Drinking water: A solution for drought-ridden Australia

Water shortages Down Under are no joke, especially when they are forcing Australian towns to consider recycled effluent for their drinking water. Portable clarifiers from Welsh separation specialist Siltbuster Ltd helped improve the country's resources by cleaning precious river water for residents in a Victorian town.

Australia has, in recent years, had one of its worst droughts on record. This has led Australian PM John Howard to warn that irrigation of much of the nation's farmland could be banned unless there is heavy rainfall. Crops, horticultural and dairy industries could be severely affected by the continuing drought and the lack of rainfall has already reduced the production of irrigated crops in the Murray-Darling river basin, which accounts for 41% of Australian agriculture and provides about 85% of the nation's irrigation supply.

It's not only water for irrigation that is in high demand – a decrease in suitable potable water has led to some towns in Australia to consider using recycled effluent, cleaned using modern wastewater filtration technology, as drinking water. However, thus far, these plans have proved to be unpopular with the public.

Bush fire contamination

In the town of East Gippsland, Victoria, Australia, a drinking water shortage was caused by another environmental disaster caused by drought – bush fires. East Gippsland Water provides water and wastewater services to 27 towns and communities in the East Gippsland region, with an authority area extending from Bairnsdale to Dinner Plain in the north and Mallacoota in the east. Recently, over 17,000 residents were affected by water shortages after tonnes of soil and debris from these fires washed into the Mitchell River causing pollution and seriously reducing important drinking-water reserves.

Siltbuster Clarifier units installed on site in Australia to help with water replenishment.

The Mitchell River is the largest unregulated river in Victoria and provides a unique example of riparian ecology. A riparian zone is the interface between land and a flowing surface water body, and plant communities along the river margins are known as riparian vegetation, and are characterized by hydrophilic plants. Riparian zones are significant in ecology, environmental management and civil engineering due to their role in soil conservation, their biodiversity and the influence they have on aquatic ecosystems. Riparian zones occur in many forms including grassland, woodland, wetland or even non-vegetative.

East Gippsland Water imposed stage 4 water restrictions (the highest level) across the Mitchell River supply area in an effort to manage water consumption and provide an opportunity to replenish the main storage at the Woodglen reservoir. Stage 4 water restrictions are in force across the Mitchell River System, which supplies much of the East Gippsland region – including coastal tourist spots like Lakes Entrance, Metung and Paynesville, along with Bairnsdale and Bruthen.

Portable clarifiers to the rescue

Siltbuster Limited, a provider of mobile silt management equipment, based in Monmouth, Wales, came to the assistance of the Australian Water Authority and helped improve this severe situation by providing ten portable water clarifier units to filter and clean polluted water from the Mitchell River.

Siltbuster designs separation units for the construction, environmental remediation and industrial sectors and most recently the municipal wastewater sector. Its product range is designed to remove suspended solids and/or oil from water. The product is particularly suitable for the construction industry, where it is used to remove suspended solids and free phase oil in water pumped off-site to either sewer or receiving watercourses.

The company operates a large hire fleet of Siltbuster FB50 units and a smaller number of HB50 hopper bottom equivalents plus other models, including oil water separators and, most recently, mobile filter presses for solids dewatering. The company has in excess of 100 units at more than 60 silt pollution prevention projects at any one time, as far afield as the Orkney Isles, Scotland, and New South Wales, Australia.

Siltbuster's Lamella clarifiers have minimal lead-times and are suitable for a temporary requirement. If a clarifier is needed just for a short period, the company's fleet of mobile clarifiers are available for a minimum of one week or more, without a capital purchase.

Siltbuster products are specifically designed to remove suspended solids and oil from water, and are suitable for dealing with river pollution and water filtration. The mobile silt traps are a major improvement over the construction industry's standard approach of using holes in the ground, straw filled skips or ineffective settling tanks, and can help reduce the likelihood of silt pollution downstream, the company says.

After successful installation of the Siltbuster clarifier units, installed adjacent to the Woodglen Reservoir, initial production of over four megalitres (nearly four Olympic size swimming pools) of clean water was produced in a very short time, and it is hoped that enough useable water will be produced in order to meet customer demand – approximately 75 megalitres a week – with production increasing monthly in order to exceed demand and replenish vital water stocks. Water sediment ponds are also being constructed on site to try and increase the amount of potable water.

In addition to the Siltbuster units, two water bores owned by private landowners have also been utilised producing another megalitre of water a day for the reservoir.

A success story

"We've shown it's possible to treat the dirty water from the Mitchell River so that it's drinkable, now the next step is to increase the scale of production," said East Gippsland Water's CEO, Les Mathieson.

"With the Mitchell River's storage now less than 40% full our next target is to produce enough useable water through a range of contingency measures, including additional water clarifiers and bores, to balance our customer consumption. We are aiming at 75 megalitres a week by June and after this we'll be looking to produce a surplus of water which can be used to help top up supplies in storage.

"We are looking to install extra Siltbuster units by Woodglen Reservoir and have started drilling the first of a number of new bores at suitable locations nearby, which could supply a total of up to 50 megalitres of water a week."

"We are extremely pleased that our water clarifiers have been able to help replenish dangerously low water supplies in Australia," added George Anderson, director of Siltbuster Ltd. "We didn't have a lot of time to mobilize but that's when our rapidly deployable clarifiers and experience really comes into their own.

"The whole Siltbuster range has been designed to meet the increasing need to improve environmental protection of watercourses, groundwater and marine environments and the success of the water clarifier units in Australia are a perfect example of how well our units work.

"In Australia water conservation is a major issue and we're extremely pleased we have been able to do our bit."

East Gippsland Water Authority currently has five Siltbuster mobile lamella clarifier units working on site and five more units are on route to Australia in order to increase the amount of clean water that can be produced. Not only can the units help replenish reduced water stocks but they can also help improve the local environment thus ensuring a sustainable water supply for current residents and future generations. It is expected that stage 4 water restrictions will remain in place across the Mitchell River system for the next few months.

Treated water discharging out of a Siltbuster clarifier.

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