

From Hindsight to Foresight: using collaborative methodologies to tackle the wicked problems and improve the the Emergency System

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ABSTRACT

The main goal of this WiPe is to analyze a wicked problem of disaster management, to offer an external evaluation on how the emergency system worked and to plan a foresight exercise able to design a personalized emergency response services to citizens. The first part of the paper is rather a hindsight analysis regarding disaster management of “Colectiv 2015”, one of the worst manmade disasters in the recent Romanian history. After four years of investigations and reports and many recovery measures “Colectiv 2015” is still a complex problem that needs external evaluation. The second part of the paper is a two-tier research: an intermediary analysis of the wicked problem, using Barry Turner’s framework and a design of a foresight exercise. In the Conclusions of WiPe we propose a design of research meant to: 1) better understand the causes and shortcomings of disaster management and failure of foresight and 2) help the Emergency System in Romania build a disaster resilience mechanism.

Keywords

Disaster, emergency management, wicked problem, Delphi, personalized emergency system.

INTRODUCTION

“Colectiv 2015” was one of the worst manmade disasters in the recent Romanian history, by impact. An accidental fire that lasted a couple of minutes, ignited on October 30, 2015, in a rock club triggered a disaster with 64 people dead and over 150 people injured that eventually led to the massive revolts in the streets of Bucharest, 3 days of national mourning and resignation of the Government. The ongoing criminal investigation opened three files/grounds with 11 people arrested. Further investigation is underway with many conflicting views and interests that lead to the conclusion that “Colectiv” file is a wicked problem that needs external analysis (Arafat, 2016).

On the other hand, the extreme event has been taken into consideration by the Romanian Emergency System in planning but the impact was a major one. An investigation of Zulean and Prelipcean of perception of leaders regarding the risks and preparedness revealed that natural disasters such as earthquakes or large-scale forest fires were considered the most probable and the Emergency System are the most prepared (Zulean and Prelipcean, 2013) while industrial disaster has a marginal attention.

The main goal of this paper is to describe and explain the wicked problem, to offer an external evaluation on

how the emergency system worked (planning, response and recovery) and do a foresight exercise to make the Romanian Emergency resilient in coping with the unexpected events. This will be an academic study of an actual occurrence of the unexpected by examining the unexpected situation, the human roles and actions they took and the results.

The first part of the paper is dedicated to the presentation of the event from the response to recovery. The second part will describe the results of investigations and lessons learned based on Turner's analysis framework. The last part will propose to use a collaborative methodology to analyze the causes of disaster, starting from the results of the Turner's method, and the solutions for coping with unexpected and to improve effectiveness of Emergency System.

"COLECTIV 2015" DISASTER: RESPONSE AND RECOVERY

The unexpected fire occurred on the evening of October 30, 2015 during a concert in the Colectiv Club, where around 350 people were present, according to the participants' estimates, in a place improperly arranged for such activities, as the available data and subsequent investigations showed, fire caused by the fireworks used during the concert, fireworks that led to the ignition of the polyurethane sponge (easily flammable) used for soundproofing on a pillar of the building. Flames expanded very rapidly throughout the club, causing injuries and deaths, through combustion, asphyxia, carbon monoxide intoxication a.s.o., to a significant number of concert participants.

Tragedies such as the Collective Club are not singular, to apply Normal Accidents Theory to understand the extreme events and correct the Strategic Planning process. Several years ago similar type of fire broke out in the Kiss Club in Santa Maria, Brazil on January 27th, 2013, in which 233 people died, and another 630 people were injured (BBC, 28 January 2013). Brazilian police stated that the fire began from a pyrotechnic device that ignited flammable acoustic foam in the ceiling.

Another similar incident took place at a shopping mall in the Siberian city of Kemerovo on 25th March, 2018. The tragedy in 64 dead people, including 41 children (Hayes, 2018). The shopping center was developed in a former candy factory, and the fire safety rules / procedures seem to have been ignored, possibly also as a result of officials' corruption. Another fire occurred more recently, on January 4th, 2019, in an "escape room" game in Koszalin, Poland, killing 5 teenage girls and seriously injuring a man (BBC, 5 January 2019).

Even though considered a "black swan", such events are happening quite often and this led us to deepen the studies and look them from a different perspective, possible as accidents that could be predicted and even prevented by implementing certain rules and procedures.

The Colectiv Club was one of the approximately 50 companies operating in an old hall in the former four-story building of the "Pionierul" factory, starting on May 2013. Changes in the structure of industrial activity have determined that many buildings belonging to former industrial firms change their destination, making possible the emergence of new economic activities in these unused spaces. There is nothing unusual and the economic activity has experienced several episodes over time. Generally, these facilities change their destination, requiring new space improvements and arrangements, and, finally, new operation permit.

The magnitude of the event led the MAI to establish the Red Plan of Intervention, and the Romanian Government decreed three days of national mourning. As a result of the massive protests following the fire, Victor Ponta and his government resigned on November 4, 2015, as well as the Mayor of Sector 4, Cristian Popescu Piedone.

Both from the perspective of the analysis of the events and the existence of theories and practices in the field, it is necessary to analyze the way of intervention, but also the aspects that made possible the functioning of the club as a concert hall and the lighting of fireworks in a closed space, respectively, of what happened in Romanian hospitals and how other countries and international organizations reacted to help our country.

The chronology of events shows the very short fire time, 113 seconds, between 22:30 and 22:32. In another 10 minutes, the first ambulances and firefighters trucks arrived at the scene and the victims were transported to the hospitals, 11 hospitals in the Bucharest-Ilfov region, and in the coming days, on the basis of bilateral agreements, to hospitals abroad. The Red Plan for Intervention at the IGSU level has been activated. Only a few of these 11 hospitals activated the White Plan, a plan that is equivalent to the IGSU Red Plan, but not all hospitals had this White Plan of Intervention (the hospital response plan in the event of a massive influx of patients following a collective accident, etc.). Moreover, there was no centralization and coordination at that time at the Operational Center for Emergency Situations level. At 23:15 came the first news on TV about the incident at the Colectiv Club that initially talked about an explosion with several wounded and dead, and then

about a raging fire. Parents, relatives and friends of some of those who participated in the concert have arrived at the scene asking for information about the victims. The police intervened at 23:30, sealing a perimeter of several streets around the club building, the streets being filled with intervention cars, fire brigades and ambulances. The announcement was initially made by Raed Arafat at 23:55 with a brief press statement: a fire with more injured and 18 dead. At 0:08 Minister of Internal Affairs, Gabriel Oprea, has taken the communication and announced that the number of deaths reached 25. Also, it was made available to people relatives a phone number to receive information and then, at 2:00, the Minister of Internal Affairs reported new data on the fire.

Has the IGSU Red Plan been activated too late, what happened from the operational level - the White Plan of Intervention - in the hospitals, whether or not, in the event of such disasters, would it be the unique coordination at the level of the National Center for Integrated Management, the fire from the Colectiv Club required the activation of the EU Civil Protection Mechanism?

THE LIMITS OF EMERGENCY MANAGEMENT

The presentation of the collective club accident leads to its categorization into the disaster category as an accident involving multiple victims, a collective accident, far beyond the situation of an emergency, defined as the situation where the resources and capabilities exist for each victim/ patient. Therefore, being the most serious civil emergencies incident in recent history of Romania, it is necessary to identify the causes and factors that facilitated the fire, so that recommendations on the measures to be taken to ensure that such "black swan" incidents (low probability - high impact) are eliminated, if possible.

In order to identify the causes of disasters, but also to highlight the limits of emergency management, the analysis can be started from both the past and the future. It is difficult to accurately quantify what involves an exercise of foresight, but we believe it should be an element in triangulation of the results.

The impact and the complexity of interventions in such situations need new approaches and efficient solutions for decision making process in disasters management. Decision makers in extreme risk environments should respond in a different manner because of a new complex and changing global environment and also decision making in critical or special situations is very complex.

Amir Hossein Gharehgozli et al (2016) recommended a framework to deal with wicked problems. However, that is not applicable to "Colectiv" case due to the lack of historical records of past disasters to compare with. So, we found out that Barry Turner's framework applied by Panos Constantinides to explain the failure of foresight in crisis management for the case of Mari disaster (Constantinides, 2013).

Most crises are perceived as unexpected events, but several precursors or warnings are usually identified on hindsight by the media or crises investigators. This paradox is at the heart of Barry Turner's failure of foresight framework, who emphasized the process leading up to a disaster, by proposing the following six stages of crisis development which can unfold over long periods of time: Normal starting point, Incubation period, Precipitating event, Onset, Rescue and salvage and Cultural readjustment (Constantinides, 2013). Next we will employ Turner's framework to clarify the wicked problem of "Colectiv 2015" disaster.

Stage I - Normal starting point (1990-2015)

Romania is a country in transition from a Communist organization to a Capitalist way of life and democracy. As mentioned elsewhere, the transition required institutional transformation, privatization and autonomous institutions, including the Emergency System. A set of norms and regulations that address the emergency preparedness and civil protection where designed before 2007, when Romania joined the EU and the implementations continued afterwards. The Colectiv Club was located in a former factory's hall, being built of reinforced concrete, without windows and having as single available exit a small door of only 80 centimeters. Changes in the structure of industrial activity have determined that many buildings belonging to former industrial firms change their destination, making possible the emergence of new economic activities in these unused spaces. There is nothing unusual and the economic activity has experienced several episodes over time. Apart from being wrapped inside with a soundproof polyurethane sponge, a highly flammable material, it had on the ceiling dry pine wood grilles, which can also sustain fire.

Stage II - Incubation period (2013-2015)

The Colectiv Club was one of the approximately 50 companies operating in an old hall in the former four-story building of the "Pionierul" factory, starting on May 2013. It seems that the existing fire norms and procedures were almost entirely neglected or mimicked since there were hundreds of persons participating in other past events hosted by the respective club, well above the declared number of 80 seats, and the polyurethane sponge on the ceiling was cleaned, most likely with flammable substances. With only three small fire extinguishers and

no water sprinklers, the club operated based on the declaration of responsibility of its owner, without the necessary approvals for the security in case of fire. However, officers from Emergency Situation Inspectorate were at least 3 times at the club, without taking any concrete steps to ensure the customers' safety.

Stage III - Precipitating event (September - October 2015)

On Friday night, October 30, 2015, a free concert of Goodbye to Gravity rock band was organized. About 350 people were present at the event, according to some participants' estimates.

Stage IV – Onset (30 October 2015, between 21:00 - 22:30)

At 21:00, the concert started and, at 22:30, a new song begun with pyrotechnic effects. The fireworks were installed in the Colectiv Club by two authorized experts. However, the fireworks appear to have not been put at the proper distance to a pillar packed with polyurethane sponge and it began to burn. The flames quickly spread to the club's ceiling and became violent. A dense smoke filled the club and the incandescent pinewood grilles from the ceiling begun to fall over those left in. There was panic and the crowd began to run towards the single available exit. The victims were burned, suffocated or intoxicated with smoke or the emitted gases.

Stage V - Rescue and salvage (30 October 2015, 22:32 – November 2015)

At 22:32, the first call to 112 was recorded and, at 22:42, the first two ambulances and firefighter's trucks arrived at the Colectiv Club. The fire was extinguished quickly, while the medical staff from the ambulances and a new born hospital, located nearby, gave first aid to the severely affected persons and those in the cardiorespiratory stop, the victims being resuscitated in the street. The magnitude of the event led the Ministry of Interior to declare the Red Plan for Intervention and, in the next few minutes, more than 20 ambulances arrived. At around 01:00, the last wounded persons were transported by ambulances or friends' cars to the designated hospitals.

After the first news about the incident appeared on television, on 23:15, parents, relatives and friends of some of those who participated in the concert have arrived at the scene, asking for information. A phone number was allocated in this respect and the Secretary of State for the Emergency Situations, Dr. Raed Arafat, as well as the Minister of Interior, Gabriel Oprea, made press statements to keep the people informed about measures taken in the aftermath of the incident.

Following the fire in the Colectiv Club, 64 people died and another 186 suffered different injuries, 146 of whom were hospitalized. Several people died at relatively long period of time from the incident itself (in some cases, even after few months) due to the complications that occurred, many of which were caused by the improper conditions in the Romanian hospitals, as some independent sources of information say.

Stage VI - Cultural readjustment (November 2015 - today)

Following the incident, three days of national mourning were declared and, on the background of the massive protests, the Prime Minister Victor Ponta and his Government resigned, together with the Mayor of the 4th District of Bucharest, where the Colective Club was located.

Several investigations have been conducted so far, but none have managed to offer a comprehensive picture and provide an objective understanding of the facts. These include two criminal investigations, an extensive Report of the Romanian Government, as well as a Report of the Department for the Emergency Situations and several media investigations.

The first Public Prosecutor Charge was instrumented by the Prosecutor of the High Court of Cassation and Justice against the owners of CLUB COLECTIV S.R.L. and GOLDEN IDEAS FIREWORKS ARTISTS S.R.L. for unintentional killings, body injuries and failure to take legal measures of safety and health at work, 8 people being indicted (Ministerul Public, 2017). Among the indictments there were facts such as allowing a large number of people to enter the club, lack of multiple emergency doors and running an improper pyrotechnic show in a closed space. The file is judged by the Court of the District 4, Bucharest.

The second Public Prosecutor Charge was instrumented by the National Anticorruption Directorate for several offences, allegedly committed by people in charge with taking decisions and issuing authorizations in the City Hall of Sector 4 Bucharest, such as: abuse of office if the civil servant obtained for himself/herself or for someone else an undue benefit, forgery when drawing up documents (DNA, 2015). A third charge is under review for the death in the hospitals after the recovery stage.

The newly appointed Prime-minister Ciolos tasked a control team that eventually elaborated an 84 pages report about the "Colectiv" disaster (administrative capacity of the emergency system, its response and management of victims after the medical intervention). The conclusions of the Report were that the response was not well

coordinated with improvisations due to: lack of exercises on major disasters; legislation loopholes and lack of equipment and material resources (Guvernul Romaniei, 2016). As far as the institutions involved their activity has been assessed as properly for the Prefect and Special Telecommunication Service and modest for Emergency Unit “Dealul Spirii” (responsible for the area), Department of Emergency Situations and hospitals involved in intervention.

The Prime-Minister’s Report received immediately a response from the secretary of state for Emergency, Dr. Raed Arafat, who elaborated a counter-report of 143 pages with annexes (MAI, 2016). In his conclusions, Dr. Arafat claimed that the PM Report don’t uses enough evidence and it is based on media reports, don’t understand the terms and the PM final proposal of a radical re-organization of the emergency system is not grounded on a well-established expertise.

A third Report on lessons learned from “Colectiv” has been presented in March 2016 to the public by the Department of Emergency Situations (MAI, 2016b). The Report is based on personal and institutional reports of the people involved in response to the disaster. It analyzes each operative situation since the first call, problems identified, relevance level, lessons learned and proposals. The conclusion of the Report is that the issues were very specific and didn’t identified structural causes. However, it suggested an independent analysis by experts to avoid the subjectivity.

From the several investigations and reports, one can identify many causes and shortcomings of response and recovery. Thus, the club was built of reinforced concrete, without windows, and wrapped inside with a sponge for thundering, a highly flammable material, had a single exit, a small 80-centimeter door. On the ceiling there were dry wood grilles, a flammable material.

The club had three small fire extinguishers, but only one was used to try to extinguish the fire at an early stage, but it was not equipped with sprinklers (fire sprinklers) that automatically trigger fire. The representative of the company that dealt with the club's soundproofing said the club's owners refused to buy fireproof material because it was too expensive. Moreover, a month and a half before the event, the clubs' representatives would have washed the sponge on the ceiling, most likely with flammable substances. Secretary of State Raed Arafat confirmed that the Colectiv Club was functioning without the fire brigade's approval for fire safety and the pyrotechnic show. However, 2 officers from ISU Bucharest, George Petrică Matei and Antonia Rad, were at the Collective club headquarters 3 times, without taking any measures to ensure the safety of the clients.

After the immediate response and institutional analyses a set of measures and activities were proposed and implemented for recovery from disaster and to improve of the Emergency System (extract from Government Reports).

a. at the national level the measures were mainly related to the improvement of the IGSU activity: change and adaptation of the legislative framework in the field of emergency situations for the national improvement of the risk types management and accountability of the institutions with attributions in the field; reconfiguration of the integrated emergency response system to streamline the activity of the emergency structures by unifying under the same command the prevention and intervention levels; improving the existing information flow through the integration of emergency and ambulance structures dispatchers; increasing the level of endowment with special vehicles and specific equipment for emergency and disaster interventions to reduce reaction times/ intervention at events and increase the quality of missions, etc.; the establishment of strict rules on the authorization and verification of biocidal products obliging distributors and manufacturers to re-authorize with efficacy tests carried out in accredited laboratories.

b. regarding authorization procedures, where the IGSU can resort to the measure of closing the non-compliant commercial spaces when it finds that the number of clients exceeded by more than 10%, in case of suppression or reduction of evacuation routes or dismantling of special fire extinguishing, signaling and warning, etc. or the requirements for obtaining a fire safety authorization, which regulates the minimum space required for the various activities. As far as the medical interventions in extremely serious situations by adopting a plan of measures to reduce the intervention time consisting in the possibility of triggering the Red Plan by IGSU dispatchers, when there is information about the high probability that the event is a major one from the victim's point of view or by the alert of the ambulances in block, by introducing a unique code, and not individually.

c. lately, the Chamber of Deputies adopted the draft for the completion of Law no. 307/2006 on fire protection, known as the "Colective Law", which establishes an obligation for those who work with the public and who do not have a fire safety authorization to make it clear at all entries.

Those solutions represent just an optimization of ES based on lessons learned from the disaster and not a systematic and sustainable solution to avoid, anticipate or mitigate the wicked problem.

To sum up, we can identify and cluster the causes of disaster in all phases as related with: corruption, legislation, malfunctioning of urban development and emergency systems. All are ingredients of a wicked problem that needs an objective analysis using scientific methodologies.

The Barry Turner's framework in case of the "Colectiv" Club fire rigorously/ scientifically demonstrates that the problems were very specific and the structural causes were not identified by the past investigations. Thus, in our opinion too, an independent analysis should be carried out to avoid subjectivity in trying to unveil the truth about the proper incident and its aftermath.

CONCLUSIONS AND FURTHER WORK

This WiPe paper described the most important manmade disaster produced as a collateral effect of emerging economy without testing the resilience of Emergency System. Despite the fact that there are three files in the courts and at least 8 people arrested, that government itself and the Department of Emergency realized thorough analyses the understanding of "Colectiv" disaster and its causes is far from being clarified. Some stakeholders such as government understood it as a normal accident (Perrow, 1999) and recommends a radical change of emergency system while the leaders of Emergency System denied the failure of the whole system and understand it from the perspective of High Reliability Organization Theory (Roberts, 2010).

This is a clear fact that we faced a complex or wicked problem, with many stakeholders involved and many views about the disaster. Dr. Raed Arafat himself recommended an external analysis (MAI, 2016b). A wicked problem is one where the planning to address adverse events is difficult or impossible to solve because of incomplete, contradictory, and changing requirements that are often difficult to recognize.

On the other hand, Zulean and Prelipcean presented in a TFSC paper how the Romanian Emergency System succeeded to change dramatically on institutional level and strategic planning level and incorporated a knowledge management system (KMS), with the World Bank help (Zulean, Prelipcean, 2013). The Emergency System local leaders expressed an interest in developing an integrated framework under the National Management Information System for Emergency Situations, capable of supporting emergency decisions and ensuring a better interoperability between emergency agencies (emergency unit, police, health sector, and civil protection) in order to provide better support for decision makers. It is surprising that no report mentioned the role of KMS in planning and response to the Disaster.

So, a two-research needs to be done further. A Delphi methodology for both hindsight and foresight to design a personalized emergency response services to citizens.

The first part will be dedicated to deep understanding of the "Colectiv 2015" disaster. That can be part of a hindsight analysis based on a classical Delphi. Our research will use a similar analysis by Panos Constantinides to explain the failure of foresight in crisis management for the case of Mari disaster (Constantinides, 2013) but will be based on a Delphi questionnaire.

A second stage of the research will use the same foresight exercise based on a Delphi to find out how to increase the disaster resilience of Emergency System in Romania, drawing the research from the TFSC special section "Moving forward to Disaster Resilience". Eventually we will use the Cross-Impact Analysis (CIA) and the Interpretive Structural Modeling (ISM) to build scenarios as tested by Banuls and Turoff (Banuls and Turoff, 2011) and integrate the results into KMS.

Starting from the experience and database of the previous Delphi (Zulean, Prelipcean, 2013) we will design a three-round classical Delphi online, based on Linstone and Turoff (1975) Handbook and experience we developed in Romania a decade ago based on a consultancy and training of professors Murray Turoff and Roxanne Hiltz.

The sampling strategy is determined by our goals: to tackle the wicked problem regarding the causes and mismanagement of "Colectiv 2015" disaster and designing a better procedures and preparedness for Emergency System. The main groups to be consulted are: leaders of local emergency units, national leaders of government, associations of victims of disaster, experts in law and civil emergency.

This type of research is not a case study without a significance. As mentioned earlier in the paper, similar accidents, such as Kiss Club (in Santa Maria, Brazil), Kemerovo (in Russia) or Koszalin (in Poland) happened recently but they were considered "black swans". However, our hindsight and foresight will try to find out patterns, will explain the implications for Emergency Systems and will offer policy recommendations for Information Systems.

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