

Inter-governmental Agreements & Effective Water Governance in China

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Total Quantity Of Global Water Resources

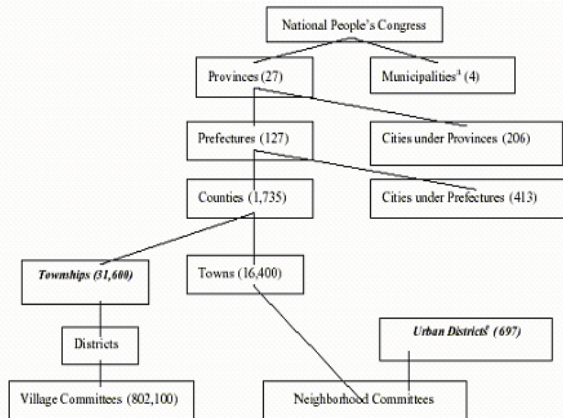
Country	National territory area 10^4km^2	Farmland area 10^4hm^2	Population 10^3 person	Total quantity of water resource 10^9k m^3	Irrigation water quantity per ha $\text{m}^3 \cdot \text{hm}^{-2}$	Per capita water resource $\text{m}^3 \cdot \text{person}^{-1}$
Brazil	851.2	5,350	161,790	6,950	1,299,065	42,957
Russia	1,707.5	13,097	147,000	4,270	32,602.8	29,047.6
U.S.A	936.4	18,574.2	263,250	3,056	16,452.9	11,608.7
Indonesia	190.5	1,713	195,756	2,986	174,315	15,253.6
Canada	997.1	4,542	29,463	2,901	63,870	98,462
China	959.1	9,197.7	1,265,830	2,711.5	29,480.1	2,238.6
World Average	13,383.5	136,171.1	5,713,426	41,022.0	30,125.3	7,166.0

Table – Yellow River Withdrawals and Allocation Limits (BCM)

	1993	1993	1994	1995	1996	1997	1998
	Allocation	Withdrawals:					
Upper	12.7	21.9	21.3	21.8	22.1	22.4	22.8
Middle	9.5	13.4	12.9	13.6	13.3	13.7	12.8
Lower*	14.8	?	13.3	13.3	13.3	13.2	12.3
Total	37.0	?	47.5	48.7	48.6	49.2	47.8
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Over/Under							
Upper		9.2	8.6	9.1	9.4	9.7	10.1
Middle		3.8	3.3	4.0	3.7	4.1	3.2
Lower		?	-1.5	-1.4	-1.5	-1.6	-2.5
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Excess Withdrawals	?		10.5	11.7	11.6	12.2	10.8

*Includes transfers from Lower Reach to Hai and Huai basins

Figure 3.1 The government structure in China

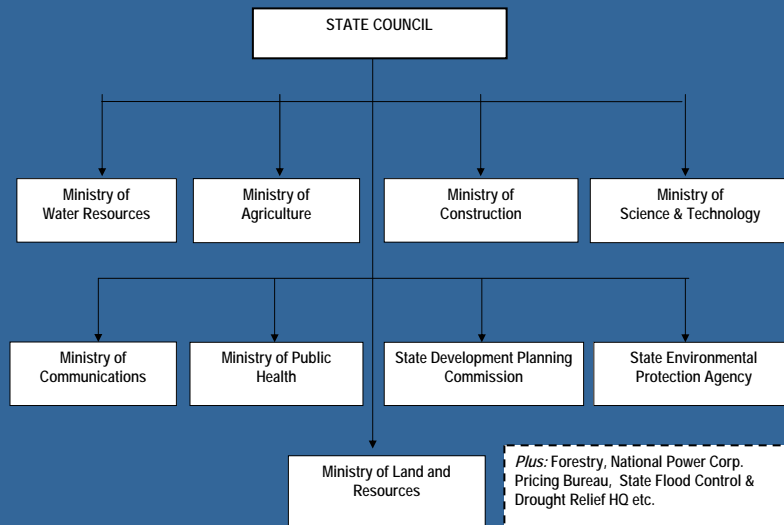


* Beijing, Tianjin, Shanghai, Chongqing.

† Under cities at all levels.

Source: World Bank, *Managing Public Expenditures For Better Results*, April 2000.

Government Structure: Main Organizations of Importance to the Water Sector



Agreements & Responsibilities for the Provincial level

- Provinces have no inherent powers under the Constitution but only those *"prescribed by law"*.
- Thus:
 - There is some ambiguity as to whether the national or the provincial government is assigned primary resource management functions.
 - The lack of formal water allocations between provinces means that provincial governments have no clear indication of their rights to shared resources at a basin level.
- This compromises the ability of provinces to plan for the use of their water resources, and encourages upstream riparians to take unilateral action without due regard to the impacts downstream.

- The departments of water resources (DWRs) in the provinces report to the provincial governments but also have strong linkages to MWR and, historically, MWR exercised considerable direct authority over them.
- This tradition of centralized direction may have promoted standardized approaches in technical and administrative areas that are unsuited to a country the size and complexity of PRC. Coordination between sector departments and agencies at a provincial level encounters comparable problems at the central level.

- The water law recognizes the basin as the logical context for devising solutions to water resource management problems.
- **However:** land is fixed with site-specific characteristics and land-use dominates how water is used and/or abused. Integrated management of water and associated land resources must therefore be achieved within a defined geographical area.

RIVER BASIN AGENCIES.....

- The River Basin Commissions (RBCs) as now constituted are administrative departments of MWR.
- They cooperate with other central departments and agencies, with the provincial and local governments, and with other stakeholders as necessary, but receive their instructions from MWR.
- If they are required to implement State Council or other high level decisions, they do so on behalf of MWR.

- With decentralization and the strengthening role of the provinces, however, there are persuasive arguments for broadening the governance of RBCs to include the provinces and, perhaps, other stakeholders.
- Reflecting international experience, the presumption is that this would be achieved by legislating the RBCs an independent legal status

An Example of Yellow River Basin.....

- Provinces within the upper reach, and those in the middle reach, have been consistently and widely exceeding the limits.
- Chronic shortages in the downstream areas, and drying up of the lower reach of the river.
 - 1997 was an exceptionally dry year (about P90), yet the upper reach provinces withdrew nearly 10 BCM in excess of their allocation.

- Virtually all of the upper and middle reach withdrawals go for irrigation.
 - Clearly, these withdrawals are uneconomic at the margin, given the wide disparity in application rates.
 - In 1997, irrigation rates, in m³/mu, were 809 in the upper reach, 249 in the middle reach, and 304 in the lower reach.
- Nearly 12% of upper reach irrigation supplies go to paddy, while the marginal returns to irrigation water in the middle and lower reaches are very high.

Problems & Facts

- The RBCs are commissions only in name, having no separate governing board or corporate status. The RBCs are departments of MWR and perform those functions that MWR delegates to them.
 - **But:** The RBCs find it difficult to enforce provisions of basin plans on other sector ministries and provincial governments, and the functions that they perform overlap with activities undertaken at a provincial and local level.
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- RBCs in principle help resolve conflicts between jurisdictions and sectors, and ensure that multiple uses are served according to established priorities.
 - **But:** these functions are hampered by an absence of formal agreements on inter-provincial water allocation, pollution limits, and other matters.
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- The RBCs may propose (and to the extent they manage multi-purpose facilities real-time management) enforce allocations.
- **But:** most storage and diversion facilities are controlled by local or sectoral entities and these may be operated in ways that are inconsistent with the provisions of RBC plans. Only at times of flood do the RBCs exercise a predominant authority over other entities under the State Flood Control & Drought Relief HQ.

- Administration of land, groundwater and water quality is typically handled by agencies at provincial and local levels. The transfer of aspects of groundwater administration to MWR and the DWRs may facilitate integration of groundwater and surface water,
- **But:** conjunctive management, and integration of land and water, and water quantity and quality, all remain illusive within the basin context.

- The 1988 Water Law allows for the designation of special controlled areas so that RBCs can be subject to specific plans and management measures. This has particular relevance for over-exploited groundwater resources.
- However: no coordinated approach has been adopted under the 1988 law to the issue of groundwater over-exploitation, and the RBCs have only limited success in conjunctive management

- In principle, RBCs prepare basin development and operating plans, and undertake other tasks, in full consultation with the provinces, sectoral ministries and other stakeholders.
- In practice: there are few formal consultation mechanisms, and the main directives and decisions affecting RBC activities are received vertically from the MWR.

How provincial and other stakeholders can be incorporated in the governance and consultation processes of the RBCs is an important issue.....

A New Way of thinking
is

Water Governance!!!

Some Things to Keep in Mind about Irrigation in China

- 1) Transition Economy - Planned vs. Market Reforms
- 2) Highly Decentralized - Fragmented Management
- 3) MWR - Gives Guidance, Lower Levels Carry Out
- 4) User Pays Principle - Farmers Pay O&M + Capital
- 5) Irrigation District - **NOT** an Organization
- 6) Irrigation Management Reforms
 - Two Basic Types Since About 1995 or 1996
 - Transfer to Farmers – PIM (WUAs, SIDDs)
 - Transfer to Individuals – Small-scale Facilities
 - At Lower End or Small Schemes – Not Systems

Updates of WUA Development in China

- The Central Government's national policy supports establishment and expansion of WUAs based on democratic water management.
- 772 WUAs and 41 WSCs in 10 Provinces and 3 Municipalities have been established under 6 Bank-financed projects in China.

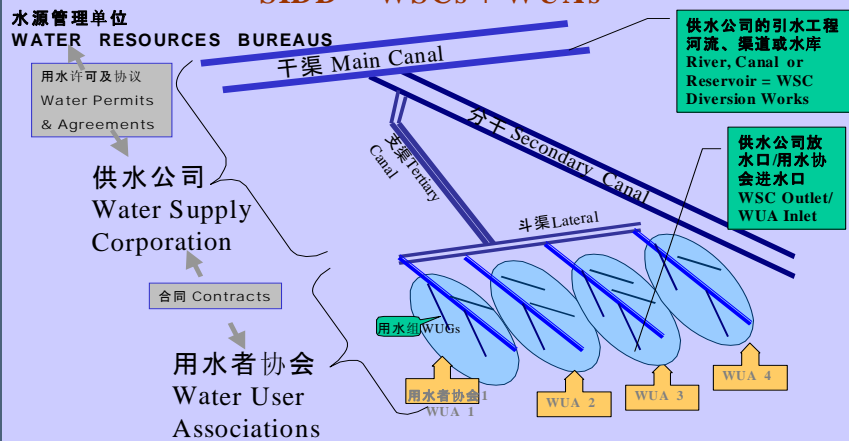
Why transfer?

- Assumption:
 - Irrigation management transfer (IMT) can improve the incentives of the farmers to save water and to increase water use efficiency and equity
- Conflicts on irrigation timing and distribution
- Non-transparency of water fees
- No farmer participation in decision-making
- Poor O&M
- Management cost burden on village farmers

What is the WUA concept?

农田水利设施管理的改善：供水公司和用水者协会构成的自主管理灌排区

Improving Rural Water Facilities Management: SIDD
SIDD = WSCs + WUAs



4 large, Bank-financed water resource projects include SIDDs as a component:

- Yangtze Basin Water Resources Project (1995)
- Irrigation Agriculture Intensification Loan II Project (1998)
- Tarim Basin II Project (1998)
- Water Conservation Project (1999)

Several other Bank-financed projects have added SIDDs/WUAs during implementation.

Key Quality Criteria for WUA Development:

- WUAs are the farmers' own organization (farmers elect, farmers manage, farmers make decisions, etc.);
- WUAs are organized on the basis of hydraulic boundaries;
- WUAs adopt volumetric water charges based on water measurement; and
- WUAs collect water charges for sustainable use of water resources and their own self-managing and self-financing costs, and have legal authority to collect water charges and pay them to the water supplier.

用水者协会 (WUA) 的四个关键原则:

- WUA 是农民自己的灌溉组织 – 农民选举, 管理及决策等;
- WUA 按水利边界进行组建;
- WUA 按用水量收取水费;
- WUA 收取水费以促进水资源的可持续利用, 提供自我管理和自我筹资的经费。它有权收取水费并将水费上缴供水者。

A Question

To what extent the anticipations by the government and the farmers are realized through the IMT program over the past years in China?

Research Findings

- Independent legal entity status of WUAs is clearly defined
 - to some extent this helps WUAs participate actively in the irrigation management.
 - farmer participation is mainly engaged in the construction and maintenance

Research Findings

- WUAs could be integrated with rural management system, though it is reluctant to declare WUAs shows a promoting role in rural development
 - Canal construction & maintenance and timely water supply are improved where WUAs are properly designed and implemented.
 - 85% of the HHs reflect that water conflicts among different village groups are decreased significantly.

Research Findings

- WUAs play an active role in optimizing irrigation system and in utilizing water resources reasonably. After the establishment of WUAs,
 - the numbers of insufficient water supply, fights due to water supply and irrigation delay are dropped by 100-300 percent.
 - 44.5% of the interviewee HHs respond irrigation water supply is guaranteed much better than before, and
 - 69.3%: working efficiency of WUA personnel is higher.

Research Findings

- Econometric analysis using production modeling disclose that the establishment of WUAs has positive effects on rice production.
 - 79.6% of the interviewees think they benefit from the introduction and implementation of WUAs.
 - However, in all of the irrigation districts the adjustment of cropping systems depends to a greater extent on the local market development, transportation and agricultural skills of the farmers.

Research Findings

- WUAs provide for the disadvantaged groups (namely the poor, women and the elderly) better access to irrigation water.
 - 80% of the interviewees respond that the time on waiting and monitoring waterflows is shorten but irrigation guarantee rates increased.
 - However, HHs of the disadvantaged groups still lack access to participating in the election of WUA Board leaders and in WUA management.

Research Findings

- Self-financing mechanism of WUAs are yet realized in the irrigation districts.
 - 83-95% of the total expenditures are taken up by water charges, while 5-11% by salaries and allowances.
 - ordinary farmers are not clear about WUAs financial situations.
 - Village Committees take over the right of water fee collection in 70% of the investigated villages.
 - 81.3% of WUA chairpersons (16 in total, including 6 previous chairmen) are resumed by village leaders.

Research Findings

- after IMT,
 - Irrigation charges on the farmers are slightly increased
 - the proportion of management costs out of total irrigation O&M costs increased
- There exist lack of farmer training on WUAs.
 - most of the farmers are not clear about the concept and functions of WUAs
 - they all agree WUAs should exist and should be reinforced.

Policy Implications

- WUA could be a direction and a choice for irrigation devolution reform.
 - It could provide the incentives for farmers to save water and could increase water use efficiency and equity.
 - Access to irrigation water for the disadvantaged groups could also be improved.
 - *Farmers would be willing to accept the incremental reform costs if WUAs could achieve the independence and self-financing.*

Policy Implications

- Self-financing has to be achieved in real sense for the sustainability of WUAs.
 - the key to the success of the devolution: How to reallocate the responsibilities and rights for all relevant stakeholders (including water bureau, irrigation district administration commission, agricultural bureau, water supply corporation, village committee, and WUA)
 - status of WUAs: the disagreement of relevant governmental rural policy and the complexity of rural reform.

Policy Implications

- Further in-depth research needs to be carried out to judge whether WUAs have the long –term vitality in China.

Issues Requiring Further Study

- Cost benefit analysis of irrigation management devolution needs to be further studied with focus on financial changes of irrigation district administration and WUAs.
 - 83-95% of WUA expenditures are paid as water charges to water supply corporations

Issues Requiring Further Study

- Institutional analysis on relevant stakeholders of WUA is required to understand
 - why WB WUA Manual is not well implemented in practice, and
 - how WUAs could establish self-financing mechanism
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For Your Funs Only.....



Irrigation Canals in China



WUA Member Meetings in Huoshan, Anhui Province



Beishan WUA members at Liuduzhai Irrigation District voting for Executive Committee members and their Chairman.
WUAs are based on democratic water management.



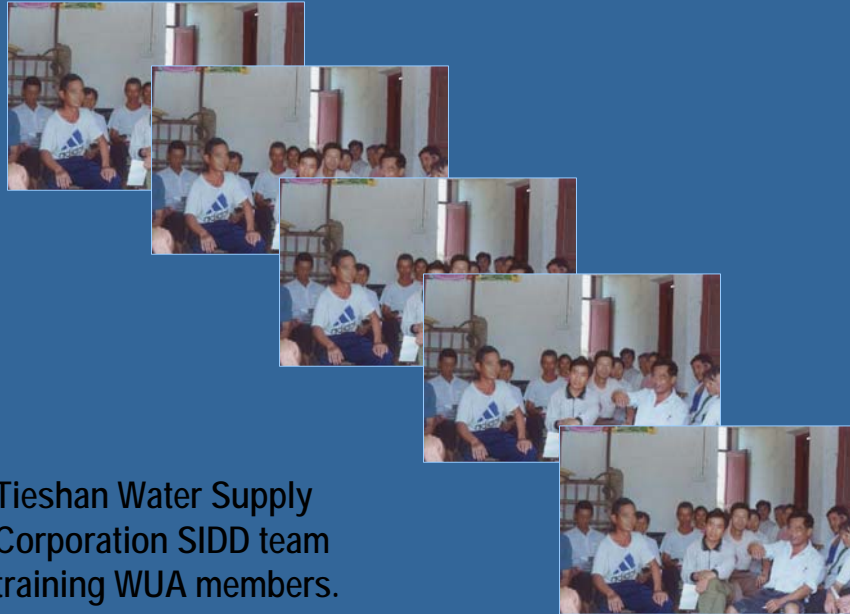
Hedong WUA members making sketch layout map for their irrigation system in Tieshan Irrigation District.
WUA members participate actively in the design of their local systems.



Opening ceremony for Changtang WUA which was established in 1995 after a year of preparation. Leaders from the Province, Municipality, County, and Township and Tieshan Water Supply Corporation were present.



The WUA Chairman and a WUA Executive Committee member hanging the WUA name board at the new office of Qingyun WUA, founded in 1997



Tieshan Water Supply Corporation SIDD team training WUA members.



Chief of Tieshan WSC SIDD office giving financial management training course to Changtang WUA Executive Committee members and representatives at the WUA office. Training is essential to ensure high quality WUAs.



General Manager of Tieshan General Water Supply Corporation (WSC) at the opening ceremony on Jingtong WUA established outside the Bank project area. Tieshan General WSC manages the main system, promotes WUA development throughout the irrigation district, and sells bulk water to WUAs and to cities and towns.



County Chief in Jiangsu pointing to WUA water measuring device. Support of local leaders for WUAs is essential.



Water measuring facilities at a WUA in Anhui. Water is sold by WSC/water supplier to WUAs by volume. Water measurement is critical, and popular with farmers.



WUA Chairman in Anhui explaining velocity meter used by WUA to measure water deliveries.



Manager of Zunhua WSC in Hebei explaining portable sonic water measuring device used by WSC to measure water deliveries to WUA clients.



IAIL2 Project Manager checking water meter in buried water distribution pipeline at a WUA in Henan.



WUA Chairman at Jingtong WUA in South Tieshan explaining WUA layout map to WSC General Manager and SIDD Director. WUAs are supposed to display map, charter and regulations for all to see. This WUA was established outside Bank project area with support of WSC.



WUAs are registered with Civil Affairs Bureau as legal persons. WUA Chairman in Jiangsu points out the WUA's registration certificate hanging proudly in the WUA office.



WUA Chairman in Shandong explaining WUA rules and regulations on display in WUA office. WUAs operate on the basis of transparent regulations which are open to all members and were decided by the WUA members as part of the establishment process.



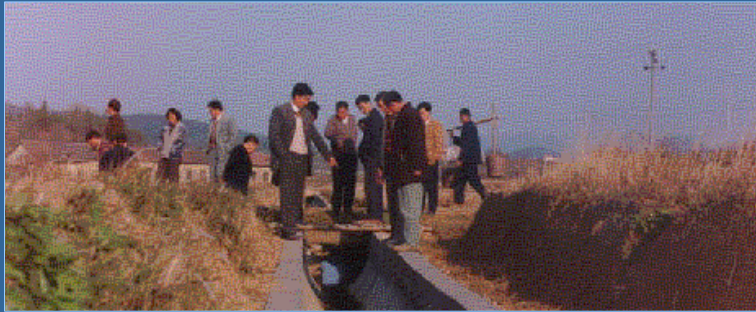
WUA Chairman in Hebei showing off photos from WUA establishment process. He is pointing to a photo of WUA members electing their own leaders. Members like this.



SIDD team reviewing WUA operation with WUA chairman in Shandong. Continued follow-up, support, monitoring and evaluation of WUAs is required for sustainability. Note WUA rules and regulations on the wall behind.

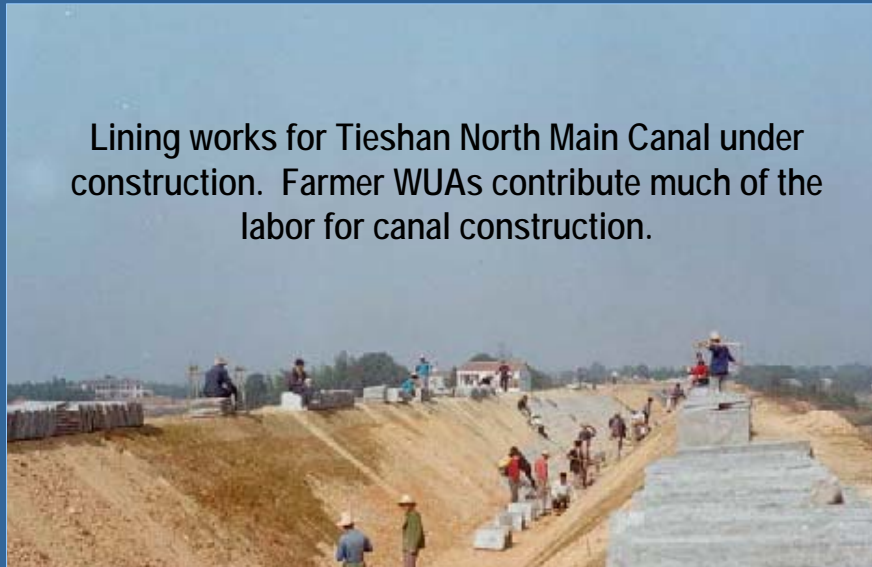
Luoping WUA members constructing lining of their sub-lateral canal and field ditches. WUA members contribute much of the cost for their local systems.





WUA in Tieshan irrigation district constructing canal lining using prefabricated "U-shape" lining sections.

Lining works for Tieshan North Main Canal under construction. Farmer WUAs contribute much of the labor for canal construction.



TO SUM UP:

Farmer-owned and -managed WUAs combined with WSCs have a positive impact and strong support of farmers.

WUA benefits include:

- - improved crop production;
 - increased irrigated area;
 - water savings;
 - reliable irrigation, especially in droughts;
 - reduced water costs to farmers;
 - democratic, transparent management,
 - reduced conflict;
 - equal access to water for poor farmers and women farmers in the WUAs.
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More.....

- Inter-governmental Agreements is a process in which provincial departments of water resources should be assigned clear responsibilities with no ambiguity;
- In China, lack of such effective agreements were offset by improving the water efficacy through water user participations at the grassroots levels to limit the excessive consumption of water resources;

- WUAs is a process of self-cultivation and self-development of farmer organizations in China;
- WUAs is being scaled up to all areas in China.....

THANK YOU FOR
YOUR ATTENTION

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