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## THE RESEARCH OF WATER SPRINGS IN CITIES

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During 2011–2015 we have studied water springs remaining in big cities. The main objective was verifying the possibility of using local springs as local sources of water in risk situations as failures of water or energy supply systems. The research was funded by the grant VG20112014028 Alternative sources of water in municipalities during the state of emergency – exploitation of original local sources, provided by the Ministry of the Interior of CR – Safety Research.

The basic assumption is the permanent function of springs, independent on transport and sources of energy etc. so they do not need any activation in cases of any degree of emergency. Spring water could be used as emergency source of basal doses in catchment areas without any special distribution system, at least in the time before standard hard emergency systems could be activated. Inclusion of springs into local evidence of soft emergency measures could lead both to decreasing the level of risk behaviour of population and also to increasing the level of care of local springs and participation in local affairs. Large sets of data were obtained in four case studies in big cities: Prague, Brno, Plzeň and Děčín (1 234, 377, 167 and 50 thousands of inhabitants, respectively). In fact, first professional monitoring data (including one to three whole season sampling) were obtained as historical data are based only on simple sampling missions. Data show relatively stable level of basic chemical characteristics of water quality, including the nitrate concentrations, allowing the use for drinking purposes in nearly all cases. Bacterial contamination was highly fluctuating and boiling or disinfection should be required in most cases. The level of bacterial contamination was directly affected by the state of the entire spring site and close vicinity. Thus, a reshaping of spring sites could lead to some improvement of the quality of spring water in general, which must be verified experimentally.