Figure S1: Diagnostic plots of multiple linear regression

Table S1: Land use grading system applied for calculation of La index

LULC type	Un-used lands and bare soil	Forest, grassland and water bodies	Cultivated lands, gardens and artificial grass land	Cities, towns, industrial areas, mining areas
Degree index	1	2	3	4

Source: Zhuang and Liu [38]

Table S2: The amount of variance inflation factor (VIF) for main effect and interaction effect of different predictors

Predictors	SWRN	RNGE	AGRR	UTRN	URML	Elev	SWRN:RNGE	SWRN:AGRR	SWRN:UTRN	SWRN:URML	SWRN:Elev	RNGE:AGRR
VIF	2.54	335.50	2.80	1417.92	1417.92	32.37	3.63	1.82	17.33	9.66	3.63	3.94
Predictors	RNGE:UTRN	RNGE:URML	RNGE:Elev	AGRR:UTRN	AGRR:URML	AGRR:Elev	UTRN:URML	UTRN:Elev	URML:Elev			
VIF	1477.71	433.41	5.12	33.31	295.07	5.80	327.13	844.23	510.52			

Table S3: Performance metrics of different regression models for training and validation data

Regression model type	Training		Validation	
	R^2	RMSE	R^2	RMSE
Ridge regression	0.20	20.36	0.27	19.74
Lasso regression	0.18	22.05	0.22	21.69
Elastic Net regression	0.20	20.14	0.27	19.37