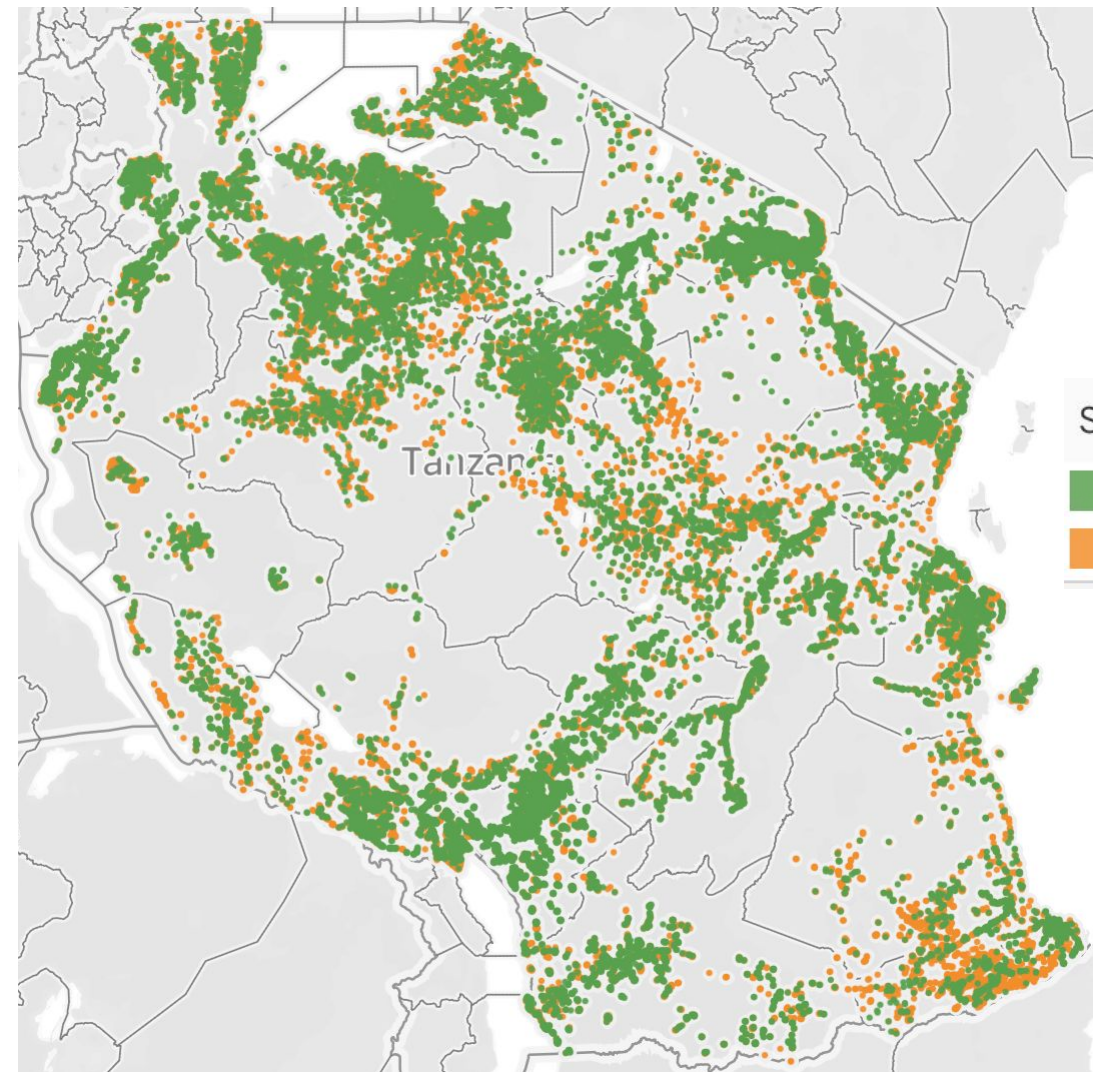# Tanzania Water Wells
Classification Model

Matthew Williamson
Paul Tanner
Angelica DeGaetano

Project Goals

❖ Public health issue: access to water

❖ What pumps need repair?

❖ Tanzanian Development Vision 2025

Photo: Adam Cohn

Status Group (group)

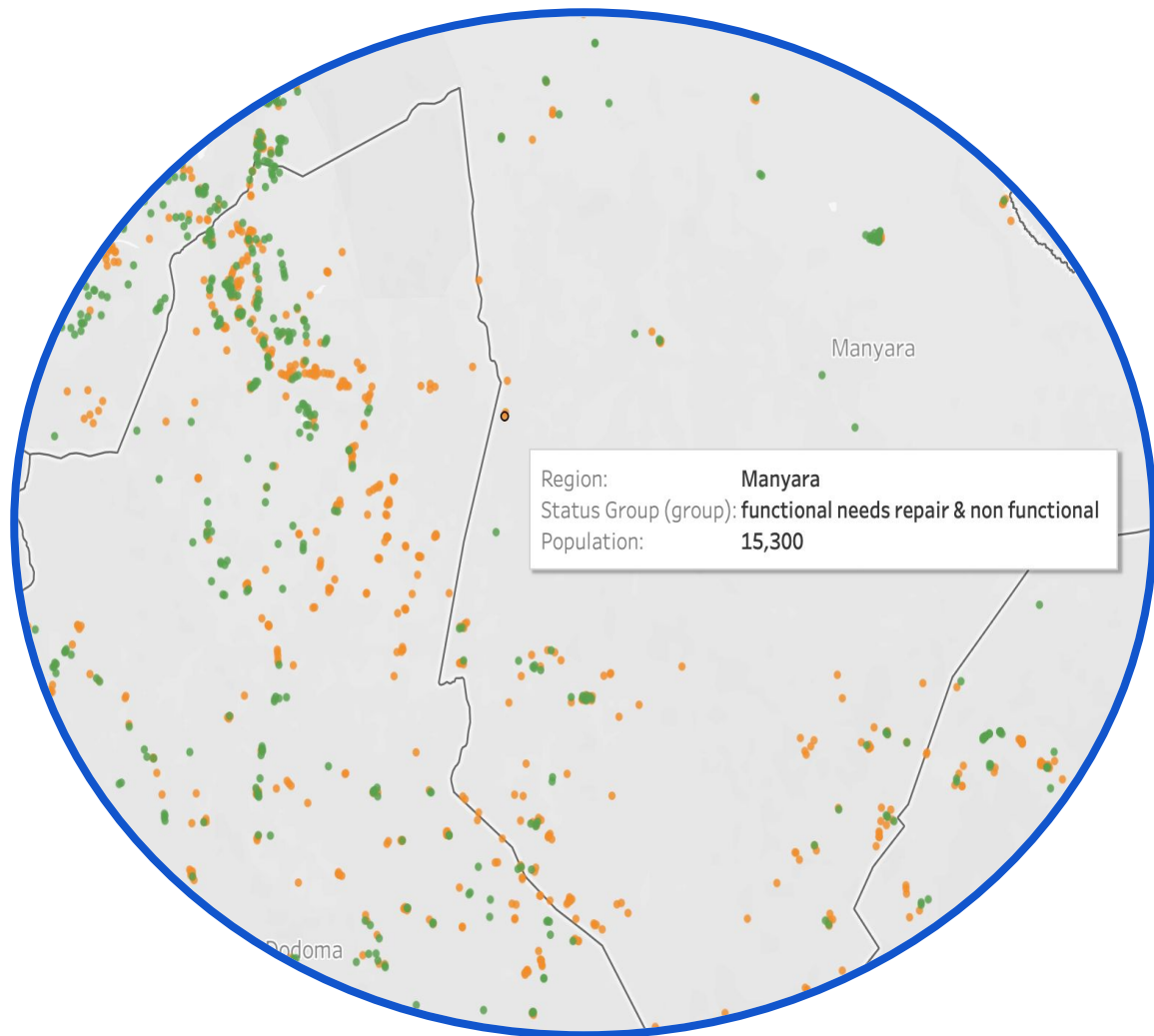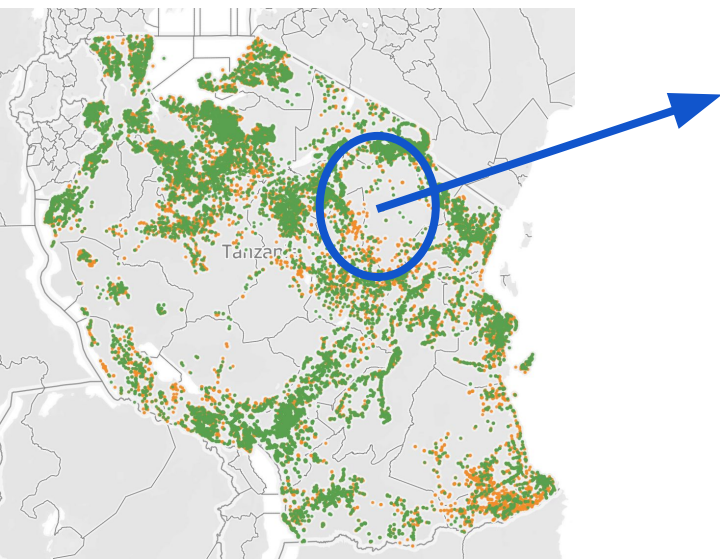■ functional
■ functional needs repair & non functional

Region: Manyara
Status Group (group):   functional needs repair & non functional
Population: 15,300

Feature Selection:

When building our first model we wanted to focus on features that would help identify which water wells are functional, non-functional, and also functional but needs repair.

Physical Attributes:
- Construction year
- Pump Type
- Water type: Hard vs. soft
- Size of population that has access to the well
- Amount of water available

Geographic/ Geological Attributes:
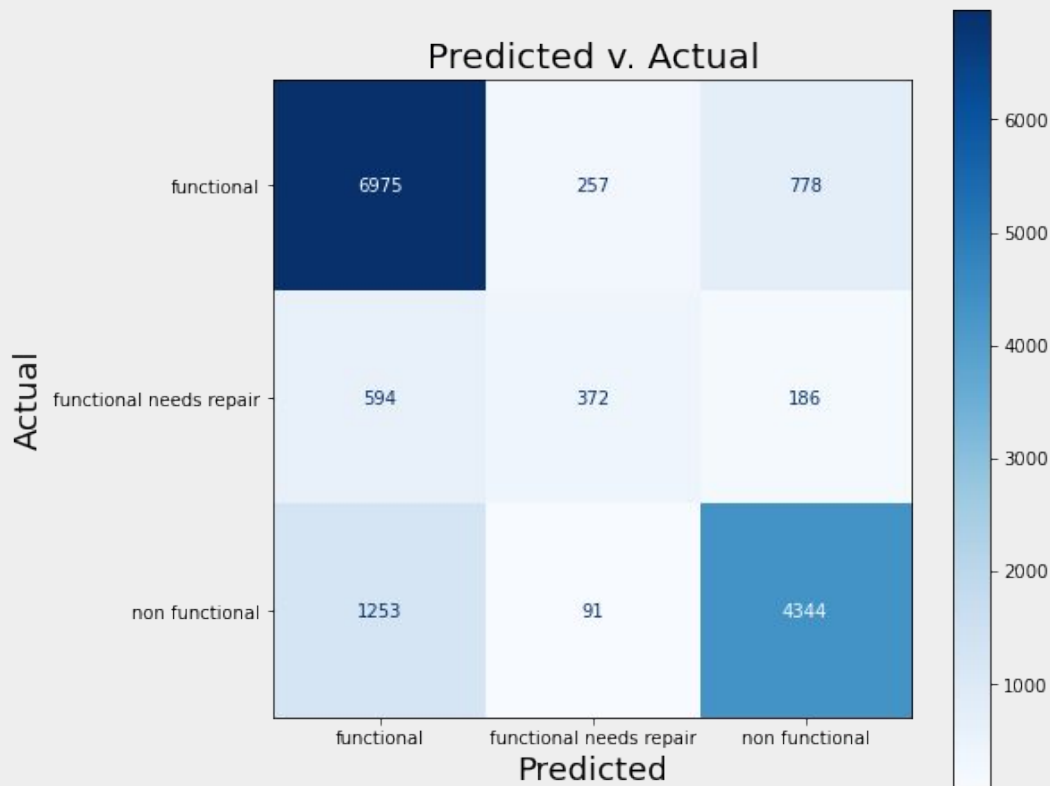- Water Source
- Well Altitude
- Urban/Rural

First Simple Model: Random Forest

Accuracy: .787

Recall (functional): .87

Recall (functional needs repair): .32
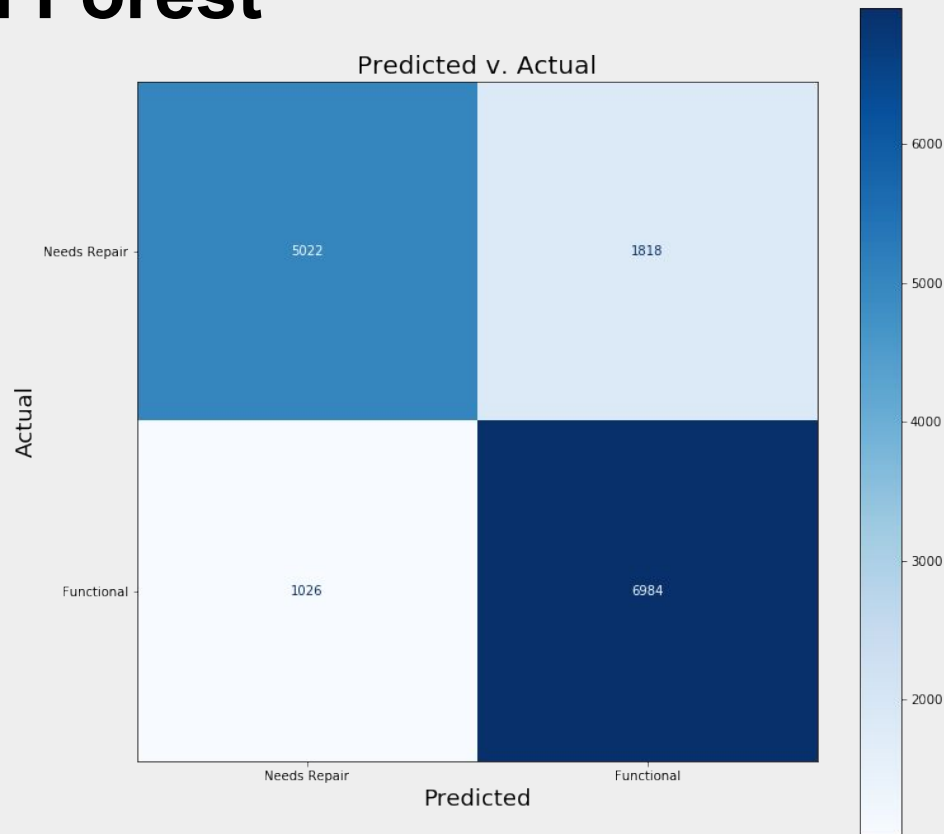
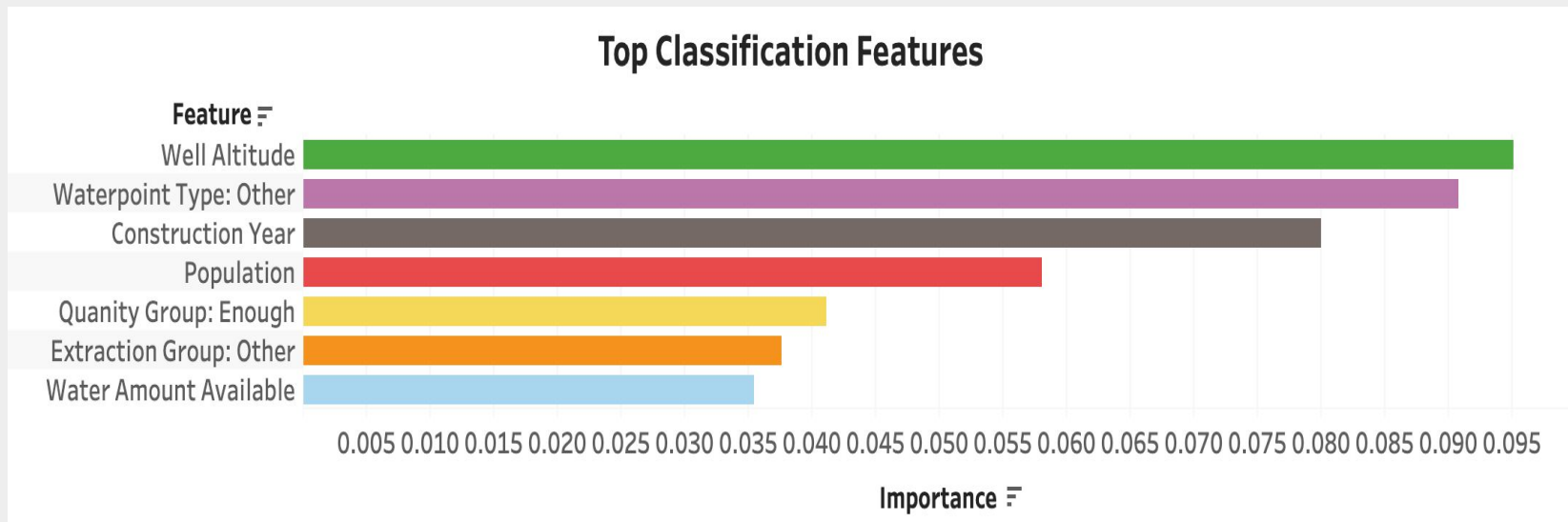**Recall (non-functional):** .76

Final Model: Random Forest

Accuracy: .81

Recall (needs repair): .73

Recall (functional): .87

Key Features

Top Classification Features

Next Steps

- Improve model performance

- Phase 2: repair prioritization

Photo: Nestle

Contacts:

Matthew Williamson:
github/MWilliamson96

Paul Tanner:
ptanner925@gmail.com, github/ptanner925

Angelica DeGaetano:
github/angelicacodes