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Water Quality Monitoring and Public Health

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Water has been recognised as one of the critical elements for sustainable socio-economic development and set at the core of sustainable development (Saravanan *et al.*, 2009). It is directed towards ensuring the improvement of health and living conditions, and, in turn, sustaining the use of natural resources, with the goal of providing a better life for all. Thus, regulating and sustaining this resource is of utmost importance. However, about 1.1 billion people lack access to safe drinking water worldwide (Harshfield *et al.*, 2009), and as such depends on available freshwater resources for drinking and domestic purposes. Unfortunately, the qualities of many of these freshwater resources are often compromised by industrial- and treated municipal wastewater effluents, thus subjecting such communities that directly rely on such freshwater resources including rivers, streams, wells, dams, pond water sources to the risk of contracting waterborne diseases such as cholera (District *et al.*, 2014).

Waterborne pathogens and related diseases are a major public health concern worldwide, not only because of the morbidity and mortality they cause, but also the cost and effort required for their prevention and treatment. The presence of pathogens and other contaminants of human health concern in water is directly related to poor waste management, leading to water quality deterioration and pollution. The main pathways through which water of poor quality affects human health resulting in various waterborne disease is through drinking water and recreational activities. Exposure to contaminants through drinking water and recreational water activities can lead to adverse health effects, including gastrointestinal illness, reproductive problems, and neurological disorders. Strict measures exist both locally and internationally to ensure that water for public use meets a certain standard to ensure it is safe, clean and free from chemicals and organisms that cause disease.

Findings from several Water Research Commission (WRC) funded projects show increased levels of water pollution from contamination events, untreated sewage, anthropogenic sources, natural occurrences such as climate change and social drivers. Coupled with reported cases of water related disease outbreaks there is now a requirement of new thinking and working around how public health can best be protected from emerging and re-emerging water related illnesses. Key to this is the need for proper assessment of contaminants in water and regular water quality monitoring as measures for early warning and the prevention of waterborne outbreaks

Of encouragement is the development of monitoring and response guidelines which will prove critical in the overall agenda of adequately managing health-compromising outbreaks. The Water Research Commission Report: Report No 2432/1/18 is one of such reports.

