

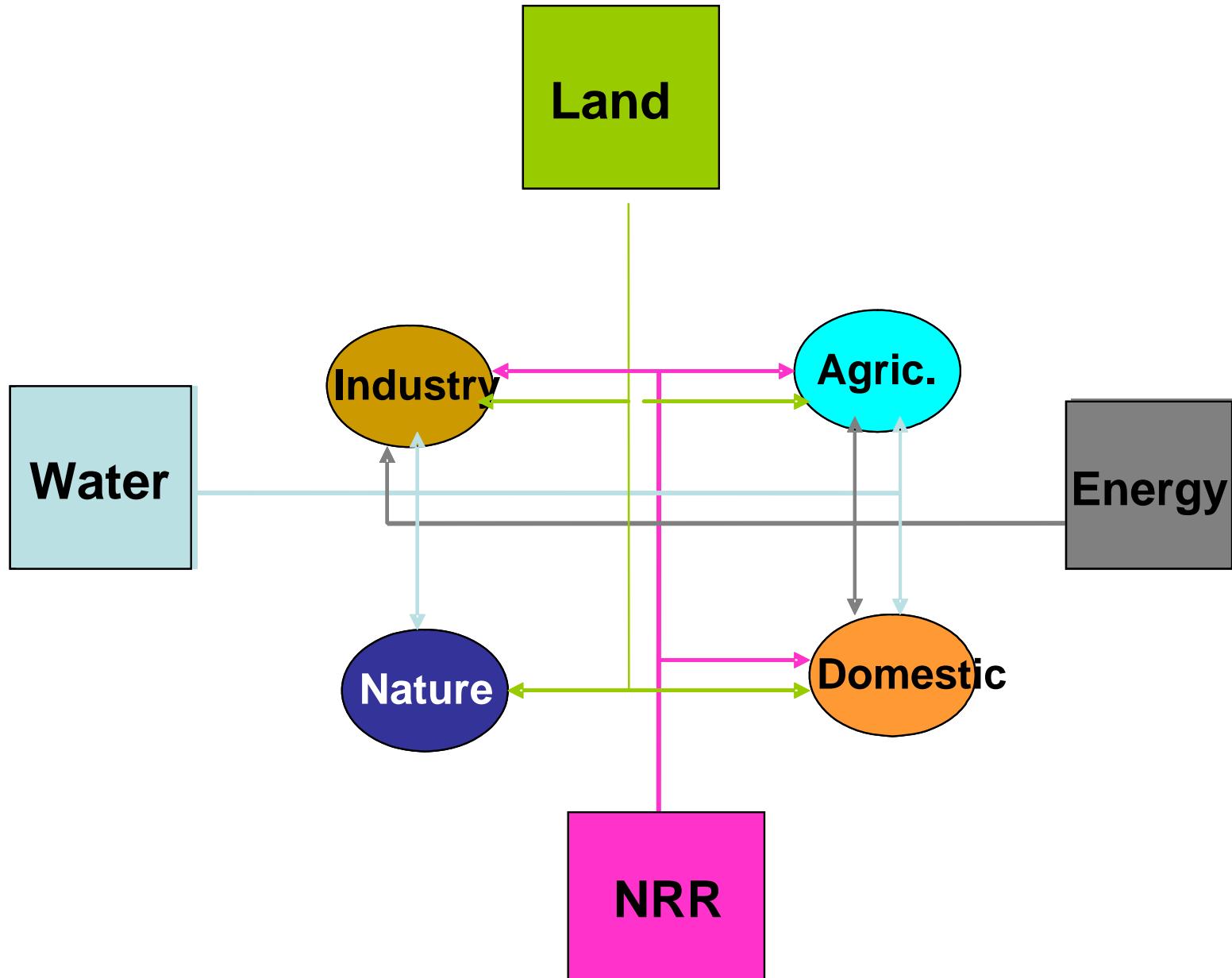
# Sustainability Linkages

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Academies Roundtable on Science and  
Technology of Sustainability

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# The Challenge of Linkages



# Linkage Example #1

## Energy and Non-Renewable Resources

# Ore from the Mine



# Milling Metal Ore - Comminution

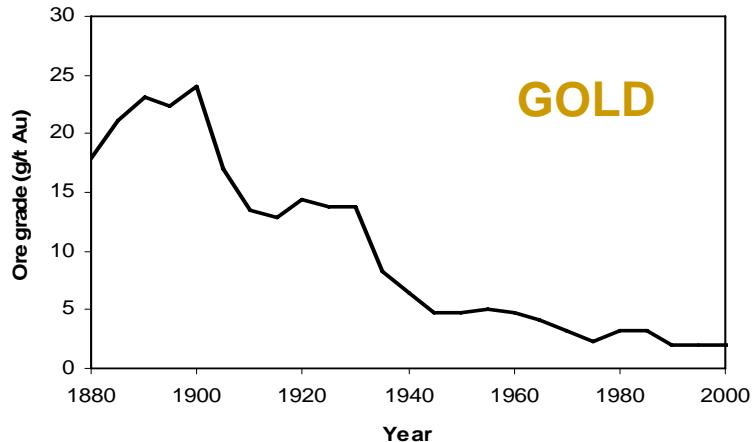
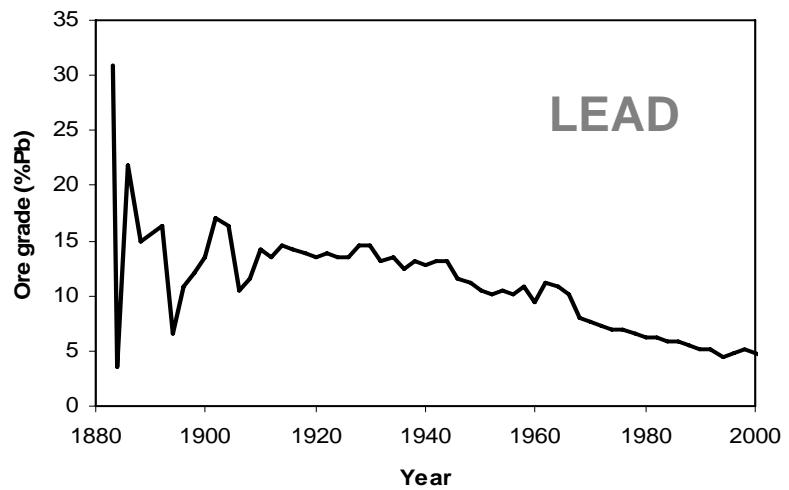
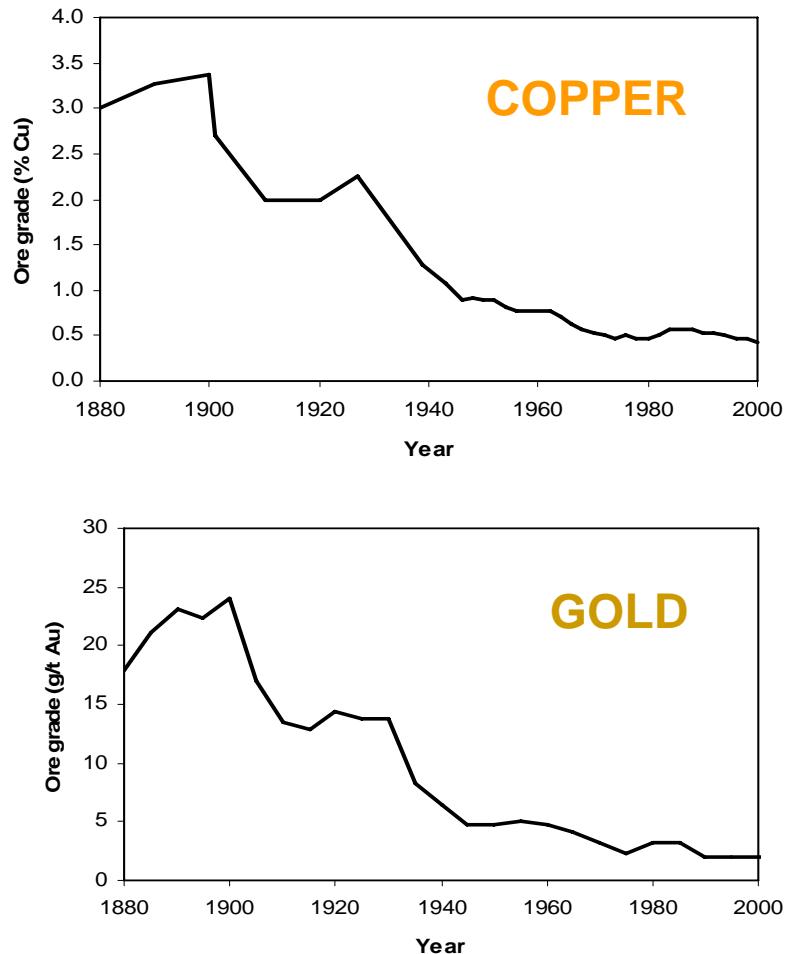


# Smelting and Refining of Metals

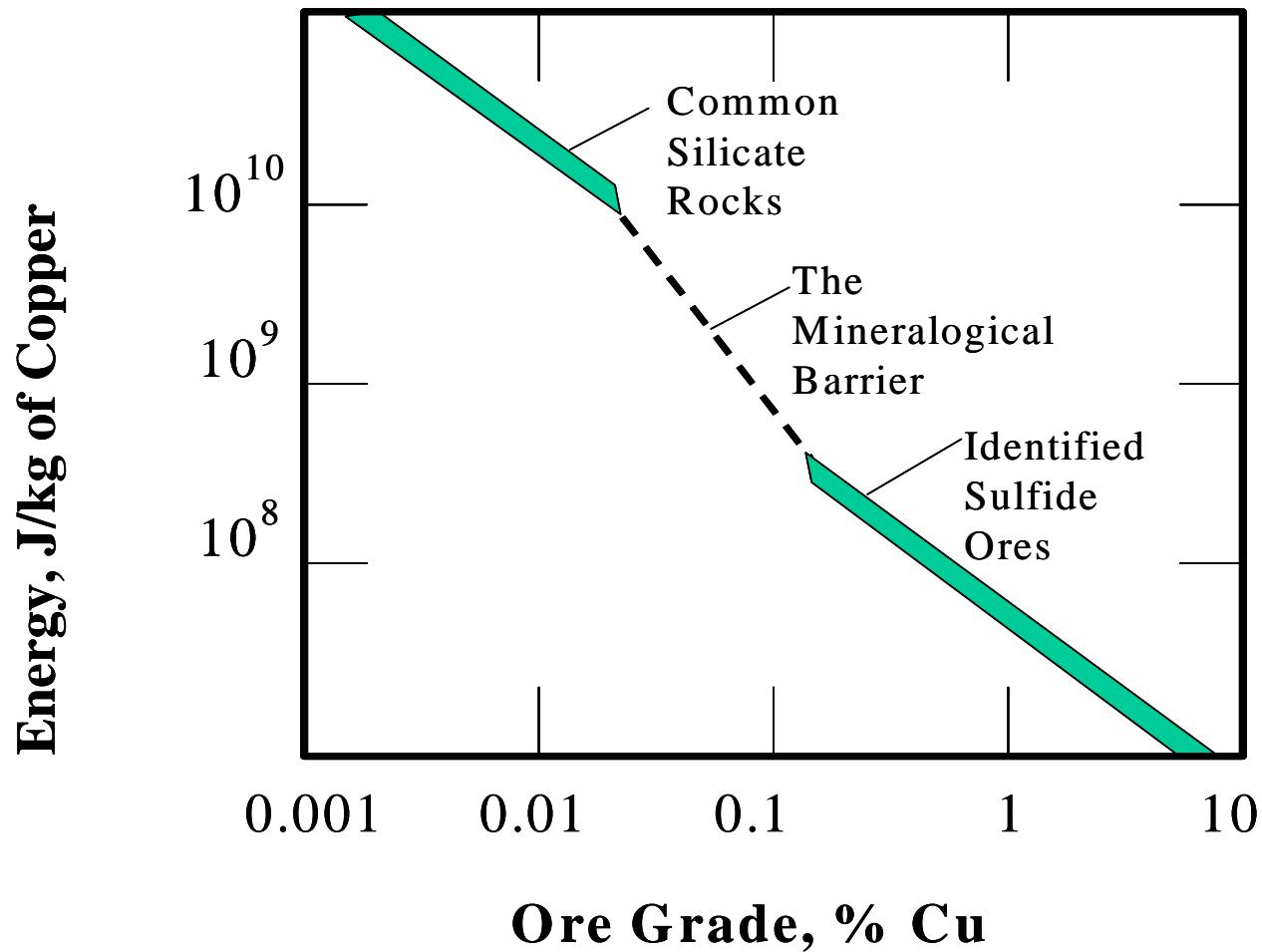


Source: Falconbridge, Inc.

# Declining Ore Grades



# Energy Required for Mining as a Function of Ore Grade



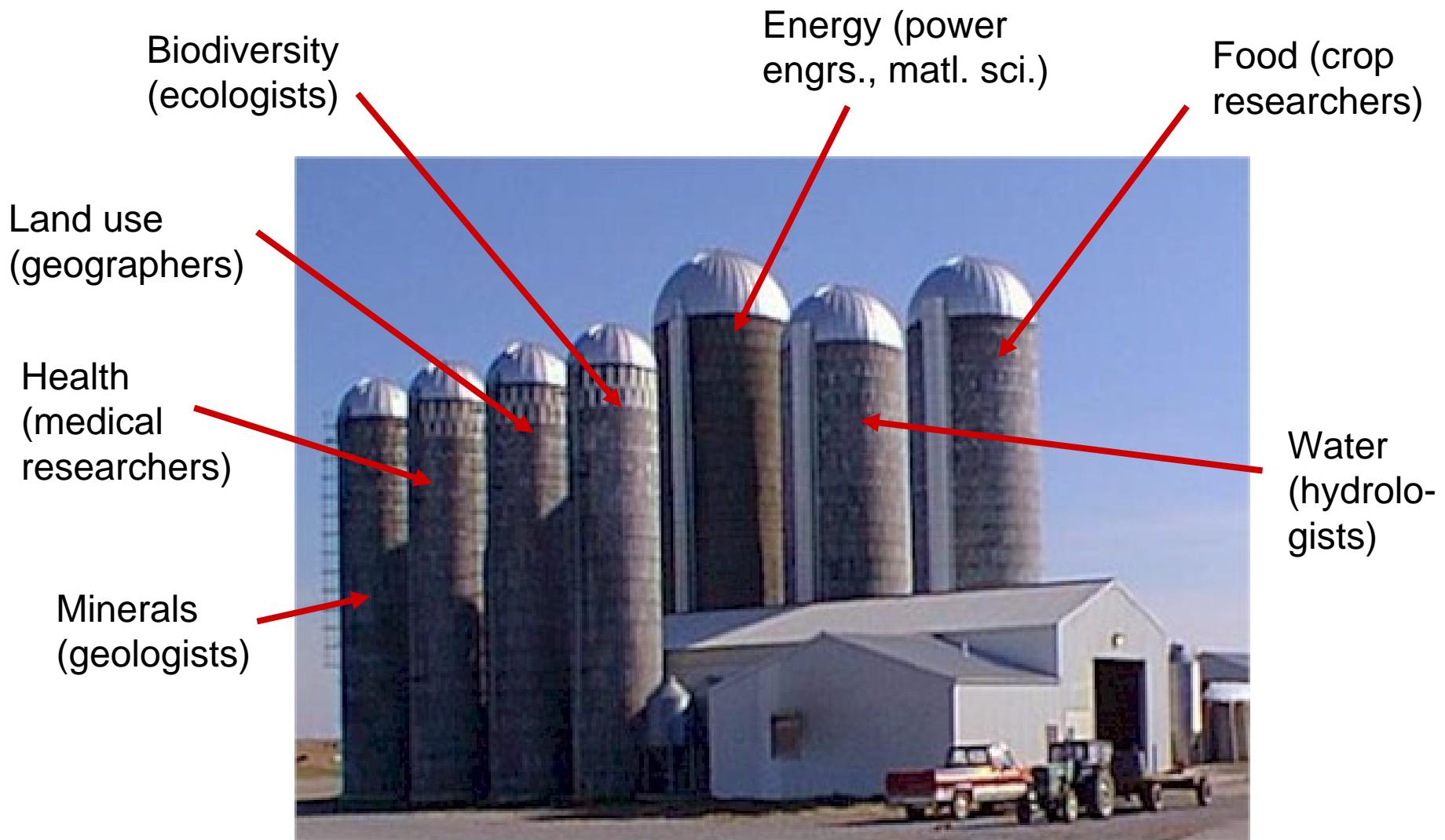
Source: R.B. Gordon et al., *Toward a New Iron Age?*, Harvard, 1987

## The Issue:

Do we anticipate devoting large amounts of energy to acquire the non-renewable resources on which modern technology depends?

# Linkages and Experts

# The Sustainability Silos of the Experts



# The Round Table and the Linkages Activity

- Linkages of sustainability are generally not considered in sustainability discussions or analyses
- Sustainability linkages is an aspect of sustainability in which the round table can provide a unique service
- At our previous meeting and at this one we are previewing aspects of this topic
- Tomorrow we will present our initiative for informing the policy and governmental implications of linkages