

Case study on disaster risk reduction and public health implications management in South Africa.

Nhokodi, T., Dwani, S., Tandlich, R. *

Division of Pharmaceutical Chemistry, Faculty of Pharmacy, Rhodes University, Artillery Road, P.O. Box 94, Grahamstown 6139, South Africa, Tel 00-27-46-603-8825, Fax 00-27-46-603-7506, *corresponding author's email: r.tandlich@ru.ac.za; roman.tandlich@gmail.com.

Abstract

Water outages and problems with microbial water quality have been common in South Africa for a long time. Since 2015, the El-Niño drought has further exacerbated the situation across the country. Many provinces and local municipalities have been declared disaster areas and this included Makhanda town in the Eastern Cape Province of South Africa. At Rhodes University in Makhanda, disaster risk reduction strategies for drought have included installation of the rainwater harvesting systems (RWHs). However, municipal water supply remains the backbone of the provision of drinking water among the residents of Makhanda. Therefore the hydrogen sulphide test kit (H₂S kit) was used to assess the extent of faecal contamination of the harvested rainwater and potable water supplied by Makhanda local government to Rhodes University. The H₂S kit is used as a tool to assess disaster risk or lack thereof to public health among students and staff at Rhodes University who use the rainwater and municipal potable water for all or selected domestic purposes. In addition to the H₂S kit analysis, the RWHs infrastructure was assessed for integrity. Findings from the study were used to perform policy analysis of the water outage section of the Rhodes University Emergency Management Plan (EMP). The harvested rainwater was sampled at three sampling sites, while two sampling sites were used as sources of the municipal potable water at Rhodes University campus between 30th July 2017 and 5th September 2017. Results showed that 80% of the rainwater samples were positive for faecal contamination, while all municipal water samples were negative for faecal contamination. The RWHs were infrastructurally sound. The results of the study were communicated to the residence hall association and the engineering division of Rhodes University. Treatment by the additional of bleach and the installation of filters on all RWHs installed on campus. Proposal has been made to the Rhodes University management to modify the water outage section of the EMP to mandate regular monitoring of the microbial water quality on campus. This is done through an online Whatsapp platform with the involvement of the Safety, Environmental and health representative for Rhodes University, the environmental representatives from all residences on campus and the authors.