

# Epidemiology of Disasters in the Republic of Macedonia and the Balkan Region: Improving Public Health Preparedness

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## Situation Analysis of Disasters in the Balkan Region

Threats to global health security are common and they form emerging and epidemic-prone diseases, pandemic threats, environmental change, bioterrorism, humanitarian emergencies, chemical spills, or radioactive accidents. They all can have a major impact on people, societies, and economies.

Public health threats correlate with the ability of the country to prevent, mitigate, prepare for, and respond to the hazards and disasters. Regional cooperation does not exist to the extent necessary to reduce the loss of properties and human suffering. Additionally, under-reporting disasters is common for countries in southeast Europe, which makes it more vulnerable to the consequences of disasters. This problem especially is important for small countries in the Balkan region, because disasters could easily pass national borders and become an international problem.

Data from the EM-DAT database, run by the Centre for Research on the Epidemiology of Disasters (CRED), provide valuable and unique tools for analyzing disasters and performing risk assessments, due to limited number of papers published in journals and limited research capacities.

In the past two decades, the total number of natural disasters, including epidemics, doubled from 201 in 1988 to 414 in 2007. In 2007, 133 countries were affected by disasters.

The year 2007 was specifically harsh on Europe. In July 2007, Europe was affected by extratropical cyclone Kyril. The same year, the Republic of Macedonia was affected by wildfires and by heat waves, becoming the most affected country in the world in terms of percentage of affected people. That year, 48.8% of the Macedonian population was affected by disasters and one death was registered.

Due to this worrying and surprising epidemiological data published in the *Annual Disaster Statistical Review*,<sup>1</sup> we decided to make a more detailed analysis of disasters occurring in the Balkan region, with special emphasis on the situation in Macedonia.

The main goal of this in-depth analysis was to identify most common hazards in the countries in the region and evaluate their epidemiological characteristics using common indicators like annual average incidence of disasters and disaster ranking. Special emphasis was placed on the assessment of public health preparedness, including planning, preparedness, response, and mitigation capacities in each of the participating countries. Finally, all of these activities were targeted to identify the most important capacity-building activities to improve public health preparedness and minimize human suffering.

In the last two decades (1989–2006) the average annual incidence of major disasters in these countries varied, depending of the type of the hazards that cause disasters. Floods were the most common disasters in the region and Serbia and Montenegro were the most frequently affected countries. Serbia and Montenegro reported flood, wind, and technological disasters once every two years. However, other countries only were affected once every 4–5 years or less. The least frequent disasters in the region were those caused by earthquakes, even though the region is seismically vulnerable.

The annual average of death caused by all hazards differs from country to country, from 3.72 in Bosnia and Herzegovina to 13.39 in the Republic of Macedonia.

The analysis shows that the region is most sensitive to the floods and the number of exposed population is approximately 600,000 people.

In the past decade, epidemics only were reported in four countries in the region—Bosnia and Herzegovina (viral hepatitis A in 2000 with 400 affected people), Serbia (tularemia in 2001/2002 with 170 affected people) and Albania and Macedonia were affected with epidemics of unknown origin, with approximately 200 affected people in each country.

Using these data, including data regarding the number of exposed persons and economical damages, a disaster ranking was created. The most affected country is Bosnia and Herzegovina, following by Macedonia, Serbia and Montenegro, Croatia, and lastly, Albania.

From 1989–2006, 16 disasters were reported in Macedonia (14 natural, two technological). The incidence of disasters is increasing steadily, while deaths are decreasing. Macedonia is vulnerable to floods, and floods contributed to 44% of the total hazards. Technological hazards (transport events) and extreme temperature hazards are the next most common.

During the past two decades, no earthquakes were reported. However, this does not mean that Macedonia is not vulnerable to earthquakes.

The total number of registered deaths during disasters in Macedonia is 214 (13.39 per disaster). The number of deaths is highest due to technological hazards. The years 2004–2006 had the highest number of victims. Macedonia incurs an annual average economic loss of [US]\$25 million.

### Supercourse

The capacity to cope with disaster depends on a timely response and global preparedness planning. Therefore, every country should develop a core detection and response capacity,

but also maintain a level of cooperation with other countries.

Since the attacks of 11 September 2001, the world has faced with new challenges and new challenges need new knowledge, skills, and experience. Because of this, we decided that the first priority for improving public health preparedness in Balkan region should be capacity building through development of a Regional Public Health Preparedness Centre affiliated to the University “Ss Cyril and Methodius” in Skopje, Macedonia, using the model that the (US) Centers for Disease Control and Prevention already have established in 27 schools of public health. Our priorities will focus on:

1. Developing common core curricula that allow for appropriate education and training of medical and public health graduate students, medical practitioners, and public health experts, and developing new professional profiles, including: (1) health preparedness coordinator; (2) emergency management analyst; (3) emergency preparedness health planner; and (4) bioterrorism/chemical epidemiologist;
2. Creating scientific networking locally and within the region, improving scientific collaboration during disasters;<sup>2</sup> and
3. Sharing low-bandwidth disaster preparedness and mitigation research information in the library of the Supercourse lectures as demonstrated at <http://www.pitt.edu/~super1> and <http://www.pitt.edu/~super1/SEE/see.htm>.<sup>2,3</sup>

Global Health Network Supercourse project is a library of >3,600 lectures of public health and medicine, shared free-of-charge by >58,000 global health network members from 174 countries.<sup>4–6</sup> It has been effective, particularly in the area of development of just-in-time networks in various disasters. The Supercourse has been utilized by public health professionals in Macedonia for at least seven years, and potentially can serve as a core for future efforts involving improvements in public health training infrastructure and in short-term training of disaster personnel. We would like to invite all public health professionals who are interested in improving training in the area of disaster preparedness and mitigation to join our efforts by e-mailing [super1@pitt.edu](mailto:super1@pitt.edu).

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