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## **Geological risks management and reduction procedure for Santiago Cuba province**

**Galban Liber Rodriguez<sup>1</sup>, Rafael Saved Lacaba<sup>2</sup>, Chuy Jacinto Tomas Rodriguez<sup>3</sup> and Noelia Vidaud Ingrid Quintana<sup>1</sup>**

<sup>1</sup>Universidad de Oriente, Cuba

<sup>2</sup>Mining Metallurgical Institute, Cuba

<sup>3</sup>National Center for Seismological Research, Cuba

**G**eological processes and phenomena, such as earthquakes, landslides, erosion, carsificación, among others, are critical to engineering processes, due to its influence on the stability of the ground, respectively, in existing works, planned or construction (cities, buildings, bridges, dams, roads, tunnels, airports, mines, quarries, etc.). The possible occurrence of these constitutes a threat whose impact can lead to serious injury or geological risks. Santiago de Cuba Province due to seismicity, its mountainous relief, lithological composition and stratigraphic, tectonic conditions, hydrological and geo-technical, is regarded as the greatest potential geological hazards of Cuba. The analysis of this province, notes that there are problems in the study geological engineer, land use, planning, organization, evaluation, management, analysis, implementation, monitoring and control of geological hazards in the territory, i.e., management problems exist. To resolve the problems which rose, this research proposes a method for risk management and reduction geological Santiago de Cuba province. This procedure is supported by the theoretical foundations of process management, current approaches employing multidisciplinary criteria towards improving the actions aimed at the reduction and mitigation of geological risks.

[liberg@fco.uo.edu.cu](mailto:liberg@fco.uo.edu.cu)

## **Utilizing BIM in planning, budgeting and maintaining commercial projects**

**Giovanni Carino**

Mapua Institute of Technology, Manila

**F**or almost 15 years after the era of Computer Aided-Drafting, technological advances in main-stream building design and construction have been slow until the emergence of Virtual Construction which was later known as Building Information Modeling. This took advantage of the advances technology in the areas of data embedding coupled with enhanced visualization allowing designers (both Architects & Engineers) the ability to more accurately plan, test and evaluate the built environment. The author will share experiences faced in actual projects and in actual companies that he and his team have developed and implemented BIM for – in property developers, design firms and construction companies focusing on commercial projects such as residential condominiums (high-rise, mid-rise), office buildings, retail centers and hospitality canters. Defining and simplifying BIM. What is BIM and what does it do? How relevant is it in the design and development sector? How about in construction? There are numerous definitions of what BIM is when you try to search the internet. Most are valid and a lot suggests it to be complicated. For our discussion however, we will attempt to realistically define BIM while establishing its relevance with our topic for design and construction in commercial properties. During the course the presentation, the author will share key information gathered through actual project experiences through different stages of delivering a commercial building/facility.

[gca@prodigy-ae.com](mailto:gca@prodigy-ae.com)