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AMBER IN UKRAINE AND THE PROBLEM OF ITS EXTRACTION

Is it really possible to legalize and put amber mining on the industrial flow of the state?

To answer this question, first you need to understand how valuable the sunny stone is and what kind of problem exists with it in our country.

Amber is a natural organic compound, dense and viscous (fossilized) fossil resin of coniferous trees in the form of dim, transparent and semitransparent stones.

It is known to people for several thousand years. Amber became the subject of trading in the Neolithic (6 thousand years ago) and the Baltic amber was especially valued. People were able to colour amber and to make decorations of various shapes from it as early as in the Bronze Age. It was common among Egyptians, Romans and Greeks.

Decorative amber goods (fig.1) were found in the Scythian burial mounds on the territory of Ukraine. According to Pliny, the Romans were able to paint amber in red and such amber was valued as gold. Humanity has valued the sphere of application of the sunny stone from ancient times. Amber is used for making jewelry, perfumery, in folk medicine and electricity. Secondary littoral coastal-marine deposits have the most industrial significance. Amber Succinate - Fossil Resin from Pine "Pinus Succinator" - covers several areas on the map of locations. Geologically, the Baltic Succinate is most widely used. The same semiprecious stone is also found on the territory of Ukraine (near Kiev, Kharkiv, in Volyn). There is Amber Succinate in Ukraine, in the deposits of the Paleogene and Neogene in Rivne (Sarny, Volodymyrets and Dubrovtsky regions), Kiev (the Kievan amber is a product of the casual flushing of the fossil resin, that is, this source was not of a permanent nature), Zhytomyr, Lviv and Kharkiv regions. The Great Klesiv deposit (in Polissya) began to develop relatively recently, because succinate here is deep enough. The territory of Ukraine is divided into three amber basins: the Dniester, the Pripyat and the Dnieper. Pripyat is located on the western and northern slopes of the Volyn, Zhytomyr, Rivne and Kyiv regions. Large deposits of Ukrainian amber are



Figure 1

located in Polissya, in the Rivne region. Unlike the Rivne region, there is a small amber deposit in Zhytomyr region. Geological situation. The largest deposit of amber in Ukraine is Klenivske deposit in the Rivne region. This deposit is a burial lake-deltaid formation. It is located at the junction of crystalline rocks of the Ukrainian shield and sedimentary rocks of the Volyn-Podilsky plate. On average, up to 1.2 kg of amber are found in one cubic meter of rocks, most often in the form of small peas, but sometimes a few pound pieces can be found as well. Depending on the depth of occurrence of productive aquifers, the potential of both open mine (surface) extraction and the use of non-traditional hydraulic method are great. Both methods of extraction use conveyor pipelines for sewage discharge, after washing the mixture of

sand and water in special pits. The extraction of amber by the open method is the most profitable, so it is the most common. In one of the Klesovskoye deposits, amber is extracted in an open way from the ancient riverbed. In a quarry with a depth of 6-10 m, the mining mass is extracted by a mechanical excavation. The amber sand is then transported to enrichment to remove the precious stone from it.

As a rule, amber in Ukraine is extracted in shallow quarries and by illegal methods.

The entangled legal regulation of the use of subsoil, the complexity of the procedure for obtaining a special permit for the use of subsoil, the need for a range of permits, decisions for the beginning of extraction of minerals for a long time frightened potential investors from investing money in the development of amber fields. The increase in the prices of amber in the world market of precious stones, low employment rates in the regions of deposits and corruption, including in law enforcement agencies, a small responsibility for illegal mining, relative cheapness and simplicity of the technology of handmade amber mining due to its near-surface deposition have caused significant scale of the illegal mining of amber.

In response to the illegal extraction of amber, on April 23, 2015, in the first

reading, a draft law of Ukraine "On the extraction and sale of amber" was adopted.

However, numerous artisan amber mining did not stop. Illegal control of entire districts by criminogenic structures, periodic shootings between gangs and the local



population, inactivity of law enforcement agencies, continued damage to deposits caused the destruction of ecosystems in the places

of illegal amber mining, in particular in Zhytomyr region (Fig. 2).

Amber, for the most depressed rural areas, which are the Polissya villages, can become a base for socioeconomic revival, provided that its in-depth processing is in place, which will increase the share of high-value added products and contribute to the creation of a significant number of new jobs. Deep processing of amber is possible when it is directed to the legal channel of its production.

Public-private partnership can be an effective form of legalization of amber mining, in which the interests of rural communities and the requirements of environmental legislation will be taken into account as much as possible. This is a form of entrepreneurial activity in which one of the partners is a state or a territorial community, and another partner is the subject of entrepreneurial activity. At the same time ownership of natural and natural-economic assets is not transferred to a private partner.

To date, the list of areas of application of public-private partnership agreements in the field of economic use of natural and natural-economic objects is extremely narrow,

which does not allow to attract private investment in the sphere of nature use. Today, such areas include water supply and drainage, irrigation systems, and waste management.

That is, the first step towards the implementation of public-private partnership agreements should be the amendment to the Law of Ukraine "On Public-Private Partnership", in particular, it is necessary to attribute amber extraction to the areas of establishment of partnership relations between the state and business entities. The second step should be the determination of the possible forms of amber mining, which include the transfer of land for a temporary use of the forest fund for amber extraction.

The legalization of amber mining will create the preconditions for the construction of enterprises for its processing for the production of export-oriented products, which will have a significant impact on the pace of socio-economic growth of rural areas, especially Polissya. Therefore, the introduction of amber mining into the scope of public-private partnership agreements is perhaps the only way to overcome the investment deficit in the Polissya administrative districts.

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