

Assessing Risk: Museum Emergency Planning for Natural, Civil and Armed Conflict Risks

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Resumen

Evaluación de riesgos - Plan de urgencia de un museo en caso de desastres naturales, catástrofes civiles y conflictos armados

En la elaboración de todo plan de emergencia y de todo programa de formación se deben tener en cuenta tres etapas distintas, relacionadas respectivamente con los preparativos, las respuestas y la recuperación. Los desastres naturales, las catástrofes civiles y los conflictos armados pueden clasificarse en diversas categorías, según sus orígenes o características. Los primeros obedecen a fenómenos meteorológicos, hidrológicos, sísmicos y volcánicos. Las segundas son provocadas por incendios, explosiones, desplomes de edificios, actos delictivos y factores de índole económica o política. Los terceros pueden consistir en guerras, ocupaciones militares o rebeliones dentro de un país.

Los riesgos frecuentes - que se pueden calificar "de menor cuantía", por sus repercusiones potencialmente menos graves - se pueden prever y definir fácilmente en un plan de emergencia. Y viceversa, es menos fácil incluir los riesgos de frecuencia irregular o excepcional en un plan de ese tipo, pese a que sus repercusiones en el plano económico y técnico suelen ser mucho mayores.

Résumé

L'évaluation des risques : le plan d'urgence dans le musée en cas de risques naturels, civils ou armés

Tout plan d'urgence ou programme de formation prend en compte trois phases de gestion distinctes, à savoir : la préparation, les réponses et la récupération. De même, les catastrophes naturelles et civiles ainsi que les conflits armés peuvent être regroupés en plusieurs catégories. Les premières font référence aux causes météorologiques, hydrologiques, sismiques et volcaniques, les secondes au feu et explosion, effondrement de bâtiment, actes criminels, facteurs économiques et politiques et enfin dans les conflits armés, on identifie la guerre, l'occupation militaire et les rébellions nationales.

Ainsi, les risques appelés « mineurs », dans leur impact potentiel, sont prévisibles et facilement identifiables dans un processus de plan d'urgence. A l'inverse, les risques à fréquence irrégulière sont beaucoup plus difficiles à inclure mais ont des conséquences économiques et techniques souvent très élevées.

In considering emergency preparedness and management it is widely accepted that any emergency plan or training programme needs to recognise three distinct phases in the management of actual or potential emergencies of every kind.

1. Preparedness

Analysing and planning, probably over a long period well in advance of any emergency event, ranging from the choice of site and design of a proposed new museum, and the technical protection and safety and management systems adopted, through to the operational emergency plan and training programme for its implementation.

2. Response

The action taken during the period of an actual emergency to minimise its effect on both life and property; this phase will typically last for a period of between a few days through to several weeks or even months.

3. Recovery

The programme of work after the immediate emergency is over and which is needed to fully conserve and restore any buildings, collections, exhibitions and services damaged in the emergency. In the case of even a limited emergency the Recovery phase may extend over several months; in the case of a very severe incident this may take many years. (For example the historic medieval and Baroque heart of Dresden, devastated by bombing and fire in February 1944, is still under restoration; and it has been estimated that the restoration of the collections damaged in the devastating flooding of Prague in August 2002 will take between thirty and forty years).

One of the first tasks in preparing a Museum Emergency Plan is to undertake a comprehensive assessment of risk, and particularly the frequency (or otherwise) of particular hazardous events in the past, and form this to prepare an outline Risk Assessment, using a template such as the example below.

Fig. 1. Outline grid for assessing risk by comparing estimates of destructive effect and potential loss with the evidence or estimates of frequency of the potential risk

Destructive effect & potential loss	Evidence of annual or near-annual frequency	Frequent and recurring events, occurring perhaps once every 10 to 50 years	Evidence of infrequent events: perhaps once every 50 to 500 years	Rare and perhaps unpredictable events, but evidence of previous events
Relatively minor & restricted effect				
Serious, in either (or both) extent and potential property loss and human safety risk				
Extremely serious, high risk of major destruction or damage of property and serious risk to human life				
Catastrophic: high risk of a total loss and grave risk to human life				

The range of possibilities that needs to be considered and evaluated for both frequency and damage potential risk can be conveniently grouped into three major categories according to the underlying cause:

Natural Hazards

- Meteorological

Wind storms including hurricanes and typhoons causing building damage and collapse, fall of trees and other debris; excessive rain and snow, and associated effects: landslips, avalanches etc.; extreme variations: excessive summer heat or exceptional winter freezing; humidity variations.

- Hydrological

River and estuary floods and storms and associated undermining of river banks, foundations and landslips; coastal erosion and collapse.

- Seismic

Earthquakes and earth tremors and associated effects including building collapse and damage; seismically induced landslips, avalanches, and tsunamis.

- Volcanic

Explosion, ash-fall, lava flows, pyroclastic flows; fire; related earthquakes induced by the eruption; gas: poisonous and/or asphyxiating.

Civil Disasters

- Fire and explosion

Accidental; electrical or other system faults; external - such as forest and heath fires.

- Building collapse

Structural failure; building overload; collision-road vehicles or aircraft crashing into the building; external causes (see Natural and Armed Conflict).

- Criminal acts

Arson; robbery; theft; riot and other civil disorder.

- Economic

Financial failure; major loss of audience: new competition, epidemic and quarantine; loss of staff; withdrawal of external support or funding.

- Political

National or regional government's serious resource problems; withdrawal or major reduction of support for political or policy reasons.

Armed Conflicts

- War

International armed conflict with bombing, shelling, occupation of building, looting, etc.

- Military occupation

Occupation of buildings and sites for military or other occupying force purposes; looting and illegal or irregular export of collections.

- Non-International armed conflicts

War effects (as above).

It should be noted that in addition to the risk to the museum and its collections, all of these hazards also carry significant risk to life of staff, visitors, etc.

Very frequent regular events, even those regarded as only "minor" in their actual or potential impact, are predictable and easy to recognise as part of the emergency planning process, but risks of longer and irregular frequency are much more difficult to incorporate into the planning process. Also, the special character of museum and other heritage collections (such as archives and important reference libraries) means that a risk such as a once in fifty years for the risk of serious flood damage, which might well be regarded as an acceptable risk in financial terms, for example, for commercial or domestic premises, may be totally unacceptable for unique specimens and works of art.

Currently there seems to be a very serious problem almost everywhere in

relation to almost all aspects of emergency planning and risk assessment across the world because of the concentration on relatively frequent risks, perhaps relatively minor risks, while ignoring almost completely very low frequency, though potentially quite catastrophic, risks. For example, earthquake risk is taken very seriously in areas of very frequent seismic activity, such as active tectonic plate margins and the lines of major geological faults that are known to have been the source of earthquakes in relatively recent times. On the other hand, earthquake risk is largely or completely ignored in building design and management in localities where there is little public consciousness of frequent earthquakes, even though there may be abundant historical or perhaps geological evidence of very infrequent, though potentially catastrophic earthquakes.

For example, a large region of south-eastern England, including London, is almost universally regarded as very stable seismically, and the relevant building design codes require provision for earthquake risk only in respect of major bridges, tunnels or nuclear power stations. However, it has been hit by at least two major earthquakes, and several very significant ones, within the past 800 or so years. A similar situation applies to a zone in the eastern USA several hundred miles long, between the mid-Atlantic coast and the Appalachians, is also regarded as very stable, but was in fact hit by a major earthquake in the late 18th century. Though exact dates cannot be predicted, within a timescale of some hundreds of years it seems inevitable that some time in the future, south-east England and the eastern USA respectively will be hit by other major earthquakes, which will inevitably be potentially very devastating, not least as a result of the lack of design provision and planning for these risks.

Similarly, currently only 300 or so of the world's volcanoes are regarded as "active". However, around 3,000 have erupted within very recent times in geological terms (since the Last Interglacial, which ended around 80,000 years ago) and half of these have erupted since the end of the Ice Age 10,000 years ago. From a geological hazard perspective, every one of these 1,500 should in fact be regarded as "active" volcanoes and potentially hazardous, together with at least a proportion of those that have been dormant for much longer than this. It should be remembered that three of the most devastating explosive volcanic eruptions of the past two centuries were of volcanoes regarded as extinct: Krakatoa in Indonesia, Martinique in the Caribbean, and most recently Mount St. Helens in Washington State, USA.