



# **SFSA China Tour – 2006**

**Malcolm Blair**  
**SFSA**

SFSA, Spring Management Meeting  
April 13, 2007



# Why did we go?

- What is the competition capable of?
- Some customers are pressing US foundries to develop Chinese suppliers.
- What would it take to form a commercial relationship?
- How much of a threat is China?



# Statistics

- China has the same land area as the US
- China has  $> 4$  times the population
- Economy growing at  $\sim 10\%$  per year



● major US cities  
● major China cities



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- **30% of foundries Government owned**

# All Steel and Steel Casting Production 2005

Million metric tons all

0 50 100 150 200 250 300 350 400

Romania  
Poland  
Italy  
Taiwan  
Mexico  
Spain  
Czech R.  
UK  
France  
Canada  
Turkey  
S. Africa  
S. Korea  
Germany  
Ukraine  
Japan  
Brazil  
India  
Russia  
US  
China

Steel Castings  
All Steel

0 500 1000 1500 2000 2500 3000 3500

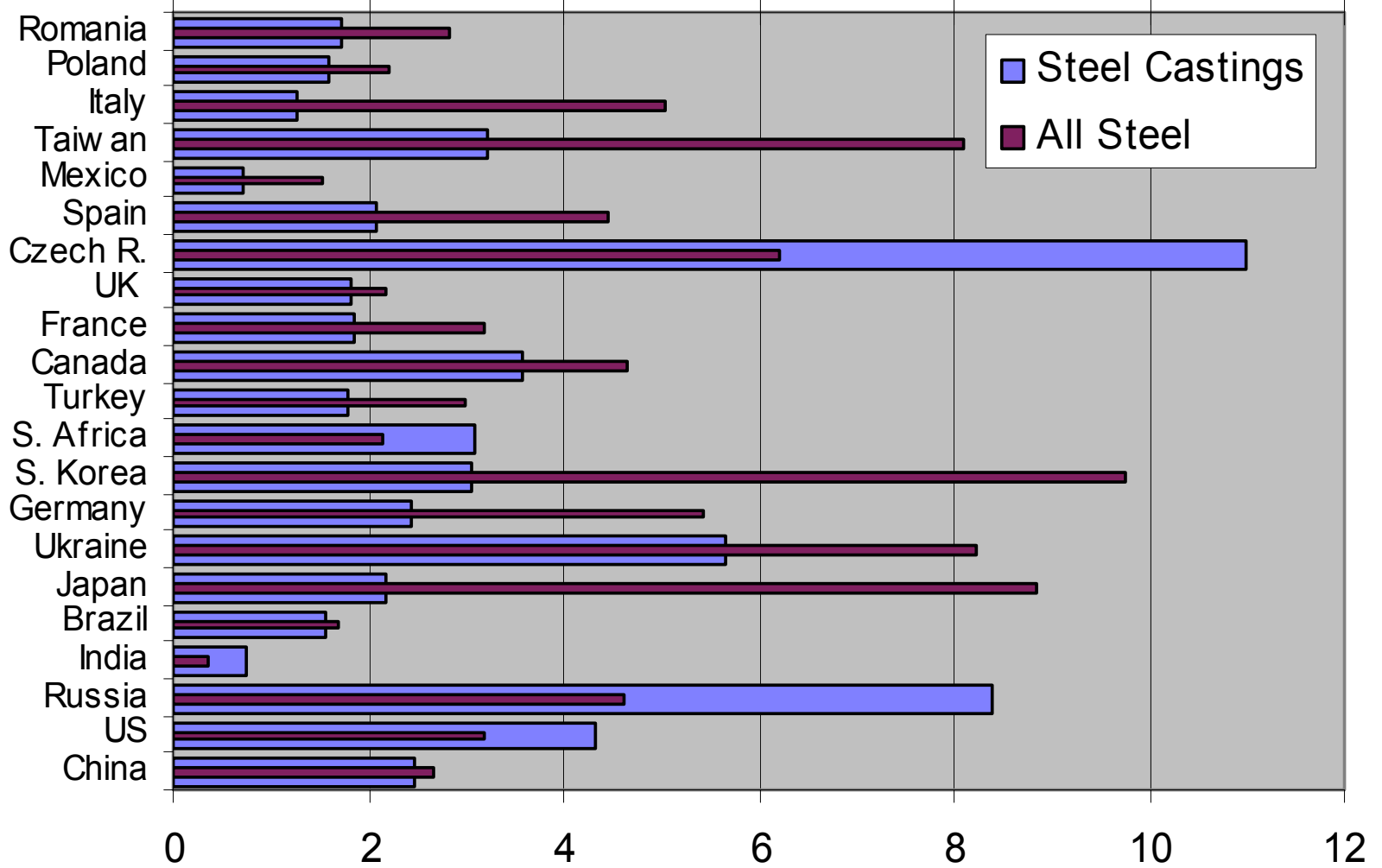
Thousand metric tons castings



# All Steel and Steel Casting Production per Capita 2005

kg of all steel/person

0 200 400 600 800 1000 1200



kg of castings/person

0 2 4 6 8 10 12



# Statistics

- 1.7 to 2.0 million tons of castings exported
- 15,000 to 20,000 tons imported
- 650 tons/month exported to Emerson
- Output expected to rise to 30 million tonnes by 2010 (23% increase over 2005)



# Problems

- Electrical power

Power off today

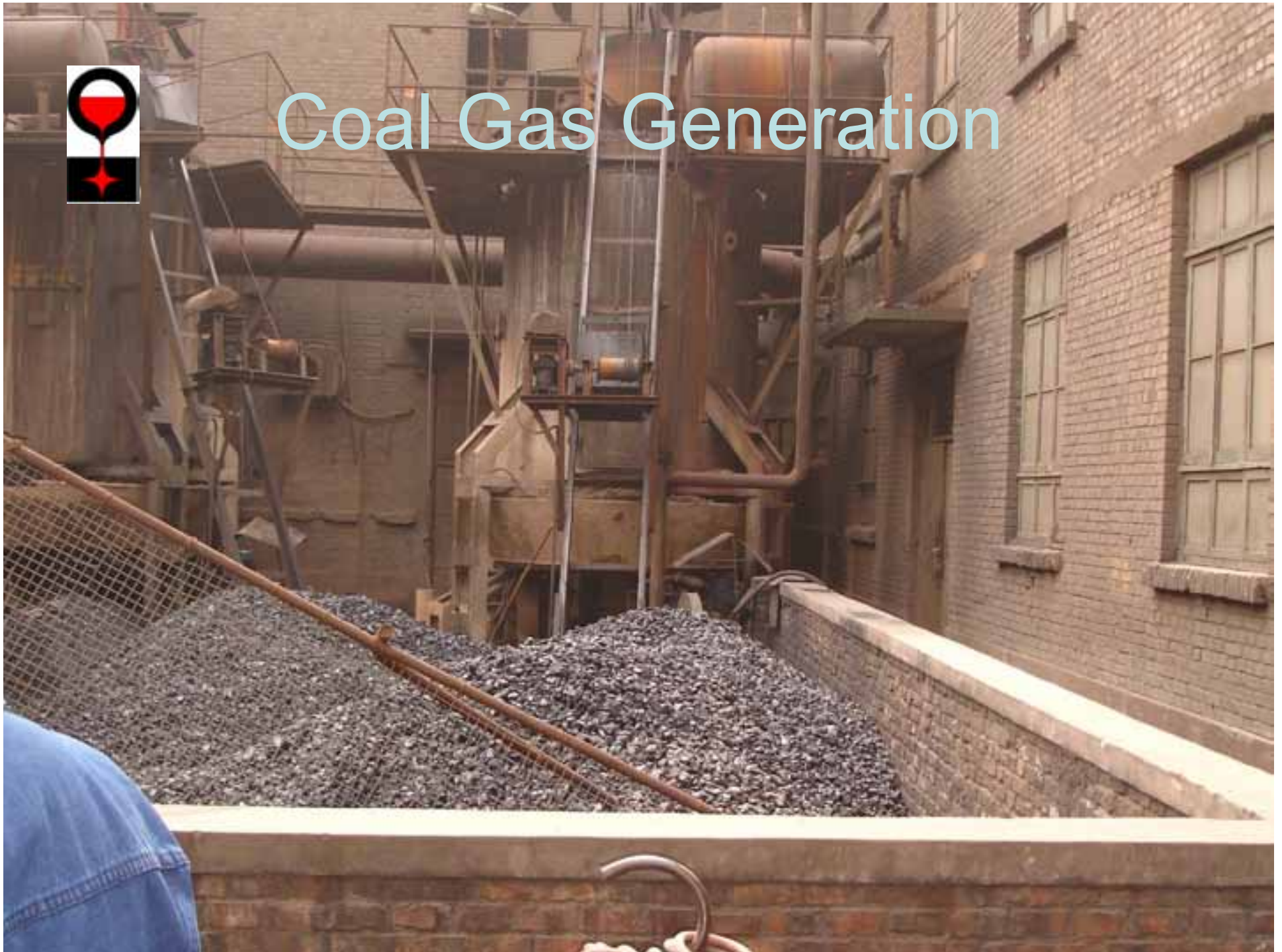


Coal is plentiful





# Coal Gas Generation





# Problems

- Electrical power
- Good quality for export markets



Shrinkage at root  
of large gear





Castings awaiting CAT approval



Castings for Emerson/Fisher



# Problems

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- Good quality for export markets
- Recruitment of technical and management personnel

# Foundry University







# Problems

- Electrical power
- Good quality for export markets
- Recruitment of technical and management personnel
- **QA not evident on shop floor**



# ISO 9000

Almost every foundry was  
ISO 9000 qualified

# Italian Spectrometer







CHINA  
HJ-06011

129-031  
UORIN



# Environmental / Safety

CFA claimed there were laws but  
they were not enforced

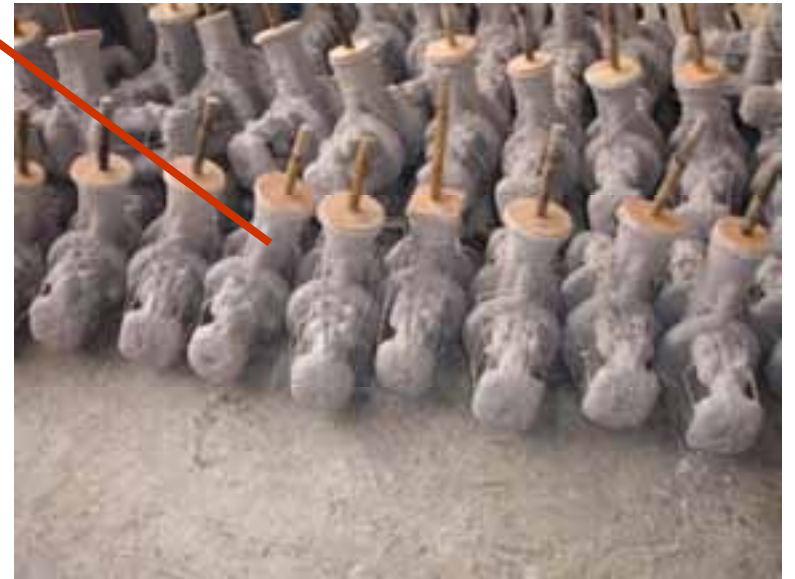


# Environmental / Safety

- Soluble wax investment casting process used ammonia.



Combined process shells



Conventional soluble wax shells





# Environmental / Safety

- Soluble wax investment casting process used ammonia.
- Fume control – not evident.





# Burning spent wax





Fume from EAF



Chimney for spent wax

Exposed coils



# Environmental / Safety

- Soluble wax investment casting process used ammonia.
- Fume control – not evident.
- Eye protection – spasmodically applied.

# Eye protection





# Joint Ventures

If you do not have one then your  
chance of survival is reduced



# Joint Venture?





# New Plant





# Perceptions

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Capacity not based on what is open, but what can be displaced



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- An assessment of the financial status of a foundry may be difficult
- The available capacity does not appear to be easy to assess
- The best foundry might only be interested in long running lines
- **A considerable amount of technical support is required.**



Same Company





# Technical expertise

- SFSA numerous calls regarding quality of castings from China.
- It appears that Chinese foundries supplying for export need significant technical support.
- If you change the requirements they appear to be in great difficulty.



# 华晋冶金铸造厂



SPSA TOUR AT HUA JIN FOUNDRY  
OCTOBER 23, 2008