

## FUNCTIONALITIES OF GEOINFORMATIC SYSTEMS IN CRISIS EVENTS CAUSED BY CLIMATE CHANGE

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### ABSTRACT

As the climate changes, the EU is experiencing heavier rainfall, harsher storms and rising sea levels. According to the European Environment Agency (EEA), the consequences of fluvial, pluvial and coastal floods in Europe will overall worsen as a result of local and regional increases in intensity and frequency of flooding [1]. The article concerns the indication of the functionality of the available QGIS software in the identification of critical infrastructure objects in Poland and the Czech Republic along with the risk analysis.

The research aims to showcase the capabilities of QGIS software in mapping critical infrastructure and utilizing geoprocessing tools to create buffers, or protective zones, around these infrastructures. The study highlights that QGIS provides broad access to spatial data. With the rapid advancement of technology, we can anticipate significant growth in mobile-GIS, enhancing access to GIS databases via mobile devices for real-time data acquisition, management, and updates. The diverse technical and organizational GIS solutions underscore the necessity for universal standards and norms in this field. This article illustrates the use of GIS in security engineering, such as aiding decision-making in public administration and agencies responsible for public safety or emergency management. Properly chosen GIS software, based on prepared data, can address numerous security engineering challenges by facilitating the decision-making process. The study identifies potential critical infrastructure, maps their locations, and generates security buffers with assigned risk classifications. These tools can be instrumental in decision-making during crises like pandemics. Each risk zone can be linked to specific anti-crisis measures and define actions for emergency services, such as access control or disinfection. QGIS maps offer a comprehensive operational view, enhancing the efficiency of decision-making processes.

**Keywords:** geomatics, crisis management, critical infrastructure.

### INTRODUCTION

Among other things, long-term and significant changes in average atmospheric conditions in a specific region or around the world observed in recent decades are referred to as the concept of climate change. The European region is also affected by a number of negative consequences caused by various types of natural disasters resulting from dynamically changing weather conditions. Over the last 30 years, Europe has seen an increase in the