

MINING OVERVIEW

Introduction

The U.S total domestic mining and waste removal for nonfuel mineral materials production amounted to 5.9 billion metric tons (Gt) in 2007 (*most current year final statistics are available*). These materials included 4.5 Gt of crude ore mined or quarried and 1.4 Gt of mine ore and waste from development operations. Overall, 97% of nonfuel mineral materials was mined and quarried using surface methods, and 3% was mined underground. Most non-fuel mining activities took place in: Nevada, Arizona, Florida, Minnesota, Utah, California, Texas, Michigan, Pennsylvania, and Georgia. These 10 States accounted for 63% of the tonnage removed in the production of nonfuel mineral materials mined in the United States.

U.S. coal production in 2008 (*most current year final statistics are available*) reached a record level of 1,171.5 million short tons, with 389.8 million short tons from the Appalachia Region, 146.7 million short tons from the Interior Region, and 633.6 million short tons from the Western Region. In 2008, U.S. coal consumption declined in every coal-consuming sector.

With such a large and active industry, the U.S. mining sector has increased its focus on sustainable mining practices in the 21st century. Special initiatives throughout the country have brought together the public, industry, and government to find innovative ways to ensure mineral extraction and processing activities have minimal environmental impacts and are sustainable. U.S laws and regulatory agencies provide a framework and baseline for increased sustainability focus for mining activities.

The members of the National Mining Association (NMA) have adopted sustainable development principles and have issued the National Mining Association Sustainable Development Pledge: *The members of the National Mining Association pledge to conduct their activities in a manner that recognizes the needs of society and the needs for economic prosperity, national security and a healthy environment. Accordingly, we are committed to integrating social, environmental, and economic principles in our mining operations from exploration through development, operation, reclamation, closure and post closure activities, and in operations associated with preparing our products for further use.*

http://www.nma.org/issues/environment/sustainable_development.asp

To further improve health and safety at the nation's underground and surface mines through greater safety awareness, improved training and advanced technology, NMA is launching the "Safety First: Stay Alert" safety initiative aimed at reducing accidents and fatalities associated with unsafe behavior and practices at mining facilities. "Stay Away, Stay Alive" is a safety initiative aimed at reducing accidents and fatalities associated with unsafe activity in proximity to continuous miner machinery. This initiative is a first step and lays the groundwork for the

next generation of underground mining technology that will be used to detect unsafe proximity to mining equipment. *Drive Safe, Arrive Safe*" is a safety initiative aimed at reducing accidents and fatalities associated with unsafe behavior and practices at mining facilities.

http://www.nma.org/stay_alert.asp, http://www.nma.org/stay_alive.asp,
http://www.nma.org/drive_safe.asp.

The regulatory and technical aspects of the U.S. mining industry are complex, with overlapping laws, regulatory agencies, and state and federal roles for the different types of mining. Each mine faces a somewhat unique set of regulatory requirements, depending upon state statute or regulation; whether it is on state, federal, tribal, or private land; local regulations; the kind of mining and metal recovery operation proposed; and the specific environmental considerations unique to the site. Mining activities in the U.S. are regulated by various entities with states playing a key role in oversight. The U.S. Army Corps of Engineers (USACE); U.S. Department of Interior's Bureau of Land Management (BLM), National Park Service (NPS), Office of Surface Mining (OSM), U.S. Geological Survey (USGS); U.S. Agriculture's Forest Service (USFS); U.S. Department of Labor's (DOL) Mine Safety and Health Administration (MSHA); Environmental Protection Agency's (EPA) Office of Water and the Office of Solid Waste and Emergency Response all play a role in influencing environmental outcomes at mine sites where they have ownership or jurisdiction. The overlapping laws and agencies provide an intricate network of oversight of mining activities, from exploration and permitting through closure and site reuse.

1. Domestically Focused Mining Agencies and Programs

1.A: Interagency

Federal Mining Dialogue (FMD)

The Federal Mining Dialogue, FMD, is a cooperative initiative among federal environmental and land management agencies for remediating contamination, improving safety, and minimizing releases from operating, abandoned, and inactive hardrock mining and mineral processing sites. Member agencies encourage efficient management of the nation's public land and mineral resources in an environmentally sound manner. FMD member agencies include USACE, USDA, USFS, BLM, OSM, USGS, NPS, Department of Justice, MSHA, and EPA. One goal of the FMD is to focus on future uses of abandoned mine lands (AMLs), and identify the economic, environmental, and social benefits that accrue from their reuse. Reuse may serve as a catalyst for expediting environmental risk reduction.

<https://www.abandonedmines.gov>

1.B Department of Interior

DOI OSM

The Surface Mining Control and Reclamation Act of 1977 (SMCRA), calls on the Office of Surface Mining, OSM, of the Department of Interior, DOI, to balance the environmentally adverse effects of surface coal mining with the Nation's need for coal as an essential energy source. OSM ensures that coal mining is conducted in an environmentally responsible manner and that the land is adequately reclaimed during and following the mining process. OSM requires plans that assure that mining sites will be restored to their original contours and to mitigate acid mine drainage before a permit is granted for mining operations. The primary responsibility for regulating surface coal mining now rests with the coal-mining States, with OSM performing an oversight role.

OSM works with colleges and universities and other state and federal agencies to further the science of reclaiming mined lands and protecting the environment. These initiatives include promoting the planting of trees and establishing much-needed wildlife habitat.

<http://www.osmre.gov/index.shtm>

Appalachian Regional Reforestation Initiative (ARRI)

The ARRI is a coalition of citizens, the coal industry, and government that is dedicated to restoring forests on coal mined lands in the Eastern United States. The goals of the initiative are to

- Plant more high-value hardwood trees on reclaimed coal mined lands in Appalachia
- Increase the survival rates and growth rates of planted trees
- Expedite the establishment of forest habitat through natural succession

ARRI advocates using a technique known as the Forestry Reclamation Approach to plant trees on reclaimed coal mined lands. Highly productive forestland can be created on reclaimed mine lands under existing laws and regulations by using the Forestry Reclamation Approach.

<http://www.arri.osmre.gov/>

DOI BLM

The Department of Interior's Bureau of Land Management, BLM, manages public lands under its domain using the principles of multiple use and sustained yield. BLM's statutory mandate under the Federal Land Policy and Management Act of 1976 (FLPMA) is to prevent unnecessary or undue degradation. Exploration and mining activities on mining claims on BLM administered lands are subject to the regulations in 43 CFR 3809 and for Wilderness Study Areas, 43 CFR 3802. For activities other than casual use, they require the operator to submit either a notice or a plan of operations and a reclamation plan. A plan of operations must describe in detail the site and the proposed operation, including measures that will be taken to prevent undue and unnecessary degradation and to reclaim the site to regulatory standards. Reclamation must

include salvaging topsoil for later use, erosion and runoff control, toxic materials isolation and control, reshaping the area, reapplication of topsoil, and revegetation (where reasonably practical).

General Info: <http://www.blm.gov/wo/st/en.html>

Coal Mining: http://www.blm.gov/wo/st/en/prog/energy/coal_and_non-energy.html

BLM AML Program: The Bureau of Land Management's Abandoned Mine Lands Program, BLM AML, works in partnerships with EPA, state agencies, tribes, private parties, and other groups to accelerate the rate of cleanup of watersheds affected by abandoned hard rock mines.

http://www.blm.gov/wo/st/en/prog/more/Abandoned_Mine_Lands.html

DOI NPS

The National Park Service, NPS, has the responsibility for managing the National Park System to conserve scenery, natural and historic objects, and wildlife, and to provide for the public enjoyment of those resources that will leave lands unimpaired for the enjoyment of future generations. NPS ensures that mineral activities prevent or minimize damage to the environment and that the pristine beauty is preserved for the benefit of present and future generations.

<http://www.nature.nps.gov/geology/mining/>

NPS Abandoned Mineral Land Restoration Program: The Abandoned Mineral Land Restoration Program encourages the full restoration of lands affected by mining activities, addresses environmental concerns (metals contamination, acid mine drainage), safety hazards (vertical mine openings, unstable slopes), and the sustainability of bat species, which may rely on mine shafts for habitat.

<http://www.nature.nps.gov/geology/aml/index.cfm>

DOI USGS

Under the Geological Survey Organic Act of 1879 and the Economy Act of 1932, the United States Geological Survey, USGS, provides statistics and information on the worldwide supply of, demand for, and flow of minerals and materials essential to the U.S. economy, the national security, and protection of the environment. USGS publishes the annual Mineral Commodity Summaries and Minerals Yearbook. The USGS Minerals Yearbook also provides mining information for most of the countries of the world (*see next International Section for more details*).

<http://minerals.usgs.gov/minerals/pubs/mcs/>

<http://minerals.usgs.gov/minerals/pubs/myb.html>

USGS also provides scientific expertise to help land managers minimize or eliminate the adverse environmental effects of AMLs. The U.S. Geological Survey Mine Waste Characterization Project has taken a multidisciplinary approach to assemble, develop, and refine methods and tools for characterizing and screening weathered solid-mine wastes. Researchers from a variety of disciplines, including geophysics, geochemistry analytical chemistry, geology, mineralogy, remote sensing, and spatial modeling, have worked together at metal mining waste sites in Colorado and New Mexico to develop an integrated "toolkit" for the rapid screening and characterization of historical mine-waste piles. Detailed studies have been conducted at eight main mine-dump sites (six are located in Colorado), representing both igneous-hosted and carbonate-hosted polymetallic deposits, to examine the influence of carbonate materials. Two other sites are arid analog mine-waste piles in southwestern New Mexico have been chosen to study the influence of climate. Tools developed from this work can be used in ranking and prioritizing historical mine-waste piles.

<http://mine-drainage.usgs.gov/>

DOI MMS

The Minerals Management Service (MMS), a bureau in the U.S. Department of the Interior, is the Federal Agency that manages the nation's natural gas, oil and other mineral resources on the outer continental shelf (OCS). The agency also collects, accounts for and disburses more than \$8 billion per year in revenues from Federal offshore mineral leases and from onshore mineral leases on Federal and Indian lands. MMS's mission is to manage the ocean energy and mineral resources on the Outer Continental Shelf and Federal and Indian mineral revenues to enhance public and trust benefits, promote responsible use, and realize fair value.

<http://www.mms.gov/>

1.C Department of Agriculture Forest Service (USFS)

The United States Forest Service, USFS, regulates the use of public lands in accordance with various authorities and program specific statutes. Exploration and mining activities on lands administered by the USFS are subject to the regulations in 36 CFR 228(A). Any proposed operation that could likely cause significant disturbance of surface resources must gain the approval of the USFS. USFS ensures mines and oil, gas and geothermal energy operations on federal lands are in compliance with pollution control laws, standards or implementation plans, or land management requirements.

<http://www.fs.fed.us/>

An important part of the USFS Minerals and Geology Management Program's mission is the restoration of land disturbed by historic mining activities. In 1995 the USDA Forest Service, using data compiled by the US Bureau of Mines, estimated the number of abandoned mines

inside National Forest boundaries to be 38, 991 total abandoned mine site and that 13, 597 or 34% of the total were mines with records of mineral production. Many involved minerals like arsenic, cadmium, copper, lead, mercury and zinc which can cause human health and environmental impacts.

<http://www.fs.fed.us/geology/aml-index.htm>

1.D EPA

EPA Superfund Program

Under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), commonly known as Superfund, EPA has remediated over 500 mining and mineral processing sites, focusing on sites where other regulatory tools have not achieved protection goals. EPA's Superfund program established the Beneficial Use of Mining Waste workgroup to identify, resolve and/or clarify key issues with respect to the beneficial use of mining and mineral processing wastes for non-residential use purposes. EPA's AML Program is coordinated through the National Mining Team (NMT) and Abandoned Mine Lands Team (AMLT).

<http://www.epa.gov/superfund/>

<http://www.epa.gov/superfund/programs/aml/>

EPA Brownfields Program It is estimated that there are more than 450,000 brownfields in the U.S. EPA's Brownfields Program provides grants and technical assistance to communities, states, tribes, and other stakeholders to prevent, assess, safely clean up, and sustainably reuse brownfields. The Mine-Scarred Lands initiative provides technical assistance to communities to reclaim and reuse mine-scarred lands.

<http://epa.gov/brownfields/index.html>

http://epa.gov/brownfields/policy/initiatives_sb.htm#msl

EPA Office of Federal Activities

The National Environmental Policy Act (NEPA) requires federal agencies to consider potential environmental impacts before taking major actions, such as issuing mining permits or making decisions that affect federal lands. This environmental assessment (EA) is used to assess the adequacy of proposed mitigation measures and reclamation procedures to prevent unnecessary and undue degradation. If significant impacts are likely from mining activities, the agency must prepare an environmental impact statement (EIS). EPA reviews EISs on proposed Federal Agency actions and prepares written comments and complies with NEPA by writing EAs or EISs for certain EPA actions.

<http://www.epa.gov/Compliance/nepa/>

EPA RE-Powering America's Land Initiative

EPA encourages renewable energy development on current and formerly contaminated land and mining sites. Eight wind turbines were installed on an old slag pile at the Bethlehem Steel site in Lackawanna, NY that now produce enough electricity to power 7,000 homes.

<http://www.epa.gov/renewableenergyland/>

EPA Office of Water The Clean Water Act (CWA) is one of the most widely used regulatory tools for ensuring environmental sustainability at mining sites by providing limitations on impacts to the nation's waterways.

Under Section 402 of the CWA, all point source discharges from mining must be authorized under a National Pollutant Discharge Elimination System (NPDES) permit. Under the stormwater program, runoff from mining operations requires a permit if it comes into contact with overburden, raw material, intermediate products, finished product, byproduct, or waste products located on the site of such operations.

<http://cfpub.epa.gov/npdes/indpermitting/mining.cfm>

Although most Section 402 mining permits are issued by states, the Office of Water (OW) may review permits to ensure that the permits contain appropriate technology-based and water quality-based effluent limitations. Section 404 of the CWA provides authority for regulating the discharge of "dredged or fill material." Section 404 permits are generally issued by the Corps of Engineers.

<http://www.epa.gov/ow/>

EPA Resource Conservation and Recovery Act (RCRA) Program

Regulation affecting mineral processing wastes was developed through a long process covering the period 1980 to 1991. EPA has jurisdiction to regulate solid wastes from mining activities in the United States under the Resource Conservation and Recovery Act (RCRA). However, the current program focuses primarily on hardrock mining (i.e. mining of metallic ores and phosphate rock).

<http://www.epa.gov/osw/nonhaz/industrial/special/mining/>

1.E Army Corps of Engineers (USACE)

The Restoration of Abandoned Mines (RAMS) Program utilizes the United States Army Corps of Engineers, USACE, environmental authorities to provide technical, planning, and design assistance to Federal and non-Federal interests in carrying out projects to address water quality problems caused by drainage and related activities from abandoned and inactive non-coal mines.

<https://www.nwo.usace.army.mil/html/rams/rams.html>

1.F Department of Labor (DOL) Mine Safety and Health Administration (MSHA)

The mission of the Mine Safety and Health Administration (MSHA) is to administer the provisions of the Federal Mine Safety and Health Act of 1977 (Mine Act), as amended by the Mine Improvement and New Emergency Response Act of 2006 (MINER Act), and to enforce compliance with mandatory safety and health standards as a means to eliminate fatal accidents; to reduce the frequency and severity of nonfatal accidents; to minimize health hazards; and to promote improved safety and health conditions in the Nation's mines.

<http://www.msha.gov/sosa/webresc.asp>

1.G States and Tribes

The EPA works with other federal agencies, state and local governments, and Indian tribes to develop and enforce regulations under existing environmental laws. The EPA, which is responsible for researching and setting national standards for a variety of federal environmental programs, delegates to states and tribes the responsibilities for issuing permits and monitoring and enforcing compliance. Where national standards are not met, the EPA can issue sanctions and take other steps to assist the states and tribes in reaching the desired levels of environmental quality. States and Tribes are the leaders in mining regulation. All States have general environmental statutes that provide coverage to mining operations. Many states have been authorized to implement federal environmental programs, such as the National Pollutant Discharge Elimination System (NPDES) program under the Clean Water Act (CWA) and the hazardous waste program under the Resource Conservation and Recovery Act (RCRA).

<http://web.ead.anl.gov/dwm/regs/federal/epa/index.cfm>

2. Internationally Focused Programs and Activities

USGS Minerals Information Team: As noted in the previous section, the Team collects and publishes production data, trade data, and other information for most of the countries of the world. Information on mining and investment laws, ownership, and country infrastructure is published in the country chapters of the USGS Minerals Yearbook.

<http://www.mms.gov/>

USGS also supports many international scientific studies and provides technical expertise throughout the world. The Department of the Interior's Minerals Management Service (MMS) disbursed more than \$10.68 billion in Fiscal Year 2009 from revenues collected from energy and mineral production on Federal and American Indian lands, including energy and mineral production on the Federal Outer Continental Shelf. The billions of dollars being disbursed will support much needed projects such as land and water conservation efforts around the United States, power and water projects in the West, critical infrastructure improvements, and funding

for education. A complete breakout of FY 2009 disbursements is available at www.mrm.mms.gov.

<http://international.usgs.gov/index.htm>

USFS International Program

The USFS International Program promotes sustainable forest management and biodiversity conservation internationally. By linking the skills of USFS field-based staff with partners overseas, the program addresses the most critical global forestry issues and concerns. International Programs has three main staff units: [Technical Cooperation](#), [Policy](#), and [Disaster](#). Both Technical Cooperation and DASP work closely with [United States Agency for International Development](#) (USAID). Technical Cooperation, specifically, develops and manages natural resource projects overseas on a wide range of topics (i.e. fire management and forest health). There are two main disaster programs: [Disaster Assistance Support Program \(DASP\)](#) and the [Disaster Mitigation Program](#). Funded by USAID's Office of Foreign Disaster Assistance, DASP trains and mobilizes personnel domestically to respond and mitigate foreign disasters, such as the drought in Ethiopia and the locust response in West Africa. The Disaster Mitigation Program, on the other hand, trains and provides technical expertise to partners overseas in emergency preparedness, response and disaster mitigation.

<http://www.fs.fed.us/global/index.html>

DOI International Technical Assistance Program

In 1995, the U.S. Agency for International Development (USAID) and DOI established the DOI International Technical Assistance Program (ITAP) to provide capacity building in other countries using the diverse expertise of DOI bureaus. DOI-ITAP capacity building includes, but is not limited to: on-site technical assistance, study tours, mentoring, train-the-trainers workshops, procurement, and training in operations and maintenance of equipment.

<http://www.doi.gov/intl/itap/overview.html>

OSM's Environmental Operations Division

The Environmental Operations Division coordinates OSM's international programs including international technical assistance activities.

USAID Projects in Europe and Eurasia

GEF: The GEF (global environment facility) was created in 1990 to address global environmental issues, including the protection of international waters, and a reduction in ozone depleting chemicals. The GEF/Danube project was awarded a \$150 million contribution by United States to the GEF. The GEF/Danube River project achieved its objective of monitoring and reducing pollution across three international boundaries from industrial sources including the

two mines. The international boundaries cover: Slovakia/Ukraine, Hungary/Slovakia, and Hungary/Romania borders.

USAID: USAID's contribution to in the mining sector proved vital to the economic redevelopment of the Kosovo area. An environmental assessment was part of the Kosovo Strategy that addressed Kosovo's Trepca Mining, Smelting and Refining Complex sites which provide raw materials (primary lead and zinc) for the economic development of Kosovo. This project helped in the development of an environmentally sound mining and industrial production corridor in Kosovo which resulted in local jobs and strong local economic development. Among other works USAID provided Technical Assistance to uranium and copper mines in Romania.

Sarajevo: USAID helped to restore electricity produced by coal fired power plants by restoring operations at the Vrtliste surface coal mine to ensure a sustainable supply of coal for coal-fired electrical plants. USAID also helped Sarajevo restore its electric power generation capacity by repairing the Kakanj thermal Power Plant.

Cyprus: USAID addressed the consequences of mining in a post-conflict situation, including the closure and restart of mining operations. A mine reclamation plan was prepared which addressed the impact of mining operations on the quality of surface and ground waters in northern Cyprus and the Mediterranean Sea. USAID helped the mine located in Lefka-Xeros to identify environmental impacts and mitigation procedures.

Romania: A USAID Contribution to Emergency Response-Cyanide Spill in Romania: In 2000, approximately 100,000 square meters of hazardous liquid waste began flowing out of a holding pond from a gold mine in Baia Mare, northern Romania, into the Szamos River, which is a tributary to the Danube River. The mine is jointly owned by an Australian company and a Romanian state-owned mining company. The liquid waste contained high concentrations of cyanide and heavy metals, which are used to extract gold from mine tailings. USAID responded to this environmental catastrophe by working with the respective stakeholders. A team of engineering experts engaged in evaluating the integrity of the impoundment at Baia Mare Gold Mine and other Romanian sites to prevent spills of mining chemicals and tailings in the future. Another team of experts studied the affected region in Romania/Hungary, and responded to needs of the affected population and the environment.

USAID Projects in Africa

The Central African PRADD project

The Property Rights and Alluvial Diamond Development, PRADD, which was co-sponsored by State Dept, as part of the Kimberley identification process is a project in Central African Republic, CAR. PRADD is designed to identify, clarify, and reinforce property rights to land and minerals at alluvial diamond mining pilot sites. It has been established that artisanal diamond miners capture only a small share of the value of alluvial rough (i.e., unprocessed) diamonds.

The PRADD project: PRADD is working in cooperation with a small team of national experts, and in close collaboration with the Ministry of Energy, Mines and Hydraulics (MEMH) in CAR. During the first year they conducted participatory rural appraisals (PRAs), a census of miners, a socioeconomic survey of all 253 artisanal miners in the pilot area, and mine-specific surveys. The information thus gathered permitted the development of a property rights claims registry of all 253 artisanal miners in the pilot zones linked to a basic production and sales information management framework in a geographic information system, GIS. This property information management system framework represents an internal control mechanism that will strengthen CAR's capacity to monitor illicit activities and trace diamonds along the earth-to-export chain of custody. PRADD's efforts included sponsorship of GIS training at the University of Bangui for five ministry technicians. These reviews, presented during national level workshops, have stimulated lively debate on the effectiveness of CAR's internal control systems and created increased awareness of the positive contribution that strengthened property rights could play.

Senegal: In Senegal, the USAID Agriculture and Natural Resources Management program "Wula Nafaa" is involved with artisanal gold miners. An Environmental Protection Agency (EPA) team requested USAID to follow-up on their activities in Kedougou as their funding was ending. The EPA had focused on reducing the hazards related to the use of mercury by artisanal gold miners. During an USAID/EPA workshop in Dakar it became evident that the problems in this mining sector go far beyond just the improper use of mercury and reducing the environmental impact of artisanal mining would require an intensive, integrated approach.

In light of the enormous environmental, health, legal, social problems and commercial issues involved in artisanal gold mining, USAID concluded that Wula Nafaa could play a key role especially in communities where we already have developed local conventions. USAID/ Dakar has included local governments in land use planning and has developed community based management schemes to manage resources. This project is on-going.

USA Projects in Latin America and Caribbean

Best Practices Manual: USAID developed a manual and a CD of best practices for the entire non-ferrous mining industry using the know-how of US Experts and has distributed it to the World Mining Congress in Las Vegas, NV in 2000. Over 1000 copies were distributed worldwide. It was well received and is still available.

Barbados-open pit mining operations: A project to reduce the release of land-based pollution into estuaries and the sea, which threatens marine biodiversity. The impact assessment of quarrying on marine biodiversity showed that most negative impact was sedimentation that killed organisms directly; stressed coral reefs and made aquatic species

more vulnerable to disease and global warming effects, and altered or degraded habitats so significantly that multiple species could no longer survive. This project focuses on improving the legal regulations for operating an open pit quarry in the Commonwealth of Dominica.

USAID CAFTA Projects

Mining Manual: USAID and EPA are developing, with support from the Department of Interior an (environmental assessment) EIA Technical Review Guideline and Terms of Reference (TORs) for commercial mining, under CAFTA DR environmental cooperation agreement. The guidelines will include the US experience as well as those of other nations and international organizations, will identify what is best practice, but offer a range of alternatives for mitigating and avoiding negative impacts. It is being developed with an expert team drawn from CAFTA DR country environmental and mining Ministries, and institutions in these countries which offer mining expertise. The guidelines will be ready for pilot use soon. Based on pilot testing and industry workshops CAFTA will provide feedback to the member mining ministers to decide how to use the guidelines.

USEPA Projects

Kyrgyzstan Mercury Mining: EPA is supporting a joint UNEP/UNITAR project to assist the Government of Kyrgyzstan in developing an action plan to address primary mercury mining. Reducing the supply of mercury has been identified as a priority by the UNEP Governing Council, which considers mercury mining as an important activity to be limited in order to reduce releases of mercury to the environment. Kyrgyzstan is the last remaining major supplier of mined mercury to the international marketplace. This project was initiated to assist Kyrgyzstan in phasing out mercury production at the Khaidarkan Mercury Mine. As part of the overall project, assessments are being undertaken aimed to facilitate the involvement of donors (such as the GEF, World Bank, Asia Development Bank and others) in the eventual cessation of mercury mining activities in an environmentally and socially sound manner, and in remediation of contamination caused by mining activity.

Amazon Gold Mining (Brazil and Peru): EPA developed and piloted, through its contractor, Argonne National Laboratory, a low-cost, locally appropriate mercury emissions control technology . This emission technology is designed to limit release of mercury from secondary gold refining which is carried out in enclosed gold shops, which are prevalent throughout the Amazon. EPA developed and evaluated the prototype technology in the Tapajos Region of Brazil, and in the Madre de Dios region in Peru. The gold shop mercury capture system is now in the replication phase, where the Agency is providing training and outreach for its further dissemination and sustainability. Replication is occurring at the local level in Brazil, as orders come into metal workers to construct the system for additional gold shops. The government of Peru, through the Ministry of Energy and Mines, is taking the lead on replication of the technology across Peru, with EPA assistance in workshops. A final report about the technology, as well as a construction manual and outreach documents are available in

Portuguese, Spanish, and French. The system captures more than 80% of mercury being used. Since mercury is easily recycled, it will be managed according to a government plan. To date, EPA estimates a capture of about 337kg of mercury from participating gold shops.

<http://www.ipd.anl.gov/anlpubs/2008/06/61757.pdf>