

# Hard Coal Mining Waste Foresight

Waste rock accounts on average for 30% of excavated coal, although there are pits where the level is 50%. On top of this come transportation and storage costs. No mines have been fined yet, but a new law based on an EU directive on mining waste includes clauses forcing fuel producers to reduce waste output by means of technologies like underground gasification, liquefaction, or filling in underground crevices. Poland practically does not have such technology. Another issue are clean coal technologies, which also generate waste.

In Poland mining waste (especially coal waste) accounts for 60% of all industrial waste. It is estimated that about 90% of mining waste is processed (mostly by so-called inner recultivation) or stored. Therefore, the current Foresight project will involve a technological and statistical (quantitative and qualitative) appraisal of to-date progress in waste management and existing waste locations. In the next phase we will work out several scenarios for suitable waste employment together with appropriate technologies.

Waste rock is a coalbed element. Unfortunately the mining industry was for years geared specifically to excavation. Today the EU is preparing a raw-materials strategy which makes no mention of mining waste, but "usable raw-materials". IMBiGS is also involved in preparing this plan. Consequently, we want to process rock waste in such a way as to enable its use in, say, construction, roadbuilding or for the production of concrete. Unluckily most of the rock waste today is rather low-quality and not

**"A serious problem for energy industry are steeply rising coal excavation costs. One of the elements of these costs are waste rock excavation costs", says STEFAN GÓRALCZYK, head of the Institute of Mechanised Construction and Rock Mining (IMBiGS) and coordinator of the "Foresight in Priority and Innovation Technology for Coal Mining Waste Management" project.**

even suitable for ballast. Our task will be to develop a technology by which rock waste may be made usable.

Several years ago, when coal companies first began to think about cutting costs, IMBiGS suggested cooperation in waste management. The first to voice access was Haldex SA, which specialised in the employment of coal waste heaps. Next were coal companies, but the partnership here was not too successful as they lacked (and still lack) waste processing plans. At the moment we are developing a waste management plan for one of the coal companies. In keeping with the new waste law mines will not be able to work without them.

Together with our partners we concluded that a Foresight project with competent companies and people will be the best tool with which to resolve these problems. Our aim is to anchor our conclusions on coal industry and energy in government documents.

Hard Coal Mining Waste Foresight must be concluded by the end of March 2011. This PLN 2 million project is co-funded from the EU Operational Programme Innovative Economy and supervised by three units: IMBiGS is the main project coordinator with the Silesian University of Technology and the AGH University of Science and Technology in Krakow acting as partners. The Foresight project is linked to another, similar project involving coal sediment processing carried out by IMBiGS.

I hope that quite soon waste producers and potential customers will see that thanks to the Foresight scheme they will no longer be handling waste but worthwhile construction materials.

I may add that our Institute is on six EU-funded projects, several government-financed schemes and a number of target projects. Their results find application in industry. The effect of major project for the Katowice Coal Holding concluded in 2008 is a plant processing coal waste into construction materials.

