

BARSHA PUMP TO IRRIGATE FIELDS WITHOUT USING ANY FUEL OR ELECTRICITY

The [Barsha Pump created by the aQysta company](#) to irrigate fields without using any fuel or electricity has been recognized as an innovative solution that address the Sustainable Development Goals (SDGs) by the [2018 UN Solutions Summit](#).

The pump works on an optimized spiral principle and is designed as a sustainable, low-maintenance, low-cost irrigation pump to enable rural communities to increase their crops.



The *Barsha Pum* has been designed and built by the aQysta Company in 2012. So far, more than 200 units of the Barsha Pump have been installed in different countries with a significant [socio-economic and environmental impact](#) for local people.

Although the Barsha pump is a new product, it is based on a very old design. [The pump itself is essentially a water wheel on a floating platform, that's moored in a nearby flowing river.](#) The moving water rotates the wheel that in turn utilizes a spiral mechanism to compress air. That air drives water through an attached hose up to the fields.



This hydro-powered pump [can easily be implemented anywhere where there is flowing water nearby](#) and requires very little maintenance. The pumps can be used as a stand-alone unit to pump water to the field or can be combined with other complementary technologies like drip or sprinkler irrigation systems.



The modular structure allows water to be scooped up and pumped towards a location up to 2 km inland, making it an ideal solution for small- and mid-sized farms situated near rivers and canals that require continuous access to water for irrigation. The current version with 1.5m in diameter is able to lift up to 20 meters vertical head and 2 km inland in flat lands, while reaching up to 20,000-80,000 liters of water per day, depending on the flow velocity of the water.

According to its designers the *Barsha Pump* can save over 70% of watering costs for farmers, compared to conventionally-used fossil-fuel based pumps.



The Watermelon Impact

1 Watermelon = 5 kg average
Yield per hectare = 35 tons
1 Barsha pump can irrigate 2 hectares
Yield per season = 70 tons
At 5 cents per kg = \$3,500 income per season

It also creates no emissions and can be built from locally-available materials.

The Barsha Pump is a sustainable and economical alternative to other irrigation solutions such as diesel- and solar-powered pumping. While the initial investment of diesel powered pumps is low, it induces operating and maintenance costs in the form of constant repairs and re-fueling. According to its designers the Barsha pumps are up to 70% cheaper than the conventional diesel/gasoline pumps and should provide a return on investment in less than one year compared with the 10 years of the diesel-powered pumps.

Solar pumps, on the other hand, require a large initial investment and access to trained personnel if repairs are needed. The simple design of the Barsha Pump induces virtually no operating or maintenance costs.

The Barsha pump has been designed by the aQysta start-up Company founded by three engineers from the Delft University of Technology in Netherlands. The Company's goals are to develop technologies that provide economic benefits without hampering the environment and empowering the society.

In 2012 the first prototype of the Barsha Pump won the [Philips Innovation Award](#). In 2014 the Climate-KICs Venture Competition recognized aQysta as the most innovative clean-tech venture. In 2016 the [Barsha Pump has been awarded by the Siemens Stiftung Foundation](#). After installing the first Barsha Pump in Spain, the [Innovagri initiative](#), which associates a Community of Innovative Farmers, valued the ecological characteristics of this hydro-powered pump.

To know more

[aQysta website](#)

[Barsha Pump in Facebook](#)

[2018 UN Solutions Summit website](#)

[Article in Siemens Stiftung website](#)

[Climate-KIC website](#)

[Article in reset.org](#)

[Article in consciuslifeneews.com](#)

[Barsha Pump in engeneeringforchange.org website](#)

[Photos in flickr.com](#)

[Barsha Pump in Youtube](#)

