



Natural-technological disasters in concept of vulnerability

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By vulnerability of a region to natural hazards (NH) we mean its sensitivity to the influence of unfavorable and hazardous natural events or phenomena, and the capability of this region to cope with such influences. The vulnerability is determined by both the range of damage and loss from hazardous events and the scale of emergency situation due to a natural disaster. Vulnerability of a region depends not only on the type and physical parameters of NH, but also on economic, technical, environmental, administrative, and social conditions in the region. Interrelation between natural phenomena and regional conditions of vulnerability can cause various natural-technological disasters or na-techs (technological disasters (TD) produced by natural factors). We consider na-techs as a response of a vulnerable region to hazardous natural impacts. We have created a data base of TD and na-techs happened in Russia in 1992-2007. The most important types of disasters for Russian federal regions were identified and classified. The natural causes of disasters were investigated. The majority of na-techs in Russia were caused by windstorms and hurricanes (34%), snowfalls and snowstorms (27%), hard frost and icy conditions of roads (12%), and rainfalls (11%). Landslides and subsidence of rock created 5%, thunderstorms - 4%. 12 types of TD that can result from direct mechanical impacts of various NH were found for Russia. The sensitivity of the technosphere to such impacts as well as "human factor" can increase the vulnerability. NH affecting TD were also divided into 12 groups according to their genesis and impact pattern on the technosphere and communities. 12 types of na-techs were additionally found. Russian federal regions were grouped according to their pattern of na-techs. Considering the revealed groups we created the map of na-techs for Russia.

This map was examined for regional differences of vulnerability.