

PAN-EVAPORATION METHOD

'Evaporation Pans' provide a measurement of the integrated effect of radiation, wind, temperature and humidity on evaporation from a specific open water surface. To relate pan evaporation (E_{pan}) to reference crop evapotranspiration (ET_0) empirically derived co-efficients (K_p) are given which take into account climate and pan environment.

Reference crop evapotranspiration (ET_0) can be obtained from :

$$ET_0 = K_p \cdot E_{pan}$$

where : E_{pan} = pan evaporation in mm/day and represents the mean daily value of the period considered.

$$K_p = \text{pan coefficient}$$

The value of crop factor (K_p) for any crop depends on foliage characteristics, stage growth, environment and geographical location. Consumptive use values are low during the early stages of crop growth and increase as the plants approach maturity. The seasonal factor has been adopted for calculating the evapotranspiration (ET) values in study area.

ANNEXURE I.A

Calculation of Potential Evapotranspiration PET = Ep x K (K =Seasonal Crop Factor)

Month	Pan 'A' Evaporation cm (Ep)	Cotton K =0.68	Banana K = 0.96	Barley Cereal/Maize K =0.60	Forest K=0.50
Jan.	12.70	08.636	12.192	07.620	06.35
Feb.	15.24	10.363	14.630	09.144	07.62
Mar.	25.40	17.272	24.384	15.240	12.70
Apr.	30.48	20.726	29.260	18.288	15.24
May.	43.18	29.360	41.452	25.908	21.59
Jun.	30.48	20.726	29.384	18.288	15.24
Jul.	15.24	10.363	14.630	09.144	07.62
Aug.	10.16	06.908	09.753	06.096	05.08
Sep.	10.16	06.908	09.753	06.096	05.08
Oct.	15.24	10.363	14.630	09.144	07.62
Nov.	15.24	10.363	14.630	09.144	07.62
Dec.	12.70	08.636	12.192	07.620	06.35

ANNEXURE I.B.

Actual Evapotranspiration (AET) ; (Pan Evaporation Method)

Basin Crop % Area Month	Upper Basin			Middle Basin			Lower Basin			Entire Heran Basin			
	Cotton 4%	Cereal, Maize & Barley 25%	Forest 20%	Cotton 15%	Banana 4%	Cereal, Maize Barley 35%	Forest 8%	Cotton 30%	Cereal/ Maize, Barley 44%	Cotton 11.75%	Cereal 31.04%	Banana 0.76%	Forest 13.4%
Jan	0.345	-	01.27	01.29	0.48	-	0.51	02.59	-	01.01	-	0.09	0.85
Feb	0.414	-	01.52	01.55	0.58	-	0.61	03.11	-	01.21	-	0.11	1.02
Mar.	-	-	02.54	-	0.96	-	01.02	-	-	-	-	0.18	1.70
Apr.	-	-	03.04	-	01.16	-	01.22	-	-	-	-	0.22	2.04
May	-	-	04.31	-	01.66	-	01.72	-	-	-	-	0.31	2.89
Jun	0.829	04.57	03.04	03.10	01.16	06.40	01.22	06.22	08.04	02.43	05.67	0.22	2.04
Jul	0.414	02.28	01.52	01.55	01.58	03.20	0.61	03.11	04.02	01.21	02.84	0.11	1.02
Aug	0.276	01.52	01.01	01.03	0.40	02.13	0.41	02.07	02.68	0.81	01.89	0.07	0.68
Sep.	0.276	01.52	01.01	01.03	0.40	02.13	0.41	02.07	02.68	0.81	01.89	0.07	0.68
Oct	0.414	02.28	01.52	01.55	0.58	03.20	0.61	03.11	04.02	01.21	02.84	0.11	1.02
Nov	0.414	-	01.52	01.55	0.58	-	0.61	03.11	-	01.21	-	0.11	1.02
Dec	0.345	-	01.27	01.29	0.48	-	0.51	02.59	-	01.01	-	0.09	0.85
Total	03.729	12.17	23.57	13.94	09.02	17.06	09.46	27.98	21.44	10.91	15.13	01.69	15.81

AET = 39.46 cm

AET = 49.48 cm

AET = 45.42

AET = 43.54 cm