



BRIEFING - AUGUST 2024

Mining waste: time for the EU to clean up

Making the case for a revision of the EU Extractive Waste
Directive

Summary

As new mines start to open across Europe, T&E takes a look at whether the EU's waste mining rules are up to scratch. Based on the T&E commissioned legal analysis, T&E sets out what a revision of the EU Extractive Waste Directive should look like.

Over the next few years, Europe will open new mines across the continent to try to meet the 10% mining benchmark under the Critical Raw Materials Act. But are Europe's mining rules up to the job?

T&E commissioned a legal analysis of the 2006 EU Extractive Waste Directive to find out. Whilst Europe often claims to have the highest environmental and social standards globally, this cannot be said for its mining waste rules. On a continent where mining has been declining for decades, mining rules in Europe are now outdated and, in some areas, below those of other countries such as Brazil and China.

One clear finding of the legal analysis is that there is a significant risk of fragmentation in the implementation of the directive, with many key provisions not clarified and left at the discretion of the Member State. E.g. It is unclear who is responsible in case of accidents or damage, and how strong or regular prevention and monitoring planning should be. Another major finding is that the best available techniques, such as filtered tailings that remove moisture from waste before storing it, therefore making it more accident-proof, are not mandatory and left at the discretion of the company. In addition there appears to be insufficient protection of the environment and local communities.

Given all this, T&E calls on the new Commission to update the Extractive Waste Directive, in particular:

- **Turn the directive into a new European Extractive Waste Regulation.** This would ensure harmonised implementation across Member States. With the Critical Raw Materials Act also opening the door to [Remining in Europe](#), it is the right moment to strengthen European rules on waste for new mines and use the opportunity to integrate rules on remining.
- **Mandate best available techniques.** A new European Extractive Waste Regulation should mandate companies to implement the safest tailings storage and monitoring techniques, building on the expert knowledge and guidelines established with the

BREF¹ document related to the management of extractive waste. This is not only a win on the environmental and safety side, but also something that can reassure communities living close to mining sites.

- **Base the revision on the Safety First Guidelines².** These guidelines, which were written by global mining experts, civil society and academics and have been endorsed by over 100 organisations, explain in detail how tailing sites should be designed, managed and closed and set out key financial and governance provisions that should be put in place. On top of this, environmental protection and community safety measures should be strengthened and streamlined across the new regulation, for example by expanding and harmonising the definition of environmental damage. The current definition, taken from the Environment Liability Directive, is limited and could for example be broadened by including the interests of future generations.
- **Ensure community participation,** from the offset and throughout a project. As explained in the legal analysis published alongside this briefing, community involvement is a fundamental right and step. Communities must be warned in case of accidents, as well as being consulted before, during and after a mine site is operational, and on the design and management of the tailings.

¹ A BREF, or a Best Available Technique (BAT) Reference Document, is a publication resulting from a series of exchanges of information between a variety of stakeholders, including regulators, industry and environmental non-governmental organisations which outline - among other things - applied techniques, present emissions and consumption levels, and techniques considered for the determination of best available techniques as well as conclusions and any emerging techniques.

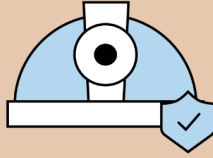
² Earthworks, MiningWatch Canada and London Mining Network (31.05.2022), “Safety First: Guidelines for Responsible Mine Tailings Management”. [Link](#).

Waste mining in Europe in the future needs to:



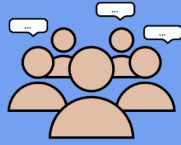
1

Use the **best available and safest storage and monitoring techniques**, such as dry stacking and backfilling.



2

Be designed, managed and closed in line with **Safety First Guidelines** in order to protect people and the environment.



3

Ensure **community participation** from the offset and throughout a project, as a fundamental right.

Source: T&E



1. Introduction

When in March 2023 Thierry Breton, the EU Commissioner for Industry, unveiled the proposal for the EU Critical Raw Materials Act (CRMA), he said that “We [Europe] had a [geopolitical] dependency for fossil fuels, and if we don't act now, we'll have a dependency for critical raw materials.”

Over the next few years, Europe will open new mines across the continent to strive to meet the 10% mining benchmark set out in the Critical Raw Materials Act. But with mining activities having been decreasing in Europe for decades, are Europe's mining rules up to the job?

T&E commissioned a legal analysis from the Netherlands-based environmental law experts Hörchner Advocaten to look into the fitness of the European Extractive Waste Directive (Directive 2006/21/EC). The directive, which dates back to 2006 has since been complemented by a BREF in 2018. This short paper summarises the results of the legal analysis, making a case as to why the rules should be reviewed and harmonised in Europe.

Mining waste: a problem or an opportunity?

Mining waste or tailings amount to 10 billion tons, which is, on average, 2 to 12 times more than the amount of extracted metal. Tailings can be stored in [different ways](#), and if not managed properly, they can pose a risk to people and the environment. For example, when collected in tailing ponds, they can contain heavy metal pollutants that can leach into surrounding soil and groundwater³. This can lead to long-term damages, as seen in topsoil readings around tailing sites around Europe⁴. The stability of the extractive waste is also a vital issue for tailings. The last case in Europe was the Baia Mare dam failure in Romania, where 100,000 cubic metres of cyanide tailings contaminated local river systems and killed the ecosystems within⁵.

Nevertheless, mining waste can also be a valuable resource today. The so-called “remining” of tailings can produce both economic value from the minerals recovered and reduce the footprint of new and legacy tailings⁶. The estimated economic value of 280 billion tons of tailings collected globally in 8,500 facilities is 3.7 trillion USD. Economic value can also therefore be found in the tailings in Europe. Based on T&E calculations, these contain enough cobalt to power 185,000 EVs⁷. Another area for mining waste is the use of aggregate material in the creation of fillers for infrastructure materials such as asphalt or cement⁸. Boliden, a copper mining company based in Sweden and Finland, uses both these techniques to reduce waste by 14%.

2. Key findings of the legal analysis

The analysis conducted by legal experts from Hörchner Advocaten found that the Extractive Waste Directive (EWD) falls short and lacks necessary clarity on a number of provisions, as summarised below.

2.1 A lack of mandating the safest and best available mining waste technologies

Mining waste, if not stored and managed properly, can cause significant damage to human health and the environment. Certain techniques for storing tailings, such as dry stacking and

³ Pingping Zhao (22.02.2023), “Heavy metal pollution and risk assessment of tailings in one low-grade copper sulfide mine”. [Link](#)

⁴ Cezary Kabala (10.10.2020), “Assessment and monitoring of soil and plant contamination with trace elements around Europe's largest copper ore tailings impoundment”. [Link](#)

⁵ Fondazione Stava 1985 (n.d.), “The Baia Mare tailings dam failure, 2000”. [Link](#)

⁶ Transport & Environment (23.01.2023), “A European Response to US IRA”. [Link](#)

⁷ Transport & Environment (01.2024), “Remining for the energy transition”. [Link](#)

⁸ Pauline Segui (06.01.2023), “Mining Wastes as Road Construction Material: A Review”. [Link](#)

backfilling, can help minimise and control some of the damage. Crucially however, the EWD does not stipulate the use of any techniques or specific technologies.

Although the directive calls for Member States to take “*necessary measures to ensure waste is managed without endangering human health [...]*”, it fails to mandate the use of the best available techniques as explained in the legal analysis. This language also allows for diverging, and sometimes inadequate, levels of protection in different Member States. In addition, whilst the BREF document related to the management of extractive waste sets out guidelines for the best available techniques, it specifies that these guidelines are neither prescriptive nor exhaustive. They therefore cannot be relied on for legal interpretation. The legal analysis recommends, as a minimum, updating the BREF document to remove this loophole. However, according to the legal analysis, it is necessary to also update the Directive in order to mandate the use of the best available techniques “*unless compelling local conditions are leading to a concrete need for (the licensing and/or law enforcement authority of) a Member State a reasoned deviation*”.

Further to this, the legal analysis highlights that a large amount of freedom is given to the company to decide where to locate the extractive waste facility, how to design it, how frequently to engage in the monitoring process and how to eventually rehabilitate the land. The competent authorities must be ‘satisfied’ by the operator’s plans, however there is a lack of objective, harmonised principles and benchmarks on which this is judged. An example of inadequate considerations regarding the location of a mine can be seen with the *Minas de San Finx* in Spain. The mine is situated 7 km upstream from the Natura 2000 Muros-Noia estuary. Following the re-opening of the mine in 2009, cadmium, copper and zinc concentrations in the river have been found to be above maximum allowable limits, affecting not only the natural environment, but also threatening the livelihood of over 1.500 families that depend on the estuary for shellfish gathering.

2.2 Insufficient protection of the environment and communities

When it comes to the protection of water, air and soil, the EWD focuses on minimising the impacts of environmental damage, as opposed to preventing them at the discretion of the local authority. On top of this, best practice measures are once again not mandated. All of this leads to diverging levels of implementation at Member State level, creating higher risks for the environment. As explained in the legal opinion, the definition of environmental damage, which is based on the Environment Liability Directive, is also limited. It covers significant damages to the interests of the Birds Directive, Habitat Directive, Water Framework Directive and soil pollution with risks for human health, whilst environmental damage is much broader.

When it comes to communities, an important gap discussed in the legal analysis is what happens in the case of a major-accident and the related prevention plan. The article covering this does not seem to include the obligation to prevent major accidents, only to minimise their

effects. Moreover, it states that the public is to be informed only in the case of major accidents, rather than also in situations of slow, long lasting or difficult to prove pollution.

2.3 Mine closures: disasters waiting to happen?

According to the legal opinion, the closure of an extractive waste facility occurs at the discretion of the competent authority in the Member State, with the authority relying on reports prepared by the mine operator. The period of maintenance and monitoring of controls after closure deemed necessary is at the discretion of the Member State authority. This gives a lot of power to the company, without an independent assessment and third party verification in place, nor the possibility to consult with other stakeholders such as civil society, independent experts and the community.

The company should instead be held liable long after the mine closure. According to the Standard for Responsible Mining v.1.0⁹ of the Initiative for Responsible Mining Assurance (IRMA), the amount of time liable depends on the specific area. For example, according to the IRMA Standard, best practice in the mining sector requires mining companies to plan, cost estimate, financially assure, and implement, a minimum of 25 years of post-closure water monitoring. However, the period can be much longer in practice, as the IRMA Standard also requires that such monitoring can only be stopped once specific water quality criteria have been met for at least five consecutive years. Whereas for revegetation, IRMA requires it to be completed no longer than 10 years after final closure of the mine.

2.4 Unclear timelines and responsibilities

The legal analysis finds that there are unclear timelines and responsibilities in the EWD. For example, there is not a fixed time period by when permits should be reviewed as there is no definition of “periodically”. Another perhaps more worrying example is that there is no obligation to update prevention plans. It is necessary to regularly update prevention plans in order to take into account results of ongoing monitoring and any significant changes in the mining project, as well as the operating environment.

In addition, there is a lack of certainty over who should bear the responsibility and/or costs for clean-up and/or restoration, which can be quite significant and are often part of lengthy legal disputes with companies aiming to limit their liability vs the local community or the government. As clearly stipulated in the IRMA Standard for Responsible Mining v.1.0¹⁰ - alongside many similar standards - the responsibility for all such costs falls on the mining company in question, and sufficient funds should be set aside for such damage.

⁹ IRMA Standard for Responsible Mining, IRMA-STD-001. [Link](#).

¹⁰ IRMA Standard for Responsible Mining, IRMA-STD-001. [Link](#).

Mythbusting: does the EU have the best mining waste rules?

Touro had planned to open a copper mine in Galicia in Spain, which would be 20 kilometres east of Santiago de Compostela. The tailings dam would be 81 metres high and would be located on a steep slope above the village of Arinteiro, and less than 200 metres away. Upstream dams are prone to failure because they are built on uncompacted tailings. According to the Spanish geological and mining institute, 99% of tailing dams in Spain are built in this way. Both of these factors make it dangerous and risky to construct a tailings dam so close to a population centre. However, elsewhere in the world, measures have been taken to ensure a greater level of protection. For example, mining legislation in Brazil and most South American countries sets out a so-called rescue zone. The zone extends 10 kilometres from the tailings dam or can be reached by a tailings flood within 30 minutes. Depending on the population density or natural and cultural heritage, this zone can be extended. China also has rules stating that a tailings site should be 1 km away from population centres¹¹.

3. Recommendations for policymakers: what should a revision of the EU Extractive Waste Directive look like?

A clear finding of the legal analysis is that there is a significant risk of fragmentation in the implementation of the directive, with many key provisions being left at the discretion or to the interpretation of the Member State. Further to this, the legal experts also highlighted that whilst the BREF document related to the management of extractive waste complemented the Directive, it does not by any means close the legal gaps in the law as it is neither prescriptive nor exhaustive. The BREF aims to provide only a guideline for the best available techniques for the sector, and cannot be relied on for legal interpretation.

For this reason, T&E calls on the new Commission to update the Extractive Waste Directive specifically by:

- **Proposing a new European Extractive Waste Regulation.** This would ensure harmonisation across Member States, reduce the complexity and potentially favour international harmonisation. With the Critical Raw Materials Act opening the door to [Remining in Europe](#), now is the right moment to strengthen European rules on waste for new mines and use the opportunity to integrate rules on remining.
- **Mandating best available techniques.** The Commission should build on the expert knowledge established with the BREF document, to mandate companies to implement

¹¹ Dr. Steven H. Emerman, (11.12.2021), “Testimony of Dr. Steven H. Emerman to the European Parliament Public Hearing on Environmental and Social Impacts of Mining in the EU”. [Link](#)

the safest tailings storage and monitoring techniques. This is not only a win on the environmental and safety side, but also something that will reassure communities living in proximity to mining sites.

- **Basing the revision on the [Safety First Guidelines](#).** These guidelines, which were written by mining experts, civil society and academics and have been endorsed by over 150 organisations, explain in detail how tailing sites should be designed, managed and closed as well as setting out key financial and governance provisions that should be put in place. On top of this, environmental protection and community safety measures should be strengthened and streamlined across the new regulation, recognising that tailing dam failures and spills can have long lasting effects on soil, biodiversity and human health.
- **Ensuring community participation, from the offset and throughout a project.** As explained in the legal analysis, community involvement is a fundamental right and step. Communities must be warned in case of accidents (not only major ones). In addition, under good practice and so-called “licence to operate”, community consultations should happen before, during and after a mine site is operational and should also cover the design and management of the tailings. A good example of this in Europe is the consultations Imerys, a future lithium producer in France, [carried out](#).

Further information

Emily Ritchey

Supply Chain Policy Manager

Transport & Environment

emily.ritchey@transportenvironment.org