

2.2.2 Define the Value of Each Index

Table S1 The description of the calculation variables of each indicator in Table 1.

Indicator	Detailed description
Input Ratio of the Water Diversion Project (C_1)	Input of the water diversion project itself ($PI/100$ million yuan) mainly includes project construction fee (PI_1), project operation and maintenance fee (PI_2), equipment purchase fee (PI_3), equipment maintenance fee (PI_4), technical service fee (PI_5) and personnel labor fee (PI_6)
Regional Input Intensity (C_2)	The regional funding input (RI) mainly includes regional investment in environmental protection and water saving (RI_1), economic loss caused by industrial structure adjustment (RI_2), and impact of water reduction on agriculture (RI_3)
Output Index of the Water Diversion Project (C_3)	Output value of the water diversion project (OP) mainly includes ecological compensation benefit (OP_1), resettlement compensation fee (OP_2), GDP growth value of the water receiving area (OP_3), tourism benefit of the water diversion project (OP_4) and water saving benefit of the water offering area (OP_5)

Table S2 The description of the calculation variables of each indicator in Table 2

Indicator	Detailed description
Degree Meeting Regional Ecological Water (C_4)	Degree Meeting Regional Ecological Water mainly refers to satisfaction of the minimum ecological flow of rivers or the minimum water level of reservoirs
Emergency Response against Pollution Outbreak (C_5)	Emergency Response against Pollution Outbreak mainly refers to the ability of water diversion projects to deal with emergencies, which encompasses 20 indexes including safety management system, equipment loss rate, personnel quality, monitoring and early warning ability, people and governmental departments' response, rescue and resource guarantee abilities, rationality of emergency resource allocation, operability of technologies, order of traffic security management, effectiveness of command and control, timeliness of communication and contact, perfection of on-site and after-treatment, early warning, decision-making, emergency rescue, disposal, remedy, redress and inspection
Regional Ecological Environment Index (C_6)	Regional Ecological Environment Index mainly includes vegetation coverage index VFC , fish biological loss index FOE , biological integrity index IBI and regional water quality index WQI
Water Resources Capacity Index (C_7)	Water Resources Capacity Index mainly evaluates the capacity of water quality and quantity in the water offering area and the water receiving area
Water Origin Safety Level (C_8)	Water Origin Safety Level is mainly determined by water quality category, health risk and pollution risk of water sources.

Table S3 The description of the calculation variables of each indicator in Table 3

Indicator	Detailed description
Water Functional Area Qualification Index (C_9)	Water Functional Area Qualification Index refers to the ratio of the number of water functional zones meeting the standards to the total number of water functional zones.
Storage Adjustment and Flood Control Index (C_{10})	Storage Adjustment and Flood Control Index is reflected in the scientific and reasonable flood control dispatching, storage and discharge, etc., and the flood control capacity of reservoirs is used to block and store floods, thus reducing upstream flood control pressure, downstream flood peak flow, downstream flood pressure and flood disaster probability and losses.
Special Industry Development Index (C_{11})	Special Industry Development Index refers to the development level of industries with special local style, mainly including economic benefits of green industry and popularity of eco-tourism.
Public Satisfaction Index (C_{12})	Public Satisfaction Index measures the degree of public satisfaction from seven aspects: public information, public expectation, perceived quality, perceived value, satisfaction, public complaints and public trust.
Water Resource Development and Utilization Rate (C_{13})	Water Resource Development and Utilization Rate reflects the degree of water resources development and utilization.
Water Supply Guarantee Rate (C_{14})	Water Supply Guarantee Rate means the percentage of the number of years in which water supply fully met regional water demand in the calculated years.
Irrigation Guarantee Rate (C_{15})	Irrigation Guarantee Rate refers to the percentage of the number of years in which irrigation water supply fully met the actual irrigation water supply needs in the multi-year irrigation water supply plan.