

The ecological recovery of coal gangue dumps in Romania

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Abstract

In Romania, the lignite coal is extracted by open cut mining. This kind of mining determines the most aggressive form of land degradation. The soil strata are reversed, the nutrients are leached, the landscape is degraded, etc. The place of former land is taken by gangue heaps with entantrosoil that is not a proper formed soil.

The entantrosoils from gangue dumps have totally different physical and chemical features over the nearby soils:

- the reaction is low and moderate alkaline;
- the humus content is very low, under 0.2%, the nutrient supplying degree is extremely low, too.

These features determine the classification of this kind of soil within the fifth quality class (the last), with an evaluation mark of 8-14 points. It spreads over 19,140 ha in Romania.

Taking account of these unfavourable features for plant developing there is absolutely necessary the ecological recovery that consists of the following steps:

- Pedological, agrochemical, biological, land survey and technological studies;
- Technical – mining recovery that consists of: removing and depositing the fertile layer of soil from surface apart from gangue that is deposited separately in function of their characteristics; technological operation, e.g. levelling, road designation, excess water removal facilities; covering this gangue dump by deposited fertile soil.
- Biological recovery that consists of recultivation of crops, trees, shrubs, etc. that are specific vegetation for the area in order to preserve biodiversity and productivity.
- Agricultural recovery by cropping annual and perennial crops, pastures, hayfields, vineyards, orchards, etc.
- Forestry recovery by planting woods.
- Ambient recovery, including tourism facilities where applicable.

The agricultural recovery assume covering with a layer of fertile soil and applying of organic fertilizer (50 t/ha) and chemical fertilizers (N₁₀₀P₁₀₀K₁₀₀).

References:

- Duck, D. and Mouse, M. (2009). *How to live in a cartoon world with only four fingers*. Journal of Medicine, Vol 1, No 1., pp. 1-15.
- Brady C.M., Weil R.R. (2008). *The nature and properties of soils. Fortheen Edition*. Publisher: Pearson – Prentice Hall a trademark of Parson Education.
- Calinoiu Ion. (2010). *Doctoral thesis (Romanian)*. University of Craiova.
- Dumitru M. (2005). *The ecological reclaiming, the technological elements, methods and practices of recultivation and pollution fixing (Romanian)*. Editure Eurobit Timisoara.
- Mocanu R., (2007). *The ecological reclaiming of the sterile dumps from Husnicioara, Mehedinti*. Sitech Editure, Craiova.