SWT Clean Water Foundation

Predictive Analysis of Water Points in Tanzania

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SWT TANZANIA WATER POINT ANALYSIS

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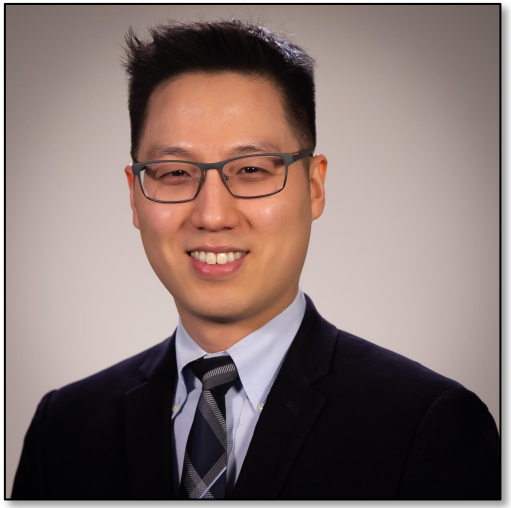

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Tanzania Water Crisis

- ➔ 24 Million people are affected which is half they population
- ➔ “WASH” = Issues with water access, sanitation, and hygiene
- ➔ Impacts health, economic status, education access, overall well-being

AGENDA

- Business Problem
- Data Overview
- Analysis
- Recommendations
- Future Steps

Business Problem

➔ Can SWT leverage predictive modeling to identify dysfunctional water points, thereby enhancing access to clean, potable water throughout Tanzania?

Data Overview

- **Source:** Taarifa Waterpoints dashboard sourced from the Tanzania Ministry of Water from 1960 to 2013.
- **EDA:** Functional/Needs Repairs, Regions, Source, Management, Construction Year
- **Limitation:** Type of repairs needed

Analysis

- ➔ **Functional/Needs Repair**
- ➔ **Features:** Source, Region, Management, Construction Year
- ➔ **Modeling:** Logistic Regression
- ➔ **Metrics:** Accuracy and Recall Scores

Suspect Water Sources

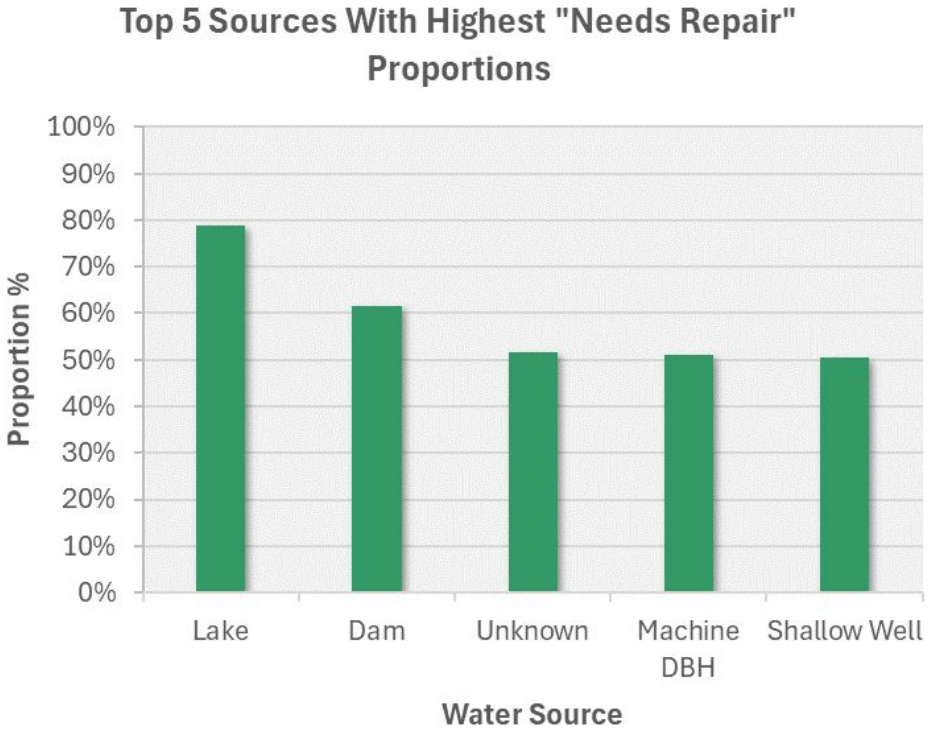
Water point sourced from lakes:

- “Needs Repair” Proportion at 78%

Modeling results:

- **89%** more odds of needing repair than water points that are not sourced from lakes.

Recommendation 1: Target water points that are sourced from lakes first



Suspect Regions

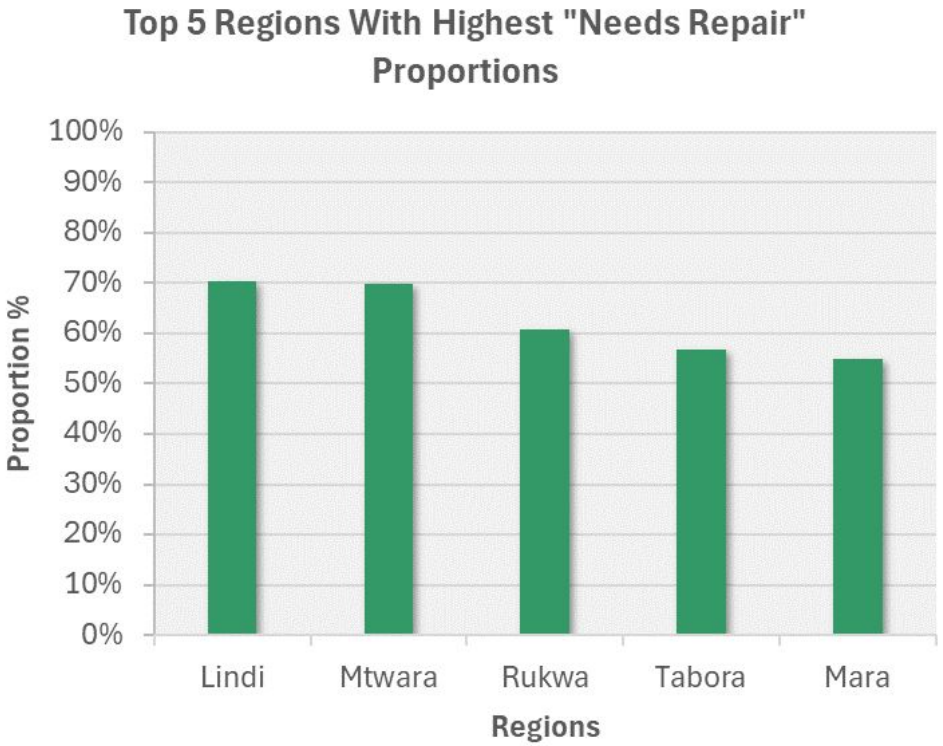
Water points located in the Lindi and Mtwara regions:

- “Needs Repair” Proportions at 70% for both regions

Modeling results:

- **112%** and **125%** more odds of needing repairs than other regions, respectively.

Recommendation 2: Target water points located in Lindi and Mtwara regions



Suspect Management

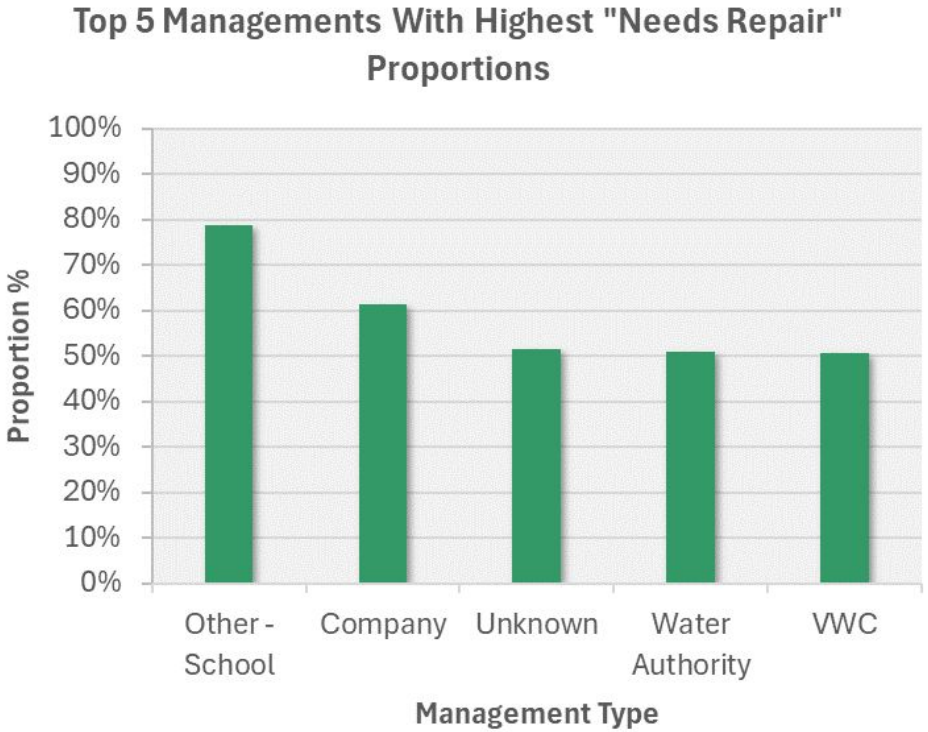
Water points managed by schools:

- “Needs Repair” Proportion at 77%

Modeling results:

- **14%** more odds of needing repair than other management groups

Recommendation 3: Focusing on management is not a top priority but focus on ones managed by schools first.



Recommendations

1. Target Water points that are sourced from Lakes first.
2. Target Water points located in Lindi and Mtwara.
3. Not A Priority But If Needed Focus on Managements by schools.

Future Steps

- ➔ Complete secondary analysis by types of repairs
- ➔ Complement dataset with information about construction materials
- ➔ Go more granular with geographic pinpointing of water points needing repairs

Questions