

The World of **Watermaster**

NEWSLETTER • 2015

smart solution for hard work

Large-scale environmental dredging work

Solving shallow water projects globally

Saving Dal Lake for future generations



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www.watermaster.fi



Ten new Watermaster Classic IV units were delivered to The Philippines during the past 12 months

The growth of urban population is a trend that is likely to continue in future decades. More than half of the people globally are already living in densely populated areas. More people means more strain on the environment - urbanization is exerting increasing pressure on urban water systems and indirectly on rural waters as well. Water related problems have emerged as one of the most critical environmental issues around Asia, Africa and South America.

In many parts of the world urban and rural inland waters collect massive quantities of untreated domestic, municipal, agricultural and industrial waste water. The root causes of the pollution need to be addressed accordingly, but Watermasters can help with the restoration work.

Large-scale environmental dredging with the best available technology is a necessity in order to reach positive long-term environmental goals and economic revitalization.

Cleaning and deepening of urban canals and all shallow waterways by suction dredging and backhoe dredging, removing of invasive vegetation by raking, strengthening of river banks by piling and building of infrastructure in water environment – this is what 300 Watermaster units are used for in over 65 countries.

A mobile fleet of Watermasters is the smart solution for governments, municipalities and construction and dredging companies that

need to work in shallow waters. Flexible Watermasters can be utilized in all applications from dry ground to six meters depth, that would otherwise need separate single purpose machines. The Integrated Watermaster Advantages (IWOS & IWSS) ensure the efficient, economical and trouble-free performance.

It is important to remember that massive challenges (such as maintaining a whole navigable canal system of a metropolis) require a matching number of Watermasters in order to carry out the projects in a reasonable timescale. A project that would take one Watermaster 20 years to complete is ready in two years when you work with 10 Watermaster units.

The current declining condition of inland waters worldwide can be changed. The required machinery is existing and available.

On the following pages we have gathered examples from around the world, where Watermaster technology has played a pivotal role in solving large-scale shallow water problems.

We look forward to hearing from you to discuss Watermaster's suitability for your projects.

Yours faithfully,
AQUAMEC LTD.

Lauri Kalliola
 Managing Director

Solving shallow water projects globally



Watermasters working in Jakarta, Indonesia

Indland and coastal waters are problematic for many. The required maintenance, restoration and construction work is challenging due to the shallowness, narrow places, stones, trash, vegetation and water traffic. The majority of the work in shallow waters is still today done with machinery poorly suited to the task and that lacks the mobility, versatility and robustness required in these environments. The old-fashioned methods are uneconomical, environment straining, slow and sometimes even dangerous. Fortunately, the smart way is advancing.

Traditional dredgers are single purpose, they are expensive and slow to transport, launch and operate.

Operating with versatile Watermasters brings continuous benefits: lower total investment and operational costs, wide application and work depth range and high utilization rate. It is the modern way to handle shallow water work.

The fourth generation Watermaster Classic IV technology is highly evolved. The concept has been continuously developed since 1986 enabling Watermaster to provide proven performance.

Watermasters are equipped with state of the art submersible Watermaster Cutter Pumps. The IWOS (Integrated Watermaster Operating System) enables 50 % to 100 % more effective pumping time (of the total operating time)



River dredging, China

compared to conventional machines. Watermasters do not block the traffic when working in busy waterways because the operation is independent without separate anchors, winches or wire-cables.

Large-scale shallow water dredging requires large-scale dredging capacity. Traditional dredgers are available in big sizes, however large-scale vessels with limited mobility are poorly suited for inland waters.

With a fleet of amphibious multipurpose Watermasters you are equipped to handle all kinds of environments and projects of all sizes.

The work attachments, such as Watermaster Cutter Pump and vibratory pile driver, are interchangeable between all Watermasters – it is not necessary to acquire all the attachments for every unit in the Watermaster fleet, which will lower the investment costs.

Watermaster is the number one solution in the world for environmental shallow water work. We keep systematically improving our technology and services to bring you the best concept now and in the years to come.



Amphibious Multipurpose Watermaster

Is the right choice for you when:

- you require a cost-effective overall solution for all shallow water work
- your machinery needs to be transported regularly by water or by road
- your projects have mixed conditions with changing depths and many kinds of soil types, stones, trash, vegetation and thus require many kinds of work: suction dredging, backhoe dredging, raking, piling or hammering
- there is a need to do precise dredging - the right amount from the right place
- you want to minimize your downtimes by using proven technology and service for longterm operation



Numbers

- Watermasters are currently operating in over 65 countries - on all continents
- Over 300 references
- Continuously developed and manufactured since 1986
- Present day model is Watermaster Classic IV - the fourth generation technology

Mexico

- Deepening and restoring of silted waterways in coastal areas and inland waters
- Removing of vegetation and trash



Finland

- Maintenance of process water ponds and tailings ponds in mines and enrichment plants
- Environmental restoration work in inland waterways



Russia

- Construction projects in water environment
- Trenching and laying of pipeline and cable in shallow water areas
- Maintaining of urban canal systems



China

- Restoring and maintaining of rivers, lakes, ponds and basins
- Cleaning of polluted water systems



The Philippines

- Tens of Watermasters **working in flood** prevention, waterway maintenance, removal of invasive vegetation and urban canal cleaning applications



Colombia

- Restoring and maintaining of shallow waterways and shores



Zambia

- Restoring and maintaining of shallow waterways
- Removing of invasive vegetation



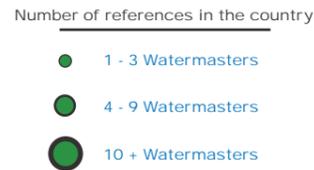
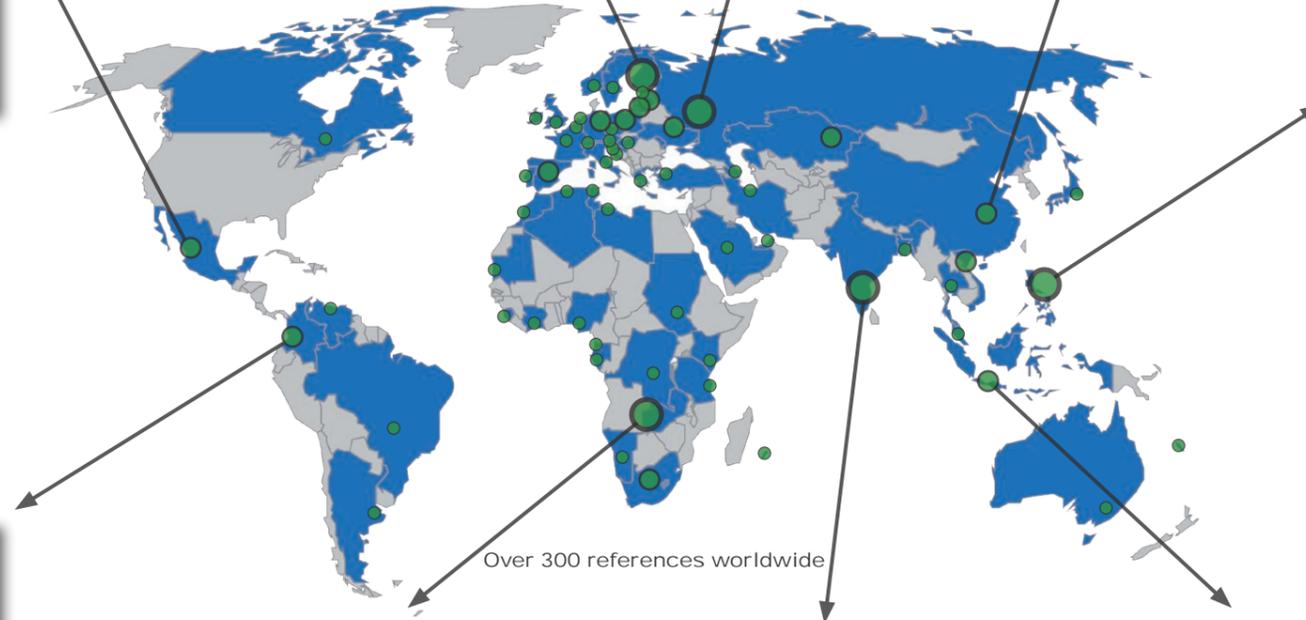
India

- Deepening and maintaining of shallow waterways
- Flood prevention
- Maintaining of urban canal systems
- Removing of invasive vegetation



Indonesia

- Flood prevention
- Vegetation and trash removal
- Maintaining of urban canal systems

Back-up

- Internationally available high quality components - easy to find spare parts locally
- Direct local guarantee service for the engine from the local Caterpillar service point
- Several local Watermaster spare parts and service centers internationally
- Centralized spare parts stock at the Watermaster factory in Finland supporting service centers and end clients worldwide
- Every delivery includes field training at the customer's work site by an authorized Watermaster trainer

Saving Dal Lake for future generations

Briefly

Project info

- The famous Dal Lake is located in the City of Srinagar in India
- The ecological condition of the lake had deteriorated during past decades
- Two Watermasters were acquired for the restoration work - the work began in 2010
- Massive amounts of silt and vegetation have been removed and the work continues



Dal Lake, the beautiful landmark of the city of Srinagar in India, has attracted tourists for decades from all over the world. Travellers admire the wonderful views and take part in the unique way of life by relaxing in the houseboats, visiting floating islands, and sailing around in wooden shikara boats. In general, Dal Lake has been a vital part of the Jammu and Kashmir state's economic and cultural development.



Dal Lake, "the Jewel in the crown of Kashmir" is located in the City of Srinagar, Jammu Kashmir, India

However, there were concerns about the ecological conditions of the lake. The signs were alarming: waters had gotten murkier, the vegetation had overgrown and the waste and pollution were visible to everyone. Would the jewel of the state survive for future generations?

A complex case

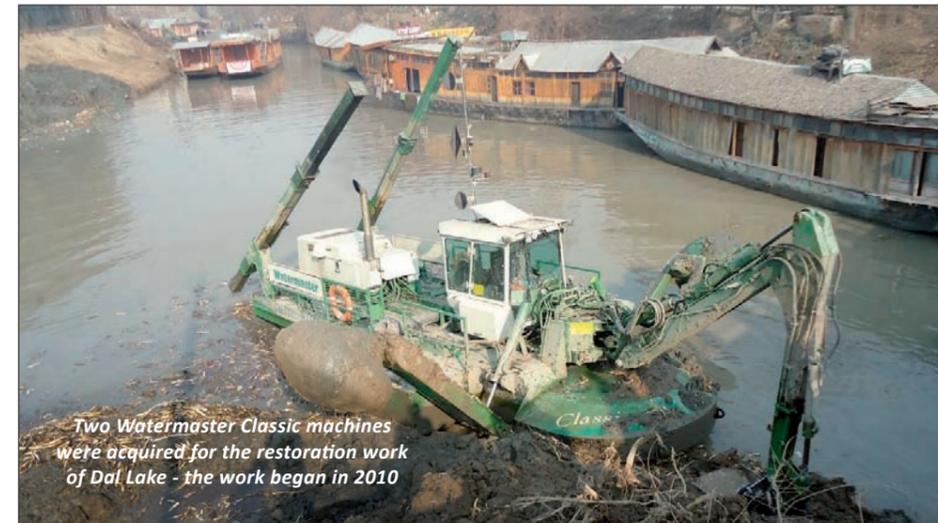
Dal Lake has been an important source of livelihood for local people for decades, especially in the trades of agriculture and tourism. There are about 50 000 lake-dwellers on Dal Lake who live in houseboats and hamlets in the so-called floating islands. There is also a great number of tourists every year and the commercial development, including hotels and restaurants has increased over the years. Therefore, it was not a surprise that the anthropogenic strain on the lake had taken its toll on the lake's ecosystem.

In addition, there was the serious issue with pollution. Untreated sewage, pesticides, fer-

tilisers, and other effluents ended up in the lake.

The extensive use of the lake and pollution affected the lake in various ways. There were serious problems with eutrophication caused by nutrients from fertilisers, urban waste, and soil erosion. The siltation was out of control. The studies showed that there were significant hydrological and physical changes in the lake. For example, there was an alarming decrease in water transparency, the lake had become shallower and smaller in size, and the quality of the water was so poor that the biodiversity of the lake had also suffered including the decline in plant and fish diversity. In addition, the lake had become a health risk for dwellers and tourists alike.

There had been several attempts to implement a restoration programme for the lake



area during recent decades. Despite the efforts to reduce the problem by establishing new sewage plants, minor dredging and de-weeding, the Dal Lake ecosystem was continuously deteriorating. There was no consistent funding and governance of the programme, and there had been a lack of consensus regarding the scope, principles, and methods of the restoration and future conservation.

The restoration begins

The definitive steps to conserve the Dal Lake were finally taken in earnest in 2002. The Jammu and Kashmir High Court ordered LAWDA, The Lakes and Waterways Development Authority, to procure machinery for the restoration programme.

After years of research, planning, and preparations and in order to achieve results in an effective manner, authorities chose two amphibious multipurpose Watermaster machines as their flagship equipment. The machines, designed and manufactured in Finland by the company Aquamec Ltd, started their work in 2010.

Watermasters have been successfully used in hundreds of conservation projects around the world. Watermaster is a highly automated device that is easy to transport and mobilize. In Dal Lake the need for machinery such as Watermaster was especially crucial. Because of its ability to crawl on dry land and in shallow waters, Watermaster was used for dredging, excavating, and de-weeding in areas where other dredgers and harvesters had not been able to function.

Success encourages further conservation projects

Watermasters have gotten busy in Dal Lake area. The authorities estimated in 2011 that in a year and a half more than 80 000 cubic meters of de-weeding and 12 000 cubic meters of dredging as well as 40 000 square meters of lily pads had been extracted from the lake.

The results have been good but the work continues. In fact, last year the University of Kashmir and Ashoka Trust for Research in Ecology and Environment launched a collective project in order to develop an action plan for Dal Lake in the future. The project is funded by the United Nations Development Program.

The progress at Dal Lake has encouraged other regional authorities to follow the Dal Lake model. The Government of Rajasthan decided to model its own lake conservation efforts on that of Dal Lake. The city of Jhelum obtained the Watermaster machine used in Dal Lake in order to use it in de-silting and other excavation work. They attributed their choice of machinery to the Dal Lake success. Chandigarh administration also aims to save Sukhna Lake by using the experiences in the Dal Lake as an example. Until now there have been ten Watermasters in use in various locations in India.

However, the most important thing for the future of Dal Lake is that the local community has embraced the cleaning and conservation project and wants to participate in it. That is perhaps the strongest insurance for the survival and future health of Dal Lake and its unique way of life.



Watermasters in India

Watermasters are playing an increasingly significant role in maintaining the national waterways of India

- Ten Watermaster units are currently maintaining waterways and urban water bodies around the country
- A substantial amount of units will be required for maintaining the extensive inland waterway system of India
- Several units are planned to be delivered during the next two years

Meet us at

**Exhibition list
can be found from our
NEW UPDATED
WEBPAGE:**

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