

SECTION V: CLIMATE CHANGE: GLOBAL CHALLENGES, LOCAL ACTIONS

EXTREME WEATHER EVENTS IN URBAN AREAS. A LEGAL VIEW

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ABSTRACT

The main objectives of the current paper are the need to promote adaptation programs for urban areas; the need for increasing proactive actions of local authorities, in response to the extreme weather events related to climate change; the need of raising public awareness and improve citizens' access to information on the emergency situations and measures in response to the natural events.

At the global scale, the urban areas are responsible for a significant share of greenhouse gases (GHGs) emissions. Bucharest is under an increased exposure and vulnerability to heat waves and floods which are going to be more frequent and persistent than prior. The current analysis is based on a methodology aimed to improve the use of climate risk assessment in decision making related to disaster reduction and adaptation to climate changes in large urban agglomerations.

As main result, the emergency measures in response to the storm taking place in Bucharest, on September 20, 2017 were planned and enforced in a better manner than prior. The population reacted faster in urban areas than in the rural region. It was observed a more positive attitude of the citizens.

The main conclusions are: a real increase of the public awareness in taking immediate action in the case of extreme weather events; the necessity of undertaking periodic analysis for improving appropriate prevention and proactive procedures and measures for such extreme weather events; the proactive action refers to exercises with target groups potentially exposed to such events.

Keywords: *Public Law, Environmental Law, Vulnerability, Urban Adaptation, Extreme Weather Events.*

1. Introduction

Urban areas are responsible for the largest part of the greenhouse gases (GHGs) emissions at the global level. On the other hand, the climate change impact is amplified by the human-made environment in the large urban agglomeration. Soil

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sealing in built up areas decreases the water storage capacity of the floodplain, leading to an increase of flood risk and flood damage. Soil sealing plays also an important role in the urban temperature and the development of the urban heat island.

Romania is affected all over the year by extreme weather events, which represent a small part of the hazards and climate risks of the Earth. Lately, in different areas of the world, we observe an increased frequency in extreme weather and climate events. As a result, we encounter huge disasters, sometimes with human victims but also with large material damages and important modifications to the environment. If we correlate them with different other fields, such as energy, health or water resources, also because of an intensified greenhouse gas effect, we are witnessing a major climate crisis.

The way in which they manifest, the length, the intensity and the consequences of these phenomenon are determined, in Romania, by the interactions between the atmospheric dynamics and the active surface of the country, a major role having the orographic dam represented by the Carpathians and the thermic dam of the Black Sea.

From the perspective of an increased number of extreme weather events in our country, it becomes imperiously necessary to periodically assess and analyse the measures taken for preparing and reacting to this phenomenon. A proactive approach to these aspects means implementing action procedures for authorities and facilitating the access to information for the population in order to acknowledge, understand and respect the measures which should be taken depending on the type of dangerous event and the level of alert indicated by the authorities with responsibilities in case of such events.

The catastrophic effects of extreme weather events cannot be ignored anymore, and not even taken lightly, having in mind the recent powerful storm, which came out of nowhere on Sunday September 17th, 2017, in the western region of Romania and whose effects were very grave (including human lives were lost). The storm manifested on a large area and affected villages and even large cities. These weather events, including tornadoes, have increased in number and intensity all over the Romanian territory, generally taking place when the temperature changes between one season to another; in the above-mentioned case, from the hot temperature in the summer to a colder one, during autumn.

Then, on the 20th of September, another storm alert was issued, this time for Bucharest. Cities like Bucharest are under increasing exposure and vulnerability to heat waves and floods which are going to be more frequent and persistent under climate change.

Even though, the alert manifested as prognosed, it was demonstrated that the population in the urban areas is more disciplined than the rural one, which gives hope for attaining the discipline degree necessary for this kind of events. At a first evaluation, the communication between the authorities responsible with these special situations is more difficult than the communication between authorities and citizens (direct communication, through mass-media or internet).

Accordingly, what happened that day proved that citizens can be quickly informed and ready to undertake necessary measures for their own protection, but also for the protection of their goods and families. On the other hand, an insufficiently documented alarm can create panic and chaos and, in the case the event didn't occur or its span is much lower than expected, the citizens might lose their trust in the accuracy of such announcements made by the responsible authorities.

From this point of view, an equilibrium is necessary between the necessary procedures for emergency situations and their assessment. The assessment should be periodical, in order to ensure the speed of reaction is adequate to any event, independent of its nature: storms, floods, earthquakes, landslides or any other extreme event, natural or human made.

The increase of extreme climate events shows the necessity to improve the regulations and procedures applicable to these situations.

2. Procedures for emergency situations

The general legal framework for emergency situations in Romania is regulated by Governmental Emergency Ordinance no. 21/2004 on the National Management System for Emergency Situations³. According to article 1 of the GEO no. 21/2004, the National Management System for Emergency Situations is established, organized and functioning in order to prevent and manage emergency situations and to ensure and coordinate the necessary human, material and financial resources for re-establishing a state of normality.

According to article 2, point a of the above-mentioned GEO, an "*emergency situation*" is defined as an extraordinary non-military event, which threatens human life or human health, the environment, material or cultural values and for which, in order to re-establish a state of normality, urgent measures and actions are necessary, as well as specialized resources and a centralized management for all involved authorities.

In the risk situations are included cases of force-majeure determined by fire, earthquakes, accidents, explosions, landslides, mass diseases, tornadoes, avalanches, other natural calamities etc.

During these emergency situations, actions should be undertaken to warn the population and the authorities from the endangered areas, to declare a state of alert in case of imminent danger, to apply prevention or protection measures specific to different types of risks, to give emergency health, to declare state of emergency regime according to article 93 of the Romanian Constitution etc.

During the state of alert, any necessary measures can be deployed, within legal limits, to put an end to the force majeure situation.

A National Committee for Emergency Situations is created by the GEO no. 21/2004, to ensure strategic planning, permanent monitoring and evaluation of

³ Published in the Official Journal of Romania no. 361 of 26 April 2004.

risk factors, threats and vulnerabilities, as well as to coordinate the management of the emergency situations, determined by different types of risks. The National Committee is led by the vice prime minister responsible with national safety.

At local level, and for Bucharest, an Emergency Committee is also established, being led by the prefect.

The General Inspectorate for Emergency situations is the specialized authority, under the supervision of the Internal Affairs Minister, which ensures a unified and permanent coordination of the prevention and management of activities in emergency situations.

At ministry level, municipalities and other authorities with competences elated to the management of emergency situations, the law establishes operational centres for emergency situations.

Also, in order to prevent and reduce risks of disasters, to protect de population, the goods and the environment against negative effects of emergency situations, specific activities, measures and requests are organized and applied in order to establish the civil protection component, as part of the national security strategy.

One of the main obligations of civil protection is to protect the population, the goods and the environment against disasters and army conflicts⁴.

According to article 9, points a and b of Law no. 481/2004, a **civil protection situation** is a situation generated by an imminent disaster, military conflict or other event which endangers life, environment or goods and cultural values and a **disaster** is an event caused by different types of risks, both natural or human made, which causes human or material loses or environmental modifications which are higher than the specific levels established by laws and regulations related to emergency situations.

Civil protection management is also ensured by the components of the National Management System for Emergency Situations, as described above.

The population is notified and warned by the General Inspectorate for Emergency Situations or by other professional emergency services, based on information received from the population or from structures responsible with monitoring risk sources.

Nuclear, radiologic, chemical and biological protection of the population is made based on criteria established by the General Inspectorate for Emergency Situations, through means of individual or collective protection, risk areas being priority.

According to article 54 of Law no. 481/2004, de pollution measures include identifying and eliminating polluted sources, limiting and neutralising water, air and soil pollutants and evacuating population and animals from the polluted environment or forbidding the use of contaminated water and food. Economic operators and public authorities must warn immediately the population on the

⁴ According to article 3, point f of the Law no. 481/2004 on the civil protection, republished in the Official Journal of Romania no. 554 of 22 July 2008.

risks of pollution and contamination of areas closed to them and intervene on order to protect the population and to eliminate the effects of pollution.

3. Natural disasters procedures

The general legal framework for managing different types of risks is established by Governmental Decision no. 557/2016⁵. This Governmental Decision ensures, among others, at national level, the management for risk situations.

According to Annex I of this regulation, among different types of risks are included: storms and blizzard, floods, massive snow falls, tornadoes, droughts, **extreme temperatures**, vegetation fire, avalanches, landslides, earthquakes etc.

Some of the associated risks related to extreme temperatures are ice deposits and different icy surfaces and dog-days. The responsible authority for these risks is the Ministry of Environment.

Concerning flood risks, we even a National Strategy for Flood Risks, approved by Governmental Decision no. 1854/2005⁶.

Also, by Order no. 192/2012⁷ it was approved the Regulation on managing emergency situations generated by floods, extreme weather events, hydrotechnical construction accidents, accidental pollutions on water courses and marine pollutions in coastal areas. According to article 3, point d of the Regulation, by extreme weather events, the law understands: torrential rain, heavy snowfall, storms, ice deposits, dog-days, droughts and hailstone.

The state of defence generated by floods, extreme weather events, hydrotechnical construction accidents and accidental pollutions is triggered when defence limits are overpassed or when the possibility of happening is established by prognosis.

The critical limits for extreme weather events are established by common ministry Order no. 3403/2012⁸ which approves the codification procedures for meteorological and hydrological information and warnings. According to Annex I, Chapter I of this Order in case of extreme weather events prognosis, the National Administration for Meteorology issues weather warnings, in which it presents the phenomena, its intensity, the potentially affected areas, the probable moment of its start and the duration. In the case in which prognosed weather events do not require a yellow code warning, the Meteorological Administration only issues a meteorological information (without a code or a map).

The weather warning will be accompanied by a code, having the following colours:

- green code, for areas in which there are prognosed no dangerous weather events;

⁵ Published in the Official Journal of Romania no. 615 of 11 August 2016.

⁶ Published in the Official Journal of Romania no.72 of 26 January 2006.

⁷ Published in the Official Journal of Romania no. 649bis of 12 September 2012.

⁸ Published in the Official Journal of Romania no. 765 of 14 November 2012.

- yellow code will be used when the prognosed weather events are temporarily dangerous for some activities, otherwise being normal for that period of the year or for that region;
- orange code, which applies for dangerous weather events, with a high degree of intensity and
- red code, for dangerous weather events with a very high degree of intensity and with potentially disastrous effects.

The phenomena subject to meteorological warnings are: strong wind, heavy rains; rains with hailstone and electrical discharge, heavy snow, extreme minimal or maximal temperatures, ice, fog.

The meteorological information and warnings in case of extreme weather events are issued, at national level, to the operational centre for emergency situations within the Ministry of Environment by the National Administration for Meteorology. The operation centre will immediately transmit, at its turn, all the extreme weather information and warnings, dangerous at national level, to the Ministry of Internal Affairs, to the National Operational Centre within the General Inspectorate for Emergency Situations and to the local emergency situation committees.

During meteorological warnings related to heavy rains, rains with hailstone and electrical discharge and heavy snow, the regional prognosis is actualised every 3 hours and transmitted to the operational centre within the Ministry of Environment. The local committees for emergency situations, located in the city halls, must ensure the population warning in the risk areas.

3.1. Insurances in case of disaster

From the point of view of insurances in case of natural disaster, Law no. 260/2008 concerning mandatory household insurance in case of earthquake, landfalls and floods⁹, covers only natural disaster such as earthquakes, floods or landfalls, and not storms, tornadoes etc., which have increased exponentially in the last years. These aspects are clear in the light of article 4, point b of the law, where it is stated that a *natural disaster* covers earthquakes, landfalls and floods, as natural phenomena.

According to a legal project, drafted by the Insurances Surveillance Authority, that plans to modify the above mentioned procedures, it will be possible to introduce in the mandatory household insurance, for a higher price, also natural disasters such as fire and atmospheric phenomena. It is still unclear if in the insurances will also be included events such as floods from sinkholes.

4. Short conclusion

Nevertheless, in the urban area, we can encounter different dangers, which are not covered by specific legislation, such as trees falling, piles or electric cables, construction elements (stonework, roofs, chimneys etc.) or car accidents caused by

⁹ Republished, according to article IV of Law no. 191/2015 in the Official Journal of Romania, Part I, no. 494 of 06 July 2015.

a traffic jammed by abundant rain or high-speed wind. Also, in urban areas there are very old trees which are proven to be a constant danger in case of stormy weather, even without a high intensity wind.

As part of local environmental programs, adopted for each district in Bucharest, but also by the Bucharest city hall, it is necessary to show an increased attention to the inventory of trees which were affected by time, diseases or other harmful factors and which already suffered during storms, therefore being a constant danger for citizens, even outside stormy weather periods. There are cases in which some of these trees cannot be saved anymore and should be sacrificed, cases for which easier, less bureaucratic procedures are needed. These procedures should be adequate to the specificity of urban areas, also by keeping mandatory the necessity to plant other trees in the place of the sacrificed ones.