

Commission DG Env B3 & IMPEL workshop on financial guarantees in mining

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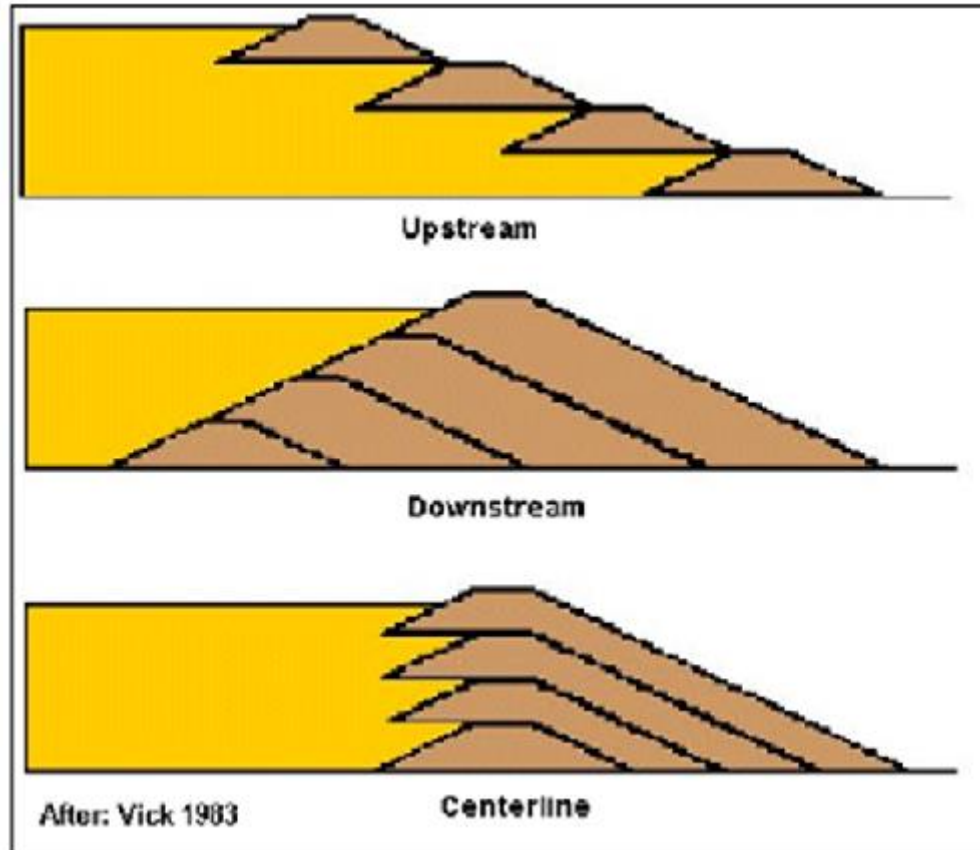
Insurance and assurance

- **high-impacts risk events** – can we still talk about low probability?
- Tailings dam failures loom less often*, but larger in volume and threat^
- Seepage, wastewater and acid mine drainage
- restoration and effective closure, after-care

high-impacts ‘black swan’ risk events

- How many category A waste dams in the EU???
- As few-or as many- as 202, in Com DG Env MWD 2206 21 EC , Sept 2016
- Probability:
- “Since 2006 [and] the MWD, there has apparently not been any reported damage [waste leakage] with the possible exception of the operating Talvivaara mine case, which remains isolated in comparison with the number of operations currently running in Europe”. P 63/324.
- “Study on ELD Effectiveness: Scope and Exceptions” Technical Report – 2014 – 2087 doi: 10.2779/70236
- http://ec.europa.eu/environment/legal/liability/pdf/BIO%20ELD%20Effectiveness_report.pdf

Upstream design tailings dams



Known mining waste ‘accidents’

- **Very serious** tailings dam failures
- Multiple loss of life (~20) and/or release of $\geq 1\,000\,000\text{ m}^3$ total discharge, and/or travel of 20 km or more.
- **Hungary** Ajka Alumina Plant, 2010 [and in 1991]
- Sources: *Center for Science in Public Participation; WilSE Uranium Project.*
- In **UNEP**-Grid Arendal 2017 “*Safety is No Accident*”

Known mining waste 'accidents'

- **Serious tailings dam failures**
- Loss of life and/or release of $\geq 100\,000\text{ m}^3$ semi-solid discharge.
- **Sweden** Aitik Mine, 2000;
- **Bulgaria** Sgurigrad, 1996, Maritsa Istok 1, 1992;
- **Finland** Sotkamo, 2012 [company Talvivaara/Terraframe]
- **Romania** Baia Mare, 2000
- **Macedonia** Sasa Mine, 2003
- **Spain** Los Frailes, [Aznacollar] 1998
- **Portugal** Fonte Santa, 2006

Talvivaara mine, Finland

- problems and difficulties in setting and using guarantees
- an open pit nickel mine. It uses bioleaching to produce nickel and zinc.
- original EIA was very optimistic about the process and the waste, which is very acidic
- “It will be neutralised and become gypsum”
- Two different gypsum waste streams were added, persistent outflows are very toxic

Talvivaara mine, Finland

- EIA expected the cost of closure to be low, the financial guarantees were set to about €30 million.
- After the former operator sought legal action over re-permitting
- The new financial guarantees are € 109 million.
- The State absorbed some of the losses and set up a new company Terraframe . The lakes are still polluted

<http://www.turvallisuustutkinta.fi/en/index/tutkintaselostukset/muutonnettomuudet/tutkintaselostuksetvuosittain/muutonnettomuudet2012/y2012-03ymparistoonnettomuustalvivaarassamarraskuussa2012tutkintaonkesken.html>

Opencast coal in UK

- “There are currently 34 mines across the UK—17 in Scotland, nine in Wales and eight in England. There are an unknown number of unrestored & orphaned sites, where developers have declared bankruptcy and disappeared ”.
- 29 Jan 2015 debate on Open-cast Coal Sites Restoration, UK House of Commons.

Opencast coal in UK

The Coal Industry Act 1994 privatised and regionally split the remaining industry

establishing powers to ensure “full continuity from the state coal corporation to private companies “
without responsibility, in the form of bonds/effective insurance, for restoration and closure.

Environment Act 1985

- Failed to include provisions to make mining companies financially responsible for effective after-care
- Rio Tinto walked away from Wheal Jane tin mine in Cornwall
- The Environment Agency and later the Coal Authority continue to deal with acidic wastewater at costs over € 40 million

Opencast coal in Wales

five operating mines

with grossly inadequate bonds

on 200-400 ha sites, largest with 6.6 mill tons
future production,

with restoration in the hands of **special purpose
vehicles**, all off-shore registered.

“Research into the failure to restore opencast coal
sites in south Wales” ERM, for Welsh Assembly , 2014

Opencast coal in Wales

- A radical view:
- **“ The Hole in the System”**
- “The outrageous, untold story of how big business dumps its costs on us”.
- By George Monbiot, Guardian 29th April 2015
- <http://www.monbiot.com/2015/04/28/a-hole-in-the-system/>

Scottish opencast coal

- Privatised coal mining company declared itself insolvent,
- liquidators sought to invalidate mining restoration [£88 million] and
- continuing wastewater remedial costs [£576,420pm] against its remaining assets of £12.7 million
- on the basis of a preferential interpretation of which powers had been devolved.

“Study on ELD Effectiveness: Scope and Exceptions”
Technical Report – 2014 – 2087 doi: 10.2779/70236

Scottish opencast coal

- In south west Scotland, there are 22 giant voids abandoned by the two operators
- “so large they cannot be effectively secured from trespass... unstable head walls and extremely deep water bodies with vertical drop-offs make for dangerous playgrounds.”
- “The Hole in the System”, Monbiot.

Scottish opencast coal

- Opencast Coal Restoration: Better Regulation. 2015
- <https://beta.gov.scot/publications/surface-coal-mine-restoration-towards-better-regulation-final-report-scottish/>
- “Bank Guarantees [should be used] as a replacement for insurance bonds .. no longer available in a form that gives long term assurance. Bank guarantees also ensure that **financial due diligence** has been done on the developer by the bank but they are flexible enough to change as required. They are also used widely in other commercial environments for this purpose”

The Mining Waste Directive

- - Art 5 Waste Management Plans – prevent/ reduce waste [etc] Disposal – choose a design which requires minimal -if possible ultimately no monitoring, control and management of the closed waste facility. Ensure long-term geotechnical stability of dams and heaps. Characterise waste . Cat A waste facility- need major accident prevention policy, implementation system, internal emergency plans [Art 6.3]

The Mining Waste Directive

- Art 7 Permitting- information – owner, operators, waste management plan, “adequate arrangements by way of a financial guarantee [under Art 14] for closure & [so that]
- **funds are to be readily available at any given time for rehabilitation of land affected by the waste facility.**

Canada

- **“Toward Financial Responsibility in British Columbia’s Mining Industry” May 2016**
- Compares state regulatory systems in other Canadian states, and in Alaska
- https://miningwatch.ca/sites/default/files/toward_financial_responsibility.pdf

USA

- Munchmeyer, Fogleman, Mazza, & Mudgal.
- Implementation Effectiveness of the ELD and related Financial Security Issues. Bio – for E Commission, DG Env 2009
- Contrasted how & why USA system based upon CERCLA is **more effective** in driving appropriate regulatory financial provision.