TANZANIAN WATER WELLS DATA ANALYSIS AND MODELLING

A short presentation analyzing data of water resources.

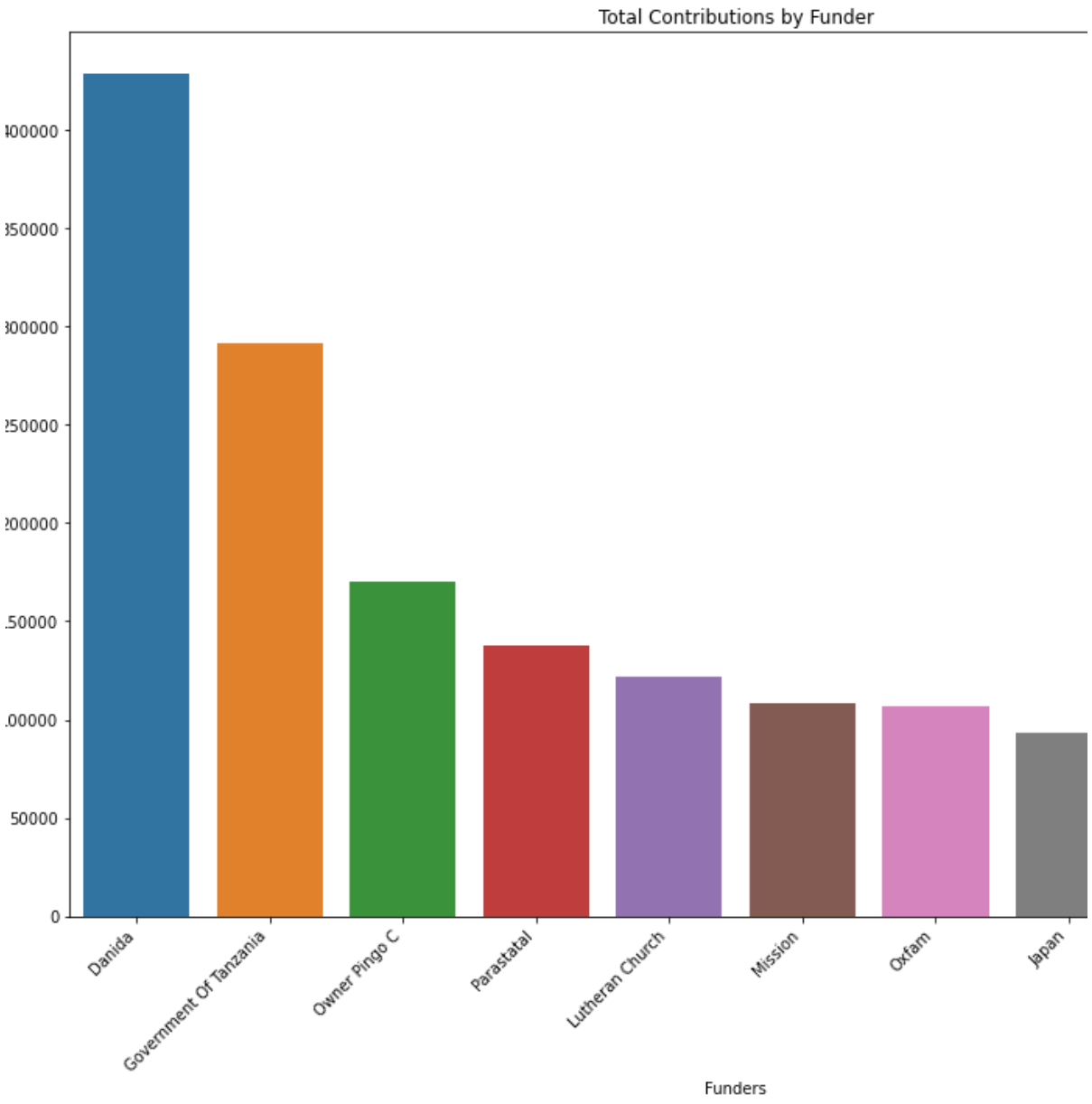
By Kyalo Mutiso

Background & Context

- Tanzania faces water scarcity despite abundant water sources due to multiple reasons such as rapid population growth & climate variability.
- Our goal is to find out how to optimize water usage and importance of data-driven water management.

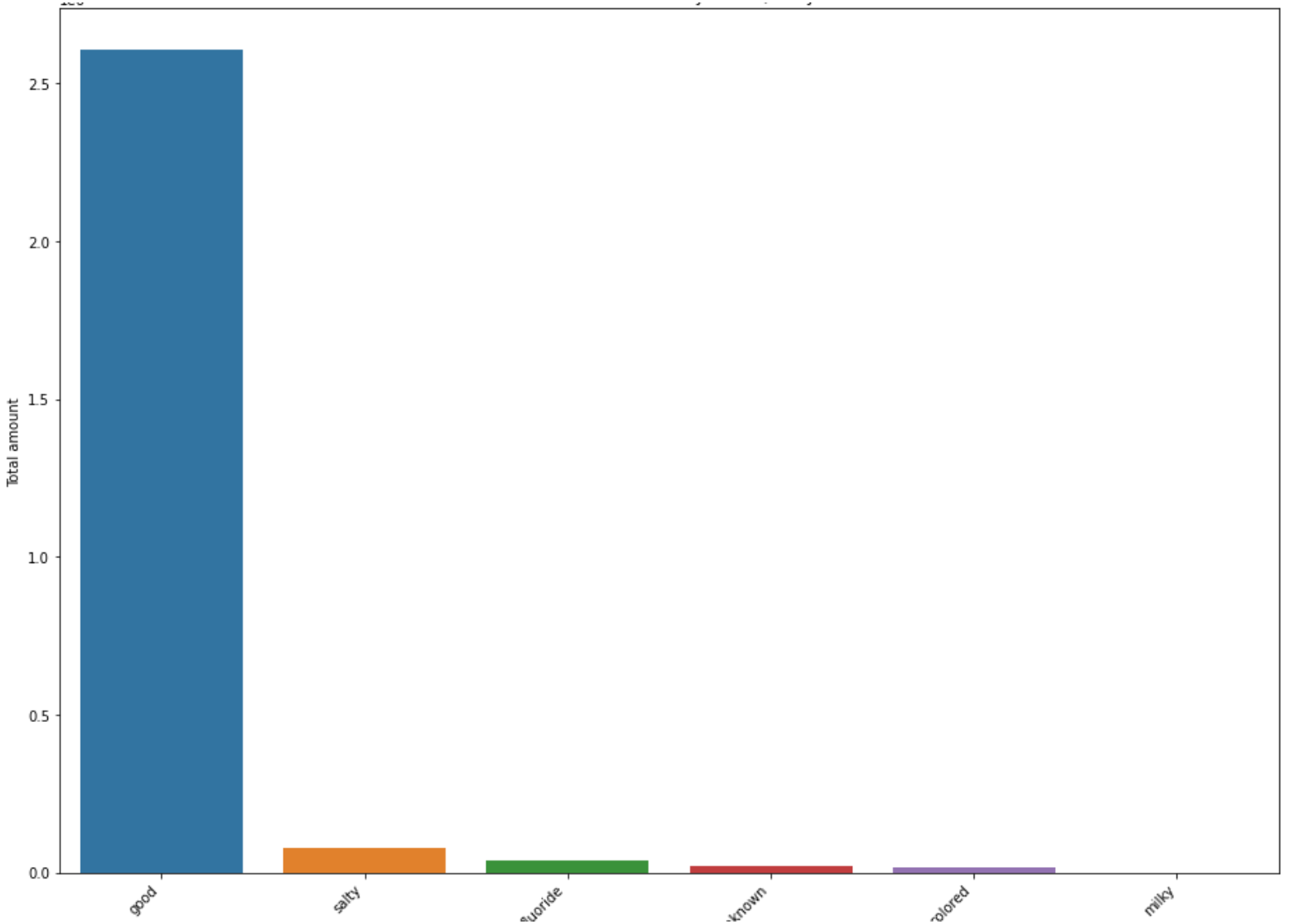
Data Sources

- Taarifa
- Tanzania Ministry of water



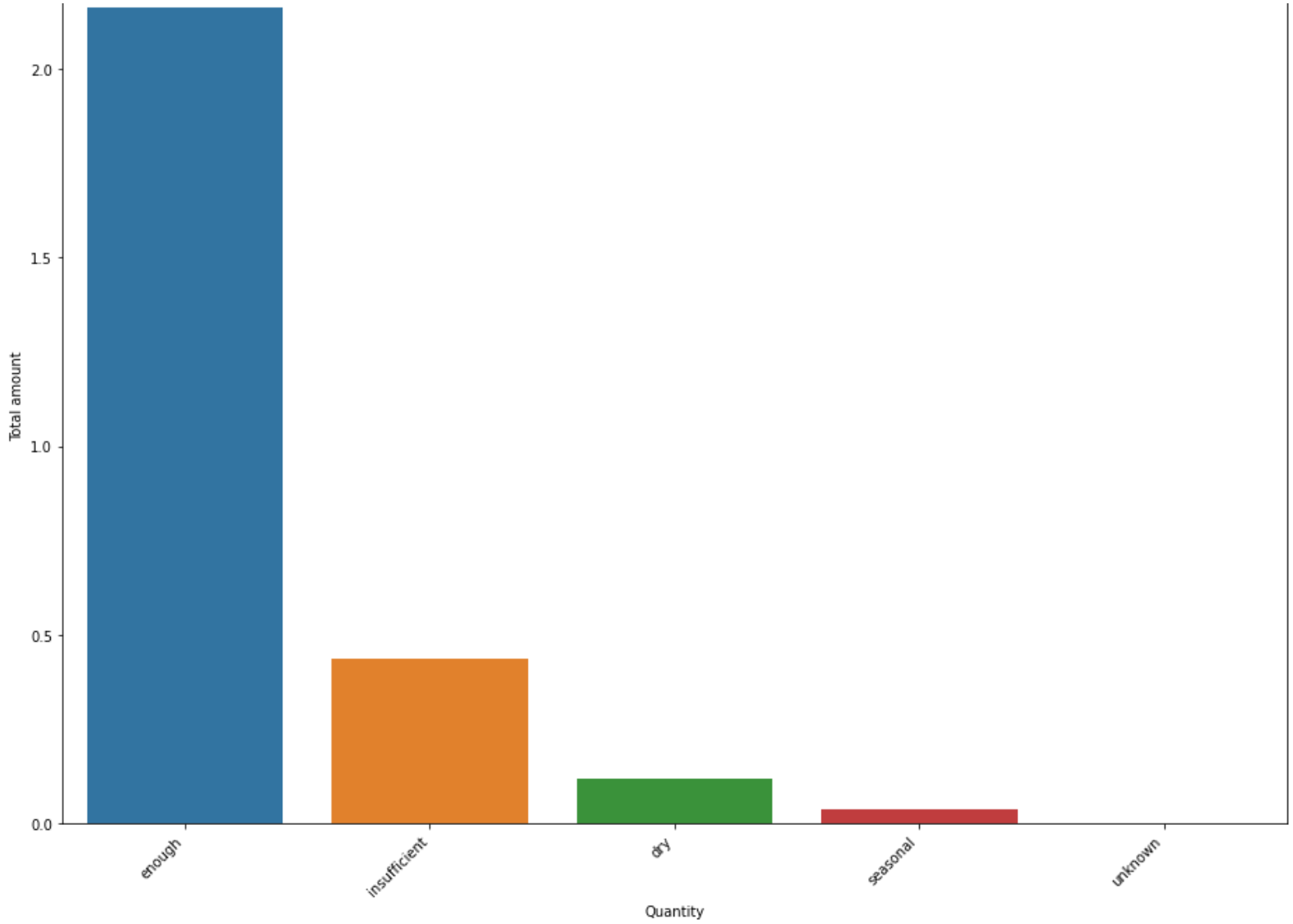
Exploratory Data Analysis(EDA)

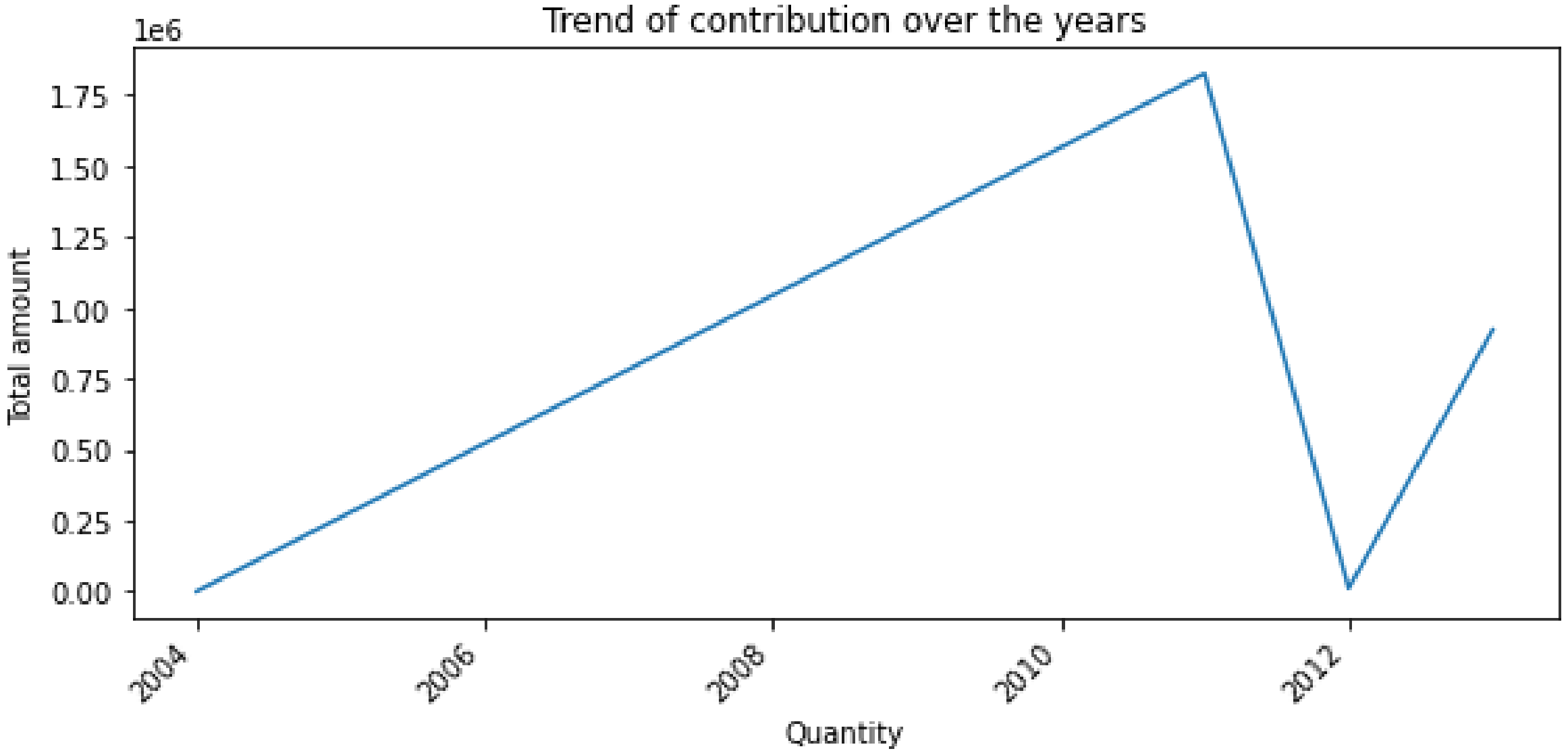
- The Top Ten Contributors towards Water Management.
- It mainly consists of The Government of Tanzania, church support and foreign support.

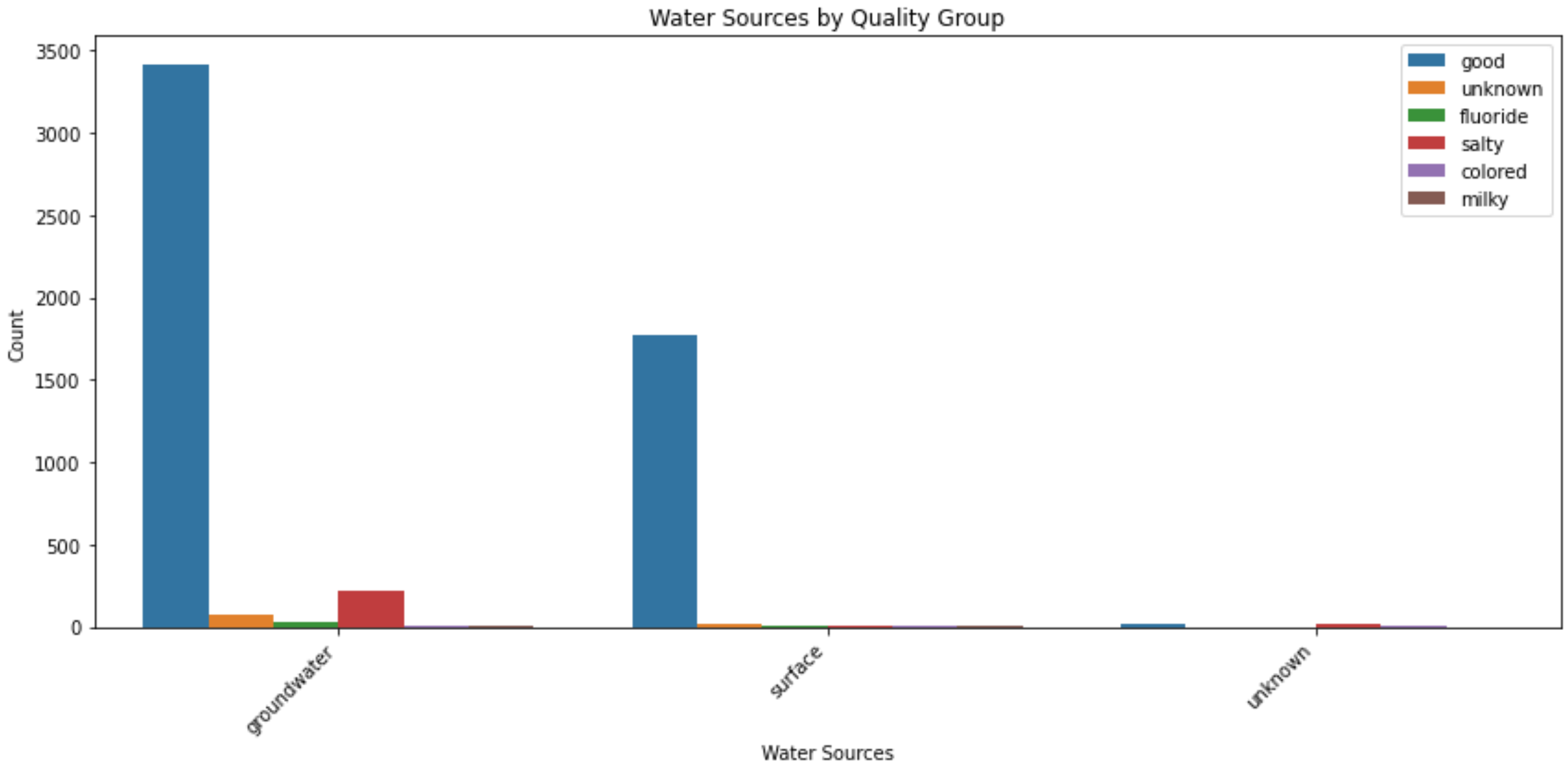


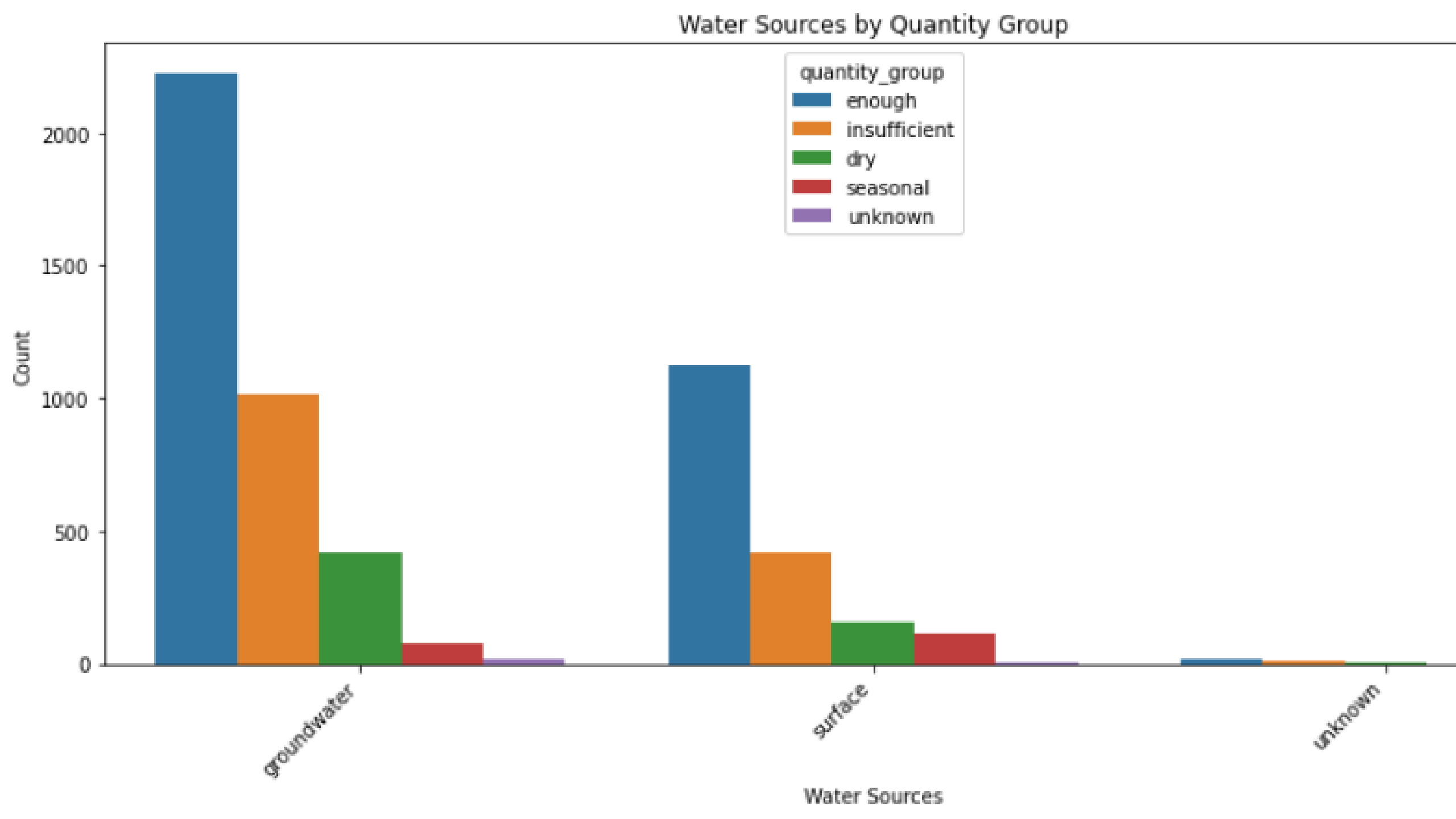
- Most of the contributions go towards "good" quality due to its many uses compared to the other qualities.

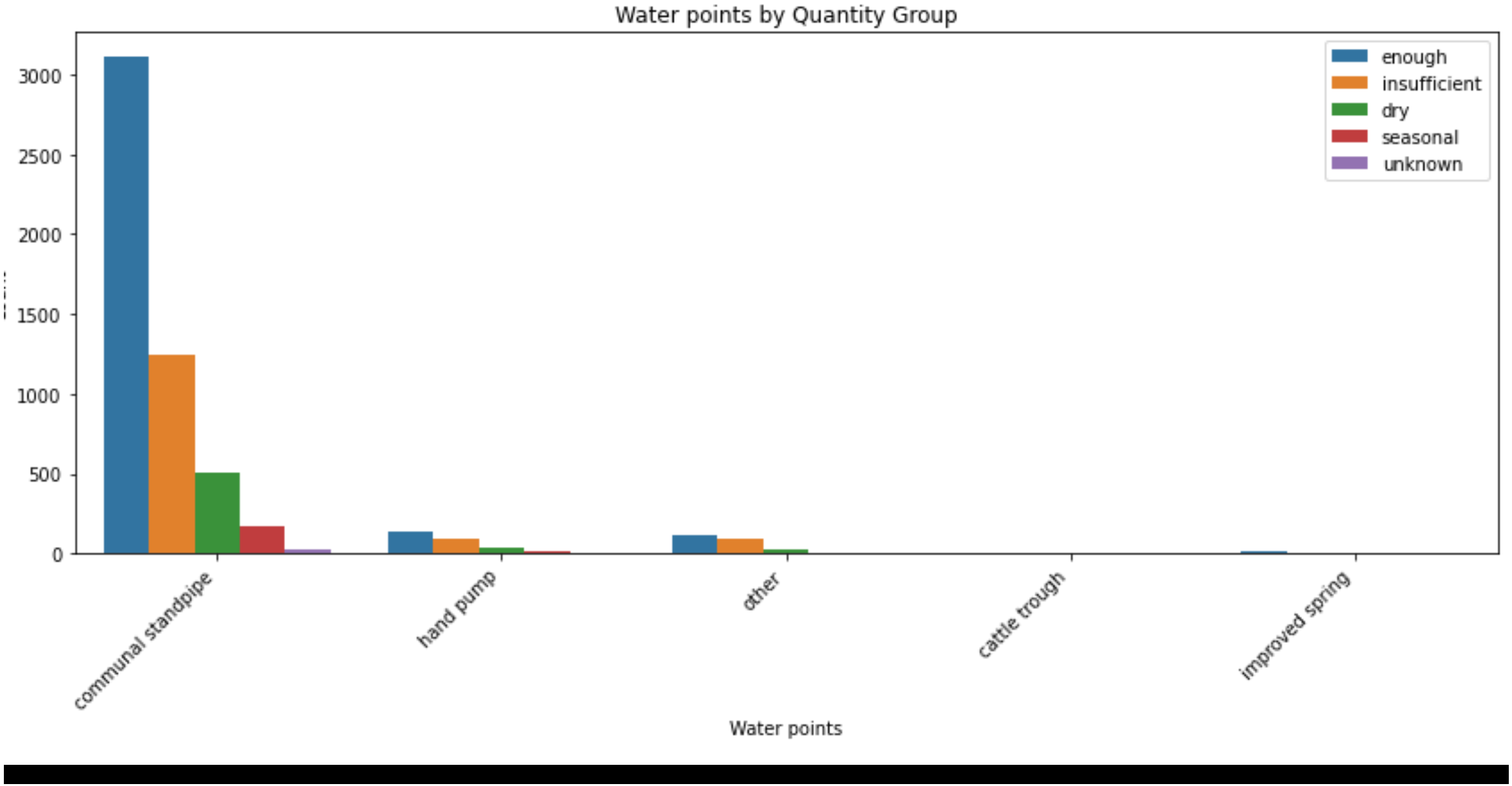
- *Most contributions also goes towards enough quantity and has a high return on investment.*




Trend of contribution over the years
1e6
1.75
1.50
1.25
1.00
0.75
0.50
0.25
0.00
Total amount
2004
2006
2008
2010
2012
Quantity


Water Sources by Quality Group
Count
3500
3000
2500
2000
1500
1000
500
0
good
unknown
fluoride
salty
colored
milky
groundwater
surface
unknown
Water Sources


Water Sources by Quantity Group
quantity_group
enough
insufficient
dry
seasonal
unknown
Count
2000
1500
1000
500
0
groundwater
surface
unknown
Water Sources


Water points by Quantity Group
enough
insufficient
dry
seasonal
unknown
3000
2500
2000
1500
1000
500
0
communal standpipe
hand pump
other
cattle trough
improved spring
Water points

Key Findings

- Communal standpipes are the most effective and effective compared to other water point.
- Major contributors are the Government, Churches and Foreign help.
- Funders mainly contribute towards more practical uses of water.
- There is a noticeable rise of contribution from 2004 to 2011 then a sharp decline in 2012 which can be due to incomplete data or a real reduction in funding.
- Good quality of water is mostly found in ground water sources compared to surface sources.
- Most of enough water comes from groundwater sources but also does insufficient water. It seems from the graph that Tanzania mostly focuses on underground sources compared to surface sources.

Data Insights

- Educate the society on management of water and to also contribute in funding.
- Focus on "good" quality and "enough" quantity of water and it will increase funding for more water management.
- Groundwater is more sufficient as a water source compared to other sources.
- Communal stand pipes are the best compared to other water points such as Hand pumps.

Conclusion & Next Steps

- Water data is critical for sustainable management.
- Improve data quality and coverage.
- Water Sanitation to make optimize use of water.
- Build centralized water data platforms.
- Encourage open data sharing.
- Link water data with health & climate datasets.

High-quality water data enables predictive, equitable and sustainable water management.