

GEOLOGICAL HAZARD AND ENVIRONMENTAL PROBLEMS IN MOSCOW

OSIPOV, V.I., Institute of Environmental Geoscience, Moscow, Russia

Moscow is the largest megacity in Russia, with a population of 8.5 billion and a square of about 1000 km². An intense urban development in the last decades leading to an increase in its impact on the geological environment raise the vulnerability of inhabitants and urban infrastructure to the impact of hazardous geological processes. The geological processes operating in Moscow may be subdivided into three groups according to their hazard degree, i.e., very hazardous, hazardous, and potentially hazardous. The first group includes the processes inducing karst and suffosion collapses, subsidence, and large landslides. Hazardous processes include the rise in ground-water level and small landslides; while the processes that may intensify in the near future under the effect of the anthropogenic factors are treated as potentially hazardous. In addition to the geological risk, the contamination of environment, atmosphere, surface and ground waters, soil, and plant cover are estimated upon the urban area zonation. The studies in the assessment of hazardous geological processes permitted us to develop the general strategy of ensuring natural safety of the city. It is based on performing engineering-geological zonation, monitoring, and prediction of hazardous phenomena; engineering development of territories; improvement of construction quality; and actuarial risk control. The accomplishment of these requirements will provide the most efficient use of urban areas and the elaboration of the adequate architectural-planning decisions, which will increase the safety of living.