## Mineral Resources Program (MRP) functions

**Research and Assessment** projects provide unbiased science in support of the Nation's need for a sustainable supply of mineral commodities; for protection of human and ecosystem health; and for assessments of the distribution, economic significance, and environmental impact of development of the Nation's mineral resources. These activities are conducted on regional, national, and global scales to meet the needs of land-management agencies and national policymakers.

**Minerals Information** projects provide long-term statistics on production and consumption of mineral commodities, MRP scientists collect, analyze, and disseminate timely information and data on worldwide supply and availability for more than 100 mineral commodities, including fuel and fuel by-products, from more than 180 different countries. These minerals are essential to the U.S. economy and national security.

## Life cycle of mineralized systems

Life cycle analysis of mineralized systems (see diagram) demonstrates how minerals are made available to sustain societies, through both natural and anthropogenic processes. MRP's scientific activities address the entire minerals life cycle.



#### MRP projects not shown on map

#### **National Technical Capabilities**

Analytical laboratories Regional GIS laboratories Geophysics laboratories Geochronology laboratories Petrographic and ore microscopy laboratories Radiogenic and stable isotope laboratories

#### **Global Minerals Information**

Collection, analysis, and dissemination of mineral commodity information Metal industry indicators Materials flow studies

# National Projects in Support of Mineral Resources

Spatial information delivery

Uncertainty and risk in identification of mineral resources Application of secular trends and continent-scale geophysics to mineral deposit modeling

Analytical methods research and development Aqueous geochemistry research and development Isotope geochemistry/geochronology research and

- development
- Geophysics research and development

Outreach

Technology exchange

Databases: Mineral Resources Data System, Alaska Resources Data File, National Geophysical Database, National Geochemical Database, Automated Minerals Information System, DMA/DMEA/OME

### **Topical or International Studies**

Quantitative global mineral resource assessment Pathways of metal transfer

Process studies of selected contaminants

Risk-based applications of geoenvironmental mineral deposit models

Earth materials and human health

Geochemical/isotopic studies of evolution of ore deposits Complex systems modeling

Processes of world class ore deposit formation

Modeling near-surface processes in mineral systems