IMnI ANNUAL CONFERENCE 2003

The World Steel Industry

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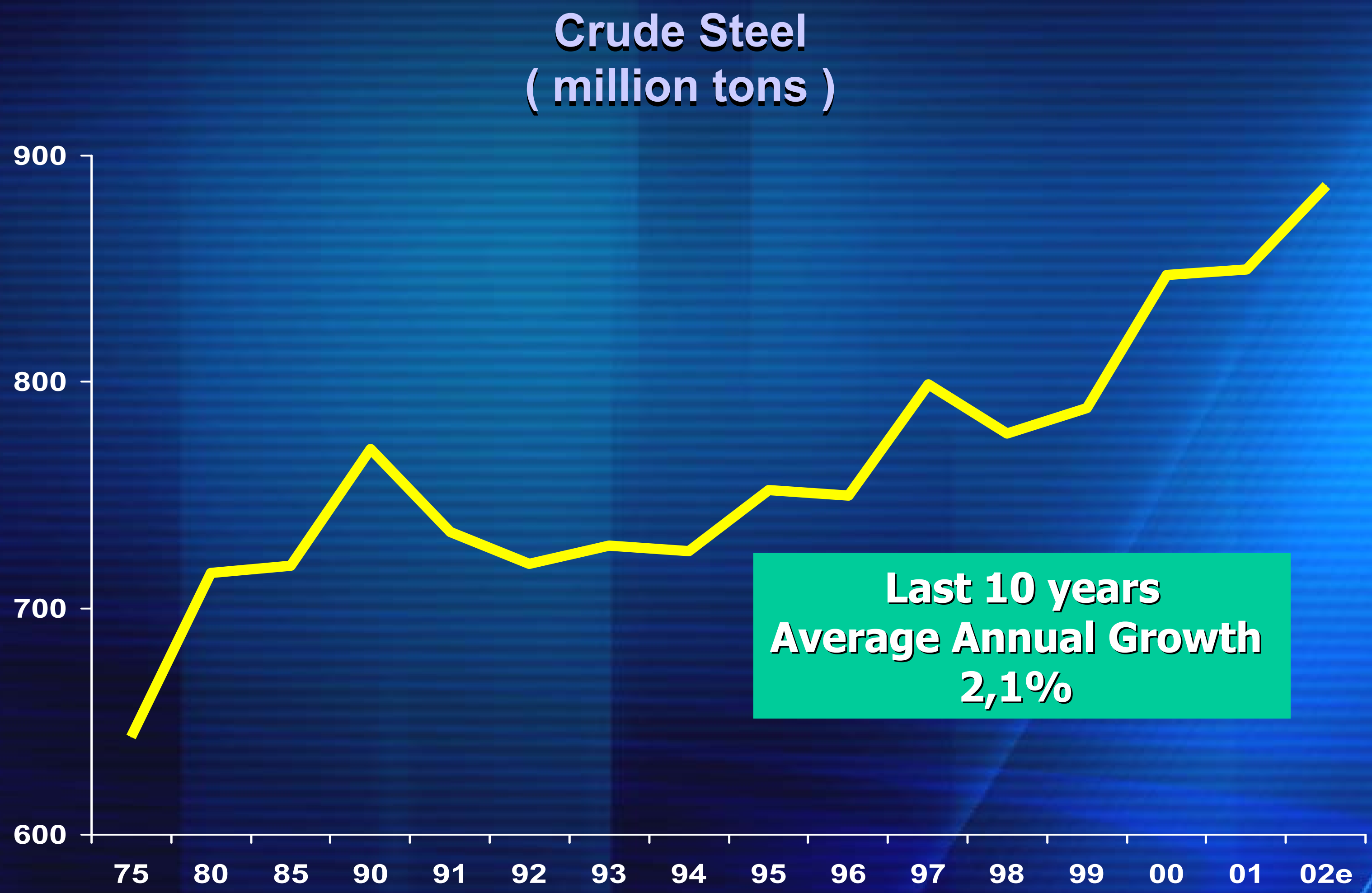
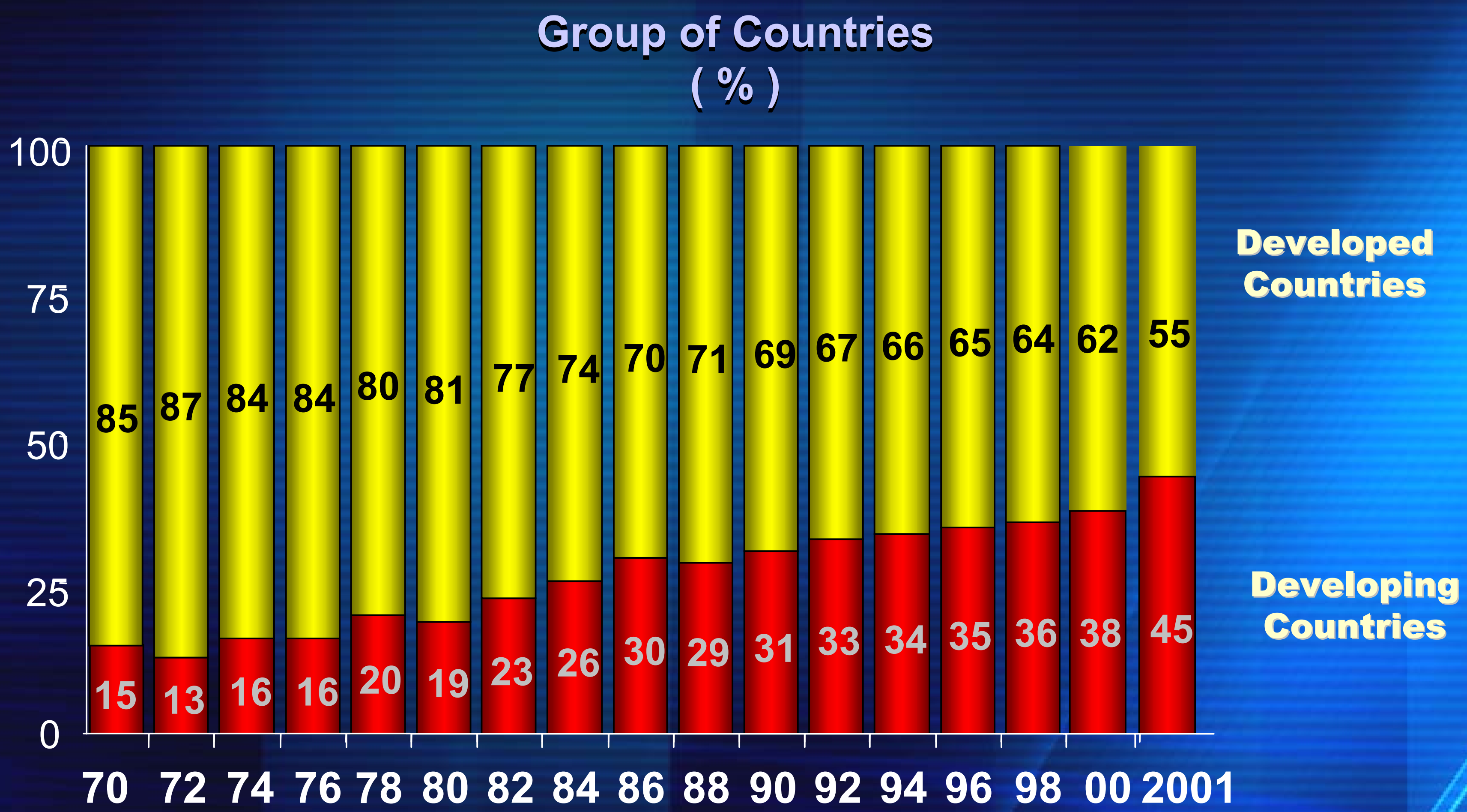
Production



Source: International Iron and Steel Institute — IISI

Production

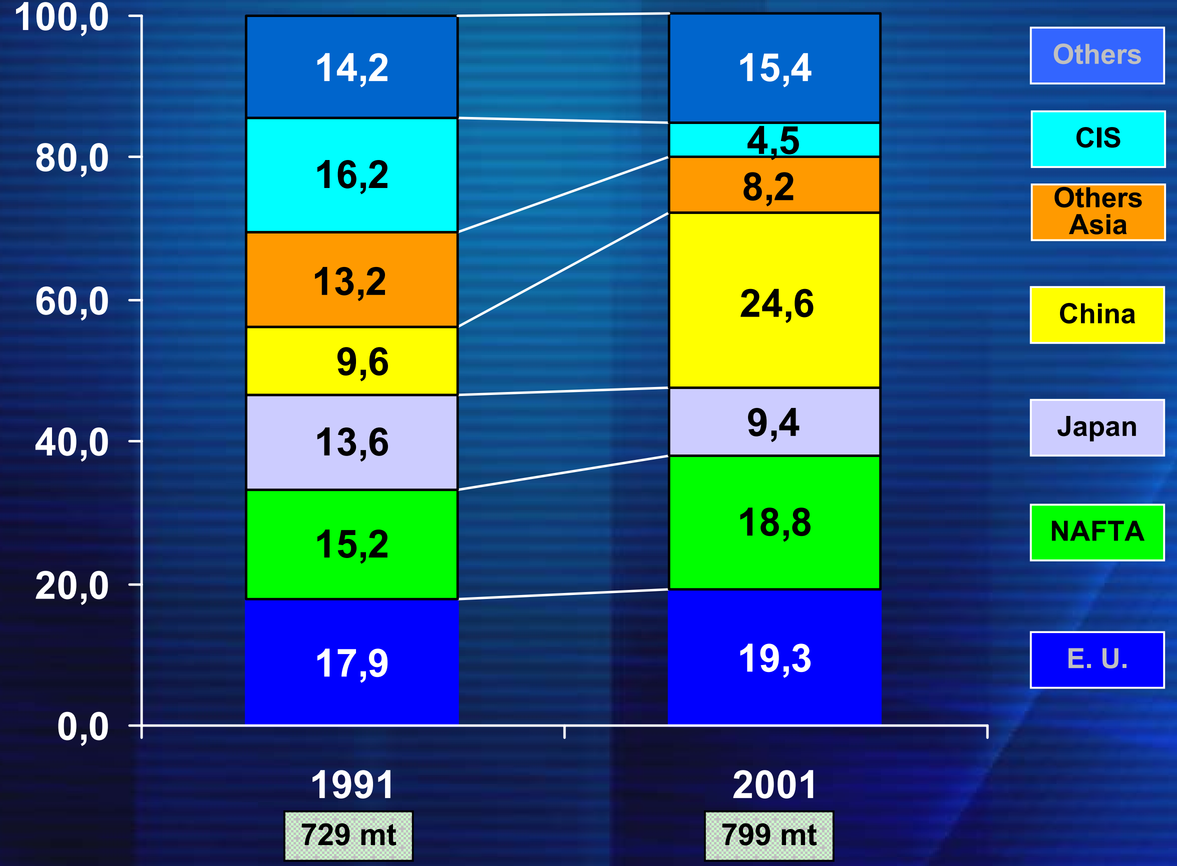


Not include: C.I.S. (Ex URSS) - 98,6 mt and East Europe - 28,0 m t

Source: World Steel Dynamics - Feb. 2002

Apparent Consumption

Evolution by Region – Crude Steel Equivalent (%)



Source: International Iron and Steel Institute — IISI

Apparent Consumption

Finished Products
Annual Growth Projections - Scenario

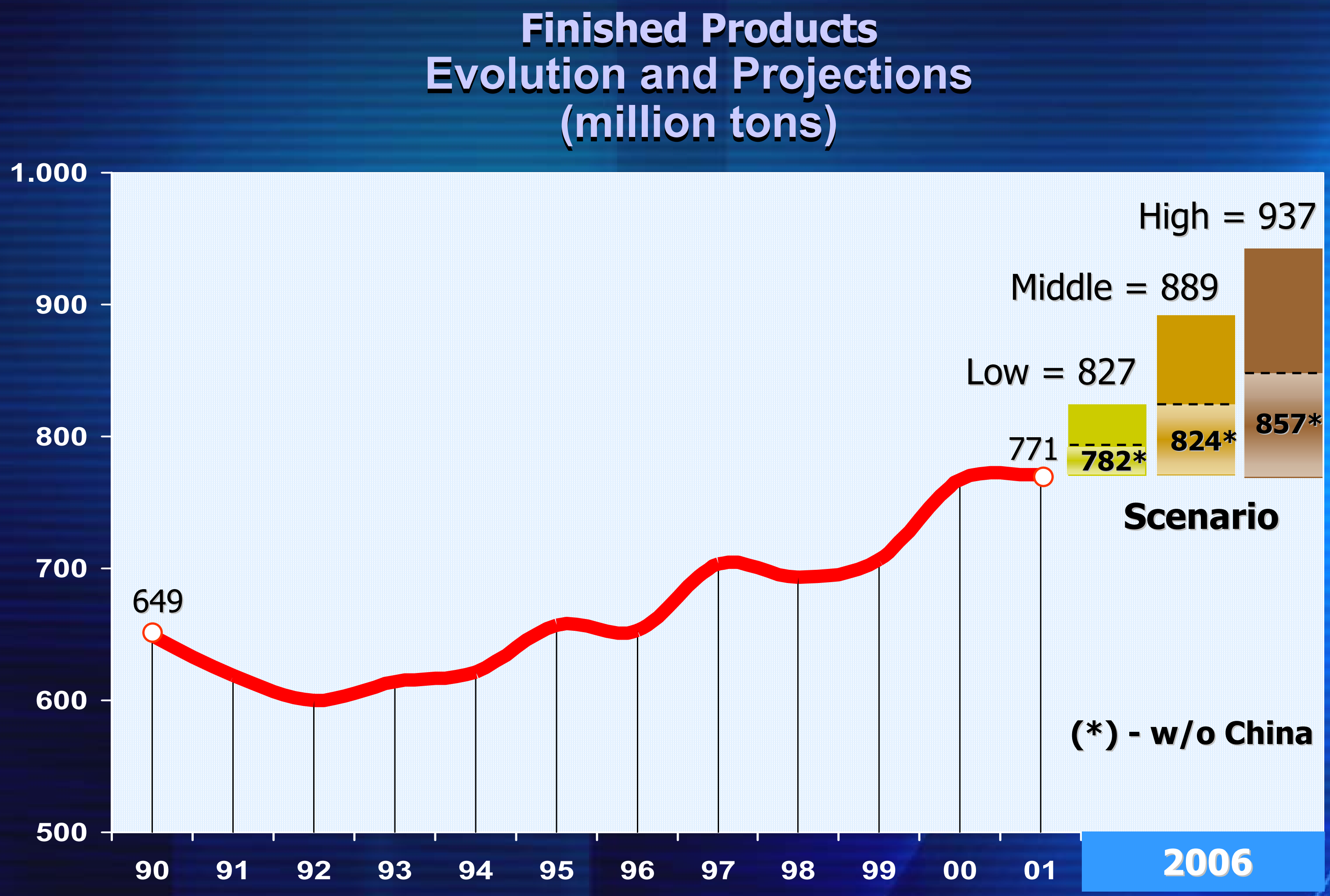
Average Annual Change (%)

Regions	2006 (L)	2006(M)	2006(H)
China	4.8	6.7	8.0
Japan / Other Asia	0.8	1.5	2.2
European Union (EU-15)	(0.2)	0.9	2.0
Other Europe / CIS	1.4	3.3	5.1
NAFTA	0.0	1.8	2.5
Others	0.5	2.3	3.7
World	1.4	2.9	4.0
World (exc. China)	0.4	1.7	2.7

Note: Others include South America, Africa and Middle East

Source: International Iron and Steel Institute — IISI

Apparent Consumption



Source: International Iron and Steel Institute — IISI

China

- Fastest growing major economy by a wide margin

Average growth since 1990: 9.5% p.y. vs. 3.0% for the world

- Over the past 10 years China's usage more than doubled. China now world's largest consumer of steel

	Rank	mt	Share World
1992	3rd	87	12%
2002e	1st	206	23%

- Dominance in crude steel production

	Rank	mt	Share World
1992	3rd	81	11%
2002e	1st	182	20%

- Massive rise in the last three years

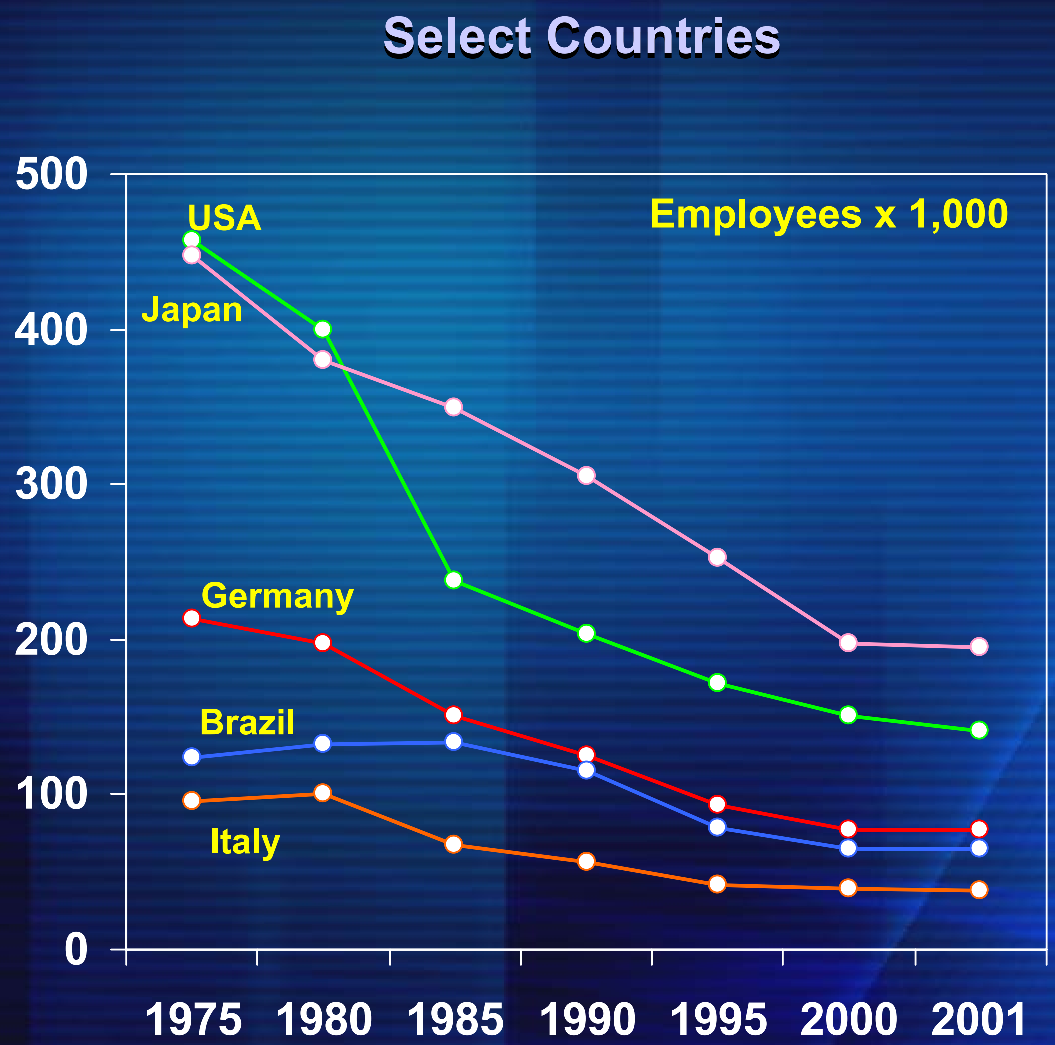
(mt)	2000	2001	2002e
Crude Steel Production	127	152	182
% Change	3%	16%	20%
Net Imports	10	18	22
% Change	-12%	77%	24%
App. Consumption (CS basis)	163	196	206
% Change	8%	20%	5%

Source: Macquarie (CRU Conference 2003) and CST

World Trade

Source: International Iron and Steel Institute — IISI

Workforce in the Steel Industry



Source: International Iron and Steel Institute — IISI

Main Problems

- Producers are price takers
- Cost gains go entirely to customers
- Producers cannot manage capacity
- Poor capital productivity
- Consolidation still regional
- Industry concentration still low

Source: CRU

Concentration in Steel Sector is Low

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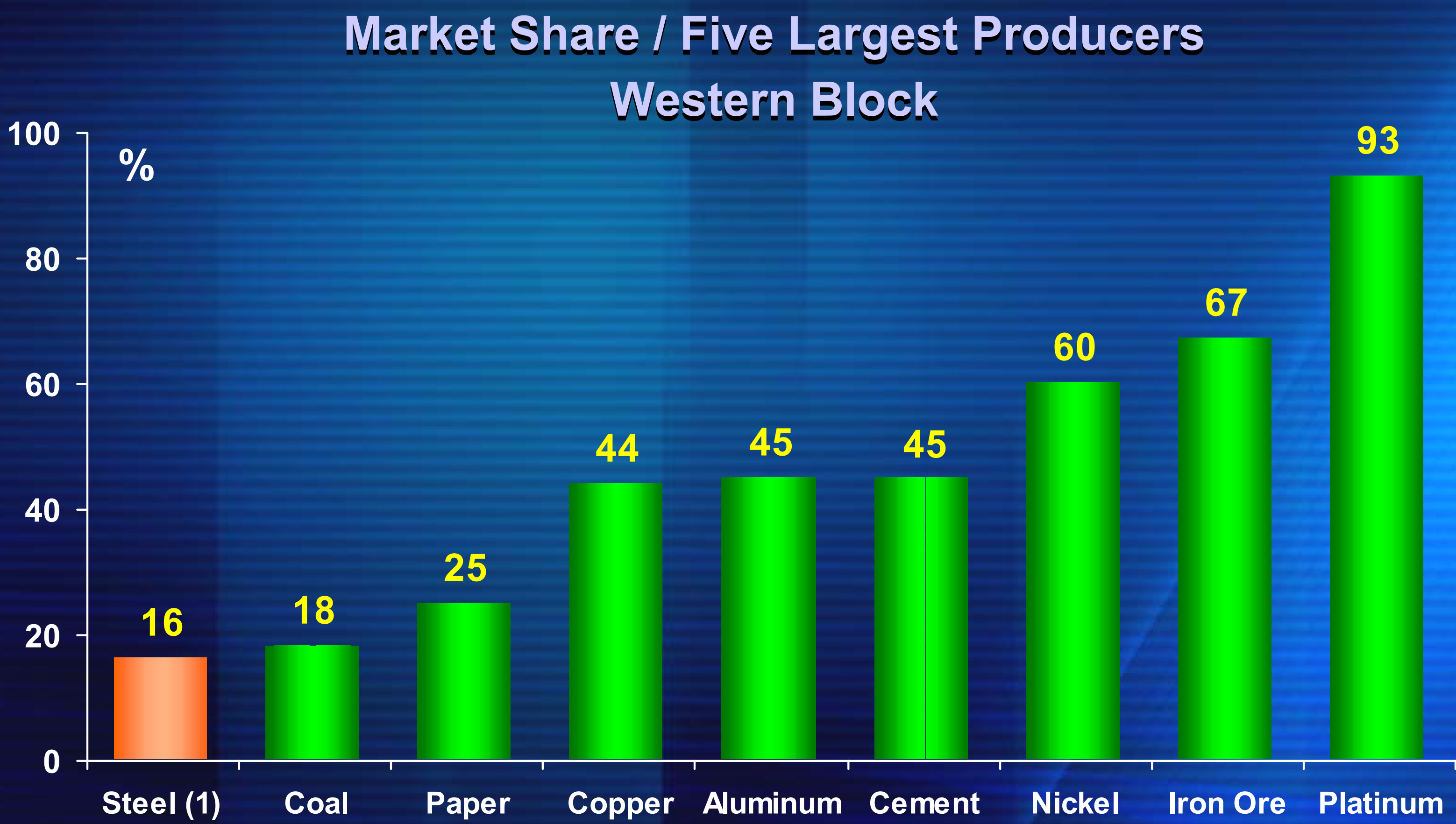
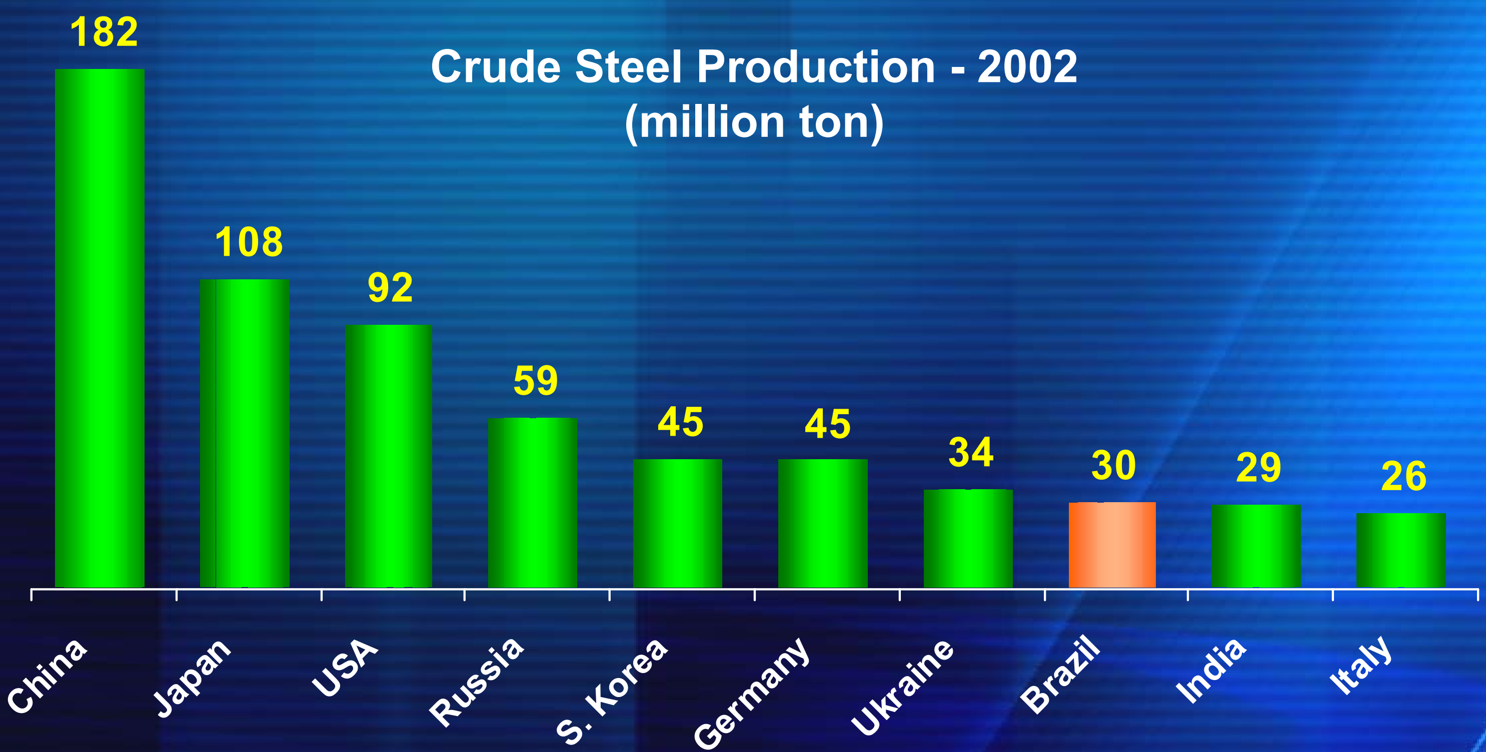


Source: Morgan Stanley Dean Witter Research / CRU – Ref. 2001
(1) - After Aceralia, Arbed and Usinor Merger

BRAZILIAN STEEL INDUSTRY

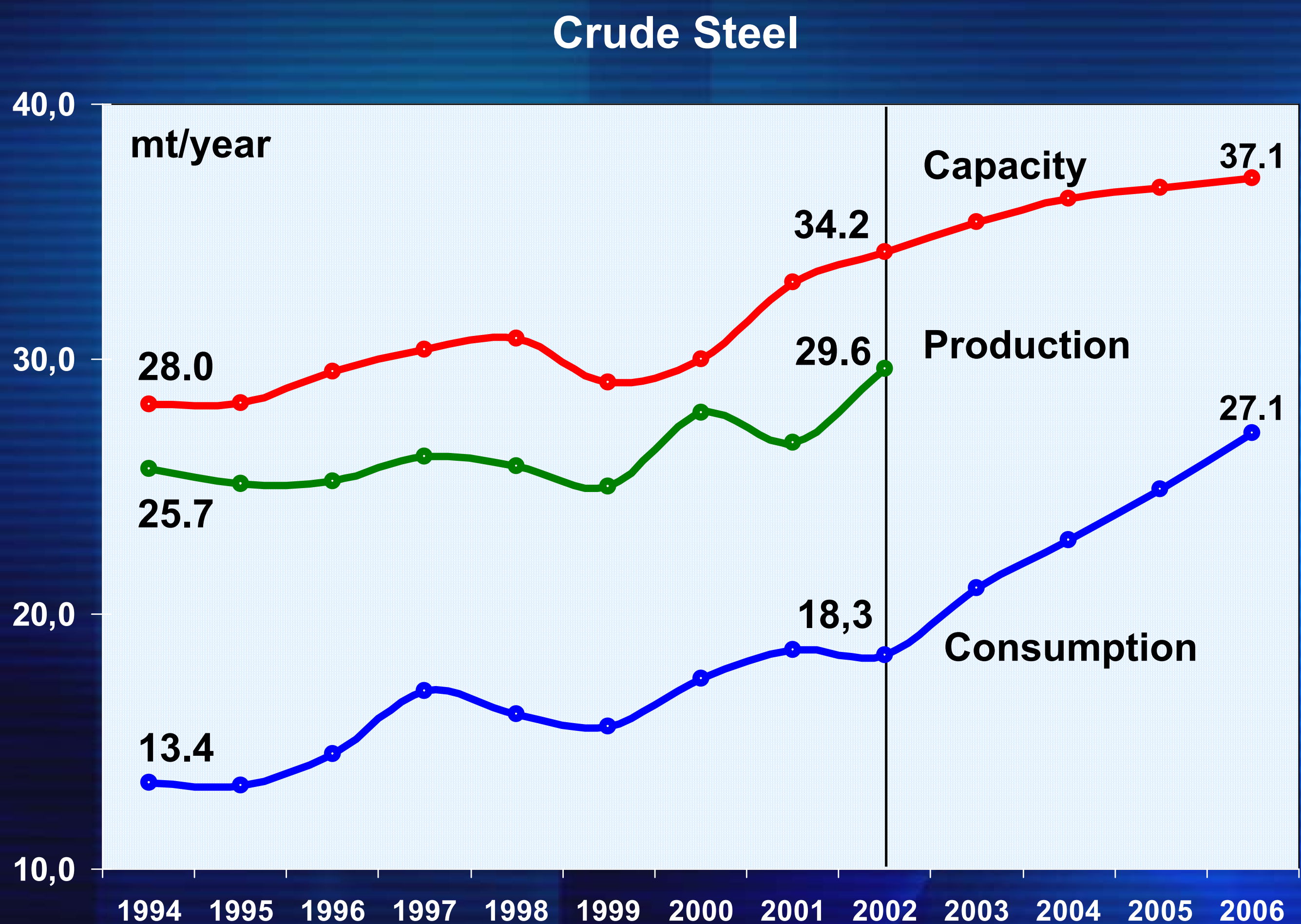
Crude Steel Production

- **Brazil is the 8th largest steel producing country, comprising approximately 3.3% of world and 52.5% of Latin American crude steel production.**



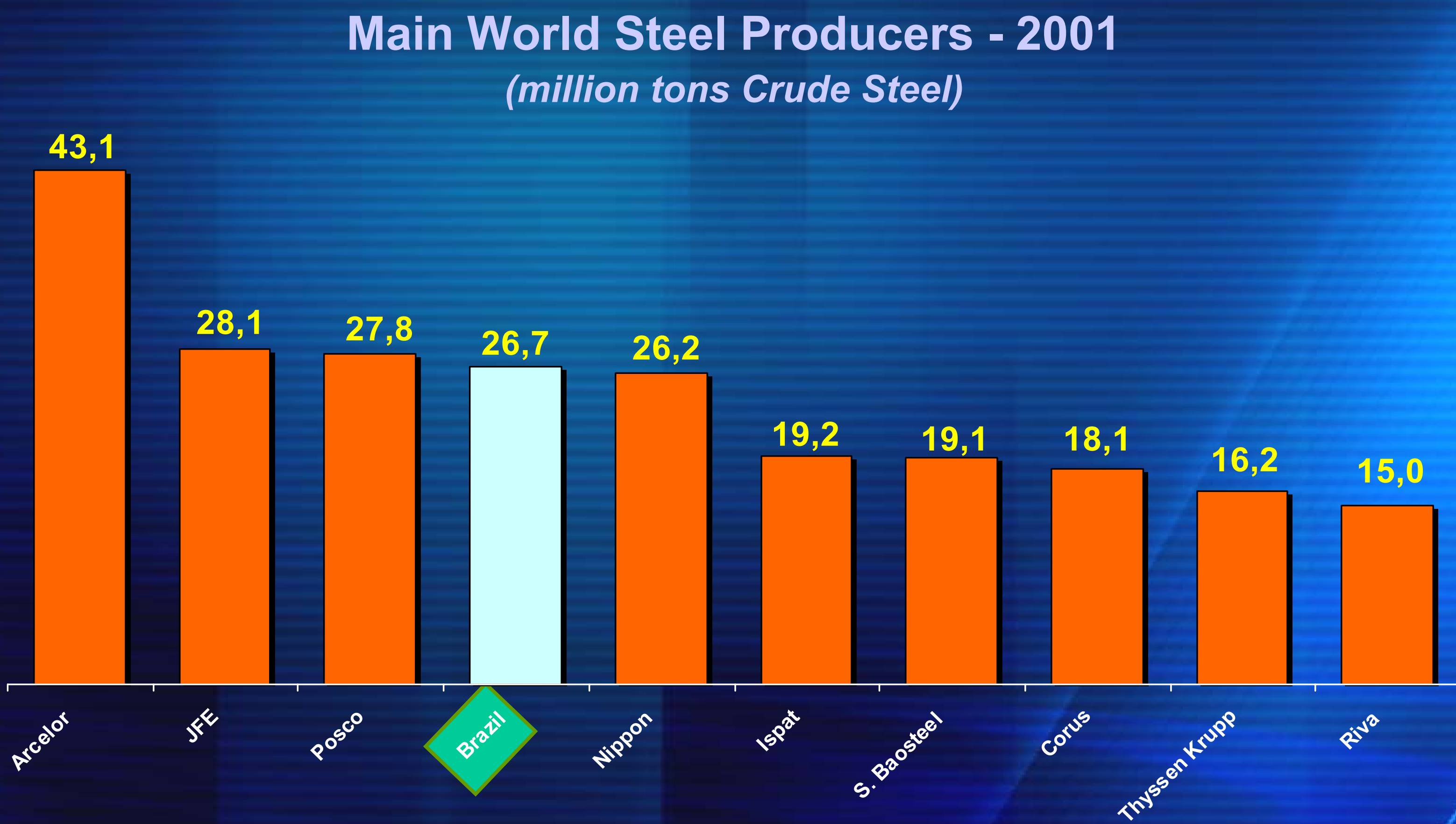
Source: International Iron and Steel Institute — IISI

Projections



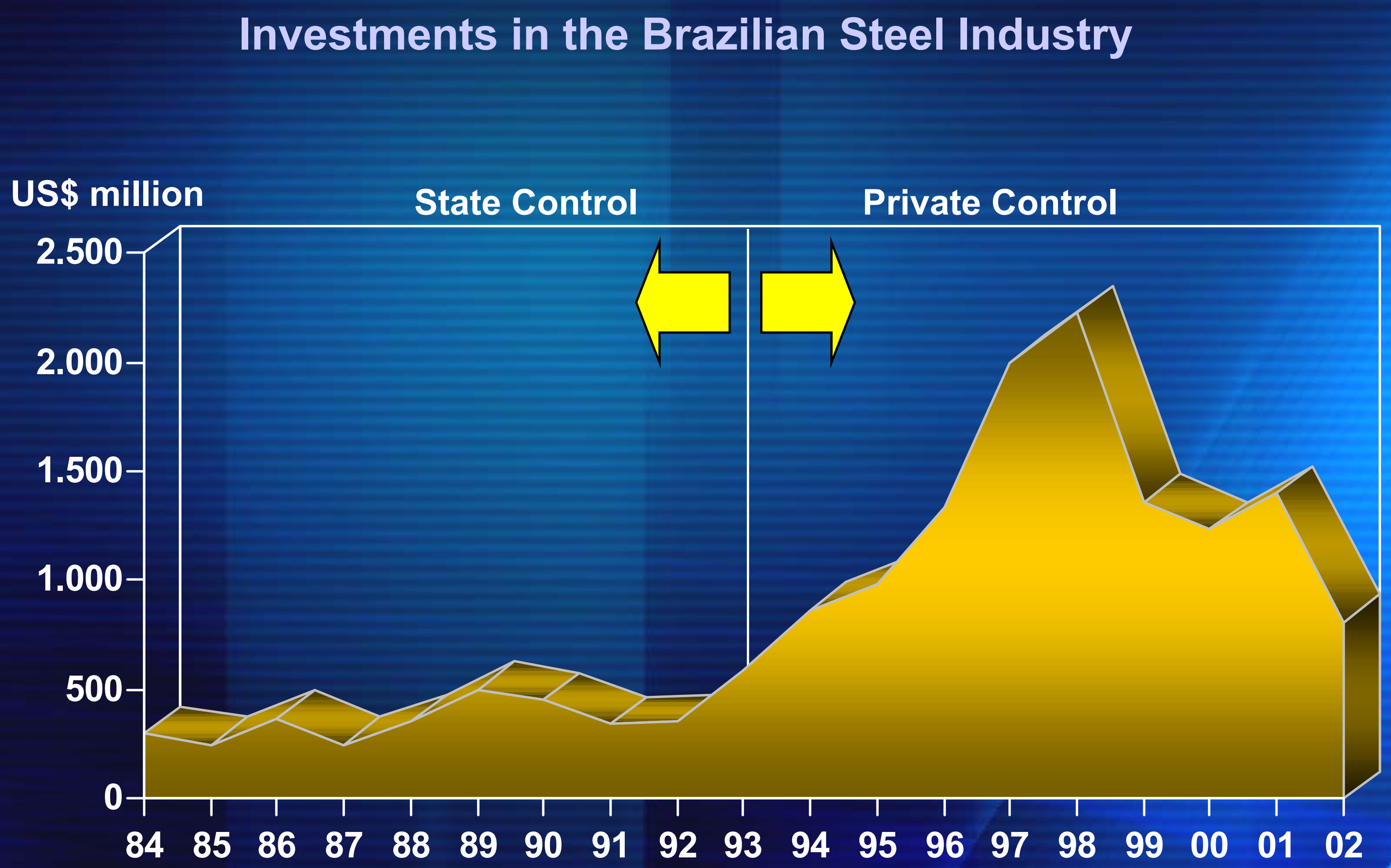
Source: Brazilian Steel Institute - IBS

Sector Fragmentation



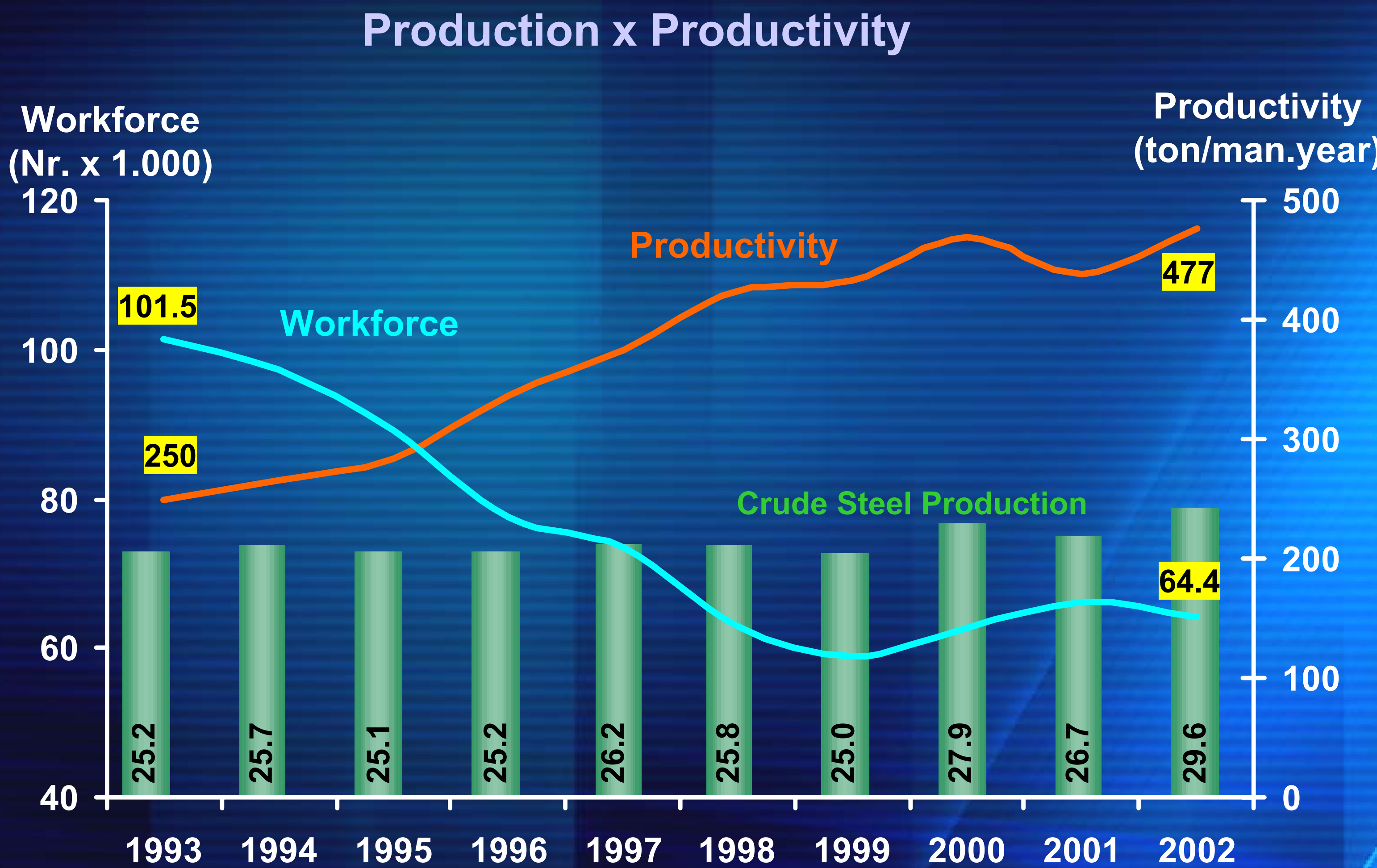
Source: International Iron and Steel Institute — IISI

Investments



Source: Brazilian Steel Institute - IBS

Competitiveness



Productivity 1993 ~2002
Average Annual Growth = 6.7% p.y.

Source: Brazilian Steel Institute - IBS

MANGANESE IN THE STEEL INDUSTRY

Major Present Steel Production Routes

DIRECT REDUCTION	IRON PRODUTION EX: COREX, MIDREX	REFINING CASTING	ROLLING	FINAL PRODUCT
BASIC OXYGEN FURNACE (BOF)	PIG IRON PRODUTION BLAST FURNACE	REFINING CASTING	ROLLING	FINAL PRODUCT
ELECTRIC FURNACE (EAF)	SCRAP	REFINING CASTING	ROLLING	FINAL PRODUCT

Manganese Consumption

Impact of Process Innovations on Mn Consumption

INNOVATIONS	Mn (Impact)
AUTOMATIZATION	
SHORTER PRODUCTION LINES	
PREREDUCED IRON PRODUCTION	→
NEW COKEMAKING TECHNOLOGIES	
SMELTING REACTORS	
THIN SLAB CASTING & STRIP CASTING	

* NOT A SIGNIFICANT CHANGE DUE TO PROCESS INNOVATIONS

Manganese Consumption

Impact of Steel Products Market Trend on Mn Consumption

STEEL PRODUCT (APPLICATION)	Mn (Impact)
AUTOMOTIVE	↓
CONSTRUCTION - STRUCTURAL	↑
SHIPBUILDING – HEAVY PLATES	↗
TUBES	↗
PACKAGING	→

* LITTLE CHANGE DUE TO STEEL PRODUCTS MARKET TRENDS

CHANGES – CHALLENGES - GOALS

Changes in the Steel Business

- INCREASED COMPETITION & PRESSURE ON PRICE
- ENERGY SAVINGS
- DECREASE THE PRODUCTS VARIABILITY
- CONTINUOUS COMPETITIVENESS INCREASE
- COST REDUCTION
- HUGE INVESTIMENTS ON MANAGEMENT ON:
  - TECHNOLOGY
  - PEOPLE –> TRAINING & EDUCATION – HEALTH & SAFETY
  - INFORMATION
- RECYCLING
- STRICT ENVIRONMENTAL CONTROL
- STEEL INDUSTRY CONSOLITATION & MERGERS

Future Challenges and Goals

STEEL MARKET CHALLENGES

- SUPPLY x DEMAND
- PROTECTIONISM
- SUSTAINABLE DEVELOPMENT
- ATTEND THE CUSTOMERS REQUIREMENTS
- DEVELOPMENT PROCESS CONTROL CAPABILITY
- LOW COST
- HIGH QUALITY AND LOW VARIABILITY

MAIN GOALS

- INCREASE STEEL COMSUMPTION – MAINLY ON CONSTRUCTION
- EDUCATION, TRAINING AND BENCHMARKING - MANAGEMENT

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INSTITUTO BRASILEIRO
DE SIDERURGIA

COMPANHIA SIDERÚRGICA
DE TUBARÃO