

Water Rights and Water Allocation

Issues and Challenges for the Region



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NETWORK OF ASIAN RIVER BASIN ORGANIZATIONS

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FOREWORD

Speaking at the Asian Development Bank's (ADB) Water Week in 2002, then ADB President Tadao Chino remarked:

"The water crisis is essentially a crisis of water governance. ADB's water policy is therefore governance-oriented."

This key message was re-iterated in the Asian Water Development Outlook report (AWDO) commissioned by ADB for the 1st Asia Pacific Water Summit in 2007. While suggesting that there is enough knowledge, technology, and expertise available in Asia to solve its existing and future water problems, AWDO concluded that:

"If some Asian countries face a water crisis in the future, it will not be because of physical scarcity of water, but because of inadequate or inappropriate water governance, including management practices, institutional arrangements, and socio-political conditions, which leave much to be desired."

AWDO noted that, in Asia, there are many success stories of significant improvements in water governance. However, the report also pointed out that major fundamental changes are needed in water governance practices in nearly all the countries in the region. ADB's *Water for All* policy, which was adopted in 2001 and reviewed in 2006, is strongly oriented toward improving water governance across many fronts—in the delivery of water services, the management of water resources in river basins, and in strengthening the enabling environment of policies, legislation, and institutional reforms.

To support investments in water resource management, ADB took a leading role in 2004 in establishing the Network of Asian River Basin Organizations (NARBO), to share knowledge, improve governance, and build capacity for integrated water resource management in river basins throughout Asia. NARBO now has 56 members from a range of organizations, including river basin organizations, government agencies and regional knowledge partners.

ADB has been a strong supporter of NARBO's work program from its inception, working closely with the Japan Water Agency and the ADB Institute in Tokyo. River basin management is key to ADB's water investments in the region, where more and more clients are requesting that investments in water resources management be designed and implemented in a river basin context. Under ADB's Water Financing Program 2006-2010, one of the five major outcomes is the introduction of integrated water resource management in 25 river basins across the Asia-Pacific region.

In a survey on training needs, NARBO members ranked water rights and water allocation as their first priority. In response, a special program was initiated in December 2005 in partnership with NARBO members from Indonesia, Lao PDR, the Philippines, Thailand, Viet Nam, and Sri Lanka. Over the following 18 months, representatives of national governments and basin organizations met in a sequence of four workshops in Hanoi, Manila, Bangkok, and Saitama,¹ to discuss each participating country's status with water allocation and water rights issues, to

¹ Hanoi: 5–9 December 2005, organized by the Red River Basin Organization; Manila: 5–9 June 2006, organized by the National Water Resources Board and Laguna Lake Development Authority; Bangkok: 27 November to 1 December 2006, organized by Department of Water Resources, Ministry of Natural Resources and Environment; Saitama: 22-26 January 2007, organized by the Japan Water Agency .

clarify problems, and identify actions and recommendations to improve the situation in the countries.

Water rights have been a key tenet of water resource policy in the development process of industrialized countries. For example, Japan moved from a sectoral approach to a basin perspective when it adopted the “one basin–one permitter” principle in 1964, thus modifying its earlier water rights system under the 1896 River Law.

“Done right, water rights can secure access to water for existing users and offer equitable ways to meet additional water needs, including urban expansion, economic growth and environmental protection”.

Bruns, 2005 (p283)

Introducing water rights is a challenge facing both developed and developing countries around the world. With economic development, population growth, and rapid urbanization comes increased pressure on water resources in terms of the quantity of available water and the ever-changing mix of stakeholder groups seeking to utilize the resource. The process is often accompanied by deteriorating quality of water, thus adding a further constraint on the quantity of available usable water. Superimposed upon these pressures is an imbalance of power among users—e.g., between urban and rural, industrial and agricultural, and emerging middle classes and the poor. Traditional or customary users of water also tend to be caught up in the changing pattern of water use—usually with negative outcomes.

Why are water rights and a consistent system of water allocation important? In a word, it can be summarized in the concept of security. For the rural and urban poor, as with other users, water rights relate to security from having the basic supply necessary for a healthy and dignified life. Access to a clean water supply still eludes more than 600 million people in the Asia-Pacific region. Beyond water for domestic use, there is security in subsistence agriculture, through water for the cultivation of basic crops and rearing livestock on which villagers depend. For those with more land, water provides security for investing labor and money into developing the land. For urban dwellers, it is the security of a more advanced lifestyle that inevitably involves higher rates of water use. For industrial and commercial users, it relates to a secure investment climate for business development plans. In the absence of clearly articulated water rights, there is a risk that the security of water for these purposes will be compromised and lives and livelihoods adversely affected.

Water rights and water allocation systems play a significant role in providing these kinds of security and addressing real challenges, such as how water is assigned to new urban and industrial development in cases of water shortage and how the water use of existing users can be protected to safeguard their livelihoods.

Each of the participating countries in NARBO’s water rights workshops are facing similar challenges to a greater or lesser degree—challenges that even developed economies continue to face. However, the main competitors for water may be different for each country and indeed, within different parts of the same country. For example, in parts of Sri Lanka there are tensions between storage for hydropower generation and the release of water for agriculture and urban water supply. In Indonesia, the Philippines and Thailand, the main constraint is providing water for urban, industrial, and agricultural development in areas surrounding the mega-cities of Jakarta, Manila, and Bangkok. Water shortage is generally not so acute in the Lao PDR, but a number of hydropower concessions involve river diversions that raise potential problems for customary and existing users of water. Underlying such sectoral competition for water are the needs of the environment and the extensive rural livelihoods that water supports.

ADB's *Water for All* policy² promotes the establishment of a legal framework for water allocation that embodies the principles of protecting rights of the poor and ensuring transparency in decision-making. It promotes integrated water resource management within the context of a river basin

“to maximize economic benefits and social welfare in an equitable manner without compromising the sustainability of vital environmental systems.”

In encouraging the introduction of water entitlements or use rights, ADB's policy recognizes that there are a number of alternative management approaches to achieve the outcome of equitable distribution.

An independent review of the implementation of ADB's water policy, completed in 2006, commented that although ADB has been instrumental in promoting water policy and institutional reform, the

“effectiveness of the new laws and water policies in some countries has been constrained by weak legal and regulatory frameworks and institutions.”

Among the recommendations of the independent review panel was a call for improved water governance and ADB's continued support to this goal.³

In May 2007, NARBO and ADB co-sponsored a workshop on water rights to synthesize the results of the earlier four workshops on water allocation and water rights and to further explore the challenges associated with water rights. The workshop participants provided their insights on an initial draft of this technical note. Many of their views reflected the complexities of water rights and the importance of ensuring that a system is suited to the local context, practicable, and enforceable.

A key conclusion of the workshop is that the process of introducing and implementing a countrywide licensing system for water use rights may take 20 years to complete. Making clear arrangements for practical solutions in the transition phase is therefore the most important and urgent task, and these arrangements need to be flexible enough to respond to changing needs in water management as a result of continuing urbanization, climate change, and other drivers of change.

This technical note builds on the foundation of the five NARBO workshops on water rights and aims to:

- provide practical clarity on the concepts and terminology surrounding water rights and water allocation (Part I);
- summarize key findings from the cross-country comparisons made during the four workshops held between 2005 and 2007 (Parts I and II);
- stimulate in-depth discussion on water rights and identify ways to overcome the challenges of their implementation (Part III); and

² Water for All: the Water Policy of the Asian Development Bank available at <http://www.adb.org/Water/Policy/default.asp>

³ Water for All—Translating Policy into Action. Independent Panel Report of ADB's Water Policy Implementation, April 2006 available at <http://www.adb.org/Water/Policy/panel-report.asp>

- provide inputs for future NARBO and ADB activities to assist governments in the Asia-Pacific region in improving water rights and water allocation in the context of integrated water resource management (Part IV).

I express my thanks to the authors for compiling this technical note, and to the workshop participants for sharing their experience and advice in the process. I commend it as a resource to inform NARBO members and other interested parties, both in government and civil society, who are considering the adoption of a water rights system, especially those in ADB member countries in the Asia-Pacific region. Under our Water Financing Program 2006-2010, we look forward to further collaboration with our clients and partners in this and other challenges of improving water governance.

(to be signed by ADB)

CONTENTS

FOREWORD	II
CONTENTS	I
ANNEXES	II
BOXES	II
ABBREVIATIONS	IV
INTRODUCTION: THE ROLE OF RBOs IN WATER RIGHTS AND ALLOCATION	V
RBOs can avoid problems in the basin.....v	v
RBOs can solve problems in the basin.....v	v
RBOs can help to build an enabling environment for IWRM	vi
Outline of the Paper.....vi	vi
PART 1: THE PRINCIPLES AND PRIORITIES OF WATER RIGHTS	1
Understanding the terminology: water rights, allocation, and water use rights.....	1
Implicit and explicit allocation systems	3
Ensuring access to the poor	5
Protecting customary rights in modern water law	7
Safeguarding environmental uses of water	9
PART 2: MANAGING WATER—ALLOCATION AND AUTHORIZED USE	12
Incorporating basic principles: beneficial use, equitable distribution and no significant harm	12
Moving toward water licensing.....	14
Dealing with water shortage: implementing priorities	18
Adapting to change: flexibility of allocation systems.....	22
PART 3: BUILDING EFFECTIVE INSTITUTIONS—A LONG-TERM COMMITMENT	25
Managing the transition towards licensing.....	25
Encouraging consultation	30
Strengthening accountability.....	31
The role of RBOs.....	32
PART 4: TAKING ACTION	35
Government.....	35

National water apex bodies	35
Regulatory (licensing) agencies.....	36
River basin organizations	36
Water service providers	36
Other water agencies.....	36
Nongovernment and community-based organizations	37
Academe.....	37
Development agencies	37
Network of Asian River Basin Organizations	37
Asia Pacific Water Forum	38
BIBLIOGRAPHY	39
ENDNOTES	41
ANNEXES	
A.1 Bibliography	
A.2 Endnotes	
A.3 Summary of country legal frameworks	
A.4 Participants of the NARBO Workshop on Water Rights and the thematic Workshops on Water Rights and Allocation	
BOXES	
1.1 South Africa—legislating for universal access to water	
1.2 Sri Lanka—an ‘implicit’ approach	
1.3 Philippines—intensive campaign to improve the explicit licensing system	
1.4 Protecting customary rights in modern water law	
1.5 Safeguarding environmental uses of water	
2.1 Addressing adverse impacts of inequitable abstraction	
2.2 Implicit and explicit approaches to water licensing	
2.3 ‘One basin, one permitter’ approach: the experience of Japan	
2.4 Addressing water scarcity	
2.5 Licensing systems in a changing world	
3.1 South Africa—use of temporary authorizations to reduce the licensing burden	
3.2 Uganda—identifying priority users for licensing	
3.3 Challenges facing integration in surface and groundwater management	
3.4 Thailand - a new era of consultative management in the Bang Pakong river basin	
3.5 Introducing redress mechanisms and incentives	
FIGURES	
1.1 Water rights, environmental reserve, and water use rights	
3.1 Areas for capacity building in water licensing	
3.2 What role does an RBO play in relation to water licensing?	
TABLES	
1.1 Examples of water use priorities defined in national legislation	
2.1 Primary legislation in the seven participating countries	

- 2.2 Water rights and allocation systems in national legal frameworks
- 2.3 Basic attributes of a water use right
- 2.4 Priorities during water shortage
- 2.5 Wide range of license periods
- 3.1 Questions to help define a capacity building program

The views expressed in this report are those of the authors and do not necessarily reflect the official position of ADB, its member countries or any of their agents.

ABBREVIATIONS

ADB	Asian Development Bank
ICESCR	International Covenant on Economic, Social and Cultural Rights
IUCN	The World Conservation Union
IWRM	Integrated water resource management
MDGs	Millennium Development Goals
MOU	Memorandum of understanding
NARBO	Network of Asian River Basin Organizations
NWRB	National Water Resources Board (Philippines)
RBO	River basin organization
UNEP	United Nations Environment Programme
WWF	World Wide Fund for Nature

INTRODUCTION: THE ROLE OF RBOs IN WATER RIGHTS AND ALLOCATION

The primary audience for this paper is the management and staff working in water resources agencies in Asia, particularly those in river basin organizations (RBOs) in their various forms. The roles and responsibilities of RBOs vary considerably and are evolving as pressures on water resources are becoming more severe. While this paper seeks to share knowledge about the fundamentals and application of water rights and allocation, it attempts to do so with a practical focus.

This introduction raises three basic questions to keep in mind when considering RBO roles in water rights and allocation:

- how can RBOs help avoid problems occurring in the basin;
- how can RBOs help solve problems in the basin; and
- how can RBOs help build the enabling environment for integrated water resources management in the basin.

RBOs can avoid problems in the basin

Minimizing conflicts over water use. Conflicts over scarce resources have many origins—for example, the refusal of an application for water use, an imposed change or restriction placed on an approved use, upstream pollution, or a violation of conditions of water use by another user. These conflicts are intensified during periods of shortage or drought. RBOs can facilitate coordination, foster cooperation, and avoid conflicts. The establishment of a basin council with representatives from affected stakeholders can itself be a powerful instrument in this regard. In Europe, Asia, and Africa, international transboundary RBOs¹ help to develop a mutual understanding between and among the people in the riparian countries, thereby reducing the likelihood of conflicts. The Mekong River Commission has developed rules that govern the development of the mainstream river to minimize potential areas of conflict between water abstraction, salinity intrusion, and livelihoods based on fisheries.

Reallocating water-use rights. Rapid population growth, urbanization, and industrial transformation has led to a number of challenges for water allocation and water rights in mega cities such as Bangkok, Jakarta, and Manila. Often these conditions require a de facto transfer from agriculture use to municipal, commercial, or industrial use. RBOs can facilitate such transfers and help identify win-win solutions.

RBOs can solve problems in the basin

Resolving conflicts over water use. Whether a regulatory framework for water rights is in place, there will be conflicts over its implementation. When conflicts do arise, RBOs can help to resolve them. In Brazil, river basin committees arbitrate conflicts relating to water resources as the first administrative recourse. RBOs can take action against illegal water use. In Spain, RBOs that have the jurisdiction can monitor and prosecute illegal water use, including unauthorized wells and surface water intakes, as well as farms where a greater volume of water is used than had been assigned. In the United States, the Delaware River Basin Commission and the Susquehanna River Basin Commission address disputes over water, first, through consultation and negotiation rather than through litigation.²

Alleviating water shortages. Many river basins in Asia are now experiencing competition for water resources, especially in the dry season. Prolonged drought conditions intensify the

challenges of water allocation. RBOs with authority to develop and operate water resources can help to deliver the necessary supplies of water to meet the demands and match water entitlements. The Japan Water Agency in Japan and the Korea Water Resources Corporation have a long history of developing and managing water resources and providing water for domestic, industrial, and agricultural purposes. Beyond providing additional supply, there are economic and environmental benefits from introducing demand-side management and supply-side efficiency improvements—for example, in the People’s Republic of China, the benefit from trading water saved through more efficient water use practices. Drought Conciliation Councils in Japan have also been effective in reaching consensus on water restrictions during water shortage.

Improving water quality. Many river basins in Asia are severely polluted and this further reduces the availability of water for productive use and environmental services. RBOs can help rehabilitate river systems from highly polluted to healthy rivers. The Yellow River Conservancy Commission in PRC promotes “*healthy life of the Yellow River*” through administrative, legal, technological, engineering, and economic measures being captured in a new Yellow River Law (Box 1.5). In the United States, the Tennessee Valley Authority works with local communities to improve watershed management and eliminate non-point source pollution. The Murray-Darling Basin Commission in Australia manages salinity and nutrient levels to reduce algal blooms and relieve strain on the aquatic ecosystem.

RBOs can help to build an enabling environment for IWRM

Improving river basin planning. Comprehensive basin planning is a key element of integrated water resource management (IWRM). However, the notion that each basin should have only one plan is rapidly becoming outdated in an era of decentralized responsibilities. Planning that affects water resources across the basin is now taking place at many levels and by a multitude of actors. RBOs can add value by analyzing, updating, and harmonizing existing plans, and by producing an overall strategic basin plan that sets medium and long term objectives and provides a synthesis of ongoing planning efforts. RBOs can act as a facilitator to make sure that stakeholders from all sectors are included in the planning process.

Developing guidelines, rules, and regulations. Rules, regulations, and implementing decrees at basin or national level provide the substantive guidance for carrying out provisions of the law. They can clarify the details of implementing basic water rights and the process of allocating water use rights.

Developing decision support information. Accurate information to facilitate decision-making in water resources management is essential. RBOs can improve decision support information for IWRM policy, planning, and decision-making in river basins.

Outline of the Paper

This paper aims to raise awareness and capacity among NARBO member organizations and other interested groups on the issues surrounding water rights and allocation. This introductory section, in particular, has looked at the subject through the lens of RBOs in their many different forms. In reading the body of the paper, the role of RBOs in avoiding problems, solving problems, and building a better enabling environment for IWRM should be borne in mind. It is a process that experience has shown to take many years.

The four major parts of this paper are organized as follows:

- **Part 1**—examines in more detail the definitions, principles, and characteristics of water rights and water allocation; two approaches to water allocation are outlined—an *explicit* system based on water licensing and a less structured *implicit* system resulting from master planning and project development;
- **Part 2**—explores basic concepts, such as beneficial use, equity and no significant harm in moving towards a licensing system; looks at how a number of countries set priorities among competing uses; and stresses the need for adaptive management;
- **Part 3**—covers topics such as building effective institutions, managing the often lengthy period of transition, and promoting greater accountability; and
- **Part 4**—concludes the paper by highlighting a number of actions to be taken by various stakeholders to realize the aim of more effective water rights systems.

PART 1: THE PRINCIPLES AND PRIORITIES OF WATER RIGHTS

Understanding the terminology: water rights, allocation, and water use rights.

A water right can be defined as the “right to take and use water subject to the terms and conditions of the grant” (Burchi and d’Andrea, 2003). It is also considered as a formal or informal *entitlement*, which confers on the holder the right to withdraw water (WWF, 2007). This report focuses on two basic categories of water rights. The first is a “basic water right” given to people as a consequence of primary legislation, which is permanent and not subject to any administrative process. The second is a “water use right” conferred through an administrative process of water allocation, such as licensing. Water use rights or authorized uses of water are discussed further in Part 2.

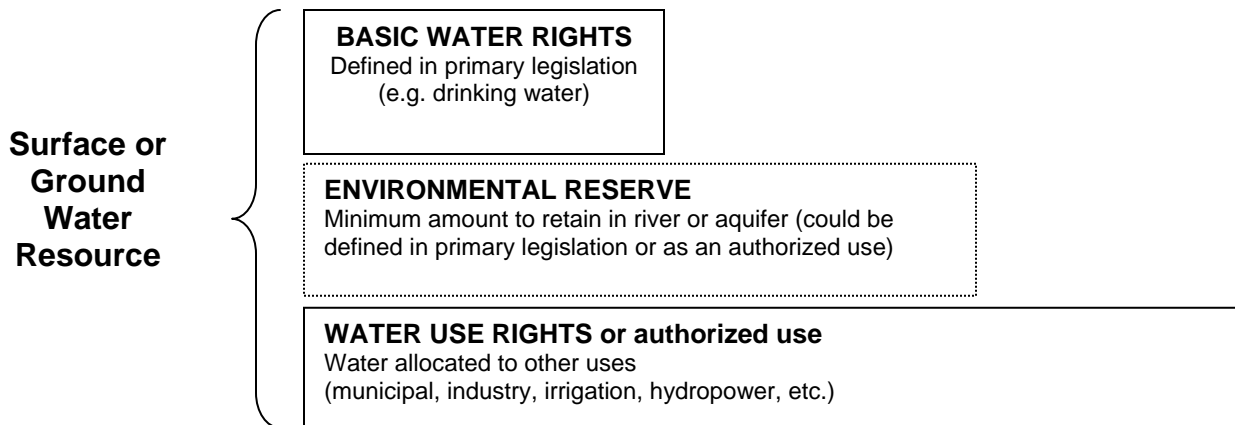
Water allocation is the *process* in which an available water resource is distributed (or re-distributed) to legitimate claimants, and the resulting authorization for use is granted, transferred, reviewed, and adapted as a water use right. Priorities for allocating water may be defined in law or through strategy development or planning processes.

Burchi and D’Andrea (2003) define water allocation as the “function of assigning water from a given source to a given user or number of users for abstracting it and applying it to a given use.” They note that within a system, where the state is responsible for a country’s water resources, the decision on who should abstract water and to what use the water should be applied, rests with a public authority.³

In a 2007 paper on water rights and water allocation, the World Wide Fund for Nature, better known as WWF, defines water allocation as a *process* “whereby an available water resource is distributed to legitimate claimants and the resulting water rights are granted, transferred, reviewed, and adapted. Hence, water allocation processes generate a series of water rights governing the use of water within a catchment.”

Figure 1 distinguishes “basic” water rights, such as those defined in primary legislation for basic human needs, from “allocated” water use rights (or usufruct rights) that are decided through a defined administrative process. The middle row of the figure represents the “reserved” amount of the water resource that is to be retained in the river or aquifer for environmental or other sustainability related to downstream purposes. Such environmental reserves may either be legislated as a basic right, as in the case of South Africa (Box 1.1) or decided administratively through the water resources planning process.

Figure 1: Water rights, environmental reserve, and water use rights



Basic water rights generally amount to a very small percentage of the overall water resource, while the water allocated for municipal, industrial or irrigation uses are generally far larger. In most Asian countries, agriculture is the biggest user of water and can reach up to 90 percent of total water consumption.⁴ The environmental reserve may be quoted as a simple percentage of minimum flow, but in practice needs specific definition as it comprises a complex pattern of seasonally managed flows tailored to the environmental objectives in each location.

Box 1.1: South Africa legislates universal access to water as a right

The World Conservation Union (IUCN) reviewed 60 national constitutions and found that only South Africa’s 1996 Constitution, in Article 27, expressly enshrined a fundamental right of access to sufficient water (IUCN 2004, p9).

This right appears as one of the main objectives of the 1997 National Water Services Act: “the right of access to basic water supply and the right to basic sanitation necessary to secure sufficient water and an environment not harmful to human health or well-being.”⁵ Regulations under this act define the minimum standard for basic water supply as 25 liters of potable water per person per day.⁶ This is an absolute right of access defined in primary legislation and is therefore not subject to allocation procedures.

In addition, the 1998 National Water Act (Sec.16),⁷ assigns a reserve for basic human needs and also contains a legislated right for an ecosystem reserve. Further uses of water for reasonable domestic use are described as “permissible uses” as defined in Schedule 1 of the act, but they are not defined as rights and the government is not obligated in the same way to supply this water.

Priorities for domestic consumption appear in water legislation of other countries, but rarely is the right of access for basic human needs so explicit as in the case of South Africa. Table 1 compares how different countries prioritize water use in their national water legislation. Indonesia’s Water Resources Law (Law No. 7/2004) is close to defining water for basic needs as a basic water right by establishing the State’s responsibility to *guarantee* water for rudimentary needs. The clarification of the law, however, further explains that the state is obliged to carry out various *efforts to guarantee* water availability for every person, and by stating it so, the emphasis is placed on the state’s actions rather than the outcome. In the

National Water Law of the People's Republic of China (2002), Article 48, domestic consumption by households is exempt from licensing requirements, as well as drinking water for scattered or penned livestock and poultry. Defining priorities in this way is important but stops short of including a right of access to water for basic human needs. It implies a more passive approach to providing water for people's basic water needs, compared to the more proactive case of South Africa in which basic needs is the first consideration in the water allocation process.

Table 1.1: Examples of water use priorities defined in national legislation

	Priorities conferred explicitly in legislation
Cambodia	Drinking, washing, bathing and other domestic purposes, watering of domestic animals and buffaloes, fishing and irrigation of gardens and orchards in an amount not exceeding that necessary to satisfy individual and family needs of the user (Law on Water Resources Management, Art. 12)
People's Republic of China	The development and utilization of water resources shall first satisfy the domestic need of urban and rural inhabitants and give overall consideration to the agricultural, industrial, and ecological environment need for water as well as to the need of navigation (2002 National Water Law, Art. 21)
Indonesia	"The state guarantees the right of every person in obtaining water for minimum rudimentary daily use to fulfill a healthy, clean and productive life." (Water Resources Law (Law No. 7/2004, Art. 5)
South Africa	The first priority in South Africa's National Water Act is the reserve, defined as the quantity and quality of water required: <ul style="list-style-type: none"> (a) to satisfy basic human needs by securing a basic water supply, as prescribed in the Water Services Act, 1997, for people who are now or who will in the reasonably near future be relying upon, taking water from, or being supplied from the relevant water source; and (b) to protect aquatic ecosystems in order to secure ecologically sustainable development and the use of the relevant water resource [National Water Act, Art. 1 (1)(xviii)].

Implicit and explicit allocation systems

Beyond having access to water for meeting domestic needs, what rights do individuals or organizations have to water, whether it be for urban consumption, irrigation, industrial production, commerce, generating electricity, or for navigation? And how are such uses authorized? In general, two approaches are used:

- **Implicit.** Historically, allocation has been provided through rather top-down, government-driven planning processes, in which the quantities of water for specific development projects are determined, and then become accepted practice. In such cases, users have a limited security in the form of rights, nor do they have opportunities for redress when water is re-allocated for another use. In this report, this is categorized as a form of an implicit allocation system. A more participatory approach, also considered as an implicit or administrative system, is the seasonal negotiation of water allocation adopted in Sri Lanka (Box 1.2).
- **Explicit.** The second and increasingly more frequent approach is allocation through a system of time-bound licenses or permits to specific users, whose supply is then secured for a defined quantity of water for a stated period. Such systems are categorized in this paper as an explicit allocation system. One of the earliest explicit licensing systems in Asia was introduced by the Philippines in 1976 (Box 1.3).

These two approaches are discussed in more detail in Part 2.

Owning land adjacent to surface water may generate expectations regarding its use. In the United States, for example, the right to use water under the conventional riparian rights system is intimately linked to the land.⁸ In most countries, however, major surface water abstractions, such as for commercial irrigation, are regulated explicitly through water licensing systems. In the People’s Republic of China, state ownership and regulation of water applies equally to both surface water and groundwater, although this is not generally the norm for the region; rather, most countries do not regulate groundwater abstraction on privately owned land.⁹ In Pakistan, surface water is highly regulated through a major network of river barrages and canals designed to supply an equitable share of the water, whereas the right to abstract groundwater is closely linked to land ownership.¹⁰ Bruns (2005) stressed that effectiveness of a rights system is only as good as the institutions responsible for implementing them.¹¹

“Water rights institutions play an increasing role in controlling surface water, but so far have had less impact on aquifer management.” — Bruns, 2005 (p.290)

Box 1.2: Sri Lanka—an implicit approach

Sri Lanka has developed a comprehensive system for seasonal allocation of bulk water flows from the Mahaweli river system.¹² With progressive development of dams, river diversions, and canal systems since the 1970s, the Mahaweli system covers 2.6 million hectares, equivalent to approximately 39% of the country’s land area. Each season, the water demands from agriculture, hydropower, and urban centers are received from sector agencies. The environmental need is considered to be part of these allocations. When calculating the water demands from each sector from the system’s bottom to the top, a certain percentage is added based on stream/river parameters to cover transmission losses and environmental needs. A range of options are prepared based on rainfall projections, and these are discussed at the pre-season *kanna* meetings, with representatives of local and central government agencies, hydropower and water supply utilities, and farmer representatives.

Generally, there is enough water for full irrigation during the wet or *maha* season, but only partly for part of the land during the dry or *yala* season. Once an agreement is reached on allocations at the main or “block” levels, similar discussions take place to determine distribution patterns within irrigation systems, including some traditional approaches, for sharing the scarce resource and the associated risks among irrigators. Once ratified by the minister, the allocation plan takes on a formal commitment. Variations may be needed during the season to reflect climatic fluctuations, and weekly meetings are held to review allocation targets based on rainfall and reservoir levels. Adjustments or rationing are made where necessary.

The system is based extensively on past experience, which provides a degree of confidence among water users even though they have no long-term right to a nominal fixed amount of water. It also provides a formalized system for dealing with seasonal fluctuations, although there can be no guarantee that allocations will not need to be cut during the season in response to drought conditions.

This approach can be classified as an implicit allocation system that has some formal sanctions and in which the priorities to be applied in drought conditions are well known. No expansion of supply to urban or industrial sectors will be sanctioned if it affects existing users. Effective water management will be one option. If the required need is not met, relevant agencies promote new water sources, including groundwater.

Box 1.3 Philippines—an explicit approach

The Philippines established an explicit licensing system as early as the 1970s under the presidential decree framework of the Water Code of the Philippines (Presidential Decree No. 1067, 1976). The country's apex body for the water sector, the National Water Resources Board (NWRB),¹³ is responsible for implementing the licensing system. Due to a number of challenges with implementing the system, only 35% of users who should have water permits actually have them. The NWRB has been working to improve the system's implementation and expand the low coverage rate.

Appropriation of water for a defined purpose is allowed only after a user has secured a water permit [Art. 13]. Such a water use right is described as a "privilege". Water permits are not time-limited, but a provision exists to revoke the permit in the case of non-compliance with conditions—including if the water is not used for the approved use. Modifications are also possible in the event that a more beneficial use for the water is identified, in which case the permit holder may claim compensation for any loss.¹⁴ Exemption from permit requirements is granted to land owners for domestic use of water, although in some cases this may need to be registered [Art. 6]. Another progressive aspect of the Philippine Water Code is bringing responsibility for allocation of both surface water and groundwater under a single agency, the NWRB.

Despite the Water Code being designed well, its implementation still faces major challenges, as reflected in the low level of permit coverage after 30 years of the law. Reasons include lack of awareness, illegal water use, resource limitations within the NWRB, poor inter-agency coordination, the relatively short period of two years for registering existing use, and lengthy application procedures for a permit.

To combat a lack of regional representation and limited human resources, the NWRB has started to institutionalize a nationwide information, education, and communication campaign on water rights and water permits. The campaign has involved posting information in the NWRB website, conducting nationwide consultations, and distributing materials on water permit applications processes through primers, brochures, and CDs in various local languages. To further improve the system, the NWRB is currently amending pertinent provisions of the implementing rules and regulations of the Philippines Water Code to address conflicts other laws, which will strengthen coordination and streamline functions of various government agencies involved. NWRB has also started to strictly implement the regulations by (i) issuing cease and desist orders against violators, (ii) strengthening NWRB's deputized agents, (iii) imposing penalties (including cancellation of permits), and (iv) granting compensation schemes. With assistance from local government units and other government agencies, NWRB expects to considerably improve the coverage of water permits by 2008.

Ensuring access to the poor

With the adoption of the Millennium Development Goals (MDGs), the target of halving the population without sustainable access to safe drinking water and improved sanitation by 2015 has taken center stage in countries around the world. At the 3rd World Water Forum in Japan in 2003, ADB and its partners showed that water and poverty are connected in both vicious and virtuous cycles. ADB and partners called for more attention to broad-based as well as targeted water investments to reducing poverty (Soussan and Lincklaen Arriens, 2004). At the 4th World

Water Forum in Mexico in 2006, this understanding was reconfirmed in a multi-agency paper by the Poverty and Environment Partnership (SEI and UNDP, 2006).

Parallel to the global efforts to increase water investments for poverty reduction, the debate over whether water is a human right has gathered momentum in the past decade and attracted considerable attention from activists, academics, and the United Nations.¹⁵ Much of the discussion centers on the interpretation of the International Covenant on Civil and Political Rights that incorporates the “right to life” in Article 6(1)¹⁶ and the International Covenant on Economic, Social and Cultural Rights (ICESCR) that recognizes the right of everyone to an adequate standard of living, including adequate food, freedom from hunger (Art. 11), and the right to enjoy the highest standard of physical health (Art. 12).¹⁷

The UN’s Committee on Economic, Social and Cultural Rights offered further interpretation of the role that ICESCR gave water. In its General Comment 15 in 2002, the UN committee stated:¹⁸

“The human right to water is indispensable for leading a life in human dignity. It is a pre-requisite for the realization of other human rights” (para 1).

“The human right to water entitles everyone to sufficient, safe, acceptable, physically accessible and affordable water for personal and domestic uses” (para 2).

“The right to water clearly falls within the category of guarantees essential for securing an adequate standard of living, particularly since it is one of the most fundamental conditions for survival” (para 3).

Although countries must work toward achieving Articles 11 and 12 of the ICESCR, there is no immediate obligation. The committee’s General Comment 15 is not a legally binding agreement among UN members, and countries are not obligated to recognize water as a right.¹⁹

General Comment 15 notes that recognizing water as a human right would impose three obligations on countries: the obligation to

- **respect** the right, i.e. refrain from any activity that interferes with enjoyment of that right;
- **protect** the right, i.e. prevent interference by third parties; and
- **fulfill** the right, i.e. to adopt the necessary measures to provide water, including the legislative framework, strategy, and action plans.

The committee maintains that a right to water is subject to the following three tests:

- **accessibility**—safe physical reach, affordable for all, accessible to all on law and fact;
- **adequate quality**—water for personal and domestic use must be safe; and
- **quantity**— sufficient and continuous for personal and domestic use.

It is important also to differentiate between an absolute right to water as proposed in the interpretation of General Comment No. 15, and the “right of access” to water as embodied in the UN’s MDGs.²⁰ Right of access to water is a less onerous commitment for countries and is more open to interpretation in regard to who is responsible for attaining such access. For example, would it be sufficient for a country to merely embody the right of access in national legislation, without any obligation on the part of a government to actually fulfill the provision of water through strategies and action plans? Whereas most nations have subscribed to the MDGs, the MDGs themselves do not form a legal commitment.

General Comment No.15 also distinguishes freedoms from entitlements:

*“The **freedoms** include the right to maintain access to existing water supplies necessary for the right to water, and the right to be free from interference, such as the right to be free from arbitrary disconnections or contamination of water supplies. By contrast, the **entitlements** include the right to a system of water supply and management that provides equality of opportunity for people to enjoy the right to water”* (para 10).

In terms of priorities, ICESCR stated:

“... priority in the allocation of water must be given to the right to water for personal and domestic uses. Priority should also be given to the water resources required to prevent starvation and disease, as well as water required to meet the core obligations of each of the Covenant rights” (para 6).

Beyond providing enough water for drinking and basic human needs, there is a strong argument in countries with significant rural populations to protect water required for subsistence farming as, for example, is done in the definition of priorities in Indonesia’s Water Resources Law (see Annex A.3). Water rights for small-scale or non-commercial agriculture is an emotive and political topic and raises issues on water pricing and cost recovery. These are country- and context-specific issues. Regardless of the financial questions, there is a strong case for protecting the water rights of small farmers, particularly in areas where development change is expected, so as to ensure that their interests are fully recognized in any change process.

Protecting customary rights in modern water law

The link to property rights is also at the heart of customary uses of water. Traditional patterns and conventions of water use are closely tied to the land of indigenous and native communities that may or may not have formal land ownership title under prevailing land law. Past developments have frequently compromised such customary uses, although today, there is greater recognition of their role and importance. The water rights of these communities have evolved from small abstractions from rivers adjacent to land, to the distribution of water through man-made conveyance systems from reservoir storage or rivers tens or hundreds of kilometers away.

In a recent discussion paper on the interface between customary and statutory rights, Burchi (2005) notes:

“In the countries where customary rules play a significant role, particularly in the rural areas, customary law and customary water rights are a factor to be reckoned with when preparing ‘modern’ legislation regulating the abstraction and use of water resources

through government permits or licenses. From a statutory perspective, the two water rights systems intersect and interact in the transitional phase following enactment of new water legislation, and in the course of administering the latter's abstraction licensing regulatory provisions."

As indicated in Table 2.1, there is limited recognition of customary water rights in the primary water legislation of the countries that participated in the NARBO water rights workshop series. Only Indonesia's Water Resources Law explicitly protects traditional communal rights (Box 1.4). Although other legislation can provide some protection of indigenous peoples, for instance the case of resettlement under land laws, the lack of explicit protection to traditional water use rights in a water law tends to confirm the limited awareness of this issue and lack of influence that such groups have. The Philippines Indigenous Peoples Rights Act of 1997 (Republic Act No. 8371), however, does provide greater protection by requiring indigenous communities to provide their free and prior informed consent to any new development proposal affecting them, and grants indigenous communities the right to benefit and share the profits from the allocation and utilization of water resources.²¹ Similar motivations inspired a ground-breaking agreement on new development between Hydro Quebec and the Cree Nation in Canada.

Box 1.4: Protecting customary rights in modern water law.

Indonesia reflects communal rights in its Water Resources Law

Traditional communal water rights are acknowledged in the Water Resources Law and can be continued provided they do not conflict with other provisions of the law [Art 6(2)]. Traditional uses need to comply with local regional regulations and the principles that comprise traditional community law. The licensing guidelines also cover existing traditional communal rights.

Philippines' Indigenous Peoples Rights Act of 1997 provides protection to traditional water use practices

The Water Code does not expressly protect customary rights to water. It requires that any existing use be registered within two years of the code's enactment. Very few, if any, customary rights of indigenous peoples were registered during that period. Passage of the Indigenous Peoples Rights Act of 1997 provided greater protection for traditional water use practices of indigenous communities by requiring their free and prior, informed consent for any development proposal affecting them.

Hydropower development in Quebec based on a partnership approach

Hydropower, forestry, and mining development have long been controversial issues for the Cree Nation in Quebec. As part of a benefit sharing arrangement with the Government of Quebec (La Paix des Braves), the Cree agreed to certain project developments in these sectors. The agreement moved away from an approach based on compensation, damages, and exchange or surrender of rights, toward one based on a clear recognition of the Cree Nation's right to resources. The agreement includes their involvement in decisions over hydropower development that could otherwise adversely impact their use of water resources (Source: UNEP–Dams and Development Project).

Safeguarding environmental uses of water

Related to the discussion above about the debate over water as a human right, IUCN makes the point that the environment's *need* for adequate levels of quality water are linked to the provision of safe drinking water and safeguarding of livelihoods and social systems—these are dependent on aquatic ecosystems. This position is central to the principles of IWRM and goes beyond the narrower considerations of biodiversity conservation. “Management of water is not merely about managing water in-stream, but about the health of the land and the ecosystem” (IUCN, 2004, p.27).

Many water laws include general provisions to promote sustainability and protection of the environment and contain specific requirements for pollution control. More often than not, though, water laws do not explicitly call for the protection of the environment's right to water, or, in other words, the need to retain a certain flow of water in rivers or to set maximum depletion limits on groundwater aquifers. Box 1.5 is a summary of how some national legislation treats the environment's need for water.

As an example of a water law giving *general* provisions to the environment, the National Water Law in the People's Republic of China prioritizes the domestic needs of both urban and rural households, but only calls for “overall consideration” for agricultural, industrial, ecological and environmental needs for water and navigation. It expands this with a general statement of intent: “Full consideration shall be given to the ecological environmental need for water in the development and utilization of water resources in the arid and semi-arid areas.”

One of the few water laws that does explicitly give the environment its right to adequate water is South Africa's National Water Act. It includes an explicit right of the environment to water in the form of an “ecological reserve,” which is to be determined for each river basin. The ecological reserve is given as high of a priority as water for basic human needs.²² Kenya adopted a similar approach in its Water Act of 2002.²³

Viet Nam's 2006 National Water Resources Strategy makes specific reference to the need for ecological flows, which builds on the general provisions for environmental protection stated in the Law on Water Resources (No. 08/1998/QH10 of 1998). Further guidance is needed for its implementation, particularly in the hydropower sector where releases for environmental flows need to be balanced against the opportunity cost of electricity generation.

Some countries have introduced a simpler approach to maintaining downstream flows based on ensuring a minimum proportion of natural flows remain in the river. The Philippines suggests a 10% minimum flow (NWRB Resolution No. 010901, September 2001), while the State Environment Protection Administration in the People's Republic of China suggests 20% in the case of run of river hydropower projects, unless case-specific reasons suggest that this can be reduced. Such a standardized approach is relatively arbitrary and is not linked to achieving defined objectives for the ecosystem functions of a river system, as adopted in other environmental flow methodologies.

“The term ‘right to water’ does not only refer to the rights of people but also to the needs of the environment with regard to river basins, lakes, aquifers, oceans, and ecosystems surrounding water courses” (IUCN, 2004, p27).

Box 1.5: Safeguarding environmental uses of water**South Africa— the ecological reserve**

South Africa's National Water Act calls for a "reserve"—an amount of water supply that must be reserved from water resources to meet two important needs: for people's basic domestic needs and, secondly, the quantity and quality of water required "to protect aquatic ecosystems in order to secure ecologically sustainable development and use of the relevant water resource" [Sec.1(1)(b)]. Following this law, each river system must be classified and the amount for ecological reserve must be determined before any other water abstraction can be authorized. Although complex to implement, due to capacity constraints and conflicts between users, the concept of the ecological reserve has focused considerable attention on the environment as a user of water and the linkages between quality of the aquatic environment and the services it provides to communities. A number of environmental flows have been set and are being implemented and monitored. One approach being used to implement the law is the Downstream Response to Imposed Flow Transformation (DRIFT) methodology in the Palmiet and Breede Rivers.²⁴

Viet Nam National Water Resources Strategy recognizes environmental use

The concept of ecological flows is incorporated in the objectives of the National Water Resources Strategy promulgated through a Prime Minister's Decision.²⁵ The objective of an ecological flow is:

"Ensuring the provision of ecological flows for maintaining aquatic ecosystems consistence with the plans approved by authorities, while focusing on the rivers with significant reservoirs and dams" [Sec.2.2(a)(2)].

Ensuring minimum ecological flows in rivers is further emphasized in the section dealing with implementation measures.²⁶ Current planning procedures, however, have not yet adapted to the new strategy, and so hydropower projects continue to dramatically alter river flows in terms of water quantity, quality and timing. In cases where a power station is located many kilometers from the dam, or the project involves diversion of water to another river basin, long stretches of the parent river can become dry, apart from any contribution of minor tributary streams. Introduction of new procedures to reflect the strategy has now become a priority topic of discussion in Viet Nam.

Yellow River Law: Safeguarding the Second Largest River in the People's Republic of China

The Yellow River is characterized by a mix of problems: floods, poor water quality, acute water scarcity, high sediment load, and severe erosion. River basin management has faced many challenges due to gaps in legal, policy, and institutional frameworks.

The Yellow River Law, designed primarily to address the unique problems of the Yellow River, is envisioned to be the overarching law that would save the Yellow River from pollution and excessive water use. The law provides a legal framework to coordinate the provisions of four existing, but sometimes conflicting, laws: the National Water Law, Water Pollution Prevention and Control Law, Flood Control Law, and Water and Soil Conservation Law.

The Yellow River Law is expected to, among others: (i) complement and coordinate current laws, and provide implementation instructions where these are lacking; (ii) create modern river basin legislative procedures; (iii) establish a modern institutional framework that clarifies current administrative and institutional relationships; (iv) identify and clarify links between the different areas of administration and law relevant to the basin; (v) establish standards where they do not exist, and monitor procedures to ensure implementation; (vi) provide for dispute settlement and for orderly, efficient, and equitable sharing of water; (vii) provide for stakeholder participation, transparency of administrative actions, and accountability of public officials to the public and higher levels of government; and (viii) apply the principles of sustainability, environmental protection, minimization of environmental harm, and protection of ecological integrity for land and water.

PART 2: MANAGING WATER—ALLOCATION AND AUTHORIZED USE

Country presentations and discussions during the four thematic workshops on water rights and water allocation highlighted the diversity of participating countries, ranging from conditions in Laos, where water shortages are rare, to Indonesia and the Philippines, where there is strong competition for water in areas surrounding urban centers. Within countries, there is similar diversity, not only between rural and urban industrialized areas, but because of markedly different climatic and topographic conditions, as what is experienced in northern, central, and southern areas of Vietnam. All countries are committed to reforms that introduce the principle of integrated water resource management and meet the MDG goals for access to improved water supply. Table 2.1 lists the status of water legislation in the seven participating countries.

Table 2.1: Primary legislation in the seven participating countries²⁷

Country	Legislation	Year Passed
Indonesia	Water Resources Law (Law No. 7/2004)	2004
Japan	The River Law Amendment to the River Law	1964 1997
Lao PDR	Water and Water Resources Law (No.126/PDR)	1996
Philippines	Water Code of the Philippines (P.D. No 1067)	1976
Sri Lanka	No dedicated water law existing but range of related laws; Water Act drafted but consideration by legislature delayed due to political circumstances	-
Thailand	No dedicated water law currently existing but range of related laws; Draft Water Resources Act prepared for consideration by parliament	2005 (draft)
Viet Nam	Law on Water Resources (No.08/1998/QH10)	1998

Incorporating basic principles: beneficial use, equitable distribution and no significant harm

Beneficial use. Beneficial use of water has historically been a central principle for the allocation of water and is reflected in many of the water laws of the region. In the Philippines' Water Code, Article 18 states, "All water permits granted shall be subject to conditions of beneficial use ..."²⁸ Similarly, in Vietnam's Law on Water Resources, exploitation of a water source is defined as "activities aimed at bringing benefits from the water resource" [Art.3(9)] and the obligations of water users include, "to use water for the right uses, economically, safely, and efficiently," [Art. 23(1)(b)]. In the 2002 National Water Law in the People's Republic of China, emphasis on beneficial use is stressed²⁹ and obligations of efficient use are required at all levels of government and by individual users. For example, the law states "units and individuals shall have the obligations of economical use of water" (Art. 8).³⁰

The interests of the wider public may also be safeguarded, as in the case of South Dakota, U.S.A., where the definition of beneficial use has to be "consistent with the interests of the public."³¹ It further incorporates consideration of efficiency and introduces tests of reasonableness to ensure other beneficial uses are not compromised unfairly.³²

Equitable distribution. The principle of equitable distribution, which can cover a range of scales of water distribution, from macro-level of transboundary water sharing³³ down to micro-level of providing water supplies to communities.³⁴ The question of equitable distribution within a basin context raises many economic and social dimensions. However in practice, the discussion of

equity has tended to focus on only a very small part of the water resource— that needed for drinking water supply and domestic purposes. Secure access to water to support life and livelihoods, however, is central to poverty reduction and, as Bruns (2004) points out, the “lack of secure and enforceable rights poses a much bigger problem for those who are poor.” He notes that water rights can help the poor:

- safeguard access to basic needs,
- sustain livelihoods,
- participate in governance,
- prevent and resolve conflicts, and
- invest in improving their lives.

Such rights may also be linked to greater certainty in land tenure, for example, the marked increase in productivity of irrigated agricultural production in Viet Nam once land rights were granted during the *doi moi*, or renovation period, in the late 1980s.

So, what strategies will be employed to facilitate both the equitable distribution of water for production as well as the relatively small amounts needed to meet basic domestic needs? These strategies will be fundamental in reducing poverty, particularly in rural and peri-urban contexts. As urban centers expand and land use changes, how will planning and decision-making processes affect existing authorized water use? Such strategies will need to address some of the critical interfaces in water use including urban vs. rural, industrial vs. agricultural, and environment vs. development. For instance, to what extent do former agricultural users receive any benefits from transfer of water use to urban and industrial consumers? Are their existing uses protected?

From a comparative analysis of water laws in Southern African countries, Bird (2004) noted that “beyond an allocation for primary uses, little guidance is given [in the legislation] on how the term equitable will be applied for allocating to other users or deciding on permit applications.” The exception perhaps is South Africa’s National Water Resource Strategy that prioritizes poverty reduction initiatives.³⁵

In South Africa’s National Water Act, the introduction to Chapter 4 on the Use of Water explains that the Act “is founded on the principle that National Government has overall responsibility for and authority over water resource management, including the equitable allocation and beneficial use of water in the public interest.”

The equity dimension also involves aspects of inter-generational equity, i.e., how to make provision for future generations in planning and through adaptive management; gender equity, which is of particular importance given the prominence of women in water-related tasks; and equity among regions within a country, which is often a sensitive political issue.

No significant harm. The third guiding principle of “no significant harm” also features at local and national scales. The Philippines Water Code, for example, requires consideration be given to “protests filed” and “possible adverse effects” when reviewing a new permit application. In terms of the actual use of a water right, the Water Code states that it “shall be exercised in such a manner that rights of third persons or of other appropriators are not prejudiced thereby.”³⁶

Raising awareness about the problems caused by a lack of integration in planning decisions between administrative units within a river basin needs to embody the principles of equitable distribution and no significant harm in some form, and this may take many years. The case of

the Komadgu-Yobe basin in Nigeria demonstrates that cooperative arrangements can be reached between upstream and downstream states even in the absence of an effective legal framework (Box 2.1).

As with all statements of principle, the key question is how can they be translated into practice. The first step could be to transform the generic formulations into specific guidance relevant to the local context; this guidance could take the form of a national water resources management strategy. The strategy would provide more detail on water use priorities and would reflect policy on associated aspects, including food security, spatial planning, industrial development, environmental values, etc. Specific criteria could then be established to assist in making decisions in areas where water is scarce and competition is high among various types of users.

Box 2.1: Nigeria—addressing the adverse impacts of inequitable abstraction in the Hadejia-Jam’are-Komadugu-Yobe basin

The Komadugu Yobe is a network of rivers and wetlands in northern Nigeria on the border with Chad. The inhabitants of this arid zone make their living in recession agriculture, pastoralism, forest use, fishing, and tourism. The fast-growing population and their economic activities, however, demand a large share of the water resources—estimated to be more than twice the available water. Upstream irrigation and urban water supply are the major users. The Komadugu tributary no longer reaches the Yobe River, blocked by silt and weeds. Water resources management in the basin is fragmented, with ill-defined and often conflicting responsibilities between government agencies and stakeholders.

In 1999, an agreement was reached by the six constituent states to a charter and memorandum of understanding (MOU) that embodies the principles of integrated water resource management. A Catchment Management Plan appended to the MOU, signed by the six governors and the Federal Ministry of Water Resources, recognizes the needs of downstream users as well as upstream users, and will be the main vehicle to redress past inequities and reduce the downstream impacts of over-abstraction. The first initiative of this type in Nigeria, the MOU and charter are now influencing consultations on revision of Nigeria’s national water law.

(Source: IUCN³⁷)

Moving toward water licensing

The implicit and explicit approaches to water allocation referenced in Part 1 and explained in Box 2.2, broadly characterize the type of administrative and regulatory systems found in Asia. Table 2.2 summarizes the current situation of water allocation used by countries participating in the NARBO workshops. Japan and the Philippines adopted explicit licensing more than 30 years ago; Viet Nam approved implementing regulations for licensing in 2004; and Indonesia is currently developing such regulations. Laos and Thailand tend to follow more of an implicit approach, with Sri Lanka exhibiting attributes of both implicit and explicit systems (Box 1.2).

	Are basic water rights legislated?	Approach to allocation of water use rights		Recognizes customary rights	Water use rights regulations exist
		“Implicit” approach (e.g. project-based)	“Explicit” approach (e.g. licensing system)		
Indonesia	No, but state “guarantees” a minimum daily amount and gives priority to daily human needs and small-scale irrigation	Allocations currently determined in master planning and periodic administrative review processes	Licensing is being introduced under Indonesia’s Water Resources Law, which is not yet operational	Yes, provided customary rights are “not contradictory to national interests and legislative regulations,” [Art. 6(2) ,Water Resources Law]	In draft
Japan	Not in the River Law; the Waterworks Law stipulates utilities should supply all residents	n/a	Licensing system based on first in time, first in right	Customary use taken to mean traditional users—mainly irrigation—who have permanent priority rights over subsequent users	Yes
Lao PDR	No, but small scale uses (Art.15 of the Water and Water Resources Law) are exempt from approval, including family use, fishing, and family-based agro-forestry and livestock	Based on water use plans; Small, medium and large uses are defined (Arts. 15-17)	No water licensing system, but approval is required for medium scale project developments (by the agency) and large scale (by Government)	Not explicitly recognized in water law	N/a
Philippines	No, but legislated priority given to hand- carried water, bathing, washing, and watering of animals, all of which are also exempt from permit.	n/a	Licensing system-estimates are that only 35% of current water use is licensed; based on first in time, first in right	Not explicitly recognized in water law. See note on Indigenous Peoples Rights Act of 1997	Rules and Regulations under the Water Code
Sri Lanka	No	Project based allocations for irrigation, bulk water supply, and hydropower; seasonal planning meetings for irrigation given legal effect	None	Not in water-related legislation, but traditional rights are recognized in practice	N/a
Thailand (draft)	None under existing legal framework, but three categories in draft law imply a priority (Art. 10): living and household-related uses; commercial agriculture, industry, hydropower etc.; and larger or inter-basin use	Project based allocations for irrigation, bulk water supply, and hydropower.	None	None	Not yet
Viet Nam	No, but Art. 1 of the Law on Water Resources includes state commitment to ensuring water for people’s lives	Allocations based on design of development projects and modified as required by local context	Framework for licensing in Water Resources Law and subsidiary Decree (No. 149/2004/ND-CP) yet to be fully implemented	Not explicitly recognized in water law	Yes

Box 2.2: Implicit and explicit approaches to water licensing

Throughout Asia, water allocation for specific development projects is common—the determination of an irrigation duty for an irrigation project, the allocation of bulk water supply from a reservoir or river for urban use, or the diversion of water for hydropower generation through a concession agreement. How these water allocations are granted—through a top-down, “implicit” approach or a more structured and enforceable, “explicit” system—may determine just how secure or guaranteed the allocations are and whether they will withstand times of water stress.

<p>“Implicit” allocation: a planning system</p> <p>In an implicit approach to allocating water, the actual allocation is often determined during a planning process, making it a top-down approach.</p> <p>The formality and transparency of such allocations varies considerably. In some cases, allocation may be granted in a statement in a master plan or feasibility study, with no subsequent regulatory agreement to uphold its implementation. In other cases, the precise details and conditions of the water abstraction or allocation may be set out in a concession agreement.</p> <p>A main issue with the implicit approach is the security of the allocation. When competition for water intensifies, including when the environment naturally demands more water to offset threats to the ecosystem, are those allocations secure? They may be officially stated in project documents and agreements, but are they further secured through regulatory agreements.</p> <p>If there is no guarantee of water allocations—meaning to say, if there is no regulatory framework to protect allocations—a country may face difficulties in attracting investments for improving infrastructure and efficiency.</p>	<p>“Explicit” allocation: a licensing system</p> <p>More explicit systems were introduced to address competition for water.</p> <p>The explicit approach uses a licensing system—a significant shift from the top-down implicit approach to a more responsive approach.</p> <p>In an explicit system, applications from potential water users are considered within a framework of priorities set by government. These priorities and the procedures to implement them are set out in primary and subsidiary legislation and may be further articulated in basin strategies formulated to reflect the local context.</p> <p>Not all water uses require a license. Primary legislation may identify permissible uses for which no license is necessary, e.g. household use or subsistence agriculture, and also make provision for temporary or permanent exclusions or “general authorizations” for specific categories uses or areas (see Part 3 on transition).</p> <p>Transparency, consultation and accountability are key elements. Flexibility is also needed to enable water use to adapt to future changes in priorities.</p>
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There may be little need to move away from an implicit system in some countries. In water abundant situations, the implicit approach may be effective and avoid the administrative burden of a licensing system. “Don’t fix what isn’t broken” was a key message emerging from the NARBO workshops. Drawbacks of implicit systems, however, include concerns over security of the water use, a lack of transparency in the decision-making process (particularly in relation to how water-use priorities are set), and a lack of accountability for delivery of the allocated water.

As competing pressures on a water resource intensify, difficult choices need to be made, including the reallocation of water use over time as priorities change. Then, the general trend is toward adopting a more “explicit” regulatory approach and focusing on the river basin as the unit when considering water allocation. Box 2.3 illustrates the move towards a licensing system in Japan based on “one basin—one permitter.”

There are a number of factors that must be considered and accomplished to achieve successful implementation (and the desired results) of an explicit system. These include:

- the setting of priorities among water uses, including safeguarding the interests of the poor;
- an understanding of available water resources and needs;
- procedural aspects of license applications, consultations, decision-making, and appeal;
- the transition period and process, including license exemptions (see Part 3);
- administrative capacity for implementation;
- procedures for water shortage and adaptive management to accommodate changes in priority; and
- data needs and analytic capability.

Table 2.3 sets out some basic attributes of an explicit water use rights system (WWF, 2007) including the conditions that may be placed on the use and the security of tenure.

Table 2.3: Basic attributes of a water use right

Attribute	Description
Quantity	The amount of water (volume) the holder of the right may abstract, or the amount of waste (volume/concentration or load) that the holder of the right may discharge
Quality	The quality of the water to be abstracted or disposed
Source	The specific resource and location from which the right is awarded
Timing	Restrictions on the time that the right applies, i.e., times that the volume may be abstracted or time that the waste may be discharged
Conditionality	The conditions of use, particularly in terms of quantity and quality; some rights are absolute—100% guarantee of a certain quantity and quality, while other rights have variable assurance of supply and quality depending on the available resource; other conditions can include any “hands off” flow requirements to protect minimum environmental flows
Use	The specific use for which the water is abstracted (e.g. irrigation, mining, etc.) or the specific origin of the waste (e.g. canning factory, mine process)
Duration and ownership	The duration for which the holder is entitled to the rights conferred; some rights are permanent while other rights expire after a period of time
Transfer	Whether the right may be sold, transferred or location, or inherited
Security and enforcement	Details of the administrative body with the legal mandate to award the right, including the extent of that mandate; important is whether the rights are guaranteed, what measures are taken if the rights cannot be fulfilled and the compensation received if the rights cannot be fulfilled or if right is removed.

(Source: WWF[2007])

In a briefing paper on water allocation and use, the New Zealand Government reflects that water allocation depends on a knowledge of the needs of the river system and the quantity of water available. Water allocation as a process:

- should determine the amount of water needed in rivers, streams, and aquifers to sustain in-stream values; and
- grants legal authority to take, dam, or divert water bodies up to a specified amount, sometimes subject to conditions concerning the maintenance of minimum flows or water levels in the water body, and relative priority amongst permit holders when there is insufficient water for all to exercise their legal authority in full.³⁸

Box 2.3: Japan— “One Basin, One Permitter”

After World War 2, water demand in Japan increased significantly because of rapid industrialization, urbanization, and population increase, thus putting pressure on the existing system of water allocation. One river system had multiple permit holders who authorized the use of river water independently and without integration, leading to water shortages downstream.

A central reform of the 1964 River Law was the “one basin, one permitter” principle for water allocation. Permissions for river water use in a river basin are granted by one permitter or river administrator. Class A river systems often cover more than one prefecture and under the River Law are now managed by the national government through the Minister of Land, Infrastructure and Transport. Whereas Class B river systems generally lie within a single prefecture and are managed by that prefecture in consultation with its municipalities.

Before 1964, the applicable law stipulated that each prefecture governor had the authority to issue permission for river water use, thus leading to the possibility of inconsistent water rights administration.

The “one basin, one permitter” principle has been successful, leading to:

- broader-based consideration of river water utilization;
- water-use rights within a basin can be established across administrative boundaries (downstream-upstream linkages); and
- improved coordination among multiple water users, especially during drought.

Dealing with water shortage: implementing priorities

Water shortage provides a critical test for any allocation system and its administration. Variability in the climate and hydrology are natural phenomena. Annual fluctuations in dry season flows may be significant and need to be factored into decisions on the security of supply and the quantity of water available for allocation. In Japan, the water that can be allocated to a new user is based on the availability of water in the river in a “standard drought year,” once existing uses and downstream needs have been determined.³⁹ To accommodate extreme drought situations, licensing conditions generally make it clear that although an amount of water is specified for extraction from the source, this is not a guaranteed amount. Extreme conditions, such as drought or other natural disasters, inevitably impose constraints on water use.

The main question is how are priorities established and risks shared in times of water shortage? Or more specifically, which water uses will be restricted and which will be allowed to continue unaffected? Table 2.4 summarizes how countries participating in the NARBO workshops are addressing water shortage. In most cases, domestic and municipal water uses are accorded highest priority. In emergency situations in the Philippines, those uses override the normal “first

in time, first in right” principle. A Water Crisis Management Committee is also established to monitor and oversee implementation. Under Thailand’s proposed Water Law, more detail is provided on the setting of priorities in the dry season. Water supply for cities and communities including domestic use and industry is given the highest priority ahead of “high value” agriculture and salinity control. Within agricultural water use, priorities are further distinguished. In decreasing levels of importance, the priorities are: marine animals and fish ponds, vegetable and fruit gardens, field crops and, finally, dry season paddy rice, which has high water demands. In addition to domestic concerns, the priority accorded to meeting international obligations can also be a major issue. South Africa’s National Water Act specifically requires that such obligations are considered a priority.⁴⁰

Developing a comprehensive drought strategy that is consistent with the water rights system is a major challenge. How the priorities are operationalized within a particular basin is an essential procedural question. The UK, which conventionally is considered a wet country, has experienced frequent water shortages over the past few years, leading to restrictions on water use, particularly in the southeast of the country. When this happens, the first usage to be restricted by the water utility are domestic hosepipes and sprinklers for gardens. If projections indicate that a utility will still be unable to supply its commitments, it may apply to the Environment Agency for a drought order under which other water uses would be prohibited.⁴¹ In Australia, cities are adopting gradually increasing levels of restrictions on residential water use to cope with the prolonged drought conditions. Brisbane, for example, has been operating under level 5 restrictions since April 2007 (the highest level of restrictions at that time), while the Queensland Water Commission organized a public consultation before introducing more extreme level 6 restrictions in certain council areas.⁴

Table 2.4 Priorities during water shortage

	Priorities in times of shortage	Notes
Indonesia	<ul style="list-style-type: none"> • Domestic use • Agriculture in existing small-scale irrigation systems 	Priorities to other uses are decided by the authorized level of government.
Japan	<ul style="list-style-type: none"> • Rights established first in time 	Subject to constraints based on outcome of dialogue through Drought Conciliation Councils and ultimate decision-making powers of river administrator (Box 2.4)
Lao PDR	<ul style="list-style-type: none"> • Drinking and domestic users • Hydropower • Agriculture 	Not considered a major issue as levels of water stress are not generally significant
Philippines	<ul style="list-style-type: none"> • In emergency situations—domestic and municipal purposes; otherwise rights established first in time 	Water Crisis Monitoring Committee established
Sri Lanka	<ul style="list-style-type: none"> • No predetermined priorities; in the Mahaweli system, a panel of water users is established; in others areas, a District Government Agent sets up consultations 	May invoke the Disaster Management Act, 2005
Thailand (Draft Water Resources Act)	<ul style="list-style-type: none"> • Water supply in cities and communities, including domestic and industry • Agriculture using limited water • Salinity control • Second rice crop • Water transport and sailing boats 	

⁴ See <http://www.qwc.qld.gov.au/Water+restrictions>

Viet Nam	<ul style="list-style-type: none"> • Water for daily life • Water for cattle and poultry rearing and aquatic and marine product culture • Important industrial establishments and research institutions • Food security and crops of high economic value • Other water exploitation and use purposes 	
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Regulatory frameworks usually do not provide for compensation to water users for losses due to the effects of extreme climatic conditions. This would generally fall under government programs for drought relief, including crop insurance.

Water users should be informed of the constraints that may be placed on their water use during drought situations, and the process to be followed in imposing usage restrictions. Temporary reallocation to a higher priority use during times of shortage inevitably raises the question of compensation. For example, the restrictions imposed on irrigation use for farmers of the Angat project in the Philippines during the late 1990s drought has been a contentious issue.

Introducing a water trading or banking system for drought situations may soften financial implications by transferring resources from low to high value water use. It could also transfer any burden of drought relief from the government to those that receive the benefit as high-priority users (Box 2.4). Conceptually, this offers a possible solution, but it requires an advanced administrative system and raises concerns over measures to protect the interests of the poor. For these reasons, formal trading is not currently considered feasible in many Asian countries. This situation may change, however, over the next 10 years. In the People's Republic of China, for example, recent regulations stipulate that any water that can be saved by adopting conservation practices can be traded, subject to approval of the authorities.⁴² Informal trading between users takes place and can be widespread in some countries, including Pakistan, where water allocations are often transferred on a temporary basis and groundwater sold from farmer to farmer.⁴³

Box 2.4: Addressing water scarcity

The People's Republic of China— Water contract “transfers” from Dongyang City to Yiwu City

In the absence of a legal framework for water transfers, a system using water contracts has been agreed between Dongyang City and water scarce Yiwu City, both in Zhejiang province.

While economic development saw Yiwu City grow from 30,000 in the early 1980s to 500,000 today, Donyang City has been able to manage its water storage and even achieve water savings through efficient irrigation.

Rather than develop further storage within their own areas, both cities considered it more cost effective to agree on a water transfer arrangement that involved building a transfer canal. Dongyang City now provides 50 million cubic meters per year for urban water supply in Yiwu City, which pays \$24 million for the transported water supply. Almost 60% of this water is derived from savings due to irrigation efficiencies in Donyang City. The arrangement has elements of both social and economic efficiency and effectively constitutes as a transfer of water rights.

(Source: Liu, 2005)

Japan's Drought Conciliation Council: A case of stakeholder participation

Japan's Drought Conciliation Councils serve as a forum for mutual consultation among river water users in times of drought. They consider the various measures that a drought may require, including restrictions on water intake. The councils are generally composed of the river administrator, water users, local government, and the administrative agencies concerned. As of the end of June 1996, a total of 86 councils had been established for Class A river areas. By law, voluntary approaches are required as a first step with water users seeking conciliation in the "spirit of fair give-and-take." River administrators provide necessary information for the voluntary drought conciliation (Art. 53, Sec. 1) and can intervene if voluntary conciliation fails (Art. 53, Sec. 3). Regional characteristics are present in the style of drought conciliation due to the different historical backgrounds and traditions of each river.

Tone river basin includes Metro Tokyo, where unmitigated drought conditions would have catastrophic social and economic consequences. The "Drought Countermeasure Coordination Council for Tone River System" was established in 1974 after two severe droughts in 1972 and 1973. Twenty years later, in 1994, Japan faced unusually widespread drought conditions with 58 Class A river systems, out of a total of 109, under drought conciliation negotiations. Conciliation negotiations started when the total water volume stored in all eight reservoirs in upper reaches of the Tone River had fallen to 54% of normal. The Tone council discussed and proposed the water saving activities, including water intake restrictions, and water users cooperated and voluntarily followed the council's proposals.

(Source: The Infrastructure Development Institute, Japan (1997), Drought Conciliation and Water Rights—Japanese Experience)

California Water Banking—can it be applied elsewhere?

California established a Drought Water Bank to mitigate the effects of the 1987-92 drought and encourage water transfers from agriculture in the north to higher value urban, municipal and agricultural users in the south. Differential sale and purchase prices were set to cover transaction costs and encourage a surplus of sellers over buyers so that the balance could be used for allocation to the environment and groundwater recharge (prices were set at \$125 for a user to sell an acre-foot of water compared to \$175 to purchase the same amount). In 1991, over 300 transactions were recorded, representing the sale by users of 1,000 million cubic meters (mcm) and the purchase of 480 mcm.

Many emerging economies may not permit such trading nor have the necessary administrative and technical systems in place. There is, however, potential for the principles of cross-subsidization to be incorporated into context-specific agreements among water users if there is a mechanism for coordinating and facilitating the dialogue.

(Source WWF, 2007)

Adapting to change: flexibility of allocation systems

Future changes in development circumstances and priorities, as well as the needs of future generations and uncertainty related to climate change, require an allocation system that has a degree of inbuilt flexibility. Box 2.5 outlines some of the pressures facing future development in the Citarum basin around Jakarta.

The Philippines' Water Code recognizes the need for adaptability: "Preference in the use and development of waters shall consider current usages and be responsive to the changing needs of the country" [Art 3(e)].

Adaptive management is important, but at the same time raises uncertainty on the security of water use. Burchi and d'Andrea (2003) note that water licenses or permits do not cast a water use right "in concrete." Change of use or modification of an existing permit may be required for a number of reasons, including:

- a new national, regional, or basin master plan;
- alternative higher priority uses are applied for;
- drought or other emergency;
- changes in available water resources due to the effects of climate change;
- a change in circumstances of the permit holder; and
- violation of terms of a permit.

The degree of uncertainty over the future pattern of water use and demands for water will influence the choice of the license period and frequency of any intermittent review periods. A too short license period transfers the risk to the license-holder, which may in turn limit their preparedness or willingness to invest in new technology that will produce efficiency gains and expand production. It undermines the security of their water use rights. A license period that is too long, on the other hand, constrains a government's ability to respond to changing circumstances. Attaining a balance of risk between water user and government is an important consideration in setting license durations and review periods. Table 2.5 summarizes the duration of license validity in a range of countries.

Table 2.5: Wide range of license periods

Japan	Generally, 10 years ⁴⁴ Hydropower, 30 years
Philippines	No time limit; provisions for modification (see endnote 14)
South Africa	40 years, with 5-year rolling extension and periodic review
UK	Normally 12 years ⁴⁵
Viet Nam	Surface water, 20 years Groundwater, 15 years

International agreements may place constraints on the scope for adaptive management of a resource, e.g., a transboundary agreement that specifies a division of river flows. Similarly, commercial agreements may have a longer validity period than normal water use licenses, e.g. concession agreements that guarantee a certain discharge of water for hydropower generation. In the Philippines, license periods for hydropower last 30 years, whereas other water uses are given a 10-year duration. As competition for resources intensify, it is increasingly important to ensuring that commercial concessions are consistent with long term development plans for a river basin.

Hydrological uncertainty as a result of climate change has become an urgent issue. This uncertainty affects the adaptability of water resource planning scenarios. The extent that such variability requires additional flexibility in licensing systems is still unclear, and more research is needed on the likely impacts on water resources. To some extent, the resilience of the water resource system will depend on the extent of storage developed.⁴⁶ One outcome may be the use of shorter license periods or provisions for intermediate review processes. Another may be the introduction of a pre-determined and progressive scaling down of abstraction amounts sanctioned in licenses, which would be triggered by crossing a defined threshold of low flows. Again, caution is required not to apply unattractively short license periods that undermine the beneficial use of the water.

Providing compensation to water users for changes in the terms of a license prior to its expiry may be appropriate and needs to be considered in designing a licensing system. Box 2.5 summarizes the approach used in South Africa.

Increasing demands for water require a balance between demand-side conservation measures and supply-side solutions, e.g., the conservation incentives in regulation in the People's Republic of China (Box 2.5). The periodic review of license conditions provides an opportunity to introduce incentives for efficiency measures. This is, however, more difficult in systems based on the "first in time, first in right" principle, such as in Japan and the Philippines, where customary users (including established irrigation systems) are effectively exempt from any regulatory pressure to become more efficient. The only solution for accommodating new users is then on the supply-side, such as developing more storage, which may cost more both from a financial and environmental perspective.

Box 2.5: Licensing systems in a changing world

Indonesia—how will the new Water Resources Law influence water allocation?

Once implementing regulations for water licensing have been approved, allocation of surface water in Indonesia will gradually shift away from the current "implicit" system, which is based on a combination of master planning and periodic negotiations.

Rapid industrialization and urbanization require a flexible system that can adjust to increasing water demands. With limited opportunity and increasing costs of new source development, other options (such as efficiency improvements and transfer from existing irrigation users) need to be examined. The Citarum basin supplies the capital, Jakarta, with most of its bulk water and is one such case. In the absence of any formal water use right, existing irrigators do not receive any benefit if water is re-allocated to other users such as industry. Similarly, there is no incentive for them to save water in order to transfer it to other users as part of a benefit sharing arrangement.

How the licensing regulations will deal with these issues will demonstrate in practice how the basic principle of equitable distribution is interpreted, and how smoothly reallocation can be implemented.

South Africa—long license periods with in-built review periods

Water licenses in South Africa run for 40 years and may be renewed on a rolling basis every 5 years. This is a relatively long period compared with those in Asia and was introduced in negotiations on the draft Water Bill in order to provide security of tenure and confidence for investment in large agricultural estates. Periodic review of the license, however, provides the

opportunity for the licensing authority to amend certain conditions, including the quantity of water, but not the license period. Such a review may take place to prevent deterioration of water quality of the resource, in cases where there is insufficient water, or if required by changes in socio-economic conditions, [National Water Act, s.49(2)]. Any amendment to the license conditions can take place only if other licenses on the same resource are amended in an equitable manner. If the change compromises the economic viability of the undertaking, then compensation payments may be due.

The People's Republic of China—incentives to save water

New regulations on water licensing issued by the country's State Council in February 2006 provide an incentive for existing users to save water. In general, water trading is not allowed under the law and an approval for a water license requires that the water be used for that stated purpose. Licenses are normally issued for a relatively short duration of 5–10 years, which, on one hand, makes it easier for the government to alter allocations if priorities change, but, on the other hand, provides little security to the user. A recent innovation of the regulations, however, allows a license holder to trade any water than has been saved through an "application of efficient practices" to a third party, thereby encouraging a win-win approach to water reallocation.⁴⁷

PART 3: BUILDING EFFECTIVE INSTITUTIONS—A LONG-TERM COMMITMENT

Managing the transition towards licensing

Licensing systems require considerable technical knowledge—on hydrology of the water resource, the level of existing use, and the potential impacts of additional abstraction. Implementing licensing regimes also requires considerable administrative capacity, including staffing at local and national levels.⁴⁸ Above all, transparent procedures and criteria need to be in place for making decisions on individual license applications and trade-offs between competing uses. These procedures may take 10–20 years or longer to fully implement. In the intervening period, priorities need to be set and existing water use be assured a legal status.

This section looks at a range of approaches have been adopted to manage the transition period to a licensing system.

Permissible use not requiring a license. Providing clarity in primary and secondary legislation on uses that do not require a license is important. Thresholds for water use that does not need licenses should reflect the scarcity of the water resource and implications for administering the system. The Philippines Water Code exempts “hand carried water, bathing, washing and watering of animals” from permit requirement (Art. 14). Viet Nam’s Law on Water Resources includes small-scale agriculture as one of a range of non-licensed permissible uses [Art .24(2)]:

- surface water and underground water of small scale for family use in living;
- surface water and underground water of small scale for the family in agricultural, forestry production, aquaculture, small industry and handicraft production, hydropower generation, and other purposes;
- sources of sea water of small scale for family use in making salt and raising marine products; and
- rain water, surface water, and surface sea water already assigned or leased according to prescriptions of law on land, the provisions of this law and others prescriptions of law.

Schedule 1 of the South African National Water Act similarly provides a detailed list of uses that are exempt from licensing.⁴⁹

Registration of existing use. Existing legal uses of water are generally automatically incorporated as legitimate uses under new legislation but (i) may require a registration process, (ii) be subject to a requirement to formally apply for a license, and (iii) may, in the future, be progressively subjected to similar restrictions on use as those placed on new uses. Timeframes for registering existing uses and issuing licenses need to be pragmatic and reflect the available administrative capacity. The use of general authorizations described below can reduce this administrative burden in a phased manner. The Philippines Water Code included a two-year period for registering water use (Sec. 27 of 2006 Implementing Rules and Regulations of the Philippines Water Code), although this has not been effective in practice. South Africa’s National Water Act embodies existing use as legitimate, provided such use fulfills certain conditions, including being a legitimate use under pre-existing legislation and is consistent with uses under the act (Sections 32–35). A licensing authority may require existing uses to be registered, and may further require the user to apply for a license under the act.

General authorizations. Such authorizations, once officially notified, allow a defined water use to take place without need for a license. General authorizations may be temporary or permanent and cover a specific geographical area or the country as a whole (Box 3.1). This approach provides a flexible system for exempting less contentious water uses during the early stages of implementing a licensing system, and instead, concentrates licensing efforts on high priority areas. As in South Africa, notification of a general authorization can take place through publication in the official gazette.

Similarly, South Australia's Natural Resources Management Act 2004 defines water allocation in terms of both the water that may be taken or held under the terms of a water license, and the maximum water that may be taken and used under a general authorization for use issued by the minister in respect to specific bodies [Sec. 3(1)].⁵⁰

Box 3.1: South Africa—use of temporary authorizations to reduce the licensing burden

Under the National Water Act, the responsible licensing authority may designate certain uses as exempt from license requirements for a specific period and within a particular geographic area, (Sec.39). The use of water under a general authorization does not require a license until the authorization is revoked or expires. In this way, the licensing process can be targeted first at the priority cases that have more of an impact on overall water use within a basin.

Priority areas. Progressive implementation or piloting a license system may be considered in particular areas under water stress and where there are major water users. This will allow the government or implementing agency to build experience in the challenges of implementation and administration. As capacity is developed, the scope of a licensing system can be expanded (Box 3.2 on Uganda's approach). Using general authorizations in parallel with progressive implementation of a licensing system offers a structured approach to the transition period.

Box 3.2: Uganda—identifying priority users for licensing

In Uganda, due to the limited availability of administrative staff, implementation of the permitting system focused on users that have a significant impact on the water resource. Two hundred water abstractors and two hundred polluters were identified, primarily supplying the 60–70 major towns. Gradually, the permitting system will be extended into a comprehensive water rights administration system envisaged under the National Water Action Plan. (Source: WWF, 2007)

Among the general pitfalls to avoid in introducing a licensing system are:

- a lack of attention to managing the transition period,
- over-optimistic implementation schedules,
- attempts to license small uses that do not pose a threat to resource sustainability,
- unnecessary interference or disruption in customary rights systems,
- a lack of public acceptance resulting in theoretical “paper” rights,
- insufficient administrative capacity and resources,
- a lack of data on the carrying capacity of the water resource,
- ill-defined priorities of water use,
- a lack of clear procedural rules, and
- a lack of public awareness of the legal requirements.

Identifying the gaps—building capacity

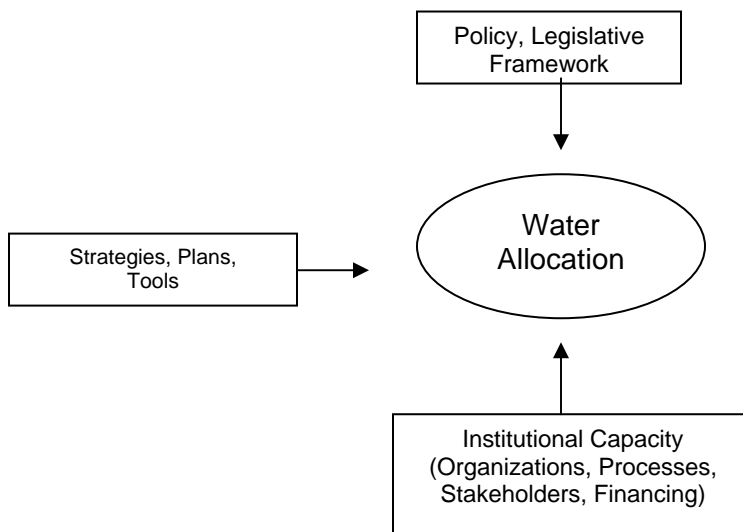
In cases where an implicit system of water allocation is to be retained, it is likely that improvements can be made and past experience will point to areas for capacity building, whether related to improving security of tenure, increasing transparency and accountability, developing a better technical understanding for resource management, or introducing more effective means to adapt to changing circumstances.

This section focuses on the move towards a more explicit system of licensing water use rights. Improvements may be required at three levels, as depicted in Figure 3.1. The level of policy and legislative framework includes primary laws and subsidiary regulations, decrees, and administrative orders, etc. necessary for:

- implementation and specifying which water uses require a license,
- the priorities to be followed in allocation, including emphasis on basic needs and consideration of environmental needs,
- priorities in drought conditions, and
- procedures to ensure transparency consultation and accountability.

The second level grouping of strategies, plans, and tools comprises the technical guidance needed to support decision-making on license applications, such as hydrological databases, water balances, water use profiles and registers of water use, basin plans, sector strategies, decision-support tools, strategic environmental assessments, risk assessments, etc.

Figure 3.1: Areas for capacity building for water licensing (Source: derived from WWF, 2007)



A number of questions can be raised within each of the three elements of the capacity building framework to help determine needs and support mechanisms (Table 3.1).

Table 3.1 Questions to help define a capacity building program

<p>Policy / legislation</p>	<ul style="list-style-type: none"> • Are rights of access to water for basic human needs recognized? • Are customary rights protected, and how is this done? • Are priorities clearly articulated for normal and drought conditions? • How are environmental needs protected? • How are rights allocated to new users—is there flexibility to adapt? • How to manage collective water rights where there are a large number of small water uses? • To what extent is the licensing system flexible to accommodate adaptive management? • What pre-conditions are necessary before some form of tradable water rights can be considered? • Are pollution control measures linked to the protection of water use rights? • What methods are used to resolve conflicts between users?
<p>Strategies / plans / tools</p>	<ul style="list-style-type: none"> • Is there adequate technical understanding of existing water use and the basin water balance? • Is there a link between spatial planning, basin planning and water allocation? • How are affected stakeholders involved in setting priorities for water allocation? • How are land, water, and environment strategies linked? • Does a drought strategy exist? Does a groundwater management strategy exist? Are these well publicized? • Does water conservation or other demand-side measures feature in strategy development? • How are rights allocated to new users? • To what extent are the consequences of private sector concessions (e.g., hydropower) factored into the basin strategies and allocation plans? • What mechanisms are in place to encourage multiple purpose benefits from hydropower projects?
<p>Institutional capacity</p>	<ul style="list-style-type: none"> • To what extent are inter-agency coordination arrangements effective for setting priorities among uses? For resolving conflicts? • Are the hydrological network and modeling tools sufficient to guide the setting of priorities? • Does the technical understanding of basin water balance exist for determining consequences of alternative allocation scenarios and determining license applications? • What measures can be taken during the transition period to build the necessary capacity for water licensing and does the legal framework allow such a phased approach? • Is technical capability in place to monitor and evaluate on an operational timeframe? • What is the extent of the capacity to implement and enforce a water allocation system, and how can it be strengthened? • How are groundwater abstraction limits and zoning plans implemented? • How are illegal abstractions dealt with? • Is their sufficient administrative capacity (staff and financial resources)?

A prerequisite for a capacity building plan is a clear strategy to manage the transition phase, which, as mentioned earlier, may extend over decades rather than years. For example, the Philippines introduced its permitting system more than 30 years ago and yet only about 35% of water use has a license. Current initiatives to address the constraints are discussed in Box 1.3 and some of the challenges facing surface and groundwater management in Lao PDR. and Indonesia are outlined in Box 3.3.

Elements of a capacity building plan will need to cover:

- development of subsidiary rules and procedures;
- awareness raising among the water users and agency staff at all levels;
- analysis of the carrying capacity of surface and groundwater resources;
- license application and consultation procedures;
- cooperation strategies with other agencies for routing license applications, reviewing technical aspects, enforcement, and dealing with illegal abstractions;
- data collection and monitoring; and
- staffing and financial requirements.

Box 3.3: Challenges facing integration in surface water and groundwater management

Lao PDR—The challenge of planning ahead of contracts

Hydropower development will provide Lao PDR with its major source of foreign exchange earnings and has been gaining momentum over the past few years. Approximately 20 hydropower concessions are at various stages of planning and implementation.

There is an absence of integrated river basin plans, however, and development has proceeded on a sector-by-sector basis. Hydropower projects can lead to major changes in the hydrological regime, particularly for peak load plants that respond to rapid changes in electricity demand and in cases where rivers are diverted to another basin.

A key issue in achieving a more integrated approach is the timing of the planning process. Concession and power-purchase agreements for hydropower may be negotiated well before a basin plan is produced, which constrains water releases through prior commitments on power generation. By the time river basin management plans are established, there may be little flexibility to change such contractual agreements.

A challenge for Lao PDR right now is to advance its basin planning processes so that conditions on water resource availability can more effectively influence the operation of hydropower projects.

Indonesia—Coordinating groundwater and surface water licensing

Groundwater depletion in some Indonesian cities has reached a critical situation. In Bandung, a moratorium on new abstractions has been introduced in some areas of the city. One new hotel development is now trucking water from another less affected area at significant cost.

Licensing responsibility for groundwater lies with the city authorities, while licensing for surface water from inter-provincial rivers, such as the Citarum, comes under the central ministry. Developing linkages between the planning of surface water and groundwater will be important under the new institutional setup, not only because of the physical interaction between the two resources, but also to develop consistent and complementary principles to govern their allocation. The new River Basin Councils and *Balai Besar* have an opportunity to play important roles in facilitating such cooperation.

Encouraging consultation

Issuance of a water use license takes place within a broader strategy setting in which the extent of available water and the needs of downstream users, including the environment, are determined. Consultation processes may be required at each of these steps: (i) during policy and strategy development, (ii) on basin planning, (iii) in setting objectives for the quality of a river system, (iv) in determining in-stream flows, and (v) inviting comments on individual license applications. For example, rules and regulations⁵¹ under the Philippines Water Code define the places where notice of a license application should be posted for a period of 60 days.⁵² The rules further note that “any person who may be adversely affected by the proposed appropriation may file a verified protest with the Council or with any deputized agency investigating the application ...” (Sec. 8).

Although consultation on public policy, strategy formulation, and specific project proposals is becoming more widespread, some concerns have been raised that such processes do not in themselves protect existing water rights, particularly customary rights. In a comment to UNEP’s Dams and Development Forum in November 2006, the representative of the indigenous peoples groups reflected that:

“In too many processes, the word ‘stakeholder’ took away the importance of fundamental human rights of peoples and individuals to be part of the decision making process about their own futures ... [She further noted] that peoples and communities had ownership and prior use rights to lands and waters to be used by a dam and that at times whether affected communities were consulted or not depended on the inclinations of Governments or Developers.”

The issue here is accountability in the consultation process and the extent that those being consulted are fully aware of their water rights and are engaging on a “level playing field” with those responsible for making the final decision.

Turning to the situation in the countries participating in the NARBO workshops, there is a general absence in their legislation for public consultation in the process of strategic planning or project developments. The earlier water laws of Lao PDR, Philippines, and Viet Nam do not contain specific provisions on consultation during the strategy development or planning processes, although in the recently approved National Water Resources Strategy in Viet Nam, a considerable part of the implementation procedures deal with issues of public awareness, education, and participation.⁵³ The requirement in the Lao PDR water law for any large scale river diversion to gain approval from the National Assembly should, in principle, place such major decisions more in the public domain.⁵⁴

In the more recently drafted law of Indonesia (2004) and the draft law of Thailand, the emphasis on participation is incorporated. In Indonesia, the law was drafted after a major shift to decentralized government gave more control to districts and provinces. The composition of national and basin water resources councils is to be balanced evenly between government and nongovernment representatives. Notably though, the emphasis in development of water resources management plans is more on people being given the opportunity to object,⁵⁵ rather than proactive engagement in the formulation of the plan.

In Thailand, “participation of people at river basin level” is included in the preamble to the draft water law and representatives of water users are included in the various governance arrangements at national and basin levels, e.g., in the National Water Resources Committee

(Art. 14) and Water User Associations (Art. 42). The case of the Bang Pakong River Basin Committee demonstrates that the shift to a more participatory approach has been initiated even without full legal coverage (Box 3.4).

Box 3.4 Thailand—a new era of consultative management in the Bang Pakong River Basin

The Bang Pakong river basin suffers from (i) deteriorating water ecosystems that directly affect people's livelihoods, (ii) a lack of water supply for domestic use, (iii) frequent floods, (iv) polluted waters, and (v) conflicts among water users.

A commission was established in 2001 (and then revised in 2003) to address these issues by: (i) prioritizing and quantifying water usage in the basin, (ii) undertaking measures for the equitable and efficient allocation of the waters of basin, and (iii) negotiating conflicts and solving problems related to the implementation of water resources management. The commission has succeeded in getting the government sector, civil society, and communities to work together on a common project. It has been a painstaking process involving difficult changes in mindsets, behavior, and trust levels, and entailed trial and error efforts. Coordinators were identified within each sub-basin to provide the bridge that allows the government and communities to design and implement appropriate solutions.

A promising achievement is the commission's preparations to undertake water allocation as specified in Thailand's draft water law. In recent years, the commission has gained some experience in terms of granting water use permits to industries. Recently, the "Bang Pakong Dialogue Initiative" promoted consultations on water resources issues in the river basin at the grassroots level and reviewed how water allocation can be implemented. The agreed system for water allocation has now been fully initiated after it was piloted under the initiative.

Strengthening accountability

One of the main drivers behind an explicit system of water allocation is the security of water use rights, particularly for less influential water users whose voices tend to go unheard. Strengthening accountability in the decision-making process can be focused at a number of levels:

- translating government policy into development strategies, for example, in realizing commitments on access to improved sources of drinking water,
- articulating those strategies into the setting of priorities in basin planning,
- ensuring those priorities are used for water distribution plans and to guide decisions on license applications, and
- promoting compliance with license commitments.

In each of these processes, there is scope for greater transparency. Beyond that, opportunities are needed for representation by affected parties and appeal of questionable decisions. Both are facilitated by the introduction of an independent oversight or appeals body, such as the Water Tribunal in South Africa (Box 3.5). The precise nature and composition of such oversight arrangements would need to be adapted to suit the local political and social context.

Box 3.5: Introducing redress mechanisms and incentives

South Africa—A mechanism for redress

South Africa’s National Water Act provides extensive opportunities for people to express their views on strategy development, classification of river systems, determination of the ecological reserve, and individual applications for water licenses. But beyond consultations, what mechanisms are there for redress if due process is not followed?

The National Water Act has established a Water Tribunal as an independent body empowered to investigate a range of decisions of the responsible authority and interpretation of the law, including the outcome of license applications, the content of a preliminary allocation schedules, and directives made by the authority. By June 2003, five years after the act became law, 31 cases had been brought before the Tribunal: 13 dealt with licenses for stream flow reduction due to afforestation, 12 appealed directives dealing with contravention of license conditions, 4 related to license applications, 1 related to designation of an existing use and 1 covered remedial measures for the prevention of pollution (Bird, 2004). Although a major step in introducing accountability, two central aspects for allocation decisions lie outside the Tribunal’s jurisdiction—classification of water resources and determination of the Reserve.

Philippines—lessons from the water supply sector and incentive mechanisms

Under Philippine law, water districts are government-owned and controlled corporations duly organized pursuant to Presidential Decree 198. Water districts are tasked to provide water service within its area of franchise or jurisdiction. The Tagaytay City Water District is one of the 500+ water districts in the country. It serves the tourist spot Tagaytay City in the province of Cavite.

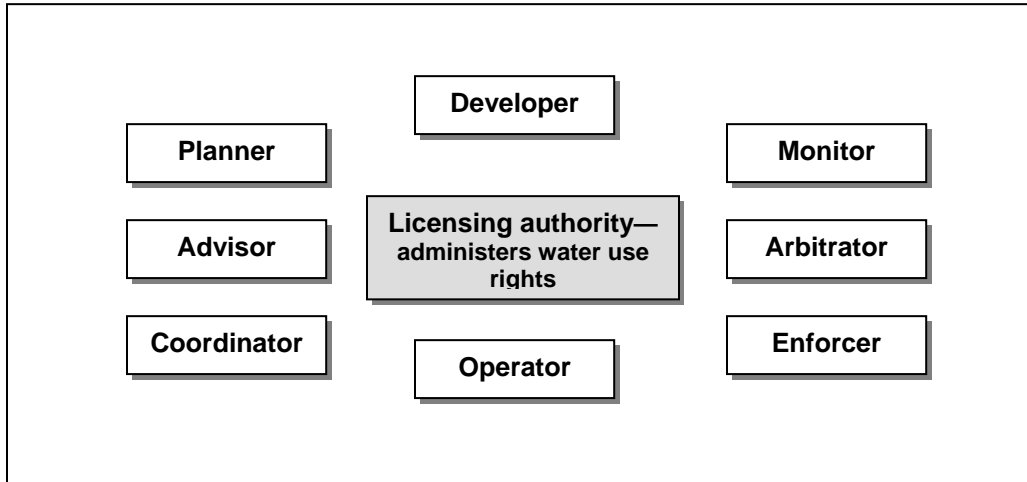
As of 2003, district’s collection efficiency was a high 97%. Its non-revenue water improved dramatically from 60% in 1995 to the current 23%—better than the national average for water districts. This can be attributed to (i) clear legal mandate under Presidential Decree 198, (ii) high quality customer service (including prompt response to complaints), (iii) an express water connection scheme of “apply now, get connected tomorrow,” (iv) performance incentive schemes for personnel, (v) adequate water system facilities, and (vi) keeping abreast with modern technology (including the use of computerized billing and geographic information system).

There are direct parallels between quality of service and the quality of administration. Key attributes are strong political commitment, a clear legal framework, adequate resources, good technical information, transparency in implementing procedures, motivated staff, and openness toward consultations.

The role of RBOs

River Basin Organizations (RBOs) take many forms and their roles change over time as capacity for integrated management increases. Some, such as the Catchment Management Agencies in South Africa, will become water licensing authorities. Others, including the Murray Darling Basin Commission, are responsible for developing basin strategies and providing the overall framework within which licenses are issued by state agencies. The broad range of roles that an RBO could perform is depicted in Fig. 3.2, which is modified from work done by Dourojeanni (2001).

Fig 3.2 What role does an RBO play in relation to licensing?



These roles cover:

- **Planner:** Collates and analyzes water quantity and water quality data, undertakes strategic assessments, oversees development of basin and strategic plans (e.g., RBOs in Indonesia, Mahaweli Authority in Sri Lanka);
- **Advisor:** Provides policy level advice and guidance to the agency responsible for granting water use rights with information on availability of water resources in the river basin and merits of the application (e.g., PJT1 and PJT2 in Indonesia provide technical recommendations as a basis for the issuance of water permits);
- **Coordinator:** Acts as a coordinating forum for water resources management among agencies and across sector, promotes public participation, and raises awareness of water issues (e.g., the Bang Pakong River Basin Committee in Thailand facilitates coordination and agreement through stakeholder consultation and dialogue);
- **Licensing Authority:** Administers the licensing system, including the receipt, evaluation and determination of license decisions according to established implementing regulations (e.g., Catchment Management Agencies in South Africa will, after the necessary period of institutional development, assume responsibility for water management in general and licensing in particular, which was a task previously carried out by the national Department of Water Affairs⁵⁶);
- **Developer:** Builds water storage and regulation infrastructure according to license authorizations (e.g., Mahaweli Authority);
- **Operator:** Operates and maintains water storage and regulation infrastructure according to license authorization (e.g., PJT II, Mahaweli Authority);
- **Monitor:** Maintains or coordinates monitoring and network for compliance with authorized uses and investigates irregularities (e.g., PJTII in Indonesia and the Tennessee Valley Authority⁵⁷ in the United States, which has statutory authority to manage the entire multi-state basin of the Tennessee River and its tributaries for flood control, power production, and navigation);
- **Arbitrator:** Acts as an arbitrator in disputes between water users and takes action to prevent dispute. (e.g. Mahaweli Authority; in Europe, the International Commission for

the Protection of the Danube River can provide assistance to resolve disputes between contracting parties and if not settled, arrange for arbitration procedures),⁵⁸ and

- **Enforcer:** Mandated to take necessary actions to enforce license conditions (e.g., Laguna Lake Development Authority in the Philippines has introduced a “multi-use” policy to ensure equitable use of Laguna Lake).

As experience and capacity are gained, some RBOs may increase their role planning, advisory functions, monitoring, and arbitration. RBOs generally do not take the role of licensing authority as assigned to South Africa’s Catchment Management Agencies, as this is generally seen as a function of the national water apex body, line ministry, or local government—for example, National Water Regulatory Board in the Philippines for surface water and municipalities in Indonesia for groundwater.

PART 4: TAKING ACTION

As competition for water resources grows, there is a general trend towards more explicit systems of water allocation, meaning a trend toward licensing in national regulatory frameworks. A major challenge is ensuring that these frameworks provide the enabling environment for beneficial, equitable, efficient, and sustainable use of a nation's water resources while actively promoting the interests of poor water users.

Each stakeholder group has a part to play in this process and the range of entry points is indeed extensive—covering both the management of water resources and the delivery of water services. The proposed action points below are organized according to major stakeholder groups.⁵⁹

Government

- Ensure that the legal and regulatory framework clearly articulates priorities of water use consistent with national and development objectives, reflects customary uses where applicable, and provides for drought conditions.
- Go beyond statements of intent that define “access to water for basic needs” as a priority water use, to incorporate a protected basic “right of access to water” in water policy and national water legislation.
- Establish institutional structures and procedures that promote independence, transparency, and accountability in the water allocation process.
- Provide the financial and human resources necessary for the phased transition to an explicit system of water allocation, recognizing that this will be a medium to long term process..

National water apex bodies

- Raise awareness in government of the need for a comprehensive approach to water allocation that secures the needs of the poor and optimizes water use in line with national integrated water resource management strategies.
- Develop policy for water allocation to be incorporated into law.
- Encourage coordination among national and provincial agencies to ensure effective integration of water management systems across sectoral and administrative boundaries and for surface and ground water.
- Promote a more strategic level of basin planning that sets a framework for public and private sector developments, in particular by establishing a water resources management framework within which concessions for hydropower or bulk water supply may be negotiated.
- Consider innovative ways to encourage water conservation through the licensing system, such as allowing trading of water efficiency gains (e.g., water saved by reducing leaks or the use of more efficient water-use technologies).
- In parallel with research activities, consider how adaptive management can be reflected in the licensing system so as to accommodate rapidly changing use while ensuring that existing water users retain a share of the benefits.

- Facilitate the discussion on how environmental functions of river systems can be protected, including adaptation of methodologies for determining environmental flows relevant to the local context
- Address coordination in regulation of wastewater discharge and pollution control to avoid undermining water allocation decisions and to achieve a healthier population and environment.

Regulatory (licensing) agencies

- Plan for the transition toward explicit water licensing systems and prioritize efforts to target high impact water uses, incorporating use of exemptions or general authorizations for less critical water uses where appropriate.
- Raise awareness of the need for licensing among water users and the public in general.
- Identify opportunities to collaborate with other agencies for receipt, review, and processing of license applications, including decentralization.

River basin organizations

- Strengthen monitoring and analytic capability of river flows, water quality, and aquatic ecology.
- Enhance the technical and institutional capacity to advise the regulatory agency on determining license applications and water allocation decisions.
- Establish mechanisms for cross-agency and cross-sectoral coordination.
- Develop capacity for facilitating dispute resolution.

Water service providers

- Water Utilities should develop explicit strategies and plans to deliver on commitments to (i) increasing access to the basic water right for human needs and (ii) secure performance contracts that include provisions for access to water services by households in poor communities.
- Irrigation Service Providers should work with the water resources and regulatory agencies and river basin organizations to recognize and protect the customary water use rights of farmers (either individually or collectively, with specific attention to ensuring the rights of poor farmers) during the transition toward more explicit systems of water licensing.

Other water agencies

- Environmental agencies should work with the water resources agencies and river basin organizations to improve coordination on water quality monitoring and improvement and to develop appropriate procedures for determining a river's environmental needs for water.
- Spatial or regional planning agencies should develop closer linkages between regional planning and water resources planning processes.

Nongovernment and community-based organizations

- Raise awareness of the opportunities that a more explicit approach to water allocation, such as water licensing, can bring, including commitments to provide access to water for basic needs, the benefit of a more secure and defined water right (particularly in areas undergoing rapid economic and social change), and the raised profile of ecosystem functions and associated livelihoods.
- Participate in stakeholder forums and formal water management structures, such as river basin organizations.
- Raise awareness of use rights and develop information materials for use in communities.
- Work with water resources regulatory agencies, river basin organizations, and the academe in monitoring the introduction of more explicit systems of water licensing in order to document good governance and lessons learned.

Academe⁶⁰

- Undertake a comparative study of transitional measures for water licensing systems and building institutional capacity.
- Examine the implications of water licensing systems on customary uses and mechanisms to introduce necessary safeguards.
- Assess the approach to adaptive management to ensure flexibility of licensing systems to accommodate changing water use priorities and long term changes in supply resulting from climate change.
- Study alternative approaches to encourage benefit-sharing among existing agricultural water users subjected to reallocation for urban or industrial use.

Development agencies

- Support reform programs and building of capacity.
- Provide knowledge management products and encourage exchange of information on water rights and allocation, including case studies relevant to the region.
- Support regional networks of excellence, e.g., on water governance, including a regional knowledge hub on water governance.⁶¹
- Support pilot activities to introduce licensing systems in a phased manner.

Network of Asian River Basin Organizations

- Continue sharing knowledge gained from experiences with implementing water rights systems, particularly on context specific aspects of Asia.
- Consider facilitating twinning arrangements between river basin organizations at different stages of development to raise awareness of the issues, share experiences, and develop capacity.
- Support a follow up workshop after 2–3 years to reflect country achievements, the challenges faced, and the remaining issues to address.

Asia Pacific Water Forum

- Recognize and support a regional knowledge hub for water governance, to undertake research, knowledge sharing, and capacity development in support of modern water legislation, including provisions for water rights and allocation.

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ANNEX A2: ENDNOTES

¹ Examples of transboundary RBOs include the International Commission for the Protection of the Danube River; the International Commission for the Hydrology of the Rhine Basin; the Mekong River Commission; and several RBOs in Africa including Gambia RBO and Okavango River Basin Commission.

² For DRBC, see <http://www.state.nj.us/drbc/> and Collier C.R. The DBRC: Managing Interstate Conflicts through Sound Science, Adaptation and Collaboration, July 2004 available at <http://www.state.nj.us/drbc/FisheriesOpEd-July2004.pdf>. The third goal of the SRBC is “to coordinate management of interstate water resources and serve as an effective forum for resolution of water resource issues and controversies within the basin.” See <http://www.srbc.net/about/geninfo.htm>

³ Burchi and D’Andrea refer to another set of rules for allocating water that “belongs” to an individual or corporation—or user controlled rules. These are governed by rules of neighborliness and specific bodies of rules developed in the courts, such as riparianism and prior appropriation. They note that “user-controlled” allocation decisions represent an ever shrinking minority of water allocation decisions due to wider government intervention in the growing complexity of water resources management (p3–4).

⁴ At an estimated 2,500 cubic kilometers per year, water use for agriculture is in the order of 70% of total water withdrawals (World Commission on Water, 2000). In terms of scale, if 25 liters per capita per day is assumed as the basic human need for the world’s population of approximately 6 billion, then this amounts to 54 billion cubic kilometers or 2% of that withdrawn by agriculture.

⁵ The term “basic water supply” is defined in the NWSA as “the prescribed minimum supply of water supply services necessary for the reliable supply of a sufficient quantity and quality of water to households, including informal households, to support life and personal hygiene” NWSA, s.1(iii).

⁶ Regulation Relating to Compulsory National Standards and Measures to Conserve Water, 2001, s.3. “The minimum standard for basic water supply services is (a) the provision of appropriate education in respect of efficient water use; and (b) a minimum quantity of potable water of 25 litres per person per day or 6 kiloliters per household per month—(i) at a minimum flow rate of not less than 10 litres per minute; (ii) within 200 metres of a household; and (iii) with an effectiveness such that no consumer is without a supply for more than seven full days in any year.”

⁷ The basic human needs element of the Reserve is defined as “the quantity and quality of water required to satisfy (a) basic human needs by securing a basic water supply...for people who are now or will, in the reasonably near future, be (i) relying upon; (ii) taking water from; or (iii) being supplied from, the relevant water resource” (South Africa, National Water Act, 1998 s.1(1)(xviii).

⁸ For a description of the riparian system, see Getches, 1997.

⁹ Art. 3: “Water resources shall be owned by the state” where under the definition Art. 2 “The ‘water resources’ referred to in this Law includes surface water and groundwater.”

¹⁰ Only Balochistan has passed legislation to control groundwater development and over-abstraction through licensing provisions, although this has not been effective in practice. The 1978 Groundwater Rights Administration Ordinance was promulgated to “to regulate the use of groundwater and to administer the rights of the various persons therein.” In other areas, federal and provincial actions have been taken to control waterlogging and salinity.

¹¹ Chapter 1, p6.

¹² See <http://www.mahaweli.gov.lk/>

¹³ See <http://www.nwrp.gov.ph/>

¹⁴ A permit issued under the Philippines Water Code may be suspended on the grounds of non-compliance with approved plans and specifications or schedule of water distributions; use of water for a purpose other than for which it was granted; non payment of water charges; etc. (Art. 28). It may also be revoked after due notice and hearing on grounds of non-use or gross violation of the conditions imposed in the permit, etc. (Art. 29). All water permits are “subject to modification or cancellation by the Board, after due notice and hearing, in favor of a project of greater beneficial use or for multi-purpose development, and a water permittee who suffers thereby shall be duly compensated by the entity or person in whose favor the cancellation was made” (Art. 30).

¹⁵ See for example Gleick, (1999), IUCN, (2004) and the World Bank’s publication by Salman and McInerney-Lankford (2004).

¹⁶ ICCPR, adopted 16 December 1966, entered into force 23 March 1976, G.A. Res. 2200A (XXI), UN Doc. A/6316 (1966), 99 UNTS 171, reprinted in 6 ILM 369 (1967). Art. 6(1) states “Every citizen has the inherent right to life. This right shall be protected by law.”

¹⁷ ICESCR adopted on 16 December 1966, entered into force 3 January 1976, G.A. Res. 2200A (XXI), UN Doc. A/6316 (1966), 993 UNTS 2, reprinted in 6 ILM 360.

¹⁸ United Nations Economic and Social Council, Committee on Economic Social and Cultural Rights, General Comment No.15 (2002). Twenty-ninth session, Geneva, 11-29 November 2002. E/C.12/2002/11, available at <http://193.194.138.190/html/menu2/6/gc15.doc> .

¹⁹ The Committee does not have power to create new obligations, but rather to provide interpretation of existing obligations of ICESCR. Under ICESCR, member States have committed to take steps “with a view to achieving progressively the full realisation of the rights recognised in the present Covenant by all appropriate means, including particularly the adoption of legislative measures”. (Art. 2(1)).

²⁰ MDG Target 10 aims to “halve, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation”. <http://www.undp.org/mdg/goalist.shtml> . Note the sanitation target was added at the World Summit on Sustainable Development in 2002.

²¹ Republic Act No. 8371, Section 17 states “They shall participate in the formulation, implementation and evaluation of policies, plans and programs for national, regional and local development which may directly affect them” and Section 7(c) provides for the principle of free and prior informed consent to any proposal to relocate indigenous people from their ancestor domains. Other similar provisions protect their use of natural resources in such domains.

²² South Africa, National Water Act, Sec. 1(1)(b) ecological component of the Reserve is the quantity and quality of water required “to protect aquatic ecosystems in order to secure ecologically sustainable development and use of the relevant water resource”.

²³ The Water Act 2002, available at <http://faolex.fao.org/docs/pdf/ken37553-a.pdf>

²⁴ Downstream Response to Imposed Flow Transformation (DRIFT) methodology. See IUCN (2003) at <http://www.iucn.org/themes/wani/flow/p25.html>

²⁵ Prime Minister’s Decision 81/2006/QĐ-TTg on 14 April 2006. NWRS Part 2, section 2.2 (a)(2)

²⁶ NWRS, Part 3 1.1(d)

²⁷ A number of the national water laws can be accessed through the ECOLEX environmental law database at <http://www.ecolex.org/index.php>

²⁸ Article 20 of the Philippines Water Code amplifies this concept: “The measure and limit of appropriation of water shall be beneficial use. Beneficial use of water is the utilization of water in the right amount during the period that the water is needed for producing the benefits for which the water is appropriated.”

²⁹ Article 4 requires all factors to be considered in the development, utilization, economization and protection of water resources including an emphasis on “multi-purposes use and on achieving maximum benefits.”

³⁰ Articles 50 to 53 lay out conservation measures.

³¹ “Beneficial use,” is defined as any use of water within or outside the state, that is reasonable and useful and beneficial to the appropriator, and at the same time is consistent with the interests of the public of this state in the best utilization of water supplies”; South Dakota Code Title 46 s.1-6(3)

³² Id., s 46-1-4, “The right to water or to the use or flow of water in or from any natural stream or watercourse in this state is and shall be limited to such water as shall be reasonably required for the beneficial use to be served, and such right does not and shall not extend to the waste or unreasonable use or unreasonable method of diversion of water.”

³³ For example, Article IV of the Helsinki Rules on the Uses of International Rivers (1966) of the International Law Association: Each basin State is entitled, within its territory, to a reasonable and equitable share in the beneficial uses of an international drainage basin, available at http://www.internationalwaterlaw.org/intldocs/helsinki_rules.html

³⁴ For example, equitable access to water was a significant component of the Governance theme at the International Conference on Freshwater in Bonn, 2001 available at http://www.water-2001.de/outcome/BonnRecommendations/Bonn_Recommendations.pdf

³⁵ In the case of South Africa, the National Water Resource Strategy requires that “water for social needs such as poverty eradication, primary domestic needs, and uses which would contribute to maintaining social stability are given priority over water for key economic sectors and employment creation.” (NWRS available at <http://www.dwaf.gov.za/Documents/Policies/NWRS/Default.htm>)

³⁶ Articles 16 and 24.

³⁷ See http://www.iucn.org/en/news/archive/2006/06/19_nigeria.htm

³⁸ Water Programme of Action: Water allocation and use, available at <http://www.mfe.govt.nz/publications/water/water-allocation-use-jun04/index.html>, section 3.

³⁹ The Standard Drought Water Discharge is used as the measure of availability of water in a river and is based on the minimum reliable flow measured over 355 days of the year—determined over the most recent 10 year period. The Normal Discharge is the amount that needs to remain in the river and comprises allocations to existing uses including customary use (discharge for vested water rights) and the discharge to maintain the normal functions of the river (discharge for maintenance), see Nakai (2005).

⁴⁰ National Water Act, Sec. 2(i).

⁴¹ In May 2006, Sutton and East Surrey Water Company was allowed a drought order by the Environment Agency under the 1991 Drought Direction. In addition to the domestic hosepipe and sprinkler ban, the drought order empowers the utility to restrict watering of parks and recreational areas e.g. golf courses, filling of swimming pools and ornamental ponds, vehicle washing equipment, the washing of roads, vehicles, trains, aircraft etc except for purposes of hygiene, the cleaning of buildings and industrial premises, and automatic flushing toilets when buildings are not in use. The drought order does not restrict commercial agriculture or industrial use for which license conditions set out procedures for dealing with periods of shortage.

⁴² Order of the State Council No. 460 of 21 February 2006, including Regulations on Water Abstraction Licensing and on the Levy of Water Charges, (Art. 27) reported in Burchi, 2006b.

⁴³ For more details on the issues surrounding water trading and water banking, see WWF (2007, Chapter 3) and Burchi and d'Andrea (2003, p59).

⁴⁴ There is a general understanding that licence periods would be renewed unless special circumstances required a review of the terms.

⁴⁵ See http://www.environment-agency.gov.uk/commondata/acrobat/guide_abstr_final_1142993.pdf. Licenses are not required for the following abstractions: abstraction for any purpose of less than 20 cubic metres a day; some land drainage operations; the filling of vessels (ships or boats) e.g. with drinking or ballast water; with consent for abstraction exceeding 20 cubic metres a day to test for the presence, quantity or quality of water, in underground strata; water used for fire fighting; certain emergency abstractions; those abstractions operating under an exemption order or some other statutory exemption.

⁴⁶ For example, see Rydgren et al., 2006.

⁴⁷ Art. 26, Order of the State Council No 460 of 21 February 2006, Carrying Regulations on Water Abstraction Licensing and on Levying Water Resources Charges.

⁴⁸ In terms of administrative process, the following aspects related to applying for a licensing were described by Burchi and D'Andrea (2005) and need to be covered in subsidiary legislation, i.e., the rules and regulations: filing of an application, recording of applications, review of applications, deciding on applications, formatting of permits, recording of decisions and permits, and appealing from adverse conditions.

⁴⁹ Permissible uses listed in Schedule 1 of the National Water Act include among others: reasonable domestic use, small gardening not for commercial purposes, water of animals within limits, storage and use of runoff from a roof, and emergency use. See http://www.dwaf.gov.za/Documents/Legislature/nw_act/NWA.pdf

⁵⁰ Available: http://www.austlii.edu.au/au/legis/sa/consol_act/nrma2004298/s3.html

⁵¹ Implementing Rules and Regulations made under the Water Code, 11 June 1979.

⁵² Notices should be sent to the *barangay* chairman, municipal secretary, secretary of the legislative body of the province (*Sangguniang Panlalawigan*), Public Works Department of the District or Provincial Irrigation Engineer in addition to regional offices of relevant ministries

⁵³ Viet Nam National Water Resources Strategy—Towards the Year 2020, approved in 2006, Part 3, section 2.

⁵⁴ Article 27 of Water and Water Resources Law, 1996. For small scale diversions, approval of the provincial administration is required whereas for medium scale diversion, approval of the national Government is required.

⁵⁵ Article 62(3)

⁵⁶ National Water Act, Schedule 3.

⁵⁷ See <http://www.tva.gov/>

⁵⁸ See article 24 and Annex V of the Convention on Cooperation for the Protection and Sustainable Use of the Danube River. Available at <http://www.icpdr.org/icpdr-pages/home.htm>

⁵⁹ Capacity may also need strengthening in the technical aspects outside the scope of this Note, including hydrological networks and databases, determining water balance, adapting methodologies for determining environmental flows, sector studies, strategic environmental assessment, etc..

⁶⁰ See also Bruns (2005) p302

⁶¹ The Asia-Pacific Water Forum's Network of Regional Water Knowledge Hubs was launched in Singapore in October 2007 to improve knowledge networking on important topics in the water sector, including on water governance. Network formation was facilitated by the Asian Development Bank and UNESCO-IHE Institute for Water Education. ADB also facilitated the formation of the Asia-Pacific Network of Schools and Institutes of Public Administration and Governance (NAPSIPAG) in 2004.

Annex A3: Water Rights - Country Summaries

I. INDONESIA		
Relevant water related legislation, policy and strategy	Water Resources Law No.7/2004 Government Regulations on Water Resources Management and Water Use Rights (in draft). Presidential Decree on <i>Balai Besar</i> – supersedes Ministry of Public Works Decree 12/PRT/M/2006	
Basic Water Rights:		
Legislated right to basic human needs	Not specifically legislated. State makes ' <i>efforts to guarantee</i> ' a minimum daily amount to fulfill a healthy, clean and productive life. ' <i>Normal daily human needs</i> ' is the first priority together with small-scale farming within existing irrigation systems (Art. 8(1)).	
Customary rights	Yes, provided it is ' <i>not contradictory to national interests and legislative regulations</i> ', Art. 6(2). <i>Balai Besar</i> will register the holder of customary rights under the draft Ministry Regulation on Use of Water Resources Permit.	
Water Use Rights (Allocation):		
Approach to allocating water use rights	Administrative system based on master plans and annual water allocation plans. 2004 Water Law differentiates between ' <i>non-commercial water use right</i> ' and ' <i>commercial water use right</i> '.	
Priority for allocation	Normal daily human needs and small scale irrigation for rice and ' <i>palawija</i> ' only in the existing irrigation systems do not require permits (Art. 8).	
Status of licensing systems (if applicable)	Groundwater licensing is operated by districts. Surface water permit system operated by some provinces under previous law and provincial regulation – not uniform. Regulation for water resources management under the Water Law is in preparation.	
Environmental provision	Not explicit in the Water Resources Law, but stated to be included in forthcoming regulations. The law has a general provision that the function of water resources management covers environmental aspects, among others. (Chapter III Conservation of Water Resources, and other references).	
Water trading	Not permitted.	
Drought provisions	<ul style="list-style-type: none"> • Priority under Water Resources Law accorded to normal daily human needs, together with the small-scale farming in existing irrigation systems. Priorities for other users are decided by the authorized level of government. • Meeting of Provincial Water Resources Committee (PTPA) that discusses drought plans – to be replaced with Basin Water Resources Committee in cross-provincial basins and nationally strategic basins. 	
Organizational set up: (in relation to water rights)	National Water Resources Council; Basin Water Resources Council	(To be established) Policy and coordination
	Directorate General of Water Resources (DGWR under Ministry of Public Works	Policy and strategy development. Oversight of RBOs for strategic and cross-provincial basins. Licensing of water rights in river basins that come under the responsibility of central government.

	<i>Balai and Balai Besars</i> (RBOs)	“In-stream” water management and technical recommendations for issuing license for river basins under central government responsibility, development of strategic basin plan for long, medium and short term.
	Public Corporations (PJT I and PJT II)	Operators. Propose water allocation plans – situation may change once <i>Balai</i> become fully operational.
	Ministry of Environment and provincial, district services	Environmental planning, waste water licensing, pollution control, environmental assessment
	Ministry of Agriculture	Agriculture and plantation land use plan and management
	Ministry of Forestry and provincial, district services	Catchment planning and management of forest
	Provincial and District Water Resources Services	Management of water resources under their jurisdiction (single province or single district) (including licensing of surface water).
	District and City authorities	Licensing and supervising groundwater use.
	Provincial and District Administrations	Issue of development licenses (urban, commercial, industrial)
Provisions for participation / consultation:	National, Basin, Provincial Water Resources Committees with balanced non-government representation. Other details to be included in new regulations under preparation.	
Issues raised related to water rights and allocation:	<p>Institutional issues:</p> <ul style="list-style-type: none"> • Coordination problems related to sharing roles and responsibilities at national and local level – holding up implementation of the Water Resources Law. • Implementing regulations not yet complete • Separate organizational responsibility for surface and ground water regulation and lack of coordination. • Lack of coordination between spatial planning and water resources planning processes • Insufficient cost recovery from commercial users. Non-commercial users are subsidized but budget allocations insufficient to cover cost. • Insufficient human resources <p>Context-specific issues:</p> <ul style="list-style-type: none"> • Lack of adequate hydrological data and water resources industry capacity • Rapid urban development and industrialization in former agricultural areas – leads to conflict between commercial and non-commercial uses. • Users concerned there is no guarantee from Government on delivery of agreed bulk supplies nor compensation for any losses incurred. 	

II. JAPAN	
Relevant water related legislation, policy and strategy	1964 The River Law (No. 167 of 1964) 1997 Amendment of the River Law
Basic Water Rights:	
Legislated right to basic human needs	The River Law does not have provision on rights to basic human needs. The Waterworks Law stipulates that a water supply utility (usually run by local governments) cannot deny supplying drinking water for residents without any due reasons.
Customary rights	Mainly relate to traditional irrigation use which is considered as “first in right, first in time”.
Water Use Rights (Allocation):	
Approach to allocating water use rights	Permit system. Traditional users have permanent right. The term of water permit is usually 10 years, but 30 years in the case of hydropower water use. For Class A rivers, the Ministry of Land, Infrastructure and Transport issues permits. For Class B rivers, the concerned local governments issue permits.
Priority for allocation	Generally, prior water uses have priority over newer water use (first in time, first in rights). However, this priority rule is often adjusted during drought when water users consult with each other to decide how to allocate water (such as water intake restriction).
Status of licensing systems (if applicable)	Introduced in 1964 under The River Law. Fully functioning.
Environmental provision	<ul style="list-style-type: none"> The aim of The River Law is preserving the river environment as well as flood control and water utilization (Art 1). “<i>The amount for maintaining normal river function</i>” is decided in every river system, considering the needs of transportation, fishery, tourism, preservation of cleanliness of water, prevention of salt damage, prevention of occlusion of estuary, protection of river administration facility, maintenance of ground water level, scenery, the situation of inhabitation/habitats of animals and plants etc. The concept of ‘<i>maintaining normal river function</i>’ incorporates aspects of an ‘environmental flow’.
Water trading	No provision.
Drought provisions	The River Law has some provisions for drought conciliation (Art 53 and 53-2). In the case of severe drought, (i) firstly, water users consult with one another voluntarily for drought conciliation, and (ii) the river administrator may make necessary intervention or arbitration in case no agreement is reached in the voluntary consultation. “Drought Conciliation Councils” have been established in some river basins to facilitate consultations among users.
Organizational set up: (in relation to water rights)	Prime Minister Before the National Sector Reform in 2001, the Prime Minister made the final decisions on comprehensive water resources development plan for 7 river systems (Tone, Ara, Toyogawa, Kiso, Yodo, Yoshino, Chikugo)

	<p>Ministry of Land, Infrastructure and Transport (MLIT)</p>	<p>(i) Conducting river administration for Class A river systems including</p> <ul style="list-style-type: none"> • issuing permission for river water use • having responsibility to design, construct and manage multiple-purpose reservoirs <p>(ii) Since 2001, developing and approving comprehensive water resources development plan for 7 river systems (Tone, Ara, Toyogawa, Kiso, Yodo, Yoshino, Chikugo).</p>
	<p>Ministry of Agriculture, Forestry and Fisheries (MAFF)</p>	<p>(i) Conducting policy and administration of irrigation, including:</p> <ul style="list-style-type: none"> • responsibility to design, construct and manage large scale irrigation canal systems • controlling Land Improvement Districts <p>(ii) Providing comment to MLIT on water permit applications in Class A river systems</p>
	<p>Ministry of Health, Labor and Welfare (MHLW)</p>	<p>(i) Conducting policy and administration of drinking water supply (not in charge of construction and O&M of water supply facilities)</p> <p>(ii) Providing comment to MLIT on water permit applications in Class A river systems</p>
	<p>Ministry of Economic, Trade and Industry (METI)</p>	<p>(i) Conducting policy and administration of industrial water supply and hydropower generation (not in charge of construction and O&M of industrial water supply facilities or hydropower generation plant)</p> <p>(ii) Providing comment to MLIT on water permit applications in Class A river systems</p>
	<p>Prefectures (Primary Local Government)</p>	<p>(i) Conducting river administration for Class B river systems including issuing permission for river water use</p> <p>(ii) Supplying drinking water and industrial water as river water user</p> <p>(iii) Providing comment to MLIT on water permit applications in Class A river systems</p> <p>(iv) Designing, constructing and managing medium-scale irrigation canal systems (O&M of the canals are often turned over to concerned Land Improvement Districts)</p>
	<p>Municipalities, town, village (Secondary Local Governments)</p>	<p>(i) Supplying drinking water and industrial water as a river water user</p> <p>(ii) Designing, constructing and managing medium- to small-scale irrigation canal systems (O&M of the canals are often turned over to concerned Land Improvement Districts)</p>
	<p>Japan Water Agency (JWA)</p>	<p>(i) Designing, constructing and managing multi-purpose reservoirs in 7 river systems (Tone, Ara, Toyogawa, Kiso, Yodo, Yoshino, Chikugo) under the supervision of MLIT</p> <p>(ii) Designing, constructing and managing canal systems in same 7 river systems under the supervision of MLIT, MAFF, MHLW, or METI</p>

	Land Improvement District (LID)	LID is a type of water user association composed of irrigators - in charge of O&M of irrigation canals as a river water user.
	Electric Power Company	Designing, constructing and managing reservoirs and other facilities for hydropower generation as a river water user
Provisions for participation / consultation:	The "Drought Conciliation Council" is a typical example of a participatory process relating to the water rights system. They are composed of the river administrator, water users, local government, and administrative agencies concerned for each river and act as a forum for mutual consultation among the water users.	
Issues raised related to water rights and allocation:	<p>Institutional issues: (N/A)</p> <p>Context-specific issues: There is a long-term trend of climate change in Japan in which the annual average temperature has increased by approximately 1 degree centigrade over the last 100 years. Concerning precipitation, there have been numerous low rainfall years since 1970 and precipitation was below average in 1973, 1978, 1984, 1994 and 1996, when water shortages led to losses. Recently a trend of fluctuation between extremely low rainfall and extremely high rainfall has been observed, and especially the trend of little precipitation in low rainfall year has been remarkable. Due to the decline in rainfall in recent years, securing stable water supply throughout the country has been a key focus.</p>	

III. LAO PDR	
Relevant water related legislation, policy and strategy	1996 Water and Water Resources Law (No. 126/PDR) 1999 Mandate of the Water Resources Coordination Committee, PM Decree No. 09/PM 2001 Decree on Implementation of the Water and Water Resources Law 2007 Establishment of the Water Resources and Environment Administration
Basic Water Rights:	
Legislated water rights	No legislated priority. Small scale use (family domestic use and community requirement), cultural use and sport; fishing, fisheries and other water life; soil, sand gravel, aquatic needs situated in or nearby the water resource; basic agriculture, forestry and livestock production needs of the family. (Art.15)
Customary rights	Not explicitly recognized in the water law . The Constitution (1991) recognizes the unity and equality of ethnic groups in the political process and protects their rights to preserve and improve their unique traditions and culture.
Water Use Rights (Allocation):	
Approach to allocating water use rights	Administrative allocation on project by project basis e.g. hydropower concessions. Medium and large scale uses need to seek permission, (Art. 18). Large scale use approved by Government and medium scale use by the concerned ministry (Art.19)
Priority for allocation	No priorities specified except for drought - see below. Use of groundwater must be reserved for drinking purposes (Art. 13).
Status of licensing systems (if applicable)	None

Environmental provision	Preservation of the environment and scenic beauty (Art. 22(ii)). Protect water resources from drying up (Art.29)	
Water trading	No.	
Drought provisions	Not a major issue for Lao PDR. Priority is: <ul style="list-style-type: none"> • Drinking and domestic users • Hydropower • Agriculture 	
Organizational set up: (in relation to water rights)	Water Resources Coordinating Committee (WRCC)	Inter-agency coordination and formulation of national policy
	Water Resources and Environment Agency (WREA)	Formed in 2007 combining the WRCC Secretariat, Lao National Mekong Committee and Environment Agency responsible for national water resources management and cross-sectoral coordination
	Ministry of Agriculture and Fisheries (MAF)	Responsible for water resources in agriculture
	Ministry of Communications, Transport, (MCTPC)	Responsible for water resources related to communications, transportation, urban water supply, and control of flooding
	Ministry of Mines and Energy (MME)	Responsible for planning and implementation of hydropower and mining operations including negotiating concession agreements with private developers..
	Electricity of Laos (EdL)	Responsible for developing and operating some government owned hydropower projects
	Lao Holding State Enterprise (LHSE)	State owned enterprise as equity partner private sector hydropower projects.
	Ministry of Industry and Commerce	Responsible for planning of industrial development
	River Basin Committee (RBC)	Plans to establish RBCs although no legal foundation. Draft decree has been prepared
Provisions for participation / consultation:	No explicit provisions	
Issues raised related to water rights and allocation:	Institutional issues: <ul style="list-style-type: none"> • Lack of clarity on authority for water rights allocation • Lack of secondary legislation • Fragmented management of water resources - lack of integration across sectors Context-specific issues: <ul style="list-style-type: none"> • No integrated basin planning • Limited coordination between private sector hydropower developers in same basin or with mining operations 	

IV. PHILIPPINES		
Relevant water related legislation, policy and strategy	1976 Water Code (PD1067) 1991 Local Government Code RA 7160 Indigenous Peoples Rights Act (IPRA) RA 8371 Clean Water Act RA 9275 1983 Executive Order 927 (relating to the mandate of LLDA over the Laguna Lake) Permit Implementing Regulations are in para. k, Sec.4 of RA 4850	
Basic Water Rights:		
Legislated right to basic human needs	No legislated right. Hand carried water, bathing, washing and watering of animals are exempt from permit requirement [Art. 14, Water Code]	
Customary rights	Not explicitly related to customary use in the Water Code, but concept of existing water right is included [Art.22] and protection of third persons [Art. 23] is incorporated. Existing uses had to be registered within two years of the Water Code to ensure such rights continue. The Indigenous Peoples Act protects access to natural resources [Sec.7, para. b and f, RA8371]	
Water Use Rights (Allocation):		
Approach to allocating water use rights	Water rights recognized and Water Code introduced a permitting system.	
Priority for allocation	Prior use has priority – ' <i>priority in time</i> ', (Art. 22, Water Code). Where priority of time in an existing use is not clear, then priority accorded to: domestic and municipal, irrigation; power generation; fisheries, livestock, industrial use and others. Each basin has its own rules for allocation during drought.	
Status of licensing systems (if applicable)	Licensing system under NWRB with detailed provisions in implementing rules. Estimates that only 35% of water users are subject to permit	
Environmental provision	Policy requires a 10% minimum flow [Board Res. # 01-0901, Sept.24,2001]. Water Code requires ecological concerns to be addressed, [Art.72-73]. Groundwater and surface water to be considered to avoid adverse consequences resulting from allocation of a water right [Art.32].	
Water trading	Yes – lent or transferred with approval of Council [NWRB]. (Art. 19, Water Code).	
Drought provisions	<ul style="list-style-type: none"> • Generally priority given according to the time that right was established – '<i>first in right, first in time</i>'. • In emergencies, priority for domestic and municipal uses, (Art. 22, Water Code) • Water Crisis Management Committee established for monitoring 	
Organizational set up: (in relation to water rights)	National Water Resources Board (NWRB)	Coordinating body among water-related agencies with responsibility for water resources management
	National Economic Development Authority (NEDA)	Coordinates development planning and policy formulation
	Dept. of Environment and Natural Resources (DENR)	Responsible for sustainable development of natural resources and ecosystems
	National Irrigation Administration (NIA)	Development and operation of public irrigation systems
	12 RBOs to be formed under NWRB	Mandate for new RBOs being considered

	Laguna Lake Development Authority (LLDA)	Responsible for developing and promoting balanced growth of Laguna Lake, including issuing water rights for aquaculture purpose; and for domestic and commercial uses.
Provisions for participation / consultation:	Procedures to publicize license applications and provide opportunity for objections (Art. 16, Water Code). Technical working groups established for representation of stakeholders in multi-purpose dam projects.	
Issues raised related to water rights and allocation:	Institutional issues: <ul style="list-style-type: none"> • Limited linkage between spatial planning and water resources planning • Limited resources in licensing body Context-specific issues: <ul style="list-style-type: none"> • Only 35% of uses are licensed • Illegal abstractions • Competing use among irrigation, urban water and hydropower – conflict over allocation decisions and lack of compensation 	

V. SRI LANKA	
Relevant water related legislation, policy and strategy	State Land Ordinance, 1947; Irrigation Ordinance, 1946 Mahaweli Authority of Sri Lanka Act, No. 23, 1978 Agrarian Services Act, revised 2000 Central Environment Authority Act, No. 47 of 1980 Urban Development Act, No. 70 of 1979 Local Government Act, No. 38 of 1978; Disaster Management Act, 2005
Basic Water Rights:	
Legislated right to basic human needs	Not explicit in water related legislation. Being considered in the process of developing new provisions.
Customary rights	Not in water related legislation. Customary rights exist and are generally recognized in practice (e.g. water use rights in the ancient reservoirs (or 'tanks')).
Water Use Rights (Allocation):	
Approach to allocating water use rights	Administrative procedures involving seasonal operating plans and discussion among key stakeholders. Once agreement is reached, it is formalized in a seasonal pattern of water releases and recognized as an entitlement.
Priority for allocation	None explicitly stated but in practice water for drinking and domestic use takes precedence over other uses; followed by agriculture and hydropower respectively.
Status of licensing systems	None.
Environmental provision	There is no provision under the Environment Act or any other Act in Sri Lanka but it is being considered in the process of developing new provisions. At present, average dry weather flow is released in streams/rivers as minimum environmental flow and for environmental protection.
Water trading	No
Drought provisions	No preset priorities. In Mahaweli areas, a water panel of water users is established under the MASL. In non-Mahaweli areas consultation for irrigation systems is undertaken by the District Government Agent with the Project Management Committee and water users. Requirements of non-irrigation uses are also discussed and addressed in these water

	panel meetings and committees. Pertinent provisions under the Disaster Management Act of 2005	
Organizational set up: (in relation to water rights)	Mahaweli Authority of Sri Lanka	Responsible for all Mahaweli areas, as provisions of the Mahaweli Authority Act No. 23 of 1978.
	Irrigation Department	Planning, design and operation of irrigation systems in non-Mahaweli areas including implementation of water restrictions during drought conditions
	District Administrator	Responsible for all non-Mahaweli areas.
Provisions for participation / consultation:	See section on drought provisions. Same water allocation mechanism is used to consider water demands for other sectors (e.g. industry and bulk urban supplies) during drought periods.	
Issues raised related to water rights and allocation:	<p>Institutional issues:</p> <ul style="list-style-type: none"> • Large number of water institutions with limited coordination • Enforcement of existing laws is a problem. Need to revise and consolidate legislation • Not well defined priorities resulting to cross-sector issues <p>Context-specific issues:</p> <ul style="list-style-type: none"> • Water quality concerns, particularly for groundwater • Increasing competition for surface water from expanding urban areas • Overall National Water Resources Master Plan that integrates sectoral plans has only just been completed. • No incentive to save water or increase irrigation efficiency • Poor implementation and enforcement of existing laws 	

VI. THAILAND	
Relevant water related legislation, policy and strategy	1925, Civil and Commercial Code 1939, Private Irrigation Act 1942, Royal Irrigation Act 1977, Groundwater Act 2005, Draft Water Resources Act (prepared for consideration by Parliament)
Basic Water Rights:	
Legislated right to basic human needs	No legislated right of access. Draft Water Law recognizes three water classes (see below) and priorities of which small scale uses do not require a license.
Customary rights	Not in water related legislation.
Water Use Rights (Allocation):	
Approach to allocating water use rights	Currently a mixture of common access and administrative allocation through project or province. Everyone has an equal right to compete for water provided it doesn't impinge on others. Article 7 of the draft Water Law embodies the principle of 'no harm' for sanctioned uses. Licensing system would be established under Draft Water Resources Act. Groundwater use requires a permit.
Priority for allocation	Definition of three categories implies a priority of use (Art.10, draft Water Resources Act): 1. living and household related uses 2. commercial agriculture, industry, hydropower etc, 3. larger or inter-basin use.
Status of licensing systems	None for surface water.

(if applicable)	Groundwater use needs a permit.	
Environmental provision	No formal requirement. Case by case decisions on water releases from reservoirs. The Minister can stop water use if it causes damage to environment. The NWRC and river basin committees can allocate water for the environment.	
Water trading	Not for surface water. Groundwater permit is transferable.	
Drought provisions	<p>In dry season only, priority under draft Water Resources Act is:</p> <ul style="list-style-type: none"> • Water supply in city and community including domestic consumption and industry • agriculture using limited water • salinity control • second rice crop • water transport and sailing boats <p>In agriculture, priority is:</p> <ul style="list-style-type: none"> • marine animals and fish ponds • vegetable and fruit gardens • field crops • dry season paddy rice 	
Organizational set up: (in relation to water rights)	National Water Resources Committee (NWRC)	Coordination across water agencies
	Prime Minister's Office of National Economic and Social Development Board	Responsible for including water in national development plans
	Ministry of Natural Resources and Environment (MONRE)	Dept of Water Resources: Setting policy and plans for national and river basin management, monitoring. Dept of Groundwater: permits for groundwater use Dept. of Pollution Control: setting stream and effluent standards and monitoring
	Ministry of Water Transportation and Marine	Responsibility for granting permission for water use from a natural river.
	Royal Irrigation Departments of Ministry of Agriculture and Cooperatives	Responsible for providing water for agriculture and operating reservoirs and for sanctioning water from irrigation projects to other users (municipal, industrial)
	Electricity Generating Authority of Thailand (EGAT)	Development and operation of hydropower projects
	29 River Basin Committees	Body of stakeholders. Now consulted on a request to use natural surface water
Provisions for participation / consultation:	Basin committees established and consulted. Limited procedures for wider outreach. The composition of the basin committees is determined by the NWRC, and varies from one basin to another. Confirming the move towards decentralized water resources management, the Draft Water Resources Act sets out the functions of the RBCs, sub River Basin Committees and Water User Associations.	
Issues raised related to water rights and allocation:	<p>Institutional issues:</p> <ul style="list-style-type: none"> • Regulation of surface water is not currently undertaken by government agencies. Conflicts taken to court. • Lack of explicit policy, legal and institutional framework in basin areas 	

	<ul style="list-style-type: none"> • Coordination of RB Committees in cases where they are sub-basins of a larger river basin (e.g. Chao Praya) <p>Context-specific issues:</p> <ul style="list-style-type: none"> • Increasing competition for water • Deteriorating water quality • Civil society opposition to large scale water infrastructure • Over-abstraction of groundwater in Bangkok
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VII. VIETNAM		
Relevant water related legislation, policy and strategy	1998 Law on Water Resources (LWR) No.08/1998/QH10 2003 Decree No. 86/2003/ND/CP on river basin management 2004 Decree on Licensing 149/2004/ND-CP 2006 National Water Resources Strategy (Prime Minister's Decision 81/2006/QĐ-TTg dated 14 April 2006)	
Basic Water Rights:		
Legislated right to basic human needs	No absolute right defined for any water use.	
Customary rights	Not explicitly recognized under the Law on Water Resources.	
Water Use Rights (Allocation):		
Approach to allocating water use rights	Mixture of 'explicit' licensing system and administrative allocation on project basis (e.g. irrigation)	
Priority for allocation	Ensure principle of equality, appropriateness and prioritization order in terms of quantity and quality of domestic water, (Art. 20, LWR) <i>'Water exploitation and utilization for domestic consumption is given the first priority' – (Art. 22, LWR)</i>	
Status of licensing systems (if applicable)	Gradually being implemented. MoNRE is licensing authority at national level. Depending on the scale of the project, Provincial Peoples Committees at provincial level. RBOs play an advisory role in the planning process. Licenses required for major government developments and private sector operations. License period: 20 years for surface water; and 15 years for groundwater	
Environmental provision	Not in legislation. Ensuring minimum ecological flows is a requirement of the National Water Resources Strategy (Pt. 2 s.2.2(a)(2) and Pt.3 s1.1(d))	
Water trading	Not permitted under the Law on Water Resources.	
Drought provisions	Priority uses are stipulated in Art. 20, LWR Decree No. 179/1999/ND-CP gives following priority during drought: <ul style="list-style-type: none"> • Daily life • Water for cattle and poultry rearing and aquatic and marine product culture • Important industrial establishments and scientific research institutions • Food security and crops of high economic value • Other water exploitation and use purposes 	
Organizational set up: (in relation to water rights)	National Council on Water Resources	Policy development and inter-ministerial coordination
	Ministry of Natural Resources and Environment (MONRE)	Responsible for water resources management at national level and licensing transferred to MONRE from MARD in 2002

	Ministry of Agriculture and Rural Development (MARD)	Responsible for irrigation development and flood management. Also retained responsibility for river basin management although this was recently transferred to MONRE under PM Decision.
	Provincial Departments of Natural Resources and Environment (DONRE)	Responsible for advising PPC on water licensing.
	River Basin Organizations	Future role in water resources planning but not yet effective.
	Provincial Peoples Committees	Responsible for water licensing
	Electricity of Vietnam, Ministry of Industry	Development of Hydropower projects
	Electricity Regulatory Authority of Vietnam	Established in 2005 to regulates the electricity market and activities including hydropower
Provisions for participation / consultation:	Mainly through the formal political and administrative structures at provincial, district and commune levels. 'Councils for consideration of water use application formed'.	
Issues raised related to water rights and allocation:	<p>Institutional issues:</p> <ul style="list-style-type: none"> • Lack of secondary legislation and technical guidance for implementing allocation of water rights • Low levels of coordination among organizations • Institutional uncertainty for river basin management • Water law currently being updated <p>Context-specific issues:</p> <ul style="list-style-type: none"> • Deteriorating water quality affecting water availability. • Increasing competition for water due to economic growth and increase in per capita consumption • Increasing importance of cooperation on international rivers and on inter-provincial distribution for irrigation • Increasing prevalence of natural disasters 	

ANNEX A4:

**Participants of the NARBO Workshop on Water Rights
ADB Headquarters, Manila
29–31 May 2007**

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Workshop 1: Hanoi, Viet Nam, 5-9 December 2005

Outcome: Water rights and allocation issues, identified, shared, and confirmed

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Workshop 2: Quezon City, Philippines, 5–9 June 2006
 Outcome: Causes of water rights and allocation issues analyzed

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4	Ms. Emmie L. Ruales	Philippines	Policy and Program Division, National Water Resources Board	Project Development officer III
5	Mr. Virgilio dela Cruz	Philippines	Agusan River Basin Project, DENR	Chair, Technical Working Group
6	Atty. Eduardo L. Torres	Philippines	Legal Division	Division Chief
7	Ms. Jacqueline N. Davo	Philippines	Lake Management Division	Officer-in-Charge
8	Mr. Cesar R. Quintos	Philippines	Project Planning and development Division	Officer-In-Charge
9	Ms. Alicia E. Bongoo	Philippines	Integrated Water Resources Management Division	Division Chief

Workshop 3: Bangkok, Thailand, 27 November - 1 December 2006

Outcome: Results of first and second workshops reviewed; and approaches to improvement identified

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Workshop 4: Saitama Japan, 22-27 January 2007

Outcome: Action plan to address water rights and allocation issues drafted

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What is NARBO?

NARBO is the Network of Asian River Basin Organizations. Announced at the 3rd World Water Forum in March 2003, NARBO was officially established in February 2004 to promote integrated water resources management (IWRM) in monsoon areas of Asia.

The goal of NARBO is to help achieve IWRM in river basins throughout Asia. The objective of NARBO is to strengthen the capacity and effectiveness of RBOs in promoting IWRM and improving water governance, through training and exchange of information and experiences among RBOs and their associated water sector agencies and knowledge partner organizations.

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