

# The Establishment of a Knowledge Hub for Contaminants of Emerging Concern in South African Water Resources

*The Agricultural Research Council is conducting a study for the Water Research Commission (Project 2021/2022-00256) in collaboration with Tshwane University of Technology, North-West University and University of South Africa to establish a portal consisting of emerging aquatic pollutants viz. the Contaminants of Emerging Concern (CEC) Knowledge Hub (Figure 1).*

**Project duration:** Initiated on 1 April 2020 and will end 31 March 2023

## Project objectives:

1. Compilation of identified emerging contaminants of concern in water, their occurrence including hotspots and their distribution in catchment areas in SA
2. Collation of available data on CECs in SA water resources, validation of selected analytical methods for identification of CECs and compilation of possible correlations and seasonal variations for selected CECs in SA water resources
3. Establishment of an interactive knowledge hub with databases for all-inclusive information on CECs in SA water sources



**Figure 1:** The proposed Contaminants of Emerging Concern Knowledge Hub logo for WRC project 2021/2022-00256

## What are Contaminants of Emerging Concern?

Contaminants of Emerging Concern are pollutants that have previously been at levels below detection limits, which are now being detected by water professionals in our water bodies. These can include nanomaterials, flame-retardants, microplastics, agricultural waste, microbial contaminants, heavy metals, pharmaceuticals and personal care products, which may cause ecological and human health impacts.

## How do Contaminants of Emerging Concern end up in our water bodies?

The production and use of consumer products are the major contributing factor to pharmaceuticals and personal care products (PPCP) in our water bodies and are either not removed or chemically transformed throughout waste water treatment processes. If you consider your own morning routine and the contaminant exposure we are faced with daily (Figure 2), you are able to predict the magnitude of CEC release into our ecosystems.



**Figure 2:** Pharmaceuticals and personal care products (PPCPs) we use in our daily routine which contain Contaminants of Emerging Concern

## Why do we need to establish a database of CECs?

The continued unregulated use of products containing CECs could lead to several ecological risks. The effects of these contaminants on the environment is becoming increasingly important. Therefore, in order to address this, more research needs to focus on collating currently available outcomes and these results need to be made available to regulators in order to develop environmental laws in a proactive manner. The database will also guide us in pre-empting any aquatic catastrophe relating to CECs by identifying the problem and taking relevant, informed steps to prevent it from escalating beyond control. In so doing we can collectively preserve and improve the quality of our precious, limited resource....fresh water.

## Project Team:

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