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## **CRITICAL INFRASTRUCTURE IN RUSSIA: GEOGRAPHICAL ANALYSIS OF ACCIDENTS TRIGGERED BY NATURAL HAZARDS**

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### **Abstract**

Technological accidents and disasters occurring in critical infrastructure facilities (oil and gas pipelines, electric power, heat, and water supply systems, lines of communications, roads, railways, air and water transports) have drastic impacts on the society, economy and environment. Many objects of the critical infrastructure in the Russian Federation were built in 1960-1980th and nowadays are beyond of their service life. This is the main cause of accidents, ruptures, and crashes in many cases. However natural hazards and disasters also play an essential (sometimes a leading) role in triggering or magnifying accidents in these objects. Natural factors cause more than 70 percent of “blackouts”, about 20 percent of accidents at heat and water supply systems, 16 percent of water accidents, seven percent of pipeline ruptures, and about three percent of air crashes, automobile, and railway accidents. The majority of these events were triggered by windstorms and hurricanes (37 percent), snowfalls and snowstorms (20 percent), rainfalls (16 percent), hard frost and icing (12 percent), landslides and geocryological processes (8 percent). The paper investigates frequency of occurrence and geographical distribution of technological accidents and disasters in critical infrastructure facilities in Russia and reveals the impact of natural events on them. The influence of natural factors is stronger in the North-Western and Central parts of the European Russia, in Krasnodarsky Territory and Far East of Russia that are more exposed to hurricanes, snowstorms, rainfalls, icing, landslides, and other natural hazards. Critical infrastructure facilities located in these regions need a special protection and modernization.

*Key words:* critical infrastructure, natural hazard, technological disaster

*Received: November, 2010; Revised final: January, 2011; Accepted: January, 2011*

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