

Container Type Mobile Water Treatment Systems Case Study

CURRENT SITUATION ANALYSIS

The surface water source evaluated in the project shows seasonal variability and contains high turbidity, occasionally **reaching 50-300 NTU**, along with high microbiological contamination. Especially during rainy periods, raw water quality shows sudden and unpredictable changes.

The existing infrastructure is not able to consistently achieve the water quality required for bottled drinking water production under these variable conditions, leading to frequent process shutdowns and operational challenges. Therefore, a dedicated treatment solution providing high hygiene standards and process reliability was required.

TECHNICAL SOLUTION APPROACH

The project was completed within **approximately 8-12 weeks** using an integrated project management approach. In the first phase, site inspections and raw water analyses were carried out, and based on the obtained data, project specific process design, engineering studies, and technical drawings were prepared.

In the second phase, equipment manufacturing, skid assembly, and the automation infrastructure were completed, and the system was subjected to factory acceptance tests (FAT) prior to shipment. In the final phase, the compact system was installed on site, and following mechanical and electrical integration, the facility was commissioned through wet testing and process optimization.

Within the scope of staged commissioning procedures, the system was tested under different raw water conditions, and critical quality parameters were verified through independent laboratory analyses. After completion of performance and site acceptance tests, the facility was delivered under stable operating conditions, with operator training and technical documentation provided.



PROJECT INFORMATION



Container Type Mobile
Water Treatment Systems



200 m³/day



Democratic Republic of
the Congo



Food & Beverage Industry -
Bottled Water Production



Rapid
Commissioning



Project-Specific Design



Resistance to Variable
Water Conditions



Stable and Continuous
Operation



Operational Robustness

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ACHIEVED RESULTS

Performance tests confirmed that the system consistently and continuously meets the **quality criteria required for bottled drinking water production.**

With an efficiency of **approximately 70%**, local surface water sources were converted into safe drinking water, enabling the facility to operate with continuous production.

Thanks to **the optimized process design, fresh water, energy, and chemical consumption were reduced;** waste streams and environmental impact were minimized, resulting in a sustainable production infrastructure compliant with **international drinking water standards.**



KEY RESULTS



< 0.5 NTU Treated Water Turbidity
0 CFU/100 mL Microbiological Safety



< 400-500 µS/cm
RO Product Water Conductivity



≈ %70
System Efficiency



STABLE OPERATION
Under Variable Raw Water Conditions

