

Five people were killed and dozens injured in a freak weather event at the Pukkelpop rock festival in Belgium last year, writes **Erik de Soir**, who analyses the response and draws lessons for other festival and event organisers

FOR OVER 20 YEARS PUKKELPOP (IN Hasselt-Kiewit, Belgium) has been one of the biggest annual festival events for alternative rock music in Europe. Pukkelpop means family, friends, community, freedom, party, peace and lots of alternative music styles in an absolute 'no worries' atmosphere.

The 2011 festival was the 26th in this successful series of concerts which started originally as an alternative event held on a small military airport in Leopoldsburg (Sanicole Airport). Owing to its enormous success, the event moved to a large field on the outskirts of the town of Hasselt, which has approximately 80,000 inhabitants.

More than 60,000 people attend the festival over three consecutive days. A further 10,000 help to build the impressive musical village and campsites, one of which can hold 10,000 tents. Construction and preparation for this festival takes almost six weeks and the whole community is involved. As a family event, it is an annual highlight for hundreds of youngsters whose parents were often involved in preparing the festival's infrastructure when they were young themselves.

Weather event

No one could have expected that this year's festival would be struck by one of the most extreme storms Belgium has ever experienced. In just 10 minutes, high storm winds and an impressive amount of rain and hail surprised, immobilised and terrorised thousands of festival-goers. Five people were killed and more than 100 severely injured.

Months before the concert takes place, a special task force begins the emergency planning task. Immediately before the event, professional emergency planners, conference organisers and leaders from various disciplines (fire, medical emergency, public order, internal and external security, logistics, etc) conduct a careful reconnaissance, tracking each possible threat and process, step-by-step, through the internal emergency plan.

A preventive emergency plan and an additional special contingency planning plan, which have been a legal obligation for every

mass gathering since February 16, 2006, aim to prevent sudden crisis or emergency situations and their consequences. The plans contain the internal and external reactive scenarios – key players, procedures, successive steps, etc – that would be involved in sudden emergencies, and list the tasks, means and responsibilities of the major stakeholders in the crisis response after minor or major incidents.

During the first day of the event in 2011, weather forecasters warned of possible heavy thunderstorms. At 17:55hrs, one of the directors of the internal medical emergency teams ordered all first aid tents to be prepared for heavy winds and storms. The weather broadcast radar, accessible through the Internet and consistently monitored by the site co-ordination staff, indicated that the storm was likely to pass just next to the Pukkelpop area. People began to prepare for heavy rainfall.

At 18:15hrs a terrible storm, the like of which had never previously been experienced in Belgium, struck the concert field, whipping up winds of more than 80mph (128kph), accompanied by a severe hailstorm and overwhelming rainfall. Initially, the concert-goers cheered the thunderstorm, but very soon everyone started to run for shelter, trying to escape from the massive hailstones. Soon, the first structures (tents, flat screens, lamp posts) begin to collapse and many had to run for their lives. It became clear that there would probably be numerous victims.

Young Pukkelpop staff made instant decisions in order to save lives, for

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example, slitting through the large tents so as to avoid them collapsing under the massive weight of water being dumped upon them. Later, it would become clear that these young staff members were to be seen as the real heroes of this disaster.

Shortly after the break out of this storm, known as a downburst (see box p14), the Medical Director (Med Dir) and his deputy decided to join their colleagues from other disciplines – fire, police, security, etc – in

the Operational Command Post (Ops CP).

The Pukkelpop EMS backstage unit, where an emergency doctor and an emergency nurse are on standby during the festival, was activated to full operational mode. Personnel were reinforced by medically qualified

festival-goers who presented themselves to help. Soon, the first badly wounded victims arrived. The Med Dir and his deputy activated the medical emergency plan and assessed the first wounded victims. At 18:20hrs, the Ops CP decided to open all the exit gates and to activate the internal emergency plan immediately.

Personnel from the Flemish Red Cross were sent to the various Advanced Medical Stations, which are well prepared and staffed in advance, in order to co-ordinate the preliminary triage and regulation of wounded victims. At 18:22hrs, the Ops CP and the Site Co-ordination Centre were informed about a collapsed lamp post in the campsite; the message also warned them about possible fatalities. Stage 3 in the emergency plan (ie five or more U1 victims and 10 or more additional victims with uncertain wounds – see box p14 for triage classifications) was reached



The Pukkelpop festival is at Kiewit, seven kilometres north of Hasselt

rapidly. It became clear that the downburst had collapsed a large catering tent (known as the Resto) leaving at least seven U1 victims. The Chateau tent, the boiler room, and the dance tent were also brought down by the weather. Initially, at least two U0 (fatalities) were reported.

At 18:30hrs, the Mayor of the City of Hasselt decided to activate the Communal Disaster Plan as a consequence of exceptional structural damage owing to extreme weather conditions. Three minutes later, the Medical Intervention Plan was also activated and the first specialised EMS crew and first ambulance team were called to the scene at 18:41hrs and 18:45hrs respectively. In Belgium, ambulances are staffed by paramedics and specialised EMS crews consist of an emergency doctor and an emergency nurse.

At 19:00hrs, the Flemish Red Cross was

An unprecedented storm whipped through the Pukkelpop festival in August 2011, causing damage to the site's infrastructure and killing five people, injuring dozens of others and leading to widespread psychological distress among many festival-goers

Keystone USA-ZUMA / Rex Features

deployed to the Advanced Medical Station at the nearby Kiewit Sports Hall. Psychosocial caregivers from the immediate neighbourhood and the whole country arrived in the following hours to provide practical support and psychological first-aid to the thousands of youngsters who fled the disaster scene.

The Advanced Medical Station was of sufficient capacity to receive the numerous victims and was organised into the three classic triage zones. The Flemish Red Cross deployed 18 ambulances and 40 EMS personnel, the Flanders Red Cross deployed 24 ambulances and 100 EMS personnel, and five specialised EMS Crews.

While some festival-goers ignored the seriousness of the storms and its consequences, continuing to party and drink, others fled the disaster scene, creating an enormous traffic

► jam. Scenes of thousands of youngsters leaving the area with bare feet and mud up to their knees, having lost all their belongings, become iconic images of Pukkelpop 2011.

The spontaneous solidarity of people in the region was overwhelming and heart warming. Many inhabitants threw open their houses and offered food and drinks. Large structures in the immediate vicinity offered food, warm drinks, blankets and shelter for the night.

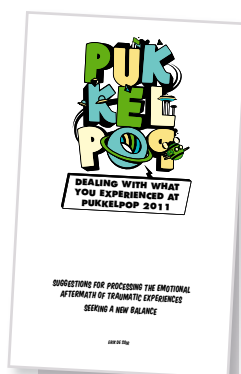
The local police services had to deal with thousands of telephone calls from worried parents; the cellular network became overloaded, leading to a loss of mobile phone service until 05:00hrs. While thousands were trying to flee the disaster, more were trying to get back in to find their loved ones.

Communication

At approximately 22:30hrs, the first specialised EMS teams were demobilised and left the disaster scene. At that time, all the U1 victims had been transferred to various hospitals in the region and the stream of victims from the concert field to the Advanced Medical Station had stopped. At 23:15hrs, the Advanced Medical Station demobilised and assumed its new mission of crisis support centre.

After a first sweep of the enormous camp site, Pukkelpop crisis staff decided to keep the site open and began to evaluate whether or not to resume the festival. Initially, this appeared to be an option, but upon hearing the death toll and the number of victims whose lives hung in the balance, the organisers decided to call it off. To avoid further chaos it was decided that the decision would be communicated in the early morning hours.

The final balance of victims was: Four (U0) fatalities, of which three were on site and one upon arrival at hospital; 338 wounded of which 200 were U3 victims who received first medical aid on the disaster scene; and 138 (U1 and U2) victims who were transported to nine different



Part of the trauma leaflet prepared by the author; for more information on these trauma leaflets, visit www.pukkelpop.be

hospitals. The first night after the storm, nine victims remained dangerously ill; a fifth victim died in hospital a few days later while others will remain paralysed for the rest of their lives.

Some key decisions taken during this event are worthy of note, the first being that

- The concert organisers decided to abort the festival, but only announced this in the early morning hours to avoid a massive exodus from the disaster scene, which could have interfered with emergency medical care or created serious traffic issues. In the immediate stages after the storm, it seemed very important to reorganise and get an overview of the situation. The thousands (approximately 70,000) of people at the disaster scene were left to react on their own – some of them returned to their tents and slept through the night – their reactions were uncertain, possibly due to the influence of alcohol and/or drugs and/or emotional shock. It was most important to avoid chaos and panic.

- The camp site staff decided, in co-ordination with the Ops CP and the Pukkelpop organisers, to keep the campsite as operational as possible. In the immediate aftermath of the storm, many escape roads were inundated and would have made a rapid evacuation impossible. These decisions allowed a more organised and paced departure in the morning.
- During the night, additional trains and buses were mobilised and festival-goers from overseas were allowed to spend the night in a nearby vacation village.

The Pukkelpop disaster taught us some important lessons which will be useful for all future concert and festival organisers, wherever they may be in the world:

- **Prepare for yellow and red card procedures:** This should be done for temporary or permanent interruptions of massive gatherings – caused by sudden extreme weather conditions, even if historical weather patterns do not seem to indicate this as being a risk;

- **Prepare for multiple impacts which create multiple casualties in various areas simultaneously:** The organisers of most mass gatherings prepare for possible crisis situations, but they seem unprepared for sudden and multiple impacts. EMS personnel were simultaneously confronted with lots of casualties. Additionally, most of the medical first aid staff on stand-by during rock concerts are unaccustomed to severe – even battlefield – pathology in large numbers;

- **Elaborate a powerful victim registration system, which allows quick identification**

Triage categorisations

U0 – fatality

U1 – immediate emergencies, severely wounded and in imminent life danger;

U2 – relative emergencies, moderately wounded but at risk of becoming U1 without adequate assistance; and

U3 – lightly wounded victims.

of fatalities: A barcode on the concert ribbons, providing the immediate identification of the victims, might be a good idea. During rock festivals, many people leave their personal belongings in their tents, making quick identification and tracking of victims very difficult;

- **Provide a crisis number before the concert begins and announce it during the concert:** This will allow a quick shift to a fluent communication with the outside world in times of crisis. Immediately after the first announcements of the drama in press, numerous worried family members and friends tried to reach the disaster site by all possible means;

- **Provide a back-up communication system over and above the regular mobile telephone and CB radio systems:** In the hours following the storm, the mobile networks were totally saturated till almost 05:00hrs;

- **Festival and rock concerts often seem to be organised in large fields in the open air:** Sudden massive rainfall instantly transforms such sites into deep mud mire, making access for standard EMS ambulances impossible. Providing several four-wheel-drive military ambulances might be a good idea; and

- **Prepare an electronic notice board on the Internet, which is more powerful than a simple website, for post-incident management:** During and in the immediate stage after the storm, many people helped each other and the victims. In the days following the disaster, it was nearly impossible for people to find each other – after all, we are talking about 70,000 people. Facebook, Twitter and the Pukkelpop website helped, but even today, many festival-goers are still searching for each other. It is probable that they hope to reunite during the next Pukkelpop in 2012. The most important psychological help often comes from companions in fate... CRJ

Downbursts

A downburst is created by an area of significantly rain-cooled air which strikes the ground and deflects in all directions, producing strong winds. Unlike a tornado, winds in a downburst are directed outwards from the point where it hits land or water. Dry downbursts are associated with thunderstorms with very little rain, while wet downbursts are created by thunderstorms with high amounts of rainfall. Microbursts and macrobursts are downbursts at very small and larger scales respectively. Another variety, the heat burst, is created by vertical currents on the rear side of old outflow boundaries and squall lines where rainfall is lacking. Heat bursts generate significantly higher temperatures, owing to the lack of rain-cooled air in their formation. Downbursts create vertical wind shear or microbursts, which are dangerous to aviation.