

## Backgrounder

### About Us

aQysta is a water and agricultural sustainability start-up. Founded by Lennart Budelmann, Fred Henry, and Pratap Thapa in 2013, aQysta operates from the Yes! Delft incubator at the Delft University of Technology in The Netherlands. Through our Barsha pump (Nepalese for “rain pump”), a zero-emission hydro-powered irrigation pump, we seek to empower farmers and better involve them in the fight to counter climate change to ensure a sustainable food future for the world. Today, we are working to bring Barsha pumps to farmers in Nepal, where only a mere 21 percent of land is cultivated due to the challenges that the hilly landscape presents.



We have received the following accolades in the areas of agricultural and water innovation:

- Dow Sustainability Innovation Student Challenge Award (2012)
- Climate-KIC Venture Competition’s most innovative clean tech start-up award (2014)
- Securing Water for Food project partnership (2014)

### Climate Change is Real

As climate change alters global temperatures, water availability, and precipitation patterns, access to water and improved irrigation practices are not a luxury – they are a necessity. According to the results of a 2010 Securing Water for Food (SWFF) study, farmers with limited or no access to irrigation are most vulnerable to precipitation volatility. Further, water availability is projected to decline as the effects of climate change and population growth continue to climb. Without reliable and efficient access to water, farmers around the world will struggle to feed our growing global population and maintain their livelihoods.

### Delft University of Technology Barsha Pump Study Results

Graduate engineering and agricultural sciences students at Delft University of Technology performed a longitudinal 18-month study to test our Barsha pumps against traditional gas and diesel-powered irrigation methods. Researchers performing the study, which concluded in September 2015, asked 100 Nepalese farmers to use Barsha pumps, and another 100 to continue using traditional irrigation pumps. Over the

course of 18 months, researchers tested crop production, farmer satisfaction, and pollution levels in both the experimental and control groups. The results were staggering.

- Farmers using Barsha pumps grew *three times* as much rice and corn as their counterparts who used traditional irrigation methods
- Post-test interviews and surveys showed that *86 percent* of farmers using Barsha pumps reported feeling “extremely satisfied” with the performance of the pumps
- *98 percent* said that they would continue to use the pumps with further education
- Over 18 months, greenhouse gas emissions from farms in the experimental area were *significantly reduced*

### **There is a Better Way**

We seek to empower people on a global scale. By putting water, the lifeblood of agriculture and civilization, at the heart of our mission, we hope to drive agricultural development and progress by drastically improving access to this valuable resource. Our Barsha pump offers a solution not only to the geographic agricultural struggles of farmers in Nepal and around the world, but also to the growing and urgent problem of climate change. At aQysta, we live and breathe sustainability.

- Our Barsha pumps are entirely hydro-powered and do not emit any harmful pollutants or greenhouse gases
- Barsha pumps are affordable and require very little upkeep
- We seek to involve our end-users throughout our development and implementation process, and intend to instill a sense of ownership and responsibility among farmers
- We plan to bring Barsha pumps to scale across Nepal, and later to other nations around the world, to increase the availability of arable land while decreasing greenhouse gas emissions

#### **Contact Information**

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