AMGC
ADVANCED MANUFACTURING GROWTH CENTRE LTD

WATER PURIFICATION UNIT

WATER SOURCE AUSTRALIA

Water Source is a startup business with a great idea and a focus on social impact, both in Australia and abroad. They have taken a remotely-monitored and operated water treatment system past the proof of concept stage and are edging closer to commercial reality. The unit will be suitable for small-scale applications, with a daily output of roughly 4,000 litres, and should require no maintenance for at least five years.

How the Growth Centre helped:

The AMGC assisted development of the product through a $250,000 co-funded project. Water Source also praises the moral support and guidance provided by the Growth Centre.

What's changed:

The collaboration, also involving RMIT and Bosch Australia, will optimise the ozonation of water, the stability and longevity of the filtration system, and robust communication over the machine's "Internet of Things" platform.

Success story overview

Roughly a decade ago, some of the world's leading technological thinkers arrived at a list of 14 Grand Challenges for Engineering for this century. Within the list was **"provide access to clean drinking water,"** which remains a serious challenge.

According to the World Health Organization, over 2 billion people lack **"safely managed drinking water services"** and bringing this number down is a global work in progress.

In 2015, Australian inventor Mal Gordon came up with one concept to address the problem of potable water. He floated the idea to the Adidem Group, and the company took him on to incubate the idea. The idea has since been spun out into Water Source Australia and is scaling up.

The concept uses a three-pronged strategy: combining ozonation with barrier technologies including ultrafiltration, and an IoT monitoring concept to provide an affordable, maintenance-free water treatment solution near the point of consumption.

“Previously, or in an aggregated water supply system, you have to test the pipeline and all the water to see the water’s safe, and you have to have additives like chlorine. Should the machine break down, or if your water processor breaks down or your pipeline breaks, you’ve got a real issue and it’s an emergency situation,” explains Alex McDonald, CEO of Water Source.

The technology has passed the proof-of-concept stage, and is currently in use in Timor Leste, where a great deal of drinking water has to be bottled or boiled due to a lack of infrastructure. The remote system is monitored minute-by-minute over the internet back in Melbourne.

Remote monitoring of the process chain, including barriers and ozone, of these units which can fit on the side of a house allows for preventative maintenance

“We can monitor performance, and also we can manipulate performance,” says McDonald.

“By that I mean if the system’s UF filter is underperforming because it may have some sediment buildup, we can command a backflush from Melbourne to clean that filter up and bring it back to optimal performance remotely.”

Depending on variables, such as, water pressure, 4,000 litres a day of verified potable water can be produced per day, running at 20–30 per cent duty cycle.

The performance of Water Source’s solution is being refined through a collaborative project involving RMIT and Bosch Australia, and assisted by a $250,000 co-funded project from the Australian Manufacturing Growth Centre.

“Bosch is helping make sure that the units are manufucatured as professionally as possible as well as improving the control system and communications systems, to allow us to be in a whole lot of different scenarios,” he says.

“We want these systems to work in East Timor as well as on the outskirts of Melbourne, so we are making sure that we stabilise and harden up the communications systems and ensure they work across as many platforms as possible.”

RMIT is assisting, “so that ozone is used in the most effective way it can possibly be within the water profile of the unit; ensuring it’s injected at the right dose in the right place,” McDonald added.

The goal is to have a system that can run stably and unattended, and with no change of consumables required for five years. The commercial and social impact potential is vast, and Water Source predicts $20 million in new revenue and 15 high-skill jobs could be created in the medium-term.

Collaborating with the project partners, and with others including Heuch Engineering and Coliban Water, has been essential to meet the required pace of invention.

“You have to be fast to meet the market, because there’s a lot of competition out there wanting to develop point of entry water technology,” says McDonald.

Of the AMGC, their backing was “really important” to Water Source, in terms of both finance and validation, and affirming “we have people to take the walk with us,” says McDonald.

“The thing for us with AMGC was having them look at what we were doing and say ‘You know what? This is really important for the country, and we’re prepared to invest,’” he explains.

“What was important was somebody else was prepared to say ‘Yep, we’re prepared to back it as well.”