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Title	Research on the evolution of human-water relationship from a diachronic perspective - a case study of the Linzhou area

Abstract

Human societies have relied on water as a fundamental resource, employing engineering and management methods to control it for the development of agriculture and the stabilization of social and political structures. The human-water relationship is an important aspect of reflecting on the relationship between humans and nature, and its urgency is becoming increasingly evident in the context of climate change. Water conservancy construction has been a key element in the ongoing evolution of this relationship. This paper focuses on water conservancy construction, drawing on perspectives from history and geography. Using the Linzhou area as a case study, this paper analyzes the historical process of water conservancy development in this water-scarce area from both long-term and short-term time scales, summarizes the influencing factors across different periods, and explores the evolution of the human-water relationship. Materials such as local gazetteers, maps, and spatial data are utilized, and methods like literature review, geographic analysis, and field surveys are employed.

The findings are as follows: (1) The formation of comprehensive water conservancy scheme in Linzhou is influenced by continuous geographical conditions, climate change, proactive planning, organizational capacity, and technological advancements; (2) Local adaptive strategies have evolved from localized water resource utilization to regional-scale water resource regulation; (3) The human-water relationship is an evolving social continuity structure over time. This paper also develops a general analytical framework for the water–human relationship, which includes three dimensions: the physical form of water, the social model of water management, and the technical solutions for water management.

Keywords	Human-water relationship, Natural environment, Water conservancy construction, and Linzhou area