

Assessment of climatic and environmental conditions along the track of projected Kyzyl-Kuragino railway line (the Western Sayan Mountains)

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Currently there is a large investment project of the Kyzyl-Kuragino railway line construction mostly along the mountainous territory of Tuva and Krasnoyarsk Krai. The main relevance of the project is the possibility of more active involvement of the Tuva coal complex in commercial operation, which means economic development of the region. At the same time it is planned also to extend the road to Mongolia with the prospect to reach China thereby take into account international interests.

Despite the positive economic and social effects there are significant difficulties in the realization of the project due to the natural and climatic conditions. The projected railway track is mostly located in the Western Sayan Mountains and is characterized by complex environmental conditions, in particular geological and geomorphological, as well as extreme climatic characteristics, permafrost etc. The main goal of this research was to conduct an independent scientific expertise of assessment of the environmental conditions during the implementation of one the largest transport projects in Siberian region.

The natural conditions were assessed according to the following indicators: extreme values of air temperature and precipitation, strong winds, snow cover thickness, avalanche danger, seismicity and some slope processes. Analysis was made using various map documents, statistical data, results of expert interviews with the representatives of regional ministries of transport and ministries of economic development, universities and research institutes. For the analysis of extreme climatic characteristics data from weather stations of the study region were used. The entire area of projected road construction was divided into several sections, where it is necessary to take into account certain parameters mainly extreme natural phenomena. As a result the assessment of the potential natural risks during the construction and further operation of the railway was made.

Keywords: natural conditions, railway line construction, mountains, Tuva and Krasnoyarsk Krai