

5. What changes have happened and are happening to the exploration and mining industry?

The fifth part of the presentation is about the changes that have happened already and that are or will be happening to the exploration and mining industry.

- What do you consider to be the most important problem with mining and how can this be improved?
- Imagine you are living in a village in Ghana where there is a globally significant deposit of bauxite (aluminium ore) nearby. The deposit has been explored extensively and a Scoping Study was completed which suggested that the project was economically feasible. The project will help to alleviate local poverty by providing jobs and will provide royalties (tax) for the government to invest in the local region. However, the project is in an ancient and protected forest reserve with many rare species of endangered animals.
 - o Are you for or against the project and why?
 - o What can you suggest to the mining company and government that would make the project more attractive to you?
- Do you think it is better to open an open pit hard rock lithium mine in the UK in a national park with high population density nearby to feed a battery chemical plant in the UK, or to import material mined from brine deposits in Chile? Discuss the environmental pros and cons of both.
- If you were the Chief Executive Officer (CEO) of a mining company with a mine about to open, what would be your top five priorities?
- Below is a list of common hazards encountered by a mining project. Rank the hazards from 1 (highest concern) to 10 (lowest concern) and highlight the main risks associated with each hazard. After ranking, take one of the hazards and troubleshoot suggestions for mitigating the issue.
 - o During the dry season, the mine produces huge quantities of dust through mining and processing the ore. This affects air quality in a town down-wind.
 - o During exploration of an orebody extension along strike, it is discovered that a rare (protected) species of bat is roosting in an abandoned mine shaft.
 - o One of the walls of the mine pit collapses due to an unforeseen fault daylighting.
 - o The tailings pond water level drops significantly, indicating that the dam has a leak and potentially harmful material is entering local water courses.
 - o The mine is attacked by armed locals who oppose the project.
 - o The government in the country changes from a pro-mining to anti-mining party. Taxes are to be raised and standards are to be improved or mining operations will be closed.
 - o The quality of the ore is not as expected from the exploration phase. The grade is lower and the geological complexity is higher.
 - o An environmental audit of the mine operation highlights that there is an elevated arsenic level in the nearby water courses when compared to the pre-mining baseline study.
 - o A tailings dam inspection discovers some large cracks in the dam, which is close to be at the designed capacity. There are 3 settlements down-stream of the dam which are in the path of potential spills.
 - o There is an earthquake and a roof collapses in part of an underground mine, trapping 10 miners.