

An Application for Guiding Operation, Maintenance, and Troubleshooting Water Pump Problems in Water Supply Projects in Tanzania

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Introduction

- In most developing regions, the primary means of extracting water is water pumps.
- Failure of the water pump often makes the water source inaccessible until the pump is repaired.
- A failed water pump gives specific clues that something is amiss, if one knows how to look for them.
- The limited number of people with sufficient skill and experience to diagnose and rectify the basic problems afflicting water pumps is also a problem that water sector faces.
- This innovation evaluated the major water pump problems that have been encountered in different water supply projects in Tanzania towards developing "An Application for Guiding Operation, Maintenance, and Troubleshooting Water Pump Problems".

Study Area

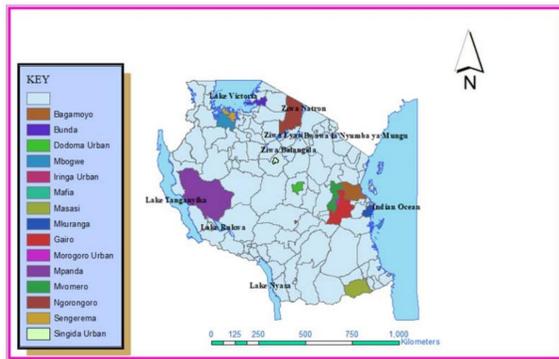


Fig. 3: Location map of Tanzania which shows distribution of the studied districts

Study Findings

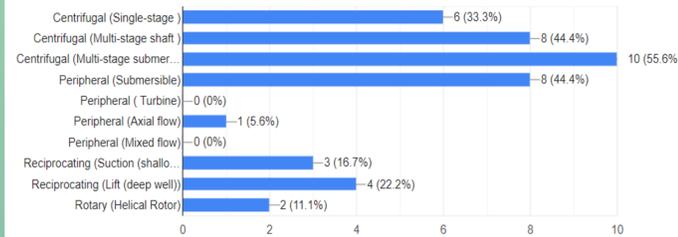


Fig. 4: Types of water pumps commonly encountered in water supply projects

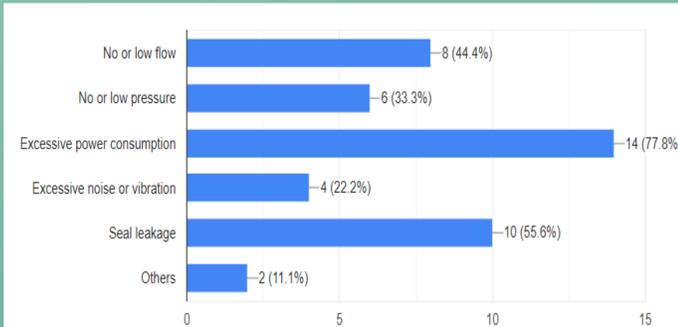


Fig. 5: Common water pumps problems encountered in water supply projects

How the system operates

The system integrates the successful solution from site experience and the already existing solutions from operation manuals to give an output.

Existing Problems



Fig. 1: Inoperative water pumps

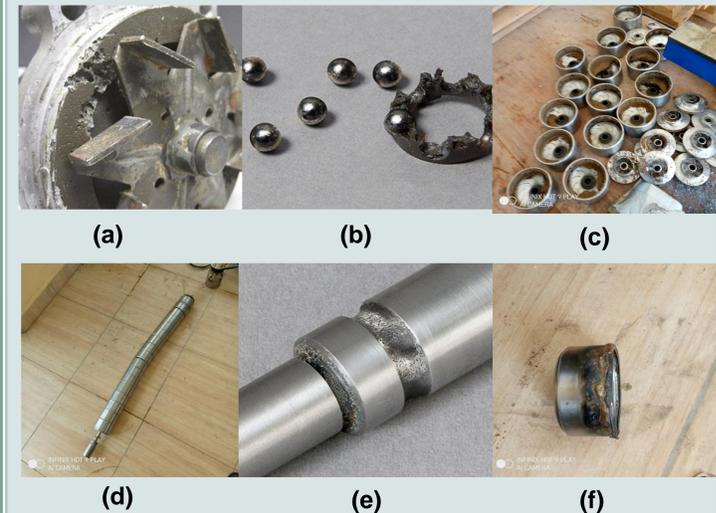


Fig. 2: Common water pump problems (a) Cavitation, (b) loose bearings, (c) deposit (sand) build up, (d) bent shaft, (e) broken shaft, (f) improper impeller modification

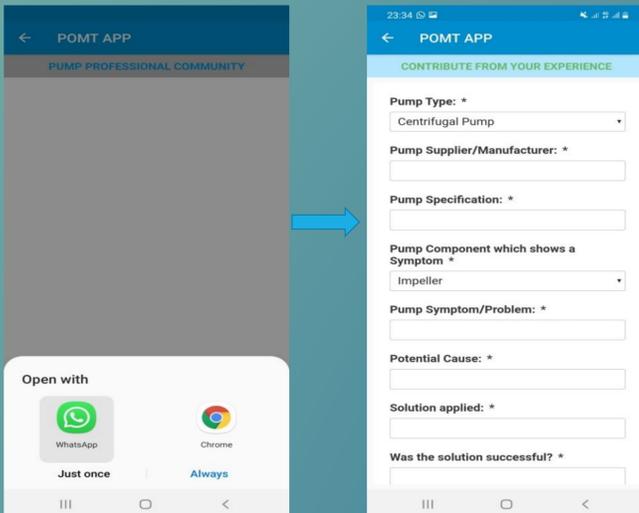
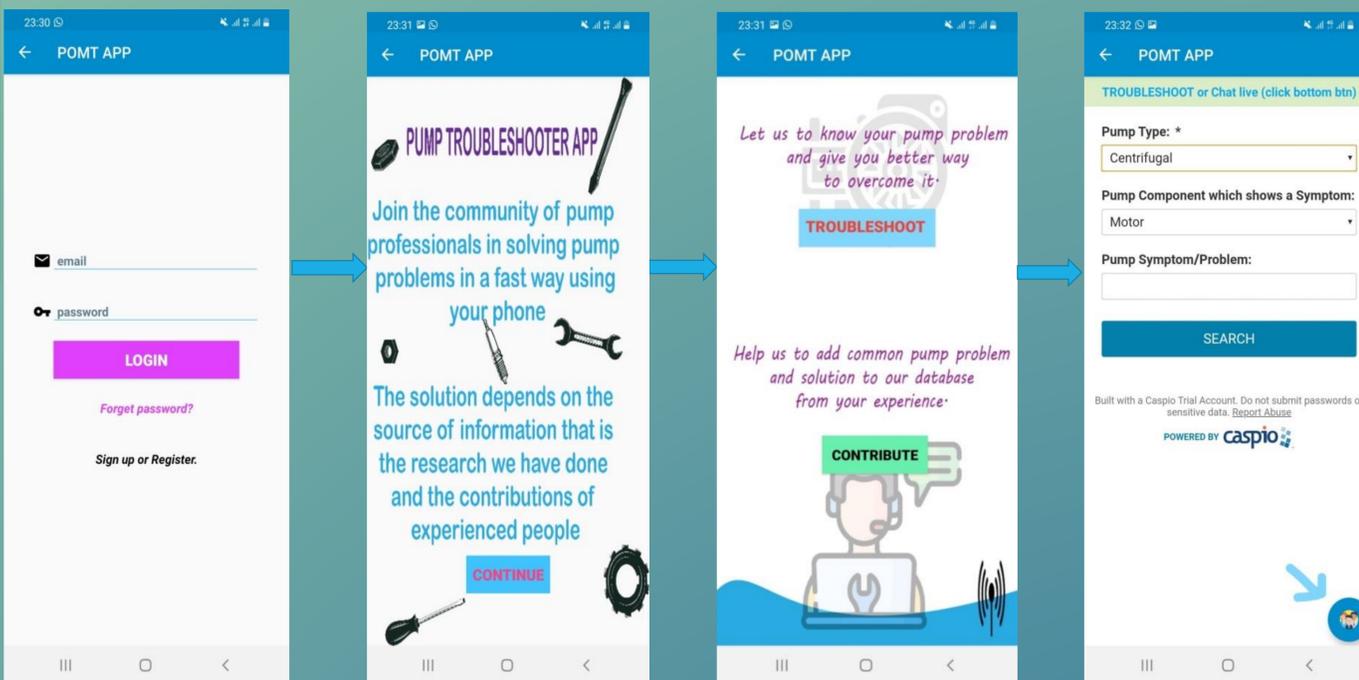


Fig. 4: Android App showing operation of the system

This application has a database that stores and keep record of all the users. The operator only has access to this database

Summary and Conclusion

- Reliability and availability of water will be ensured if the supply becomes continuously.
- Failure of the water pump often makes the water source inaccessible until the pump is repaired
- Hence, this application acts as a basis which will guide the pump operators and engineers to address the symptoms of the problems immediately as they appear in order to ensure reliability and availability of water supply.