

Seguridad, riesgo y vulnerabilidad. El caso del cierre del Parque del Retiro de Madrid en verano

Safety, risk and vulnerability. The case of the closure of Madrid's Retiro Park in summer

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RESUMEN

Dictionaries define Safety as the condition of being safe; freedom from danger, risk or injury. Weather elements pose a threat to life, property and the environment when they are intense or persist for abnormal periods of time. Hazardous and extreme weather exist on widely varying temporal and spatial scales. The term safety is generally accepted to be referred to human life, rather than to property or goods. In any case ethics prioritises protection of human life whatever be the lost of material goods. However, destruction of property and resources in natural disasters can lead to lost of lives as a later consequence. Therefore, Risk can be defined as “the degree of probability of loss or injury” as a consequence of a given scenario. The scenario includes the factor potentially provoking losses or injuries and the vulnerability of persons or material goods to that factor, which on its turn depends on different conditions. In the simplified context of risk of death or injuries to human individuals due to hazards related to weather the Risk can then be expressed as: $\text{Risk} = \text{Hazard Probability} \times \text{Human Vulnerability}$, where Probability is expressed in the mathematical sense and Vulnerability also ranges from 0 to 1. If every person subject to the hazard is injured, the vulnerability takes the value 1, and it decreases as the probability of being injured by the hazard decreases. Of course the vulnerability depends on the intensity of the hazard. For the sake of simplification, it is usual to use thresholds which raise the hazard risk to significant levels, for instance “winds higher than 100 Km/h”. Some hazards are dangerous enough to make unnecessary to define intensity thresholds: avalanches, tornados.

The case of the Retiro Park in Madrid: The Retiro Park is a broad vegetal area with lakes in the very centre of Madrid. There is a growing discontent among residents and visitors regarding the frequent summer closures of the park, allegedly for safety reasons due to weather-related risks. However, temperatures in Madrid may very well reach 35 °C or higher in summer and the benefit of shadow and fresh air in the park also contributes to safety, particularly for elder people. The closure protocol in summer depends on the information the City Council receives from the State Meteorological Agency. The park is closed if thunderstorms are forecasted with high probability in the area of Madrid. This is because thunderstorms may produce strong gusts of wind at surface and also lightning hitting trees. In both cases there is risk of branches falling over people in the park. In principle, this closure protocol seems appropriate, but a closer study reveals a series of inconsistencies. This and other shortcomings related to the rational use of information are addressed in the full study.