



THOMAS,
HASKO, MCKIM,
ERDOGAN
PARTNERS

Since 1999

Tanzania Water Well

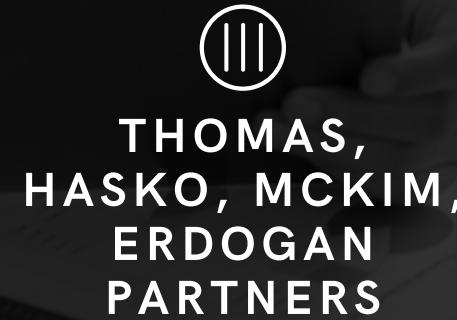
Agenda



- 01 Business Proposal
- 02 Data & Methods
- 03 Results
- 04 Recommendations
- 05 Conclusions
- 06 Next Steps



Business Proposal

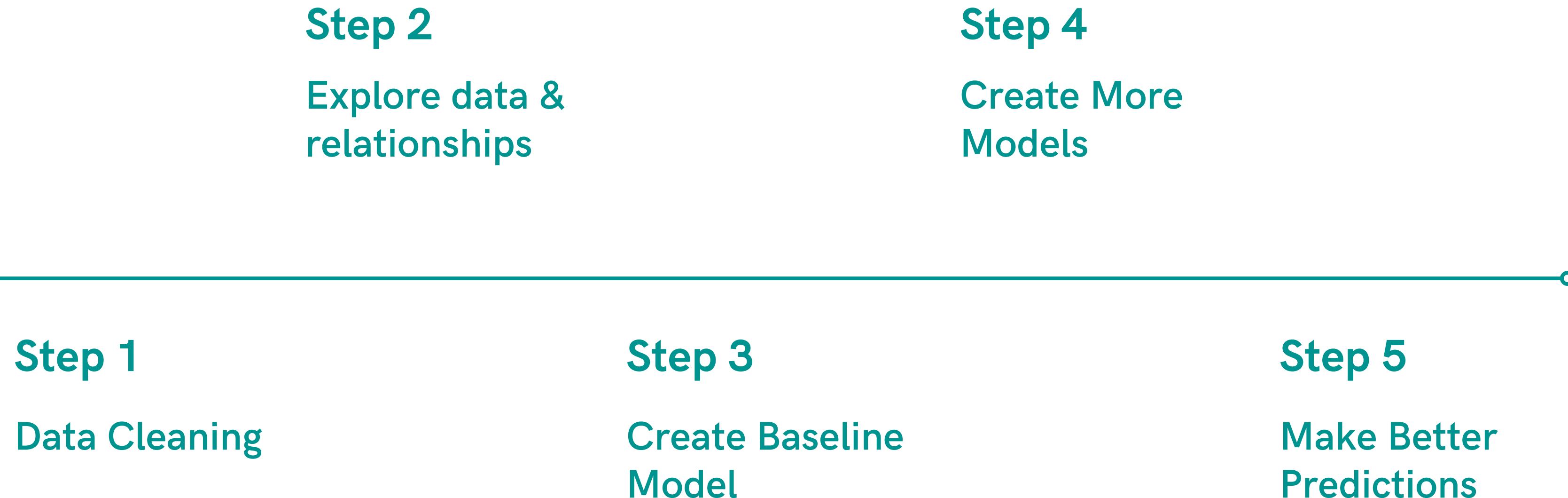


**What factors influence whether a well
may be broken or needing repairs?**

- Best waterpoint type and source
- Best payment method
- Which regions to focus on

**Use machine learning model to predict
non functional wells**

Method



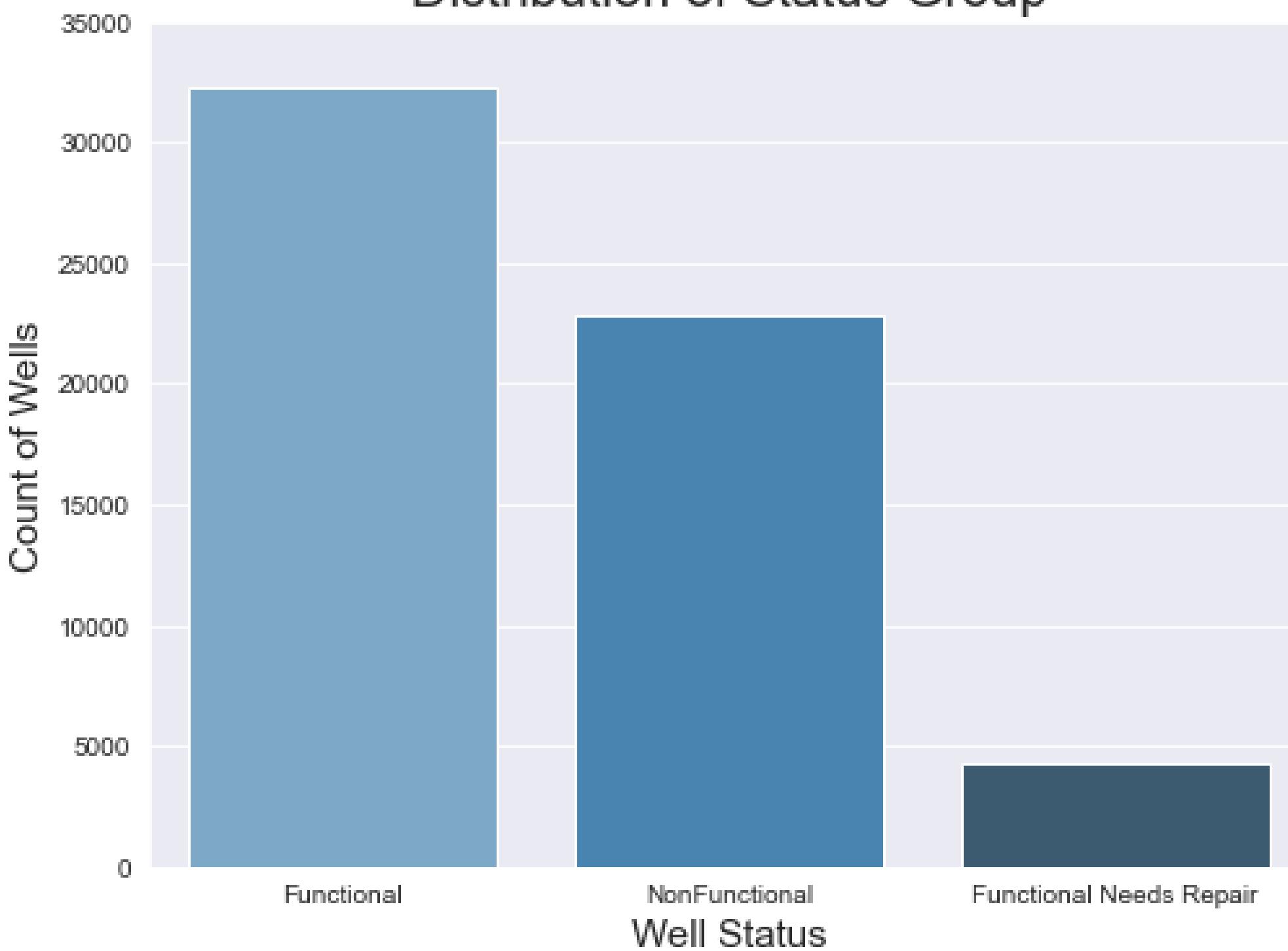
The Data

- 59,400 wells
 - Tanzanian wells from 1960- 2013
 - 40 attributes
-



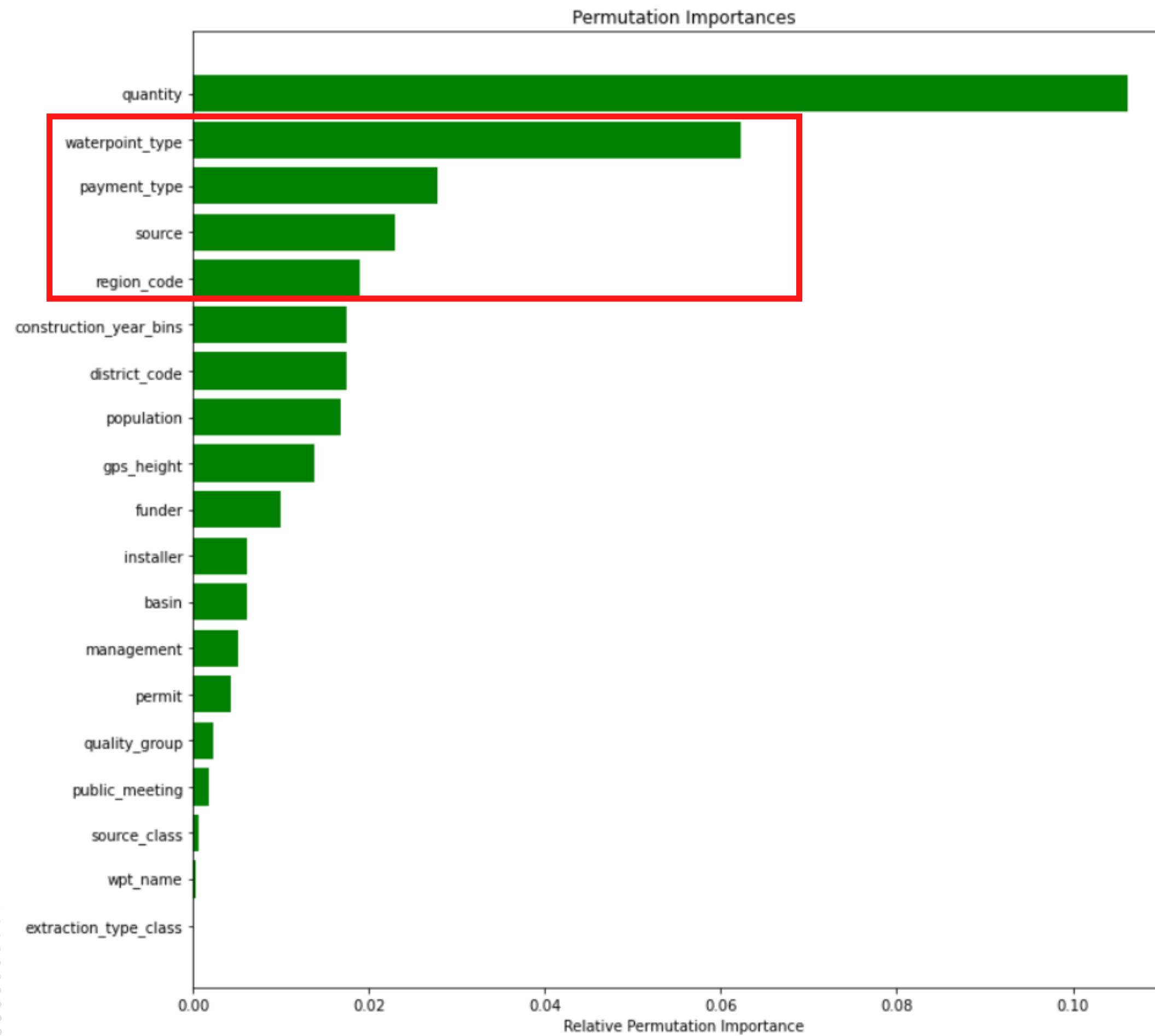
Well Status

Distribution of Status Group



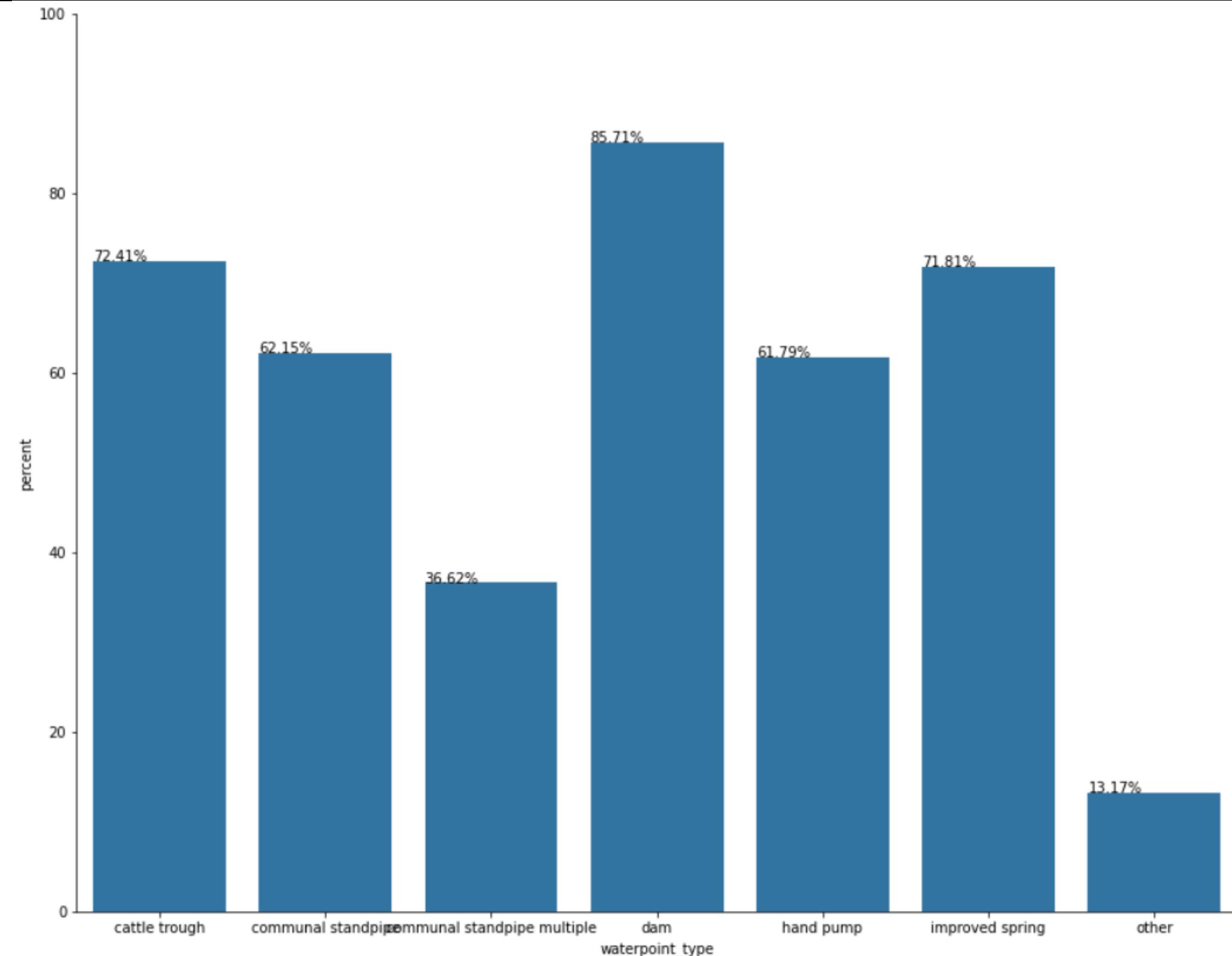
Permutation Importance

Which factors influence wells status

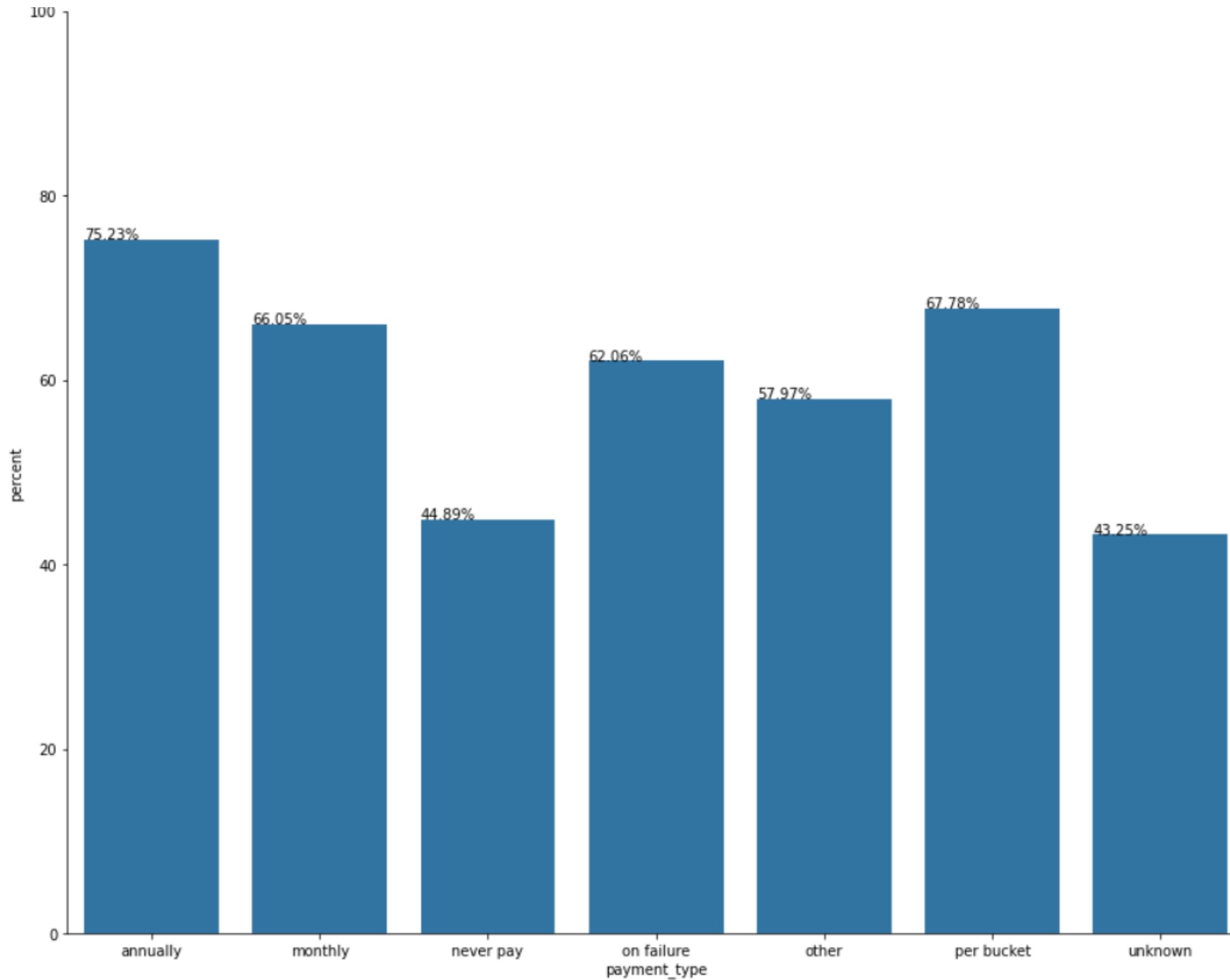


Waterpoint Type vs Functional Status

- Dam
- Cattle Trough
- Improved Spring



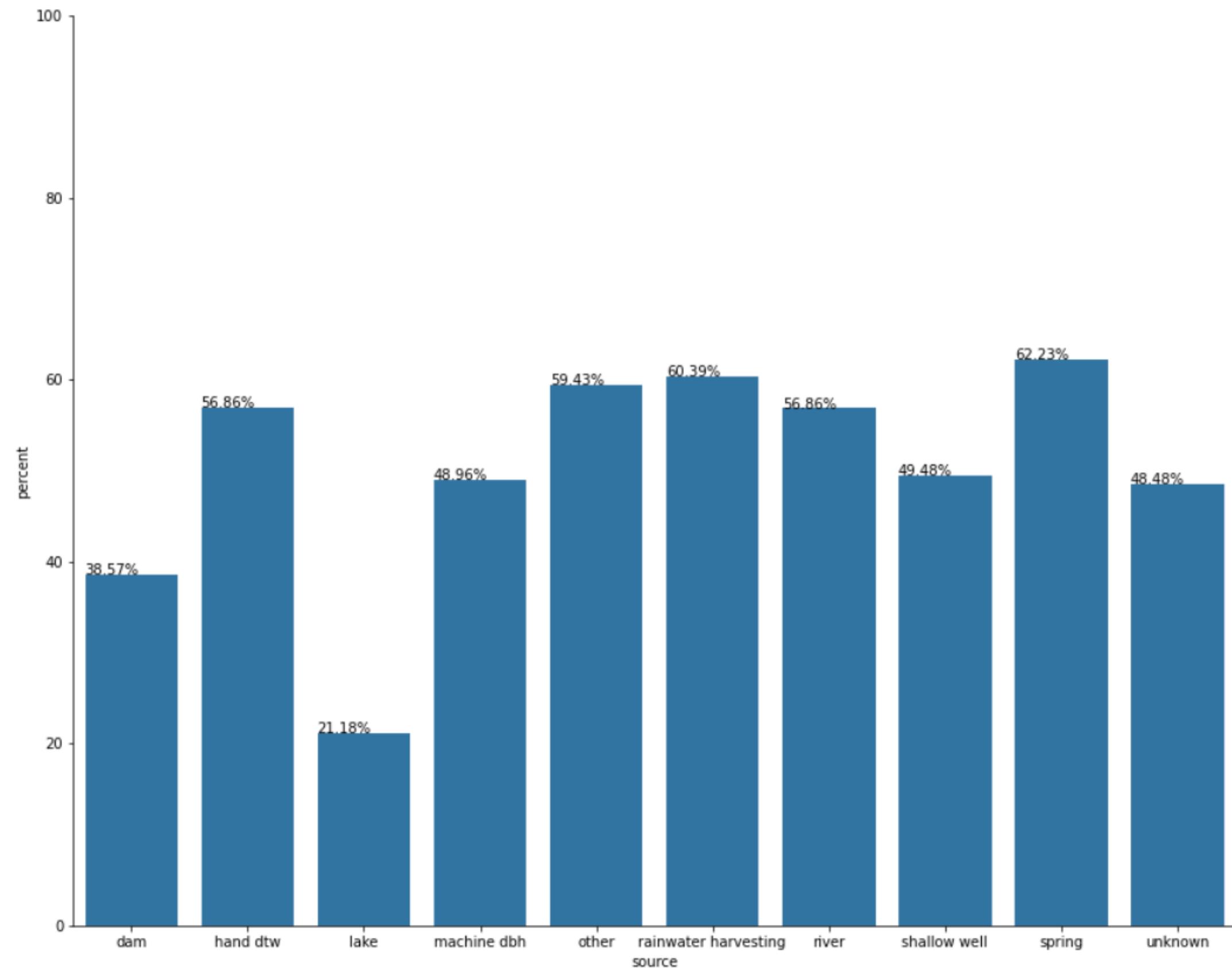
Payment Type vs. Functional Status



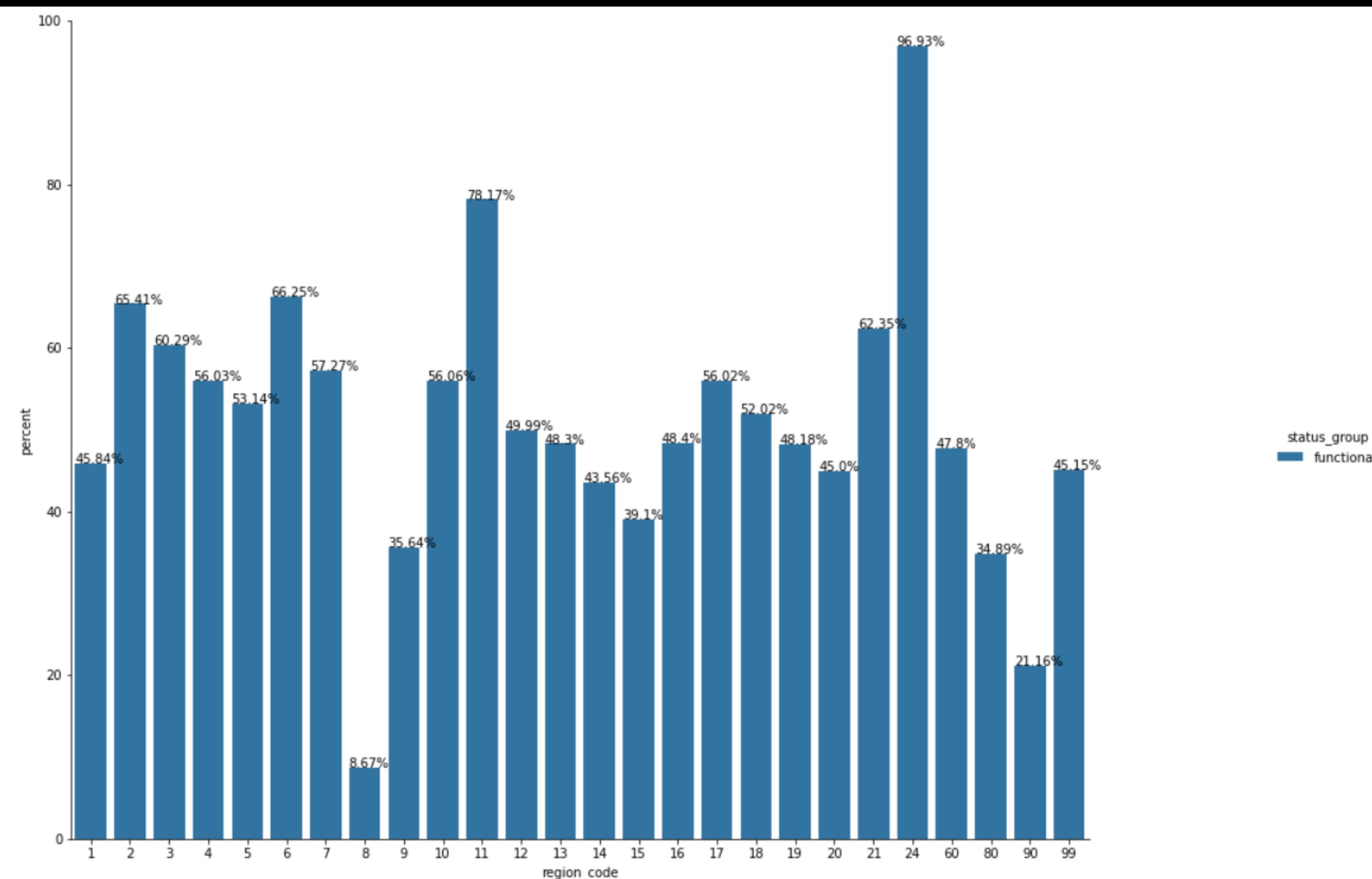
- Annually
- Per Bucket
- Monthly

Source vs. Functional Status

- Spring
- Rainwater Harvesting

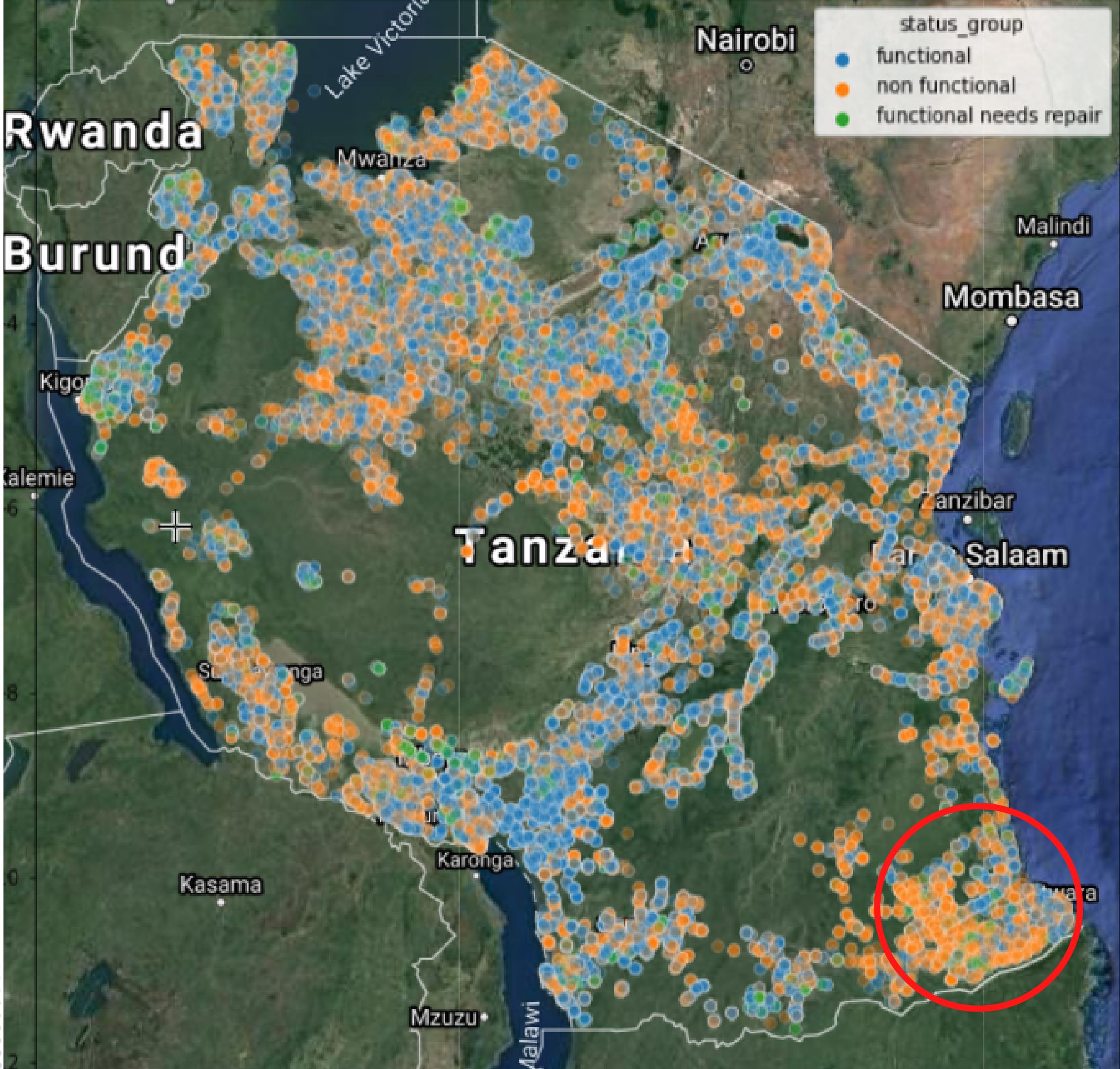


Region Code vs. Functional Status

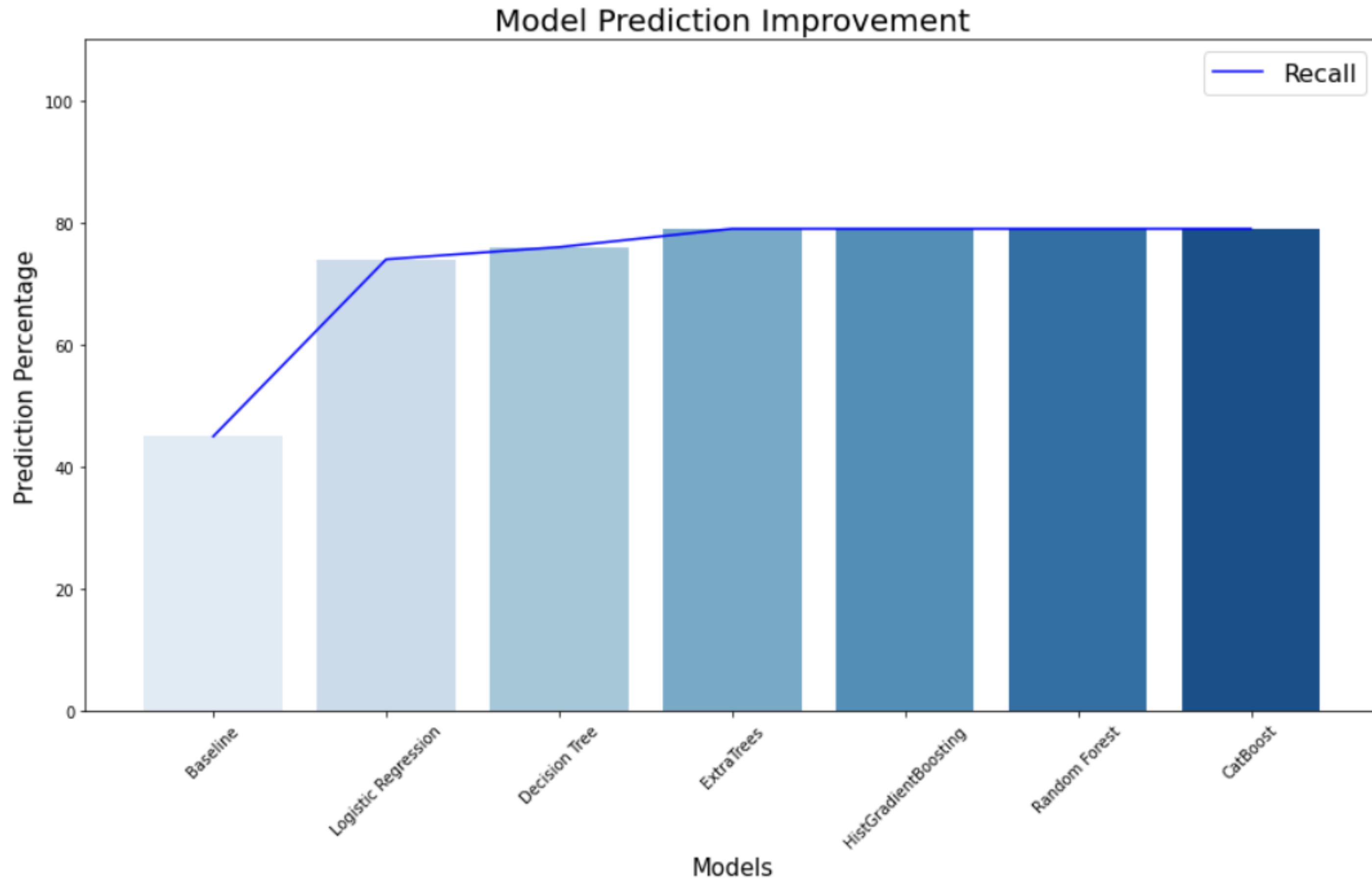


Well Status by Location

- Lindi (1816 non functional wells)
- Mtwara (638 wells need repairs)



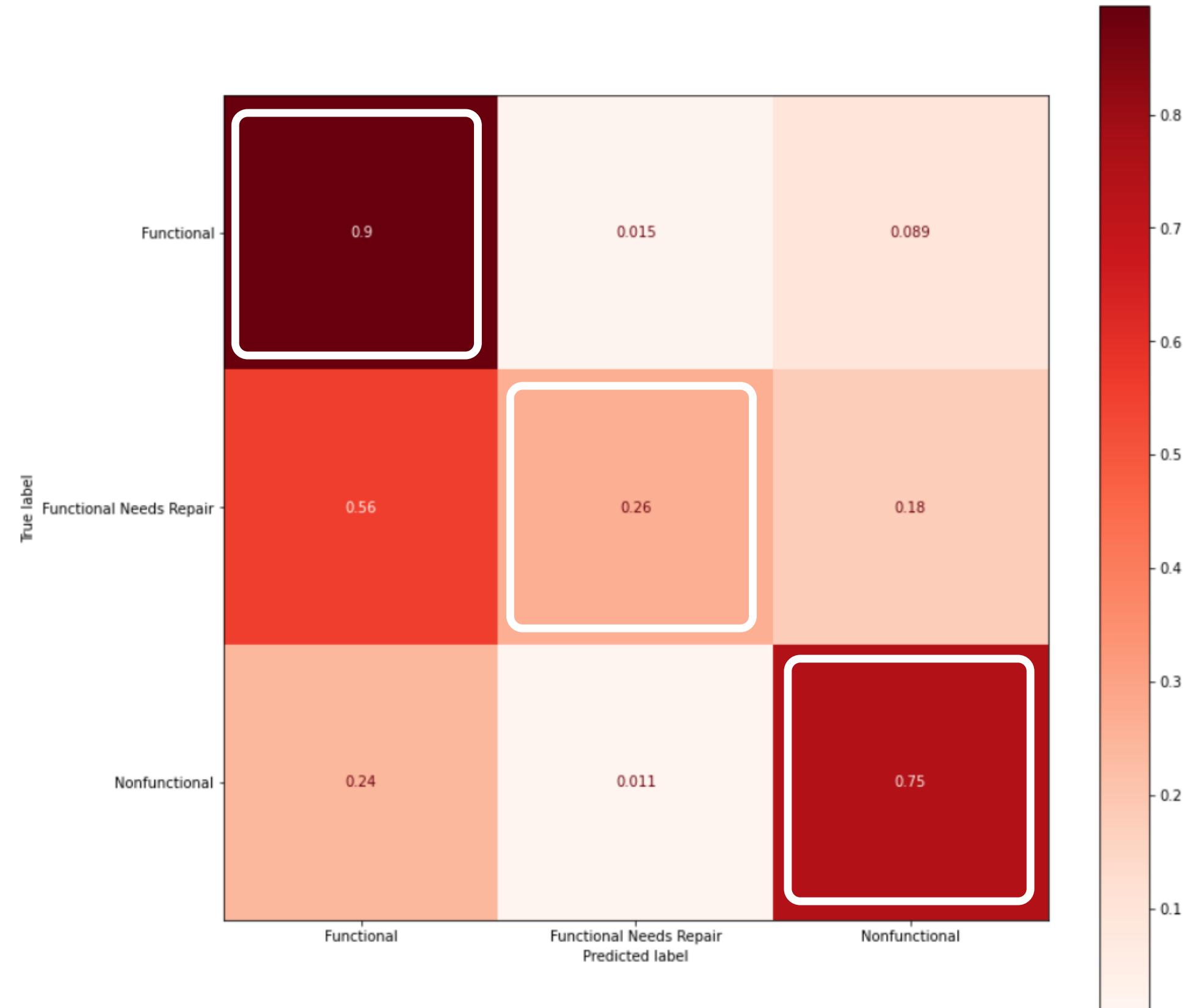
Accuracy & Recall Prediction



Confusion Matrix

Predictability:

- Functional Wells: 90%
- Non-functional: 75%
- Need repairs: 26%



Recommendations

Payment Type

- Annually
- Per bucket

Regions

- Lindi (1816 non functional wells)
- Mtwara (638 wells need repairs)

Waterpoint

- Improved Springs
- Cattle trough
- Standpipe

Water sources

- Spring
- River
- Rainwater Harvesting

Prediction

Use our model to predict non functional wells

Next Steps

- Learn cost of repairs, construction, and preventive maintenance
- Create a cost-benefit function to prioritize actions

Thank you!

Feel free to reach out to us if you have any questions.

Ross McKim

<https://www.linkedin.com/in/ross-mckim/>

Olgert Hasko

<https://www.linkedin.com/in/olgert-hasko-47519097/>

Hatice Erdogan

<https://www.linkedin.com/in/haticekastan/>

Madoria Thomas

<https://www.linkedin.com/in/madoria-thomas-2b9637133/>



THOMAS,
HASKO, MCKIM,
ERDOGAN
PARTNERS