

HOW NATURAL SYSTEMS TREAT SEDIMENT FLOWING FROM AN INFORMAL SETTLEMENT

~ A STUDY AT THE WATER HUB, FRANSCHHOEK ~

BY

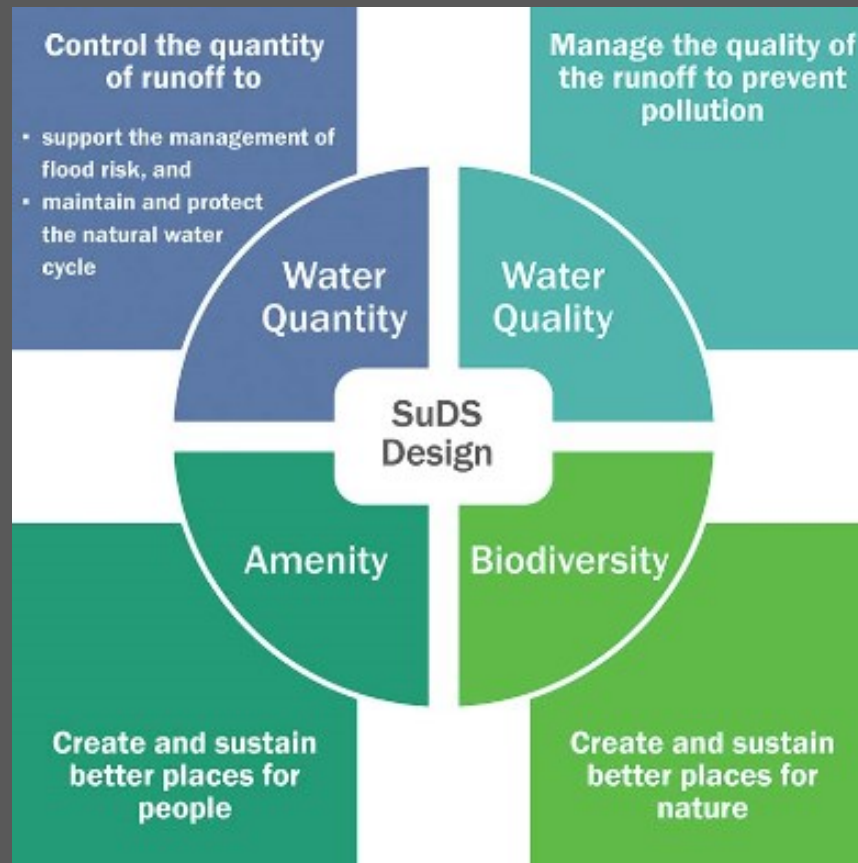
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Sustainable Urban Drainage System (SuDS)

In theory, SuDS is designed to mimic the natural drainage processes (infiltration, sedimentation, plant uptake etc) and also to provide benefits including ecological health, human well being, improved water quality and re-use of treated water.



Source: Clarke, 2015

Also available on

<https://www.ice.org.uk/>

Research aim

To understand the ability of Sustainable Urban Drainage Systems to treat sediment bound pollutants that are discharged from an informal settlement



Specific objectives

- Analyse sediment size, distribution and pollution load under varying conditions along the Stiebeuel River, stormwater canal and during treatment within a SuDS process.
- Design and test a SuDS treatment train for managing or treating runoff from an informal settlement.



Stiebeuel River: grab samples



Discrete water sampling using an auto-sampler

Reconstructing on-site biological treatment cells

Using plants and various substrate arrangements to treat surface runoff



Final treatment: Stormwater attenuation pond



Artist's impression of the final treatment ponds

Sediment collection: overview of study methods and design

- Sediments will be collected along the treatment train components, and also along the Stiebeuel River and stormwater channel during dry (low flow) and wet (high flow) weather conditions.
- Sediment size distribution, quality and quantity from these sampling points will be analysed using a variety of laboratory tests and instrumentation.
- The SuDS treatment train will be iteratively designed and tested to treat pollutants coming from this catchment.



Researcher in discussions with Professor Sue Charlesworth, Coventry University



Reference site: upper reaches of the Stiebeuel River

If you have any queries or comments
please contact me by email

This presentation was designed to provide a brief visual
overview only

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