What Makes People Move?

DISCUSSION

The migration pattern is a challenging topic to study, for the Population move is too dynamic to track. The stimuli for the migration decision are even harder, as there are various factors that come into play in people's decision making, and it varies person by person.

However, with the limited data and scope of this project, it is unable to tell whether the migration is an economic decision, a survival decision, or combined. In order to look into the questions raised earlier more closely, one needs to know if the displacement is temporary or permanent, the average capital loss per household, and the loss in proportion to total household income, etc.

METHODS

Displacement by Hazard Types

Displacement Population per Incident

Using GIS, the project first identified countries with the most internal migration due to environmental disasters. It turned out that courtiers with more hazard incidents reported do not necessarily have a higher population displaced. As the bar charts show, droughts, earthquakes, floods, and storms are hazard types that displaced the most people per accident. Thus, a closer look at the displacement posed to courtiers by three of the most effective hazard types—flood, drought, and storm. These types of disasters were chosen because they are highly related to climate change, which has been the most heated topic recently. Finally, the Gini Index was looked at as one of the many possible socio-economic factors that explain the decision made about migrating.

All data obtained for this project were in the form of spreadsheets. Each set of data was joined with a world data shapefile obtained from the M Drive to transform the data into shapefile. Data were then displayed with gradient color and symbols.

PROJECT DESCRIPTION

- The causes of migration are complex and vary country by country. Domestic development, education level, social and political stability, natural environment, and many other factors play different roles in the decisions made by individuals on migrating. This project aims to take one step further from researches done by international organizations such as the United Nations and International Organization of Migration by looking at factors that influence the individual's migration decision. Looking at data for each country from the year 2008, This project aims to answers the following questions:
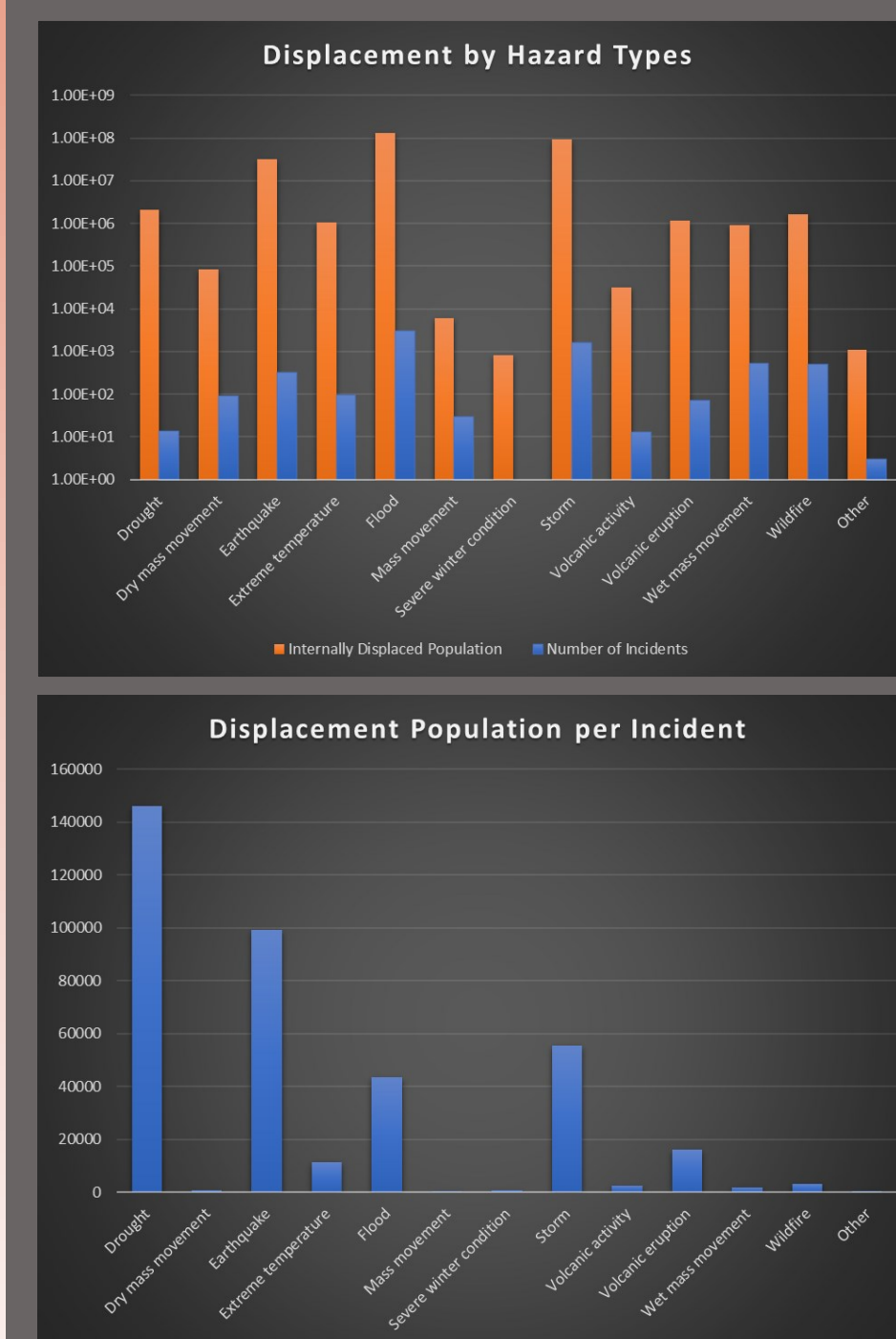
  - Which country has the highest number of internal migration that is caused by natural disasters?
  - What types of environment disaster displaces the most number of the population?
  - Are people from countries that are more equal in terms of income more likely to move under the circumstance

RESULTS

The maps show that displacement due to natural disasters was reported all around the world, but less in Europe and North Africa. China and India reported the highest number of displacement populations caused by natural disasters. It could also be observed that natural disasters are clustered near the equator.

Although not many incidents were reported, drought nevertheless causes the largest scale of displacement. The flood pattern and the storm patter behave similar for coastal states but looked very different in the Sub-Saharan African region and middle east. Population wise, island states tend to have higher disaster-related displacement over the total population ratio.

By reading the Gini index map (A higher Gini index indicates greater inequality), it is unable to tell whether economic equality played a significant role in people's migration decisions in facing environmental disasters.

Internal Displacement Due to Natural Disasters

Displaced Population
0 - 100000
100001 - 4000000
4000001 - 8000000
8000001 - 16000000
16000001 - 80000000

Number of Incidents
0 - 18
19 - 52
57 - 108
126 - 239
426 - 790

Internal Displacement Due to Floods

Internal Displacement Due to Droughts

Internal Displacement Due to Storms

Economic Inequality in Migration Decision

DATA

The data obtained for this project were from several sources. The internal migration data that are categorized into environmental hazard types in different countries are from Global Internal Displacement Database. The Country GINI Index data were obtained from the World Bank's Environment, Social, and Governance Data. The GINI index is missing from many countries, and the data reported is an average from the year 2009 to 2012.
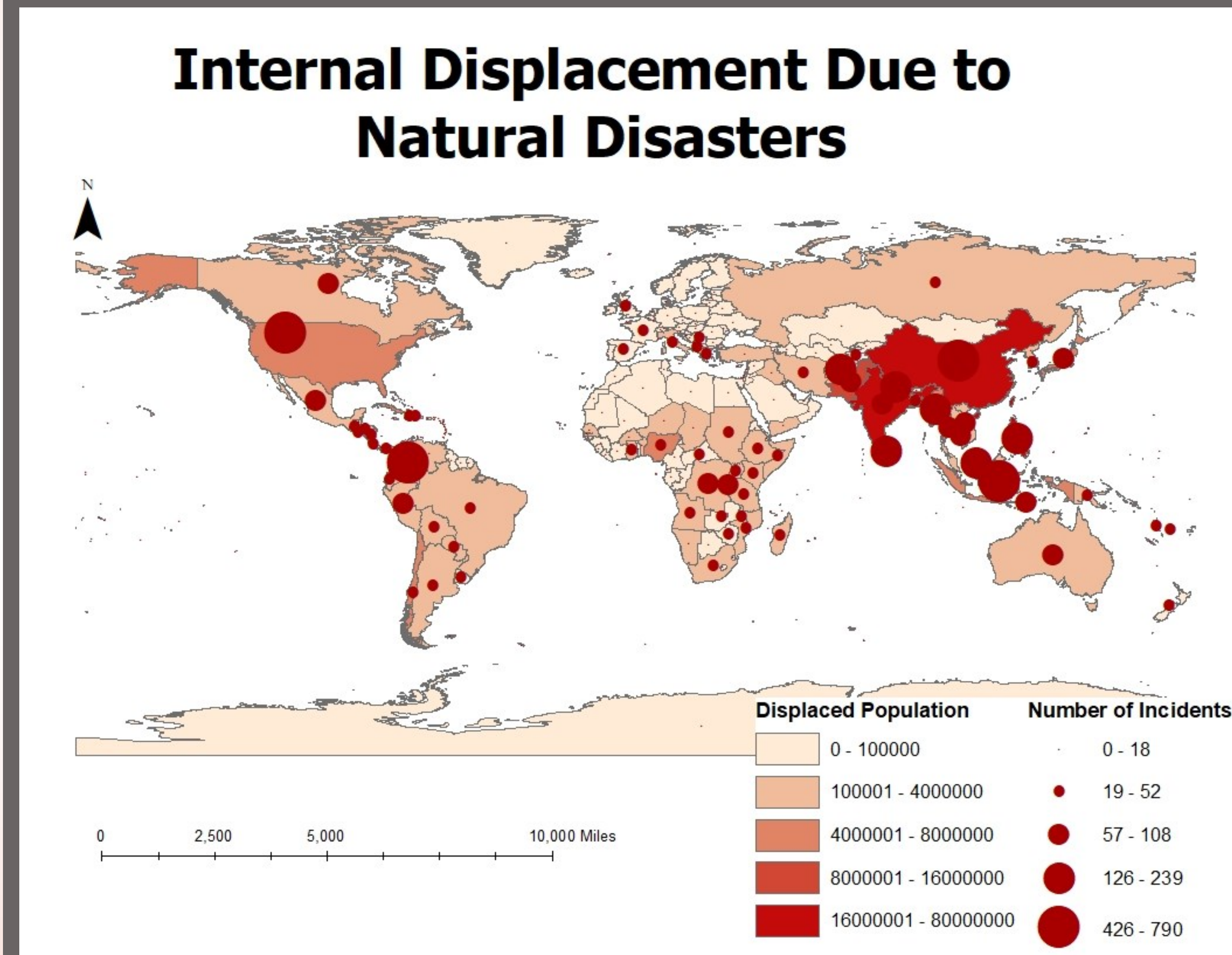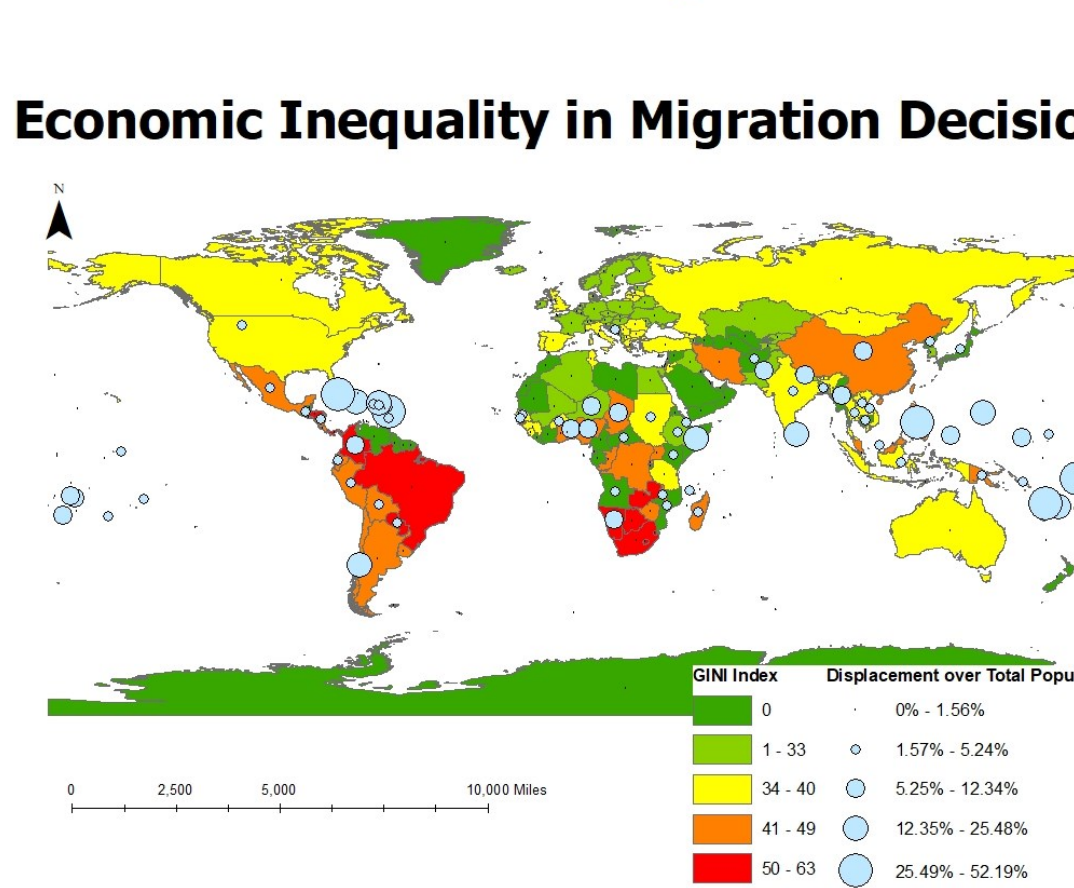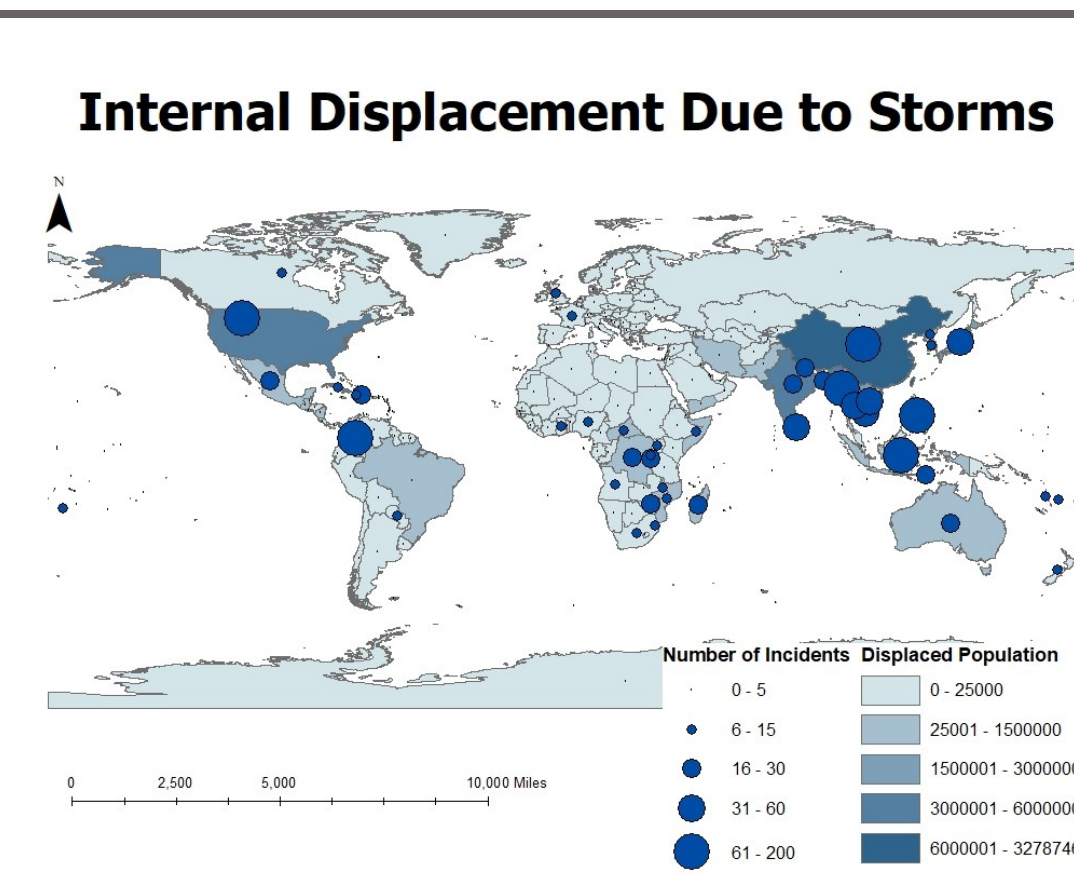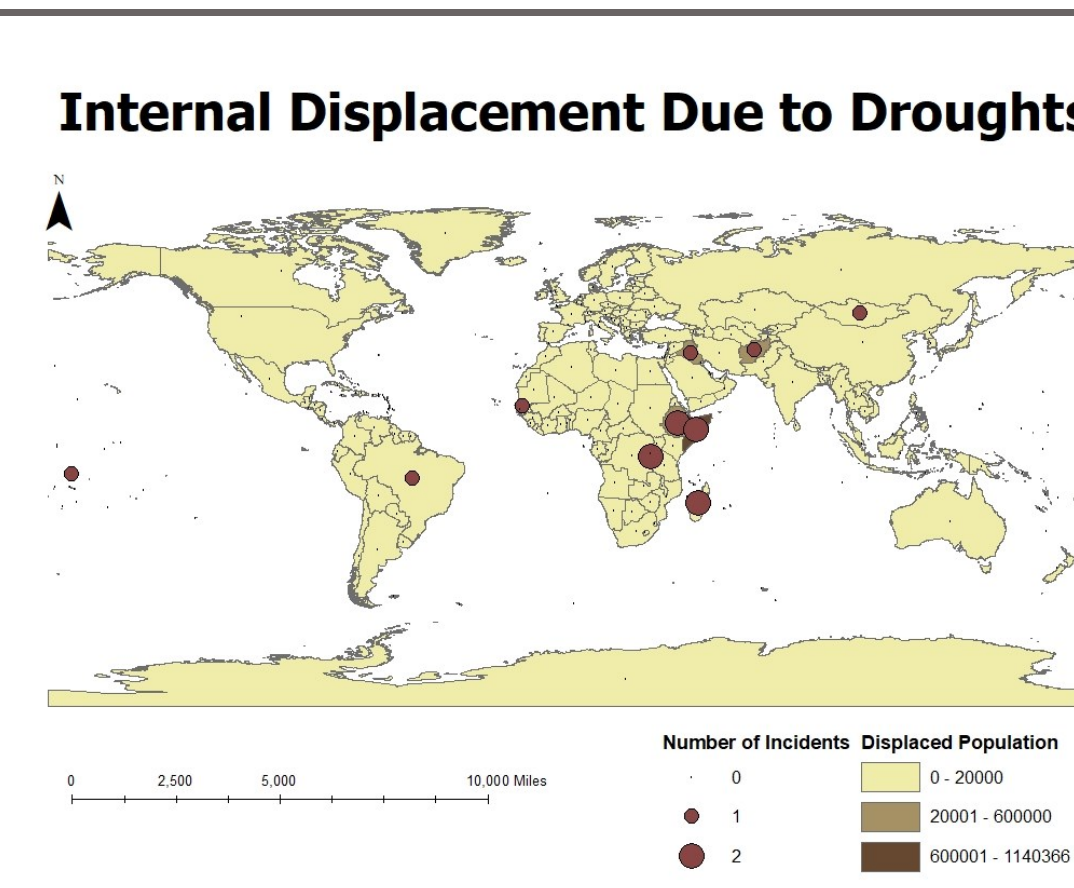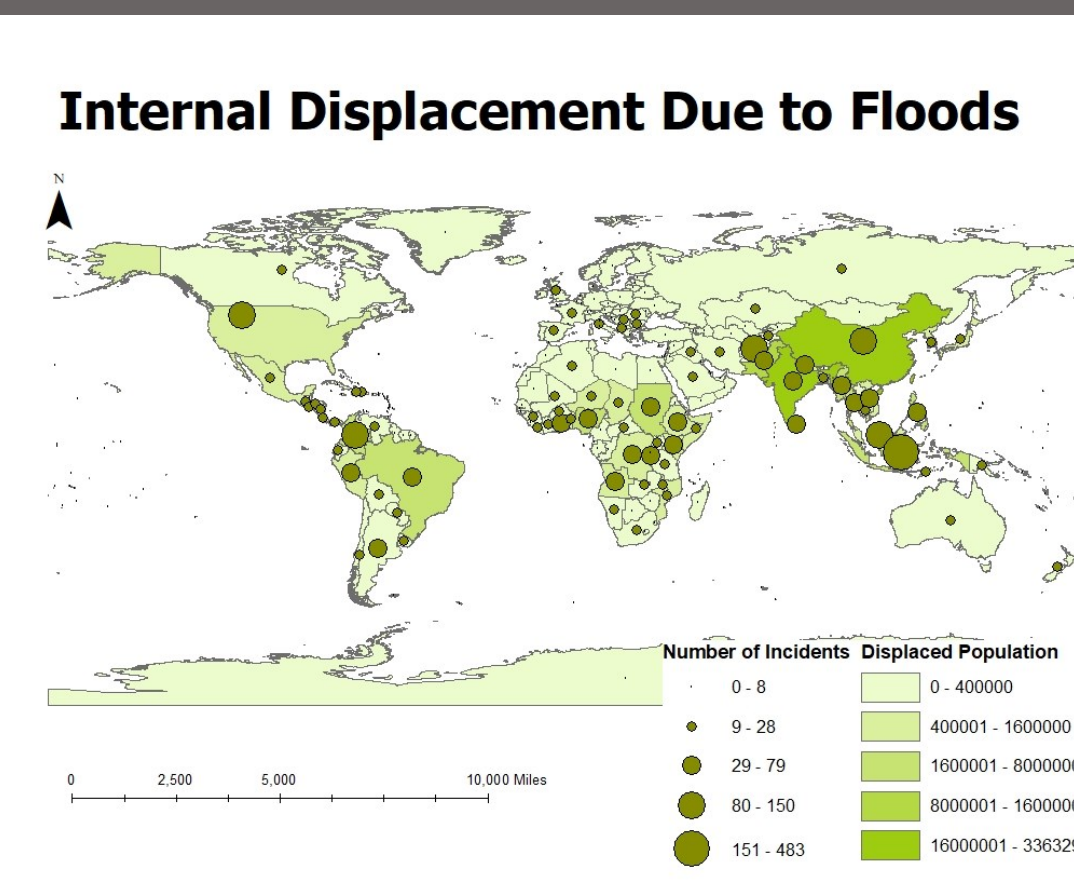
CONCLUSION

As there is increasing interest around the topic of climate migrants among international organizations, studying what affects people's decisions in facing natural disasters becomes important for a resilient and sustainable future. This project is a very small step toward thinking from the migrants' perspective. It found that natural disasters are clustered near the equator, and among all types of natural hazards, droughts displace the largest number of people. Surprisingly, China and India reported the highest number of displacement populations caused by natural disasters, which suggested that there are other reasons making people move in experiencing natural disasters. However, the look into the Gini index did not suggest anything significant about whether economic inequality is a contributing factor.

HAYLEE PIAO

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GIS 0101: Intro to GIS | Tufts University

SOURCES

1. http://www.internal-displacement.org/database/global-displacement-risk-model
2. https://datacatalog.worldbank.org/dataset/environment-social-and-governance-data
3. Tufts University M-drive