

## **Abstract**

**Title:** The purification of water using organic waste to provide clean water to high density areas.

**Conference Theme:** Engineering and Technology

**Team Name:** DTM Squared

**Team School:** Arundel School, Zimbabwe

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Over the past few years, Zimbabwe has faced foreign currency challenges required for the importation of water treatment chemicals, as well as a recent drought. This combination to date has left more than two million people without access to clean water, thus using unsafe sources. The use of organic waste in the form of dried and powdered banana peels and peanut shells is a sustainable and a cost-efficient way in which to purify water to provide to high density households and later to rural households. The purification method begins with a homemade filter to remove large particles. The water is then placed into an enclosed, temperature regulated tank where the banana peel powder is added to remove heavy metal contaminants such as copper, mercury, cadmium and lead. The water is then filtered to remove the powder and transferred into another tank where the peanut powder is added to further remove any remaining toxins. The purification system is aimed to provide an efficient, sustainable and environmentally friendly method which can be upscaled and implemented in households in high density and rural areas, therefore helping to ease the problem of potable water availability in Zimbabwe.