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AM**1. Please provide the following contact information**

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1. Are cleanup goals used when remediating contaminated mining sites?

Yes

In principle, old and closed mining sites should be treated as any other potentially contaminated sites, if soil or groundwater are contaminated, in which case the regulations on contaminated sites (e.g. the Environmental Protection Act 86/2000 (EPA) and the Decree 214/2007 on the Assessment of Soil Contamination and Remediation Needs) apply. However, in practice that is not necessarily the case, but the remedial actions may be part of the normal (obligatory) mine closure process, and they vary case-specifically. There are also separate regulations and guidelines for mining site closure (e.g. Mining Act 621/2011 and Mine Closure Handbook (<http://arkisto.gtk.fi/ej/ej74.pdf>)). Thus, also the clean up goals are not necessarily based on acceptable contaminant concentrations as they usually are on industrial or other typical contaminated sites, but are typically more non-specific and targeted at minimizing the overall adverse environmental effects by decent site closure actions (e.g. treatment and management of waters and prevention of dust). Criteria for water treatment with respect to mine closure are usually set in the environmental permit. Mining waste facilities on the other hand are not regulated by the EPA, but by the Directive 2006/21/EC and Decree 379/2008 on the management of extractive waste. The EPA is additionally applied, if those waste facilities also include contaminated soils or groundwater.

2. Is site-specific risk assessment used to clean up mining sites?

Yes

See also the above answer. Risk assessment of contaminated sites, which in principle is applicable to mining sites with contaminated soils as well, is regulated by the Decree 214/2007 on the Assessment of Soil Contamination and Remediation needs (also more specific guidelines exist). A tiered approach is suggested, starting from a basic assessment and moving on to more detailed assessment when found necessary. The tools of assessment are always chosen case by case. There are no other official risk assessment methodologies existing, e.g. specifically intended on mining sites, but using risk assessment is highly recommended and some methodologies are suggested e.g. in Mine Closure Handbook when remediating mining sites (e.g. selection of remediation techniques and prioritizing sites). In an ongoing MINERA-project integrated, quantitative risk assessment tools is being developed, which will consider both ecological and health risks, and potentially take the whole life cycle of the mine into account.

1. Are any Best Management Practices (BMP) or Best Available Technologies (BAT) implemented when treating mining waste, mine tailings and/or mine influenced waters?

Yes

Yes, as the national Environmental Protection Act requires the use of BMP and BAT in (industrial) activities that may pose risks to environment. The EU Reference Document on Best Available Techniques for the management of tailings and waste-rock in mining activities covers activities related to tailings and waste-rock management of ores that have the potential for a significant environmental impact. The national BMP-document for the metal mining activity, which also includes operations, such as mine closure, is under construction. The document will be a continuation of the Mine Closure Handbook -Environmental Techniques for the Extractive Industries. The BMP will adopt best practices and BAT from the EU BREF document but also based on International experiences (e.g. the GARD guide: http://www.gardguide.com/index.php/Main_Page).

1. Is mining waste being reused for beneficial purposes?

Yes

Yes. 24 % of mining waste was reused in 2003. This includes reuse at the mining sites. The mining waste is primarily aspired to reuse at the mining sites. Other utilization targets are road construction, landfill construction, railway construction, landscaping, noise barriers, housing construction and soil improvement. The extent of reuse also strongly depends on the type of mining (metal ores, industrial minerals and rocks).

2. Are there any initiatives or practices to encourage locating alternative energy facilities at contaminated or active mining sites?

Yes

Geothermal energy from the underground workings is used as an additional energy source e.g. for heating or for cooling of the processes at some of the active mine sites.

3. Are reuse practices (such as carbon sequestration) and/or ecological revitalization activities implemented at contaminated mining sites (e.g., education centers, historical landmarks, commercial or industrial parks, wildlife refuge, etc.)?

Yes

Yes. Examples include e.g. historical landmark (Keretti mine museum), golf course (Keretti), holiday village (Kaivoskylä), motorpark raceway (Hällinmäki mine site), and outdoor recreation area (Vihanti mine site).

1. Do you have a regulatory framework(s) or other programs in your country that addresses the cleanup of properties impacted by mining contamination?

No

There are no specific frameworks or programs. General requirements on liabilities regarding contamination are set in the EPA, stating that any party whose activities have caused the pollution of soil or groundwater is required to restore said soil or groundwater to a condition that will not cause harm to health or the environment or represent a hazard to the environment. Depending on when the contamination has occurred, the liability to remediate falls under different regulations. However, contamination due to mining is usually concentrated on surface waters, in which case the regulations are not that specific.

2. What types of enforcement measures and/or programs are available to recover costs from mining companies that caused the contamination?

There are several regulations that deal with these issues (the EPA 86/2000, Mining Act 261/2011, Act on Compensation for Environmental Damage 737/1994, Tort Liability Act (also known as the Damages Act, 412/1974) and the Directive on environmental liability with regard to the prevention and remedying of environmental damage 2004/35/EC, April 30, 2004). According to the Mining Act 261/2011 financial assurance for mine closure has to be set and the EPA defines financial assurance for the waste disposal areas. According to the EPA the competent authority can also order the liable party to clean up contaminated site, but this is rarely used in practice.

3. Is cleanup and reclamation of mined land part of the mine permitting process?

Yes

Yes. Aspects related to site closure, such as remediation, are included in the environmental permit. Also according to the Mining Act (621/2011) necessary and reliable report of the mine closure and the related operations and the post operations have to be presented in the mining permit application. However, that hasn't been the case for mines whose activities were closed before the EPA 86/2000 came into force, but still an environmental permit is required for the clean up.

4. Is "designing for closure and post-closure" actively practiced?

Yes

Yes. Preliminary plans for closure and post-closure are required to be included in the EIA

procedure and also for the environmental permit application. Also the feasibility studies of the mines take into account the costs for closure and post-closure measures of the site.

5. Is an Environmental Impact Analysis/Statement (EIA/EIS) performed for proposed mining operations?

Yes

Yes. According to the Government Decree on Environmental Impact Assessment Procedure (713/2006), the EIA has to be done if the amount of the extracted material is 550 000 tons per year minimum or if the open pit is more than 25 hectares. In the EIA, it is required to assess also the impacts after closure of the mine site and present a preliminary plan for the closure and post-closure measures to prevent the impacts. General requirements for site closure are considered and set mainly in the mining and environmental permit processes. Requirement for the monitoring of the site after closure continues as long as there are impacts from the site.

1. What are the funding mechanisms used to cleanup abandoned mine/mining impacted areas?

There are no specific funding mechanisms for mining sites at the moment, but the polluter pays principle is also applicable to mining sites. There are examples e.g. on cases where the operator has been required to continue remediation more than 10 years after closing of the activities (e.g. Outokumpu and Hammaslahti mining areas) Finland also has a waste management system under which the state can take action concerning remediation, if the property owner is not able to pay and if the costs are high compared to the costs of waste management in a municipality. Under the waste management system the state can, in co-operation with municipalities or property owners, participate in the remediation work or finance, on average, 45% of the remedial actions taken. So far the system has been applied to about 350 contaminated sites, but it has included only a few mining areas. However, the system suffers from both a shortage of appropriate funds, whether from local authorities or the government, and it is very strict in terms of application. In recent years this state budget money has been only about 3 million euros per year.

2. How are these mechanisms funded (e.g., public or mining industry contributions)?

See the above answer.

3. Are there any laws, regulations, and policies and practices setting the approach for environmental financial assurance for mine closure?

Yes

According to Mining Act 261/2011 financial assurance for mine closure has to be set and the EPA 86/2000 defines financial assurance for the waste disposal areas.

1. How does the local community participate in mine permitting, design/construction, financial responsibility calculations and the mine closure process?

Both mining and environmental permit procedure and also EIA procedure include the hearing of concerned parties such as the local community, during which people can express their views on the permit applications. During operation the activity of the local community usually

increases, if everything is not going so smoothly.

2. Are there any regulations/programs that address/manage social impacts of mining and mine reclamation?

There are no specific programs, but the common practice is that evaluation of social impacts is part of the EIA. These issues will also be dealt with in the forthcoming BMP document on metal ore mines.