Well Maintenance in Tanzania

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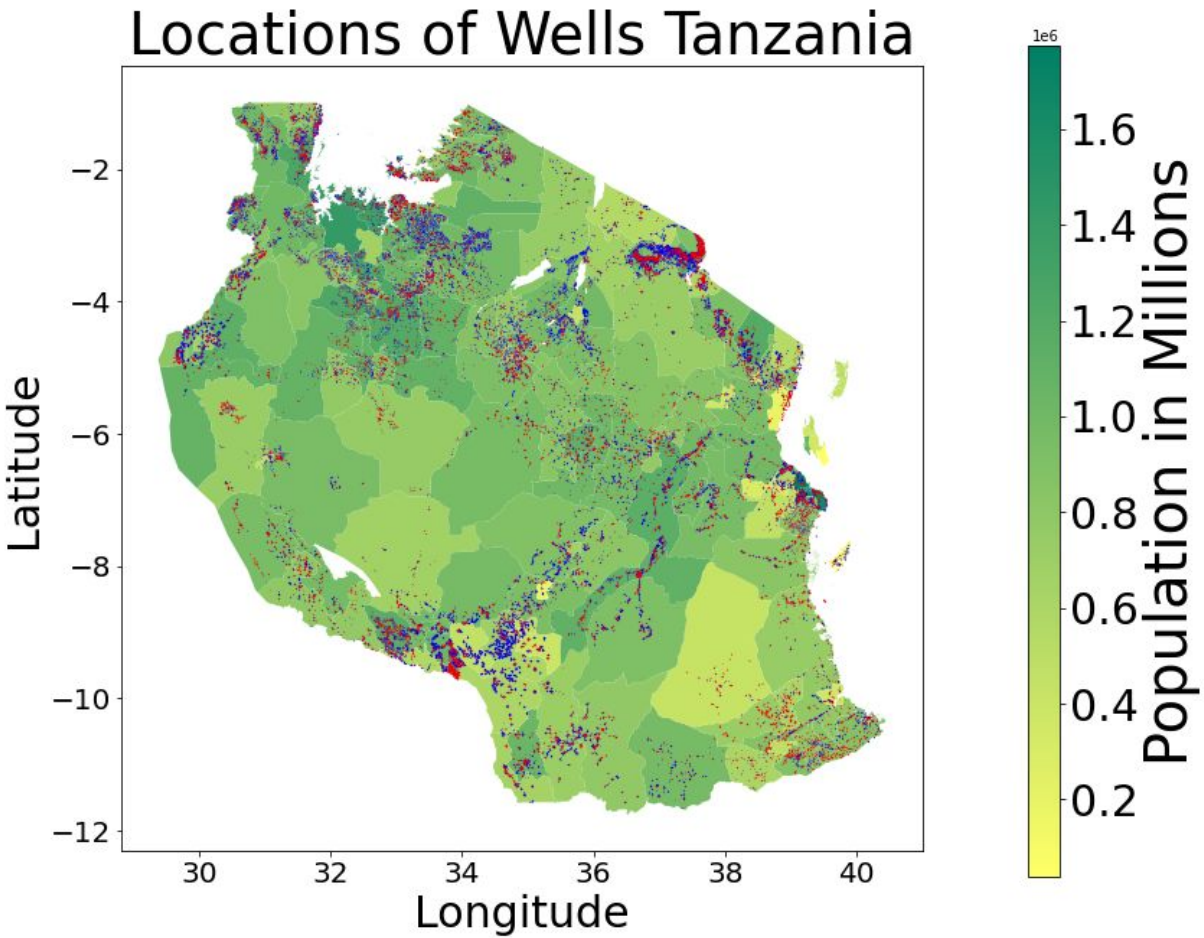
Image courtesy of
Tanzania Water Aid Project

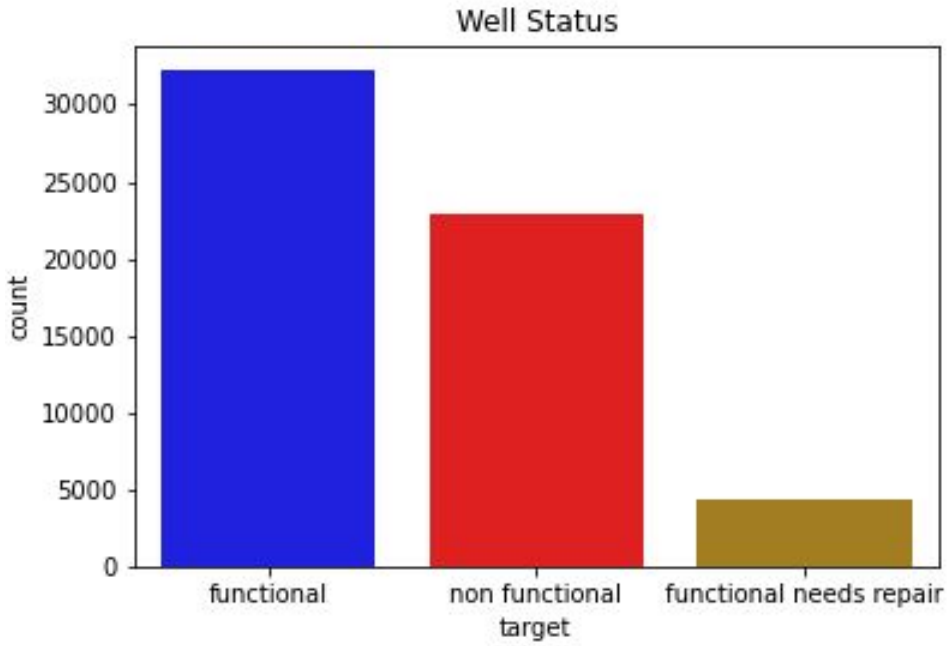


Blue dots represent functioning wells

Red dots represent non functioning wells

Green Shading represents the population of each region.

The Problem

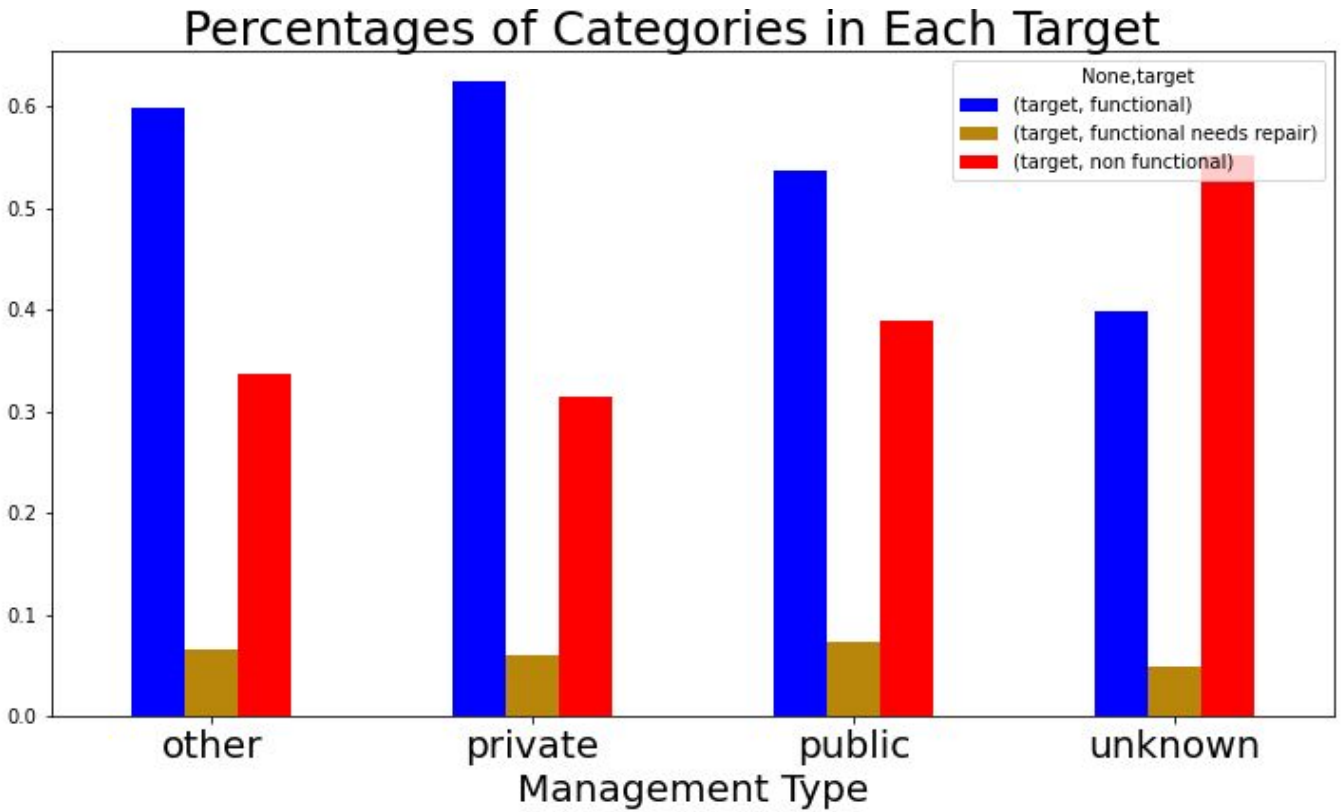


Most wells are functioning

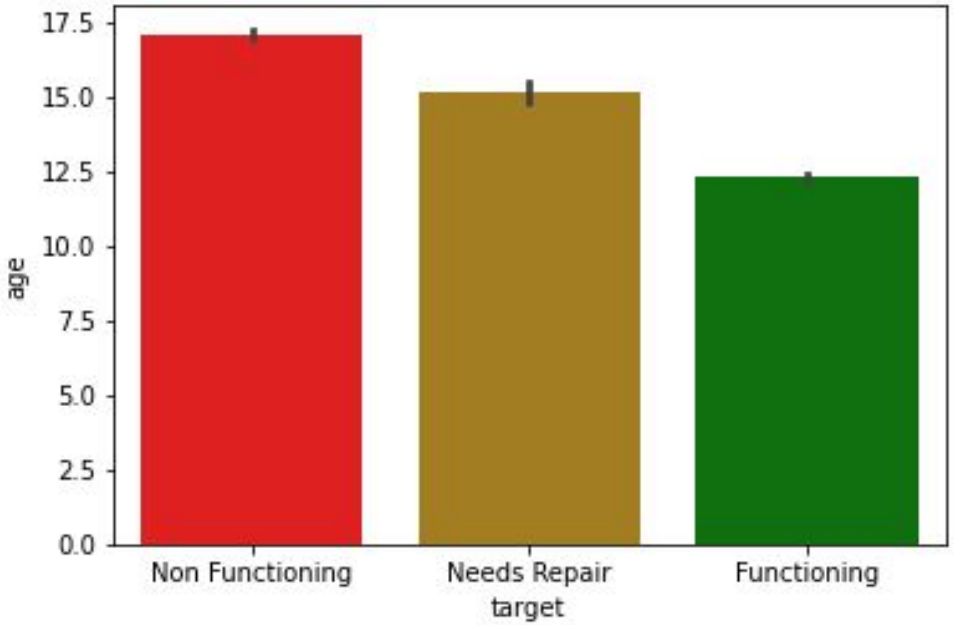
But, too many are not!

We will identify as many non functioning wells as possible for repair.

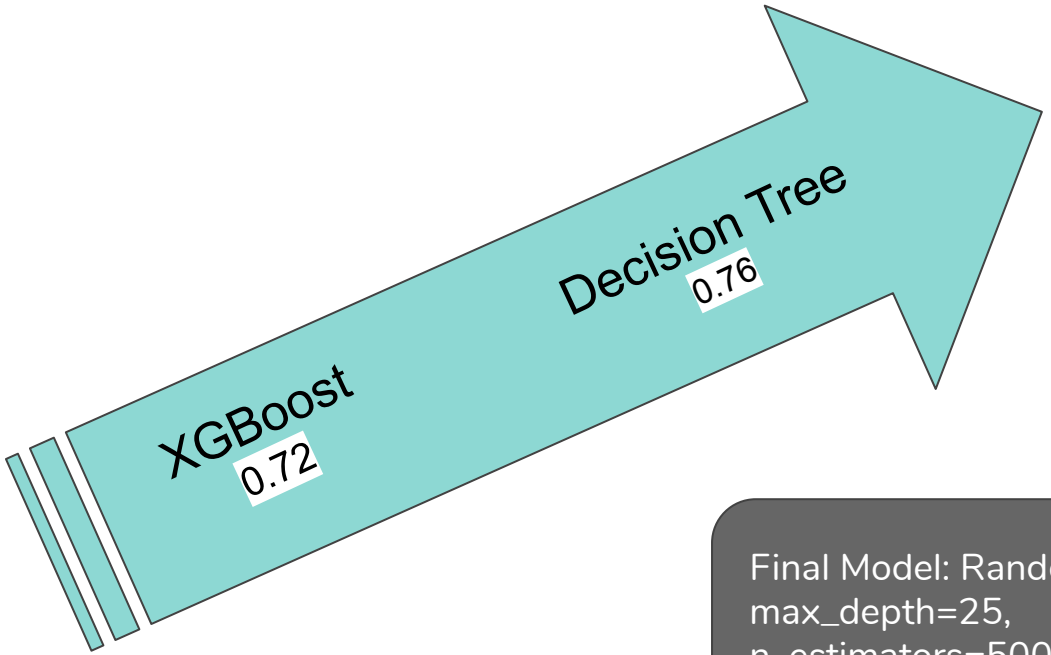
Features for Prediction



Most wells serve the communities for ~12 years before it needs repair..



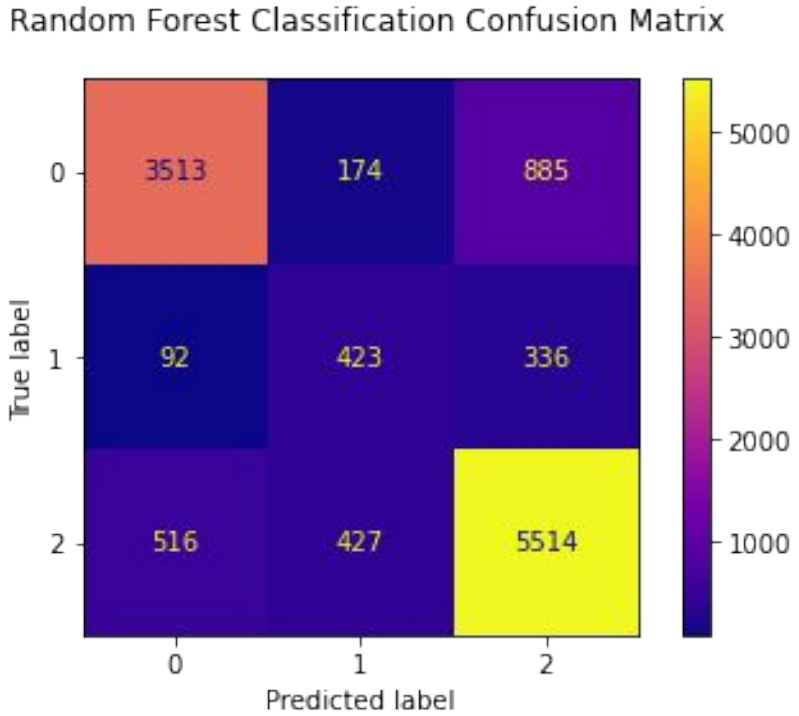
Models and Methodology



Final Model: RandomForestClassifier(
max_depth=25,
n_estimators=500,
class_weight='balanced_subsample')

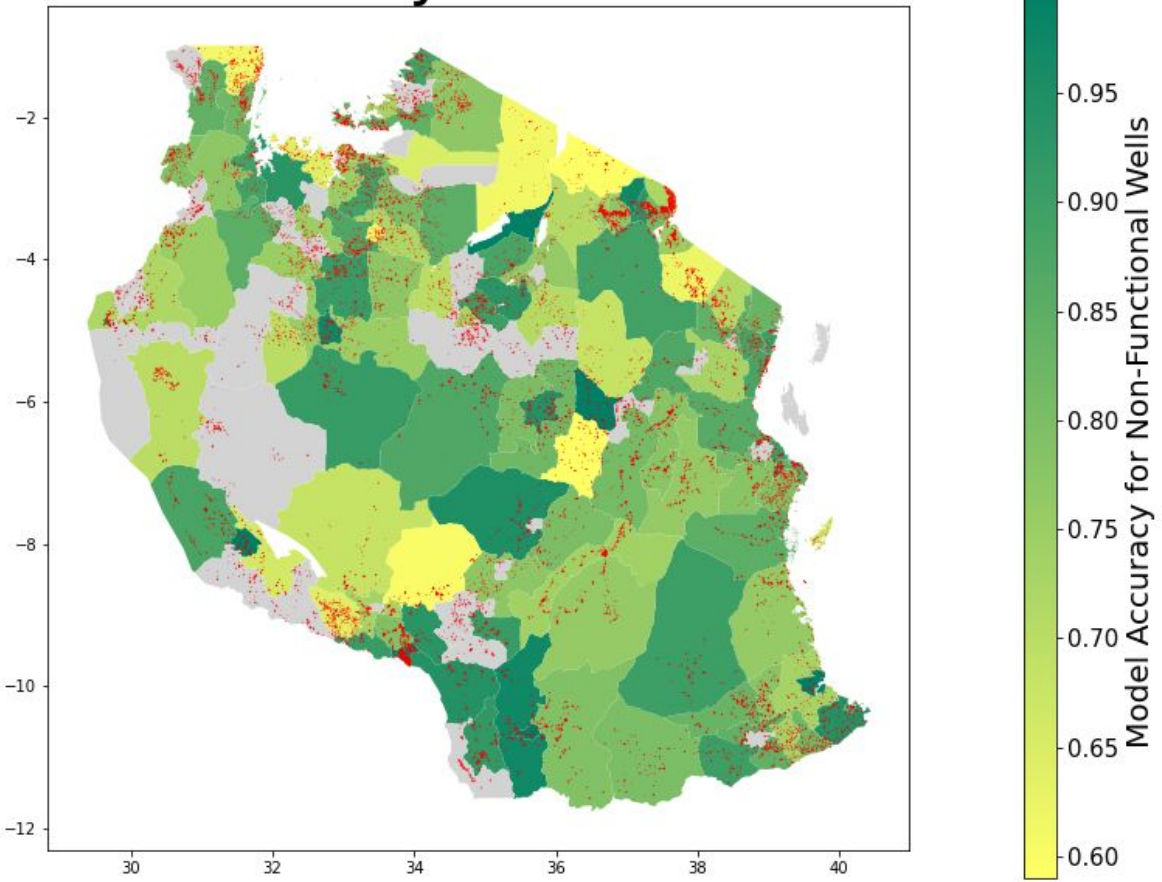
Best Model Confusion Matrix Insights

Label	Well Status
0	Non-Functional
1	Functional Needs Repair
2	Functional



Model Accuracy and Broken Wells

Red Dots are Broken Wells!



Executive Summary

- Predicts an average 77% of broken wells
- Is more accurate in some places than others
- Regional accuracy and number of wells can be used to target resources.
- Saving wells saves lives!

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