



water & sanitation

Department:
Water and Sanitation
REPUBLIC OF SOUTH AFRICA



NATIONAL DEVELOPMENT PLAN
Our Future - make it work

NATIONAL WATER AND SANITATION SUMMIT
18 – 19 February 2022, Gallagher Conference Center, Midrand,
Gauteng

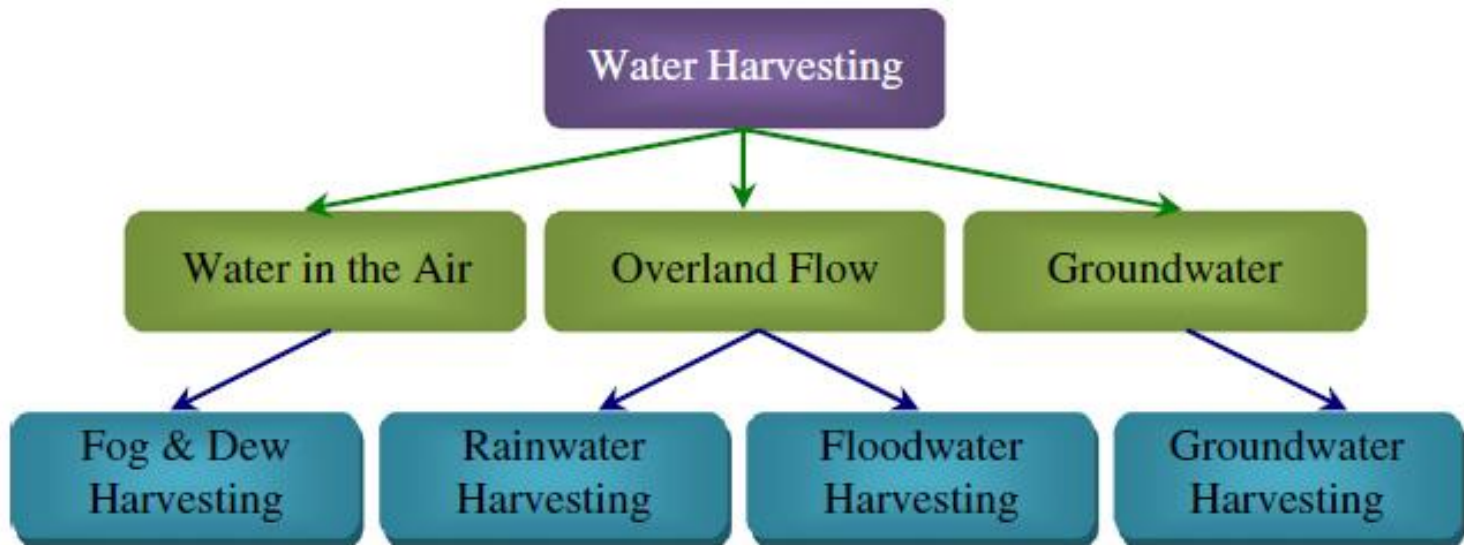
**COMMISSION 1: WATER RESOURCE MANAGEMENT AND CLIMATE
CHANGE**

SUB THEME: RAINWATER HARVESTING

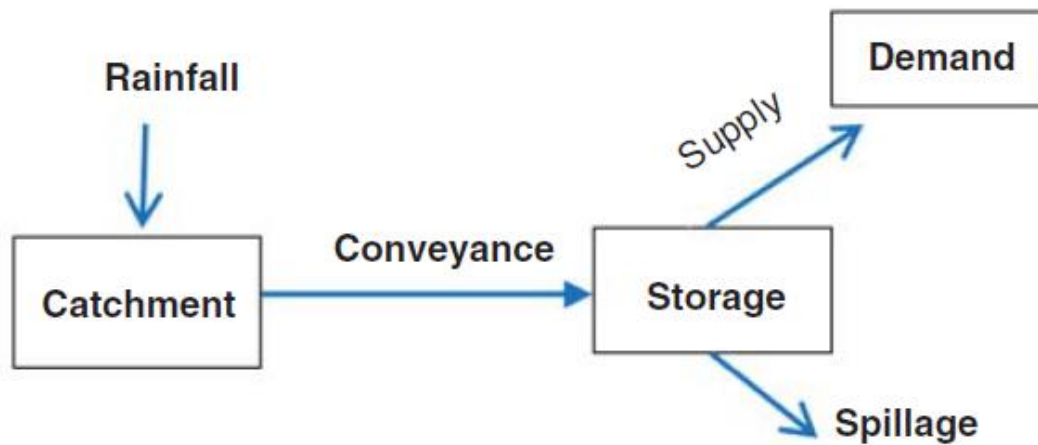
John Ndiritu, School of Civil and Environmental Engineering , University of the Witwatersrand



WATER IS LIFE - SANITATION IS DIGNITY



Prinz, 2002



Ndiritu, 2021

Promotion of RWH in the NWRS

- RWH for increasing reliability of supply in rural areas and municipalities.
- RWH for household farming to improve food security in rural areas.
- RWH for food gardening for rural households and institutions (clinics, schools, hospitals etc
- RWH in households and commercial settings in affluent areas.

Advantages of RWH?

Rainwater harvesting is:

- relatively cheaper?
- is more environmentally friendly

than many other water resource developments.

- simpler to install, operate and maintain

Disadvantages of RWH?

Low assurance of supply?

High initial capital costs?

State of RWH in South Africa

- RWH is increasing - 45000 tanks in 2017, 26500 in 2010.
- A large proportion of tanks are in the high rainfall eastern coast regions of the country.
- RWH is considered as a valuable in the drier areas of South Africa.
- RWH for small-scale farming to enhance food security – supported by Govt and NGOs

Number of households using rainwater tanks in 2010





Domestic - House



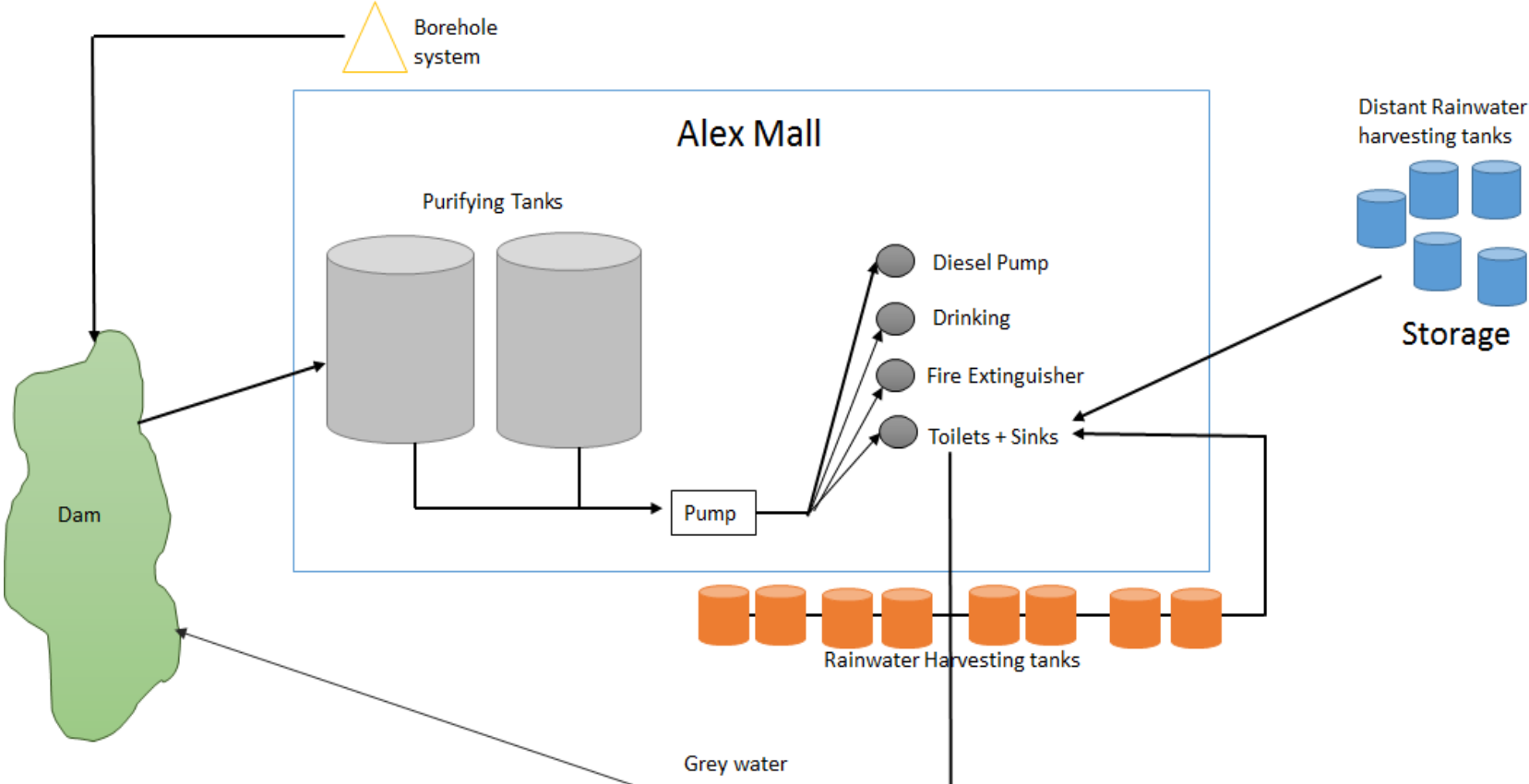
Institutional - School

RWH for Farming

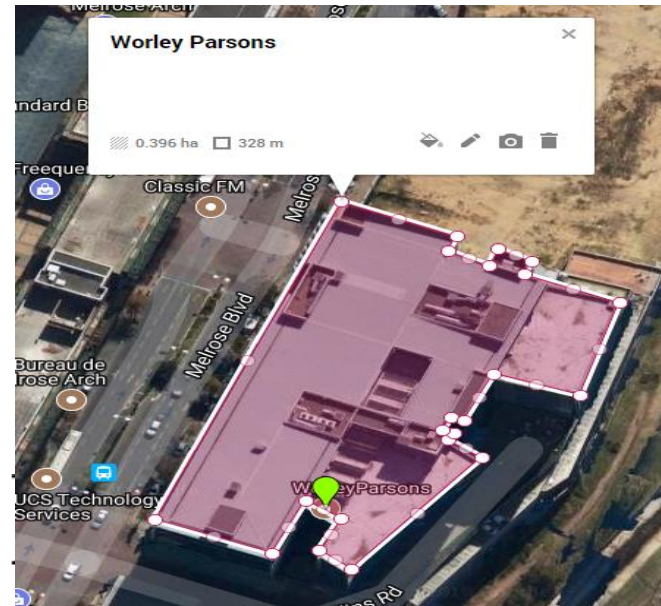
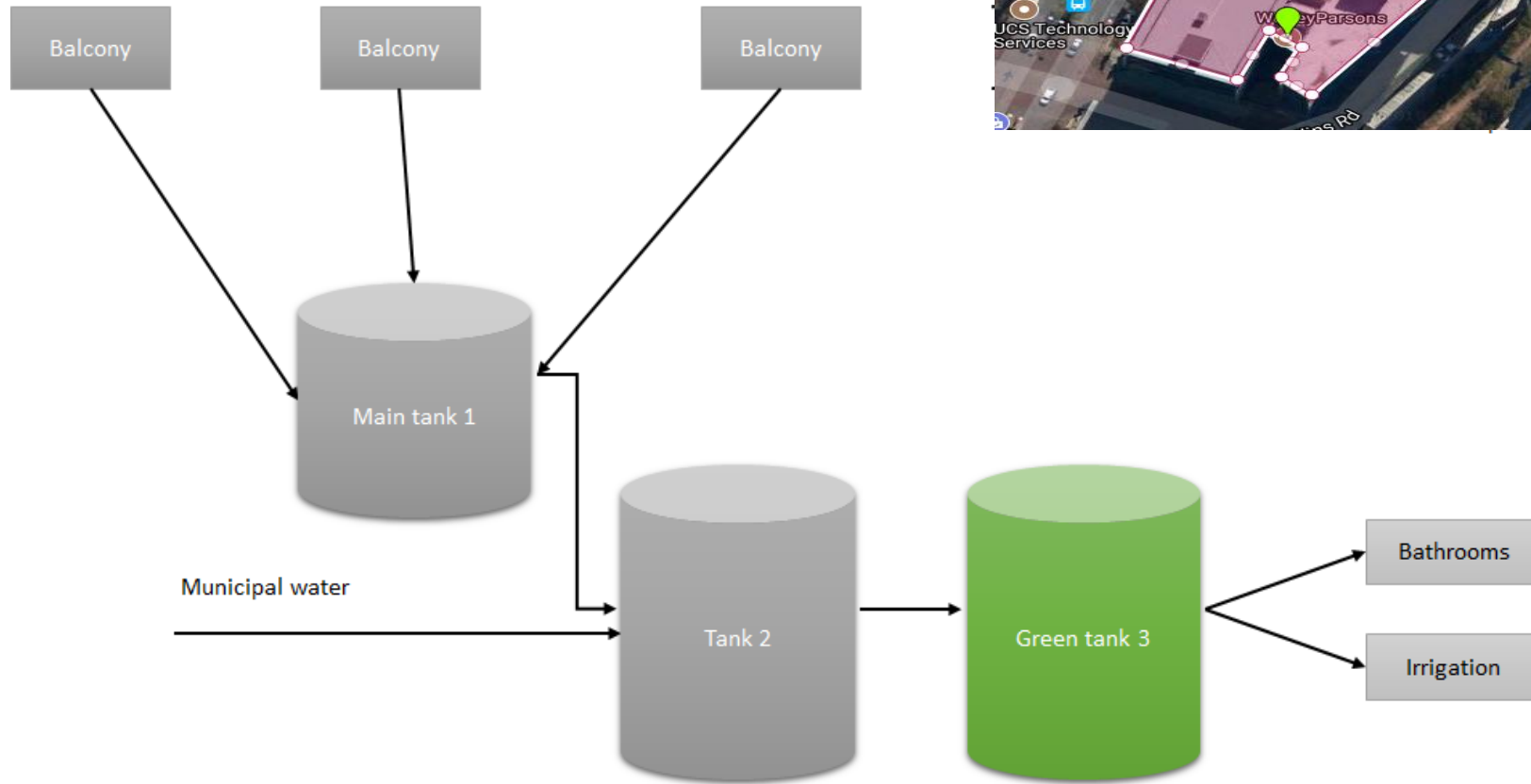


Mwenge-Kahinda and Taigbenu, 2011

RWH for Commercial - Municipal Supply



RWH for Commercial - Municipal Supply



Structures with large roof areas



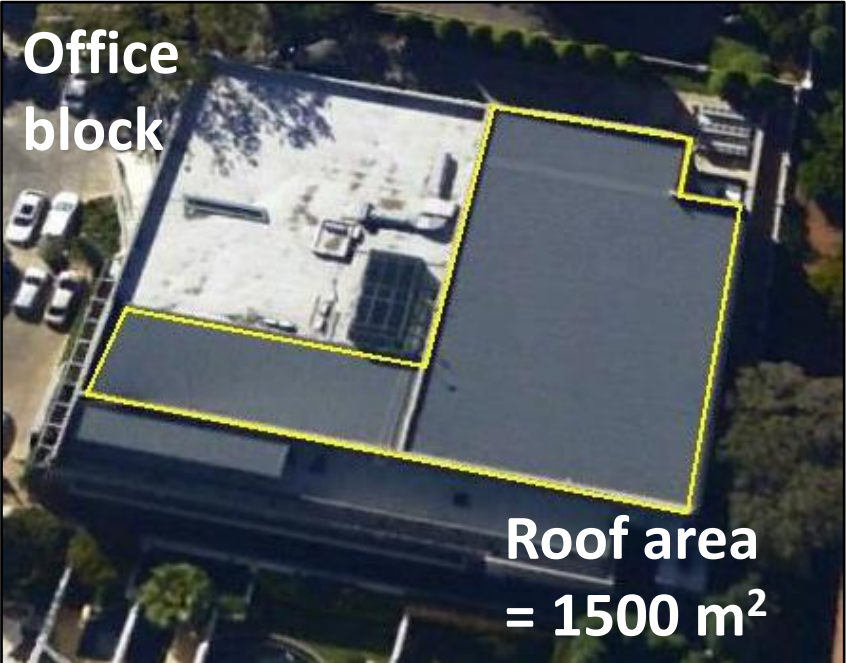


RWH catchment
=2500 m²

**Social
Housing**

High demand
Small roof area
Small Tank size (5 m³)
RWH for car washing

Align demand with supply



**Office
block**

Roof area
= 1500 m²



Roof area
for School
>>
Area for
house

2 X 5 m³
tanks



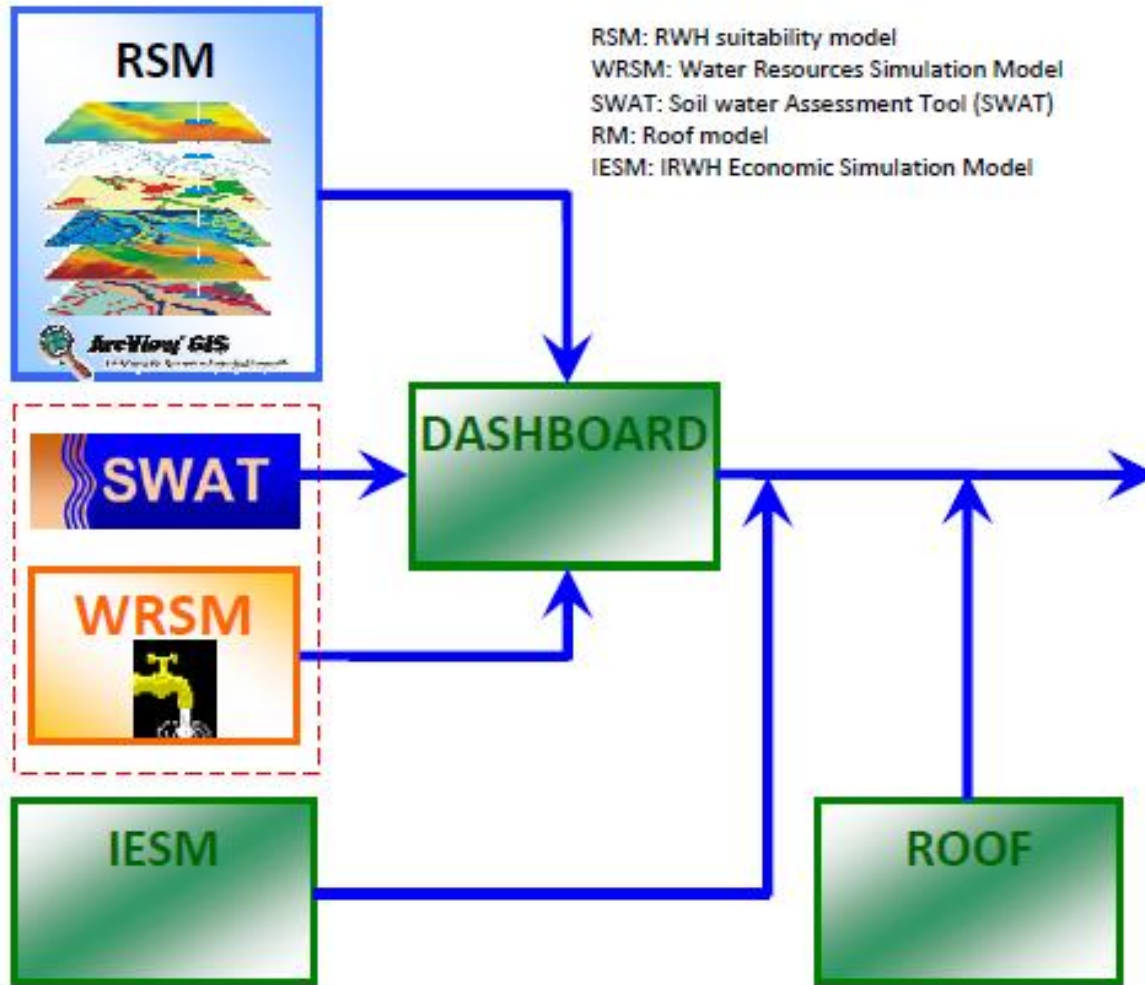
*Align roof area
with storage size*

School

Promoting RWH in South Africa

- i. Creation of enabling legal, institutional and financial environment for RWH.
- ii. Systematic management of Knowledge and information relating to RWH.
- iii. Creation of guidelines and standards for the design, operation and maintenance of RWH systems including aspects of water quality.
- iv. Setting of water quality guidelines for RWH for various uses.
- v. The consideration of social perceptions, attitudes and practices of potential/prospective users of RWH in order to achieving acceptability and sustainability.
- vi. Monitoring and evaluation of RWH.
- vii. An assessment of the potential of RWH for urban settings and industry.

Notable RWH Tools - RHADESS

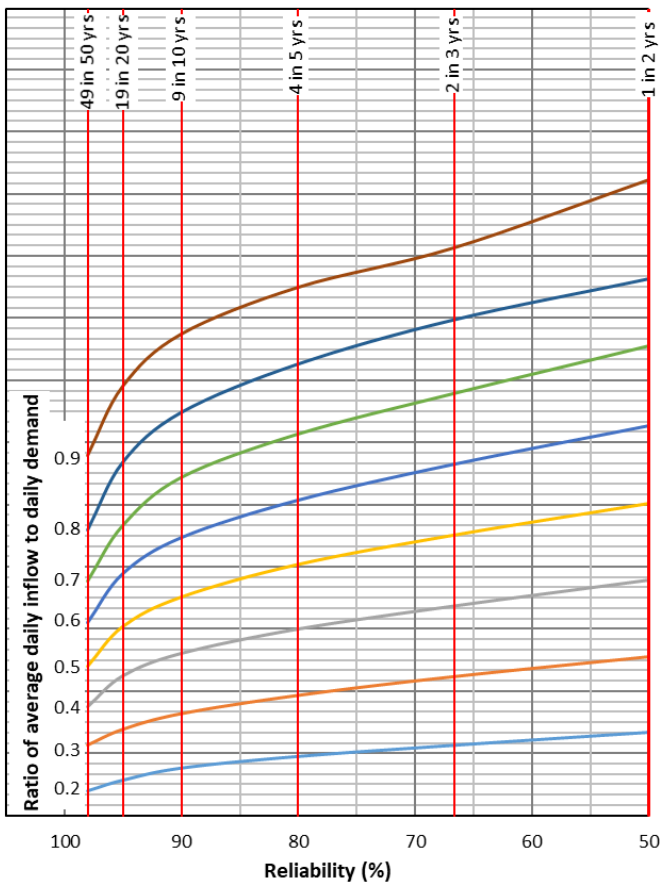


Assessment of RWH suitability at WMA scale.

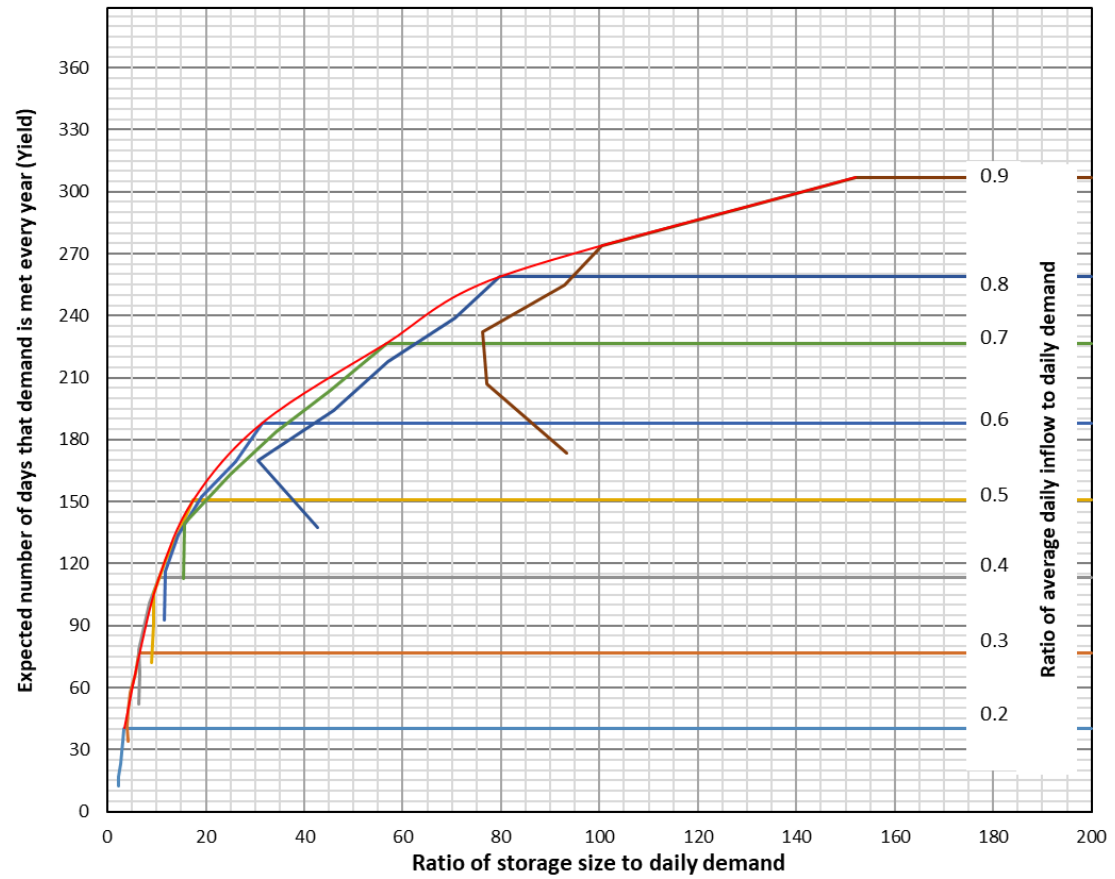
Assessing the RWH ecohydrological footprint.

Notable RWH Tools - Hydrologic Design Charts

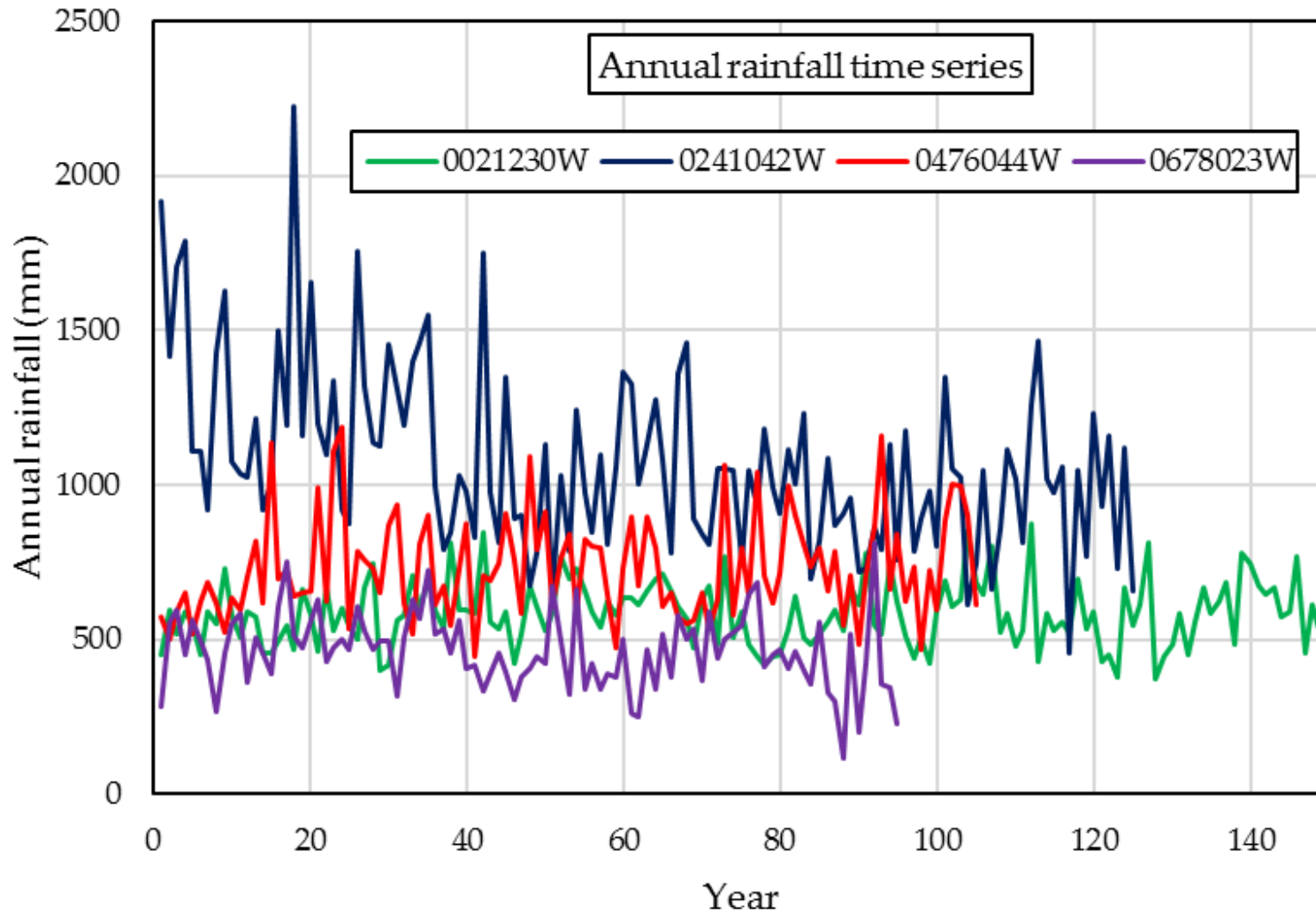
Yield for 90% of rainwater harvesting potential



Storage size for 90% rainwater harvesting potential



The need for rainfall data





Thank you