

Tanzanian Water Wells



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The 3 Tanzanian Angels



Overview

- Data Understanding:
 - 75K documented water wells
- Question:
 - Status of water well
- Task:
 - Create a predictive model



Problem at Hand

Background

Around 53% of the population in Tanzania doesn't have basic access to soap and water.

Info from: lifewater.org

Active Problem

Many water wells are non-functional, failing to provide water to locals.

Our Solution

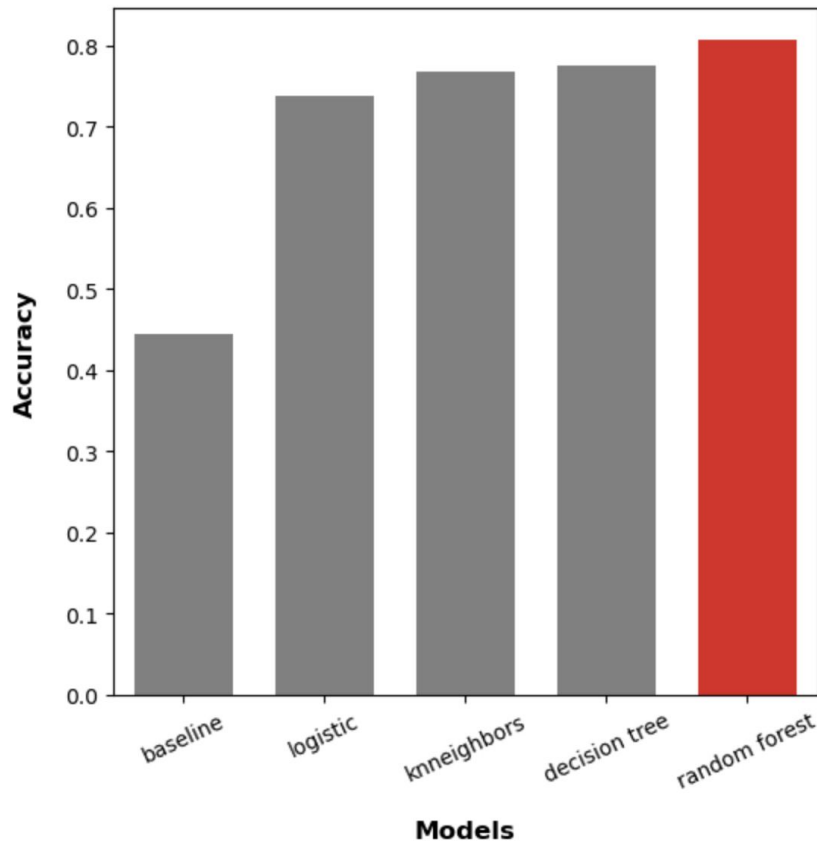
Predicting the status of wells across Tanzania

Use this information to flag failing wells to help repair wells improving quality of lives.

Our Approach with models

1. Baseline Model
2. Logistic Regression
3. k Nearest Neighbor
4. Decision Tree
5. Random Forest ~81 %

Machine Learning Models Accuracy Score



Final Model - Random Forest

Worse Case Scenario:

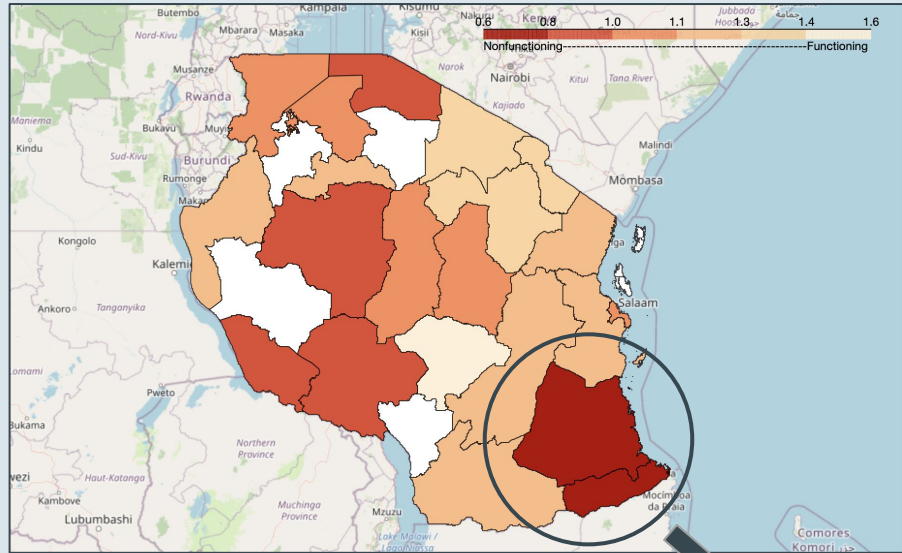
- High False Positive Rate

Our Model:

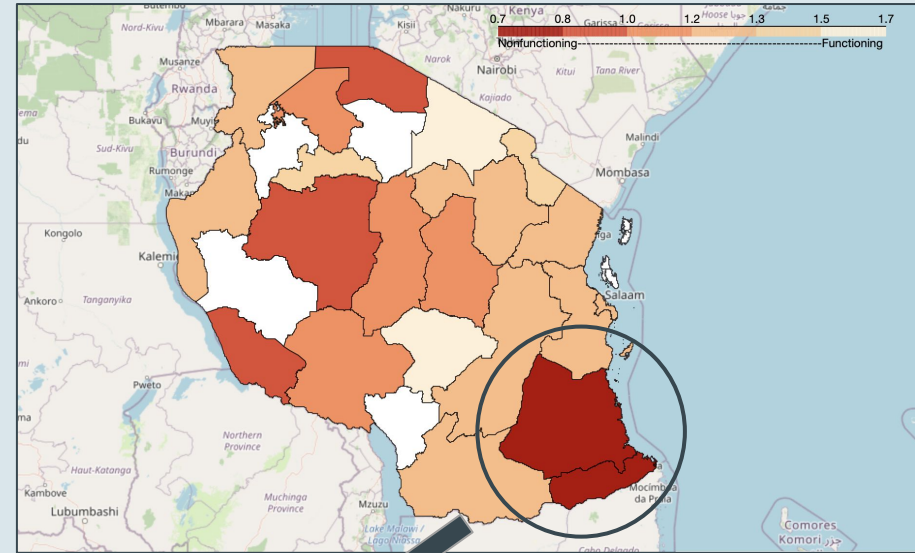
- False Positive Rate: < 11 %
 - ~90 % Correct

True vs Predicted Well Functionality		
True Value	Needs Repair	Functional
	<div>Correct Prediction</div> <div>17730</div> <div>97.9%</div>	<div>Wrong Prediction</div> <div>2843</div> <div>< 11%</div>
Functional	<div>Wrong Prediction</div> <div>390</div> <div>2.1%</div>	<div>Correct Prediction</div> <div>24116</div> <div>~ 90%</div>
		Predicted Value
		Needs Repair Functional

Distribution of Actual Wells



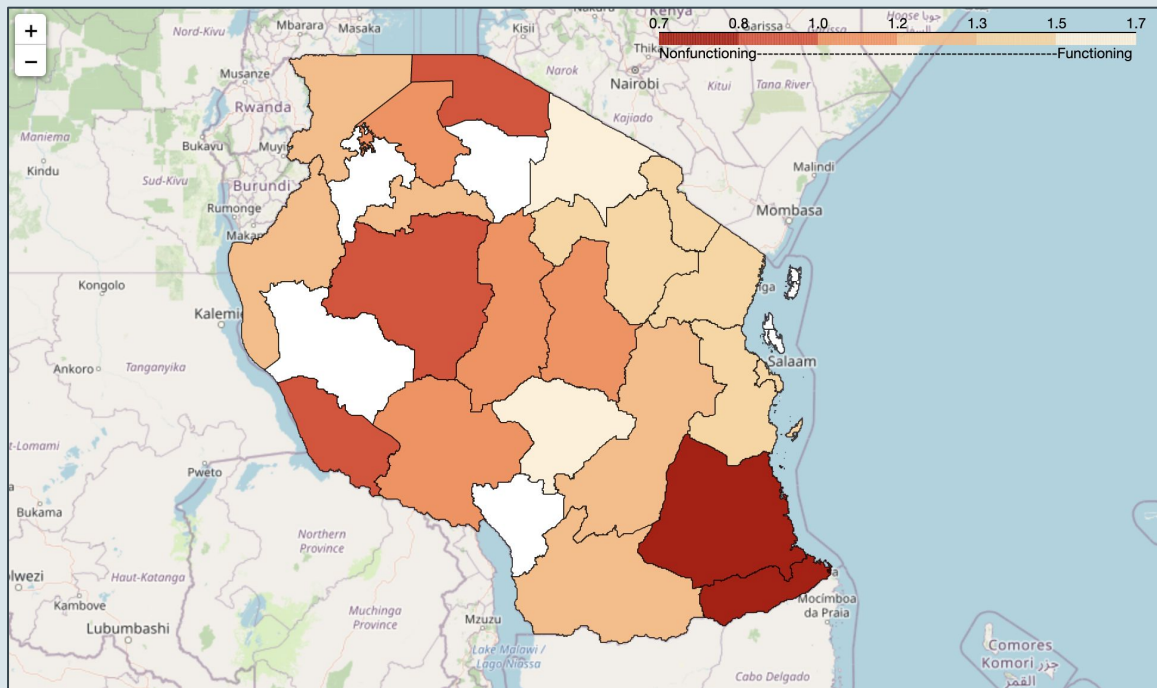
Distribution of Predicted Wells



- Lindi(top)
- Mtwara(bottom)

Next Steps

- Target regions with non-functional wells
 - Mtwara
 - Lindi
- Re-evaluate semi-annually
- Shift efforts accordingly



Questions?



Adam Larsen

[LinkedIn](#)



Jeon Wook Kang

[LinkedIn](#)



Roger Pineda

[LinkedIn](#)