

The World of **Watermaster**

NEWSLETTER • 2023

smart solution for hard work

Be Smart About Water

Maintain Reservoirs Easily

Revolutionizing Kenya's Water Management



Have you considered..

..the possible impact that the worsening global water crisis can have on your city, nation, business or environment?



Take action before the water crisis gets worse

Be Smart About Water

The world faces a water crisis due to increased water demand, intensifying climate change (droughts and floods), pollution, and the degradation of aging water management and distribution infrastructure, such as canals, dams and reservoirs. Since every country, city, community, person, ecosystem, and business needs water, we must take action to safeguard our water resources and focus on better maintaining them. Forward-thinking leaders are investing in innovative technologies and solutions to better protect and manage water resources despite growing challenges. The amphibious multipurpose Watermaster dredger is a revolutionary tool that enables eco-efficient water management with fewer machines and costs.

Water resources are invaluable. By protecting them and investing in better maintenance, you are investing in the future of your nation, community, business, and environment.

Taking action to clean polluted water bodies creates healthier ecosystems and cities. Clearing clogged urban waterways prevents flooding and saves lives and millions in damages. Maintaining silted waterways ensures safer navigation and reliable water transportation, leading to increased recreational and economic opportunities. Ensuring industrial waters are safe and functional boosts operations and protects surrounding natural waters and residential areas.

The multipurpose Watermaster dredger combines the capabilities of multiple conventional machines into one powerful solution, allowing you to achieve more results while reducing costs, saving time, and protecting the environment. With its amphibious, self-propelled design and the ability to anchor and work independently, the Watermaster empowers you to tackle remote and challenging shallow water sites that would be too difficult or expensive to carry out using conventional equipment. Operating seamlessly in aquatic environments, the Watermaster helps you minimize disruption to surrounding ecosystems while effectively performing your essential water conservation tasks.

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The Watermaster has proven to be an important tool in Kenya (pages 6-7), aiding in the restoration of reservoirs, prevention of floods, and maintenance of waterways. It has successfully addressed challenges like pollution, siltation, and invasive aquatic vegetation, contributing to the overall well-being and safety of communities and facilitating economic growth through the fostering of a flourishing environment.

Don't wait for the water crisis to get worse before taking action. Invest in the future of your waters with the Original Watermaster, the smart solution for hard work.

Yours sincerely,
Watermaster Finland

Aging reservoirs face numerous challenges that can have severe consequences, including murky polluted waters, flooded homes, destroyed habitats, and reduced hydropower capacity

Using smart technology to maintain aging reservoirs

Maintain Reservoirs Easily

Water reservoirs play a crucial role in many communities, providing a reliable source of clean water for domestic and industrial use, helping to control flooding, supporting agricultural production, and the generation of hydropower. However, these important water resources can be challenging to maintain, and they often become neglected over time. Aging reservoirs face numerous challenges that can have severe negative impacts on the environment, local communities, and the economy. In this Newsletter, we discuss these issues in more detail and explore how the Watermaster dredger offers a modern and effective solution to maintain these vital structures.

Aging reservoirs face challenges like **silt build-up, eutrophication, invasive vegetation, and pollution**, leading to **reduced capacity, compromised water quality, and potential dam and reservoir failure**. For local communities, this can result in **water scarcity, increased flood risk, lost land resources, destroyed aquatic habitats, and worsened pollution**. Economic consequences may include **costly repairs, higher water treatment costs, and revenue loss from tourism and hydroelectric power**.

Given the severity of these problems, it is essential to prioritize proper maintenance of aging reservoirs. **Traditional methods of maintenance using conventional machinery and techniques can be costly, time-**

consuming, and harmful to the environment, which has contributed to the lack of maintenance in the past. That's why the **Watermaster is a game-changer**.

THE WATERMASTER SOLUTION

Watermaster is an innovative amphibious multipurpose machine that can efficiently maintain water reservoirs and other shallow water bodies with its **quickly changeable heavy-duty work attachments for suction and backhoe dredging, raking and pile driving**. Thanks to its compact size and amphibious design, it can **operate in narrow and shallow waters and easily access hard-to-reach areas**. Watermaster is a powerful tool that can effectively remove silt, trash, debris, and vegetation from reservoirs, improving storage



Watermaster operates safely and accurately in lined reservoirs without damaging the bottom

capacity and water quality while mitigating the negative impacts of sedimentation on the environment and local communities.

The Watermaster offers a **self-sufficient and eco-friendly** approach to reservoir maintenance, reducing the reliance on extra equipment and manpower. Watermaster's state-of-the-art Cutter Pump is designed to remove precise layers of sediments with minimal water disturbance. The cutter's protective bottom plate, Watermaster's smooth front floats, and the walking shoes on the rear stabilizers enable safer and more careful working in reservoirs with artificial bottoms, such as concrete or geofabric lining. →

MAINTAIN RESERVOIRS EASILY

The Watermaster is easy, quick and economical to mobilize, and it can reach and operate in challenging shallow water locations. Watermaster enables to complete reservoir maintenance projects eco-efficiently with fewer machines, saving you costs and time.

1. MOBILIZE THE WATERMASTER QUICKLY AND ECONOMICALLY



TRANSPORT AS A COMPLETE UNIT



ENTER WATER WITHOUT CRANE ASSISTANCE



CRUISE, ANCHOR AND WORK INDEPENDENTLY

With Watermaster's fully independent operation, you'll enjoy cost savings and operational freedom. Say goodbye to expensive crane assistance, long setup-times, and the need for tugboats and other assisting equipment. Simply drive to the site and get to work!



2. OPERATE IN THE MOST CHALLENGING LOCATIONS



IRRIGATION AND DRINKING WATER RESERVOIRS



HYDROPOWER RESERVOIRS



LINED RESERVOIRS FOR INDUSTRIAL USE



URBAN FLOOD CONTROL RESERVOIRS

3. TAKE CARE OF ALL MAINTENANCE WORK WITH ONLY ONE MACHINE



DESILT BY SUCTION DREDGING



CLEAR SEDIMENT AND REEDS BY EXCAVATING



REMOVE EXCESSIVE VEGETATION BY RAKING



STOP SHORE EROSION BY PILE DRIVING

"The Watermaster can independently enter and move in the water, making us capable of handling tasks in otherwise inaccessible areas"

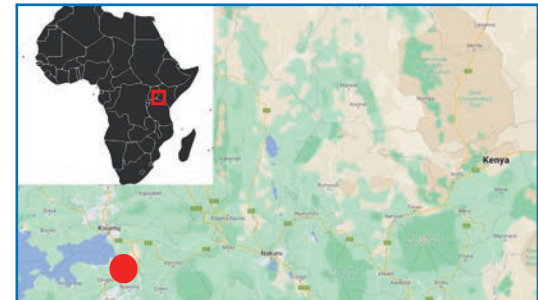
- Mr. Paul K. Karuga, Managing Director, Bainridge -



Bainridge and Watermaster technology

Revolutionizing Kenya's Water Management

Bainridge, a frontrunner in East African environmental management solutions, deploys the innovative features of Watermaster amphibious multipurpose dredger to revolutionize water management in Kenya, starting with the restoration of the Sondu Miriu Dam. Faced with numerous challenges such as invasive vegetation, siltation, and pollution, Kenya's many dams require immediate action to ensure cleaner water sources, improved energy generation, and flood prevention. By adopting Watermaster technology, Bainridge is leading the way in creating new solutions to these pressing issues, paving the way for a brighter future for Kenya's water systems and the safety and well-being of its citizens.



Sondu Miriu Dam is situated in western Kenya, near the city of Kisumu

INTRODUCTION

Kenya's dams perform vital functions, from supplying irrigation water and generating hydropower to controlling floods. However, these **aging dams**, some of which were constructed over 60 years ago during the colonial era, now grapple with **significant challenges** such as serious siltation, invasive aquatic vegetation, and pollution. These issues considerably **compromise their performance and safety**. Answering these challenges, Bainridge is employing **Watermaster's cutting-edge technology**, already in use in over 80 countries worldwide. Their goal is to revolutionize water management in Kenya and breathe new life into its water bodies.

WATERMASTER TECHNOLOGY

Bainridge came to know about the Watermaster through conversations with the company's Kenyan representatives, which led to an enlightening tour at their production plant in Finland. Recognizing the **versatility, mobility, and impressive performance of the Watermaster for all shallow water works in 0-6 meter depths**, Bainridge found it to be a **perfect fit for their operations** and seized the opportunity to invest in the technology to address urgent issues plaguing Kenya's dams and waterways.

According to **Mr. Paul K. Karuga**, the Managing Director at Bainridge, Watermaster's ease of transportation,

along with its amphibious and self-propelling capabilities, enable Bainridge to carry out projects even in the remotest and most difficult locations. **"The Watermaster can independently enter and move in the water, making us capable of handling tasks in otherwise inaccessible areas"** Mr. Karuga explained. Moreover, the Watermaster's impressive capacity to **suction dredge** up to 900 cubic meters per hour, **excavate** up to 100 cubic meters per hour, and its ability to effectively clear large areas of invasive aquatic plants by **raking**, as well as **drive piles** from the water-side using a vibratory pile driver, **equip Bainridge to tackle a diverse range of shallow-water projects in the future.**

RAKING

REMOVAL OF INVASIVE HIPPO GRASS WITH THE RAKE



EXCAVATING

REMOVAL OF EXCESSIVE SILTATION WITH THE 600L BACKHOE BUCKET



SUCTION DREDGING

REMOVAL OF EXCESSIVE SILTATION WITH THE CUTTER PUMP



The multipurpose Watermaster increases the dam's reservoir water holding capacity by effectively raking out invasive hippo grass and by removing excessive siltation via excavating and suction dredging.

RESTORING THE SONDU MIRIU DAM
The Sondu Miriu Dam, managed by KenGen - the leading electric power generating company in East Africa - faced numerous challenges. From invasive hippo grass to excessive siltation, these difficulties reduced the dam's efficiency and limited access for local fishermen. In order to overcome the challenges, **KenGen turned to Bainridge for their expertise and innovative Watermaster technology.**

Bainridge devised a comprehensive strategy to address the issues plaguing the dam. Initially, the Watermaster was tasked with **removing over 150,000 square meters of invasive hippo grass**, effectively opening and widening the basin. The subsequent tasks will involve **excavating and suction dredging hundreds of thousands of cubic meters of sludge** to increase the reservoir's holding capacity, which will ensure cleaner water sources, improved energy generation, and enhanced flood prevention.

In an effort to further enhance local access to the dam, plans have been laid out to **construct foot bridges that would enable villagers to safely cross the river** upstream from the dam. The foundational piles for these bridges **can be driven using Watermaster's vibratory pile driver attachment.** This robust strategy not only ensures the long-term sustainability of the dam but also serves the needs of the local community.

SUPPORT FROM AQUAMEC FINLAND
Bainridge has been highly appreciative of the support they have received from Aquamec Finland, the manufacturer of the Watermaster technology. **"Aquamec Finland has provided outstanding support in terms of training, spare parts, and after sales support.** Their dedication to ensuring the success of our projects has been truly commendable, and we couldn't have achieved our goals without their expert guidance," said Mr. Karuga.

EXPANDING THE SCOPE
Following its success at the Sondu Miriu Dam, Bainridge intends to apply the Watermaster dredger to diverse tasks across the region. This includes desilting dams for water security, and dredging and removing vegetation from various inland water bodies and coastal sites around Kenya.

CONCLUSION
Bainridge's adoption of Watermaster technology is a significant step towards resolving Kenya's water challenges. Mr. Karuga captures the mission: **'Water is life. By revitalizing our water bodies, we directly improve people's lives.** This isn't just about infrastructure; it's about ensuring our communities have reliable access to clean water and energy, sustaining healthy ecosystems and improving the flood-resilience of our cities.' With this commitment, Bainridge and Watermaster are making a transformative impact on water management in Kenya and beyond.



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*Mr. Paul K. Karuga | Bainridge
(in the picture)*

Find more Watermaster news,
case examples, pictures and videos
from our social media channels:



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through our website:

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