

# **MANGANESE**

## **A Worldwide Industry Overview**

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# A Look at the World Mn Market Today

- 2004 Highlights
- Mn Alloy (production and consumption)
- Mn Alloy Unit Consumption
- Mn Ore (production and consumption)

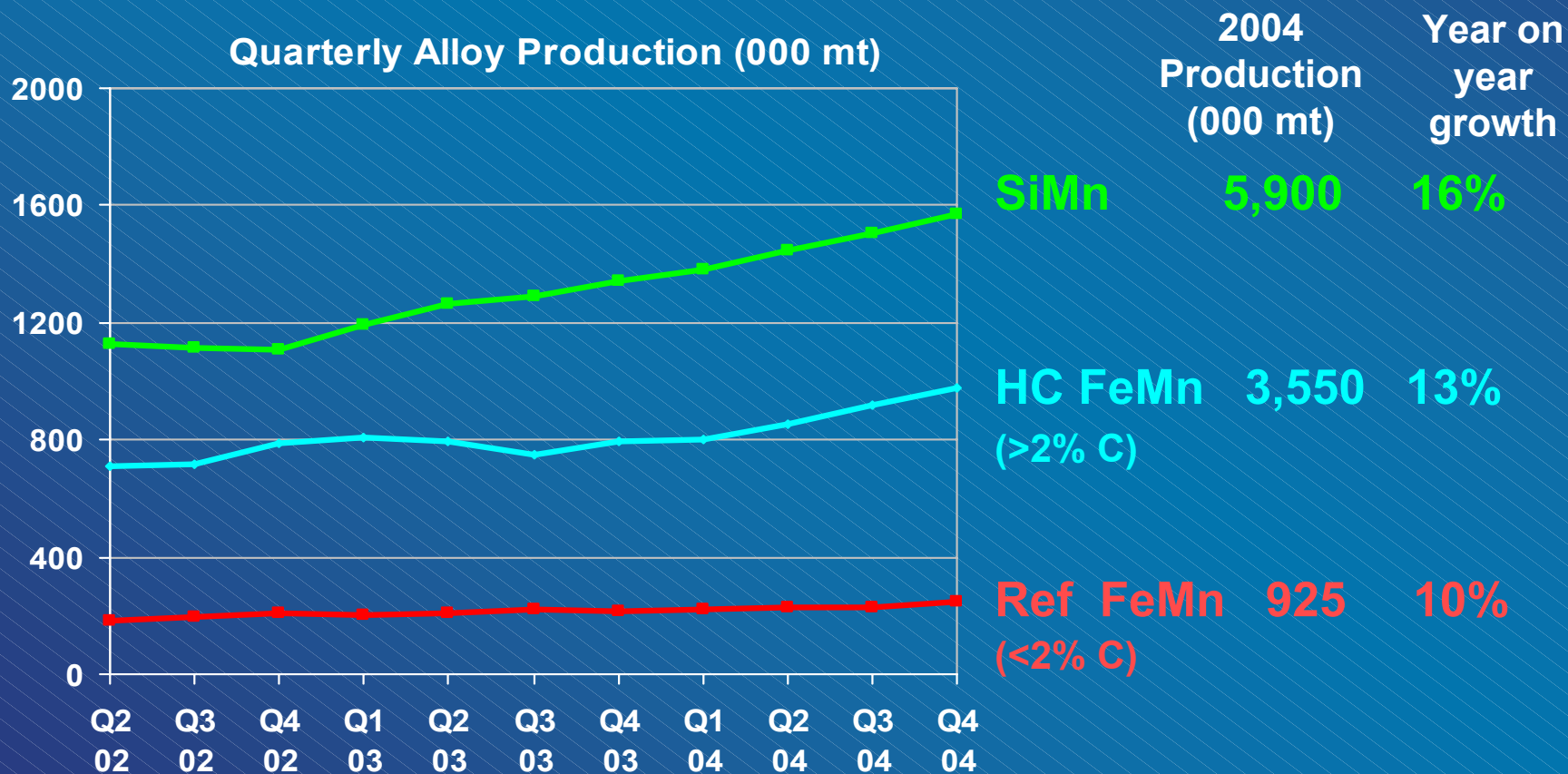
## 2004 Highlights

- Year begins with a bang – alloy shortages
- Chinese energy & transport constraints
- Stronger ties with China
- Spotlight on Mn ore: India, S. Africa, Gabon, Georgia
- New capacities (ore and alloy)

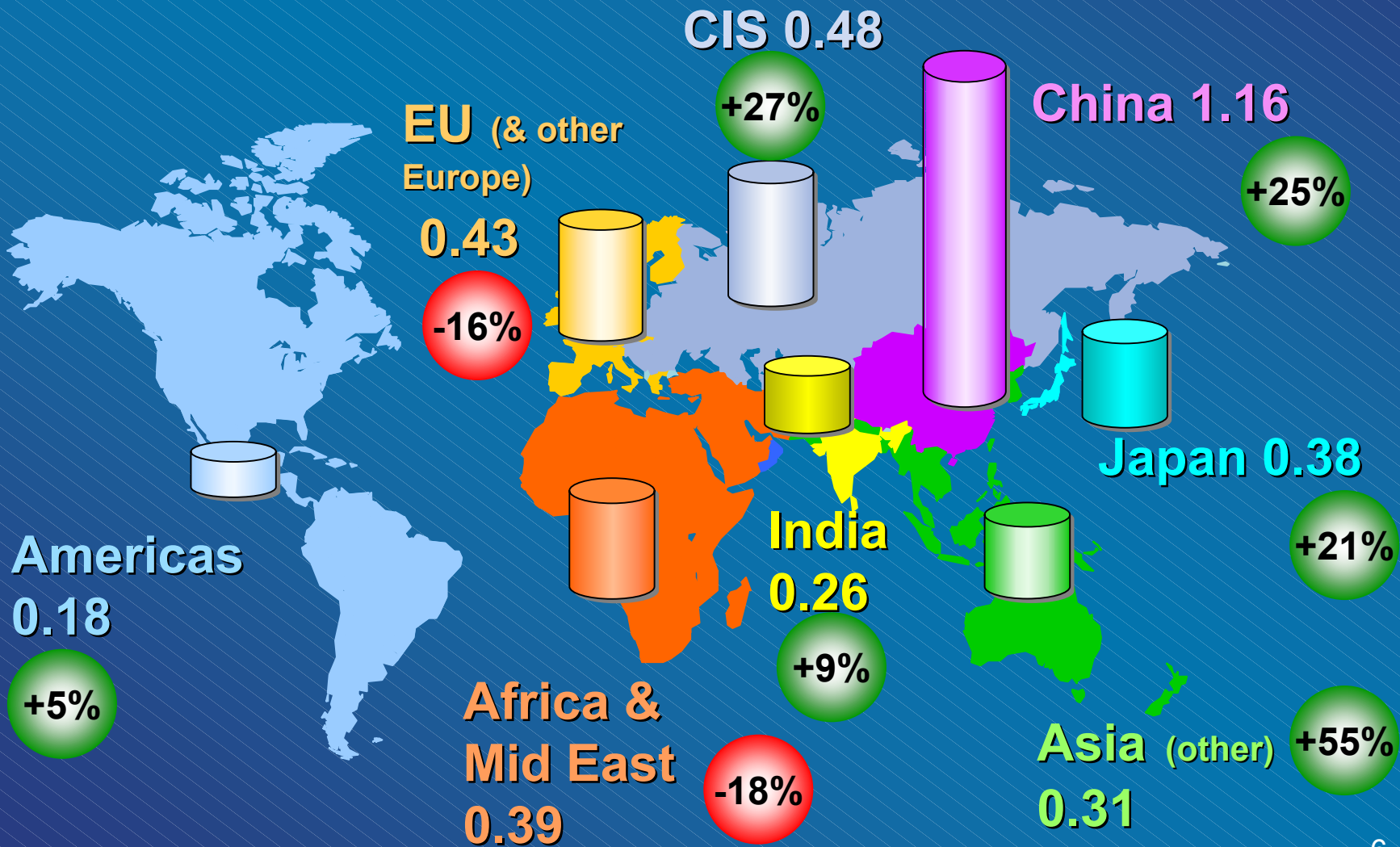
# **Manganese Alloys**

## Total Mn Alloy Production

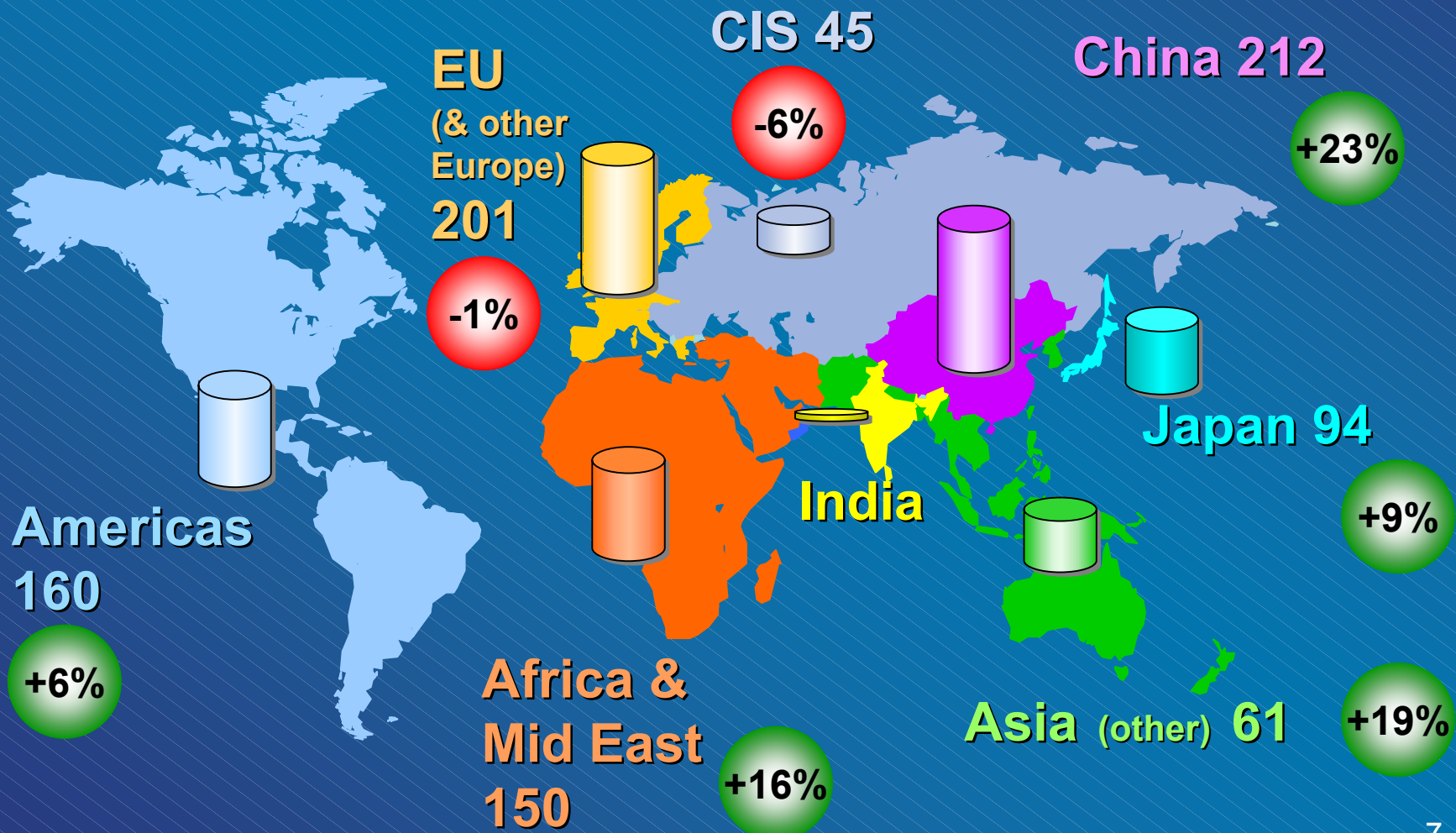
2004 World production = **10.4** mil metric tons  
**14%** growth from 2003



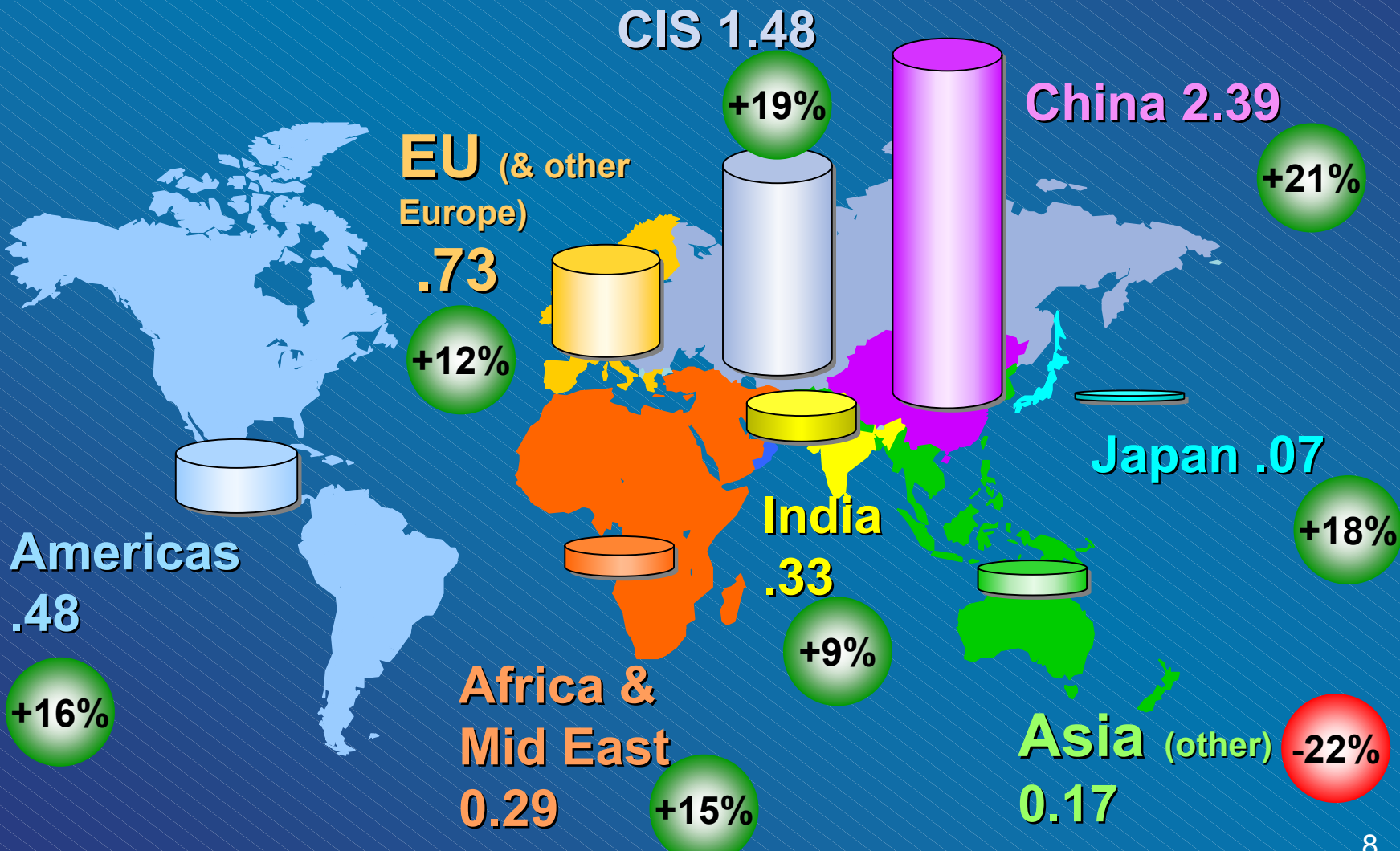
## HC FeMn Production 2004 = 3.55 M mt



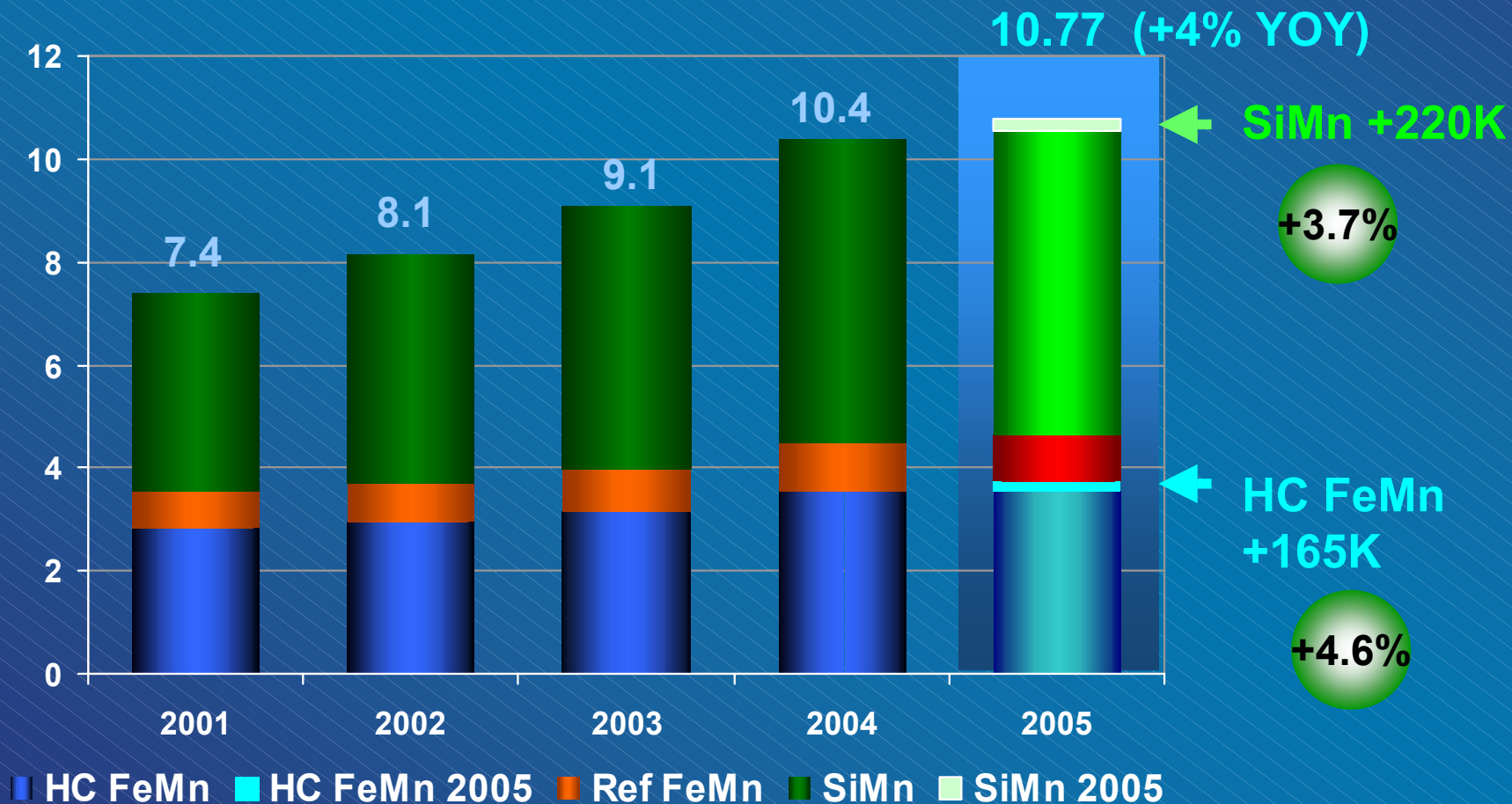
## Ref FeMn Production 2004 = 925 K mt



## SiMn Production 2004 = 5.9 M mt

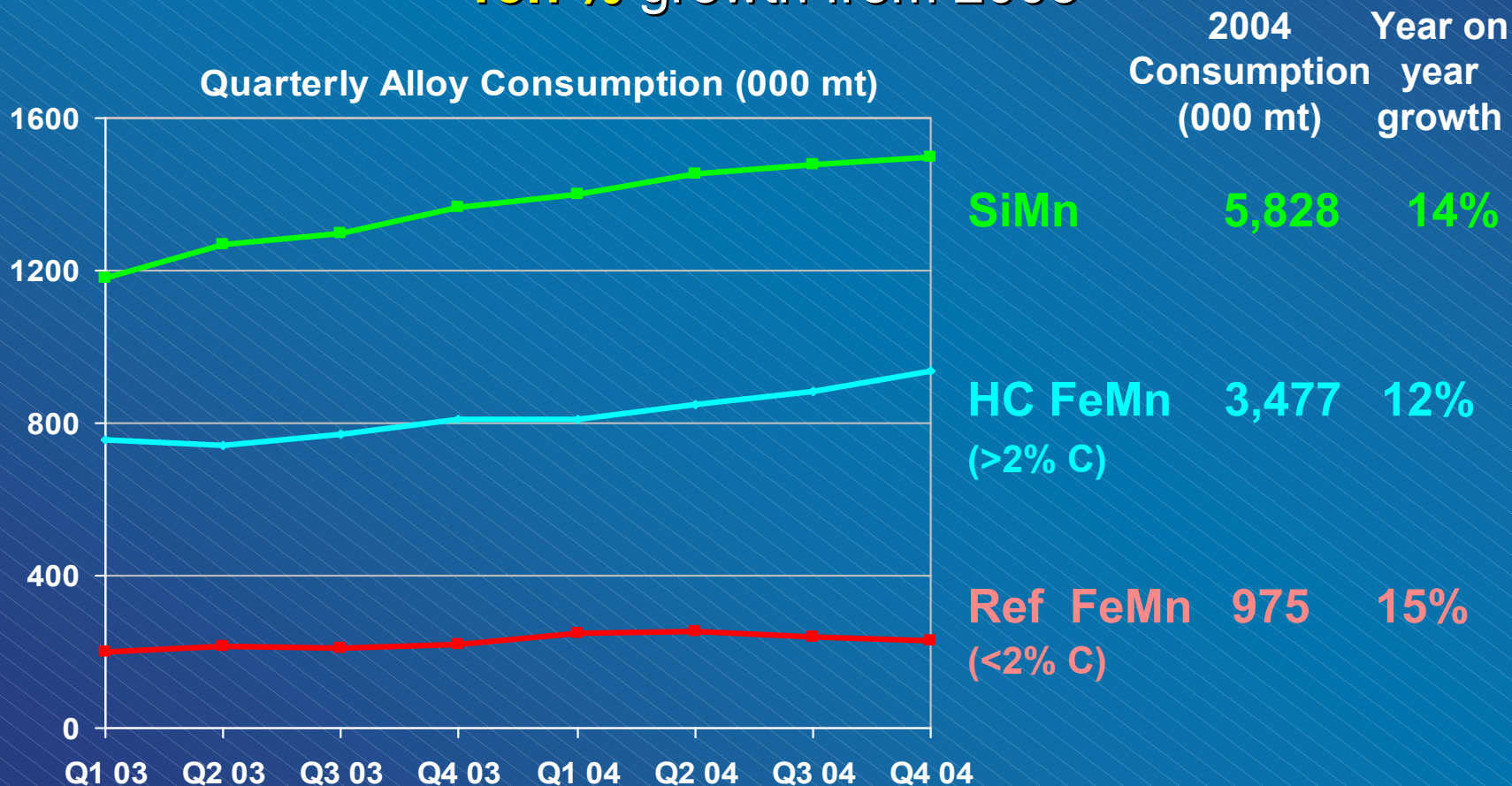


## Announced Mn Alloy Capacity Expansions Worldwide in 2005 (M mt)



## World Mn Alloy Consumption

2004 World consumption = **10.3** mil metric tons  
**13.7%** growth from 2003

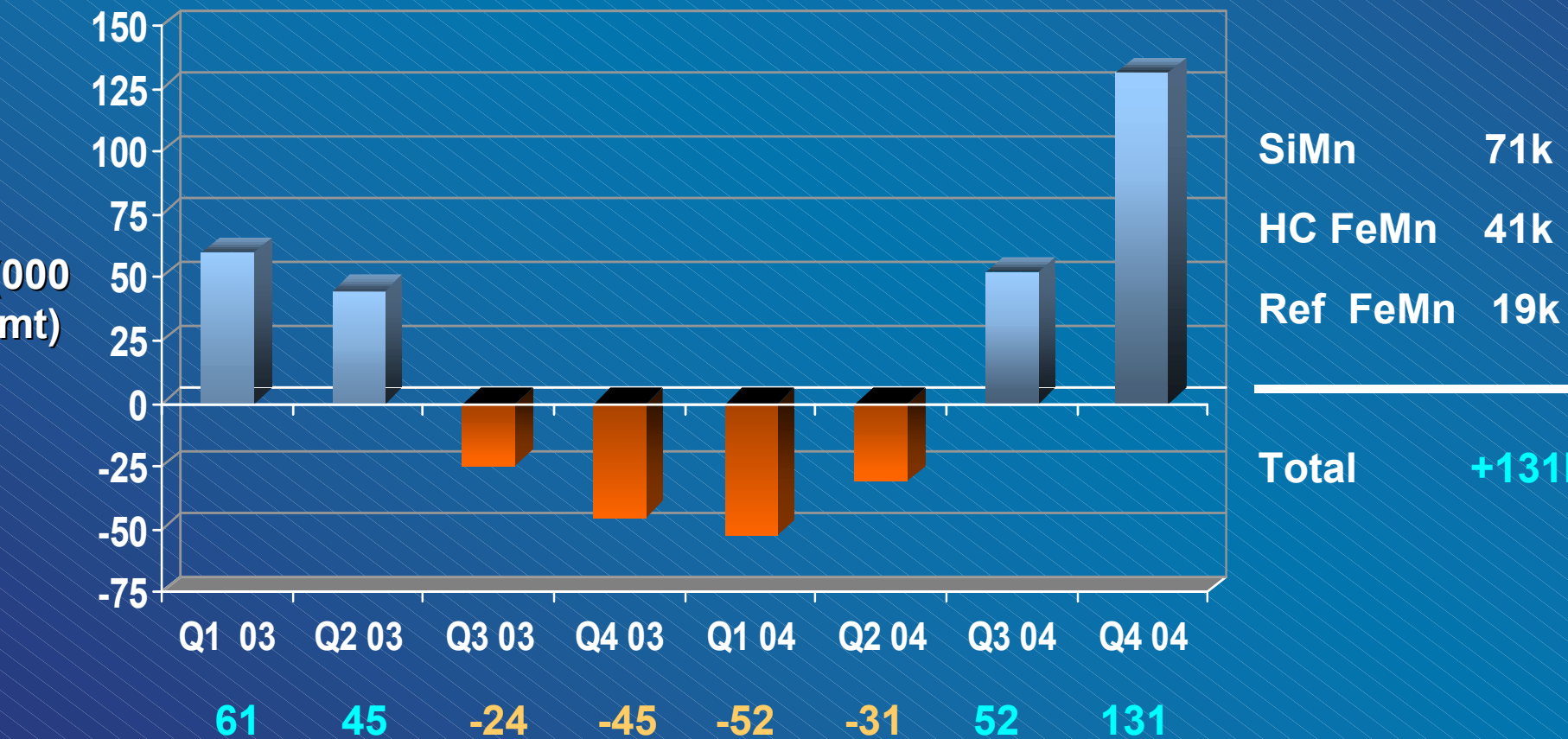


# World Mn Alloy Consumption Highlights

- **China** HC FeMn up +21% yoy (924K mt)  
SiMn +24% (1,780K mt)
- **N. America** HC FeMn up +49% (387K mt)  
SiMn up +37% (to 544K mt)
- **W. Europe** Flat for HC FeMn (458K mt)  
SiMn up 5% (800k mt)  
Largest consumer of Ref FeMn, 223K mt  
up +11%

# Global Mn Alloy Supply & Demand

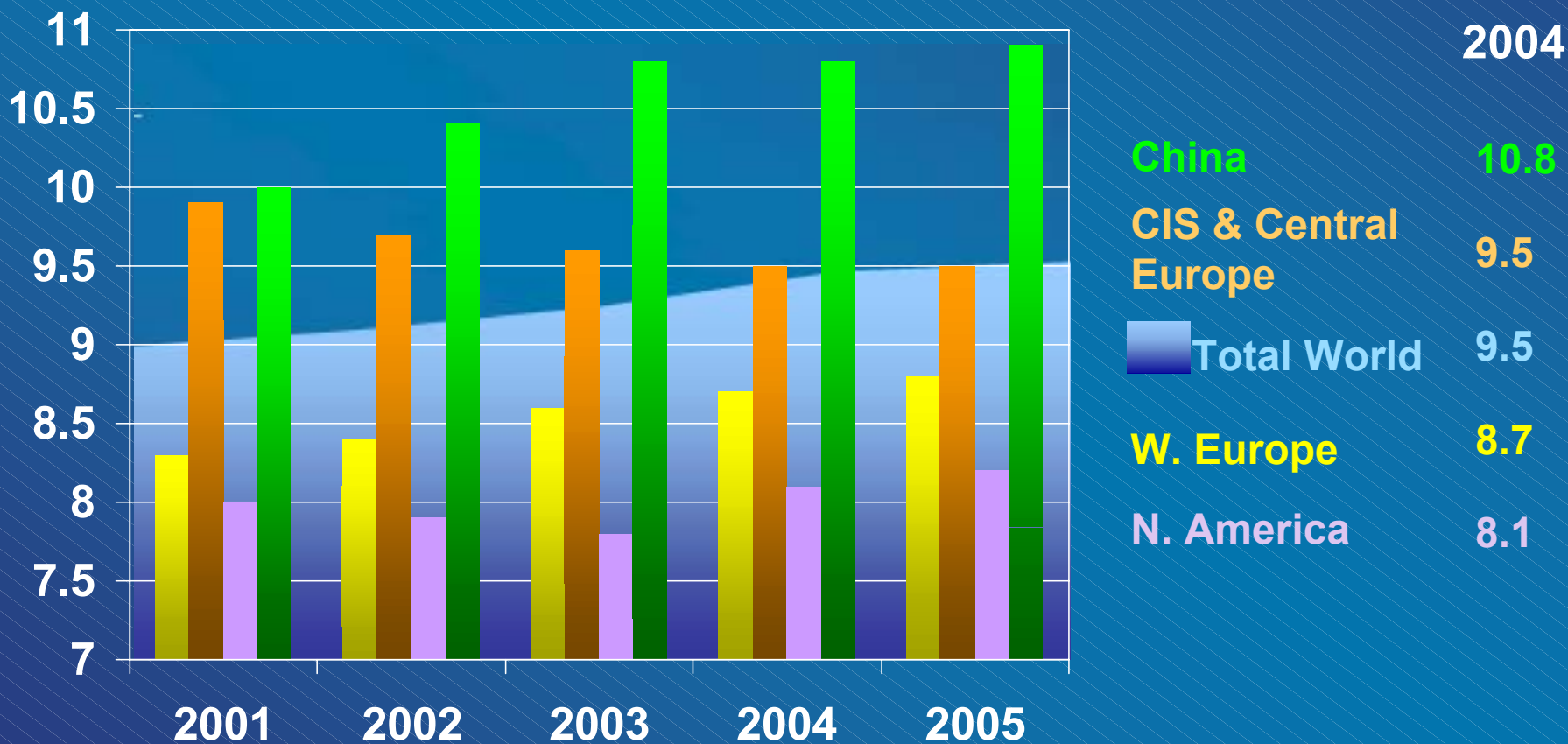
The world Mn alloy supply & demand balance



## Steel Production (M mt)

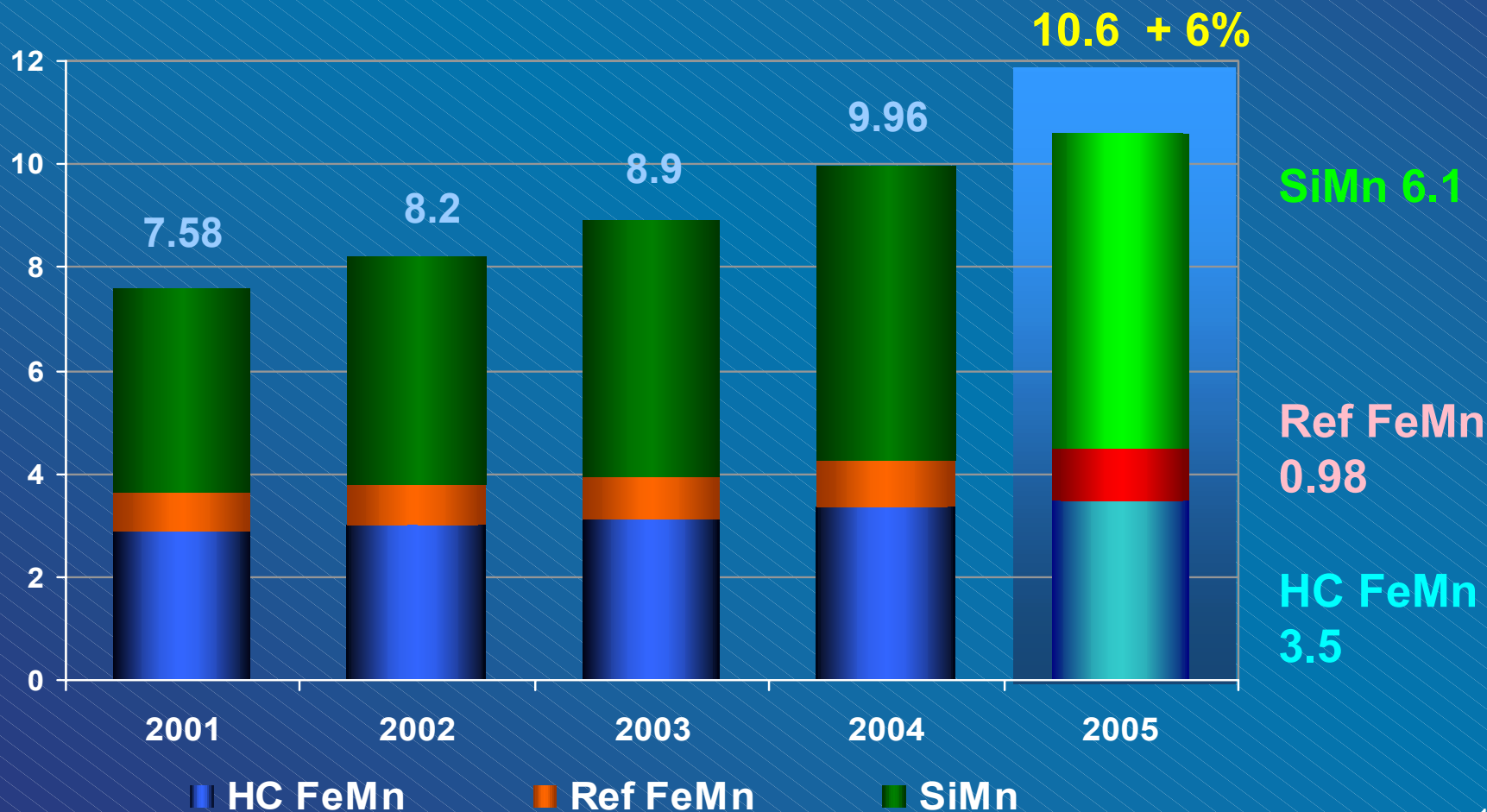
	2004	2005	
<b>World Total</b>	<b>1047</b>	<b>1108</b>	<b>6%</b>
<b>China</b>	<b>269.3</b>	<b>298.1</b>	<b>11%</b>
<b>Asia (ex China)</b>	<b>230.7</b>	<b>238.3</b>	<b>3%</b>
<b>Americas</b>	<b>179.0</b>	<b>190.3</b>	<b>6%</b>
<b>Africa &amp; Mid East</b>	<b>51.4</b>	<b>54.4</b>	<b>6%</b>
<b>CIS &amp; Central Europe</b>	<b>146.1</b>	<b>150.5</b>	<b>3%</b>
<b>W. Europe</b>	<b>170.2</b>	<b>176.4</b>	<b>4%</b>

## Trends in Mn Alloy Unit Consumption by region (kg/mt steel)



## Annual Mn Alloy Real Consumption

History and Forecast (000 mt)

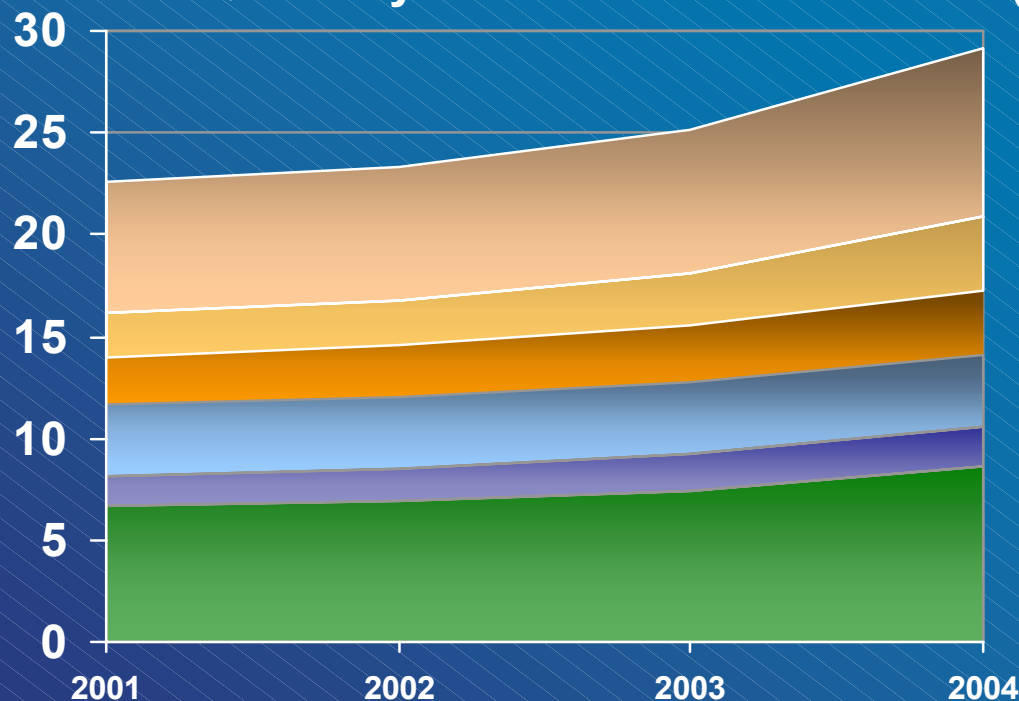


# Manganese Ore

## Mn Ore Production

2004 World production = **29.4** mil metric tons  
**19%** growth, year on year

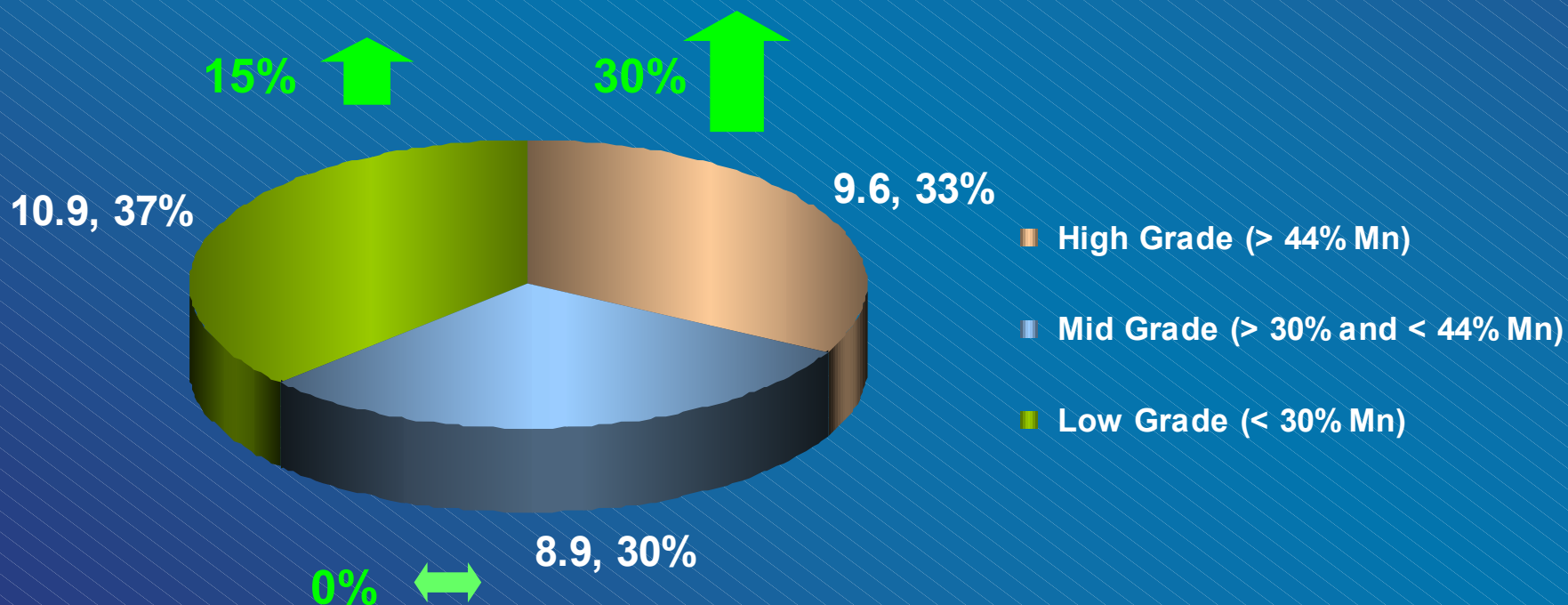
Quarterly Mn Ore Production - wet (000 mt)



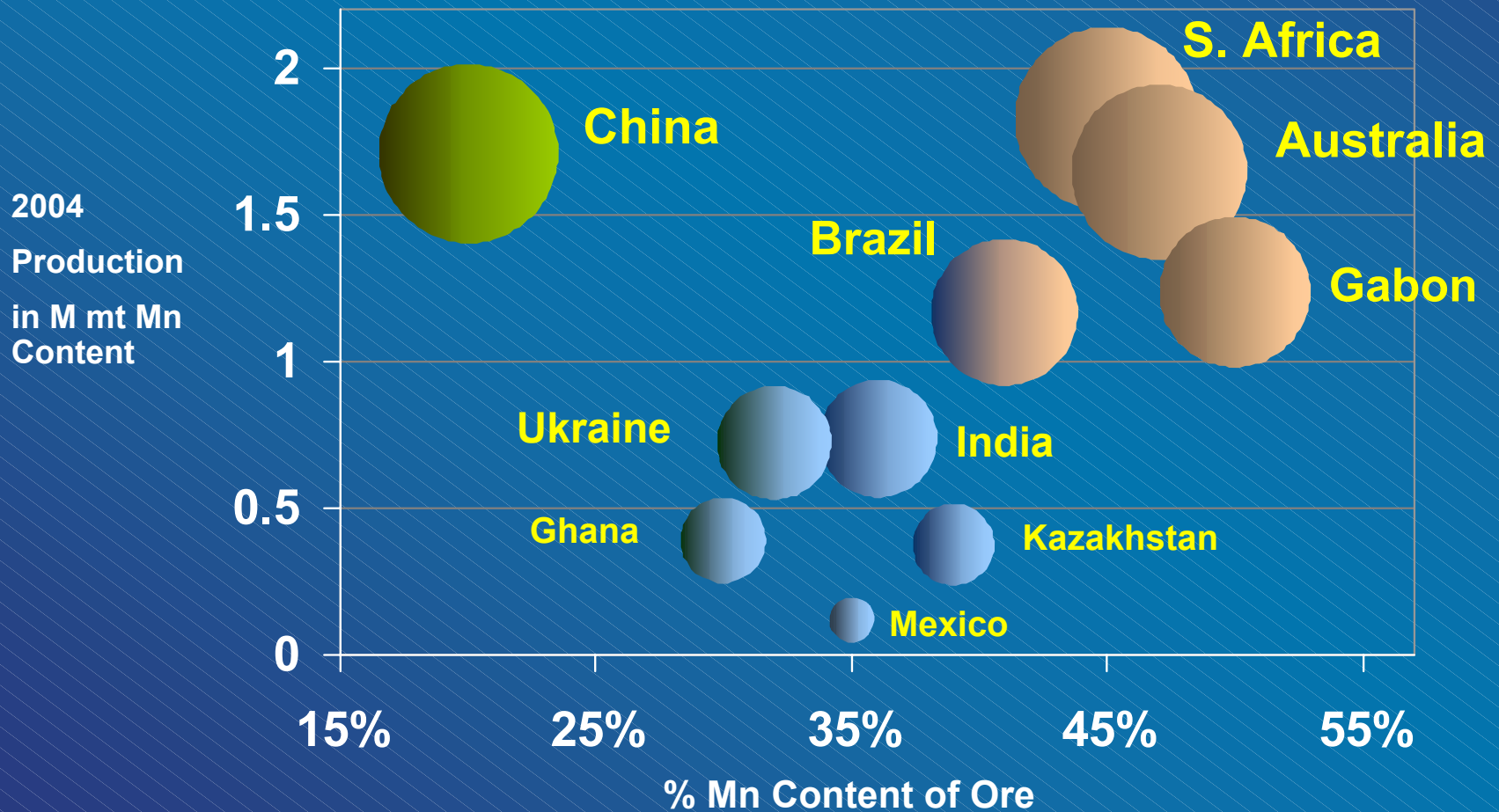
	2004 Prod	Growth YOY
AFRICA & MIDDLE EAST	8.3	18%
ASIA (other)	3.6	42%
AMERICAS	3.2	10%
CIS	3.5	-1%
INDIA	2.0	13%
CHINA	8.6	16%

## Mn Ore Production

2004 World Mn Ore production by grade  
**29.4** million mt wet (10.3 M mt content)

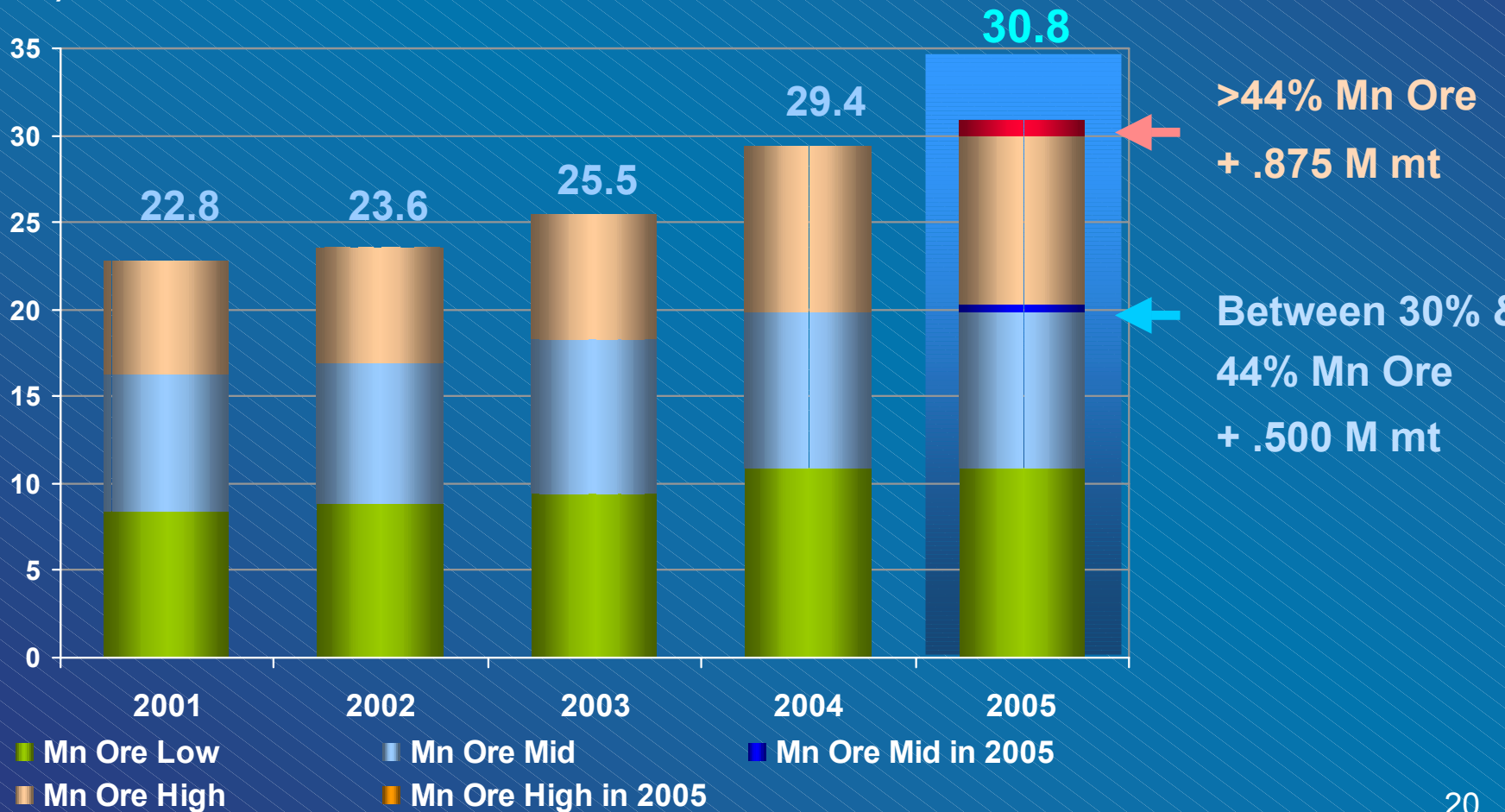


## Top Ten Mn Ore Producers 2004 (M mt Mn content)



## Mn Ore Capacity Expansions in 2005 and Historic Mn Ore Production

(M mt)



## Mn Ore Consumption Highlights (in M mt Mn Content)

- **Total World** 10.4 million mt in mt content (29.7 million mt wet). Up 23% YOY
- **China** China up a dramatic 41% to 3.76 million mt in Mn content
- **Europe** Up 44% to 1.2 million Mt

## Mn Ore Supply and Demand Balance (in 000 mt Mn Content)



The Balance:

-89K for Q4

-81K for the year

## Summary of Key Points

- 2005 begins with over supply for alloys, ore negative
- Ore and Alloy showed strong growth in production
- Announced capacity increases of **4% Mn for alloys, 5% for Mn ore**
- Upward trend in global alloy unit consumption to **9.5kg/mt**
- Total Mn Alloy Real Consumption forecast of **10.6 M mt** in 2005

Questions?

Thank you