

Contribution to Climate Change Mitigation and Adaptation

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This activity has received funding from the European Institute of Innovation and Technology (EIT), a body of the European Union, under the Horizon 2020, the EU Framework Programme for Research and Innovation



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The Briefcase Project game is an interactive, online tool that teaches students ranging from 6 to 14 years of age about minerals and metals used to make items they interact with every day.

Using an innovative method, it teaches students to match minerals to corresponding objects and encourages reflection on issues like conflict minerals, consequences of purchase decisions, as well as the importance of recycling and climate change, making it useful in a number of disciplines ranging from geology to economics.



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Contribution to Climate Change Mitigation and Adaptation

Climate change is perhaps the most important issue facing our world today. Its consequences could be catastrophic to all the people, animals and plants that live on this Earth. As a foundational sector that affects many other industries and activities through the raw materials produced, there are a variety of ways the European mineral raw materials industry helps fight climate change. These contributions fall into two main categories: providing materials for sustainable efforts and continuously improving processes within the mineral raw materials sector.

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Providing Materials for Sustainable Efforts

Clean Energy

In order to help the transition into using more clean energy sources (e.g. solar energy, hydro energy and wind energy), we need to be able to build the necessary devices that harness renewable energy. Wind turbines are massive machines that need large amounts of steel to construct as well as a variety of other materials for the wiring and machinery.

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Providing Materials for Sustainable Efforts

Clean Energy

Solar panels need materials for not only solar cells, but also frames, mounts, generators, conductors and cables. The solar cells have typically been made with large amounts of silicon, and new innovations are utilising more high-tech materials like gallium or germanium to increase efficiency. Minerals also make an appearance in the reserves of electricity produced. This storage is done in batteries made with lithium, lead, nickel or sodium, which help integrate renewable energies within the electrical net. In addition, the reserve of energy in batteries will solve the problem of high and low peaks in supply.

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Providing Materials for Sustainable Efforts

Building Materials

You may not think concrete can change much, but companies that produce it are always working to make it better. Stronger, more durable concrete makes buildings, bridges and even wind turbines that last longer and need less maintenance throughout their lifetime, leading to less waste over the years. Now we even have concrete that helps with carbon capture.

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Providing Materials for Sustainable Efforts

Building Materials

As we make better concrete, we're also making better metals, such as steel and aluminium, that last longer and are easier to recycle once their first purpose is served. Buildings also need to be more efficient in terms of lighting and heating and cooling moving forward, which also requires a variety of minerals and metals. High-efficiency lighting, built-in solar panels and thoughtful architectural design are just a few ways buildings can contribute to sustainable efforts.

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Providing Materials for Sustainable Efforts

Electronic Mobility

This refers to all types of transportation that runs either entirely or partly on electric power. Vehicles are a major source of CO2 emissions, largely because there are so many being used across the globe. Every driver who changes to an electric or hybrid car makes a positive impact, but we need a large number of cars and other vehicles on the road to make a significant reduction in emissions. There are a number of materials needed to make any type of vehicle, and on top of that, electric and hybrid vehicles need specific materials, such as lithium and cobalt for batteries.

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Providing Materials for Sustainable Efforts

Crop Production

More erratic weather patterns or water supply may make it harder to grow food for everyone, especially as the population continues to grow. Already, mineral nutrients (fertilisers) such as potash (potassium) and zinc are added to soil to produce bigger, healthier crop yields. This will be even more important in the coming years. The smart use of fertilisers contributes to the forestallment of deforestation, as they allow for increased productivity on arable land.

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Providing Materials for Sustainable Efforts

Crop Production

The smart use of fertilisers also increase the carbon sequestration potential of agricultural soils by contributing to the buildup of soil organic matter. In fact, 89% of the potential for mitigation in the future of agriculture is based on the carbon sequestration of the soil. Carbon sequestration in cultivated soils can be increased by adding organic and mineral nutrients, on the one hand, but they can also optimise the use of soil, leaving space to increase biomass production and/or biodiversity.

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Making Improvements Within the Mineral Raw Materials Sector

Implementing Increasingly Efficient Processes

What good is being able to make the devices that generate clean energy if we produce vast amounts of CO2 while creating them? The European mineral raw materials sector is working on all levels to reduce carbon emissions and eliminate this problem. This is accomplished by using more clean energy for mining and related activities, combined with making all operations more efficient.

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Making Improvements Within the Mineral Raw Materials Sector

Implementing Increasingly Efficient Processes

Strategies like utilising smart technology to improve various processes, implementing carbon capture strategies and transitioning large diesel vehicles to electric-powered ones have already made important strides, and progress will continue until we achieve climate neutrality.

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Making Improvements Within the Mineral Raw Materials Sector

Reducing and Utilising Waste

The European mineral raw materials sector is always working to improve operations and reduce or eliminate waste. Optimising processes of mining and producing materials is largely accomplished by implementing smart technologies to find and improve inefficiencies.

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Making Improvements Within the Mineral Raw Materials Sector

Reducing and Utilising Waste

Some projects are currently focused on eliminating problematic waste, such as finding a way to produce steel with only water as a waste product. Additionally, scientists are making use of previously produced waste areas, such as studying plants that are metal-tolerant and finding ways to use these plants to restore old brownfield sites.

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Making Improvements Within the Mineral Raw Materials Sector

Restoring Mined Lands

There's simply no way around the fact that mining disrupts land. It's impossible to dig into the Earth's crust without disturbing the surrounding areas in some way. And because the minerals and metals retrieved through mining activity are critical to our way of life, we must find sustainable ways to extract mineral raw materials.

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Making Improvements Within the Mineral Raw Materials Sector

Restoring Mined Lands

One way to balance environmental impact is by restoring mined land or offsetting inevitable consequences. There are many ways this is done in Europe. A number of previous mining locations are now recreation areas with thriving ecosystems. Even while mining takes place, it's often possible to increase biodiversity in nearby areas. In the EU, no mining activity can begin without a sustainability plan already in place.

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RawMaterials
Connecting matters



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