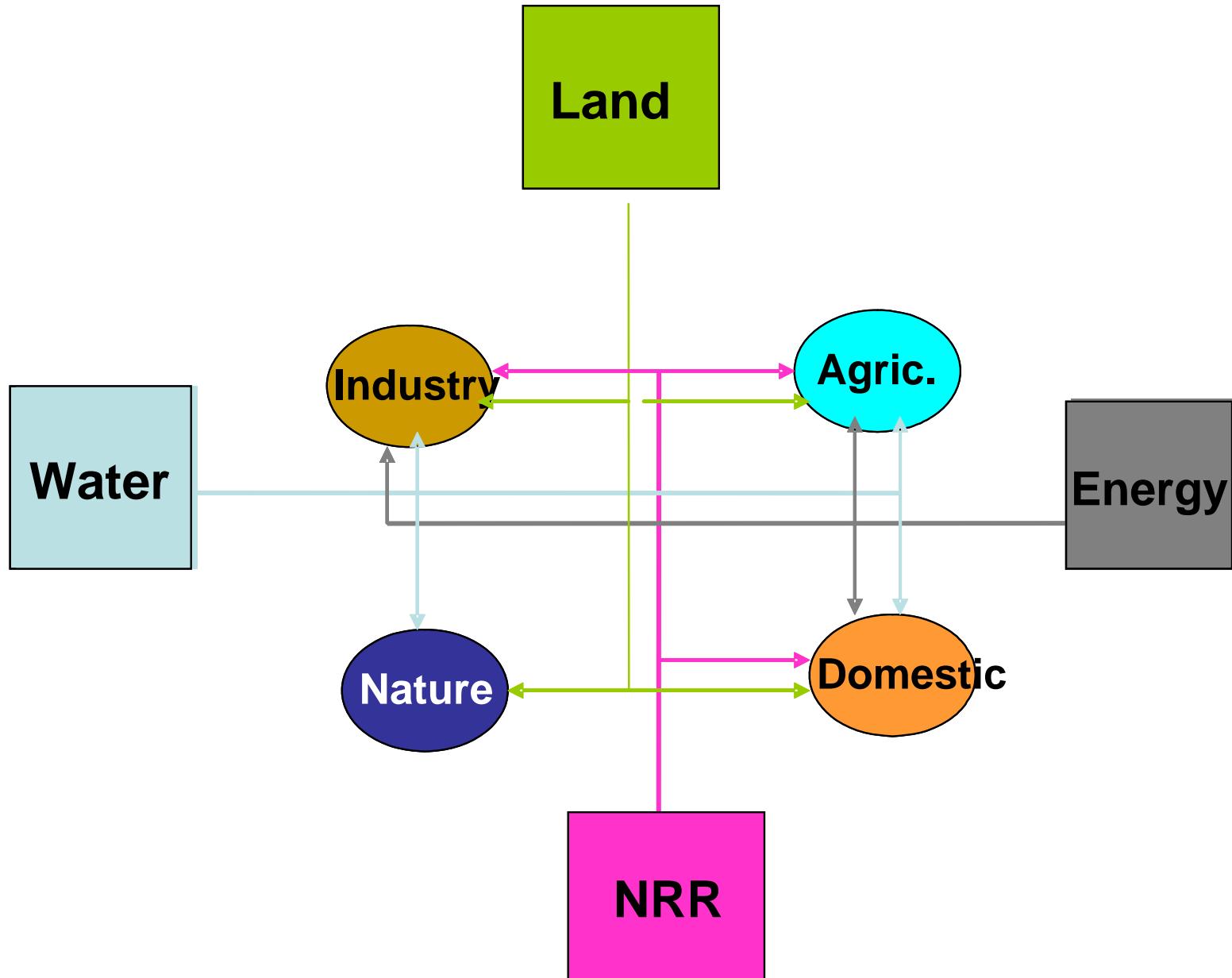


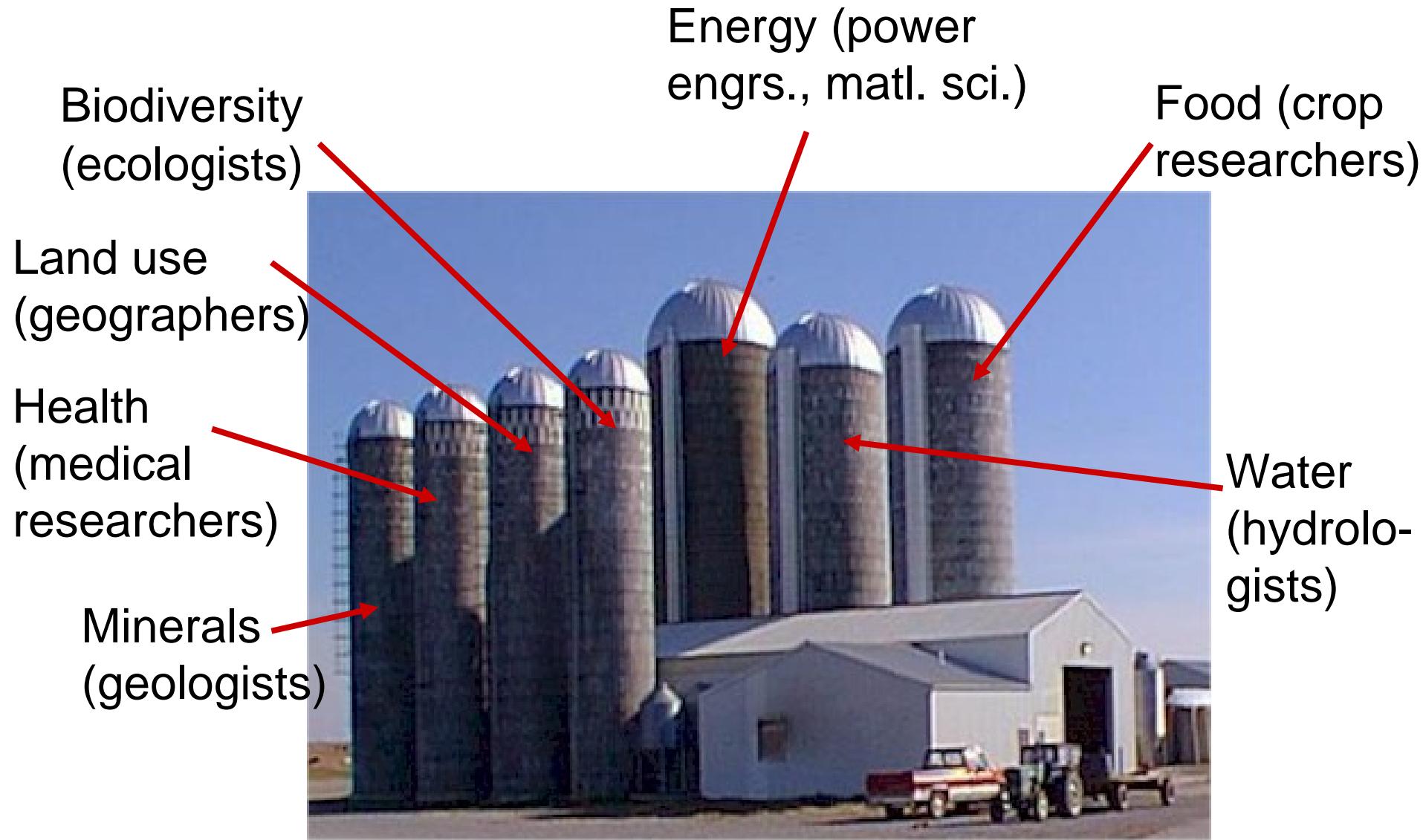


# **Sustainability Linkages in the Federal Government**

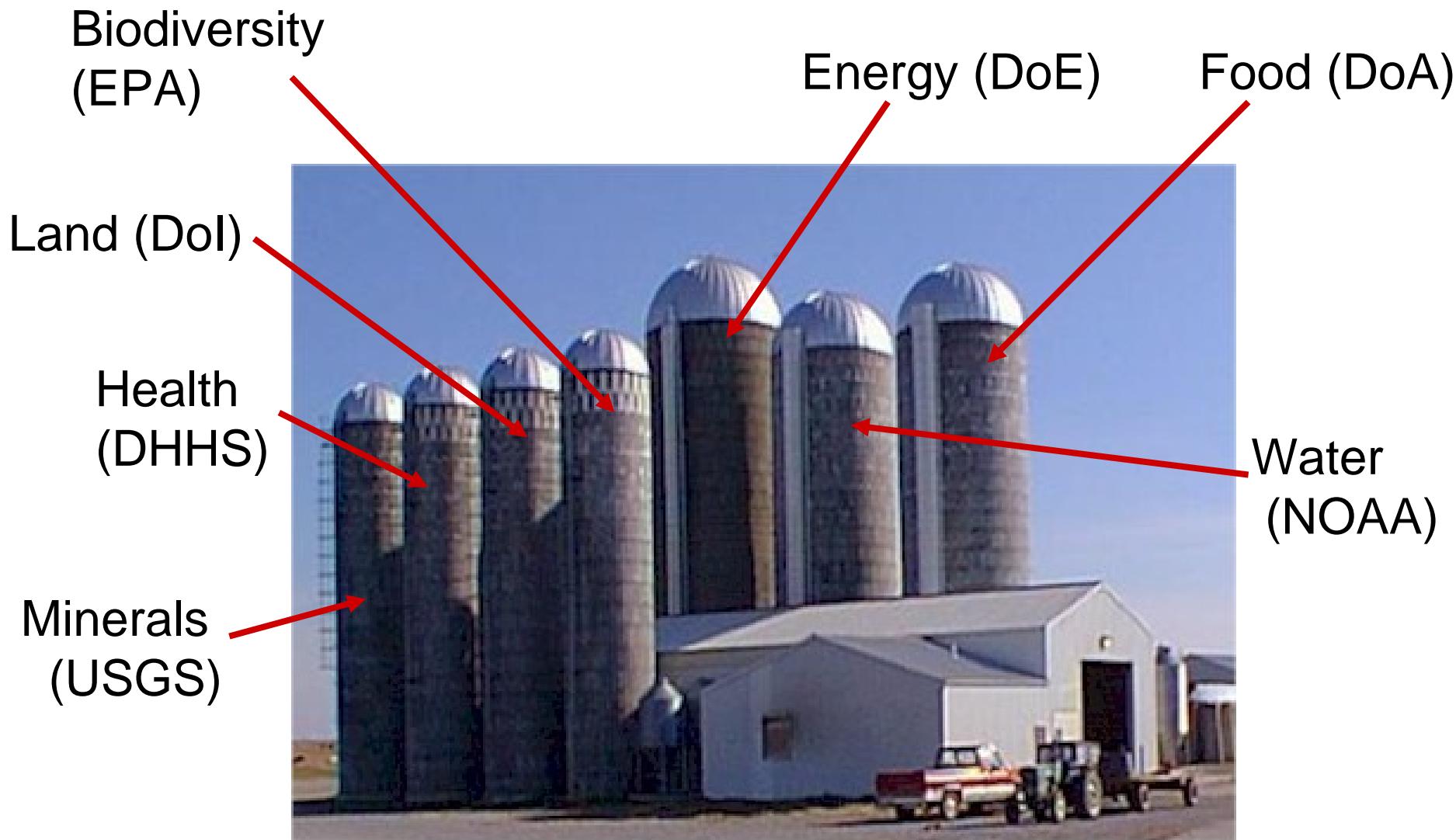
**Science and Technology for  
Sustainability Program  
The National Academies**



# The Sustainability Silos of the Experts



# The Sustainability Silos of the U.S. Government



# The Sustainability Silos of EPA

Biodiversity  
(OCSPP)

Energy  
(OAR)

Risk  
(ORD)

Land  
(OSWER)

Health  
(OCSPP)

Minerals  
(???)

Water  
(OW)



Example of a Linkage Situation  
Involving a Number of Federal and  
State Agencies:  
The Pebble Mine, Alaska

giona

## Grand

-  General Dev.
-  Possible Po.
-  Possible Ro.
-  National Par.
-  National Par.
-  Borough Bo.
-  Communities
-  Existing Ro.



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taska

25 50

Figure 1-2

1980 North 107

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# The Pebble Deposit

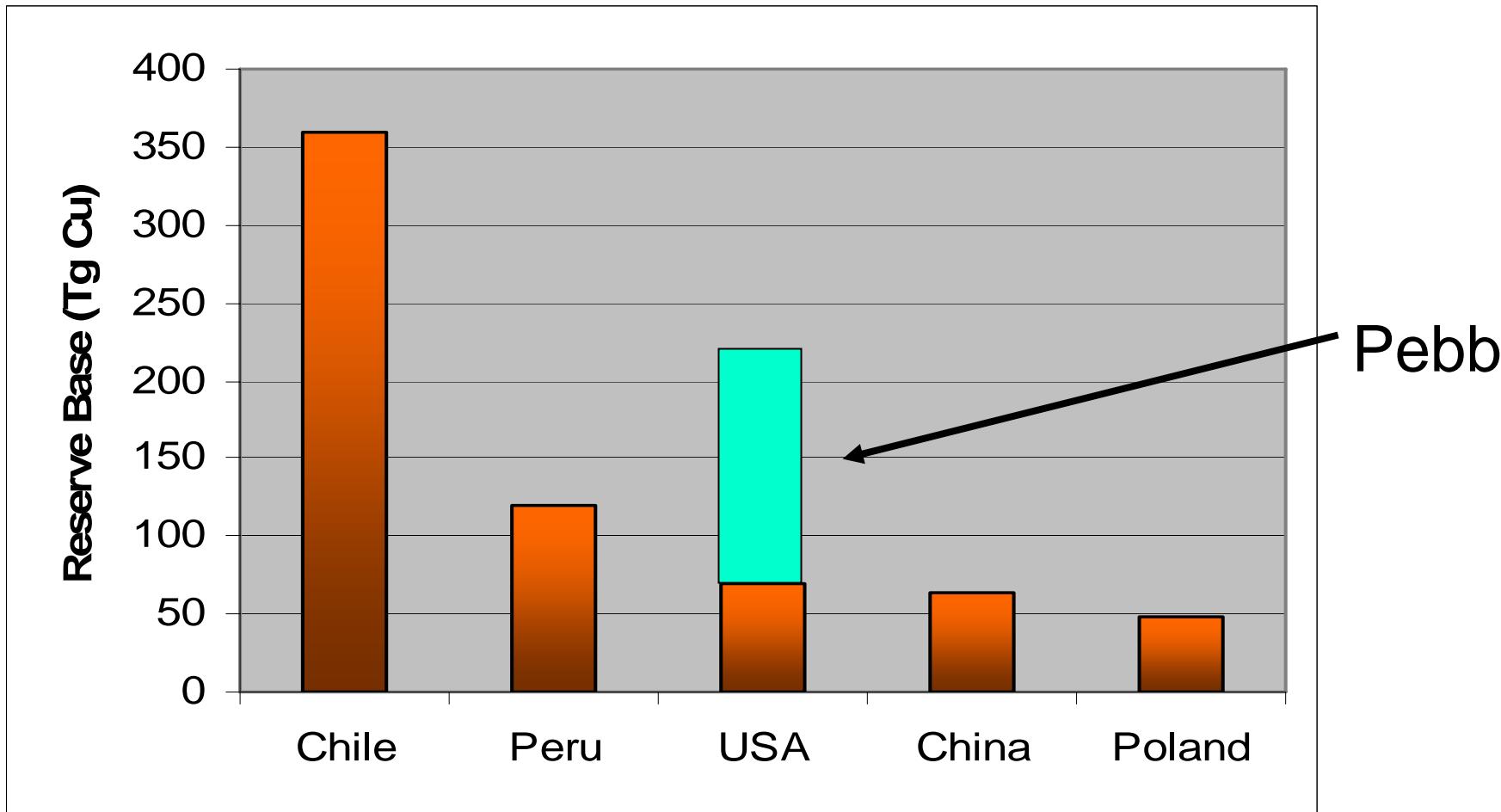
# Bristol Bay Salmon



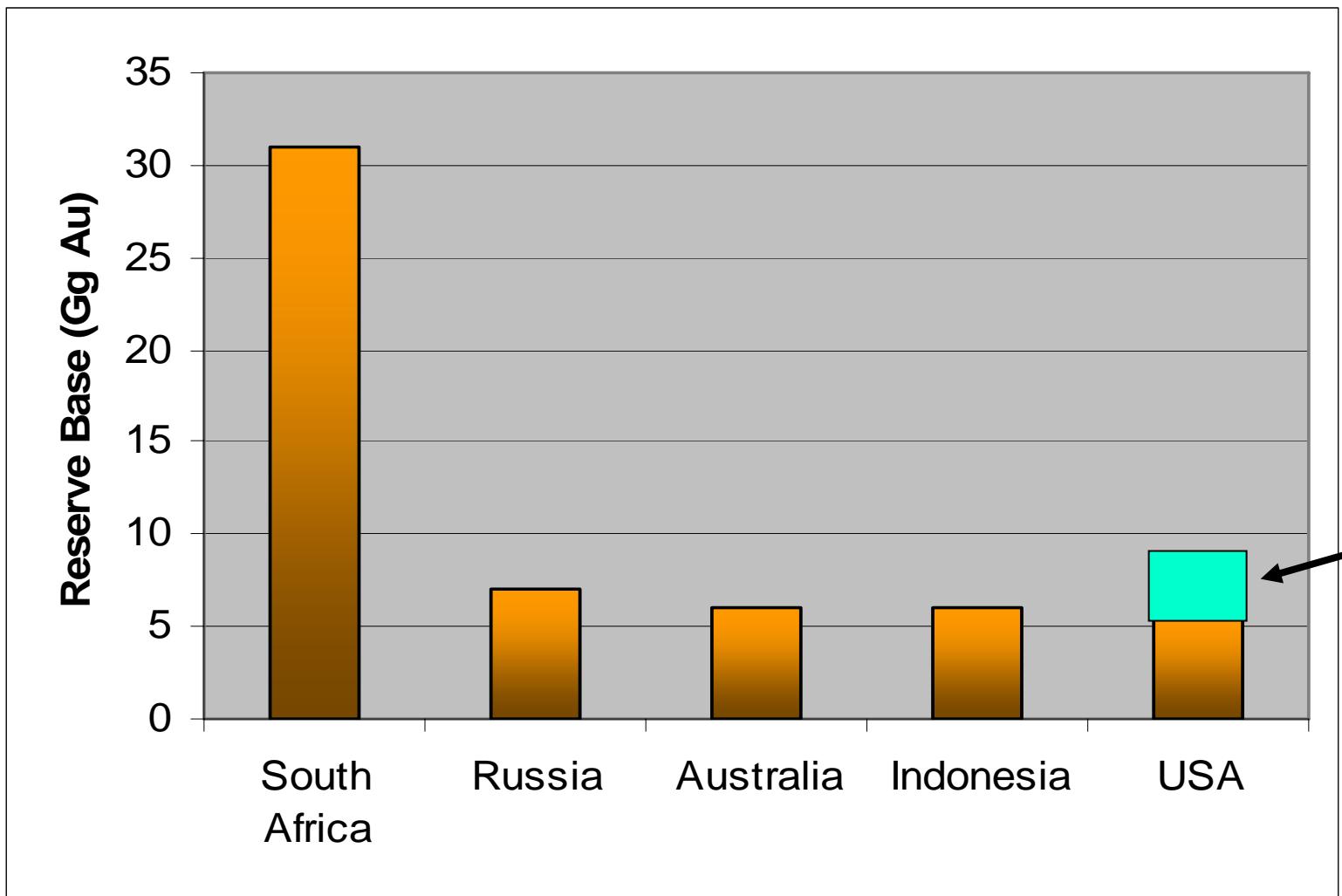
# Resources in the Pebble Mine

- 67 billion pounds (150 Tg) of copper (largest undeveloped copper deposit in the world)
- 4 billion pounds (8.8 Tg) of molybdenum
- 82 million ounces (2.6 Gg) of gold

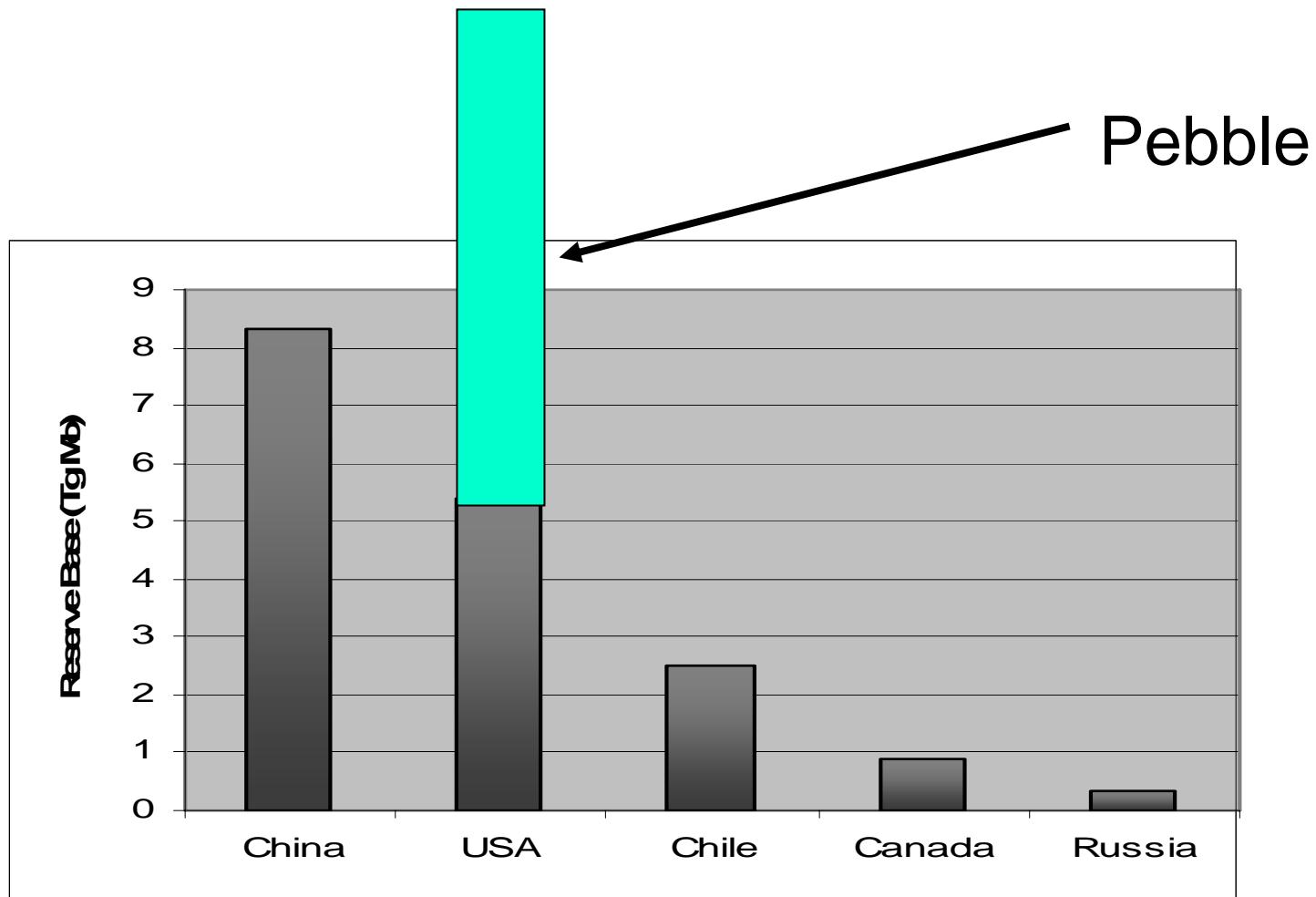
# Copper: The Global Reserve Base



# Gold: The Global Reserve Base



# Molybdenum: The Global Reserve Base



# The Linkages Issue:

Do we need these metals badly enough to justify threatening a unique natural resource?

# To Mine or Not to Mine?



# The Pebble Mine social science and ethics issue:

Is it moral to use materials for  
your own benefit if you refuse to  
allow them to be mined and  
processed in your own country?

If you do not permit the Pebble Mine, what will you give up?



# Regulatory oversight for the Pebble Mine

# No Single Permit to Mine: there are many permits & authorizations

STATE	FEDERAL
■ Plan of Operations (DNR)	■ US EPA Section 402 NPDES Water Discharge Permit
■ Reclamation and Bonding (DNR)	■ US EPA Air Quality Permit review
■ Waste Management Permits and Bonding (ADEC)	■ US EPA Safe Drinking Water Act (UIC Permit)
■ Certification of NPDES and ACOE Permits (ADEC)	■ US ACOE Section 404 Dredge and Fill Permit
■ Sewage Treatment System Approval (ADEC)	■ US ACOE Section 10 Rivers and Harbors Act
■ Air Quality Permits (ADEC)	■ US ACOE Section 106 Historical and Cultural Resources Protection
■ Fish Habitat and Fishway Permits (DNR)	■ NMFS Threatened and Endangered Species Act Consultation
■ Water Rights (DNR)	■ NMFS Marine Mammal Protection Act
■ Right of Way/Access (DNR/DOT)	■ NMFS Essential Fish Habitat
■ Tidelands Leases (DNR)	■ NMFS Fish and Wildlife Coordination Act
■ Dam Safety Certification (DNR)	■ USFWS Threatened and Endangered Species Act Consultation
■ Cultural Resource Protection (DNR)	■ USFWS Bald Eagle Protection Act Clearance
■ Monitoring Plan (Surface/Groundwater/Wildlife) (DNR/DEC)	■ USFWS Migratory Bird Protection
■ Coastal Zone Consistency Determination (DNR)	■ USFWS Fish and Wildlife Coordination Act

(These are only some of the authorizations required)

# And many agencies.

- Department of Natural Resources
- Department of Environmental Conservation
- Department of Fish and Game
- Department of Transportation & Public Facilities
- Department of Commerce, Community and Economic Development
- Department of Law
- US Environmental Protection Agency
- US Army Corps of Engineers
- US Fish and Wildlife Service
- National Marine Fisheries Service
- Bureau of Land Management
- U. S. Forest Service
- National Park Service

# The National Academies study on Sustainability Linkages in the Federal Government



## **Critical Sustainability Challenge**

Move beyond sectoral approaches within the federal (and perhaps state) government to more integrated approaches to sustainability challenges that take into account complex interactions among systems



# **Meeting the Sustainability Challenge in the Federal Government**

Establish a committee of the US National Academies to design workshops, hold the workshops to explore linkage challenges across federal (and perhaps state) governments, produce reports of those workshops, and make recommendations

# Issues for the Fact-Finding Meetings

- Linkages form potential constraints to many key components of sustainability
- The linkages are generally not considered in sustainability discussions or analyses
- Linkages need to be much better quantified
- The policy implications of linkages need to be explored and communicated to government agencies