



Vulnerability of Russian regions to natural risk: typifying methods

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This study is an attempt to typify the administrative regions of Russia by their vulnerability to natural risk. The first step of typifying is to identify natural hazards, which could cause an emergency situation, for each of 89 Russian regions. We regard an emergency situation as a disturbance of current activity of economic and population area due to abrupt natural impacts (natural disaster) resulting in social, economic, and (or) ecological damage, which requires special management efforts for its elimination. Russian statistics concerns emergency situations as phenomena with a number of victims 4 and more people, 10-15 affected people, and damage more than 500 thousand rubles (about 15,000 Euros).

The second step of the typifying is to find some economic and social parameters of the region, which could determine its vulnerability to the influence of various natural hazards. Vulnerability of the region is determined by the range of damage from any dangerous events and by the scale of emergency situation in it. Thus the vulnerability of the region depends on its age, structure, and dimensions, economy and settlements type as well as on its population experience in adaptation, on population density, concentration of the industrial and transport objects as well as communications facilities (especially if these objects could additionally cause man-made catastrophes). Such objects are nuclear power and chemical plants, petroleum refineries, pipelines, waterworks, inflammable stores, waste storages, and some others. Vulnerability is higher in unique regions as well as in the regions with unique objects (such as residence areas of small and indigenous nations, areas with unique natural environment). Social, political, and ecological situation plays the great role in vulnerability degree of the region.

The third step of the typifying is to analyze the selected parameters and to classify the regions by their peculiarities. Using proposed procedure all 89 Russian regions were classified according to their vulnerability degree to the natural risk.