



國立高雄應用科技大學  
企業管理系碩士班  
碩士論文

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之人道救援組織網絡

Social Network Analysis for Humanitarian Organizations in  
Different Types of Natural Disaster

研究生：陳莉貞

指導教授：余銘忠 博士

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學生：陳莉貞

指導教授：余銘忠 博士

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## 摘要

隨著人類生活的改變，自然環境也跟著變遷，全球平均氣溫的上升破壞了許多地球上的生態循環，造成天然災害的發生變得更加頻繁，所造成的影響程度也更加劇烈的變化。眾多原因導致氣候不如以往規律，加上災害的種類眾多，形成因素各不相同，其對人類所造成的影響也有所差異。當地政府無法應付與解決天然災害或是戰爭所造成的損害，就必須依賴國外或是國際性的人道救援支援，在救援行動中，常常會因為人力分配不當或是提供救援項目不符合需求等問題，導致救援進度拖延、損害情況擴增，因此，捐助者與當地政府雙方溝通協調是不可忽視的問題。

本研究透過社會網絡分析探討地震、水災以及風災的人道救援狀況，並比較針對不同類型天災的救援項目分配。主要以財務追蹤資料庫(FTS)為主，蒐集此網站所提供的統計數據並將此資料作為本研究參考依據，接著使用 NodeXL 建立捐助者與救援項目網絡圖與網絡衡量指標進行探討。

社會網絡分析結果顯示，捐助者數量以風災為最多，水災為最少，由此判斷風災所造成之災情與損失情況較為嚴重；而網絡密度以水災最高，表示救援水災之網絡合作協調關係程度為最佳。在 13 種救援項目中，以水資源與衛生清潔平均最多捐助者提供，其中以有 13 個捐助者提供的風災為最多，而三大天災均以 CERF 提供之金額為最高。最後，三大天災救援行動中皆有救援之捐助者中，以美國為提供金額最高者，其針對不同類型天災所提供最高金額之救援項目如下，地震為協調與支援服務，水災是糧食，則風災為協調與支援服務。

**關鍵詞：**社會網絡分析、天然災害、人道組織、中心性

# **Social Network Analysis for Humanitarian Organizations in Different Types of Natural Disaster**

Student : Li-Chen Chen

Advisors : Dr. Min-Chun Yu

Department of Business Administration  
National Kaohsiung University of Applied Sciences

## **ABSTRACT**

Owing to the dramatic changes of natural environment, more natural disasters happened recently. The increasing scale of disasters intensifies the damages and hence requires aid from international humanitarian organizations. However, the coordination and cooperation between these humanitarian organizations is vital for the successful humanitarian relief under the complex situations.

This study studied the relationships among the relief efforts conducted by international humanitarian organizations under various types of natural disasters, namely earthquake, flood, and hurricane. Social Network Analysis (SNA) is utilized to compare the differences of the network centralities in terms of relief items and humanitarian organizations. Data related to the disasters were collected on the website of Financial Tracking Service (FTS), while NodeXL is used to build the social network of humanitarian organizations and relief items to calculate network metrics for further analysis.

The results of the network analysis show that hurricane receive emergence relief from the most number of humanitarian organizations, while flood receives from the fewest number. The network density for flood is the highest which indicates the relief operation of flood incurs the best network coordination and cooperation. Among the 13 relief categories, water and sanitation items are most frequently provided by donors. Among humanitarian organizations, CERF has the highest amount of monetary donation. The USA is the most generous country donor while it almost is on the list of the top donors on all major disasters. As for the different types of disasters, coordination and support sector receive the highest amount of donation for earthquake and hurricane, while it is food sector for flood.

**Keyword: Social Network analysis, Natural Disasters, Humanitarian Organization, Centrality**