

Mining and Forests

How are mining and forests related?

The energy and transport transition will further increase the already high demand for primary resources. At the same time, the pressure to extract raw materials is also increasing in densely forested regions. The extraction of raw materials impairs ecosystems and leads to the destruction of forests in some regions. These are considered particularly worthy of protection. Forests are important for our climate and are home to a large part of the planet's biodiversity.

Mining is after agriculture, logging, and urbanization the fourth largest driver for deforestation. Over 70 % of mining-related deforestation is due to the extraction of gold and coal (WWF 2023). However, around 60 % of the nickel, titanium, and bauxite mines critical for the energy and mobility transition are located in or in the immediate vicinity of forests. In total, up to 30 % of all forests are at least potentially impacted by emerging, active or unutilized mines (WBG 2019). Tropical and subtropical forests are particularly affected. Up to two thirds of the world's direct deforestation in mining areas takes place here (WWF 2023).

Depending on the type of mining (small-scale, large-scale, open-pit, or underground mining), the impacts of resource extraction on forests vary. Due to new technologies as well as the energy and mobility transition, the demand for raw materials is rising sharply. This greater demand increases the probability that mining will spread into socially and ecologically sensitive forest landscapes.

Internationally, demands for “forest-smart” mining are growing. Negative impacts on forests, forest landscapes, and forest inhabitants should be avoided, reduced, or compensated.

Which role do intact forests play?

Forests play an indispensable role for life on earth in many respects. Around 80 % of known animal and plant species

outside the oceans are native to forests. At the same time, forests are habitats and livelihoods for approximately 750 million people, incl. 60 million Indigenous People (WWF 2023). Along with the oceans, they act as the largest global carbon sink, counteracting anthropogenic climate change. Forests influence local and global weather patterns and provide other valuable ecosystem services: They clean and cool the air, regulate water cycles, provide wood, and protect against erosion, droughts, and floods, among others.

What impacts can mining have on forests?

Direct

- Loss/fragmentation of forest area leads to release of CO₂, loss of biodiversity, livelihood of local population, and other ecosystem services.
- Aridification of forests due to high water consumption in mining.
- Contamination of groundwater and soil by pollutants and heavy metals through, among other things, tailings (acid mine water) in large-scale mining and use of chemicals, e.g., in small-scale mining for gold.

Indirect

- Construction of roads or infrastructure corridors.
- Economically motivated labor migration and increasing settlement.
- Criminalization of environmentalists.

What are the possible action points for the German DC?

By protecting forests as CO₂ reservoirs, Goal 13 *Climate Action* of the 2030 Agenda can be promoted. By protecting biodiversity and preserving ecosystem services, a contribution is made to Goal 15 *Life on Land*.

- Promote new concepts of and approaches to digital technologies for monitoring mining in forests (e.g., satellite-based).

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- Support partner countries in establishing monitoring systems & regulatory bodies for deforestation due to mining (e.g., through IT-infrastructure, capacity development).
- Introduce a verification mechanism of raw material supply chains regarding illegal deforestation (e.g., through certifications).
- Promote the integration of forest-sensitive mining as part of mining standards.
- Strengthening civil society organizations.
- Strengthening the capacities of ombudsman institutions.

Prospect

The aim of German development cooperation is to ensure that the function of forests is impaired as little as possible by the extraction of raw materials. According to the principle of mitigation hierarchies, impacts on forests and their biodiversity should be (1) avoided, (2) minimized, (3) rehabilitated or renatured, or (4) compensated for as far as possible. Forest-smart mining is one example. Successful implementation of forest-smart mining requires interaction between government, the private sector, and civil society in resource-rich countries as well as in industrialized nations and at the international level. At the UN Climate Change Conference in Glasgow 2021 (COP26), 141 countries, including Germany, agreed to halt the destruction of forests by 2030. However, this pact does not yet provide binding rules. In June 2023, the [EU regulation for deforestation-free products \(EUDR\)](#) came into force, according to which companies that sell relevant agricultural commodities or wood on the EU market or export them from the EU must ensure through due diligence that they have been produced legally and without deforestation. However, the regulation

only applies to agricultural commodities; mineral raw materials are not covered by the regulation. An extension is conceivable but not currently planned.



Mining in the Peruvian Andes ©GIZ/Rolando Snaña

Forest-Smart Mining

[Forest-Smart Mining](#) (FSM) considers the linkages between forests and other land uses and avoids or minimizes negative impacts on forests and their biodiversity. Thereby, FSM considers the overall ecological impacts and examines the relationship between forests, mines, and people. The central element is the achievement of net increase or no net loss of forests. The concept was developed in 2017 and is part of the World Bank's [Climate-Smart Mining](#) (CSM) initiative. CSM supports the responsible extraction and processing of raw materials to minimize the social, environmental, and climate footprint throughout the value chain. Climate-Smart Mining is part of Germany's [raw materials strategy](#).

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