Humanitarian Aid and Emergency Response Analysis on Pakistan Floods 2022

Introduction

Our topic entails two key terms that are also the crux of our work: humanitarian crisis and emergency response analysis. This project aims to understand the communication and collaboration patterns of different governmental and non-governmental actors in the recent humanitarian crisis i.e. 2022 floods in Pakistan. We aim to present a methodology that can point out essential aspects of the flow of charities/donations in the country, along with identifying organizations who played a key role in the floods of 2022 . We have also created a network of individuals who have donated to different provinces of Pakistan.

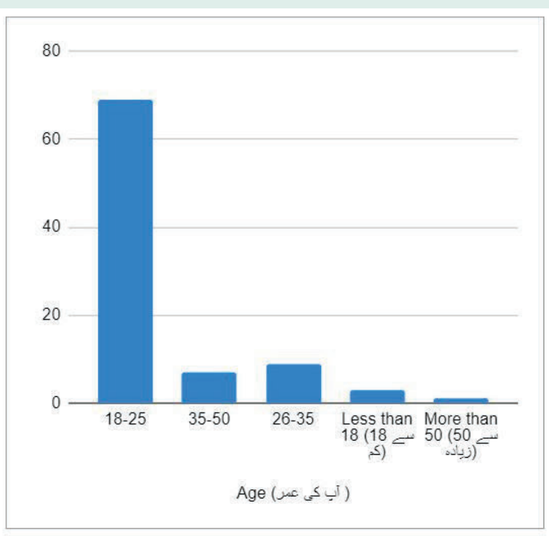
Identify key organizations and NGOs central to the donation network

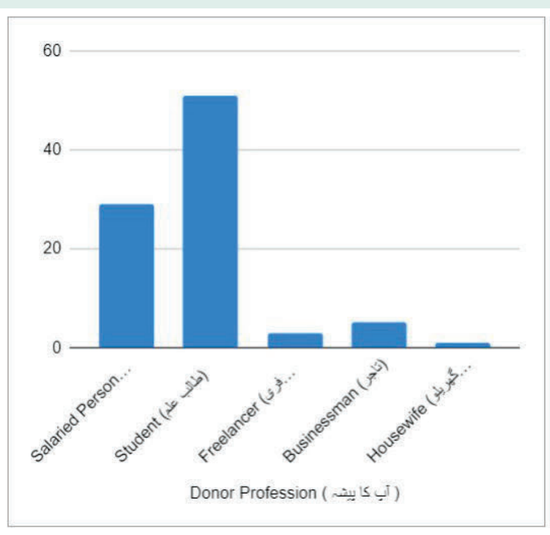
Identify the provinces where people donated

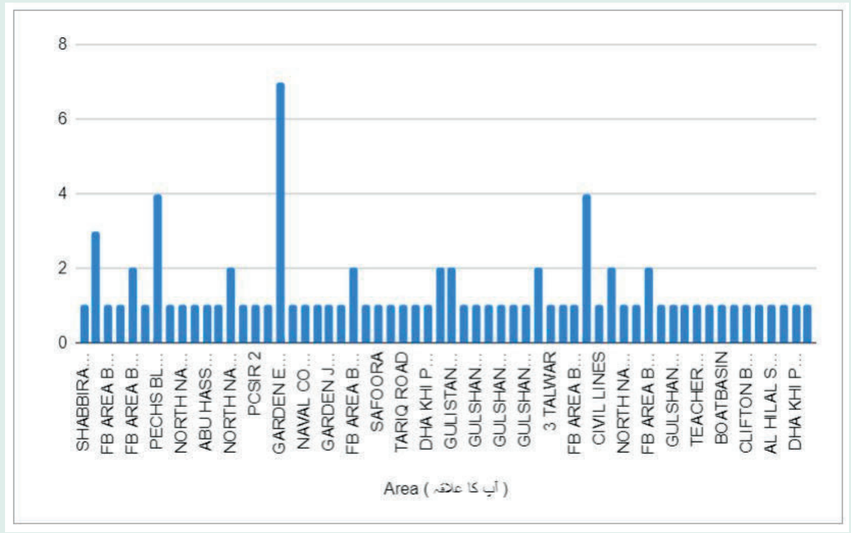
Understand the demographics of the people involved in the network

Demographics

The majority of the donors fall between the ages of **18-25 years old**. It is because the survey was majorly circulated by people of a similar age bracket, so although it was open to everyone, it majorly reached the population of the same age bracket it was circulated by. Moreover, most respondents from Karachi belong to **Garden East area** and are **students**.







Data Collection

The data used was gathered from an online survey and a total of 89 people responded. The survey includes regarding income, city, area, age, and profession. It further asks donation-related questions, for example, donated amount, place, person, or organization.

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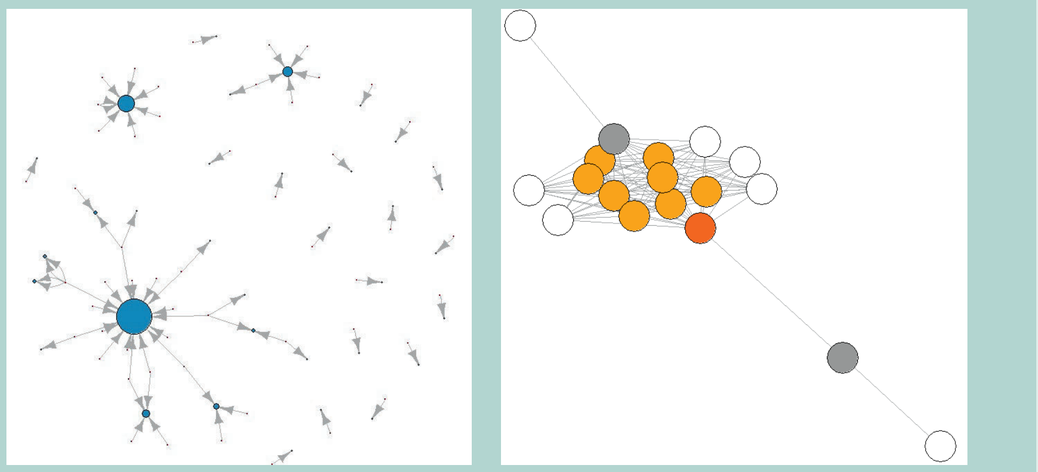
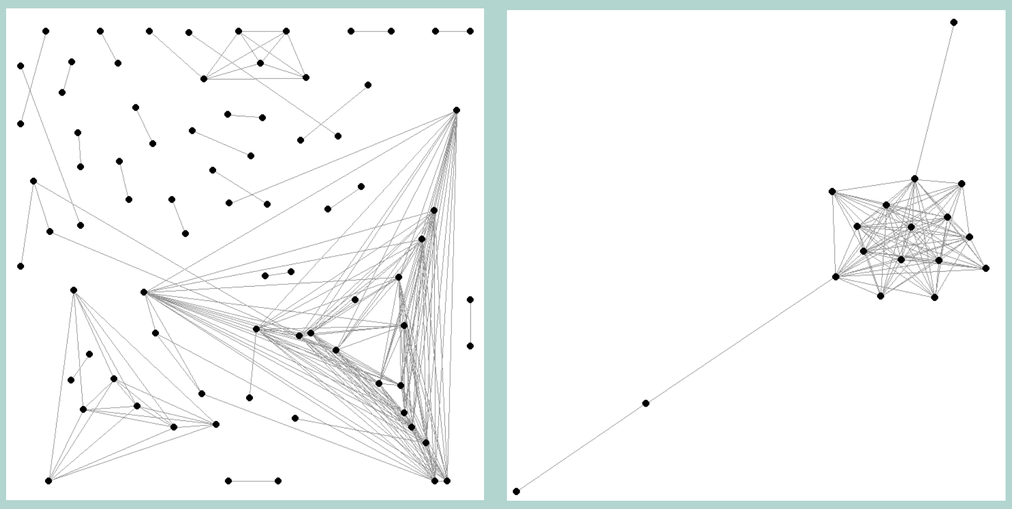
Analysis



On left: a bipartite network of individuals who donated to other NGOs and organizations. **Node sizes corresponds to in-degree**.
On right: a unipartite network of individuals who donated to places. Grey and ref colors represent the **betweenness**. Red has the highest betweenness.



On left: a unipartite network of individuals who donated to other individuals, NGOs, and organizations. Names of **central organizations are: Al-Khidmat, JDC, Akhuwat Foundation, and Jamat-e-Islami.**
On right: an unipartite network of people who donated to different provinces of Pakistan. **Most donated province: Sindh.**

Measure	Left Network	Right Network
Average Degree	5.0886	10.88889
Average Path Length	1.614173	1.470588
Global Clustering Coefficient	0.9311224	0.8891753

The table shows that for the left network, it takes **5 steps** for each individual to reach another individual through the organization they donated. On the other hand, it requires approximately **10 steps** for the individual to reach another individual through a place they donated at. Path length for both is small which means the **reachability is higher**. Global clustering coefficient is very high for both which means that individuals in both of these small networks are **highly connected** to each other.

Conclusion

This research partially satisfied the aims specified above. As this research is not representative of the population of Pakistan who donated to the Flood Crisis due to not many responses. In the future, this work should be continued to gather at least 500 responses and then a community detection can be performed on it that can serve as the focal point for future disasters.