

## Water and Sanitation in the News

### Is Wastewater the New Black Gold?

What if we were to consider the vast quantities of domestic, agricultural and industrial wastewater discharged into the environment everyday as a valuable resource rather than costly problem? This is the paradigm shift advocated in the United Nations World Water Development Report, Wastewater: the Untapped Resource, launched recently in Durban on the occasion of World Water Day. The United Nations World Water Development Report is a UN-Water Report coordinated by the UN World Water Assessment Programme of UNESCO. It argues that once treated, wastewater could prove invaluable in meeting the growing demand for freshwater and other raw materials...

'...The 2017 World Water Development Report shows that improved wastewater management is as much about reducing pollution at the source, as removing contaminants from wastewater flows, reusing reclaimed water and recovering useful by-products. [...] Raising social acceptance of the use of wastewater is essential to moving forward', argues UNESCO Director-General Irina Bokova in her foreword to the Report.

A large proportion of wastewater is still released into the environment without being either collected or treated. This is particularly true in low-income countries, which on average only treat 8% of domestic and industrial wastewater, compared to 70% in high-income countries. As a result, in many regions of the world, water contaminated by bacteria, nitrates, phosphates and solvents is discharged into rivers and lakes ending up in the oceans, with negative consequences for the environment and public health.

The volume of wastewater to be treated will rise considerably in the near future especially in cities in developing countries with rapidly growing populations. 'Wastewater generation is one of the biggest challenges associated with the growth of informal settlements (slums) in the developing world,' say the report's authors. A city like Lagos (Nigeria) generates 1.5 million m<sup>3</sup> of wastewater every day, most of which ends up untreated in the Lagos Lagoon. Unless action is taken now, this situation is likely to deteriorate further as the city's population rises to over 23 million by 2020.

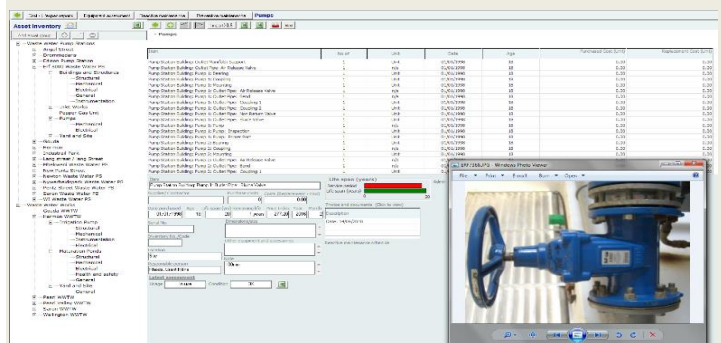
Pollution from pathogens from human and animal excreta affects almost one third of rivers in Latin America, Asia and Africa, endangering the lives of millions of people. In 2012, 842,000 deaths in low- and middle-income countries were linked to contaminated water and inadequate sanitation services. The lack of treatment also contributes to the spread of some tropical diseases such as dengue and cholera...

As well as providing a safe alternative source for freshwater, wastewater can also be seen as a potential source of raw materials. Thanks to developments in treatment techniques, certain nutrients, like phosphorus and nitrates, can now be recovered from sewage and sludge and turned into fertilizer. An estimated 22% of global demand for phosphorus, a finite and depleting mineral resource, could be met by treating human urine and excrement. Some countries, like Switzerland, have already passed legislation calling for the mandatory recovery of certain nutrients such as phosphorus.

The organic substances contained in wastewater could be used to produce biogas, which could help power wastewater treatment facilities, helping them transition from major consumers to becoming energy neutral or even net energy producers. In Japan, the government has set itself the target of recovering 30% of the biomass energy in wastewater by 2020. Every year, the city of Osaka produces 6,500 tonnes of biosolid fuels from 43,000 tonnes of sewage sludge. Such technologies need not be out of reach for developing countries as low-cost treatment solutions already allow for the extraction of energy and nutrients. They may not yet allow for the direct recovery of potable water, but they can produce viable and safe water for other uses, such as irrigation. And sales of raw materials derived from wastewater can provide additional revenue to help cover the investment and operational costs of wastewater treatment...

Sources: *Engineering News, 28 March 2017*

For communities to enjoy stable supplies of safe drinking water, it is important to ensure that the entire water supply cycle, from abstraction, to treatment, distribution and discharge are done with the **correct equipment, that is maintained**, and by staff that are technically skilled, with management enabled to lead a team effort. The **Municipal Assistant™** software system helps to achieve this by facilitating the efficient management functions related to water and waste water treatment.



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