

Table

Table 1 Hydrological features of three watershed gauging stations.

Catchment	Station	Data period	Control area (km ²)	Average rainfall (mm)	Average runoff (10 ⁸ m ³)	Average evaporation (mm)
Sandu River	Gangu	1965–2016	2484	467.32	0.45	893.32
Hulu River	Zhangcunyi	1965–2016	4715	494.52	1.06	1151.36
Dali River	Suide	1965–2016	3960	429.60	1.31	1541.76

Table 2 General descriptions of IHA metrics.

IHA metric (subtotal number)	Hydrologic parameters
1. Magnitude of monthly water conditions (12)	Median value for each month
2. Magnitude and duration of annual extreme water conditions (12)	Annual minima, 1-day mean Annual minima, 3-day mean Annual minima, 30-day mean Annual minima, 90-day mean Annual maxima, 1-day mean Annual maxima, 3-day mean Annual maxima, 7-day mean Annual maxima, 30-day mean Annual maxima, 90-day mean Number of zero-flow days Base flow index: 7-day minimum flow/mean flow for year
3. Timing of annual extreme water conditions (2)	Julian date of each annual 1-day maximum Julian date of each annual 1-day minimum
4. Frequency and duration of high and low pulses (4)	Number of low pulses within each water year Median duration of low pulses (days) Number of high pulses within each water year Median duration of high pulses (days)
5. Rate and frequency of water condition changes (3)	Rise rates : median of all positive differences between consecutive daily values Fall rates: median of all negative differences between consecutive daily values Number of hydrologic reversals

Table 3 Attribution analysis for streamflow changes at the three stations.

Station	Period	Q (mm)	P (mm)	E ₀ (mm)	ΔQ (mm)	η _c (%)	η _h (%)
Gangu	1965–1994	25.34	471.21	875.23	/	/	/
	1995–2016	8.51	462.02	918.00	−16.83	25.90	74.10
Zhangcunyi	1965–1990	24.48	518.89	1131.26	/	/	/
	1991–2016	20.32	470.15	1171.45	−4.16	64.30	35.70
Suide	1965–1996	36.96	423.12	1492.23	/	/	/
	1997–2016	27.02	440.10	1621.01	−9.95	8.22	91.78

Table 4 Distribution areas and proportions of check dams, terraces, and reservoir measures in each catchment.

		Sandu	Hulu	Dali River
		River	River	
Check dam	Control area/km ²	15.42	414.14	1750.3
	Distribution (%)	0.6	8.8	44
Terrace	Control area/km ²	1807.45	73.15	222.33
	Distribution (%)	72.7	1.5	5.6
Reservoir	Control area/km ²	13.77	0	108.96
	Distribution (%)	0.2	0	2.7