



## **Adaptive Management for Climate Change Impact for Water Sector in China**

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China, as a larger developing country in the world, is facing bigger challenges than before on wisely managing water resources to support rapidly socio-economic development in 2020 and beyond. China has a vast area of 9.6 million sq. km and relatively abundant water resources with ranked sixth in the world after Brazil, the Russian Federation, Canada, the United States and Indonesia in terms of absolute amount of annual runoff. However, given its large population of over 1.3 billion, China has a very low per capita amount (about one quarter of the world average) of water resources and, is therefore one of the countries with the most severe shortage of water in the world, particular North China. North China is one of very important regions in China. For this region, population has 0.437 billion in 2000 that occupies 35% of total in China, GDP reaches 386 billion \$US that is also 32% of total in China. Irrigation area of North China is 42% of total in China, and agricultural product has 40% of total in China. However, it is the most water shortage area in China. For instance, water resources per capita in Hai River Basin have only 270 cubic meters, which is only 1/7 of the national average and 1/24 of the world average. Water Resource Vulnerability under impact of both climate change and human activities are rather significantly. This presentation will focus on two issues: (1) how to screening climate changes impact to water sector, and how to quantify water resource vulnerability related to impact of climate change and human activity? (2) how to take adaptation & wisely manage water to changing environment on existing water projects and new water programme & water policy in China? A screening process for climate impact to water sector in North China was proposed. A new study on quantifying water resource vulnerability, based on three practical and workable, i.e. the use to availability ratio, water crowding and per capita water use, were developed. Four case studies in China are given as explanation of this study. The concept on good water governance was discussed. It was shown that: (1) climate change and human activity are two big issues to water sustainable use. Science & technology will play a key role on understanding & reduce risk; (2) Water policy, in China will had to shift from water quantity management into water quality management, and water supply management into water demand management. Improving Water Governance will be a priority on climate change adaptation.