
Tanzania Water Well Functionality

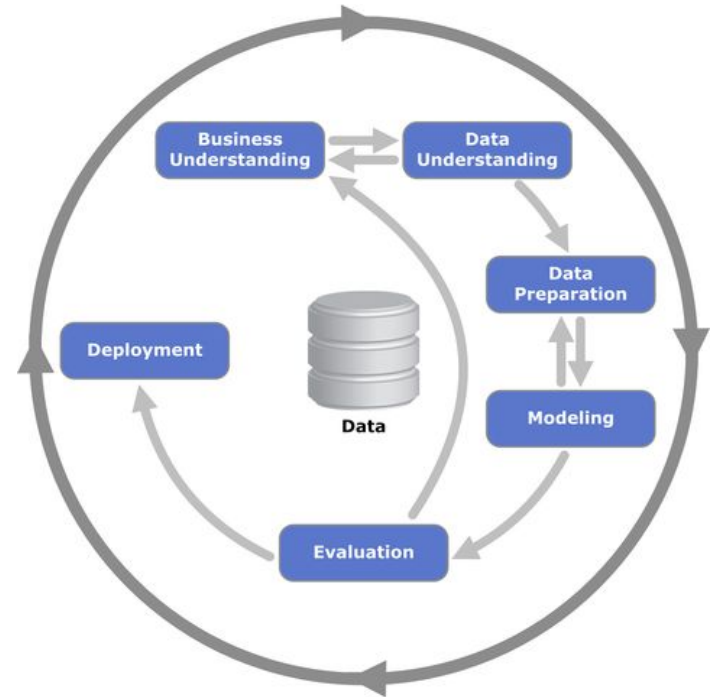
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Project Goals

- To develop a model to classify the functional status of water wells in Tanzania.
- To aid in improving maintenance operations by focusing inspections to the water points that have a high likelihood of being in need of repair or having failed altogether.

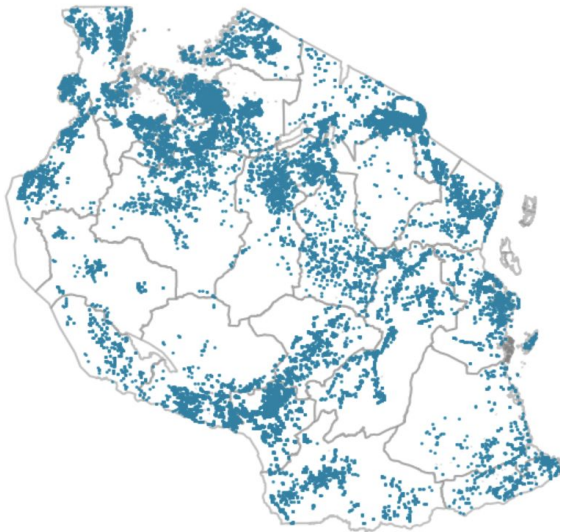
Methodology: CRISP - DM

- Collected data and background information from Taarifa and Tanzania Ministry of Water
- Initial EDA to understand what the dataset contained
- Cleaned data for use in modeling
- Created initial model and evaluated results
- Checked model against initial business understanding and adjusted model



Functional Status Map

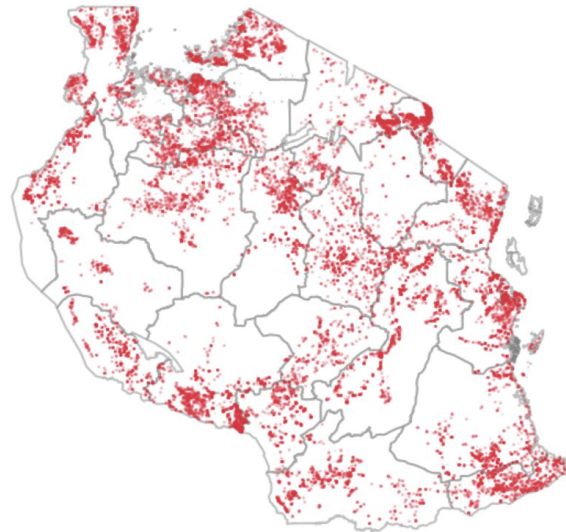
Functional Waterpoints



Waterpoints in Need of Repair



Nonfunctional Waterpoints

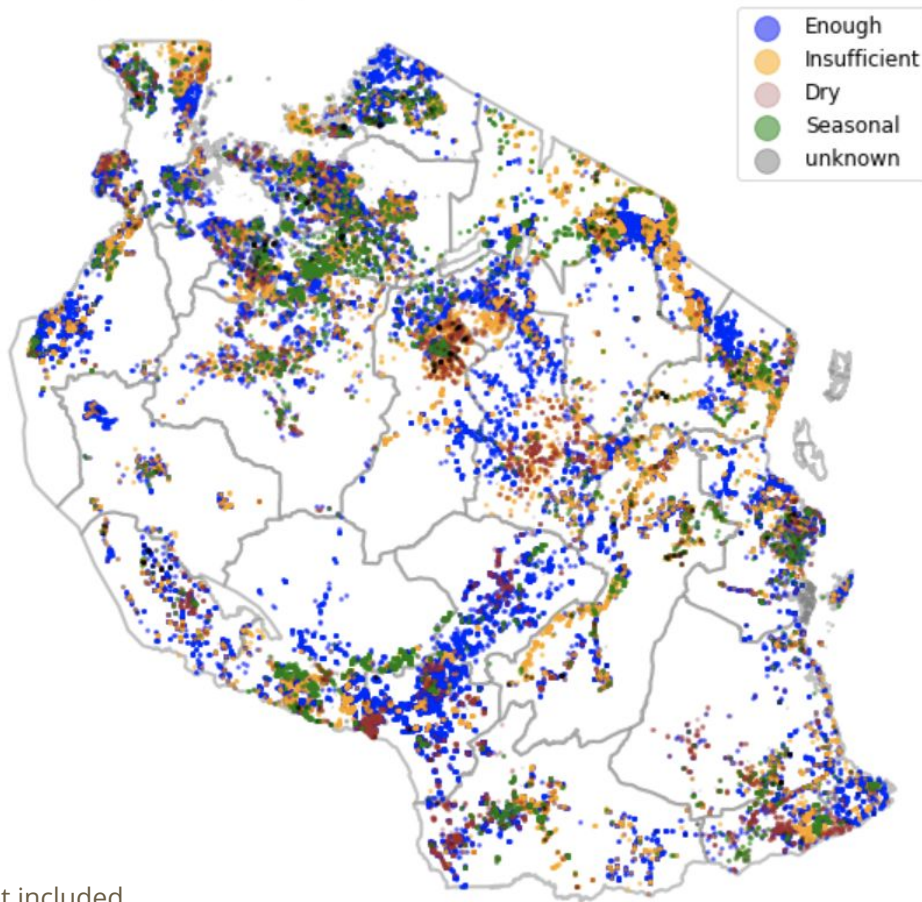


Note: Well locations with unknown latitude and longitude are not included

Geographic Distribution Of Water Quantity

Enough is defined by the WHO as supplying 50-100 liters of water per day to each person using the waterpoint.

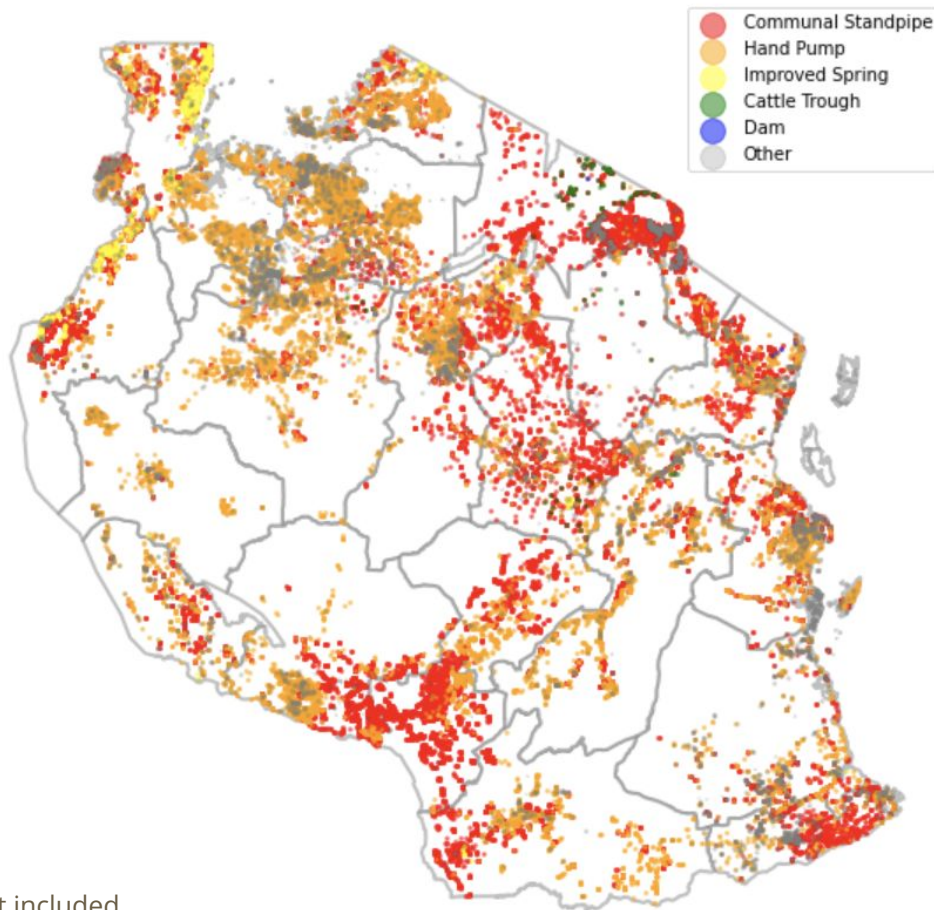
Waterpoints in this data set serviced a mean population of 186



Note: Well locations with unknown latitude and longitude are not included

Geographic Distribution Of Waterpoint Types

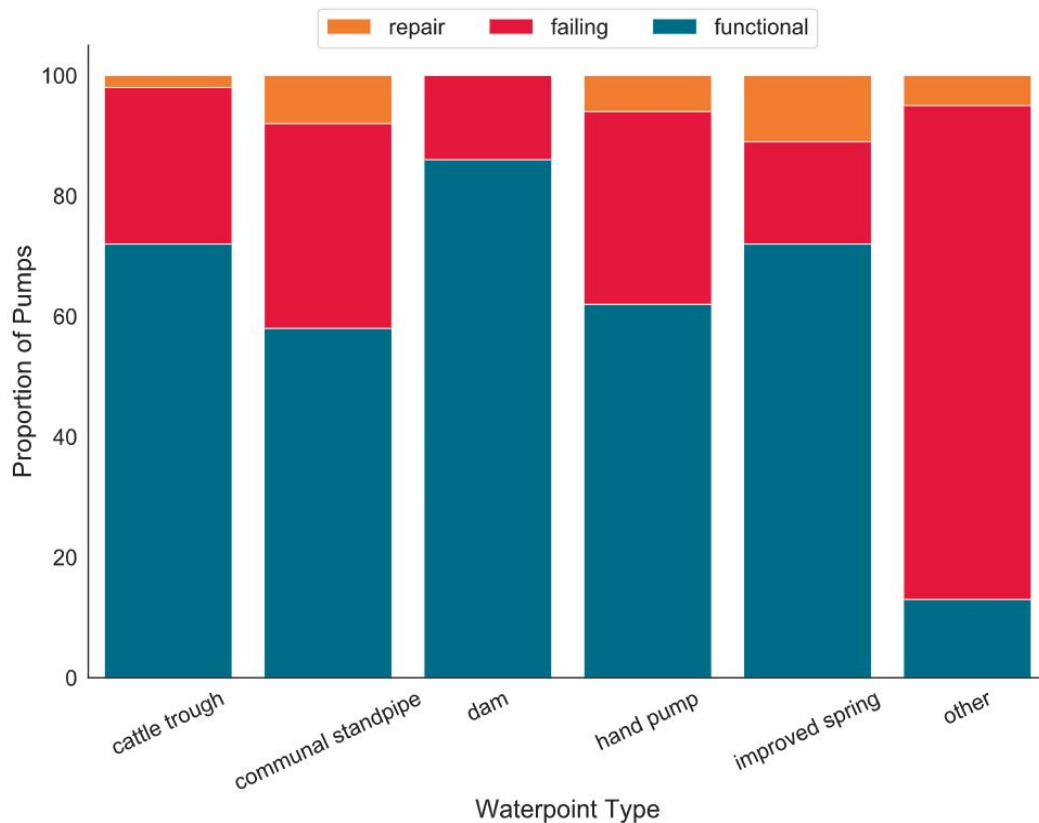
The majority of wells are classified as Communal Standpipe or Hand Pump



Note: Well locations with unknown latitude and longitude are not included

Functional Status By Waterpoint Type

Wells with waterpoint type of 'other' are the most likely to be failing.



Confusion Matrix for Final Test Data

Top Features

Waterpoint Quantity

Extraction Type

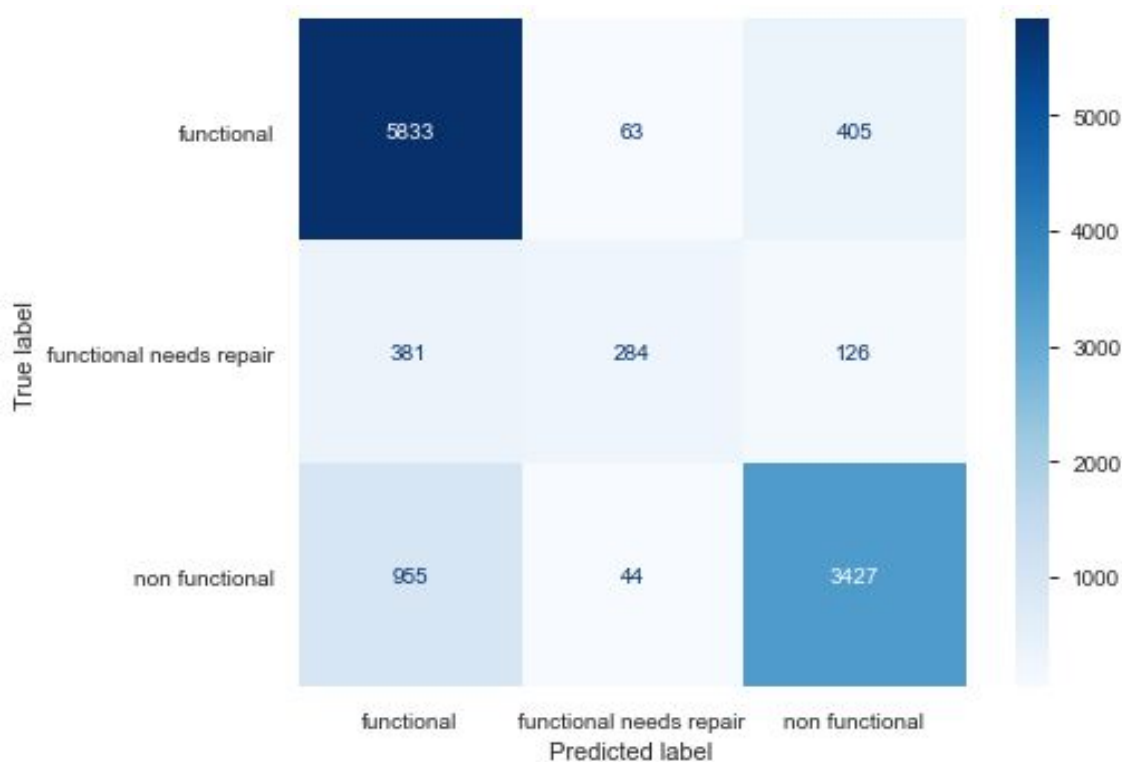
Source Type

Recall Score: 83%

Functional - 93%

Needs Repair - 36%

Nonfunctional - 77%



Recommendations

- Focus resources on pumps that are failing or in need of repairs.
- Implement pumps types in the future that are least likely to fail.
- Work with local governments to ensure accurate gathering of further data.
- Create standard definition for governments to follow when classifying functional status of water pumps.

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Q & A