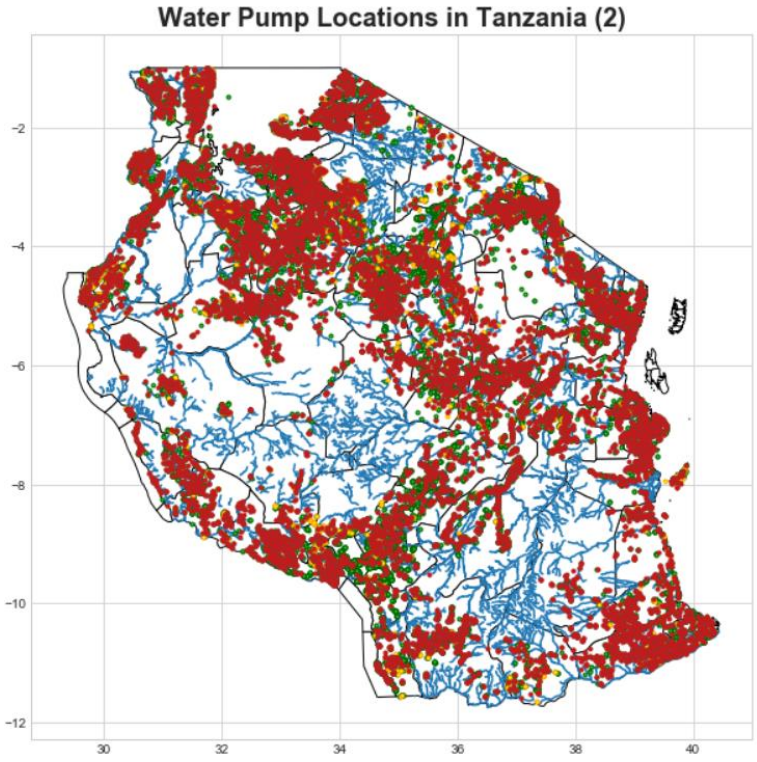
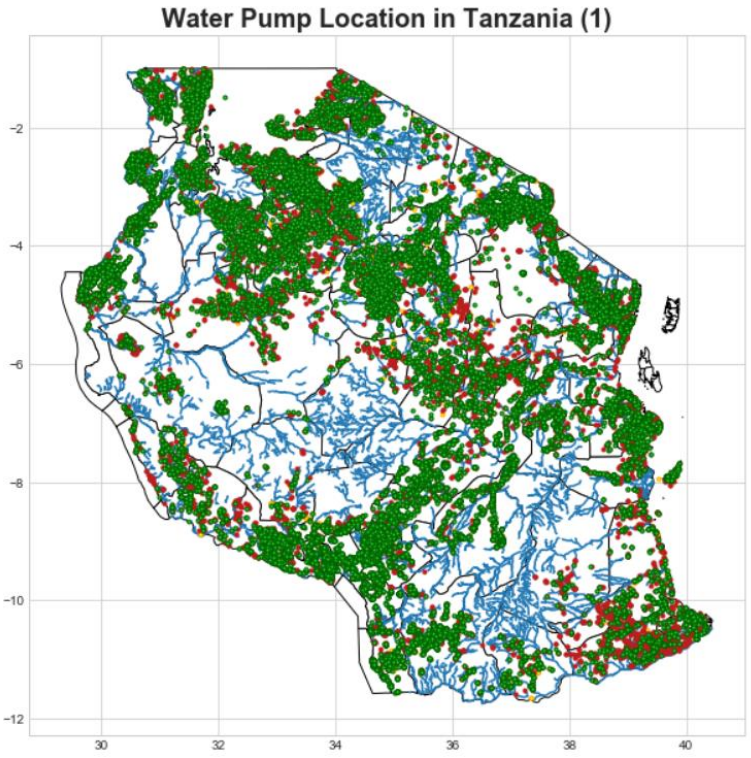
Water Accessibility in Tanzania

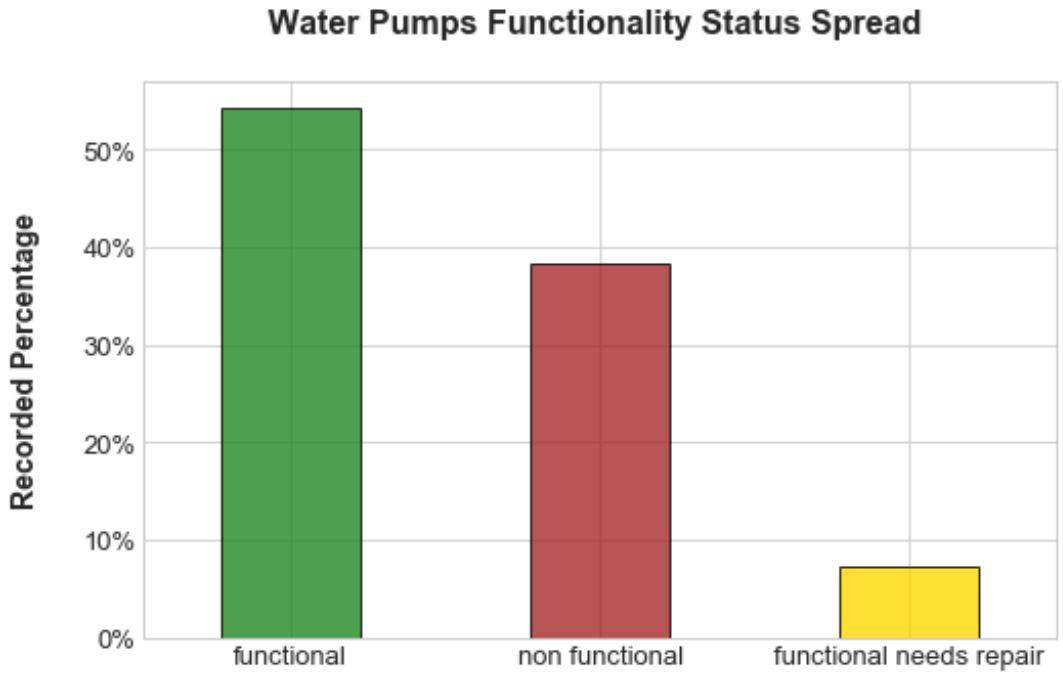
MODELING WATER PUMP FUNCTIONALITY

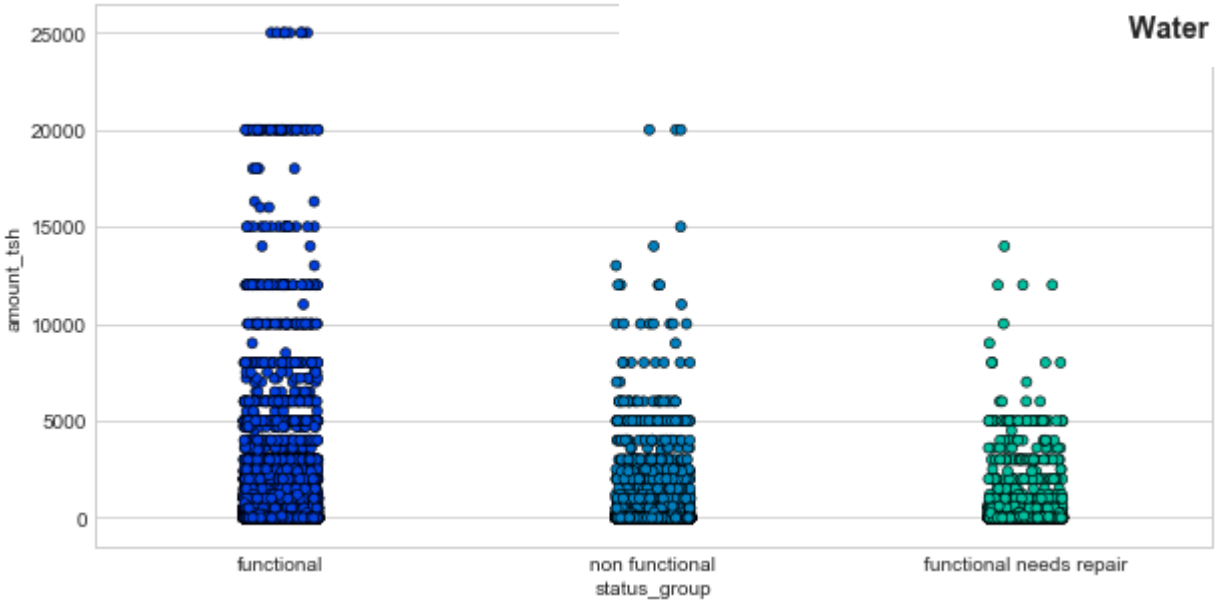
BY: ANASTASIA ULIANOVA

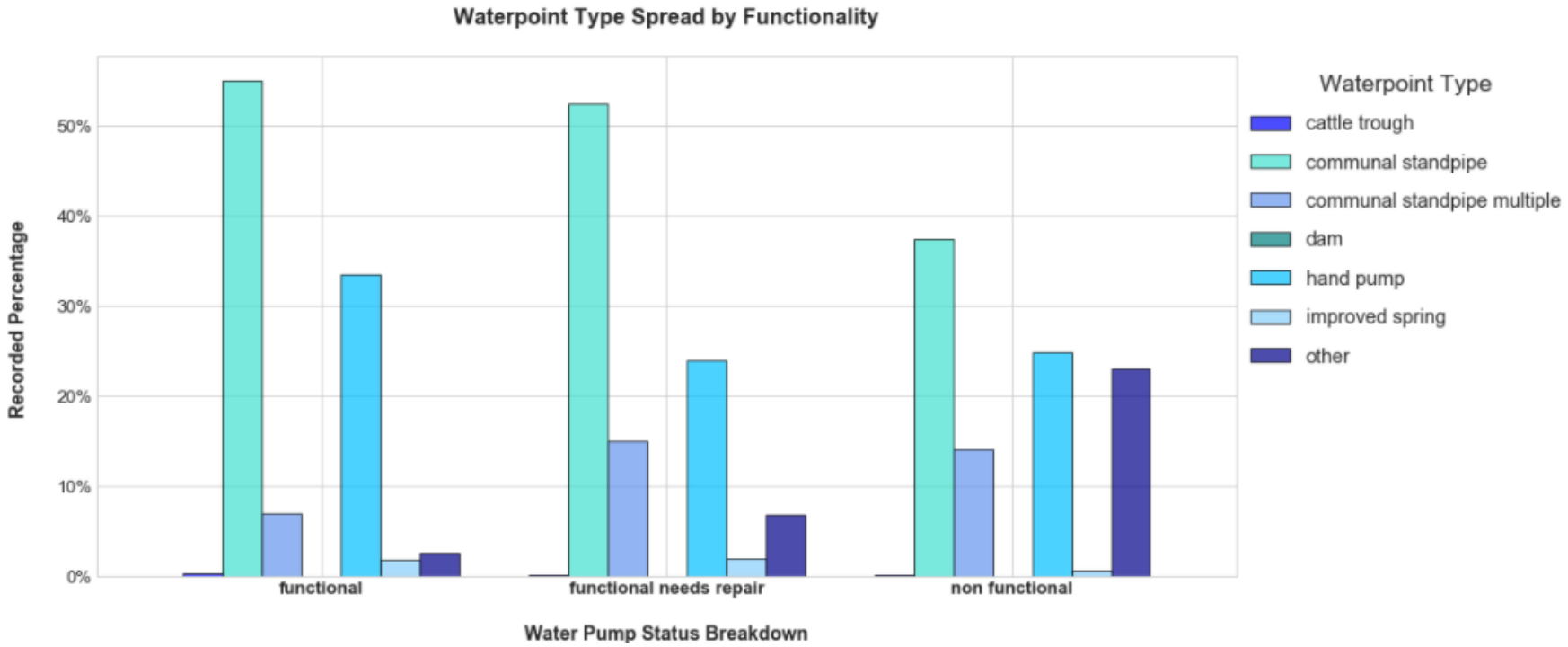
THE SITUATION AT PRESENT…

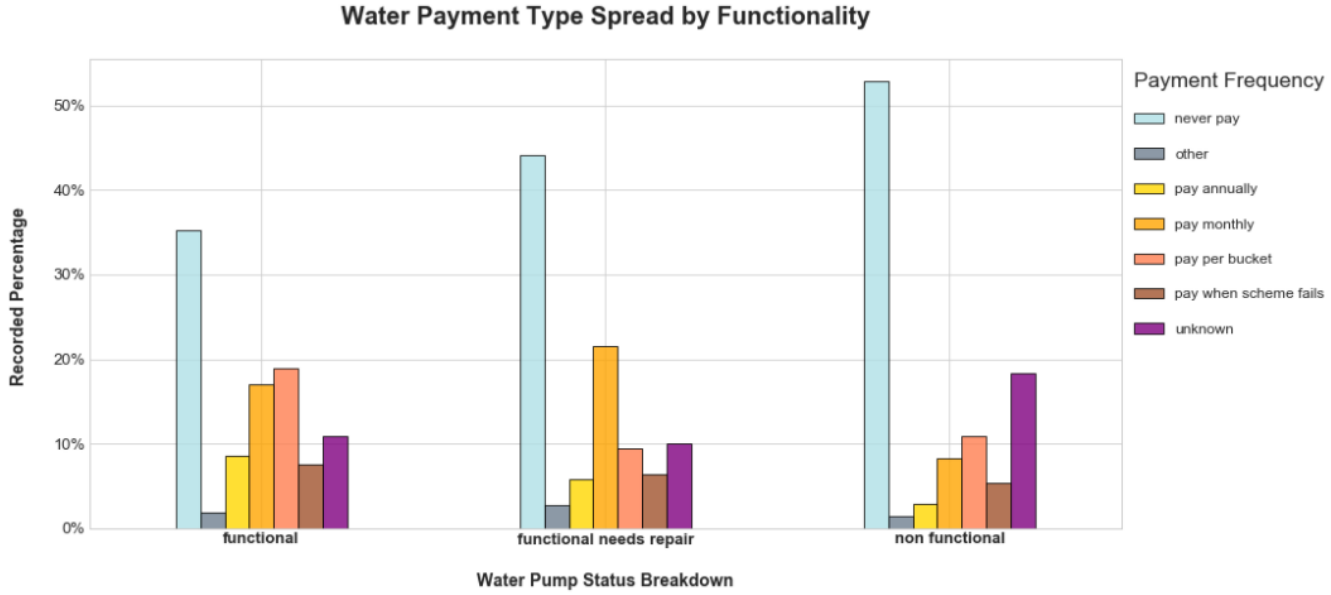





Water Pumps Functionality Status Spread
Recorded Percentage
50%
40%
30%
20%
10%
0%
functional
non functional
functional needs repair


Water Pump Status
amount_tsh
25000
20000
15000
10000
5000
0
functional
non functional
functional needs repair
status_group


Waterpoint Type Spread by Functionality
Recorded Percentage
50%
40%
30%
20%
10%
0%
functional
functional needs repair
non functional
Water Pump Status Breakdown
Waterpoint Type
cattle trough
communal standpipe
communal standpipe multiple
dam
hand pump
improved spring
other


Water Payment Type Spread by Functionality
Recorded Percentage
50%
40%
30%
20%
10%
0%
functional
functional needs repair
non functional
Water Pump Status Breakdown
Payment Frequency
never pay
other
pay annually
pay monthly
pay per bucket
pay when scheme fails
unknown

CLASSIFICATION MODEL

- Modeled Features
  - Location (lat, lon)
  - Quantity of the water
  - Management
  - Extraction type
  - Frequency of Payment for water usage

Findings: The final model has an accuracy of 84.3%.

RECOMMENDATIONS

- New water pumps should be built in locations with still significant amount of water, of a good quality in order to ensure their long-standing use.
- The location of the wells is an important aspect to their functionality, so focus funding on the development of new water distribution networks, especially in populated areas
- Examine the districts and local authorities in the regions with high concentration of wells without permits

FUTURE RESEARCH

- Narrow down model features along the following perspectives:
  - The natural resources perspective (focus on location, water quality and quality, etc.)
  - The funding aspect -- breaking down further into management and operation practices, installation, etc., narrowing down to a selection of ‘best practices’ for well functionality and longevity.
  - Look at foreign investments -- With Tanzania’s water & sanitation industry still heavily reliant on international and private sector donors, examine their impact on functionality.

Thank You for Your Time

FIND OUT MORE AT: [HTTPS://GITHUB.COM/ANAULIANOVA/DATA-MINING-WATER-PUMPS-IN-TANZANIA](https://github.com/anaulianova/data-mining-water-pumps-in-tanzania)