MAPS TO DOWNSIZE GLOBAL POVERTY: A GIS AND POLICY FOCUSED INVESTIGATION

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Information Technology
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OVERVIEW

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PERSONAL BACKGROUND

- Interest in GIS and Data Analytics
- Passionate about social issues
- Interned with The Borgen Project for 12 weeks
- Pursuing a Master's Degree in Public Policy and Management with an emphasis in Data Analytics at Carnegie Mellon University, Fall 2022

ORGANIZATION BACKGROUND

Mission Statement: The Borgen Project believes that leaders of the most powerful nation on earth should be doing more to address global poverty. We're the innovative, national campaign that is working to make poverty a focus of U.S. foreign policy

ABSTRACT

PURPOSE: to build a data visualization for a nonprofit organization that allows visitors to their website to have a better understanding of the organization's mission, goals, and current projects.
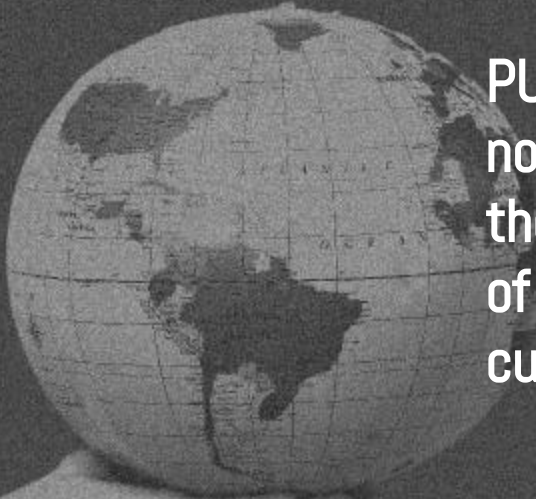
Overview of global poverty

- 736 million people live in extreme poverty. About half of the world's poor, around 368 million, live in just five countries: India, Nigeria, the Democratic Republic of the Congo, Ethiopia and Bangladesh.

- In developing regions, one in 10 people live on less than $1.90 a day.

- An estimated 2.5 billion people lack access to improved sanitation (more than 35 percent of the world's population).

- One billion people live without electricity and hundreds of millions more live with unreliable or expensive power.

- Poverty reduction rates are expected to slow down over the next decade.

Poverty is the principal cause of hunger

- As of 2018, 822 million people are hungry worldwide; that's one in nine people.

- Over 2 billion people lack regular access to safe, nutritious, and sufficient food (about 18 percent).

- 785 million people drink unsafe water or have to travel more than 30 minutes to drink safe water.

LITERATURE REVIEW

Courses at University of La Verne

CMPS 372: *Intro to Python for computer science and data science : learning to program with AI, big data and the cloud* by Harvey and Paul Deitel

CMPS 370: *ArcGIS Book : 10 Big Ideas about Applying the Science of Where* by Christian Harder

Other Resources:

Getting to know ArcGIS Pro 2.6 by Amy Collins and Michael Law

Collaborative cities : mapping solutions to wicked problems by Stephen Goldsmith and Kate Markin Coleman

ANALYSIS AND REQUIREMENTS

Data Collection and Extraction
- Data exported from Our World In Data

Data Cleaning
- Jupyter Notebook/Python used to clean data for relevant analysis

ArcGIS Software
- ArcGIS Pro
- ArcGIS Online
- ArcGIS Storymaps
  - Products used to build maps and format data with shapefiles

DESIGN

ArcGIS Pro
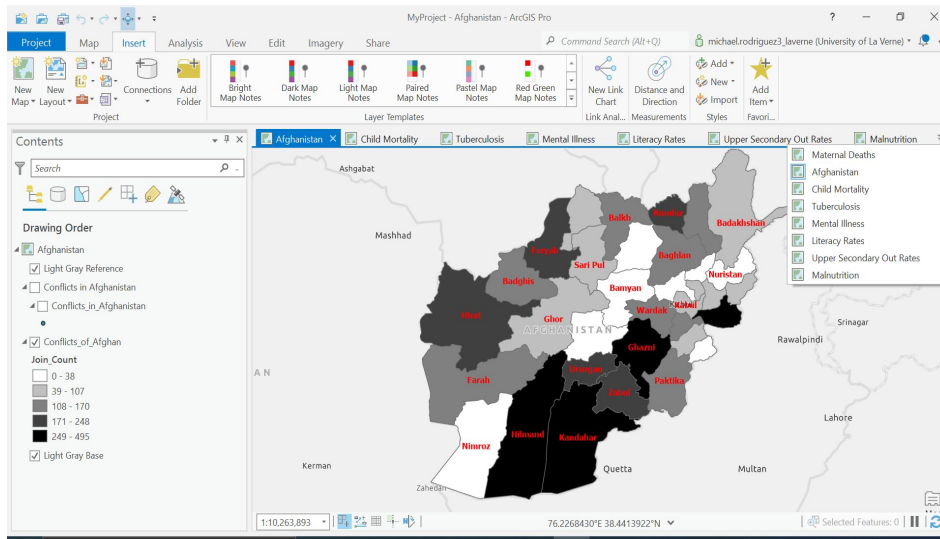
Sample StoryMap
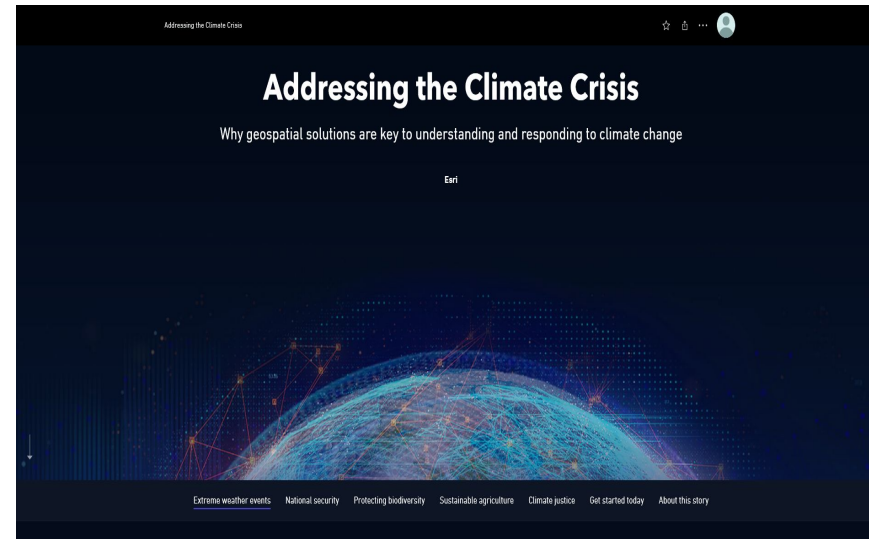
IMPLEMENTATION

Jupyter Notebook/Python

IMPLEMENTATION

ArcGIS Online Web Maps

DEMO

Justice for The World's Impoverished

Showing the stories of nations facing the harshest conditions because of poverty and how you can do something about it.

- Michael Rodriguez, University of La Verne - Department of Computer Science
May 17, 2022

https://arcg.is/1nfPry1

CONCLUSION

What courses helped me:
CMPS 372: Intro to Python Programming
CMPS 370: Intro to GIS

What I learned:
- How to prepare and process data using python
- How to create maps with shapefile data from point data
- The different limitations of GIS software

What I would have done differently:
- Spent more time finding different sources of information
- Experimented with created aggregated data in SQL

Future student in Senior Project:
- Take lots of time to scope out your project
- Try to apply time and deadlines to yourself as if this project was for a job

Thank you to the Department of Computer Science and Engineering