Supplementary Table S1. *The value of SDG 6 indicators and impact indices in Lincang City and eight counties.*

Table S1.1 The value of SDG 6.1.1 in Lincang City and eight counties (%)

Region		2015	2016	2017	2018	2019	2020
City	Lincang	82.44	88.21	88.80	87.45	95.28	95.54
County	Linxiang	85.95	93.50	94.13	72.85	91.65	91.67
	Fengqing	87.70	94.41	92.28	100.00	100.00	100.00
	Gengma	87.69	88.56	94.30	93.27	98.19	100.00
	Cangyuan	73.93	83.52	92.31	83.33	84.45	98.68
	Shuangjiang	64.30	81.86	93.23	92.15	99.08	99.69
	Yun	82.51	81.77	94.00	98.50	98.51	98.61
	Yongde	83.44	87.63	85.14	85.17	95.67	95.24
	Zhenkang	79.77	88.32	93.48	93.22	94.97	81.40

Table S1.2 The value of SDG 6.2.1 in Lincang City and eight counties (places/ km^2)

Region		2015	2017	2020
City	Lincang	0.44	3.02	4.21
County	Linxiang	0.23	2.84	4.48
	Fengqing	0.30	1.26	2.22
	Gengma	0.80	4.98	5.15
	Cangyuan	0.91	3.10	5.66
	Shuangjiang	0.33	4.81	7.40
	Yun	0.31	2.33	2.60
	Yongde	0.76	3.98	4.11
	Zhenkang	1.04	5.22	5.74

Table S1.3 The value of SDG 6.3.1 in Lincang City and eight counties (%)

Region		2015	2016	2017	2018	2019	2020
City	Lincang	79.23	88.49	91.00	93.02	94.57	99.17
County	Linxiang	77.04	92.04	96.04	91.40	96.10	99.16
	Fengqing	64.11	86.00	86.46	100.00	100.00	100.00
	Gengma	92.16	86.18	90.54	91.20	91.43	100.00
	Cangyuan	88.89	88.64	90.79	100.00	99.69	100.00
	Shuangjiang	96.02	88.57	92.45	95.12	96.61	99.14
	Yun	85.60	88.01	85.74	88.20	88.50	98.00
	Yongde	80.24	83.23	85.90	87.27	87.53	97.60
	Zhenkang	85.89	88.89	93.02	94.18	95.11	99.30

Table S1.4 The value of SDG 6.3.2 in Lincang City and eight counties (%)

Region		2015	2016	2017	2018	2019	2020
City	Lincang	100	100	100	100	100	100
County	Linxiang	100	100	100	100	100	100
	Fengqing	100	100	100	100	100	100
	Gengma	100	100	100	100	100	100
	Cangyuan	100	100	100	100	100	100

Region	2015	2016	2017	2018	2019	2020
Shuangjiang	100	100	100	100	100	100
Yun	100	100	100	100	100	100
Yongde	100	100	100	100	100	100
Zhenkang	100	100	100	100	100	100

Table S1.5 The value of SDG 6.4.1 in Lincang City and eight counties (%)

Region		2015	2016	2017	2018	2019	2020
City	Lincang	4.78	18.05	-12.12	1.18	12.06	1.33
County	Linxiang	-2.72	53.68	-16.20	-4.19	42.82	-14.77
	Fengqing	-0.60	16.77	-12.32	8.66	2.01	4.01
	Gengma	14.20	16.19	-6.64	-0.76	4.23	18.63
	Cangyuan	6.74	19.15	-18.41	6.58	5.56	-16.07
	Shuangjiang	5.60	10.66	-7.99	-1.64	11.91	1.89
	Yun	4.48	10.19	-19.34	-1.66	13.10	5.05
	Yongde	-3.61	8.29	-11.72	2.05	8.07	5.91
	Zhenkang	17.13	33.08	-7.32	3.04	-1.74	2.41

Table S1.6 The value of SDG 6.4.2 in Lincang City and eight counties (%)

Region		2015	2016	2017	2018	2019	2020
City	Lincang	7.60	4.84	5.84	5.37	9.13	6.37
County	Linxiang	6.72	3.86	4.26	4.91	9.55	6.86
	Fengqing	11.02	6.62	10.17	9.07	14.95	9.93
	Gengma	5.70	3.70	3.95	3.52	6.58	4.08
	Cangyuan	5.00	3.61	4.04	3.31	4.55	4.44
	Shuangjiang	8.89	6.70	7.40	7.62	15.29	9.84
	Yun	9.19	5.90	8.27	7.97	14.25	8.71
	Yongde	8.71	5.81	6.67	6.45	11.61	7.79
	Zhenkang	6.74	3.36	4.07	3.22	4.97	3.54

Table S1.7 The value of SDG 6.6.1 in Lincang City and eight counties (%)

Region		2010-2015	2015-2018	2018-2020
City	Lincang	109.48	1.49	18.87
County	Linxiang	5.06	3.35	41.81
	Fengqing	1182.33	0.72	2.88
	Gengma	2.95	-2.08	2.92
	Cangyuan	4.76	1.34	54.72
	Shuangjiang	107.68	5.33	2.51
	Yun	-12.02	1.18	86.79
	Yongde	18.02	4.59	2.68
	Zhenkang	9.10	2.57	196.02

Table S1.8 The consumption of water resources in Lincang City and eight counties (hundred million cubic metres)

Region		Indicator	2015	2016	2017	2018	2019	2020
City	Lincang	Total water consumption	9.28	7.83	8.61	8.40	8.45	8.59
		Primary industry	7.74	6.38	7.12	6.80	6.80	7.11
		Secondary industry	0.55	0.49	0.50	0.58	0.59	0.51

Region		Indicator	2015	2016	2017	2018	2019	2020
County	Linxiang	Tertiary industry	0.93	0.89	0.91	0.94	0.90	0.84
		Total water consumption	0.99	0.63	0.74	0.77	0.73	0.87
		Primary industry	0.73	0.39	0.47	0.48	0.44	0.60
		Secondary industry	0.10	0.12	0.13	0.13	0.14	0.10
		Tertiary industry	0.15	0.12	0.13	0.14	0.13	0.14
	Fengqing	Total water consumption	1.69	1.44	1.64	1.50	1.51	1.54
		Primary industry	1.46	1.23	1.40	1.24	1.29	1.34
		Secondary industry	0.06	0.03	0.05	0.08	0.05	0.05
		Tertiary industry	0.17	0.17	0.17	0.17	0.17	0.13
	Gengma	Total water consumption	1.21	1.05	1.13	1.09	1.14	0.99
		Primary industry	1.02	0.86	0.93	0.88	0.91	0.78
		Secondary industry	0.07	0.07	0.07	0.08	0.09	0.08
		Tertiary industry	0.12	0.12	0.11	0.12	0.12	0.12
	Cangyuan	Total water consumption	0.81	0.68	0.75	0.70	0.69	0.86
		Primary industry	0.72	0.58	0.65	0.59	0.58	0.77
		Secondary industry	0.02	0.03	0.03	0.04	0.04	0.02
		Tertiary industry	0.07	0.06	0.07	0.07	0.07	0.07
	Shuangjiang	Total water consumption	0.96	0.86	0.94	0.95	0.97	0.99
		Primary industry	0.83	0.74	0.82	0.82	0.83	0.87
		Secondary industry	0.06	0.05	0.05	0.06	0.06	0.05
		Tertiary industry	0.07	0.07	0.07	0.07	0.07	0.06
	Yun	Total water consumption	1.53	1.35	1.51	1.53	1.49	1.44
		Primary industry	1.24	1.09	1.25	1.25	1.14	1.14
		Secondary industry	0.11	0.09	0.08	0.09	0.09	0.09
		Tertiary industry	0.17	0.17	0.17	0.18	0.17	0.15
	Yongde	Total water consumption	1.13	1.09	1.14	1.12	1.15	1.13
		Primary industry	0.95	0.90	0.97	0.93	0.97	0.96
		Secondary industry	0.05	0.05	0.04	0.05	0.05	0.05
		Tertiary industry	0.12	0.13	0.12	0.13	0.12	0.11
	Zhenkang	Total water consumption	0.96	0.73	0.77	0.74	0.78	0.79
		Primary industry	0.80	0.60	0.64	0.60	0.64	0.65
		Secondary industry	0.08	0.06	0.06	0.07	0.07	0.07
		Tertiary industry	0.07	0.06	0.06	0.07	0.07	0.07

Table S1.9 The scale of the total resident population in Lincang City and eight counties

Region		2015	2016	2017	2018	2019	2020
City	Lincang	250.90	252.00	252.60	253.60	253.80	225.80
County	Linxiang	32.00	33.65	33.75	33.95	33.98	37.10
	Fengqing	44.00	47.32	47.36	47.50	47.50	38.54
	Gengma	29.00	30.78	30.87	30.95	30.96	28.57
	Cangyuan	16.99	16.81	16.64	16.44	16.23	16.02
	Shuangjiang	17.00	18.42	18.46	18.56	18.57	16.47
	Yun	44.00	46.43	46.53	46.67	46.68	38.92

Yongde	29.00	38.21	38.31	38.41	38.42	32.89
Zhenkang	18.00	18.41	18.47	18.57	18.71	17.29

Table S1.10 The water-use efficiency in Lincang City and eight counties (RMB/ m³)

Region		Indicator	2015	2016	2017	2018	2019	2020
City	Lincang	Primary industry	6.76	8.28	7.41	7.95	9.15	9.60
		Secondary industry	273.77	296.21	266.99	230.79	192.86	228.73
		Tertiary industry	183.25	194.43	189.67	177.37	243.52	266.25
County	Linxiang	Primary industry	7.26	13.81	11.35	11.37	14.30	11.50
		Secondary industry	255.10	216.14	185.41	184.65	133.80	184.00
		Tertiary industry	290.77	355.59	324.02	289.95	529.37	493.24
	Fengqing	Primary industry	8.26	9.87	8.59	9.94	11.00	11.51
		Secondary industry	422.06	838.16	493.65	322.07	391.06	427.97
		Tertiary industry	158.28	153.74	151.52	152.40	185.36	237.53
	Gengma	Primary industry	9.73	11.62	10.65	11.49	12.69	16.27
		Secondary industry	274.25	289.77	284.70	244.80	181.26	203.28
		Tertiary industry	188.83	196.16	203.48	178.34	225.72	231.48
	Cangyuan	Primary industry	4.49	5.61	5.12	5.80	6.81	5.67
		Secondary industry	502.99	293.54	247.62	206.90	185.39	372.59
		Tertiary industry	175.49	198.87	186.73	173.77	181.76	187.35
	Shuangjiang	Primary industry	4.32	4.87	4.42	4.58	5.20	5.48
		Secondary industry	170.75	217.21	208.90	177.79	141.63	174.68
		Tertiary industry	179.01	174.57	177.14	169.60	246.75	261.86
	Yun	Primary industry	7.91	9.15	7.92	8.07	10.18	11.20
		Secondary industry	305.95	364.42	312.23	266.18	222.93	228.15
		Tertiary industry	136.33	142.64	138.62	132.94	172.95	202.08
	Yongde	Primary industry	5.75	6.07	5.70	6.01	6.65	7.41
		Secondary industry	294.95	272.41	289.07	267.95	239.99	254.13
		Tertiary industry	141.16	155.68	149.74	137.60	184.38	213.98
	Zhenkang	Primary industry	3.78	5.13	4.90	5.35	5.88	6.35
		Secondary industry	137.41	170.53	160.29	142.72	130.76	133.43
		Tertiary industry	200.87	226.92	225.85	221.47	232.09	240.97

Table S1.11 The scale of GDP per capita in Lincang City and eight counties (RMB)

Region		2015	2016	2017	2018	2019	2020
City	Lincang	20077	21906	23942	24892	29926	32358
County	Linxiang	27627	29685	32775	43512	47939	46188
	Fengqing	19307	20992	22733	24347	27882	37857
	Gengma	24060	26355	29169	31546	35904	42236
	Cangyuan	18288	19911	22268	22146	25124	31982
	Shuangjiang	19427	20972	23037	26674	29740	36029
	Yun	19643	21091	22810	22840	25949	33410
	Yongde	13995	16414	17768	20023	19911	25151
	Zhenkang	19286	21317	23777	24869	28031	32707

Supplementary Method S2. *The method of calculating SDG 6 seven indicators in Lincang City and eight counties.*

(1) The SDG 6.1.1 (the proportion of population using safely managed drinking water services) is reflected by the water quality standard rate of centralized drinking water sources, the rate of water penetration, and the extent and timing of the impact of drinking water safety events. Based on Lincang City water resources bulletin, the water quality standard rate is 100%, and there were no water pollution events in the region during the study period, so the water use prevalence rate in the statistical yearbook is used to reflect the progress of SDG 6.1.1.

(2) Public toilet is a crucial part of urban sanitation systems and a key indicator of a region's ecological civilization. SDG 6.2.1 (proportion of population using (a) safely managed sanitation services and (b) a hand-washing facility with soap and water) was estimated by the density of public toilets in urban regions, which is calculated by the ratio of public toilets number to urban built-up area.

(3) The SDG 6.3.1 (Proportion of domestic and industrial wastewater flows safely treated) data is derived from the percentage of wastewater safely treated from the Statistical Yearbook or the sewage treatment rate from the Housing and Building Department.

(4) The SDG 6.3.2 (Proportion of bodies of water with good ambient water quality) data derived from the water quality compliance rate of water functional zones and potable water sources in Lincang City's Bulletin of Environmental Status.

(5) The SDG 6.4.1 (Change in water-use efficiency over time) calculation references the UN's Metadata for SDG Indicators accounting method, the formula is as follows:

$$CWUE = \frac{WUE_t - WUE_{t-1}}{WUE_{t-1}} \times 100$$

$$WUE = A_{we} \times P_A + M_{we} \times P_M + S_{we} \times P_S$$

$$A_{we} = \frac{GVA_\alpha \times (1 - C_\gamma)}{V_a}$$

$$C_\gamma = \frac{1}{1 + \frac{A_i}{(1 - A_i) * 0.375}}$$

$$M_{we} = \frac{GVA_m}{V_m}$$

$$S_{we} = \frac{GVA_s}{V_s}$$

$CWUE$ is the change in water-use efficiency over time, WUE is water-use efficiency, WUE_t, WUE_{t-1} are water-use efficiency in time t and time t-1 respectively; A_{we}, M_{we}, S_{we} are irrigated agricultural water-use efficiency(USD/m³), mimec water-use efficiency(USD/m³), and services water-use efficiency(USD/m³), respectively; P_A, P_M, P_S are the proportion of agricultural sector water use, mimec sector water use and service sector water use, respectively; GVA_α, GVA_m, GVA_s are the Gross value added by agriculture (excluding river and marine fisheries and forestry)(USD), mimec sector and service sector, respectively; C_γ is the proportion of agricultural GVA produced by rainfed agriculture; V_a, V_m, V_s are the volume of water used by the agricultural sector (including irrigation, livestock and aquaculture) (m³), mimec sector and service sector, respectively; A_i is the proportion of irrigated land on the total cultivated land. Furthermore, to compare water use efficiency from year to year, the GDP of the corresponding industries must be transformed and uniformly converted to the comparable prices of the base period, using the agricultural price index, the industrial product price index, and the consumer index. According to the UN Water and FAO step-by-step monitoring methodology, the conversion between rain-fed and irrigated agriculture is computed using a default production ratio of 0.375.

(6) The SDG 6.4.2 (level of water stress) is the proportion of freshwater withdrawal to available freshwater resources. the formula is as follows:

$$Stress = \frac{TWW}{TRWR - Env} \times 100$$

Where:

$Stress$ is the level of water stress (%); TWW is the total freshwater withdrawn; $TRWR$ is the total renewable freshwater resources; Env is the environmental water requirements ($10^9\,\mathrm{m^3/year}$).

(7) The SDG 6.6.1 (Change in the extent of water-related ecosystems over time) refers to the rate of change in water-related ecosystems, the area of water-related ecosystems is extracted with rivers, lakes, reservoirs and wetlands from the resource and environmental science and data center (CRESD). This methodology uses 2010-2015 as the 5-year baseline period and to be compared against with 2015-2018, 2018-2020. Gains or loss in water-related ecosystems area can be beneficial or detrimental, and their impacts must be situated to local conditions.