

# **Water Governance in Context**

## **Lessons for Development Assistance**

### **Volume 1: Overview Report**

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## List of Acronyms

<i>ADB</i>	<i>Asian Development Bank</i>
<i>BDP</i>	<i>Mekong River Commission Basin Development Plan</i>
<i>BOT</i>	<i>Build Operate Transfer</i>
<i>CMA</i>	<i>Catchment Management Authority</i>
<i>CMB</i>	<i>Catchment Management Board</i>
<i>CMC</i>	<i>Catchment Management Committee</i>
<i>ICM</i>	<i>Integrated Catchment Management</i>
<i>IFC</i>	<i>International Finance Corporation</i>
<i>IFI</i>	<i>International Financial Institution</i>
<i>IRBM</i>	<i>Integrated River Basin Management</i>
<i>IUCN</i>	<i>World Conservation Union</i>
<i>IWRM</i>	<i>Integrated Water Resources Management</i>
<i>MARD</i>	<i>Ministry of Agriculture and Rural Development - Vietnam</i>
<i>MDBC</i>	<i>Murray Darling Basin Commission</i>
<i>MDG</i>	<i>Millennium Development Goals</i>
<i>MONRE</i>	<i>Ministry of Natural Resources and Environment - Vietnam</i>
<i>MRC</i>	<i>Mekong River Commission</i>
<i>NGO</i>	<i>Non-Government Organisation</i>
<i>NZAID</i>	<i>New Zealand Agency for International Development</i>
<i>ODA</i>	<i>Official Development Assistance</i>
<i>PRSP</i>	<i>Poverty Reduction Strategy Paper</i>
<i>RBC</i>	<i>River Basin Committee</i>
<i>RBO</i>	<i>River Basin Organisation</i>
<i>SOE</i>	<i>State Owned Enterprise</i>
<i>WATSAL</i>	<i>Water Resources Sector Adjustment Loan</i>
<i>WSS</i>	<i>Water Supply and Sanitation</i>
<i>UNESCO</i>	<i>United Nations Education, Scientific and Cultural Organization</i>

## Executive Summary

As official development assistance places ever increasing emphasis on the water sector, better water governance is recognised as a key to achieving socially equitable, environmentally sustainable and economically effective outcomes. Good water governance is heavily defined by contextual factors.

Governance is multi-faceted, in the water sector as in other fields. In our research we have identified five key themes defining issues, experience and examples of good practice in water governance. Four of the themes are developed in this report:

- Drivers of change
- Catchment management and issues of scale
- Public, private and community roles in water governance
- Equity issues associated with market-based water governance reform

A fifth theme, conflict and risk in water governance, is cross-cutting through the report.

Drivers of change are significant for indicating what physical, economic and social processes instigate reform. ODA is most effective when it responds to perceived needs at political and societal levels. Improved water governance can best be achieved if embedded within and compatible with values, social structures and processes that come from within. Water scarcity is a significant driver in most cases. However scarcity is produced in relation to levels of consumption and through competition between users. It can be a perception as much as it is reality. Scarcity thus needs to be understood in context. Conflict is another driver of change. Approaches to dealing with conflict can either address the symptoms evident in overt confrontation or engage at a deeper level, investigating and responding to the roots of conflict. Drivers may be internal or external. Understanding both the externally imposed nature of some governance reforms and their limitations, and the receptiveness or otherwise to market-based or institutional innovations, is important in determining what is or is not appropriate in different contexts.

Catchment management is a key area for governance reform. Catchment management confronts the problem of managing water without reference to its ecological context. It addresses problems of geographical, sectoral, scalar, social and political fragmentation through integrated water resource management. It also seeks participatory as well as technical approaches to managing water in multi-stakeholder resource systems. Catchment management is a key area of water governance that has seen experience adapted from one context to another. Australia's recent attention to catchment management institutions at various levels has certain lessons for application through our aid program. At the same time, however, the very different ecological, socio-political and institutional environments of the countries studied as cases in this project suggests caution in applying, implementing and adapting institutional models without a thorough understanding of context. A number of factors help determine what will and will not work in each situation. These factors range from the role of science-based understanding in decision making to opportunities for participation in catchment management frameworks. Catchment management frameworks operate at multiple scales. A key governance challenge is to establish

institutional designs that link management structures from community through to international river basin levels.

The distribution of roles and responsibilities between public, private and community sectors in water management is a key governance issue. Two major thrusts of governance reform are privatisation and decentralisation. Privatisation often leaves the state with a residual regulatory role. Decentralisation emphasises community-based management and attempts to transfer ownership and management responsibilities to the water user level. Experience with privatisation has been fraught with conflict and management failures, in part because it has been hastily imposed or adopted with inadequate regulatory capacity, and in part because privatisation sharpens the fundamental distinction between water as an economic good (property right) and water as a public good (human right). Any water governance reform program must be sensitive to the politics, the distributional implications and the regulatory requirements in each case. In many cases, there are preferable intermediate options, notably corporatisation under continued public ownership. Experience with decentralised management has promising results in terms of meeting millennium development goals in rural water supply and sanitation and in promoting more participatory approaches to managing catchments. However the management demands are considerable. Implementation of decentralised rural water supply or catchment management in societal contexts where bureaucratic management is the norm is unlikely to result in more participatory water governance.

Equity issues are important in a global context where water is increasingly treated as an economic good. Market-based mechanisms in water management represent a key strategy in water governance reform in Australia. Elements of such mechanisms have been proposed or implemented through ODA programs, with implications for equity. Dimensions of equity include: the impact of different water pricing and cost recovery approaches on the poor; gender implications of decision frameworks that tend to involve men to a greater extent than women; and exclusionary processes that mitigate against Indigenous and ethnic minority communities having their particular needs and resource use requirements properly acknowledged. There has been considerable progress in certain areas of equity for better water governance, notably in recognition of gender issues, however principles for good practice often belie the difficulties of implementation and lack of commitment to practical application. Failure to deal with the various dimensions of equity heightens conflict and can polarise different water user groups.

The lessons we draw for ODA highlight the need to work with the internal development of appropriate institutional arrangements and consequently, the need for a diagnostic approach that will allow external interventions to be well tailored to context. Policy analysis, program design and project implementation all require an understanding of contextual aspects of water governance.

This Overview Report summarises the key problems and issues, experience in the case study areas and examples of good practice. A second volume consists of more detailed conceptual discussion and case study material based on the five themes. This volume is available at [www.mekong.es.usyd.edu.au/projects/water\\_governance.htm](http://www.mekong.es.usyd.edu.au/projects/water_governance.htm)

## **Introduction: Water Governance and ODA**

Development in the water sector has increasingly moved away from physical infrastructure provision to focus on management, institutions, regulation, conservation and allocation of water as a scarce resource. Where official development assistance (ODA) continues to provide water related infrastructure (“hardware”), sustainable and equitable management of that infrastructure is now part and parcel of aid delivery. The “software” emphasis in water sector ODA comes under the broad umbrella of water governance.

There are three main problem areas in water governance associated with ODA:

- **Water supply and sanitation.** Water service and sanitation delivery is a key element of the Millennium Development Goals (MDGs). International programs give priority to freshwater provision for basic domestic uses. Past performance of water infrastructure projects has been affected by ambiguities in responsibility for maintenance and by problems of access. User-pays models have implications for the rural and urban poor.
- **Irrigation and agricultural development.** The process of development has highlighted both the scarcity that comes with increased competition for water as a limited resource, and the socially and geographically uneven environmental impacts of water resource development. Pressures to divert water to feed growing populations clash with the provision of environmental flows to maintain basic ecosystem services.
- **River basin management.** Initiatives to manage water in its river basin context have been fragmented. More holistic and integrated approaches require innovative, context-specific approaches to governance.

In this study, we reflect on the experience of water governance in Australia and several countries that are part of Australia’s aid program. This experience provides lessons for water sector programming. The report examines key problems and issues in water governance, reviews diverse international experience and draws on examples of good practice. The implications for AusAID are set out mainly at the policy analysis and program development level. There are also some lessons at the level of specific project design.

The report emphasises the need to adapt water sector planning to the governance context. While this by definition precludes “off the shelf” solutions, it also suggests a need to know what to look for in different country situations. The report therefore provides a set of pointers for contextual analysis geared toward supporting improved governance arrangements relevant to the water sector.

The study investigated five main themes in water governance relevant to ODA:

### **1. Drivers of change in water regulatory systems**

This theme investigates what drives change in different contexts, with a focus on scarcity, conflict, ideology and international water policy. It is significant for ODA in that development assistance is most effective when it responds to actual and perceived needs for change.

Understanding the contextual drivers that lie behind water governance reform is therefore crucial for program design. It is also an important check to ensure that reform is not overly externally influenced but rather responds to endogenous potentials and processes.

## **2. Catchment management frameworks and issues of scale**

This theme investigates frameworks for catchment management within ecosystems and ecological boundaries. Relations between different scales (or levels) of management are important in designing appropriate frameworks. Appropriate scales of management and intervention differ from one context to another. Development assistance supports institutional reform in catchment management at different levels. There is a pressing need to link broad-scale and community level processes as ODA often addresses these in quite separate ways.

## **3. Public/private/community roles and initiatives**

This theme investigates state, private and community sector roles in water management and water service provision. The appropriateness of different public/private/community roles and responsibilities in different contexts is addressed. ODA needs to engage with these roles and responsibilities to plan appropriate mixes of market-based, institutional and participatory approaches in management and service provision. The appropriate mix and linkage between roles, and the social acceptability of this mix and linkage, will be different in each case.

## **4. Equity implications of market and property rights mechanisms: gender, poverty and indigenous dimensions**

This theme explores the different equity implications of market-based approaches to water in a number of cases. Gender, poverty and indigenous dimensions of water regulation are addressed with specific reference to the enhanced roles of markets and changing property regimes. ODA needs to achieve a balance between efficiency, social equity and sustainability. This theme deals with a key area in which tensions and unforeseen impacts can be anticipated and mitigated with proper awareness and appraisal.

## **5. Dealing with conflict and risk**

This theme discusses peaceful, sustainable and equitable conflict management and the economic and environmental processes relevant to risk management in water resource development. An assessment is made of risk management and outcomes for different groups, with an emphasis on adaptive frameworks. ODA should be inherently concerned with minimising conflict, but also understanding that a degree of (non-violent) conflict is a normal part of social change and a likely component of governance reform. ODA design also needs to be based on understandings of risk from societal rather than narrow project/investment perspectives.

The case material is drawn from five country studies and one international river basin:

**Australia's** experience in water governance reform is significant in three main regards. First, our development assistance programs need to be based on our own areas of expertise and on lessons learned within Australia. Second, there are critical issues around water in agriculture, water scarcity and in urban water supply in Australia. Third, Australia is at the forefront of innovative water governance reform initiatives at a global level.

**Thailand** is significant as a country where, like Australia, there is a high level of public awareness of critical water issues. The need for water governance reform in Thailand is closely associated with its rapid development over the past several decades. As a middle income country, Thailand is now largely outside the scope of most bilateral ODA programs. However, there are many lessons for countries whose development trajectory is moving in similar directions.

**Vietnam** is one of Australia's larger ODA recipients. Several AusAID programs are in the water sector. Critical issues of water supply, irrigation, water-related hazards and catchment management are evident in Vietnam. In governance terms, Vietnam presents particular challenges due to the transitional nature of its economy and its centralised bureaucratic system with relatively few avenues for civil society participation.

**Vanuatu** exemplifies the situation of a small to medium size Pacific Island state. Most of the ODA challenges and activities in Vanuatu are in the area of small scale rural water supply. Poor management of rural water supply in the past points to a need for innovative local governance. There are nascent catchment management initiatives. Privatisation of town water supply provides useful lessons.

**Indonesia** is another of Australia's primary ODA recipients. For the purpose of this study, the issues around privatisation of Indonesia's municipal water service provision are the main point of focus.

The **Mekong River Basin** presents a case in transboundary water governance. Australia has been one of the more important sources of technical expertise and funding at the Mekong River Commission.

This report synthesises material from these cases into key issues, experience and examples of good practice for four of the main themes. Issues of conflict and risk are cross-cutting and are incorporated within the discussion of other themes. The report concludes with a set of pointers for policy analysis, program design and project implementation incorporating water governance. More detailed case study material is contained in a second volume of five working papers specific to each of the domains.

The lessons we draw for development assistance point to the need to work with internal development of appropriate institutional arrangements and the need for a diagnostic approach that will allow external interventions to be well tailored to context.

## **Drivers of Change**

For effective water sector development assistance, it is important to understand why and how change occurs in the way water is used and managed. What drives water governance change and reform in different contexts? Such an understanding is required in order to address the underlying causes of water problems.

Drivers of change in water governance include physical and political pressures. Natural hydrological and climatic factors, together with availability of water storages, shape how water is used and managed. Demographic change and associated infrastructure requirements place pressure on water resources and often trigger reform at the policy and management levels. Ideological influences, economic pressures and wider reform processes can also define water sector reform in specific ways in particular contexts.

### ***Key problems and issues***

A key problem in development assistance programming and delivery is compatibility of ODA with internal capacity and demand for reform. If drivers of change are mainly external, compatibility is likely to be low. Understanding internal drivers for change is a key requirement of effective ODA. Three key drivers of change are scarcity, conflict and international water policy.

Scarcity is an important driver for change. However, scarcity is produced and understood quite differently in different contexts. It is often defined relative to demand rather than based on a basic needs allocation. Some demands may take priority over others, for example domestic water supply over agricultural allocations.

Scarcity can be physically or developmentally induced. It occurs in arid areas, and where over-extraction and over-development of resources have resulted in a reduction in total available water. Scarcity is often associated with the threat of conflict. The desire of policy makers to abate perceived impending conflict may drive water governance reform. Public or private interests sometimes construct the notion of scarcity to justify or legitimate particular reforms and to press for infrastructure development.

It is important to note that water is defined as “scarce” relative to very different needs or expectations. Millions of people in developing countries live on less than half of the World Health Organisation minimum standard of 25 litres per person per day, yet scarcity is also considered a problem in wealthier countries where per capita domestic consumption is in excess of 100 litres per person per day. Scarcity needs to be understood in relation to competing water uses between agricultural, industrial and domestic users, and environmental/social objectives such as ecological sustainability and equity.

Conflict is sometimes seen to trigger water governance reform. However, conflict takes different forms. While popularised understandings of conflict often focus on violence and warfare (“water wars”), water conflict is more likely to be non-violent and based around tensions and competition at the societal level. Water governance reform can either be seen as a way to lessen conflict as an end in itself, or as a means to reduce the material basis for conflict such as emerging water

scarcity. Water reforms themselves can also be a cause of conflict, if processes are not sensitive to the interests and concerns of key stakeholders or are perceived to be beholden to a narrow set of interests.

Understanding the connections between conflict and water governance reform is essential for effective development assistance. Innovative institutional change involving the development of mechanisms for equitable water sharing can result from a perceived threat of conflict. Yet if the focus is on violent confrontation rather than the everyday tensions, then the less dramatic but more pervasive forms of conflict (involving competition, environmental degradation, loss of livelihood etc) may not be addressed. As such, whilst water related conflict can be a catalyst for innovative change, the absence of overt conflict as a measure of the success of such changes may obscure the more subtle forms conflict may take.

The internationalisation of water policy has been a key driver of national-level water sector change. Universally accepted principles and tools for water management have emerged from a series of international meetings. The most influential of these have been Integrated Water Resources Management (IWRM) and the management of water as an economic good according to the Dublin Principles of 1992.

IWRM, exhorting the need to manage water in its wider ecological and social context, has been profoundly influential and now dominates many policy documents. The management of water as an economic good has been variously interpreted and applied. Some nations have gone so far as to invest property rights in water licences, while others have maintained public ownership but put in place policies to improve valuation of water and determine appropriate pricing for use.

The internationalisation of water governance raises particular issues for development assistance at the national scale. While internationalisation of water policy provides a “toolkit” offering ideas and avenues for effective water governance, it can also increase the potential for water governance initiatives to be excessively externally driven.

Universally accepted principles need to be tailored to the specific hydrologic, climatic, political, economic and cultural contexts of each country. The ‘model’ approach whereby experiences or policies from one context are replicated in another invariably fails when the nuances of each country (physical realities) and nation (political context) are not taken into account.

### ***Experience drawn from case studies***

Scarcity in various forms can be linked to change in water governance in many Asia-Pacific case studies. In Australia, scarcity of water for irrigation has driven and legitimated the commodification of water and the investing of property rights in water access licences. Scarcity in urban areas has been constructed relative to historic levels of consumption rather than a basic needs approach. The threat of future shortages has prompted a debate over alternatives. Although demand management has been a component of policy responses, supply based solutions have dominated. In Sydney, this can be seen with the recent proposal to construct a desalination plant.

In Thailand, scarcity is popularly expressed through the level of water in storage dams at the end of the wet season, and their ability or otherwise to provide irrigation security to rice farmers for dry season cropping. Explanations often target ethnic minority highlanders and their supposed destruction of headwater “sponge” forests. Solutions range from resettlement or denial of citizenship rights, to asserting the need to build storage dams in place of forests as “sponged” natural storage. In this case, scarcity has been used to justify a water governance regime which marginalises minority groups and has a poor basis in the science of forest hydrology.

The role of conflict – or avoidance of conflict – as a driver of change can be seen in the Mekong River Basin. The spectre of resource based conflict between the countries sharing the Mekong River has been a strong driver for cooperation through the Mekong River Commission, and an important justification for official assistance to the Commission. In fact, most tensions over water are manifest at a much more local level within rather than between riparian countries.

International water policy has been variously influential in the Asia-Pacific. In Australia the international endorsement for managing water according to economic principles has gained wide support. In Southeast Asia this has been less influential due to the relative abundance of water in some areas and the difficulties associated with implementing a user-pays system in areas dominated by subsistence agriculture.

In Vanuatu the Millennium Development Goals have been a significant driver of water sector change. However achieving the MDG of halving the number of people without access to safe water and sanitation by 2015 would mean approximately a seven-fold expansion of the WSS program. There are concerns that governance and financial management will fall by the wayside in the process, leaving question marks over the physical, economic and social sustainability of the investments. Only 67% of the total population currently has access to improved drinking water and there is at best a chequered history of rural water supply provision in Vanuatu. A typical pattern has been the construction of a system with the assistance of bilateral grant aid. After a few years of operation, lack of maintenance and the absence of financial means to repair basic components render the system inoperable.

### ***Examples of good practice***

In cases where ODA has been demand-driven and responded to a locally defined need, water sector reform has been more successful. Where internationally endorsed models have been implemented without due reference to the dynamics of context, initiatives have been problematic and less inclined to improve sustainability in the long-term.

The NZAID WSS initiative in Vanuatu is one example where ODA has responded to a locally defined need. With limited government capacity to respond to problems with WSS (the Department of Geology, Mines and Water Resources has only 30 staff, 20 of whom are employed in Rural Water Supply), aid programs have relied on NGOs for community level capacity building. The NGO Wan Smol Bag has been employed to raise awareness and provide training on water governance in a culturally informed and relevant manner. They also perform popular radio plays dealing with health and sanitation, and issues related to management of village water supply systems. Among the issues advocated are the important role of water committees,

problems associated with pit latrines near water sources, healthy bodies and washing, and the wider messages that natural resources belong to the people to pass on to their children and future generations. NZAID is also placing considerable emphasis on the development of a strategic plan in its December 2004 to December 2006 assistance in the water sector. Achieving the MDGs would require about 85% of villages to have access to clean water by 2015.

Demand driven solutions to scarcity offer another example of good practice in water reform. Some international and national level organisations have promoted demand management as a means to conserve water (in terms of both quantity and quality) through the implementation of technical, economic or legislative mechanisms to control water use. Such options are often supported by local level actors where scarcity is directly experienced, such as in rural Australia, and is premised on both technical and economic innovations. Yet innovations in demand management are often also joined by supply-based solutions which are resource intensive, expensive and not conducive to longer term sustainable water use.

The establishment of channels for transboundary cooperation of river basins should be applauded as a step towards improved management of water within its catchment and basin context. In the Mekong Basin, the four Lower Basin countries have developed institutional mechanisms to enable dialogue on river basin management. Technical and policy support for this initiative through the AusAID Murray-Darling Basin Commission-Mekong River Commission twinning program illustrates a means by which ODA can promote cooperative resource management. Yet the success of these initiatives relies on the willingness of member nations to negotiate and compromise water extraction and use priorities. This can be an extremely difficult task. ODA support for such initiatives therefore needs to be characterised by continued engagement at political levels to adapt support to emerging demand-driven priorities. The assumption that national negotiating positions properly reflect diverse sub-national interests is problematic in a transboundary context. Where certain interests, such as those of subsistence based livelihoods, do not receive adequate attention in national water negotiations, complementary process such as research and participatory dialogues have proven to be effective in raising the profile of such issues.

In Thailand River Basins Committees have come in at a time when allocation and sustainability issues are pressing priorities. Yet, they have emerged without a clear mandate. While civil society groups in Thailand see RBCs as bureaucratic instruments, they do provide an arena for negotiation of institutional and social arrangements around water management within ecologically defined boundaries.

## **Catchment Management Frameworks**

The adoption of the catchment as a framework for managing water and other resources has dominated water management discourses for nearly two decades. The shift to catchment based management reflects a move towards management of water within its ecological context and an acknowledgement that politically determined administrative boundaries often bear no relation to ecological or geo-physical processes.

Water has conventionally been managed within administrative rather than natural boundaries, in a fragmented rather than holistic manner, and in a technocratic rather than participatory way. Catchment management initiatives involve moves toward governance within natural boundaries to manage water more holistically, equitably, efficiently and sustainably.

Catchments are interconnected systems. They comprise multiple-users, multiple-stakeholders and multiple-value systems. A basic tenet of catchment management is that what happens in one part of a catchment affects environments and people in other parts.

The greater the degree of diversion, impoundment, consumption, pollution and commitment of a basin's water resources – in other words, the more development there is – the greater is the degree of interdependence between users and potential tensions between uses. Hence the need for collective governance of catchments increases with development, as does the need for each level of management to link with other levels.

### ***Key problems and issues***

The main problem that catchment management seeks to address is fragmentation. Using and managing water without reference to catchments results in fragmentation in a number of dimensions.

- *Geographical fragmentation* occurs when water is used and managed in different places without reference to other parts of a river basin (for example impact of upstream activities on downstream users)
- *Bureaucratic fragmentation* occurs when different departments manage resources without reference to other departments – the “silo effect”
- *Social fragmentation* occurs when resources are managed in a technocratic way by a narrow group of professionals without reference to the knowledge, preferences and material interests of diverse stakeholders
- *Scalar fragmentation* occurs when basin management at a macro-scale occurs without reference to its micro-level impacts, and where local scale initiatives occur without reference to cumulative basin-wide implications
- *Political fragmentation* occurs in transboundary river basin settings where jurisdictions separate management along political rather than natural boundaries

Integration is the key governance process to address fragmentation in managing water in its catchment context. Integrated water resource management has become the standard for good

practice. Yet there is a big gap between the generic principles of IWRM and its application in the real world.

There are a number of challenges in applying IWRM within catchments (also known as integrated river basin management or integrated catchment management). Despite an emerging orthodoxy on IWRM and IRBM/ICM, there are significant tensions in catchment management between:

- Top-down and bottom-up approaches.
- The holistic philosophy that lies behind integrated river basin management and the participatory ideal of decentred decision making.
- The science-based approach that takes advantage of complex ecological knowledge, hydrological and water allocation models, and tools such as GIS, on the one hand, and community-based initiatives oriented to local knowledge on the other.
- Catchment management institutions' role to allocate an increasingly scarce and finite resource (water) versus a catchment management institutional role to mobilise developmental resources and funds for new infrastructure to take yet more water off the river.
- Prescriptive approaches to river basin management and institutional design and negotiated approaches, outcomes and institutional arrangements.

### ***Experience drawn from case studies***

In Australia, one of the key reforms has been a regionalisation of natural resource administration, whether it be forest management or catchment management. More recently, the Wentworth Group has supported the idea that market-based measures should be part and parcel of the reform process and this involves standardisation across jurisdictional boundaries, through the National Water Initiative and CoAG activities. Water trading within river basins is part of the reforms. Trading is predicated on a clarification of licensing arrangements and property rights in water.

A consistent tension in institutional design of catchment management organisations in NSW has been over the scale and level of grassroots participation. The shift from catchment committees to boards to authorities has seen a progressive upscaling and professionalisation, removing the institutions from local membership and sense of ownership, but equipping them with greater resources and expertise.

In Thailand, the key reform has been in the territorial basis for natural resource administration toward natural catchment boundaries, through establishment of River Basin Committees (RBCs). However, provincial and district boundaries continue to be the primary basis for territorial administration. A key tension has been over the appropriate scale of management. NGOs see the RBCs as too large and bureaucratic in their imposition, composition and processes – prescriptive rather than negotiated. On the other hand, the Department of Water Resources regards RBCs as a good case of decentralisation.

Vietnam's Water Law provides for establishment of river basin organisations (RBOs), but these are only now really being put into operation. The centralised decision making framework and very limited opportunity for civil society involvement in governmental structures constrains the

operation of catchment institutions in a participatory manner. Even provincial authorities are involved only to a limited extent in these centrally planned initiatives. Basic inter-departmental involvement in RBOs is curtailed by the strong ownership of RBOs by the lead government agency, the Ministry of Agriculture and Rural Development (MARD). This strong ownership is partly a reaction to the progressive decline in water resources management functions undertaken by MARD (and the former Ministry of Water Resources it subsumed) with the gradual migration of water resource management functions to MONRE (Ministry of Natural Resources and Environment). This institutional reform is partly premised on the need to reduce the strong agricultural-bias in water resources development that occurred under MARD, in order to promote IWRM.

In Vanuatu, the small Tagabe catchment management initiative is the only significant and experimental project to date. Capacity remains very weak though, even at the central departmental level. There is poor communication between and within different departments, limiting the information flows necessary for integrated catchment management.

The Mekong River Commission and other regional actors are engaged in transboundary governance initiatives that are at best embryonic and only partly functional. The Basin Development Plan (BDP) is the MRC's most ambitious effort at integrated planning on a catchment-wide basis to date. Whilst efforts have been pursued to engage in some level of 'public participation' within the 10 BDP sub-catchments, participation has in practice been interpreted in a very limited sense. The consultative process within the program between BDP coordinators in each riparian country has facilitated regional learning at this level. Tensions remain over the role of MRC on the one hand as regulator and allocator of water shares, and on the other as an agency that mobilises development resources for water infrastructure.

Appendix 1 identifies key catchment management directions in the case study areas.

Catchment management has been incorporated into international development assistance through the promotion of IWRM. At a policy level the Global Water Partnership has worked with national governments to promote an integrated and multi-stakeholder approach to water resources management. However, they have been less successful in bringing stakeholders other than national governments into this dialogue. At an institutional level, the Asian Development Bank has promoted the establishment of river basin organisations and has established a Network of Asian River Basin Organisations.

### ***Examples of good practice***

It is fair to say that there are no ideal examples of catchment management. We also avoid using the term "best practice", as different approaches are suitable in different contexts. Nevertheless, there are promising initiatives that, properly adapted, provide useful lessons for wider application.

The Murray-Darling Basin Initiative is less than two decades old, and catchment management frameworks at subsidiary levels have an even shorter institutional history in Australia. A key point is that these initiatives have emerged out of endogenous processes. Good practice thus

needs to be seen as such with reference to context: ideal institutional forms are not good practice if they are parachuted in to vastly different social, environmental and development contexts.

Good practice needs to be judged on social, economic and environmental criteria. Several examples of good practice can be extracted from Appendix 1. All need qualification and should be seen as “works in progress” rather than model solutions for emulation.

Australia’s Murray-Darling Basin Agreement (1992) and The Agreement on the Cooperation for the Sustainable Development of the Mekong River Basin (1995) represent path-breaking transboundary river basin agreements. The Murray-Darling arrangement in part inspired the Mekong Agreement. The Mekong Agreement remains a loose document with only limited political buy-in by the member riparian states and a reluctance to cede sovereignty within it. It is only a partial agreement, as the two upstream riparian states of China and Myanmar are not signatories.

Institutional innovation in sub-catchment management is evident in Australia (for example NSW CMAs) and Thailand (RBCs). These have sought to provide a basis for integrated water resource management within natural catchment boundaries instead of within old artificial administrative boundaries. Tensions remain between participatory and technical approaches. In Thailand, RBCs are still perceived by many as means to attract public investment in infrastructure rather than as regulatory means to allocate scarce basin water resources and govern development in an equitable and sustainable way.

Bureaucratic reform in Thailand and Vietnam have both helped set a basis in principle for more integrated water resources management across departments, ministries and resource sectors. This is a prerequisite for integrated river basin management. In both cases, however, significant bureaucratic competition over water management responsibilities persists at the highest level.

Legislative underpinning for catchment management in NSW and a Water Law passed in Vietnam provide a degree of certainty and clarity for catchment management initiatives. Yet significant problem areas remain. In NSW, the rapidity of institutional change under the two Acts of 1989 and 2003 mitigate against institutional stability. In Vietnam, the Water Law gives very little basis for stakeholder participation. Problems remain in terms of the political will for enforcement – no prosecution has been made to date under this law. Further, we must be cautious in seeing cases, such as Thailand, which have no water law as somehow deficient. The reason for the delay in Thailand is its open-ness, which has allowed for a much greater inclusiveness in the drafting of water legislation, suggesting potential for a broader societal “buy-in” if and when it is passed.

## **Public, Private and Community Roles**

Public, private and community sectors all play a role in water resource management. This has been acknowledged at the international water policy level, for example the Global Water Partnership states that ‘water governance determines the roles and responsibilities of different interests i.e. public, civil and private in water resource management and development.’ Under this formulation, governance is the balance of accountability, power and action at different levels of authority.

Development assistance and governance initiatives are sometimes premised on ideological models of what is appropriate. Yet, what works and what is politically and socially acceptable in one situation may be quite unworkable and unacceptable in another. The mix between public, private and community roles in water governance tends to be highly politicised and this requires careful negotiation through the national political arena. Water as a tradable property right and water as a basic human right frame the poles of the debate. There are many shades of grey, for example in privatised water service delivery.

### ***Key problems and issues***

Governance reform in many countries involves a shift in the role of the state from owner and operator to regulator of various enterprises and services. In the case of water supply and sanitation, this can involve corporatisation and privatisation of water utilities and community management of village based water supply. In the case of irrigation it can range from cost-recovery and collection of water fees, to cooperative management, to fully privatised ownership and management. In the case of catchment management the key issue is devolution of authority and community participation. This section focuses mainly on urban and rural water supply.

Privatisation has been controversial in many fields, perhaps nowhere more so than in the water sector. The need to involve the private sector in water services delivery, water resources development and management is often framed around state failure and the definition of water as an economic good. Managing water as an economic good regulated by market mechanisms is deemed to bring efficiency and highest value resource use. Arguments to retain water management and water service provision under public control are framed around the definition of water as a public good and human right.

Water privatisations often do not take into account governmental levels of experience with regulation. When privatisation is first introduced, governments often lack experience and capacity to regulate, with key regulatory objectives and functions not yet developed. This suggests a need for a phased or staged approach to privatisation with intermediate steps such as state corporatisation playing an important role in providing experience and capacity building for more hands-off regulation within a less politicised environment.

Community-based management raises questions of capacity, financial management and participation. Long term sustainability and better demand-driven services and infrastructure have been the major objective of involving communities in the management of their water supply and sanitation systems. As support for community systems have moved from household wells to

larger-scale and more complex community piped systems, so the challenges have grown. Operations and maintenance and financial sustainability have been the biggest challenges with community managed systems, followed closely by institutional and cultural challenges. Furthermore, recent experience suggests that as rural incomes increase, communities are demanding both higher levels of service and management arrangements that release them from day-to-day decision-making. Nevertheless, community involvement in catchment management remains a significant governance prerogative.

### ***Experience drawn from case studies***

Australia has corporatised urban water supply but water provisions organisations remain mainly under state ownership. The breaking up of the Water Board in Sydney into supply management (Sydney Catchment Authority) and service delivery (Sydney Water) produced state-owned corporate entities, each of which enjoys a degree of financial autonomy. Evolving over time in support of these new institutional arrangements, three regulators have been established to protect the public good in terms of economic equity, health and environmental safeguards: the Independent Pricing and Regulatory Tribunal, NSW Health and NSW Environmental Protection Authority respectively. Through these incremental institutional developments, valuable experience has been gained with hands-off regulation.

With financial and technical support from the World Bank and the ADB, the Indonesian government formulated the restructuring of the water sector to provide for decentralised water management and private sector involvement, particularly in urban areas, through the approval of the US\$300 million Water Resources Sector Adjustment loan (WATSAL). This restructuring was one of the conditions of the World Bank and International Monetary Fund's (IMF's) Structural Adjustment Loan to address the economic crisis that began in 1997. A number of NGOs, farmer groups and academics have opposed the establishment of commercial rights to water in the law on the basis that it is unconstitutional. In late 2004 the Water Law was being challenged in the Constitutional Court. Opponents argue that the Indonesian Constitution states that water rights should be owned and controlled by the state.

Since 1998 two private water companies, PT Pam Lyonnaise Jaya and PT Thames Pam Jaya, have operated the Jakarta water supply under 25-year concession contracts provided by the Jakarta City government. The concessions were brokered by World Bank and a part of the World Bank water sector reform program. Prior to the concessions the Jakarta City government owned water utility (Pam Jaya) was running at a loss with little access to capital for new investments. There was no enterprise reform through corporatisation or benchmarking programs and no independent industry regulator. Pam Jaya was effectively self-regulated under the Jakarta City government's supervision. There were also no tariff reforms which could enable cost recovery.

The concessions have promoted increased investment, reduced non-recoverable water, reduced the staff to connections ratio, and accommodated tiered pricing between lower-income, higher-income and industrial users. Despite these improvements a number of significant challenges remain. Higher volumetric allocations go to the higher income and industrial areas. Poorer areas are the first to be cut off in times of excess demand. Both concessionaires are facing financial

difficulties as a result of the failure of the regulatory body to approve tariff increases. The tariffs in Jakarta were less in 2001 than in 1995–1996.

Urban water supply has also faced problems in Ho Chi Minh City, exemplifying the pitfalls of public-private partnerships as a new governance arrangement. In the mid-1990s, a number of Ho Chi Minh City water treatment plants were considered as a build-operate-transfer (BOT) schemes, under which the private sector takes on the risks of new capital investment while the state retains its delivery role, retaining ownership of the networked delivery systems and the risks that go with that (eg. water pipes – a natural monopoly). These water treatment plants were required to overcome a 50 percent supply shortfall in supply. The city has six million people, but the city-government owned water monopoly, Ho Chi Minh City Water Supply Company, has only 300,000 connections where a lack of investment in the piping system is also a major problem.

The first BOT project to go into operation was the US\$38 million Binh An water plant, supplying an additional 100,000 m<sup>3</sup> per day to the city's water supply. Direct negotiations (there was no competitive tender) between a Malaysian consortium comprising Salcon Engineering Sdn Bhd, IJM Corp. Berhad, Malaysian South Corp. Bhd and Sadec Malaysian Consortium, and the Ho Chi Minh City Water Supply Company and the Ho Chi Minh City Peoples Committee led to a 20 year BOT concession being granted to the project company, Binh An Water Company, in 1995. Debt funding was secured through Malaysian banks initially but was refinanced by the International Finance Corporation (IFC) following the East Asian Financial Crisis which hit the Malaysian banking system. The IFC stepped in to refinance the project with a US\$25 million loan on the condition that appropriate guarantees were put in place.

The second project, the US\$154 million Thu Duc water treatment plant, is the largest water treatment project to be considered as a BOT project in Vietnam with capacity of 300,000 cubic metres of water per day. This would increase Ho Chi Minh City's water supply by almost a third of present capacity. Similarly, this was a directly negotiated project with the Ho Chi Minh City Water Supply Company and Ho Chi Minh City Peoples Committee. The project company, Lyonnaise Vietnam Water Company, involving a consortium of investors led by Suez of France<sup>1</sup> was granted a 25-year BOT concession in December 2000. Financing was secured in 2001 from the ADB. The ADB's involvement catalysed the involvement of other export credit agencies and international commercial banks including Export-Import Bank of Malaysia Berhad, Fortis Bank, ANZ Banking Group and Credit Lyonnais.

In both cases, the acute need for treated water led the Ho Chi Minh City Water Supply Company and the Ho Chi Minh City People's Committee to enter hurriedly into take-or-pay contracts for the off-take of water from the two concessionaires. These contracts were guaranteed by the Ho Chi Minh City People's Committee as a condition of the IFIs and other financiers' involvement. The result has proved costly for the city government and its consumers for two reasons. First, a combination of poor planning and coordination, and perhaps mismanagement, resulted in a disjointed planning process whereby the Binh An project was brought on line before the public piping system (distribution losses are about 38%), for which the Ho Chi Minh City Water Supply Company and Ho Chi Minh City People's Committee was responsible, was completed and put in

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<sup>1</sup> formerly Suez Lyonnaise des Eaux one of the world's largest multinational water companies.

place. The result is that the government owned Ho Chi Minh City Water Supply Company, under the characteristic BOT guarantees that it entered into, is forced to pay Binh An Water Company for water it cannot sell to consumers.

Experience in rural water supply governance is marked by a devolution of responsibility to local authorities or community level. In Thailand, the Tambon Administrative Organisations that are the lynchpin of the country's decentralisation at the sub-district level have installed and manage drinking water supply in many parts of the country. In Indonesia, AusAID's Flores Water Supply and Sanitation Reconstruction and Development Project reveals the need for community engagement of both women and men in design and in operation and maintenance. It also shows the advantage of an adaptive management framework, as the initial planning had to be adjusted considerably to respond to unanticipated conditions and the different structures of social organisation in different villages. In Vanuatu, experience of numerous failed aid-funded village water supply projects has encouraged innovative governance arrangements with a strong emphasis on financial management capacity building. NZAID has been the most significant implementer of such projects, and AusAID has wisely looked to learn from this example. An important component of this scheme is the creative use of the NGO Wan Smal Bag to communicate with and train local community groups in culturally appropriate ways.

### ***Examples of good practice***

It is significant that many of the urban water supply projects that have been relatively successful in Southeast Asia have involved a shift to corporate governance but under continued state ownership. The Singapore Public Utilities Board which is responsible for water supplies and delivery in Singapore is often cited as one of the best performing public utilities in the world. It does so by hiring the best available staff on the open market and rewarding its managers with world class salaries. The Bangkok Metropolitan Water Authority is a partial privatisation which is majority owned by the government. It sources new capital for investment on the stock-market and operates with the discipline and transparency demanded by its new private investors. The Phnom Penh Water Supply Authority is a public enterprise which has benefited from reforms in 1996 which instilled autonomous administration and financing and disciplined leadership.

The Tra Vinh Water Supply Company in Vietnam was the recipient of an AusAID grant in the early 1990s to rehabilitate and expand its piped water distribution system. This rehabilitation and expansion was completed by 1998. Prior to its rehabilitation, TWSC was highly inefficient due to poorly maintained pipes and unable to recover its costs. It had no independent management board and no financial autonomy. It's funding came from the Tra Vinh Peoples Committee who set the water tariff, and all recovered revenues went back to the Provincial Government.

Following its rehabilitation in 1998, the enterprise was corporatised. The case of TWSC demonstrates the modest gains that reforming state owned enterprises can achieve in quite a short time period. The establishment of an independent management board with financial autonomy allowed the enterprise to retain its revenues for reinvestment after meeting operational and maintenance costs and paying taxes to the Provincial Government. It also has authority over investment decisions and sourcing new capital. However, regulation of water pricing remains

under the Provincial Government - increases in water tariffs require negotiation with the Provincial Peoples Committee to ensure water remains affordable.

Despite having had no water tariff increases since 1998 because of concerns over affordability, TWSC has been profitable in every year since it was corporatised in 1998. The company has also not received any subsidies from the government despite it having a program to assist low-income and ethnic minority households with interest-free loans for meters and pipes in new connections. Further reform possibilities include introduction of a stepped tariff system which will penalise high volume users, further rehabilitation works to rein in the very high water losses of 42% from old pipes which were not addressed in the AusAID rehabilitation project, and introducing performance benchmarks.

There is no one size fits all solution. The Port Vila municipal water supply is managed, relatively successfully, by the fully private operator UNELCO. Moreover, this operator, an offshoot of the longstanding electricity supplier for the Vanuatu capital, is now under the control of Suez of France. Current plans for UNELCO to expand to Luganville and other secondary towns in Vanuatu raise questions of pricing and supplying less accessible communities, but with proper regulation and negotiation on the part of the authorities, experience has shown that costs can be kept at or below those of state-run schemes in the island case.

Vanuatu rural water supply management is another example of good practice, but with an important caveat. The MDG targets have encouraged a significant increase in investment by aid agencies in rural water supply. There is a risk that acceleration in hard infrastructure provision could overwhelm the capacity of governmental and non-governmental implementers of governance reforms at the community level to support management at a rate commensurate with construction of new facilities.

## **Equity Implications**

Equity is a key concern for water related development assistance. Though many water resource development interventions have been premised on increasing the supply of water to people and for food, there are rising disparities in water access between the rich and poor within and between countries. One in five people globally is without access to clean water and close to two and a half billion people lack access to safe sanitation.

### ***Key problems and issues***

Human intervention, whether through technology or governance, alters the allocation of water. There is no ‘natural’ distributive justice in water availability due to the significant variations between seasons, upland and lowland areas, and regions. Yet human regulation re-distributes water according to the economic and social objectives of those who control structures at a given scale. Negotiation over water distribution and equity between various actors, whether they be neighbours sharing a well or countries sharing a large river, are shaped by underlying issues of power, culture and values. Negotiation and equitable outcomes thus vary greatly according to societal context.

Dimensions of water equity include:

- Ways in which water property rights are defined and associated rules for water allocation
- Tensions between equity and efficiency and between equity and sustainability
- Provision of ‘safety nets’ for the poor to ensure basic water entitlements
- The extent to which water governance engages with gender inequalities
- The extent to which water governance addresses the interests and concerns of minority groups including Indigenous communities and ethnic minority communities
- Sectoral water equity and competition between agricultural, industrial and urban water uses
- The degree to which management of conflict addresses underlying inequalities and injustices rather than dealing only with superficial symptoms when confrontations occur

The way in which water rights are articulated through a country’s governance structures (whether through law or custom) has significant implications for equity. There is tension between the consideration of water as an economic good and the view of water as first and foremost a human right. Prioritising water as an economic good often involves the privatisation of water rights, as has occurred in Australia. When water is seen as a basic human right (and it is recognised as such in international law), it is more likely to remain in public ownership. Property rights paradigms often reflect the dominance of one of these positions without appropriately defining a balance between the two.

The guiding principle for much of the reforms in the water sector is improved efficiency. The basic argument is that clarification of property rights along certain lines will allow for market mechanisms to assist with the reallocation of water to the most productive uses and users. Yet the reform of water rights needs to be carefully considered. Despite the lack of formalisation of water rights by the state until recently, at a community level water rights are often carefully codified (and regulated) through social norms and attitudes. Conflict often becomes apparent when new

users compete with existing users, pre-existing rights go unrecognised, or existing rights are undermined through the imposition of new rules and regulations.

The assumption that paying increased prices for water will encourage greater water use efficiency and innovation discounts the diverse investments people have made (and continue to make) in water systems (such as in time, labour etc.) which contribute to ensure efficiency. Market mechanisms may result in water flowing to more 'productive' uses but other forms of governance are required to ensure this does not come at the cost of equity, ecological sustainability, food security and cultural diversity.

Gender inequality is another significant issue for water managers. While the attention given to gender issues associated with WSS in recent decades has improved considerably, the attention given to gender issues related to irrigation, catchment management and public water resources management remains inadequate. The persistence of traditional cultural norms is often cited as a rationale for gender inequity in the water sector. Participation (in public forums) is often impeded by low self-esteem amongst women and gender inequality in employment exists in a range of institutions. Finally, there is a link between status, income and water access, such that women's culturally based inequity is linked to their low incomes.

Decision making on water reflects the distribution of power within society. Socially marginalised groups, such as indigenous people, and religious and ethnic minorities, are often excluded from formal decision making processes. Consequently, their interests and the particular values they place in water can be ignored or undermined by majority interests.

There are significant barriers to the participation of marginalised groups in formal water resources management structures. Often minority groups such as indigenous peoples and ethnic minorities are faced with structural discrimination and are socio-economically disadvantaged. These barriers include:

- The level of formal education of ethnic minorities in South and Southeast Asia, which is lower than those of ethnic majorities.
- The language meetings are conducted in, including the use of technical or academic jargon, which is just one of the more obvious barriers to the participation of marginalised groups.
- The predominance of written communication, the timing of meetings, the cost of travel to meetings, the opportunity cost (in terms of foregone employment) associated with attending meetings, and issues of self-confidence in the face of subtle (and more overt) forms of discrimination.

Water equity can also be considered with reference to competition between sectors. Agriculture remains the largest water user in the Asia-Pacific and globally. Yet water supply for agriculture is coming under increasing competition from other water uses, such as industry and urban water supply, as societies and economies change. Those engaged in agriculture, and other natural resource based livelihoods may be vulnerable to re-allocations of water to other sectors, or changes in the timing or quality of water availability. Whilst agriculture may not be the most economically profitable use of water, the provision of adequate supplies of water for agriculture is critical to food security.

The nature of water is such that it can be easily captured and diverted, and as such water can be tapped, stolen and systems of regulation subverted. Whether at a community or international scale, for equity to be maintained in a system it requires a high degree of social acceptance in order to minimise the cost of regulation and enforcement. In the same way, reform to any system of water governance also requires a high degree of social acceptance to ensure conflict is avoided. To have some sort of reallocation of water, for example towards a more equitable, efficient or sustainable arrangement, requires negotiation, compensation, and a transition process that is both iterative and socially acceptable.

### ***Experience drawn from case studies***

At a community level, communal contributions to maintain and operate systems are one way that the principle of equity is encouraged through the building of solidarity and obligatory relations between members. In larger systems equitable distribution of water may be regulated through more overt and bureaucratic forms of supervision and enforcement of rights.

Case study countries in the Asia-Pacific have all developed mechanisms for dealing with water equity. Programs for dealing with poverty, for example, include both policy and financial mechanisms.

Policy approaches to provide ‘Safety Nets’ for the poor include:

- Targeted “water for the poor” programs
- Participatory policy development and decision making involving real power sharing
- Gender mainstreaming
- Training and capacity building amongst the poor
- Integrated disaster mitigation with water management
- Prohibitions on disconnections

Financial approaches include:

- Cross subsidies
- Grace periods
- Caps on maximum fees
- Waivers
- Differential rates
- Financial assistance
- Payment in instalments
- Rebates

With respect to WSS, macro-figures generally show an improvement in the provision of water and sanitation services in the case study countries, except in Vanuatu. In Vanuatu, although the percentage of the population receiving improved water supplies remained stable, the gap between rural and urban areas is stark. Furthermore, macro-figures do not reveal disparities within communities with regards to access to basic water needs. Inequitable access to water disproportionately affects the poorest in communities, indicating socio-economic and political processes play an important role in influencing water access.

Across the Asia-Pacific region there is a diverse range of systems for water rights and allocation. These systems differ according to how rights are defined, for example

- According to attachment to land or to people or other rights holders (individuals, households, bulk users, communities)
- The period of time they are valid (in perpetuity, lifetime, seasonal)
- The amount of water that is specified (volumetric, proportional, time-dependent)
- The manner of decision making on rights (community institutions, bureaucratic institutions)
- The method of prioritisation, especially in times of scarcity, and whether water rights are bundled up with other rights (for example land, fish and so on).

Appendix 2 summarises key legislative and other agreements on water rights and experience/experimentation with market-based mechanisms in the case study areas.

Whilst many governments in the Asia Pacific region are signatories to international human rights treaties which enshrine water as a human right, national legislation does not always clearly articulate water as a human right. Similarly, multilateral agencies such as the ADB do not provide a clear articulation of access to water as a human right in their water policies. For example, the ADB defines water in its official water policy document as a ‘socially vital economic good’. Whilst the focus on water as a human right is seen by some commentators as a distraction, it is an important mechanism by which to encourage and hold national governments accountable to meeting the obligations they have to their citizens, for example through re-prioritising national spending and development planning.

Poverty Reduction Strategy Papers (PRSPs) and similar national initiatives are influential tools in terms of guiding national government, donor and NGO activities, and in providing support in the area of poverty alleviation. However, a comparison of the Interim PRSP for Indonesia (2003) with that of PRSP for Vietnam (2002) shows quite different approaches to water. Indonesia’s Interim PRSP gives no particular attention to water issues. Vietnam’s PRSP, in contrast, gives comprehensive attention to water issues, including WSS, waste water treatment, prevention of water pollution, state support for irrigation in poor areas, and watershed management. However, the absence of detailed sub-national data and information on the particular water needs of different regions, livelihoods and social groups limits the usefulness of PRSPs in permitting clear targeting within WSS and water resources management.

Common elements of the strategies proposed to improve gender-aspects of water resources management include the promotion of gender mainstreaming in water resources management, greater participation of women in the design, implementation and evaluation of water projects, greater collection of gender differentiated data, and training of water professionals in gender analysis.

### ***Examples of good practice***

The following examples indicate positive directions towards improving water equity.

Equity is increasingly understood in a broader context of the benefits of development. Within the Mekong Agreement (1995) of the MRC there is a key clause which states that the signatories

agree, “To utilize the waters of the Mekong River system in a reasonable and equitable manner in their respective territories”. The Water Utilization Programme is the process which aims to operationalise these concepts through, amongst other activities, the negotiation of rules on water use and allocation. In this trans-boundary context, equity is largely interpreted in negotiations in terms of protecting existing uses rather than the percentage contribution to flows by each riparian. Yet, perceptions still persist that water should be allocated according to riparian flow contributions. For instance, Laos contributes 35% of the flow but uses just 4%; some are of the view that Laos is entitled to exploit the full 35% for national development. The shift in emphasis within the WUP from sharing water equitably to sharing the benefits of water equitably is a positive move. For example options are now being considered to exchange the benefits of food production from irrigation to food scarce regions. This has also led to a situation where trade-offs are being made more explicit and reciprocity is a guiding principle.

Mechanisms for addressing economic sustainability need to accommodate equity considerations. In the late 1990s, official Vietnamese documents and decrees were inconsistent in regards to the goal of full cost recovery. In more recent years there has been a move away from this objective for irrigation and drainage services. Officials at various levels of government now see this objective as neither possible nor desirable. The falling rate of returns for small farmers and rising disparities in wealth between urban and rural areas (and small and large farmers), as well as the considerable political constituency rural farmers form, have contributed to the rejection of further imposition of costs on farmers. Irrigation fees for public systems are formalised in various decrees, though private pumping stations are able to levy their own fees (yet these are capped). The challenge to ensure adequate investment in system operation and maintenance, however, remains. The long-term maintenance of systems is critical to ensuring that water access is fair and equitable. The prioritisation of funds for maintenance of existing irrigation systems by government at the central and provincial levels remains seriously inadequate and is often overlooked in favour of funding the construction of new systems.

There is a clear implication here for the way ODA is used to support poverty alleviation. The resolution of equity concerns, in terms of a financial burden of water access being placed on the poor, needs to be considered in line with sustainable financial, operation and maintenance strategies. Such strategies need to be worked out by local authorities in partnership with local communities to find lasting solutions applicable to projects and the broader policy context.

To define more sustainable and appropriate water futures for society as a whole, water resources management institutions must also begin by addressing past injustices and inequalities through the implementation of inclusive and appropriate decision making processes. This requires flexibility and innovation in the way meetings, consultations, dialogues and research are conducted to ensure that the views and concerns of minority or disadvantaged social groups are not only heard but actually influence and shape the decision making process.

## **Implications for development assistance**

What are the implications of the above findings for development assistance at the level of policy analysis, program design and project preparation? The lessons we draw mainly point to the need to work with endogenous development of appropriate institutional arrangements and the need for diagnosis that will allow external interventions to be well tailored to context.

In the following summary, we have developed a diagnostic guide that draws some general lessons but mainly indicates what to look for and what to ask in each context. We present these both as contextual principles and as recommendations specific to the key themes of the study.

### ***Policy Analysis***

#### **Contextual principles**

The scope for participation varies considerably from one cultural and political context to another. Whether it is catchment management stakeholder configurations or financial management of water supply and sanitation, understanding the context-specific potentials and constraints on participation is a key requirement.

Science is understood, used and accepted quite differently by different stakeholder groups in different situations. We cannot assume that producing good science will automatically or necessarily lead to better informed decisions on its own. Understanding pathways from scientific assessments to good decisions is an important diagnostic exercise in each case. Early involvement of policy makers and target groups in the definition of research priorities and assessments is likely to increase the relevance, appropriateness and likely adoption of any recommendations.

Stakeholder analysis needs to be tailored to social and resource system configurations. Water is used and managed by diverse groups with different interests and value systems. The composition of and relations between these groups needs careful analysis and consideration in each case, taking into account specific cultural, economic and political dimensions of relations between groups.

#### **Specific Recommendations**

The perceived scarcity problem on which political will for reform in Australia has been predicated can inform ODA planning. Instances of actual or potential scarcity are likely to correlate with political will for regulatory reform. In other words, if a problem is defined domestically there will be more will to effect change. Identifying locations/instances of such scarcity can assist in prioritising ODA interventions.

Care needs to be taken in supporting sectoral agencies that may contribute to water management problems, for example through poorly considered infrastructure development. It is better to identify inclusive multi-stakeholder mechanisms or platforms for support.

ODA should only support catchment management institutions based on an existing dynamic and recognised need. Catchment management needs to be linked with locally oriented institutions. Programming should be especially wary of the potential failures of donor-driven or donor-induced imbalances in this area.

Even small public water utilities can become self funding when the proper governance arrangements are put in place. There are numerous other examples of sustainable public water utilities including the Singapore Public Utilities Board, Bangkok Metropolitan Water Authority, and the Phnom Penh Water Supply Authority. Lessons from successful cases can provide a basis for improved governance reform elsewhere.

The application of market instruments to meet water efficiency goals needs to be highly sensitive to the context of their application in order to ensure that essential water needs and the environment are protected. The market has consistently proven ineffective in addressing equity issues, with ‘safety nets’ often promoted to re-dress this issue. In specific cultural and economic contexts, payment for water services or compensation to water providers can encourage conservation and community ownership of systems, yet in other contexts it can erode people’s right to water if not implemented in a manner that gives due respect to basic needs and equity issues. A proper diagnostic study should take this into account before introduction of market instruments through ODA.

In order to address underlying social inequities in the design and implementation of projects, a good understanding of vulnerable and marginalised groups is required. Where information and knowledge of these groups is lacking the collection of this information should be prioritised. For example, ethnically and gender-differentiated water data at multiple scales is still lacking in many of the case study countries. Importantly, more than just good information is required. Clear mechanisms for the inclusion of socially marginalised groups into long-term decision making should be supported.

Transboundary water conflict resolution mechanisms need to recognise and consider the context of unequal state power in their design. Less powerful actors can be marginalised in negotiation forums.

## ***Program Design***

### **Contextual principles**

Pay attention to scale. Often the best value added in a crowded ODA landscape can be projects which forge links between scales or levels of management, for instance between community level initiatives and catchment management processes.

Do not be ideologically bound. Certain principles such as water pricing may be well accepted in some places and highly contentious in others.

Avoid promotion of complex financial governance arrangements where these have been poorly tested or prove risky in well established and regulated circumstances. The recent experience with

public-private partnerships in NSW and a move back toward state-owned water infrastructure under corporate management is an instructive case in point.

Identify what other donors are doing well and work with them. The case of community-based financial management of water supply and sanitation in Vanuatu is a good case in point, where AusAID has done well to follow and adapt the NZAID model.

Adopt a ‘do no harm’ approach when promoting any market based instruments, based on a good understanding of the differential impact of such instruments on different social groups. This should also involve an analysis of trade-offs from programs that establish sustainability regimes which may have regressive components. Acceptable trade offs will be different in each context.

Ensure long-term financial sustainability of systems is considered in the early design phase. Such strategies need to be based on partnerships between local authorities and local communities so that lasting solutions to the maintenance and operation of systems are identified in a way that is sensitive to impacts on the poor.

Understand the differences between conflict resolution and conflict management in the water sector. Conflict resolution may defuse immediate disputes but leave structural problems and asymmetries in power intact. Conflict management requires negotiated outcomes by parties to a dispute themselves.

Gender equity is not just about following guidelines. Whilst development assistance has come some way in improving gender equity policies, manuals and guidelines, and in recognising the crucial role women play in underpinning the success of ‘domestic’ water supply and sanitation projects, the attention given to gender issues associated with other aspects of ‘public’ water resources management, such as catchment management and irrigation is less well addressed. Increased involvement of women in formal water resources management is likely to result in different priorities for water allocation and resource development, reflecting the different roles men and women play in society.

### **Specific recommendations**

The transfer of water management systems from one geographical context to another is problematic. Just as Australia has learned costly lessons from its application of European practices in a different environment, so ODA programming needs to be wary of applying seemingly proven practices out of context.

ODA should allow a facility for “crisis response”. In the water sector, there is a need to respond quickly when the moment is right. This response should not be limited to disaster relief, but should also engage with political opportunities to respond to instances where there a recognition of the need to deal with a critical drought, pollution or other critical issue through better governance. In principle, this could take the form of a registry of water governance experts in Australia and the region who are available to respond to such crises.

ODA support for institutional development of catchment management policy and institutions needs to place much greater emphasis on the question of constituency and stakeholder

involvement. Appropriate stakeholder involvement will be achieved quite differently in different cases depending on opportunities for wider societal involvement in decision making processes.

Support for building independent regulatory capacity should be given high priority. Capacity to consider economic, financial and political issues in a transparent manner is required.

The limitations of a market approach to water management are particularly apparent when considering the water needs of the environment. The maintenance of healthy ecosystems, environmental services, and biodiversity can not be adequately quantified for market purposes and thus requires progressive regulatory interventions by government in the interests of the common good. Such regulation should be integral to ODA that fosters market-based approaches.

To ensure that non-productive values, such as ecological, spiritual and subsistence values, are properly accounted for greater support for qualitative and quantitative analysis of the values attached to water are necessary to ensure equitable water resource allocation. ODA should seek mechanisms to support understanding of these values within relevant institutions in the countries where programs are to be implemented.

Pay attention to country-based knowledge production about water and water governance. This may involve support for research capacity, science-based decision support and pathways for developing or enhancing common understandings of water-related problems among diverse stakeholder groups.

## ***Project Implementation***

### **Contextual principles**

Adopt an adaptive management approach. Most projects in the water sector are subject to multiple uncertainties, surprises and operate within rapidly changing physical and societal circumstances. Built in systems for monitoring and adaptation to specific conditions is likely to result in more resilient governance of water supply and sanitation, irrigation and catchment management systems.

Involve stakeholders in any institutional design. Governance frameworks require buy-in, first and foremost by those who have a stake in the processes and outcomes. Off the shelf solutions do not work.

Governance requires going beyond government. While in some cases this means involving the private sector, community and civil society are *sine qua non* participants in any acceptable governance system for water-related infrastructure and management arrangements.

There is a need for a more considered approach to the appropriate scale of intervention, from top-down to bottom up and from large-scale basin to small scale sub-catchments. Whilst it is administratively burdensome for aid agencies to manage many small projects, versus a few big projects, the clustering of projects around core concerns can build synergies and ensure efficiency. There is considerable potential for experimental linking of scales, but each will need

to be carefully designed to the socio-political context of the country in which the program is located.

Jurisdictions that define water as simultaneously an economic and public good require support to establish independent regulators with capacity to consider economic, financial, social, environmental and political issues in a transparent manner.

### **Specific recommendations**

ODA should support science/policy/community dialogues, given that there is a lot of bad science or partial science justifying particular avenues for reform. This requires program design that is well informed about the role of science and community awareness and attitudes in this area. It may involve support for think tank groups or for relevant multi-stakeholder platforms.

Community participation in catchment management institutions cannot be relegated to single or stand-alone consultations, for example in the design or priority setting phase of a RBO, but rather needs to be conceived as part of a longer-term commitment to inclusive decision making. Program design should identify other areas in which community participation works or needs support before incorporating participatory processes and structures into river basin organisational frameworks.

Support for RBOs should take account of provincial capacity and that of lower levels of government to involve themselves and other stakeholders in the activities of the RBOs.

Community based water systems are growing in popularity in rural areas, promising better responsiveness to consumer demands. However, there is some evidence to suggest that they may not be sustainable as users' standards of living change and they demand to be freed from their day to day management responsibilities.

# Appendices

## ***Appendix 1: Key Catchment Management Directions in Case Study Areas***

Case	Key Catchment Management Directions
Australia	<ul style="list-style-type: none"><li>• The Murray-Darling Basin Commission governs Australia’s largest transboundary river basin (occupying about one seventh of Australia’s land mass and containing an agricultural area in which about 70% of Australia’s irrigation occurs). The Murray-Darling has been a concern of the federal and state governments since Federation and has inspired intergovernmental cooperation in water management since the signing of the Murray Waters Agreement in 1914. The Commission (established in 1992 by the <i>Murray-Darling Basin Agreement</i>) is often cited as an example of effective transboundary water governance and integrated catchment management as it represents cooperation in natural resource management between five States and Territories and the Commonwealth Government.</li><li>• Despite its advances, intergovernmental cooperation through MDBC has not resulted in sustainable management of the Murray-Darling Basin ecosystem. This is in part due to the scale of the environmental problems and the lag in their manifestation but also due to the entrenched political and economic power certain resources interests have over decision making and structural impediments to change in land and water use. Governments are now attempting to address problems associated with over-extraction and salinity. Environmental degradation has inspired a reappraisal of Basin Management with the placing of a ‘cap’ on levels of water extraction. Following the establishment of the ‘cap’ in 1997, the Murray-Darling Basin became Australia’s first pilot scheme for cross-border trading in water licences. Under this scheme, water extraction licences are tradable commodities. Current licence holders who do not use their full allocation (“sleepers” and “dozers”) are able to sell excess water entitlements for economic benefit. To address environmental problems in the Murray-Darling Basin, the Council of Australian Governments (COAG) has entered the water market and allocated \$500 million to purchase water for environmental flows.</li><li>• At the state level in New South Wales, catchment management has been marked by successive reforms. In the last fifteen years there have been three institutional models of catchment management: Catchment Management Committees (CMCs), Catchment Management Boards (CMBs) and Catchment Management Authorities (CMAs). These organisations have been governed by the <i>Catchment Management Act</i> 1989 and the <i>Catchment Management Authorities Act</i> 2003. Changes in organisational structure have instituted a consolidation of catchment management (there are 13 CMAs compared to 21 CMBs and 43 CMCs). This has been associated with increased professionalisation and reduced community participation.</li><li>• Catchment management models in other Australian states differ in terms of institutional make-up and level of stakeholder participation. Victoria has an established Catchment Management Authorities system (originating from 1994 legislation) and emphasises integrated management and sustainability. The Victorian system can be considered similar to, but more established than, the current New South Wales model. The South Australian model promotes community participation in catchment management and is coordinated by eight Catchment Boards. The Australian Capital Territory relies on the <i>Environment Protection Act</i> 1997 (emphasising integration of environmental, economic and social considerations) and the <i>Water Resources Act</i> 1998 (focused on sustainability) to direct catchment management policies, but no dedicated catchment organisations exist. The same is true of Tasmania, the Northern Territory and Western Australia, where catchment management directives are typically incorporated into broader natural resource plans.</li></ul>
Thailand	<ul style="list-style-type: none"><li>• Bureaucratic administration of water has moved from a highly fragmented system of at least 31 government agencies dealing with water to a new Department of Water Resources under the new Ministry of Environment and Natural Resources, and a territorial demarcation of 25 river basins. However, the Royal Irrigation Department remains in a different ministry</li></ul>

(Agriculture) and secures the largest budgetary allocation.

- River Basin Committees have been established in each of the 25 basins (four of which have two RBCs to cover the upper and lower sections).
- The proposed Water Law is still at the drafting stage. This is the latest version of a bill that has been in formulation since 1992 and that has been subject to civil society challenge and public hearings. Without the Bill, the RBCs have no legal underpinning and exist under Ministry Regulations.
- Private sector consultants have taken on an increasing role in catchment management. The latest initiative has been formulation of investment plans for a number of river basins.
- The history of conflict over infrastructure projects, dams in particular, affects relations within river basins. There is concern among NGOs, civic assemblies and others that RBCs will be used in part as a pretext to mobilize financial and political support for controversial projects, taking advantage of rainfall variability to press for large diversions and storage dams during times of drought (eg Salween in the north west, Kok-Ing-Nan in the north) and flood.
- A key water initiative in Thailand is the proposed Water Grid, which uses a river basin framework to link water “surplus” basins with water “deficit” basins. This includes a transboundary component that would import water from Laos, Cambodia and Myanmar. Negotiations for sale of water from Mekong tributaries in Laos to Thailand are the most advanced transboundary water trades under consideration.

#### Vietnam

- Since the mid-1990s the national government has embarked on a process of reform of the water sector. This is part of the more wide-ranging process of restructuring state-society responsibilities and property rights in natural resources management accompanying *doi moi* (renovation).
- Key water policy, institutional and legal changes relevant to catchment management include:
  - the Water Resources Sector Review (1996), which began the process of consolidating available data (at a macro level) on physical aspects of water resources; preliminary analysis was undertaken on priority concerns and projects for key basins;
  - the merging of the Ministry of Water Resources with other natural resources and agricultural agencies to form MARD in 1996 was an attempt to move away from the strong irrigation bias previously present in water resources development, towards a more integrated approach to rural development; the restructuring of water management responsibilities under the Ministry of Natural Resources and Environment (overall water management) and MARD (river basin organisations and public water management) in 2002 is a continuation of the reforms of 1996 and a further attempt to raise the profile of environmental aspects of water resources management.
  - the National Water Law was passed in 1998, following considerable debate and revisions of the bill by the National Assembly; Articles 5, 20 and 64 (in particular) recognise the importance of protection and exploitation of water according to basin boundaries.
  - pursuant to the Water Law, the National Water Council was established in 2000; it is considered the apex water policy body composed of the deputy Prime Minister and key natural resources management agency, regional, scientific and mass organisation representatives;
  - establishment of 4 river basin organisations under the jurisdiction of MARD, with plans for organisations to be established in the remaining 17 river basins.
- In each of the above reforms ODA has played a crucial role through provision of finance and

expertise through international consultants.

#### Vanuatu

- Catchment management is something new, described as “scary” even for government resource agencies, as it demands a degree of communication and application of science that officials are not used to.
- Water management continues to be fragmented, notably between urban (Public Works Department – UNELCO) and rural (Department of Geology, Mines and Rural Water Supply) water service provision.
- The Water Resources Management Act was passed in 2002 with provisions for customary tenure.
- There are few catchment management initiatives in Vanuatu. They include:
  - Tagabe: Environment Unit: Port Vila water supply
  - Water quality monitoring in rural catchments (UNESCO – a project diverted from the Solomon Islands)
- Catchment issues in Vanuatu are mainly framed in terms of urban water supply; logging; shifting cultivation pressures and erosion.

#### Mekong

- The Mekong is often held up as an example of good governance in transboundary management, in securing *nearly* 50 continuous years of cooperation over water within a region marked by historical conflict and war.
  - The Mekong River Commission, and the Mekong Committee that preceded it, suffer from the absence of the basin’s two upstream countries, notably China.
  - There is a disconnection between the technical arm of the MRC (the Secretariat) and the political entity constituted through the Ministerial Council and Joint Committee. The Secretariat is a largely donor-funded and donor-driven agency whose primary role is the use of data and scientific assessments to underpin water sharing and basin planning under three core programs: the Basin Development Plan, the Water Utilisation Program and the Environment Program.
  - The BDP divides the Basin into 10 key sub-areas. The first phase of BDP has largely been process-oriented, to establish mechanisms for stakeholders within each sub-area to have input into planning. There is now strong pressure for the BDP to become more project-focused and to serve as a mechanism for direct investment into infrastructure development. This is one of a number of tensions manifested in this and other river basin organisations, whereby they are perceived as another mechanism for development investment rather than coordination of activities and participation in decision making.
  - The Water Utilisation Program is designed to provide the data necessary to establish rules for water utilisation and sharing, which would provide much more detailed guidelines than the 1995 Agreement on the rights, responsibilities and procedures underlying development of water projects within the basin with transboundary impacts. Sophisticated hydrological modelling, other decision support tools, and the experience of other transboundary basins underpin the WUP.
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**Appendix 2: Summary of key national government objectives in relation to property rights and market mechanism**

	<b>Legislation and Agreements on Water Rights</b>	<b>Water-related Market Mechanisms</b>
Thailand	<ul style="list-style-type: none"> <li>• Current draft of the proposed water law states that:               <ul style="list-style-type: none"> <li>• water belongs to the “public domain”</li> <li>• people are entitled to the water on their land, and can trade that water, however, except in times of drought when the government can intervene and limit water use</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Water user fees introduced as a condition of an ADB loan to the agricultural sector</li> <li>• River basin committees are being organised to levy water use fees</li> </ul>
Vietnam	<ul style="list-style-type: none"> <li>• Water Law (1998) states:               <ul style="list-style-type: none"> <li>• Water owned by the people through the management of the state</li> <li>• Users of water have a responsibility to contribute financially, except those who are particularly poor</li> <li>• Licenses are required for bulk water users, but not for individual farmers</li> </ul> </li> <li>• Civil Code enshrines the right of access to water through neighbouring land if direct access to the water source is not available</li> </ul>	<ul style="list-style-type: none"> <li>• Long-established arrangements for labour and financial contributions (e.g. through payment of water fees to SOEs) for irrigation and WS;</li> <li>• No plans to introduce a water tax;</li> <li>• No official support for full cost recovery</li> <li>• SOEs active in irrigation and WS sector;</li> <li>• BOT scheme for urban WS in HCMC</li> </ul>
Indonesia	<ul style="list-style-type: none"> <li>• Constitution states water rights are owned and controlled by the state</li> <li>• Three categories of water rights recognised in law: household, traditional irrigation, commercial.</li> </ul>	<ul style="list-style-type: none"> <li>• Water law allows for water privatisation</li> <li>• Privatisation of urban water supply schemes, such as in Jakarta</li> </ul>
Vanuatu	<ul style="list-style-type: none"> <li>• Water Resources Act passed in 2002</li> <li>• Provision for customary water rights</li> </ul>	<ul style="list-style-type: none"> <li>• Privatised urban water supply</li> <li>• Financial management of rural water supply including user charges</li> </ul>
Mekong	<ul style="list-style-type: none"> <li>• The 1995 Agreement on the Cooperation for the Sustainable Development of the Mekong River Basin sets out the framework for water rights between the Lower Mekong Basin riparian countries; upper basin countries, China and Burma, remain outside the agreement;</li> <li>• WUP (2000-2006) is the key process by which water monitoring, water rights, water sharing, and trading are to be specified, including agreement on procedures and rules concerning:</li> </ul>	<ul style="list-style-type: none"> <li>• WUP to address the option of water trading between riparian countries.</li> <li>• Negotiation of plans for Thailand to purchase water from Laos.</li> </ul>

	<ul style="list-style-type: none"><li>• Wet and dry season water usage;</li><li>• Inter and intra-basin diversions;</li><li>• Minimum acceptable low flows;</li><li>• Natural reversal of the Tonle Sap River</li><li>• Prevention of excessive flood peaks</li><li>• Use of 'excess water' (which refers to water which will be theoretically available from releases from Chinese dams)</li></ul>	
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