

# The post mining landscape

Reclamation of former open cast coal mining areas in Poland

**Most post-industrial cities and regions now “comprise spatial voids”<sup>1</sup>. The dereliction has changed the physical forms of those areas, creating new types of landscape. It causes, however, also a possibility to leave some remnants of history for future generations. By giving them a new function and making them compatible with proper plan these areas do not pass away - vanish - but can get a new impulse - as was achieved in e.g. the Emscher Park.**

The Konin, Kolo, Turek (KKT) region is located in Wielkopolskie Province, at the intersection of important transportation routes running to main cities in Poland. The attractiveness of this region is influenced by close proximity to international connections, in the form of the main railway line Paris - Berlin - Warsaw - Moscow and the route E - 30 along with the section of highway A2.

## Surface Mining

Surface mining destroys the protective vegetation cover, and the soil and rock overlying the mineral deposit is frequently left in massive piles cast onto adjoining land. The vegetation is removed entirely and the soil is subjected to new weather conditions and transport mechanisms. Square miles of land are turned over to a depth of 30 – 50 m or more. Waters have been polluted, land areas isolated, and economic and aesthetic values seriously impaired. This scenario is well known e.g. from the Emscher Park and there is no question that surface-mining operations do not alter the original landscape.

In the KKT region, the main influence of the coal excavation on the environment, concerns degradation and devastation of the soil. As a consequence of the lignite combustion in the local Power Plant “Adamow”, the sedimentation basins (mostly in former mine pits) were created. The slag and thermal electric ash which are accumulated there, are strong alkaline (14 pH) – thus unsuitable for water life development and recreation. The usage of brown coal in the KKT region will only last for several more years (till 2022-2023)<sup>2</sup>. This indicates the need of reclamation of this site.

## Reclamation works

Reclamation works have commenced to restore biological life, productivity, and aesthetic landscape qualities of the transformed areas. Reforestation is carried out on the slopes of waste dumps especially thermal electric ashes. Water reclamation is being implemented now as well. A swallow-hole (in Bogdalow)

of 200 hectares is being flooded by first class groundwater.

In spite of its destructive impact, mining can provide an opportunity to create landforms that are beneficial for both human and animal populations. Some of existing shapes and features can be sustained, maintained and preserved despite the changing way of management. For the community, the post-mining landscape should be at least as useful and/or at least as beautiful as the pre-mining landscape<sup>3</sup>. Moreover the forms created within the mining process must be related to the special and spatial character of the region in order to appear compatible.

This approach can provide ecologically richer and more aesthetically pleasing results, as well as assisting the integration of the new elements into the surrounding landforms and vegetation. Some can become outstanding landscapes in their own right. Creating connections between parts offers a beauty far exceeding the beauty of the parts themselves (as Schopenhauer believed). Thus, creating a multifunctional landscape in its character - profitable for the local people, ecologically valuable - can solve the design problem in the KKT region. The proposed strategy can be defined as protective and opportunistic, as it makes use of, and improves the existing environmental remnants.

Generally speaking four possible ways of land use, thus also reclamation can be distinguished: afforestation, agriculture use, recreational use, water filling - described above. The time required for the recovery of a reclaimed area depends on the chosen future land use, e.g. the recovery of the land for pasture in general is not as rapid as for cropland<sup>4,5</sup>. The ‘living nature’ cannot be treated as an enclosure, such as a ‘monument’ of nature. The exchange of information (movement and transport of materials, species or nutrients) should be distinguished as well. This requires connections between separate parts of created ‘green’ areas, with the existing natural structures. Thus, first of all a durable environmental

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Sedimentation Basin



The land management plan.

Network, capable of supporting basic ecological functions, protecting main natural and cultural resources and permitting other uses which don't impair landscape sustainability should be established. Such a design can be then implemented for the study area, as part of the reclamation works and as a framework for the development of future land-uses.

The goal of the land management plan is to provide the study area with a basis

for long-term land-use, with an emphasis on the open scale, ecology and recreation. (See Land Management Plan)

Elements of the design :

1. *Core nature areas*: the large areas of existing forests: "Zlotogorski" and "Sacaly" (Matrix areas), which are presently regionally significant landscapes.
2. *Nature development areas*: important as connections between ecologically significant (core) areas. Planned here as "stepping stones" or 'nodes' - located at the intersections of corridors and as

buffer zones.

3. *Wet (riparian corridor) and dry ecological corridors*: these linear areas are primarily for linkage of the nature core areas and nature development areas. The wet corridors of course, should follow streams and waterways (a first-order riparian corridor is planned on the main Kielbaska River with a limited – use buffer zone for both sides).

4. *Multifunctional forests*: existing forests, which presently have limited nature value, but with a potential for improvement. These areas can provide buffer functions as well as providing opportunities for tourism and outdoor recreation <sup>6</sup>.

### Tackle the mess

The mining operation allows the opportunity to create a variety of sloping surfaces organised for specific uses, at least allowing a variety of options for tomorrow's users. The design in plan and section should provide the correct conditions for plant colonisation if the land/water interface possesses a naturalistic fractal structure.

Finally one should remember that the landscape is not really given – or does not belong - to us but is borrowed from the next generations, so we should make an effort to "tackle the mess that sullies the earth." <sup>7</sup><<

### Footnotes

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