

Clean Water Wave

We're a **social enterprise** that's dedicated to generating **entrepreneurship** through **clean & safe drinking water**.

We want to work with partners in-country to use a social enterprise model to help establish **local social enterprises** that sell clean & safe water using our ground-breaking filter – the **Clean Aqua For Ever (CAFE) water filter**. The CAFE filter is a sustainable, long term solution to provide clean & safe water to rural and peri-urban communities across the world. The locally based social enterprise model **generates jobs**, promotes **training & skills**, and enables communities to access **affordable drinking water** that meets EU standards.

As well as developing the innovative CAFE filter, Clean Water Wave is dedicated to helping train and up-skill community managers so that the filter can be **managed sustainably** for the long-term benefit of the communities it is deployed in. We want to partner with like-minded organisations to help us **pilot the CAFE filter** and the develop the local social enterprise model.

The CAFE uses Dryden Aqua **AFM** (activated filter media), backwashes automatically, and has no moving parts or controls. CAFE filters are a perfect solution to resolve drinking water issues across Africa and Asia as well as remote communities in Scotland and through-out Europe. The equipment will **work for decades**, with no maintenance except for cleaning and occasional attention.

Performance factors

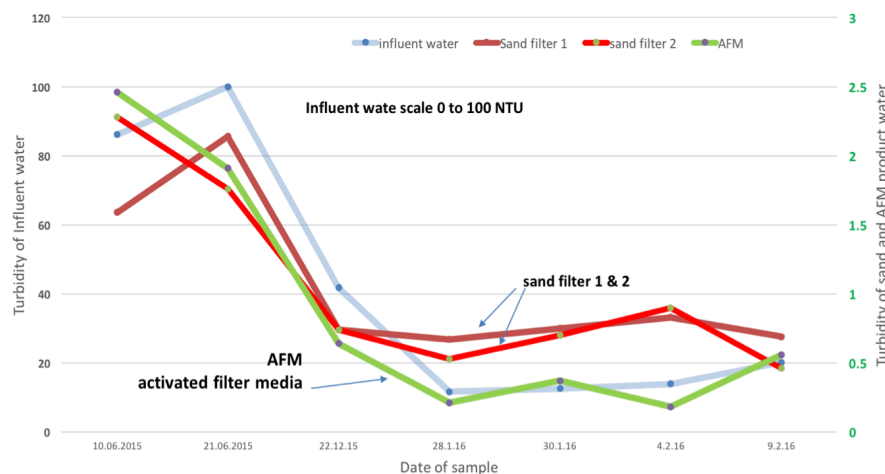
	No flocculants or chlorine	Flocculent, no chlorine	No flocculent, but with chlorine	Flocculent and chlorine
Particle size, log 3 reduction	1 micron	0.1 micron	1 micron	0.1 micron
Turbidity reduction	>95%	>99%	>95%	>99%
Cryptosporidium	> log 3 reduction	> log 4 reduction	> log 3 reduction	>log 4 reduction
Bacterium	>log 2 reduction	>log 3 reduction	> log 4 reduction	>log 5 reduction

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Why is the performance better than other systems?

1. Most Rapid Gravity filters (RGF) operate at a flow velocity of 6m/hr; the **CAFE filter runs at 2m/hr**. Filtration performance is inversely proportional to filtration velocity, so the flow is slowed down.
2. All RGF filters for municipal supplies of drinking water use sand media close to 16 x 30 grade (0.5 to 1.0mm). The sand is not certified and varies greatly in quality as well as performance. The **CAFE filter uses grade 0 AFM** (0.25 to 0.50), which provides for a much better performance than sand. AFM also adsorbs small sub-micron particles and is manufactured under controlled conditions to an exact specification. **AFM was verified by IFTS** to be an order of magnitude better than sand for the removal of suspended solids under 5 microns.
3. All RGF filters suffer from bio-dynamic instability leading to transient channelling of unfiltered water into the product water. In countries with ambient water temperatures are under 20°C, sand filter performance is usually better than 99.5%. In countries over 20°C, filtration performance is typically over 98%. It only takes a filter to fail 0.1% of the time to cause disease among people supplied by the network. Our CAFE filter may be used, or AFM may be retrofitted to replace the sand used in RGF or pressure filters supplying cities, there is no limit to the scale of the system.
4. **AFM media never needs to be changed**. This is important because the filter is designed to last for 20+ years, so the filter media must last for the same duration.
5. Better than UF ultra filtration? Yes, because **AFM will not only filters down to 0.1 micron** but will remove many particles below 0.1 microns **as well as chemicals from solution**, which is impossible for UF. Performance is better than UF, much lower cost with a system that is self-running and really easy to maintain.

Surface water turbidity: AFM v slow sand filter



AFM v the internationally deployed slow sand filter system:

- The AFM system used 1,000kg of AFM
- The sand filter used 20,000kgs of sand
- AFM reduced turbidity to a greater degree than the sand filter