RECLAIM OUR RESOURCE

Perspectives on wastewater reclamation

The increasing scarcity of clean water has emerged as one of the most pressing problems in the 21st century. Burgeoning populations and an increase in per capita water consumption due to improving lifestyles, has placed our water resources under increasing strain. The United Nations World Water Development Report predicts that by the year 2050 at worst 7 billion people will be faced with water scarcity and at best 2 billion people will be exposed to water scarcity. To exacerbate the problem pollution reduces the amount of clean water available by rendering water resources unfit for use. A further issue that is expected to contribute to the scarcity of water in the future is climate change. The precise impact climate change will have is uncertain, but it has been estimated that the changes in rainfall patterns that climate change may account for a 20 % increase in global water scarcity.

An increasingly attractive means for counteracting the scarcity of fresh water is wastewater reclamation. Advances in water treatment technology have allowed wastewater to be reclaimed at a consistent quality and a reasonable cost. The reclamation of wastewater is a growing practice in many parts of the world. Even countries that aren't generally considered to have water scarcity problems have begun to reclaim water in significant quantities. The United States reportedly reuses 7.4 % of its total effluent production.

The reclamation of water is beneficial in many ways. It decreases the discharge of pollutants to the environment while lessening the demand on sensitive water bodies. It also serves the purpose of extending existing water supplies by providing a high quality water supply to serve a variety of beneficial uses.

There are many options for wastewater reuse. Globally agriculture is a major consumer of water resources. The use of treated municipal effluent for irrigation in agriculture is growing in popularity.

The cost of doing so depends largely on the level of treatment required. Concerns over the use of recycled wastewater in agriculture focuses largely on the presence of pathogenic organisms, heavy metals, trace organics and high levels of dissolved salts. Many researchers in the field call for the tertiary treatment of municipal waste using membranes or ozonation prior to its use in irrigation. The costs of these treatment methods can be considerable. These costs coupled with the cost of increased environmental monitoring associated with reclaimed water irrigation can be discouraging.

This example typifies the issues currently standing in the way of many water reclamation projects. Private entities considering water reclamation focus almost exclusively on the internal costs and benefits associated with water reclamation. Unfortunately reclaimed water is generally more expensive to produce than water drawn from fresh water resources. The external benefits of water reclamation such as extension of the capacity of existing water resources, generally don't feature in the decision making process when water reclamation is being considered. It is only in the face of dwindling fresh water supplies or deteriorating fresh water quality that industries begin seriously considering wastewater reclamation.

A wastewater reclamation project recently commissioned by Talbot & Talbot for one of its major clients in Dar Es Salaam, is a shining example of industry taking the technological initiative and overcoming water scarcity. Under increasing demand the aquifer from which Talbot & Talbot's client draws its water is gradually deteriorating due to seawater ingress. Talbot & Talbot partnered with its client to alleviate this problem by upgrading its existing effluent treatment train (anaerobic digestion followed by activated sludge) to include a membrane biological reactor, reverse osmosis and granular activated carbon filtration. The upgraded plant provides their client with capacity to recycle up to 65 % of the effluent it produces. The recycled water is of such high quality as to enable its use for a diverse range of applications in the factory. As an endorsement of Talbot & Talbot's commitment to its technology and their selection thereof they staff, maintain and operate the water treatment and reclamation plant under contract.

In conclusion, it is evident that there is a growing need for initiatives that strive to conserve our water resources or extend their use. Although most industries are not experiencing significant financial pressure to conserve and reclaim water, the time when this will be the case is drawing near. The technology and expertise to cost effectively recycle wastewater is now available and the investment in infrastructure to reclaim wastewater is a huge stride towards sustainability.

For further information, please contact:
Megan Kettle
033 3461 444
megank@talbot.co.za
www.talbot.co.za