

BJ

Thermal Coal - is it as widely available as often supposed?

UNECE Ad Hoc Group of Experts on Coal in Sustainable Development
17 November 2003

Graham Chapman

Divisional Director, Europe and Africa

Barlow Jonker Pty Limited

Barlow Jonker

- ★ Twenty years of expertise in coal markets;
 - Supply and demand forecasts
 - Consulting
 - Due Diligence studies
 - Publications
- ★ Offices and representation in Sydney, Brisbane, Beijing, Cambridge, Jakarta, Johannesburg and Bogotá
- ★ See us at www.barlowjonker.com and www.coalportal.com

Barlow Jonker

BJ

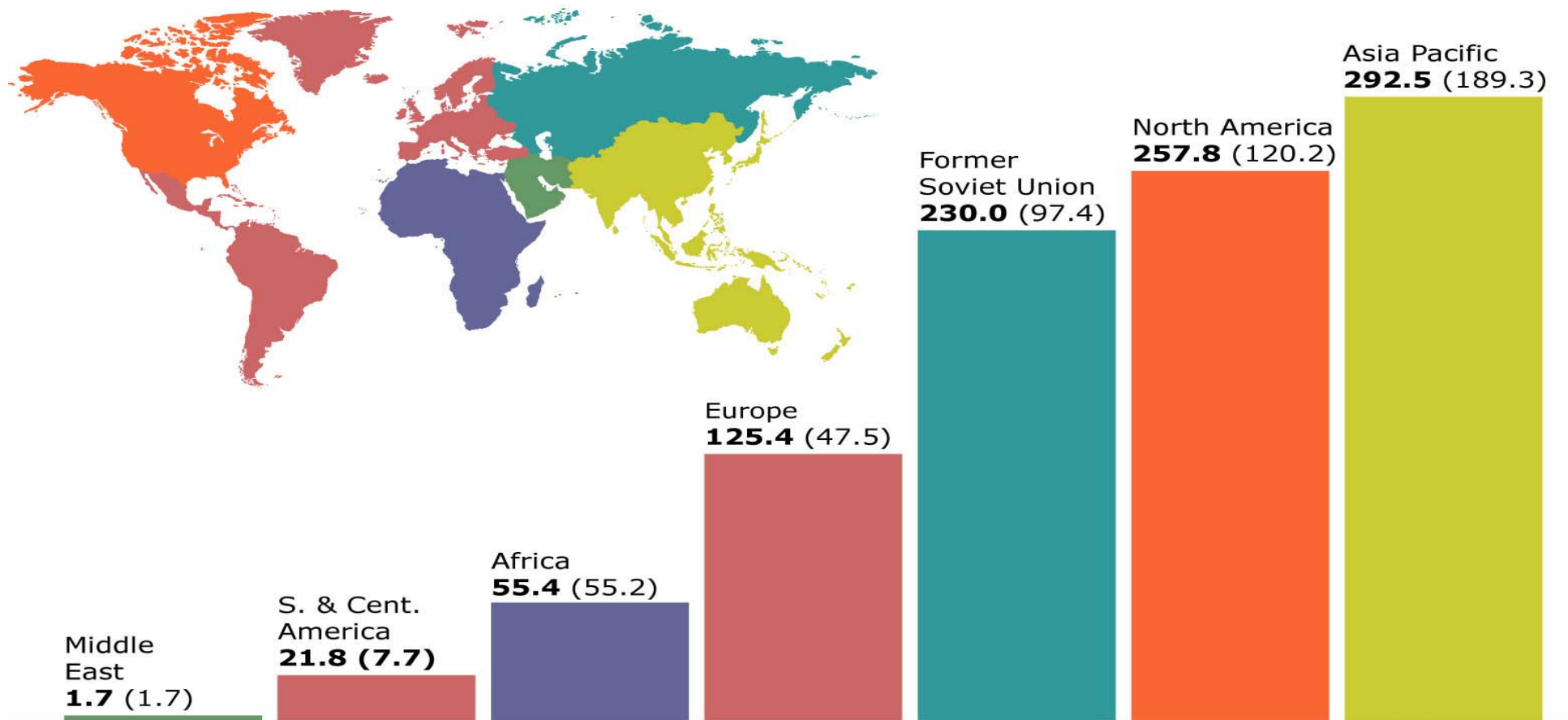
- ★ This talk focuses on thermal coal
- ★ We produce annual long term outlooks on thermal, metallurgical and coke
- ★ Thermal study and coke study provide outlook to 2015
- ★ Situation is more complex now than for many years as global economic factors combine – as seen in freight rates

World Coal Reserves

BJ

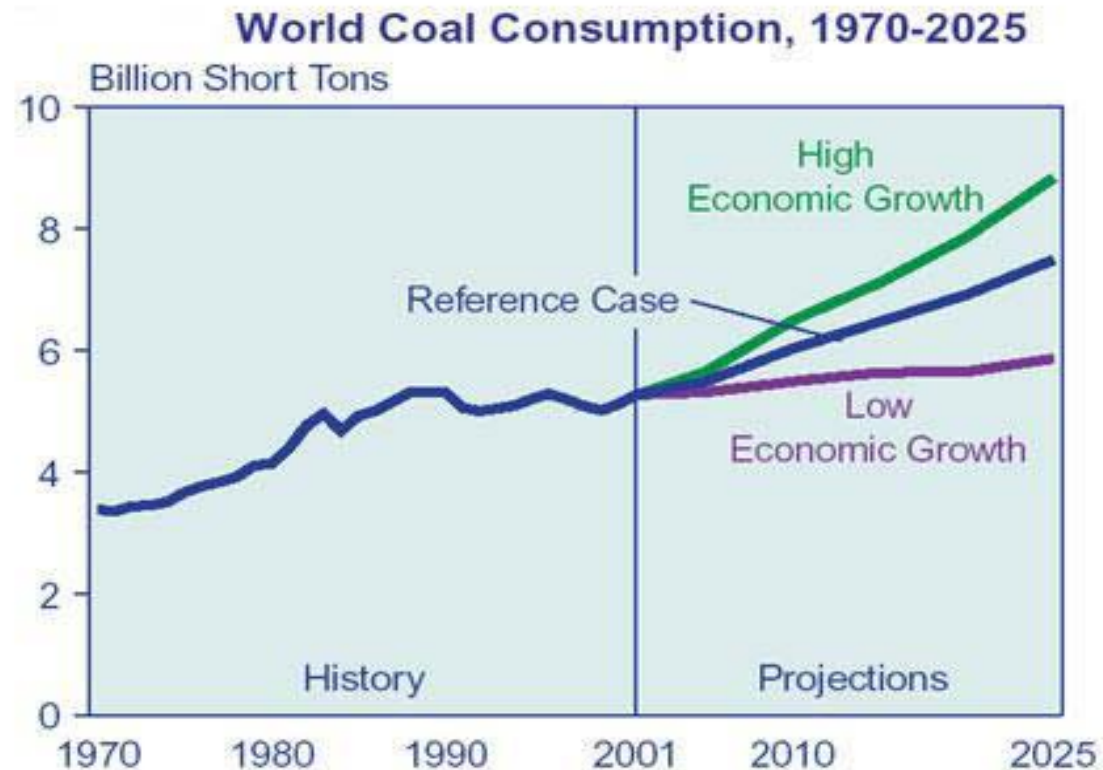
map of proved coal reserves at end 2001

Thousand million tonnes (share of anthracite and bituminous coal is shown in brackets)



World Coal Consumption

BJ

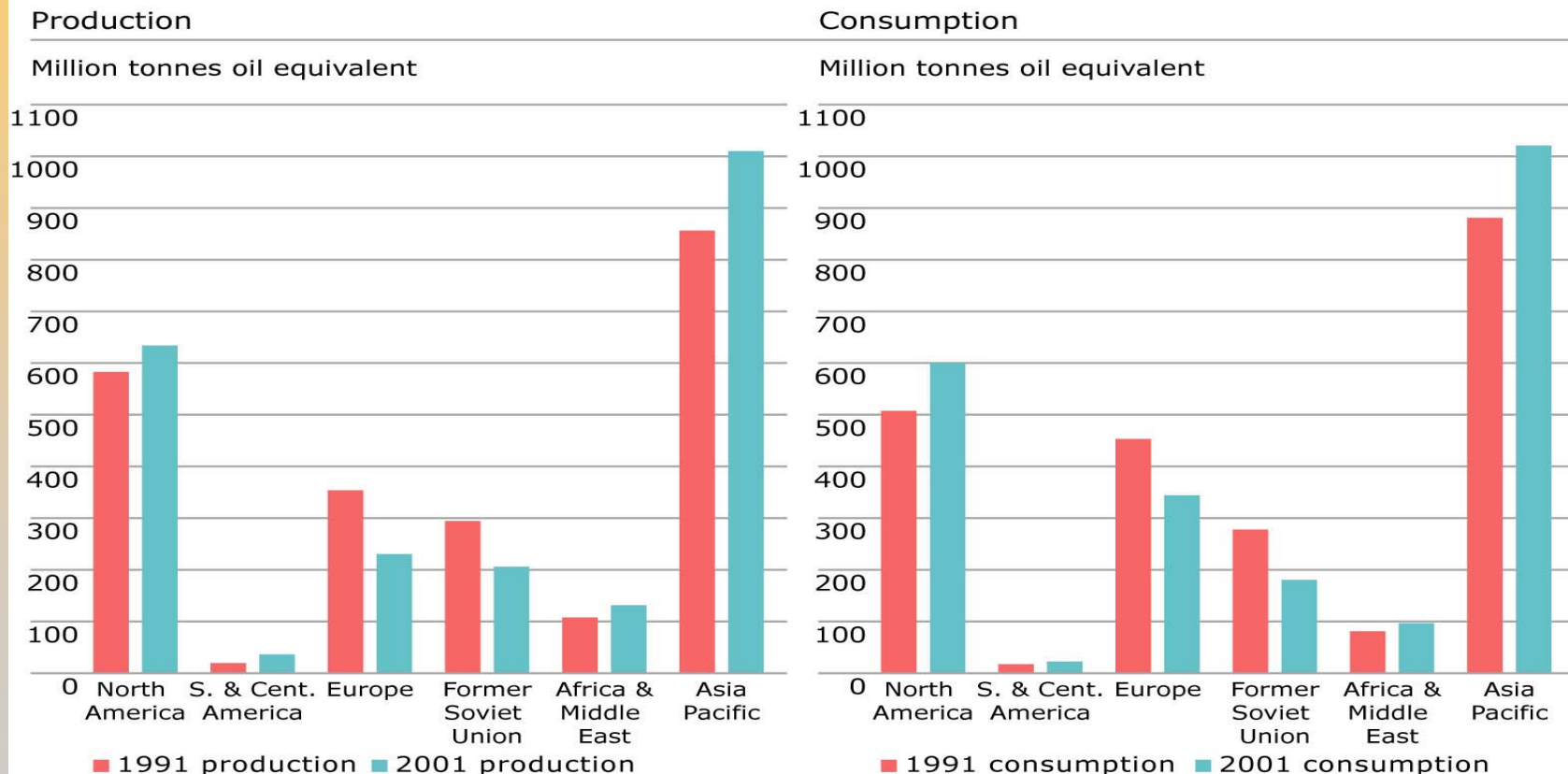


Sources: **History:** Energy Information Administration (EIA), *International Energy Annual 2001*, DOE/EIA-0219(2001) (Washington, DC, February 2003), web site www.eia.doe.gov/iea/. **Projections:** EIA, *System for the Analysis of Global Energy Markets* (2003).

Asia and USA still dominant producers and consumers

BJ

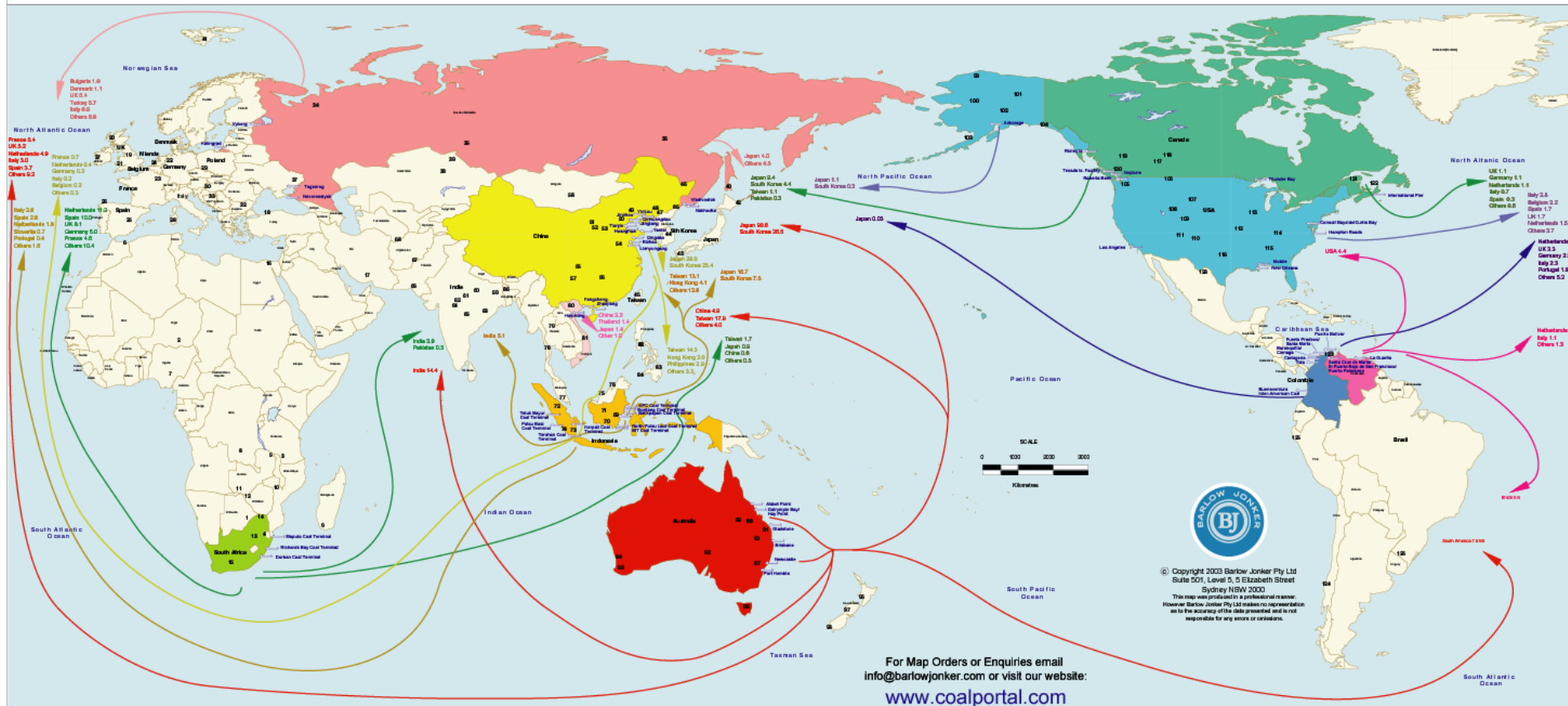
charts of coal production and consumption 1991 and 2001



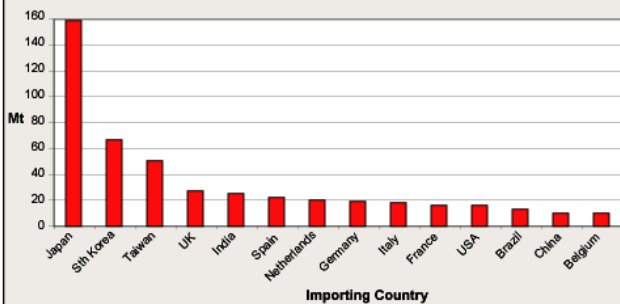
Global coal production and consumption have been broadly flat over the last decade, with declines in Europe and the Former Soviet Union offset by gains in North America, Asia and the rest of the world.

bp statistical review of world energy 2002

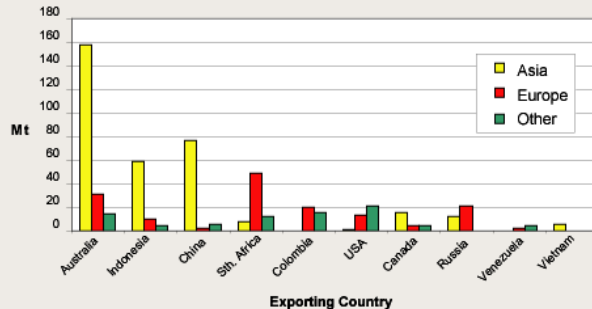
SEABORNE COAL TRADE



Major Importing Countries Mt 2002



Major Exporting Countries Mt 2002



Major Hard Coal Deposits

- | | | | |
|---|--|--|------------------------------------|
| 1 Kalarah - Karo Basin | 33 Slovenja/ Bosnia/ Serbia Regions | 65 Godavari Valley Basin | 97 West Coast |
| 2 South Central Basin | 34 Pachora Basin | 66 Hyderabad Region | 98 Southland |
| 3 Karoo Basin Extension | 35 Kuznetsk (Kuzbass) Basin | 67 Quezta Pishin Basin | 99 Northern Alaska |
| 4 N-S Coal Belt | 36 8th Yakutia Basin | 68 Northern Region | 100 Yukon-Koyukuk |
| 5 North Matari | 37 Donetsk (Donbas) Basin | 69 E Kalimantan Basin | 101 Upper Yukon |
| 6 Jerada Basin | 38 Karaganda Basin | 70 S Kalimantan Basin | 102 Cook Inlet- Sustut/ Nemara |
| 7 Plateau Basin | 39 Ekibastuz Basin | 71 C Kalimantan Basin | 103 Alaska Peninsula |
| 8 Karoo Basin Extension | 40 West Region | 72 C Sumatra Basin | 104 Gulf of Alaska |
| 9 Onitahy Basin | 41 Central Basin | 73 S Sumatra Basin | 105 Washington Area |
| 10 Maitsoe Basin | 42 Hoosido Is. | 74 Bantulu | 106 N Central Montana |
| 11 Kazanka & Izumba Basin | 43 Okhotsk Is. | 75 SW West Pile Region | 107 Powder River Basin |
| 12 Zambezi River Basin | 44 Okchaon Belt | 76 Malau/ Malibu/ Luluhan Isl | 108 Green River Basin |
| 13 Main Karoo Basin | 45 Chinsan/ Taichai | 77 Peninsular Malaysia | 109 Lima Basin |
| 14 Springbok Flats/ Waterberg/ Boppanenberg/ Limpopo Basins | 46 Shuangyashan/ Jiu Jui Basins | 78 Kong Ya Kong Basin | 110 San Juan Basin |
| 15 Cape Province | 47 Tanghua Basin | 79 Ngao/ MacRamat Basin | 111 Black Mesa Basin |
| 16 Sinal Basin | 48 Panzhi Basin | 80 Chang Ninh/ Thai Nguyen/ North Basins | 112 Interior Region |
| 17 Kerman Basin/ Elborz Rang | 49 Foushan Basin | 81 Central Region | 113 Illinois Basin |
| 18 Korla Igh Region | 50 Kailuan/ Jini Basin | 82 Semiarid & Miistro Is. | 114 Appalachian Basin |
| 19 Central Wb East Region | 51 Donghehu/ Junger Basin | 83 NE Mindanao Is. Basin | 115 Western Basin |
| 20 8th Scotland Region | 52 Shiban- Gan- Ming Basin | 84 W Mindanao Is. Basin | 116 Eastern Texas/ Arkansas Region |
| 21 South Vales | 53 Hekshan/ Tatum/ Nenar/ Fang Fong Basins | 85 Northern Region | 117 Mountains/ Foothills Region |
| 22 Ruhr Basin | 54 Huanryu/ Hualu/ Shandong Basins | 86 Dnjapur Basin | 118 Plains Region |
| 23 Frenking Marksbach | 55 Sichuan Basin | 87 Sydney/ Gloucester/ Gloucester Basins | 119 Rocky Mt/ Inter Montane Belt |
| 24 Limburg/ Flanides | 56 Hunan/ Jengsi Region | 88 Bowen/ Galilee/ Gtys Basins | 120 Inular Region |
| 25 Andorra Region | 57 Eastern Guizhou Region | 89 Galilee Basin | 121 Minto Chipman Area |
| 26 Abarua - Leon Region | 58 Hobart/ Coal/ Draabhan Valley | 90 Sarat/ Montoir/ Ipswich Basins | 122 Sydney/ Mainland Areas |
| 27 Central and Western Region | 59 Rangang/ Jhai Basins | 91 Mayborough Basin | 123 Quattr/ Guasare |
| 28 Suda Basin | 60 Damodar Valley Belt | 92 Anrington Basin | 124 Bio Ebo Region |
| 29 Silesia Basin | 61 Son- Mahand Basin | 93 Coler/ Wilga Basin | 125 Western Region |
| 30 Koocha Basin | 62 Sabura Basin | 94 Perth Basin | 126 Rio Grande Do Sul Region |
| 31 Ju Valley | 63 Mahandi Basin | 95 Tasmanian Basin | 127 Southern Region |
| 32 baukribas/ Svogensk Basins | 64 Prantisa - Godavari Valley Basin | 96 Vekato/ Tarantaki | 128 Sabinas Basin |

Supply Consolidation

- ★ Global production continues to increase to meet demand
- ★ Considerable consolidation amongst main players - 13 exporters represent about 70% of seaborne trade by 2004
- ★ Trend will continue as big companies seek low risk expansions
- ★ List of possible take over targets getting smaller and hard to unlock value

*Who are the big players?
- global companies*

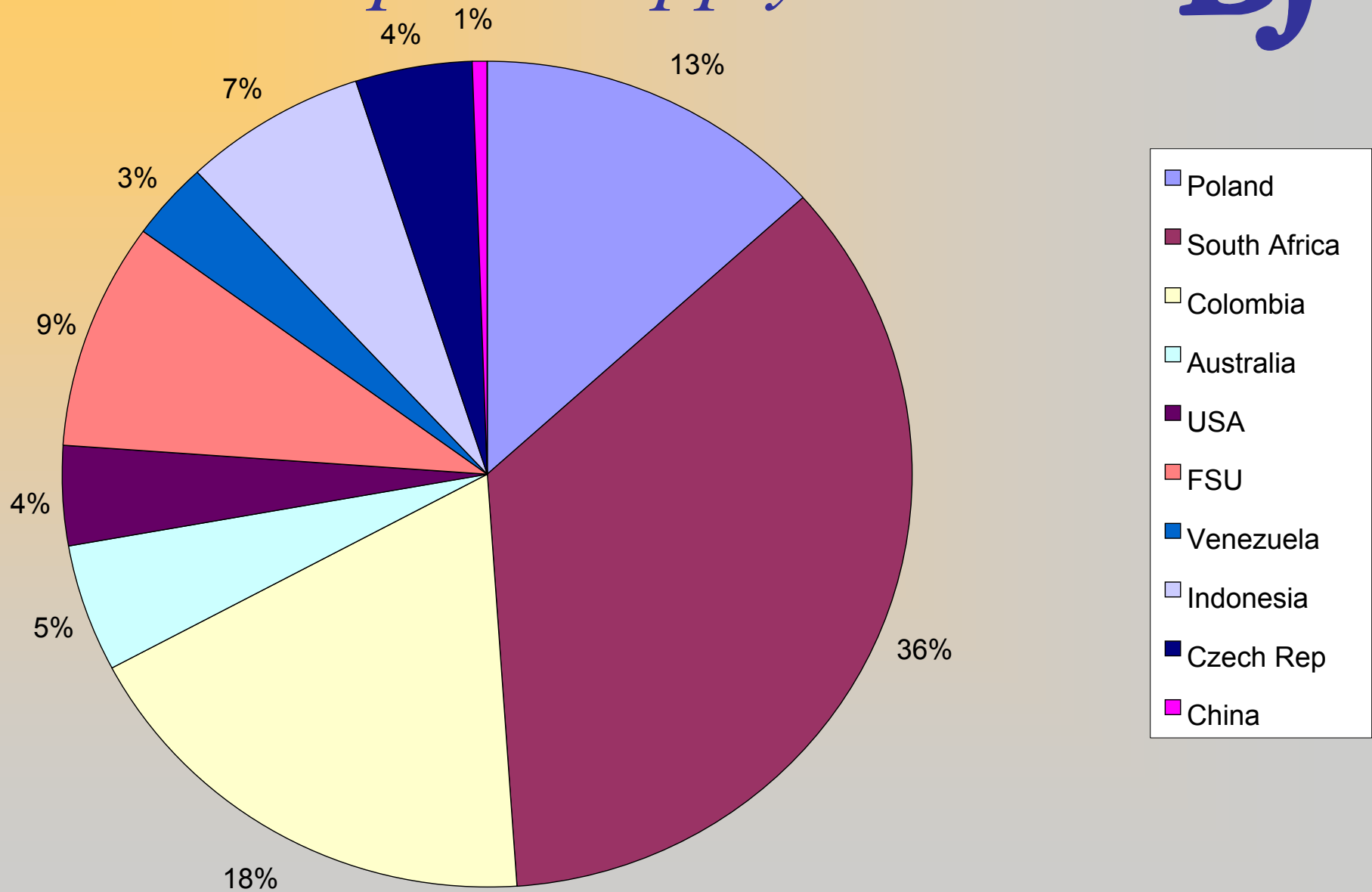
COMPANY	Mtpa MANAGED	LOCATION
Rio Tinto	177	Australia, USA
BHP Billiton	131	USA, Australia, RSA,
Anglo Coal	79	Australia, South Africa
RAG AG	66	USA, Venezuela, Australia
Xstrata	68	Australia, South Africa

Recent Trends

- ★ Record prices due to a combination of factors creating a simple supply – demand imbalance
- ★ No end in sight to freight rate issues
- ★ Exchange rates hurting South African and Australian producers
- ★ Supply side constraints unlikely to be alleviated in the short term

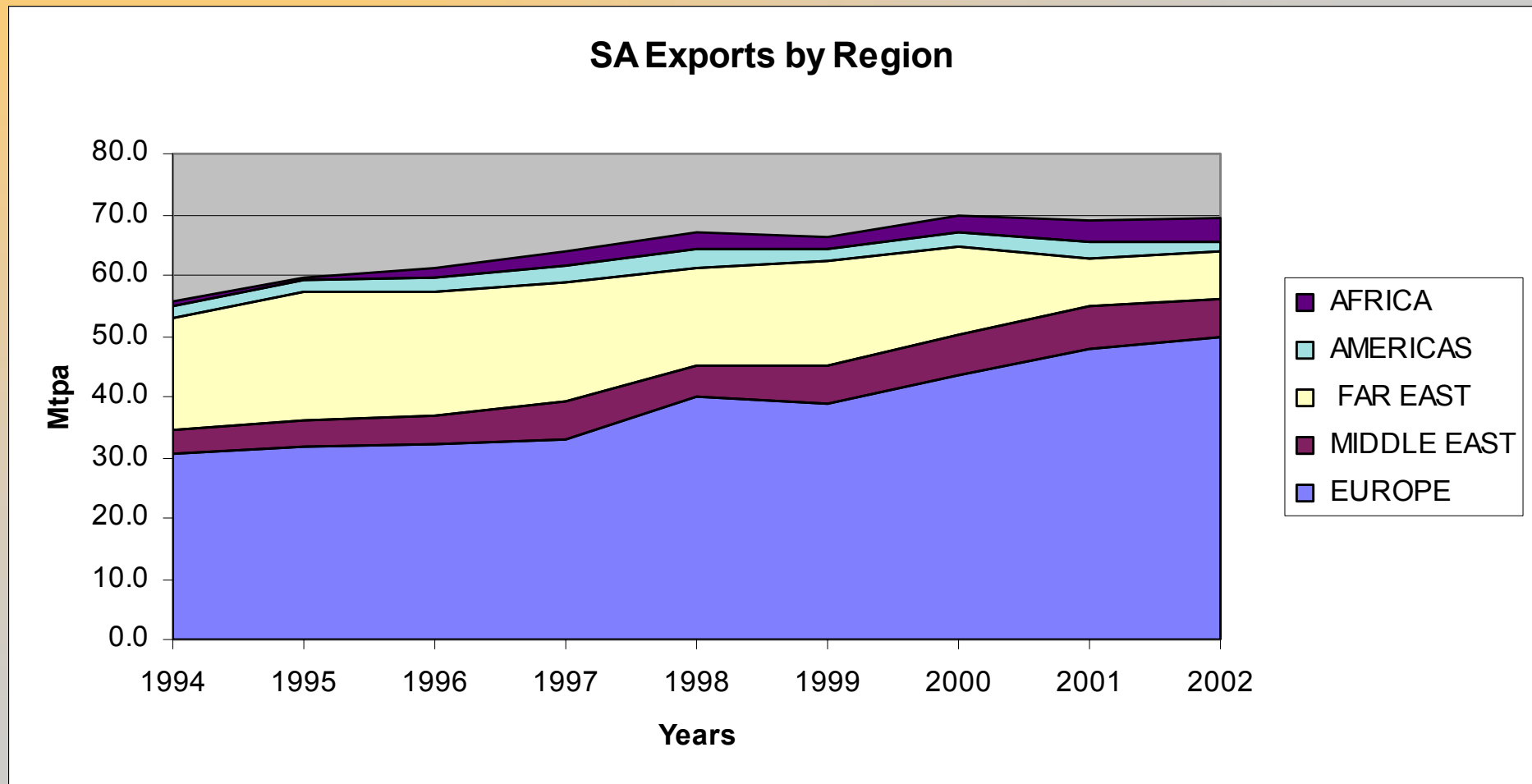
European Supply

BJ

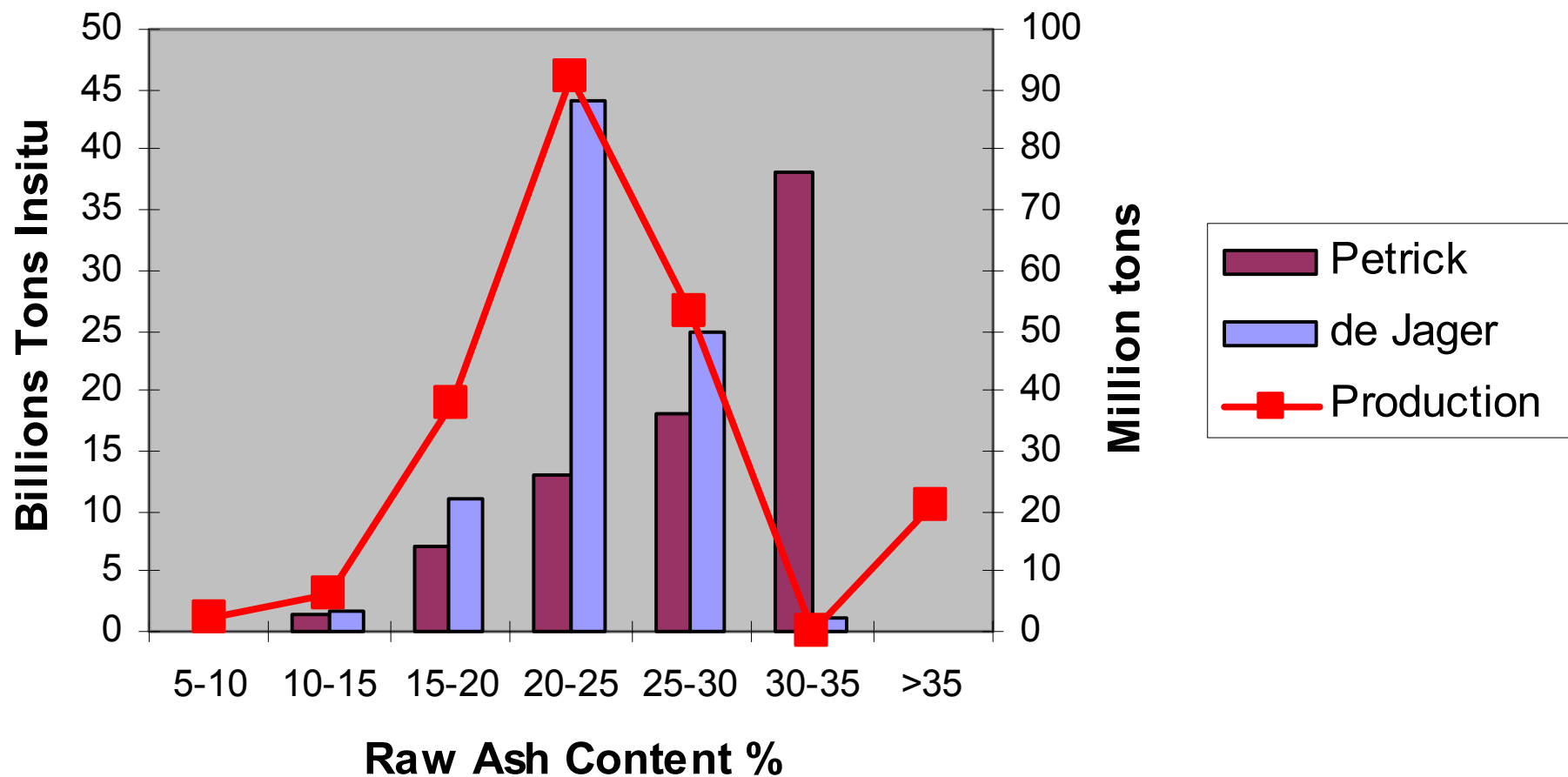


*European Export Supply Sources
in 2004*

South Africa – export destination changing



Low quality reserves



Source: SACR

RSA Summary

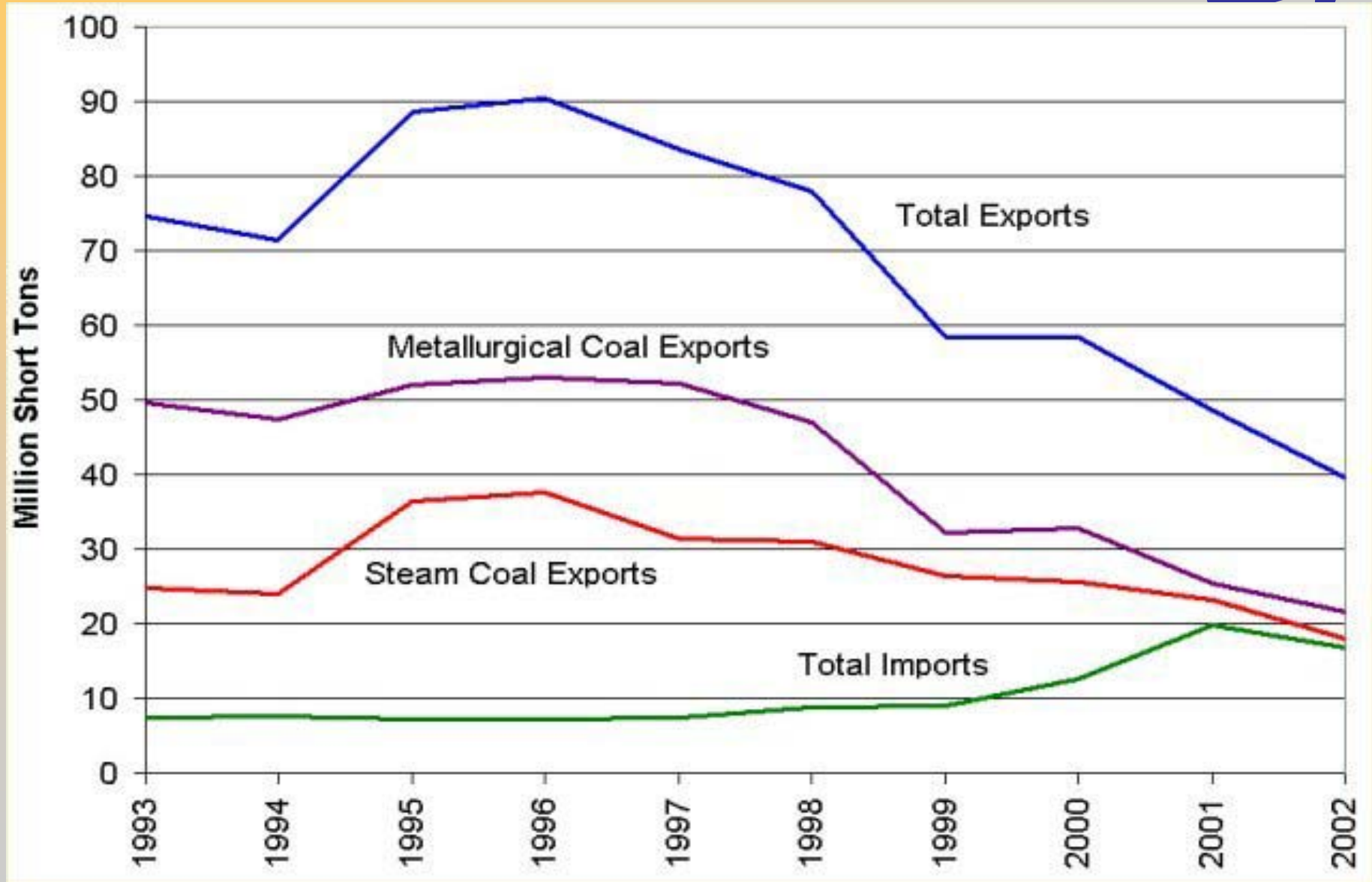
- ★ RBCT likely to go to 82 Mtpa
- ★ No export growth expected 2004
- ★ Future growth dependent on success of
 - Pillar extraction
 - Black Economic Empowerment
- ★ Port capacity not problem
- ★ Exchange rate sensitive

Colombia

- ★ Significant growth potential
- ★ Important source for USA and Europe of good quality coal
- ★ 10 billion tons proven reserves?
- ★ Two main players – CCC will expand
- ★ Improving infrastructure

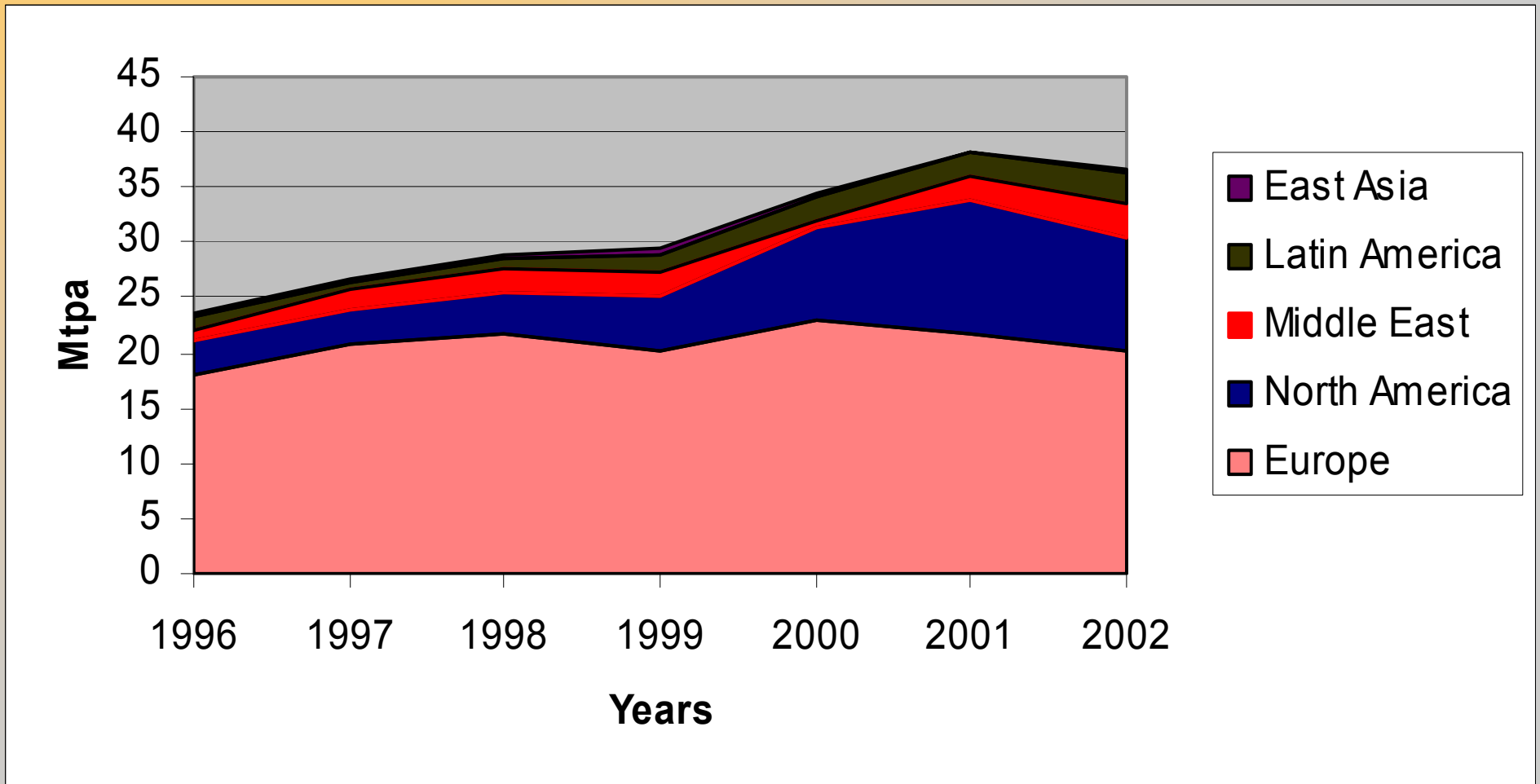
USA imports and exports

BI



Colombia

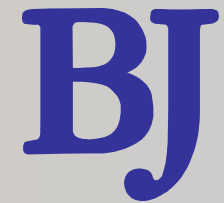
BJ



Colombian Exports

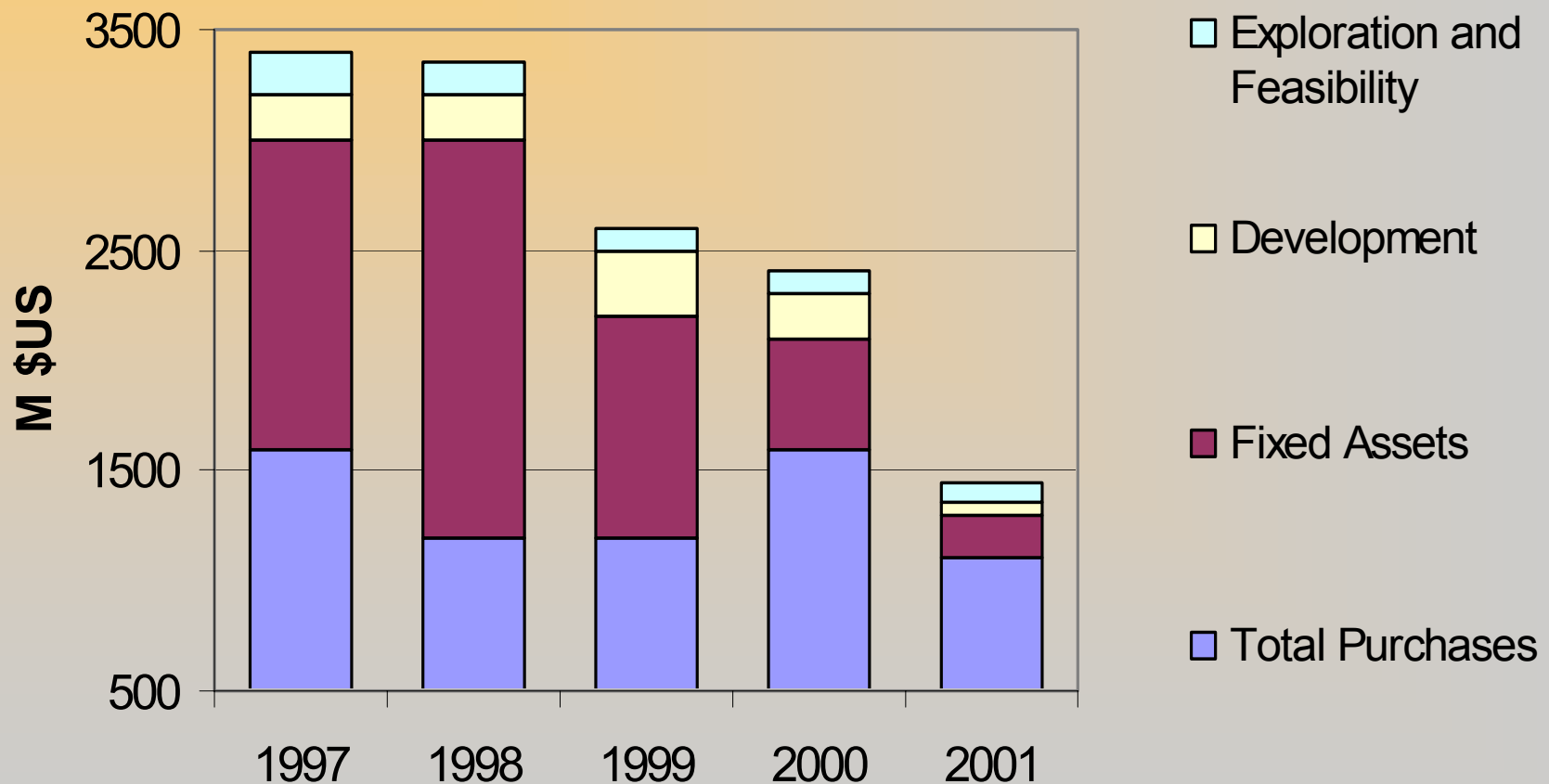
- ★ Will increase exports, perhaps to 55 – 60 Mtpa
- ★ US demand critical issue
- ★ Long term quality issues?
- ★ Political risk may deter capital expenditure
- ★ Significant investments required in infrastructure

Indonesia – lack of investment

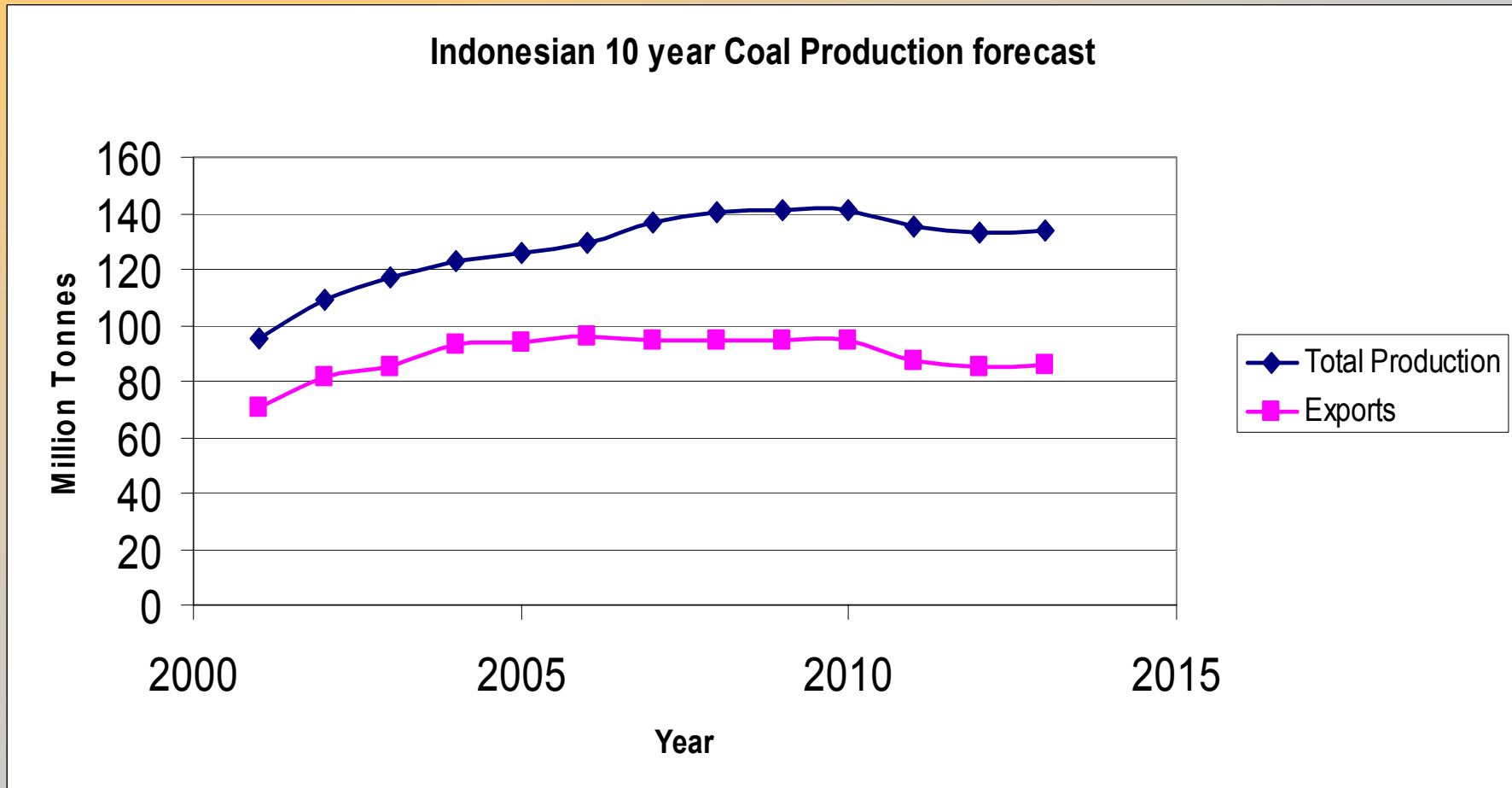


Industry Spending

Source: PWC Mining Survey 2002



Indonesia Production Profile **BJ**



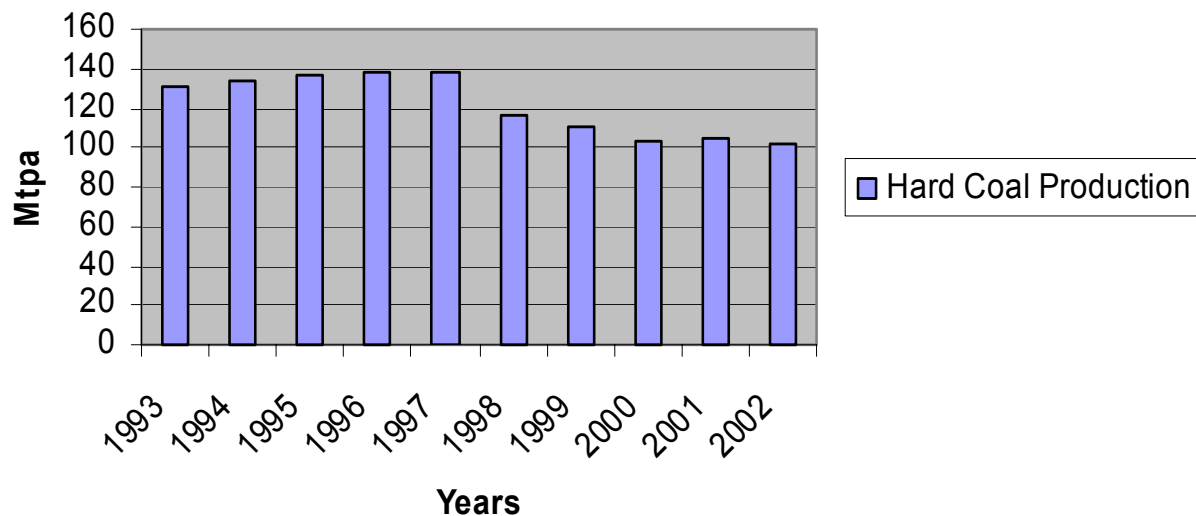
Indonesia

- ★ No major new mines in the wings
- ★ Incremental expansion from Adaro, Kideco, possible Berau and KPC
- ★ Investment levels remain low
- ★ Internal demand may increase and impinge on exports
- ★ 2004 or 2005 export peak?

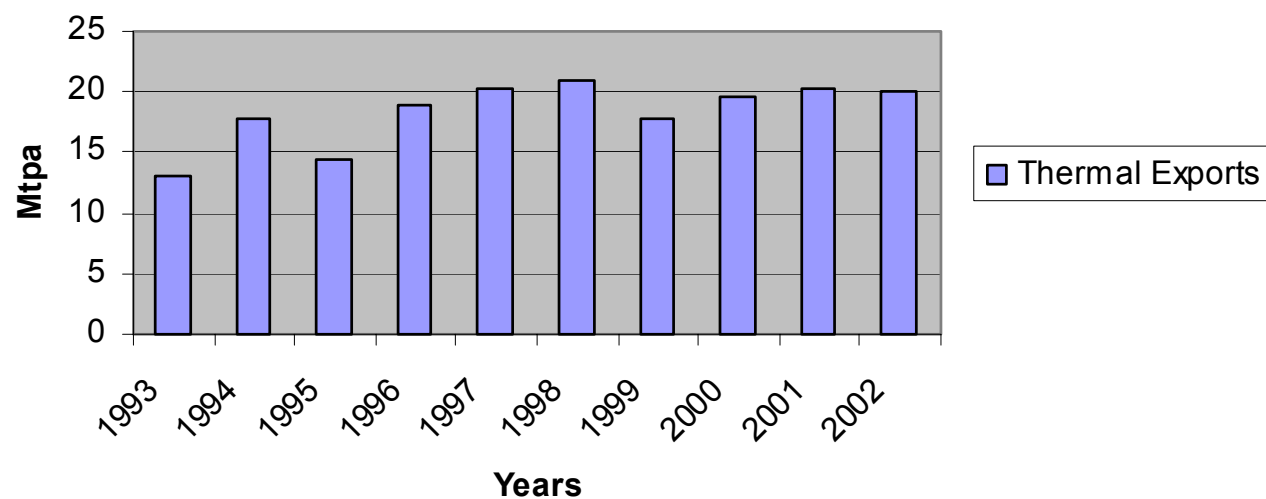
Poland

- ★ Troubled times ahead
- ★ Massive restructuring under way
- ★ Output likely to drop
- ★ Exports drop significantly – 7 to 10 Mtpa soon?
- ★ Could even be net importer

Hard Coal Production

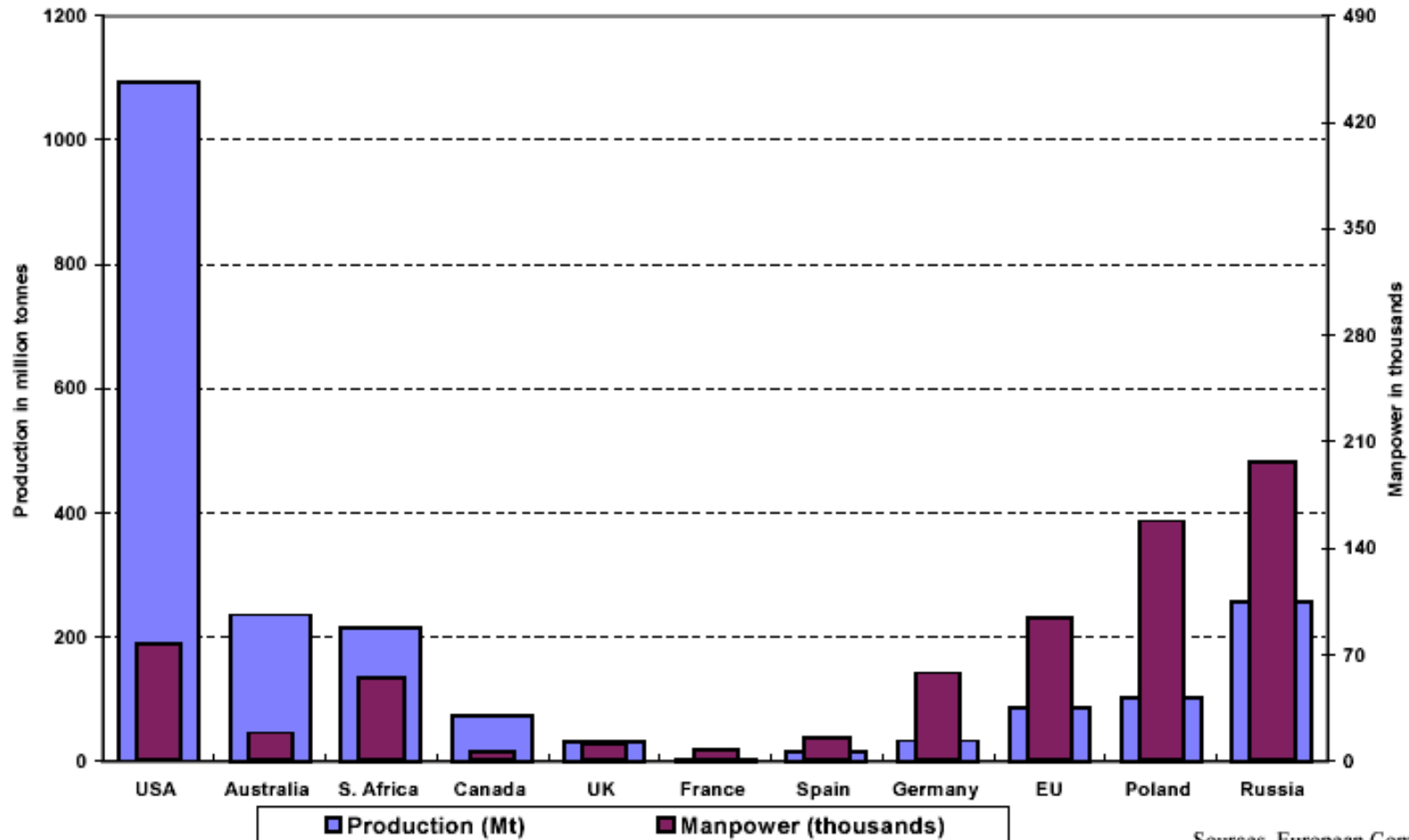


Thermal Exports



Source: Barlow Jonker

Productivity is the issue



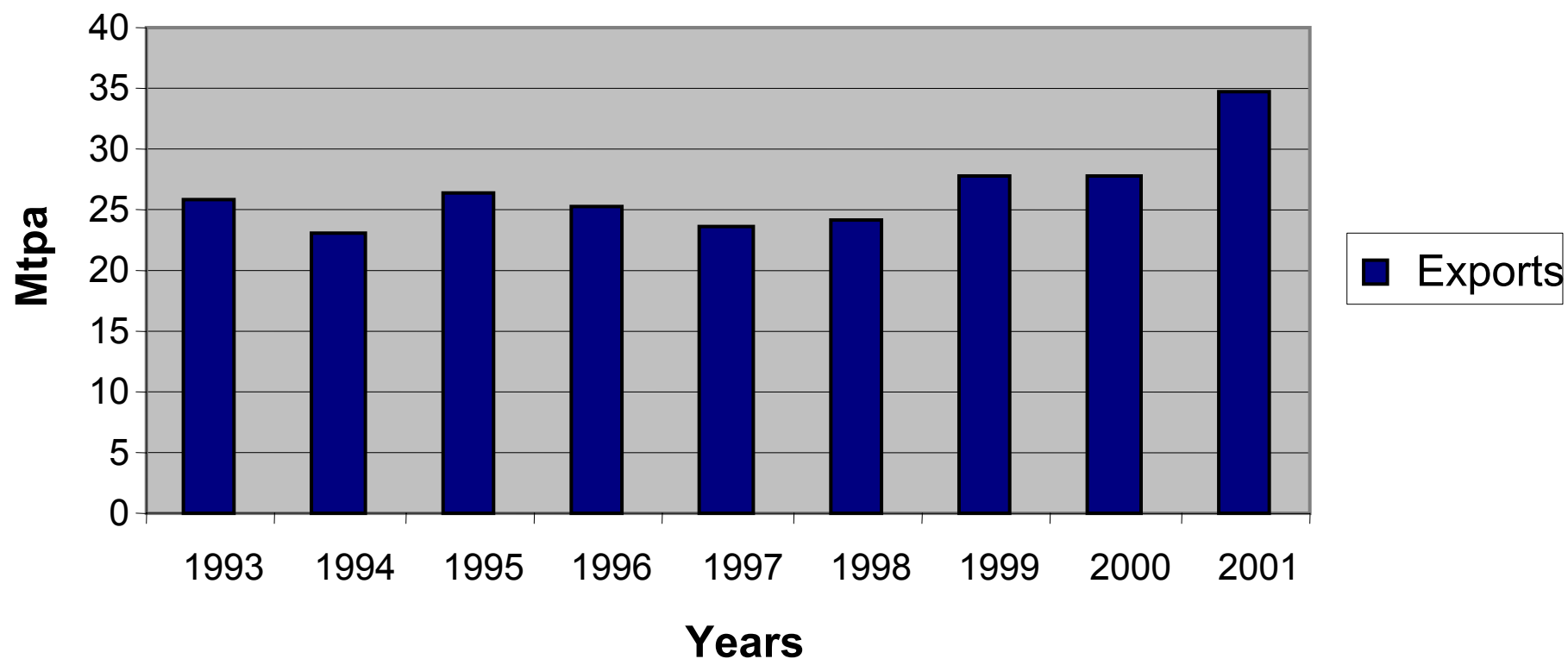
Russia

BJ

- ★ Increase in exports by Black Sea ports
- ★ Exports to Asia constrained by port capacity and remain at about 16 Mt
- ★ Privatisation successful but debt and environmental liabilities limiting factors in industry future and investment
- ★ European exports stay about 20 -25 mtpa
- ★ Internal demand significant

Russian Exports

Russian Coal Exports



EU production

BJ

- ★ Germany decline to 12 – 15 mtpa
- ★ France and Spain to cease production soon
- ★ UK problematic – some decline likely, but how much?
- ★ Production largely ended from EU by 2020

China and Australia

★ China

- Steady export growth
- Internal demand and prices key factors
- Freight rates

★ Australia

- Expansions possible in Queensland and NSW
- Exchange rate and freight rates critical
- Exports peak at about 120 mpta?

Possibly Scenarios (mtpa)

Country	2001	2012 Possible	Difference	2012 Doomsday	Difference
UK	30.0	30	0	6	-26.1
Germany	30.9	25	-5.9	15	-15.7
France	1.6	0	-1.6	0	-2.3
Spain	10.4	0	-10.4	0	-10.5
Sub Total	72.9	55	-17.9	21	-54.6
Exports to Europe					
Colombia	20.21	35	+14.79	20	0
South Africa	48.60	54	+5.4	40	-8.6
Poland	19.66	7	-12.66	3	-16.66
Russia	25	30	+5	20	-5
Sub Total	113.47	126	+12.53	83	-30.26
Total	187.6	181	-5.4	104	-84.86

Summary

- ★ Theoretically, there is plenty of coal
- ★ Supply is becoming an issue
- ★ New sources of supply limited
- ★ Domestic sources key elements
- ★ Russia and Poland important for European energy balance
- ★ Prices robust in the near term