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NATURAL HAZARDS

Assessing the Quality of Roof-Harvested Rainwater after Bushfires

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Introduction: Roof-harvested rainwater held in domestic tanks is used for a variety of purposes in Australia, including drinking and irrigation. There is limited evidence about the quality of rainwater after bushfires. Current health guidelines can be interpreted that landholders need to drain their rainwater tanks to avoid the risk of contamination. Anecdotal reports indicate that following such advice caused additional distress to landowners affected by bushfires in South Australia. Sustainable water management is important for future resilience and more evidence on water quality following bushfires is needed.
Aim: This project investigated whether there is contamination of roof-harvested rainwater after bushfires, and if so, whether such water was safe for various purposes.
Methods: In 2017 we tested artificially contaminated water spiked with chemicals associated with bushfires (chromated copper arsenate-treated ash and firefighting foam) and conducted a pilot field study using two purposely built roofs during a pre-fire season burn off. A field validation is planned for the summer of 2018/19 (December 2018 - March 2019), i.e., we plan to obtain 200 samples from 50 households affected by bushfire – two samples immediately after the fire event and another two after the first rain.
Results: The artificially created contaminated water fell within guidelines for non-potable uses such as irrigation and stock watering, but was found unsuitable for drinking even after being filtered through two commercially available water filtration systems. We also plan to present results from our field study of 50 households.
Discussion: Contaminant concentrations, even in artificially spiked water samples, are low and acceptable for non-potable uses. Bottled water should be used for drinking. Landholders should be encouraged to use their water for recovery purposes. Such advice may assist with decreasing the stress experienced by affected landholders and help with recovery efforts through the availability of a greater body of water.

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Effectiveness of Children's Disaster Risk Reduction (DRR) Program on Earthquake Preparedness in Jordan

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Introduction: Children represent a particularly vulnerable population in disasters. Disaster Risk Reduction refers to a systematic approach to identifying, assessing, and reducing risks of disaster through sets of interventions towards disaster causes and population vulnerabilities. Disaster Risk Reduction through the education of the population, and especially children, is an emerging field requiring further study.
Aim: To test the hypothesis that an educational program on Disaster Risk Reduction can induce a sustained improvement in knowledge, risk perception, awareness, and attitudes toward preparedness behavior of children.
Methods: A Disaster Risk Reduction educational program for students aged 10-12 was completed in an earthquake-prone region of Jordan (Madaba). Subject students (A) and control groups of similarly aged untrained children in public (B) and private (C) schools were surveyed one year after the program. Surveys focused on disaster knowledge, risk perception, awareness, and preparedness behavior. Likert scales were used for some questions and binary yes/no for others. Results were collated and total scores averaged for each section. Average scores were compared between groups and analyzed using SPSS.
Results: Students who had completed the Disaster Risk Reduction program were found through Levene's test to have statistically significant improvement in earthquake knowledge (5.921 vs. 4.55 vs. 5.125), enhanced risk perception (3.966 vs. 3.580 vs. 3.789), and improved awareness of earthquakes (4.652 vs. 3.293 vs. 4.060) with heightened attitudes toward preparedness behavior (8.008 vs. 6.517 vs. 7.597) when compared to untrained public and private school control groups, respectively.
Discussion: Disaster Risk Reduction education programs can have lasting impacts when applied to children. They can