

## Article

# Incidents and Disaster Avoidance: The Role of Communication Management and the Organizational Communication Climate in High-Risk Environments

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**Abstract:** Health, safety and the working environment are of paramount importance, especially in the high-risk environments found at facilities in the oil and gas industry, where hazards are inevitable and accidents may lead to regrettable situations such as explosions, oil spills and other disasters. The high number of accidents and disasters at such facilities bring safety-related matters to the fore. The complexity of the communication process is very often underestimated, where failures in communication could lead to major disasters. This paper investigates the role of communication management and the organizational communication climate and their impact on incidents and disaster avoidance. This study embarks on a quantitative approach involving 260 personnel from high-risk workplaces at oil and gas facilities, based on purposive sampling. Hypotheses were tested using PLS-SEM to identify causal relationships and for mediation analysis. The findings of this study show that communication management and the organizational communication climate have a significant impact on disaster avoidance. The organizational communication climate is also found to be a significant mediator for the relationship between communication management and disaster avoidance. Communication management and the organizational communication climate need to be enhanced and to be integrated with other technology and innovation to improve safety regulation adherence in the oil and gas industry.



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**Keywords:** safety communication; organizational communication climate; high-risk environment; disaster avoidance; leader-member exchange; safety commitment; oil and gas; workplace accident; hazardous

## 1. Introduction

The oil and gas industry is one of Malaysia's primary commodities; their contribution to the Malaysian economy comprises about 20 percent of Malaysia's GDP [1]. Malaysia offers the fourth-highest oil reserve and the third-highest natural gas reserve in the Asia-Pacific region. It is not an understatement that the workers in the oil and gas sector are the "unsung heroes" of the Malaysian nation. This workforce, however, faces risks daily due to their highly hazardous work environment, in which the likelihood of incidents and injuries is high [2]. The employees face the risks of fire and explosions that could be caused by the ignition of flammable gases at the plants.

The fatality rate due to workplace accidents among oil and gas employees is seven (7) times higher compared to those in other industries. Hence, it is vital that companies in this sector ensure a safe working environment to minimize the risks of operational hazards.