

The Taezhka ore occurrence is represented by small intrusions of pyroxenite, cordierite, and dunite intruding the Archean metamorphic complex. Densely impregnated, impregnated, and nest-impregnated pyrrhotite–chalcopyrite ores are distinguished. Atomic emission and ICP spectrometry provided the following concentrations: Ni, 0.02–0.065%; Cu, 0.119–0.503%; Co, 0.004–0.035%; Au, 0.15–0.41 ppm; Ag, 0.5–1.3 ppm; Pt, 0.15–0.18 ppm; Pd, 0.08–0.1 ppm. Pyrrhotite prevails among sulfides (up to 95–99%); there are small contents of chalcopyrite, pentlandite, and pyrite. The revealed copper–nickel ore occurrence requires additional study by bulldozer trenches through the valley of the Taezhka Brook and deep holes.

The Alaska ore occurrence is composed of peridotite and pyroxenite intruding the Archean metamorphic complex. Impregnated and vein-impregnated pyrrhotite–chalcopyrite ores were revealed in ultrabasic rocks. The following concentrations were obtained by the atomic-absorption analysis (ppm): Pd, up to 0.72; Pt, up to 0.14; Ru, up to 0.1; Au, up to 0.1.

Thus, the Stanovaya metallogenic zone (its western and central parts) is promising for discovery of various geological types of PGE mineralization on its territory, especially those related to widely abundant basic–ultrabasic massifs with impregnated, vein-impregnated, and massive sulfide mineralization. It is necessary to perform detailed investigations of numerous gold placers as well, in which dredging and hydraulic working allowed researchers to discover commercial concentrations of PGEs (native platinum, sperrylite, polyxen, etc.).

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ENVIRONMENTAL CONDITION OF THE MZYMTA RIVER AFTER CONSTRUCTION AND EXPLOITATION OF OLYMPIC VENUES

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Sochi 2014 Olympic and Paralympic Winter Games has gone and due to this event world society has started to discuss the Games organization level, Games, in general, winners and losers as well. Eleven Olympic venues were built for Sochi 2014 Winter Games which, surely, have impact on the environment. One of the main problems concerning Games organization is the effect of such construction on the environment as well as method of its protection from ecological disasters and their prevention.

In our research, we have decided to make analysis of the resultant Olympic venues impact and in accordance with this several goals were set:

- To consider and explore the Mzymta river water composition during construction
- To explore the measures on prevention of Olympic venues' negative environmental impact
- To analyze the legislation adopted prior to the Sochi 2014 Winter Games.

Olympic venues construction is sited on two clusters: Coastal Cluster and Mountain Cluster. Mountain venues group is situated in the borders of Sochi National Park which is of federal value. Some of Olympic venues are located on two ski regions which are intended for commercial use. Venues territories include the habitats of flora and fauna species listed in the RF Red Book, being also part of environmental accounts area for Olympic venues.

Besides, the area of not less importance for Games facility is located in the Mzymta valley predominantly on the left riverside. There is Adler – Alpika-Servis Combined Road and Railway. It should be taken into account that Mzymta refers to the highest fishery ponds category, which ensures reproduction, feeding and wintering salmonids and trout farm development in the floodplain [6].

Construction of Combined Road and Railway led to some ecosystem transformation, namely, riverbed changing, deforestation on the left riverside, reduction and loss of habitats of rare and endangered plant species listed in the Red Book of the Russian Federation and the Red Book of the Krasnodar Region [1].

According to results of hydrochemical observations made by Federal Water Agency chemical state of the Mzymta waters totally has changed within 2007-2013. For example, the turbidity of the Mzymta suspended solids have significantly changed, as well as Fe, phenols and oil sometimes exceeds the values of MPC_{px} and SAE_{chem} adopted for fishery in ponds and rivers of the Black Sea basin, respectively.

Climate particularity of Olympic venues location region and their territories imposes many obligations for the Olympic facilities design. Project includes negative impact minimization measures for the environment, environmental monitoring, conducted at all stages of the construction, reclamation of land, relocation of rare animal and plant species, as well as a set of measures to support the biodiversity of Games region [1].

In accordance with this the Environmental Program “Sochi 2014” was developed supported by the Supervisory Board of ANO “Organizing Committee” Sochi 2014 “June 2, 2009 Environmental Strategy “Sochi 2014”. Environmental

Strategy "Sochi 2014" consists of four key directions: Games in Harmony with Nature; Games with Minimal Impact on Climate; Zero Waste Games; Enlightenment Games.

In general, Environmental Program is a set of environmental measures to support the XXII Olympic Winter Games and XI Paralympic Winter Games of 2014 in Sochi, provided by the previously approved and implemented programs. The Environmental Program takes into account the experience in the field of environmental protection and sustainable development gained during the arrangements of the Games in Vancouver (2010) and London (2012).

Together with Environmental Program the "green" standards system is applied for saving unique nature during Olympic venue construction carried out in accordance with requirements of BREAM standard [4].

Simultaneously, the federal laws were developed. The Federal Law of 01.12.2007 N 310 "On the organization of the XXII Olympic Winter Games and XI Paralympic Winter Games of 2014 in Sochi, the Development of Sochi as a mountain resort and Amendments to Certain Legislative Acts of the Russian Federation". This federal law regulates the relations resulting from organization and holding of the XXII Olympic Winter Games and XI Paralympic Winter Games of 2014 in Sochi and development of Sochi as a mountain resort [2].

The Federal Law of 30.10.2007 N 238 -FZ "On the State Corporation involved in Construction of Olympic Venues and Development of Sochi as a mountain resort" was adopted. In accordance with Article 1 of this law the legal status, organizational principles, objectives and activities of creation, order of management activities, reorganization and liquidation of the order of the State Corporation on Construction of Olympic Venues and Development of Sochi as a mountain resort were established [3].

Having analyzed regulatory support in the field of environmental support construction in the resort areas, we can conclude that there is some inconsistency of the Russian legislation regulating the activities in the resort areas and protected natural areas. In particular, the program for the development of Sochi as a mountain resort ignores the requirements of the Federal Law "On Specially Protected Natural Areas" (1995). For example, according to Article 13 the function of national parks consists in preserving natural systems, rather than vice versa. Article 15 of the Act prohibits any activity that could do harm to natural complexes of flora and fauna and contradicts to the aims and objectives of the National Park [4].

The XXII Olympic Winter Games and the XI Paralympic Winter Games 2014 in Sochi will leave its imprint in sports and socio-economic history, and will, surely, have an impact on the environment. Meeting the requirements of "green" standards and the development of new legal acts provide maximum reduction of the negative impact of the Olympic facilities on the environment. In this respect, the XXII Olympic Winter Games and the XI Paralympic Winter Games 2014 in Sochi Games can become the act of environmental education for similar future construction.

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THE CAUSES OF HIGH SOIL RADIOACTIVITY IN CHINESE PROVINCE GUANGDONG

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There are several provinces on the globe that have high content of natural radioactive elements in soil. The examples are soils of Poços de Caldas province of Minas Gerais State in Brazil, that of Newe Island as well as soil in the South-Chinese Province Guangdong (Eisenbud, 1997 et al).

The character of soil radioactivity varies from pure radioactive ($U > Th$, which is typical for soil of Newe Island) to mixed uranium-thorium ($Th/U > 2.5-5$) and thorium ($Th/U > 5$, as it is in the soil of Guangdong Province). For the latter it has been suggested that its radioactivity is explained by the presence of monocyte.

As a reason for the formation of high natural radioactive concentrations in soil can serve, first of all, elevated concentrations of these elements in primary parent rocks and various geologic processes leading to accumulation of radioactive elements, for example, insolation processes of uranium accumulation as well as anthropogenic contamination with radioactive components in vicinity of mining factories (Rikhvanov, 2009).

The purpose of the given work is to study the causes of high soil radioactivity in the South-Chinese Guangdong Province. The preliminary gamma-spectrometric soil analysis (soil samples weighting 238 g) has shown that they are characterized by thorium radioactive nature ($Th-190$ Bq/kg; U (in terms of Ra) -120 Bq/kg; $K-150$ Bq/kg).