

UN Environment Assembly 3

Side event background paper – 18:00-19:30 Monday 4th December, Conf. Room 1

Taking Action to Reduce Pollution in the Extractive Sector

This short paper attempts to provide a contextual starting point for a dynamic discussion on improving the environmental performance of the extractive sector. This event will be held at the Third United Nations Environment Assembly and is scheduled for 18:00-19:30 on Monday 4th December in Conference Room 1. During the session participants will tackle some of the following questions:

- 1/. What has past experience taught us about how to reduce pollution in the extractive sector?
- 2/. What are the good practices and the technologies that can reduce the sector's footprint?
- 3/. What are the challenges to improving performance?
- 4/. How can voluntary initiatives and partnerships in the extractive sector tackle pollution?
- 5/. What role should national regulation play in addressing pollution?
- 6/. Where and how can multilateral agreements such as the Minamata Convention help?
- 7/. How can the trade-offs between the benefits and the impacts of mining be kept to a minimum?

Why the extractives industry matters

The extraction of non-renewable geological resources such as oil, gas, metals and minerals is a major segment of the global economy. Much of the world's population lives in countries that are rich in oil, gas and minerals. More than 80 countries are reliant on the sector for a major part of their national income.¹

Meanwhile, the formal mining sector employs at least 3.7 million people worldwide,² while an additional 20 to 25 million people work informally as artisanal and small-scale miners.³ As many as 100 to 150 million people may be indirectly reliant on the artisanal sector for their livelihoods.⁴

But it is far from a homogenous sector. The extractives sector encompasses ventures that operate at different scales and technical ability, ranging from artisanal miners using basic hand tools to industrial operations with billion dollar investments.

A growing, changing sector

The extractives sector has seen dramatic growth as a result of growth in global population and consumption patterns. The twentieth century witnessed a massive increase in extraction: a 27-fold increase in the extraction of ores, 34-fold increase in demand for construction materials and a 12-fold increase in oil extraction.

Nor is demand falling. It is estimated that requirements for steel will grow by 90% between 2010 and 2030, for copper by 60%, and demand for aluminium will more than double. As countries move towards low-carbon and energy efficient economies, somewhat paradoxically, the demand for the resources necessary for 'green technologies' (such as solar panels, wind turbines, electric vehicles) may rise. While

¹ World Bank - <http://www.worldbank.org/en/topic/extractiveindustries/overview>

² Mining Facts - <http://www.miningfacts.org/Economy/How-many-jobs-depend-on-the-mining-industry/>

³ World Bank - <https://www.worldbank.org/en/topic/extractiveindustries/brief/artisanal-and-small-scale-mining>

⁴ Mining Facts - <http://www.miningfacts.org/Economy/How-many-jobs-depend-on-the-mining-industry/>

once in use these new technologies may be more efficient and environmentally friendly than fossil-fuel-based alternatives, the processes and materials that go into producing them are often not considered.

Pollution in the extractive sector

The extractive sector involves digging or drilling holes into the ground and removing, processing and transporting finite, non-renewable resources. The economic activity means that trade-offs are made between the potential benefits—jobs, revenue and infrastructure—and the social and environmental costs (table 1 gives a very indicative list).

Around the world the extractive sector is associated with a range of serious environmental challenges: land clearance and degradation; the use of dangerous chemicals; acid drainage from mine sites; the loss of biodiversity; intensive water use; pollution from poorly disposed waste; and dust and airborne pollution; as well as the contribution of mining to global climate change. These impacts almost never appear in isolation, and their cumulative, and even transboundary, impacts can severely affect entire landscapes and habitats.

The reality that these resources are finite and non-renewable within timescales relevant for human society signals the need for improved sustainability of production and consumption patterns. The extractive sector can have impacts on many different forms of pollution. To pick out some examples:

Many forms of mining and energy extraction create huge quantities of **waste** in the form of overburden (material that needs to be removed to get at the commercially viable ore) or produced water (water that is produced a byproduct of oil or gas drilling) that must be disposed of. In uranium mining, for example, producing one ton of uranium oxide requires the processing and subsequent disposal of 3,000 tons of waste, which often contains elevated levels of radioactivity.

Gas flaring from oil wells, and dust from mining sites is a significant source of **air pollution**. Artisanal and small scale gold miners often use mercury to draw out pure gold from the ore, and in so doing are estimated to account for more than a third of all anthropogenic mercury emissions, or roughly 700 tonnes per year of mercury emitted to the atmosphere.⁵

Chemical pollution is another potentially persistent problem. For example there are Roman-era mines in Spain that are still experiencing acid drainage (a byproduct of mining when sulfide rich ores are exposed to weathering) - almost 2,000 years since they were abandoned. More recently in 2010, as many as 400 children died as a result of lead poisoning from the unregulated artisanal gold mining and processing of lead-rich ores in the Zamfara state of Northern Nigeria.

Extensive pollution from over 50 years of oil operations in Nigeria's Ogoniland region had grave consequences for **land and soil pollution**, with pollution seeping down many metres below the surface and also contaminating sources of drinking water.

Serious industrial accidents such as the 2010 Deepwater Horizons oilrig fire can also lead to massive **marine pollution**. In that case the devastating oil spill led to the release of an estimated nearly five million barrels of oil into the Gulf of Mexico.

Poorly managed extractive operations can also be a significant source of **freshwater pollution** through either systemic diffuse pollution (such as the release of mercury into rivers by artisanal gold miners) or

⁵ UNEP (2013) Global Mercury Assessment - <https://www.zaragoza.es/contenidos/medioambiente/onu/942-eng.pdf>

catastrophic point source releases of pollution. In 2000, in Romania, 100,000 cubic metres of cyanide-contaminated water escaped from a gold mine tailing reservoir into the Danube, Someş and Tisza rivers, killing up to 80% of aquatic life in some of the affected areas.

Yet, it is also unwise to make sweeping generalizations about the sector. It is hugely varied with hundreds of different products being extracted in dozens of different ways by innumerable operations at every scale. Canada alone, to pick just one example, has more than a thousand exploration companies operating in more than a 100 countries on more than 4,000 different projects.⁶

There is increasing momentum in private sector and government circles to increase environmental performance. Several major companies have committed to not operating in natural World Heritage Sites, and numerous voluntary standards on sustainable sourcing and environmental protections have been developed. Governments, meanwhile, are engaging with environmental experts to improve their policy and regulatory frameworks of the sector.

But more needs to be done.

THIS EVENT

This event presents an opportunity to raise global awareness on extractive pollution and raise the bar for countries and companies committed to address pollution and waste. It will look at the technical solutions and international legal mechanisms that can bring this about.

Ultimately it hopes to promote new commitments to move towards an extractive sector that minimizes pollution in all forms, in every way possible.

It will endeavour to encourage concrete commitments from governments to address extractive pollution (wastes and tailings, land and water direct pollution), by complying with multilateral agreements and adopting legislation and principles that promote environmental sustainability in extractives (e.g., EIAs/strategic environmental assessments (SEA), polluter-pay principle, fiscal incentives).

It will also look to the private sector for leadership to promote and adopt best practices and codes of conduct on tailings management and water and land pollution, including sustainable decommissioning and closure, as well as enhanced transparency and information sharing.

QUESTIONS FOR DISCUSSION

- 1/. What has past experience taught us about how to reduce pollution in the extractive sector?
- 2/. What are the good practices and the technologies that can reduce the environmental footprint?
- 3/. What are the challenges to improving performance?
- 4/. How can voluntary initiatives and partnerships within the extractive sector be used proactively in tackling pollution?
- 5/. What role should regulation play in addressing pollution?
- 6/. Where and how can multilateral agreements such as the Minamata Convention help?
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⁶ Mining Facts - <http://www.miningfacts.org/Economy/How-many-jobs-depend-on-the-mining-industry/>

Annex: Possible commitments

For governments

- Commit to strict waste management and mine tailings disposal policies, laws and regulations, which give authorities the power to terminate operations if proper waste management systems (e.g. terrestrial storage facility) are not in place.
- Adopt coherent and cohesive legislation and principles, which clearly lay out the conditions for when an Environmental Impact Assessment (EIA) must be triggered.
- Commit to identifying and addressing governance, legal and regulatory harmonization problems by the means of Strategic Environmental Assessments (SEA). This would help avoid the so called “pollution haven effect” – having extractive (and other polluting) industries move operations in jurisdictions with less stringent environmental regulations.
- Commit to community grievance mechanisms.
- Commit to adopt and enforce the Polluter-Pays Principle (PPP) in order to hold polluters liable for damage to protected species or natural habitats.
- Adopt approaches and mechanisms, which could further facilitate a balance between extractive industry development and environmental preservation:
- Comply with multilateral agreements such as: United Nations Framework Convention on Climate Change; African Convention on the Conservation of Nature and Natural Resources; Convention on environmental impact assessment in a transboundary context (ESPOO Convention); International convention for the prevention of pollution from ships; and the Geneva Convention of the continental shelf (1958) amongst others.
- Promote the Extractive Industries Transparency Initiative (EITI), Publish What You Pay (PWYP) and other transparency initiatives, particularly those which relate to environmental management and pollution.
- Pledge to adopt and invoke the precautionary principle with large-scale and risky operations (e.g. offshore drilling)
- Enhance coherence between market-based standards, due diligence processes and certification schemes with legislation and regulation in both countries of production and countries of consumption to ensure environmental responsibility from source to destination (e.g “conflict minerals”).)

For the extractive private sector

- Pledge to promote and adopt best practice and codes of conduct on tailings management, sustainable decommissioning and closure.
- Commit to enhanced transparency and information sharing (e.g. EITI) – and particularly sharing information about their environmental performance and systems with affected communities.
- Commit to effective utilisation of community grievance mechanisms.
- Pledge to conform to the Polluter-Pays Principle, bounding to remedy fault-based environmental damage by paying for the costs associated with an activity.
- Pledge to abide to guidelines on international best practice (e.g. IFC Guidelines).
- Pledge to integrate and adopt (where applicable) the precautionary principle into internal processes and to mainstream environmental risk management into their supply chain due diligence.
- Pledge from medium and large scale mining sector operators to adopt energy efficiency programmes (such as waste heat recovery units (WHRU), employee training, regular maintenance checks, energy efficient equipment, demand management, etc.).

- Ensure safe management of chemicals (notably cyanide) that are used for the recovery and processing of ores.
- Increase the recycling rate of minerals and the availability of information and data on the availability of recycled materials

For civil society and international organizations

- Enhance awareness of the impacts from the extractive industry and the global economy through information sharing mechanisms and compulsory environmental awareness trainings for key stakeholders involved in the extractives space – industry/private sector and government.
- Strengthen UN Environment’s role in providing further knowledge, data and support monitoring around environmental risks, impacts and benefits from the extractive sector.
- Increase connection between governments and industries to manage coexistence of extractive and other land uses and make informed decisions and trade-offs.
- Encourage further transparency and access to information on environmental and social risks.
- Work with government to manage and direct revenues from extractive activities towards sustainable development and environmental services.
- Support research and promote best available technology in the production chain including for methane pollution reduction, water use and tailings.
- Address resource scarcity and stranded assets by providing more accurate scenarios on demand and supply that are ecologically viable and integrate societal needs and constraints.
- Engage with companies to improve their indicators, mitigation hierarchy and monitoring systems.