

Engineering geological zoning of urban areas as an adaptive nature-use technology

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The strategy of human-nature interaction is considered, based on two kinds of anthropogenic activities: (a) nature consumption, i.e., extraction and use of natural resources necessary for civilization survival and (b) nature use or nature management in the course of economic activity, which is aimed at providing comfortable and safe living on the Earth. The rational application of the first principle depends on the technological level of civilization development, whereas the second principle is based on the requirement to adapt the economic activity to natural conditions. The principles of adaptive nature-use technologies and cases of their application are explained by the example of civil construction and waste management.

Engineering geological zoning of urban areas is the case of applying the adaptive nature-like technology in civil engineering. By the example of large-scale engineering geological zoning of Moscow area, it is shown that the engineering geological map permits to subdivide the area by its favorability for construction, to outline the optimal locations for residential, industrial and recreational zones, to develop the general scheme of engineering protection of the territory and to optimize the issues of safety, cost, and environmental comfort upon the constructional development of the city.

Seismic microzoning as another example of applying adaptive technologies of nature use to engineering geology. The case of seismic microzoning at the Imeretinskaya depression at the Black Sea coast in the vicinity of Sochi, Caucasus, performed at the Sergeev Institute of Environmental Geoscience RAS during planning the construction of the Olympic games facilities is considered.

And finally, the territory zoning for municipal landfill allocation is scrutinized as a case of applying the adaptive nature-like technology to waste management. The scheme of zoning of the Central region of Russia by the conditions of solid domestic waste disposal is given as an example.