



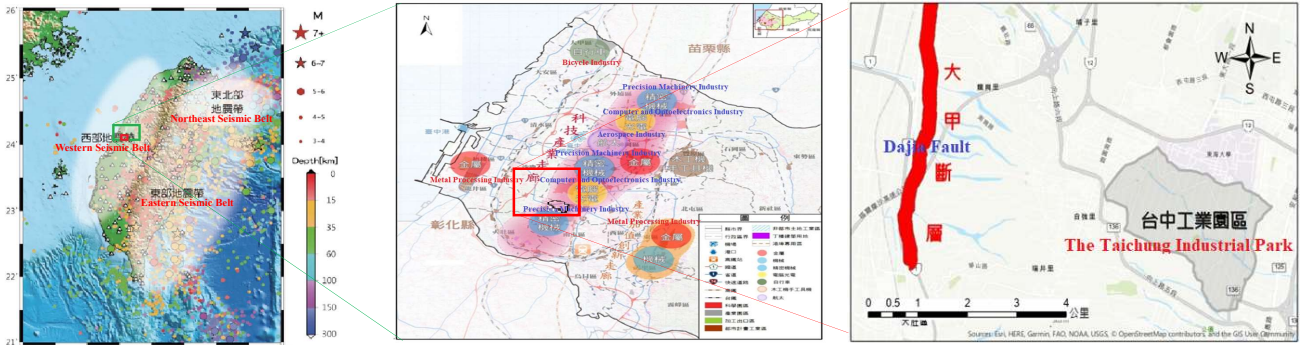
# A Study on Disaster Preparedness for Massive Earthquake in Industrial Zones

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## Introduction

Taiwan is located in the Pacific Rim seismic zone where earthquakes occur frequently. Historically, earthquake disasters have indeed caused many serious casualties and huge losses in Taiwan. Taichung Industrial Park is my country's metal products and mechanical equipment manufacturing core town which is located in Taichung City. Taichung City, the second largest city in Taiwan, is located on the western seismic belt of Taiwan and has a high degree of earthquake disaster risk. The research focuses on corporate disaster preparedness. As for companies in the Taichung Industrial Park, how to form corporate disaster preparedness strategies through self-help, joint assistance among enterprises, and public assistance of public sector when responding to the potential of large-scale earthquake disasters.



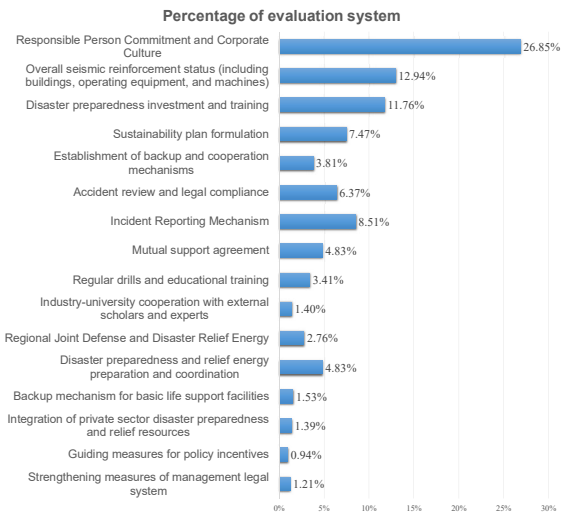
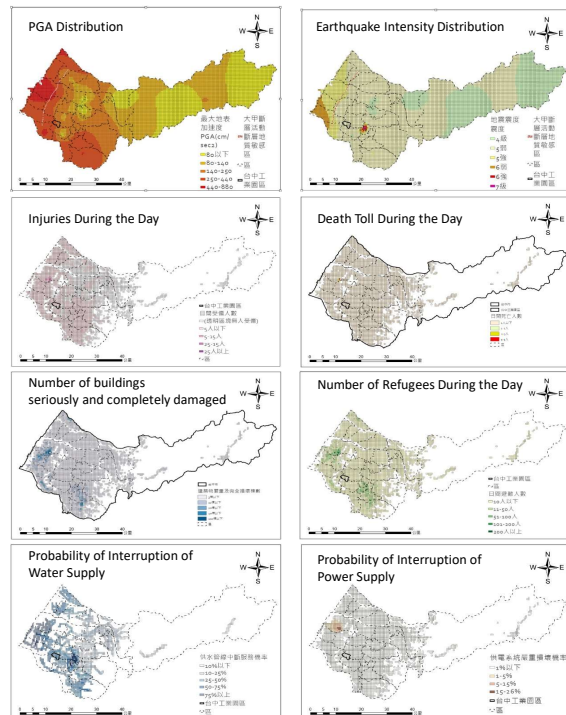
## Methods

TERIA(Taiwan Earthquake Impact Research and Information Application), developed by Taiwan's NCDR(National Science and Technology Center for Disaster Reduction), is an application system for automatic assessment of earthquake impacts developed according to the characteristics of Taiwan's socio-economic environment. The study used the TERIA to set the Dajia fault to move and analyze the impact. Then, the analysis of the capability of disaster preparedness for the industrial park is based on 16 impact factors in three dimensions. The AHP(Analytic Hierarchy Process) is used for quantitative analysis.

## Simulation Results and Findings

The scenario of this study assumes that a strong earthquake with a magnitude of 6.8 on the Richter scale and a depth of 10.0 km occurs on the Dajia fault in the Taichung area. TERIA is used to simulate the possible disaster scenarios in the Taichung area. The simulation results show that the severity of the disaster exceeds the Taichung City Government's disaster relief preparations. Once a major disaster occurs in Taichung Industrial Park, it may be difficult to obtain timely disaster relief support from government departments.

When a large-scale earthquake occurs, the disaster preparedness resources of the public sector may be poured into residential areas where casualties are more serious. Taichung Industrial Park may face damage to production equipment or even collapsed buildings. Therefore, the disaster preparedness capabilities possessed by enterprises are considered to be the disaster relief energy that is more needed when disaster occurs.



"The ability of enterprises to independently prevent and rescue disasters" is agreed as the most important dimension. "The person in charge's commitment and corporate culture", "the overall current situation of seismic reinforcement", and "disaster preparedness investment and training" are the top three influencing factors in the ranking of weight values.

## Results and Discussions

Among the three dimensions, the enterprise's independent disaster prevention and relief capability (70.4%) is considered as the most critical disaster prevention and relief energy, followed by the regional joint defense mechanism in the industrial park (16.1%) and the public sector's disaster prevention and relief capability (13.6%).

## Conclusions

The results of this study can be used as a suggestion for manufacturers in the Taichung Industrial Park to re-examine whether their own disaster preparedness is sufficient, and can also be used as a reference for the decision-making of the Taichung City Government to promote key disaster preparedness in the region.

## Acknowledgements

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