

Roundtable on the Sustainability of Platinum Group Metals

Project Summary

Beginning over 5 years ago in Europe, key actors (e.g. governments, companies, and NGOs) recognized the need to bring stakeholders together to discuss and consider issues related to sustainable development as it relates to platinum group metals (PGMs). Since that time, two Roundtable meetings have been held involving individuals from government, representatives from the mining, manufacturing and automotive industries, NGOs and other non-profits, and research and technical advisors from academic and private sector backgrounds. These roundtables have examined environmental, social and economic issues related to these metals and their related supply chains; the ability to track or trace metals in these supply chains (from mine to product and vice versa); transparency and reporting; and third-party monitoring and verification.

Project Description

In 2003-2004, consultant Reinier de Man developed the idea for a roundtable on sustainable platinum group metals. Along with Milieukontakt International, de Man developed a proposal for financial support, which was sent to and accepted by the Dutch Ministry of Environment. The first Roundtable for Sustainable Platinum Group Metals was held in December 2005. Participants saw the meeting as quite successful, even if the number of participating organizations was still limited.

The 2007 Roundtable sought to create commitment from a larger number of actors. It was attended by members of government, representatives from the mining industry, as well as from the car manufacturing industry and other key stakeholders such as NGOs.

Since the 2007 Roundtable, an international committee (comprised of government officials from across Europe and South Africa and the US, non-profit organizations, representatives from the manufacturing and automobile industry and research and technical advisors from academic and private sector backgrounds) is working with a management team (Milieukontakt International and Reinier de Man Sustainable Business Development) to structure future roundtable meetings and further developing the initiative.

The issue focus is sustainable production of platinum group metals, including:

- environment – cleaner production of PGM through a more sustainable mining practice to reduce extensive ecological impacts;
- improved recycling procedures to minimize “leakage from the PGM cycle,” which is actually more energy efficient than mining the ores;
- manufacturing – primarily in automobile manufacturing, but also in electronics;
- economic – as PGMs become more scarce, “price volatility” could present problems.

At present, there is little traceability through the platinum supply chain. This has been acknowledged as an issue, but participants appear to be struggling with the challenge of creating transparency in the supply chain. There are also recognized gaps between company reporting and reality on the ground. Currently, reporting systems are voluntary and self-administered rather than verified or monitored by third-parties.

Based on the results of the 2007 Roundtable, Milieukontakt has established a partnership with Reinier de Man, Transport & Environment (Brussels), Both Ends, Auto Recycling Nederland, Bench Marks Foundation (South Africa), Anglo Platinum (South Africa) and Greenpeace Russia. A subsidy from the Dutch Environment Ministry is being used to implement projects in the PGM supply chain, and completion of practical work will be emphasized prior to the organization of the next roundtable. The results of these pilot projects will be presented by the end of March 2010 during a third Roundtable meeting on the Sustainable Production and Use of PGM.

Nature of Supply Chain, Products and Issues

Platinum and its related group of metals are highly resistant to wear and tarnish. Platinum group metals have a high resistance to chemical attack, excellent high-temperature durability, and stable electrical properties. These characteristics make them very suitable for direct use or in the production of products in the automotive, industrial, environmental, medical, technological and jewelry industries, among others.

“One in four of the goods manufactured today either contain PGMs or had PGMs play a key role in their manufacture” (International Platinum Group Metals Association, <http://www.ipa-news.com/pgm/index.htm>). Out of all the potential uses for platinum group metals, jewelry typically accounts for 40% of annual demand for platinum and industry (primarily automotive and electronics) demand constitutes 50%. Similar to gold, platinum group metals are also unusual in that they play an economic role as a store of value, which creates market and demand dynamics that are different than for metals that are treated as pure commodities. Their rarity creates a unique demand dynamic as well, and as a result, groups can and do accumulate above-ground stocks as future investments.

Out of the six metals that comprise the platinum group metals, the largest quantities are of platinum and palladium and they have the greatest economic importance. The remaining metals, iridium, rhodium, ruthenium and osmium, are produced only as by-products during refinement of platinum, palladium and other metals, such as nickel, copper, gold and silver, and at least currently, aren't commercially viable to be mined for their own sake. In addition to mines, PGMs are found in deposits in river sands and alluvial and placer deposits.

Like many other metals, platinum group metals have complex supply chains (link to description of platinum supply chain.) Mines and other large-scale industrial sources are typically capital and

labor intensive, require long planning and operating horizons and call for large quantities of raw ore to produce refined products. Due to the rarity of these metals and the amount of raw ore needed to produce pure metals, PGM companies are investing a great deal of resources in exploration and production facilities and also looking at recycling processes and procedures to ensure the continued future supply of these essential metals.

South Africa holds the world's largest reserves of PGMs, with Russia holding significant reserves as well. Track-ability of the ores from their mines into products is difficult. Comparable to the supply chains of other metals, platinum group metals typically lose their track-ability as they move through processing and into the economy. The exception is when a processor or manufacturer is willing to track specific, marked PGM batches through further processing and manufacturing, however most manufacturing is not organized in this manner.

Similar to gold jewelry, while platinum jewelry is a coherent product (i.e. it is comprised of metal) jewelry is not comprised of 100% platinum. Although the percentages are 90% or greater of platinum, it is blended with other metals to produce the final product. Therefore, when it comes to a particular piece of jewelry, platinum track-ability does not address the source or provenance of the non-platinum metals. Such coherence does not typically occur when used in other products.

Like gold, large-scale PGM mining is highly industrialized and technologically advanced. Unlike gold however, the chemicals used to separate the various platinum group and other metals from one another can be mixed with other chemicals and materials to reduce or even eliminate potential pollution and health hazards. Additionally, when recycled, over 96% of PGMs can be recovered through highly-efficient recycling techniques, keeping these metals out of landfills, and reducing the burden on un-mined ore (International Platinum Group Metals Association, <http://www.ipa-news.com/pgm/index.htm>). The difficulty is that the recapture rate for recycling is far below its potential.

Analysis

Supply Chain Complexity--Steps (*Complex*)

The supply chain is complex with regard to material flow and the numbers of steps in the process.

Formalization of Sector (*Formal*)

The supply chain for participating companies is highly formal but can vary due to the capacity and nature of host governments. Generally speaking, the participating companies work from the premise that even where government capacity is weak they will operate in a fairly formal manner in regard to compliance, reporting, payments, etc.

Material Processing, Coherence (*Mixed*)

PGM processing facilities often draw from multiple sources, due to the need for copious amounts of ore for processing. This typically results in an inability to track sources or provenance—as the materials mix in processing. Also, there is currently little or no tracking through the supply chain.

Significance in Product Composition (*Varied %*)

Metals in PGM products are typically parts of or ingredients in subcomponents or used to connect components. Each metal typically represents a fraction of the product. Jewelry products with platinum typically represent a visible and significant portion of the consumer product.

Issue/Source Geography (*Regionally Relevant*)

PGMs are sourced globally with key sources in South Africa and Russia.

Stage of Development, Maturity (*Early*)

The first roundtable took place five years ago, did not have a significant number of stakeholders and did not generate significant momentum. The 2007 meeting was better attended and did generate a number of next steps. The focus is still on development of further meetings to identify what initiatives are important and are implementable. At this stage, like EICC-GeSI, it is primarily a research effort that is beginning to transform into an action agenda.

Nature of Governance (*Multi-Sector*)

Governance is multi-sector but is limited in scope and mostly centered in Europe. The initiative is still seeking additional representation and input from stakeholders and determining what the next steps and possibilities are for developing stronger standards and criteria.

Standards Breadth or Focus (*Multi-Issue: Environmental and Social Objectives*)

The issues that are being discussed in these meetings addressed a range of social and environmental issues.

Nature of Standards/Program Development (*Multi-Sector*)

The initiative is still in development and efforts are underway to include all interested stakeholders.

Approach to Verification (*Not Yet Applicable*)

Not yet addressed.

Key Findings

Generally speaking, the supply chain for platinum group metals and other minerals does not lend itself to a program that seeks to ensure a chain-of-custody from mine to retail, without dedicated

programs or initiatives in the supply chain. This project seeks to launch a multi-party, multi-sector system for supply chain tracking of PGMs. Due to the similar early stage of development, there may be the potential for synergies, shared learning, or even integrated activities with efforts aimed at targeted electronics metals (cobalt, tantalum, and tin.)

While the project is in very early stages of development, proponents have worked to include a variety of stakeholder groups to provide credibility, and increase viability and acceptance of ideas and initiatives. Recycling and other recapture methods are also an important feature of these discussions – considering the characteristics and longevity of PGMs and the potential for significant environmental and financial benefits.