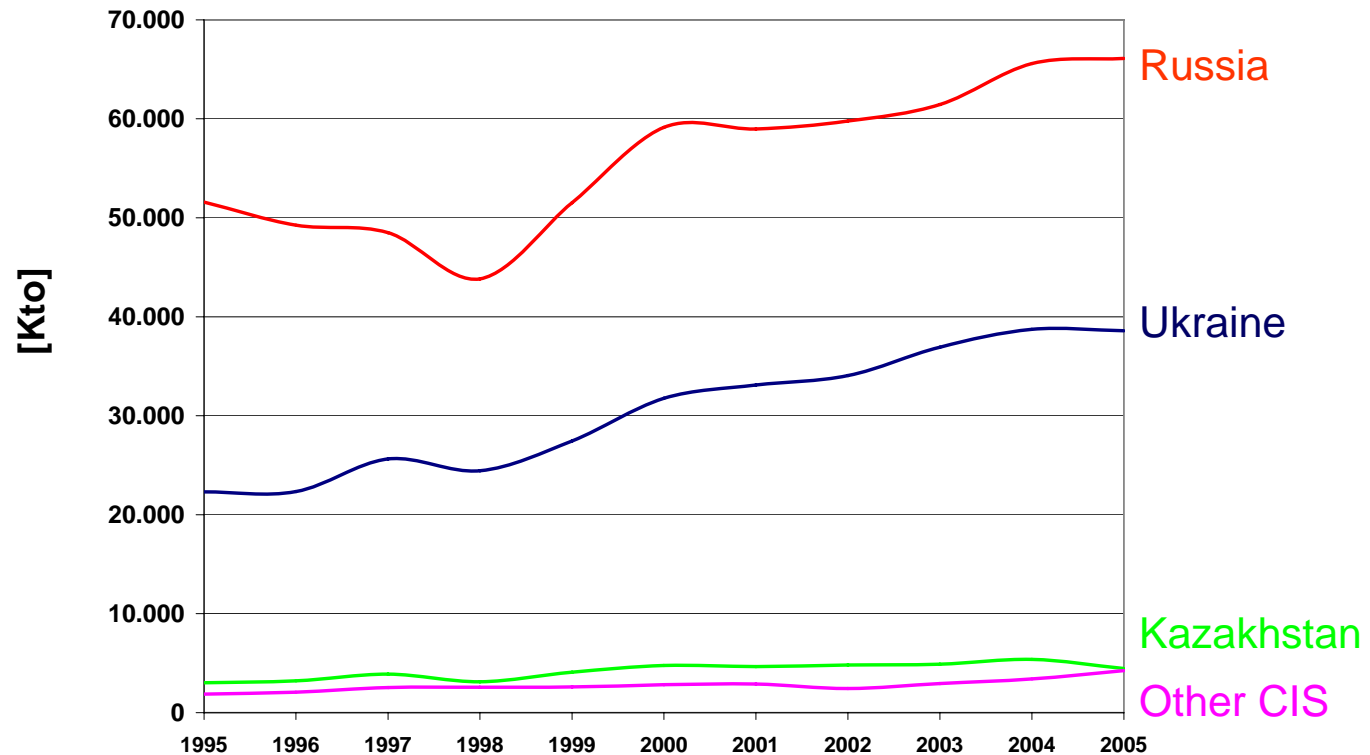
Top 5 crude steel producing countries in 2005 and BRIC states



	China	Japan	USA	Russia	South Korea	India	Brazil
1995	95.000	102.000	95.000	52.000	37.000	22.000	25.000
2005	349.000	113.000	95.000	66.000	48.000	38.000	32.000
Jan.-Sept. 2005	260.000	85.000	69.000	49.000	35.000	28.000	24.000
Jan.-Sept. 2006*	308.000	86.000	76.000	53.000	36.000	31.000	23.000
	+267%	+11%	+/-0%	+27%	+30%	+73%	+28%
	+18%	+1%	+10%	+8%	+3%	+11%	-4%

* Available data. Differences to real production possible.

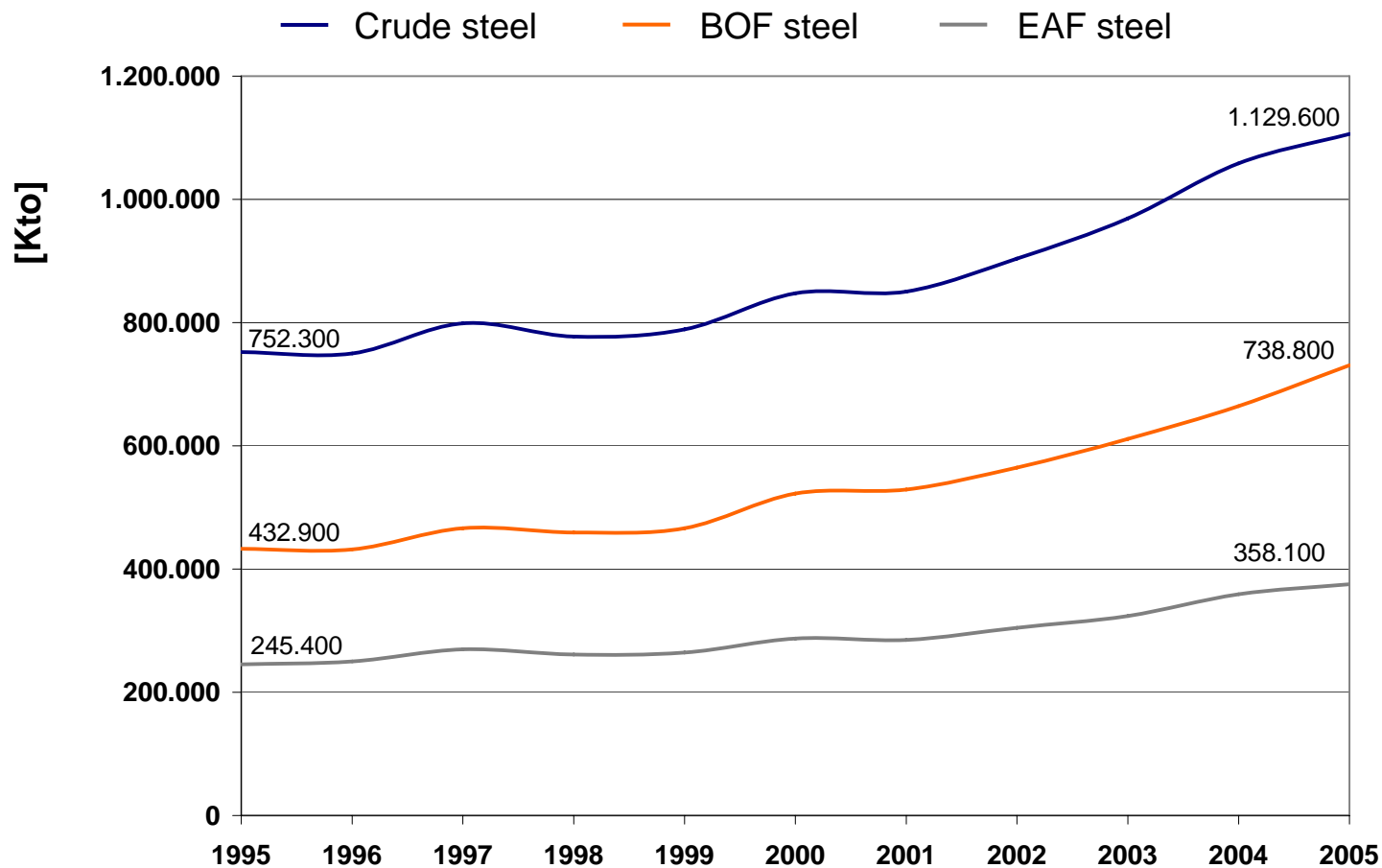
Development of crude steel production in CIS*. Dominating role of Russian and Ukrainian steel industry.



	Russia	Ukraine	Kazakhstan	Byelorussia	Moldova	Uzbekistan
1995	51.600	22.300	3.000	700	700	400
2005	66.100 (+28%)	38.600 (+73%)	4.500 (+50%)	2.000 (+186%)	1.000 (+43%)	600 (+50%)
Jan.-Sept. 2005	48.900	28.300	3.300	1.600	800	500
Jan.-Sept. 2006	52.600 (+8%)	30.400 (+7%)	3.100 (-6%)	1.800 (+13%)	500 (-38%)	500 (+/-0%)

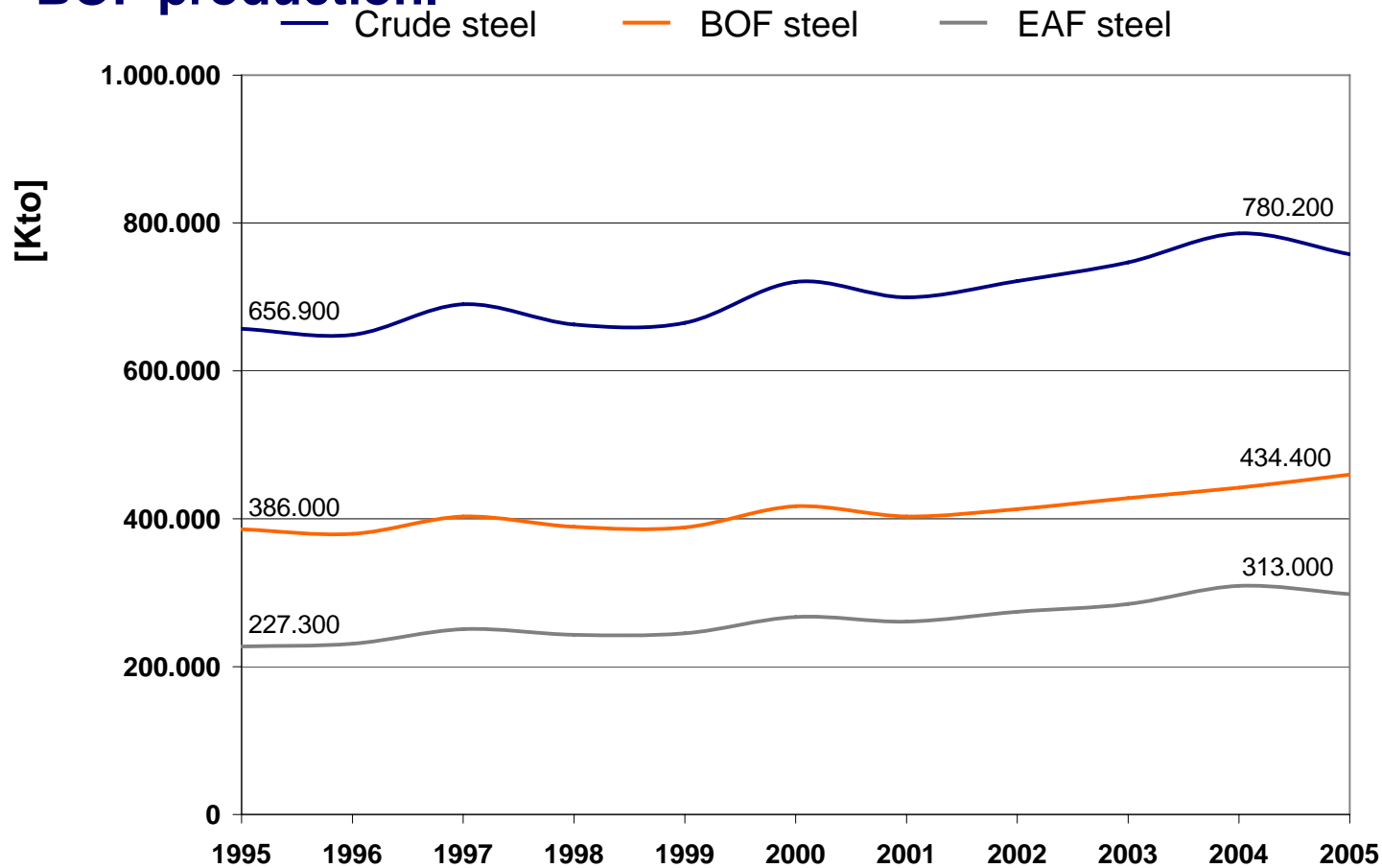
* Small quantities of Georgia are disregarded. © 2006 Research & Consulting Group AG

25% growth of worldwide crude steel production between 2000-2005. Similar development of crude and BOF steel production.*



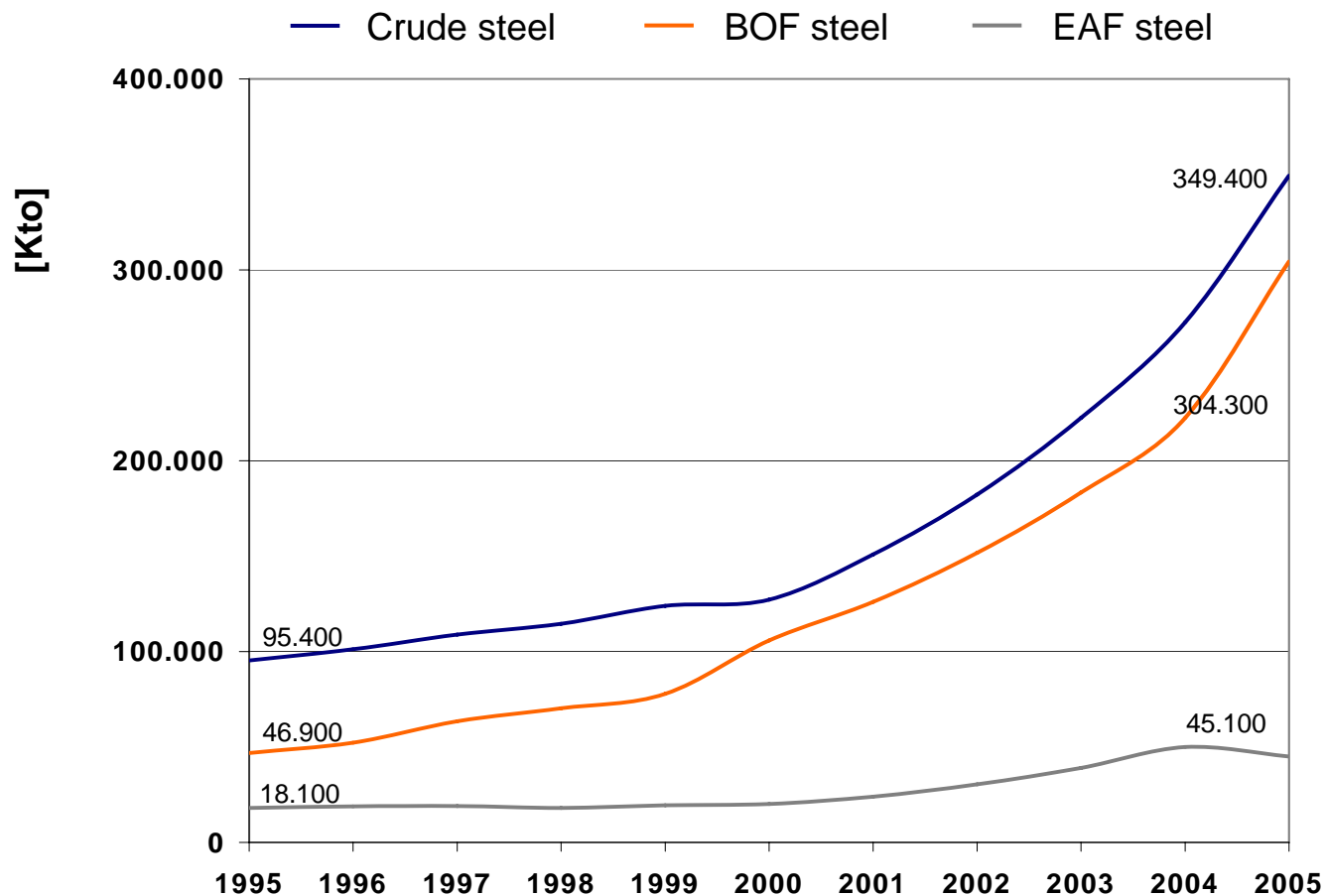
* Taking into account only BOF and EAF.

Excluding China: Only 8% growth of worldwide crude steel production between 2000-2005 and high impact of China on BOF production.*



* Taking into account only BOF and EAF.

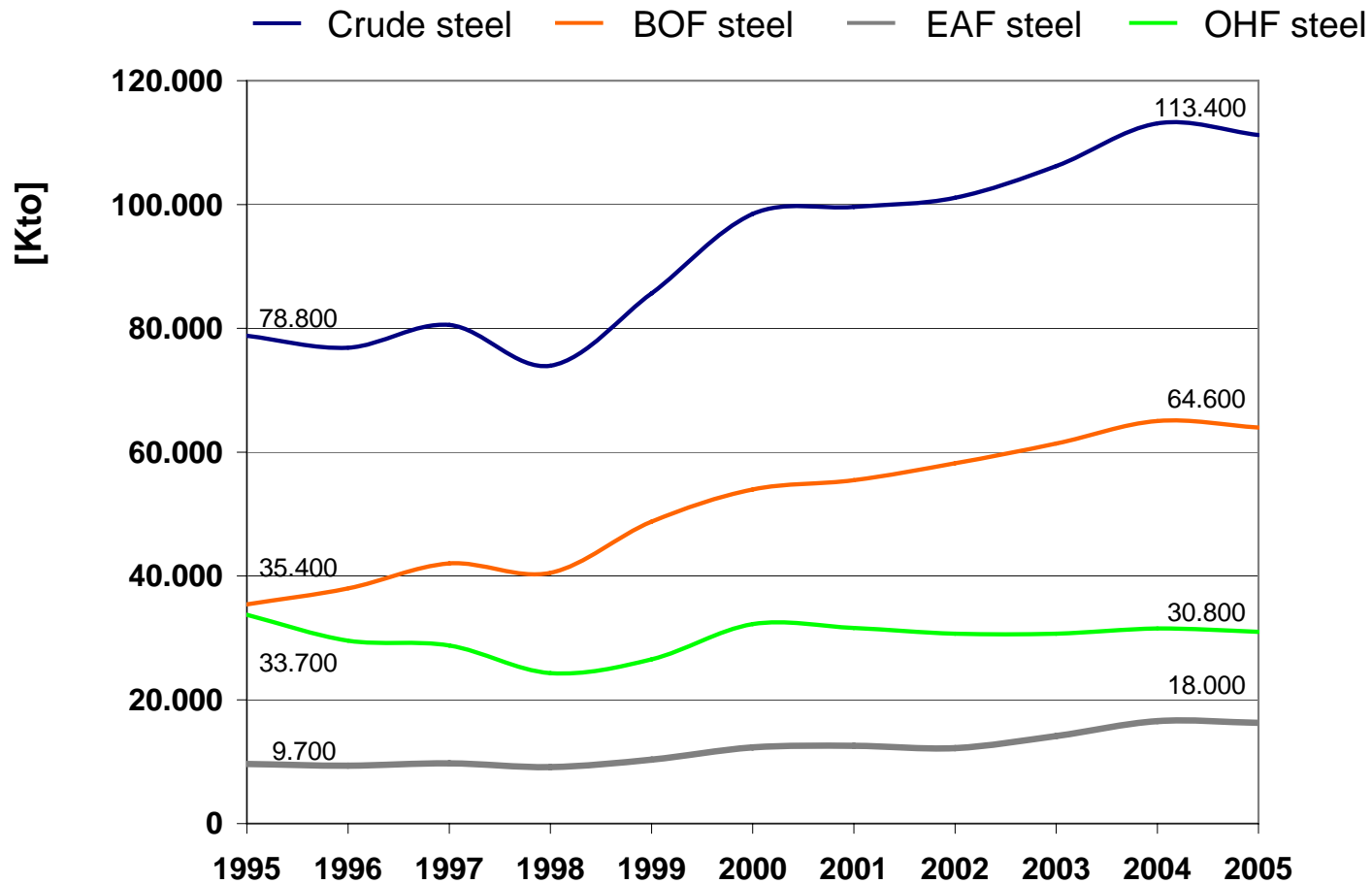
Growth of steel production since 2000 by 200 m for BOF and 25 m EAF to in China.* This results in an increased scrap consumption by approx. 85 m to.



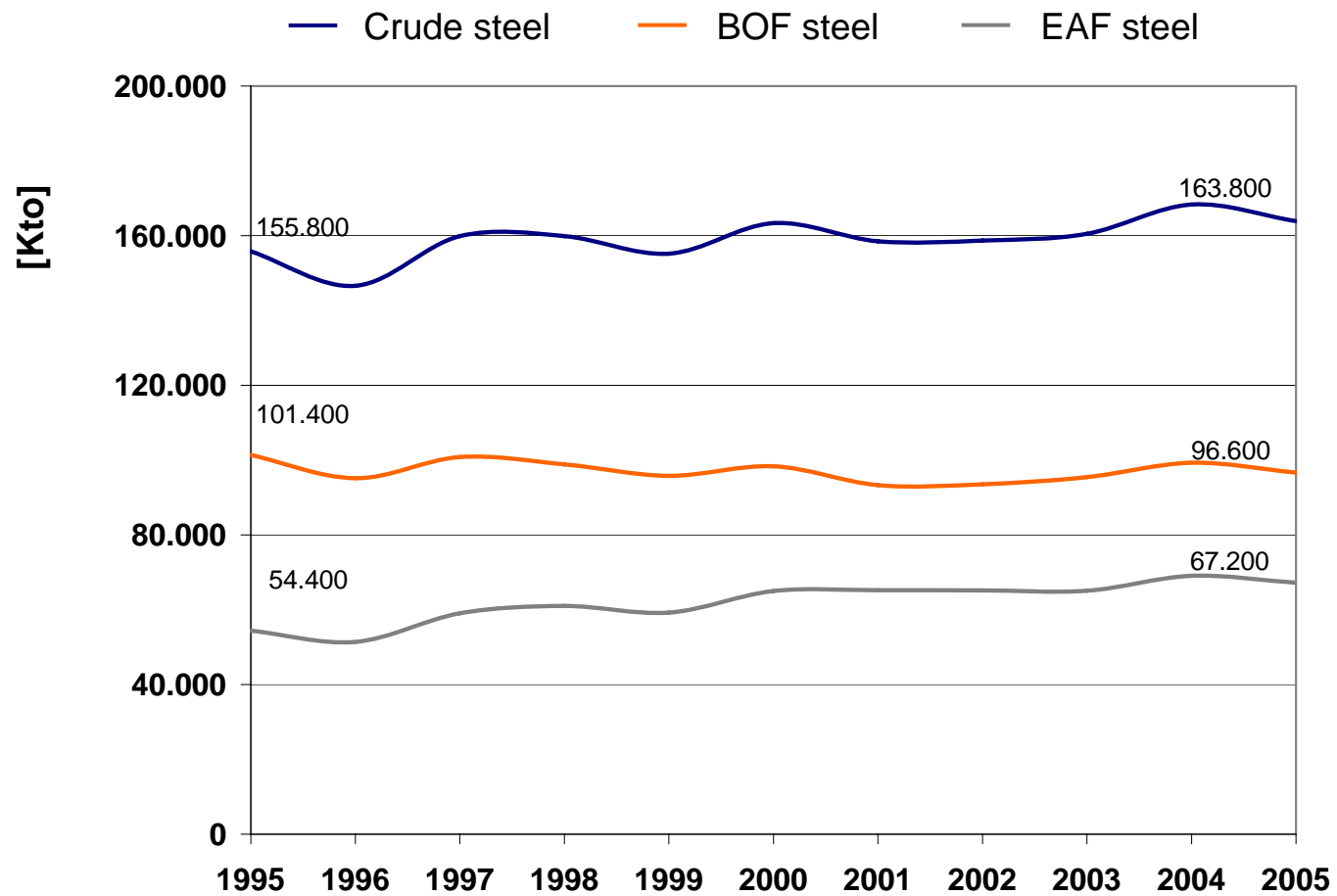
* Taking into account only BOF and EAF.

Continuing growth in 2006 (crude steel production in 2006 Q1+Q2+Q3: +18%).

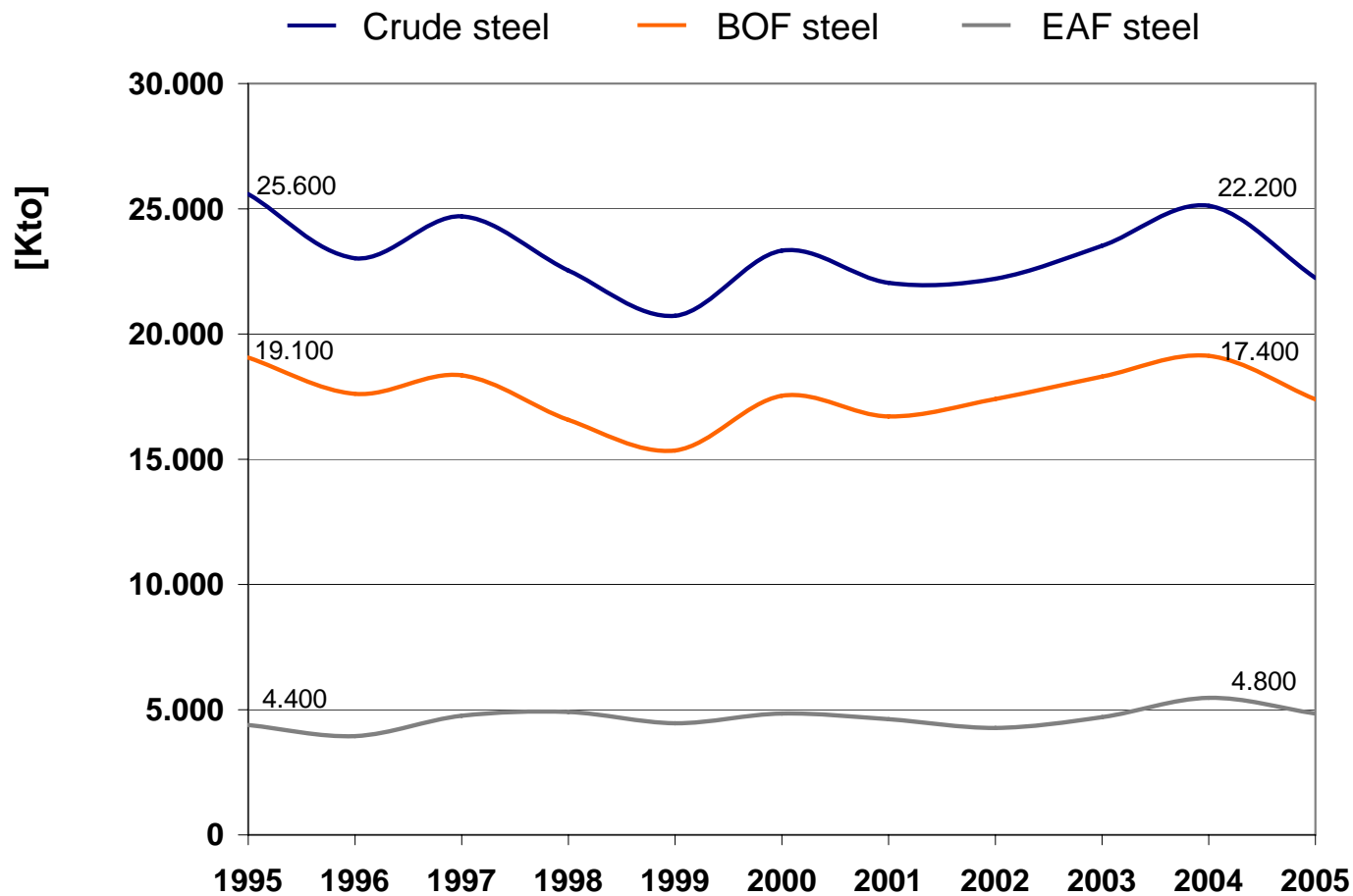
Since 1995 increase of BOF steel production by approx 30 m and EAF steel production by 8 m to in CIS. OHF production still plays an important role.



Slightly increasing EAF and constant BOF steel production in EU-15.

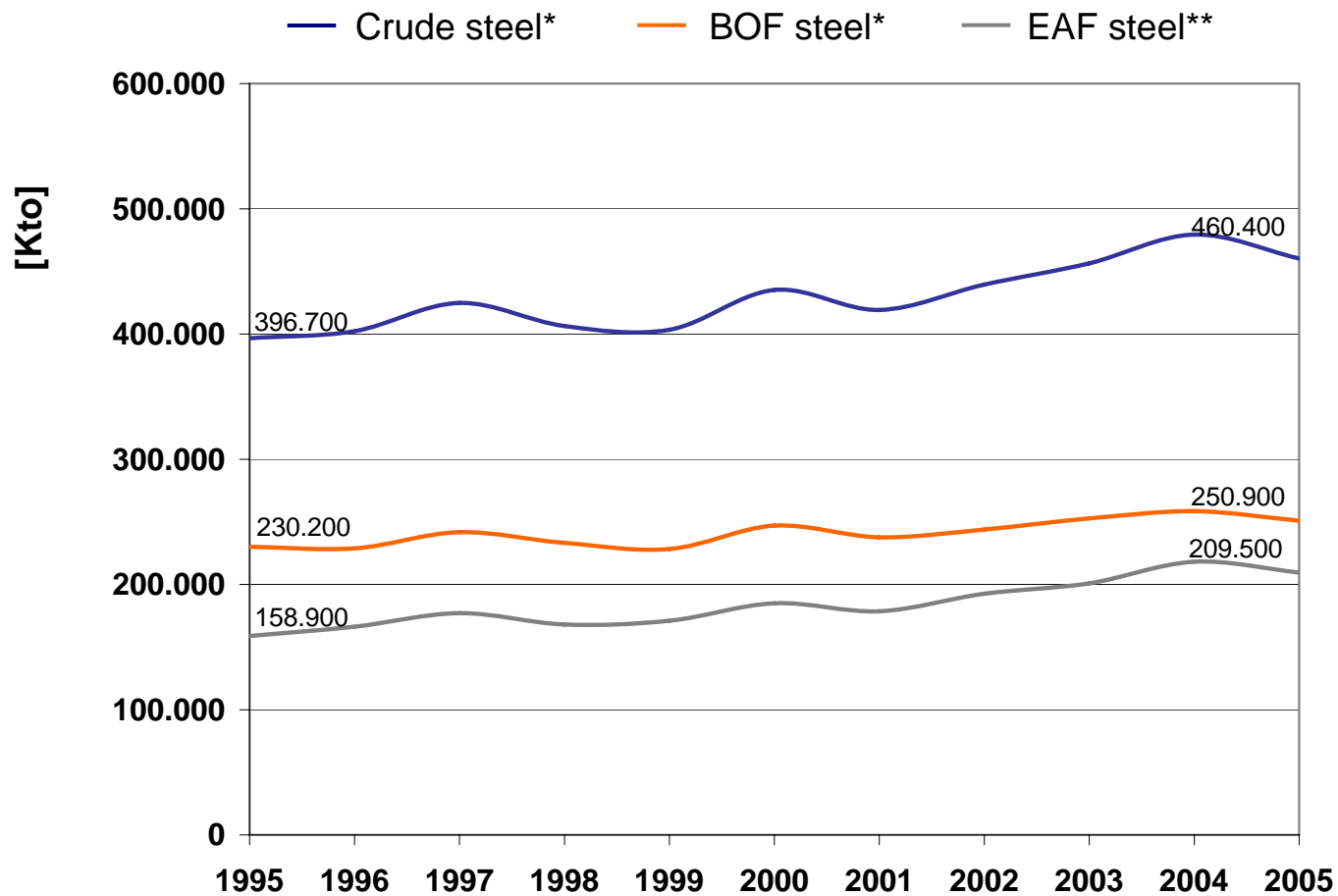


High importance of BOF steel production in EU-10. Comparatively constant run of EAF steel production.*



* Taking into account only BOF and EAF.

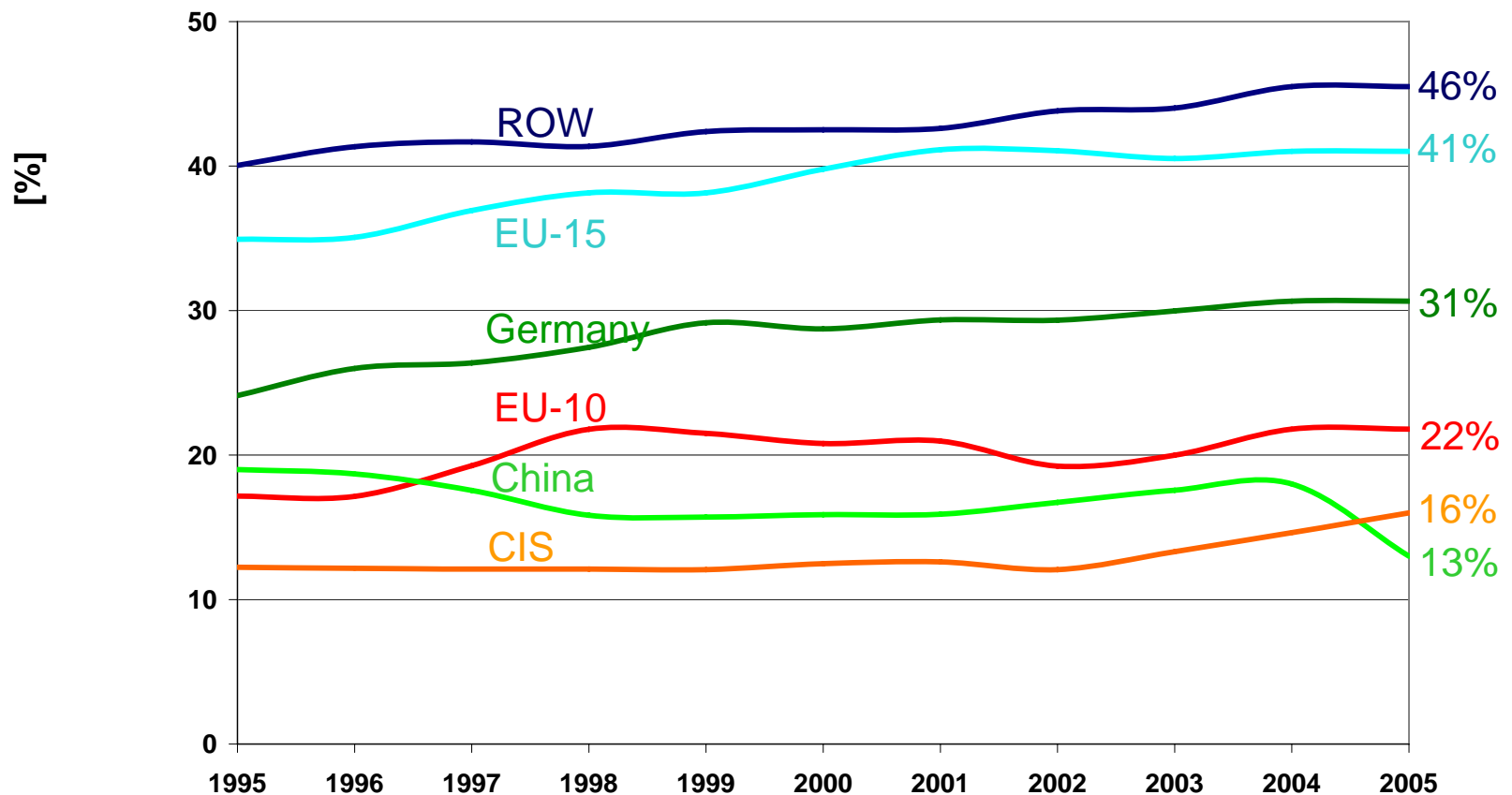
Growing crude steel production in ROW since 2000. Comparatively high share of EAF steel production (46%).*



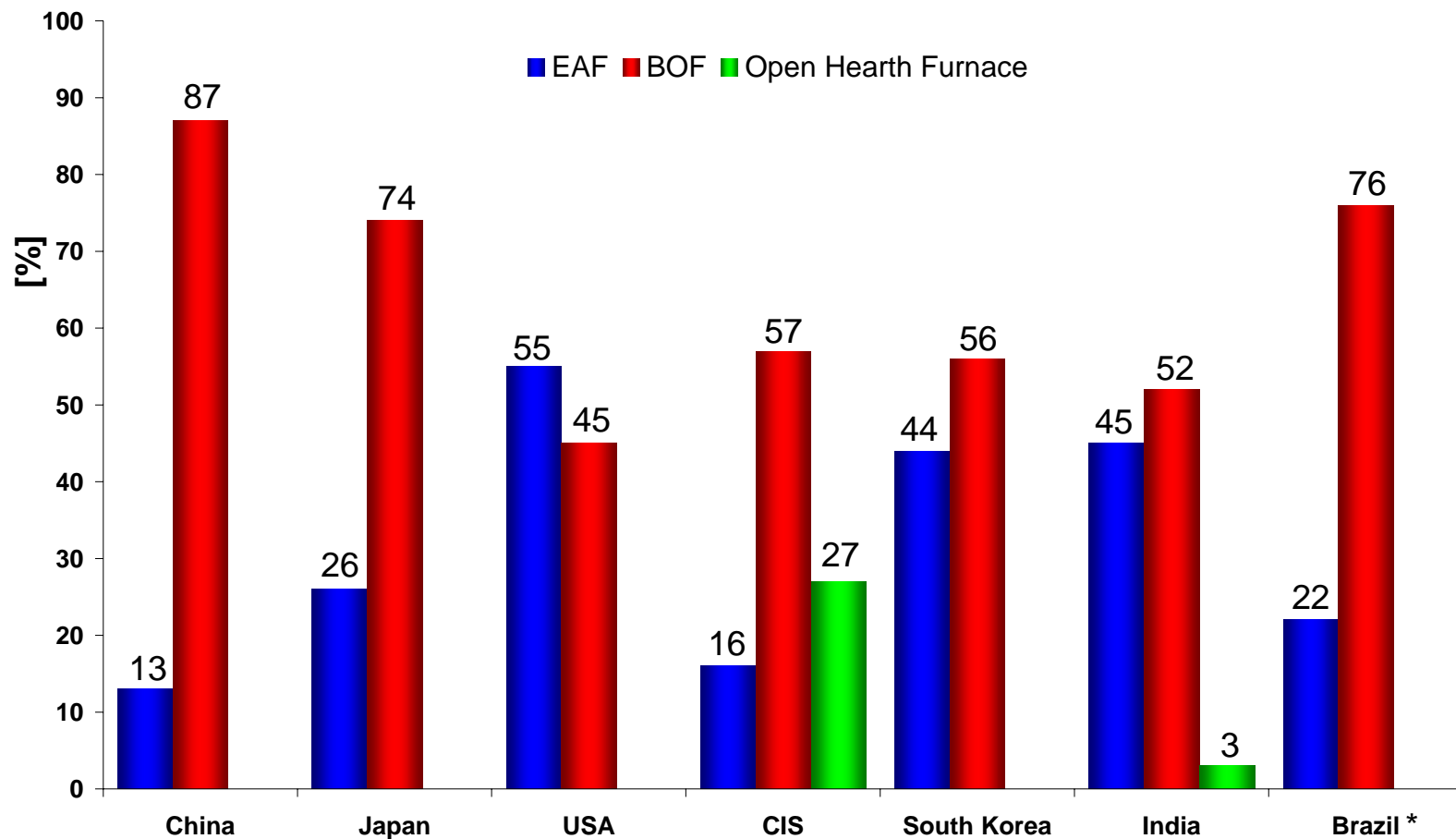
* Taking into account only BOF and EAF.

** Thereof Japan, USA and South Korea >50%.

Producers with highest growth (China, CIS) have smallest share of EAF steel production. Great importance of EAF steel production in ROW, EU-15 and Germany.

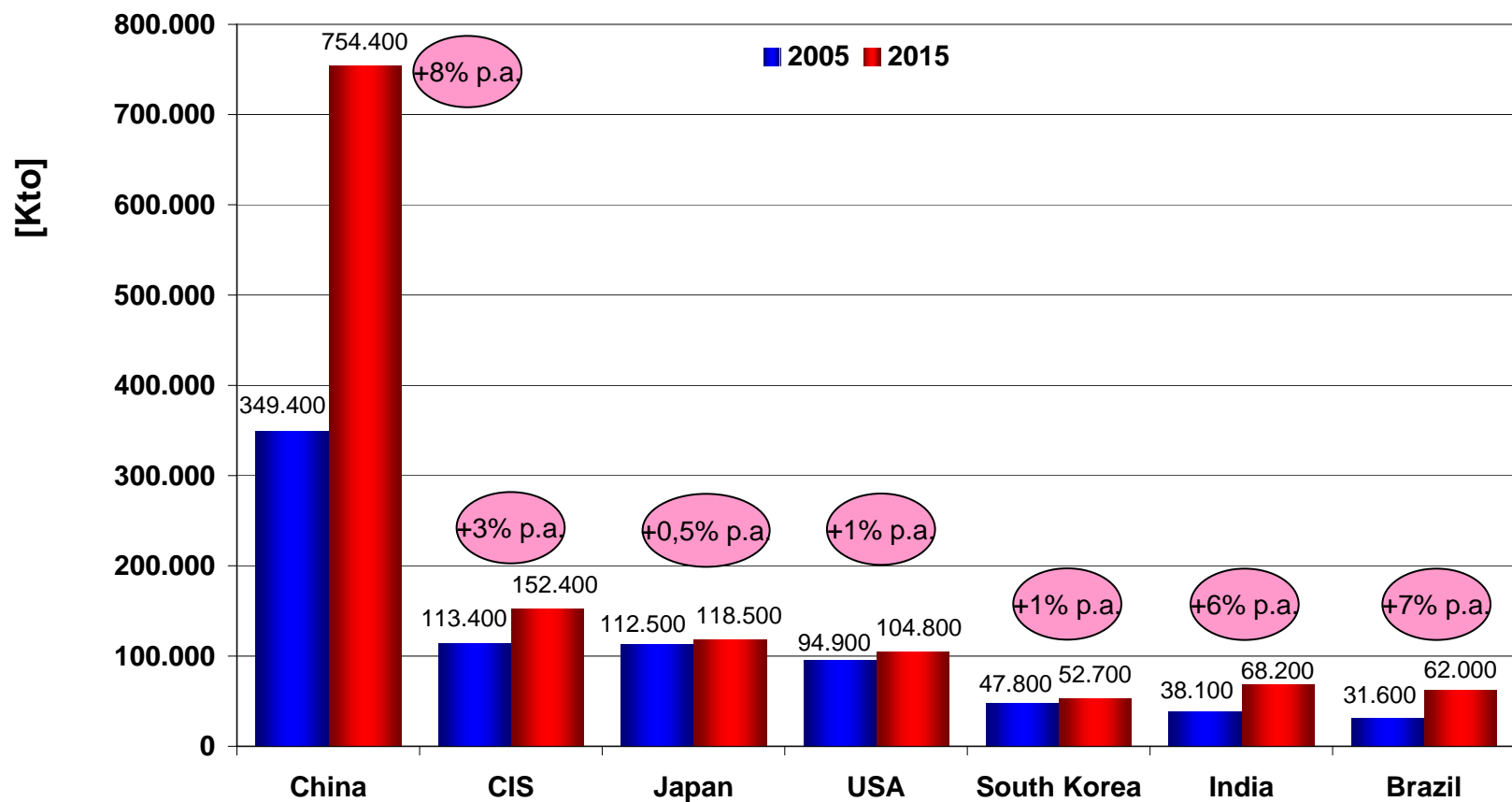


Crude steel production by process in 2005: Out-dated processes in Russia and India.



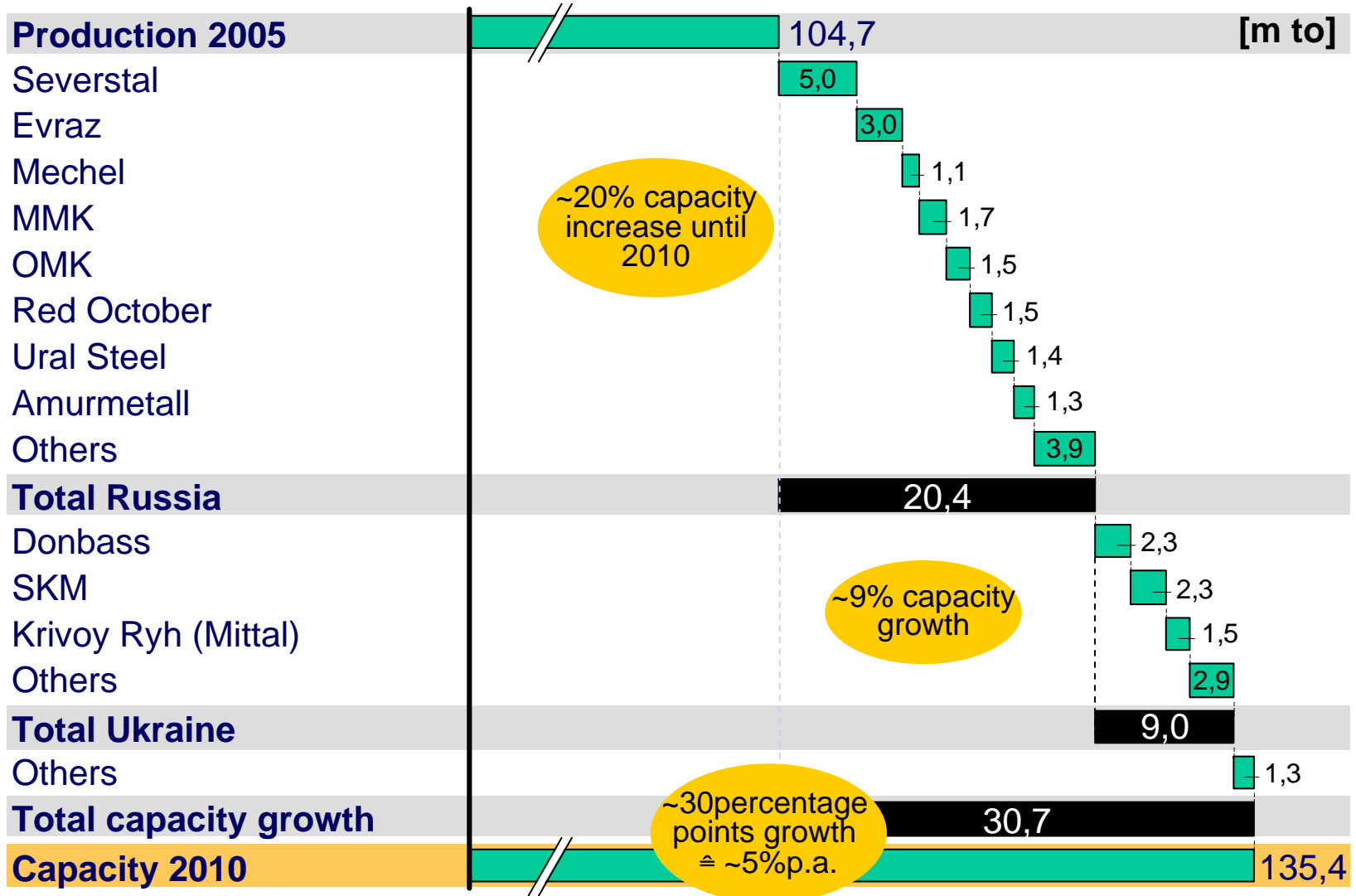
* Taking into account only BOF, EAF and Open Hearth Furnance.

Outlook crude steel production 2015: China, Brazil and India will be drivers of steel industry.*



* Note differences in development of crude steel production and investment plans.

Announced production increases of major Russian and Ukrainian producers until 2010 (m to.): approx. 5% p.a.*

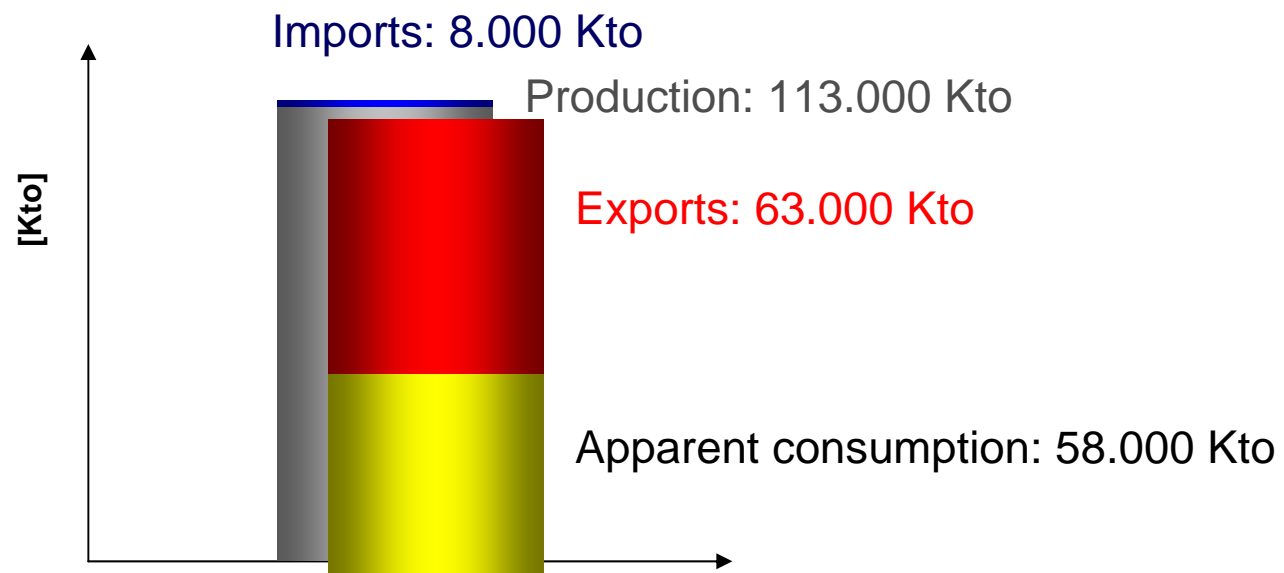


* Note: Growth of planned additional steelmaking capacity is higher than outlook of crude steel production in CIS (3% p.a.).

Today CIS steel producers are largely export oriented.

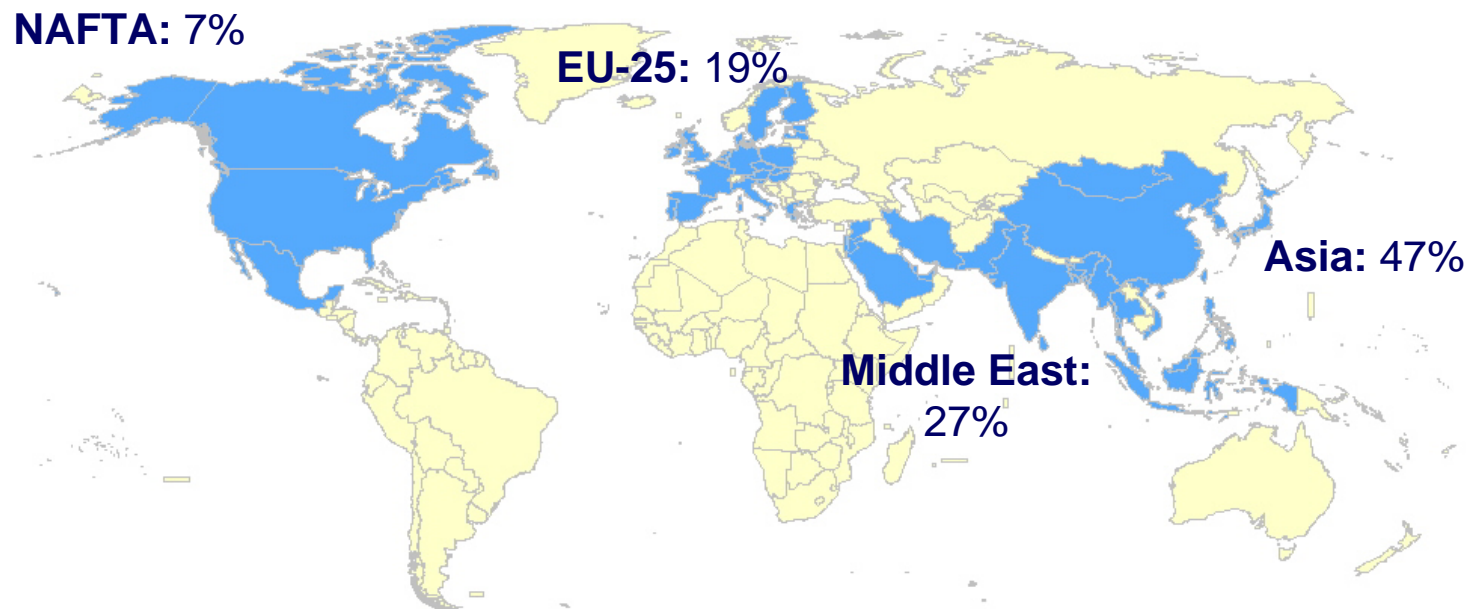
As CIS domestic steel market supply represents less than 50% of CIS steel production CIS steel producers are largely dependent on export markets. Therefore exports are of essential importance for CIS steel producers - especially the exports to Asia and the Middle East.

CIS production, export and consumption in 2005:



Today CIS steel producers are largely export oriented.

The export share in CIS production is 56%.
CIS exports amount to 63.000 Kto of steel.

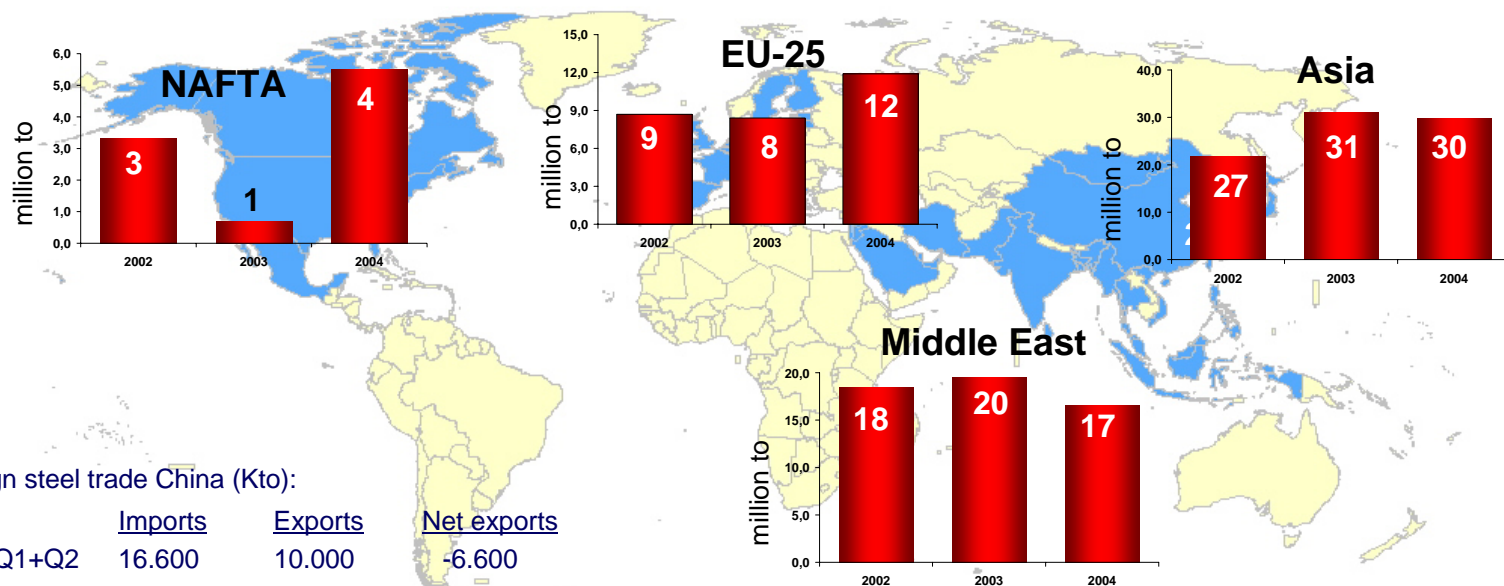


As available estimates indicate, the expected growth of CIS domestic consumption will not significantly change this situation - partly because of a probable further increase of CIS steel production capacities.

I. CIS steel exports to Asian markets are at risk.

Asian markets will be at risk in the future. CIS producers will turn to mature markets like EU-25 and NAFTA.

As China becomes a net exporter* of steel, CIS producers may lose shares of Asian and Middle East markets. In long term new Indian capacities will pressure on Middle East and South Asian markets. As CIS producers are losing stake in emerging markets they will reorient towards mature markets like EU-25 and NAFTA.



* Foreign steel trade China (Kto):

	<u>Imports</u>	<u>Exports</u>	<u>Net exports</u>
2004 Q1+Q2	16.600	10.000	-6.600
2005 Q1+Q2	13.800	15.500	+1.700
2006 Q1+Q2	9.400	19.900	+10.500
	-43%	+99%	

Conclusion: Crude steel production

- Significant growth of worldwide crude steel production since 2000. Especially in China and CIS disproportionate growth.
- In Future India and Brazil will be among the regions with highest growth.
- Importance of EAF steel production especially in EU-15 and ROW (predominantly: Japan, USA, South Korea).
- While present driving forces China and CIS have small shares of EAF steel production in the growing Indian steel industry it makes up 45%.

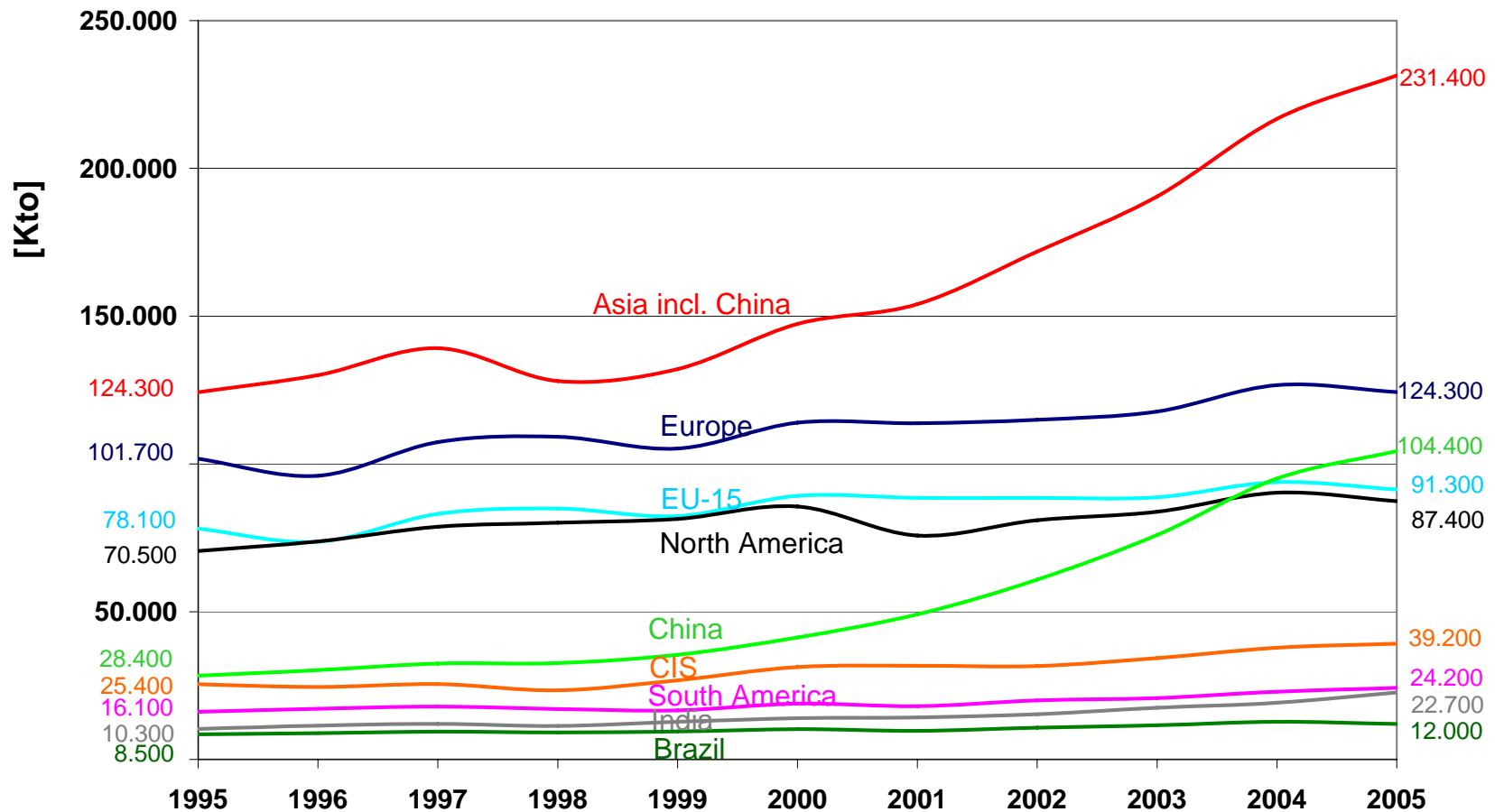
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II. Scrap demand

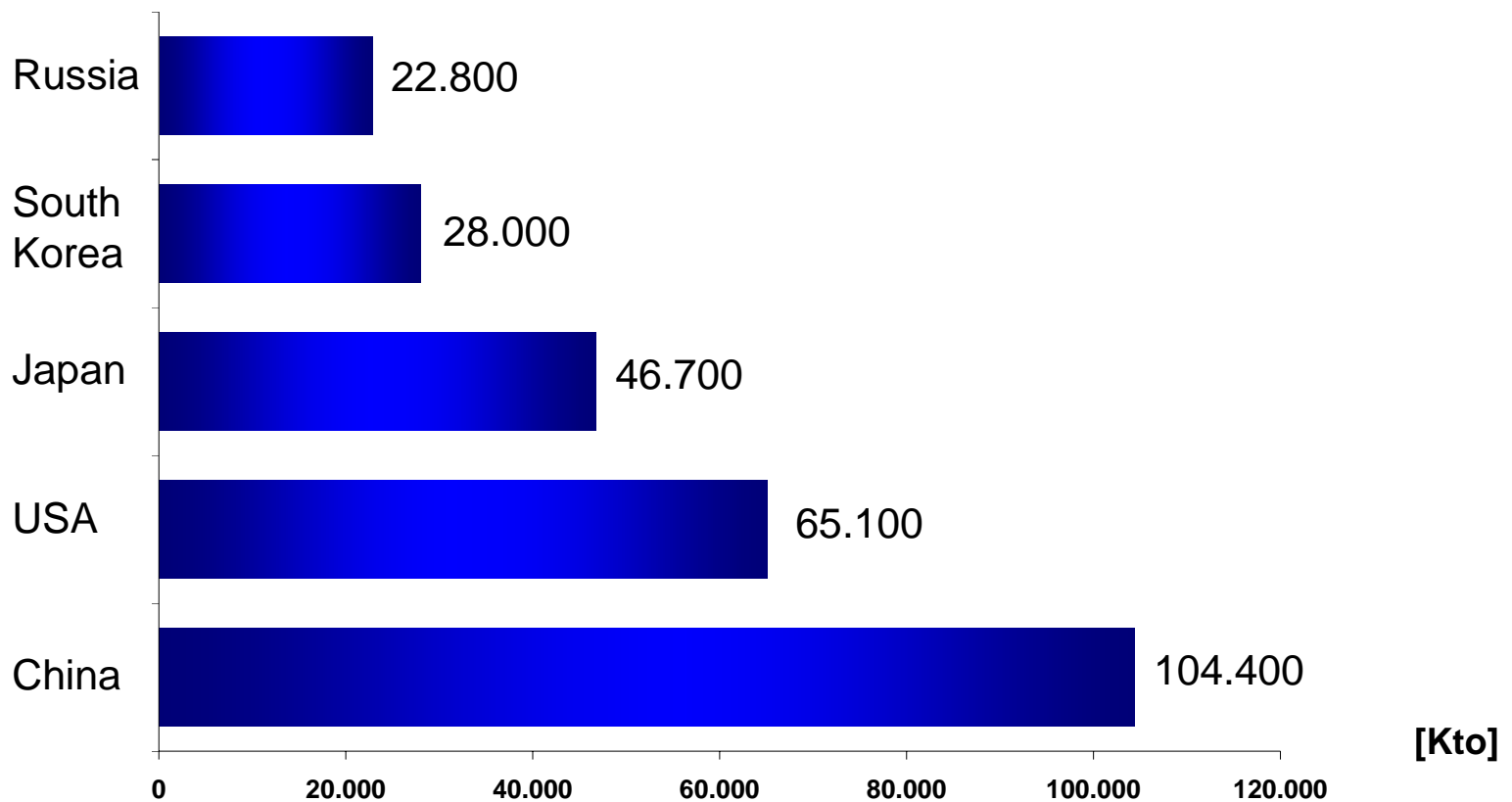
III. CIS` competitive advantages are resources

Development of worldwide scrap demand. The scrap demand grew by more than 375 m to in the last decade.*



* Input of scrap substitutes disregarded.

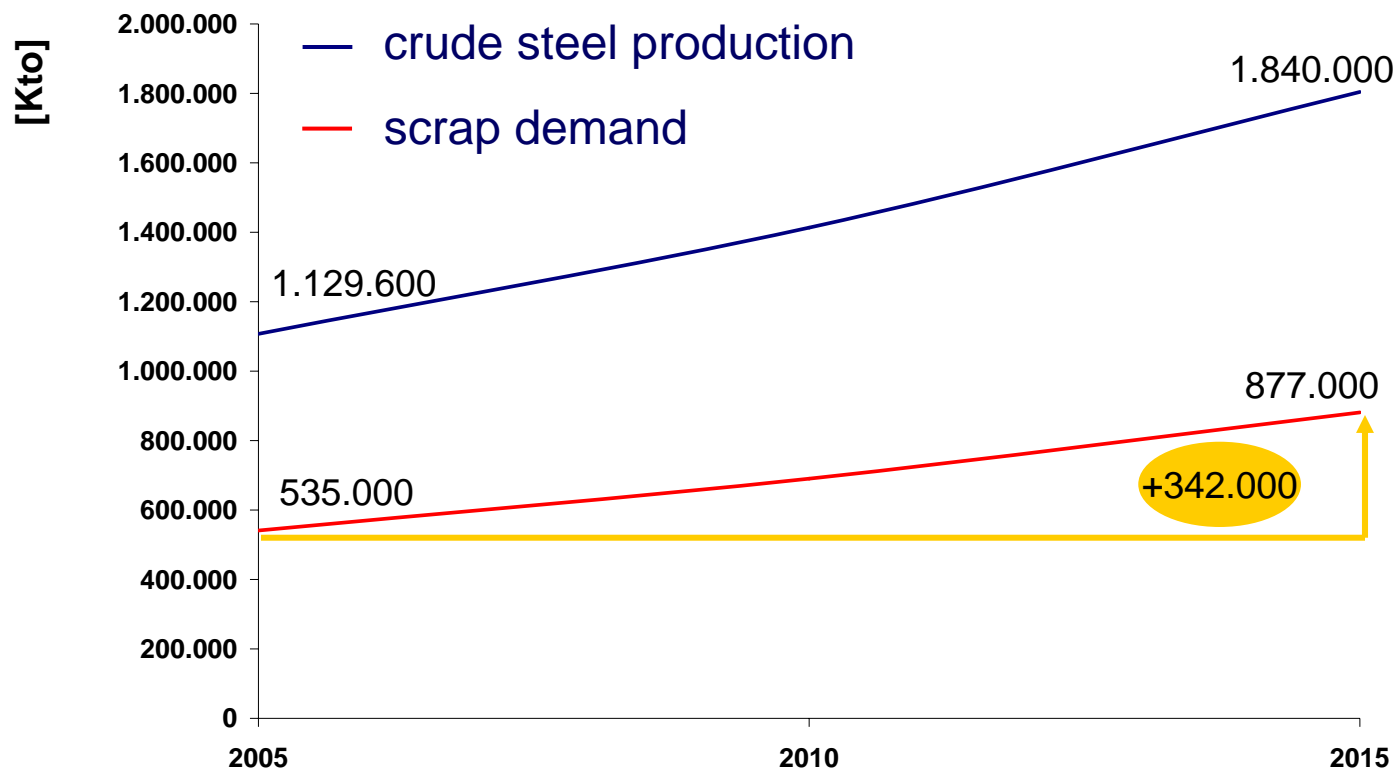
Top 5 scrap consumers in 2005. China, USA and Japan make up 42% of worldwide scrap demand (535 m to).*



* Scrap demand according to crude steel production.

Outlook worldwide crude steel production: Annual growth of 5% in the next 10 years. Scrap demand will increase by 342 m to.

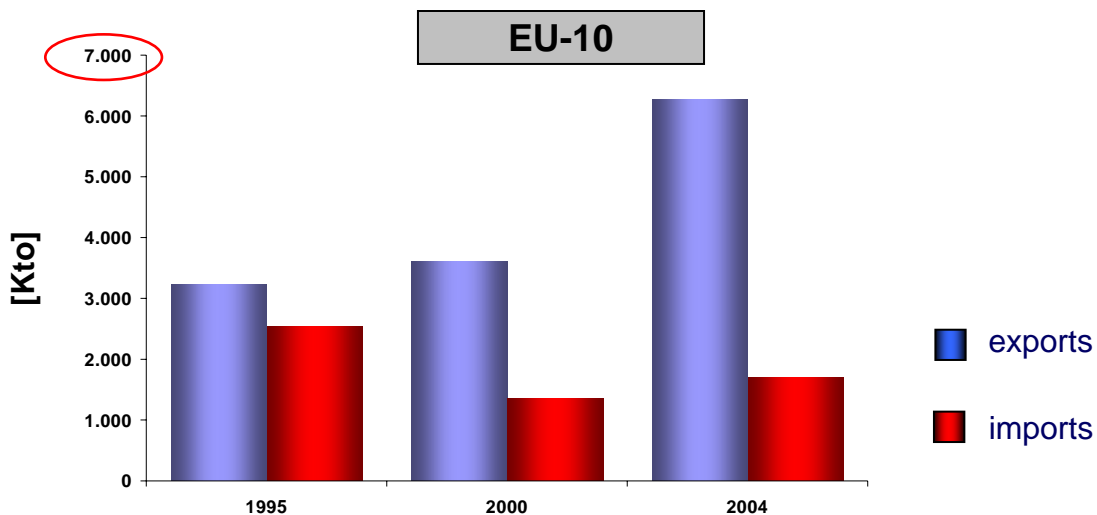
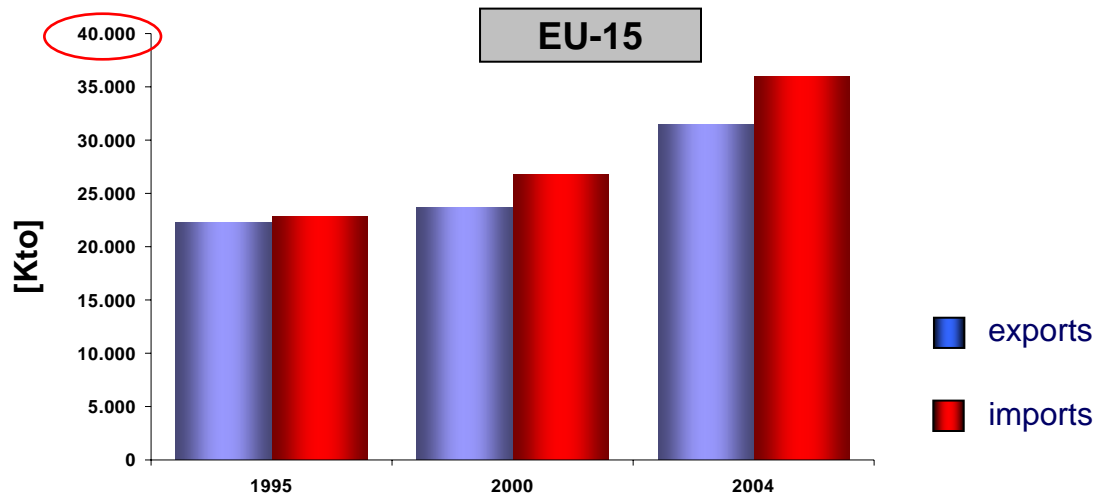
Development of worldwide crude steel production and scrap demand*



* Input of scrap substitutes disregarded.

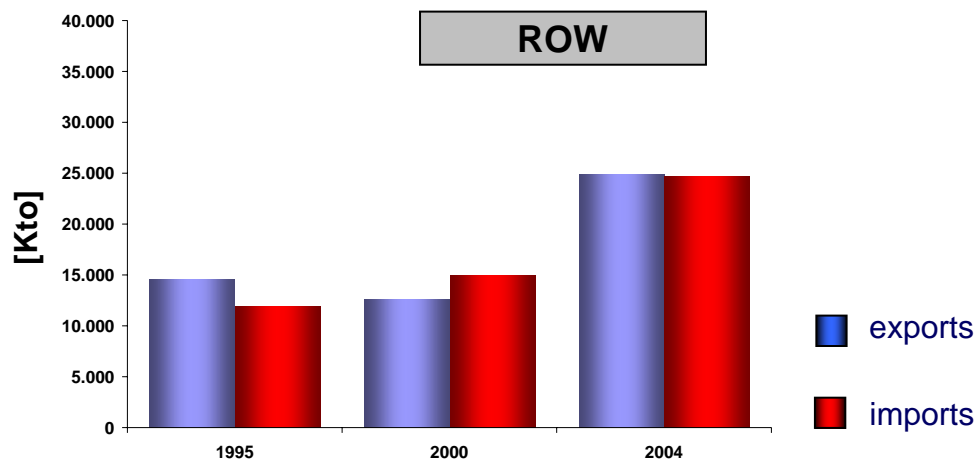
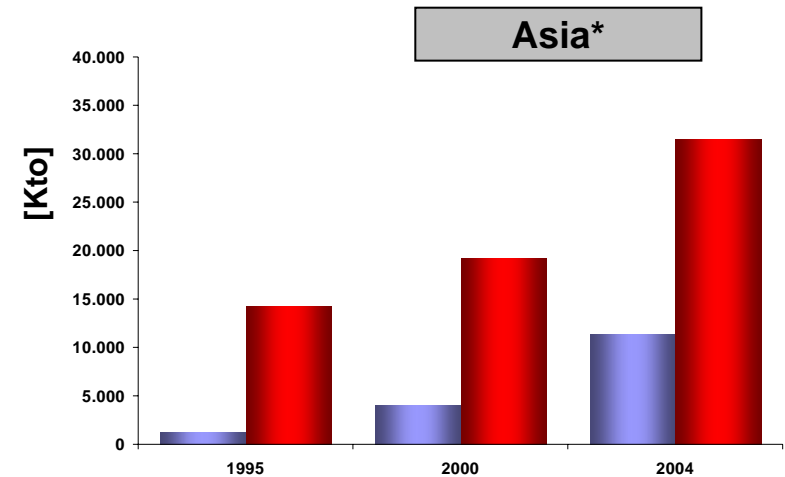
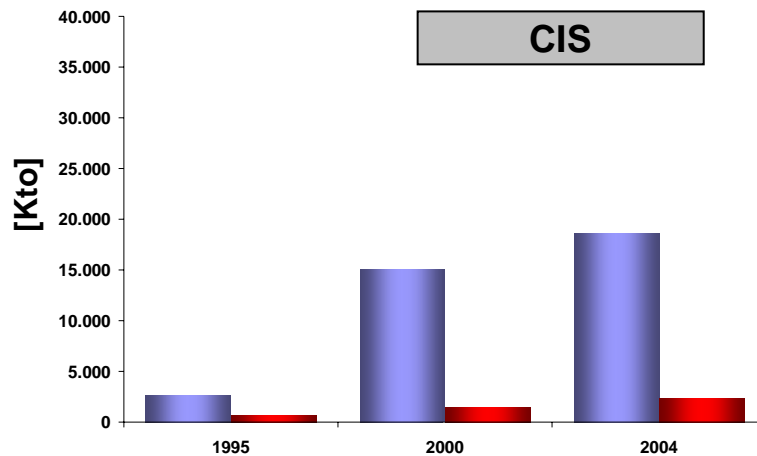
Scrap imports and exports in EU-15 and EU-10.

$\frac{3}{4}$ of all EU-25 imports and exports remain in EU-25.



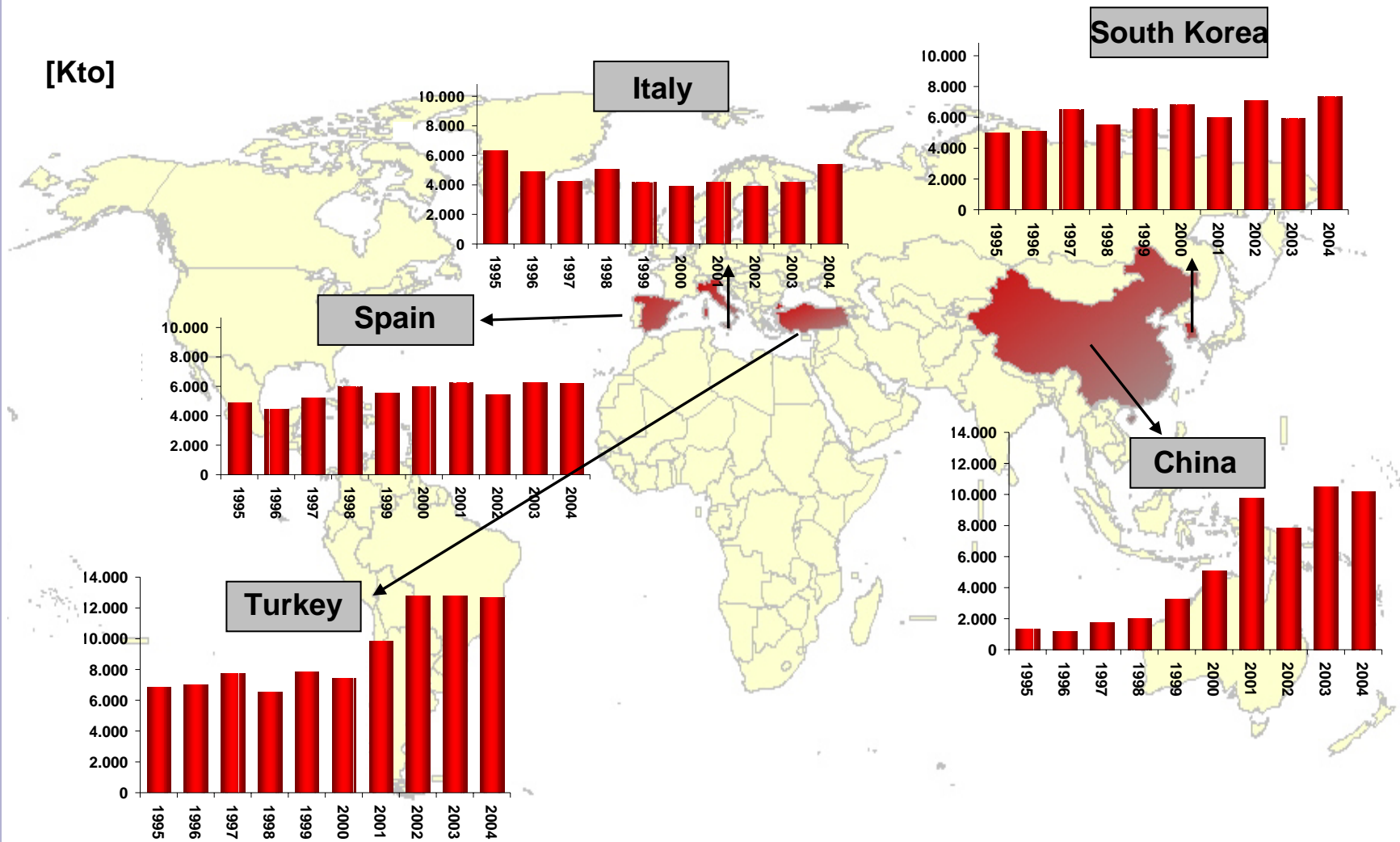
The increasing surplus of EU-15 imports is balanced by the surplus of EU-10 exports. Eastern Europe becomes an important scrap supplier for EU-15.

CIS is the biggest scrap net-supplier in the world. China doesn't cause exclusively the Asian surplus of scrap imports.

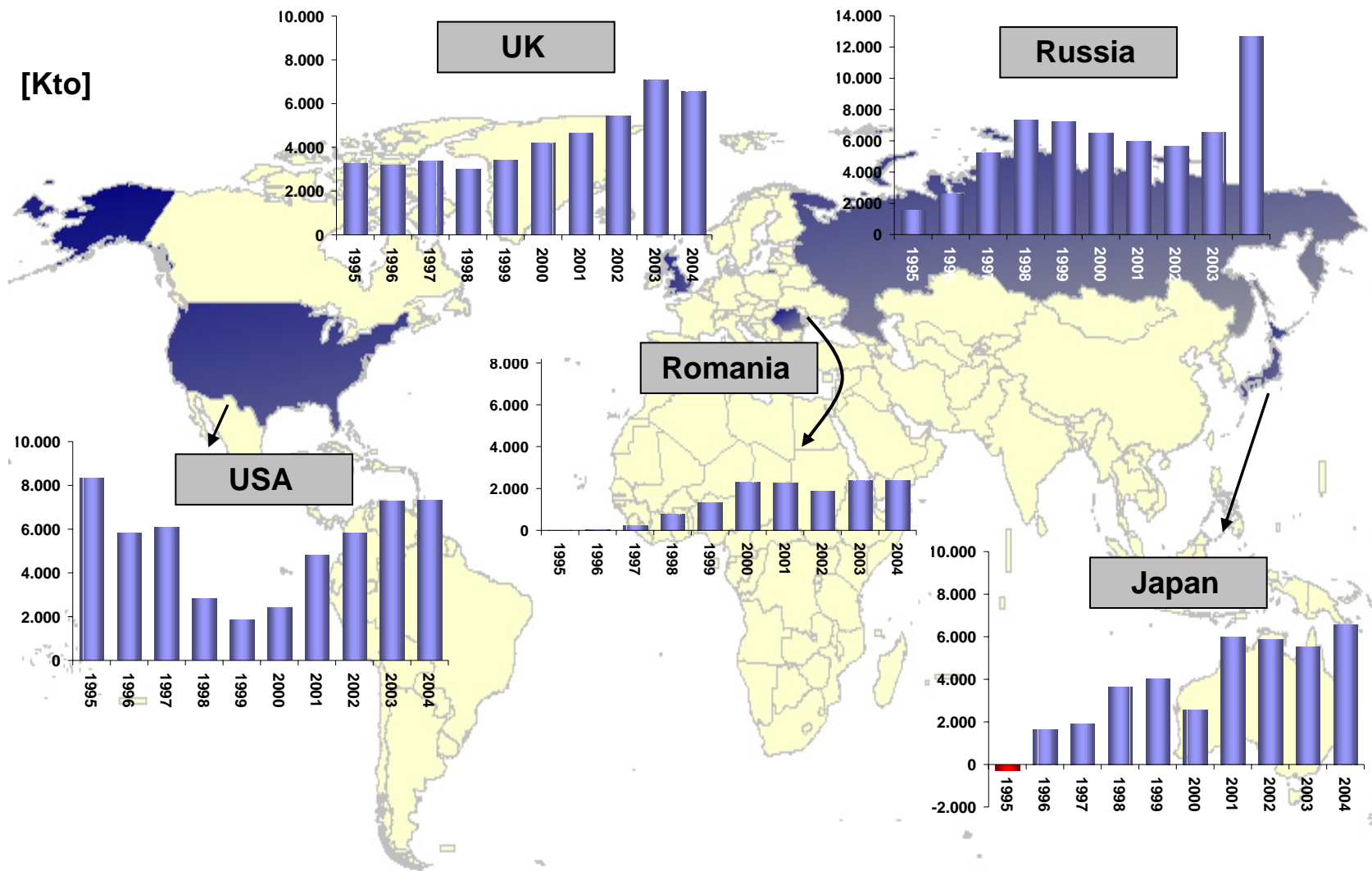


* According to the crude steel production in 2005 China had a scrap demand of 104 m to – but imported just 10 m to. In this respect China meets its requirements by own resources. It doesn't cause exclusively the shortage of scrap. Opposite Turkey and South Korea heavily depend on imports to meet their scrap needs.

The 5 biggest scrap net-importers in 2004. In spite of high imports China needs its requirements largely by own resources.

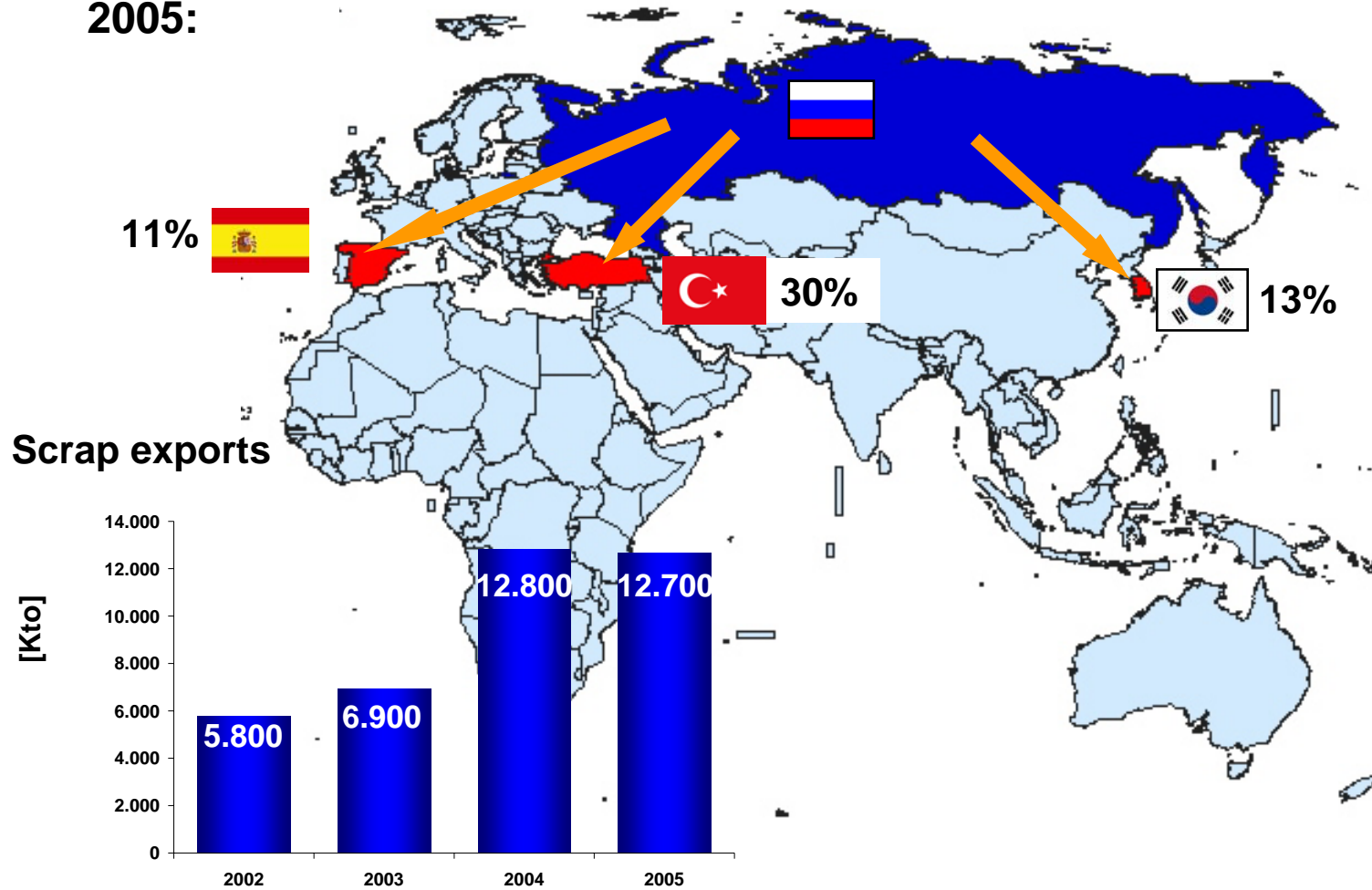


The 5 biggest net-exporters in 2004. In spite of high scrap demands Russia, Japan and the USA are net-exporters.



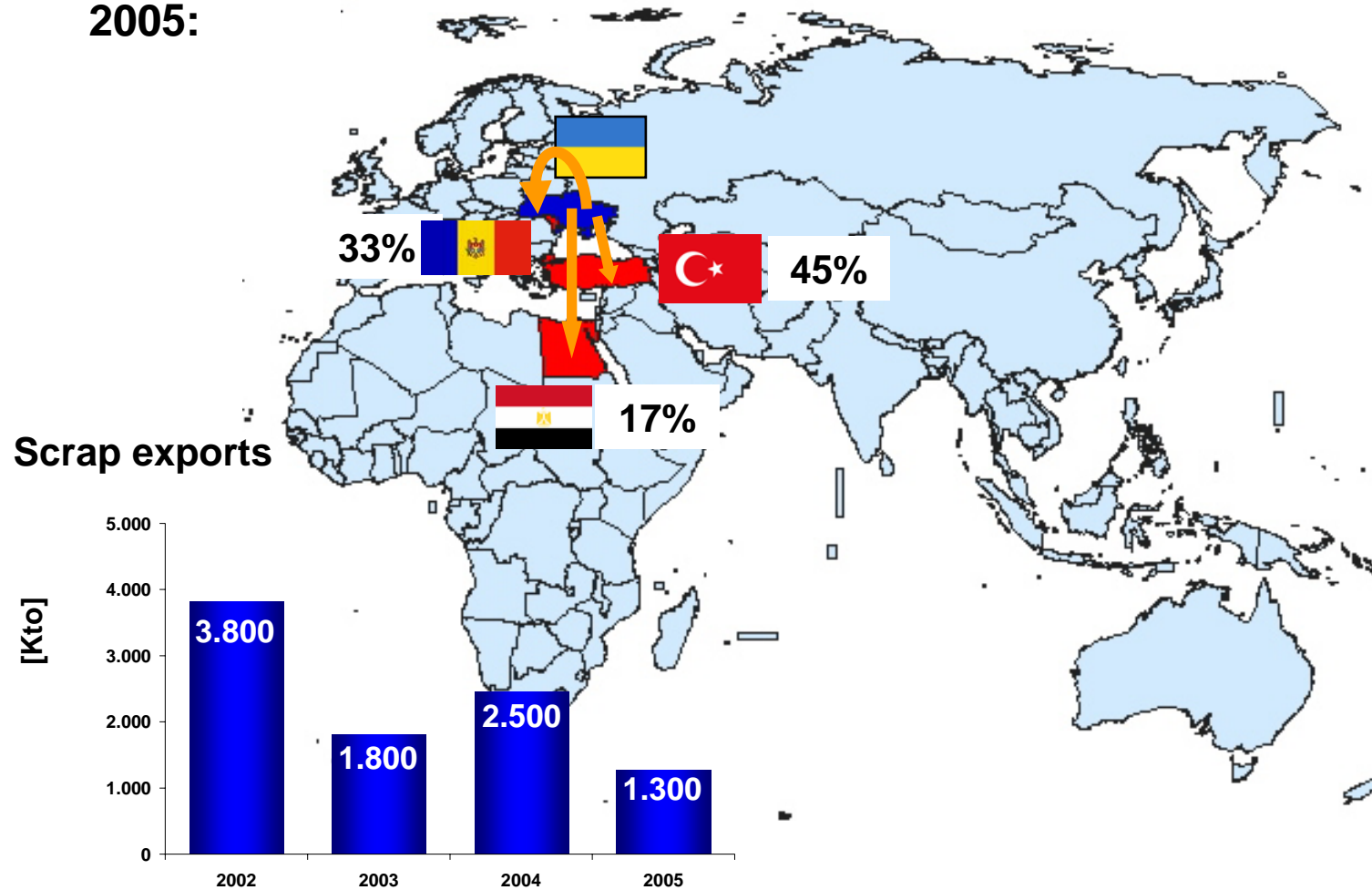
Increasing Russian exports of scrap. Main customers are Asian and European scrap net importer.

2005:



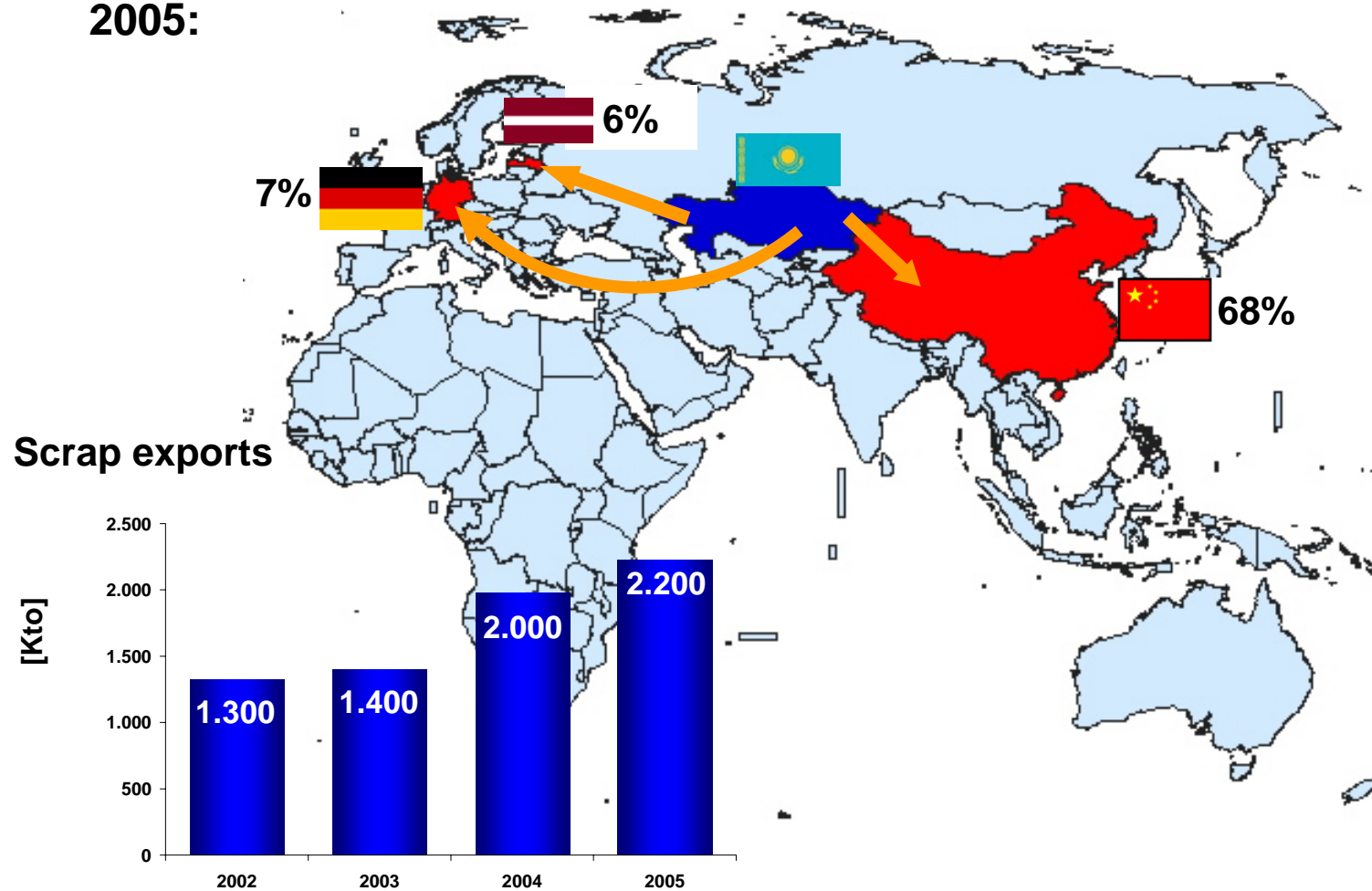
Decline of scrap exports from Ukraine. 95% of it's exports are supplied to Turkey, Moldova and Egypt.

2005:



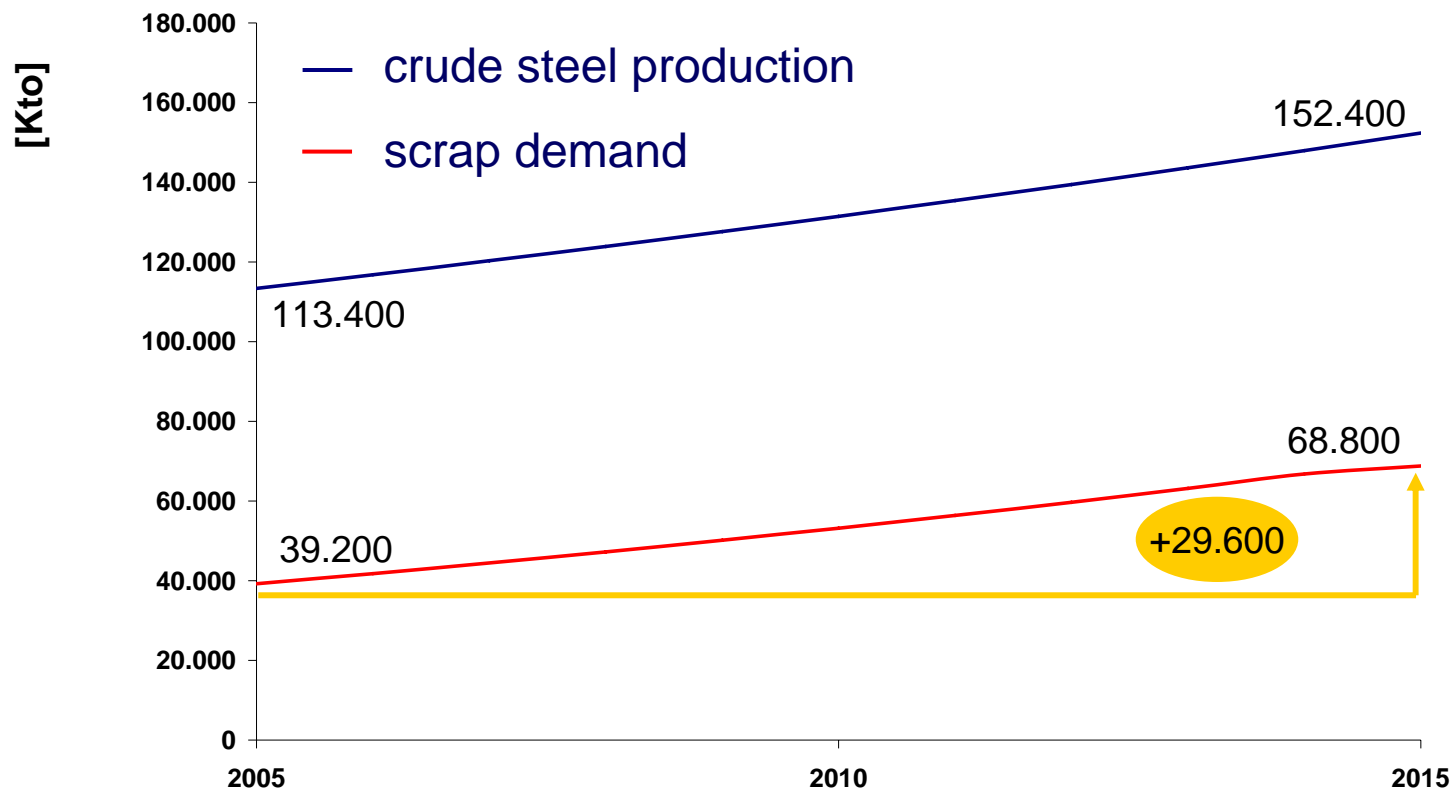
Steady growth of scrap exports from Kazakhstan. Main customer is neighbouring country and top net importer China.

2005:



Outlook CIS crude steel production and scrap demand: Annual growth of 3% in the next 10 years. Scrap demand will increase by 29,6 m to.

Development of CIS crude steel production and scrap demand*



* Input of scrap substitutes disregarded.

Increasing scrap demand raises the question of scrap availability in future.

- Evocation of a bottle-neck if scrap availability does not grow as much as scrap demand.

⇒ Possible scenarios:

- Increasing scrap prices.
- Increasing share of production in oxygen blown converters (less scrap consumption).
- Substitution scrap by iron ore based processes: Direct Reduced Iron (DRI) and Hot Briquetted Iron (HBI).
- Faster expansion of scrap industry in developing countries

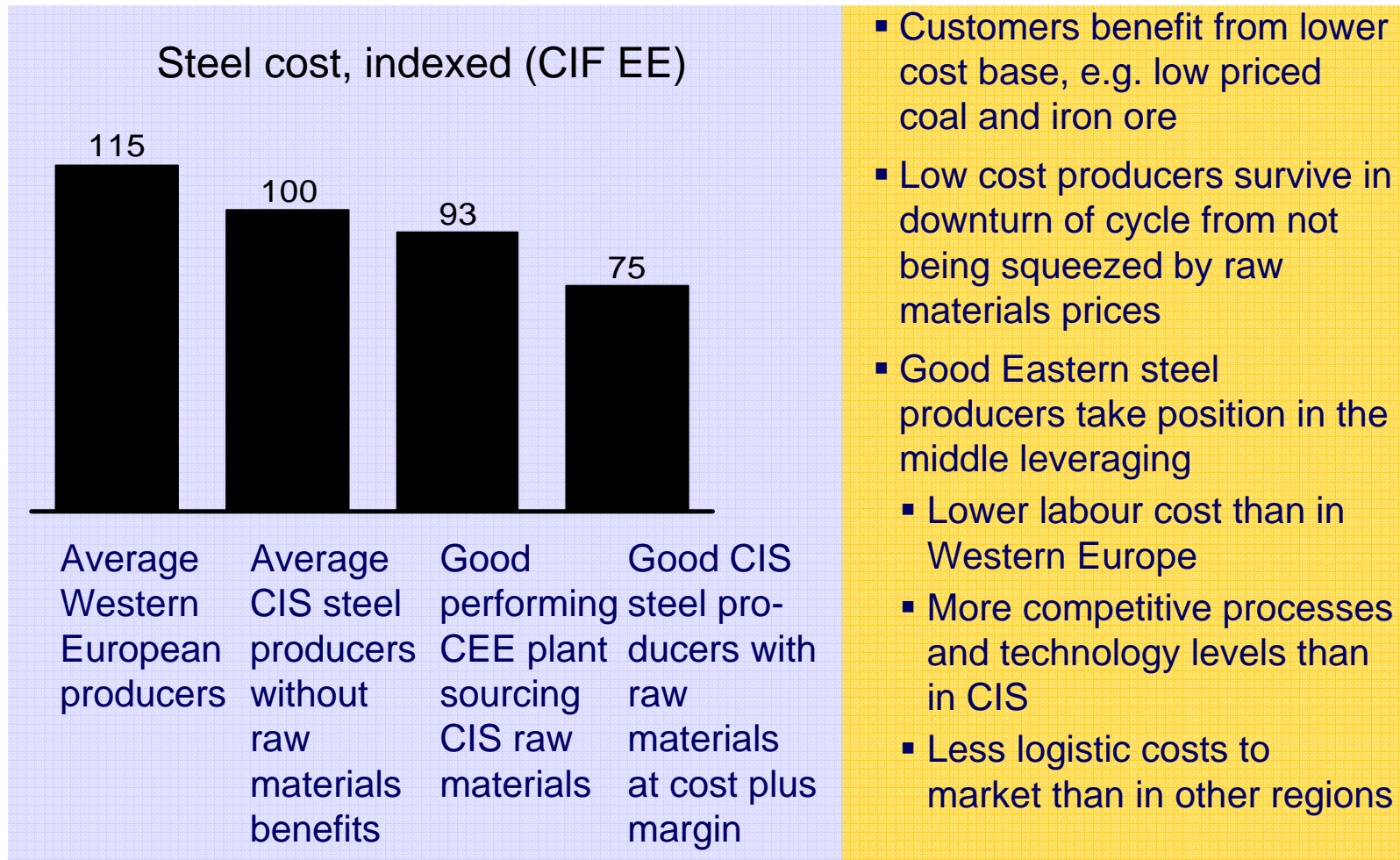
Conclusion: Scrap demand

- Growing scrap demand since 1995.
- Increase of worldwide crude steel production from 1,1 bn to in 2005 by 5% p.a. up to 1,8 bn to in 2015.
- Growth of scrap demand from 2005-2015 by 342 m to.
- CIS is the world's biggest scrap net exporter.
- Evocation of a bottle-neck if scrap availability does not grow as much as scrap demand.

Agenda

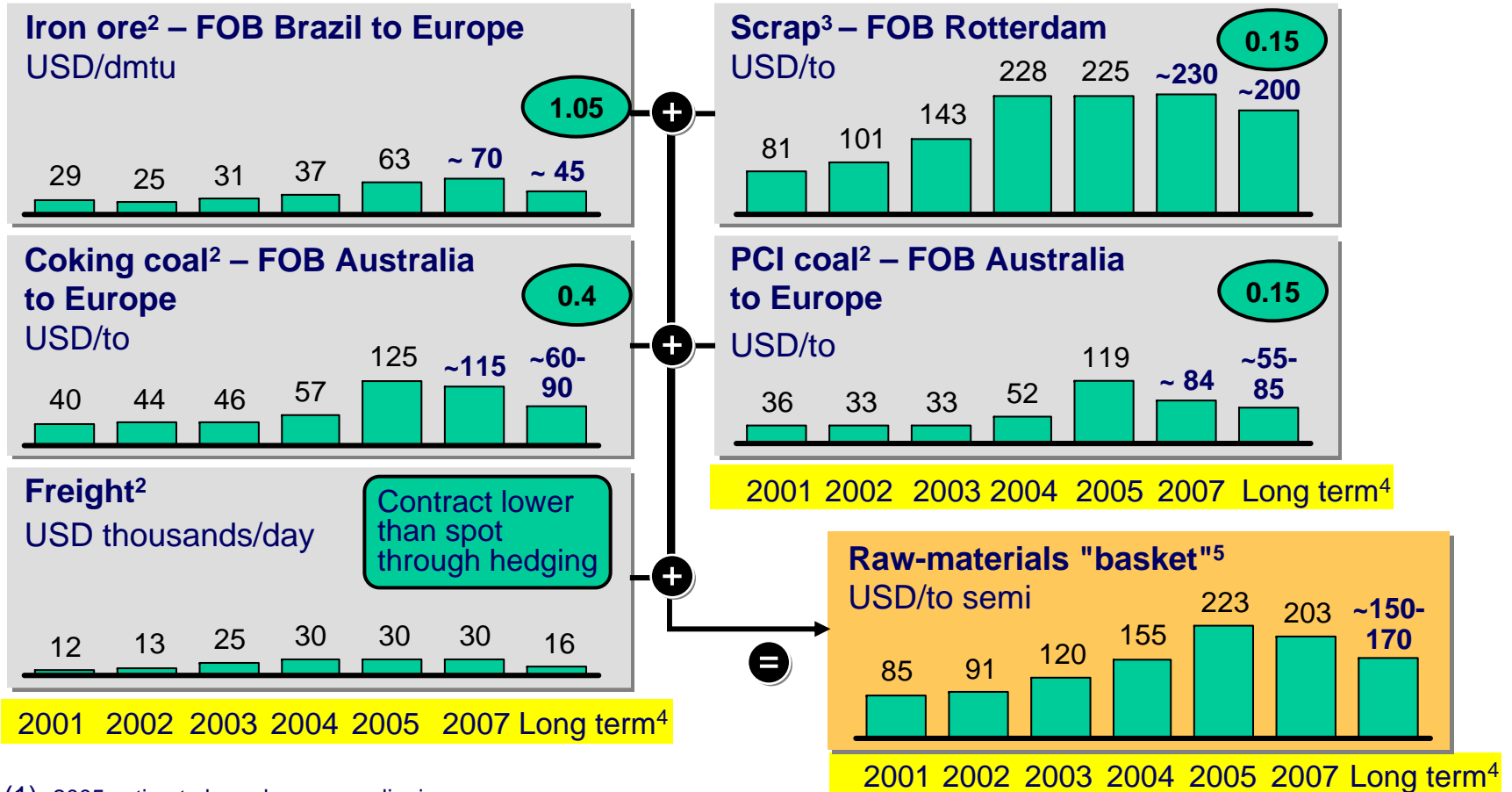
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Russia`s and Ukraine`s strenghts in steel industry base on captive raw materials.



Increasing prices of raw materials cause rise in prices of semis and emphasise importance of access to raw materials.

USD of raw materials 'basket' per to of steel; average of the year¹



- (1) 2005 estimate based on press clippings
- (2) Pulverized coal injection, long-term contracts
- (3) HMS1
- (4) 2008 - 2012
- (5) Including scrap for BOF, excluding ferroalloy

xx Tons used to produce 1 to of semi

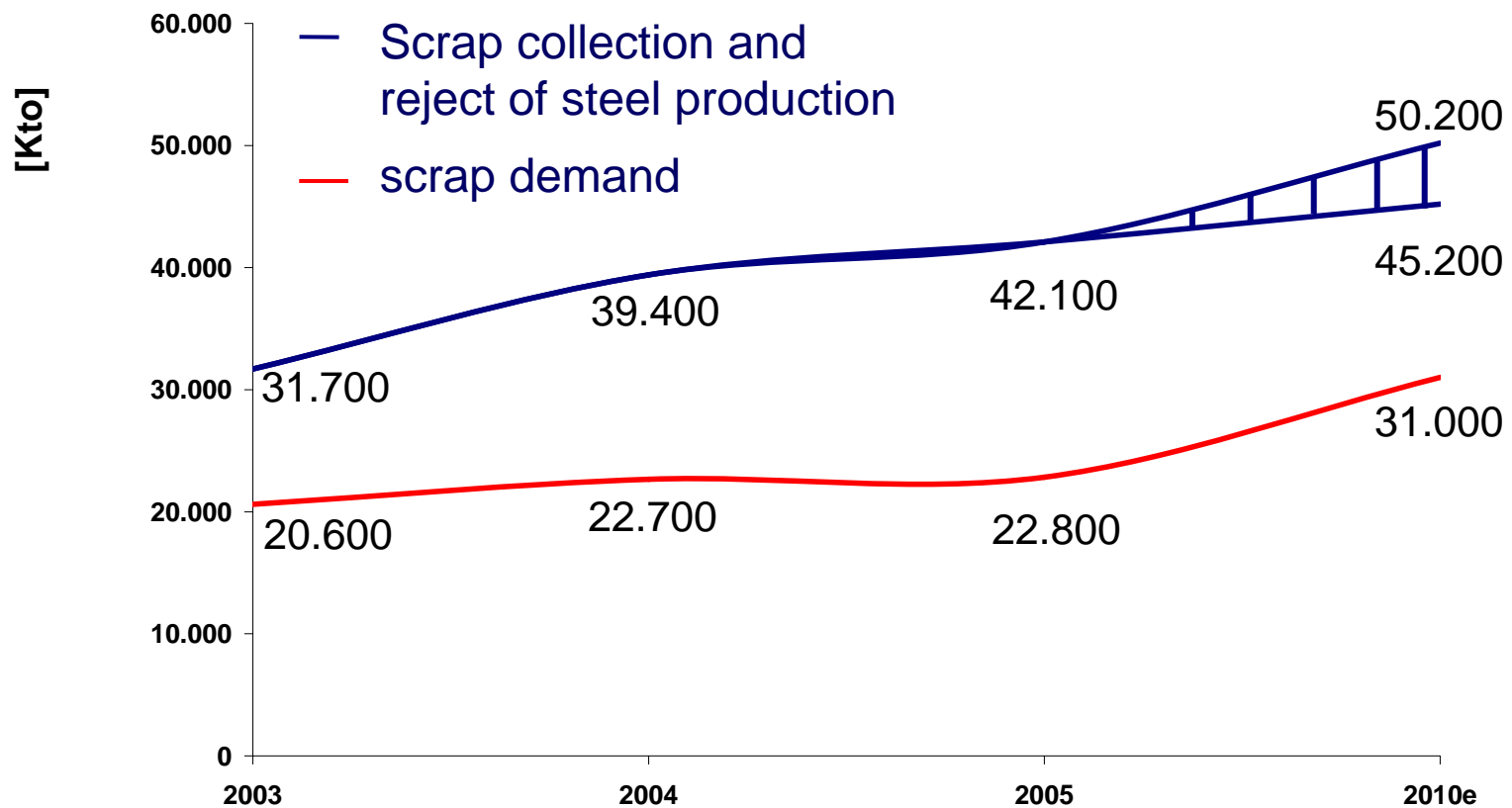
Sources: OECD, McKinsey, press clippings

Iron ore and coking coal resources in Russia in 2005 [m to]

	Iron ore	Coking coal
Reserves estimated	104.000	380.400
Reserves explored	56.100	41.400
Reserves operational	11.200	9.100
Annual output	95	75
Annual consumption in steel industry	66,2	36,2

Russia will remain net exporter of scrap in the next future.

Potential of Russian scrap pool and demand



* Input of scrap substitutes disregarded.



I. CIS steel exports to Asian markets are at risk.

Key assets of CIS producers as major steel exporters.

- All raw materials are available domestically: Iron ore coal, limestone, dolomite, manganese, silicon, etc.
- Availability of scrap
- Vertical integration
- Availability of cheap energy resources like gas and oil
- Skilled engineers and work force
- Port facilities and water ways
- Developing home markets



МЕТАЛЛ-ЭКСПО 2006

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Thank you for your attention!

Joachim Schröder

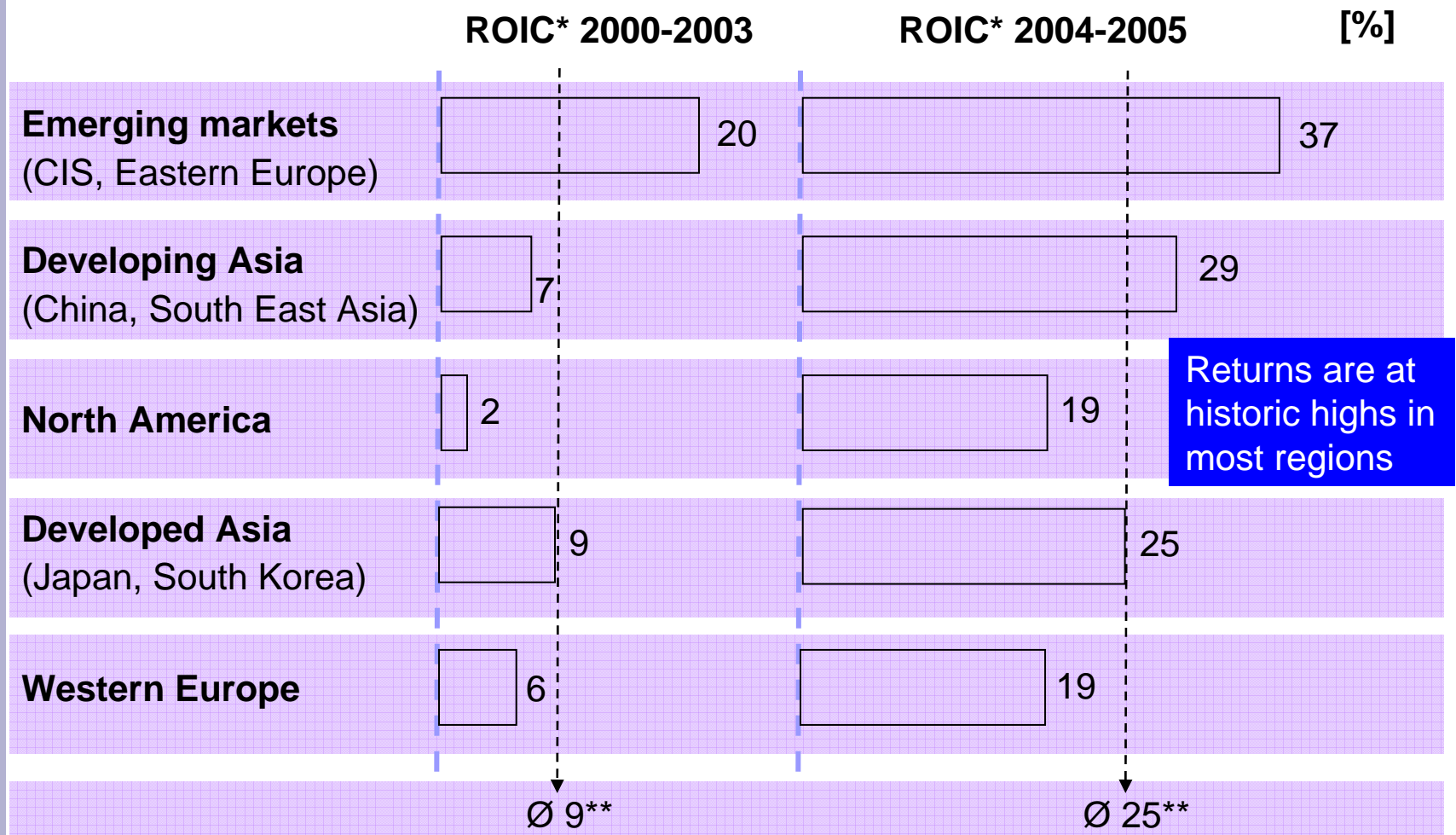
Research & Consulting Group AG · Gwattstr. 1 · CH-8808 Pfäffikon SZ

Tel: +41 (55) 4201555 · Fax: +41 (55) 4201556

E-Mail: j.schroeder@rcg-ag.com

www.rcg-ag.com

Steel industry in CIS and Developing Asia has ROIC above average.



* Return on invested capital, based on top players in region

** Including other regions