Sulphur Outlook

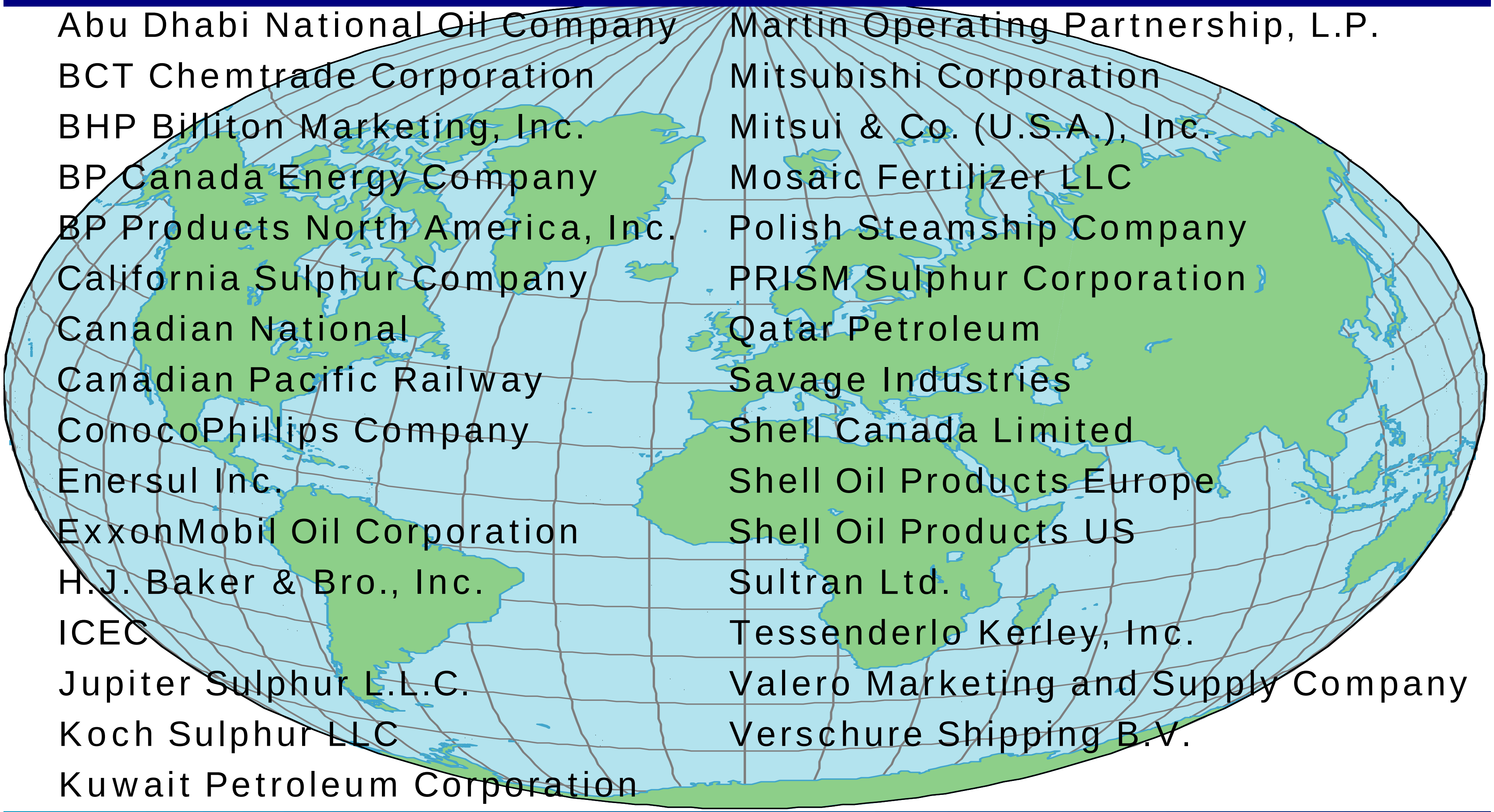
2007 Fertilizer Outlook and Technology Conference, TFI-FIRT

Chris de Brey
The Sulphur Institute
November 7, 2006

TSI Vision:

TSI is committed to being the global advocate for sulphur, representing all stakeholders actively engaged in producing, buying, selling, handling, transporting, or adding value to sulphur.

TSI Members:



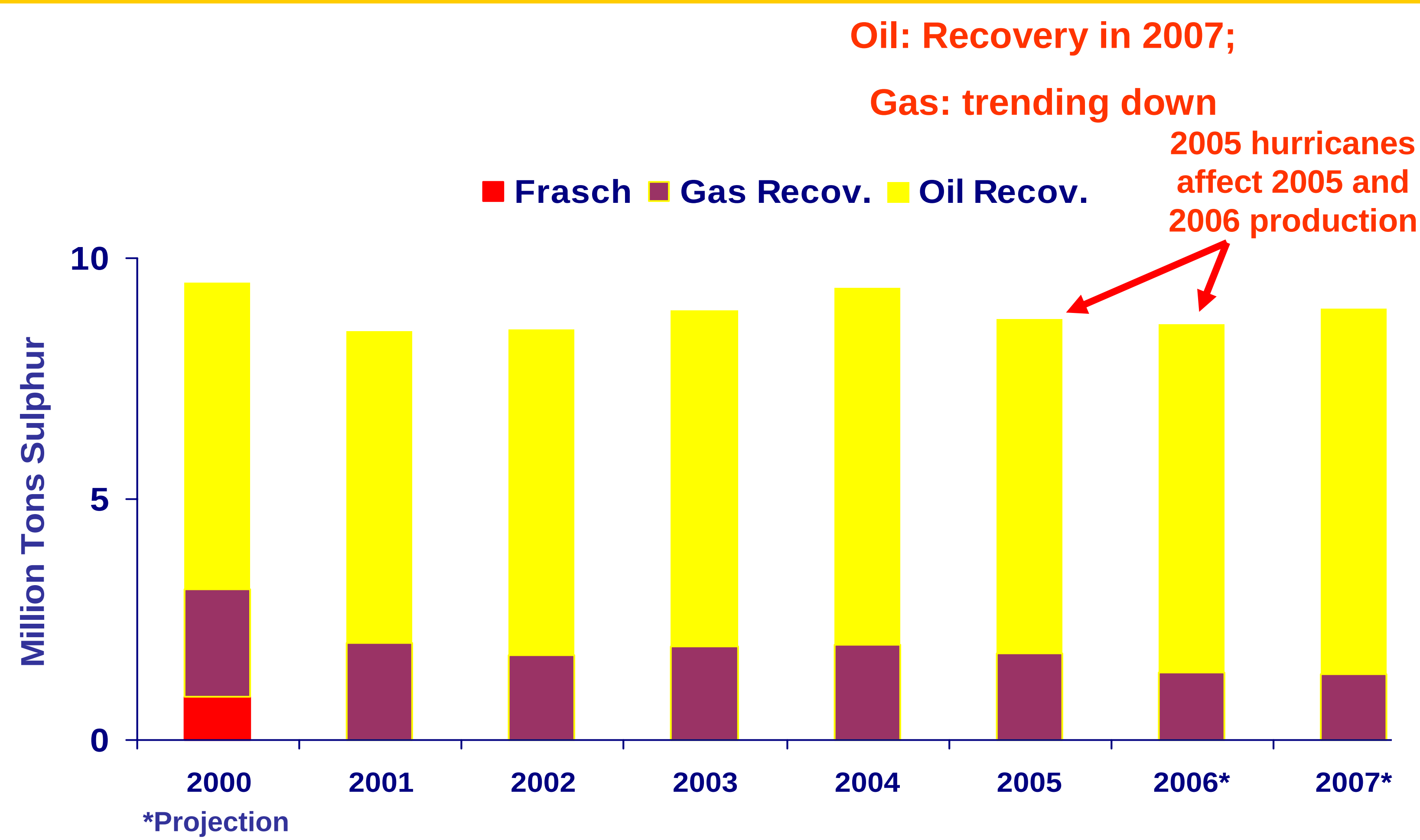
- Abu Dhabi National Oil Company
- BCT Chemtrade Corporation
- BHP Billiton Marketing, Inc.
- BP Canada Energy Company
- BP Products North America, Inc.
- California Sulphur Company
- Canadian National
- Canadian Pacific Railway
- ConocoPhillips Company
- Enersul Inc.
- ExxonMobil Oil Corporation
- H.J. Baker & Bro., Inc.
- ICEC
- Jupiter Sulphur L.L.C.
- Koch Sulphur LLC
- Kuwait Petroleum Corporation
- Martin Operating Partnership, L.P.
- Mitsubishi Corporation
- Mitsui & Co. (U.S.A.), Inc.
- Mosaic Fertilizer LLC
- Polish Steamship Company
- PRISM Sulphur Corporation
- Qatar Petroleum
- Savage Industries
- Shell Canada Limited
- Shell Oil Products Europe
- Shell Oil Products US
- Sultran Ltd.
- Tessenderlo Kerley, Inc.
- Valero Marketing and Supply Company
- Verschure Shipping B.V.

TSI Programs:

- Transportation Regulations and Logistics
- Sulphur Advocacy
- Market Resources
- Environment, Health and Safety
- Sulphur Information and Image
- Member Services

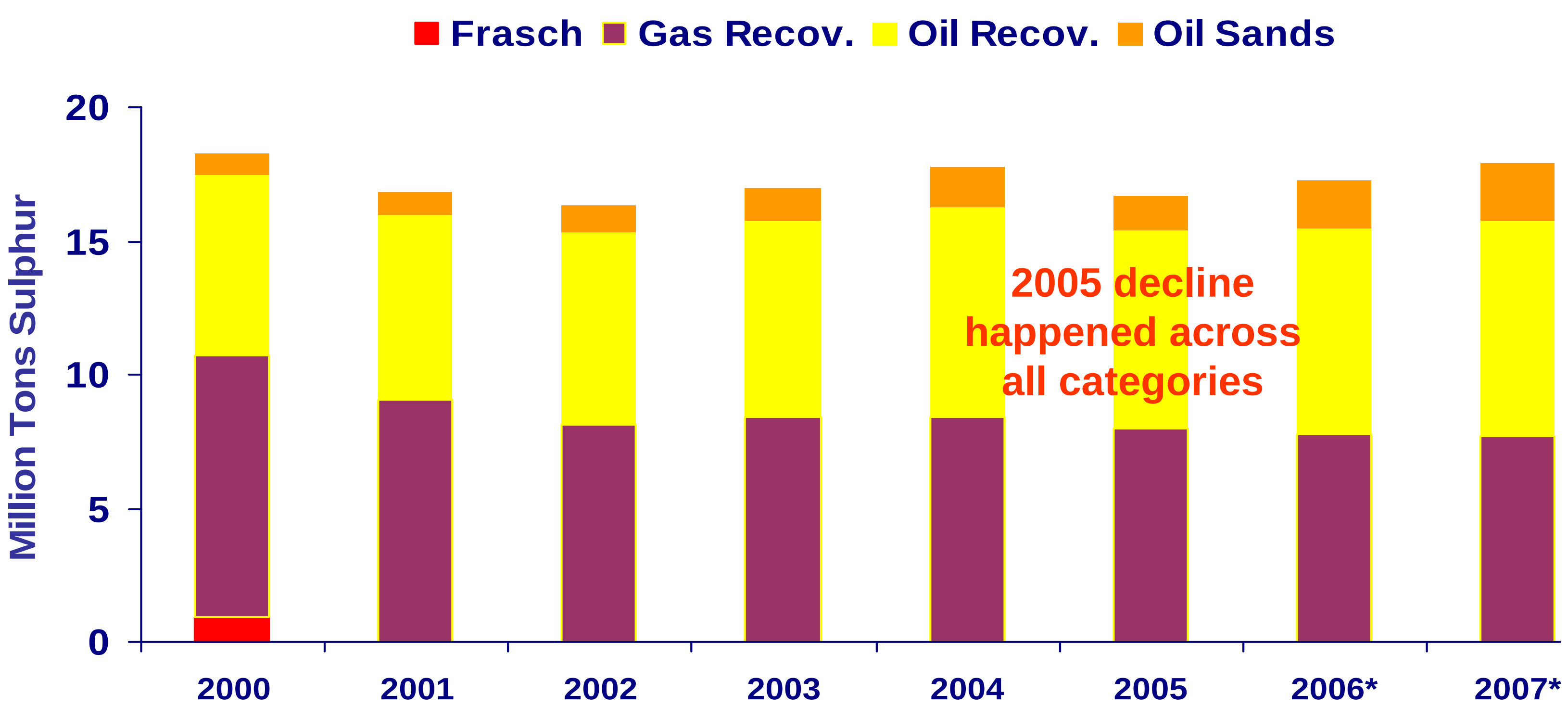
A Changing Market

U.S. Elemental Sulphur Production-2000/07



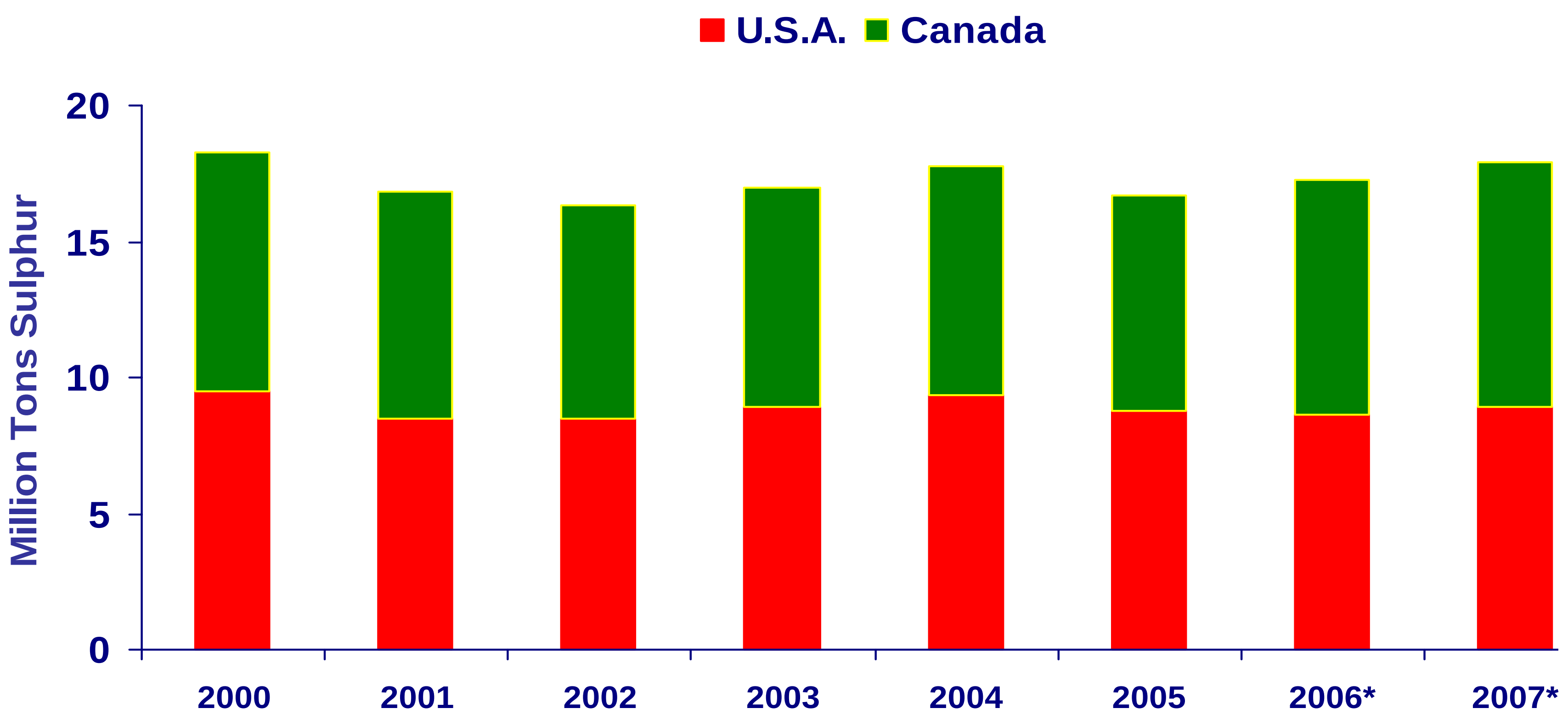
North American Elemental Sulphur Production-2000/07

Growth to come from Canadian oil sands and US refineries



*Projection

North American Elemental Sulphur Production



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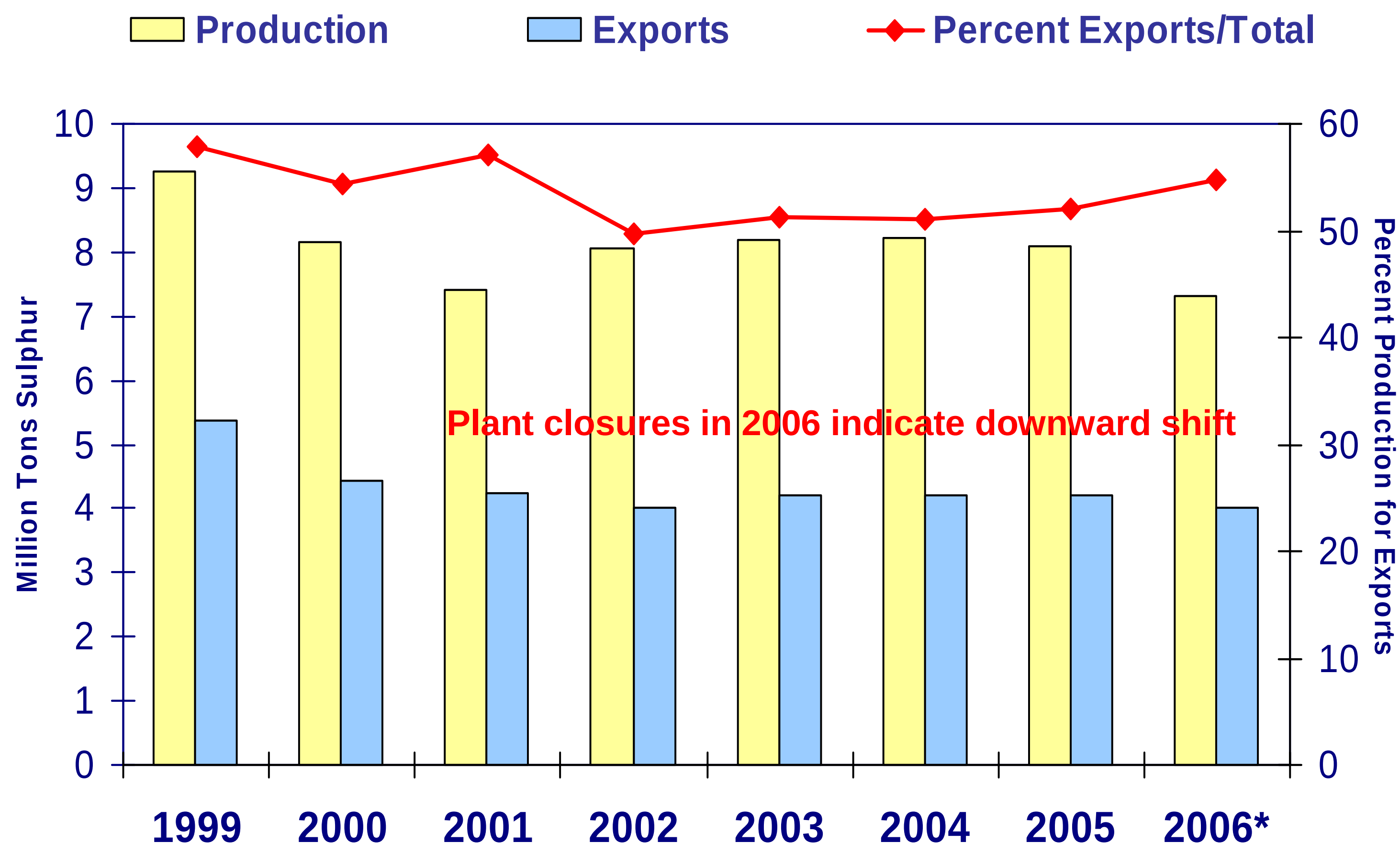
U.S. Sulphur Consumption for Phosphate Fertilizer Production and Exports



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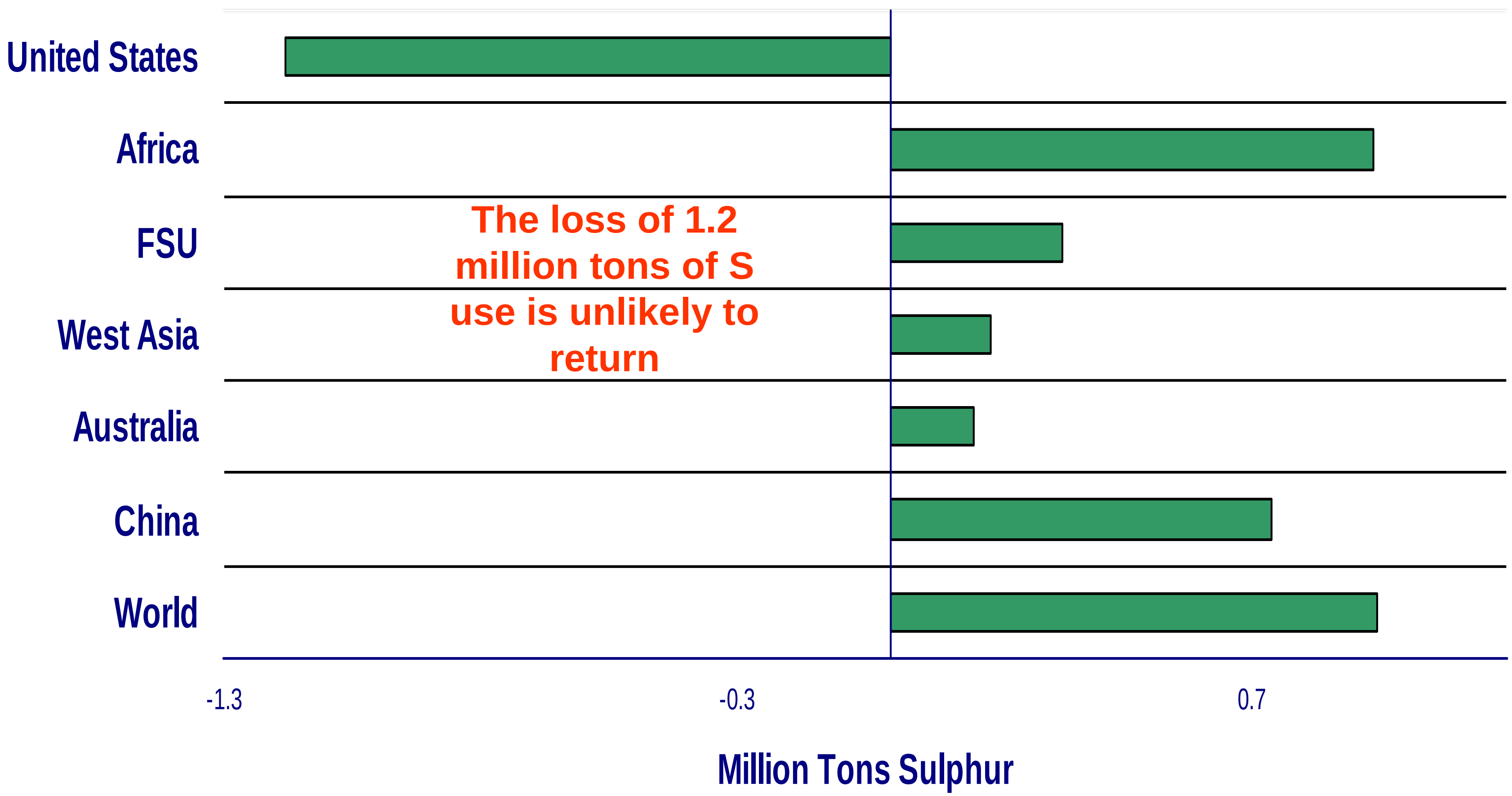
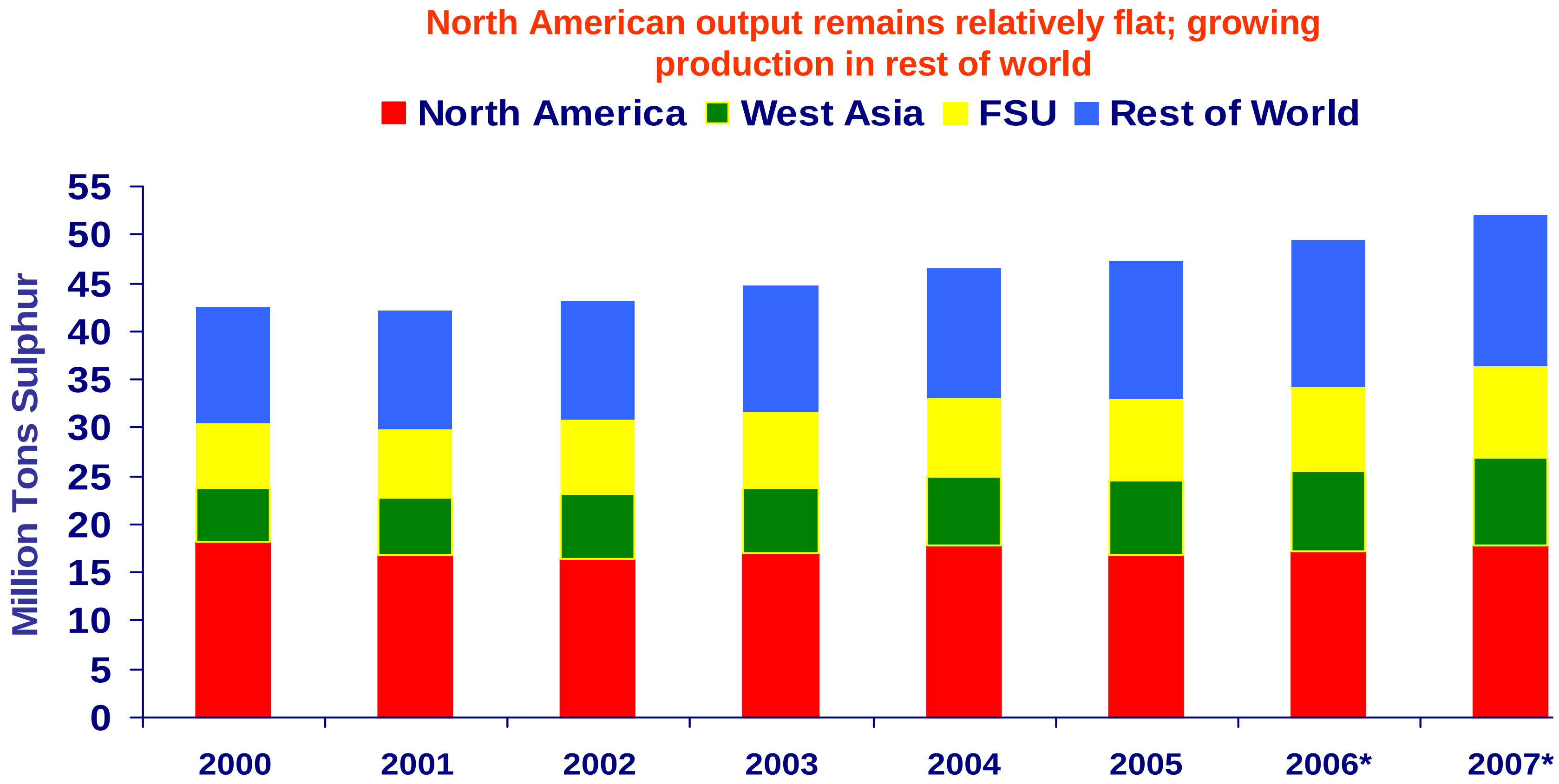
Difference in Sulphur Consumption for Processed Phosphate Exports: 1995 vs 2005



World Elemental Sulphur Production



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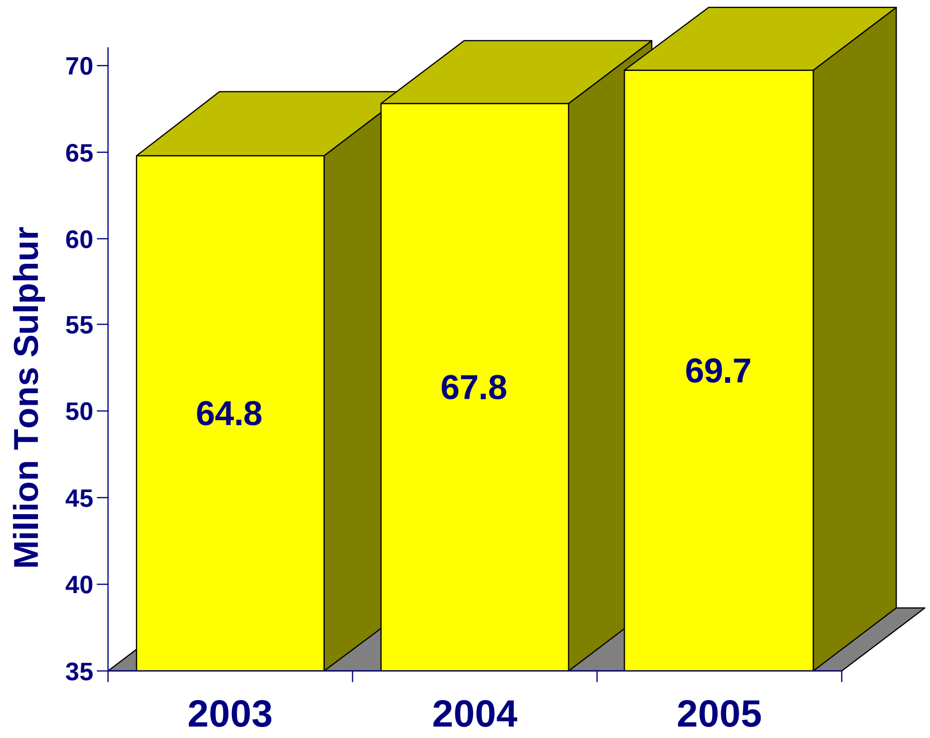
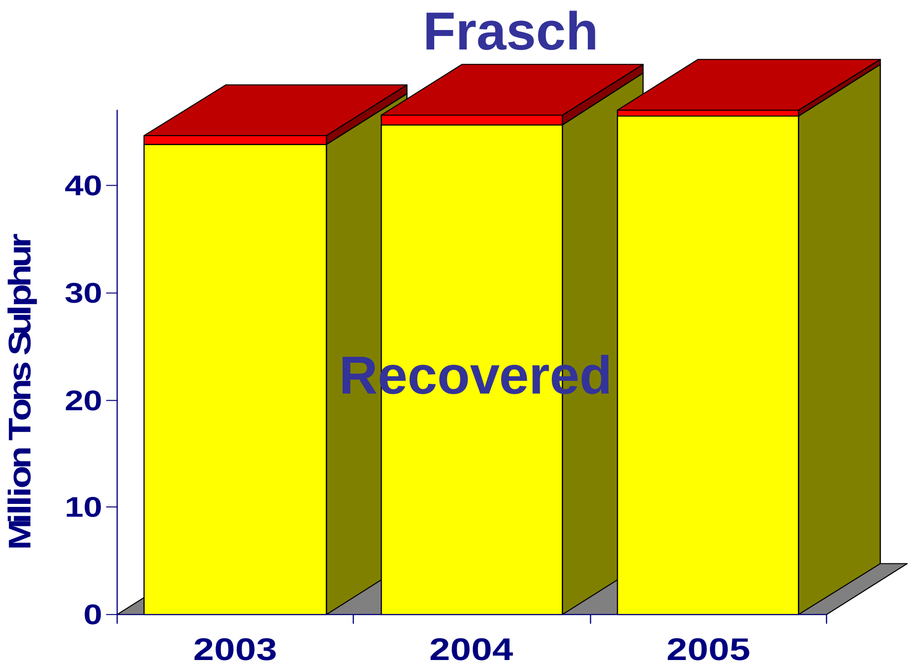
World Total Sulphur Production
2005 vs 2004

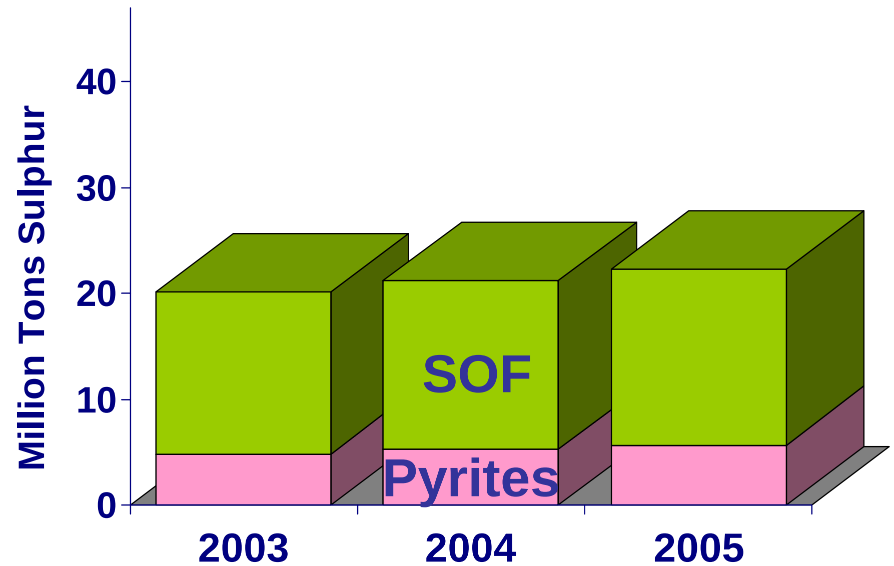
- Production increased 2.8%, down from 4.6% growth in 2004
- Total output growth lowest in four years, largely from hurricane-affected production in U.S.



World Sulphur Production
2005 vs 2004



Elemental sulphur: Recovered output growth lowest in five years; hurricane effects plus lower N. American gas; Frasch marginal



Sulphuric acid:

SOF growth of 4.4% spurred by strong metals markets; pyrites increase from strong China market

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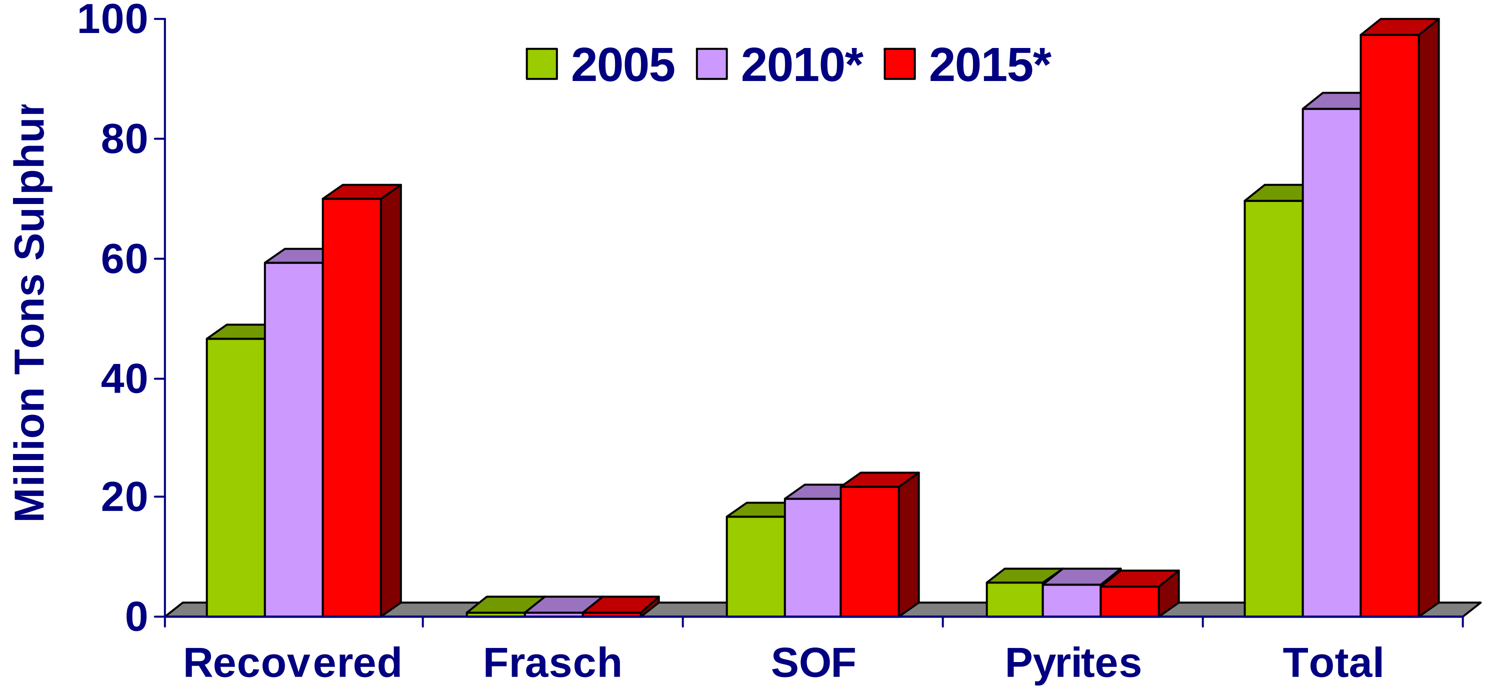
World Sulphur Production Forecast

Non-voluntary elemental and sulphuric acid output to continue to rise



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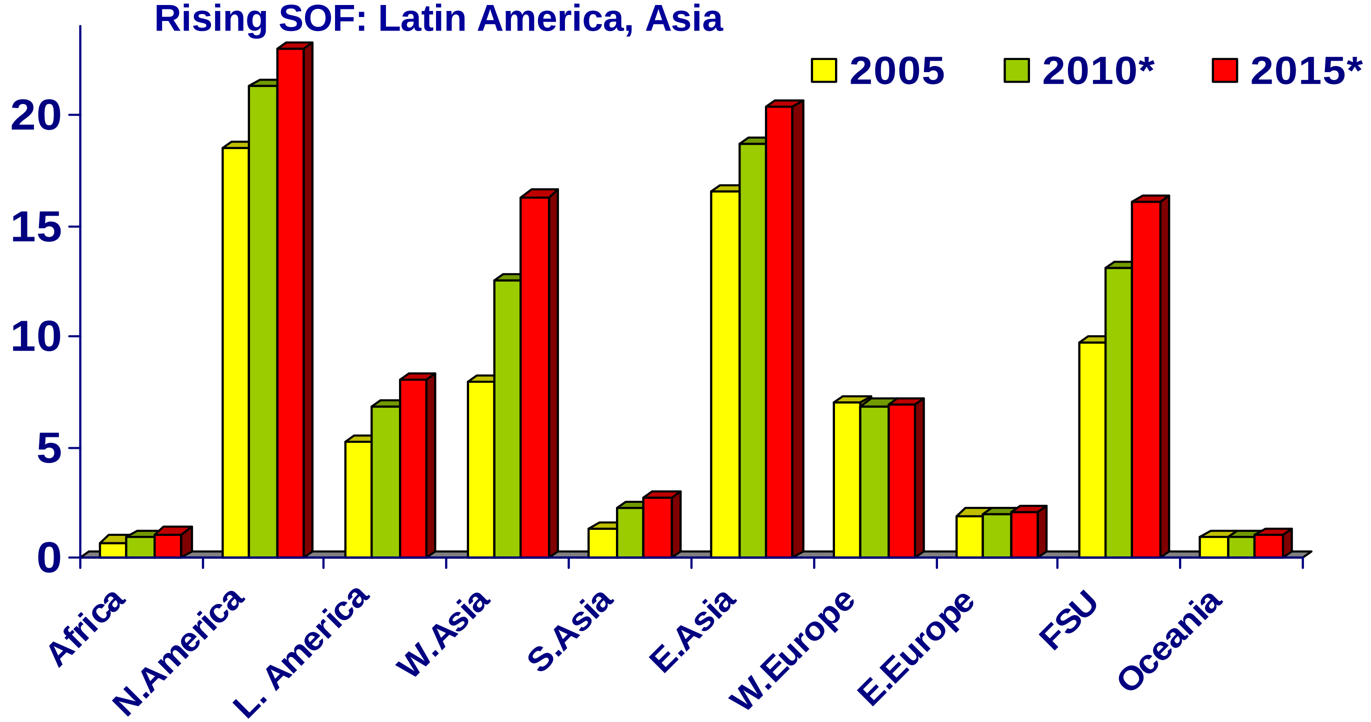
World Sulphur Production Forecast-
Million Tons Sulphur Equivalent

Rising Gas Recovered: West Asia, FSU
Rising Oil Recovered: USA, most other regions (more sour crudes & clean-fuel-based)
Rising Oil sands/Heavy Oils: Canada, Venezuela?
Rising SOF: Latin America, Asia



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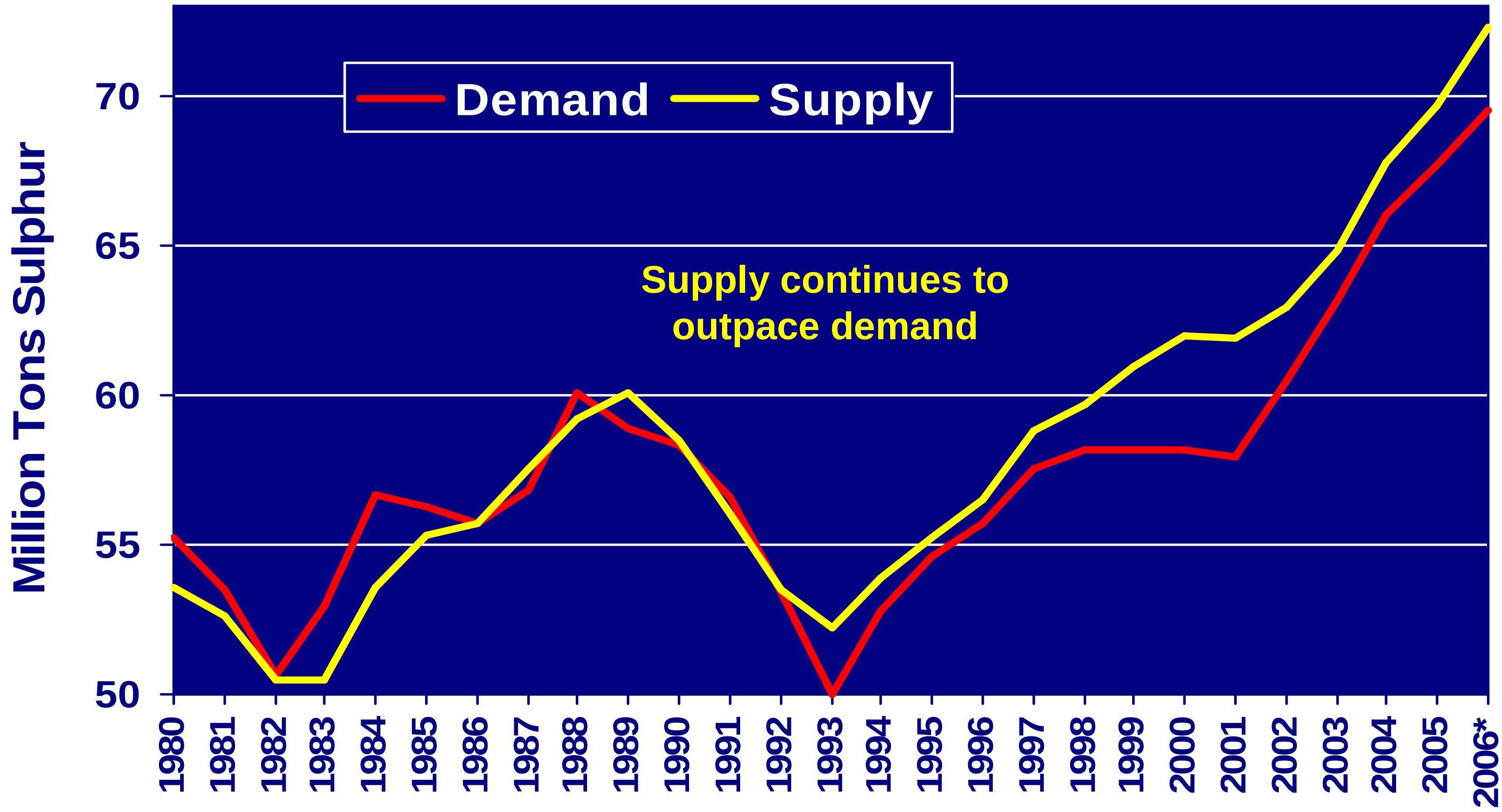
World Total Sulphur Production and Consumption



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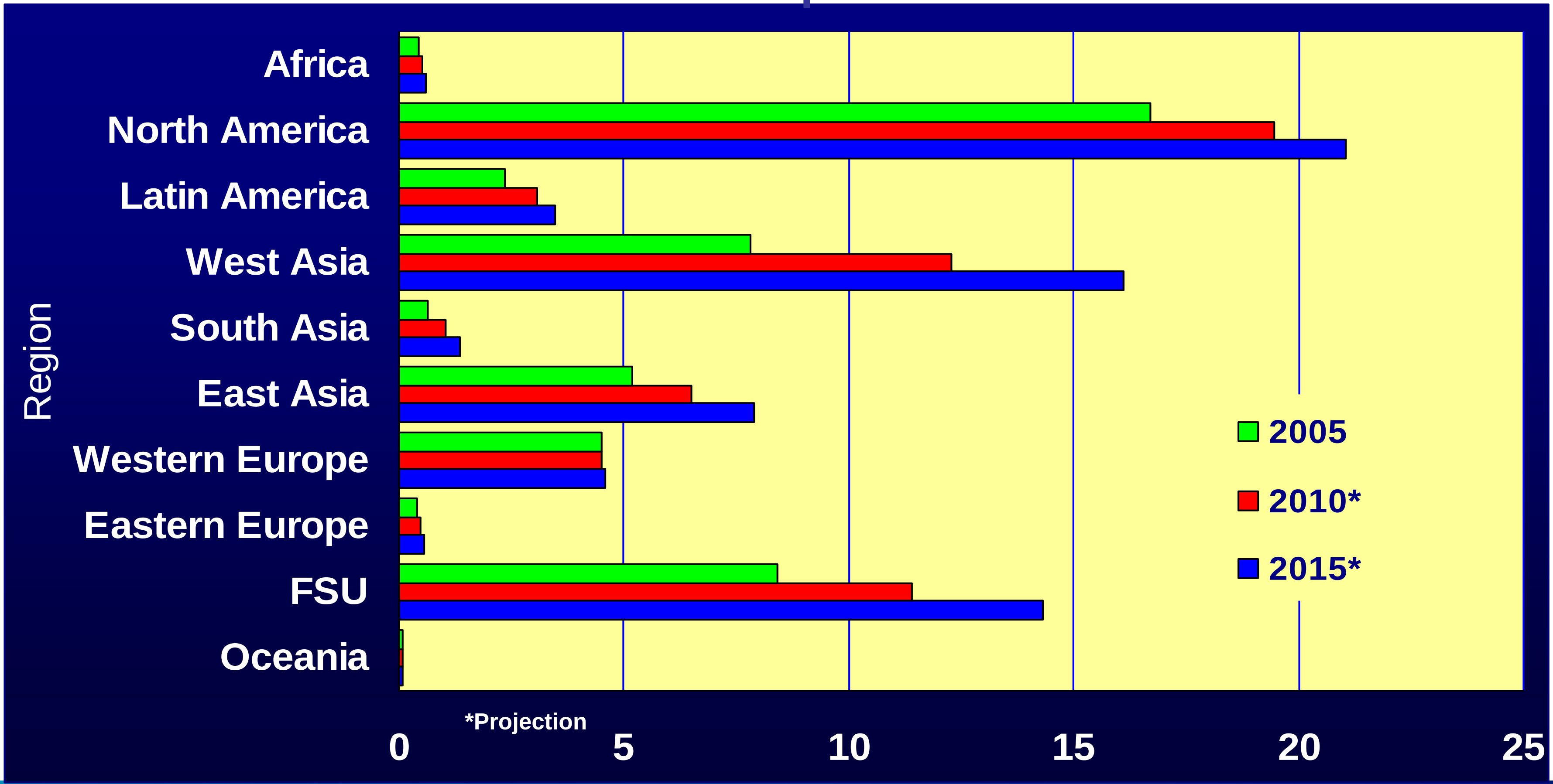
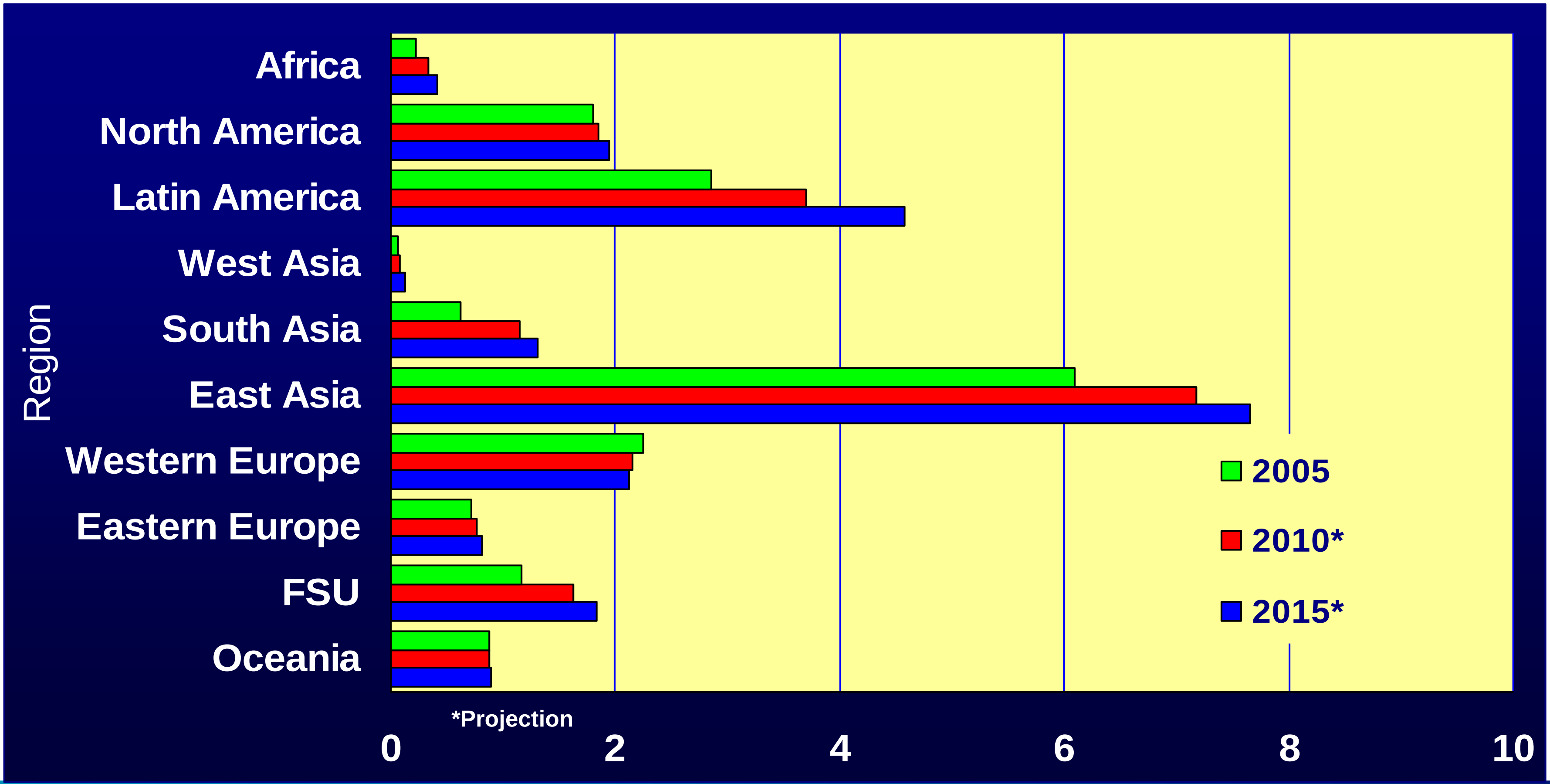
Regional Recovered Sulphur Production Forecast - Million tons Sulphur

North America still largest, but W. Asia and FSU playing “catch up”
Is incremental output marketable?



Regional Sulphur in Other Forms Production Forecast - Million tons Sulphur

Strongest Growth in Latin America and Asia; decline in Western Europe



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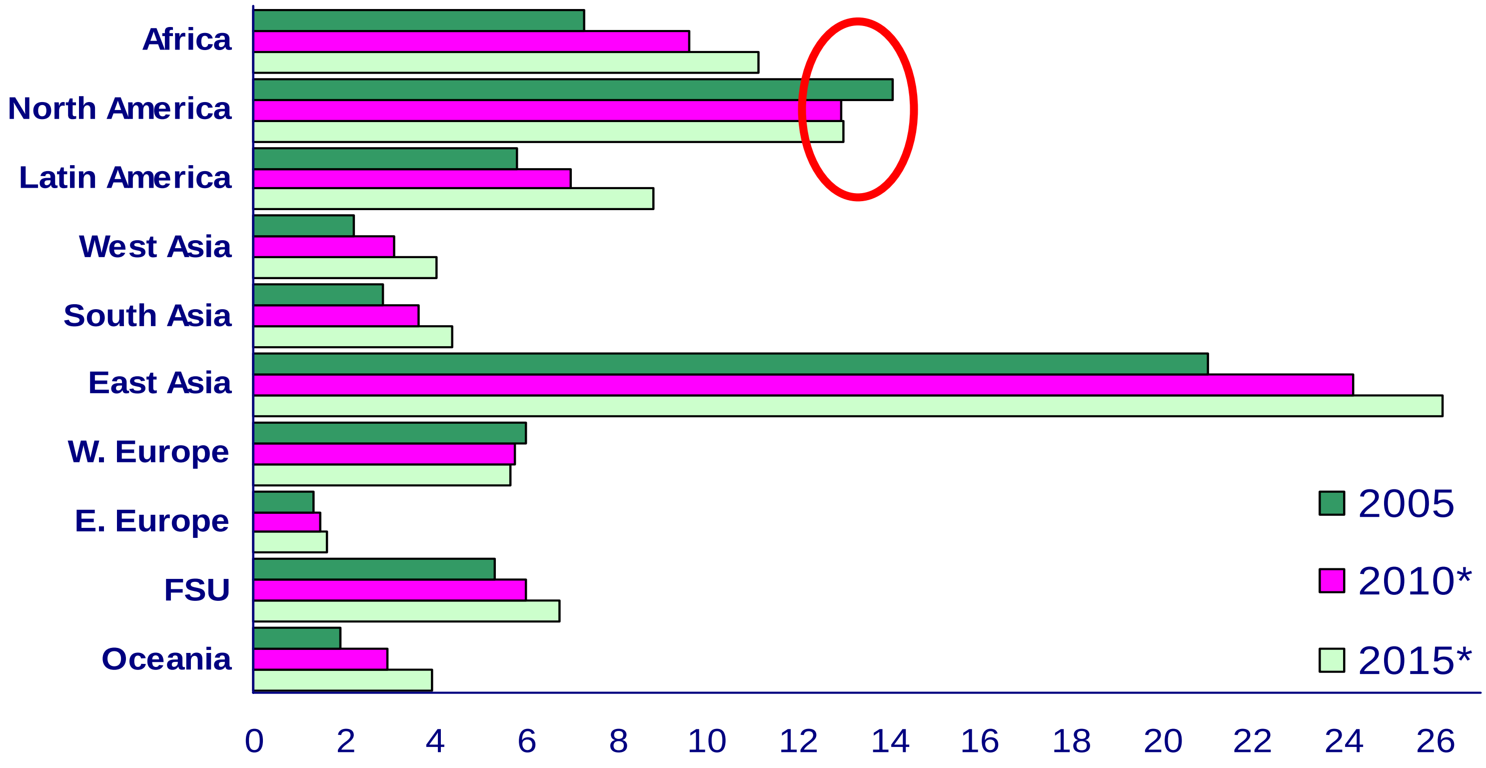
Regional Sulphur Consumption Forecast

Strongest Growth in East Asia, Africa, Latin America; Declines in North America, W. Europe



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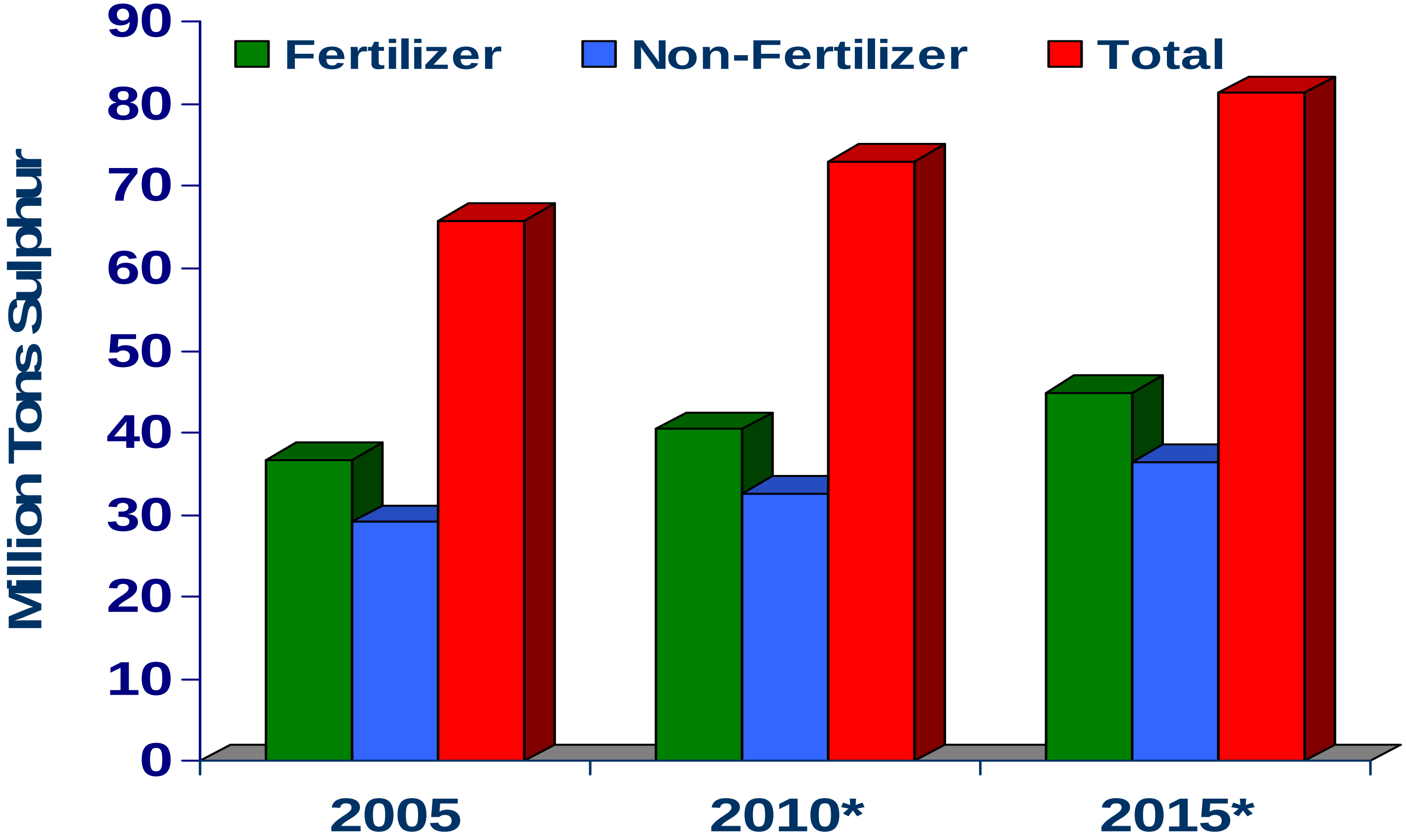
World Sulphur Consumption Forecast



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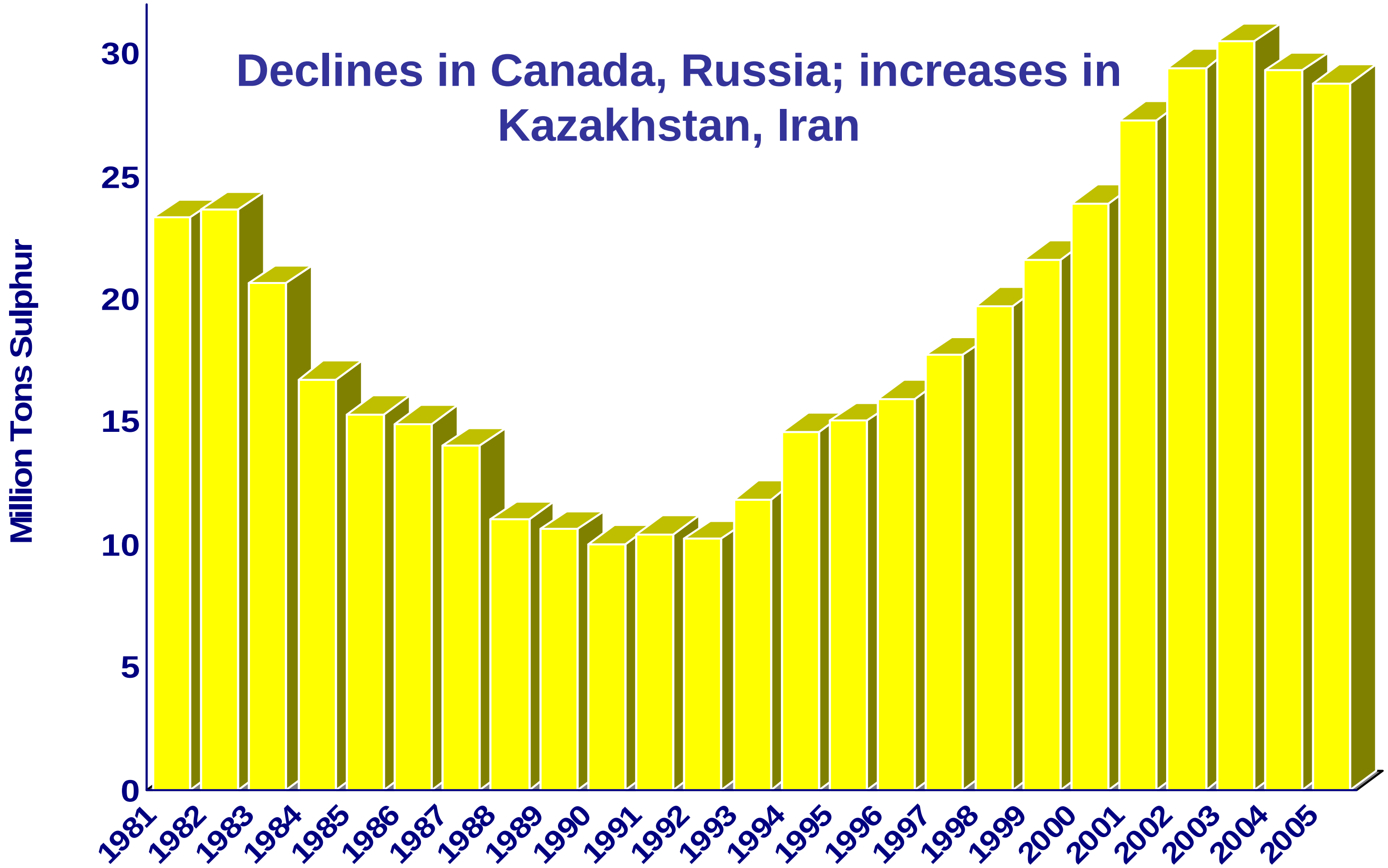
World Sulphur Inventories



World Sulphur Trends

- **Production**
  - – Greater Production of Recovered, mostly in W. Asia, FSU, and N. America
    - U.S. exporter in both coasts: West and Gulf
  - – Greater production of SOF, largely in Asia, Latin America, spurred by high metal values
  - – Frasch decline mostly over, Poland?
  - – Pyrites show resilience, but should decline

World Sulphur Trends

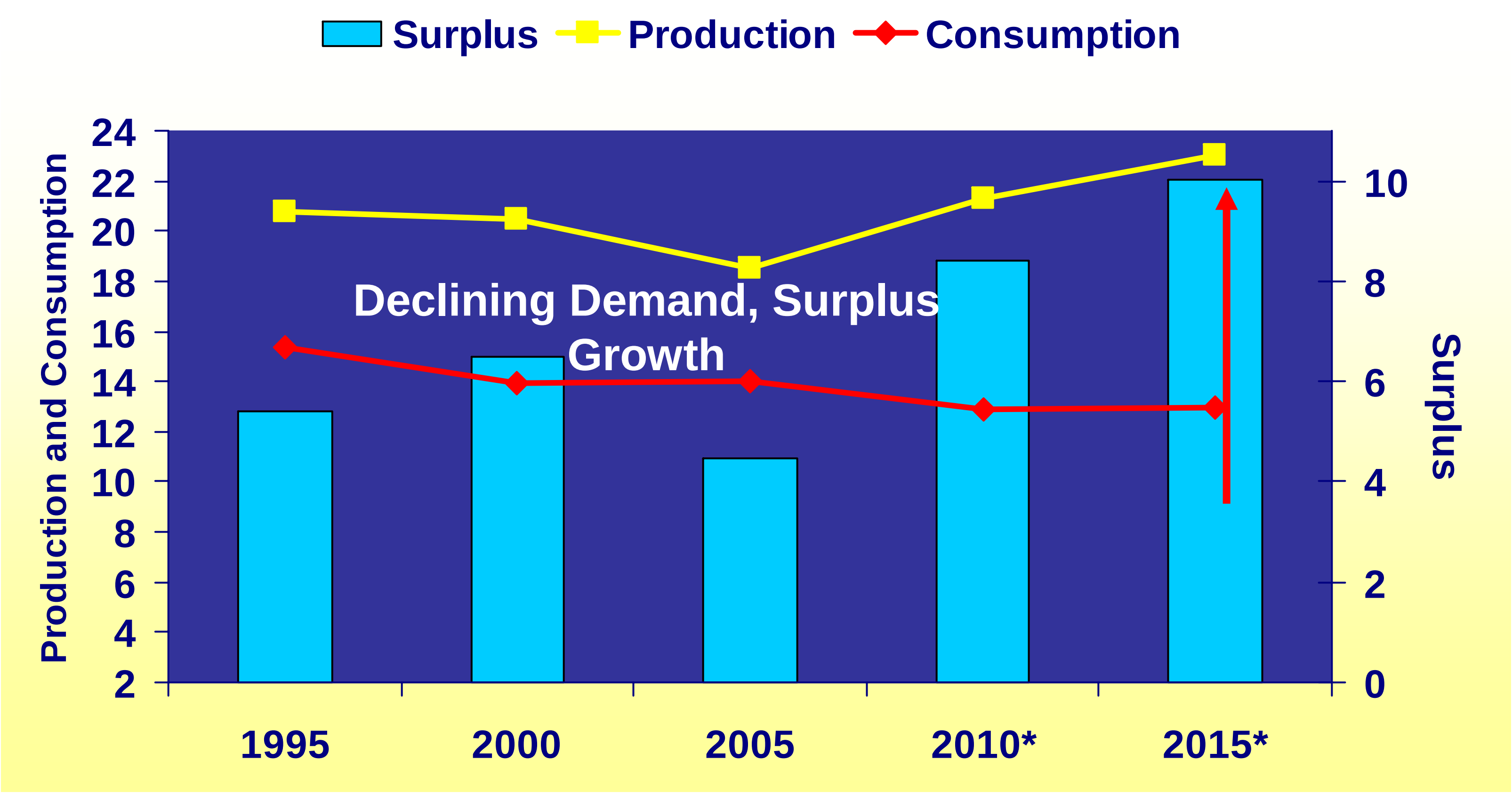
- **Consumption**
  - **Trend to Developing Regions Continues**
    - **E. Asia, Africa, S. Asia, Latin America**
    - **Decline in W. Europe, N. America**
    - **Developing regions offer larger growth, volatility**
  - **Fertilizer to continue as major demand source, about 2% growth rate (93% phosphates)**
  - **Non-Fertilizer use includes**
    - **Fast-growth sectors (metals leach, aramid fibers, specialty phosphates, HF)**
    - **Slow/negative-growth sectors (TiO_2, Caprolactam, Pulp & Paper)**

World Sulphur Trends

- **Logistics & Handling**
  - **Increase in Solid/Formed Sulphur**
  - **Reduction in Molten Sulphur**
  - **Increase in Formed Sulphur Trade**
  - **Increase in Fatal Acid Trade**
  - **Growing stacks in remote areas**

North American Sulphur Balance

Million tons Sulphur



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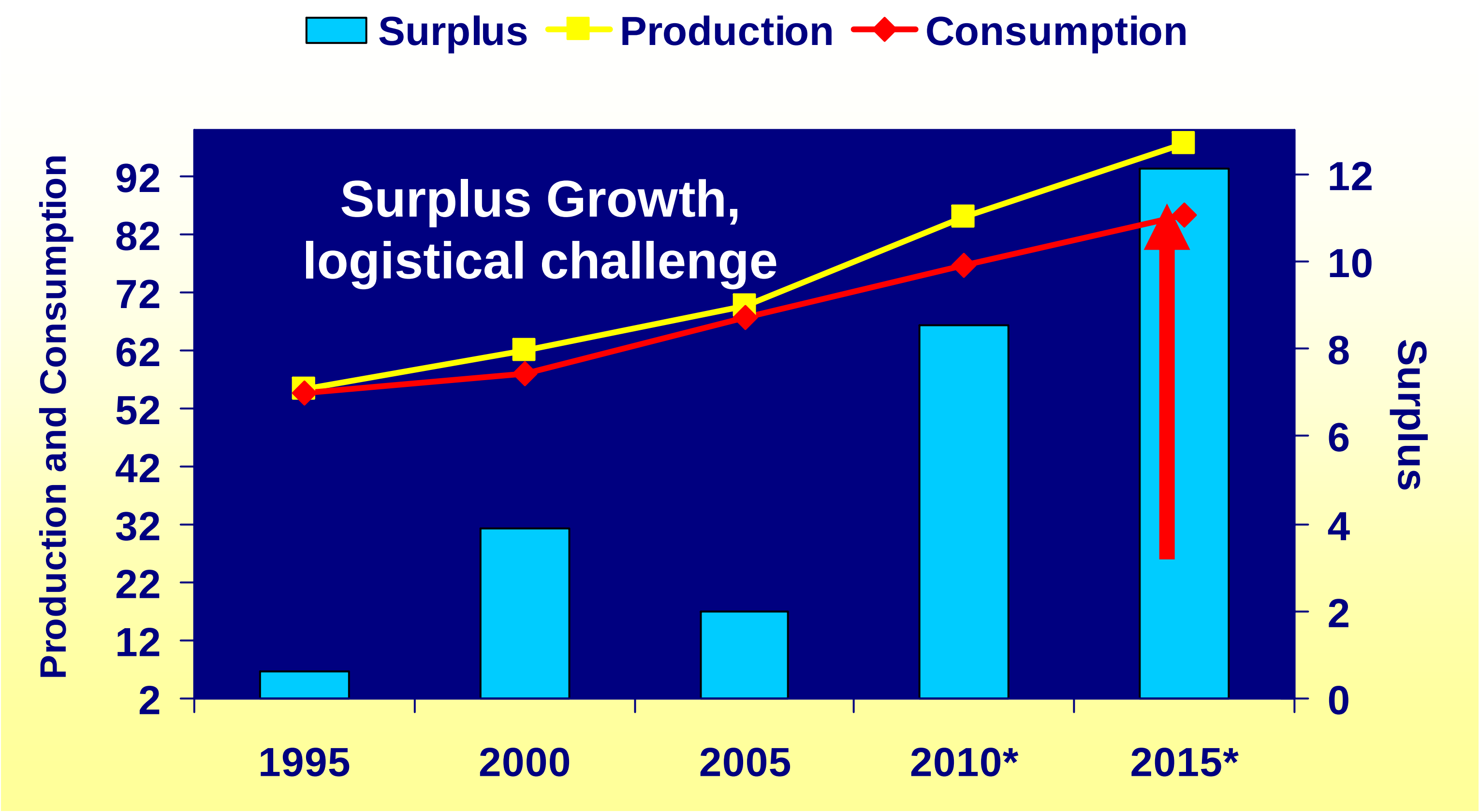
World Sulphur Balance

Million Tons Sulphur



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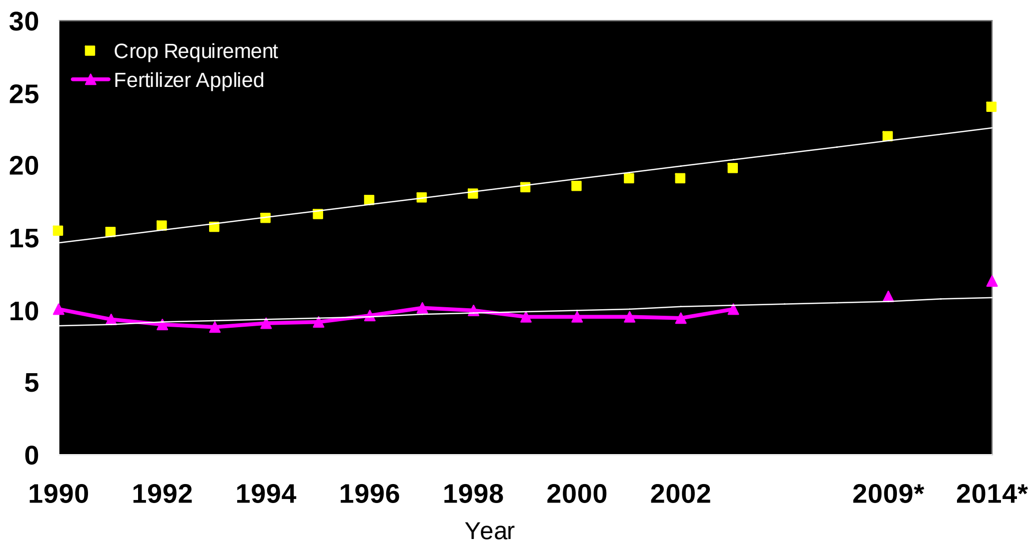
Sulphur (S): The Fourth Major Plant Nutrient

- Sulphur is the fourth major plant nutrient, following N, P and K; it is required in similar amounts as P, about 19.8 million tons S in 2003.
- About 10 million tons S are applied as a fertilizer worldwide; there is currently an additional total S fertilizer market potential for 9.8 million tons S, and 12.1 million tons by 2014 primarily in Asia and the Americas.

Plant Nutrient Sulphur Requirement and Deficit (Mt)



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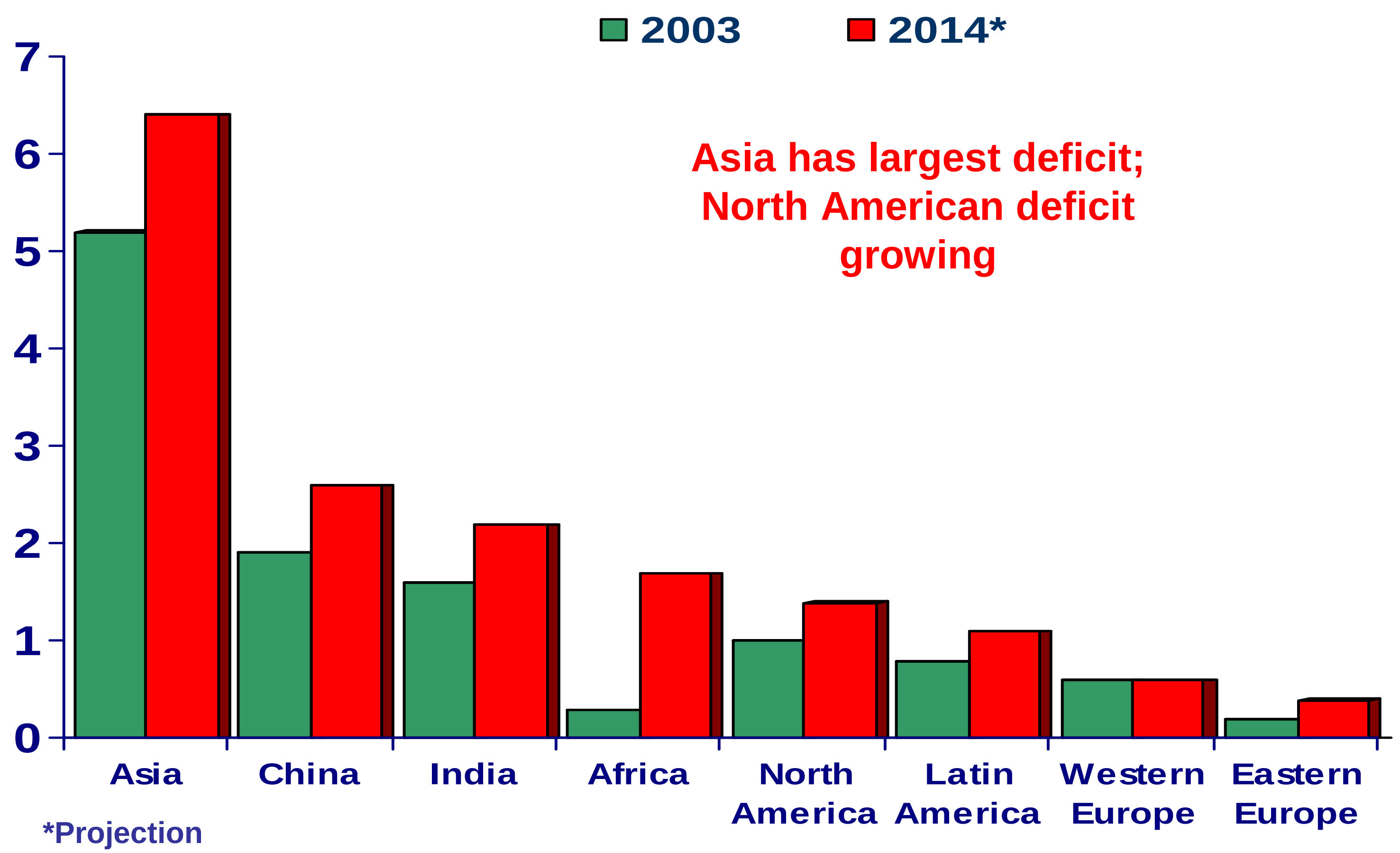
Regional Plant Nutrient Sulphur Deficit Worldwide

Million Tons Sulphur



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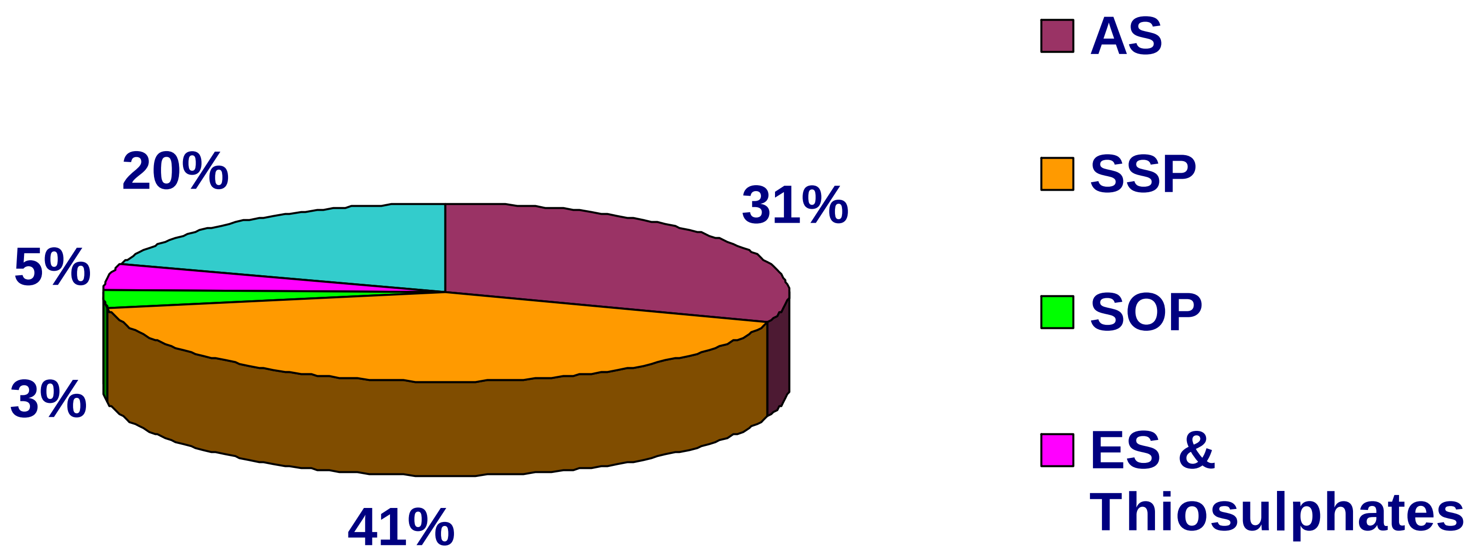
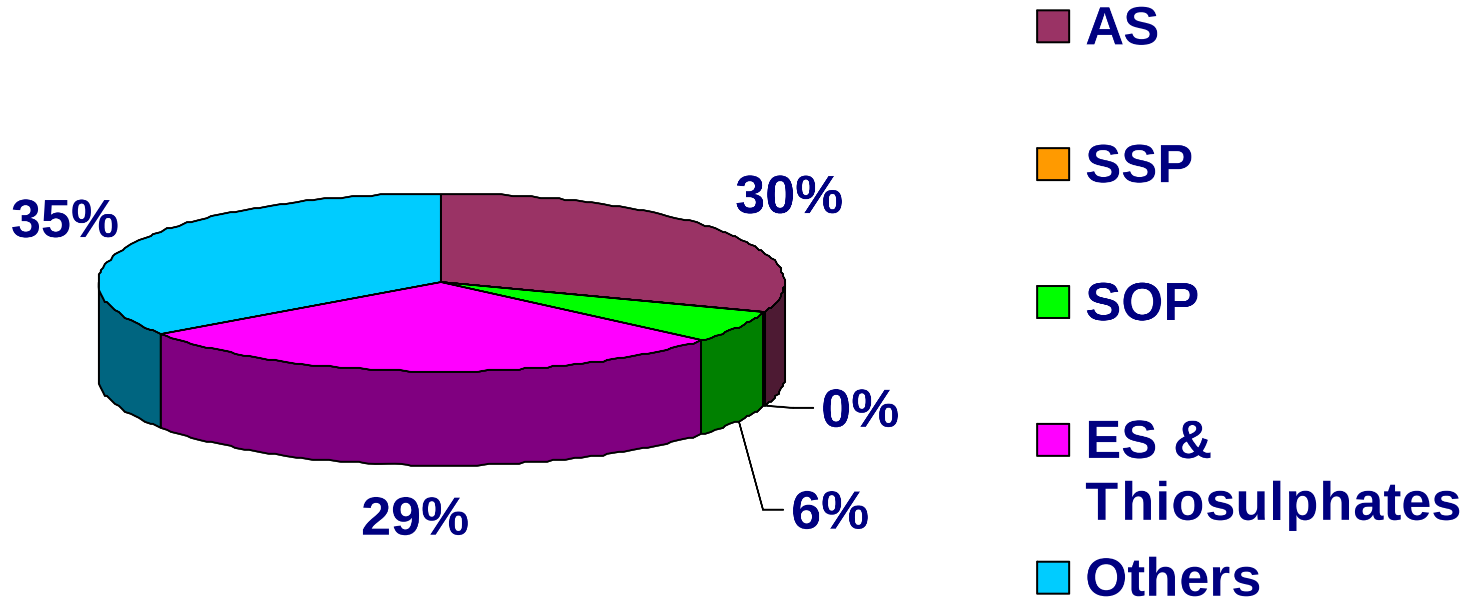
World: Traditional Sulphur Fertilizers Take Major Market Share



Current Annual Application Worldwide:
10 Million tons Sulphur

North America: Modern Sulphur Fertilizers Take Major Market Share



Current Annual Application: 1.2 Million tons Sulphur

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