

Museo de Arte de Puerto Rico: A Case Study on Risk Preparedness

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Resumen

El Museo de Arte de Puerto Rico - Estudio de un caso de gestión de riesgos

Habida cuenta su situación geográfica en la región del Caribe, el Museo de Arte de Puerto Rico está expuesto a fenómenos naturales violentos (huracanes, inundaciones, lluvias torrenciales, terremotos, etc.) que no siempre son previsibles. Estos fenómenos climáticos y geológicos han conducido al Museo a elaborar un proyecto de prevención para reducir riesgos, proteger el edificio y sus colecciones, y salvar vidas humanas (personal museístico y visitantes).

Résumé

Le musée d'art de Puerto Rico : une étude de cas dans la gestion des risques

Étant donné sa localisation géographique dans la zone des Caraïbes, le musée des Arts de Puerto Rico est soumis à des phénomènes naturels violents (ouragans, inondations, pluies torrentielles, tremblements de terre, etc.) pas toujours prévisibles. Ces phénomènes climatiques ont conduit le musée à élaborer un projet de réhabilitation avancé afin de réduire les risques, protéger le bâtiment et ses collections, ainsi qu'anticiper le sauvetage des vies humaines (personnel et visiteurs).

I wish to express my deep gratitude to Mr. Manus Brinkman, Secretary General of the International Council of Museums (ICOM) for the invitation to participate in this important event. I also wish to thank our host, the Salar Jung Museum, and the Ministry of Foreign Affairs of the Netherlands for their support. It is a great honour to be here sharing with such a distinguished group of professionals.

The broad purpose of this meeting is to promote an understanding and awareness of the nature of disasters threatening cultural property and of the means to prevent and limit such damage.

Building Materials and Methods

Understanding the nature of disasters is obviously important in preventing and limiting the damage, but understanding building methods is the other side of the coin in any effort to prevent and limit

threats to cultural property. As an architect and preservationist of historic architecture, I strongly believe that well developed design skills and construction techniques will produce architecture able to prevent and reduce risks of loss and damage.

Building techniques should not be exported indiscriminately. Globalisation may lead to an increase in risks if architectural solutions are exported without consideration of the climate and natural features of the region, as well as consideration of cultural values. Techniques need to respond closely to the specific climate and natural context, and architects and preservationists need to develop skills to identify and analyse these features.

Caribbean Map: Written Description

Visitors may think that the task of the architect in the Caribbean is easy. The Caribbean is advertised as a vacation paradise with a mild climate throughout the year. Design and building should therefore be equally smooth, but this is not the case.

Natural Phenomena

As for all other parts of the planet, the Caribbean paradise presents its great challenges. Several and severe natural phenomena threaten both new constructions and our rich cultural heritage¹.

Disasters/Examples

As an introduction, it may be necessary to review some definitions and concepts. In this context, the term "hazard" refers to a threat or source of potential danger. "Risk", however, is the relationship between the hazard and vulnerability. "Vulnerability" is the estimated loss or damage associated with a particular hazard. Risk can therefore be seen as hazard multiplied by vulnerability.

Traditional wooden architecture, for example, is more vulnerable to fire than masonry or concrete buildings, but masonry or concrete heritage architecture would be more vulnerable to earthquakes than wooden buildings.

With those two concepts in mind, in the Caribbean, the major weather and nature-related risks are the effects of natural phenomena such as hurricanes, storm surges², floods caused by torrential rain, volcanoes, earthquakes and tsunamis³.

These natural phenomena do not always cause disaster, which occurs only when they are responsible for loss of life, injury or damage to property. We must accept the fact that we cannot stop natural phenomena from occurring. Sometimes, they cannot even be forecast. But we can minimise loss and damage through appropriate protective measures in design and construction work. Many lessons can still be learned from vernacular architecture and traditional construction techniques. Indeed, most Caribbean heritage architecture has withstood natural phenomena.

Caribbean Hurricanes and Data⁴

In Puerto Rico, the main hazards are hurricanes, floods caused by torrential rains and earthquakes. I am proud to be able to present the Museo de Arte de Puerto Rico rehabilitation project as a fine example of architecture, historic preservation and technology for the purpose of risk prevention and heritage protection.

One main concern for the rehabilitation project of the Museo de Arte de Puerto Rico was prevention with a view to reducing damage and loss to cultural heritage. I will give details of the main prevention and response measures that were incorporated in the project to protect both the building and its contents from natural and man-made disasters.

Museo de arte de Puerto Rico: Background

The Museo de Arte de Puerto Rico rehabilitation project was designed by the architects Otto Reyes and Luis Gutiérrez. It is a world class museum covering more than 130,000 square feet and which opened to the public on July 1, 2000. It features the most advanced technology for the protection of the collections and building and for risk preparedness.

The five-storey West Wing includes the rehabilitated neo-classic historic building designed and built by the architect William Schimmelpfening in 1920 and which was originally designed as the San Juan Municipal Hospital.

The modern East Wing is an addition to the historic building, built around an atrium three storeys high with access to the theatre seating 400, a restaurant, the museum shop and gardens. The fourth floor has over 10,000 square feet of gallery space for temporary exhibitions set around the atrium.

The five acres of gardens are crossed by winding paths beckoning visitors to stroll by the lake to admire the fourteen sculptures commissioned from Puerto Rican artists. More than 100,000 plants and sixteen species of trees are featured in this showcase of Puerto Rican flora, forming a peaceful green oasis within busy San Juan.

¹ Cultural heritage, refers to buildings, group of buildings and sites, as defined by the World Heritage Convention, adopted in Paris on November 16, 1972 by the UNESCO General Conference. (Stovel, Herb: *Risk Preparedness: A Management Manual for World Cultural Heritage*. Rome, ICCROM, 1998).

² A storm surge comes with hurricanes and consists of unusually large volumes of water flowing onto the shoreline. Storm surge has been responsible for much of the damage caused by hurricanes, especially in large, low-lying coastal settlements.

³ Tsunami, seismic sea wave or tidal wave: this can be generated by erupting volcanoes, landslides and underwater explosions.

⁴ The Caribbean lies in the North Atlantic Ocean, one of the six main tropical areas on earth where hurricanes can develop every year. Within the 114 years between 1886 and 1999, approximately 1,050 tropical storms were recorded in the North Atlantic; about half of these attained hurricane strength.