

# Status Quo of Renewable Resources Utilization in China and Opportunities for North East Asia Regional Cooperation: Taking Water Resource as an Example

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The first one is about status quo of water resources in China. The water resources in China are quite unevenly distributed. There are only 17% water resources in the six regions of North China with 35% of population and 27% of GDP of China. But things are a little different in the four regions of South China. We have relatively abundant water resources, but China water resources per capita were only one-third of the world average in 2013.

The water quality is not a question to be ignored. The percentage of category 4 to 5 water in China was about 28% and only 38.5% is better than “relatively good.” An outlook for groundwater is not bright. More than 65% of groundwater was reaching relatively poor and very poor.

At the same time, water withdrawal in the six regions of North China accounted for 45%. Half of the water supply in the regions comes from groundwater.

In terms of climate change, the inter-annual variations of China’s water resources are rising, and droughts have frequently occurred in the South West, North West, and North East during 2006 to 2012.

China’s water utilization rate has exceeded the internationally recognized safety level. In consideration of China’s future economy and urbanization development, the gap between supply and demand of water resources may expand.

The second part of my presentation is about water efficiency in China. More than 60% of water was used in agriculture, and only less than 2% was used in ecological supplements in 2014. The water consumption per GDP varies among different regions. It is much higher in North China and Northwest China than in other areas. In comparison with OECD countries, water use efficiency in China was much lower. The water consumption per GDP in China was more than three times of that in OECD average.

China's water consumption per GDP in agriculture was more than 10 times that of West Europe in 2013, and annual life water consumption per capita was only 60% in comparison with West Europe.

Based on the above analysis, we can conclude that China's water usage efficiency was much lower than West Europe, Japan, and Korea. The water consumption per GDP in agriculture and life water use per capita was lower than that of West Europe and North America. But in terms of virtual water, things are much worse. In consideration of water intensity, agriculture, electricity, food, beverage, and tobacco processing, textile industry, and papermaking and printing, chemical industry were the worst 10 sectors in 2011. Textile industry ranked as the worst.

Export of China's annual total virtual water was nearly 60 billion tons. As to virtual water, China's export exceeds its import. The annual net export was nearly 9 billion tons in 2011. In terms of the composition of international trade structure, this situation was not favorable for water-saving. Especially textile industry has a bad influence.

Now, I will give you a brief introduction of China's water management scheme and some cases. The Three Red Lines system was introduced as China's water management scheme. The Three Red Lines are restriction on water usage, baseline for water efficiency, and restriction on water pollutant discharge. The government's performance evaluation is mainly based on the responsibility of the Three Red Lines. At the same time, economic incentives such as water rights trading, water pricing, and ecological compensation are used to encourage to improve water efficiency and water-saving. On the other hand, stakeholder participation is guiding in the right direction. Not only the inter-departmental cooperation, inter-regional cooperation but also NGO, enterprises and citizens' participation are needed.

Here are three cases of water management in China. The first case is in Zhejiang Province. The water management accountability is placed on the Head of local government, who is responsible for commanding and coordinating multi-department efforts in water environment protection, flood control, water drainage, water supply and water-saving, with disclosure of environmental information.

The second case is water rights trading. Dongyang is a city of Zhejiang Province and Yiwu is another city of Zhejiang Province. Dongyang is located in the upper reaches of Yiwu, and Yiwu has a clean water shortage. In November 2000, Yiwu paid 200 million RMB once and for all to Dongyang for permanent water use right of 50 million cubic meters for 1 year. It became the first case of China's water rights trading. The story of Dongyang and Yiwu is not water rights trading case in a strict sense. But it was an auspicious start to China's water rights trading.

The third case is about integrated environmental restoration in Jinshan District of Shanghai. In Jinshan district, there are many chemical enterprises. This resulted in many environmental problems with rapid development this year. So, they started to restore natural water and an ecology program through the participation of enterprises

and citizens.

Based on the above analysis, we would like to put forward the policy suggesting a water efficiency improvement and international cooperation. The four suggestions are discussed below. The first one is to improve water efficiency through various policies, such as the reforms of water pricing, technological innovation, and industrial structure. The second one is to eliminate the barriers confronting international technology transfer. The third one is to impose different tariffs to encourage export of lower-virtual-water products so as to optimize the international trade structure. The fourth one is to share the water management expertise and experience.