

# **Groundwater Pricing Policies in the Practice of Groundwater Over-pumping Control in North China Plain**

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- **Background**
- **Water pricing system framework**
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# Background

- **North China Plain:**

- $\approx 300,000\text{km}^2$ , second largest plain area of China, including Beijing, Tianjing, Hebei, Henan and Shandong.
- Severe over-exploited problem : over-exploited area over  $254,000\text{ km}^2$ , over-pumping rate over 6 billion  $\text{m}^3$  per year.
- 46% water supply from GW, 61% of GW for agricultural use



# Background

- Water price for different users before new pricing system put into practice, take Hebei province as an example:

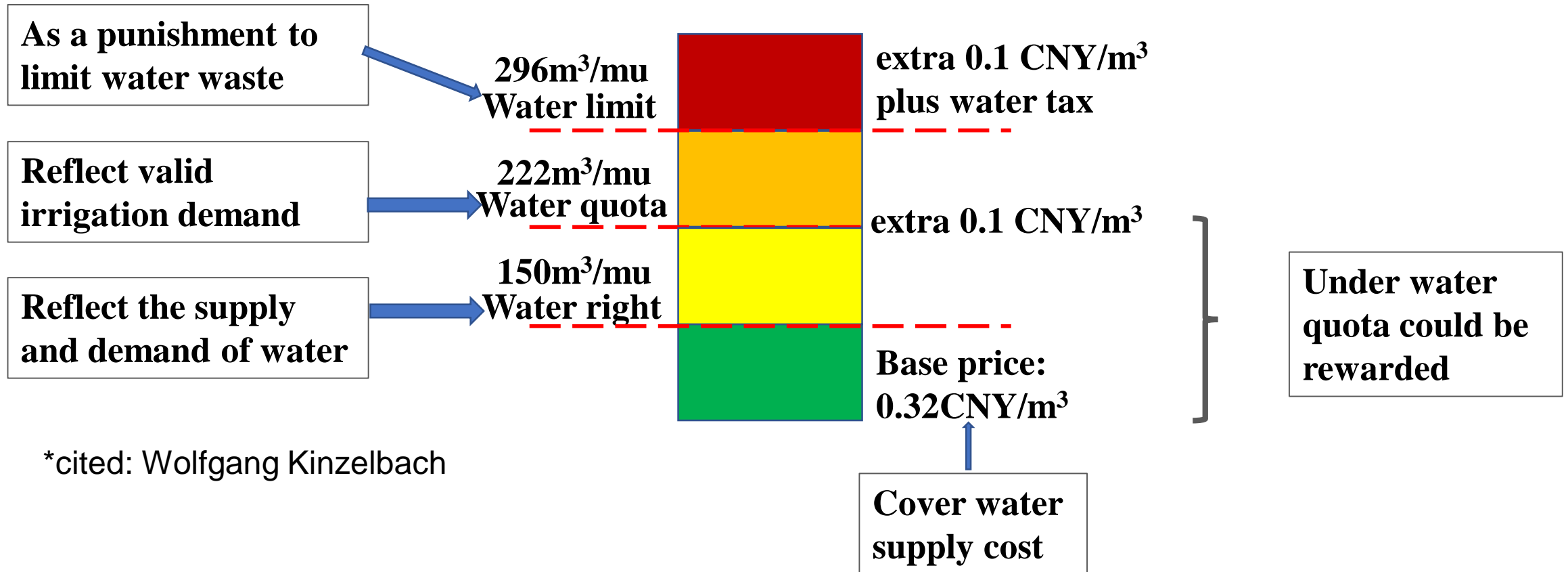
	Surface water	groundwater
domestic use	2.67-3.81 CNY/m <sup>3</sup>	2.4-3.78 CNY/m <sup>3</sup>
industrial use	4.45-5.84 CNY/m <sup>3</sup>	2.4-3.78 CNY/m <sup>3</sup>
Special industries (e.g. )	13.63-23.79 CNY/m <sup>3</sup>	2.4-3.78 CNY/m <sup>3</sup>
Agricultural use	3.9 CNY/mu	near free

- Water fee collection methods before new pricing system:
  - Cities: surface water fee collected by water supply enterprise, groundwater by administrative department or property management company
  - Rural places: surface water by water supply enterprise, groundwater almost free

# Framework of water pricing system in NCP

- **Water pricing mechanism**

- **Step pricing scheme: three level, introduce water right, water quota and water tax, take Guantao county as an example**



- **Raise and reward scheme: raise water price and reward water saving**

# **Framework of water pricing system in NCP**

- **Water fee collection system**
  - **Three level “county-town-village” water user association**
- **Water monitoring system**
  - **The method of “electricity-water conversion” is widely used to estimate the pumping rate in area with no metering equipment**

# **Implementation and outcome**

**Evaluate the first 3 years (2014-2016) of implementation, 5 cities of Hebei Province as pilot area**

- Implementation area reaches 8.57 million mu, 16% the total irrigation area**
- Water fee: 41.1million CNY, supporting water supply and project maintenance**
- saved water up to 20m<sup>3</sup>/mu for each irrigation (according to the estimation of Taocheng, Hebei province)**
- Farmers voluntarily make a cropping change and low water consumption crops like cotton, maize are preferred.**

# **Implementation and outcome**

- **Equity issue :**

**raise water price and reward water saving, higher water price in over-exploited area, accelerating the water resources to be used evenly among different area**

- **Distributional issue:**

**water fee collected used to cover water supply cost, capacity build, such as water user association, diversion project maintenance, etc.**



**Thanks!**