Catchment sizing tool - field appraisal

A – Basic information about the catchment

Name of Water Expert: .....

Woreda: .....

Kebele: .....

Got: .....

Name of Catchment / Water Point: .....

Type of water point (tick as appropriate): ☐ HDW

☐ Protected Spring

☐ Drilled Well

☐ Other (specify).....

Altitude (m above sea level): Highest point of catchment: .....
Lowest point of catchment: .....

Agro-climatic Zone (See Annex xx):

			Altitude
		High Wurch ☐	*>3700m*
	Moist Wurch ☐	Wet Wurch ☐	*3200 – 3700m*
	Moist Dega ☐	Wet Dega ☐	*2300 – 3200m*
Dry Weyna Dega ☐	Moist Weyna Dega ☐	Wet Weyna Dega ☐	*1500 – 2300m*
Dry Kolla ☐	Moist Kolla ☐		*500 – 1500m*
Berha ☐			*< 500m*
Less than 900 mm	*900 – 1400 mm*	*More than 1400 mm*	

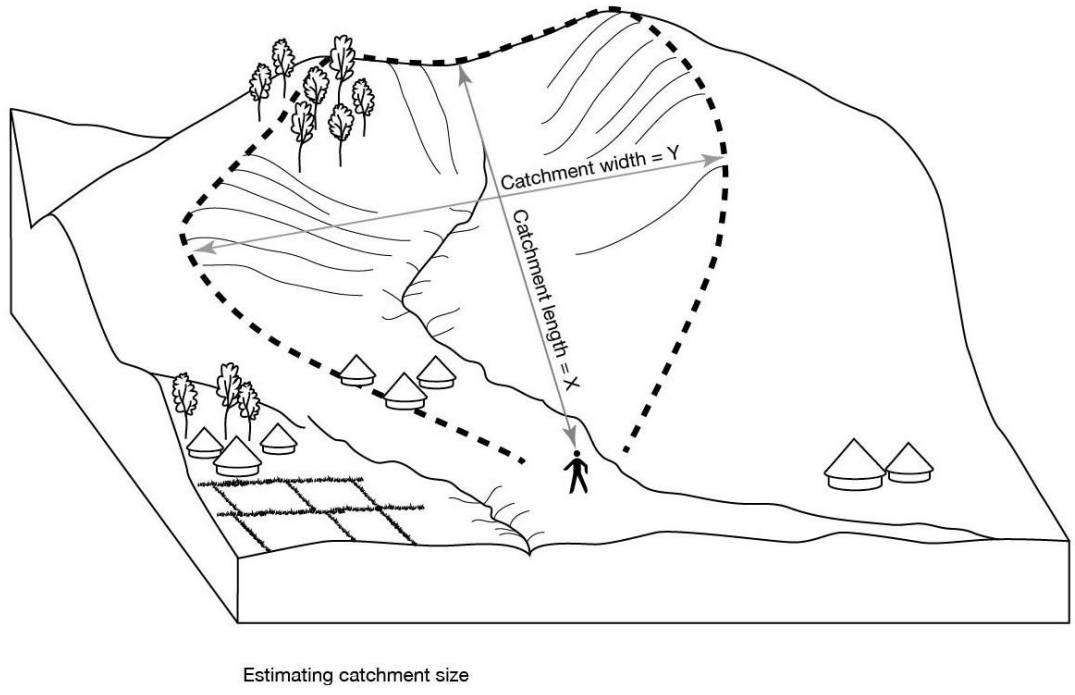
Rainfall

Population planned for waterpoint: Households: ..... People: .....

B – Estimating catchment size for a spring

1. From the spring site, estimate the length, in metres, of the catchment either estimated visually or paced out upstream to the ridge line.
2. The width of the catchment is estimated by taking the distance between ridge lines on either side of the spring under investigation, or alternatively half the distance between adjacent valleys or stream lines
3. Calculate approximate catchment area as the two measurements multiplied.

Spring catchment size:_____ Metres square



Estimating catchment size

Figure XX: Estimating the catchment size of a spring

C – Estimating catchment size for a hand dug well

1. Rather than estimate the catchment directly at the well site, it is acceptable to measure the catchment of the largest valley, stream or gully within 150 metres of the well site, at a similar vertical elevation.
2. From the selected site, estimate the length in metres of the catchment either estimated visually or paced out upstream to the ridge line.
3. The width of the catchment is estimated by taking the distance between ridge lines, or alternatively half the distance between the valleys or stream lines on either side of the spring under investigation.
4. Calculate approximate catchment area as the two measurements multiplied.

Dug well catchment size:_____ Metres square

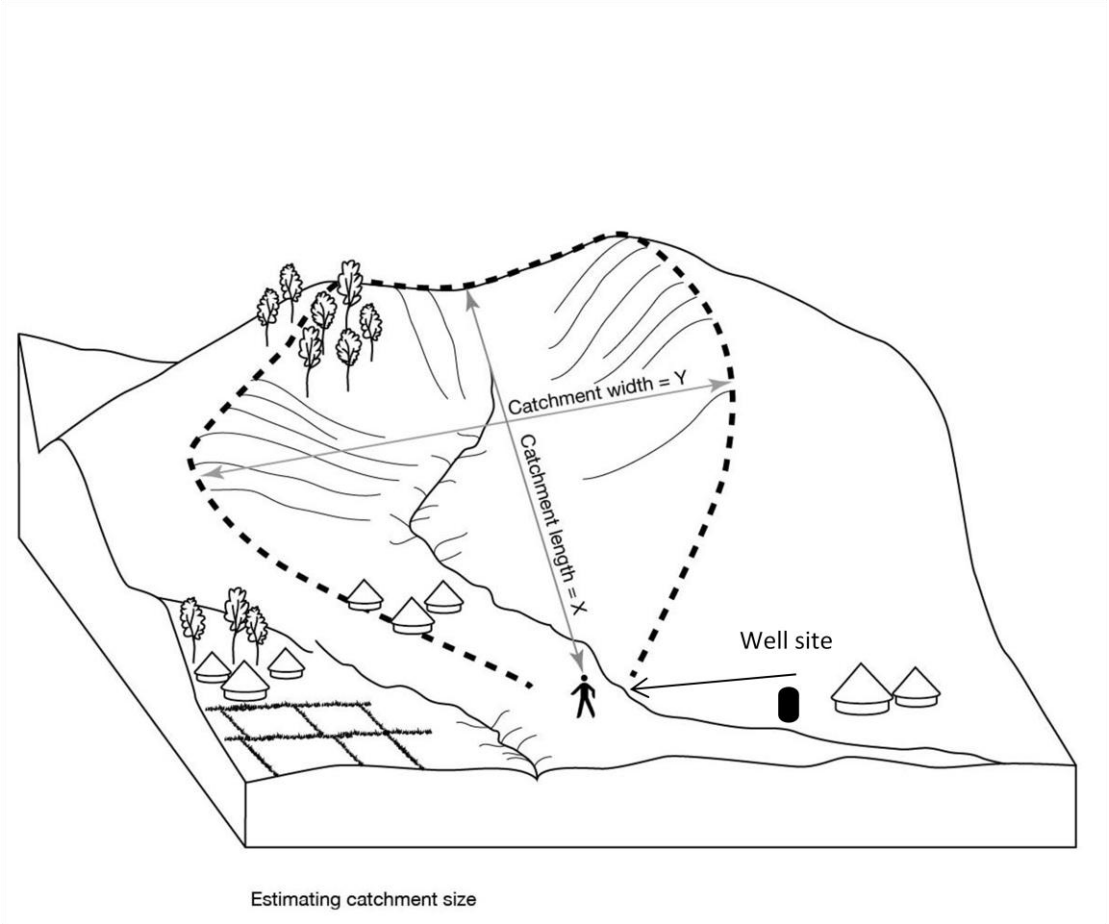


Figure XX: Estimating the catchment size of a well

5. To assess the likelihood of rapid groundwater drainage the difference in height between the lowest point within 150 metres of the site selected is estimated visually. As an aid to visual estimation, a telegraph pole is likely to be around 5 metres tall.

   On steep slopes where the land falls away immediately below a well site, slope can be used as the estimator.

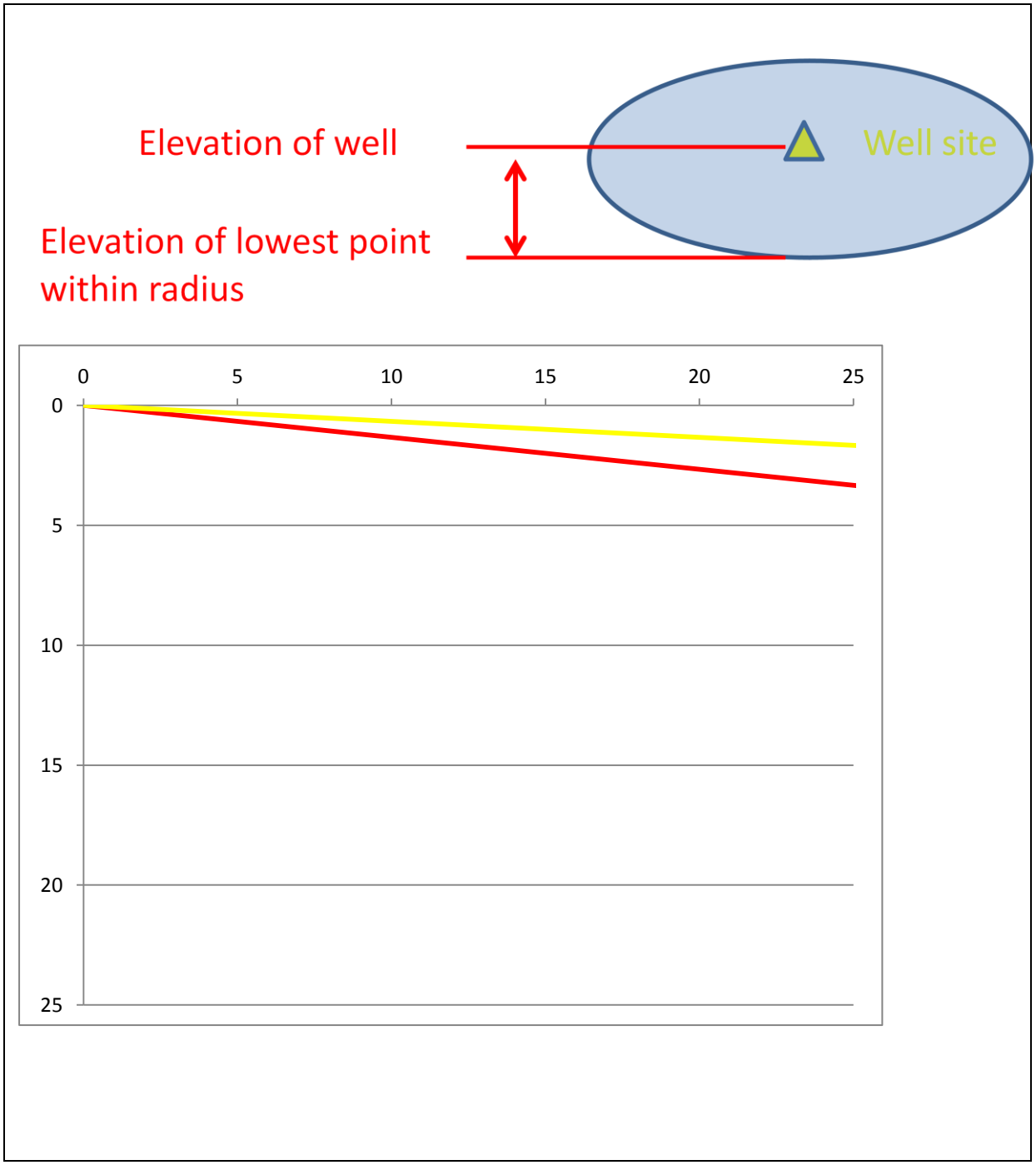


Figure XX: Slope and drop off down slope.

Attention and action

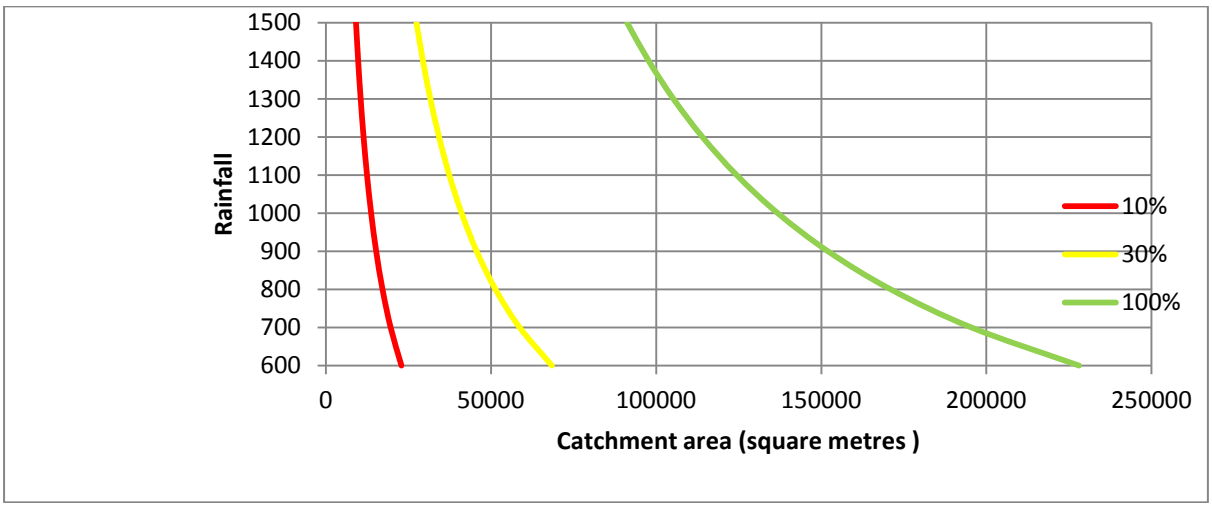
Catchment size

Taking the catchment size, number of households and rainfall assess whether catchment is marginal, small or adequate.

		Households (assuming 5 persons, 15 litres/head/day)								
		30			50			70		
Rainfall (mm annum)	<900	9600	32000	96000	16000	53000	160000	22000	75000	225000
	900 - 1400	6800	23000	68500	11400	38000	114000	16000	53000	160000
	>1400	5700	19000	57000	9400	31400	94000	13200	44000	132000

Marginal catchment	Small catchment	Adequate catchment

Graph based on 50 household case



Slope drop off (hand dug wells only)

For hand dug wells, use the3 estimate of the maximum drop off within 150 metres of the well, calculated above, to assess the risk of rapid drainage.

>20 metres	20 – 5 metres	< 5 metres

Annex XX

Agro-ecological zonation system, based on field observations. (Hurni 1986)			
Altitude metres above sea level: More than 3700m	A = Main crops C = Traditional conservation S = Soils on slopes T = Natural trees		**High Wurch** A = None (frost limited) C = None S = Black soils, little undisturbed T = Mountain grassland
Altitude metres above sea level: 3700-3200m		**Moist Wurch** A = Only barley, 1 cropping season per year C = Drainage rare S = Black soils, degraded T = Erica, Hypercium	**Wet Wurch** A = Only barley, 2 cropping seasons per year C = Widespread drainage ditches S = Black soils, highly degraded T = Erica, Hypercium
Altitude metres above sea level: 3200 – 2300m		**Moist Dega** A = Barley, wheat and pulses, 1 cropping C = Some traditional terracing S = Brown clay soils T = Juniperus, Hagenia, Podocarpus	**Wet Dega** A = Barley, wheat, nug, pulses, 2 cropping seasons per year C = Drainage ditches widespread S = Dark brown clay soils T = Juniperus, Hagenia, Podocarpus, Bamboo
Altitude metres above sea level: 2300 -1500m	**Dry Weyna Dega** A = Wheat, tef, rarely maize C = Terracing widespread S = Light brown to yellow soils T= Acacia trees	**Moist Weyna Dega** A = Maize, sorghum, tef, enset rare, wheat, nug, barley C = Traditional terracing S = Red, brown soils T = Acacia, Cordia, Ficus	**Wet Weyna Dega** A = Tef, maize, enset in western parts, nug, barley C = Drainage widespread S = Red clay soils, deeply weathered, gullies widespread T = Many varieties, Ficus, Cordia, Acacia, Bamboo
Altitude metres above sea level: 1500 – 500m	**Dry Kolla** A = Sorghum rare, tef C = Water retention terraces S = Yellow sandy soils T = Acacia bushes and trees	**Moist Kolla** A = Sorghum, rarely tef, nug, dagussa, groundnut C = Terracing widespread S = Yellow silty soils T = Acacia, Eyrythrina, Codia, Ficus	
Altitude metres above sea level: Less than 500m	**Berha** A = None except irrigation areas C = None S = Yellow sandy soils T = Acacia bushes		
	Less than 900 mm	900-1400 mm	More than 1400 mm
	Annual rainfall (mm)		