

Tanzania Water Well Analysis

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Overview



Background

Problem

Data

Method

Model

Insights

Background

Total population of 59 million

4 Million

people lack access to safe
water

29 Million

people lack access to improved
sanitation

36%

Of the total population live on
less than \$3.20 per day

Problem

Predict non functional water points.

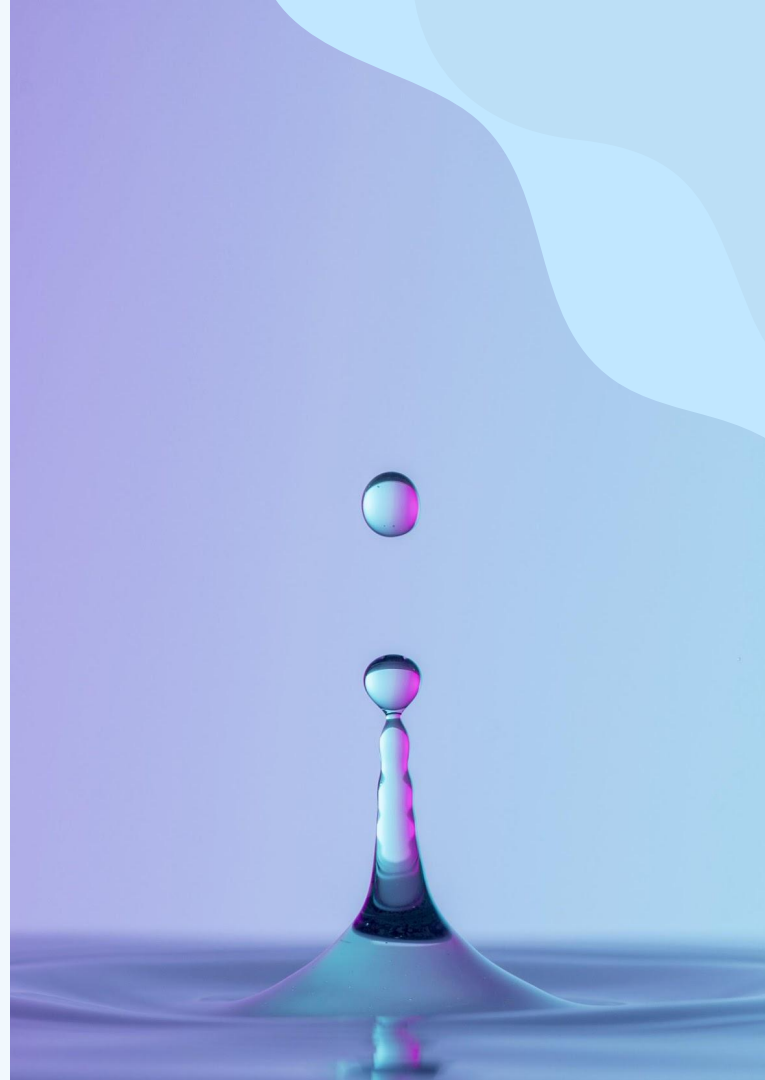
Identify what factors lead to a water point failure.

Data

From Taarifa and the
Tanzanian Ministry of
Water.

Contains data on around
60,000 water points.

- Almost 40% of water
points are non
functional



Method

Machine learning model to predict non functional water points.

Precision

Accuracy of non functional water points predicted

Recall

Total non functional water points identified

Model

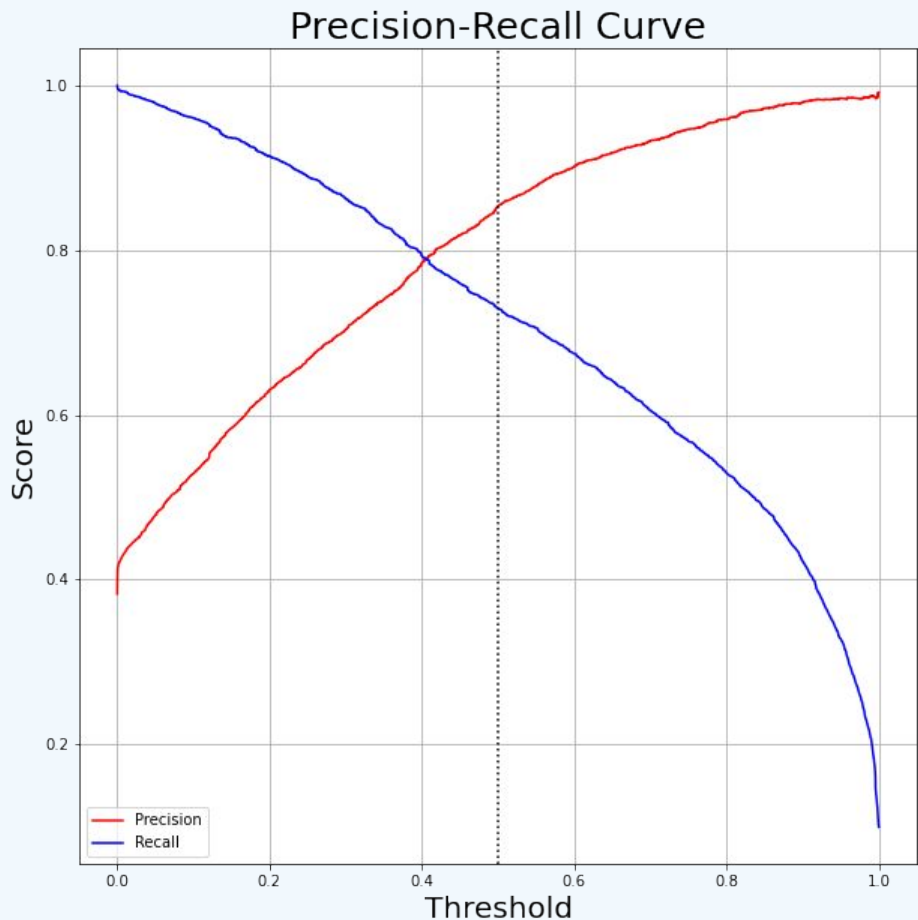
Metrics	
Precision	Recall
85%	73%

Decision Threshold

Model predictions are based on threshold.

Default threshold at 0.5.

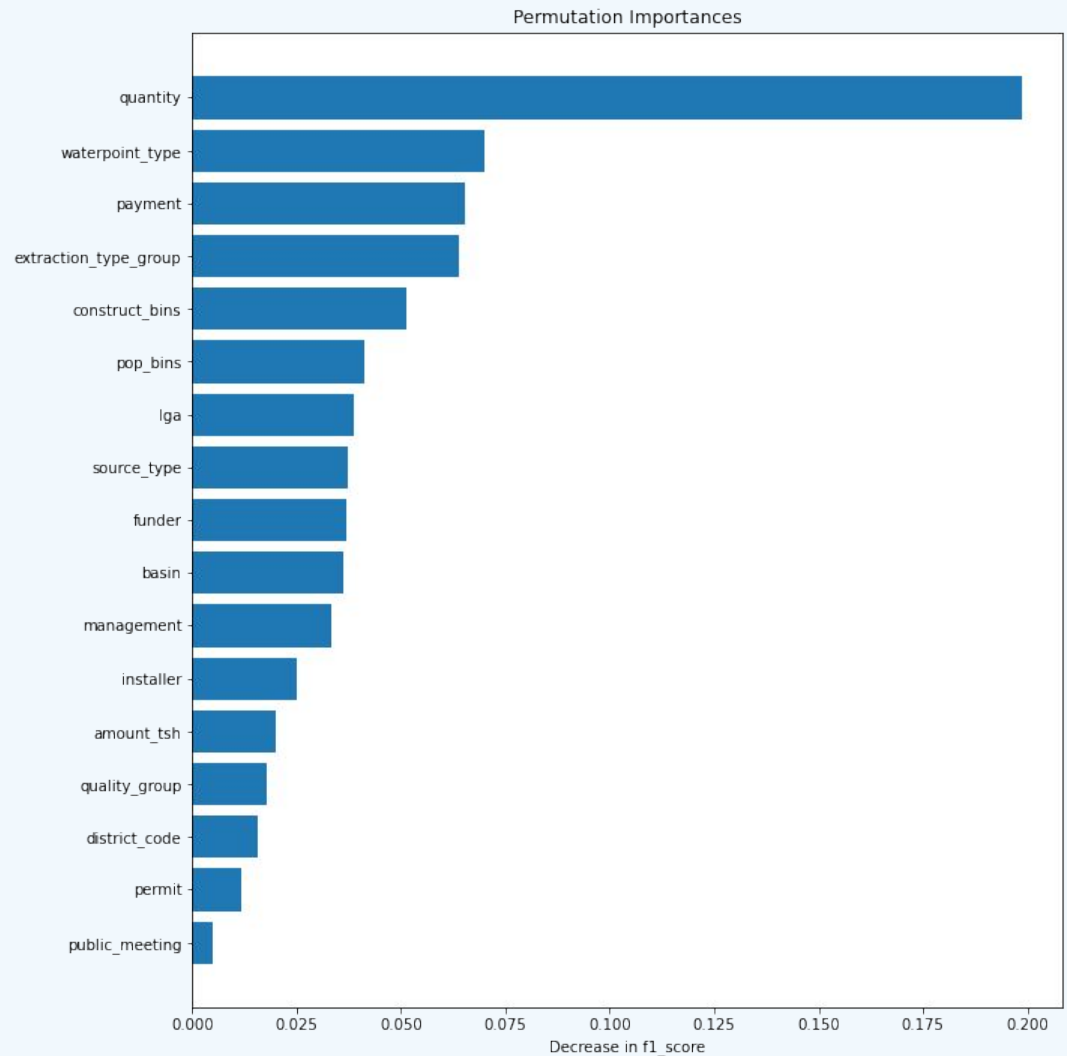
Increasing threshold will increase precision, but at the cost of recall.



Insights

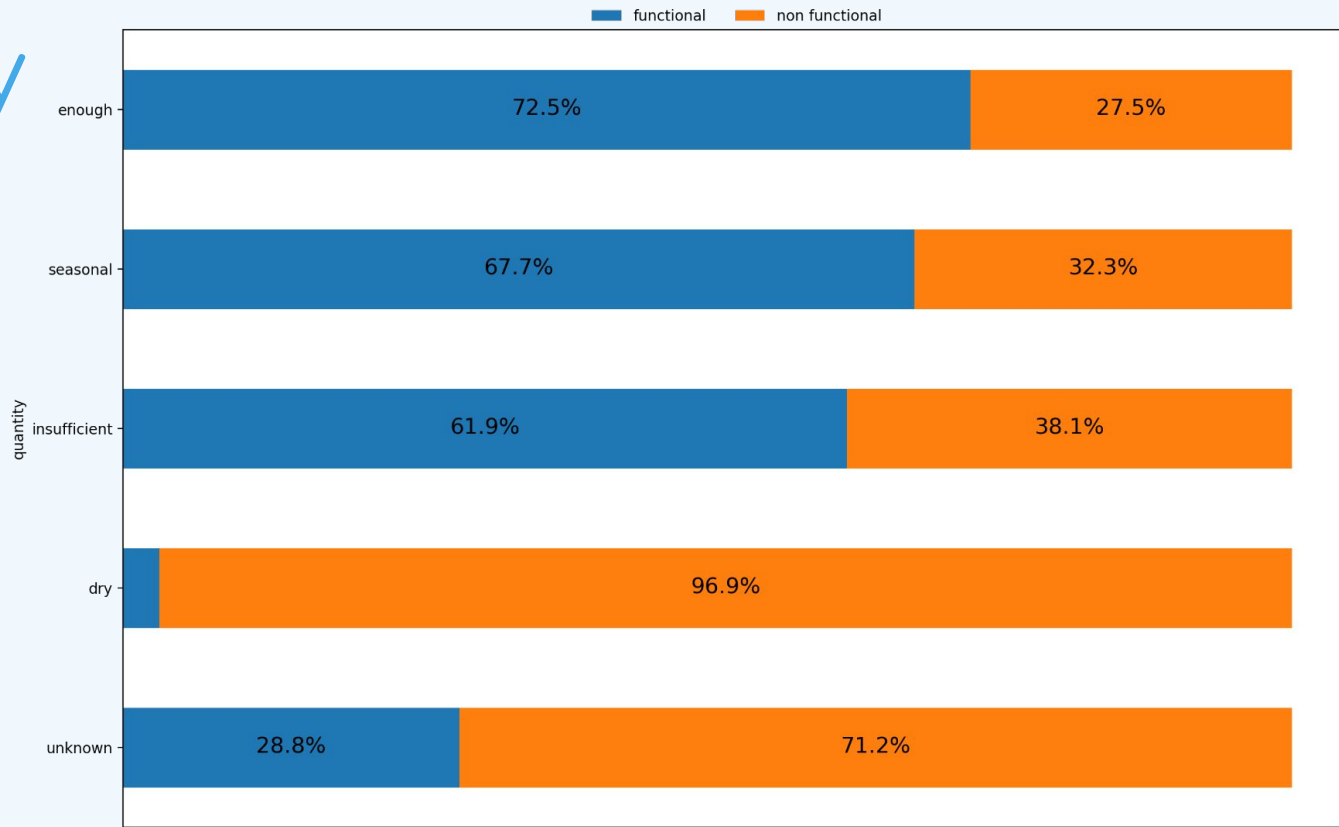
Top important features:

- Water quantity
- Water point type
- Payment
- Extraction type
- Construction Date



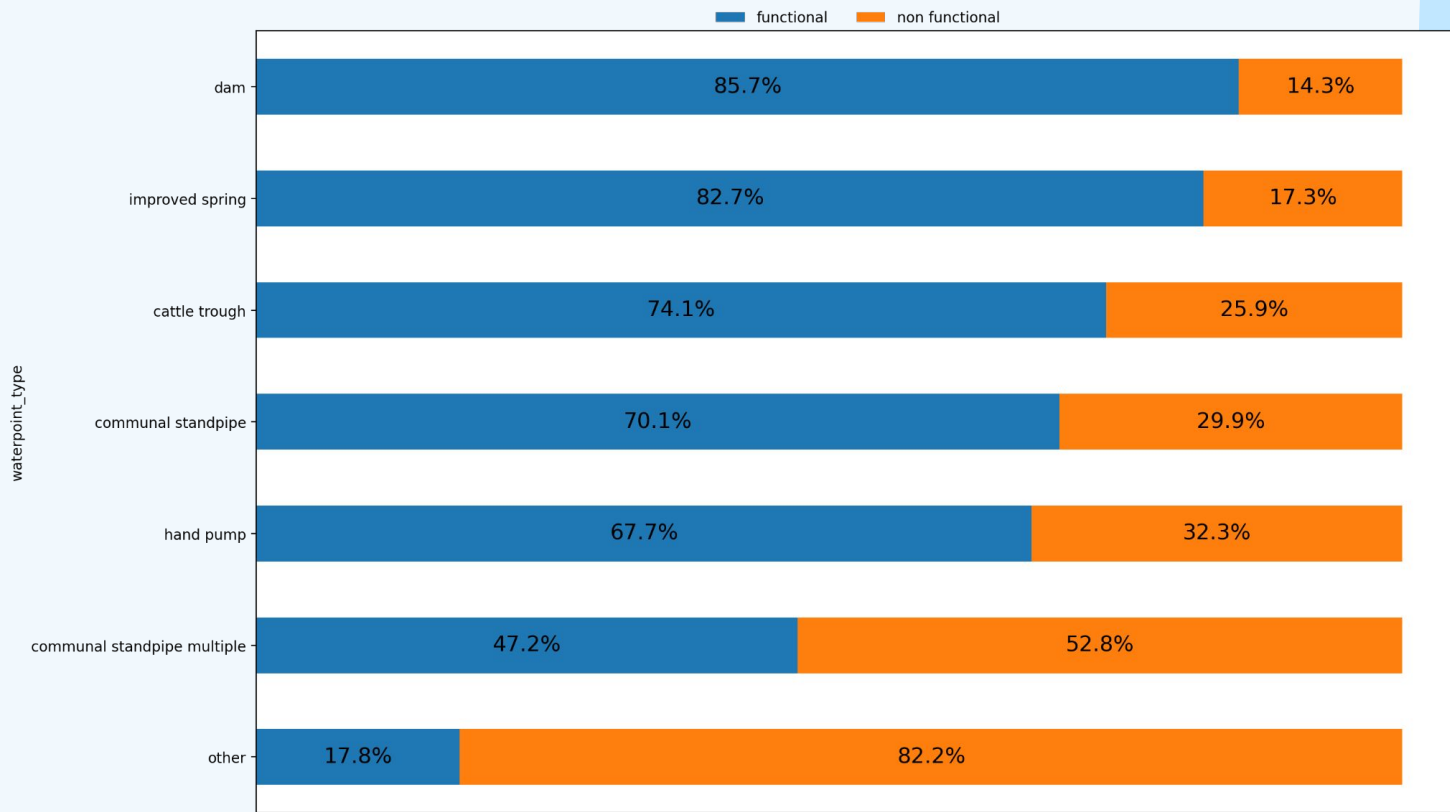
Water Quantity

As water quantity decreases chances of water point failure increase.



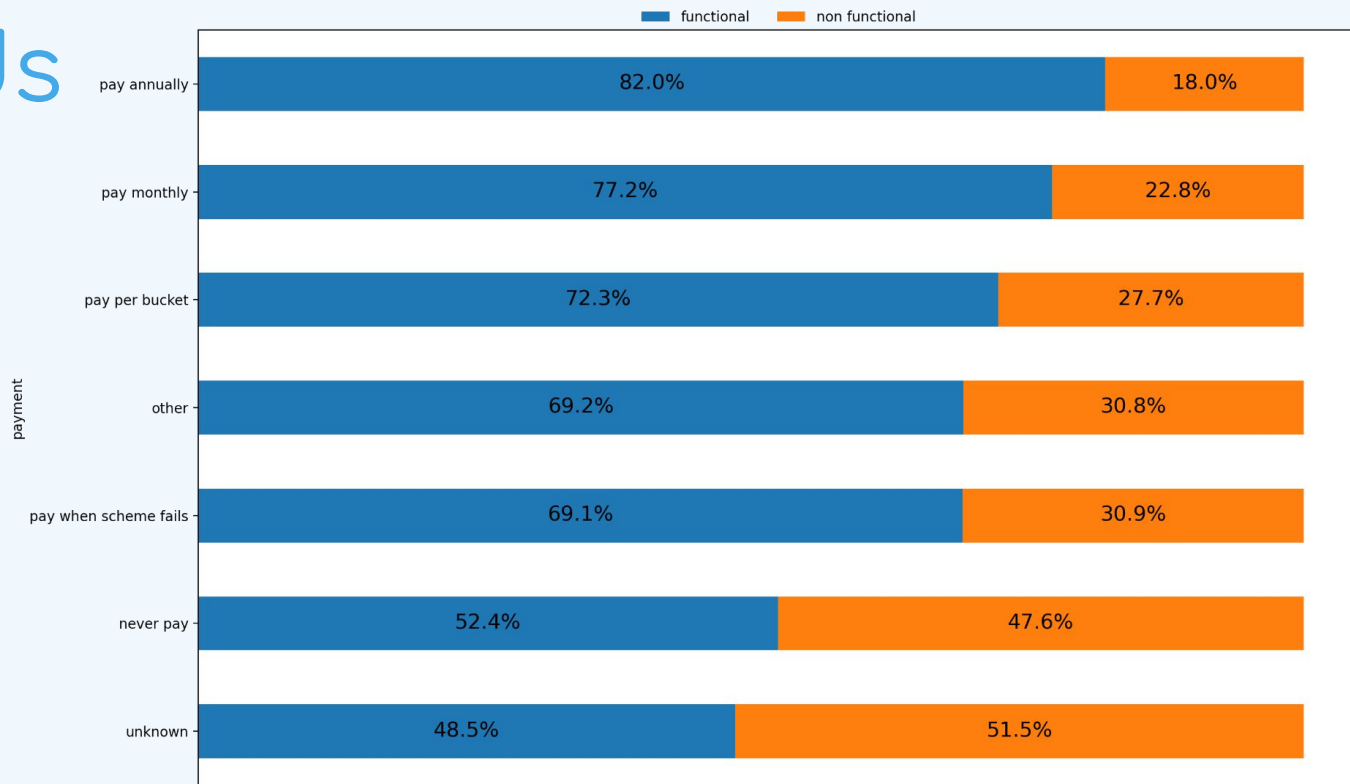
Waterpoint Type

Communal standpipe and hand pump make up majority of water points.



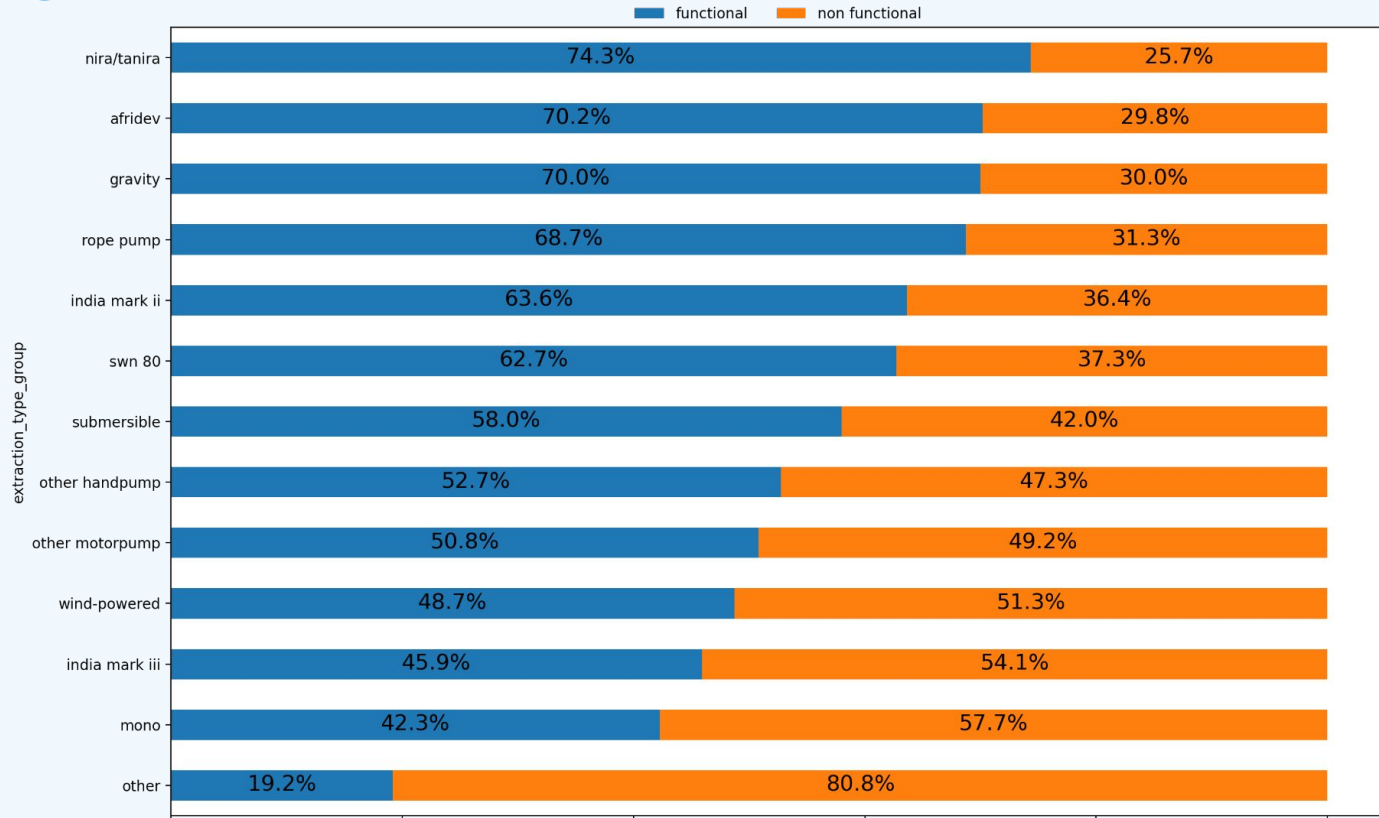
Payment Methods

Water points with no fees have higher chances of failing.



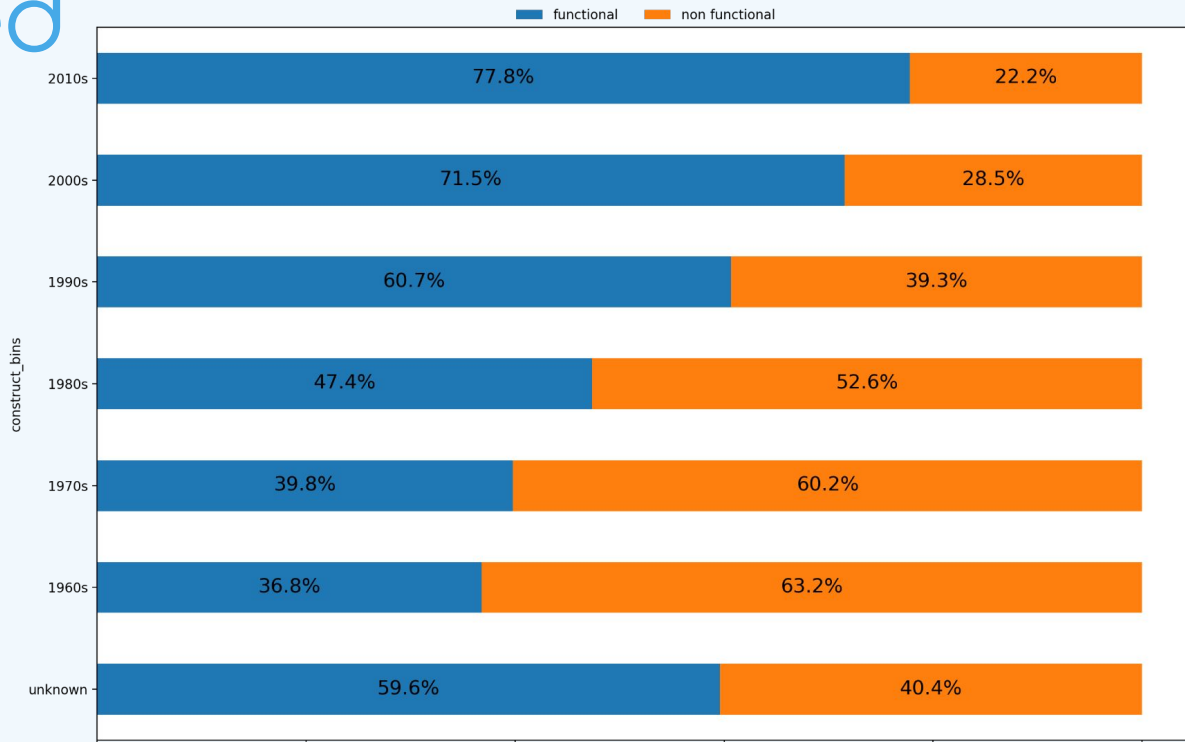
Extraction Type

Tanira model pumps performed best when compared to others.



Date Constructed

Older waterpoints
have higher chances
of failure.



Conclusion

Recommendations

- Service older waterpoints
- Find methods to deal with dried up water points
- Allocate resources to help maintain payment free waterpoints
- Replace pumps with Tanira pumps

Considerations

- Find other methods of delivering clean water to people
- Consider population around water points
- Monitor status of wells

Thanks

Do you have any questions?

Email:

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Github:

<https://github.com/whyyoutoo/Tanzanian-Water-Well-Functionality>

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