A Case Study of Chinese and Australian Participatory Irrigation Management Schemes.

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Abstract
The SIDDs were created in 1995 in Chinese irrigation communities and have had strong support for farmers and governments. SIDDs comprise Water User Associations (WUAs) established by farmers and Water Supply Corporations (WSCs) established under Company Law. The two parts act like sellers and buyers of water and both act as a non-profit social productive service for farmers. For Australia, the institutional design and powers of a process of Catchment Water Management Board (CWMB) in South Australia will be contrasted. The main point of contrast is the notion of whether the management is top down or bottom up. In China the bottom up approach is followed whereas in Australia the top down schemes is adopted. In both countries there are processes in place to alter the existing style. This paper may assist in identifying weaknesses in each process.

Key words:
Comparison; CWMB; Organisational function; WUA; PIM

INTRODUCTION

Traditional thought assumed irrigation management should be financed and operated by state authorities. This was because of the financial demand of heavy capital investment, the complex management system, and the public common property attributes of the development of irrigation. Since 1990s, the situation has changed gradually. Government authorities have relinquished some power, with the private sector and non-governmental institutions increasingly playing some role in the determination of water-related activities

(Biswas, 2001). There are many instances through the world that point to the need to devise sound and transparent means to involve local in Participatory Irrigation Management (PIM) of recent years. This principle of subsidiarity (Svendson and Trava, 1997) is well established, and raises the issue of how to devise processes to involve the community.

The importance of community participatory and promotion of good governance has been indicated in the Millennium development Goals and recognized by the United Nations Convention on the Non navigational uses of international watercourses.

Many States have recently amended their water laws to express these issues (McKay and Diwakara H, 2003).

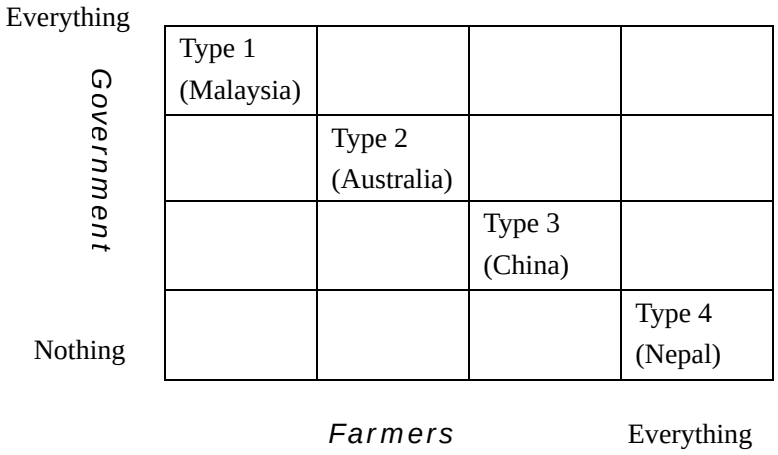
MOTIVES AND TYPES OF PIM (PARTICIPATORY IRRIGATION MANAGEMENT)

The First International Seminar on which the concept of "International Participatory Mangament (INPIM)" was introduced was held in Mexico in 1995. An agreement was informed to promote globally through international cooperation over "sharing of lessons of experience, training materials and networking among irrigation professionals, researchers and sociologists" (Raymond, 2003).

The research results of International Network for Participatory Irrigation Management (2004) from Mexico and Turkey suggest that farmers can manage better and more cheaply than their government predecessors. Thus, both farmers and government can benefit from these cost savings; farmers can enjoy better service, and cost savings; the government incurs reduced management cost and can then afford to improve service in the main system. The main issue is how to develop a workable partnership.

According with the criteria of International Network for Participatory Irrigation Management (2004), a range of state - user relationships can be characterized as a continuum from the state doing everything on behalf of the users, to the case of the state doing nothing for the users (see Table 1). In between these two ends of the continuum is a very large grey area where a government agency performs some management functions and farmers perform other functions. It is how to get the balance between methods 2 and 3 which poses questions in China and Australia at the moment.

Table 1 Schemes of Government and Farmers Relationships in Water Management Functions



This paper describes two cases from China and Australia to provide two case studies of how the transition is being managed.

CHINA CASE STUDIES---type 3

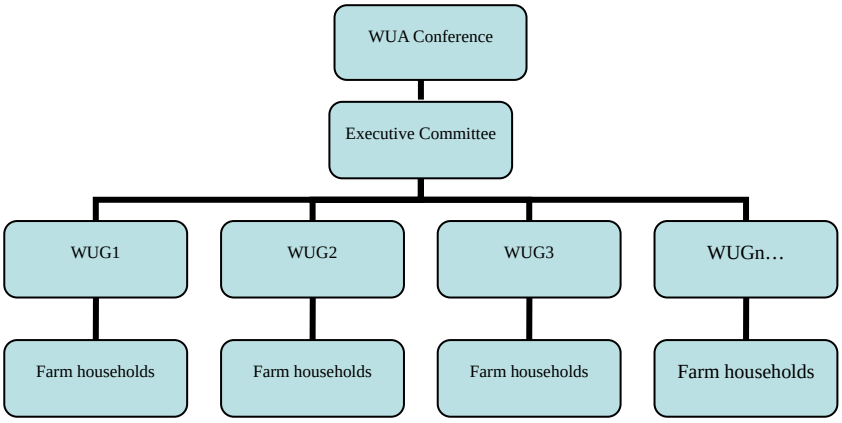
----Self-Financing Irrigation and Drainage Districts (SIDDs) by farmers in YangtzeProject

For some years, in Hubei Province farmers operated several experimental "water user groups" which delivered water and maintained lateral canals quite well. Another model found for managing the other end of the irrigation system in Hunan Province where reformed Tieshan Water Supply Corporation in Tieshan Irrigation District was designed to supply water and be responsible for a defined hydraulic unit (World Bank, 2003).

A recent study (Lin, 2002) has shown that in China, the Yangtze project sponsored by World Bank, combined these two innovations to create "self-financing irrigation and drainage districts," or SIDDs, which would maintain a "virtuous cycle" of timely water delivery and efficient operation and maintenance (O&M). A SIDD has two main parts: WUAs (see its institutional structure in Chart 1) established by farmers to operate and maintain the lower levels of the irrigation systems. WSCs operate and maintain the main canal systems and diversion works, and sell water to WUAs on a volumetric basis (World Bank, 2004).

The two parts act like sellers and buyers of water. Neither the WSC nor the WUA is a for-profit entity, though; both act as a non-profit social/ productive service for farmers.

Chart 1 WUA Institutional Structure



Lin (2002)

The SIDD approach transferred management of the local irrigation systems from the government to the farmers themselves. The approach gives farmers a sense of ownership, increases system efficiency and transparency, encourages social inclusion and equity, reduces costs and enhances productivity (World Bank, 2004).

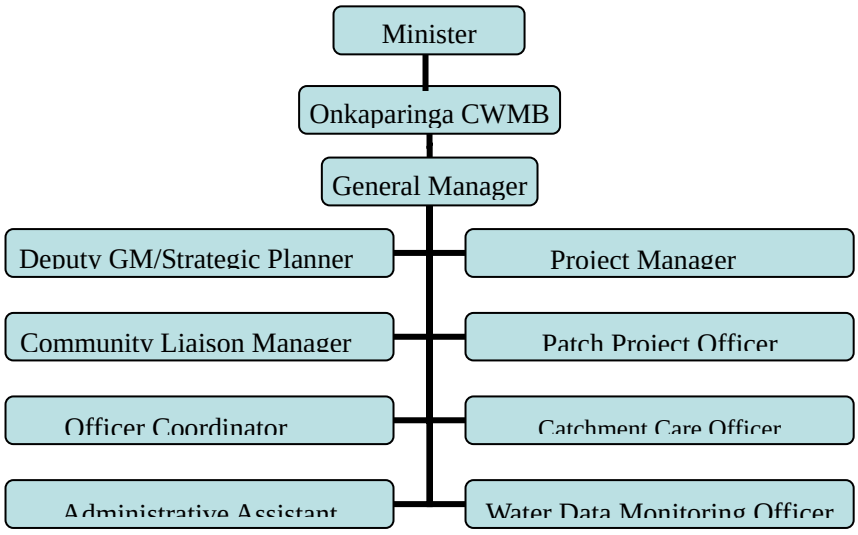
AUSTRALIA CASE STUDIES---type 2

-----*Onkaparinga Catchment Water Management Boards (CWMBs)in South Australia*

Under the provisions of the Water Resources Act 1997 in South Australia, a group of Catchment Water Management Boards were established by the Minister for Water Resources. The role of the Boards is to manage the water resources of the respective catchments. In this paper, we select one of them—Onkaparinga Catchment Water Management Board (Onkaparinga CWMB) in South Australia.

The annual report (2002) of Onkaparinga CWMB stated that the Board comprises nine members at present with a presiding member possessing managerial skills and experience, and at least one member being a person who actively participates in community affairs in the local community. The membership of the Board generally covers people with knowledge of or experience in the management or development of water resources or other natural resources. Chart 2 shows structure of the organization.

Chart 2 Organisational Structure of Onkaparinga Catchment Water Management Board

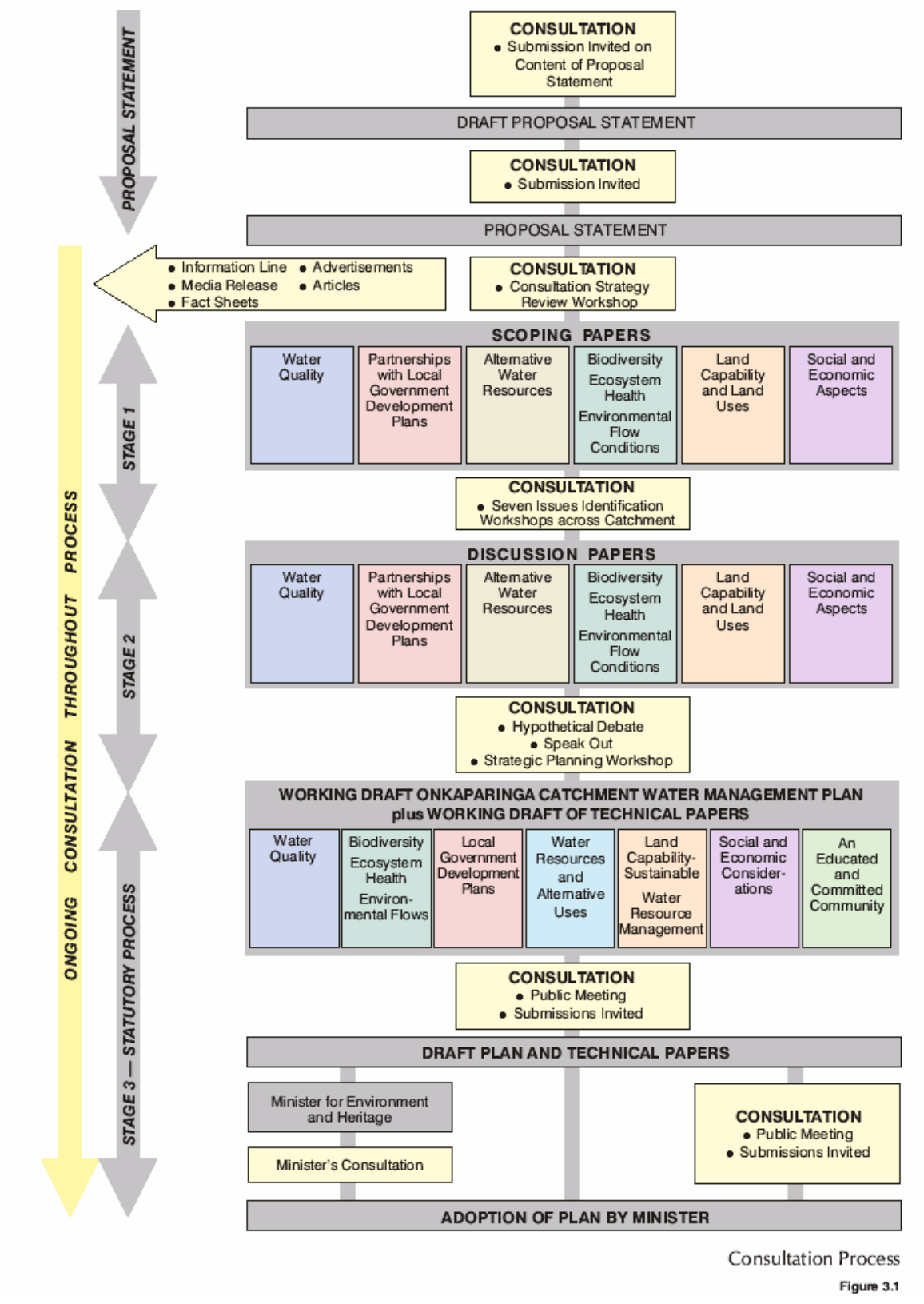


Onkaparinga Catchment Water Management Plan (2000)

The role of the Board is set out in Section 61 of the Water Resources Act 1997. The Board's roles include: preparing and implementing a catchment water management plan; providing advice to the Minister and constituent Councils about the water resources in the Board's area; promoting public awareness of the importance of proper management of the water resources in the Board's area and in the sustainable use of those resources.

It is confirmed by Stephen (2004, pers.comm.13 July) that Board activities are funded by two levies paid by landholders and irrigators in the Board's area: property-based levy and water-based levy. The property-based levy is collected by Councils and is forwarded directly to the Board. Only irrigators in the McLaren Vale Prescribed Wells pay a water-based levy calculated on ground water use, which is collected by the Board are directed solely back into the catchment.

The Water Management Plan has benefited from community consultation and involvement in its development, both in the early preparation stages and later through submissions and community interactive events. The process adopted for the preparation of the plan is illustrated in Figure 1:



Consultation Process

Figure 3.1

Onkaparinga Catchment Water Management Plan (2000)

KEY ISSUES COMPARED:

In Australia, where the sizes of catchments range from 2,000 to 40,000 ha and cover at least a secondary canal system or even an entire irrigation project. These irrigation areas are run as businesses with technical staff hired by the management boards and supervised by a hired manager. In contrast to Australia, in China the irrigation areas are always below 1,000 ha and usually 100 to 300 ha. Most of the labour is voluntary, provided by the users, and very few irrigation staff are hired professionals (Groenfeldt D and Sun P, 1996).

Though there are some differences between the size and financial ability of irrigation areas in China and Australia, there still are some comparable issues regarding the organisational of management. The following (Table 2) is a comparative list which gives some comparison of two kinds of organizations:

Table 2 Organisational and Functions Comparison between WUA and CWMB

Aspects	China	Australia
Name	Water Users' Associations	Water Catchment Management Boards
Profit	Non--profit	Non--profit
Date of existence	1990's	1990's
Board appointment or election process	Elected by farmers	Established by the Minister for Water Resources (Appointed)
Members	Elected an executive committee among farmers	Selected by the Minister for Water Resources (employed)
Frequency of meetings	Annually	Monthly
Who involved plan-making process	involved	Involved
Public education& communication	inadequate	Developed
How is the board funded	By water charge paid by irrigators	By levy paid by landholders and irrigators
Water charge based on	Volumetric (by unit of farm areas)	A water-based levy calculated on ground water use
Water supply	Water supply organizations	From a water licence
Infrastructure maintenance	By farmers	By Board and farmers
Partnership	Water supply organizations and local township	Communities, local government, school

Election of WUAs and Selection of CWMBs:

China: The election of WUAs---elected by farmers: Lin (2002) described in the report, as the first step, the farmers established water-user groups (WUGs) on each lateral canal. Each of these groups then elected a head (larger groups might elect two) to represent them at a branch-level water users' conference to establish a WUA. In their groups, farmers discussed local irrigation needs and their expectations for change, and reviewed and amended the WUA charter and regulations produced by the conference. In accordance with that charter, the representatives to the conference elected a WUA executive committee among farmers by the water users' conference, including Chairman, vice-Chairmen, and another one to three committee members. The committee presented its ideas and working plan for the first year to the conference for discussion and approval; and thus the WUA was formally established (World Bank, 2004).

Australia: The selection of CWMB---appointed by Minister for water resources: The Onkaparinga Catchment Water Management Board is set up under current Water Resources Act 1997 by the Department for Water Resources and currently consists of nine members appointed on their skills and knowledge that they bring to the Board (Onkaparinga CWMB, 2000).

Water allocation

China: WUAs buy water from WSCs and sell them to farmers: Each year the WUA committee made plans and reported them to the water users' conference, regarding the amount of water needed, irrigation schedule, facility building and repairing, and the related labour and finance arrangement. It then signed a contract with WSC for water buying, and coordinated the water supplier in the irrigation seasons in water delivering, measuring, as well as water charge submitting. When irrigating, the WUA coordinated water delivery among the lower, middle, and upper reaches, and the committee members organized water guards from the WUGs for a unified water-taking control along the canals (World Bank, 2004).

Australia: Water allocation plan of CWMBs: In Nov 2000, the Water Allocation Plan (WAP) for the Mclaren Vale Prescribed Wells Area was adopted by the Minister for Water Resources.

Onkaparinga CWMB (2003) claimed in McLaren Vale Prescribed Wells Area Allocation Plan, a water license is required to extract water from the groundwater resources of the aea. There are two main types of water allocations, water holding allocations and water taking allocations. Water holding allocations must be converted to water taking allocations before they can be extracted.

The WAP sets the limit on the amount of water that can be taken and used for all uses. Penalty charges happen for excess water. In setting the limits, WAP considers the needs of

both the environment and consumptive water uses. It also considers the water resource's capacity and limits, the demands upon it and the potential impacts on other water resources. This is a good step toward water conservation and sustainable use.

Water charges

China: Water charges are collected by WUAs on a volume basis: One report of World Bank (2004) stated that the amount of water sold to the WUA was calculated on the basis of volumetric measuring at the in-take of the branch; and wherever the measurement capacity was available on the lateral level, WUA internal water delivery was also calculated volumetrically to the WUGs. Within the groups, in most cases farmers calculated water use according to the farm area of individual households, because of the lack of water measurement at the on-farm level. When collecting water charges, normally WUAs decided to add 5-10% to the water charges required by the water suppliers in order to meet some of their own operation expenses, as discussed and agreed by the WUA conference. As for canal/facility maintenance, repairing, or building, WUAs then sometimes called for additional voluntary funds collection or labour input among their members, if their conferences agreed. Lin (2002) argued these exercises reflect WUAs' proactive attitudes in confronting constraints, and their spontaneous initiatives in paving the way for better irrigation management as well as for their own existence.

Australia: Two kinds of levies are collected: The Board is primarily funded by levies and supported by funding from SA Water on an ex-gratia basis, and other local, state and federal government partnerships. There are two main ways of raising the levy: the property-based levy and water-based levy. The licensed irrigators who pay water-based levy need not pay property-based levy.

Education and communication

China: Introductory training and communication of WUAs: Farmers were mobilized through WUAs for their own sake. Moreover, Lin (2002) has argued their mobilization also brought about new impetus and fresh air to local village routine work. Villages felt happy with WUAs as an "organized hand" helping deal with irrigation matters and local system maintenance. This condition helped farmer participation and WUA operation. This kind of community involvement also can be found in many cases in India where the WUAs cooperated well with communities (Mollinga P, n.d.).

The Ministry of Water Resources (MWR) promoted the WUA approach as a good practice throughout the country. A SIDD Training Textbook, co-edited by the Office of Comprehensive Agricultural Development, the MWR, and the Ministry of Finance's State Office of Comprehensive Agricultural Development, was published in 2001. With Bank help, a series of SIDD/WUA training programs have been carried out nationwide. These have included numerous field visits to the pilot areas and experience exchanges among

WUA practitioners: government officials, line agencies and WUA chairmen (Lin, 2002).

Australia: Adequate and developed education and communication system: The Onkaparinga Catchment Board (2002) is undertaking a series of actions to raise community awareness and understanding, which include:

Targeted activities: ---Place advertising billboards; Distribute WaterCare information to householders; Place advertisements in key local newspapers; Cinema and television advertising

Ongoing planned actions: ---The Board Newsletter; The Board website; Media; Various promotional materials and fact sheets

CONCLUSION:

The SIDD approach involved only two entities in water charges: the water supplier (WSC) and the water user (WUA). The institutional reforms had their desired effects: timely delivery, efficient water use, and better O&M. However, the experience of WUA development in China still identified some constraints and challenges for deepening and expanding the reform.

The nature of PIM is the participatory of water users. Unfortunately, International Water Management Institute and Scientific Information Centre Interstate Commission for Water Coordination (2003) argued that "The central Asian experience shows that in the past, most of the Water Users Associations (WUAs) have been established through a top-down approach, where the ordinary farmers have neither been consulted nor been informed that they are members of the WUA." Lin (2002) indicated that in some places in China, WUA establishment was not based on meaningful consultation and informed participation as it should be but simply becomes governmental activities. Hence they tended to make decision for farmers while giving little voice to them on their own matters. Quite a few WUA representatives and chairmen were not really elected by farmers, as the majority of farmers did not attend the election meeting. Such lessons can be found in some other countries as well. In many cases, such WUAs couldn't operate and finance well because the water users didn't really and fully participate in the process and they had the intention to refuse fee payments. Lin (2002) thought that this kind of exercise just used the SIDD form but pulls out its soul of the bottom-up participation.

The bottom-up concept of WUA is its participatory nature. Some principles have to be highlighted: a WUA should be the farmers' own organization: farmers elect, farmers manage, farmers make decisions; a WUA has the right and capability to collect water charges and submit them to the water supplier, to pay for its own operational expenses.

With more and more farmers transfer their activities from agriculture to non-agriculture, the forms of PIM may shift to more different and more indirect ways. The private sectors could play more and more important roles. The professional management, training of new technologies for water saving could be strongly required. In the future, as the nature and the size of irrigated areas changes, PIM in China will face some new opportunities and challenges. Hence, there is an urgent need for networking at the local, national, regional and international levels to share information, new ideas and learn experiences from other developed countries, such as Australia.

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