WATER RESOURCES MANAGEMENT IN CHINA UNDER CLIMATE CHANGE

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1. Background
2. Challenges
3. Strategies
1. Background

- The annual average total water resources in China is 2.8 trillion m³. Per capita is 217.3 billion m³, which is only about 1/4 of the average world level.
- The northern regions of China support 64% of its land area, 60% of its farmland and 46% of its population with 19% of the country’s water resources.
- The average precipitation of the maximum 4 consecutive months in the north mostly occurs from June to September, which accounts for more than 70% of the annual precipitation.
1. Background

The annual amount of water use in China is about 600 billion m³, which accounts for 21% of total amount of water resources.

As for the north, the ratio is about 50%.
2. Challenges

Affected by climate change and other factors, it shows a decrease trend of water resources in some regions. The water resources in Haihe area, Yellow River area and Liaohe River area, which are short of water resources and have a high degree of exploitation, have a prominent attenuation.
2. Challenges

Some researches show that the frequency of droughts increased in recent years. During the 41-year period from 1950 to 1990, China experienced severe drought in 11 years, with a frequency of 27%. During the 20-year period from 1991 to 2010, China experienced severe drought in 9 years with a frequency of 45%.

Severe drought in 2009 in Chaoyang, Liaoning Province

The biggest flood in a century in 2006 in Chongqing
3. Strategies

- **Regard water resources as the most rigid constraint**

- Based on National Water Resources Assessment, National Water Resources Integrated Plan, analyze the availability of water resources for each county and limits for various sectors.

- Analyze the water resources bearing capacity for each county, and define overstressed zones, critically overstressed zones.

- Establish a capacity warning system. Try to establish an integrated system of monitoring, warning, publishing and control of water resources carrying capacity, and record in a regulation system of water resources carrying capacity and control overuse and manage the over use.
3. Strategies

- **Strengthen efficient water use**

Compared with the world's advanced level, China's water use efficiency is relatively low which further aggravates the water shortage.
3. Strategies

- **Strengthening efficient water use**
  - **Agriculture Water Savings:**
    - Agricultural techniques and biological measures.
    - Adjustment in crop pattern according to the water availability.
    - More rational water use.
  - **Urban and Commercial Water Savings**
    - Water saving devices
    - Leakage control
  - **Industry Water Savings**
    - Optimize Spatial Layout of High-water-consumption Industry
    - Advance Structural Adjustment of High-water-consumption Industries.
3. Strategies

- **Restore and protect aquatic ecosystems**
  - River ecology restoration
  - Control and Rehabilitate Protected Water Areas
  - Rivers and Lakes Ecology Restoration

- Groundwater conservation and recovery
  - Groundwater use Allocation Schemes
  - Reduction of Groundwater Overexploitation
  - Increase Groundwater Reserve
Thank you!