Crowd Management Technologies and systems to ensure a safe and efficient evacuation
presented to the **Hong Kong Jockey Club Disaster Preparedness & Response Institute**
Event Safety Seminar on 23rd **September 2017** by **Jon Corbishley FSIA**

In order to make some sense of the many factors needing consideration in the planning for an evacuation, the author has found it useful to start on the premise that our main objective is prevention. Although planning for the act of evacuation is important, the measures to be put in place to ensure an evacuation doesn't happen are much more efficient and cost-effective. An evacuation from any event can have very wide reaching repercussions and this is not just cost. The reputational damage to an organisation who didn't effectively plan their event and it ended in chaos will remain in the forefront of people's minds for long afterward and to be known as the event organiser who didn't organise properly could be damaging to a career and affect the viability of an organisation.

As I travel around the world working at events I am frequently greeted as the "Crowd Control" guy. I should just immediately say that I could never control a crowd. Let's just look at two definitions to clarify the issue.

Crowd Control is defined as *"the restriction or limitation of group behaviour".* This is the action that is carried out by organisations such as the police when they close a road or move barricades into place to contain group disorder. It is always a 'reactive' process. They are called to react to a situation. Somebody will dial 999 and the police will come to our aid and deal with the problem. They have the powers to do this along with the resources. They can close whole streets, stop traffic, send in mounted officers on horseback, mobilize helicopters and even use firearms. They can prevent people entering areas and prevent them leaving.

I cannot do any of that and I don't want to. It's not what I'm employed to do. I will always leave that set of skills to the experts. I am a Crowd Manager.

Crowd Management is defined as the *"systematic planning for, and supervision of orderly movement, assembly and dispersal of people".* Elements of crowd management include:

- Evaluation of projected occupancy levels
- Calculation of crowd densities
- Adequacy of means of ingress and egress
- Pedestrian flow rates and speeds
- Expected types of activities & group behaviour
- Evaluation of crowd dynamics and crowd safety
- People processing procedures

This is carried out weeks, months or even years before the event and the emphasis is on planning. I will be given a budget by the organiser to cover the cost of what I require to run the event effectively. This will include staff, security, barricades, communication equipment and signs. It is unlikely that the organiser will have additional funds available to bring in extra resources at short-notice so I must use what I have available and have all plans and contingencies in place if I am to prevent a failure of the event or an evacuation.

Crowd Control is generally used when Crowd Management goes wrong !

Planning and being ready for all eventualities is critical to preventing a stampede of scared people and I asked the delegates how many people in the room were familiar with the fire procedures and escape routes from the room where the presentations were being held. It is of interest that only three people said they were fully familiar with the building and would know where to go and how to escape in the event of an emergency. In the author's opinion one of the greatest factors in turning an orderly egress into a stampede is uncertainty about where to go.

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If people are not given clear, direct, precise information about where to go they will be afraid that they could be heading toward the problem. Scared people do not behave rationally and stampedes with patrons being trampled or crushed have been caused by sensible, educated people fearing for their lives and making the wrong decision because they were not guided by clear signs or direct instructions. Let's look at some causes of the problem and why we might wish to stop the event and evacuate the area:

✓

Here's a flow chart of the process:
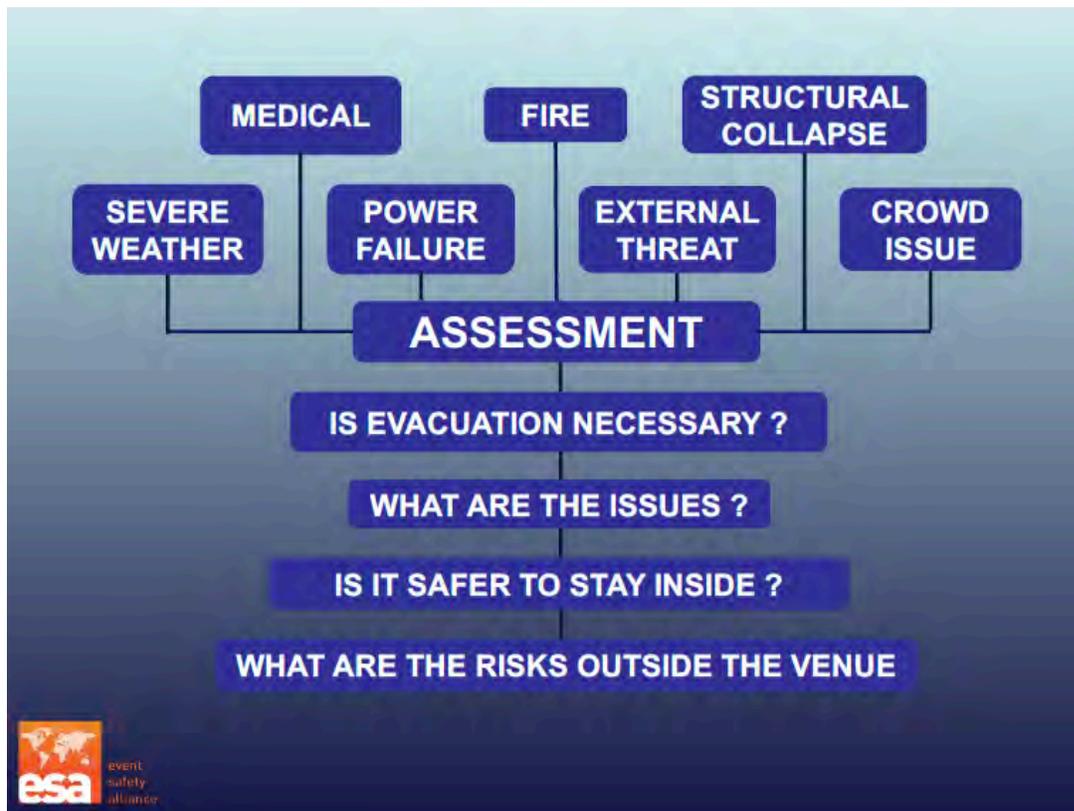
so if we are considering evacuation we need to be very clear about the chain of command and who exactly has the experience, the knowledge and the authority to make that decision.

Could it be: -
The venue owner or manager?
The event organizer *(who might be an external promoter)*?
The artiste *(or artiste's management)*?
The security?
The emergency services?

These are factors that must be pre-determined and are essential to the planning process. This determination of the chain of command is frequently not fully considered during the event planning and assumptions are frequently made about the level of operational experience that can be brought to bear in a time of crisis. It is critical that instant decisions can be made in a very short space of time by people with the experience and knowledge to make them.

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Trying to find the event organizer in order to get a very quick *(possibly life-saving)* decision made when he's in the hospitality area entertaining an important client is a recipe for disaster. If a problem has happened that is affecting the show, the audience will know within seconds from the way the performance alters or even just the artiste's body language. Once they realize that there is a problem they will quickly make their own decisions about their safety if they are not quickly given very clear direction and instructions. This is how a stampede will start if the audience decide that they will leave. The safest action may be to keep the audience inside the building but if they don't know that because they've not be given any information they will make their own decisions. When an evacuation decision *(or a temporary 'Showstop' decision)* needs to be made the participants must be able to meet or communicate very quickly. Time is wasted if the organizer can't be found or someone is concerned about interrupting him in a meeting with a client. The chain of command needs to be finalized and agreed to in advance and the authority delegated to those will be able to use it effectively if needed.

Within the planning must be the means of getting the information across to the audience (and the staff) so that everyone knows what they are expected to do. This maybe clear signs around the venue showing where the exits are located; messages from the stage via the public-address system *(either from the artiste or a trained and confident member of staff);* staff with loud hailers who can be heard by the majority of people in the event of a power loss; pre-prepared messages displayed on screens around the venue.
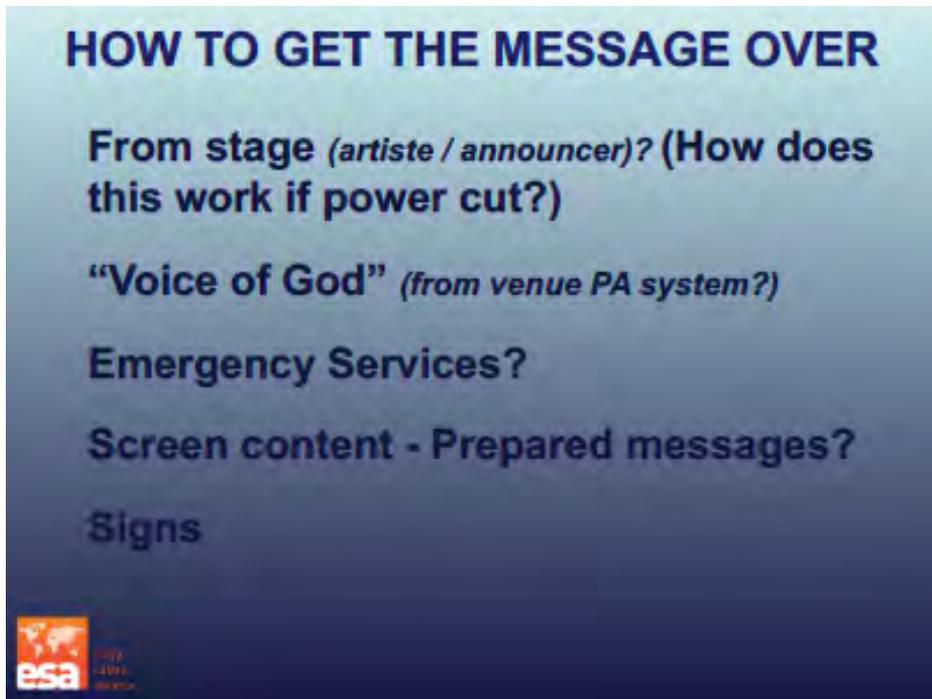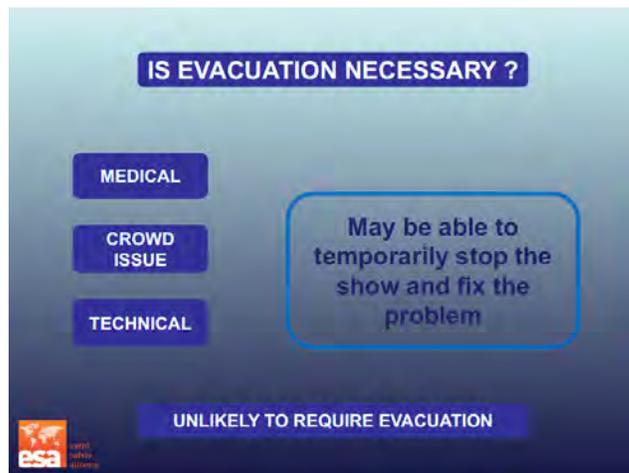

Again, if this is not prepared in advance then delays are inevitable just when quick decision making is required. When staff and organizers delay making decisions then the audience will make decisions themselves. These have frequently been the wrong decision but once a crowd of people start moving in a particular direction they are very difficult to stop. Human nature always suggests that we would leave the venue through the same route that we came in and this could be leading the crowd toward the problem. A plan must be in place to get the information very quickly and clearly to the crowd.

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Is evacuation necessary?

Frequently it is not.

Considering the types of incident that could disrupt *(or eventually curtail)* a show some can be effectively dealt with by the use of a temporary "Showstop" procedure. Again, this is only effective if planned for in advance and works best if the performers 'buy into' the process and will work with the organizers to achieve a successful outcome. The audience is focused upon the attraction on the stage and so the most natural person to give them instruction about their safety *(or just to ask them to wait for a few minutes whilst medical teams are brought in)* is the artiste on stage. They will listen to the performer much more than anyone else and *(in most cases)* are more likely to comply with a request from the artiste. Some examples of a situation where an evacuation is probably not necessary are:
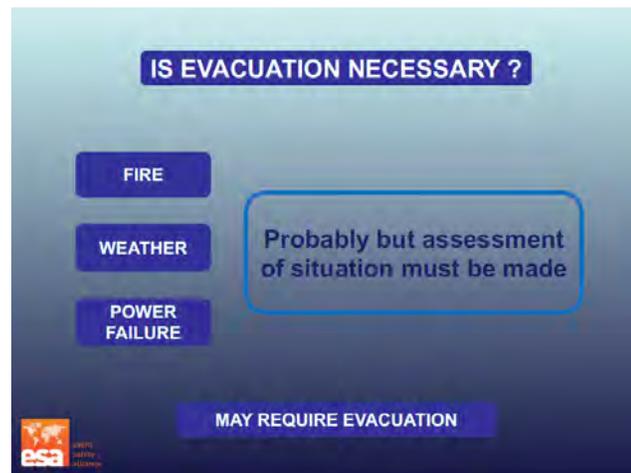

These decisions should not be made lightly and again people will make assumptions. One of the biggest dangers is when the cause of the problem is not apparent to the audience. If a building is filling with smoke then everyone knows that there is a fire and will leave when asked to. If the show stops for what might appear to be no reason then again, people will make assumptions and rumors will spread very quickly if a clear explanation is not given with a few seconds. Lack of clear information is one of the main factors in how a stampede starts. It is critical that all contingencies are covered during the planning stages and the means of imparting information are put in place.

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As a Crowd Manager, the author can never assume that the police will be waiting around the corner ready to assist him if a problem occurs at my event. He will always ensure that they are included as partners in the planning process. They will be sent the plans and given the opportunity to comment and suggest any modifications. In many cases they will have very little input but out of courtesy they are informed so that they can arrange their resources effectively around the other duties they may have on that day. It's not unusual for there to be multiple events held in a city on the same day and the emergency services have to deploy their resources in a manner which would allow them to respond in the best way if called for help to an event and ensuring that they know it's going to happen is the first step. Many organizers assume that they can pick up the phone and the emergency services will appear in moments and sort out all of their problems. This is generally not the case. Stretched resources and heavy traffic are just two factors that could delay a prompt response and during the time before they arrive it is the responsibility of the event organizer to put measures in place to ensure the safety of their patrons. They have *"Duty of Care".* Important questions will be asked of the organizers when the emergency services arrive such as *"is everyone out safely?"* and *"is there anyone left in the building?"* The emergency services response when they take command will be driven by the information they are given by the organizers so information gathering is equally critical along with the ability to pass it to the right people quickly.

CASE STUDY – Do we evacuate? Occasionally an event will have to be stopped but to evacuate could have the wrong effect. The example I gave was a concert at an arena in London when due to a venue power failure at the start of the show the event could not continue. As the audience were predominantly young teenage girls it was not felt to be responsible to send them away from the safety of the venue without the authority of their parents. Most of the parents had left their daughters at the venue and had planned to return at the end of the show to collect them. The organizers felt that the risk to the safety of these young women was too great to allow them to roam the docklands area of East London so it was decided to keep them in the venue until their parents arrived to collect them.

Logistically this posed some challenges as the power failure at the venue was complete. There was no lighting, heating, ventilation, public address, cooking facilities or refrigeration. This event was held during the 1980s when most people didn't have a mobile telephone so a means of communicating with the parents had to be devised. There were three pay phones in the venue foyer so three long queues were formed so that the girls could telephone their parents. Every food outlet and merchandising point was asked to provide loose change to allow the girls to operate the payphones. Whilst this was happening the security and staff did their best to entertain 8,000 teenage girls who were held in a dark arena with no entertainment. Anyone who could tell a story or sing a song was recruited to the arena and given a group of girls to entertain until the parents started arriving. Eventually cars started to arrive and the daughters were all reunited safely with their parents. This was felt to have been the safest decision rather than to evacuate these young people into a potentially unsafe area with no adult supervision. In summary:

- ✓ No panic or reported injuries
- ✓ Staff and security supervised girls whilst they waited
- ✓ All patrons safely reunited with their families

It was felt that the response to the crisis had been very effectively handled with no injuries and all patrons accounted for and safely returned to their families. The media were able to put their own slant on the proceedings with one tabloid newspaper suggesting that the organizers had *'imprisoned'* the young girls and held them as if kidnapped against their will.

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This is also a lesson that was learnt whereby the media should be immediately informed of any incident of that nature so that they can be given clear, correct information to broadcast to worried relatives. As has been demonstrated here, if they are not given the correct information they will just make it up so a media plan is an equally important part of the event pre-planning process.

Getting the message across:
The following slides illustrate examples of types and layouts of exits and how some are more effective than others:

Can you find this one?

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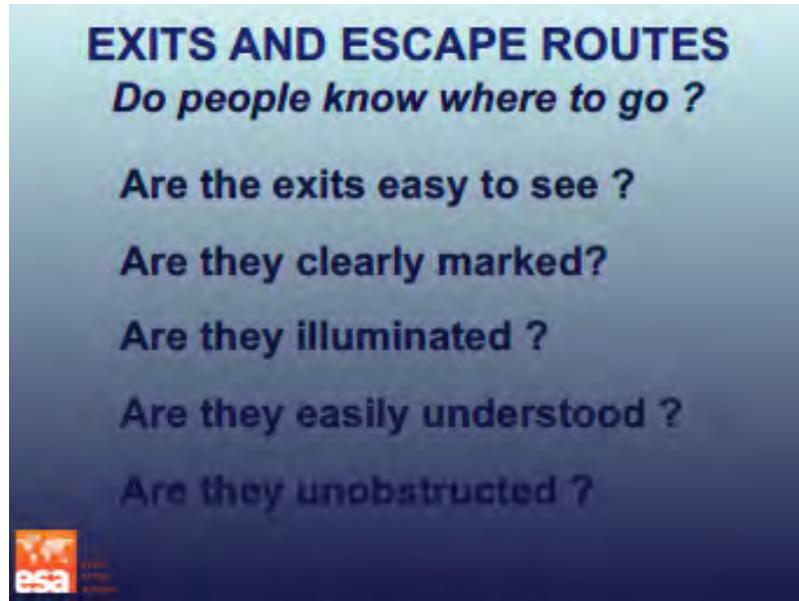
How effective would the sign be if people wanted to find the exits in a hurry?

Does this sign look as if it is depicting an emergency exit?

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A small number of people can completely obscure the sign

How easily could you see the exit sign from the seating area?

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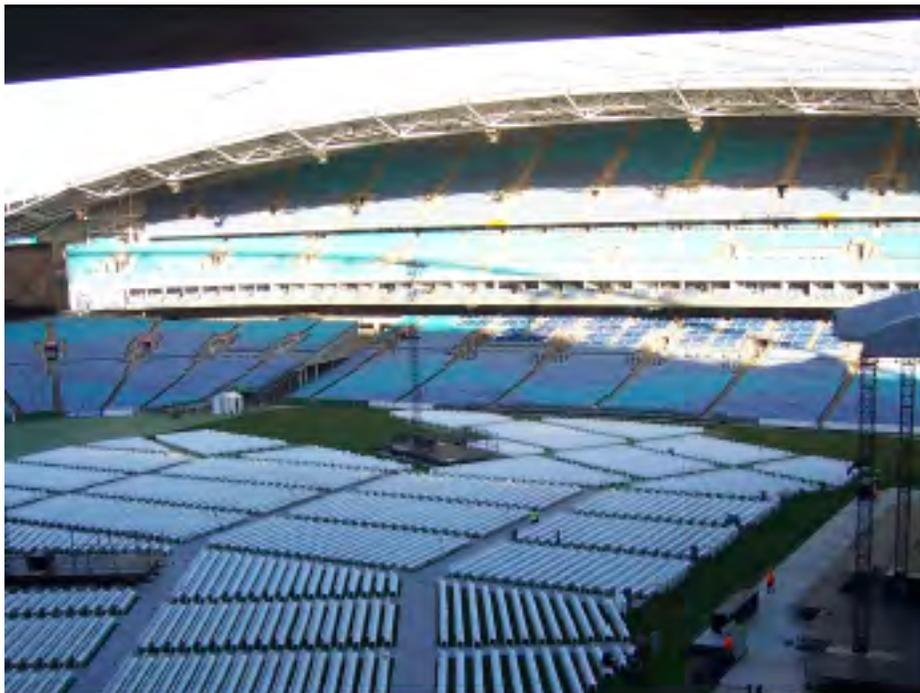Does *"Coca-Cola"* also mean "Exit"?

Which way do you go?

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Two examples of good, clear signage *(numbering the gates is also very helpful on large sites)*

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Examples of how LED screen technology is used to clearly define entry and exit routes. These are not expensive and can also be changed very quickly from a central control point.
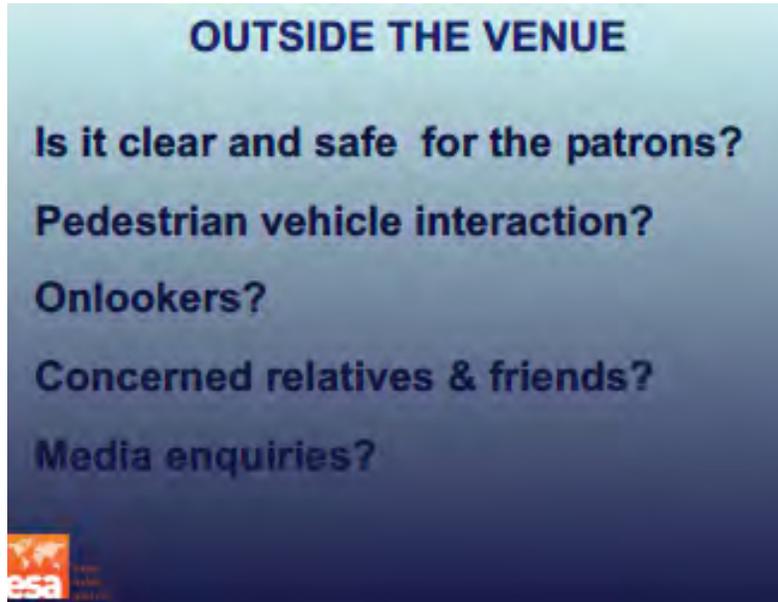
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A few more points to consider if you make the decision to evacuate:

Are you sending them out to a place of safety? In the case of a terrorist threat it was common in Northern Ireland during the period of IRA activity in the 1970s that a threat to a venue would result in an evacuation. This caused great problems as frequently the device was planted in a vehicle in the car park and patrons were evacuated from the building toward the explosive device.

Are you sending patrons out from the relative safety of a building into busy streets with fast moving traffic? Pedestrians could be put at greater risk of collision with a vehicle especially if it's dark.

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Consider carefully what obstructions may be out there where you are sending a large number of people: In this case building blocks *'borrowed'* from a nearby construction site gave patrons much better vantage points to see the street parade. When the event ended the crowd just walked away the blocks were not returned. Many unsuspecting patrons tripped over the blocks that had been left in the middle of the footpath.

Conclusions:

Evacuation should not be the automatic choice in a crisis. Careful planning and clear, precise instructions to the patrons will frequently prevent panic. Patrons must be given information to allow them to make informed decisions regarding their safety. The lack of information will lead them frequently to make the wrong decision and this could cause a stampede.

Acknowledgements:

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