The Impact of Climate Change on Water Supply and Demand Situation of the Yellow River Basin

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The Yellow River is the main water supplier for the northwestern and northern China. With the impact of human activities and economic and social development, the contradiction between water supply and demand becomes increasingly prominent in the Yellow River Basin. Firstly the paper analyzes water use structure and efficiency of the Yellow River Basin, according to the relevant planning of the state, provinces(regions) and the basin, considering the impact of the climate change on water resources, then the water demand is forecasted in the different level years. Based on the water demand, the status of water supply and demand in the Yellow River basin are simulated. Through a long series of monthly water balance calculation, the average annual and the typical dry years of water supply and demand situation are analyzed. The results show that: compared to the scene without taking into account climate change, the annual average volume of water shortage had increased by 4.21 billion m^3 , the ratio of water deficient increased by 8%, the water volume into the sea reduced by 2.18 billion m^3 , the runoff of the Yellow River will reduce further. When the insurance rate is 75% and 95%, the volume of water shortage will reach 15.055 billion m and 21.022 billion m, and 33 the ratio of water deficient in the whole basin will reach 28% and 37% respectively. Taking into account climate change, therefore the supply and demand of water resources will be extremely serious in dry years.