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Vulnerability of Critical Infrastructure to biological threats

Amelia Tomalska

University of Warsaw, Faculty of Political Science and International Studies, Poland (aj.tomalska@uw.edu.pl)

Critical infrastructure is a complex system that provide essential services to the society such as food, water, energy, transportation, health, financial services. Any potential dysfunction of Critical Infrastructure might result in severe consequences for the human life, the environment, the economy and the security of the country. The recently experienced repercussions of COVID-19 pandemic exposed major deficiencies in terms of protection of Critical Infrastructure. The implemented approaches focusing on the threat identification and prevention strategies, without efficient organisational resilience, proved to be ineffective, especially in case of unanticipated or low-probability threats. The biological threats, such as pandemics, are relatively rare and difficult to estimate and prevent. They affect the whole organisation and contrary to the most of the natural hazards, such as floods, fires or hurricanes, have constant, permanent character. The COVID-19 pandemic forced Critical Infrastructure operators to operate in crisis mode as a result of shortages of staff, disruption of supply chains and increased vulnerability to cyber-attacks. The occurrence of these consequences unveiled the underlying vulnerabilities of Critical infrastructure. Namely, the lack of capabilities to successfully detect the possible threats resulting from dependencies and interdependencies and vulnerabilities related to internal procedures, plans or capabilities to respond and recover after the adverse event. The protection of Critical Infrastructure based on identification and assessment of vulnerabilities would enable Critical Infrastructure operators to apply adequate measures tailored to address the causes of identified vulnerabilities, to prioritise actions and to concentrate resources on the most pressing issues. The understanding of vulnerability of Critical Infrastructure to biological threats, would help Critical Infrastructure operators to prepare better for future “black swan” events and cascading disruptions across sectoral boundaries. The elimination or reduction of vulnerabilities would make Critical Infrastructure more resilient to future crisis situations and would ensure the undisturbed continuity of the essential services.