

# Final Progress Report

**Project Title:** *Improving the Distribution of Disaster Emergency Assistance Programs in the USA Based on Major Disasters Data Mapping 2008-2017*

**Research Team:**

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**Reporting period:** April 2019 – September 2019

**Project period:** May 2018 – September 2019

**Section One:** Summary of the research progress

As outlined by the interim report, the first stage of the project until March 2019 has been progressing well. We worked through the relevant literature, developed a structure of the paper and mapped the emergency assistance application frequency based on zip codes between 2008 - 2017. Since then in order to achieve the goals we set at the beginning of the project, we outlined two further steps:

1. Map the areas with different ethnic representation.
2. Map the geographical distribution of disasters in diverse areas. This means essentially merging the work we have done on emergency assistance with the ethnic representation.

As for point 2, we have identified existing web-based interactive maps that allowed us to understand the diversity in race and ethnicity in different regions affected by disasters. However, we were unable to find access to the datasets that would allow us to map selected counties (urban areas) in detail. Given this fundamental limitation, we could not show visually the diversity in emergency assistance with depth and breadth as initially planned.

We have been able to partially achieve the project aims in addressing diversity and inequality(ies) in disaster relief provision

Goal 1. Discrepancies in disaster assistance provision: based on the data exploration we identified some clear indications that the distribution of assistance provision can be a reason for concern.

Goal 2. Minimizing the inequality in emergency assistance provision: similar indication can be seen based on the distribution of disaster relief assistance in

relation to mapping the household income in the districts that were most affected by the disaster.

These indicative findings align with the recent study on disaster aid allocation across different regions within the United States (Domingue and Emrich, 2019).

**Section Two: List of Team Meetings**

2018-05-23	Location: Purdue Campus	Attendance: Anh, Ashim, Andy, Szymon
2018-05-24	Location: Purdue Campus	Attendance: Anh, Ashim, Andy, Szymon
2018-05-25	Location: Purdue Campus	Attendance: Anh, Ashim, Andy, Szymon
2018-05-29	Location: online meeting	Attendance: Anh, Ashim, Andy, Szymon
2018-06-15	Location: video meeting	Attendance: Anh, Ashim, Andy, Szymon
2018-07-02	Location: online meeting	Attendance: Anh, Ashim, Andy, Szymon
2018-07-30	Location: video meeting	Attendance: Anh, Ashim, Andy, Szymon
2018-09-19	Location: online meeting	Attendance: Anh, Ashim, Andy, Szymon
2018-10-05	Location: online meeting	Attendance: Anh, Ashim, Andy, Szymon
2018-11-07	Location: online meeting	Attendance: Anh, Ashim, Andy, Szymon
2018-12-05	Location: online meeting	Attendance: Anh, Ashim, Andy, Szymon
2019-01-15	Location: online meeting	Attendance: Anh, Ashim, Andy, Szymon
2019-02-03	Location: online meeting	Attendance: Anh, Ashim, Andy, Szymon
2019-03-21	Location: online meeting	Attendance: Anh, Ashim, Andy, Szymon
2019-04-29	Location: online meeting	Attendance: Ashim, Andy, Szymon
2019-05-24	Location: online meeting	Attendance: Ashim, Andy, Szymon
2019-06-28	Location: video meeting	Attendance: Ashim, Szymon
2019-07-10	Location: online meeting	Attendance: Anh, Ashim, Andy, Szymon

**Section Three: Risks, Issues and Challenges**

At the outset of this study we were able to identify an important and timely research gap, which proved to be challenging for a small graduate team research project. Given the rather limited research in this field to date, a lot of the efforts had an exploratory character trying to establish the research framework and conceptual linkages across disciplines. In addition, due to the geographical distance of team members it proved to be rather difficult to maintain the same level of engagement. However, throughout the course of the project we have been able to maintain regular communication and exchange.

**Section Four: Evaluation and future directions as result of the project**

Based on an extensive literature review, methodological and conceptual discussions, the contribution to knowledge of this group project can be identified in two key areas. First, this research offers a unique pilot study and potential foundation to a larger research project looking into the role of migration-related diversity in disaster assistance. Second, it offered valuable entry points into the emerging research frontier on computational social science of disasters (CSSD) (Burger et al., 2019). Given the draft material it might be worth considering submission of a short research paper and/or policy brief highlighting the differences in geographical distribution of emergency assistance.

**Section Five: Collaboration and outputs**

As highlighted above, the group work as part of the project has not resulted so far in clear

academic outputs. Along the project work we have identified, submitted and received application acceptance to selected international conferences that offer enough space for interdisciplinary engagements from the field of social science, disaster, resilience and emergency prevention. However, due to a range of encountered challenges we were not fully confident in the research progress and therefore decided to refrain from participation at this stage.

**Canadian Science Policy Conference 2019 Short Talk Session conference in Canada in November 13-15 2019.**

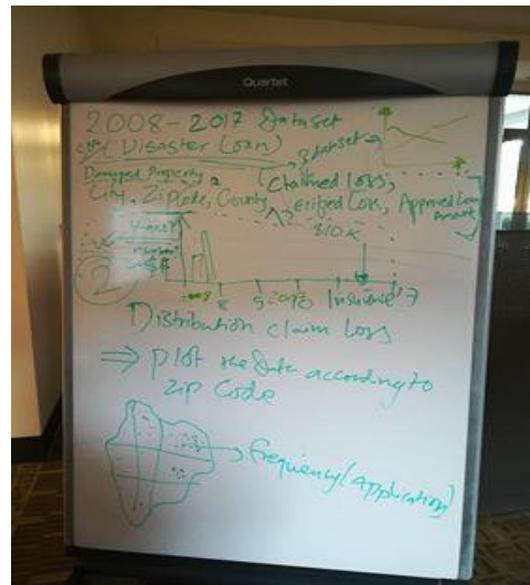
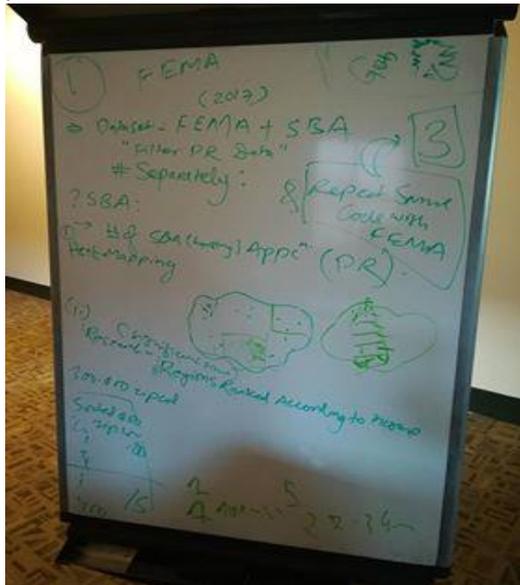
**Short abstract:** The interdisciplinary group project team aims to test and explore the geographical distributions and differences in disaster assistance provision in the areas affected by previous disasters in the USA. This presentation uses geographical mapping methods based on the FEMA Individual Disaster Assistance data. There needs to be a better understanding on the real needs of individual households and the visual distribution of disaster relief assistance. Through the analysis of the interlinkages based on a range of available data sources and data mapping our goal is to address the challenges deriving from potential inequalities, improve city resilience and disaster relief delivery.

**UCGIS 2019 Symposium - Geospatial Humanities; 3rd European Symposium on Societal Challenges in Computational Social Science; Summer School 'Visual Intersections 4', 8th-10th July 2019, Durham University, United Kingdom)**

**Abstract:** There have been several studies recently that used visual representations and estimated the population displacement post-2017 Hurricane Maria. However, recent research indicates that there still needs to be a better understanding and linking of culture into emergency and disaster risk reduction (DRR) (Bankoff, et al. 2015). As part of the interdisciplinary group project we are testing and exploring the geographical distributions and differences in disaster assistance provision in the areas affected by previous disasters in the USA. This paper aims to show how visualizing disasters contributes towards the better understanding of the role of culture in disaster response. We use geographical mapping methods based on the American Community Survey (ACS), FEMA Individual Disaster Assistance and the US Small Business Administration Disaster Assistance Loans data. The initial results focusing on the 2017 Hurricane Maria case study indicate that the culture of disaster response is space-bound, where various groups and individuals might be acculturated differently into disaster situations. This exploratory analysis has shown that urban neighbourhoods with high numbers of non-white and diverse populations are disproportionately exposed to differences in post-disaster emergency response. This study showing differences in disaster response culture gives valuable insights into the potential new ways of thinking about diversity in relation to the social aspects of disaster response.

**Keywords:** *disaster relief, culture, diversity, resilience, visualizing disasters*

Project layout and brainstorming session following the intensive interdisciplinary workshop period in Purdue:



### Section Six: Budget

To date we have not claimed any expenses.

Journal submission costs may occur at the later stage.

The initially proposed budget for the team project looks as follows:

Item	Cost	Notes
<b>Travel Option 1</b>	\$4,000	4 x overseas flights (2x flights from the US; 2x flights from the UK)
<b>Travel Option 2</b>	\$2,800 \$300 \$900	2 x flights from US to UK 4 x off peak return train tickets from London to Birmingham 4 x budget return plane tickets within Europe
<b>Conference costs (registration and lodging)</b>	\$2,000	4 x conference registration fee + lodging (four graduate students will co-present results of the research at this conference)
<b>Total:</b>	<b>\$6,000</b>	

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Signature and date: 01/09/2019