THE ANTROPIC DEGRADATIONS OF NATURAL ENVIRONEMENT AND THEIR REMEDY

DEGRADĂRI ANTROPICE ALE MEDIULUI NATURAL ŞI REMEDIEREA LOR

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Rezumat *Complexitatea activităţilor economico-sociale ale societăţii moderne exercită, din ce în ce mai mult, presiuni ridicate asupra mediului natural, prin exploatarea intensa a resurselor ca şi prin creşterea rapidă a volumelor de deşeuri.*
Datorită acestei situaţii, se produc degradări accentuate cu efecte nefavorabile asupra dezvoltării sociale.
Conceptul dezvoltării durabile impune reducerea şi remedierea acestor degradări pentru conservarea naturii în beneficiul nostru şi al generaţiilor viitoare.

Abstract *The economic and social activities complexity of modern society exert more and more higher pressures on natural environment by natural resources intense exploration as well as fast growth of the waste volumes.*
Due to this situation, increased degradations are produced, with unfavourable effects on social development.
The conception of sustainable development imposes the reduction and reparation of these degradations in order to preserve the nature in our and future generations benefit.

Key words: *wastes, anthropic degradations, sustainable development.*
Cuvinte cheie: *deşeuri, degradări antropice, dezvoltare durabilă.*

INTRODUCTION

The accelerated urbanization, the intensive industrialization, the aero-spatial technologies represent the attributes of the modern society which provide to its members the adequate material comfort. The costs of such a comfort are, sometimes, unpredictable on medium and long term.

The human society consumes more and more natural resources and produces more and more wastes. Both processes have in common the unfavourable effects upon the natural environment, which suffers a continuing intense degradation. The fact, that the wastes reproduce themselves faster than people, have a longer life and assume, sometimes, hundred of years before their decay and the reintegration in the environment, have to be mentioned.

In this frame, the sustainable use and preservation of the natural resources are of crucial importance for the present and future necessity of the mankind, regarding the health, air, water, food and other vital resources purity.

MATERIALS AND METHOD

Environmental degradations as a result of industrial activities

Mining industry contributes to the environment degradation in multiple forms, of which, the mineral resources extraction using open pits having a dominant weight. The ore mined from the subsoil contents up to 90% mine waste which must be separated from the useful material by specific separation techniques and the mine waste, which separates the mineral layers (coal) between them, added itself to the waste volume made up and must be stored in an adequate place.

In the coal excavation of Oltenia mining basin, the ratio between useful material and mine waste varies between 4. 4 – 8. 7 cm/t reaching sometimes even 14 mc/t. The mine waste, obtained in this way, is stored in external dumps in the beginning, and after the opening of the pit in the back side of the working face, provides the filling of the hole resulted from the excavation. At the excavation completion, the remained hole must be treated in a friendly manner to the environment.

The way the open pits are disposed in space shows the proportion this coal excavation form determines the environment degradation: localities are demolished and removed; agricultural lands and forests are eliminated.

The steam power plants running on coal has as result the breeze and the ash as wastes which are hydraulic exhausted and are deposited in dumps. In Oltenia mining basin, the brown coal has an average combustion value of 1672 kcal/kg and produces 18- 40 % ash. This way some artificial, positive relief forms which arise gradually up to the maximum level foreseen in the project. Starting with this moment, the dump surface must be the subject of some complex economic exploitation activities. The exploitation concept should have in view the balance of the surfaces on different use categories before the fitting out.

The technological engineering studies developed by our team, using the experience gained until now, led to the elaboration of the following rehabilitation schemes of the degraded lands by coal excavation pits and thermal and power engineering activities.

Environmental engineering works for the exploitation
of the lands occupied by open pits

<table>
<tr><td colspan="2">Open pits</td></tr>
<tr><td>Dumps</td><td>The remained hole</td></tr>
<tr><td>A. Technical-mining stage
- earth moving planning (levelling, shaping)
- operation road s development
- fertile soil covering</td><td>A. Environmental engineering studies for the substantiation of the optimal fitting out solution:
- bank slope shaping
- access roads development</td></tr>
<tr><td colspan="2">A. Economic exploitation

a) agricultural
- improvement technology
- agricultural crops with specific Technologies

b) forestry
- establishment of the species sort
- adequate planting system
- maintenance specific works

a) natural amerced reservation

b) entertainment lake

c) mine waste/sterile covering</td></tr>
</table>

Environmental engineering works for the exploitation
of the steam power plants ash dumps

A. Technical-mining stage	
- draining assurance - stability assurance - fertile soil covering	
Use category	
Agricultural use	Forestry use
B. Agro-fitting out stage	
- crops for green fertilizer - improving crops	-
C. Production stage	
- adequate crop assortment - improving crop technologies	- adequate species assortment - specific planting systems - specific maintenance works

RESULTS AND DISCUSSIONS

Environment degradation as a result of social activities and their assimilation in the natural environment

From the social activities – services, household and domestic activities etc. results different wastes made of substances or objects whose owner throws them or intend to do it. The harmful effects of the wastes, especially if they are stored inadequately, are: emanations of gas which produce environment pollution, the production of decayed matters floating in water which can determine the soil, surface waters and underground water pollution etc.

In Romania, an average coefficient of wastes of 0, 79 t/inhabitant results from the urban area, having the tendency of growing and from the rural area, a wastes coefficient of 0, and 15 t/inhabitant.

The wastes management consists of: storage, pre-sorting (sorting and recycling) burning and stamping. The most used method to secure the wastes is the storage which determines fewer expenses than other methods and offers the possibility of some materials recycling and the use of the biogas resulted from the wastes decaying.

CONCLUSIONS

From the general processing of the degraded lands recovery by mining and thermal and power engineering activities the following more important conclusions are drawn:

- the modern society, with a strong industry, consumes more and more natural resources and produces more and more wastes, both activities leading to increased degradations of the natural environment;
- the sustainable character of any development process imposes the use of some environmental friendly technologies and of some recovering techniques of the environment degradations, simultaneously;
- the environment degradations produced “up to day” in open pits, and of the natural resources can be recovered using a complex of measures, grouped in two stages, different for the pit surface covered by mine waste and for the remained hole;

- steam power plant ash dumps framing supposes the passing through two stages: technical-mining stage and agro-fitting out stage;
- establishment of the use category – agricultural or forestry – of the open pit/excavation surface or of the dump depends on the existent surface balance before their exploitation.

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