

Pump It Up

TANZANIAN WATER PUMP PREDICTIONS



Creating a solution that will save lives:

Worldwide, 780 million people do not have access to an improved water source.

More than 35% of the world's population lack access to improved sanitation.



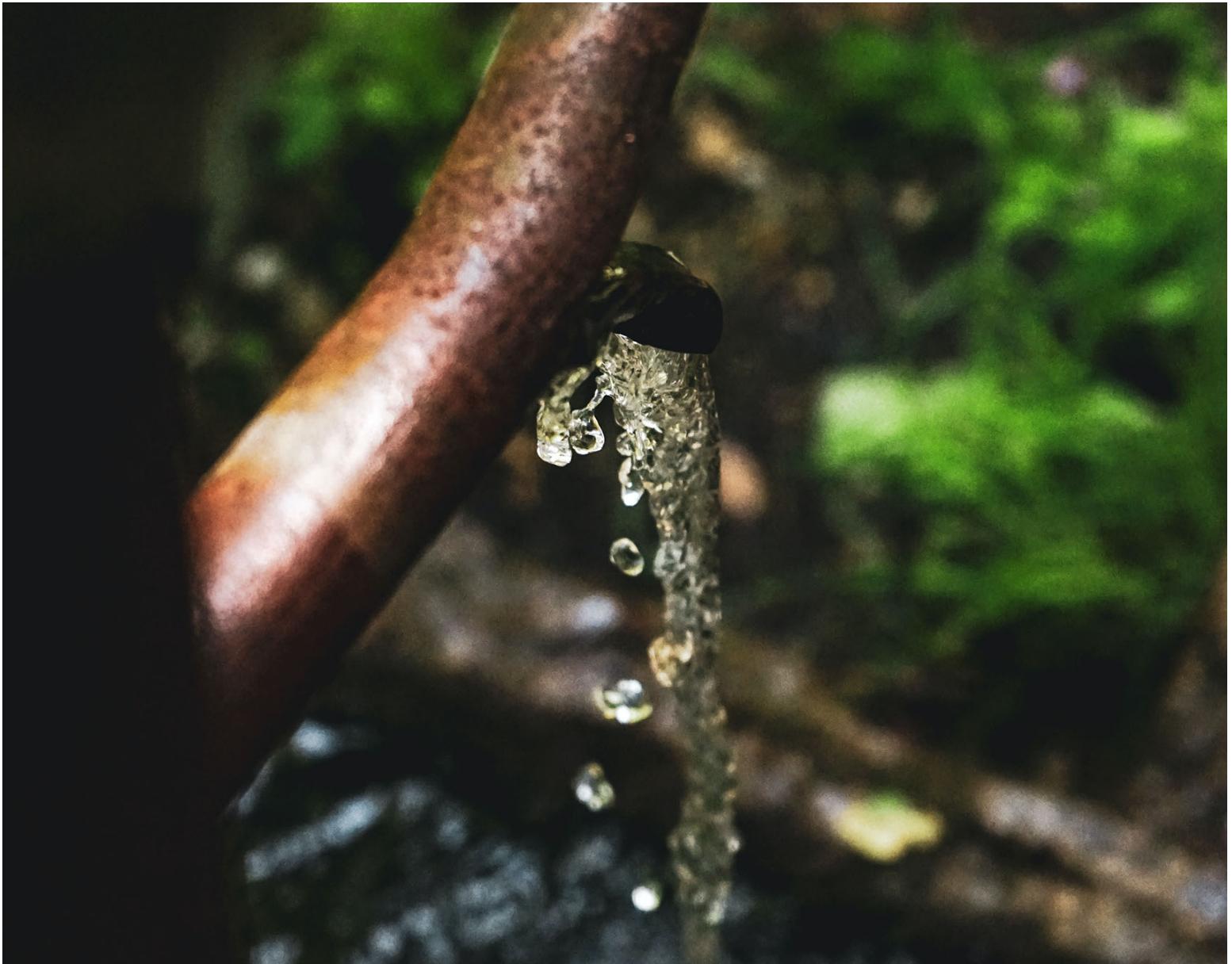
The Business of Saving Lives

The United Nations reports nearly 850,000 people die every year from lack of access to good water, sanitation and hygiene

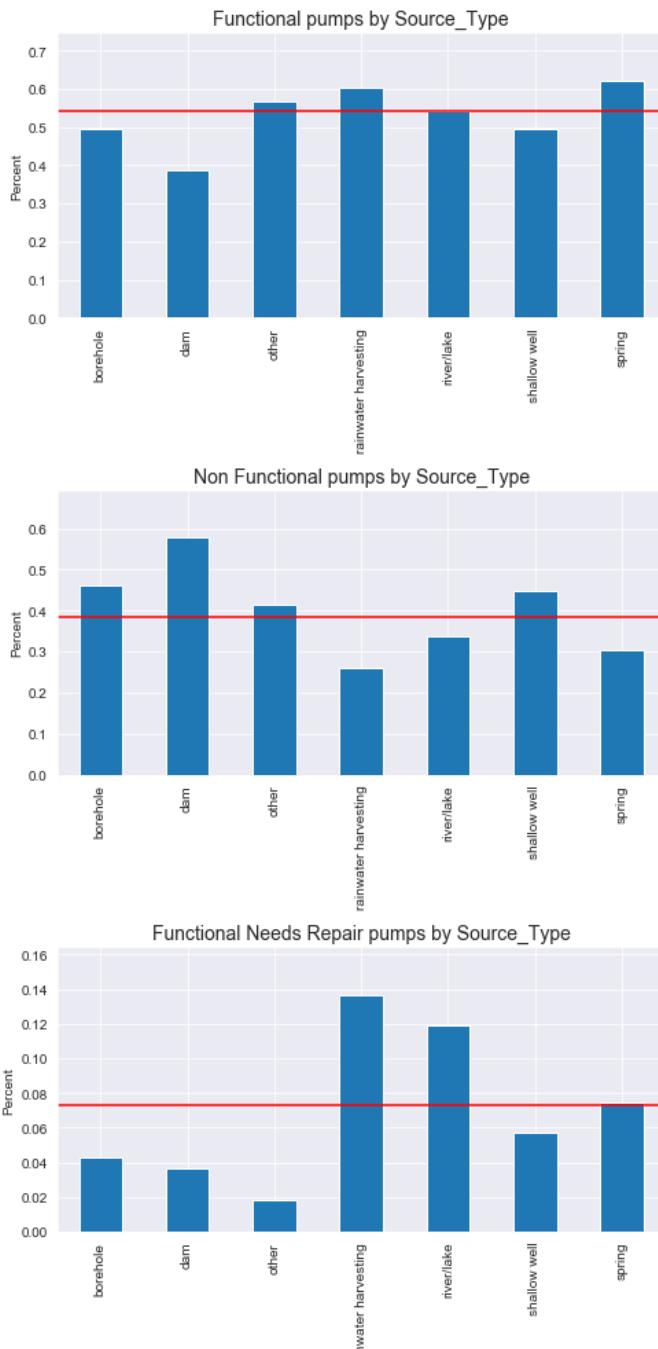


Methodology

ROSEMED: Research the problem, obtain the relevant data, scrub the data, examine the data, create and train a model, evaluate and improve the model, and then deploy the finished model



Water Source Impacts Pump Functionality



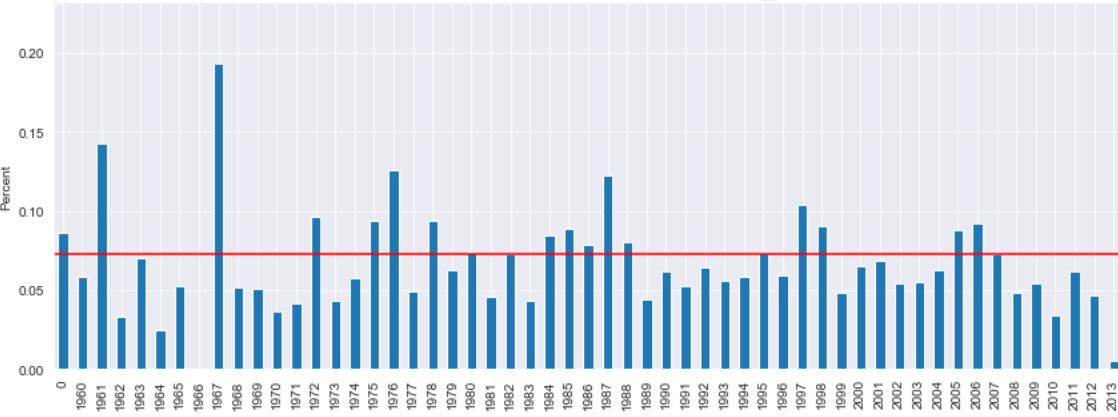
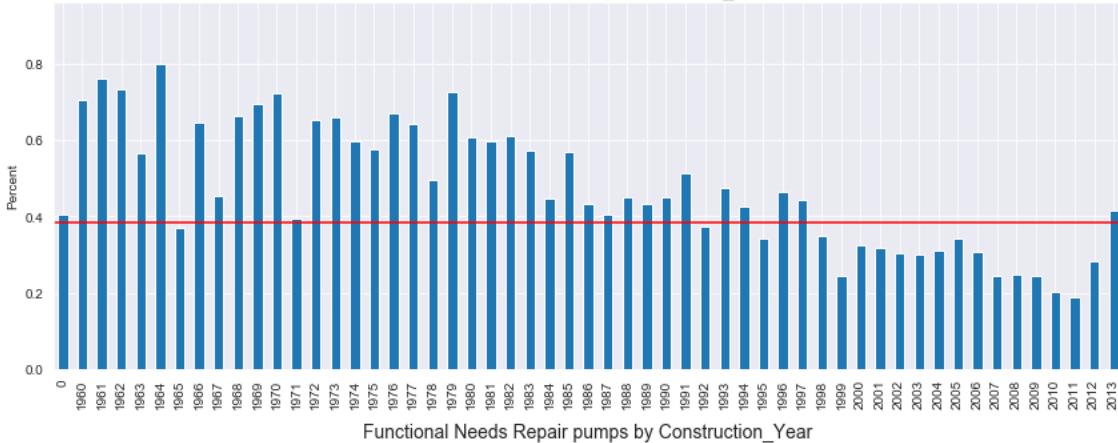
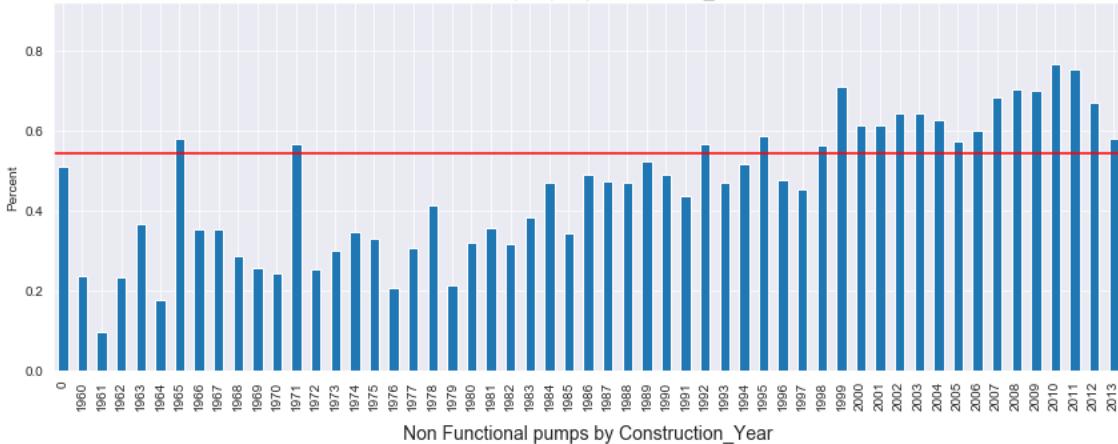
It is clear from the graphs that the water source does have a strong effect on the functionality of the wells.

Spring and rainwater harvesting water sources have the most functioning pumps, while pumps that are supplied by dams or shallow wells are more frequently non functional.



How does Construction Year (Age) impact
the Pump

Functional pumps by Construction_Year



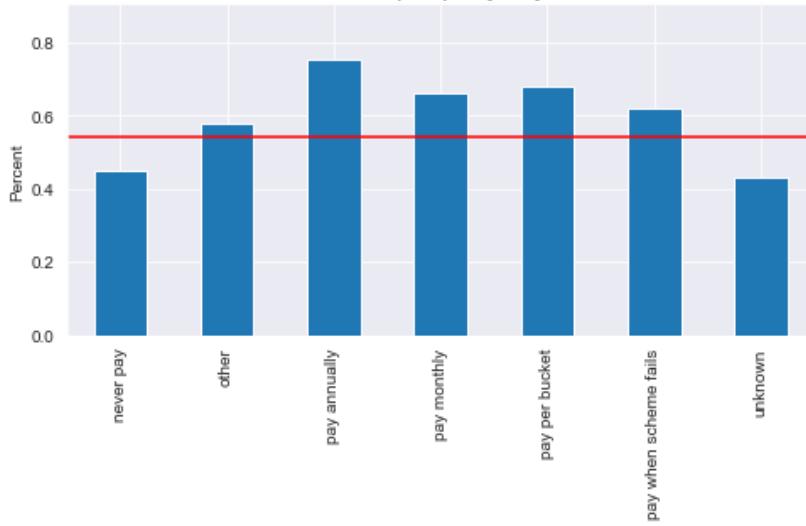
The construction year graphs show strong linear correlations with the functionality of the pumps. For example, the older the pump is, the more likely it is to be non-functional, and the newer the pump, the more likely it is to be functional.

This is exactly what we would expect, but it is always nice to see the data to confirm our assumptions.

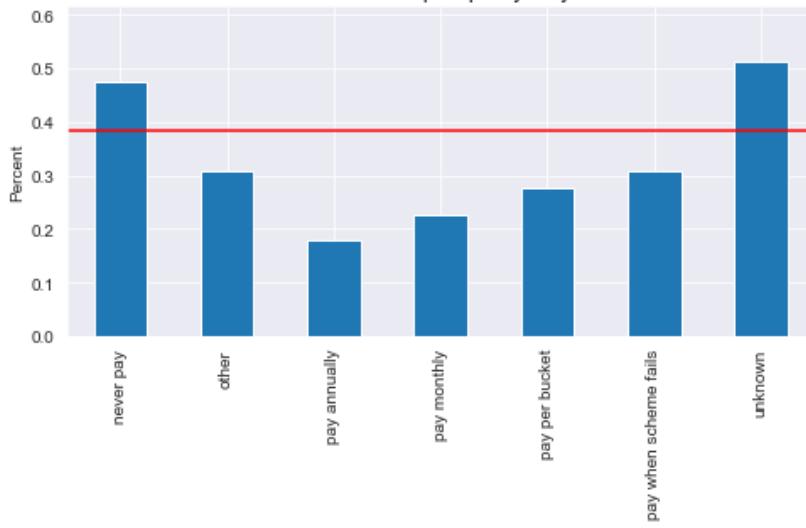


Which Payment Method to use To Increase
Functionality

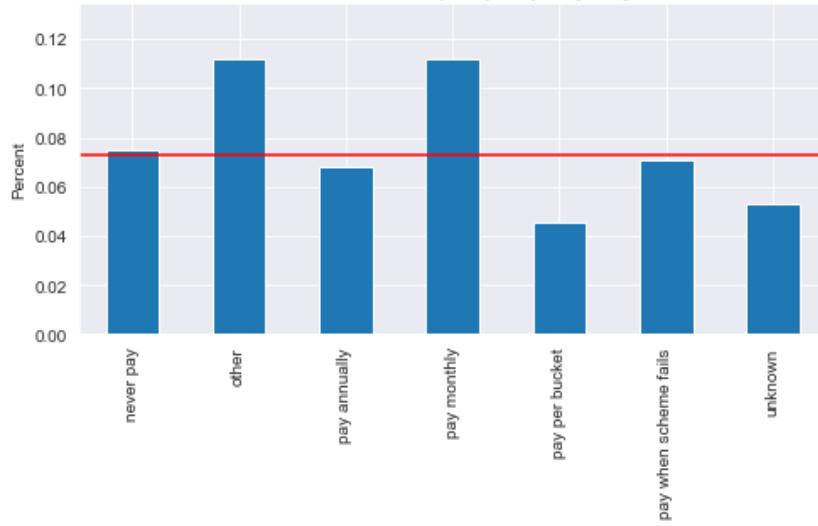
Functional pumps by Payment



Non Functional pumps by Payment

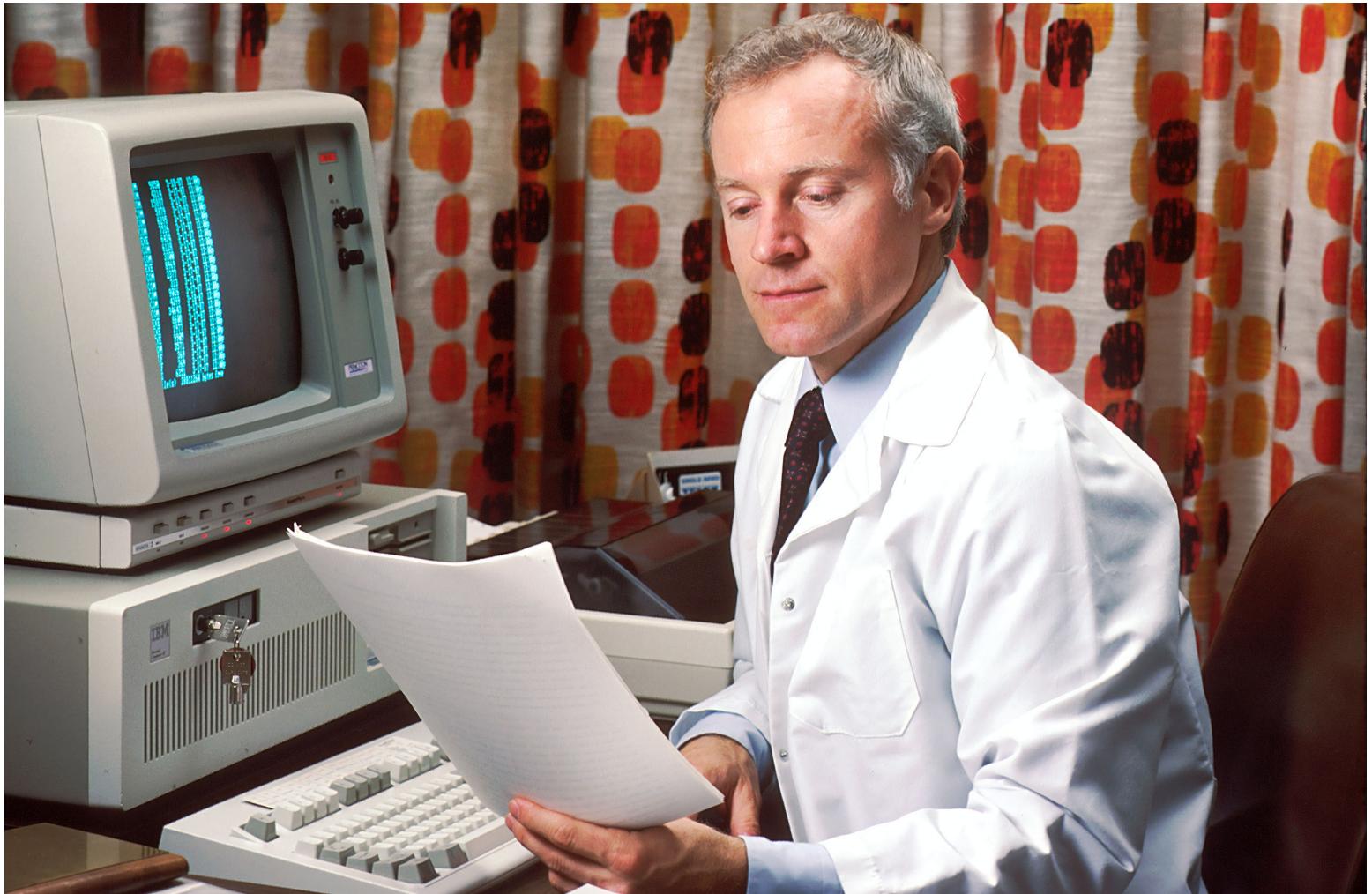


Functional Needs Repair pumps by Payment



The two most beneficial payment options for keeping a pump functional are 'pay annually', or to 'pay per bucket'.

The options that lead to above average 'non functional' status are 'never pay' and 'unknown'. The 'never pay' option makes sense, because there is no money to pay for repairs and maintenance on the water pump.



Future Work and Next Steps

- Further transformations of the data, e.g. translating the name feature and cluster it by keyword.
- Fine tune more of the models hyper-parameters for increased predictive ability.

Thanks for Your
Time!