



# The EU Mining Mentor Centre

Sustainability of Mineral Resources and the Environment

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# EU Mining Mentor Centre



*Problem solving  
Capacity building*

## Stakeholders

Local/Regional/National/International



Mining companies  
Land owners  
Consultants

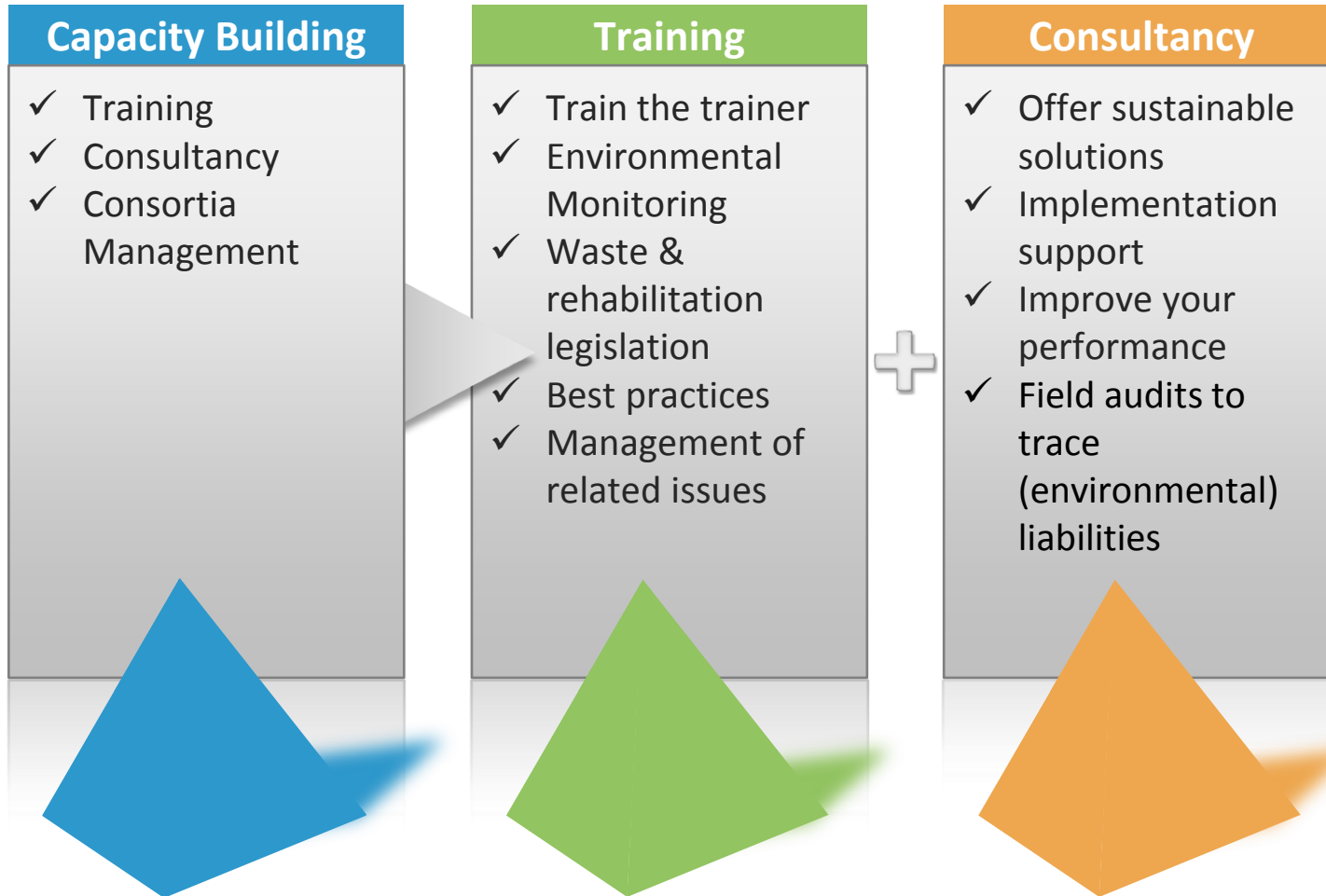


Authorities  
NGO's  
Agriculture & Forestry



Drinking water suppliers  
Water users  
Other

# EU Mining Mentor Centre



## a) Objectives and structure

- ▶ The goal is to deliver high quality support on mine issues (as maybe stipulated by EU or related national legislations) including environmental management, water management, material recovery for added-value, and mine closure and site remediation.
- ▶ The vision is to build a European consortium/competence centre that can give high quality support on these mine issues.
- ▶ The EU Mining Mentor Centre consists of a number of relevant and related experts.
- ▶ This pool of experts will cover the whole spectrum of issues related to mine closure and site remediation.
- ▶ Mine closure and site remediation is a long term and complex process. Not only the technical implementation, but also social and health impacts, safety regulations, specific legislative expertise, etc. are needed to deal with in this complex process.
- ▶ The EU Mining Mentor Centre is capable of providing the necessary competences with a proven track-record of the experts involved.

## b) Technical advice

- ▶ air, water and soil pollution control,
- ▶ waste management,
- ▶ environmental impact assessment,
- ▶ environmental protection planning,
- ▶ remediation technologies and technology assessment/selection
- ▶ reclamation and long-term management of post-industrial areas

In addition:

- ▶ promoting the EU's BAT guide on waste management
- ▶ promoting the EU inspection guidance for waste facilities
- ▶ promoting sustainable community relations over the whole life-cycle of mines.

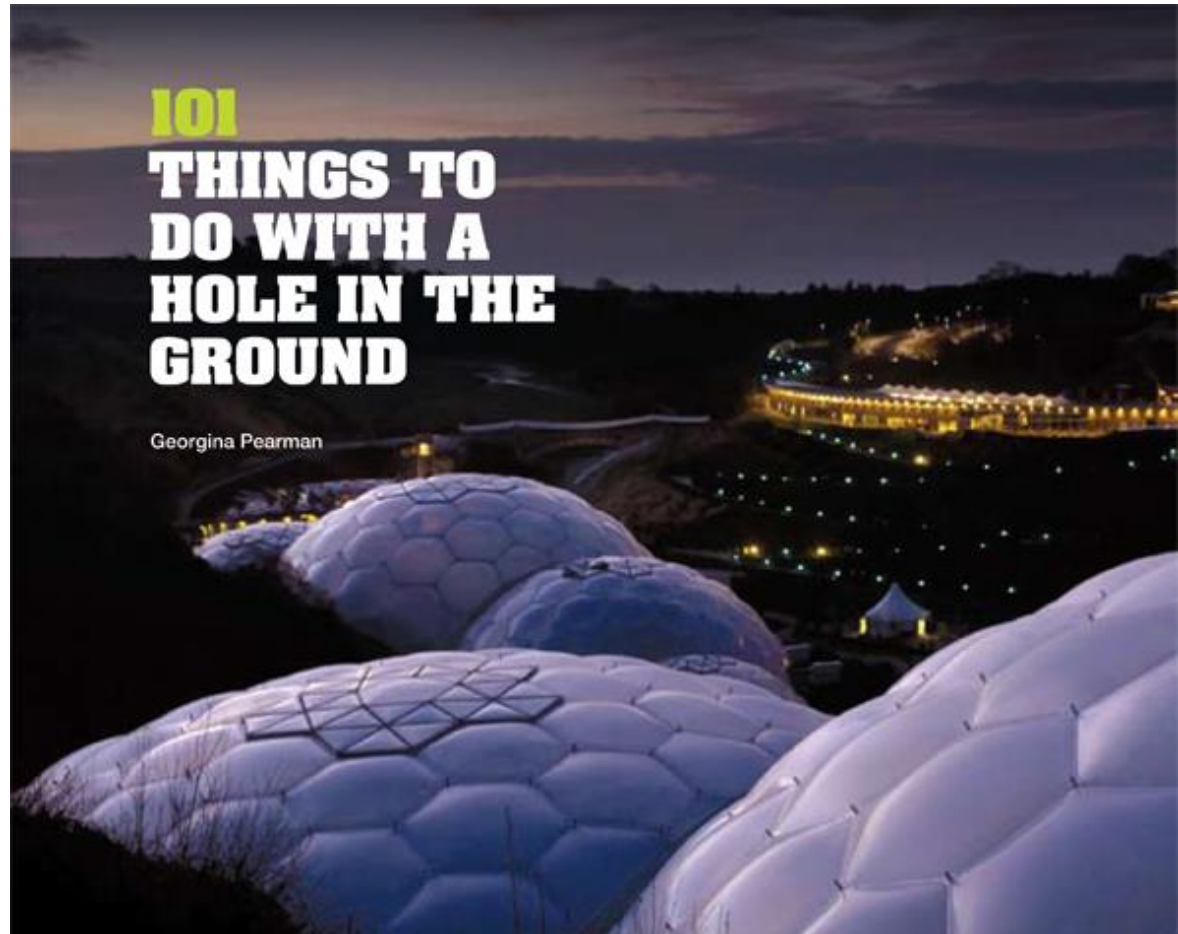


## c) Capacity Building with local stakeholders

- ▶ The centre will provide an important capacity building component, as well as specific activities aimed at awareness raising, communication, informing and supporting all actors (local decision makers, professionals, local communities and the private sector) to enhance their way of working.
- ▶ The centre will provide a facility for sharing our knowledge and train local experts so that they will be able to work independently over the years to come.
- ▶ The capacity building approach can involve on-the-job-training.
- ▶ The EMMC's experts will execute the tasks while simultaneously guiding, consulting and training the local stakeholders.
  - ▶ This way of 'Doing and Training' will deliver the most cost-efficient results.
  - ▶ The iterative process will also allow to adjust rapidly during a task if new data or new findings come along and are likely to be game-changing.

# BOOK 101 Things to Do with a Hole in the Ground

- ▶ Making use of the land as a resource





# Mining Heritage

**Kutná Hora**  
Czech Republic



Silver workings in the UNESCO protected town of Kutná Hora dating back to the Medieval Ages were unearthed once more in the late 1960s. On the basis of the 13th century discovery, the royal

mint was established here and the town soon became one of the most important in Bohemia.

The wealth and quantity of archaeological artefacts discovered

provide fine material for a museum, making it one of the oldest and largest in Europe. The town is built directly over the mine.

Mining Heritage

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## Ancient Sites

**Dionyssos**  
Greece



The ancient quarries of Dionyssos, the source of the marble used to build the Parthenon, have been made accessible to the public through a series of paths built from the plentiful waste rock scattered about site. A design team have ensured the

artificial landscape that dates back to the 5th century BC is preserved, giving the visitor the opportunity to comprehend the scale of operations and the challenges of working with minimal equipment in a remote area.

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# Places, Spaces and Infrastructure

## Housing – On Water

**Partwitzer See,  
Lausitz Lake District**  
Germany

Innovative housing is being developed on the recently reclaimed lignite mining region, the Lausitz Lake District.



Places, Spaces and Infrastructure

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## Design Centre

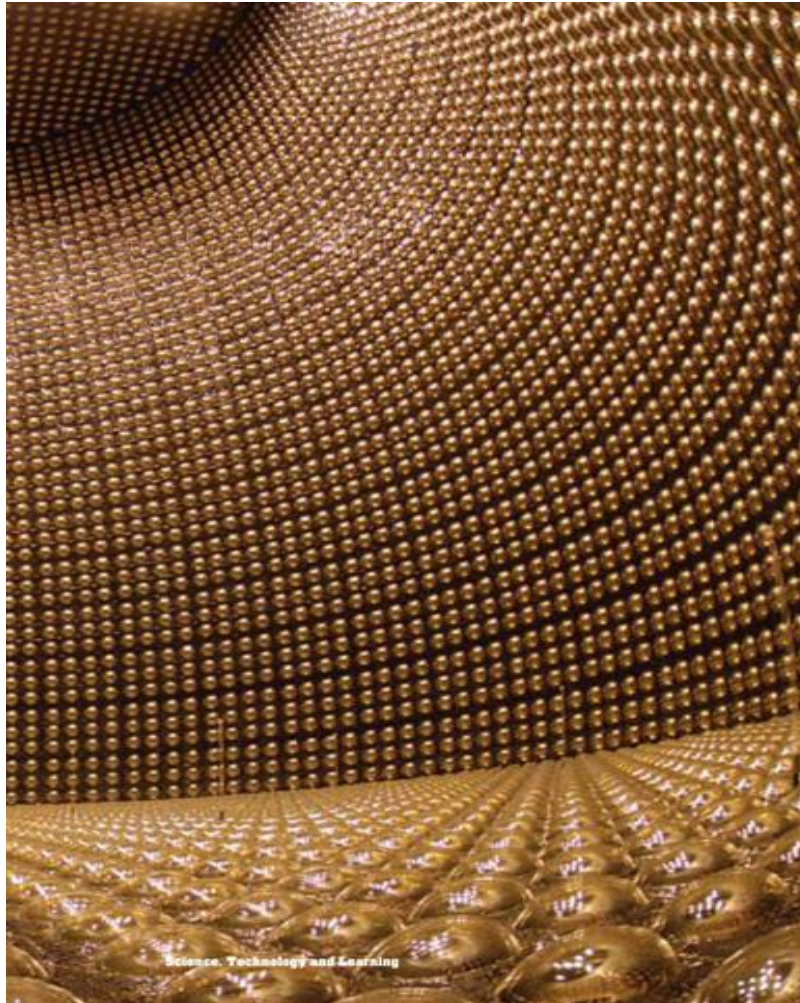
**Zollverein Colliery**  
Essen, Germany



Once the largest and most modern colliery in the world, Zollverein has been closed since 1986 and yet it continues to attract the accolades. The Bauhaus style architecture has stood the test of time and provides inspiration for a regional design centre located in the former boiler house which was redesigned by leading UK architect Norman Foster.

The site stands as a beacon for successful structural transformation in the Ruhrgebiet, was awarded World Cultural Heritage status in 2001 and is now a major cultural and artistic venue.

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## Cosmic Ray Detector

**Sudbury Neutrino Observatory**  
Canada;  
**Super-Kamiokande**  
Japan;  
**Soudan, Minnesota**  
USA

Not the most obvious use of a mining landscape, but subterranean physics laboratories to study neutrinos have been developed in several former mines. Hundreds of metres below the earth's surface, the disused mines provide an ideal environment for neutrino studies as the ground between the laboratory and the earth's surface acts as a shield reducing interference from other cosmic rays.

Cosmic rays detected half a mile underground in the disused iron mine at Soudan have recently been used to monitor major weather events occurring 20 miles up in the Earth's upper atmosphere.



## Radon Therapy

### Bad Gastein

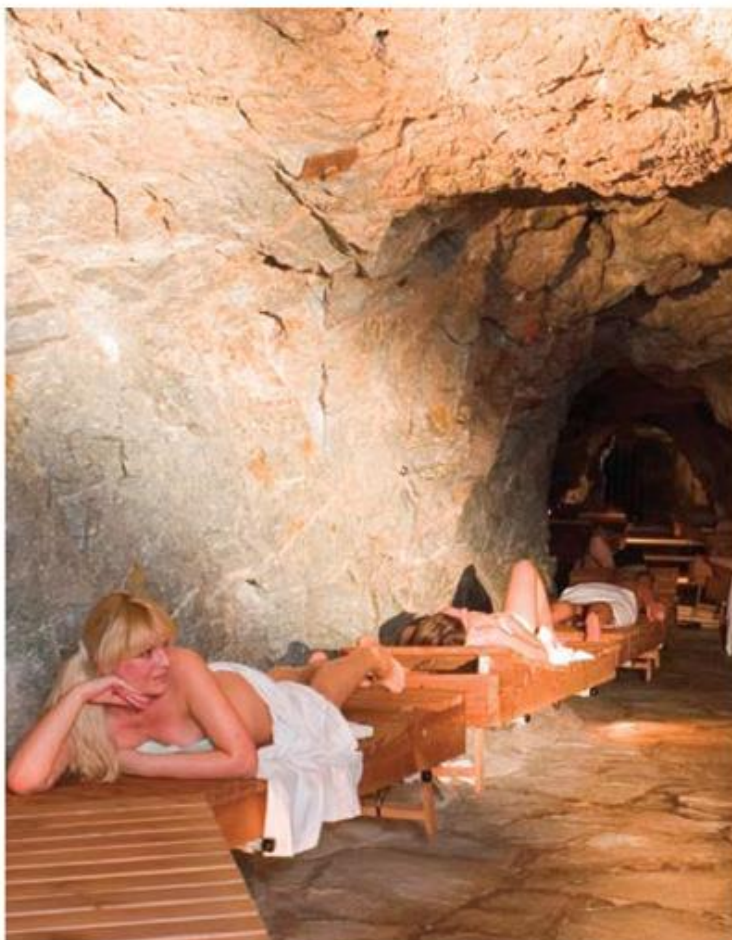
Austria

In the Austrian Alps, in a region where radon levels are high, up to 600 patients a day are treated underground in a former gold mine. The Gastein Heilstollen has been providing pain relief for people with chronic illnesses for over 50 years through radon therapy. The patients reach the treatment rooms via a train that takes them along the original mineral route 2.5km into the mountain, where the warmth and humidity elevate the body's temperature to 38°C, which increases the uptake of radon. Radon is one of the noble gases, which accelerates cell metabolism through its short-wave rays. (In some mines though, radon has been the cause of cancer, e.g. South Crofty, Cornwall, UK).

### Basin and Helena

Montana, USA

Similarly, in the USA, treatment benches line the 150 metre long shaft of an inactive gold mine which naturally emits radon gas. The Merry Widow mine near Basin, Montana, is visited by thousands seeking alternative treatment for arthritis, allergies, diabetes and many other health problems; as is an 'ionizing inhalatorium' (of radon) at a former uranium mine – Free Enterprise Health Mine, Boulder, Helena.



# Food and Drink

- ▶ Allotments
- ▶ Aquaculture
- ▶ Cheese Store
- ▶ Farmland
- ▶ Mushroom Farm
- ▶ Organic Vegetables Processing Plant
- ▶ Vineyard
- ▶ Wine Cellar



## Habitats Restored by Man after Mining

### Species Focus

**Abandoned Mine Land Initiative, Trout Unlimited**  
Western USA



Using a native species as its focus, this volunteer-led community conservation programme is working to help restore watersheds that have been affected by abandoned mine land pollution. With a legacy of over 500,000 abandoned mines with impacts on 26,000 kilometres of streams, this is no mean feat, but Trout Unlimited's approach is to train and galvanize local grassroots organisations, partner with like-minded groups to raise awareness – and funds – and implement demonstration projects of on-the-ground restoration work. The work inevitably has benefits far beyond the return of the trout.

**Reindeer**  
Stekeljokk Mine,  
Sweden



A copper, zinc and silver mine serves as an exemplar in closure in an environmentally sensitive region of northern Sweden which is also of strategic importance for the Lappish reindeer breeding community. The importance of the biodiversity was recognised at the planning stages of the mine in the early 1970s and

carefully managed and monitored throughout the mine's operational life through to decommissioning and closure. Reindeer husbandry is now very much part of the environmental programme of current and future operations for several mines in this area.

## Developed Naturally after Mining

### Landscape Focus

**Norfolk Broads**  
UK



England's largest area of wetlands, the Norfolk Broads, is a popular tourist destination and a haven for many plants and animals. Extending over an area of around 2,000 hectares, its origins are in the 'large-scale' mining for peat in the Middle Ages when peat-cutting shifted from being a subsistence occupation to being organised. Over the following 200 years a quarter million cubic metres of peat were removed creating great holes and deep scars. The 14th century saw sea levels rise and the

subsequent flooding of the area created 41 shallow lakes fed and interconnected to numerous rivers and their tributaries, together making up 200 kilometres of waterways.

101 Things to do with a Hole in the Ground



# Re-Mining or Re-Processing tailings

- ▶ BHPBilliton began life by re-processing tailings at Broken Hill
- ▶ Baia Mare was a good idea gone wrong: re-processing tailings to resolve legacy
- ▶ Portugal provides tax incentives to re-use mine waste at legacy sites; and existing mine royalties to fund clean-up
- ▶ Research on-going in a number of EU mining regions



Wismut GmbH



# Thank you for your attention!

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