

## **Risk assessment and remediation of mine sites and processing sites**

Amiel Boullemant, Ronan Courtney

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There is a long history of mining, mineral processing, and extractive metallurgy in Europe and around the world. This has resulted in numerous instances of metals releases to the environment. Across Europe and North America there are a 10 - 20,000 of closed mines & processing sites. Roughly, half of these sites have a clear identified owner for which post-exploitation regulations applied, the other half - orphans sites - have no current owners and remediation/post exploitation falls under National Regulations Management. Most metal releases result in local impacts on the environment, either land or water. Likewise there are many examples of ecotoxicological studies assessing metal impact as well as both natural and man-assisted ecosystem remediation. Research associated with mine or electrometallurgical sites recovery has been influential in (i) identifying organisms which are both the most sensitive and tolerant to metals, and (ii) understanding compartment distribution of metals in landfill and tailings. Traditionally, contaminants that are frequently associated with mining and electrometallurgical sites in their discharges and leachates include aluminum, arsenic, cadmium, chromium, copper, iron, lead, manganese, nickel and zinc. Latest developments in research indicate that Rare Earth Elements get concentrated in landfills and tailings and could pose new challenges. This SETAC session aims at discussing mines & processing sites that have impacted the environment and for which specific risks have been identified. Additionally papers are sought which focus on environmental monitoring and discuss situations where corrective actions have been taken to reduce environmental impacts and ecosystem recovery has been demonstrated. Possible themes include: • Mine tailings, mineral processing, and extractive metallurgy landfills environmental management • Ecological impacts of mining releases on aquatic and/or terrestrial ecosystems • Examples of best practice in landfill, tailings, and industrial platform remediation resulting in risk reduction • Ecological recovery following remedial activities at mine/processing sites • Lab-to-field comparison of effects on organisms associated with mine releases of metals. • New plant-based technologies for recovery and clean-up of metal-contaminated land • Novel monitoring/biomonitoring as a means to assessing metal bioavailability and potential impact at mine/electrometallurgical sites • Post exploitation regulations, their application, concerns and improvement areas