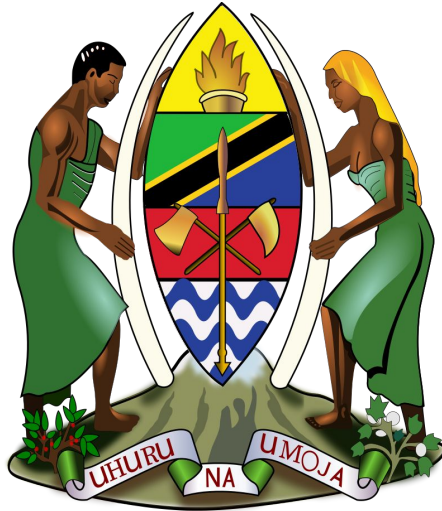


Water Wells

Predicting water pump functionality for a more just access to water resources in Tanzania



Tanzanian Ministry of Water and Taarifa



Process



The Data

60,000

Well status observations

27,000

Wells in need of repair

106,000

Missing values

Data Classes

Geographical



Lat/long
Region
State

Technical



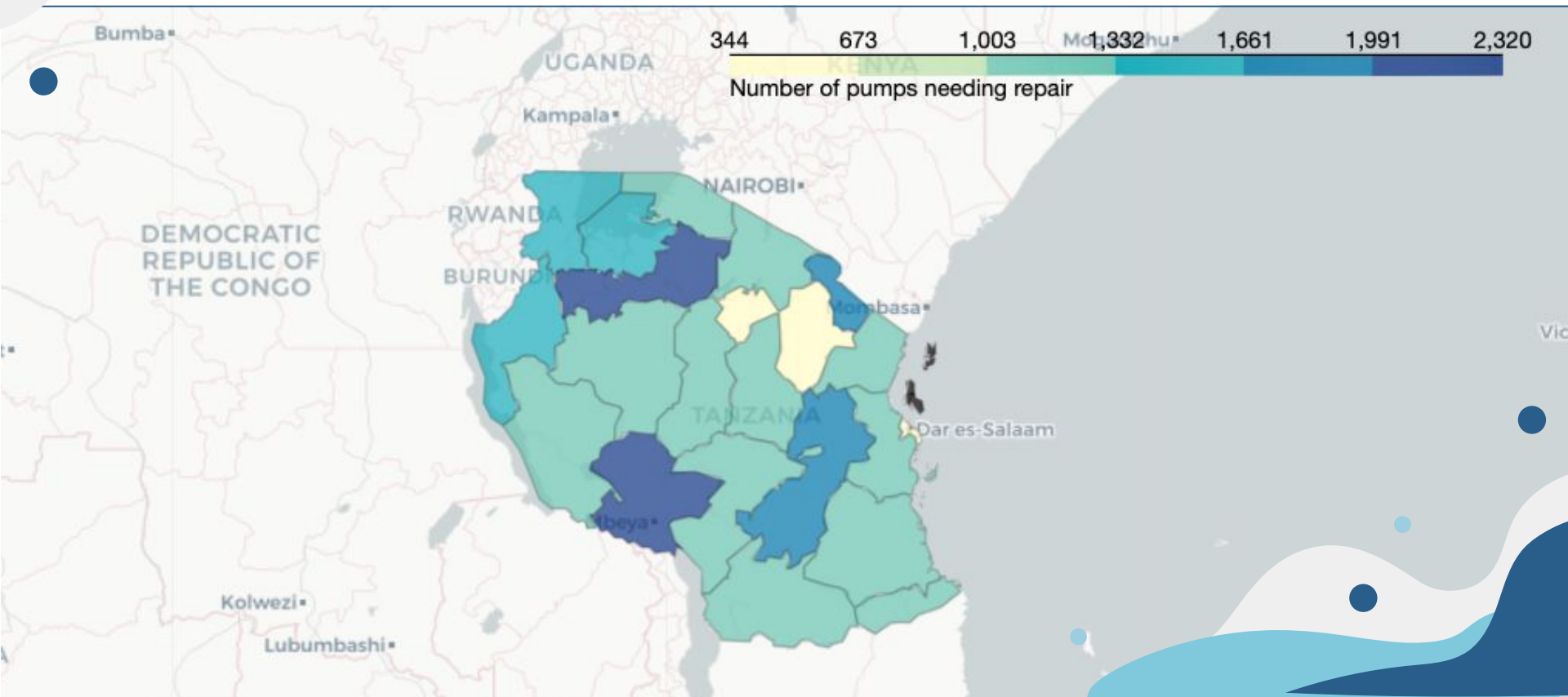
Static Head
Water Source
Extraction Type

Administrative



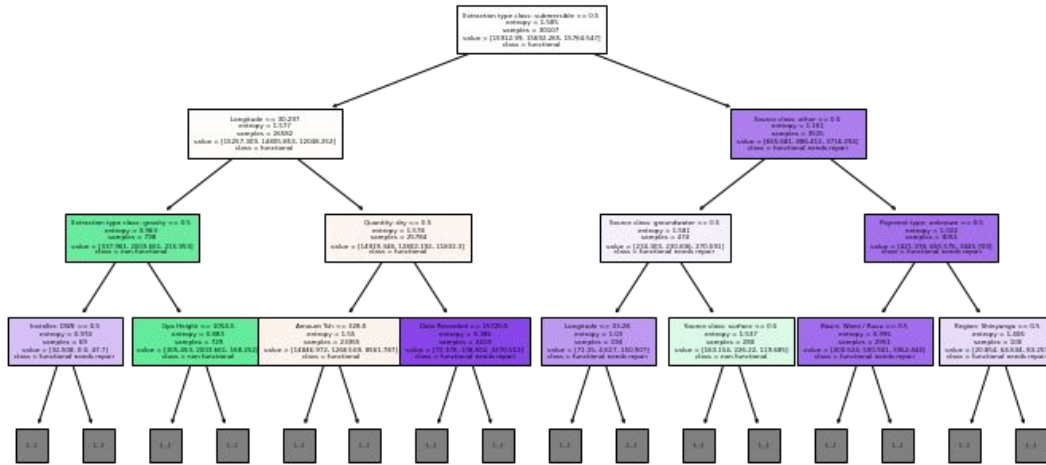
Has permit
Funder
Installer

Wells needing repair



The Model

Random Forest

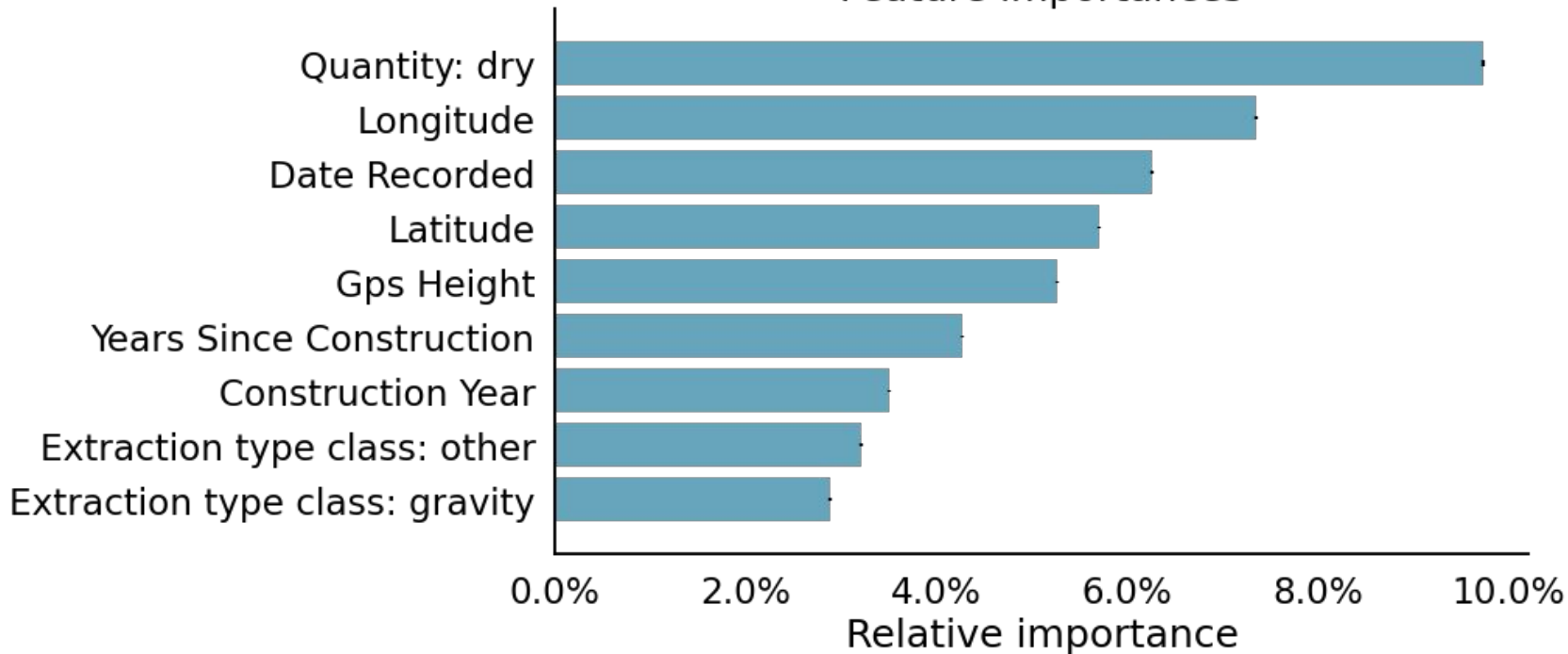


Captures **74%** of the wells that are **functional and need repair**

Captures **67%** of the wells that are **non functional**

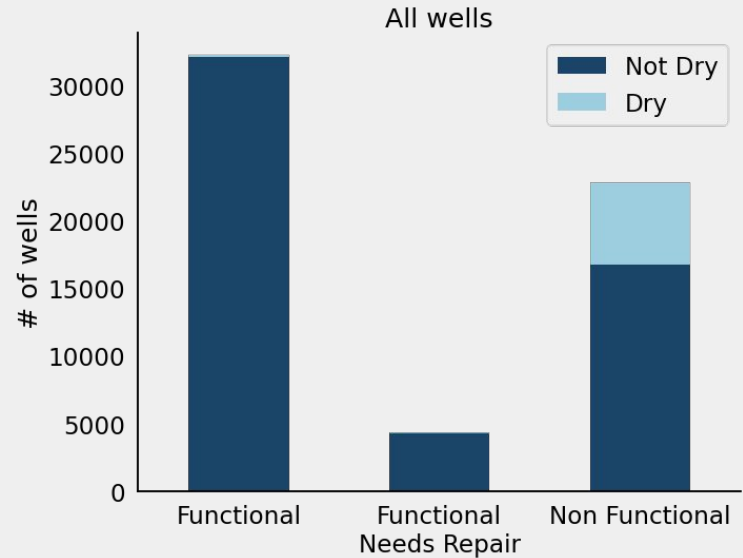
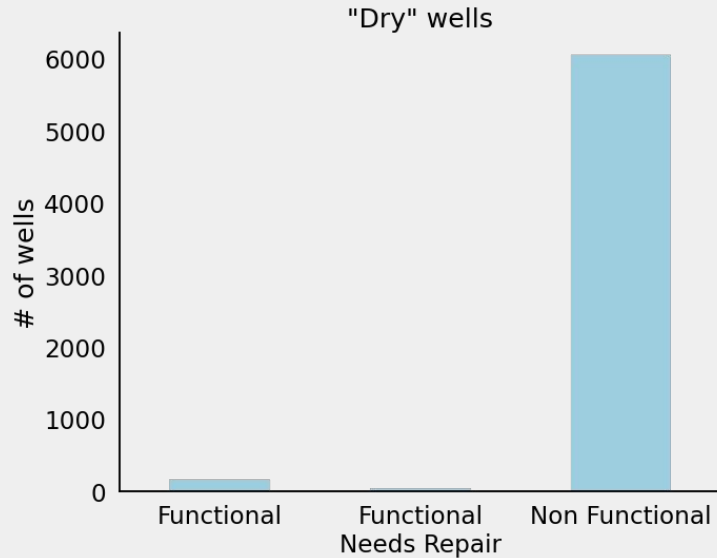
What matters most

Feature importances



Dry Wells

- Do dry wells need repair?
- Dry wells make up 10% of the total wells



Further Work

- Review which extraction types perform longer
- Identify areas with many wells that need repair
- Identify companies with poor maintenance and installation records.
- Identify management structures that are doing poorly for early intervention.



The Future Recommendations



Reconsider the Question

- Classify wells needs repair, does not need repair
- Rule out wells that are not repairable



Modify data collection practices

- Indicate wells that can no longer function for external reasons (like no water)
- Include observation date
- Include well id

Thank You



Ben Bogart
ben@benbogart.com

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