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## **Sustainable Water Supply in Northern China**

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China's fast-growing economy and increasing population are driving rapid industrial growth and urbanisation. Combined with a substantial agricultural sector with heavy water demands these can cause even a bigger gap between water needs and water supply.

Four-fifths of China's water is in the south, notably in the Yangzi river basin. Half the population and two-thirds of farmland are in the north, including the Yellow River basin. In some parts of China water scarcity could have a massive impact on the economy. For example, Beijing is considered to be in a situation of water scarcity with just 100 cubic metres of water per person per year available. Moreover, China's water resources are not always suitable for all use. For all that, information on water quality and quantity, water users and polluters remains inaccessible to the public. Citizen's right of access to information is not emphasised in the laws. Although several regulations on information disclosure have been promulgated, they have not been implemented because of weak supervision by the government and the public. The climatic conditions of the country amplify the uneven distribution of water. Moreover, the increasing migration of rural male labourers to urban and eastern coastal areas has sharply extended the feminisation of rural labour and agriculture, which has an important impact on water resources use.

Water resource problems in Northern China are not just due to over-consumption. In comparison to other countries water use efficiency in China is low. As the result of governmental policy, water consumption per GDP unit in China is 3-15 times less effective than in developed countries. Firstly, Chinese industry uses 4-10 times more water per unit of production than the average in industrialised nations. Secondly, the irrigation management system has become increasingly ineffective in meeting the needs of agricultural development and the farmers. Thirdly, China is neglecting its urban water infrastructure leading to more waste. Rapidly growing industrial and urban growth demand, along with an increasingly complex water-energy nexus, puts additional pressure on supply.

As a solution, the Chinese government has been building engineering projects, such as damming or diverting rivers or moving water from one river to another. However, its hydrological and environmental consequences could be enormously harmful. The government is also working to implement a number of other water saving solutions. China is pushing desalination projects for its coastal cities. It has indicated that it also wants to implement water recycling and water reuse in cities.

The situation with water scarcity in the Northern China points to the need to reform and restructure the country's water resources management framework as a whole. For this, the following needs government attention: establishing clear and transparent relations between government and society; increasing of public participation in water management, which is very low and limited; paying considerable attention to irrigated agriculture that is the main water consumer in Northern China's economy; clarifying the powers and responsibilities of River Basin Management Commissions and increase their coordination with other stake-holders; improving water law, including mechanisms and procedures for monitoring and enforcement, as well as integrated water management systems; implementing enforceable water rights laws.

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