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THE SECOND ROUND TABLE:

"ECOLOGICAL IMPACT OF FIRE. DEFORESTATION AND FOREST DEGRADATION. RECLAMATION OF DEVASTATED LANDSCAPES"

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CONTENTS

ON ANTHROPOGENIC DANGER OF ROCK DUMPS

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Mining and use of fuel and energy resources result in huge volumes of wastes becoming large-scale anthropogenic sources of permanent negative influence on environment components in most cases. According to the statistics data, wastes of mining industry take down the greatest part of all wastes in Ukraine and figure up to 73.6%.

Location of wastes in environment results in alienation of large territories and arising of hazard of emergency situations caused by a man-made impact. Coal mining wastes is a source of contamination of atmospheric air, soils, surface and ground waters. They also have huge negative impact on the state of peoples' health and plants. Official statistics shows that the level of respiratory deceases is much higher for people living in the territories of wastes location than that of living in other places because wastes storage comes with multistage physical and chemical processes and emissions of harmful substances into the environment caused by them.

The problem is now urgent for all mining regions of Ukraine, particularly for Chervonograd mining and industrial region (CMIR) being a part of Lviv-Volyn Coal Basin. This territory is the location of hard coal mining in relatively small 180 km^2 area for more than 50 years. Coal mining in CMIR takes place in 12 mines. The depth of coal bed ranges between 300-600 m. Thin and average beds were mined in the region by means of board-and-pillar method with pillars working out in reverse direction. As for now 5 mines are closed in the region (№1 "Chervonohradska", "Vizejska", №5 Velykomostivska, Bendiuzka, "Zarichna"). Waste rock of those mines was utilized for bore backfill and roads filling. Circa 561.5 hectares of lands comprises the area of negative influence of mining enterprises, rocks wastes take 137,5 hectares, which is about 25% of total area of mining concession.

Mining of coal in mines was carried out without filling worn space with waste rock. This resulted in huge volumes of waste rock on the territory becoming one of the most problems as waste rocks store 85 mln m^3 of coal mining wastes and 14 mln m^3 of coarse fraction and 12 mln m^3 of fine fraction of by-product coal.

Spoil fire and waste rock treatment should be considered as unsolved problems of the region. For example, plot of glowing embers was observed in closed "Vizejska" mine with the temperature reaching 128°C and "Chervonohradska" mine, 137°C. But the most serious hazard for the environment in the region is caused by waste rock of PJSC "Lvivska Vuhilna Companija" (Central dressing facility) with total area of 882 thousand m^2. The territory was under active combustion resulting from departing from "The Instruction on Self-ignition Prevention, Extinguishing and Knocking down of Waste Rocks". The Instruction requires that rock storage should imply wastes sandwiching by clay and soil (sand), strictly forbids charging of rock mass on combustion areas. But the measures were not taken, which resulted in anthropogenic catastrophe in the region. Moreover, during the primary stage of fire

liquidation only water was used, even though the "Instruction..." requires that fire fighting starts from moistening with water aimed at cooling of rocks surface layer on 0.1-0.2 m depth to the temperature below 80°C. The water expenditure is considered as no less than 50 l per m^2 of burning surface. But modern procedures of waste banks extinguishing require adding of lime grout. This enables blocking of microbiological processes and thus possibility of reigniting decreases sharply. Extinguishing with water provides some result, but it is insignificant, as 90% of water becomes evaporated.

We believe that the all regulatory instruments in Ukraine concerning treatment of coal mining industry wastes should be revised, as they mostly do not provide application of modern technology of liquidation of negative consequences of influence on environment and do not state any strict requirements on treatment of coal mining industry wastes.

The following tips are recommended to reduce the ecological hazards of coal mining wastes:

- strict regulatory approval system of cumulating and exploitation of rock waste and amenability in case of its neglecting;
- clear determination of legal successor for rock waste in case liquidation of mine;
- availability of information about negative influence of the wastes on all environment components, particularly human;
- monitoring system of the objects not only during the exploitation period, but also in case they are closed;
- providing system of financial assurance for territories rehabilitation after negative influence on environment;
- development of system of security control for emergency states on the objects;
- systematic control of the objects by state authorities.