

Environmental Growth for Mining Related Businesses – REMIX Stakeholder Meeting

On the 11th of October Camborne School of Mines (CSM) held a regional stakeholder meeting in partnership with the Tevi project (tevi.co.uk). The meeting was based around 'Environmental Growth for Mining Related Businesses'. Twenty-three people participated in the meeting, 5 of whom were speakers. The participants came from various sectors, including the local authority, university researchers, SME environmental and geo-consultancies and exploration companies.

Dr Anne Velenturf, an Industrial Impact Fellow for the Tevi project at the University of Exeter, began the meeting by talking about Tevi. It is an ERDF funded project running until 2020, promoting environmental growth for businesses and helping companies to function in a circular economy. It provides 12 hour business assists to SMEs, providing access to research expertise for free, and creates challenge networks. A challenge network is in response to an environmental challenge and aims to develop new products and services. It networks together companies and solution providers to help companies create the required products/services.

Robin Curtis, from Geoscience Limited (a subsurface science and engineering consultancy, <https://www.geoscience.co.uk/>), spoke about geothermal energy in Cornwall. This included past projects, such as the Hot Dry Rocks research project, which ran in the 1980s at Rosemanowes, as well as the present developments at United Downs. The United Downs Deep Geothermal Project (<https://www.uniteddownsgeothermal.co.uk/>) aims to drill two geothermal wells (2.5km and 4.5km deep) to power a 1-3MW geothermal power plant demonstrating the technical and commercial viability of geothermal power in Cornwall. The drilling rig has arrived on site and the drilling of the first wells is due to commence imminently.

What mine waste is, what types exist, and how it can be reprocessed was introduced by Karen Hudson-Edwards, a Professor of Sustainable Mining in the Environmental and Sustainability Institute at the University of Exeter. Dr Rich Cane, a lecturer in CSM on sustainable mining, went on to give specific examples from the UK and Cornwall, including potential minerals of interest and constraints.

The grand finale of the talks was René Verhoeven, Cluster & Conceptual Design Manager at Mijwater B.V., talking about the minewater project in Heerlen, Netherlands (<http://www.mijnwater.com/>). In Heerlen warm water in the abandoned coal mines underneath the city is used as part of geothermal smart grid heating system for sustainable heating and cooling. Not only does the minewater provide heat, but buildings transfer heat between each other. For example if one building is producing excess heat, the heat is transported to buildings that are too cold. If there is still excess heat, it can be returned to the mines which act as a heat store. The same is true for cold.

After the presentation the participants split into two roundtable discussions, one on mine waste and the other on minewater. The mine waste discussion came up with suggestions for research and public awareness:

Research Ideas

- Map the distribution of mine waste and acid mine drainage – possibly using satellite technology – and use this to show where economic minerals are. This in itself could help attract companies to Cornwall.
- Set up an environmental challenge network with Tevi around mine waste. Dr Karen Hudson-Edwards has volunteered as the University liaison.

Education/public awareness to gain social acceptance from public/land owners

- Set up 'science labs', i.e. go into schools/local communities and use practical experiments/demonstrations to help explain what mine waste is and how it would be reprocessed.
- Engage people by showing the new innovative technologies
- Educational networks, taking inspiration from the 'Love where you live' campaign by Stephens Scown.

The minewater discussion established that the lack of regulation around who owns heat (e.g. lack of a 'geothermal extraction licence') is a serious hindrance to geothermal development in Cornwall. This will likely have to change before business is confident in investing in geothermal energy in Cornwall.

To reduce the risk involved in geothermal exploitation the geological and hydrological constraints in Cornwall could be mapped out. It was also suggested that Tevi could model various economic scenarios surrounding geothermal exploitation.

Cornwall Councils current geothermal energy documents could be compared with the Heerlen minewater project, and updated to include this minewater best practice. An invitation for a future visit to Heerlen was given, this could take place on the 21st of November or next year.

Overall, the discussions were very productive and various topics will now be included in the Regional Action Plan.