

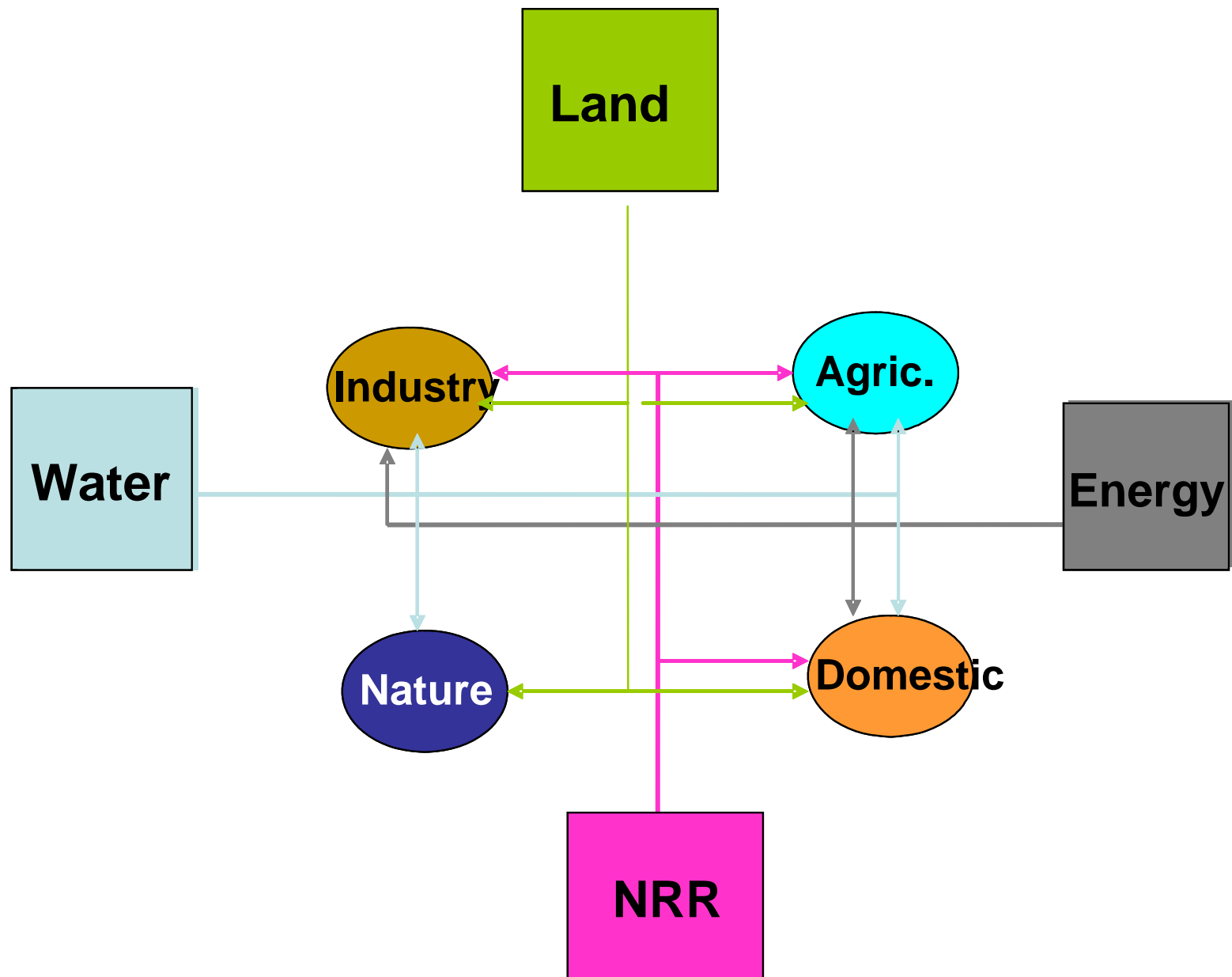


**SUSTAINABILITY**  
AT THE NATIONAL ACADEMIES

THE NATIONAL  
ACADEMIES

# **Sustainability Linkages in the Federal Government**

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



# The Sustainability Silos of the Experts

Biodiversity  
(ecologists)

Energy (power  
engrs., matl. sci.)

Food (crop  
researchers)

Land use  
(geographers)

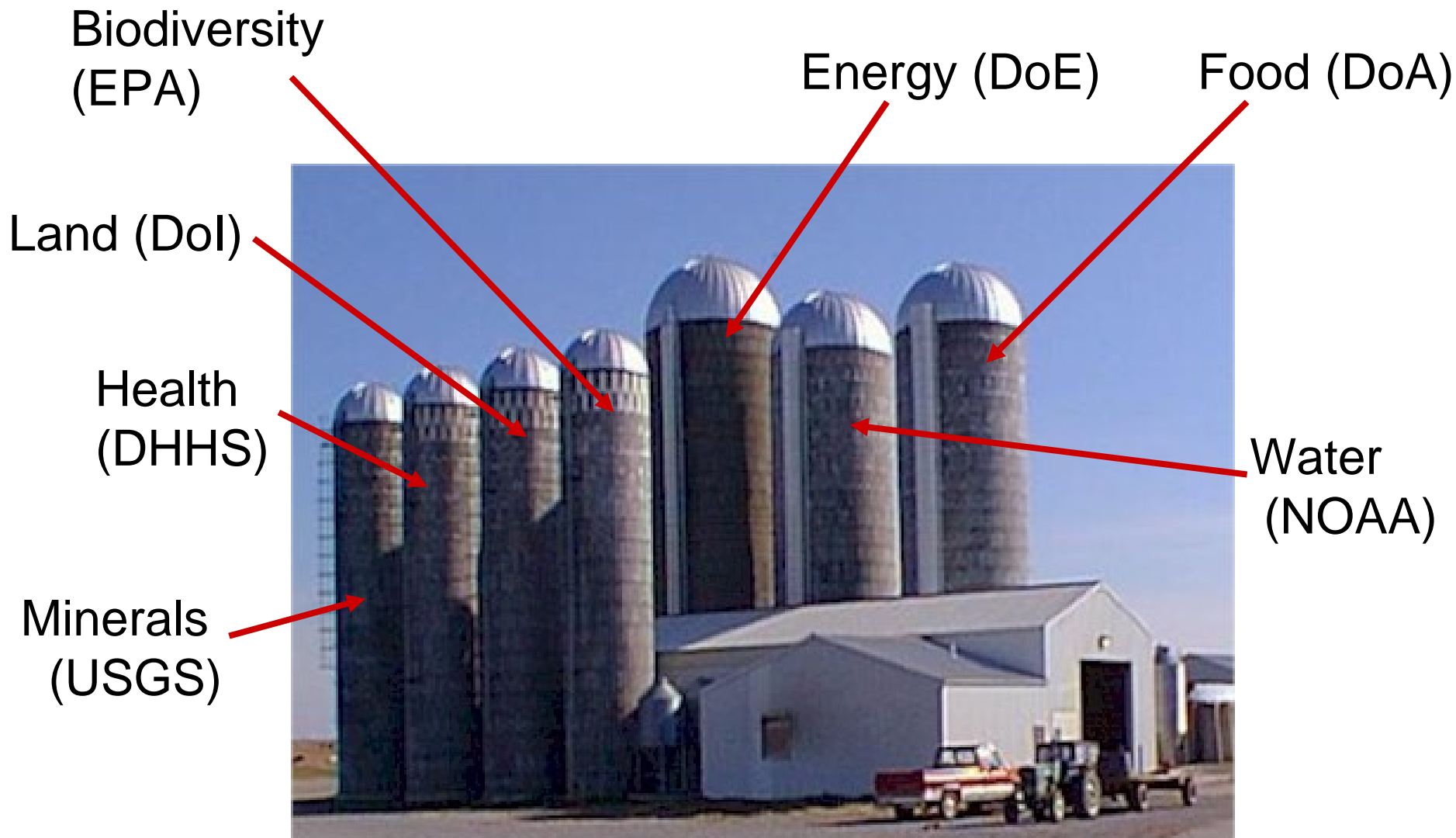
Health  
(medical  
researchers)

Water  
(hydrolo-  
gists)

Minerals  
(geologists)



# The Sustainability Silos of the U.S. Government



# The Sustainability Silos of EPA

Biodiversity  
(OCSPP)

Energy  
(OAR)

Risk  
(ORD)

Land  
(OSWER)

Health  
(OCSPP)

Water  
(OW)









Minerals  
(??)

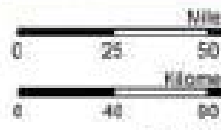


Example of a Linkage Situation  
Involving a Number of Federal and  
State Agencies:  
The Pebble Mine, Alaska

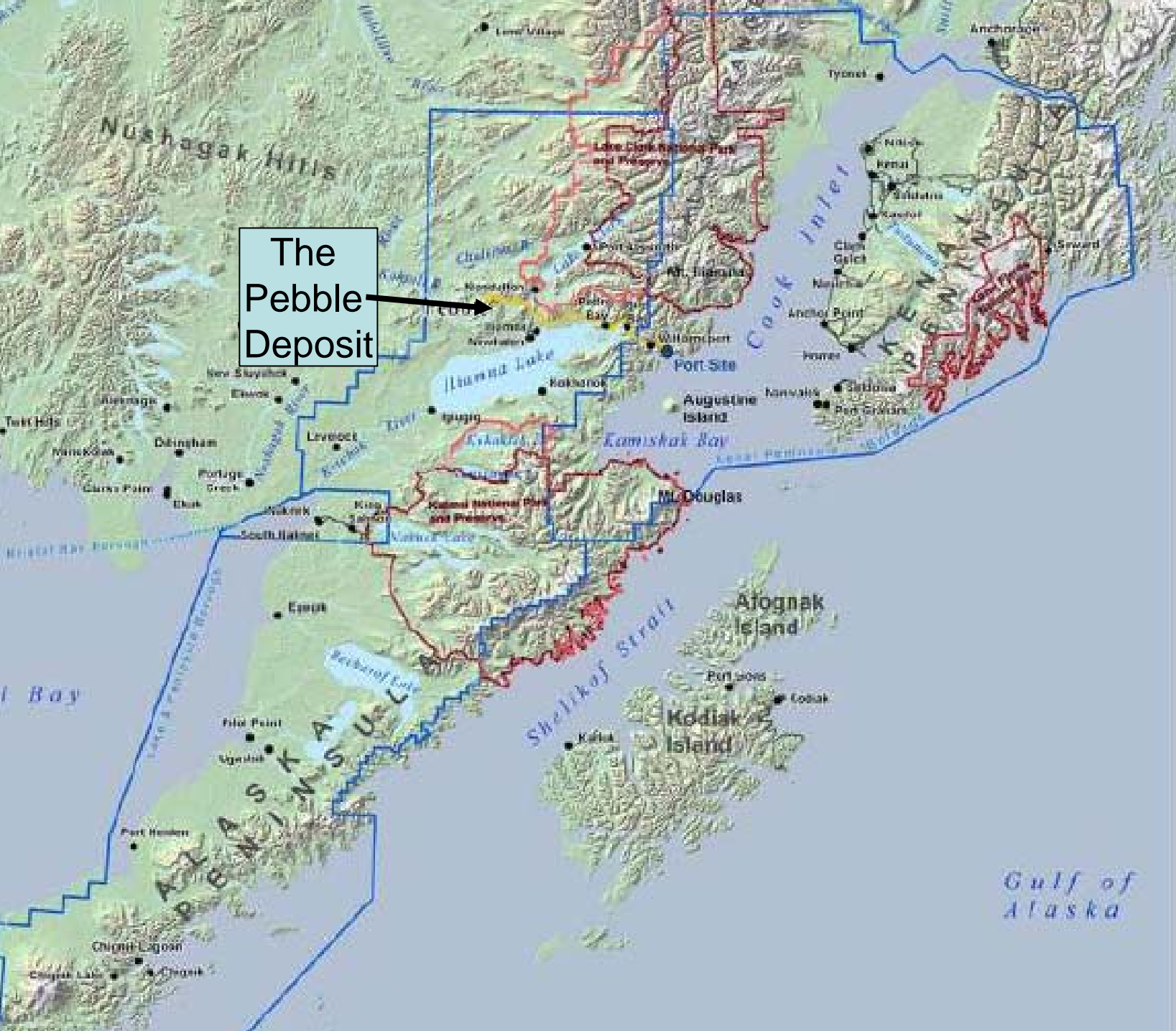
# Regional

## Legend

-  General Designation
-  Possible Pebble Deposit
-  Possible Road
-  National Park
-  National Preserve
-  Borough Boundary
-  Community
-  Existing Road



Scale 1:2,500,000  
Alaska State Plane - 1983 North American Datum





# Bristol Bay Salmon

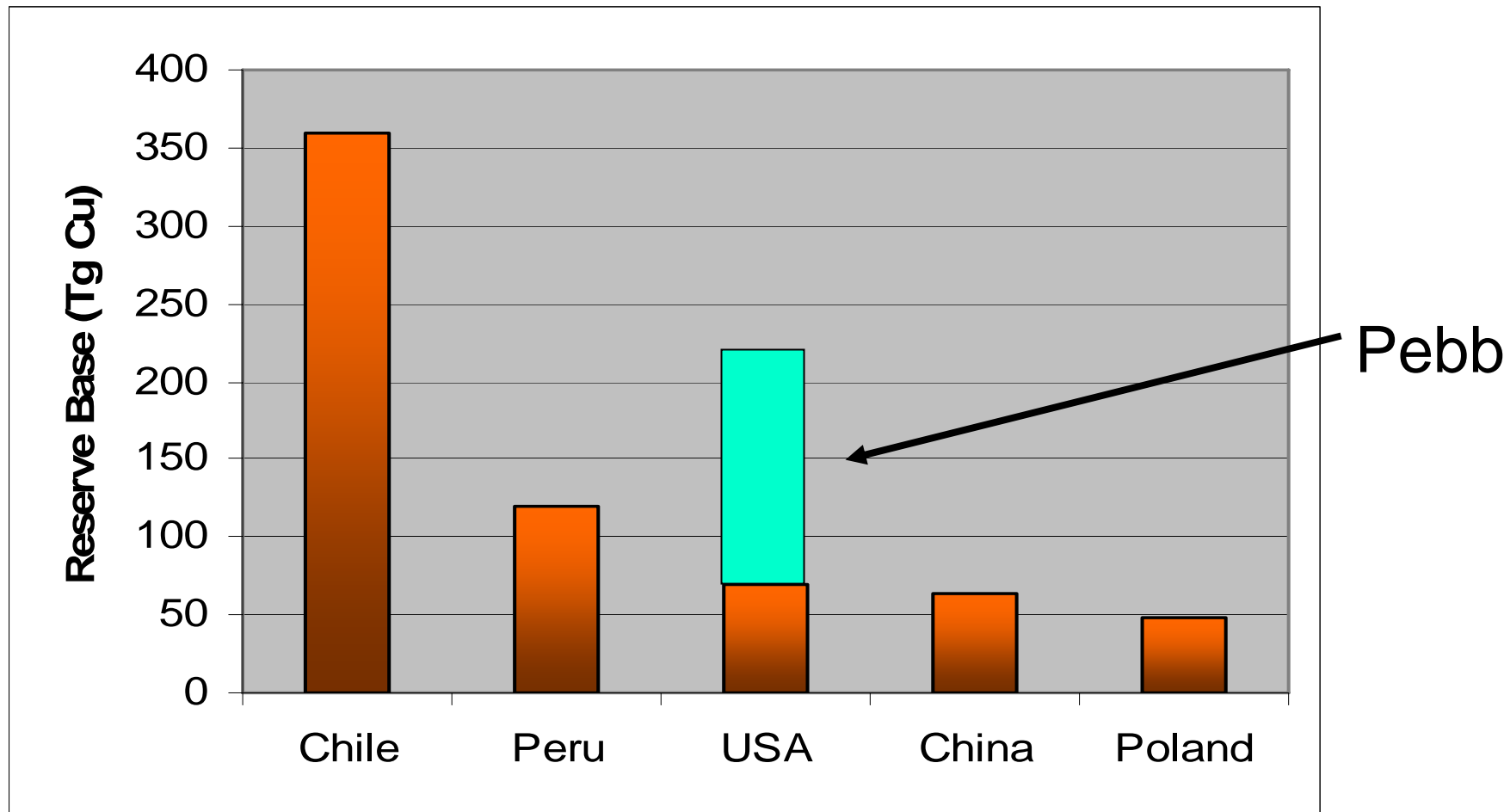




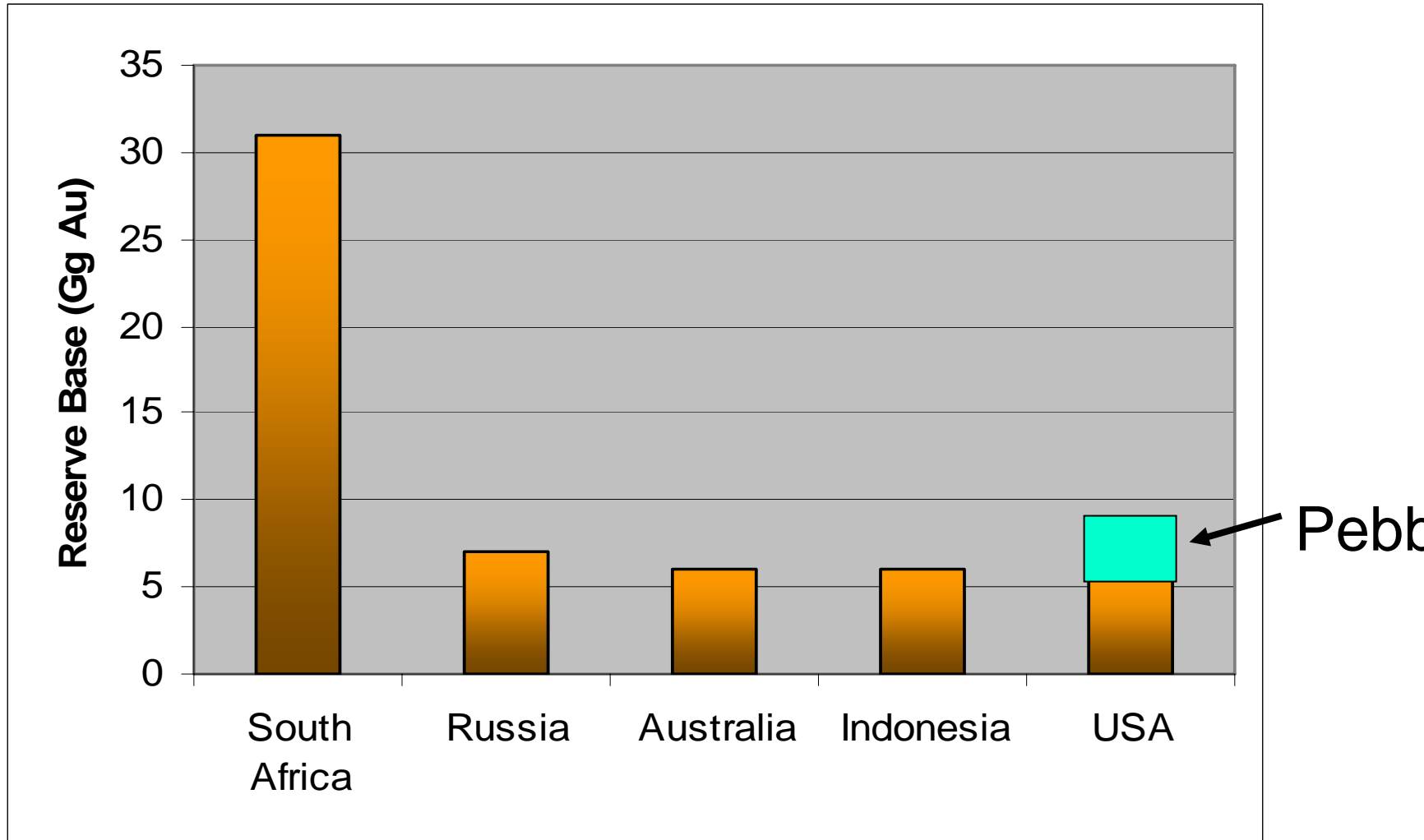
# Resources in the Pebble Mine

- 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

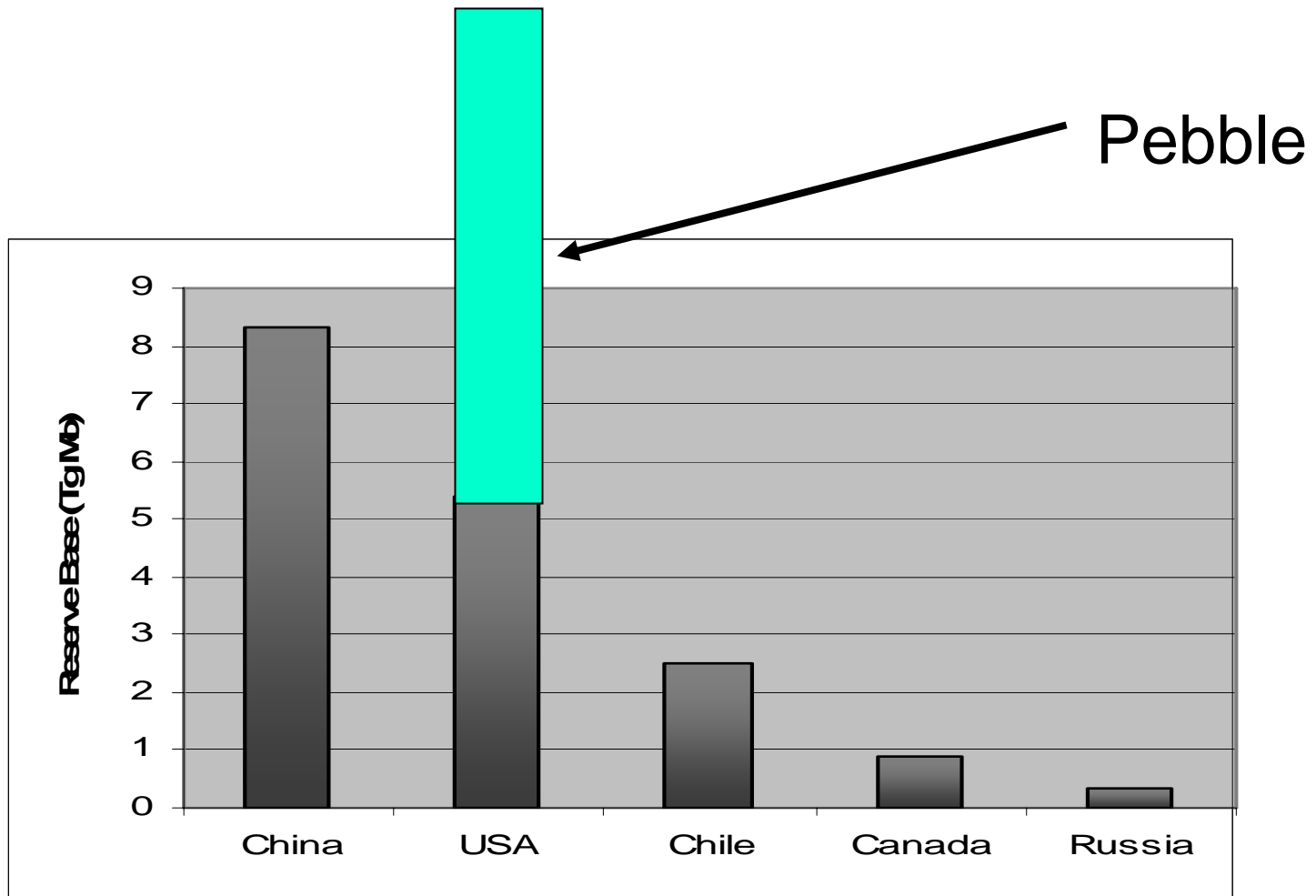
# Copper: The Global Reserve Base



# 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

- Plan of Operations (DNR)
- Reclamation and Bonding (DNR)
- Waste Management Permits and Bonding (ADEC)
- Certification of NPDES and ACOE Permits (ADEC)
- Sewage Treatment System Approval (ADEC)
- Air Quality Permits (ADEC)
- Fish Habitat and Fishway Permits (DNR)
- Water Rights (DNR)
- Right of Way/Access (DNR/DOT)
- Tidelands Leases (DNR)
- Dam Safety Certification (DNR)
- Cultural Resource Protection (DNR)
- Monitoring Plan (Surface/Groundwater/Wildlife) (DNR/DEC)
- Coastal Zone Consistency Determination (DNR)

## FEDERAL

- US EPA Section 402 NPDES Water Discharge Permit
- US EPA Air Quality Permit review
- US EPA Safe Drinking Water Act (UIC Permit)
- US ACOE Section 404 Dredge and Fill Permit
- US ACOE Section 10 Rivers and Harbors Act
- US ACOE Section 106 Historical and Cultural Resources Protection
- NMFS Threatened and Endangered Species Act Consultation
- NMFS Marine Mammal Protection Act
- NMFS Essential Fish Habitat
- NMFS Fish and Wildlife Coordination Act
- USFWS Threatened and Endangered Species Act Consultation
- USFWS Bald Eagle Protection Act Clearance
- USFWS Migratory Bird Protection
- 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