2002 – A Year of Calamities. The Romanian Experience

A Cristea

Abstract

A short history of the major abnormal weather phenomena that occurred in Romania in 2002 is described in this short article. Although perhaps less harmful then in the rest of the continent and mainly local or in small regions, their unusual frequency and rapacity stimulated the local people to call the year 2002 a year of "calamities". During all the extreme weather events, local Disasters Defense Committees are created to minimize losses, to repair the damages, but mainly to help local people with supplies, medicine, safe drinking water and hospitalization. The general health measures in cases of disasters are presented. They are classified as applied on-place and in-hospitals. The specific emergency measures discussed in this chapter include: drinking water, water and sewerage infrastructure, chemical hazards as well as other implications. Finally, two important education problems are mentioned which were put in evidence by the inappropriate behaviour of the population under calamities and the rather poor efficiency of the medical personnel in case of disasters.

1 Introduction

The beginning of the third millennium finds mankind faced with a considerable number of unsolved problems. The most serious one, by its immediate and long-term effects, is related to the environment. The international scientific community has to give more convincing answers to some questions people ask more and more often: is the climate changing? If so, how quickly and how much will human society be affected? And what can we do in order to minimize the risks?

The paper presents the experience of a year of natural hazards in Romania and the measures taken to counterbalance the risks on population due to disasters.

2 The calamities of the year 2002 in Romania

The year 2002 in Romania was characterized by spectacular changes in weather and by calamities. The events occurred month after month and resulted in important damages *(› Tab. 1)*.

January started with extremely cold weather in Transylvania and the Republic of Moldova. About 10,000 hectares cultivated with rape and barley were destroyed resulting in a decrease of production of 50 %. Temperatures under 20 ° below zero characterized the month of February. In central and northern Moldova 30 – 35 % of the vineyards were destroyed by frost. Late hoarfrosts at the end of March caused the loss of 40 % in the fruit production of the whole country. The economic losses for the first three months were estimated to be 14 million Euros.

April was a month during which the absence of water in the soil became acute. Thus, for the first time in the past 20 years, irrigation was started in April. A devastating drought and isolated heavy rains and hails in the centre and south of the country characterized the month of May. In June, drought continued to affect the crops. The absence of rain and very high temperatures for this period of the year, 30 – 40 °C, destroyed 50 % of the wheat and barley cultures. The second trimester resulted in losses of about 23 million Euros.

In July, on the background of drought, devastating torrential rains were recorded in some areas. Torrents wiped out 70,000 hectares of agriculture. The vineyards in the Vrancea county, situated in the east Romania, were affected by successive hails, the estimated loss being 30 – 40 % of the vine production. Early August was also characterized by drought and very high temperatures (40.8 °C in the shade in the southern part of the country). In the second part of the year some weather phenomena characteristic of tropical areas occurred. Heavy and extremely violent rains caused catastrophic floods. One hundred and thirty one localities were affected: 3,000 households and 70 houses were destroyed, 70,000 hectares of farmland were damaged, 47 bridges were damaged, of which 4 collapsed, and 10 national roads partially destroyed. Also, 3 persons died (one old person with cardio-vascular disease and two drowned children).

However, the most dreadful phenomenon was recorded in Făcăieni, in southern Romania. It was a tornado, a phenomenon recorded for the first time in Romania. The strong wind totally destroyed 16 houses, left 300 houses without roofs, uprooted tens of trees, jammed railway traffic for 24 hours, injured 22 persons and killed 3 victims (a family was crushed under a collapsed ceiling and a car crashed into a tree).

After the crops had been seriously damaged by drought, heavy rains in September augmented the losses. In all, the economic losses of the three summer months rose to 18 million Euros.

In October the temperatures were much below the normal average. The fact that temperatures were close to zero degrees had a negative impact on the growth of crops seeded during autumn. November and December registered severe cold, with the soil freezing. This had major implications on the cultivated farmlands (20 % reduction of the estimate harvest, 50 % of the barley crops, vineyards and orchards compromised). The economic losses of the fourth trimester went to 3 million Euros.

Tab. 1
Weather phenomena over the year

Months	Events	Economic losses
January – March	cold weather, hoarfrosts	14 mill Euros
April – June	drought, heavy rains, hails, high temperatures (30 – 40 °C)	23 mill Euros
July – September	drought, high temperatures 45°C, torrential rains, floods, tornado	18 mill Euros
October – December	very cold weather, freezing soil	3 mill Euros

3 Responsibilities in case of disasters

Every Romanian county has a Local Disaster Defence Committee (*Tab. 2).* They are activated during any of these unhappy events in order to minimize losses, to rehabilitate water and sewerage pipes, to recover from electricity faults, to repair roads, bridges and railways, but mainly to help people in need with living supplies, medicines, safe water and health care. These committees usually include: local authorities, the Department of Public Health (DPH), Civil and Military Defence Departments, the Police, the Fire

Department, the Environment Protection Agency, Water Supply and Sewerage Companies, Electric Power and Communication Companies, the Department of Roads and Bridges, the Department of Transport, the Food and Agriculture Department and volunteers.

Tab. 2
Responsibilities of the Local Committee in the case of natural disasters

Body	Responsibility
Local authorities	Evaluate the situation, organize the disaster headquarters, supervise the actions of the committee members to reduce the effects of the disaster, discrete local founds distribution
Department of Public Health	Identification of diseases, medical monitoring, special sanitation and hygiene measures
Civil and military defence departments, Police, Fire Department	Imposes the observing of decisions, acts for the diminishing of the disaster effects, helps people in need
Environment Protection Agency	Imposes measures for the protection of the environment (especially in the case of danger of chemical pollution)
Water supply and sewerage companies	Remedy the damaged water supply and sewerage infrastructure
Department of Transport, Roads and Bridges	Remedies the damaged access routes

4 Public Health decisions and actions

The DPH takes action both in the areas affected by calamities and in those with displaced population. These measures include: active identification of diseases and active medical monitoring for categories of people at risk (newborns, children and pregnant women, elderly, people with chronic diseases, disabled and patients who cannot be moved, people with a low income and the homeless).

Special measures apply also in hospitals. Newborns, infants and women who have recently delivered are not discharged until the situation is back to normal. In order to prevent over-crowding in hospitals, a strict selection of patients in need for hospitalization is done, with highest priority given to acute disorders and emergency surgery. Also hospitals and the DPH are responsible for securing medical supplies with drugs, blood and plasma substitutes, diet food, powder milk, disinfecting products, etc.

In the poor urban communities and in most of the rural areas the sanitation and hygiene measures have particular importance. They are intended to prevent water-born and vector-born diseases, gastrointestinal illnesses, dermatitis, conjunctivitis, and wound infections. Cause of these incidents could be: inadequate sanitation and overcrowding among displaced persons, contact with polluted water, rodent infestations, contamination of food, damage of waste deposits and latrines, contact with polluted water. Measures include: sanitary and waste management education, disinfestation and vector control, creation of safe food storage conditions (withdrawal of depreciated products), disinfection of latrines and neighbouring soil, immunization of population (tetanus boosters, case-by-case vaccinations).

In case of natural disaster, special care is given to storehouses of chemical substances. Causes of accidents could be: underground pipe disruption, overflow of toxic-wastes or release of chemicals. Most

important for prevention and proper action is the existence of accurate and updated maps of the locations with potential risks (chemical plants and deposits). Special attention is given to stocks of toxic substances. The body involved always in these cases is the Environment Protection Agency.

Equally important is to secure the water supplies. Specific to the Romanian rural areas remain the well water supply. In case of disasters, the water from local sources is first affected. To prevent the incidence of water-born infections during disasters, the measures include the testing of wells, chemically and bacteriologically, and their disinfection. Till the situation is under control, a particular concern of the DPH is to supply the population with drinking water, bottled, boiled or treated and distributed in tanks.

Occasionally, the disasters produced the contamination of the springs from where water is fetched to towns, or the damage of distribution or treatment facilities. In some cases these damages could have been minor if the installations were newer or better kept. Cheap or old water and sewerage utilities increase the risk of accidents. In all cases the lesson learned was that, especially if you are poor, you cannot afford to buy cheap: there is less money spent to build modern water and sewerage supplies than to rehabilitate old installations after disasters.

5 Human behaviour and responsibilities

Highly important in case of disasters is the education of the population, of personnel with responsibilities in such events, and last but not least, of health personnel. The general impression is that people have problems with acting appropriately in case of disaster. They are not used to washing their hands with soap while preparing or eating food, after toilet use, after participating in flood cleaning activities, or after handling items contaminated with floodwater or sewerage. Since the causes are to be blamed on the low educational level of the rural population, remedies could be obtained by a dedicated education acquired in schools and, sometimes, at the work place (key rules to apply in extreme events to prevent falling sick and striking losses of human lives). The second education problem concerns personnel. It includes, of course, all level of personnel, from public administration with responsibilities in cases of disasters to the army and other civil categories. But of a tremendous importance is the proper emergency education of health personnel. It is not at all easy to establish ideal behaviour, and especially to plan and organize a health system adaptation to an emergency.

6 Conclusions

The attitude of contemporary society towards natural hazards is often contradictory. On one hand, huge human and financial efforts are made in order to prevent and reduce their effects. On the other hand, the development of human society sometimes triggers the occurrence of some disasters or amplifies their outcomes (Cheval 2002). Thus, the climate change, a natural process that has occurred many times during the evolution of our planet, is today beyond its natural limits. The increased vulnerability of human society to natural hazards is not so much due to changes in the way the phenomena show, but rather to some anthropogenic causes such as the increasing population, social inequity, military and political nature of economic support, accumulation of economic capital in areas likely to be affected by hazard, the increasing potential of technological disasters (Alexander 1995; May 1997).

The focal point in the present approach of researches on natural hazards is the human dimension. How prepared societies are to cope with extreme natural events differs in many aspects (education, infrastructure, organization, etc.), thus every situation raises specific problems. However, no matter what type of society , these problems have to be solved with best results; a highly current challenge for those involved in the integrated management of natural hazards. Often, the extreme natural hazards only disclose and

aggravate a pre-existing latent poverty (Ribot 1966). Unfortunately, any post-calamity evaluation cannot include the real psychological impacts, the pain and the elapse of hope, which natural hazards leave behind when they turn into disasters.

Although touched perhaps less violently than Western Europe, Romania was not bypassed by the vicissitudes of the changing weather. In particular, the year 2002 was felt very severely and had major implications on the economy and on humans. In its way to modernization and integration into united Europe, Romania is also making efforts to minimize the risks encumbered by severe weather phenomena. Learning by action during the ravaging year 2002, the Romanian responsible institutions for the prevention and minimization of risks in case of calamities are now better prepared to face similar events of the future.

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