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News release

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Local councils and water utilities to benefit from next generation wastewater treatment

A new treatment technology will harness natural biological processes to eliminate potentially damaging nutrients from domestic wastewater. It has the potential to reduce overall energy consumption and greenhouse gas emissions of wastewater treatment by a third.

Granular activated sludge can be used treat wastewater more efficiently and it presents a more robust alternative to current systems. The excellent settling properties of granules remove a capital and energy intensive step for the dewatering treatment of biosolids which are a by-product of the treatment process.

Granules are an environmentally friendly technology that eliminates the need to use harsh chemicals for nutrient removal. Naturally occurring bacteria in wastewater can be formed into granules and selectively made to remove nutrients such as phosphorus, nitrogen and carbon.

Dr Phil Bond, project leader for Environmental Biotechnology CRC (EBCRC) at the Advanced Water Management Centre (AWMC) at the University of Queensland, will apply the granular technology to remove nutrients from domestic wastewater.

"Initially the technology was developed for the treatment of high strength (industrial) wastewater. There is now an opportunity to apply the technology for the treatment of domestic (lower strength) wastewater which will enormously benefit local councils and water utilities ", said Dr Bond.

"Aerobic granular activated sludge is a novel biological treatment technology that has potential to make considerable savings with regard to costs of capital outlay, operation, land usage and energy in wastewater treatment", Dr Bond continued.

The de-watering process is by far the most energy intensive part of wastewater treatment.

"In comparison to conventional activated sludge treatment, granular sludge has exceptional de-watering characteristics. A plant running on granular technology will produce biosolids from wastewater that contain much lower water content than conventional treatment produces sludges"

"So the new technology significantly reduces the footprint and energy consumption of the de-watering phase, resulting in improved operational efficiencies and cost savings", Dr Bond continued.

"The technology will be extremely beneficial as councils and industry attempt to minimise energy use and greenhouse gas emissions", Dr Bond concluded.

Research funding was recently boosted by a Queensland Smart State fellowship awarded to Dr Bond. Other project partners include EBCRC, AWMC and Meat and Livestock Australia.

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