

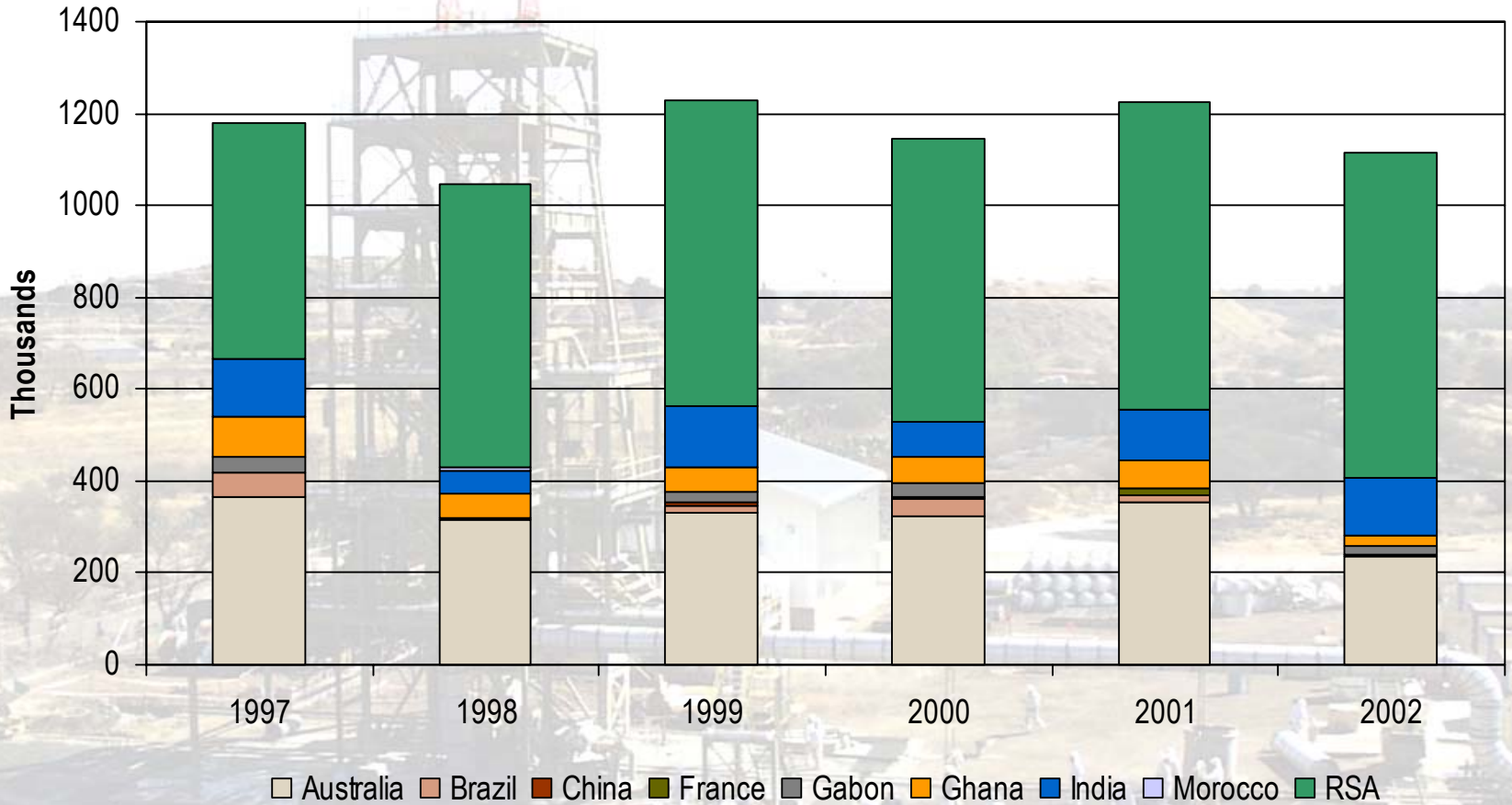
**ASSMANG**

MANGANESE

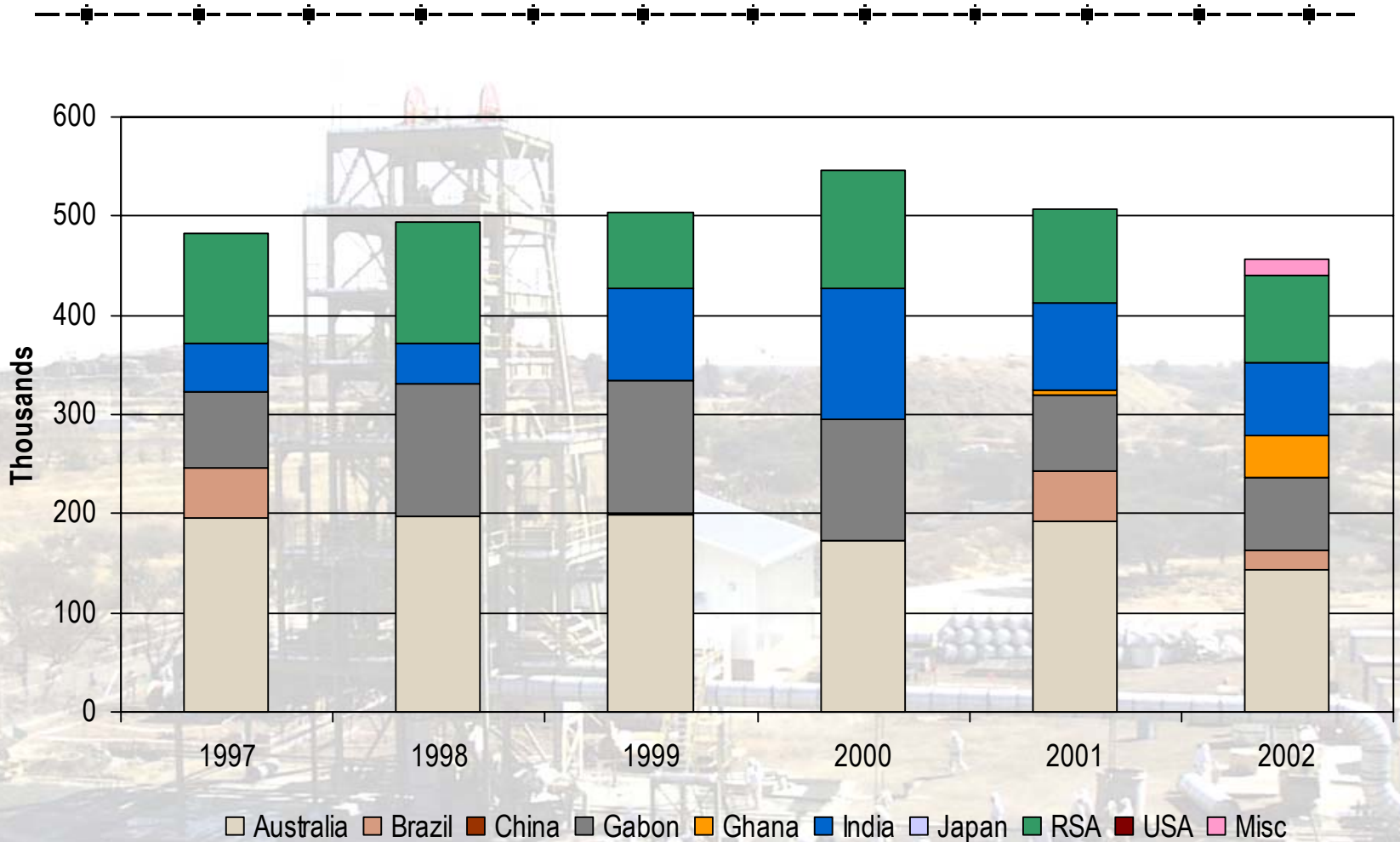
# The Manganese Ore Mining Industry

## Environmental Measures and Their effects on Mn Production in Asia

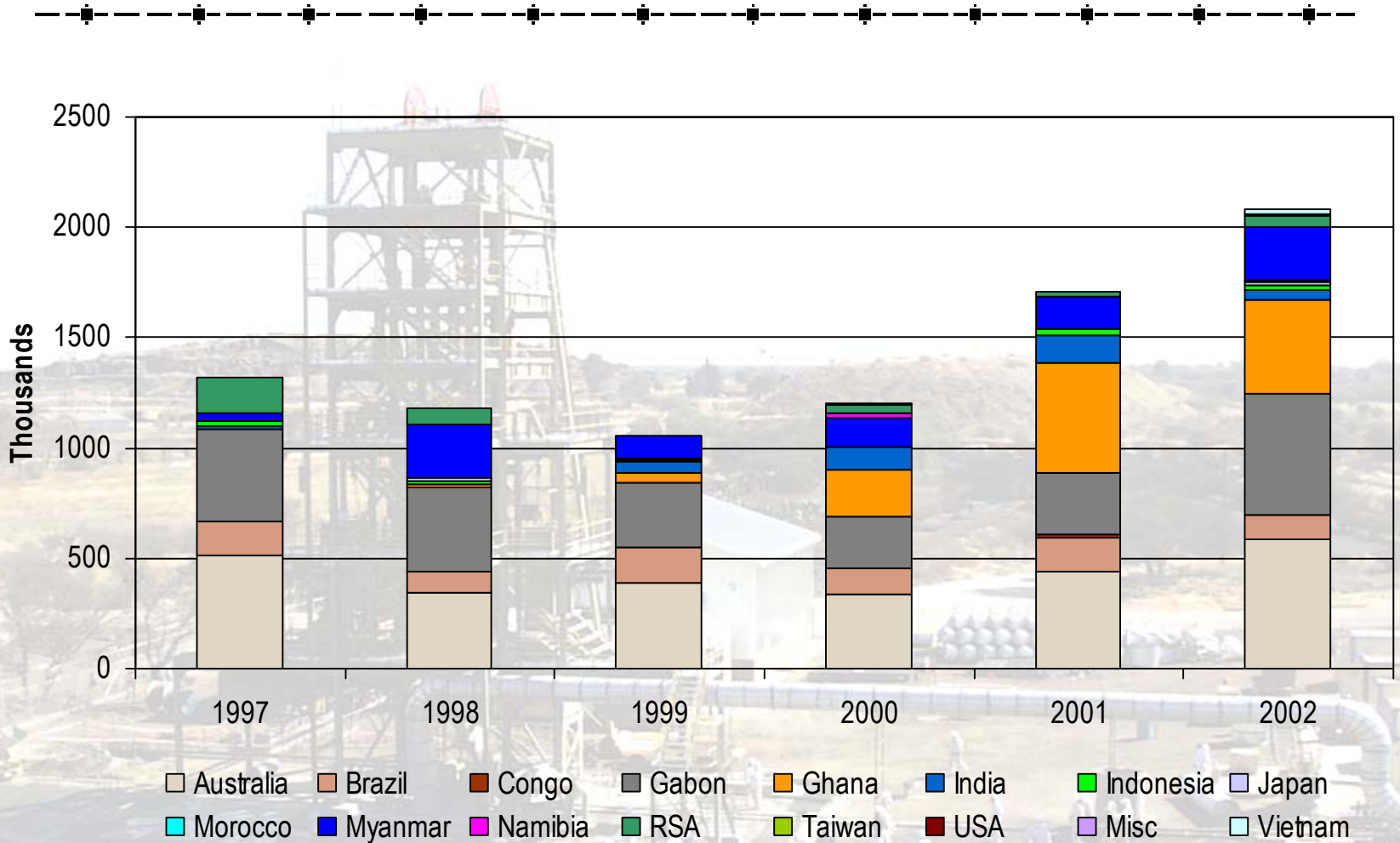
# Mn Ore Imports - Japan



# Mn Ore Imports - Korea



# Mn Ore Imports - China



# Mn Ore Imports to Asia - 2002

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Total 3.65 Mill tons

**BHP / Billiton : 28.7%**

**Ghana : 13.5%**

**Comilog : 17%**

**CML : 6.4%**


**Assmang : 14.3%**

**CVRD : 3.6%**

83.5% Accounted for by 6 Major Companies

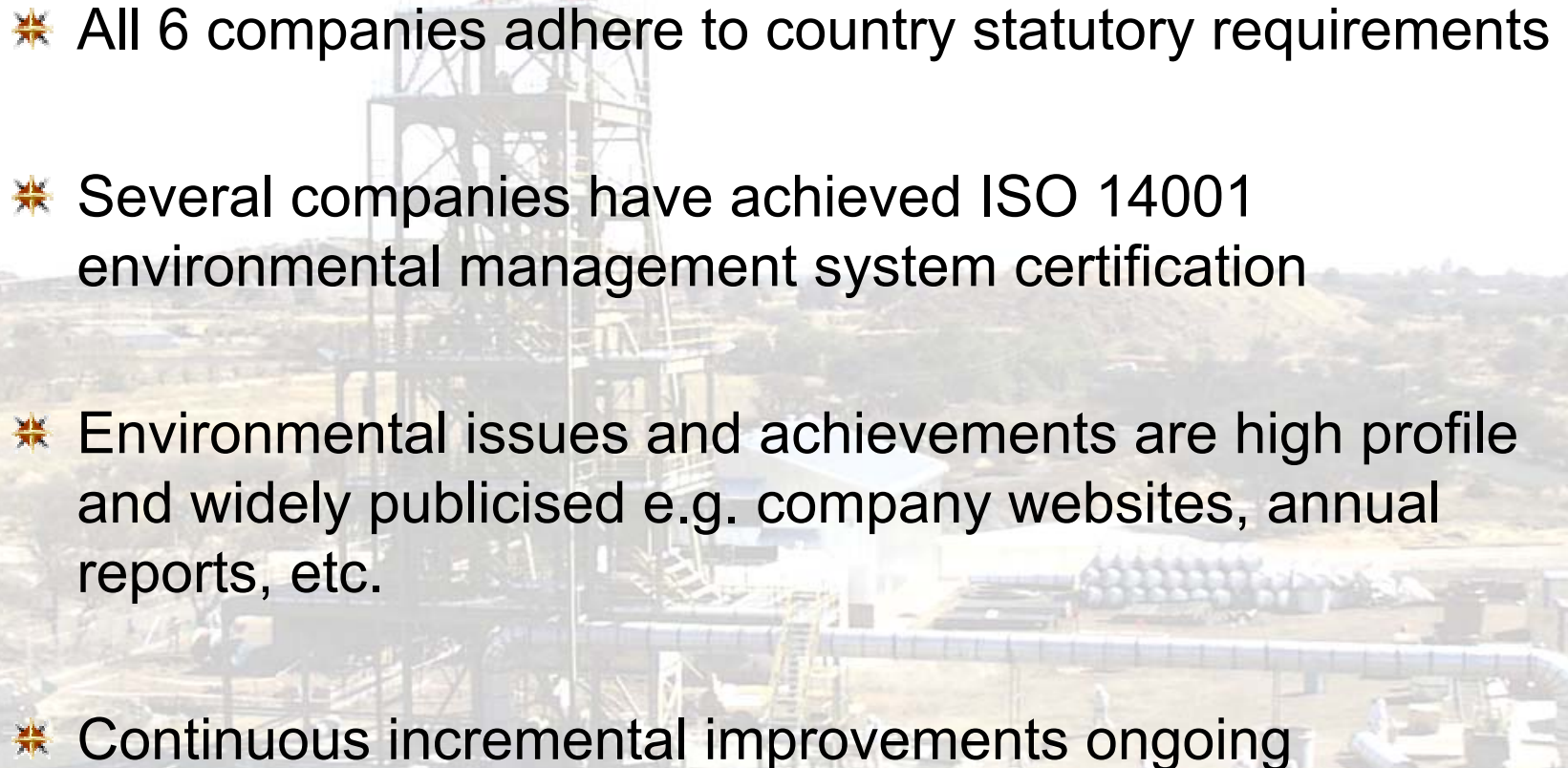
# Environmental Issues for Mn Ore Producers

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- ✦ **Waste Management:** Fines / Slimes and Waste Rock
  - ✦ **Water Management:** Surface and ground water
  - ✦ **Dust:** Respirable dust  
(Mn Ore is not believed to be toxic)
  - ✦ **Rehabilitation:** Open cast mines rehabilitation and revegetation.  
End of mine life planning.

# Environmental Response from Major Mn Ore Producers



- ✦ All 6 companies adhere to country statutory requirements
  - ✦ Several companies have achieved ISO 14001 environmental management system certification
  - ✦ Environmental issues and achievements are high profile and widely publicised e.g. company websites, annual reports, etc.
  - ✦ Continuous incremental improvements ongoing
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# Ghana Manganese Company Limited



Revegetation of "Hill E"

# Summary

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- ✦ Manganese Ore Mining is in relatively remote locations
- ✦ Major manganese ore miners have a pro-active, responsible attitude towards the environment
- ✦ Environmental issues will not be a brake on Mn ore supply into Asia