

HydroSuction Dredge

Gerbmhiz Dam, Ethiopia

Challenge

Gerbmhiz Dam is one of several hundred irrigation reservoirs constructed in northern Ethiopia to secure agricultural water supply. Over time, the 1.3 million m³ reservoir became heavily sedimented. During prolonged dry periods, the sediments dried and hardened to an estimated undrained shear strength of 50–100 kPa. Limited infrastructure required a sediment removal solution that could be deployed using local resources.



Dried reservoir sediments prior to dredging



HydroSuction Dredge field experiment

Solution

SediCon sponsored and supervised a field experiment using a 100 mm HydroSuction Dredge combined with water jetting to disintegrate the highly cohesive clay sediments.

The study demonstrated that the dredged water and sediment mixture could be reused directly for irrigation, allowing sediments to be removed without any loss of valuable reservoir water.



Project Location

Project facts

Client: Norwegian University of Science and Technology (NTNU)
Project: Gerbmhiz Dam Field Experiment
Location: Northern Ethiopia
Reservoir volume: 1.3 million m³
Implementation: 2004–2005

Results and benefits

- Successful field demonstration
- No loss of irrigation water
- Removes highly cohesive clay
- Utilized local resources
- Supports irrigation sustainability
- Sustainable sediment management

For more than 30 years, SediCon has developed and supplied proprietary sediment handling technologies from Trondheim, Norway. Our solutions for reservoirs, intakes, desanders and tunnels have been successfully implemented in hydropower projects in more than 20 countries across five continents.