

Supplementary

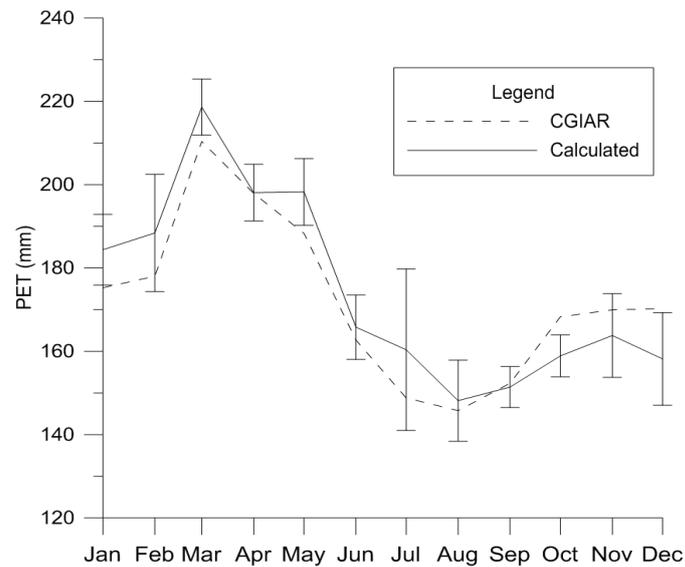


Figure S1. Comparison of averaged PET by month using the modified Penman equation for 2003-2011 compared to CGIAR-CSI worldwide monthly averages from 1950-2000.

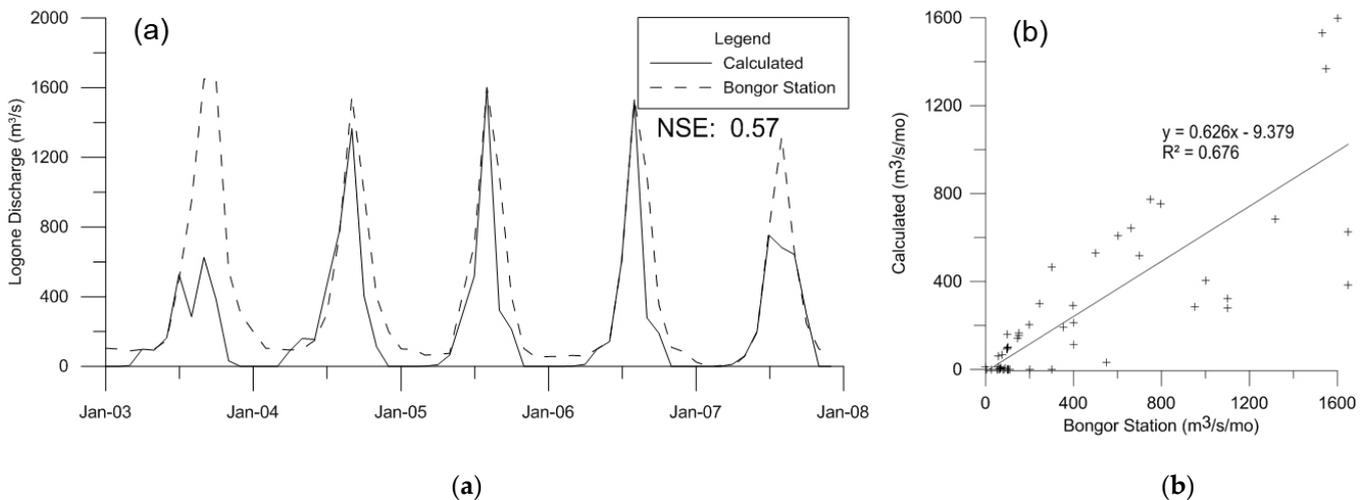


Figure S2. *In situ* monthly Logone river discharge data from Bongor station compared to WetSpas-M outputs considering burning (a). Scatter plot of monthly discharge data from 2003 to 2011 for Bongor station compared to model outputs considering burning (b).

Table S1. WetSpass-M Vegetative Land Lookup Table.

Land Use Type	Vegetated Runoff	Vegetated Area	Bare Area	Impervious Area	Open Water Area	Root Depth	LAI	Min Stomata Opening	Vegetative Height	nManing	Land Factor	Aerodynamic Resistance
cropland	crop	0.8	0.2	0	0	0.4	4	180	0.6	0.037	0.541	115.013
burned cropland	crop	0	1	0	0	0.4	0	180	0.6	0.02	0.541	115.013
deciduous forest	forest	1	0	0	0	2	5	250	18	0.1	0.2	27.196
burned deciduous	forest	0.75	0.25	0	0	2	5	250	18	0.02	0.2	27.196
coniferous forest	forest	1	0	0	0	2	6	500	15	0.1	0.2	28.631
burned coniferous	forest	0.75	0.25	0	0	2	5	500	15	0.02	0.2	28.631
mixed forest	forest	1	0	0	0	2	5	375	16	0.1	0.2	28.098
burned mixed forest	forest	0.75	0.25	0	0	2	4	375	16	0.02	0.2	28.098
savannah	grass	1	0	0	0	0.6	6	110	2	0.05	0.4	66.329
burned savanna	grass	0.15	0.85	0	0	0.6	5	110	2	0.02	0.4	66.329
grass	grass	1	0	0	0	0.3	2	140	0.12	0.035	0.571	212.014
burned grass	grass	0	1	0	0	0.3	0	140	0.12	0.02	0.571	212.014