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WASTE TREATMENT AT MINING AND STONE PROCESSING ENTERPRISES IN ZHYTOMYR REGION

Ukraine has about 4% of world deposits of decorative stone and considerable part of them is located in Zhytomyr region.

Utilization and waste treatment of stone-mining and stone-processing enterprises has always been important not only in Ukraine but in the whole world. As far as Zhytomyr region is located on Ukrainian Crystalline Massif it is rich in different mineral deposits. Mining process generates a large amount of waste. Thus, our region needs solution to this problem. Most enterprises do not conduct waste treatment. Waste can be put in dumps, even in forests or other places. Such activity causes environment pollution and destroys farmlands.

Besides, material resources in the Earth are limited and cannot renew in the period compared with the period of humanity existence. It means that except environment pollution there is one more important problem, i.e. the problem of resources exhaustibility.

Processing granite, gabbro or labradorite produces more than 60 hundred m^3 of solid mineral waste; stone slurry makes up almost 50 hundred m^3 after stone cutting and polishing. It is connected with the amount of dimension stone extracted from massif. Good quality dimension stone makes up less than 40%. Thus, more than 60 % of stone is not used and goes to dump. But the major part of stone waste can be treated and used for making building materials. For example, bigger parts of debris can be used for making tiles and other facing products. Small parts can be crushed by mobile or half-stationary crusher to make gravel. Crushed material can be used as concrete or ballast for construction of buildings and roads. Gabbro and labradorite have worse physics mechanical characteristics, but such material can also be used for making gravel. Its quality is a bit worse compared to granite gravel, but it can be used as a construction material, which does not require excessive strength, e.g: as a ballast, and for construction of not very high buildings in a temperate climate. At the same time the price for these materials will be much lower, because it will not include expenses for mining. Slurry can be used like raw material for making paving stone blocks and tiles. Research evidenced that after slurry was used the hardness of concrete has increased up to 40 %.

Thereby, it is possible to solve the problem with unutilized resources, environmental pollution, and obtain new source of raw materials.