GROUNDWATER MANAGEMENT

The Montserrat Experience

Global Water Partnership Caribbean

Case Study

GROUNDWATER MANAGEMENT IN MONTSERRAT

BACKGROUND

Due to the high-permeability surface geology in volcanic islands such as Montserrat, water supply relies heavily on the production of springs and groundwater aquifers. Groundwater usually requires energy intensive equipment for abstraction and distribution of the resource. Unfortunately, due to an inconsistent power supply, there is a growing need for an alternative power source in Montserrat. Therefore, this project aimed to enhance energy performance at three (3) pumping stations that supply potable water to the island, through the purchase of an alternative energy sources.

As a response to this issue, the installation of Automatic Transfer Switches (ATS) was implemented by **Montserrat Utilities Limited (MUL),** from August 2021 to April 2022. This project was funded by the **Small-scale Integrated Water Resources Management (IWRM) Grants** awarded by the **Global Water Partnership-Caribbean (GWP-C)**. The project benefits the island by preventing monetary losses, and the incursion of additional overhead or maintenance costs that can occur due to human errors. Also, the automatic switching guarantees that the required water level throughout the island is maintained. Finally, it helps increase efficiency and productivity in the water department, as workers are no longer required to visit the different pump stations/reservoirs because of power outages; this will allow them to perform other duties on the job. The reduction in the downtime at the pump station improves the overall lifetime of the pump, which saves the utility on maintenance costs.

ACTIONS TAKEN

In order to achieve the successful implementation of the project, the following steps were taken:

1) Sourcing of ATS from Simply Reliable Power Inc.

2) Procurement and Shipping of ATS

3) Clearing of the ATS from Customs and Port Authority

4) Dismantling and removal of the old manual transfer switches

5) Installation, configuration, testing and running the new ATS

OUTCOMES

MUL co-financed this project from the Water Distribution budget to complete the required transaction of purchasing the ATS.

Once the purchase of three ATS was completed, the switches were installed at pump stations 1, 2 and 3.

The installation provided easier transitions and quicker response times when switching between the main supply and alternative source during power outages.

By installing the ATS, dependency on human labour was reduced due to the automatic switching between the two power sources.

Installing an ATS will keep the motor of the Pump Unit (PU) spinning at a constant speed, considerably improving energy performance at all three (3) pump stations, resulting in significant electrical energy savings and reduced water losses.

Image 1: Left: New ATS installed, Right: Previous Manual Transfer Switch.

LESSONS LEARNED

The biggest problem was the ATS's increased capital cost; consequently, for future comparable projects, MUL will conduct rigorous study to obtain accurate costings based on specifications of essential equipment from various suppliers. The duration of the project timeline will also be reduced so that bottlenecks may be quickly identified and fixed.

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