

FUTURE PERSPECTIVES OF BROWNFIELDS IN POLAND ACTIVITIES AND VISIONS

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ABSTRACT: This paper presents a short analysis of the future perspectives of brownfields in Poland. Over the next 30 years several industrial plants will finish its activity. Brief description of planned activities in different mining sectors is presented. Localisation of described places is shown on the map (fig.1).

1. Hard Coal

According to official government strategy for hard coal industry 7 mines (①) should be liquidated in the years 2003-2006. That means reduction of production to 12.7 Mt/yr. After 2006, 34 operable hard coal mines should excavate about 87 Mt/yr. Some 35 thousand man should be made redundant (half of them with mining social package, i.e. a financial support of 12 thousand €). In the former Walbrzych coalfield (②), in which mining commenced in 1998, it is planned to continue the process of recultivation. Furthermore, establishing an open-air mining museum is considered (similar to Ferropolis in Germany).

2. Brown Coal

The annual production of brown coal in Poland reaches 60 Mt/yr. Open-pit mines are localised in central and south-western part of the country. Open-pit mine „Belchatow” (③) will finish the excavation in 2018 – then a new pit – “Szczercow” will continue mining activity to about 2040. Overburden from “Szczercow” will be placed in pit “Belchatow”. Open-pit mines „Konin” (④) and „Turow” (⑤) will excavate for the next 40 years and open-pit “Adamow” for next 30 years. After completing the excavation all mines would be flooded to form one lake or the region of connected lakes. The landscape must change the image to become attractive for the future users – for example to become a popular recreation centre.

It is also possible to start excavation in new open-pit mines because Poland has the reserves of brown coal for the next 200 years (assuming present productivity).

3. Metal Ores

3.1. Copper

Copper ores are excavated near Legnica and Glogow (6). The average depth of deposit is 550 m and the average copper percentage is 2 % (accompanying metals are silver, nickel, cobalt, molybdenum and gold). Three mines operating nowadays are producing 0.5 Mt of copper and 1 thousand tonnes of silver per year. Copper ore deposits will be mined until 2025-2030. The studies are performed on possible mining at 1,200 m depth – that might extend mining period for some 20 years. The central node of the water-slurry management is the Tailing Dam "Zelazny Most", being a facility for the floatation tailings storage and for retention of technical water. Current total volume of "Zelazny Most" is 350 million m³. It is considered to extend the total volume to 700 million m³ or even over 1000 million m³. The possibilities of hazardous waste disposal in the salt above copper ore are also considered.

3.2. Lead and Zinc

Lead and zinc ore mining near Chrzanow-Olkusz (7) is to exhaust soon. Two operable mines are producing 0.5 Mt of zinc and 50 thousand tonnes of lead. First one (Trzebionka) commences production in 2007 and second (Olkusz-Pomorzany) in 2009. The creation of ore mining museum is being considered.



Fig. 1. Map of Poland with location of future brownfields.

4. Sulphur

Excavated since early sixties sulphur deposit near Tarnobrzeg (Ⓢ) used to yield some 5 million tonnes per year. Two excavation methods were applied – open pit mining and sulphur melting. Actually one open-pit mine is liquidated (by flooding) and other one is waiting for it. In 2001 one of Poland's two remaining sulphur-melting mines (Jeziorko) was closed. At its peak of operation in the 1980s, Jeziorko produced more than 3.3 Mt/yr (all mines produced about 5 Mt/yr). The 900,000 t/yr capacity Osiek Mine is still operating.

5. Salt

A few years ago salt exploitation in two old (over 650 years of history) mines Bochnia i Wieliczka (Ⓢ) commenced. Both salt mines are well promoted tourist attractions. The one operable salt mine "Kłodawa" (Ⓢ) has deposits for next 20 years. It is considered to locate the hazardous waste disposal underground. Salt is also extracted by underground leaching of domes. Leached space is turned into underground oil reservoirs. The Polish salt industry produces 4 Mt/yr.

6. Open Pit Mines and Quarries

This is the biggest branch of mining industry in Poland. Stone quarries produce 200Mt/yr in 20 different raw material groups. Quarries are spread all over the country. There are around 200 companies with average employment of 55 man and more than 2,300 companies employing about 13 man. It's very hard to evaluate future perspectives for such a number of companies. Filling with overburden or flooding recultivates closed quarries. Some of them are turned into waste disposals.