

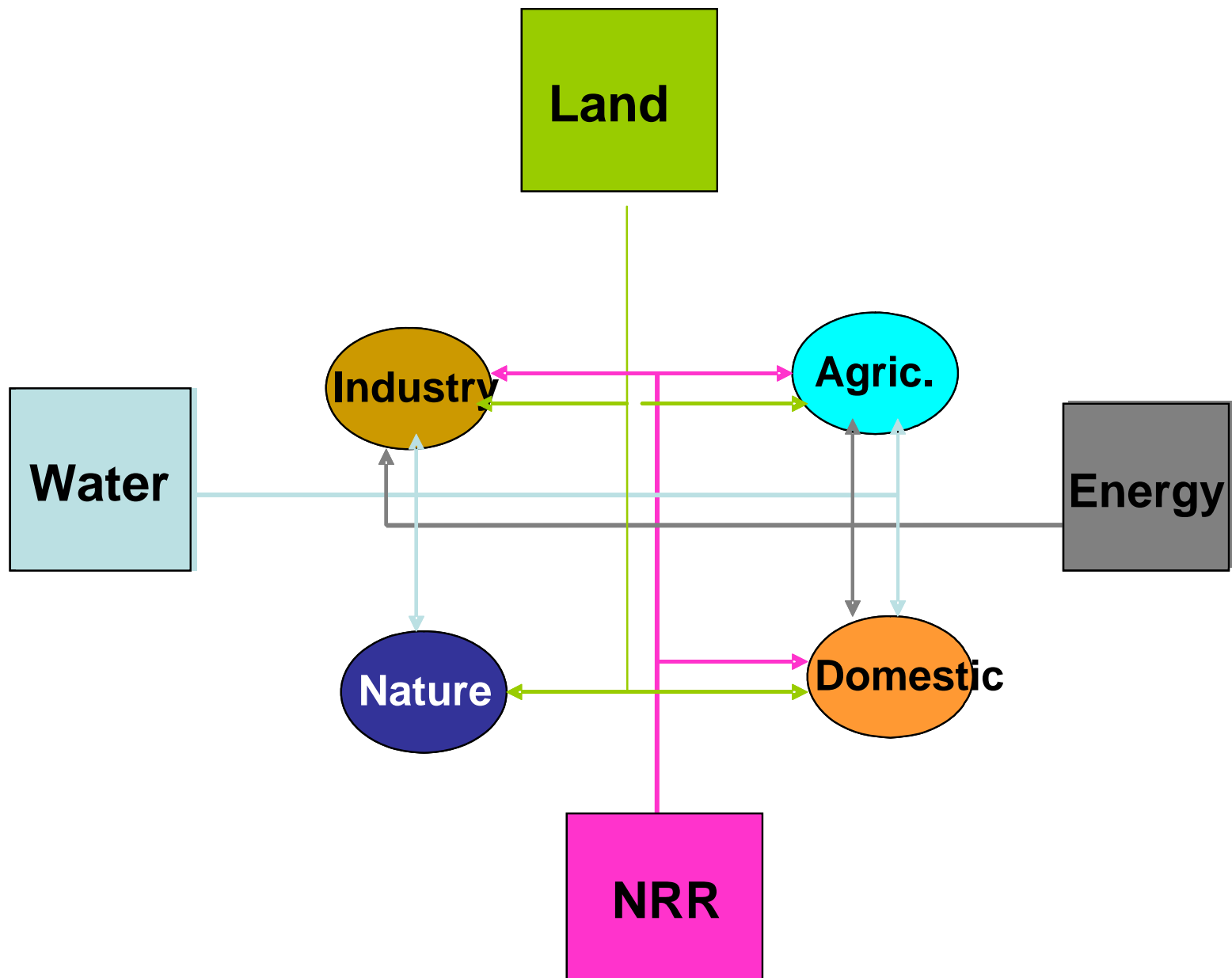
Sustainability Linkages

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Academies Roundtable on Science and
Technology of Sustainability

May 6, 2010

The Challenge of Linkages



Linkage Example #1

Energy and Non-Renewable Resources

Ore from the Mine



Milling Metal Ore - Comminution

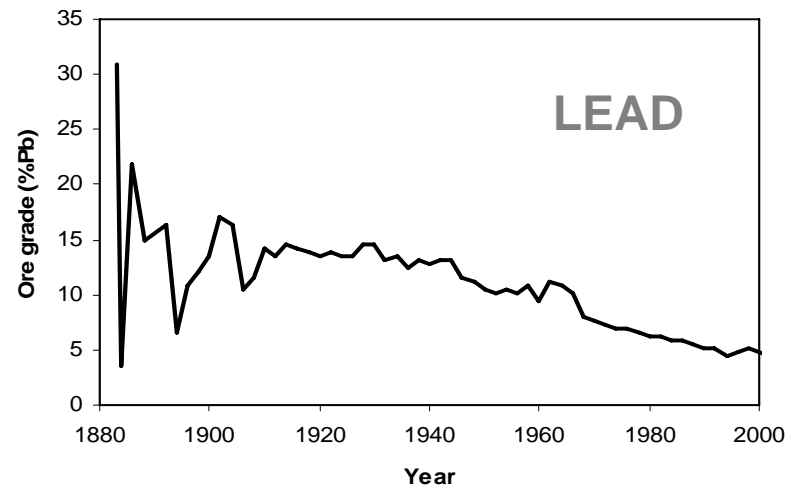
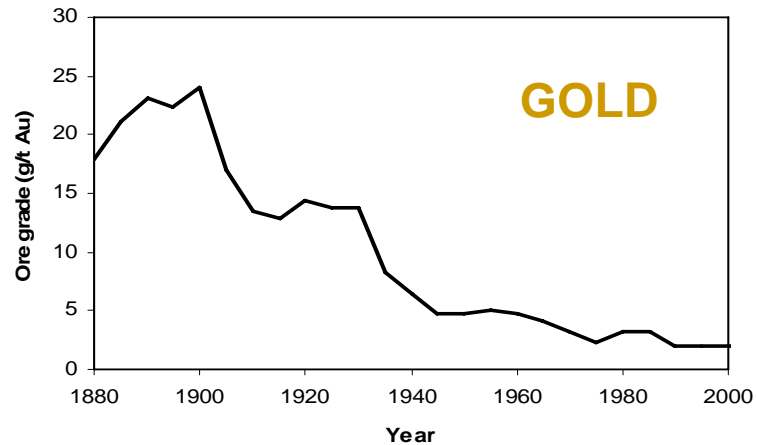
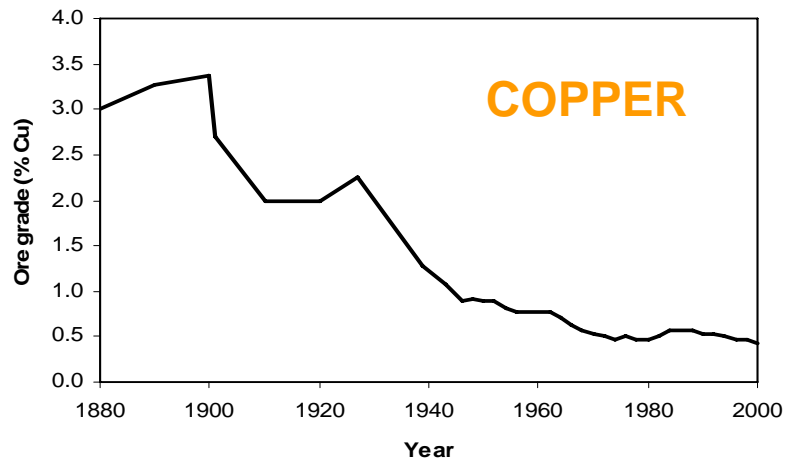


Smelting and Refining of Metals

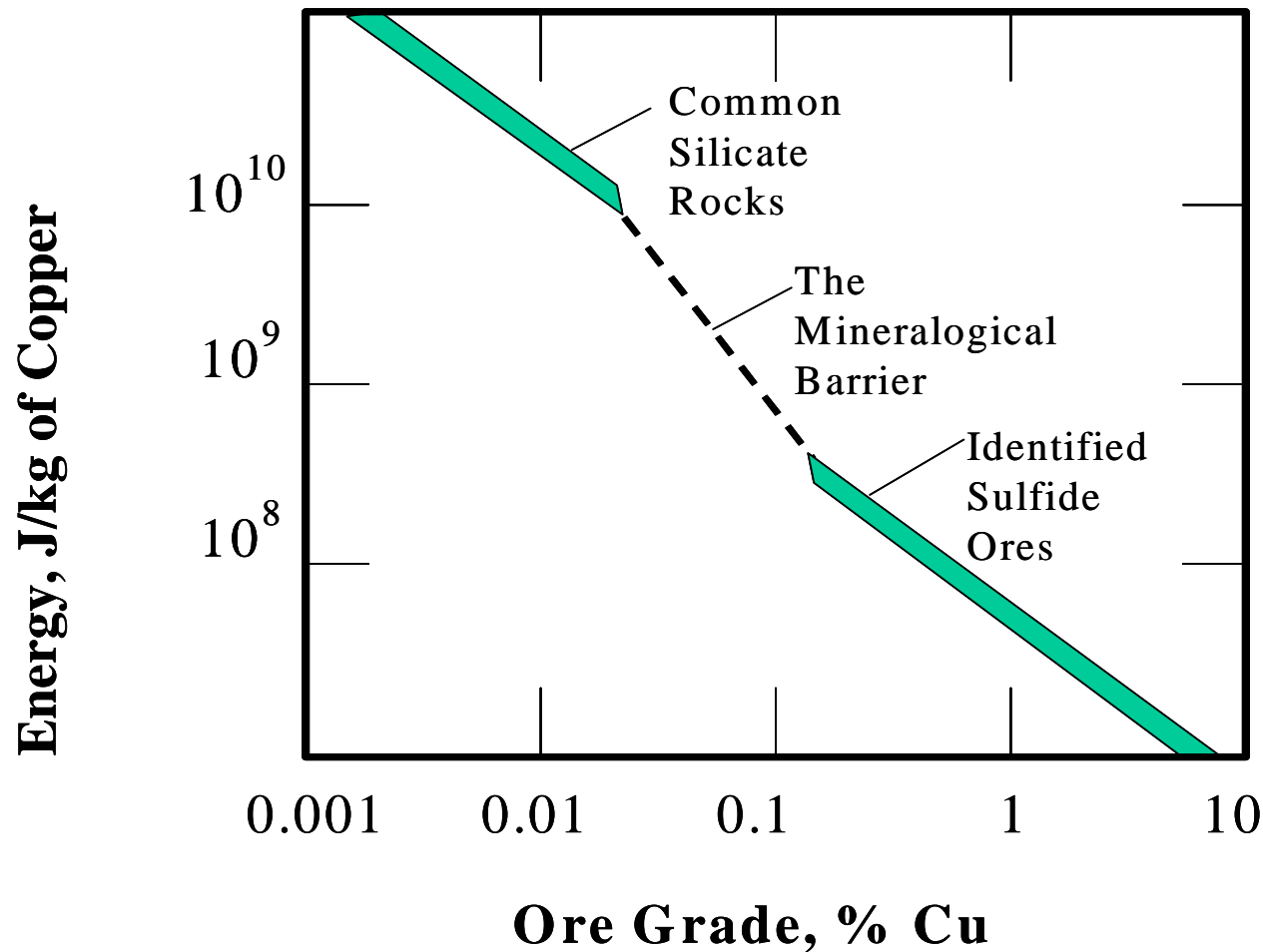


Source: Falconbridge, Inc.

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

Biodiversity
(ecologists)

Energy (power
engrs., matl. sci.)

Food (crop
researchers)

Land use
(geographers)

Health
(medical
researchers)

Water
(hydrolo-
gists)

Minerals
(geologists)



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