EEB comments on MIN BREF Background paper

17/11/2024

Dear MIN BREF TWG,

The EEB welcomes the opportunity to comment on the MIN BREF Background paper and thank the BREF authors for all the efforts and work put into it.

Main comments:

- With the IED 2.0, the KEI approach is more and more obsolete, in particular in relation to new IED activities such as mining activities. The 4 KEI work method (not endorsed by the IED-F) Criterion used are not fit for purpose because of various shortcomings in the EU-PRTR / IEP-R as to pollutants cover and outdated thresholds. There is no data as to resource consumption (yet). Further not even Criterion 1 is fit for purpose any longer due to the IED 2.0, which also refers to human health and climate protection as "relevance" checks. We will not repeat earlier points made on the KEI approach, instead we prefer to take the so-called 'Dutch approach' i.e. to collect data first and then decide later based on the facts / information collected. An ex- ante "relevance" check should not be pursued because it reverses the burden of proof. New findings emerge during the information exchange, which is the nature of the dynamic EU BREF process and we appreciate flexibility by EU-BRITE and the TWG to take on board new findings during the information exchange process if those are driven by an increased protection outcome oriented mindset.

- Generally, the EEB agrees with all the "KEI" proposals made by the EU-BRITE, except for points below (items which need to be reconsidered).

- The EEB insists that all the life stage operations need to be covered, this shall include closure, reclamation, remediation and aftercare. The traditional mining activities are special in this case compared to other industrial activities. Aftercare BAT is "standard" in the mining business, this is also relevant for liability concerns. Also biodiversity protection is an explicit new BAT criteria with the IED 2.0 (see Annex III), hence best practice can be developed on this objective which should also relate to "aftercare". Further, there is ongoing work with CEN e.g. /TC 477 'Sustainable production of raw materials from mining related activities' CEN/TC 477 (secretariat: SIS) has been tasked to develop standards on the sustainability of production of raw materials from mining related activities covering the whole value chain, from exploration, extraction, treatment, smelting, refining, other processing, as well as recycling and mine closure and reclamation, to minimize the negative impacts from mining through its life cycle. Energy raw materials are excluded from its scope, as well as those aspects already covered by CEN/TC 472 'Rare earth elements'. Decision ref: CEN/BT C002/2024. We call on pro-active reach out with CEN to ensure the best practice information is made available through the MIN BREF review, to be used for BAT-C determination.

- We disagree with proposed way forward as to Section 4.4. and request for the possibility to cover aspects concerning human health and safety (incl. at work) to be discussed at the KoM.

- We see concerns with some aspects relating to CBI issues (Section 4.6), which may be triggered by a confusion as to what will be published in the EU BREF v. information that will be made available to the TWG or a sub-group of TWG members that are not competitors (i.e. NGO)

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Items which need to be reconsidered

3.1.1 Scope

a) **the extraction of geothermal lithium is to be included, with potential for BAT determination.**

The main purpose of the MIN BREF is to achieve a high general level of environmental protection as a whole including human health and climate protection from extraction, including other operations linked to ores clearly including lithium. This refers to the whole of the mining activity including directly associated activities. Hence the main aspect to consider as to scope definition is not "legalistic interpretations" but what concretely the MIN BREF and its BAT-C can provide as to added value regarding impact / performance improvement potential of the activity. It is irrelevant on whether the lithium is extracted through a specific means (not defined in the IED), in this case geothermal activities. The IED covers "Extraction including on-site treatment operations, such as comminution, size control, beneficiation and upgrading" [of lithium], the term "including" is clear that this means an open list and not a closed one. If lithium is recovered from geothermal activities this can be considered as an extraction activity, the interpretation issue can however be about the meaning of "industrial scale". This is not defined either and should be understood as an interpretation issue for future implementation (legalistic debate not to be taken in the EU BREF).

The benefits of its scope inclusion in the MIN BREF are the following:

- Establish best practice for geothermal activities, if as a co-benefit geothermal activities can recover precious ores like lithium this is a clear win-win for the operators and also the environment of this technique implementation, future will tell if the lithium recovery / extraction would become the main activity or the main driver for investment or a secondary one.
- It is in any case relevant if this extraction method (geothermal) can substitute other type of lithium mining activities that have more negative impacts overall, the mining activity's main purpose is to extract the lithium, hence if there is substitute option to extract the same metal (irrespective if this is embedded in a rock, sediment, brine or some other form). The word 'ore' is of Anglo-Saxon origin, meaning *lump of metal*. From chemical reaction it may be that geothermal activity is dissolving the lithium from the Spodumene.
- According to a study of September 2022[1], "*the current state of the art shows an early to mid—technology maturity stage while reaching lithium extraction efficiencies of 50–90% in laboratory experiments. Under the disproportionately higher challenges in the ongoing operation of a geothermal power plant, extraction efficiencies near the bottom of this range are considered realistic*".
- Considering the increased attention of deployment of renewable energies there is a clear benefit to establish BAT in relation to the lithium recovery from this activity.
- If the COM can provide evidence that the lithium recovery is sufficiently dealt with in other EU legislation (we doubt this), hence making any information sharing within this MIN BREF redundant and superfluous, in that case the EEB may reconsider its position on the matter.

[1] Source Goldberg, V., Kluge, T. & Nitschke, F. Herausforderungen und Chancen für die Lithiumgewinnung aus geothermalen Systemen in Deutschland – Teil 1: Literaturvergleich bestehender Extraktionstechnologien. *Grundwasser - Zeitschrift der Fachsektion Hydrogeologie* **27**, 239–259 (2022). https://doi.org/10.1007/s00767-022-00522-5 / https://link.springer.com/content/pdf/10.1007/s00767-022-00522-5.pdf

3.2.3.2 Exhaust emissions from engines / Decarbonisation 3.2.9
a) extend the emissions beyond engines / exhaust emissions
The proposal to include exhaust emissions from engines (3.2.3.2) is supported but should not be limited to engines, the use of explosives is also generating emissions (as noise), as highlighted by Sweden. The second bullet point in page 24 of the BP is an open example list, we would appreciate to include explicitly "explosives" next to 'equipment', unless use of explosives and associated impacts is implicitly covered somewhere else e.g. Sect 3.2.5 (which is welcome since not exhaustive). We agree with the delegation of Sweden and others as to the electrification potential for trucks + / other motors and equipment. The following information from Liebherr may be considered in this context (hydrogen powered wheel loaders https://www.liebherr.com/en-de/n/pioneering-work-in-the-quarry-liebherr-and-strabag-test-hydrogen-wheel-loader-100608-3704916) - see also section 3.2.9 point below.

b) **upgrade decarbonisation to "KEI" in its own right 3.2.9**
One of the fundamental and positive changes with IED 2.0 is that "best" available techniques must pass the triple test of 1) leading to high general protection of the environment, 2) and human health protection 3) and climate protection (see Art 3(10) of the IED + Annex III). This fact is recognised by EU-BRITE but the proposed way forward is inconsistent, we believe that it is a "must have" to conclude on BAT-AELs for GHG emissions in order to be compliant with the IED. Alternative wording suggestion: "The TWG to decide at a later stage, based on the data collected, ~~whether~~ **on stringency** of BAT-AELs ~~or benchmarks should~~ to be derived **for greenhouse gas emissions.** "

The EEB explicitly supports the similar proposals of Austria, Norway and Sweden, which will make the BAT credible, not only in light of the IED 2.0 but also as to legitimate expectations from society. The "specific set up" of each mine is different and "overlapping requirements" excuse of EURMINES is not audible nor technically justified. Instead, we look forward for the TWG to collaborate with the frontrunners in the sector, at least some mining companies committed to be fossil free by 2035 e.g. https://fossilfrittsverige.se/en/roadmap/the-mining-and-minerals-industry-2/ & https://fossilfrittsverige.se/wp-content/uploads/2020/10/Fardplan_eng_Svemin_2022.pdf .

Considering that the MIN BREF is expected to be published in the OJEU by Q3 2028 tentative), with a +4 years deadline for compliance and hence pointing to Q3 2032 as well as considering long investment cycled in this sector, it is self-evident that it is for this MIN BREF to set clear BAT requirements on climate protection. See also comments linked to item 3.2.2, https://www.liebherr.com/en-de/n/liebherr-and-fortescue-at-minexpo-2024-together-for-zero-emission-mining-98560-3704916 electric powered machinery already in use in Fortescue mining sites.

Items that are missing / for consideration at KoM
3.2.4 Emissions to water. Xanthates, other flocculants (e.g. polymer types) to be added
The EEB provided in its IP the request to also specifically address xanthates and certain anions and polymer flocculants as a KEI and to collect information on those pollutants.
Permits in Finland include about 70 elements / parameters (Terrafame, Keliber). Regular toxic enrichment chemicals such as xanthates are being discussed in Finland and included in the challenged permit of Kaunisvaara mine in Sweden. The Swedish limit 1 mg/L for Xanthates is considered to be too high for NGOs. Xanthate salts (e.g. sodium alkyl xanthates, dixanthogen) are widely used as flotation agents in mineral processing. It is a known fact that water downstream of mining operations are often contaminated with xanthates, see notably

1) https://link.springer.com/article/10.1007/s11771-023-5453-y the article (2023) refers to various techniques to protect the surrounding environment of mines (AuBT with photocatalyst, hydrothermal, water bath precipitation and photodeposition)
2) https://link.springer.com/chapter/10.1007/978-3-031-50236-1_22 (2024)
3) https://link.springer.com/article/10.1007/s10570-023-05672-0 (2024)

Other chemicals like polymers flocculants should also be monitored. This item may be addressed implicitly through the information exchange as per section 3.2.5 on process chemicals consumption but we would prefer an explicit mention.

3.2.4.10 Cyanide

The EEB requested in its IP (15) to ban the use of cyanide in mineral processing - mining (as has been recorded in section 3.2.5 by EU-BRITE) but our IP is relevant for Sect 3.2.4.10 as well. The EU BRITE proposal may be interpretated that it would implicitly allow the use of cyanide as long as water emissions are kept low (deriving a BAT-AEL). Many countries have already banned cyanide use in mining, hence this cannot be considered a BAT! Without pre-empting the outcome of the BAT-C the possibility to ban cyanide / substitute the process shall be explicitly listed in this section (bullet 2) and clearly recorded as such. For NGOs, the phase out of cyanide process is a red line.

(NEW) Pelletizing

The pelletizing process is missing and should be explicitly included in the MIN BREF. This process is energy intensive and done onsite by mining companies before the processed ore is provided to installations covered by other BREF documents (IS, NFM). Ore pelletizing is usually associated with low grade ores, mostly iron ores, e.g. preparing suitable pellets for blast furnaces. Pelletizing is achieved by combining the ore with water and a specific binder which is then rolled up in drum to produce relatively uniform pellets for easier handling by downstream users. Binders may be calcium compounds and clay minerals. Before pelletizing, crushing, mixing and powder screening is done, associated with dust emissions. Straight grate and grate kiln pellet plants are used for pelletizing. The process uses energy and is associated with emissions to air from fuels and from the ore, like dust, dust-bound metals and volatile metals, in particular mercury, sulphur dioxides, nitrogen oxides, carbon monoxide, TOC.

An example of a provider of pelletizing equipment is METSO, see e.g. office in Spain: Metso Outotec España S.A., Alcorcón, Madrid, +34 91 8255700, https://www.metso.com. See as an example the Samarco Mineração S.A. plant at Uru/Brazil producing 8.8 to 9.0 Mt/a: https://www.at-minerals.com/en/news/samarco-mineracao-s-a-breaks-monthly-world-record-in-iron-ore-pellet-production-with-its-metso-pelletizing-plant-4035039.html
An example of European iron ore pellet production is LKAB in Sweden (claiming to develop carbon-free sponge iron in future by using hydrogen produced from renewable energies): https://lkab.com/en/what-we-do/our-products-and-services/iron-ore-pellets-and-fines/

The first fossil-free pelletizing production was developed by LKAB at Malmberget, Sweden, using bio-oil. Trials with other alternative heating techniques have being carried out, such as hydrogen combustion and electric heating at the Swerim plant in Luleå, see: https://www.hybritdevelopment.se/en/a-fossil-free-development/fossilfree-pelletproduction/
For copper ore pelletizing see as an example https://www.granulatorforfertilizer.com/copper-ore-pellets-production-line/

We consider the above information hence as highly relevant for the information exchange (i.e. air emissions, energy consumption and decarbonisation potential) and apologize to EU BRITE + TWG for having forgotten to raise this at the IP phase, but hope it may nevertheless be considered as valuable for the information exchange / data collection, using the same standard approach like for the other parameters, the proposed structure as per Section 4.7 can easily accommodate the inclusion of this process step ('Ore pelletizing').

Best practice on Liability and safety risk (prevention) issues

The EEB provided in its IP a request of focus also on best practice to manage financial risk and safety concern e.g. damns, which are quite specific risks with mining operations. Similar views have been expressed by other stakeholders e.g. Finland ("BAT to ensure safety").

We consider these aspects to be integral part of the BAT definition, which does not only relate to technology but also *"the way in which the installation is designed, built, maintained, operated and decommissioned"*. Best practice on liability has a direct implication as to measures taken for risk prevention incl. spills, accidents etc. The Mining sector is in general very open to ensure strong liability schemes, also due to insurance concerns. The EEB has provided many out of EU examples in relation to safety standards, this is a quite specific to mining activities related key issue, in particular in relation to tailings e.g. Global industry standard on tailings management. https://globaltailingsreview.org/wp-content/uploads/2020/08/global-industry-standard_EN.pdf.
With the changes brought by the IED 2.0 (see as per Section 4.4 as below), the EEB insists that those aspects are to be included in the information exchange for this MIN BREF, with the aim to develop BAT to ensure safety and liability schemes.

Section 4.4 human health / occupational safety and health

The EEB strongly disagrees with not defining BAT / best practice that are primarily aimed to achieve a high general level of human health protection incl. workers protection. Whilst the IED. 1.0 may allow doubts as to whether human health protection aspects are to be addressed, the IED 2.0 is very explicit that BAT must also address human health protection. It does not exclude workers from the high protection goal (human health).

To the contrary, the IED 2.0 has tightened the focus on this aspect, which got added to the BAT ("best") definition, the IED objectives but also in its revised Annex III Criteria for determining BAT, which has provided 2 important changes: First point 11 explicitly requires *BAT to prevent or reduce to a minimum the overall impact of the emissions on the environment, including biodiversity, and the risks to it.* Secondly point 12 requires the BAT to *prevent accidents and to minimise the consequences for the environment and human health*.(emphasis added).

It is therefore clear that BAT shall address accidents prevention and risks, including to human health, which does not exclude workers. It is irrelevant if there is "other legislation" dealing with workers protection, the aim of BAT is not to align to legal obligations in any case, our comment is aimed as topics that concern human health protection in general, which may have a co-benefit to workers (on the mine) but that is also aimed to protect citizens in the vicinity of the mining sites in order to minimise consequences for the environment and human health. As a compromise we may be ready to focus in particular to aspects which have both a human health and environmental protection relevance.

The MWEI BREF developed under Directive 2006/21/EC is not considered as binding by Member States Competent Authorities and hence a) it cannot be claimed by EUROMINES and others that

there is "double regulation" and further b) the MWEI only relates to certain safety aspects such as structural stability relating to extractive waste phases and c) is potentially outdated as to what is BAT on this aspect.

Further, the EEB IP 'to consider tailing dam stability as a KEI, including location, design, operation and accident response" has been in a way misquoted in the context of relating to the Circular Economy topic (see page 32, section 3.2.8.) only, whilst there are direct implications in relation to residues management (and hence recovery) this subject deserves a wider consideration of measures / best practice aimed to ensure safety (accidents/incidents prevention) and human health protection (residents or communities in the vicinity of mining sites, including workers on site).

Finally, the IED 2.0 brought a clarification as to what the meaning of pollution and therefore "substance" refers to. It is clarified as per Article 3(1)a) that the scope of the IED 2.0 includes "radioactive substances as defined in Article 1 of Council Directive 96/29/Euratom of 13 May 1996 [replaced by Directive 2013/59] laying down basic safety standards for the protection of the health of workers and the general public against the dangers arising from ionising radiation ([1]);" Hence the EEB supports the proposal of Slovakia to address the risks of radon (as an example, considering that the legal limit of 300 Bq m^{-3} at the workplace seems to be exceeded) since there is a legal justification for doing so. We recommend for EU BRITE to seek legal clarification from the legal service of the COM on the matter, in case of doubts.

Based on the above, the EEB wishes its alternative view to be recorded as well as per section 4.4. and we request for the possibility to cover aspects concerning human health and safety (incl. at work) to be discussed at the KoM.

4.6 Confidentiality issues

Without repeating earlier points made on this issues, the EEB would instead suggest to take forward the following approach as laid down in the EEB proposal of January 2021 (see here: https://eipie.eu/wp-content/uploads/2021/07/2021_01_20-Annex-to-CBI-discussion.pdf)

Information that relates to environmental performance cannot be claimed as CBI, hence a very exhaustive case of items that may be subject to CBI request may be elaborated in a further stage, when the questionnaires are being designed. A crucial step is missing, which is for the MSCA / EU-BRITE to validate potential CBI claims made (see precited document, STEP 2).

We disagree with the general view expressed by Euromines to declare "all consumption data and production volumes" as CBI from the outset. Declaring "all other data related to performance" to be confidential for the entire mining sector must probably be a typo, this attitude is unserious and cannot be accepted. This is in fundamental contradiction to any due diligence conduct.

This stance may be triggered by a confusion as to what will be published in the EU BREF v. information that will be made available to the TWG or a sub-group of TWG members during the internal review process. The EEB reiterates that we may under no circumstances be considered as a competitor to the industry affiliated stakeholder TWG members (operators) -here we can understand some potential concerns of by Euromines which concerns industry only-, hence NGO shall be treated in the same way as MSCA delegates as to access rights, we believe there is no valid basis to treat the EEB as a second-class stakeholder compared to MS TWG delegates.