WATER MIX PRACTICE IN CHINA

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A contribution to the Handbook on Diversification of the Water Resources Mix

1 · WATER ENDOWMENT & SCARCITY

Why China needs a diversified water supply

6th — Total water resources rank globally

35% — Per-capita water vs. world average

≈2/3 — Of cities face some water shortage

The basic water situation

- **Overall national water resource characteristics: total volume abundant, per capita possession far below global average**
- **Large population, limited water, nature distribution uneven in time and space**
- **Sharpest scarcity: development tension in the north & northwest, esp. the Yellow River basin**
- **Water saving & non-conventional sources are the fundamental path out of scarcity**

Incentive system

Pathways

Fresh Water

Rigid constraint

& Total-volume Control

Unconventional Water

Encouragement

& Scale-up

Policy Instruments

Water Law

Article 47 The State applies a system for the use of water under which control over the total volume is combined with control over the quotas

Regulation on Water Conservation

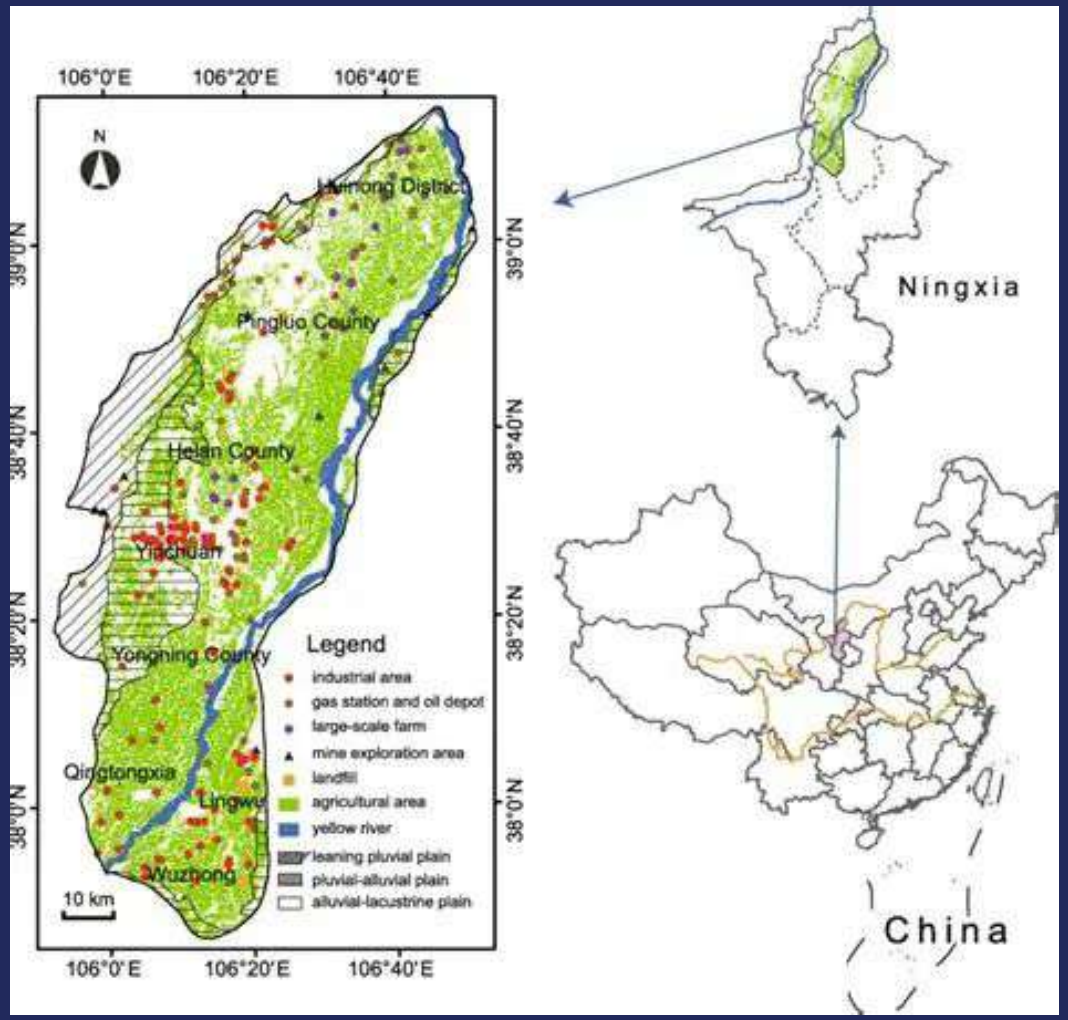
(May, 2024) China's first administrative regulation on water saving

National reclaimed-water standards for fit-for-purpose reuse are on the drafting

Action targets

- In 2025, China’s national unconventional water utilization volume was 25.66 billion cubic meters, accounting for 4.3% of total water use
- Of this, reclaimed water utilization was 21.34 billion cubic meters, accounting for 83% of unconventional water use

Yinchuan: Yellow-River-anchored, multi-source mix



(Xinya Li 2020)

- Arid northwest, within the Yellow River basin
- Severe water shortage while rich in coal resources
- Unconventional water sources are prioritized as alternative water supply

Yinchuan: Yellow-River-anchored, multi-source mix

Measures

A. Fresh Water Rigid Constraint

- Decomposed control targets down to county level under a "total volume control, county-specific quotas, zoned management" framework
- Implemented the "Four Waters, Four Determinations" pilot

B. Water Rights Reform & Market-Based Allocation

- Completed water rights registration for agriculture, industry, and aquaculture sectors
- Pioneered the nation's first water rights trade swapping reclaimed water for Yellow River water allocation

C. Reclaimed Water Utilization

- Reclaimed water is used for ecological and environmental replenishment, industrial cooling, and non-potable urban uses.

D. Institutional & Regulatory Safeguards

- Issued Yinchuan Water Rights Reform Implementation Plan
- Supporting rules: registration · trading · collateralization

Achievement

1. Fresh Water

- Established a total water withdrawal cap, fresh water consumption reducing by 5% annually from 2020 to 2024.

2. Unventional Water

- By the end of 2023, Yinchuan City had cumulatively used 130.7 million m^3 of unconventional water, with its urban reclaimed water utilization rate reaching 58.9%, up 27 percentage points from 2021.
- Since the start of the 14th Five-Year Plan, the city has facilitated water market transactions totaling 704 million m^3, ranking first in Ningxia.

What China's practice offers

Rigid-constraint & target-driven

Water availability as a determining factor for urban scale, land use, industrial production, and population size — with enforceable caps on total water withdrawal.

Investment & incentive

Early-stage Government Investment + matching funds + PPP + market-based pricing → broader social capital

Tax rebates and incentives

Tax breaks
Preferential reclaimed water tariffs
Discounted water prices

Unconventional water use has become an urgent priority globally

The handbook provides valuable experience to inform the next step on water mix internationally

5 · FACING SITUATION

Challenges

Huge Investment

- Costly treatment
- Distribution networks lag behind water supply networks
- Long payback periods ⟶ low private capital enthusiasm
- Limited user affordability for high-priced reclaimed water

Trust & Quality

- End users: limited confidence in reliability, consistency, and safety
- Regulation: strict, effective water quality oversight still being improved

Thank you very much!

- Gratitude to INBO & partners for this valuable webinar
- More cases & insights in future INBO publications—Water Mix