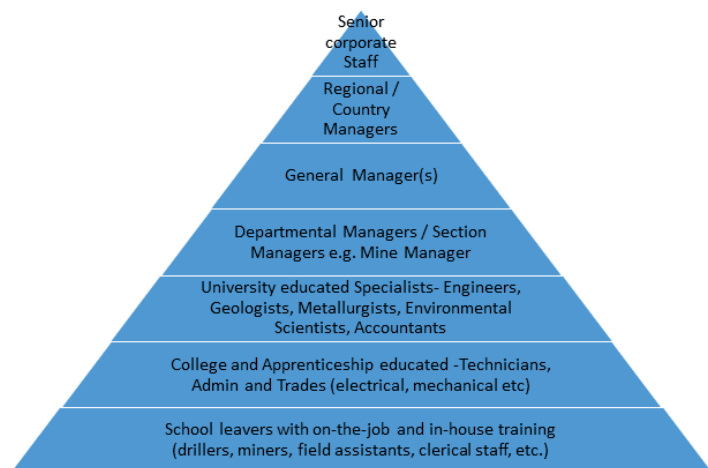
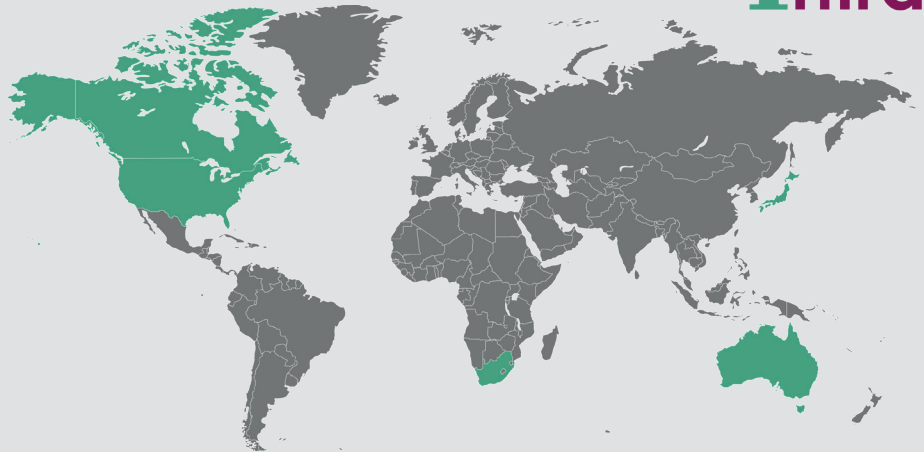


EDUCATION & OUTREACH

Raw Materials and education & outreach



A typical simplified organisational structure in a mining company. Source: INTRAW project 2016.

Mining is undertaken in over 100 countries, with more than 50 regarded by the World Bank as "mining countries".

Globally the formal mining sector employs over 3.7 million workers, 1.5 million in developed nations, and 2.2 million in developing/emerging nations. At least another 20 million people work in artisanal and small-scale mining (ASM), indirectly supporting more than 150 million people worldwide.

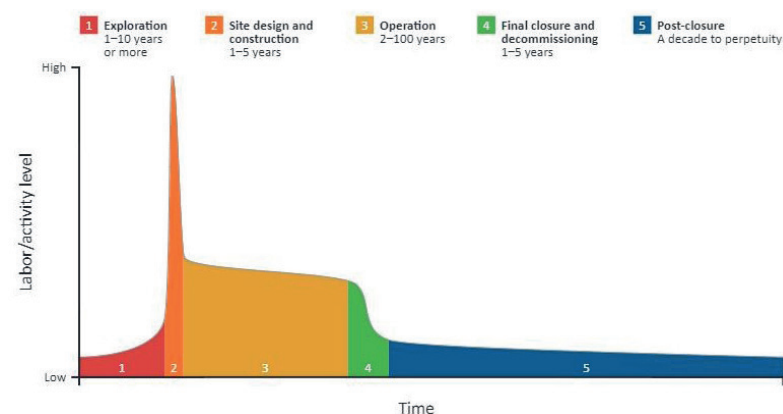
Mining requires a mix of generic and specialist skills. The modern industry typically seeks skilled operators, graduates and technical specialists with not just mining knowledge but also digitally-literacy, problem solving ability and good personal skills (especially effective communication), who can work safely in challenging mining environments and on complex, multi-disciplinary problem solving.

Education for specialist skills typically involves university level programmes in geoscience, mining engineering, and mineral processing, with environmental, financial and business skills also important for

organisational functionality. The bulk of employees in the mining industry, however, are trained artisans including electricians, metal workers, construction workers, plant operatives and allied skills who have been trained through trade schools and apprenticeship routes.

In less developed nations, more skilled roles are typically occupied by those with international experience, whilst lower level roles are more often filled by national staff. Construction phases of mines require a large number of workers for a limited period before the lower operational staffing levels are established. Manual mining roles have largely been superseded by plant operatives in production. There is a mine life cycle meaning that operations eventually close and staff need to be mobile, moving to where new mines are being established as others close.

Local skills need therefore change over time as does local or national mining educational provision, influenced by local demand, national politics, new technology, and overall economic activity and development (capacity building).



Stages of a mine with indicative labour/activity levels.
Source: INTRAW project 2016.