



Quarries and mining

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What is the difference between quarrying and mining?

- Mining involves extracting materials from beneath the Earth's surface
- Quarrying involves extracting materials directly from the surface



Quarries and mining in Finland

- Gold mines
 - Suurikuusikko mine, Kittilä
- Metal ore mines
 - Talvivaara mine, Sotkamo
- Mineral mines
 - Kivikangas mine, Suomussalmi
- Limestone quarries
 - Parainen quarry



- Usage of resources
 - Industries, agriculture
- Importance
 - Significant producer in Europe
 - Economic benefits
- Sustainability
 - Pursuing carbon neutrality
 - Utilizing mining waste
 - Rules in the industry
 - Impact on the environment



Quarries and mining in Norway

- Why are these resources important?
 - Economic reasons
 - Easier access to raw materials
 - A better alternate to chemicals
- Rules in the industry
 - Planning and building act
 - Pollution control act
 - Nature diversity act
- How is it connected to sustainability?
 - It is used in non-sustainable ways
 - How can we utilize these resources sustainably?
 - Sustainable if done correctly



Why are these resources important?

Quarrying and mining significantly boost Norway's economy by providing raw materials for construction, manufacturing, and energy production. It also reduces reliance on imports and supporting infrastructure projects. These activities also create jobs, such as engineers.

In 1984, Norway had a breakthrough and figured that the chemicals in magazines could be switched out with chalk, which is a more environmental friendly way of making them.

Rules in the industry

Planning and building act: This law regulates land use planning and permits for quarries. Often, permits and approvals from local authorities are required before a quarry can be established or operated.

Pollution control act: aims to protect the external environment from pollution, reduce existing pollution, minimize waste generation, and promote improved waste management

Nature diversity act: this law protects biological diversity and ecosystem functionality. Quarrying must consider that there might be vulnerable species or habitats in the area.

How is it connected to sustainability?

Unsustainable quarrying and mining occur when resources are over-extracted, leading to habitat destruction, water and air pollution. Short-term gains get prioritized, while irreversible damage is done to the environment. These damages can reduce the quality of the landscape, and it will get even harder to turn the nature back to its original state.

Since stone isn't a renewable resource, it's important that we don't take out too much from the quarries and mines. It is also important that we treat the area with respect, and leave it as it originally looked when we are finished with the extractions.

In conclusion, quarries and mining is sustainable, as long as we do it correctly. It's a better alternate to chemicals, but we have to be considerate with how much we extract.

Brønnøy kalk – a quarry in Brønnøy



- The extracted marble is used in/as:
 - Magazines
 - Fertilizer
- Sedimentation pool
- Sustainability
 - A big focus on revegetation
- Important to the locals



Quarries and mining in Iceland

- Quarries and mining are not as extensive in Iceland.
- Unique natural landscape.
- Local resources
- Imported materials
- Natural materials
 - Basalt
 - Pumice



What is the marble used in

If you buy a magazine at the gas station, it's quite likely that there is chalk from Velfjord in the paper.

To prevent the paper from absorbing the ink, the paper is made water-resistant. Previously, this was done in a less environmentally friendly process. The clay mineral kaolin was mainly used as a filler, and chlorine bleaching was used to make the paper white.

Sedimentation pool

A sedimentation pool is a basin where water with suspended particles settles, allowing the particles to sink to the bottom as sludge.

Brønnøy Kalk have a sedimentation pool to clean the water they use in their production. This pool helps remove dirt and particles from the water, making it cleaner and safer to use. That way their working environment is safer.

Sustainability

Brønnøy kalk has a huge focus on revegetation. The rocks that arent used in the production, gets dumped on the sides, and they top it off with dirt and plants trees on top. This makes it look more like the nature originally did.

Important to the locals

Brønnøy Kalk can be great for Brønnøy municipality since it creates workplaces. In that way, its good for the economy, and also for increasing the population. If there are more workplaces, more people can would want to live here. Especially if the payment is good.

Quarries in Iceland

- Aggregate materials
 - Rock
 - sediment
- It is used for
 - Roads
 - Highways
 - Harbours
 - Dams
 - landfill



Helgustaðanáma

- Only place in Iceland where mining is performed
- Has been since 1975
- Iceland is very young.



Similarities and differences

- All the countries want to keep the nature as close as possible to the natural state.
- Norway and Finland use the resources in similar ways
 - Fertilizing
 - Infrastructure projects
 - Magazines
- Iceland mainly focuses on collecting materials for roads (this fits in the infrastructure category)
- All the countries gets economical benefits
- Norway has the most limestone, compared to Finland and Iceland
- The countries follow similar rules





Summary

Quarries and mining are important in all the countries for both similar and different reasons. It brings economic growth to all the countries, in addition to creating workplaces. That is not only important to the countries as a whole, but also for the local communities. All the countries have the same goal, which is to manage the resources in a sustainable way and keeping the areas as close as possible to the original state. Both quarrying and mining can in some ways, be environmental friendly, but they pollute the areas no matter the circumstances. It is significantly important that the countries follow their rules, in order to make the process sustainable, and in order to utilize the resources sustainably, everyone has to be considerate when extracting the materials.

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