

DRIVENDATA

PUMP IT UP: DATA MINING THE WATER TABLE

Predicting Water Well Functionality in Tanzania

Overview

Background

Purpose

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Model

Solutions

How you can help

Background

CLEAN DRINKING WATER

785 million people lack access to clean water

SANITATION

2 billion people lack access to toilets

POVERTY

1.9 billion people were living on less than \$3.20 per day in 2015

25 M

PEOPLE TANZANIA LACK
ACCESS TO SAFE WATER

40 M

PEOPLE IN TANZANIA LACK
ACCESS TO IMPROVED
SANITATION

An aerial photograph of a river with white water rapids, overlaid with a semi-transparent map of the African continent. The map is centered over the continent, with the river's path visible through it. The background is a dark, textured blue.

85%

OF TOTAL POPULATION OF 57 MILLION LIVES ON
LESS THAN \$3.10 PER DAY

Purpose

PREDICT WHICH WATER PUMPS ARE FAULTY, FUNCTIONAL,
AND NEED REPAIRS.

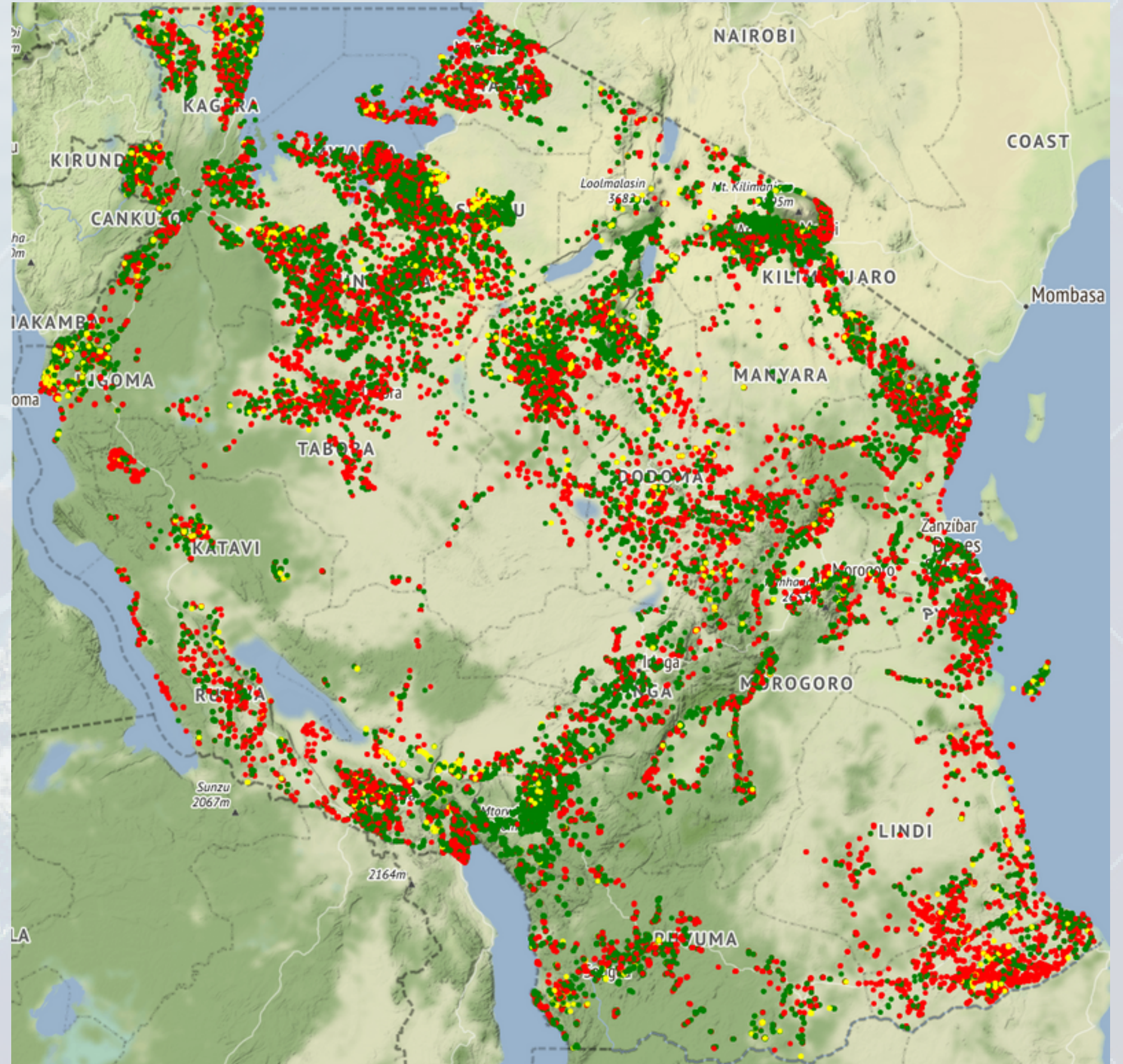
UNDERSTANDING WHICH WATERPOINTS WILL FAIL CAN
IMPROVE MAINTENANCE OPERATIONS

HELP ENSURE CLEAN DRINKING WATER IS ACCESSIBLE TO
COMMUNITIES ACROSS TANZANIA

Insights

**Over 59,000 wells
distributed throughout
Tanzania**

- Functional
- Functional Needs Repair
- Non Functional



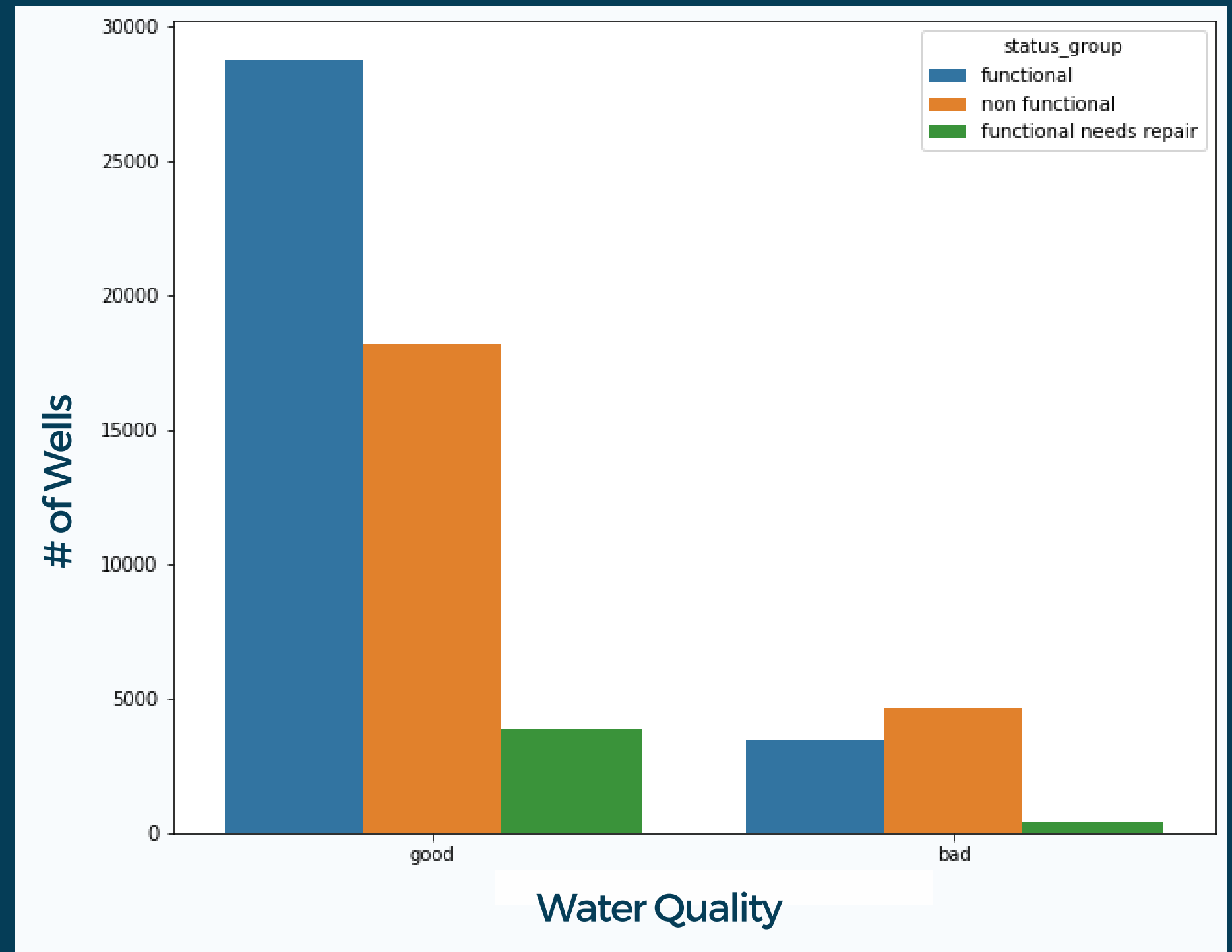
Water Quality

**About 50,000 wells
produce clean water**

**Of which, about 17,000 are
non functional**

**3500 clean water wells
would be functional if
repaired**

Water Quality by Number of Wells



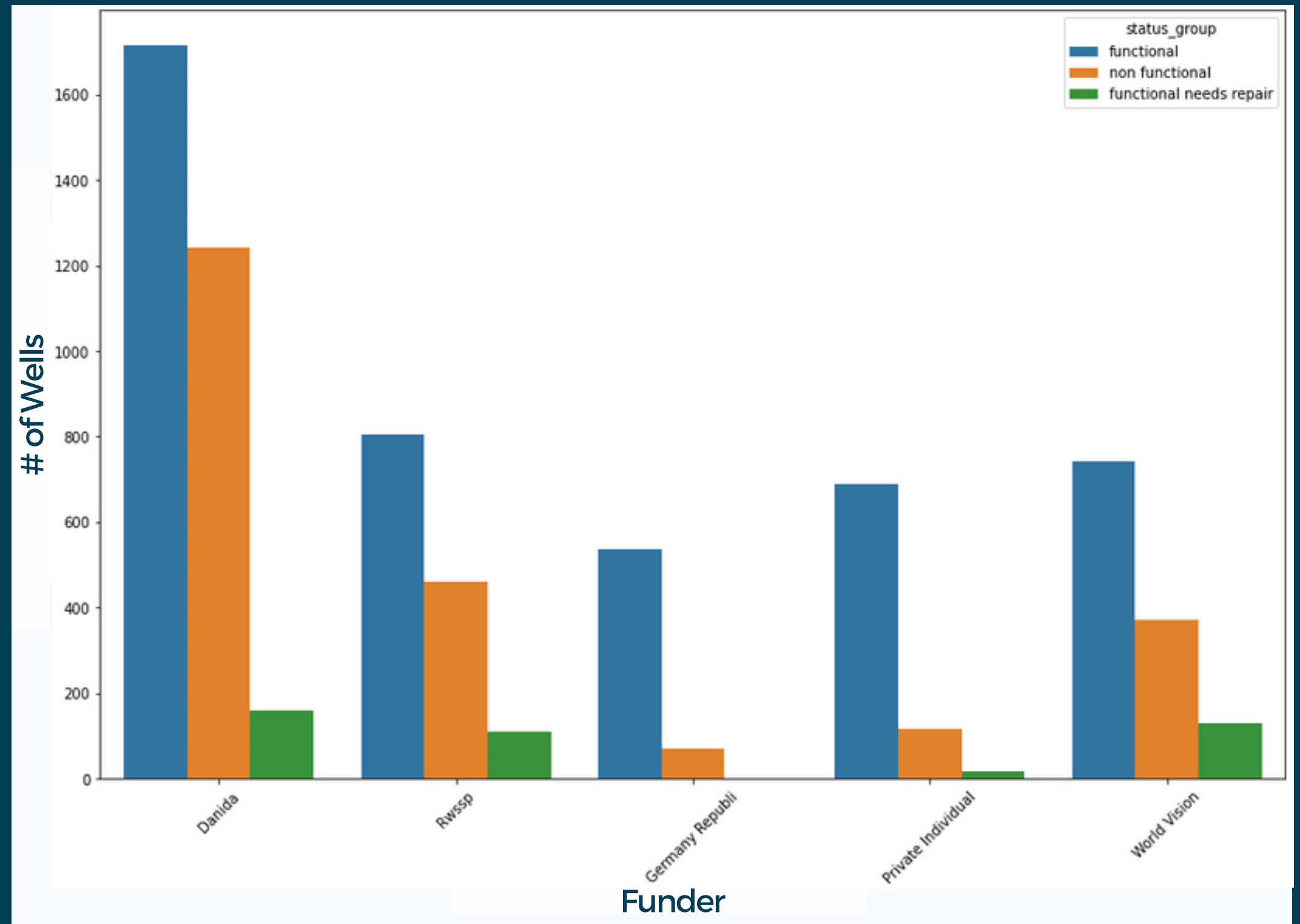
Funding

Most effective funding sources:

- 4,489 functional wells
- 2,263 non functional wells

1. Danida (Denmark/Tanzania)
2. RWSSP (Rural Water Supply and Sanitation Programme)
3. Republic of Germany
4. Private Individuals
5. World Vision

Highest Ratios of Functional Wells to Non Functional Wells by Funder



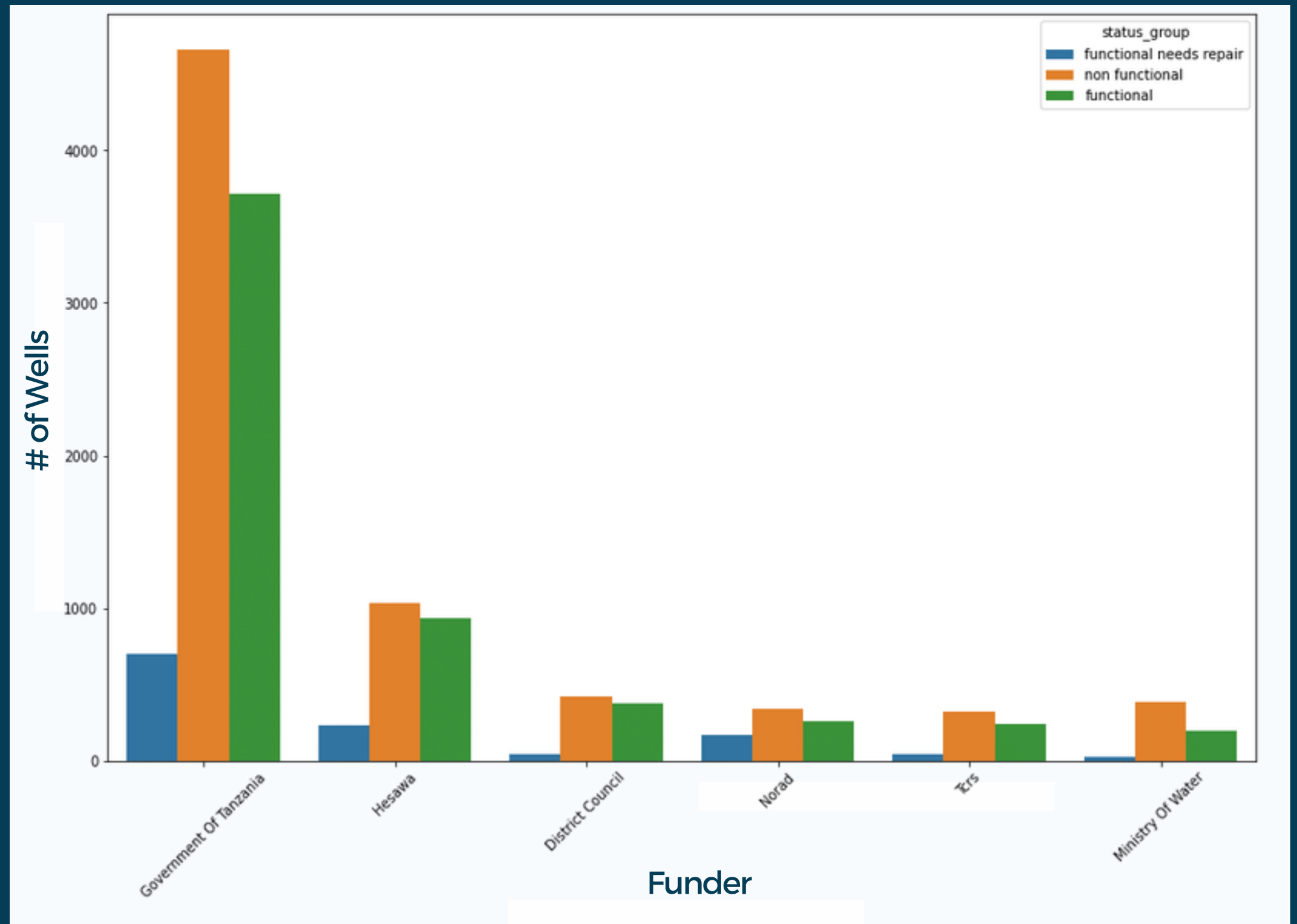
Funding

Least effective funding sources:

- 5,726 functional wells
- 7,161 non functional wells

1. Government of Tanzania
2. Ministry of Water
3. TCRS (Tanganyika Christian Refugee Service)
4. Hesawa (Sweeden/Tanzania)
5. Norad (Norway/Tanzania)
6. District Council

Highest Ratios of Non Functional Wells to Functional Wells by Funder

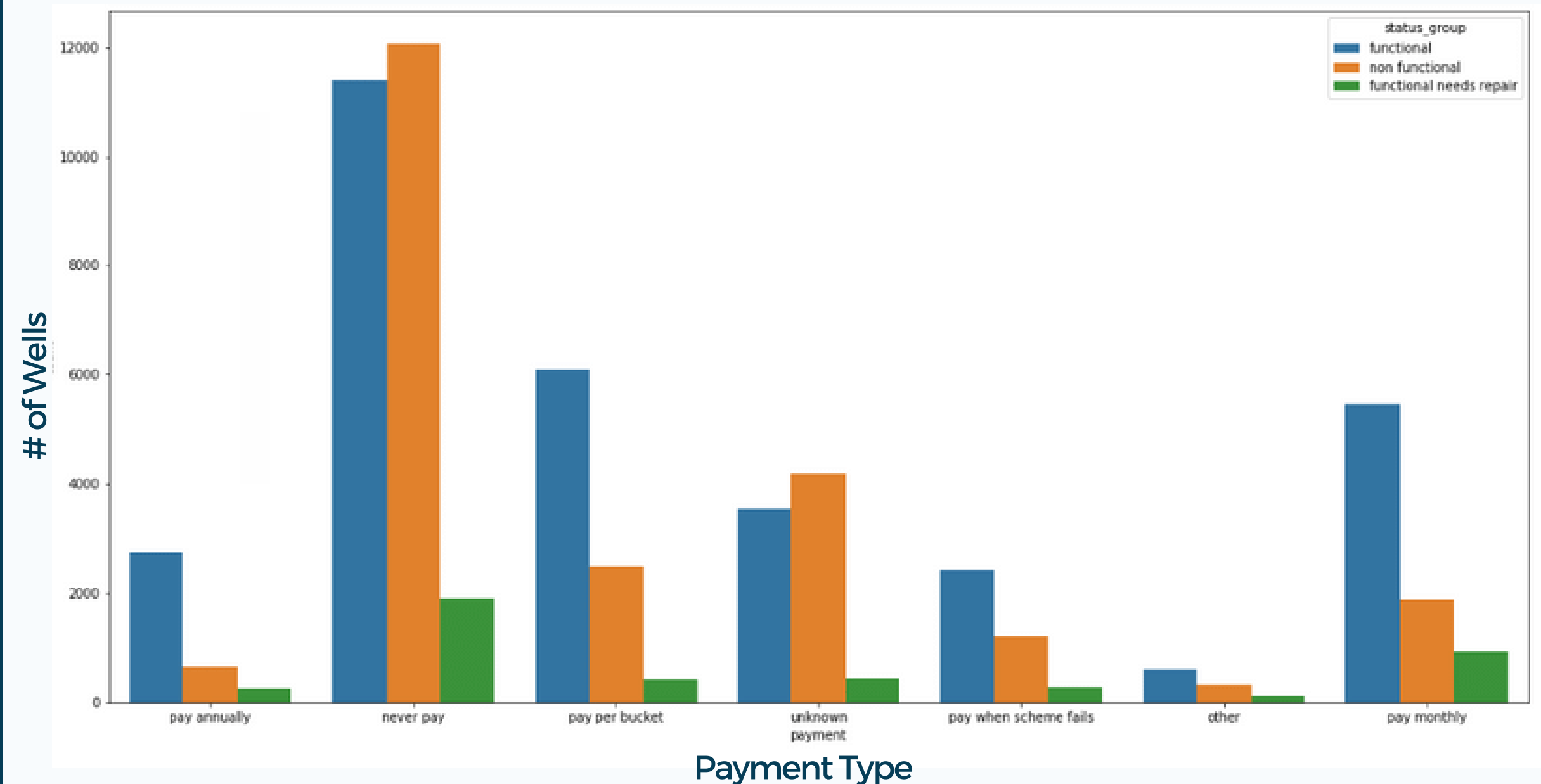


Payment

Wells with no fee are more likely to be non functional

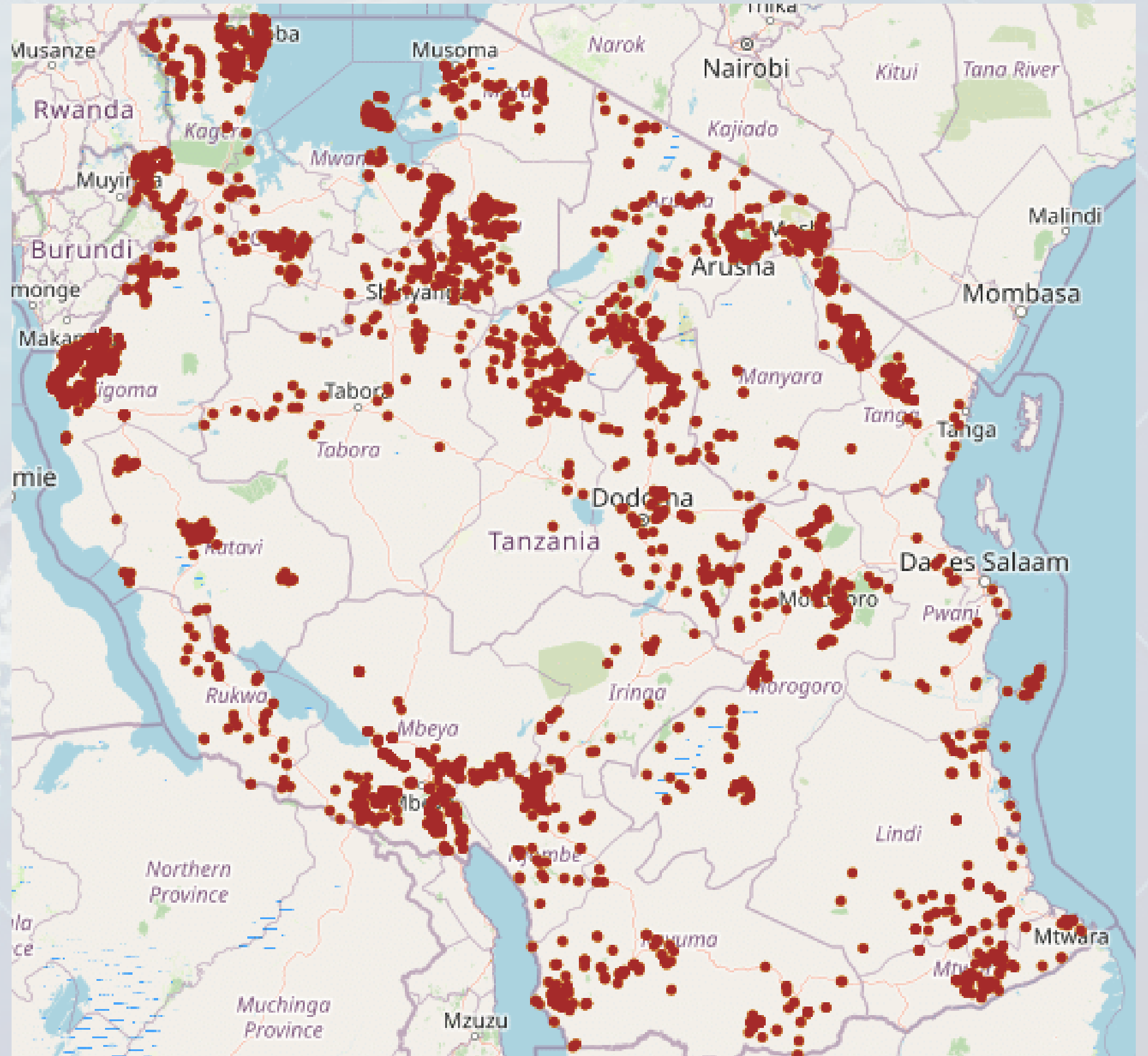
Wells with some form of payment are more likely to function

Wells by Payment Type



Location

Functional wells which need repairs are mostly clustered in a few regions



PRIORITIZE EFFECIENTLY

- **Repairs**

Prioritize functioning wells which need repair and yield clean water

- **Payment**

Payments of some kind will provide incentive to keep wells functional

- **Funding**

Allocate funds and resources to effective organizations with track record

- **Location**

Target repairs to clusters of wells especially those with high populations



**Our Model is
86% Accurate**

**STREAMLINE MAINTENANCE
AND REPAIRS**

**USE FUNDING EFFICIENTLY
AND EFFECTIVELY**

DO MORE WITH LESS

Future Improvements

IMPROVE DATA

Quantify qualitative data to improve model

MONITOR WELLS

Update model regularly to issue preventative maintenance

GEOGRAPHIC REGION

Model has to consider regional factors: rainfall, climate, geology, etc.

How you can help

Donate at water.org/donate

Every \$1 invested in water and sanitation provides a \$4
economic return

Questions?

