

Systems analysis of harmonious management of water resources in river basins

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Abstract This study is focused on the harmonious management of basin water resources and the systems method is used to analyse water resources management in river basins. The “One-heart and two-wings” structure is set up, in which the heart includes the developing, utilizing and protecting sub-systems of water resources and the two-wings includes the decision supports and implement-guarantee sub-systems. The concept of the harmonious management of basin water resources is established based on the harmonious management theory. The harmonious management theory is used to promote the functions of the whole water resources management system and the purpose is to realize harmonious inner organization, external environment. The harmoniousness degree of water resources management is a kind of quantity index that reflects the content of the water resources management system and reflects whether the system is harmonious with the outside circumstances. An example in Taiyuan City is given. The quantitative method to calculate the harmoniousness degree of water resources management system is developed by using the static analytical hierarchy process (AHP) and dynamic statistical method.

Key words harmonious management; harmoniousness degree; system analysis; water resources
