

Zoning groundwater flooding risks in the cities and urban agglomeration areas of Ukraine

OLEKSANDR CHEBANOV & ANASTASIA ZADNIPROVSKA

State Center for Integrated Surface- & Groundwater Management (SCIM UkrWodGeo), 6 Shevchenko Vul., 61200 Kharkiv, Ukraine

chebanov@uwodgeo.org.ua

Abstract The rising of groundwater levels up to the soil surface is a phenomenon called groundwater flooding. It appears as soil moistening, swamping, and flooding in the area. In some cities of Ukraine it takes a hazardous scale under conditions of urban development. The application of the groundwater flooding risk assessment and zoning method has been shown. It considers spatial distribution of local factors of “groundwater flooding hazard” and “susceptibility”. The hazard factor is dependent on groundwater level and quality, and on soil properties. The susceptibility factor takes into account urban development characteristics: building density, number of floors, development functionality, and basement types. Analysing these factors on the thematic map layers allows zoning of groundwater flooding risk using the following scale of risk: low, moderate, medium, high, and critical. Such kind of zoning has been performed for the six large cities of Ukraine (Dnipropetrovsk, Kharkiv, Kherson, Odessa, Poltava, Zaporizhya) and resulted in the thematic maps album.

Key words groundwater flooding; hazard; susceptibility; risk factor