WHAT SIZE OF A TANK DO I NEED?

The choice of a suitable tank size depends on:

- Availability of funds
- Amount of water required by the household between rain seasons.
- Roof catchment area/water harvesting potential.
- Total seasonal rainfall
- Available materials and technology.

Design considerations for a water tank

1. Average annual rainfall,
2. Size of the catchments,
3. Water demand.

(A) Annual water harvesting potential is given by the following equation:

Q_R = A x R x C, where, A = Area of the catchment
B = Average annual rainfall, C = Runoff coefficient (roof = 0.85).

(B) Design a tank for the dry period e.g. for a family and demanded vegetable garden;

Q_f = # persons x daily requirement x # days + Water requirements for vegetable garden.

NB// For safety factor, the tank should be 20% larger than total water demanded.

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WATER USE

1. Domestic

The harvested water can be used for drinking, cooking, washing and for livestock use.

2. Vegetable/Kitchen garden

Size of the garden is dependent on:

1. Water availability,
2. Area available,
3. Demand,
4. Capital,
5. Available materials and technology.

REPUBLIC OF RWANDA
RWANDA AGRICULTURE BOARD
(RAB)
Kigali- Rwanda

AFFORDABLE RAIN WATER HARVESTING TECHNOLOGIES FOR URBAN AND RURAL AREAS

Nearly everyone can have clean water for both domestic and kitchen gardening.

DON'T WAIT, construct a TANK

INTRODUCTION

Everyone needs clean and adequate water for both domestic and agricultural practices. In Rwanda, only a fraction of the population has access to a reliable clean water supply. People in the arid and semi arid lands (ASAL) and especially women and girls, spend about one to two thirds of their time looking for water from as far as 3km away. In many cases it is from polluted water sources. During the rainy season, a lot of water is generated from roof catchments, which goes to waste. This amount of water can be harvested and stored in surface and underground tanks, for domestic and vegetable gardening.

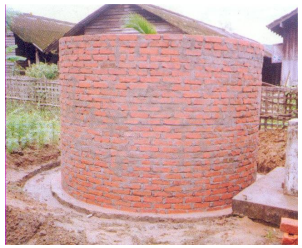
Different materials used in tank construction

i. Geo membrane lined ponds with shade net and corrugated iron sheet for roofing

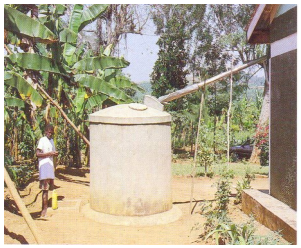
ii. Ferro cement Water Jar

iii. Cylindrical cistern for surface RWH.

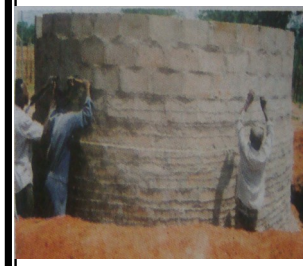
(iv) Baked brick tank



v) Ferro cement tank



(vi) Rubble stone blocks tank



(viii) Polythene lined tank

(viii) Underground Cylindrical Tank with paved catchment

(ix) Plastic tank

(x) Roofed hemispherical

(xi) Sausage tank

(xii) Oil drum for RWH

(xiii) Canvas sheeting

(xiv) Collapsible canvas tank tank

(xv) Housed polythene tank

Simplified construction criteria (computation done on 3 rainfall zones and different roof sizes

Roof size (m^3)	Rainfall zone					
	650mm		850mm		1050mm	
	Volume (M^3)	Radius (M)	Volume (M^3)	Radius (M)	Volume (M^3)	Radius (M)
30	5.85	1.05	7.65	1.20	10	1.37
35	6.83	1.13	9.20	1.28	12.39	1.45
40	7.80	1.21	10.20	1.38	13.34	1.57
45	8.78	1.28	11.48	1.47	15.01	1.69
50	9.75	1.35	12.75	1.55	16.67	1.78
55	10.73	1.42	14.03	1.62	18.34	1.85
60	11.70	1.48	15.30	1.69	20.01	1.93
65	12.68	1.54	16.58	1.76	21.68	2.01
70	13.65	1.60	17.85	1.83	23.34	2.09
75	14.63	1.66	19.13	1.89	25.01	2.15
80	15.60	1.71	20.40	1.96	26.68	2.25
85	16.58	1.76	21.68	2.02	28.35	2.32
90	17.55	1.81	22.95	2.08	30.01	2.39
95	18.53	1.86	24.23	2.13	31.68	2.44
100	19.50	1.91	22.50	2.19	25.96	2.51