

论文

引汉济渭调水工程水资源配置研究

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摘要:

为解决关中地区水资源短缺问题,陕西省规划实施南水北调引汉济渭调水工程。在分析调水工程受水区用户、供水系统的基础上,构建了水资源配置网络图,并建立了该系统的水资源配置仿真模型,确定了配置原则。结合调水工程,设定了7种方案,通过长系列计算,得出了各方案的水资源利用情况。2020水平年,调水 $15.5 \times 10^8 \text{ m}^3$ 后可增加供水 $10.69 \times 10^8 \text{ m}^3$,占需水量的38.76%;调水 $15.5 \times 10^8 \text{ m}^3$ 与调水 $10.0 \times 10^8 \text{ m}^3$ 相比,工业供水保证率提高32.75%。计算结果表明,实施调水工程后可有效缓解受水区水资源短缺,调水量在保证城市用水、改善渭河河道生态环境方面发挥着主要作用。

关键词: 水资源配置模型 陕西省南水北调 调水效益

Water Dispatch of the South-to-North Water Transfer Project in Shaanxi Province

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Abstract:

In order to solve the problem of water resources shortage of Guanzhong area, the South-to-North water transfer project i.e. water diversion from the Hanjiang River to the Weihe River in Shaanxi Province has been planned. Based on analyzing the characteristics of users and water supply system in intake area, system network structure is established. The simulation operation model is established, and the objective is to satisfy the water demand of Guanzhong area, and operation rules are then determined. Combining the situation of water diversion project, seven water resources utilization schemes are calculated. In 2020, after diversion water $15.5 \times 10^8 \text{ m}^3$, $10.69 \times 10^8 \text{ m}^3$ more water can be supplied for intake area compared with no diversion project, which is 38.76% of the total water requirement. Industrial water supply reliability is increased by 32.75% compared with diversion water $10.0 \times 10^8 \text{ m}^3$. The results indicate water shortage can be relieved effectively, and the diverted water plays a major role in improving ecological environment of the Weihe River.

Keywords: water dispatch model water transfer project in Shaanxi Province water diversion benefit

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