



Food Security & Infrastructure in Africa

By Shenghao (Lavender) Zhang

Overview

Overview

Problems to solve

Models: Food Security Classification

Development Potentials



Overview

Food security has been a problem of concern worldwide. This project focuses on the continent of Africa to find what factors are closely related to this problem. After analysing the data, the project also dives into the current conditions of selected infrastructure and predict potential development needs on geospatial basis.

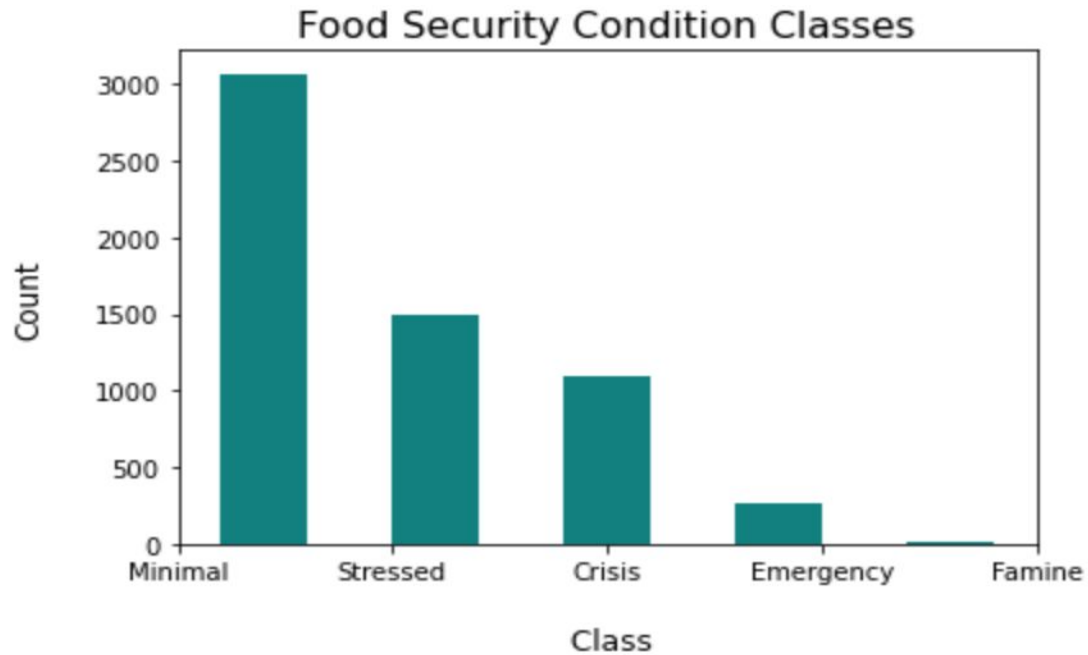


Problems to solve

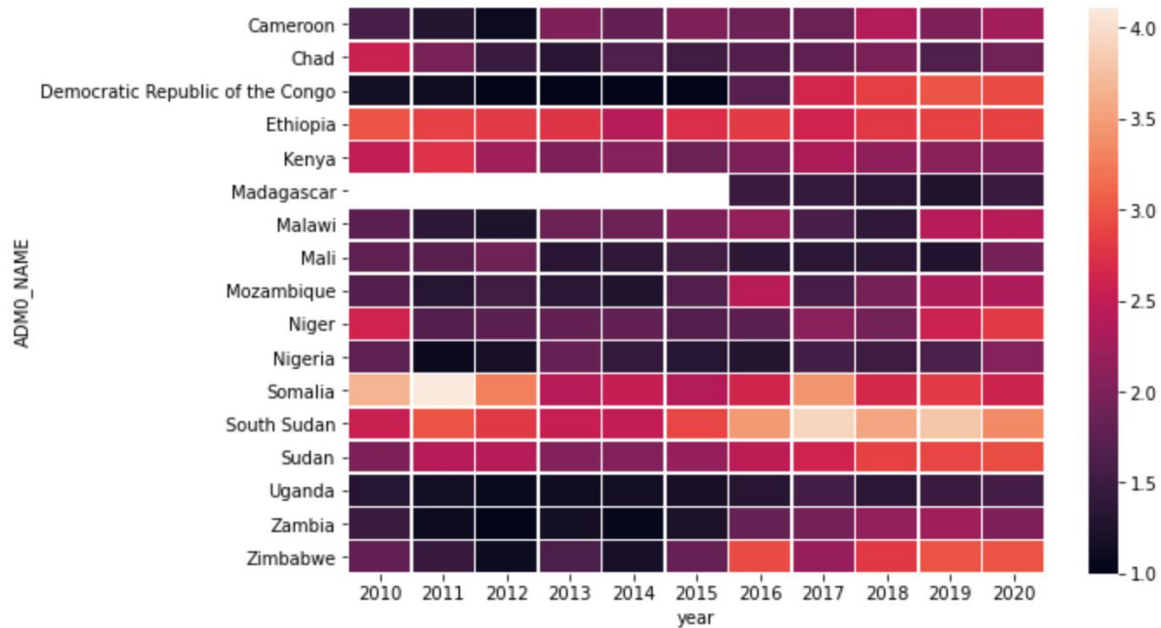
- 1 Food security, climate, social, and infrastructure
- 2 Infrastructure development and potentials



Food Security Classification

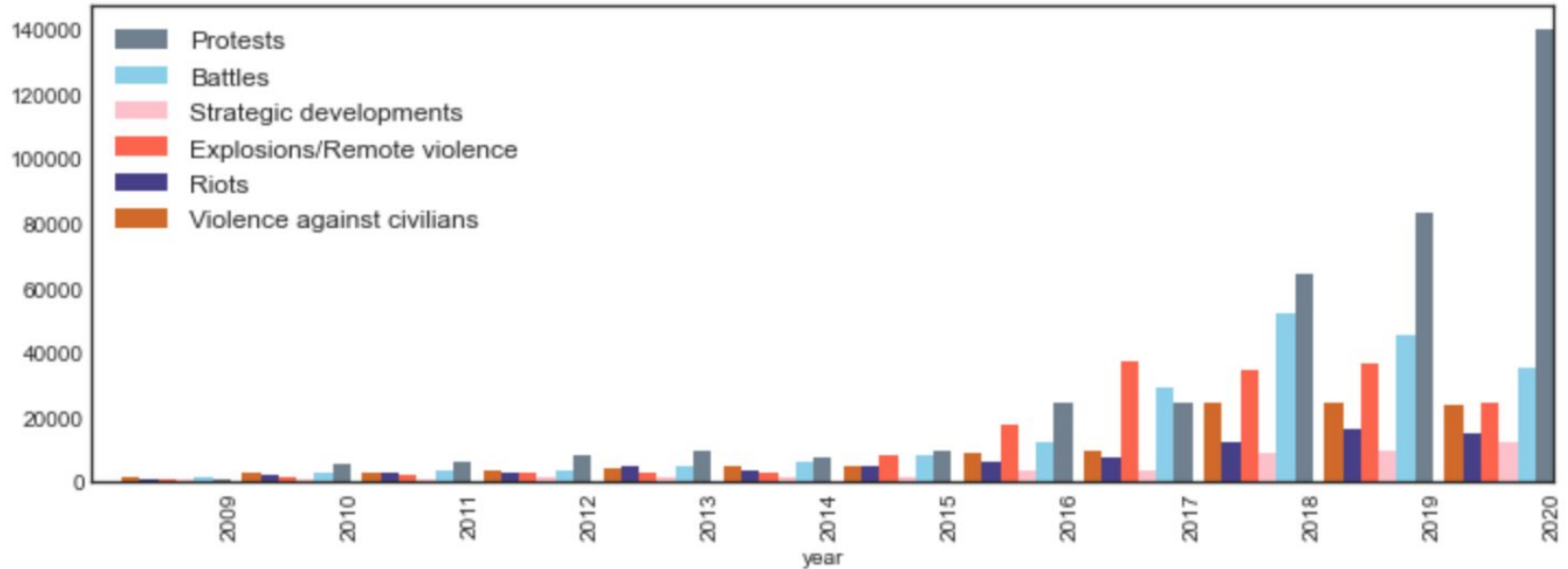


Trend analysis





Social Conflict Events

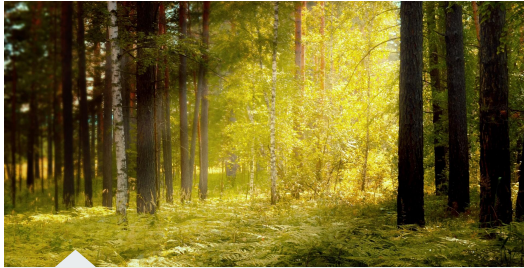




What are the contributors?



Classification Prediction



XGBoost

81.04%

Less overfitting

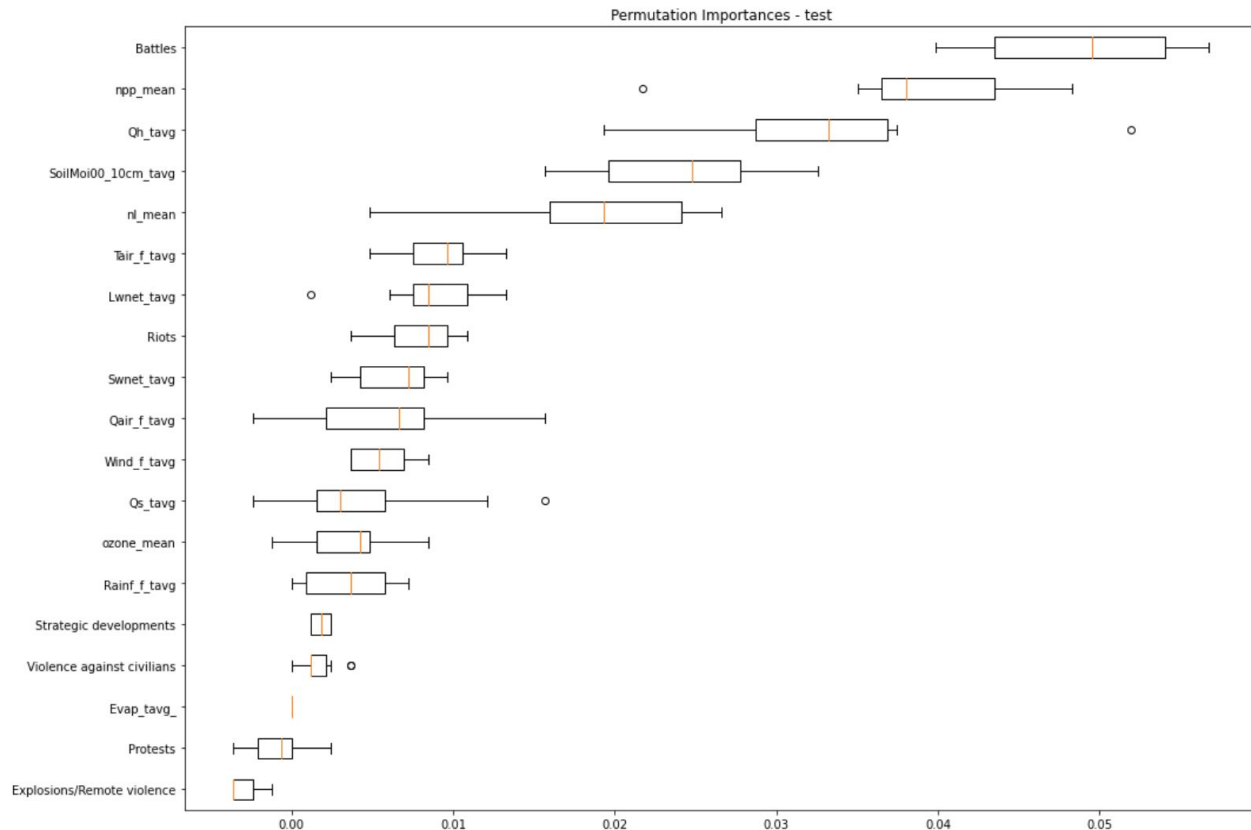
**Random Forest
Classifier**

80.8%



Permutation Feature

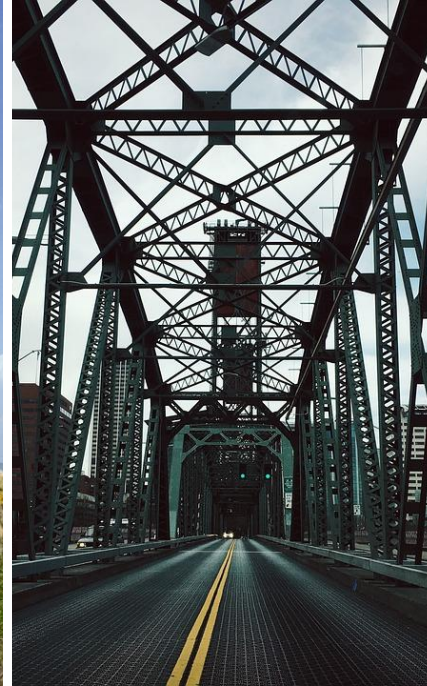
- Battles
- Nighttime light
- Riots





Human Factors

Can we develop more infrastructure to support distribution, production, and safety?



A dashboard

Current Situation

&

Future Need Allocation

×

Which basemap do you want?

OpenStreetMap ▾

Pick an Area:

☒ North Africa

☐ East Africa

☐ Southern Africa

☐ Western Africa

☐ Central Africa

Pick an indicator:

☒ Health Facility Accessibility

☐ Ground Travel Speed

☐ Solar Potential

☐ Wind Potential

☐ Night Light

Pick a Prediction:

☒ Solar Development Need

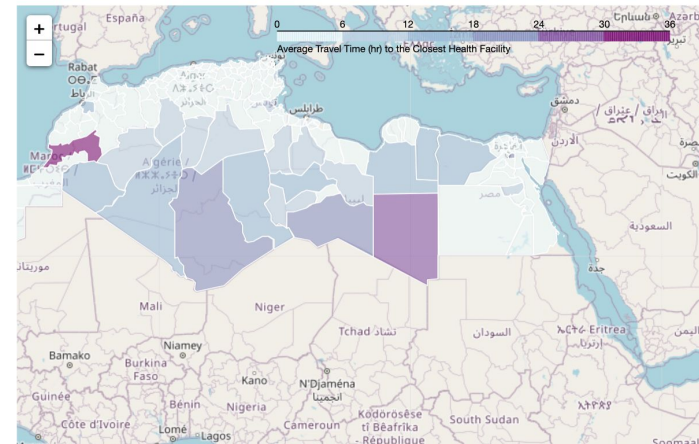
☐ Wind Development Need

Africa Development & Potentials Map

This project derived the most recent data from:

- Google Earth Engine
- the World Bank

Data are used to evaluate the currently development stage and future potentials in infrastructure investment. Click on the map to find the value.



Future Work

- Regional level technology data
- Expand the dashboard to broader time range & topics
- Adding more climate related data onto modeling



Thank you.

