

BRIEF OF GROUNDWATER MANAGEMENT IN CHINA

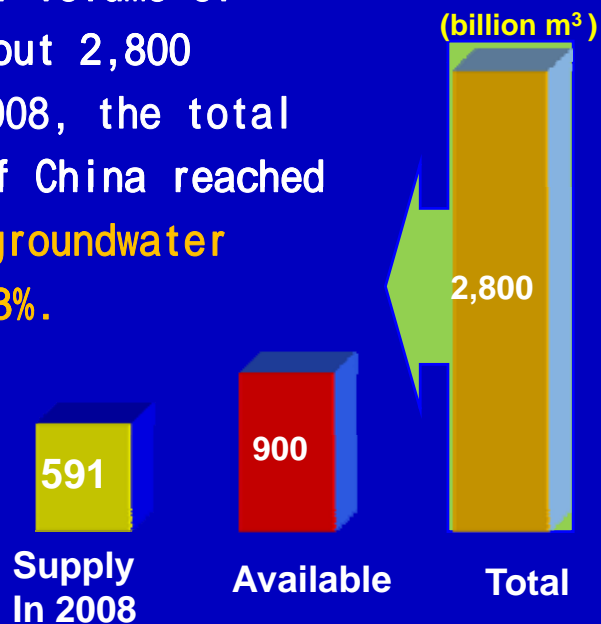
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12th July 2010, Yokohama

CONTENT

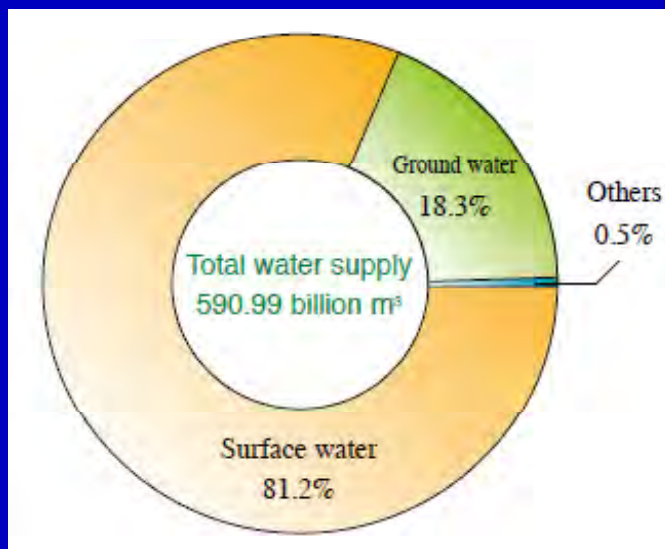
- 1. groundwater resources in China
- 2. groundwater related problems
- 3. management issues
- 4. further actions

1. GROUNDWATER RESOURCE IN CHINA

China enjoys the total volume of water resources at about 2,800 billion m³. In year 2008, the total water supply volume of China reached 591 billion m³, where **groundwater contributes about 18.3%**.

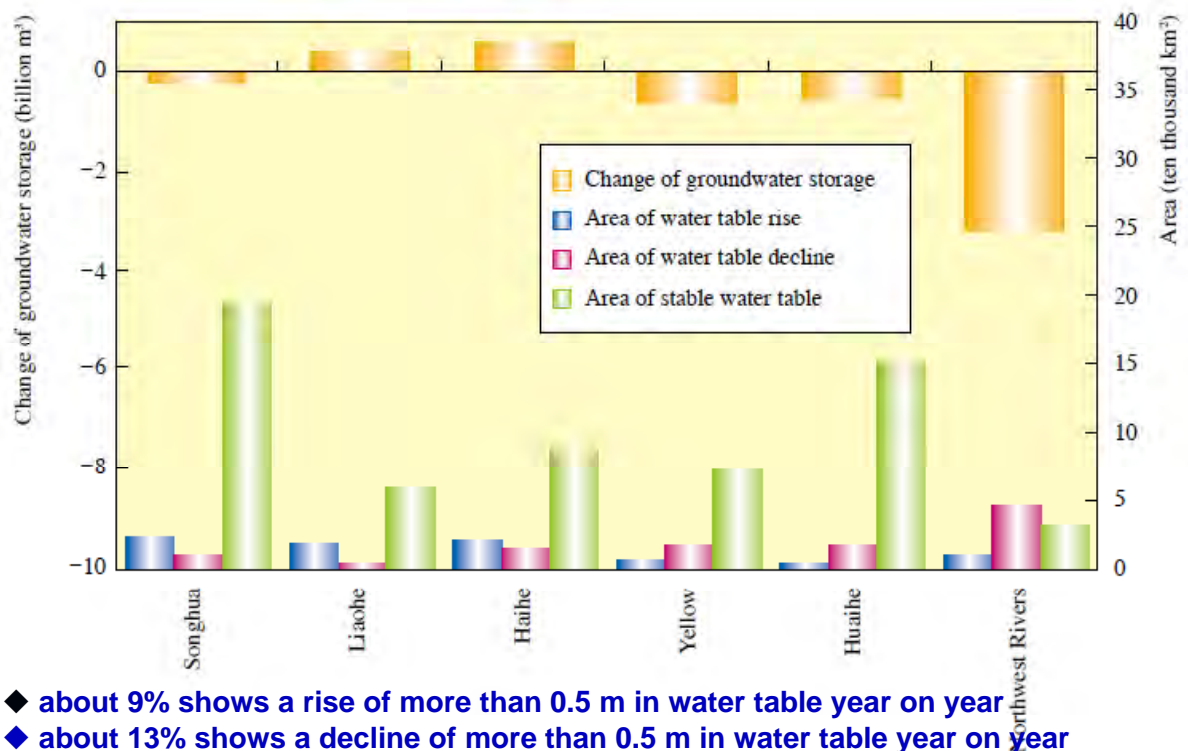


- Groundwater supply refers to abstraction by wells and is counted in terms of shallow fresh water, deep confined water and brackish water.



composition of groundwater supply in 2008

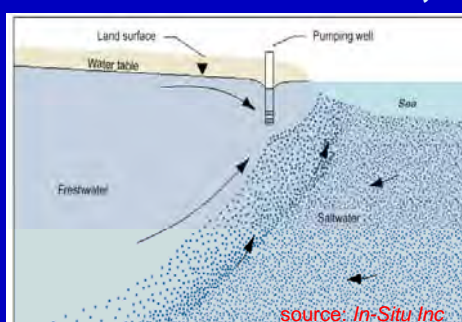
Changes of shallow groundwater storage in the plain areas of northern WRRs, 2008



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2. GROUNDWATER RELATED PROBLEMS

- Decreasing of groundwater level due to continuous regional heavy exploitation
- Deterioration of eco-environment system, such as
 - ✓ pollution to groundwater,
 - ✓ potential of accelerating the dry up of river channels,
 - ✓ surface settlement,
 - ✓ seawater intrusion, etc



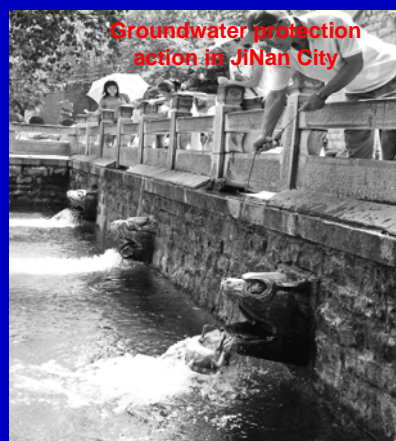
3. MANAGEMENT ISSUES

(1) Legislation & policy development

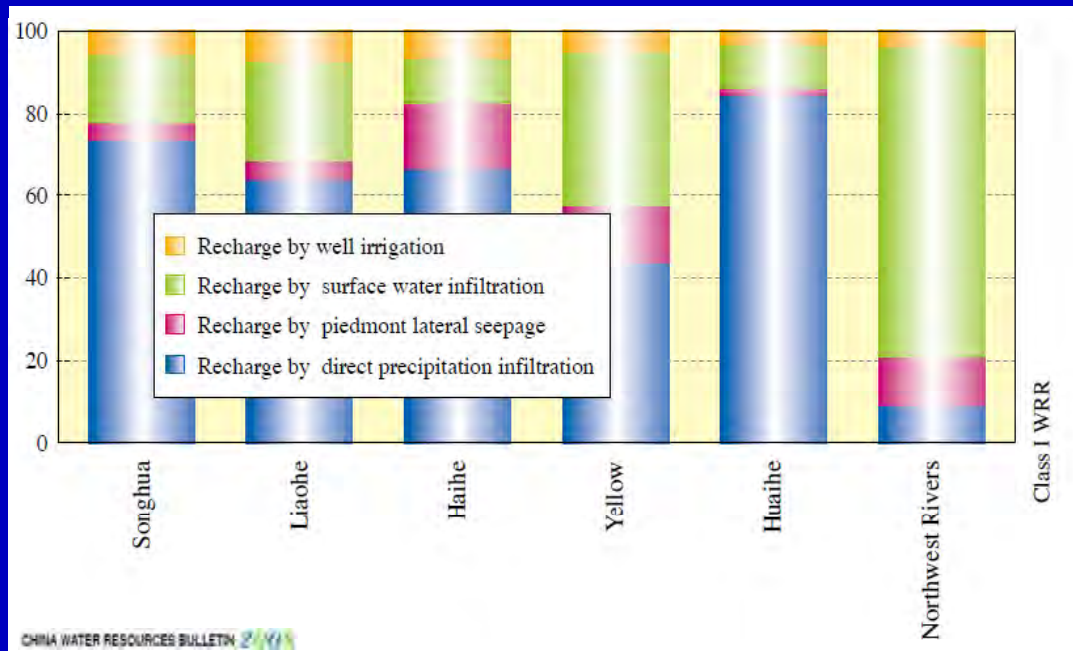
- The Law of the People's Republic of China on Prevention and Control of Water Pollution was revised in 2008. It will help in preventing water pollution, protecting environment, safeguarding drinking water safety for sustainable development.
- The Regulation on Water Drawing Permit Management was promulgated in 2008, to promoting smooth implementation of the water drawing permit system.
- Establishment of the “most strict water resources management system” was initiated in 2009 by the Ministry of Water Resources, which outlined the water consumption “bottom lines” of the volume, efficiency and contamination holding capacity.

(2) Pilot projects & actions

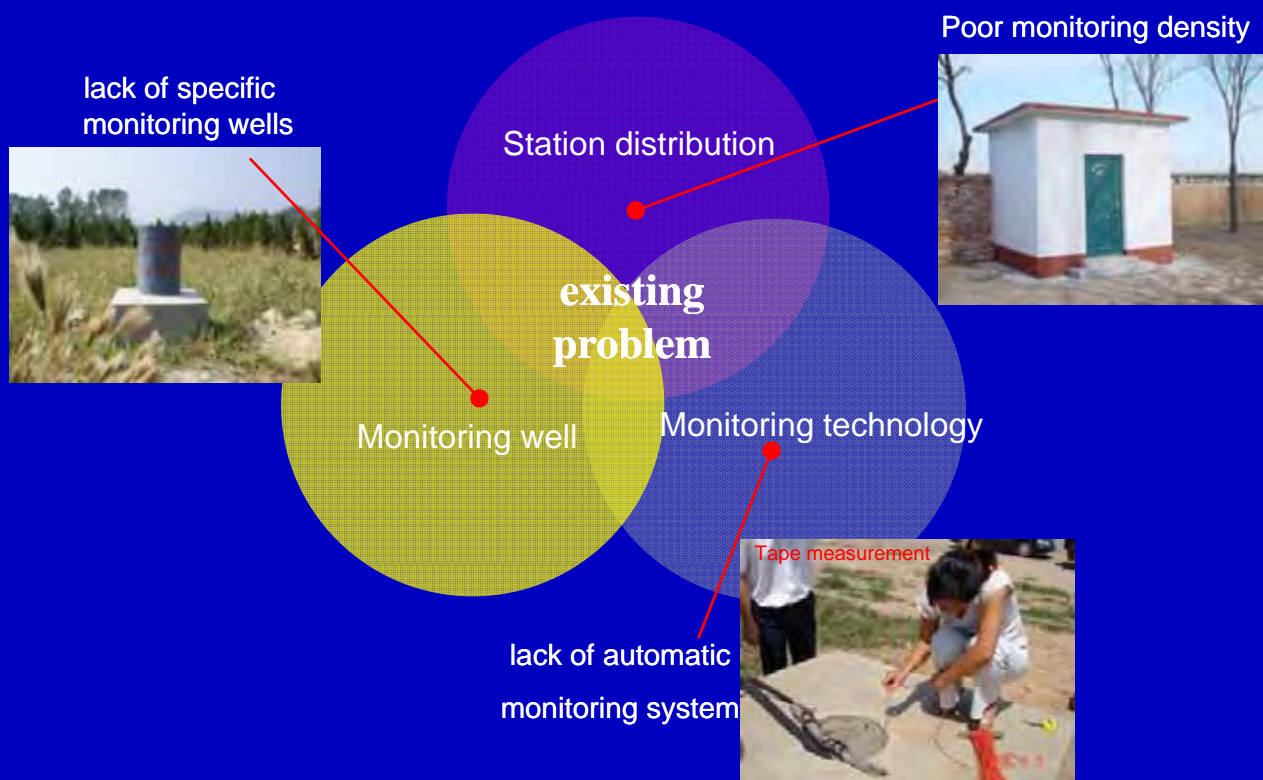
- “national groundwater protection action” since 2003
- Pilot action on close down pumping wells to Stop groundwater pumping in certain areas
- Pilot action on groundwater restoration in groundwater depression regions



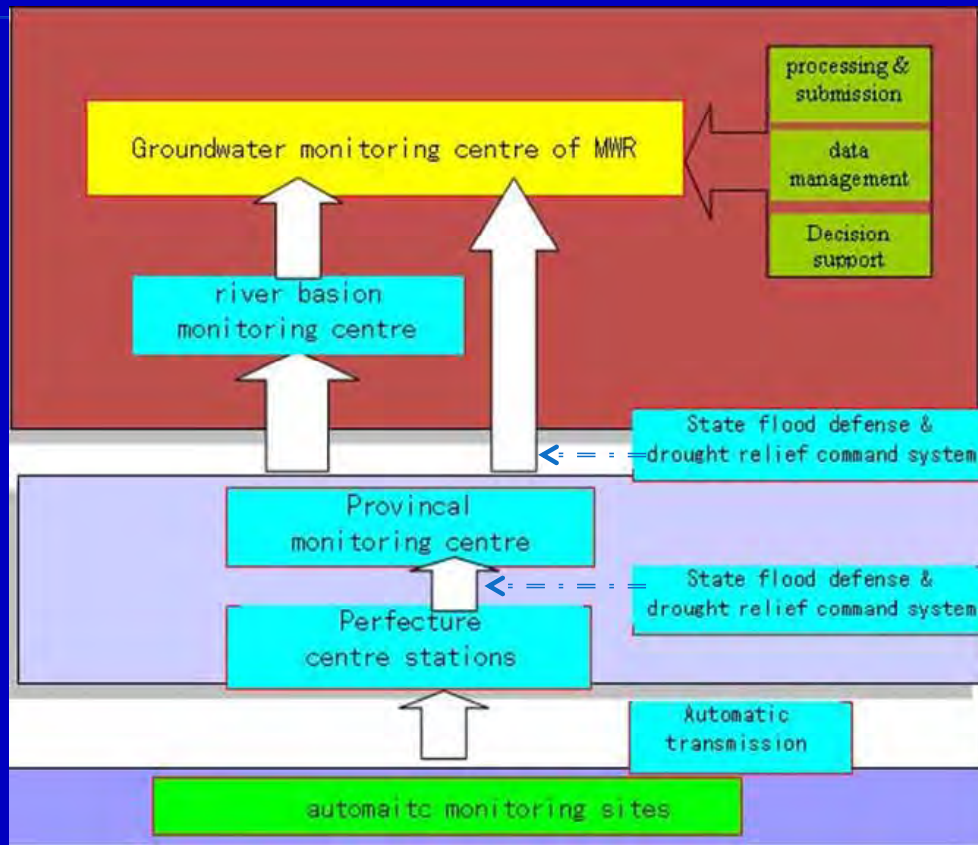
Composition of plain groundwater recharge in the northern Class I WRRs, 2008



(3) Enhanced groundwater monitoring



Proposed state groundwater automatic monitoring system



4. FURTHER ACTIONS

(1) To strengthen the government policies and management, including:

- **To constitute the specific Regulations on groundwater management**
- **To strengthen the capability for implementing “the most strict water resources management”**
- **To expand the action plans from pilots to whole country**

(2) To promote technical guidelines of groundwater monitoring

◆ In particular, to promote and revise the technical Guideline of “technical standard for groundwater monitoring”, to be recommended to the Ministry of Water Resources for adoption in the whole country.



(3) To further improve groundwater monitoring capacity

- ◆ Develop and improve monitoring network
- ◆ Enhance automatic monitoring capacity
- ◆ Improve monitoring skills for technicians
- ◆ Improve monitoring data management system



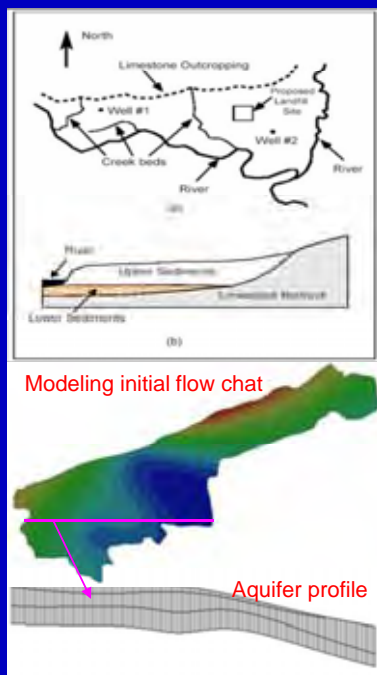
(4) To enhance technical and research studies:

To carry out groundwater analysis and modeling to provide scientific support for decision-making and remedy-measures.

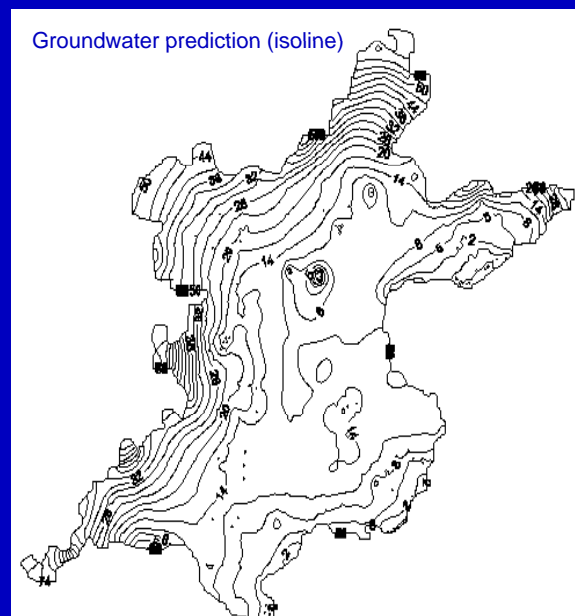
To analyze and conclude pilot study achievements to replant to other regions, e.g.,

- ◆ Managing climate change effect on groundwater through monitoring for safe drinking
- ◆ Large scale groundwater modeling and short-term prediction for northern China

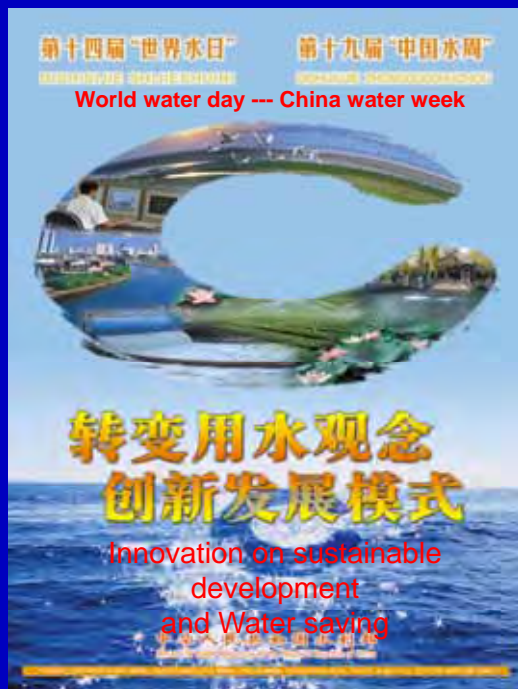
- ◆ Managing climate change effect on groundwater through monitoring for safe drinking:
Pilot area in Xianyang city



- ◆ Large scale groundwater modeling and short-term prediction for northern China:
Pilot area in Hebei Plain

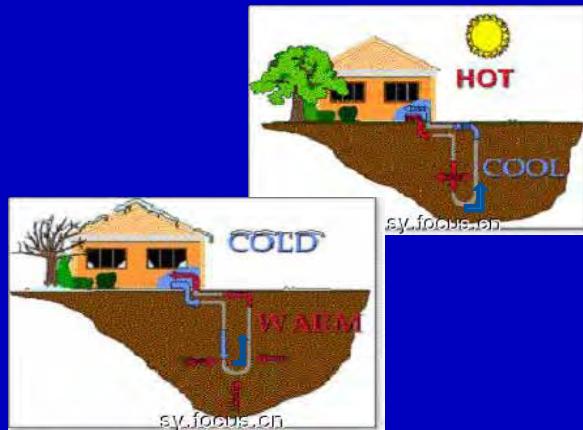


(5) To stimulate innovation applications on sustainable development

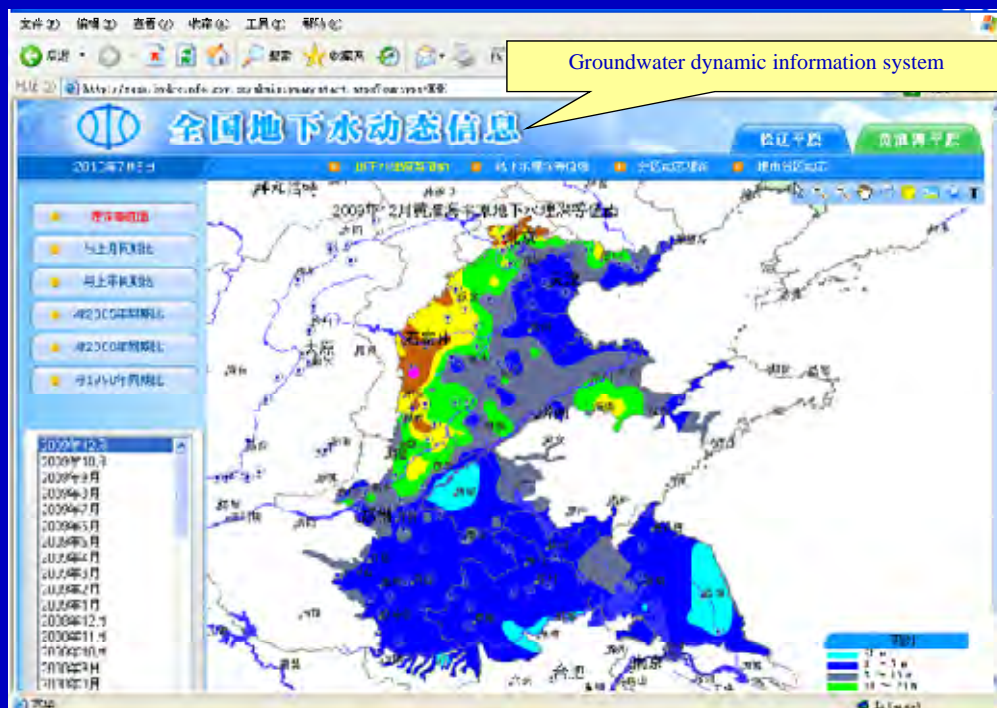


Example:

Innovation on groundwater --- Heating and cooling system with Ground-Source Heat Pumps



(6) To stimulate information sharing & public participation



节约用水
从我做起



Saving water is
everyone's
responsibility...

世界上最后一滴水——

Thank you !

