Rule

Reforming water governance

IUCN

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Water & Nature Initiative

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Key messages

1. Creating Water Governance Capacity

Effective reform depends on water governance capacity
In most countries, policies and laws related to water management have accumulated over time deriving from different philosophies and approaches, and have never been reconciled. Reforming policies and laws into a cohesive package is a difficult and time-consuming task, which depends on political will and opportunities, on leadership, and on a country's capacity to govern its waters.

Water governance capacity is a means to an end
Water governance capacity reflects a society's level of competence to implement effective water arrangements through policies, laws, institutions, regulations, and compliance mechanisms. Without a clear policy, it is difficult to develop a coherent system of laws. Without a clear established legal structure, it is difficult for institutions to know how to operate. Without effective institutions, compliance and enforcement are likely to be lax.

Balanced water governance capacity is the key to providing effective water management
A country needs to develop each of the components of water governance capacity – policy, law, institutions (and implement them) to achieve a system of effective water governance. There is no blueprint solution. Achieving a balance of capacity (rather than areas of strengths and weaknesses) through reform is a country-specific process.

2. Linking Policies to Realities

Water policy should be based on a vision and strategic planning
It can be helpful to set out goals or principles for water policy in advance of actually determining the policy. A written water policy might contain a background section explaining the need for the policy, a statement of purpose, a vision statement, a statement of scope, a set of definitions, an effective date, one or more statements of policy, and a section on responsibilities regarding who will carry out the policies.

Water policy framework is consolidated by water law
For water management to be compelling over time, it needs a policy that defines principles, actors and processes. These can then be moved to an enforceable set of decision-making requirements through the law.

Understanding water policy arrangements is essential for a successful reform
Not all policy arrangements are suited to every water management situation. Understanding which water issue can be best solved with which type of policy arrangement is key for successful water

reform. An authoritative policy is usually linked to macro projects dealing with national security or economic development. A pluralistic-liberal approach works best with parties that are closely linked to a specific geographic area such as a river basin, whereas a decentralized-communitarian water policy is suitable for periods of change and innovation.

3. Transforming Policy into Law

Good water laws provide a structure for effective water management
Laws should form the backbone of Integrated Water Resource Management (IWRM). Well drafted laws offer predictability, and a precise yet flexible structure through which obligations are laid down, with rights which can be enforced and protected.

The water legal system must be coherent at all levels
National water legislation must reflect national policy as well as the commitments made by States under international agreements on rivers, lakes and ground waters. It must set out the coordination mechanisms across sub-national boundaries and jurisdictions.

A modern legal regime for water is comprehensive and includes efficiency, equity and sustainability considerations
A unified code of water law must establish water rights and fair allocations, protect water quality for human and ecosystem uses as defined by water policy, and set up an institutional water management structure.

Codification promotes legal certainty and increases efficiency
A unified code for water expresses a decisive political commitment. Consolidation promotes a more effective legal structure by avoiding the trouble of issues being overlooked, and the complications and confusions of having to navigate through numerous and often inconsistent pieces of legislation.

4. Building a Sound Institutional Mechanism

Well set-up river basin institutions are key for national water management
In order to coordinate upstream-downstream water allocations and uses, and to maintain healthy ecosystems throughout the watershed, it is necessary to work at the river basin level. When setting up a river basin institution, a clear mandate, a long-term strategy, and a clear organizational structure must be established.

Coordination rather than merely decentralization
The critical issue is not to centralize or decentralize institutions, but to coordinate the work of a multiplicity of them with jurisdiction over different water management sectors, following a common vision and plan.

Public engagement in water management enhances water governance
Civil society participation helps to create networks of arrangements for water management, generate trust and empowerment among stakeholders, and create respect and support for water decision making. Participation is the basis for commitment to, and coherence in, implementation of effective water governance.

What cannot be privatized
The stewardship function of water management cannot be privatized. Thus, policy-making and bargaining processes, legislation, decentralization, institutional management of government agencies and regulatory functions must remain public responsibilities.

5. Implementing Water Governance Capacity

Water Governance Capacity must be enabled
A country's Water Governance Capacity (WGC) can be properly displayed in an enabling environment characterized by transparency, certainty, accountability and the lack of corruption.

Economic instruments provide an alternative mechanism for effective compliance
Compliance with, and enforcement of, water law can be enhanced using regulations to establish appropriate incentive mechanisms that support and enable compliance by stakeholders. Incentive mechanisms include taxation, subsidies, and payment schemes for watershed services.

Enforcement mechanisms ensure stakeholder security in cases of non-compliance
Inclusion of enforcement mechanisms in the water law (punitive sanctions, prior notice and abatement measures, monitoring and inspection) ensures that justice can be reached when a contravention of the water law occurs.

An efficient judicial system is a key reinforcement for implementing water governance
Effective enforcement of water legislation is rendered by properly funded and resourced administrative mechanisms overseen by accessible and affordable judicial systems.

Building Water Governance Capacity is an ongoing socio-political process
Improving a country's water governance capacity does not end with the adoption of a new policy or the enactment of a new law. Decision makers and water managers should assess the capacity of the administration to internalize and to act to implement the reform, and plan the necessary upgrades ahead of the adoption of new rules.

Preface

Water is essential for life. Where it is used poorly, or where pollution leaves it useless, good health and prosperity are lost. Ensuring that use of water is equitable and sustainable is therefore a fundamental challenge of development and one that is ever more urgent as growth increases our demand for water. Our thirst for water is seemingly unquenchable. However, our common duty to safeguard water resources remains – for all peoples, for future generations, and for the continuing survival of the natural world that sustains us.

Many of our citizens are suffering because they lack access to clean water, as a result of problems faced by our national water systems. It is essential therefore that water reform processes are enacted, to ensure we can confront the water challenges of the present, while building a future that is sustainable.

This book is a call for States to look carefully at their water resources management and their governance mechanisms for water. This guide encourages, and gives clear guidance, on how governments can improve their water governance capacity by means of enhancing the equilibrium between water policies, laws and institutions.

RULE is an excellent starting point and reference for those interested in conceptualizing and implementing improved and strengthened water management mechanism. All water professionals as well as governments and civil society are encouraged to work together to promote better water management systems. In this way we can make a contribution towards facing the many challenges that we have in the sustainable use of our planet's resources.

It is my great pleasure to present this book to you, in the hope that it will encourage greater efforts towards effective water governance – and thus, more sustainable future.

Alvaro Colom Caballeros
Presidente de la República de Guatemala

Foreword

Sustainable water management today is a pillar of social and economic development. Success requires the restructuring of national, legal and institutional frameworks to ensure they are appropriate for a new paradigm in water resources management. National water sector reforms are subject to processes in reaching agreement that require the active participation of water stakeholders, who increasingly demand accountability from politicians and decision makers in the management of water resources.

Effective legal frameworks are fundamental to achieving Integrated Water Resources Management (IWRM), with institutions capable of ensuring compliance with the law. Building water governance capacity should also be a means of improving social equity. Any reform of the law aiming to promote responsible ecosystem management is shaped by these requirements.

It is therefore important to highlight and learn from the efforts that States have made to develop their legal frameworks and to adapt them to environmental requirements. Delivering the institutional structures necessary to implement IWRM is an ongoing endeavour. Through modern and flexible legislation and efficient legal and institutional regimes, governments can greatly strengthen their water governance capacity, and therefore sustainable water management. The principles of public participation, social equity, the right to water, safeguarding human health, and sustainable ecosystems are keys to the construction of new water law.

A legal IWRM framework has to be comprehensive enough to reach and rule water use in other sectors that need water for their operations like sanitation, irrigation or energy, in order to guarantee good water practice making sustainability a common practice.

This book recommends a process of reform beginning with a 'vision for the future' that results in increased water security. It outlines the necessary steps towards reform of water governance and the enabling environment required for its implementation. Water is fundamental for life and therefore its wise use and regulation, which affects us all, must be seen as a social duty.

States must be encouraged to take all the necessary measures to guarantee access to water for all, whilst also providing for future generations and thus enabling development with a secure water future.

This book suggests a series of steps for reforming water governance, with examples of success stories from around the world. Through the clear guidance outlined in this book, it is hoped that all water professionals, decision makers and users will gain a deeper understanding of the legal and institutional solutions needed in the quest for sustainable and equitable water resources management.

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Chapter 1

Creating Water Governance Capacity

1.1 Managing water effectively

How a country manages its water resources determines the health of its people, the success of its economy, the sustainability of its natural environment, and its relations with its neighbours. Good water management can provide clean drinking water and sanitation, the basics of good health, while poor water management can increase disease and suffering. Good water management can bring hydroelectric power to homes and industry, irrigation for agriculture, and improve the economy, while poor management can mean lack of power, desiccated crops, floods and famine. Good water management allows water for wildlife to maintain biodiversity, and provides opportunities for recreation and tourism, while poor management can result in parched ground, dried-up lakes and silted harbours. Good water management can result in harmonious and mutually beneficial water agreements with neighbouring countries, while bad management can trigger tensions and conflict.

In short, good water management brings tangible benefits to a country. Case 1.1 demonstrates an example of the benefits brought by improved management of water, whilst Case 1.2 shows the detrimental consequences of poor water management.

Case 1.1 Benefits of good water management in Dar es Salaam[1]

In the Kitunda Settlement of Dar es Salaam's Ilala District, in Tanzania, a community-managed water supply system changed the lives and work of the Kitunda community.

Apart from providing water to the surrounding four schools and a local health centre, the project has led to a dramatic improvement in hygiene, virtually eliminated waterborne diseases, and made it possible for people who previously spent time and energy looking for water to engage in more constructive economic activities.

Before the project's implementation, the people of Kitunda had to buy water from mostly shallow, privately-owned boreholes and from private vendors, which was of poor quality and a high price. Before the project started, private vendors sold water at prices upwards of TSh500 or US$0.40 cents for 20 litres, a prohibitive amount for much of the population.

Today, everyone in this community enjoys reliable, affordable clean water paying only Tsh20 or about US$0.02 cents for 20 litres of water, according to the Chairman of the Biblia Relini Water Users' Association, commonly known as JUWABERI, the group that manages the project. JUWABERI manages the water supply project on behalf of the state-owned water utility, the Dar es Salaam Water and Sewage Authority (DAWASA). The association, which boasts 340 members, employs 20 people who manage the revenues and administer the public standpipes. The project is a successful example of a community managing its own water provision and subsequent income. Members of the community contributed TSh2.5 million (about US$2,000), about 5 percent of the total cost of the project.

Case 1.2 Detrimental consequences of poor water management [2]

The costs of environmental and health degradation due to inadequate water and sanitation services have been estimated at more than 1 percent of GDP in Colombia, 0.6 percent in Tunisia, and 1.4 percent in Bangladesh. According to the World Bank Water and Sanitation Program (WSP), poor sanitation is responsible for at least

US$9 billion in economic losses per year in Cambodia, Indonesia, the Philippines and Viet Nam combined.
Sanitation is a neglected aspect of development in countries where spending is limited which has severe social consequences on their populations. The most devastating impact of poor sanitation is an increased risk of infectious disease and premature death, accounting for more than US$4.8 billion, or US$12 per capita annually, according to WSP.
Poor sanitation also contributes significantly to water pollution – adding to the cost of safe fresh water for households, and reducing the production of fish in rivers and lakes.

Water managers understand the increasing stress placed on fresh water sources by growing populations, growing demands of industry and agriculture, and the uncertain effects of climate change. Innovative water managers, from professionals with a national water authority to local managers who oversee dams or hydro plants, can do much to ensure that water is carefully managed. However, even their best efforts can be thwarted by the lack of a comprehensive legal and policy framework that levels the playing field, clarifies the rules, and sets a country on the route to good management.

RULE focuses on the importance of national policy and laws in effective water management. Policy and law, although usually in the background of development, and not always directly discussed in the context of good management practices, provide the skeleton that is fleshed out by institutions and management practices. Policy and law, when combined with institutions, implementation, and enforcement mechanisms, constitute a country's 'water governance capacity'.

Photo 1.1 Women collecting water from a canal (Tanzania). Water governance capacity is about building a management system that delivers tangible results for ecosystems and human wellbeing.

RULE provides practical guidance on how to create a system of effective water governance at the national level. It seeks to serve as a guide on how to shift away from often fractured and uncoordinated approaches by establishing a central role for policy and the rule of law. With coordinated laws, policies and institutions, many issues that are presently problematic for local managers can be addressed.

Laws, policies, institutional arrangements, and implementation and enforcement methods from many countries are analyzed and guidelines developed for reforming water governance structure. Of course, there are many varieties of successful laws and policies that suit countries with different traditions and forms of government. Thus, an attempt is made to match policies to certain governmental situations (see Chapter 2).

Water governance is a means to an end, which is good water management. Good water management can be characterized as:

Efficient: It maximizes the use of water resources under rational patterns of consumption that can benefit most consumers, taking into account not only the water, but also other resources, including social and human capital.

Equitable: Both benefits and costs are shared and a transparent process is used to arrive at societal decisions applied to water management.

Sustainable: Water management supports the ability of a society to endure over time without undermining the integrity of the hydrological cycle or the ecosystems that depend on it.

1.1.1 Brief history of water management

Water management dates to ancient times when stone rows and ditches were used for irrigation and later aqueducts were built to carry water to cities. For most of human history, the purpose of water management was to bring water to where it could be used for drinking, washing, power and irrigation. Water management was also used to even out the fluctuations of flood and drought by storing water and to carry away waste. However, as human numbers grew and as society developed ever more water-demanding forms of industry and agriculture, users began competing for water with each other and with the natural world. Today, water management means not only delivering water services, but doing so in a way that balances the competing interests of individuals, industry, agriculture and wildlife. It also maintains good relations between all the users who share water resources and develops systems that will accommodate future generations.

Large-scale industrial-age water projects like the Tennessee Valley Authority in the United States, the Aswan Dam in Egypt and the Ilisu Dam in Turkey produced astounding economic development in the areas they served. Such development of water resources has also had negative effects including flooding of populated, productive valleys and forcing the relocation of thousands of people. Reservoirs became silted up with the result that natural replenishment of soil fertility was withheld from downstream crops.

Since the early 1990s, triggered by the growing scarcity of clean water and the significant alteration of habitat, international bodies have been urging reform in national water policies and laws. The current international discourse is captured in a series of statements and documents such as the *World Water Vision*,[3] the World Commission on Dams Report,[4] the Millennium Development Goals (MDGs),[5] and the outcome of the United Nations Commission on Sustainable Development (CSD),

as well as the Dublin Statement on Water and Sustainable Development[6] (see Box 1.1), the Paris Declaration on Water and Sustainable Development International Conference,[7] and the Ministerial Declaration of the World Water Forum.[8]

Box 1.1 The Dublin Statement on Water and Sustainable Development

Guiding principles:

1. Fresh water is a finite and vulnerable resource, essential to sustain life, development and the environment. Since water sustains life, effective management of water resources demands a holistic approach, linking social and economic development with protection of natural ecosystems. Effective management links land and water uses across the whole of a catchment area or groundwater aquifer.

2. Water development and management should be based on a participatory approach, involving users, planners and policy makers at all levels. The participatory approach involves raising awareness of the importance of water among policy makers and the general public. It means that decisions are taken at the lowest appropriate level, with full public consultation and involvement of users in the planning and implementation of water projects.

3. Women play a central part in the provision, management and safeguarding of water.
This pivotal role of women as providers and users of water and guardians of the living environment has seldom been reflected in institutional arrangements for the development and management of water resources. Acceptance and implementation of this principle requires positive policies to address women's specific needs and to equip and empower women to participate at all levels in water resources programmes, including decision making and implementation, in ways defined by them.

4. Water has an economic value in all its competing uses and should be recognized as an economic good. Within this principle, it is vital to recognize first the basic right of all human beings to have access to clean water and sanitation at an affordable price. Past failure to recognize the economic value of water has led to wasteful and environmentally damaging uses of the resource. Managing water as an economic good is an important way of achieving efficient and equitable use, and of encouraging conservation and protection of water resources.

This international discourse provides ideas and guidelines that can be adapted and further developed by national policy and legislation. It often provides the 'lingua franca' with which to engage with other states to synchronize policies over shared resources. It is also linked to international norms and standards to which many countries have agreed to abide. When developing a new water policy it is therefore essential to be aware of the international discourse.

The discourse has generally incorporated the ideas of sustainability and human rights into water management. Sustainability and social welfare are incorporated into Integrated Water Resources Management (IWRM, see Box 1.2), which is defined as:

'A process that promotes the coordinated development and management of water, land and related resources to maximize economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems.'[9]

"IWRM IS A COMPLEX UNDERTAKING THAT PRESENTS MAJOR CHALLENGES FOR NATIONAL WATER GOVERNANCE SYSTEMS"

Most of the recent water reform processes focus on IWRM, which has been promoted internationally in various fora, and has been the objective of national plans in Nicaragua, Ecuador and South Africa, to mention but a few countries. However, the implementation of IWRM is a complex undertaking that presents major challenges for national water governance systems. By definition, IWRM perceives water governance as a multi-stakeholder process in which social, political and economic institutions and their relationships are regarded as important for water development and management. IWRM has not yet been implemented successfully in many places and it might be argued that its lack of focus on developing suitable legal and policy mechanisms to support it has slowed its adoption.

Box 1.2 IWRM in international policy

Excerpts from international policy documents on the concept of Integrated Water Resources Management

1. Integrated water resources management is based on the perception of water as an integral part of the ecosystem, a natural resource, and a social and economic good, whose quantity and quality determine the nature of its utilization. To this end, water resources have to be protected, taking into account the functioning of aquatic ecosystems and the perenniality of the resource, in order to satisfy and reconcile needs for water in human activities. In developing and using water resources, priority has to be given to the satisfaction of basic needs and the safeguarding of ecosystems. Beyond these requirements, however, water users should be charged appropriately.

Source: Agenda 21. Chapter 18. Protection of the quality and supply of freshwater resources: application of integrated approaches to the development, management and use of water resources.

2. Halve, by 2015, the proportion of the population without sustainable access to safe drinking water and basic sanitation.

Source: Millennium Development Goals, Goal 7, Target 3.

3. The provision of clean drinking water and adequate sanitation is necessary to protect human health and the environment. In this respect, we agree to halve, by the year 2015, the proportion of people who are unable to reach or to afford safe drinking water (as outlined in the Millennium Declaration) and the proportion of people who do not have access to basic sanitation).

Source: Johannesburg Plan of Implementation of the World Summit on Sustainable Development, Johannesburg, South Africa, 2002.

"THE RIGHTS-BASED APPROACH HAS GAINED SOME RECOGNITION AT THE INTERNATIONAL LEVEL"

More recently, international discourse has promoted another line of reform – a rights-based approach (RBA) to water management, which asserts that humans have a right to clean water (see Box 1.3). Thus RBA combines human development with human rights. It deals not only with human needs and development requirements, but also proposes a societal obligation to guarantee and protect inalienable rights of individuals. It empowers people to demand water access as a right, and gives communities a moral basis from which to claim international assistance.

Although a human right to water may 'entitle everyone to sufficient, safe, acceptable, physically accessible and affordable water for personal and domestic uses',[10] significant economic resources are needed to deliver clean water to every individual. While the rights-based approach has gained some recognition at the international level, there are still uncertainties about its meaning and practical implications.

Box 1.3 The Right to Water

On 12 November, 2002, the United Nations Committee on Economic, Social and Cultural Rights (CESCR) adopted General Comment Number 15 (GC15), 'The Right to Water'. Under this policy framework, national governments would have six explicit obligations:

1. Realize that people have a right to lead a life with human dignity.
2. Recognize the entitlement of everyone to sufficient, safe, acceptable, physically accessible, and affordable water for personal and domestic uses.
3. Guarantee that the right to water is enjoyed without discrimination.
4. Recognize citizens' right to seek, receive and impart information concerning water issues.
5. Agree to the government's obligation to respect, protect and fulfil its citizens' rights to water.
6. Refrain from interference and sanction, and prevent violations by organizations of which the state is a member or which it administers.

The right to water has impacts at the national, community and individual levels.

The national level

- Adopt and implement a national water strategy and plan of action that includes the right to water indicators and benchmarks.
- Monitor the extent of the realization, or the non-realization, of the right to water.
- Adopt relatively low-cost targeted water programmes to protect vulnerable and marginalized groups.

The community level

- Ensure the right of access to water and water facilities and services on a non-discriminatory basis, especially for disadvantaged or marginalized groups.
- Ensure physical access to water facilities or services that provide sufficient, safe and regular water; that have a sufficient number of water outlets to avoid prohibitive waiting times; and that are at a reasonable distance from the household.
- Ensure equitable distribution of all available water facilities and services.

The individual level

- Ensure access to the minimum essential amount of water that is sufficient and safe for personal and domestic uses to prevent disease.
- Ensure that personal security is not threatened when physically accessing water.
- Take measures to prevent, treat and control diseases linked to water, in particular ensuring access to adequate sanitation.

Table 1.1 Components of a national legal framework

Legal Instrument	Scope	Type of Regulation	Purpose
• National Constitution	• Fundamental and organic law of a State. It can provide the conception, principles and general framework of the water policy	• Right to water • Rights connected to water such as health and sanitation, environment, food and social security • Establishment of specific framework principles	• Stable • Ensures clarity and coordination between different governance levels • Regulate the interface between customary and statutory law
• International Treatie	• Agreement formally signed and ratified between sovereign States	• Water and diplomacy • Regulation of States' rights and duties over shared freshwater resources	• Creates obligations for the signing parties which commonly have to be implemented through national legislation • Definition of river basin, development of international law principles (e.g., equitable utilization and the duty not to harm other States)
• National Laws	• Set rules and principles crafting water policy as mandatory/ obligatory terms • Set out institutional framework for implementation	• Development of principles for IWRM and water management • Rules on pollution: prevention and control • Rules on water conservation	• General approach and country/state (federal systems) wide application • Can set a general framework to be completed afterwards, or be issue-specific (water, forests, coasts, river basins)
• Bylaws and Regulations	• Rules that fulfil and execute provisions contained in water and related laws • Issued normally by the Executive represented by an administrative agency	• Environmental flows • Groundwater abstraction limits • Pollution limits • Irrigation quotas	• Issue-specific • Easier to adopt/change (than laws)
• Customary Law	• Practices and customs accepted as obligatory rules	• Non-written / Not available in every country • Rules about use, conservation and management of water by different users	• Recognition of customs and traditional practices in the management, use and conservation of water resources • Practices and beliefs that are a vital part of social and economic system

At least one national court has recognized the right to water. In India, the Kerala High Court established that the 'right to sweet water and the right to free air, are attributes of the right to life, for these are the basic elements which sustain life itself'. The Indian Supreme Court has interpreted the fundamental right to life under the Constitution to include the right of enjoyment of pollution-free water. It ruled that if anything endangers or impairs this right, a citizen might directly approach the Supreme Court under Article 32 of the Constitution.

Of course, IWRM and RBA are not mutually exclusive. In fact, there are opportunities to build bridges between them, allowing a stronger vision of a path towards effective water management. For instance a constitutional guarantee of a human right to water through IWRM principles would enhance water security for more people, especially the most vulnerable and marginalized (see Table 1.1).

"IWRM AND RBA ARE NOT MUTUALLY EXCLUSIVE AND THERE ARE OPPORTUNITIES TO BUILD BRIDGES BETWEEN THEM"

1.2 Importance of policy and law

It is at the national policy level that elements from the international discourse can be translated into actual practice. National policy sets out the philosophy and goals of water management. Policies determine whether a country will focus on using its water resources for industrial development or provide a sustainable long-term infrastructure to deliver clean water to all citizens. In theory, policies set a clear direction, which is then codified into law and implemented in practice. However, in many countries, policies formed at different times by different administrations and interest groups are in conflict and can cause stalemate or confusion among managers. Reforming national water policies allows for discussion and debate on the merits of various directions and engages different interest groups and stakeholders in crafting documents that set the direction for a country's water management. Policies can encourage transparency and citizen involvement in water planning and they can provide incentives for the private sector to engage in contracts with governments to deliver water services. Policies can set priorities for water use and they can declare that every citizen has a right to clean water.

"NATIONAL POLICY SETS OUT THE PHILOSOPHY AND GOALS OF WATER MANAGEMENT"

Laws codify public policies. The certainty of law allows businesses and local authorities such as municipalities to plan ahead and invest knowing that water will be provided according to a certain structure. Laws determine who has the right to use water from different sources. Laws can give citizens the right to potable water, and thus the right to seek redress if they do not receive it. They can set up mechanisms for government to form partnerships with private industry. Finally, they can influence how a government negotiates with neighbouring states over water issues, or they can be passed in response to international negotiations. Clear, secure and well drafted laws reduce transaction costs, clarify property rights, and allow citizens to get involved and understand the economic and legal process related to water management. Corruption can be reduced when the laws ensure transparency and accountability.

Most countries have policies and laws related to water management. However, in most cases, these policies and laws have accumulated over time, spawned from different philosophies and approaches, and have never been reconciled. Reforming national policies and laws into a cohesive package is a difficult and time-consuming task, but countries that have tackled it have found that their 'downstream' implementation plans go more smoothly (see Case 1.3).

Case 1.3 Development of a coherent water management plan in Brazil [11]

Water law in Brazil is a complex mosaic. First regulated in the *Código de Águas de 1934* (Water Code of 1934), water was later incorporated into general environmental law in 1988 and made subject to public domain in the Federal Constitution of the same year. General norms regarding water governance introduced in the 1988 Constitution allowed state and municipal legislation to supplement water law wherever federal laws did not control the field.

The legal reform process was the result of a progressive decentralization of its water governance. Following the development of hydroelectric infrastructure in the 1960s, relevant powers were shifted to the Energy and Mines Ministry, and since 1995 such authority rests within the Environment Ministry. In the second half of the 1990s, the government underwent significant shifts in its conceptions of water management, recognizing the finite nature of water resources in the country and regarding water management as an environmental and sustainability issue that requires a fully integrated, participatory approach for success.

In 2000, the *Agência Nacional de Águas* (National Agency of Waters) was created, with autonomy and special responsibilities for implementing national water policy and coordinating the national water management system. Additionally, *Comitês de Bacia* (Basin Committees) are federal boards responsible for regional and local water resource decisions. Finally, state water agencies oversee state and local water management decisions to the extent their jurisdiction is not superseded by higher agencies.

As a result of a comprehensive system of policy, laws and institutions, Brazil has been able to substantially improve its water management structure.

1.3 Water governance capacity

Water governance capacity is a society's level of competence to implement effective water arrangements through policies, laws, institutions, regulations and compliance mechanisms.

Figure 1.1 illustrates the concept of water governance capacity as it relates to the establishment of a system for effective water governance. At the core is the concept of water governance capacity, followed (in concentric circles) by policy, law, institutions and compliance. Each outer circle builds on the inner circles. Thus without a clear policy, it is difficult to develop a coherent system of laws. Without a clear established legal structure, it is difficult for institutions to know how to operate. Without effective institutions, compliance and enforcement are likely to be lax.

"WITHOUT A CLEAR ESTABLISHED LEGAL STRUCTURE, IT IS DIFFICULT FOR INSTITUTIONS TO KNOW HOW TO OPERATE"

Whatever its policies toward water management, a country needs to develop each of these areas – policy, law, institutions, regulations, contracts and compliance – in order to have effective water governance. Achieving a balance of capacity (rather than areas of strengths and weaknesses) is best. RULE offers advice on how to identify weaknesses, strengthen each area, and keep them in balance to achieve good water governance. Each chapter of RULE deals with one of the areas depicted as rings in Figure 1.1.

The establishment of water governance capacity may follow different patterns in different countries. Not every country pursues the same sequence in terms of adopting policies on water, enacting the laws to realize the policies, and establishing the institutions to implement the law. However, it is possible to offer guidelines that might help policy makers think through the issues and elements necessary to achieve water governance capacity and show examples of how this capacity has been achieved in some places.

Figure 1.1 Components that are integral to Water Governance Capacity (WGC)

"THE ESTABLISHMENT OF WATER GOVERNANCE CAPACITY MAY FOLLOW DIFFERENT PATTERNS IN DIFFERENT COUNTRIES"

1.4. Organization of RULE

RULE has a chapter on each of the components of water governance capacity: policy, law, institutions and implementation.

1.4.1 Policy

Policy is a government's plan and strategy on how to address an issue. As the international discourse on water management has shifted from using water purely for economic development to incorporating community and environmental concerns to develop water use in a more sustainable way, national policies are being reformed to reflect the new thinking. Policies are made through legislation and executive orders and they can be created by decree from above or pressure from below.

Chapter 2 identifies elements of a sustainable water policy and looks at questions that should be addressed in building a good policy. Recognizing that governments have different orientations –

from authoritative, to liberal democracy, to participatory – and that within each form of government there may be elements of other forms, the chapter looks at how elements of water management can be approached differently under the different forms of government. Finally, it looks at how ten principles of New Public Management (NPA) can be incorporated into national water policy,

1.4.2 Law

One of the reasons why effective water governance has not been achieved in many countries is that concrete legal reform is needed in relation to water. Effective water governance must be supported by a coherent legal system that formalizes the reform processes through law.

Chapter 3 examines different types of legal systems (civil law and common law) that define water rights and allocation and looks at how various countries have dealt with the three broad areas usually regulated by water law: allocation of water resources and pollution control; consistency of water law with other laws regarding natural resources and sustainable development; and setting up the institutional machinery needed to enforce the laws.

A coherent legal system for water management should:

- Determine a system of water rights and establish rules for water appropriation.
- Establish a relationship with other legal areas, such as land ownership and land uses.
- Establish a framework under which river basin authorities can be set up and operated.
- Promote conservation of water resources through systems of command and control and encourage market-based incentives.

The chapter looks into the weaknesses of existing legal systems and offers practical steps for reforming water law at the national level.

1.4.3 Institutions

Appropriate institutions need to be established to carry out the mandates of the laws. These institutions can include basin commissions within a country and membership on international basin commissions, national water authorities, municipal water and sewer authorities, farmers' cooperatives and associations, and local water boards. Chapter 4 examines institutions at the local, national and regional water basin level, and government relations with the private sector and civil society through non-governmental organizations (NGOs). It argues that good institutional structures must also have clear direction, mandates, honesty, openness to stakeholder participation and transparency.

1.4.4 Implementation

Policies, laws and institutions set up an enabling environment for the implementation of water governance. Chapter 5 explores the required elements for setting up that enabling environment. It examines the broad notion of regulations as tools for carrying the intent of policy and law into practical rules. It also analyzes negotiations and the emerging concept of using covenants as alternative or complementary implementation mechanisms to command and control management.

The chapter looks at the important issue of compliance with established laws, contracts and partnerships developed to manage water. Compliance mechanisms must be built into the laws, institutions and contracts and then followed up with monitoring and enforcement devices. This chapter offers suggestions for setting up a clear compliance apparatus and/or how to improve it.

1.5 The water governance capacity checklist

Since every country already has some form of water governance structure, it is useful for water managers to compare their structure and rules with a set of norms that reflect the current state of the art in order to highlight areas in need of improvement. Therefore, a series of fixed criteria and relevant issues must be considered in order to make rational decisions on priorities for improving water management. Within that context, the following checklist provides a guideline for water managers to reflect on the strengths and weaknesses of their current capacity for policies, laws, institutions, regulations, implementation and enforcement.

This is an indicative list of issues that must be considered when assessing water governance capacity. The list is not exhaustive but can be used as a set of guidelines to help water managers and policy makers understand where to focus their efforts to improve their water governance capacity.

Overall direction of water management

- Does your water management system deliver adequate clean water to the population and to agriculture and industry?
- How confident are you that you can deliver adequate water supplies ten years from now, given projections for population and economic growth?
- Does your water management governance promote efficiency? Does it maximize the use of water resources under rational patterns of consumption that can benefit most consumers, taking into account not only the water, but also other resources, including social and human capital?
- Does your water governance promote equity? Are both benefits and costs shared and a transparent process used to arrive at societal decisions applied to water management?
- Does your water governance system promote sustainability? Does water management support the ability of your society to endure over time without undermining the integrity of the hydrological cycle or the ecosystems that depend on it?

Policy. How well do your national water policies:

- Set priorities for water use among the needs of individuals, agriculture, power, industry and ecosystems?
- Establish the framework under which water management institutions (such as river basin authorities) can be established and operate?
- Establish clear roles and responsibilities of government agencies and private stakeholders?
- Decentralize or devolve authority to the most appropriate level of governance (including the deployment of as many water governance functions as possible to civil society)?
- Facilitate inter-relationships with other areas of law, such as land ownership and land uses?
- Offer transparency and citizen stakeholder involvement in all aspects of water planning?

Law. How well do your national water laws:

- Codify the policies described earlier?
- Determine an effective and efficient system of water rights?
- Establish clear and sound rules for water appropriation?
- Establish institutions and machinery to enforce the laws?
- Promote conservation of water resources through regulatory techniques?
- Promote conservation of water resources through market mechanisms?

- Ensure that water law is consistent with other laws, especially those dealing with sustainable development?
- Establish a framework under which river basin authorities can form and operate?

Institution. How well do your national water-related institutions:

- Ensure democratic representation and active participation of affected communities in all planning and decision-making processes concerning water resources?
- Integrate with other social, political and economic sectors of society?
- Adapt to changing environmental, social and economic contexts?
- Operate on a transparent basis in the interests of all stakeholders?
- Follow the customary laws and practices of your country?
- Delineate responsibilities across ministries and jurisdictions as well as provide for coordination?
- Establish an office for water abstraction permits?
- Set up effective Water Boards?
- Provide a reliable system to pay water bills?
- Provide an anti-corruption commission to investigate water and water infrastructure 'deals'?
- Provide a water rights registrar and a smooth mechanism to register water rights?
- Include officials who have the capacity to review environmental impact statements?

Implementation. How well do your regulatory agencies:

- Write and publicize clear regulations regarding water use and conservation?
- Negotiate appropriate water services and water resource-sharing deals with corporations or public groups?
- Encourage the formation of, and engagement with, farmers' associations organized in irrigation boards or water boards?
- Consider innovative schemes such as payment for ecosystem services upstream by customers downstream?
- Institute multi-stakeholder mechanisms for water planning and decision making?
- Have the capacity for appropriate facilitation around water negotiations?
- Understand participatory planning?
- Seek lawyers and notaries who have the capacity to draft and register water contracts?
- Encourage a free press that reports on water pollution scandals?
- Resist and report bribery in the water sector?
- Assign water and environmental police who check effluent pipes, water abstractions, metering and payment?
- Provide regular water quality sampling to check compliance and status?
- Encourage water NGOs that can advocate for monitoring and combat corruption?
- Include a water dispute-resolution mechanism that is accessible and works effectively in resolving conflicts over waters?
- Train lawyers in the capacity to deal with cases of water conflicts?
- Provide a sound set of case law available to resolve water dispute cases?
- Incorporate mechanisms and incentives to enforce all water laws?


SUSTAINABILITY
PROSPERITY
POVERTY
NW
W
SW
S
SE
E
NE

Chapter 2

Linking Policies to Realities

2.1 The role of water policy

Theoretically, policy and law can easily be distinguished from each other. However, in reality they are inter-related like two sides of a coin in an ongoing process that builds water governance structures.

Policy is a blueprint for drafting and amending laws, as well as an opportunity for meaningful public consultation in the reform and development of new laws. Because a policy document is usually a 'living document' it can easily be revised to cater for developing international and national environmental norms and values.

"POLICY IS A BLUEPRINT FOR DRAFTING AND AMENDING LAWS"

The role of policy is to facilitate institutional and legislative reform. It also promotes the co-ordination of actions and activities of other government agencies regulating issues that are relevant to water management and water protection. Policy can also facilitate a smooth transition during times of legal and regulatory reform by indicating expected changes in law, and allows for implementation planning and capacity building to commence.

Policy provides guidelines:

- To help interpret environmental statutes by decision makers and the Courts.
- For the application and enforcement of environmental statutes.
- For compliance with environmental statutes (for example, assisting in the detailed nature of information to be submitted for a particular environmental licence application).

Legislation is distinct from, but complementary to, policy. It establishes and clarifies rights and obligations. It creates legal certainty thereby facilitating orderly compliance and enforcement of laws. Greater legal certainty facilitates more efficient economic (for example, budget allocations) and financial planning (for example, financial provision made in the private sector to meet new compliance requirements), and thereby contributes to market stability and potential growth.

Legislation protects against capricious administrative decision making and ensures a rights-and-risk-based approach that provides a more effective framework for integrating the economic, social and environmental dimensions of decision making. It defines complex technical, scientific and economic terms; defines roles and responsibilities of regulatory agencies and civil society and establishes rules for accountability; and creates binding rules for dispute resolution.

Policy provides a set of guidelines for how an issue is to be handled by the government but it is ordinarily non-binding on the State and members of civil society (unless it is given the force of law through legislation). Conversely, legislation is binding on members of civil society and usually the State, and creates positive and negative rights and corresponding obligations.

"LEGISLATION ESTABLISHES AND CLARIFIES RIGHTS AND OBLIGATIONS"

Policy development should ideally be the first step on the path to regulatory reform. The policy development process provides an opportunity to engage experts and research in order to ensure the effectiveness and efficiency of the water statute/act/regulation that will ultimately be enacted. This process affords an important opportunity for considering how to integrate laws in order to avoid conflicts, contradictions and duplications in administrative requirements (for example, double-permitting). A well conducted and highly participatory process of policy development has the advantage of building public awareness and building capacity at an early stage.

A well drafted policy becomes an instruction manual for the drafters of the new legislation. Because it is non-binding, it is more easily changed and can inform changes to draft legislation at an early stage and prior to enactment (when it becomes more time-consuming to change).

Potential water policy reformers must have a good understanding of how to structure a water policy reform process. Because more stakeholders are becoming involved in governmental processes, water reformers need to create a widely shared understanding of what water policy is and how it can be used in water governance. Understanding of the components of water policy is needed to support use of policy to make water reform processes effective.

"POLICY DEVELOPMENT SHOULD BE THE FIRST STEP ON THE PATH TO REGULATORY REFORM"

A water policy is a country's strategy to deal with water-related issues. Water policies are often prepared by governments to guide governance, management and investments in the water sector

Photo 2.1 Women using water resources at an outflow point (Tanzania). Water policies can affect people's livelihoods, and should introduce proactive, sustainable and equitable measures that encourage efficiency.

or in relation to water resources. A policy can be the culmination of a long period of public involvement (see Section 2.4). Preferably the policy is straightforward and understandable and formulates a clear vision of the country's priorities. A water policy is a country's plan to attain its vision for water outcomes consistent with broader policy objectives on, for example, economic development, health, security and the environment. Water policy usually defines the key water issues the country is facing or will be facing in the near future. It further outlines a number of principles that provide strategic guidance to the nation and local government on how its institutions will develop, govern and manage water resources and provide water services.

"A WATER POLICY IS A COUNTRY'S PLAN TO ATTAIN ITS VISION FOR WATER OUTCOMES"

Water policy needs to address basic questions such as:

- How much water is available for use, while also protecting the environment?
- What are the priority uses for this water?
- How much water should be allowed for each use?
- Who determines the priorities and allocations?
- How can those who cannot effectively participate in the political and legal systems nevertheless have their needs recognized and served?
- How should water be administered to avoid conflicts, account for flood and drought, and stretch the available water resource to serve as many purposes as possible?

2.2 Vision for the future

A vision describes the state that we hope to reach through policy, law and implementation. To take a simple example, the County of Fairfax, Virginia, United States, states the following vision in regard to its wastewater treatment:

'To achieve a pure and natural state of air and water quality by providing superior wastewater utility service in a spirit of teamwork and excellent customer service.'

South Africa frames a vision for water management in the slogan of the Department of Water Affairs and Forestry, 'Some, For All, Forever', which sums up its goals of access to a limited resource on an equitable basis, in a sustainable manner.

A vision may be followed by a core set of principles that should be followed to achieve the ideal model of future water management.

2.3 Water policy principles

Ideally, the set of principles will aim to drive progress towards environmentally and economically sound practices under an effective water governance scheme. As mentioned in Chapter 1, good water management is efficient, equitable and sustainable. Some ideas on how to incorporate these principles into policy are given below.

2.3.1 Efficiency

Water has an economic value in all its competing uses and should be recognized as an economic good. Water allocation and use should strive to make the most efficient use of the resource, reduce

wastage, and optimize the benefits derived. Water policy can promote efficiency by incorporating these ideas:

- Determine all values of water to ensure the rational allocation of water as a scarce resource through regulation, economic instruments or other means.
- Use of water charges as an economic instrument to encourage conservation and efficient water usage.
- Attempt to recover the full costs of all water uses as far as possible to help create the understanding that water is not for 'free', while also providing economic assistance or lower rates for those who cannot otherwise afford the basic necessity of adequate and safe drinking and irrigation water.
- Treat water as an economic good to help balance the supply and demand of water and sustain the flow of goods and services from this natural asset.
- Promote water demand management to reduce overexploitation.
- Use modern instruments such as 'life cycle analysis', 'distributional analysis', 'strategic and project impact assessment'.

"WATER HAS AN ECONOMIC VALUE IN ALL ITS COMPETING USES AND SHOULD BE RECOGNIZED AS AN ECONOMIC GOOD"

2.3.2 Equity

Water management and allocation should promote more equitable access to, and use of, water to benefit all parts of society. Particular attention should be paid to addressing the needs of the poor and the vulnerable. Equity can be incorporated into policy by incorporating the following:

- Ensure water allocations are based on a sound technical analysis.
- Give special attention to water allocations and basic services to the poor and marginalized communities, including indigenous groups.
- Consider the historically exercised water uses and rights in water planning and decision making.
- Ensure no new water allocations are made that infringe upon existing water rights and uses.
- Address outstanding water conflicts and compensations.
- Clarify and recognize existing rights of stakeholders to access to, and use of, water resources.
- Identify the risks taken by and the benefits accrued to stakeholders, voluntarily or involuntarily, with actual and future water uses and allocations.
- Develop and implement benefit-sharing mechanisms that build solidarity amongst water users and wider sets of beneficiaries.

2.3.3 Sustainability

Fresh water is a finite and vulnerable resource, essential to sustain life, development and the environment. Water management must find a balance between environmental, social and economic needs. Sustainability can be incorporated into water policy by some of the following steps:

- Allocate water to sustain aquatic life and water-dependent ecosystems, such as rivers, lakes, wetlands, bays and estuaries including through establishment of environmental flows and water levels.

- Respect the linkages between upstream and downstream water and users, surface and groundwater flows, and the connection between the river and its floodplain.
- Promote and support the restoration of damaged ecosystems throughout the river basin, including through valuation of the resources and incentives for conservation and restoration.
- Set aside some rivers and tributaries, or significant portions thereof, to protect ecosystems, their services and their benefits.
- Ensure that ownership of surface and ground water is with the public whenever possible and manage these resources as a public good.
- Establish and control pollution from both point and non-point sources.
- Monitor surface and groundwater quantity, quality, ecology and flow regimes and make the acquired information publicly available.
- Ensure that existing management approaches and operating rules reflect social and environmental concerns.
- Develop drought and flood plans and guide rapid-response as well as mid- and long-term investments in prevention and adaptation.

"WATER MANAGEMENT MUST FIND A BALANCE BETWEEN ENVIRONMENTAL, SOCIAL AND ECONOMIC NEEDS"

2.3.4 Setting out policy goals and principles

It can be helpful to write out goals or principles for water policy in advance of actually determining the policy. For example before drafting its policy statement on water management, the Government of South Africa developed a set of 28 principles in different categories that the policy would address. These *Fundamental Principles and Objectives for a New Water Law for South Africa*[12] incorporate the principles of efficiency, equity and sustainability (see Case 2.1).

With regard to the implementation of the principle of efficiency, South Africa's *Fundamental Principles* provide that the Government will make sure that the development, allocation and management of water is done in an efficient manner reflecting its public trust obligation and the value of water to society, while ensuring that domestic, environmental and international obligations and needs are met. Also, water services shall be regulated in a manner which is consistent with the aim and approaches of local governments or, when giving authorization to use water, the Government shall take into account the investment made by the user in developing the infrastructure to use that water.

"IT CAN BE HELPFUL TO WRITE OUT GOALS OR PRINCIPLES FOR WATER POLICY IN ADVANCE"

As far as equity is concerned, the *Fundamental Principles* establish that beneficiaries of a water management system shall contribute to its costs on an equitable basis, and that the water that is required to ensure that all people have sufficient water, shall be reserved.

The principle of sustainability is endorsed in different ways in the South African *Fundamental Principles*; for instance, water resource development and supply shall be managed in a way that is consistent with broader approaches to environmental management; water quality and quantity are interdependent and shall be managed in an integrated way consistent with broader environmental

approaches; and water required to maintain ecological functions on which humans depend shall be reserved so that human use of water does not compromise the long-term sustainability of aquatic ecosystems.

2.3.5 Forging policy

Once there is some clarity and agreement on a vision and policy principles, tasks preferably done in a highly participatory setting, there is often a period of research and development of 'white papers' or documents that examine current conditions and propose policy solutions. Eventually, the discussion papers may evolve into policy statements and ultimately into legislation. This may happen through a 'strategic planning process' or more haphazardly. Although these elements can be easily separated for analytical purposes, in reality they can become intertwined.

The case of South Africa is relevant to understanding how a policy and legal reform process contributed to the progressive development of a country's water governance capacity. From the very start of the water reform process, issues related to equal access to safe drinking water and sanitation were part of a national concern. Under the apartheid regime, access to and distribution of water rights were determined on a racially discriminatory basis. Oppressive programmes of land dispossession which linked water rights to land rights characterized the colonial and apartheid eras. No account was taken of the basic human needs of South African people as a whole.

Case 2.1 Water reform in South Africa

The success of the South African reform process can be attributed to the importance of strong political will.

In 1994, the Minister of Water Affairs and Forestry appointed a Policy and Strategy Team – an advisory team made up of persons of different genders and from different racial, political and cultural backgrounds. Through the Minister, the Policy and Strategy Team gave direction to a Drafting Team constituted by the Minister and made up of legal and technical specialists.

The process commenced with a detailed review of all South African water laws. In March 1995 a document entitled *You and Your Water Rights* was published by the Department of Water Affairs and Forestry. This document sought to assist the public in making meaningful contributions to policy development, and set out the main principles and provisions of the then existing legal structure and also contextualized these against their origin and historical development.

As a result of the call for a public response to the review of South Africa's water law, in April 1996 the *Fundamental Principles and Objectives for a New Water Law in South Africa* was published for comment. These principles were designed to focus attention on the primary areas of water management requiring urgent transformation. The principles were simple and concise statements which would constitute a framework for the development of a new detailed policy and a new national law. They were developed, through consultation, by having regard to, for example, constitutional shortcomings noted in the existing law; the urgent need for a modern and more appropriate approach to water resource management in South Africa; and an acknowledgement of the need to establish founding principles and objectives for the development of new policy and law that would be accessible to everyone. After undergoing a number of revisions following widespread formal consultative meetings, these principles were approved by Cabinet in November 1996.

Parallel to this, the constitutional reform process strengthened the political momentum for a water policy reform. The new Constitution of South Africa adopted in December 1996 addresses water issues in different ways. Within a context of social justice, equality and human dignity, it recognizes a series of individual rights directly related to water, such as the right of life or the right to an environment not harmful to one's health and wellbeing. At the same time, it contains the country's commitment to land reform, with a view to ensuring equal access to natural resources, and recognizes the progressive realization of this right. The same

principle applies to the right to health care, food, water and social security.

In April 1997, the South African Cabinet approved the White Paper on a National Water Policy of South Africa, a comprehensive and detailed document addressing resource management and water supply. The White Paper identified key proposals to guide management of water in South Africa and to serve as an official democratically developed and approved guideline for the drafting of a new water law.

Under the slogan 'Some, For All. Forever', the White Paper confirmed that water is an indivisible resource and a national asset, and abolished the system of riparian rights through which water ownership was tied to land ownership along rivers. It recognized water to meet basic human needs and maintain ecosystems as a right. It recognized the authority of the country to prioritize water uses to meet the requirements of neighbouring countries and promoted an integrated system of managing water quality, quantity and supply.

With the approval of a new national Constitution, the adoption of policy principles within a consultative process, the logical next stage in the reform process was the codification of these principles in a law.

In 1997, the Government adopted the Water Services Act, and a year later the National Water Act.

The National Water Act includes the following instruments:

- the National Strategy
- a classification of the waters and the reserve
- a mechanism for allocating and regulating water uses through a licensing system
- a system of prices
- catchment management agencies
- water users associations

The new policy deriving from the South African water reform process provides the country and all its citizens with a series of constitutionally guaranteed individual rights relating to water, and, as a result of this, a starting point to correct existing inequities, and mechanisms to exercise their rights, and a series of rules that envision water management according to standards of democracy, transparency and sustainability. Far from being perfect, the system is not only the result of a consultative process of water reform but provides an enabling environment for further development of the water governance capacity in the country.

2.4 Process principles for water policy

For water management to be effective over time, policy must also incorporate certain process elements. These elements are found in any type of effective governance and can be adapted to centralized or decentralized forms of governance. They are discussed in more detail in Chapter 5, on implementation, but are outlined here because they must be thoroughly incorporated into policy, laws and institutions. These process principles are *transparency*, *certainty* and *accountability* as well as creating mechanisms for and encouraging *public participation*. By following these principles a government or agency can avoid bureaucratic inefficiencies and the temptations of corruption that are responsible for the demise of so many well laid plans.

"FOR WATER MANAGEMENT TO BE EFFECTIVE OVER TIME, POLICY MUST ALSO INCORPORATE CERTAIN PROCESS ELEMENTS"

The process principles are interrelated, mutually reinforcing, and interdependent. For example, accountability means more transparency, broader participation and more effective decision making. Broad participation contributes both to the exchange of information needed for effective decision

making and for the legitimacy of those decisions. Legitimacy, in turn, means effective implementation and encourages further participation. Responsive institutions must be transparent and function according to the rule of law if they are to be equitable.

2.4.1 Transparency

Transparency means that business is done in the open rather than in secret. Documents are available to the public, meetings are open, public input is sought and considered. By opening proceedings to the light of day, especially to the inspection of a free press, a loyal opposition party, and public interest groups, corruption will be discouraged or at least discovered.

Transparency can be incorporated into water policy for instance by:

- Requiring that certain decisions be made in public meetings.
- Requiring that documents, including meeting minutes and scientific studies, be made available to the public free or at low cost of reproduction.
- Setting up open channels of communication between all the stakeholders involved in water management.

"TRANSPARENCY MEANS THAT BUSINESS IS DONE IN THE OPEN RATHER THAN IN SECRET"

2.4.2 Certainty

Certainty is an intangible that is crucial to attracting non-governmental and private organizations to help with the work of water management. The higher the level of certainty for any given transaction, the greater the willingness of stakeholders to participate. Without a clear sense of the rules and the expected outcomes, stakeholders are unlikely to commit their resources to working with government agencies. Governmental corruption destroys certainty on a broad scale because it allows favours to be bestowed on some stakeholders in return for money or other services. Certainty exists only when all the rules are stated and followed, and all the consequences of not following the rules are known and enforced. Certainty can be for example incorporated into policy by:

- Creating a climate that honours the rule of law.
- Writing laws and regulations that clearly specify penalties for violations.
- Maintaining a strong judicial system that allows stakeholders to seek recourse for damages.
- Providing for alternative dispute-resolution mechanisms.

2.4.3 Accountability

Water managers and decision makers should be accountable for the consequences of their actions. Transparency in decision making and contracting is vital to ensure accountability.
The steps listed below could promote better accountability:

- Ensure public trust and confidence through meeting commitments for planning and managing of water resources and addressing social and environmental issues.
- Secure compliance with all laws and regulations, general or project-specific, at all stages of water resources development and management.
- Establish an appropriate 'mix' of regulatory and non-regulatory measures, including incentives and sanctions.

- Establish and abide by strict anti-corruption policies and regulations.
- Implement any agreed plan to compensate for loss of income or property due to water development in a timely and correct manner.
- Establish independent review panels for (outstanding) social and environmental matters.

2.4.4 Public participation

Water development and management should be based on a participatory approach, involving users, planners and policy makers at all levels. In many parts of the world, women play a major role in providing, managing and safeguarding water, and should always be involved at all levels of decision making. Decision making and management should be done at the lowest appropriate level of government. The following actions will help ensure participatory decision making:

- Ensure that participation is more than merely consultation and incorporates significant contributions to outcomes.
- Develop full and effective participation of women at all levels of decision making.
- Establish effective water fora and multi-stakeholder platforms and define roles and responsibilities.
- Assist stakeholders in participating by providing information, training, and technical assistance and/or financing mechanisms.
- Manage water at the lowest appropriate level, consistent with a strong framework of performance standards and financial assistance where needed and develop integration of the work at the local, basin, provincial, national and regional levels.
- Set up mechanisms to resolve water-use conflicts from local to international levels.
- Gain public acceptance of changes in water management, allocations and projects.

"DECISION MAKING AND MANAGEMENT SHOULD BE DONE AT THE LOWEST APPROPRIATE LEVEL OF GOVERNMENT"

2.5 Context of water policy reform

Different countries are in different phases of water policy development and reform. Some have water policies and plans that are 50 or more years old while others have only recently adopted new IWRM policies. It is therefore essential to define the context within which a new policy is developed to understand what types of new policies are appropriate for a particular context. If there is an ongoing reform process, as in many countries, the reform paradigms should be clearly reflected in the water policy.

2.5.1 Historical context

Water policy should be updated regularly to respond to changing values and to address emerging water issues. Water management and governance are constantly evolving, both in terms of the prevailing discourse and in actual practice. In evolving societies, water policy is changing from an exploitative approach with a focus on nation building and economic development, to an approach that is oriented towards serving a wider set of needs, including social and environmental demands. Therefore in most countries, updating water policy means incorporating more encompassing social and environmental goals.

"UPDATING WATER POLICY MEANS INCORPORATING MORE ENCOMPASSING SOCIAL AND ENVIRONMENTAL GOALS"

2.5.2 Political context

Political priorities adapt with new governments and changing public opinion. They shape the priorities for public investments and the focus of the development or enforcement of new policies or legislation. In many OECD and non-OECD countries, state modernization is following key principles of the New Public Management (NPM) model, which applies private-sector management principles to the public sector. This promotes efficiency, effectiveness, delivery, flexibility, measurement and outputs. NPM argues for cost reduction in public policy implementation. The ten principles of NPM are given in Table 2.1.

Table 2.1 Ten principles of new public management[13]

1. **Competitive services** Government services compete for quality and customers.	6. **Earn money** Delivery of services makes money, rather than only costing money.
2. **Empowered citizens** Citizens empowered by pushing control out of administrations into the community.	7. **Decentralized government** Promotes participatory management to address issues.
3. **Outcomes-based** Administration's performance not focused on inputs and process, but rather on delivering outcomes.	8. **Catalyze all sectors** Solving communities' problems through engaging public, private and voluntary action.
4. **Mission-driven** Agencies are not driven by rules and regulations, but by their core mission.	9. **Prevent problems** Focus on prevention rather than only offering 'repair' services.
5. **Customer-oriented** Agencies define their users as customers to whom they offer choices of services.	10. **Market mechanisms** Prefer market-based mechanisms over bureaucracy.

"WATER POLICY REFORM CAN BE MATCHED WITH VARIOUS MODELS OF GOVERNANCE"

2.6 Typology of water policy and planning reforms

Within a theoretical framework known as the Policy Arrangement Approach (PAA), water policy reform can be matched with various models of governance.

2.6.1 Three models of governance[14]

Three general models of governance can be defined as:
Authoritative governance. A system with (*de facto*) one party within which decision making takes place under specific rules and in coordination with elected officials.

Liberal or representative democracy. A system of rules embracing elected 'officers' who undertake to 'represent' the interests or views of citizens within the framework of 'rule of law' and whereby implementation is done through partnerships.

Direct or participatory democracy. A system of decision making about public affairs in which citizens are directly involved and actively engaged in policy formulation and implementation.

This typology has been furthered developed and adapted to water governance in Table 2.2.[15]

This table shows that in an authoritative arrangement, much emphasis is placed on hierarchy and state power dominates. In this model, water policy development and implementation is led by the State and its vast number of organizations and bodies. In a pluralistic-liberal type of policy arrangement, water policy development and implementation involve negotiation and perhaps power-plays among many actors that must arrive at an agreement to move forward. A key aspect of this type of arrangement is that negotiations take place between actors as if they were in a 'marketplace'. Under

Table 2.2 Overview of types of water policy arrangements

Type	Name	Water governance mechanisms
Authoritative	Hierarchy-based	Coercive, state-led water politics, state organization controls water, neocorporatism
Pluralistic-liberal	Market-based	Negotiation, power-plays, consensus building between interest groups used to solve water issues
Decentralized-communitarian	Network-based	Participatory form of society/egalitarianism, non-hierarchical. Participation used in water management and decision making: a) Conservative: revaluation of the traditional society/solidarity b) Republican: new balance between the traditional community and modern individualism/voluntarism

a decentralized-communitarian scheme, the participation of all stakeholders is needed to develop and implement water policy. Management of actors' networks, and/or re-valuating traditional community mechanisms of water governance are seen as key mechanisms for successfully implementing this type of policy arrangement (see Case 2.2).

Case 2.2 Water for El Chaco: a model of decentralized water management [16]

Paraguay has substantial freshwater supplies in surface and ground water. It depends on four major transboundary rivers – the Paraguay, Parana, Pilcomayo and Apa – and many other national ones and counts on one of the world's biggest aquifers – the Guarani.

The Chaco region covers 60 percent of Paraguay. However, only some areas are abundant in water while others (such as Chaco Central and Bajo Chaco) suffer from droughts and water shortages. In the drier region the population is dramatically increasing and needs new water sources.

In 2003 the governors of the El Chaco region agreed on a new development action plan for the area. A wide range of stakeholders, including members of both the public and private sector, participated in a series of meetings to seek solutions bringing more water to the region and providing new sources of income.

A water council was established to oversee the water projects outlined in the governors' action plan. The water council appointed a statutory body called 'Water for El Chaco' to coordinate stakeholders' interests, programmes and projects. 'Water for El Chaco' sets a precedent for integrated water governance. It is a modern decentralized institution that represents both public and private sectors including municipal forces as well as associations of farmers, cattle ranchers, foresters, merchants, fishermen and indigenous communities.

Different types of policy arrangements can coexist within one State. Some policy arrangements are better suited to certain water management situations than others. Understanding which water issue can best be solved with which type of policy arrangement is key to successful water reform.

"DIFFERENT TYPES OF POLICY ARRANGEMENTS CAN COEXIST WITHIN ONE STATE"

2.6.2 Three models in four dimensions

Table 2.3 shows how the three models can play out along four dimensions: discourse, coalitions, resource distribution and rule making. When and where each model is best used depends on the nature of the political system in which water governance reform takes place. Identifying which model is most suited to a given context increases the chances that reform processes will be successful and lead to more effective water governance.

Authoritative water policy
Water policy --> Strategy --> Design --> A plan

Authoritative water policy is based on an intervention discourse with top-down principles and planning. Policy is formulated through a very formal process aimed at producing a policy document that is used to develop clear objectives, operating plans and budgets. It is mostly implemented by governmental coalitions aimed at resolving specific water issues. Legitimized state regulatory power is used as the main resource for strategic planning. The rules are supported by legislation and strict working procedures.

Table 2.3 Typology for water policy arrangements[17]

Ideal types Dimensions	Authoritative	Pluralistic-liberal	Decentralized- communitarian
Discourse	State interventions, makes use of top-down designing principles	Balanced approach based on societal negotiations	Local initiatives through local participation Cooperative setting of
Coalitions	Governmental bodies resolve problems	Partnerships between governmental bodies and stakeholders integrate policies	governmental bodies, stakeholders and local people realize area-specific goals
Resource distribution	Legitimized state regulatory power for strategic planning	State budget allocated to stakeholders for coordinated policy implementation	Social capital for grassroots projects
Rules	Legislation and strict working procedures	Covenants that take current legislation for granted	Tailor-made solutions that anticipate or go beyond legislation

Authoritative water policies and their arrangements are usually linked to large water infrastructure works regarded as of interest to national security or economic development. The construction of large dams is typically carried out under this kind of policy arrangement. Often one ministry leads the development of the policy in cooperation with other ministries.

Pluralistic-liberal water policy
Water policy --> Strategy --> Negotiations --> A deal

The pluralistic-liberal policy arrangement is based on a balanced approach to policy making, including societal negotiations and partnership coalitions between governmental bodies and stakeholders that aim to integrate different interests. A state budget is the main resource for coordinated policy implementation. The rules are laid down in covenants that take current legislation and policies for granted.

This type of policy arrangement requires that the parties involved have the skills and willingness to negotiate. Someone must take the lead in bringing the actors together and creating common understandings on different management issues. It works best with parties that are closely linked to a geographic area such as a watershed or river basin.

Decentralized-communitarian water policy
Water policy --> Strategy --> Joint action --> Learning by doing

A decentralized-communitarian policy arrangement is based on local initiatives, including local participation in cooperative settings with governmental bodies and other stakeholders that aim to develop and execute specific goals in a region. Social capital is the main resource for grassroots projects. The agreements often go beyond legislation in order to facilitate tailor-made solutions.

The challenge of this approach is that the 'extra-legal' status of the parties can make an agreement vulnerable. However, a series of projects using this approach can have a profound effect on the development of a country's water policy and future investments in countries such as in India, Guatemala, Mexico and China.

A learning approach to water policy development becomes institutionalized only when the actions become collective. This happens when the new patterns of water management proliferate to pervade the behaviour of a large part of the population. This process of proliferation may be conscious and deliberate, but doesn't need to be. Patterns may simply spread through social absorption as they become recognized as valuable.

The decentralized-communitarian approach is particularly suited to periods of change and innovation. For this approach to succeed, it is critical that leaders recognize the emergence of new ideas and intervene only when appropriate, mostly in an enabling and facilitating way. Once some useful ways of working emerge, one can start formalizing the best of them.

2.7 Linking policies to realities: general principles

Policy development is a crucial first step in regulatory reform, serving as a recipe for drafting binding legislation. Ideally, water policy should provide a clear, systematic outline for the country's overall strategy on water and the entire range of issues related to its use.

Before reforming a country's water policy, planners should evaluate the existing system. Thus, the first list of factors below offers a preliminary policy evaluation framework that policy planners and decision makers should bear in mind before revising their water policy.

1. Consider the capacity of existing actors for water policy reform

- Evaluate the capacity of government officials to conduct water planning.
- Verify how well informed parliamentarians are about water issues.
- Determine how much decision makers understand water governance issues.
- Analyze the municipal water plans, their projections into the future and responses.

2. Analyze national, regional and international policies

- Define major policy trends, and soft law relevant for the country.
- Evaluate if the country is complying with internationally-agreed policy guidelines. Start by analyzing if principles and guidelines adopted in major fora have been translated into national and local policies, plans and programmes.
- Take the policy analysis a level further and identify paradigms in major international arrangements (e.g., IWRM) and compare them with local water policy.

3. Determine the scope of the country's water institution(s)

- Determine if there is a specific institution in charge of water administration.
- In case there is not, map all the different agencies that jointly administer the water in the country.
- Check if there is a Parliamentary Commission on water issues.

- Determine if a single governing body, or complex of bodies, follow a policy with clear objectives, implementing steps, and compliance deadlines.

4. Assess the extent of public participation in decision making

- Determine the level of organization for public involvement in decision-making processes.
- Evaluate if the public participation process is anchored in the law, well structured, involves key interest groups, and is well organized.
- Evaluate the level of commitment and political will for devolving decision making authority to the public.
- Determine if the agencies and institutions in charge of decision making open the required spaces for public participation, and if that participation is meaningful.
- Evaluate if people feel represented by the water authorities of the country.

5. Evaluate the country's decentralization scheme

- Determine the degree of decentralization, if any, of the water administration.
- Assess the role of local governments and water authorities in the overall institutional set up and evaluate what is the level of legitimacy they have in decisions relating to water management. Determine if civil society abides by what decision makers decide.

6. Consider ease of access to information relevant to water policy design

- Identify whether information on policies, plans and programmes is readily available for civil society, and if civil society is aware of the availability of this information.
- Determine if there are spaces for education and consultation of water users.

7. Analyze whether economic-based instruments are being used successfully

- Determine under what scheme water is being allocated for different uses and analyze if the real costs are being taking into account, or if palliative measures such as subsidies are operating.
- Conduct a preliminary analysis to determine if the water governance system is economically sustainable in the long term.
- Evaluate if policy makers are aware of the trade-off between short-term benefits and long-term costs.

8. Consider the extent and functionality of private - sector participation

- Analyze whether, and to what extent, private-sector participation in water management is an option in the country.
- What are the legal modalities under which private-sector participation can take place?
- Are water markets fully in place?

9. Evaluate corruption levels in the country

- Determine if a transparent and publicly-available programme of the water institutional expenses is available.
- Detect possible cases of cronyism.

10. Assess the current model of governance

- Identify the general governance model of the country, whether it be *authoritative* (*de facto* one party with rule-based decision making), *liberal or representative democracy* (officers represent their constituent citizens under a legal framework, gaining power by building consensus among interest groups), or *direct or participatory democracy* (citizens are directly involved in management and decision making).

2.8 Reforming water policy: practical steps

Following this preliminary assessment, planners can begin the work of actual policy reform. Given the enormous breadth of individual considerations involved and the need for specific tailoring to a given country's situation to ensure a water policy is comprehensive, no one set of practical steps can provide a solution for every country. However, there is a list of practical steps that should be kept in mind where starting any policy reform.

Step 1: Consider context of water policy reform

- Given countries' different stages of water policy development, it is essential that planners consider proposed reforms in light of historical and political context. In particular, where the political context is sufficiently modern, the ten principles of New Public Management should be incorporated to promote cost reduction in public policy.

Step 2: Assess what type of water policy reform will work best given the existing government structure

- Under authoritative government models, water policy reforms should be introduced and led by the state government. In pluralistic-liberal government, such reforms are best made by negotiation and consortium building analogous to a marketplace setting. Finally, decentralized, or direct-participatory democracy requires all stakeholders' support via networks in order to achieve policy reform.

Step 3: Clearly allocate water rights among users and uses

- Clear allocations of water rights will encourage water users to use it more efficiently.
- Allocation of water among new uses will be allowed if they do not injure existing uses.

Step 4: Introduce proactive, sustainable and just measures that encourage efficiency

- Water policy should pursue human and societal wellbeing, meet ecosystem needs, and protect water quality. Avoiding environmental harm before it occurs is a necessary feature of new water development projects. Thus, conservation measures and principles of sustainability, social justice and equity, and sound economics are central to successful water policy reform.

Step 5: Apply the right technologies

- Adequate technologies appropriate to the geographical and developmental conditions of the country.

Step 6: Apply the principle of recovery of costs for water services

- Water prices should take account of the costs of water services, including environmental and resource costs. At the same time, subsidies must be accounted for in assessing whether the prices paid by water users reflect the full cost of the water service. This is important because water services are often highly subsidized, thereby encouraging damaging overuse of water.

Step 7: Enable sharing and trading of water rights

- Water rights sharing and trading should be made possible via exchanges, stored water banks and leases of water between the municipal and agricultural sector.

Step 8: Ensure support from enabling institutions

- Institutional framework for implementation of the water policy has been designed and is in place.
- Cooperative forums for adjusting water policy are established and tribunals for resolving water-use conflicts are in operation.

Step 9: Ensure effective governance principles of transparency, certainty and accountability

- Transparency can be ensured by requiring public decisions, publicly available information and open stakeholder communications.
- Governmental frameworks that clarify and enforce rules should be strengthened to foster public certainty in governmental processes.
- Measures ensuring that water managers and planners are accountable for their acts are fundamental to reliable governance.

Step 10: Guarantee international cooperation

- Water policy reform must transcend borders in countries that share the resource.


KNOW
YOUR
WHAT
RIGHT
FEDERAL NEGARIT

Chapter 3

Transforming Policy into Law

3.1 Features of water law

Water law provides clear rules and procedures to transform policy into action. Good water law combines precision with flexibility. Coherent and concise laws should avoid ambiguity in interpretation and application, but they should be flexible enough to fit within a range of national contexts and adapt to evolving social, economic and ecological circumstances. However, before exploring the specific issues that surround water law, it is important to consider that water law serves a higher purpose within the overall governance system of a country, which is Environmental Justice. This is defined as 'An existing condition where environmental risks and hazards and investments and benefits are equally distributed with a lack of discrimination, whether direct or indirect, at any jurisdictional level; and when access to environmental investments, benefits, and natural resources are equally distributed; and when access to information, participation in decision making, and access to justice in environment-related matters are enjoyed by all.'[18]

"WATER LAW PROVIDES CLEAR RULES AND PROCEDURES TO TRANSFORM POLICY INTO ACTION"

Box 3.1 Water law and environmental justice

Environmental justice is the overarching most important outcome of an effective water governance system in which the law plays a central role. In the water context, environmental justice claims usually involve allegations that the use of water, often by new multi-purpose infrastructure, will harm the water-use rights of marginal social groups, or that pollution laws are enforced less stringently in poor areas. The extent to which these environmental justice claims will succeed is dependent on the availability of affordable processes to litigate or defend them.

Although a water law may provide a scheme of secure water rights (and may include equity considerations), it may not always promote social and environmental justice or adequate environmental protection. Good laws are not just those that define rights and obligations, create effective institutions, and a system of incentives and penalties for the protection of the environment and the sustainable use of natural resources, but those in which risks and hazards and investments and benefits are equally distributed without discrimination at any level, and when access to resources and the benefits derived thereof are equally distributed. Finally, good laws that promote environmental justice are those in which access to information, public participation in decision making and access to justice are enjoyed by all the citizens of a State.

Contemporary water law addresses three focal areas:

1. Allocation of water resources and pollution control, usually by requiring permits for water withdrawals or waste disposal.

2. Water law must be consistent with broader societal goals for sustainable development and protection of the environment. The preamble of national water laws usually contains statements of principles relating to social equity, conservation, protection of water sources and ecosystems, and sustainable development that reflect the idea that good water management practices are underpinned by a sound balance of developmental, environmental and conservation policies and practices. Within the past decade, there has been a proliferation of amendments to the statutory framework in many states because of growing recognition of the importance of the environmental dimension of water management. Water law therefore increasingly reflects the fundamental relationship of water to life, the vulnerability of water resources to human and natural influences, and the importance of securing a safe and adequate water supply for current and future generations. Water laws should also be synchronized with other natural resource laws and, when possible, with customary and traditional laws.

3. Water law must establish the institutional machinery needed to facilitate its application. The powers and mechanisms of these institutions must be prescribed. For example, administrative bodies must be tasked in law with granting licences and monitoring compliance with regulations. Laws should also consider how state institutions should work with non-governmental water organizations and private companies that are often contracted to offer water supply services.

"WATER LAWS SHOULD ALSO BE SYNCHRONIZED WITH OTHER NATURAL RESOURCE LAWS"

3.2 The context, role and reach of water resources legislation

Water law does not exist in isolation; it is shaped by, and must conform to, the requirements of the legal system in which it operates. It may also be shaped by the customary laws that preceded it. Thus, to understand or reform water law, it is important to be aware of and recognize how the specific characteristics of different countries affect water law.

3.2.1 Legal context

Civil versus Common law

There are two major types of legal systems in operation around the world: *civil law* and *common law*. In countries with civil law traditions – such as most of continental Europe, francophone and northern Africa, and Latin America – the law is laid down in exhaustive codes according to subject matter and is applied and interpreted by judges. Legal reasoning is used in formulating the stated principles of the codes, which is then the basis for applying and adjudicating the rules. Common law countries, such as the United States, the United Kingdom and Commonwealth countries, may sometimes develop comprehensive codes, but traditionally there are numerous statutes relating to any particular subject area and judges use legal reasoning to extract principles of law from previous decisions. These principles are then applied to new scenarios and cases. New laws that override these precedents can be established by the legislative branch of government. However, the courts can overturn new laws that it deems unconstitutional.

In civil law countries, waters are classified as public or private. In most of these countries, a concession or permit is required to use public water. Over time, the concept of private waters (as absolute right to use water) has been losing force[19] in favour of the concept of water as being controlled by the State for the common good.

In common law countries, there are no private waters. All flowing waters are considered a resource common to all (following old Roman law principles) and the State, as the public trustee, must ensure that the water is protected, used, developed, conserved, managed and controlled in a sustainable and equitable manner for the benefit of all persons.

Unitary versus Federal systems of government

Countries with a *unitary structure* centre their law and policy at the national level. The *federal structure* of countries such as Canada, the United States, Mexico, Argentina, Brazil, Germany, India, Malaysia and Australia, creates an interface between the subnational (state or provincial) and national levels of executive and law-making authority. The nature of this interface depends on the distribution of power between the federation and its constituent states or provinces, which is generally stated in the national constitution. In these countries, the division of authority between levels of government is an important influence on water laws and their administration.

In all the federal countries listed above, except Mexico, each state or province has authority to legislate in regard to water resources and to administer its own legislation, independently of its fellow states. The role of the federal government is thus residual but not insignificant, as it can include legislation on matters 'neglected' by the states. This is the case for control of water pollution, for example, in the United States, Germany and India. The federal level also often plays a key role in ensuring consistency of approach in legislation at the state level. In India, for example, this can be seen with regard to ground water and in Australia with regard to a broad spectrum of water policies including provisions for trading water abstraction permits and prioritizing environmental water allocations. In Argentina, the federal government ensures consistency in minimum standards of environmental water management.

"THE DIVISION OF AUTHORITY BETWEEN LEVELS OF GOVERNMENT IS AN IMPORTANT INFLUENCE ON WATER LAWS"

The relative independence of states and provinces in water resource matters in most federal countries generates interplays over rivers, lakes and ground water that cross subnational boundaries. Friction, and eventually conflict, may arise because of the effects of one state's action on its neighbours. Pre-conflict situations are handled through negotiation and agreement, often brokered by the federal government. Interstate agreements addressing specific water bodies or issues are on record among the states and provinces of virtually all federal countries. Where negotiations have failed, overt conflicts have been adjudicated by the supreme judicial body of the country. The U.S. Supreme Court has been particularly active in this regard. Cases are similarly on record in the Supreme Courts of Argentina, India and Germany.

3.2.2 The role of customary law and practices

Customary water rights and practices add further to the typology of water rights in countries where custom, as distinct from written law, is a significant source of law in general, and of water law in particular.

Customary law refers to un-codified, long-standing customs and practices of traditional or religious groups. Customary water rights are often derived from customary law that governs access to land tenure. Legislation must seek to establish a workable equilibrium between water rights of commercial water users and water allocation for traditional livelihoods underpinned by customary practices. Failure to account for customary rights not only creates social conflict and tension, but may undermine the law.

"FAILURE TO ACCOUNT FOR CUSTOMARY RIGHTS CREATES SOCIAL CONFLICT AND TENSION"

In countries where customary rights are common, they may be safeguarded either through recognition as water rights in formal statutes or by administrative mechanisms for recording and registering them. Law makers need to devise acceptable solutions through research and consultation during the drafting or preparation stages to avoid the potential for confrontations and disputes during the implementation and administration of new water laws. The law may also stipulate to what extent government water administrators should factor customary water rights over abstraction permits or licensing into decision making, even to the extent of including fulfilment of customary water rights among licensing criteria (see Case 3.1).

Case 3.1 The Chagga furrow committees[20]

In the Pangani basin, Tanzania, the Chaggas have lived on Mt Kilimanjaro's slopes for 300–450 years. The Chagga are a high intensity farming community, which developed a system of irrigation furrows to deliver water from natural watercourses to their crops. The first furrows on Mt Kilimanjaro were dug in the 18th century.

Traditionally, a furrow committee chairman (always male, drawn from the lineage of the person who originally dug the furrow) managed irrigation furrows. A furrow passes through or along the land of various potential water users, many of whom wish to use the water for irrigation. To qualify for an allocation, a Chagga had to be a member of the furrow board and comply with the chairman's instructions. Members help maintain the furrows. Punishment for non-compliance included fines and prohibitions on water use.

People alongside furrows may need more or less water than others. The chair has the flexibility to make exceptions to the formal allocation system, a flexibility that is crucial to the allocative efficiency and sustainability of the irrigation system. This complementary relationship between formal rules and working rules developed over hundreds of years in the highlands. In lowland areas, where settlement is more recent, the climate drier, the population more scattered and social diversity much higher, the cohesion between formal and working rules is not so great.

These traditional rules emphasize social equity and conflict minimization. They sit uneasily alongside new, externally imposed, rules that demand efficient water use. In addition, the new rules seek the establishment of Water Users' Associations (WUAs), which are not the same as Furrow Committees. In a culture where water is perceived to be a 'gift from God', the notion that it must be paid for is simply illogical. In addition, externally imposed sets of rules are far less likely to succeed than internally generated ones that have been altered and moulded to local cultural and environmental peculiarities over long periods of time.

3.2.3 Relation to other laws on natural resources

Integrated Water Resources Management (IWRM) requires that water legislation be compatible with laws related to other natural resources, such as land laws or those for environmental management and protection. For example, plans for buildings or roads, or intentions for agricultural land use are subject to land development legislation, but they may also require separate permit requirements under water law relating to their effects on water quality or quantity (see Case 3.2). Similarly, environmental laws may require conservation of natural habitats for animal and plant species along or within a watercourse, creating obligations for the way water resources are managed within a river basin.

Case 3.2 Water law reaches into building codes and agricultural land use in Andhra Pradesh, India[21]

In the Indian state of Andhra Pradesh, management of land and water resources are regulated by the 2002 Water, Land and Trees Act, which enabled integration of a range of regulations. For example, to enhance the recharge of ground water, fitting rainwater harvesting equipment to the rooftops of buildings is mandatory as part of the building construction approval by the local government authorities. The approval is needed in order to connect to water and power utilities. The same law also stipulates that local authorities may formulate guidelines for landscaping and tree planting along canal banks and water bodies, but that they must ensure tree planting along the 'foreshore area of open water bodies'. Tree felling or pruning is subject to permit conditions. Agricultural land owners have a duty to plant up to 5 percent of their holdings with trees, but small-scale farmers and wetland owners are exempt from these obligations.

"IWRM REQUIRES THAT WATER LEGISLATION BE COMPATIBLE WITH LAWS RELATED TO OTHER NATURAL RESOURCES"

International treaties and agreements

National water legislation must reflect the commitments made by States under international agreements on rivers, lakes and ground waters. Such agreements may apply on a generic regional basis, such as in the Water Framework Directive of the European Union, or in relation to transboundary agreements on specific rivers, lakes or ground waters.

International water resource treaties often specify approaches such as requiring the use of 'best available technology' for pollution control. Conversely, some treaty obligations are cast in generic language, leaving to State parties the choice of regulatory and other instruments to be adopted through national legislation. International agreements may also commit countries to working together to establish bilateral or multilateral river, lake (or, more rarely, ground water) basin institutions, which must then be facilitated through national legislation.

"NATIONAL WATER LEGISLATION MUST REFLECT THE COMMITMENTS MADE BY STATES UNDER INTERNATIONAL AGREEMENTS"

3.2.4 Water law reforms

As discussed in Chapters 1 and 2, a movement to review existing water laws and enact comprehensive new legislation has gained momentum since the early 1990s in reaction to global concern over scarcity of water and growing concerns over climate change. International insistence on the application of the IWRM concept and goals is an important driver of this change. Demand for broadening the scope of water law has grown to encompass goals relating to distributional equity, environmental protection, efficiency of allocation, and security of legal tenure in the face of a volatile and shrinking resource base.

Codification of new policy objectives into legislation tends to involve a lengthy consultative process in which the legal implications of policy issues are thoroughly assessed and analyzed. These processes typically entail review of the strengths and weaknesses of existing legislation, administrative practice and planning instruments, as well as the functions and structures of relevant institutions. Consultation of stakeholders and interested parties should take account of vulnerable groups.

Review processes should be supported by water audits that survey existing water uses and provide scientific assessments of the environmental capacity of available water resources to, for example, support abstraction or receive waste.

"CODIFICATION OF NEW POLICY OBJECTIVES INTO LEGISLATION INVOLVES A LENGTHY CONSULTATIVE PROCESS"

There is a well established trend toward consolidation and harmonization of previously fragmented laws into a single comprehensive text. Consolidation avoids the trouble of issues being overlooked and the complications of having to navigate through numerous and often inconsistent pieces of legislation. Fragmentation has widely led to secondary legislation on provisions that are not included in the main Water Code or Water Act and this new legislation is sometimes considered to have inferior authority. A unified code for water also expresses a decisive political commitment. However, the stability of the way water resources are managed is vulnerable to election cycles that transform governing structures. Complete overhauls of government, such as have occurred in transitions from communist to market economies, for example, have had significant impacts on water management. Even on a less drastic scale, policy reversals – for example, moves towards privatization or changes in conservation priorities – and new budgets put forward by the government of the day necessarily impact the regulatory system for water.

"A UNIFIED CODE FOR WATER EXPRESSES A DECISIVE POLITICAL COMMITMENT"

A unified code of water law must establish water rights and fair allocations, protect water quality for human and ecosystem uses as defined by water policy, and set up an institutional water management structure.

3.3 Water allocation

3.3.1 Who owns water and who has water rights?

Because of water's fundamental role in sustaining life, new or reformed water policy and law should keep water rights within the public domain. The concept of private water and absolute riparian rights over surface water and ground water has been eroded in the modern era, giving way to concepts of water being in some degree of public 'ownership'. These concepts range from ownership of water by the state to the state holding water 'in trust' for the public. In certain cases, the state has been recognized as having possession of 'superior use' rights. Regardless of the concept chosen, the concept of public waters makes the government the custodian of water resources and gives it both the authority to allocate water and the responsibility to protect it.

In line with public ownership, the private rights of individuals have been relegated to being usufructuary in character. Usufruct rights are rights to the use of water resources without ownership. Replacement of the concept of private water rights with water rights conferred by government permit has produced an interface with property law, which is particularly poignant at two junctures: (a) when a reform is legislated for the first time, and (b) after the reform, if a permit-based right must be sacrificed in whole or in part to accommodate another use for water or for conservation. In both cases, the law must stipulate compensatory measures, but the situation is not always clear-cut.

Generally, new laws are designed with mechanisms to bring pre-reform water rights, including customary rights, within the fold of new regulations as painlessly as possible to minimize the exposure of the reforms to judicial claims of expropriation of constitutionally protected private property rights. This reassignment of rights is generally pursued, though not always achieved, by granting varying degrees of statutory recognition to pre-reform water rights. Such recognition may be automatic for 'small' domestic and household abstractions, but larger new abstractions may be made subject to registration of a claim with the government within a set deadline. The law may grant the government discretion in accepting such claims, or may direct it to accept claims at face value, albeit with the risk of over-allocating the resource. Draconian deadlines, and penalties of forfeiture of unclaimed rights, can result in water users ignoring the law and the eventual neglect of the legislation. For example, in Mexico, the water rights part of a package of extensive water law reforms enacted in 1992 had to be scrapped two years later. It was replaced by a successful package of user-friendly inducements, financial and otherwise, to entice holders of pre-1992 water rights to register claims.

"THE CONCEPT OF PUBLIC WATERS MAKES THE GOVERNMENT THE CUSTODIAN OF WATER RESOURCES"

Provisions to convert water rights within reform processes are found at the end of water statutes, under the label 'transitional' provisions because they are to have effect for a limited period of time. After expiration of this period, it is presumed that all pre-reform water rights will have been claimed and registered. However generous, these transitional packages are no guarantee that the reforms will be shielded from claims in the courts, of expropriation of constitutionally protected private property rights by dissatisfied water users. The record on this score is mixed: the abolition of riparian rights in England, Australian states, South Africa and many US states was spared legal challenges of unconstitutionality, but similar reforms in Spain, Italy and the State of Arizona were challenged on these grounds. The relevant case law from these three jurisdictions, however, has been consistent in rejecting the claims and upholding the reforms. The essential concern is balancing water availability and the guarantee of tenancy rights in abstraction licences and permits.

3.3.2 Allocating water to users

A fundamental role of water law is to allocate available water resources to competing uses, whether *in-stream* or *off-stream*. *In-stream* uses include activities such as hydropower generation, timber floating and recreation, as well as conservation of river and lake habitats and preservation of scenic, cultural and religious values and practices. *Off-stream* uses include domestic, agricultural and industrial uses of water.

"A FUNDAMENTAL ROLE OF WATER LAW IS TO ALLOCATE AVAILABLE WATER RESOURCES TO COMPETING USES"

A transparent permit system enables the orderly allocation of a scarce resource, and provides checks and balances between the profit, or other, motivation of the permit seeker and the interest of the general public that the resource base is not depleted or contaminated beyond acceptable levels.

Water resource abstraction permits and licences

Licensing is the predominant tool by which water abstraction and wastewater disposal are regulated and monitored by state authorities. Permit systems contribute to the conservation and protection of waters by preventing over-allocation and pollution, while pursuing equity, fairness and transparency (see Case 3.3). Market-based mechanisms for allocation, intended to support efficiency goals, are also predicated on government permits. Allocation decisions are enforced through regular monitoring of users' withdrawals and the condition of the resource. Penalties for breach of allocation agreements and dispute-resolution mechanisms are important parts of a comprehensive water law.

"A TRANSPARENT PERMIT SYSTEM ENABLES THE ALLOCATION OF A SCARCE RESOURCE"

Case 3.3 Applying for a water abstraction licence in Namibia[22]

The 2004 Water Resources Management Act in Namibia specifies the steps needed and the criteria for granting a licence to abstract and use water. The application form must be submitted to the Minister and include the name of the applicant, the relevant water resource and location, the type and location of use, the name of the landowner, and the rate, volume and time of abstraction. The application must be accompanied by proof of publication of the notice, the prescribed fee, and an environmental impact analysis of the proposed water use. The applicant must, 60 days prior to submission of form, issue a notice in the *State Gazette* inviting interested persons to object in writing, indicating the place and period to make the objections. After receiving an application, the Minister must refer it to the basin management committee concerned with investigation and recommendations. The basin management committee or the Minister must investigate all matters pertaining to the application, consider any objections, and in this case grant the applicant the opportunity to make additional supporting representations. Basin committees must then make their recommendations to the Minister. Additionally the Minister must consider any further objections, the representations of the applicant, the environmental impact analysis and determine whether the requirements of conditions of licences have been met. An appeal against the Minister's decision may be filed with the Water Tribunal within 14 days.

Criteria to be considered in granting licences to abstract and use water include: consistency of the proposed abstraction and use with the Master Plan and the provision of the national reserve; impact of the proposed abstraction on existing water users including the environment; general principles of efficient water management practices; redressing past racial and gender discrimination; likely impact on water quality, aquatic ecosystems and Namibia's international obligations; and extent of customary rights and practices in, or dependent upon, the water resource.

The detailed criteria used to evaluate applications should be specified in the water laws and subject to refinement in administrative rules.

Identify the water uses needing permits. These uses can be, for example, abstraction for dam storage, use of stored water for any economic activity, or any alteration of water flows or river banks, such as canal construction. For reasons of administrative expediency, small abstractions for domestic water use do not require a permit. The law must detail the standard conditions of permits and licences, and itemize their standard contents. Decisions by governments to grant a permit or licence should be based on a range of considerations which can be spelled out in legislation. Such considerations might include:

- Consider how the use being permitted will affect other water users.
- Consider how the water body being used will be affected, including in relation to water quality objectives.
- Consider the socio-economic impacts of the water use proposed.
- Ask whether any investments relating to water use have already been made by the applicant.
- Consider how state obligations, such as public-interest uses of the water body, will be affected.
- Consider impacts on reserve allocations or water for protected areas.

3.3.3. Water rights trading

Trading of water rights is the transfer or exchange of permits or licences for water extraction granted by government. Water rights may be traded for monetary compensation, the right to another type of water use, or a donation. The bulk of water trades tend to occur from low-value subsistence to high-value commercial irrigation and from irrigation to municipal or industrial use. Provisions for trading water rights are increasingly being made in contemporary water legislation with the aim of achieving more efficient allocation and use of water. However, trading empowers water users rather than the government to make decisions about water allocation. Thus, governments may want to impose restrictions on trades such as:

- Whether trading applies only during certain seasons.
- Whether allocations, in whole or in part, can be traded all year round.
- That the government is notified when a trade is made, especially a permanent exchange, so it can review whether the transfer would modify the original terms of the permit.
- The procedures to be used to transfer licences, such as the list of criteria for granting authorization, the terms of transfers, and assignment of rights or water allocations under licences.

A strong regulatory and fiscal framework is a prerequisite for effective trading, including suitable consultation processes, management structures, clear property and tenure rights, penalties for rule infractions and mechanisms for the enforcement of contracts and redress. Regulation of trading must ensure protection against environmental degradation, undesirable effects on cultural values, loss of potential to satisfy priority needs for water and harm to marginal groups. Legislation should include provisions for independent monitoring of the trades.

Chile, South Africa, Australia, several western states of the United States, and Spain's Canary Islands have water trading schemes, all of them examples of sophisticated and efficient schemes around the world (see Case 3.4). Some other countries, especially in South Asia, also have informal water trading schemes.

Case 3.4 The Chilean water market[23]

The Chilean Water Code (1981) establishes that water rights are separated from land ownership and can be freely bought, sold, mortgaged and transferred like other forms of real property. Water rights may be obtained only by permit from the *Dirección General del Agua* (DGA), which also plays a leading role in the resolution of conflicts in water trading. DGA entitles consumptive and non-consumptive rights. Non-consumptive rights are bound to return a certain amount of water. The DGA grants rights free of charge and taxes. The Code establishes two types of transactions: selling and renting. In the Limari and Digullin basins, there is a basic irrigation infrastructure that facilitates reallocation between users through renting. When a transaction is agreed, it is communicated to the authority of the reservoir, which then allows a user to withdraw extra water

for a specific time. The flexibility of the ability to rent water has brought efficiency to the irrigation sector. In another example, irrigators sometimes rent wells to water treatment companies to supply the population during a drought. Even during non-drought times, the option of selling water gives the irrigation companies an incentive to conserve their water by maintaining a good infrastructure (reducing the loss of water through filtration) instead of building expensive new infrastructure.

There are some criticisms of the system. First, because the Water Code does not require putting the water to a beneficial use, it is possible for companies to acquire water rights but not use them, limiting the country's productive capacity by limiting the availability of water. Conflicts have broken out between energy companies, who have bought water rights to hold, and irrigators, who claim that the water that energy companies retain is affecting their right to irrigate, especially in the summer season, and that non-consumptive rights do not authorize the holder to affect the natural course of the resource. A second issue is pollution. Despite the fact that the Water Code states that non-consumptive users cannot return water in a way that affects other users, the discharge of effluents and the deviation of water upstream causes pollution downstream. Third, the DGA is in charge of establishing minimum flows for each basin, but since considerable water rights have been granted in many basins, the DGA may have to buy water rights to comply with those minimums.

"WATER SERVICE LAWS REGULATE THE QUALITY, DEPENDABILITY AND AFFORDABILITY OF THE SERVICE"

3.3.4 Providing water services

Another part of a comprehensive Water Code or Water law deals with the provision and regulation of the *service* of supplying water for consumption and use. Water service laws regulate the quality, dependability and affordability of the service, and seek to strike a balance between the profit motivation of private water providers and the interests of customers and of civil society in upholding public service standards. Public and private water suppliers are subject to laws and regulations regarding delivery of services, quality of water provided, and general water resource management legislation. Each player in the water service industry – whether a commercial, para-statal or state company – must secure the abstraction or extraction permits required of all users and, in general, comply with the relevant water resource legislation. The Water Code should specify what types of providers are allowed and spell out how the State and private providers should interact (see also Chapter 4).

3.4 Water quality protection

3.4.1 Water pollution control

Protection of water quality is vital, not only for sustainable development and conservation of water sources, but also for the safety of water supplies and therefore in meeting basic human needs. Water law must address regulation of both point sources and diffuse sources of pollution.

Water pollution from point sources

Point sources of water pollution are discharge pipes such as industrial outfalls and municipal sewers. Both regulatory and economic mechanisms are used to prevent and reduce water pollution from point sources. Examples are:

- Discharge permits that specify quality standards for effluent.
- Mandated objectives for water quality in the water bodies receiving discharges.
- Fees for discharging waste into water bodies, based on the 'polluter-pays' principle.

Historically, point sources of pollution were tackled first in water quality legislation because they were easier than non-point sources to identify and regulate. Substantial water pollution can come from water that runs off farmland and urban areas, but it is much more difficult to identify the precise sources of pollution and therefore appropriate regulatory measures.

"WATER LAW MUST ADDRESS REGULATION OF BOTH POINT SOURCES AND DIFFUSE SOURCES OF POLLUTION"

Water pollution from diffuse sources

Recent generations of water laws have addressed water pollution from diffuse sources, notably run-off from farmland and urban areas. From farmland, excess fertilizers and pesticides, as well as eroded soil, pollute streams and rivers. From urban areas, oil and other chemicals from city streets, sewage overflows and excess run-off from paved areas also cause water pollution. There has been a shift from trying to control this diffuse discharge at the point it enters the water towards promoting best practices on the land. Legal provisions need to take account of the specific activities that can cause or exacerbate pollution. For example, regulatory restrictions may be developed for the application of fertilizers that lead to nitrate pollution of surface waters or ground water. Good practice guidelines such as planting green belts along waterways, and limiting the amount and timing of fertilizer and pesticide applications, are common in many countries. Provisions can be included in legislation to support adoption of these practices with the option of making them mandatory. Fining farmers for run-off pollution is also an option, but can be unpopular.

3.4.2 Monitoring, compliance and enforcement

Chapter 5 goes into more depth on these topics, but they are introduced here as they require legal provisions in the Water Code to make them possible.

Monitoring

To support compliance and enforcement, governments must establish, by legislation, systems for monitoring users' performance and the changing condition of the water resources. Quality standards should be established that adhere to accepted methods of scientific measurement, data processing, and analysis. Data from monitoring is often used to support the protection and management of water resources, and in the development of water resource plans. Data should be available for use by state agencies, water users and the general public.

"TO SUPPORT COMPLIANCE AND ENFORCEMENT, GOVERNMENTS MUST ESTABLISH SYSTEMS FOR MONITORING"

Enforcement

Provisions must be made in law for enforcement mechanisms, such as requirements for notification of a violation, and the ability of enforcement officials to enter and search a premises.

Penalties

Legislation must set out the penalties for the failure to comply with the requirements of the law in general and of the conditions of licences or permits. A range of penalties is possible but should include suspension and cancellation of the permit or licence. As stated by the EU Water Framework Directive, enforcement of penalty provisions arising from statutory offences should aim to be 'effective, proportionate and dissuasive'.

"LEGISLATION MUST SET OUT THE PENALTIES FOR THE FAILURE TO COMPLY WITH THE REQUIREMENTS OF THE LAW"

Dispute resolution

Provisions should be made in legislation for measures to prevent and resolve conflicts, such as mediation, arbitration, or court proceedings to support resolution of cases between water users and utility companies, or between users and regulatory state bodies. The law may accommodate the involvement of individuals, local community organizations, government agents or the courts. Hearings may be required before dispute-resolution commissions authorized to mediate issues. Failure to comply with or to reach a decision can then result in referral to a judicial body. Decisions and case law from such bodies are important sources of law because they clarify and interpret statutory provisions and establish precedents.

It is important that citizens know they have the option of legal redress against the State, private companies, or individuals who fail to uphold the law. For example, under the 2004 Water Resources Management Act in Namibia, a Water Tribunal was established with jurisdiction over any water-related issues in the country, including appeals. It has the power to summon any person as a party to the case to acquire necessary information. The law sets out the requisite composition of the Tribunal and procedures for the appointment of members, their necessary qualifications, and their remuneration. Budgetary and expenditure matters are also addressed under these provisions. In addition, the Tribunal has, under certain conditions, the authority to mediate and arbitrate water issues.

"IT IS IMPORTANT THAT CITIZENS KNOW THEY HAVE THE OPTION OF LEGAL REDRESS"

3.5 Incorporating conservation into water law

Water laws often contain environmental provisions that emphasize specific environmental objectives with only generic guidance on how to go about achieving them. These provisions, found in the opening sections of water laws, may seem aspirational, but they are in fact binding obligations. For example, an opening provision may state that the rules and regulations should be interpreted according to the principles of sustainability, conservation, protection, preservation or enhancement of water bodies, their dependent ecosystems, and their water quantity and quality. The articulation of increasingly environmentally conscious guiding principles paves the way for interpretation of the rest of the statute with these priorities in mind. For example, the 2004 Namibian Water Resources Management Act calls for water use for human needs to conform to requirements for protecting ecosystems and the environment to the maximum extent, and advocates holistic planning and management that encompasses environmental considerations. An example of ecological priorities in a law on water management can be found in Case 3.5. Some mechanisms for addressing environmental objectives include: incorporating the concept of 'environmental flows' into legislation, requiring environmental impact assessments and requiring protection measures for water bodies in certain circumstances.

Case 3.5 Ecological elements of water law, New South Wales, Australia[24]

The Water Management Act in New South Wales, Australia establishes a number of fundamental principles that emphasize the environmental dimension of water management. According to these principles:

- Water sources, floodplains and dependent ecosystems (including ground water and wetlands) should be protected and restored and, where possible, land should not be degraded.
- Habitats, animals and plants that benefit from water, or are potentially affected by managed activities, should be protected and (in the case of habitats) restored.
- The water quality of all water sources should be protected and, wherever possible, enhanced.
- The cumulative impacts of water management licences and approvals, and other activities on water sources and their dependent ecosystems should be considered and minimized.
- Features of indigenous significance should be protected.
- Geographical and other features of major cultural, heritage or spiritual significance should be protected.
- Social and economic benefits to the community should be maximized.
- The principles of adaptive management should be applied, which should be responsive to monitoring and improvements in understanding of ecological water requirements.

3.5.1 Environmental flows

The IUCN toolkit *FLOW*[25] defines an 'environmental flow' as the water regime provided within a river, wetland, or coastal zone to maintain ecosystems and their benefits when flows are regulated and when there are competing water uses. Environmental flows are usually different from natural flows, but they vary seasonally in volume according to the needs of ecosystems. They are determined through assessment of the impacts of changes in the volume and timing of flow on both the condition of ecosystems and river and water users. Flow regimes can then be agreed by weighing up environmental, economic and social trade-offs between possible flow regimes. As outlined in *FLOW*, such agreement can emerge through negotiation among stakeholders. Application of environmental flows is facilitated by clearly specifying mechanisms for assessment and implementation in water law.

Environmental flows are a scientific advance over the concept of 'minimum flows', which also appear in water law. The minimum flow is the least quantity of water required to maintain water quality and support the aquatic environment. Minimum flows can be maintained by modification of infrastructure or changes in water allocation policies and entitlements. Minimum flow requirements mandate a certain volume to be maintained in streams. Such requirements are often the basis of water allocation plans. Some laws have stipulated the actual *percentage* of minimum flow requirements, which can be helpful in a dry period when allocations for other uses may take an unusually high percentage of the water resource. Another delicate legal issue is whether minimum flow requirements should only affect permits granted *after* the establishment of such requirements (see Case 3.6).

Case 3.6 Environmental flows in Costa Rica and Chile

Environmental flow in Costa Rican law is defined in the last draft of the nation's Water Law as the 'quantity of water required for guaranteeing the sustainability of each ecosystem'. The National Water Resources Directorate – a technical entity for institutional management within the Ministry of Environment and Energy – is in charge of establishing the means for calculating this flow, paying special attention to the different uses and its hydrological location.

The Hydrological Unit Water Plans will be the body that determines the required environmental flow for each body of water. If a permit affects the established environmental flows, it will not be authorized or renewed, with the exception of those required for supply of the human population. The Costa Rican Water Law draft is still under parliamentary debate for approval.

In Chile, Law 20017 of 16 June 2005 which reforms the Water Code, establishes that the water administration must determine the minimum ecological flow requirements of surface watercourses. It stipulates that the required minimum flow should not exceed 20 percent of the average annual flow or, in exceptional cases, as set by the President, 40 percent of the average annual flow. Existing rights are not affected, and the proposed impact will be solely on rights of use issued after the date of the law.

3.5.2 National water reserves and protected areas

Many water laws contain provisions obligating the State to set aside national water reserves. A useful definition of 'national reserve' is 'the quality and quantity of water that is required to satisfy present and future basic human needs, as well as to protect aquatic ecosystems and to secure sustainable development and use of that water resource'. Therefore water should not be extracted or used in a manner that will deplete the national reserve. Reserves are usually incorporated into water resource master plans or river/lake basin water resource plans and used in setting conditions for granting water licences.

Photo 3.1 Water rules and regulations through signs indicating nature and water protection areas (Germany). Rules should be clear, provide certainty but also flexibility to address a wide range of water related issues.

The South African Reserve Law pioneered the establishment of national water reserves. It has two components, 'basic human needs reserve' and an 'ecological reserve'. These are granted precedence in water allocation. Generally however, reserves may be used for domestic and urban needs, power generation, and meeting the flow requirements for ecosystem and wetland protection (see Case 3.7).

Case 3.7 National water reserves in the South African Water Law

A 'reserve' is defined as: '…the quantity and quality of water required to satisfy basic human needs by securing a basic water supply, as prescribed under the Water Services Act 108 of 1997 (WSA), 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 resource; and to protect aquatic ecosystems in order to secure ecologically sustainable development and use of the relevant water resource (chapter 1).' Measures provided for by the NWA to protect the quantity and quality of the reserve include: water management strategies (chapter 2); a classification system for water resources; determination of resource quality objectives; determination of the reserve; strategies for water pollution prevention, remediation and emergency incidents (chapter 3); an elaborate water use licensing system (chapter 4); a pricing strategy for water use including charges for waste discharge and pollution (chapter 5); establishment of agencies to regulate water resources at catchment level (catchment management agencies) (chapter 7); establishment of water user associations (chapter 8) and advisory committees (chapter 9); provisions on international water management (chapter 10); access to and rights over land necessary to protect water resources (chapter 13); establishment of monitoring, assessment and information systems (chapter 14); and criminal offences and remedies (chapter 16).

"RESERVES ARE USUALLY INCORPORATED INTO WATER RESOURCE MASTER PLANS"

The concept of a 'protected area' is frequently found in water law and national water plans. For example, the 2005 Water Resource Management Act in Namibia provides for establishment of protected areas to safeguard 'any water resource, riverine habitat, watershed, wetland, environment or ecosystem at risk of depletion, contamination, extinction or disturbance from any source, including aquatic and terrestrial weeds'. These provisions include the duty to publicize the purposes of declaring such an area, its geographic boundaries, and the activities that are prohibited within it. Declaration of a protected area can trigger restrictions on water abstraction, application of pesticides or fertilizers, road construction, or crop cultivation that modifies land contours, tree felling, mining, and effluent discharge. The impacts of these restrictions on affected permits must be assessed and distributed proportionately across the licensee population in the area. An example of using the protected area approach to conservation of amenity values in river basins is described in Case 3.8.

Case 3.8 Protected water landscapes [26]

Areas of scenic beauty or recreational values can be subject to special protection. The U. S. Wild and Scenic Rivers Act of 1968 declares that certain selected rivers that have remarkable scenic, recreational, geological, fish and wildlife, historic, cultural or similar values, should be preserved in free-flowing condition, and that they and their immediate environments shall be protected for the benefit and enjoyment of present and future generations. This law designates prohibited development areas, forbidding building and any type of construction (such as dams), which would affect other parts of the water resource and includes guidelines on the determination of such a protected area.

A similar approach is the establishment of 'protection zones' such as zones of sanitary protection, stock formation, ground water protection, water protection, and zones of ecological disasters. For example, the 2005 Water Code in Kyrgyzstan includes provision for protection zones for the purposes of protecting aquatic ecosystems, flow, ground water and environmental health. Once protection zones are created, the government must establish procedures for regulation of land use and forest use within them, of construction of pipelines and communication infrastructure, and for extraction of biological resources and materials. Monitoring programmes and cataloguing protection zones in a register are needed to support enforcement.

3.5.3 Ground water protection

Specific provisions for protection of aquifers are common in water laws. They typically define particular licensing requirements for activities such as drilling bore holes or constructing wells. Laws contain especially stringent controls to safeguard against overexploitation or depletion of ground waters. This concern reflects the need for water policy and law to preserve the natural interconnection between ground water and stream water because of the severity of damage to the environment that can result from overexploitation and pollution of aquifers. Ground water protection laws commonly contain rules on ground water abstraction that cover well testing and casing, records submission, inspection rights of authorities, and penalties for non-compliance. The high degree of regulation is also reflected in qualification and record-keeping requirements for professional drilling personnel.

"SPECIFIC PROVISIONS FOR PROTECTION OF AQUIFERS ARE COMMON IN WATER LAWS"

3.5.4 Environmental water trades and water trusts

Trading of water rights has gained currency as a market-based device for safeguarding or restoring aquatic ecosystems. Water rights are purchased on behalf of the environment and used to set up 'water trusts'. For example, the pioneering Oregon Trust in the United States purchased rights for 'off-stream' water uses in the market and converted them to 'in-stream' rights. They then used these rights to reinstate stream flows.[27] Following this model, legislation governing water trusts in Washington State stipulates that the State may acquire all or portions of existing water rights, by purchase, gift or other appropriate means other than by condemnation, from any person or entity or combination of persons or entities. Once acquired, such rights are trust water rights. A water right acquired by the State that is expressly conditioned to limit its use to in-stream purposes shall be administered as a trust water right in compliance with that condition.[28]

The 2003 Catchment Management Authorities Act in New South Wales, Australia demonstrates the workings of a slightly different type of trust fund. Under this Act, a trust fund is operated using capital acquired from the state budget, gifts or bequests, water licence proceeds, and investment profits from the trust money. These funds are available under prescribed conditions for investment in 'adaptive environmental water' (water designated for environmental uses according to the terms of water licences), upgrades to water quality, water conservation works, and any environmentally-related functions under the law.

"TRADING OF WATER RIGHTS HAS GAINED CURRENCY AS A MARKET-BASED DEVICE"

3.5.5 Environmental impact assessments

Laws often incorporate the use of environmental impact assessments (EIAs) in a number of areas including abstraction licensing, waste disposal permitting, and planning. EIAs are surveys that assess how, for example, changes in land use, site development or water management will impact the environment including watercourses and aquatic ecosystems. EIAs are commonly required in statutes as part of the process for granting permits or licences for discharge of wastewater or water abstraction. Often the review procedures of such studies allow for consultation and analysis by a competent environmental body.

"LAWS OFTEN INCORPORATE THE USE OF ENVIRONMENTAL IMPACT ASSESSMENTS"

3.6 Prescribing institutional functions

Chapter 4 is devoted to a discussion of effective institutional arrangements. But most government institutions must be established by legislation, and laws may also be needed to determine how governments work with non-governmental or private organizations active in water-related issues.

3.6.1 Governmental institutions

Policy and law are the platform for the establishment of an institutional framework that will manage water resources. Ultimately, water law should not only allow for the establishment of water institutions at various levels, but also for their effective functioning and their capacity to realize national or regional objectives. The principal functions of water law with regard to state water institutions are to:

- Clearly delineate responsibilities and functions covering relevant public and private institutions particularly in the areas of licensing and monitoring.
- Identify key state actors.
- Set out the rules for the establishment and operation of institutions at various levels, including details of their functions and powers.
- Outline their structure.
- Establish general administrative guidelines.
- Set the qualification of staff members, terms of office, meetings, reports and finances of the institution.
- Require capacity building at all levels through training and education as a long-term strategy for enhancing efficiency and to reduce the likelihood of institutional weaknesses crippling the law.

"POLICY AND LAW ARE THE PLATFORM FOR THE ESTABLISHMENT OF AN INSTITUTIONAL FRAMEWORK THAT WILL MANAGE WATER RESOURCES"

Case 3.9 China's water code assigns responsibilities to the ministry[29]

China's water policy code of 2002 assigns the following responsibilities to the Ministry of Water Resources:

- Formulate water-related policies, development strategies, and medium and long-term development plans, including water conservation and demand management policies.
- Implement the integrated management of water resources, including atmospheric water, surface water and ground water.
- Formulate water resource protection plans in accordance with related national laws, regulations and standards concerning resource and environmental protection.
- Formulate economic regulatory measures for the water sector; exercise macro-economic regulation on the utilization of funds within the water industry; provide guidance for economic activities related to water supply, hydropower, and diversified development within the water sector; provide recommendations on economic regulation of water pricing, taxation, credit and financial affairs.
- Draft and review proposals and feasibility study reports on large and medium-sized capital water construction projects in the water sector.
- Draft and supervise both the execution of technical standards for the water sector, and specifications and codes for water works; implement key hydrological research projects; and popularize and disseminate water-related technologies.
- Provide guidance for activities related to rural water resources; organize and coordinate capital construction of farmland drainage and irrigation, rural electrification, and water supply projects for townships and villages.

Water-related institutions should be established at the local, state/provincial, watershed and national levels. Provisions should also be made for participating in transboundary watershed management commissions.

3.6.2 Non-governmental organizations and the private sector

Devolution of authority and decentralization of management of water resources to the basin or catchment level, with various forms of involvement by community groups and the private sector, is increasingly common practice. It not only encourages awareness of, and responsibility for, water resources but also facilitates acceptance of the legal regime and thus enhances its enforceability and ultimately its societal value. Water laws should also encourage public participation and set rules for working with NGOs and with contracting private organizations, who may be vendors or partners in various efforts.

"WATER LAWS SHOULD ALSO ENCOURAGE PUBLIC PARTICIPATION"

The participation of a wide range of actors in the management process also enhances the stability of institutional arrangements. For example, when reversal of policies accompanies changes of government, with attendant staff changes and modifications to budgets, impacts on the water management framework can be attenuated if stakeholders have been empowered to share responsibilities, especially at the grassroots level.

Decentralized management is reflected in legislation through concepts such as 'catchment management area agencies' and 'water user associations' (WUAs). WUAs have minimal state input and

are primarily cooperative entities that undertake water-related activities for mutual benefit at local level. They are subject to national policies and plans, and laws frequently confer WUAs with legal personality for ease of operation, although some smaller associations can function without it (usually where monetary transactions are not involved). As 'legal persons', WUAs have the right to enter into contracts, hold bank accounts, employ staff and participate in legal proceedings in their own names. Constituent members cannot be held liable as individuals. It is useful to state explicitly in legislation the degree, if any, of liability, how surplus income may be retained or distributed, and how their independence from the state is managed in their role as public service providers.[30]

3.7 Weaknesses of existing legal systems

The preparation of new water legislation should capitalize on the strengths of existing legal systems and avoid their weaknesses. In the context of increasing competition for ever scarcer water resources, government-administered permit systems hold the best promise across the spectrum of legal systems for the orderly arbitration of conflicting interests, and for legitimizing the environment as a 'user' of the resource. Their distinctive strength, valid across legal systems, is the *security of tenure* afforded by government grants of licences for water use. This security is very important to prospective investors, but it is never absolute, as security is invariably qualified by the flexibility sought by government administrators to adjust allocation patterns to changing policy, hydrological, social, economic and technological circumstances. The environment, and the ecological value and function of surface and groundwater systems, rank prominently in recent water legislation among the variables that attenuate the security of legal title to water sought by investors. The strength of a permit system, however, can be all too easily imperilled by the weakness of the machinery that administers the system. A permit system in the hands of a malfunctioning, slow, arbitrary and opaque administration will quickly become irrelevant at best, and an instrument of oppression and corruption at worst.

"GOVERNMENT-ADMINISTERED PERMIT SYSTEMS HOLD THE BEST PROMISE FOR THE ARBITRATION OF CONFLICTING INTERESTS"

A weakness running across all legal systems and most national water laws is ignorance of customary practices, whose significance and resilience in most rural areas are a factor to be reckoned with in legislation and in its administration by government bureaucrats and technocrats. The risk is that both the legislation and its administrators multiply opportunities for conflict on the ground, thus defeating the very purpose of a regulatory approach to managing and developing water resources. An overarching problem is the transition from the old to a new concept of water ownership and allocation, with its panoply of property-related issues. Another weakness is inadequate outreach to the established water-using population. Transition is a very delicate aspect of water law reform; inadequate attention at the drafting stage, and inadequate preparation at the implementation stage may delay and jeopardize the reforms.

"A WEAKNESS RUNNING ACROSS LEGAL SYSTEMS AND NATIONAL WATER LAWS IS IGNORANCE OF CUSTOMARY PRACTICES"

3.8 Reforming water law: practical steps

Because legislative reform must be informed by policy, the steps described below presuppose interaction between the stages of forming the policies and writing the laws. Opportunities for public debate during both stages are also assumed. The steps below are given in a logical sequential order, although some may be carried out in parallel.

Step 1. Conceptualize the legal framework

At the national normative level

- Map out the legislation that is already on the statute books, and make sure that not only the Water Act(s), but also all the legislation that may contain provisions on water resources are canvassed.
- Identify whether the obligations inherent to water management are being addressed by the legal mandates.

At the national constitutional level

- Determine whether the country's national constitution provides the right to a clean and healthy environment.
- Check any other constitutional rights that may be linked to the rights to a clean and healthy environment and to water.
- Analyze the implementation modalities of these rights. Are there any conditions established by the national constitution? Have there been cases decided by the courts and tribunals on the implementation of these rights?

Regarding national and subnational laws on water and natural resources

- Check whether the country has a water law.
- Assess to what extent the water provisions are updated in accordance with new water policies.
- Verify the implementation of the water law in terms of responsiveness to changing realities and values.
- Check whether there are local bylaws and regulations on water.
- Check whether guidelines for water quality have been adopted.

Regional environmental agreements

- Identify regional agreements that may deal with water issues.
- Determine the country's obligations with regard to these agreements, identifying concrete duties with which the country must comply and whether it is doing so.

Step 2. Document customary practices

- Document existing customary practices before drafting new legislation to minimize friction between the water law reforms and established customary practices on the ground.

Step 3. Analyze existing legislation

- Analyze the existing legislation and its compatibility with the policies emerging from the policy enunciation process.

Step 4. Identify needed reforms

- Determine the scope and extent of the legislative reforms required to support the implementation of new policies.

Step 5. Include environmental provisions

The achievement of environmental water governance goals calls for any combination of mechanisms such as:

- Factoring the environmental health, ecological value, and function of water systems into all governmental decisions regarding water allocation in general, and water abstraction licensing and wastewater disposal permitting in particular.
- Prioritizing environmental allocations.
- Restricting trades of water rights that negatively affect the environment.
- Reserving volumes or flows of water for environmental support functions.
- Mandating the determination and observance of environmental flows of rivers.
- Making EIAs mandatory for water abstraction and wastewater disposal permits and licences. For administrative expediency's sake, this requirement can be scaled to the level of the importance and magnitude of the use applied for.

Step 6. Separate laws from regulations

- Shift matters of policy from administrative matters. The former belongs to an act of Parliament, whereas the latter can be left to implementing regulations to be made by government under the authority of an act of Parliament. Determining what belongs where, however, is a discretionary exercise.
- Avoid drafting a statute that operates at such a level of generality as to be ineffectual, or conversely getting bogged down in the minute administrative details of operation.

Step 7. Prepare regulations to implement the law

- Prepare regulations for the full implementation of the new law.
- The time lapse between the enactment of a new law by Parliament and the adoption by government of implementing regulations must be kept within reasonable bounds or risk jeopardizing the credibility of the reforms as a whole.

Step 8. Gauge governmental capacity

- Gauge the capacity of the government to internalize and act swiftly to implement the reforms, and plan the necessary upgrades ahead of the adoption of the proposed legislation. Otherwise the law runs the risk of being discredited and appearing irrelevant.
- Alternatively, the ambitions and scope of the reforms sought could be scaled down, or timed, to coincide with increases in administrative capacity.

Step 9. Inform and prepare water users

- Evaluate the preparedness of water users to receive and internalize the water law reforms. Prepare a serious outreach and information campaign for implementation following enactment of the new law.
- The public in general, and water users in particular, need to be informed and prepared not only to comply with the new law, but also to avail themselves of new opportunities for the protection of their legitimate interests and rights, and to participate in the decision-making process.


WATER LAW
TECHNOLOGICAL INNOVATION
STAKEHOLDER PARTICIPATION
FINDING YOUR WATER WAY

Chapter 4

Building a Sound Institutional Mechanism

4.1 Building governmental water institutions

An institutional framework is needed to move from reform of water policy and law to implementation and thus to achieve effective water governance. Such a framework should be set up to deliver IWRM goals, and incorporate crafting of relationships with non-governmental and private partners.

Water institutions have many functions. They must address a variety of issues in implementing water governance. Some of their major functions are:

1. Planning sustainable development of water resources

- Preparation of a national plan to determine the uses of the different water bodies and the sectoral uses of water according to national development and environmental policy.

2. Coordinating with other water-related institutions at the international, national and sub-national levels

- Working with other nations in an international river basin at the political and technical levels.
- Coordinating with other agencies, and provincial, basin and local water institutions, as well as with private and non-governmental organizations.
- Engaging with agencies representing major water-using sectors such as agriculture, industry, power and urban development.

3. Fostering public involvement

- Ensuring real participation by the public in water planning and development.

4. Implementing water distribution and development through regulations and negotiations

- Maintaining or restoring the health of the water system to provide clean drinking water, recreation, and water supply regeneration.
- Overseeing development of water works including water treatment systems, sewerage and sewage treatment facilities, irrigation and hydropower facilities.

5. Operating and maintaining water works infrastructure

- Adopting measures related to water works and other hydraulic installations, their operation and maintenance either through governmental agencies or through contracting with private companies.
- Developing clear stewardship regulations and contractual language for private operators.

6. Administering water rights

- Implementing a system to manage water rights through authorizations, permits, licences or concessions.

7. Managing conflict resolution

- Establishing mechanisms to resolve conflicts over water resources.

8. Conducting research for planning, monitoring and inspection

- Collecting, interpreting and acting on scientific data starting with an inventory of the nation's water bodies (surface water, ground water and atmospheric water) in terms of quantity and quality.
- Monitoring water quality, species composition, flow rates and other parameters before and after different interventions, and monitor use rates under permits.

9. Enforcing laws and regulations

- Ensuring enforcement of, and compliance with, regulations.

"AN APPROPRIATE INSTITUTIONAL FRAMEWORK IS BUILT BY USING AN ARRAY OF TYPES OF INSTITUTIONS"

An appropriate institutional framework is built by using an array of types of institutions that combine different functions at different administrative levels (international, national, local). There is no blueprint for an institutional framework because effective frameworks must reflect the reality in which they operate and will vary according to a country's structure (e.g., unitary/centralized or federal), and other political, religious, geographical and climatic factors. The decision to follow a particular approach will also depend on the political will and circumstances in which a water reform is undertaken.

Case 4.1 Water institutional reforms in Morocco

Moroccan institutional reform has been influenced by customary rule, the *Chraa* – the religious interpretation of Islamic law – and by the rules introduced by the French Protectorate. Religious, historical and political factors led institutional reform before independence, but later other factors such as severe droughts and economic crisis played a major role. In the early 1990s, the government passed a water law aimed at creating river basin authorities (RBAs) to prepare – with the national government – river basin management plans based on the principles of IWRM. The reform shifted certain water management paradigms: from water development to water allocation; from a centralized system recognizing customary rights to a decentralized and private management set up; from a subsidized to an autonomous approach and from a sectoral approach to integrated management.

The Moroccan experience shows how the interaction between the three components of a water governance system (policy, law and institutions) can influence the evolution of institutional reform. In the early stages of the reform process, legal aspects were crucial. Once a new legal framework was consolidated, instruments such as water pricing, and administrative components like the creation of RBAs and WUAs, became more relevant for translating the legal framework into action. There is no linear evolution in the water reform process (policy objectives-legal instruments-institutional set up), but the quest to achieve an effective water governance system adjusted to national realities is a process with different entry points, influenced by different factors, and ultimately depending on strengthening the governance system.

"THERE IS NO BLUEPRINT FOR AN INSTITUTIONAL FRAMEWORK"

4.2 Types of water institutions

Water institutions can range from complex international basin commissions to local water user groups. Table 4.1 lists the functions of water organizations at various levels. Box 4.1 gives examples of some existing water institutions.

Table 4.1 Classification of water institutions

Institution	Jurisdiction	Function	Characteristics
International Basin Commission	International/ inter-state	Handles issues related to the utilization of shared water resources. Political, executive and technical powers. Decisions can influence the national level.	Intergovernmental
Multiple agencies	National	Policy making, planning and coordination can be fragmented among different ministries and government bodies.	Governmental
National Ministry (with mixed authorities,e.g., forestry, fisheries, mining, energy)	National	Policy making, planning and coordination of water-related activities.	Governmental
Water Ministry	National	Policy making, planning and coordination of water-related activities.	Governmental
Water Council or Agency	National	Makes policy and coordinates the work of subordinated or affiliated agencies. Ensures coordination at the highest political level among all agencies involved in water management.	Governmental
Water Commission/Water Committee	National	Coordinates at the technical level only. Can be advisory or executive.	Governmental
Water Authority	Inter-provincial/ inter-regional	Handles issues relating to water supply, electricity, sewage. Its authority ranges across two or more administrative units (provinces, states, etc.).	Governmental
River Basin Authority	Basin/sub-basin	Manages a wide range of issues at the basin or sub-basin level. Coordinates development of projects.	Governmental
Water Users' Association	Local	Handles issues relating to municipal water supply, sewage, sanitation, irrigation for a small area.	Private/ non-governmental

Box 4.1 Examples of water institutions

International commission: In 2002, the Republics of Mozambique and South Africa, together with the Kingdom of Swaziland, signed an agreement to cooperate on the protection and sustainable utilization of the water resources of the Incomati and the Maputo watercourses. The Tripartite Permanent Technical Committee, established in a prior agreement among the parties, serves as the competent water authority responsible for the joint implementation of different projects, information exchange and control of transboundary impacts.

Non-specific water institution: In Belize, the responsibility and management of water is shared among several ministries, including the Ministries of Natural Resources, Public Works, Energy and Health and Environment Resources. However, there are many grey areas in which responsibilities are not clearly defined.

National Ministry: The Bulgarian Ministry of Environment and Water coordinates cross-sectoral and hierarchical policies. One of its major concerns is to formulate and implement policies that allow the government to achieve European standards, particularly in water supply and water treatment. It also works on sustainable development, climate change, chemicals, biodiversity, ecotourism, water, waste, air and ground water resources issues.

Water Ministry: In Kenya the Ministry of Water and Irrigation seeks to conserve, manage and protect water resources for socio-economic development. It develops water policy and coordinates its implementation under IWRM as a major policy paradigm.

Water Agency: In Mexico, the federal agency CONAGUA is in charge of the administration of the national water policy from the federal to the local level. CONAGUA coordinates with institutions and stakeholders at all levels of governance. In Brazil, water policy is shared among two agencies at the federal level. The *Secretaria Nacional de Recursos Hídricos* formulates the national policy for water resources and the *Agência Nacional de Águas* (ANA) is in charge of implementing the policy.

Water Committee: Frequently, water policy makers are supported by advisory technical boards that inform their decisions. Under Jamaica's Water Resource Act, the Water Resource Advisory Committee advises the Water Resource Authority, which is in charge of defining water policy. Before being implemented, a new policy must be approved by the Minister, who must first obtain the recommendation of the Advisory Committee.

Water Authority: The Department of Water of the Government of Western Australia is a strong regional water authority that provides services including advice on the allocation of water and the protection of ground water, measurement of water flows, ground water levels and water quality. It also identifies water bodies and basins that require monitoring, investigates water quality or quantity and supports community involvement in integrated basin and water resource protection management.

Basin Authority: The Po River Basin, the largest basin in Italy, is managed by the Basin Authority of the Po River which coordinates efforts and synergies from all the institutions interested in the conservation and development of the river.

4.2.1 To centralize or decentralize

Countries with federal structures, such as Argentina, Australia or the United States, grant the water institutions in their federated states different degrees of autonomy, whereas in more centralized

countries such as South Africa and Mexico, the national government controls water and environmental management.

In countries with centralized governments, water institutions tend to be managed by the State, whereas in countries with less centralized governments, public-private institutions tend to manage the resource, perhaps because in less centralized governments there is more room for multi-stakeholder negotiations. In the decentralized-communitarian type of societies, institutions tend towards the direction of individual user arrangements, enabling a bottom-up institutional framework. A number of countries have privatized some water management services and many others work with users' associations or environmental groups for water management (see Table 4.2).

Table 4.2 Water policy arrangement approaches

Water policy	Water institutions
Authoritative	Stronger at the national level
Pluralistic-liberal	Stronger at the basin level
Decentralized-communitarian	Stronger at the local level

Bearing in mind the need for a national approach to equity, economic growth and environmental protection, there might be an argument in favour of having a central institution oversee the overall water administration. Nevertheless, since water management issues cut vertically and horizontally (vertically, from the top of the government to the final users, and horizontally among different sectors, such as agricultural irrigation, health and sanitation, land use and land planning, mining, energy, forests, environment), it is unlikely that all the decisions related to water management would reside in a single institution.

"IT IS UNLIKELY THAT ALL THE DECISIONS RELATED TO WATER MANAGEMENT WOULD RESIDE IN A SINGLE INSTITUTION"

The principle of subsidiarity applied in the field of government and state administration implies that all actions in social and political life should be performed at the lowest possible unit; that is, the main responsibility and decision making should rest with the lowest possible level of authority within a political hierarchy. In terms of water institutions, this means that, at the national level, the State should perform only those functions that cannot be performed effectively at a more local level. The State should take action only to the extent to which given objectives can be attained more effectively at the state level than at the local level.

Considering that locals can best identify their needs with respect to resource use and that local societal structures are more representative, many functions of water management should be carried out at the local level. Although many decisions may best be made at the most local level, local organizations must still be held to national and basin principles, visions and policies.

"THE MAIN RESPONSIBILITY AND DECISION MAKING SHOULD REST WITH THE LOWEST POSSIBLE LEVEL OF AUTHORITY"

Box 4.2 Advantages and disadvantages of a centralized institutional framework

Advantages

- Centralization brings together sectoral interests and multi-level decision making in a legal and institutional framework consistent with national objectives.
- It can enhance the allocation of human and financial resources for the evaluation and control of water programmes and policies.
- Uniform standards and procedures are provided for water activities.
- Inter-regional and international problems can be harmonized with national interests.
- A hierarchical order of projects can be developed according to national priorities.
- Duplication of work by regional and sectoral agencies can be avoided.
- A national framework for allocation can guarantee more equitable use of the resources.

Disadvantages

- Standardized policies can be inappropriate for addressing particular regional and local problems.
- Centralization can limit the participation of users in project formulation and decision making.
- National-level adminstrators can lose touch with local users' needs leading to decisions based on incomplete information, and ineffective execution and operation of projects.
- A central bureaucracy can lead to slow decision making and inefficient programme execution.

However, because the hydrological cycle conforms more to the river basin than to any political jurisdiction, the river basin is the most logical unit of administration. In order to coordinate upstream-downstream uses and allocations, and to maintain a healthy ecosystem throughout the watershed for all users, it is necessary to work at the river basin level. For institutions, most of which are formed in governmental jurisdictions, working at the basin level, which probably overlaps many jurisdictions, involves a major challenge of coordination. Thus, it is essential that basin-level institutions coordinate their activities with government units such as federated states, provinces and municipalities, to avoid the risk of duplication of work, jurisdictional conflict and, as a result, ineffective water management.

"THE RIVER BASIN IS THE MOST LOGICAL UNIT OF ADMINISTRATION"

Coordination also needs to be achieved at various levels and within and between various state organizations. The aim should be not to change the power of those institutions, but to make sure they are complementary and try to synchronize interventions and actions as much as possible. A Water Ministry in charge of coordinating basin-level institutions will also need to coordinate with the Ministry of Environment to protect particular water bodies or provide environmental flow requirements, with the Ministry of Health to monitor levels of pollution and discharges, with universities for scientific research, with the municipalities for water recreation activities, and even with the police in relation to law infringements.

In summary, water institutions are a mixture of agencies, organizations and corporations at different levels. The critical issue is not to centralize or decentralize, but to coordinate the work of this multiplicity of institutions and agencies that have jurisdiction over different sectors of water management to follow a common vision and plan. The key is not to develop a few institutions that do everything, but to find a way to integrate and account for all the organizations that do everything. Case 4.2 describes how water institutions can be coordinated from the local to the international level.

"WATER INSTITUTIONS ARE A MIXTURE OF AGENCIES, ORGANIZATIONS AND CORPORATIONS AT DIFFERENT LEVELS"

Case 4.2 National, basin and local institutions within a regional context[31]

The European Union Water Framework Directive (WFD) sets out a European Union (EU)-wide framework of policy action that promotes sustainable water use and enhances the status of the EU aquatic environment. Member States must establish the appropriate administrative arrangements to implement the WFD provisions at the national level.

Germany illustrates how a federal and decentralized country organizes its water resources management at the national, federal and local level, and implements regional standards, like those established by the EU.

With an amendment to its Federal Water Act, Germany transposed the WFD into federal law, thereby creating the basis for achieving the EU-wide environmental objectives. However, according to the German Constitution, the Federal Water Act can only establish the main framework for water resources management, while the federal states must adopt all provisions necessary to implement the WFD. At the local level, communes play a critical role in implementing federal and state laws. They collaborate in associations to organize water supply and wastewater treatment. They are entitled to recover costs through consumer fees. Communes sometimes own small water bodies, and are responsible for their maintenance. In order to ensure water supply and wastewater treatment, communes are allowed to use different types of public or public-private business models. A number of technical agencies provide consultative and advisory functions.

While international river commissions (e.g., the International Commission for the Protection of the Rhine) coordinate the interests of the different basin states, there are also national river commissions (e.g., the German Commission for the Protection of the Rhine – DRK) and working groups on specific rivers (e.g., the Working Group of Federal States for the Protection of the Rhine – ARGE Rhein). The national river commissions are responsible for improving collaboration between the affected federal states and the relevant federal ministries in order to speak with one voice at the international level. The working groups of federal states discuss common problems of the basin, exchange experiences and seek joint solutions.

4.2.2 National coordination

Coordination at the national level can be achieved in many ways. One option is the establishment of a *central unit* to consolidate the administration of water resources. This unit could be located at the Ministry of Water Resources, the Ministry of Environment, Natural Resources or equivalent, or within the ministry with the most responsibilities in the area of water. The centralized body would have decision-making, administrative, technical and executive powers.

"COORDINATION AT THE NATIONAL LEVEL CAN BE ACHIEVED IN MANY WAYS"

A second option is through a *Water Council*, composed of representatives of all the ministries with sectoral involvement in water resources. This council would ensure integration at the highest political level and decide issues ranging from environment to financial. An alternative is to provide the council with technical and economic powers, with which it can decide not only on inventories and plans, but also on specific investment projects or re-allocation of water rights.

A third option is to disaggregate the Water Council's political and technical functions, and establish a *Water Commission or Water Committee* for coordinating work only at the technical level.

A fourth option is a *National Water Agency* not linked to any ministry, which interacts with several line-function ministries on an equal basis. The National Water Agency should be able to both formulate and regulate more local institutions.

4.3 Four levels of water institutions

4.3.1 International level

There are more than 260 shared river basins in the world, one-third of which are shared by two or more countries. Nineteen basins are shared by five or more countries. About 145 nations have a portion of their territory in an international river basin. Water conflicts among nations have been common throughout history and efforts to find peaceful solutions have resulted in more than 1,000 water treaties. There are currently nearly 200 international river basin organizations (IRBOs) in operation around the world.[32] Many have a long history of successes and frustrations, and river basin experts have concluded that it takes a long time to build a competent basin organization, but, as discussed in detail in the IUCN toolkit *SHARE*,[33] the benefits can extend beyond water issues to driving economic development, improving sustainable management, and spreading to cooperation in other sectors.

"THERE ARE MORE THAN 260 SHARED RIVER BASINS IN THE WORLD"

International basin organizations usually start with the joint appointment of a technical committee that tries to deal with data collection and assessment of resources in a non-political framework. Eventually a diplomatic-level commission may agree on principles and objectives. A fully functioning IRBO might include a diplomatic-level commission, a board of trustees, a funding mechanism, a group that settles disputes, working groups on various technical issues, and a secretariat for administrative work.

The international basin commissions tend to function at one of three levels: coordinating, planning and management, or actual regulation. Only a few are in the regulation category.

To participate effectively in an international basin organization, a country needs: high-level diplomats who understand the advantages of the basin approach and have the ability to effectively negotiate win-win results. It also needs a strong technical capacity to participate in inventories, monitoring and innovation and real public participation from all levels and sectors.

"INTERNATIONAL BASIN ORGANIZATIONS USUALLY START WITH THE JOINT APPOINTMENT OF A TECHNICAL COMMITTEE"

Case 4.3 Problem solving through international basin institutions in West Africa

The Volta Basin Authority (VBA) was formed by six states: Benin, Burkina Faso, Ivory Coast, Ghana, Mali and Togo. The process of creating the VBA began in 2004 with the formation of a Technical Committee of the Volta Basin (TCVB), which held a series of meetings and negotiations leading to the development and adoption of the 'Convention on the Status of the Volta River and the Establishment of Volta Basin Authority' on 19 January, 2007.

The mandate of the VBA is to promote integrated water resources management and the equitable distribution of benefits. The organs of the VBA include the Conference of Heads of States and Governments, the Council of Ministers in Charge of Water Resources, the Forum of the Parties involved in the development of the basin, the Technical Committee of Experts as well as the Executive Directorate of the Authority.
It is expected that the parties will be able to prevent further conflicts, such as those that have characterized the area for the past decade, by solving any issues that may arise through the organs of the VBA. Therefore, the convention is seen as a new opportunity for securing peace in the region.

4.3.2 National level

National water institutions reflect all or some of the functions mentioned in Table 4.1. The combination of functions depends on the institutional framework, and the distributions of competencies among different sections of the government, and the type of water policy followed by the country.

Countries following an authoritative type of water policy as discussed in Chapter 2, tend to have stronger national water institutions with different degrees of decentralization or devolution of authority to basin-type water institutions:

Authoritative water policy --> Strategy --> Design--> A plan --> A national-level water institution

Institutional functions also depend on the country's centralization level. In countries with a decentralized structure, functions such as agricultural, fishing, municipal and domestic uses tend to be administered by the federated states, whereas navigation and infrastructure tend to be central government responsibilities. It is more likely that policy formulation and the compilation of a national waters inventory are central government responsibilities, whereas administration of water rights, operation and maintenance of water works, and monitoring and inspection are done, as a matter of efficiency, at the more local level (see Box. 4.1).

"THERE ARE GEOGRAPHICAL, PHYSICAL AND POLITICAL REASONS FOR A BASIN APPROACH"

4.3.3 Basin level

Almost all recent international conferences dealing with water have advocated for the river basin as the most appropriate unit to implement water management. The United Nations Water Conference (Mar del Plata, 1977) recommended that states should consider the establishment and strengthening of river basin authorities. The International Conference on Freshwater (Bonn, 2001) noted that river basins are the most appropriate frame of reference for water resource management, and the World Summit on Sustainable Development (Johannesburg, 2002) recommended countries adopt an integrated water basin approach.

There are geographical, physical and political reasons for a basin approach and the establishment of basin-level institutions. River basins are the physical areas in which natural processes connect with socio-economic processes and in which water interacts with other natural resources through the hydrological cycle. This is also where the relationships between consumptive and non-consumptive uses of water take place.

Geographically, the basin territory does not include the sea (where part of the hydrological cycle takes place) and hydrologically, it does not necessarily coincide with the ground water located underneath the basin. Politically, management at the basin level needs to reflect the existing political divisions such as municipalities and provinces, whose borders do not necessarily coincide with the geographical boundaries of the basin.

The establishment of basin-level institutions derives from a policy decision, which entails a judgement on the scale on which to manage the water resources of a country. Countries with a pluralistic-liberal type of government are more likely to place an emphasis on the establishment of empowered basin-level institutions:

Pluralistic-liberal water policy --> Strategy --> Negotiations --> A deal --> Basin-level institutions

"THE ESTABLISHMENT OF BASIN-LEVEL INSTITUTIONS DERIVES FROM A POLICY DECISION"

Although no matrix fits every country's needs, there are essential foundations for a basin institution to work effectively as described in the IUCN toolkit *SHARE*:

- A strong governance structure.
- A system for knowledge management of both scientific, and social and organizational information.
- Participation of all stakeholders, especially public participation.
- Monitoring of scientific and social data in order to find out if programmes are having the desired effect.
- Adaptive management that can change course if needed to achieve its goals.

Although there is ample consensus on the benefits of managing water at the basin level, and an increasing tendency to decentralize water management to river basin organizations, there are many examples of organizations that have failed in their broader IWRM mandate. Faced with that mandate, basin commissions may either suffer a 'paralysis by analysis' problem, or may abandon their broader mandate in favour of simple water sharing, pollution prevention and water resource development. This is a particular risk in developing countries facing severe skills and funding shortages.

"WHAT IS IN THE BEST INTERESTS OF THE BASIN MAY NOT BE IN THE BEST INTERESTS OF THE COUNTRY OR THE REGION"

To address at least some of the risks posed by the establishment and operation of basin-level water institutions, a series of recommendations can be made:

- Before establishing a new basin institution, analyze the country's needs and have a close look at past experiences. Have basin institutions been set up in the past? Did they work? If not, why not?
- River basin institutions must operate within a wider national (and even international) framework. Basin institutions can no longer focus on the simple expedient of sharing the water to the benefit of existing water users within the basin, but must look at a wider national and international, social, economic and environmental framework and understand that what is in the best interests of the basin or its water users may not be in the best interests of the country or the region.
- As a matter of principle, the more aware people are of water issues, the easier it is to establish an effective decentralized institutional system. A basin-wide consensus-building approach open to public participation holds the best hope for implementing the policy and the law. Major stakeholders can be identified, common interests and conflicts explored, and potential

resolutions identified and agreed upon, where possible. However, participation must be tempered with consistency with core national principles, and should be monitored at a national level, perhaps in a National Ministry, or National Water Agency.

- Consider self-funding mechanisms such as member dues or user fees for at least part of the budget, so that the institution will not be totally dependent on funds from other institutions.

"A BASIN-WIDE CONSENSUS-BUILDING APPROACH HOLDS THE BEST HOPE FOR IMPLEMENTING THE POLICY AND THE LAW"

4.3.4 Local level

There is a potential inconsistency between IWRM goals and principles, which demand a basin-wide vision on the one hand, and the need for local decision making on the other. Local political structures and communities often find it difficult to conceptualize impacts over larger basin scales. This potential dilemma can be addressed by the principle of subsidiarity in such a way as to encourage stakeholders to 'think basin, but act local'.

"THINK BASIN, BUT ACT LOCAL"

Decentralized management at the basin level that includes community groups and the private sector is becoming increasingly popular. This alternative encourages awareness and responsibility towards water and facilitates the acceptability of the legal system. In addition, the participation of a wide range of actors in water management processes offsets the frequent institutional adjustments deriving from cyclical changes in governments. New governments may reverse policies, restructure staff, and change budget priorities – with positive or negative results on the institutional framework. However, the impacts of such changes on the stability of the institutional set up can be attenuated if stakeholders have been empowered to share responsibilities.

"DECENTRALIZED MANAGEMENT AT THE BASIN LEVEL ENCOURAGES AWARENESS AND RESPONSIBILITY TOWARDS WATER"

According to the law in some countries, users taking water from the same source must organize themselves into Water User Associations (WUAs). When the water is used for irrigation, user associations are called irrigation communities. These groups govern themselves and are funded by a statute submitted for approval to the relevant basin institution. Within the policy framework discussed in Chapter 2, these types of local partnerships are more likely to be adopted in countries where the water policy is decentralized or communitarian. The equation will then be:

Water policy --> Strategy --> Joint action --> Learning by doing --> Local-level institutions

The law can establish provisions for the recognition of WUAs as autonomous bodies with legal personality and financial autonomy. WUAs also offer a good platform for resolving possible conflicts between traditional or customary rights and statutory rights, by facilitating the implementation of water law through an active participation of the users at the final stage of water distribution. They can also fulfil an important role in monitoring, usually an expensive task carried out by larger agencies, but one that can be boosted by local attention to basic parameters such as gauge heights and simple water quality tests.

In Venezuela, more than 2,800 *Mesas Técnicas del Agua* have organized themselves to actively participate in decision-making processes that affect their specific community in coordination with the local water service providers.

Case 4.4 Implementing national policies through local institutions in Tanzania

In Tanzania's Pangani River basin, which covers 48,000km2 from the high slopes of Mount Kilimanjaro to the Indian Ocean, many water disputes are settled by local water user groups. In the Soko Spring region, local tensions built up due to pollution, overextraction, and problems with livestock travelling long distances, through land planted with crops, to access water. On one tributary of the Pangani, six villages depend on the healthy functioning of the Soko. The government established the Kahe East Water Users Association, to prioritize water uses. The agriculture-livestock conflict was generating the most passionate conflicts. Using the Association as a discussion panel for achieving solutions, the elders from the villages agreed on a project to pipe water 500m from the spring, under the railway line, to a proposed drinking area away from the farmlands. This simple project will secure the livestock and the livelihoods of the farmers, and reduce the pressure on the spring.

Photo 4.1 Stakeholder discussions during the Joint White Volta Basin Communities Consultative Forum (Burkina Faso). Community Involvement is an important element in the development of water governance capacity, incorporating local concerns and interests will help to develop more effective management systems.

WUAs can operate at a very local level, but can also have limited responsibilities with regard to monitoring and visioning for the larger system (apart from perhaps direct abstractions from the system). These organizations typically manage allocations among individual users. Larger allocation decisions may have to be made by basin-level structures. Organizations covering several sub-basins may also be necessary to take advantage of the economies of scale for funding. Basin organizations are better placed to undertake visioning exercises, and to plan water allocation scenarios which meet the criteria of social equity, economic growth and environmental sustainability.

4.4 Designing institutions for IWRM

The point of departure for IWRM is that water is part of an ecosystem. Different water uses are interdependent and thus need to be considered in an integrated manner. Following the principle of subsidiarity, IWRM deems the river basin as the most appropriate management scale, recognizing that it is integrated in terms of surface water and ground water, fresh water and land issues, fresh water and coastal zone issues, quantity versus quality issues. Management too must be integrated to consider the effects of every water use over the others, and work within the framework of the country's overall social, economic and sustainability goals.

"IWRM DEEMS THE RIVER BASIN AS THE MOST APPROPRIATE MANAGEMENT SCALE"

The difference between IWRM and sectoral approaches is that IWRM is a systematic process for allocation and sustainable management of water within the context of economic, social and environmental objectives. What are the institutional requirements to implement IWRM? They can be grouped in four clusters:

1. *The government coordinates water management at the national level*
   Effective water management requires the coordination of a range of agencies, operating at different levels and with different mandates:

   - National agencies must take on cross-cutting roles supporting national growth, development and social priorities, integrating across several government agencies at all levels.
   - Locally based WUAs are best placed to undertake the day-to-day management of the resource, and the administration of water-use entitlements.
   - Basin-level agencies can play a vital role in maintaining a focus on basin-level management, ensuring upstream use does not compromise downstream users, and that water allocations and discharge regulations remain consistent with national objectives. These agencies may consequently play a role in issuing water-use and waste-discharge entitlements and rights.

"IWRM REQUIRES THE ESTABLISHMENT OF AN ADMINISTRATIVE SYSTEM"

2. *The institutional set-up must be cross-sectoral*
   IWRM requires the establishment of an administrative system that allocates tasks among different agencies and pursues a high level of communication among those agencies. Water institutions for IWRM go beyond the regular decision making and management of water resources to creating

an *enabling* environment for water management. The concept of *enabling* refers to enhancing arrangements that go beyond decentralization models. The same dynamic can play out within poor communities on a gender basis. A representative, principle-based model of democracy should be followed within water institutions. However, decisions made by locally based water institutions should be tempered by a core set of national values and principles and, in many cases, by customary law.

3. Water management follows the hydrological boundaries of the river/lake basins

An IWRM institutional set up revolves around the river basin as the basic unit of management. However, this approach involves many sectors and political and administrative jurisdictions, which imposes another level of coordination at the sub-basin and WUA levels.

4. Principal stakeholders are informed and consulted in decision making

Transparency, state accountability and the option of legal redress for failure to uphold the law are vital elements in the institutional set up and ultimately for effective water governance. Gender equity considerations must be mainstreamed into decision making processes.

Capacity building at all levels, through training and education, as an ongoing strategy enhances institutional capacity and efficiency.

"DECISIONS MADE BY LOCALLY BASED WATER INSTITUTIONS SHOULD BE TEMPERED BY A CORE SET OF NATIONAL VALUES AND PRINCIPLES"

4.5 Funding water institutions

The costs of providing water services and maintaining healthy water basins can be high. Water services include large infrastructure and maintenance costs for water treatment, delivery pipes, sewerage and sewage treatment. Irrigation involves its own infrastructure, as does hydropower or industrial use. Government must fund constant monitoring (both scientific and contractual), enforcement, and conservation or restoration efforts.

Many international agencies promote payment for services schemes, in which water users pay for the water they use. However, many governments are reluctant to charge poor people who would not be able to pay and may react badly to a new charge. Any schemes for full cost recovery for industrial water use and wastewater treatment services should be balanced by subsidies to low-income consumers.

"THE COSTS OF PROVIDING WATER SERVICES AND MAINTAINING HEALTHY WATER BASINS CAN BE HIGH"

Traditionally, national agencies are funded out of the national budget, but there is an increasing tendency to make water management agencies self-sustaining by imposing water-use charges. Smaller WUAs, directly involved with the management of water, can usually be funded from direct user charges. However, agencies with more IWRM responsibilities need support from the national government. National funding also recognizes the broader social and economic benefits of IWRM.

Good planning can only be achieved through informed and rational decision making. This usually requires investment in studies on environmental, economic and social impacts before a decision is made. However, private interests often represent a small group of individuals, and public interest

groups are often underfunded. Therefore, national, state and local governments should assume the primary role in making these investments. Private consultants and publicly employed experts can and should continue to be used to assess impacts, but responsibility for decisions should lie with those individuals that the public has entrusted to make them.

4.5.1 Payment for ecosystem services

Ecosystem services are the benefits people obtain from ecosystems. They can relate to provision of goods such as fish, timber, crops or clean water, to regulation of river flows and natural hazards, to cultural amenities and habitat for wildlife. Degradation of ecosystems in watersheds can lead to loss of benefits for people because of changes in the quality, quantity, or timing of the availability of water. As shown in the IUCN toolkit *VALUE*, economic values can be determined for ecosystem services in watersheds. As a result, schemes can be put in place to enable beneficiaries to pay for the upkeep or restoration of ecosystem services. The IUCN toolkit *PAY* provides a guide to the design and application of payment schemes for watershed services.

Development and implementation of payment schemes for ecosystem services must be supported by laws that establish transaction mechanisms and set clear and enforceable rules. Payments can be made when sellers agree to forego an activity that they have a legally protected right to carry out. Such a provision would enable, for example, a landowner to be paid for refraining from cutting down trees, thus preventing soil erosion and run-off in a nearby watercourse. As described in *PAY*, such transactions must be supported further by reliable contract law, clarification of rights and institutional mechanisms that enable agreement of obligations among parties, and credible compliance monitoring and enforcement of the rules (see Case 4.5).

"DEVELOPMENT AND IMPLEMENTATION OF PAYMENT SCHEMES FOR ECOSYSTEM SERVICES MUST BE SUPPORTED BY LAWS AND RULES"

Case 4.5 New York pays upstream users to keep its water clean

New York City has had a public payment for environmental services watershed management programme since 1997, when it signed the New York City Watershed Memorandum of Agreement (MoA) with the State of New York, watershed towns, villages and counties in the Catskill/Delaware region and with environmental and agricultural organizations. This watershed supplies 90 percent of New York City's water demand, which averages a daunting 1.2 billion gallons a day for a population of nine million people.

The decision behind the MoA was an affirmative choice to invest in the environmental quality of the Catskill/Delaware watershed and thus in the quality of the water that flows downstream to New York City; rather than to invest in the construction and development of water treatment and filtration plants that would impose a heavy financial burden on city consumers. With the MoA, the EPA has granted New York City a five-year Filtration Avoidance Determination (FAD), indicating that with implementation of this watershed management programme, the water is of a sufficient quality for human consumption. This was a luxury that had been rapidly disintegrating in the late 1980s and early 1990s when unsustainable and harmful changes in land use and agricultural practices in the watershed territory altered the once highly-regarded water quality of New York City.

The MoA provides a legal framework for the City's direct investment in watershed protection programmes, such as land acquisition and land easement purchases as conservation set-asides in the Catskill/Delaware watershed and for the voluntary Whole Farm programme, which finances farmers in their shift to sustainable

agricultural practices that allow for better environmental stewardship. This urban-rural watershed management agreement resulted in a nine percent increase in water fees to New York City, thus financing the acquisition of approximately 70,000 acres (or 28,328 hectares) of land and land easements at a cost of US$168 million and the implementation of 288 Whole Farm best practice plans (out of the 290 voluntarily participating commercial farms, which represent 95.7 percent of the commercial farms in the watershed area), at a cost of US$384,344. Lauded as one of the most successful examples of public payment for environmental services, implementation of this system is founded in the cooperative protection of a watershed environment that provides critical natural ecosystem services. This has resulted in substantially lower costs to New York City for potable water and better relations between the co-dependent urban and rural populations.

4.6 Public participation and civil society organizations

Evidence shows that public participation in water management makes for better governance. Civil society participation in the decision making process is being incorporated in legal instruments and institutional procedures as a result of reform processes.

Public participation can help create networks of water arrangements, bringing dynamism as well as publicity to the water sector. It generates trust and empowerment among stakeholders and creates respect and support for the decision-making process. People who help set up the rules are more likely to abide by them.

Public engagement in water governance is examined at four levels:

- Awareness through media campaigns linking the benefits of a water project to the needs or wants of the public.
- Public participation, in which the public becomes more informed and participates in decision making.
- Co-management in which civic groups engage in management of water projects or in monitoring, inspection, implementation and enforcement of water arrangements.
- Citizen initiatives, in which citizens can lead the way towards better water management.

"PUBLIC PARTICIPATION IN WATER MANAGEMENT MAKES FOR BETTER GOVERNANCE"

4.6.1 Awareness

If a government agency is leading the way towards IWRM, public-awareness building activities are needed to generate public support. Lack of attention to public awareness can lead to failure of reforms.

4.6.2 Participation

Public participation includes not only access for individuals, but also access for, and relations with, NGOs representing various public interests. These groups might include local environmental groups, residents' associations, farmers' groups and many others. They may be long-lived and well known, or small, single-issue and temporary. Water User Groups (described elsewhere in this and other chapters) are a more formal organization of direct water users, but water issues are pervasive, touching many concerns.

Access to information is critical in involving civil society in decision making. Technical issues must be presented clearly to a lay audience because the public must understand the issues if they are to help decide the outcomes. Information for the public must be available, timely and free of charge, or provided for a reasonable fee. Information should only be denied for credible reasons, such as national security.

"WATER STAKEHOLDERS WILL DISENGAGE FROM WATER ARRANGEMENTS IF THEIR PARTICIPATION IS NOT TAKEN INTO ACCOUNT"

4.6.3 Co-management

Not only is citizen input critical in forming policy and making decisions, citizens can also implement policies and co-manage water schemes or assist with monitoring or other activities.

Case 4.6 "Comunidades de Regantes"

The *Comunidades de Regantes* (Irrigation communities), a unique type of Water User Association, are of enormous importance as ancient institutions where farmers grouped themselves to self-manage and distribute waters in an equitable, efficient and organized manner. In their origins in Spain, water was distributed according to customary rules that were transmitted verbally from generation to generation. In time, these rules were set in written documents expedited by the mayor of the town. The 1979 Spanish Water Law recognized the irrigation communities for the first time, and the 1985 Amendments strengthened them by making water users participate in, and share responsibility for, the management, planning and finance of irrigation water together with the State administration. Principles, rights and obligations governing the organization of the irrigation communities are set out in the Water Law.

4.6.4 Citizen initiatives

Finally, an aware and empowered citizenry can take the lead in water reform (see Case 4.7). Although citizen groups lack the power of government, they can be effective through the use of lawsuits, changing public opinion through media campaigns and other tactics.

Case 4.7 Citizen action wins case to create a basin authority

The Matanza-Riachuelo represents an example of how environmental awareness and citizen action led to the establishment of a river basin institution. The Matanza-Riachuelo basin, located south of Buenos Aires, one of the largest cities of South America, is highly polluted resulting from a long history of dumping untreated sewage, heavy metals, sediments, pesticides and a long list of other pollutants. Along the basin there are more than 3,000 chemical, oil, food, paper, textile and metal industries and over 100 clandestine dump sites. The management of the basin is far from effective, as there is a multiplicity of authorities, jurisdictions and districts with overlapping competencies, which causes inefficiency in decision making and implementation.

In 2006, a group of citizens filed a claim before the Supreme Court against some of the polluting industries, alleging collective environmental damage. They sought an injunction to stop the polluting activities and the re-establishment of the original situation before the damage took place. As a result of the Court's decision, a

ministerial plan was developed to clean up the basin and to establish a Basin Authority (*Autoridad de Cuenca Matanza-Riachuelo*), which operates under the Secretary of the Environment (equivalent to a Ministry). The Basin Authority will monitor industrial activities affecting the basin environment, develop uniform criteria for dumping effluents and emissions, adopt preventive measures to protect human health and the environment, and promote a system of penalties. The powers and decisions of the Basin Authority pre-empt any other authority. A fund administered by the Basin Authority was established in order to protect individual rights, and prevent, mitigate and restore environmental damages in the basin.

4.7 Private-sector roles in water management

The rationale for privatization in the water sector has rested on at least three propositions:

1. Privatization is seen as a means of addressing the perceived inefficiency of public-sector agencies in providing water services.
2. Privatization may also be a response to the inability of governments to afford the funds required to extend water services to new users, which results from the widely observed divergence between the relatively low prices beneficiaries pay for services and the higher costs of service provision.
3. Particularly in irrigation (an often wasteful use, with low economic value, which can account for about 70 percent of water use), proponents of privatization argue that appropriately higher charges for water will reduce demand and leave more water for higher value uses, and hence a more rational allocation.

4.7.1 Stewardship versus Service delivery

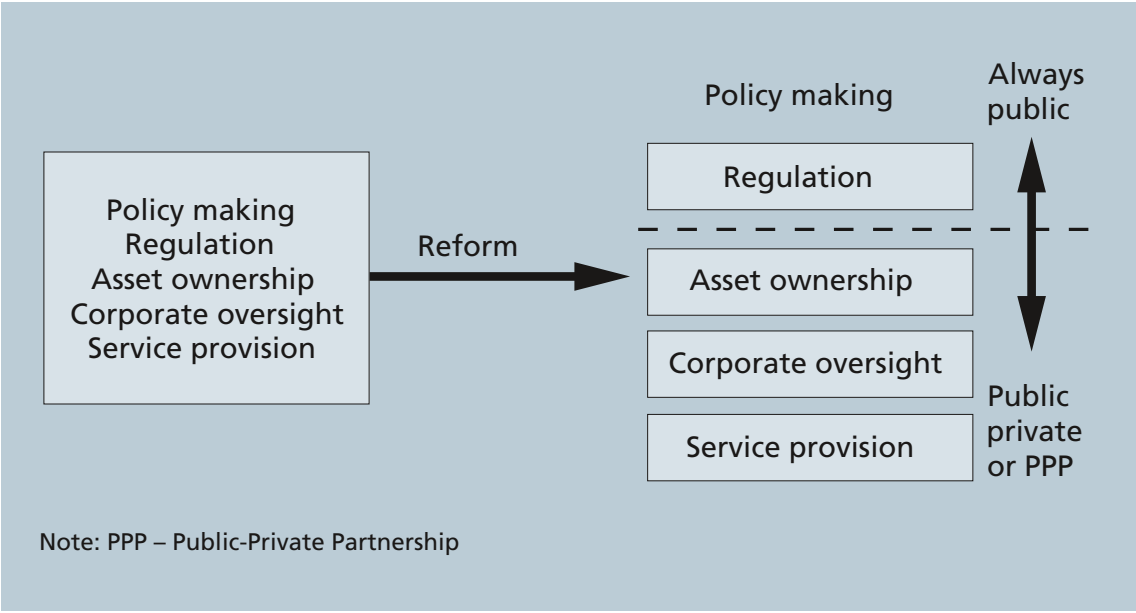
The stewardship functions of water management i.e., ensuring that the resources are managed on behalf of citizens, and for their maximum sustainable benefit, cannot be privatized. Stewardship functions include: policy making and the political bargaining processes, legislation, decentralization, institutional management of government agencies and regulatory functions. Activities such as data collection and planning, which are intrinsically linked to stewardship functions, may be privatized on a limited basis. For example, private-sector involvement is feasible in specific tasks such as installation and monitoring of flow measuring equipment, routine planning of water supply and sanitation requirements for a new settlement, or assessment of options for irrigation management in an area. Overall guidance of such activities, though, must be the responsibility of government agencies. (see Figure 4.1).

The activities where privatization offers most promise are the design, construction, operation and maintenance of infrastructure for water services. Although this is a narrow slice of the assortment of functions required for water management and provision of water services, the vast bulk of the financial resources are allocated to these activities.

Governmental stewardship includes protecting public health by providing clean water and sewerage. Environmental stewardship includes providing treatment for sewage and industrial effluent, maintaining water flows and protecting aquatic habitats. Private companies do not have stewardship functions. They may, however, have the capital to invest in setting up an infrastructure to deliver a service.

Privatization breaks the institutional link between stewardship and service provision. When the stewardship functions of public institutions are well developed, separation of service-delivery functions through privatization can facilitate more effective stewardship alongside improvements in the efficiency of service provision.

Figure 4.1 The core elements that must remain within the public sphere



Adapted from: World Bank, (2004), see note 34.

"PRIVATIZATION BREAKS THE INSTITUTIONAL LINK BETWEEN STEWARDSHIP AND SERVICE PROVISION"

The reform of the water sector provides an important opportunity for both strengthening supervision of environmental and public health, and for improving the effectiveness of regulatory arrangements. In preparing for privatization, assessments should be made, for example, of the standards, institutional roles and decision making processes used in environmental regulation, and of the relationship between economic and environmental regulation. It is especially important to ensure that standards are consistent with economic and social policies.

If regulation of private companies is too heavy-handed, that is if the requirements on the companies are beyond what they can achieve and still make a profit, privatization can fail. Conversely, clear rules on environmental protection and water management are actually in the interests of private service operators. For example, if government does not detect illegal water abstractions, ground water resources could be depleted, creating the need for the service operator to develop new water sources to fulfil its service obligations. If government does not halt illegal discharges by polluting industries upstream, treatment costs may increase for service providers. Therefore, regulations and enforcement capacity to avoid or overcome such issues should be in place and operating effectively before private

participation. If the public institution responsible for stewardship is weak, there is a danger that the private-sector agency might succeed in negotiating a contract favouring its interests over stewardship. Before privatization of water services takes place, there should be a process of creating, if necessary, and separating the monitoring of environmental and public health standards from service functions.

Privatization does not only apply to large companies and large infrastructure. In Asia a large proportion of irrigation water is provided by private tube wells, and worldwide many small-scale irrigation systems are collectively funded, constructed, operated and maintained by groups of farmers. Non-agricultural water supplies are often derived from the same sources, which are nominally within the control of government, but for practical purposes are unregulated. In this context, the prevailing institutional arrangements allow direct interventions by government for stewardship reasons into service provision activities, which they also nominally control. In reality, many developing countries are struggling to meet appropriate stewardship targets.

"PRIVATIZATION DOES NOT ONLY APPLY TO LARGE COMPANIES AND LARGE INFRASTRUCTURE"

Attempts by governments to address these issues are politically sensitive. Interventions, such as reducing abstractions, controlling the operation of industries, investing in sewage treatment and other pollution control mechanisms, provoke controversy or compete with other development and economic objectives.

4.7.2 Arrangements for private-sector participation

There is a wide range of political and regulatory contexts for private-sector involvement in water services and management. As a result, different schemes for private-sector participation are possible. These can be broadly grouped as follows:

Service contracts: Transfer responsibility for a specific aspect of service provision to a private contractor. Examples of contracted tasks are maintenance of facilities, record keeping, billing and collection. Clear and narrow specification of the task combined with competitive bidding or fee negotiation ensure an appropriate rate is paid for the job.

Management contracts: Transfer responsibility for managing a utility to a private operator, often for a limited period. The simplest management contracts pay a private operator a fixed fee for performing managerial tasks. More complex versions offer efficiency incentives by basing the fee in part on performance targets. Since very little risk is transferred to the operator, large improvements in operating and investment performance are less likely than under other arrangements.

Leases: Make the operator responsible for operating and maintaining the business, but not for financing investment. The operator retains revenue collected from customers and makes a specified lease payment to the contracting authority. Profits depend on sales and costs, which typically gives the operator an incentive to improve operating efficiency and increase sales. The contracting authority is usually responsible for financing investment in infrastructure assets and it must therefore raise the finance needed and coordinate its investment programme with the operator. In some cases, the operator designs and manages the investment programme.

Concessions: Give a private operator responsibility not only for the operation and maintenance of assets but also for financing and managing investment. Asset ownership typically rests with the government from a legal perspective, however, rights to all the assets, including those created by the operator, typically revert to the government when the arrangement ends, often after 25 or 30 years.

Discharge fee: Although the contract is nominally referred to as a *concession*, it manages tariff revenues reserved for investments but, as in an *affermage* contract, therefore it is not required to invest from its own funds and receives an operator tariff, different from the customer tariff. It is better understood as an 'affermage-lease with concession features'.

Divestitures: Give the private operator full responsibility for operations, maintenance and investment. Unlike a concession, legal ownership of the assets rests with the private operator. However, the operator may be given a fixed-term licence, without which the divested assets have little value. The assets may revert to the government if the licence is revoked.

Build, operate and transfer arrangements: Provide the maximum involvement of the private sector in provision of water services, possibly also including design of facilities. Under such arrangements the operator is usually responsible for raising investment funds, supervision (or execution) of construction, operation and provision of water services for an agreed period, and finally transfer of the facilities to the contracting authority.

Choice of a scheme and the potential benefits of privatization depend on the institutional capacities and the regulatory framework in place, as well as the basis for determining tariffs for services. The design of arrangements for private-sector involvement has implications for the affordability of water services and the accountability of the private contractor to the government, especially in regard to environmental issues. Table 4.3 summarizes how the suitability of different options for private-sector involvement relates to features of the political and institutional context. Broadly, it indicates that as the complexity of private-sector involvement increases, *the potential* benefits also increase, but there are more and more stringent criteria for the institutional environment in which privatization takes place.

The key issue in respect to levels of tariffs and affordability is that the funds received by the operating agency must be sufficient to ensure that the service is provided on a continuing basis. This means that the facilities must be maintained adequately on a day-to-day basis, and provision made for more significant expenditures when major infrastructure items need replacement. If the government is not prepared to force users to pay the charges, it must supplement revenues to the contractor accordingly, but in such a way that efficiency incentives are not diluted. For those categories of privatization that must attract investment of private capital, the risk premium required by investors depends on the degree to which the government can assure the operator that tariffs can be set that allow appropriate profits.

Accountability and control of potential environmental impacts depends, even for the most moderate levels of privatization, on strong regulatory capacity. Where the regulatory capacity to enforce proper environmental compliance is inadequate, the priority must be to develop stronger capacity for regulation within government institutions before considering privatization beyond service contracts (see Chapter 5 on implementation).

Table 4.3 Features of alternative options for the privatization of water services[34]

Option	**Stakeholder support and political commitment**	**Cost-recovering tariffs**	**Good information about the system**	**Developed regulatory framework**	**Good country credit rating**	**Potential benefits of the option**
Service contract	Unimportant	Not necessary in the short term	Possible to proceed only with limited information	Minimal monitoring capacity needed	Not necessary	LOW
Management contract	Low to moderate levels needed	Preferred but not necessary in the short term	Sufficient information required to set incentives	Moderate monitoring capacity needed	Not necessary	
Lease	Moderate to high levels needed	Necessary	Good information required	Strong capacity for regulation and coordination needed	Not necessary	
Build-operate-transfer	Moderate to high levels needed	Preferred	Good information required	Strong capacity for regulation and coordination needed	Higher rating will reduce costs	
Concessions	High levels needed	Necessary	Good information required	Strong regulatory capacity needed	Higher rating will reduce costs	
Divestiture	High levels needed	Necessary	Good information required	Strong regulatory capacity needed	Higher rating will reduce costs	HIGH

The shading signals the degree of importance

4.8 Practical steps and indicative principles

1. *Institutions for water management should be designed to reflect national realities.*

- Make sure that water institutions make sense within the political, economic and social context in which they are established.
- Outline the institutional set up that already exists in the country.
- Check the history of the institutional framework relating to water, the successes and the pitfalls, and in particular the reasons why certain efforts may have been abandoned or amended.
- Find out if there is a river/lake authority in the country (or in neighbouring countries) and evaluate its effectiveness in terms of managing the waters of the river/lake basin.

2. *Water institutions must reflect a country's political structure: centralized or federal. Whether to use a centralized or decentralized approach for an institutional framework will depend on many circumstances, but particularly on the political will and political timing of institutional reform.*

- Determine what political agencies in the country have decision making powers on water issues.
- Evaluate the level of autonomy given to national (in federal countries) and local (federal and centralized) governments with regard to the administration of natural resources, including water.
- Consider geographic realities (water distribution, inter-jurisdictional basins).

3. *When establishing or reforming an institutional framework consider the following facts:*

- Functions related to agricultural, fishing, municipal and domestic uses are better dealt with at the provincial or basin level, whereas navigation and water infrastructure are best left as central government responsibilities.
- Policy formulation and national water inventories are more likely to be central government responsibilities, while administration of water rights, operation and maintenance of water works, and monitoring and inspection are taken over, for efficiency reasons, at a more local level.

4. *Decentralized management might lead to higher levels of transparency and accountability, but also increase corruption in the absence of a national system of supervision and control.*

5. *The most adequate level of water management is the basin level.*

- Basin organizations must relate to the wider water institutional set up of the country.
- Basin organizations must be provided with a certain level of autonomy to take decisions, hire qualified staff, and manage their own budgets.
- Within the context of shared rivers and lakes, in an ideal case, they have to be compatible or harmonized with other basin or sub-basin authorities with jurisdiction over the river/lake basin.

6. *The establishment of a basin-level institution is a learning process from past experiences, failures and successes.*

- Evaluate past experiences, particularly within the country or in similar countries, in terms of what went well and what went wrong.
- Consider the advantages and disadvantages of a basin organization and respond to realities on the ground in terms of water management.

- Establishing a basin organization should be accompanied by a capacity-building and learning process within the institution.

7. *When setting up a basin institution, an essential institutional foundation, including a clear mandate, a long-term strategy, a clear organizational structure, and a clear definition of roles and responsibilities of the staff, must be established. Basic parameters such as consistency with national objectives, recognition of subsidiarity and customary law, and appropriate funding mechanisms must be followed.*

8. *Independently of the management structure, it is critical to establish an effective coordination mechanism among institutions with responsibilities over different sectors of water management.*
- This coordination mechanism can be a council, a committee, a commission or an agency and its composition will vary according to the political realities of the country.
- Its goal is to coordinate the activities of the different institutions relating to water management.
- It can be a discussion forum, with certain decision-making powers, but it has to be representative and inclusive of all the water governance levels within the country.

9. *The constant tension between the need for smaller local institutions directly answerable to stakeholders, basin institutions with a more integrated vision of the whole river basin, and national bodies ensuring consistency to national objectives and international obligations can only be addressed by a number of institutions at different levels and with different mandates.*
- Recognize that a certain level of institutional dispersion is unavoidable.
- The complexity in terms of jurisdiction (local, municipal, basin, national, international) cannot be managed effectively within the scope of a single institution.
- Coordination mechanisms among institutions should be established, as well as monitoring, compliance and enforcement mechanisms for all the institutional levels.

10. *Achieving an effective water governance system is not just adopting the right institutional structures, but also making a commitment to accountability, transparency, and the elimination of corruption.*
- A cohesive and solid institutional framework for water is a prerequisite to achieving an effective water governance system that delivers on IWRM goals.
- A well designed institutional framework that responds to country realities in terms of water availability, distribution, geographical realities and jurisdictional boundaries, is the best assurance to deliver on the country's policy priorities.
- Elimination of corruption depends on several factors: government's commitment and the stakeholder's trust in the political system, proper devolution of authority, empowerment of civil society, a system of fees and penalties and a timely and effective administration of justice (due and timely process).

Chapter 5

Implementing Water Governance Capacity

5.1 Enabling implementation

Effective water governance depends in large part on achieving an overall balance among the components of water governance capacity - policy, law and institutions. Combining water governance capacity with a strong enabling environment and basing both on a respect for traditional norms and values can produce effective governance outcomes (see Figure 5.1).

An enabling environment is characterized by transparency, certainty, accountability and a lack of corruption. Such an environment is needed for successful implementation. Implementation needs to be enabled by designing effective regulations and negotiations to achieve compliance with water management goals, as well as applying incentives and monitoring progress. Finally, implementation needs to be backed by enforcement mechanisms, through both dispute-resolution systems and the courts.

"DEVELOPING POLICIES, LAWS AND INSTITUTIONS IS A PRELUDE TO GOVERNING"

5.1.1 Trust and the rule of law

Developing policies, laws and institutions is a prelude to governing. All manner of social water arrangements must be accommodated when governing, including laws, regulations, deals, contracts, verbal agreements, and any kind of agreement between parties over issues related to water management. For individuals, agencies, organizations or corporations to feel comfortable making these social arrangements, they need three things: transparency, certainty and accountability – in brief, honest governance that abides by the rule of law. If these intangible necessities are present, corruption can be held at bay. If the system of governance is corrupt, the types of regulations and negotiations needed for effective implementation will be very difficult to achieve. Conversely, improving transparency, certainty and accountability will hinder corruption. Chapter 2 described how these elements can be woven into policy. Here they are followed in implementation.

Corruption is 'the misuse of the office for private gain. The office is a position of trust in which one receives authority in order to act on behalf of an institution, be it private or public, or non-profit'.[35] Misuse and misallocation of resources negatively affects water governance because actors will not engage if they cannot trust in law, contracts and enforcement mechanisms.

Transparency

Transparency 'allows stakeholders to gather information that may be critical to uncovering abuses and defending their interests. Transparent systems have clear procedures for public decision making and open channels of communication between stakeholders and officials, and make a wide range of information available'.[36] Transparency is achieved by:

- A system that promotes public participation and a free press.
- An effective information flow.

- Free or low-cost access to information.
- Readily available, pertinent and accurate information.
- Open channels of communication between all the stakeholders involved in water management.

Transparency can be fostered by public participation, by involving the public in the decision making process, and in the monitoring stages of any water arrangement schemes (Box 5.1). A free press will shine a light on any dubious practices carried out by institutions. Transparency is reinforced by a proactive investigative media, which itself hinders corruption.

Figure 5.1 Combining water governance capacity with a strong enabling environment contributes towards achieving effective water governance

Box 5.1 Steps to foster transparency[37]

1. *Assessment and monitoring:* Understand the types and scale of corruption and the degree of transparency in local governance. Create a baseline against which progress in improving transparency, increasing public awareness, and mobilizing a constituency committed to tackling corruption can be measured.
2. *Access to information:* Take measures to improve stakeholders' access to information so that they may participate in decision making more effectively.
3. *Ethics and integrity:* Clarify what is expected from professionals. Include monitoring mechanisms to ensure they adhere to their commitments and are sanctioned if they break public trust.
4. *Institutional reforms:* Streamline and simplify administrative procedures and structural innovations to promote participation and accountability.
5. *Targeting specific issues:* Use specific issues as entry points for improving transparency. These issues must be important in terms of local development and have the potential to serve as rallying points for positive changes in local governance. These same issues can also be vulnerable to corruption.

Certainty

The higher the level of certainty for any given transaction, the greater is the willingness of stakeholders to participate. Under doubtful circumstances, stakeholders are not motivated to participate because they cannot predict the outcome. Certainty is fostered by rule of law, access to redress in courts and the absence of corruption. Certainty is achieved by:

- Effective implementation of the law.
- A process to amend the law.
- A system of regulations to order specific transactions.
- A strong judicial system.
- Ability to seek recourse for damages.
- Alternative dispute-resolution mechanisms.

"CERTAINTY IS FOSTERED BY RULE OF LAW, ACCESS TO REDRESS IN COURTS AND THE ABSENCE OF CORRUPTION"

Accountability

Officials must be held accountable for their actions according to the rules of their office. Private water users should be held accountable for their water use, and industrialists for their water use and pollution. Those who violate the laws and regulations must be brought to justice.

Accountability is increased by effective supervision and monitoring both of data and information on water resources and contracts. Low levels of corruption are also critical, meaning that the rule of law treats everyone the same without favour. Steps to promote accountability include:

- Ensure public trust and confidence through meeting commitments for planning and managing water resources and addressing social and environmental issues.
- Secure compliance with all laws and regulations, general or project-specific, at all stages of the water resources development and management.
- Establish an appropriate 'mix' of regulatory and non-regulatory measures, including incentives and sanctions.

- Establish and abide by strict anti-corruption policies and regulations.
- Implement any agreed plan to compensate for loss of income or property due to water development in a timely and correct manner.
- Establish independent review panels to safeguard outstanding social and environmental matters.

"THOSE WHO VIOLATE THE LAWS AND REGULATIONS MUST BE BROUGHT TO JUSTICE"

5.2 Regulations

Regulations (in some cases called bylaws or guidelines) are specific rules, derived from laws. They are the means by which laws are implemented in daily life. Regulations are the 'rules of the game' and must be clear to all if the system is to function smoothly. Whereas a constitution gives a country or a state (in a federation) an overall structure to its legal system, and its laws describe the rights and duties of the government and citizens in general terms, regulations give specific practical and technical detail to the law. In some countries, regulations contain specific instructions for the application and enforcement of law, which are enacted by the executive. If these regulations are not enacted, the effectiveness and practical implementation of law can be compromised.

In the case of framework or umbrella laws, regulations in the form of bylaws are also needed, as is also the case with framework treaties, where detailed provisions are defined via protocols. Framework or umbrella laws are a recent legislative technique used in environmental management, which are designed to cover a wide spectrum of cross-sectoral issues, and facilitate a more coordinated approach on environmental management issues. This type of legislation lays down the basic legal principles without attempting to codify, and generally includes a declaration of the main objectives and policies to be established and defined. It delineates the main bodies and institutions and the establishment of decision making procedures applicable to a variety of sectors. There is no clear-cut division between framework laws and comprehensive laws, as some laws have elements of both types of legislative techniques. An important feature and advantage of framework laws is that details can be left to be determined when regulations are set, avoiding longer legislative processes.

"REGULATIONS ARE THE RULES OF THE GAME"

5.2.1 Writing regulations

All regulations are tied inextricably to the laws enabling them and are more easily changed or revoked than the laws themselves. Administrative agencies, with a mandate to regulate in a given area from a specific law passed by the legislative branch, may propose a new regulation or modification or elimination of an existing regulation. While legal systems differ procedurally, generally notice is given of a proposed new regulation and a period for public comment is set during which affected groups may voice concerns or support for the new regulation, followed by the agency's responses and promulgation of the final regulation. In their regulatory proposal and response to public comments, agencies are tasked with providing factual justification for the regulation. Affected individuals or groups may bring a lawsuit challenging the rule in either an administrative court or a judicial court, generally depending on the language in the law enabling the regulation. In case of regulatory challenges, courts will generally give wide discretion to agencies in their decision making powers.

Case 5.1 U.S. Environmental Protection Agency Water Pollution Regulations Pursuant to the Clean Water Act

In 1972, the U.S. Congress passed the Clean Water Act (CWA), which had among its various goals to make US waters 'fishable and swimmable by July 1, 1983', the 'total elimination of discharges by 1985', and stated that 'No person may discharge any pollutant into waters of the U.S. without a permit'. The CWA created a two-tier pollution regulatory system in which the federal government promulgates technology-based standards and state governments set water quality standards, subject to federal approval. In dealing with point-source pollution, the federal Environmental Protection Agency (EPA) sets pollutant level regulations and permit guidelines as well as delegates authority to certain states to issue permits, and the EPA issues specifications for control technology standards outlined by Congress in the CWA. Regarding non-point sources, state environmental agencies set 'total maximum daily load' regulations as well as comprehensive management and evaluation programmes, all of which are then subject to EPA approval.

In a federal context, complex political, legal, institutional and administrative structures create further challenges. Case 5.2 exemplifies different legal instruments that must be put into place in a national context, including a call for regulations, in order to provide effective water management.

Case 5.2 Applying water governance in a federal context: the case of Argentina [38]

The National Constitution of Argentina establishes a division of powers between different government levels: the federation (nation), the provinces (or federated States), the autonomous city of Buenos Aires, and the municipalities.

According to the constitution, provinces have all the powers not delegated to the Federation, meaning by that, the powers of the federation are higher than that of the small provinces, but exceptional in character. And this also applies to water, bearing in mind that according to the constitution, each province owns the natural resources located within its territory and, as a result, adopts its own water laws and water codes which regulate water management, water quantity and quality. There are certain powers, however, that are shared between the provinces and the federation. This is the case with navigable waterways, for which the federation regulates issues relating to navigation, but the provinces regulate water quality and quantity in those rivers located within their boundaries.

An area of power delegated by the provinces to the federation is the establishment of minimum standards for the environmental protection, including for waters. The exercise of this power by the federation is limited by the provincial power over the natural resources located within their territories. provinces can then adopt complementary rules that are stricter than the minimum protection standards, but never less strict. Finally, within the institutional legal structure, there are the municipalities. Municipalities are below the provinces in terms of powers, but have a certain level of autonomy. Some water issues can be regulated via municipal ordinances, such as drinking water services, or waste management.

Law 25688 (Environmental Management Regime of Waters) adopted in 2002 establishes minimum protection standards for the rational use and protection of water. As a law on minimum standards, it applies at the federal level, and the provinces are obliged to follow its provisions. Law 25688 regulates management of river basins, stating that their management should not be subject to territorial division (i.e provincial), and that over-arching basin committees should be established for those basins located within the territory of more than one province (inter-jurisdictional basins). This has raised particular concerns for example among the provinces, which see it as their responsibility to establish those committees (and not the federation's).

In addition to such difficulties in interpretation, there are problems with implementation. For example, a permit is needed to use those waters regulated by Law 25688. The authorities need to establish water quality and

effluent standards, and prepare and update a National Water Plan (which needs the approval of Parliament) to coordinate different basin committees. However, Law 25688 has not yet been regulated. As a result the law has not been applied and put into effect. The application of Law 25688 is therefore seriously compromised, and the Ombudsman has already enacted a resolution requesting the Chief of Cabinet to adopt the necessary provisions for the application of this law and other similar ones establishing minimum environmental protection standards for the whole country.

5.2.2 Including incentives

Regulations need not always prohibit actions. They can instead provide incentives for people or organizations to behave in ways that benefit good water management. In recent years, a number of countries have turned their attention to economic instruments to create incentives for effective compliance and enforcement. These instruments are not limited to taxation and subsidies but include a variety of types of payment schemes for watershed services. Some of these schemes are described in Chapter 3 and in the IUCN-WANI toolkit *PAY* which provides guidance on how payment schemes can be used to create incentives for sustainable management of watersheds.

Case 5.3 "Cánon ambiental de vertidos"

In recent years, Costa Rica has been working on the design and implementation of a new regulatory instrument called *Cánon Ambiental de Vertidos* geared towards a significant reduction in pollution of surface waters through economic incentives. Based on the 'polluter-pays principle', it will charge those organizations/bodies that, through transportation or waste discharge, have a negative impact on water resources, associated ecosystems and human health. The *cánon* is not based on a fixed payment, but is proportional to the intensity of the water use. Starting from a pollution baseline in a river basin, (and with the aim of lowering pollution), the cánon is imposed so that users do not exceed a pollution target, or so that pollution is gradually reduced. Funds collected through this system have to be re-invested within the basin: 60 percent in domestic sewage treatment, 15 percent in promoting the use of clean technologies and capacity building, 10 percent in monitoring pollution sources, 10 percent in managing the *cánon* system, and 5 percent in funding activities relating to environmental education.

Before good water governance systems create new incentives for efficient water usage, they should first remove any pre-existing 'perverse incentives' encouraging inefficient water usage. Many governments do not treat water as a scarce natural resource but subsidize both urban and rural water usage. Agricultural users are often not charged for irrigation water or they are subsidized in dry countries, resulting in water scarcities. The cost of water in cities is also often subsidized, as it typically does not include delivery costs. Money saved from eliminating wasteful subsidies could be converted into more useful subsidies for poor and disaffected groups. Incentives are an integral part of effective water policy reforms. For example, by allowing users to own and in some areas to trade such rights among individuals and water user groups, governments can encourage efficient water usage. Privatizing and regulating urban water services also improves efficiency and encourages conservation and investment in water conservation and recycling sectors. Finally, because market-based price incentives offer a dynamic means of valuing resources, rather than a static 'one price for all you can use' system, they can adapt to evolving circumstances.

Table 5.1 lists some of the current forms of economic incentives that have been successful in some places.

Table 5.1 Economic incentives for watershed service maintenance

Economic incentive	Characteristics
Private payment scheme	• Lowest level of government intervention • 'Private' refers to profit seekers and individuals • Private entities agree amongst themselves to provide payments in return for maintenance or restoration of a watershed
Cap-and-trade schemes	• A 'cap' is determined (by the government or a voluntary market system) • Permits or credits are allocated among polluters • A market is developed for exchanging permits and credits
Certification schemes of environmental goods (eco-labelling)	• Payment embedded in the price paid for a traded product • Buyers pay for products that comply with environmental standards • Highest level of government intervention
Public payment	• Buyers are public authorities • Specific mechanisms include user fees, land purchase and land easement

5.2.3 Penalties

Regulations must clearly state what comprises a violation of the law and the sanctions for non-compliance. Examples of violations may include:

- Licence and permit contraventions.
- Unauthorized use of water.
- Tampering with the quality or quantity (including flow rates) of water resources.
- Unlawful construction of water infrastructure (such as dam construction).
- Failure or refusal to furnish data or information, or furnishing false or misleading data or information.
- Obstructing a State agent or inspector in the exercise of any statutory power or duty.
- Unlawfully and intentionally or negligently committing any act or omission which actually or potentially pollutes a water resource.
- Corruption and fraud.

"REGULATIONS MUST CLEARLY STATE WHAT COMPRISES A VIOLATION OF THE LAW AND THE SANCTIONS FOR NON-COMPLIANCE"

Each violation should carry a penalty of a nature and gravity appropriate to the seriousness of the violation, the consequences, presence of hazardous or toxic substances in an unlawful discharge, monetary benefit to the non-complying party and duration of the violation. Penalties may include a range of administrative or criminal fines, imprisonment, or both. Personal liability on the part of company

directors or managers may also be considered for inclusion in a new water law. Discharging pollution into a public water body is perhaps the most obvious case for imposing a fine (see Case 5.4).

Case 5.4 Wastewater discharge fees in Colombia

In Colombia, regulations impose discharge fees on any point of wastewater discharge that releases certain effluents into a water source. The objective is to reduce waterway pollution by imposing penalties (the discharge fee) on polluters.

The national system of discharge fees was created by Law 99 in 1993 and later implemented through Decree 901 (a regulation) in 1997. The decree granted certain water management duties to 33 regional environmental authorities called *Corporaciónes Autónomas Regionales* (CARs). The jurisdiction of each CAR was determined not by political boundaries, but rather by natural ecological delineations. By national decree, the CARs were to inventory all facilities discharging wastes that produce biological oxygen demand (BOD) and total suspended solids (TSS), and to map all key water basins so that five-year pollution reduction goals for aggregate discharges could be set and regulated.

Polluters who exceed set discharge limits are required to pay a per-unit excess discharge fee starting at a minimum rate that is adjusted upwards as pollution reduction targets are continually not attained. As pollution reduction targets are made more stringent over time, discharge fees can become increasingly harsh for sources that are unable or unwilling to implement technology that will allow them to meet the BOD/TSS standards. Revenues from collection of discharge fees are retained by the CARs, thus promoting local enforcement.

The efficacy of the discharge fee programme has been questioned by some and lauded by others, but between 1997 and 2003, nationwide BOD discharges from point sources in Colombia decreased.

In order to mitigate any unnecessarily punitive effects, penalties may be capped at a given amount if the infraction is a minor violation or results from failing to report unknown spills. Similarly, reductions of a given percentage from the normal penalty are possible if the party committing the discharge undertakes good-faith mitigation efforts according to an environmental management system. Parties entering into settlement agreements (and possibly agreeing to environmental project investment) may have their penalties reduced in order to facilitate quick litigation and remediation of the area.

"PENALTIES MAY BE CAPPED AT A GIVEN AMOUNT IF THE INFRACTION IS A MINOR VIOLATION"

Case 5.5 Environmental penalty regulations help to protect Ontario's water sources [39]

Environmental regulations help to reduce industrial spills in Ontario by giving the Ministry of Environment the power to impose monetary penalties on companies that pollute land or water. Additional regulations require facilities subject to environmental penalties to prepare spill prevention and contingency plans and codify spill reporting requirements already in practice.

The Environmental Enforcement Statute Law Amendment Act, passed in June 2005, amended the Environmental Protection Act (EPA) and the Ontario Water Resources Act (OWRA). These amendments allow the Ministry of Environment to impose financial penalties in response to unlawful industrial spills, unlawful discharges and other related environmental contraventions. Environmental penalties give the Ministry a remedy that can be applied swiftly, to encourage quick and effective compliance with Ontario's environmental laws.

Environmental penalty regulations apply to 148 facilities in nine industrial sectors whose operations discharge directly into a surface water body. The nine sectors include petroleum, iron and steel, industrial minerals, inorganic chemicals, organic chemicals, and pulp and paper. They also include metal mining, metal casting, and electric power generation facilities. The facilities that are subject to environmental penalties account for a significant portion of reported industrial spills on land and water from year to year. In 2003, these operations accounted for 30 percent of reported industrial spills on land and 64 percent of reported industrial spills into water. In 2004, they accounted for 30 percent of reported industrial spills into water and 37 percent of reported industrial spills on land.

The fines against companies that violate the law will be based on a number of factors related to the type of violation and the seriousness of the violation. Types of violations include improper reporting and record-keeping, exceeding discharge limits of certain substances and unlawful spills. Average penalties are expected to be about CAD $1,000 for administrative violations and CAD $10,000–20,000 for unlawful spills and spill-related violations. The size of a penalty is determined by an assessment of:

- The gravity or the seriousness of the violation and its consequences.
- The monetary benefit, if any, that the facility has gained from non-compliance with Ontario's environmental laws.
- The number of days the violation continues.

The presence of a toxic substance in an unlawful spill or unlawful discharge increases the gravity portion of the penalty by 35 percent. The "Environmental Penalties – Code of Toxic Substances" provides a list of 113 toxic substances that would result in such an increase.

Revenue collected from environmental penalties is deposited into a Special Purpose Account. All revenue collected will be made available to communities affected by spills for remediation, restoration and related purposes. Environmental proposals from community organizations will be accepted every year and will be assessed by technical experts to ensure they meet the criteria. As the Environmental Protection Act also requires polluters to compensate for losses or damages that result from spills, the fund is not required for compensation of the victims of spills and spill-related violations.

5.2.4 Covenants and negotiations

Regulations, whether they prohibit behaviours by imposing penalties or encourage them by offering incentives, are created in a hierarchical relationship in which governors direct the activities of the governed. In contrast, some organizations are considering the use of another type of power arrangement in which parties are equal partners in a negotiated agreement or covenant that benefits all involved.

In a negotiated agreement or contract, violation of the terms of the contract by one party usually releases the other parties from their obligations. A covenant, a concept with a long history, 'is a mutual promise of two (or more) parties that is valid independently of whether the parties deliver on their promise or not. This gives a covenant a higher, more solemn validity than an ordinary contract, treaty or convention'.[40]

In the field of international law, the term 'covenant' refers to agreements in which one party's non-performance does not affect the other party's duty to perform, unlike in a classic contract, in which rights and duties are mutually linked. Declarations, charters, compacts, conventions, manifestos, constitutions, treaties and even contracts may carry forward disguised forms of covenants and aspirations. 'Compacts' share with covenant, for example, the expectation that parties are obligated to respond to each other beyond the letter of the law, and both require mutual consent to be abrogated, designed as they are to be perpetual.

It has been theorized that all forms of contract between citizen and state involve more than mere mutual self-interest in order to be binding, and that 'social contracts' were therefore deep, sacred agreements reflecting moral relationships believed to be inherent in reality itself. Indeed, no community can long be governed without some form of mutual trust or covenantal bond that provides identity and purpose to its members and that is judged a fair distribution of powers, benefits, rights and obligations. No covenant can be successfully formed and kept that does not provide for a constitution or other legal structure institutionalizing the norms and political processes (or government), by which decisions regarding the relationships between the parties to the covenant will be made and implemented.

In addition to formal written promises officially recognized by governments, compacts and covenants can also originate from systems of local community customs and unwritten agreements. Indeed, as a general rule, the more localized a system is, the less formally regulated is the system of water governance (see Case 5.6).

Case 5.6 Water governance by covenant in the community of Pijal, Ecuador [41]

The northern Ecuadorian indigenous community of Pijal, population 1,138, is organized communally and has an unofficial system of local governance that includes elements of parliamentary, judiciary and administrative branches. The community assembly (*Asamblea de la Comunidad*) is a parliamentary body with the highest level of decision making power and includes all members of the community government. Under the *Asamblea* is the *Cabildo* (a combined administrative-judicial branch), beneath which sits the powerful *Juntas de Agua* (Water Board), composed of the most honest citizens in Pijal. The *Juntas de Agua* convenes mandatory work parties of community members when needed to perform maintenance on canals and ditches in the area, and imposes fines or sanctions on members who do not participate.

Tensions over water in the community have risen in recent years due to the growing problem of drought in the area, and year-round reductions in water flow occurring simultaneously with a growing population. In order to control theft of water (i.e., taking more than the amount allotted each family for US$ 0.50 a month), the community has instituted a graduated system of penalties, which includes fines for one-time offenders and temporary or permanent suspensions of water access for repeat offenders. The *Asamblea* hears and adjudicates water access conflicts between members of a single community. In the case of conflicts between members of different communities, representatives of those communities who understand the problem are convened and allowed to propose solutions to the issue, which is decided by a vote. The system is not recognized by the Ecuadorian government, but community members maintain that Pijal's water governance mechanisms are accepted by the community, as the underlying concepts and values are understood by all, and punishments determined by the *Asamblea General* reflect this understanding.

The basis for agreement of covenants is negotiation. A negotiation requires a process in which the parties involved come together to bargain and trade off within their positions aiming to reach an agreement over a disputed or potentially disputed matter. As demonstrated in the IUCN toolkit *NEGOTIATE*, facilitated processes of negotiation can help to build consensus among parties. Negotiation is thus a means to an end, but in order to be fruitful, the parties involved must be autonomous, while recognizing that there are commonly imbalances in power among parties. Such imbalances can lead to manipulation of processes in favour of the stronger parties. Thus, capacity to negotiate as equal partners must be addressed particularly when civil society actors negotiate with stronger traditional players such as the government or the private sector.

"MONITORING AND INFORMATION MECHANISMS MUST BE COORDINATED BETWEEN NATIONAL AND RIVER-BASIN LEVELS"

5.3 Monitoring and information management mechanisms

Monitoring and information management mechanisms are essential tools for enforcement, as mentioned earlier in Chapter 3 on law and Chapter 4 on institutions. The extent to which this data is made publicly available may support compliance greatly by helping water users who are subject to the law's requirements verify that they are meeting their obligations and to understand the implications if they fail.

What should be monitored?

- Physical parameters such as water quality, aquatic biodiversity and habitat must have a baseline established. Ongoing assessment must then be made using the same measurement to determine if they are improving or deteriorating.
- Health variables such as access to safe drinking water and sanitation, and incidence of waterborne diseases.
- Economic variables such as costs to the government and consumers of providing water, sewerage and hydropower.
- Progress towards goals set in five-year plans or any other government water programmes. These might include the number of water user groups formed, number of additional homes served by sewerage, or agreements reached by various partners.
- Compliance with pollution regulations such as discharge limits or fertilizer use near waterways.
- Effectiveness of enforcement efforts in terms of fees collected, court cases won, or compliance negotiated.

Monitoring and information mechanisms must be coordinated between national and river basin levels. Given the highly technical nature of monitoring, the results should be expressed in terms that are understandable to lay people.

The costs of monitoring can be high as they are not limited to the installation, operation and maintenance of the necessary infrastructure to support monitoring mechanisms but also extend to training and administration.

"THE COSTS OF MONITORING CAN BE HIGH"

5.4 Compliance and enforcement

Compliance refers to the conformity of society to the obligations agreed to in water arrangements. When the parties involved are willing to meet their obligations, enforcement is not such an issue.

Enforcement, which is necessary when voluntary compliance fails, fosters security amongst stakeholders because each party knows that if the other party does not abide by the agreement, there are specific mechanisms to force compliance. The State may use police action to assure compliance with a specific law or act.

The incorporation of appropriate regulatory mechanisms to support compliance is accomplished in part by clearly and concisely defining the rights and obligations of all water users (public and

private) as well as the State. As discussed in Chapter 3, this may be achieved through the creation of a system that secures 'property rights' to use water. Firm rights can also be established through permit or licensing systems, judicial procedures or customary practices. Clear rights and obligations may also arise indirectly under other legislation with implications for water resources, such as in the case of the Endangered Species Act in the United States.

"ENFORCEMENT, WHICH IS NECESSARY WHEN VOLUNTARY COMPLIANCE FAILS, FOSTERS SECURITY AMONGST STAKEHOLDERS"

The objective of incorporating appropriate compliance mechanisms in a water law is greatly enhanced by measures that ensure a high level of public participation prior to administrative decision making, as well as the right to be heard after decisions have been taken by the authorities. Compliance is also strengthened by incorporating transitional arrangements in legislation that provide opportunities for civil society to arrange their affairs before a new law takes full effect. Such arrangements are often overlooked, however, in the introduction of a new water law regime.

Case 5.7 India's 1974 Water Pollution Act: a failure of enforcement

India has a strong water law and judiciary. However, they have proved insufficient to address serious sources of pollution. In 1974, India enacted the Water (Prevention and Control) Pollution Act, which created the Central Board and State Boards for Pollution Control and contains specific provisions for restrictions on new outlets and new discharges, rules on existing discharge of domestic sewage or industrial waste waters and emergency measures for response to pollution of streams or wells. The Act also gives the Boards powers to apply to courts for orders to stop pollution of water in streams or wells. The state governments have no enforcement powers under the Act beyond the mere power to declare an area as a 'water pollution, prevention and control area'. The Act licenses pollution by obliging anyone undertaking a potentially polluting activity to obtain permission before the discharge is allowed. Enforcement provisions enable punishment of a company or a government department committing an offence under the Act.

The implementation of the Water Act has been slow because of problems with compliance and enforcement. Laws and judicial decisions have not been supported by the appropriation of the public monies needed to reduce waste discharges and support compliance. Cities have spent millions on complying with court rulings by constructing new sewage treatment systems but continued population growth has rendered the expenditure ineffective. Enforcement under the Act has been seen critically as 'policing society'. Low conviction rates together with the reluctance to prosecute have also led to questioning of the use of criminal law as a tool for preventing water pollution. It has been argued that criminal liability may not be an appropriate deterrent.

There is a view that the Act has been weakened because compliance and enforcement mechanisms under the Act predominantly use a command-and-control approach that has resulted in high-cost regulatory structures.

5.4.1 Enforcement mechanisms

Enforcement mechanisms aim to ensure that justice can be efficiently attained when contravention of the law occurs. Whilst most often expressed as punitive sanctions, enforcement mechanisms may also include prior notice and abatement measures and, in appropriate circumstances, search and seizure powers. These mechanisms are not limited to State or administrative action, but may also enable enforcement actions by citizens, for example through civil actions in the judicial system and 'whistle-blowing' procedures.

In the context of water governance, international experience has demonstrated that the most effective enforcement is rendered by well funded and well resourced administrative systems overseen by accessible and affordable judicial systems.

Water law may be significantly enhanced by including detailed guidance for enforcement agents and prosecuting authorities on how violations of the law can be proved. These can be provided in practice notes or guideline documents, for example, that describe the scope of the investigation needed where there is a suspected violation and the evidence needed for prosecution.

Entry and inspection powers are proactive mechanisms for compliance and enforcement. It is important, however, that private property and privacy rights (as well as safety and security concerns) in addition to other relevant constitutional provisions are properly protected. It is essential, therefore, that entry and inspection powers are clearly described and limited to persons duly authorized to exercise such powers.

Consideration should be given to the circumstances in which prior notification and authorization of inspection by a court or other independent tribunal (for example, by way of a warrant) is required. This is particularly important when criminal prosecution may follow an inspection activity. In certain situations, an inspector may require the assistance of other persons or technical equipment – these should also be specified. In addition to gaining access to private property, an inspector may also require access to a particular infrastructure such as a dam, levee, weir or water piping. Specification of such detail in the law not only ensures certainty as to the powers of an inspector but also provides the necessary information to those required to comply with the law.

Often overlooked is the nature of the forensic, technical or other evidence that is necessary to prove guilt beyond reasonable doubt in the case of criminal violations of the law. Resources for gathering evidence are essential to enable prosecutions. The law should therefore support the use of expert witnesses to assist and guide the courts (or any other appropriate independent tribunal) in the course of the presentation of evidence, for example.

5.4.2 Alternative dispute-resolution mechanisms

Administrative, judicial and alternative dispute-resolution systems, such as arbitration and mediation, provide access to justice and the information necessary to enable direct or indirect citizen enforcement claims as an alternative to adversarial court proceedings. Specifically for the water sector, such mechanisms have taken the form of special water tribunals or alternative independent tribunals to deal exclusively with water disputes.

Special water tribunals may be an adjunct to the official judicial system or may be established as a separate administrative tribunal. The viability of such jurisdictions will depend on the requirements of constitutional and legal circumstances. The affordability of public access to such a forum is a critical consideration in determining its effectiveness and viability.

In Valencia, Spain, a centuries-old water tribunal now operates within the modern administrative and legal framework and continues to be effective in settling disputes (see Case 5.8).

Case 5.8 "Tribunal de Aguas de Valencia", Spain

The *Tribunal de Aguas de Valencia* is a long-standing, customary water institution that takes place at Valencia Cathedral every Thursday. It was established by Jaime I in the 13th century to regulate the distribution of irrigation water from the River Turia.

The water tribunal is recognized in Spanish law with full authority to decide on conflicts between users of the Valencian irrigation network and with full powers of enforcement. It has been criticized for disregarding the principle in Spanish Law of centralized jurisdiction, but the trust of water users in the tribunal and the application of principles and guaranties such as public appearance and speed and efficiency – have made it world-famous. The tribunal is independent but administered within the Ministry of Public Works.

The judges are eight ordinary workers representing a different irrigation network or *Comunidades de Regantes* who are elected to office for two years. They wear traditional smocks and hand down their sentences orally. It is a civil tribunal and its decisions can take the form of a fine or other sanction . If voluntary compliance does not occur then the tribunal can enforces its decision through the closure or confiscation of the water right. There is no right of appeal. This tribunal is seen as a model of efficiency, as cases are solved rapidly.

Customary water law, although often ignored, can be an effective means of enforcing environmental justice. Customary law can be successful in establishing water governance when formulated by users at the local level in the absence or inefficiency of a water law, and where respected among agreeing parties without the intervention of administrative authorities to enforce them. They are non-formal norms and behaviours that are accepted by the community and that have endured over time. The power of customary law normally derives from the community's beliefs and values.

These water arrangements can be either verbal or written, and they constitute a special legal category of so-called 'soft law'. The term implies a quasi-legal status, meaning that they are not legally binding. Nevertheless, local, rural chiefs play an important role as quasi judges, and their rulings are complied with in the community.

"CUSTOMARY WATER LAW CAN BE AN EFFECTIVE MEANS OF ENFORCING ENVIRONMENTAL JUSTICE"

Customary water law is particularly effective because local people are informed about available water resources, their water needs, and the importance of managing their water. Monitoring processes are also more cost-efficient, due to the proximity between water users. Finally, the use of customary water management law is cost-effective. Evidence shows that the regulation of customary law does not need enforcement by external resources, which may be costly.

Customary water laws have most influence in many areas in the allocation of land and water, and in the settling of disputes. They are seen by some as more successful in managing rural water resources than imposing formal laws. This is the case where state-centred policies for managing natural resources have failed for several reasons, including faulty design for resource management programmes, inefficient implementation and corruption.

Case 5.9 Enforcement of customary water law[42]

Some indigenous communities of Guatemala have developed their own water governance mechanisms for water supply and other water priority uses, as well as for the protection of the resource. Human consumption has a priority over other uses, and communities restrict monopolies or individual uses. The main features of these governance arrangements, which are implemented through practices and customs inextricably linked to a particular world vision, include:

- A system of values that integrates the management of water and forests.
- A structure of authorities based on seniority, bringing together leadership and authority.

- A legal system that emphasizes the protection of communal forests because these forests are directly linked to water supply sources.
- A system of community management based on the voluntary service of the community members.

All community members are responsible for their actions and can be reprimanded by the Mayor, or the deputy Mayor. The deputy Mayor is responsible for overseeing the maintenance and distribution of water for human consumption. In cases of serious breaches of rules, the community in plenary, through an assembly, will legitimize actions to restore any damage.

"CUSTOMARY WATER LAWS ARE THE MOST INFLUENTIAL IN LAND AND WATER ALLOCATION AND SETTLING DISPUTES"

5.4.3 Using the courts

Court cases can be expensive and time-consuming, but they are established to provide justice. Ideally, any person or group afflicted by a water administration decision or action of another citizen or group should be able to make a claim against such a decision or action. Such claims should be made to the water administration or a regular judicial court, respectively. The water administration should be able to adjudicate cases relating to individual water rights, but cases against citizens or groups alleging legal violations should have recourse that is more directed to regular courts of the country or state. In the case of claims made against the water administration, a right of appeal should be allowed, generally first to the administration chief on a technical or public interest basis, then to the water management minister, then to either a water court or a regular court (for cases involving alleged legal violations).

"IN THE CASE OF CLAIMS MADE AGAINST THE WATER ADMINISTRATION, A RIGHT OF APPEAL SHOULD BE ALLOWED"

With striking similarity to the centuries-old water tribunals of Valencia (Case 5.8), recent water laws in many countries of both common and civil law heritage have created specialized water courts operating within the regular court system although exclusively addressing water disputes. The competence of such courts may include:

- Review and adjudication of water agency administrative decisions.
  Conflicts between private water rights claimants and/or (public or private) water administration agencies.
- Penalties against water law violations.
- Water courts generally include a judge serving as court president as well as two specialists in economic and technical issues, one of which could be appointed by the water administration (see Case 5.10).

Case 5.10 Water Court in the District Court of Montrose, Colorado, USA[43]

The Colorado Constitution provides that all water belongs to the People of the State, but that anyone may lay claim to a water use according to the common law doctrine of 'First in time, first in right'. The Water Court of Montrose, Colorado, was established to determine, in cases of multiple claimants for identical water, who has

first right of water use and what priority other users might claim. Upon filing of an application with the court, the water clerk publishes a summarized version of the application in a newspaper located within the county of the water claim. Interested parties then have two months from the application filing to enter the case by means of filing a statement of opposition. The court clerk also sends a copy of the application to the state engineer, division engineer and the water referee; the latter will visit the site to verify the application information. The referee makes a recommendation to the water judge of whether the applicant has met the law and, unless an interested party protests the decision within 20 days of the ruling, the judge signs the ruling and makes it the court decree. Such a decree holds that the applicant complied with the law and is entitled to use a certain amount of water for a given use within a defined priority. If an interested party protests, then the judge will hear the case and decide independently on the issues raised.

Regional integration has also influenced the way in which the courts are being used in a national context. In addition to the domestic courts of European countries, in 2000 the European Community instituted additional protections for water users by means of the European Water Framework Directive (WFD). The WFD provides a means of harmonization of water law in EU member states, as it mandates what minimum levels of water protection countries must adjust their laws to follow, common definitions of water quality and quantity status, and a timetable for legislation and entry into force of laws required to meet the minimum threshold levels. If EU member states do not fulfil the requirements under the WFD, they become liable to suit from the European Commission, which can bring the member state before the European Court of Justice, seeking penalties and injunctive measures requiring the member to act in accordance with the WFD.[44]

5.4.4 Standing

Court systems usually do not allow people to bring a case, or to have 'standing', unless they can demonstrate that they have been personally harmed by the actions of another. However, many legal systems allow indirect enforcement by citizens through filing of formal administrative complaints or lawsuits. For example, in the United States, the Clean Water Act allows citizens to bring lawsuits against polluters for on-going violations of effluent limitations. In Mexico, the *denuncia popular* found in Mexican law allows citizens to lodge complaints with the responsible agency and to obtain a formal response as to the status of enforcement. In China, direct political lobbying by NGOs has been demonstrated as an indirect or alternative means of ensuring proper enforcement. In the Hubei Province, the Green Han River NGO has mounted an aggressive campaign against water pollution allegedly caused by a paper manufacturing plant and the authorities have responded by starting to implement action to close down the factory.

5.4.5 Friend of the Court

The term *Amicus curiae*, or 'friend of the court', refers to someone – often an advocacy group – who is not a party in the litigation, but who believes that the court's decision may affect its interest and therefore volunteers information on a point of law or fact in the case to assist the court in deciding a matter before it. The information may be a legal opinion in the form of a brief, testimony or a learned treatise on a matter that bears on the case.

The decision whether to admit the information lies with the discretion of the court or tribunal. It is unquestionable that an *amicus curiae* brief that brings to the attention of the court a relevant matter not already brought to its attention by the parties may be of considerable help.

Case 5.11 The Biwater Tanzania case

Non-profit legal advocacy organizations frequently submit an *amicus curiae* brief to advocate for or against a particular legal change or interpretation. A coalition of NGOs recently filed such a brief in the Biwater Tanzania case pending before an ICSID Tribunal (an arbitration tribunal under the auspices of the World Bank). The dispute relates to the Tanzanian government and the British investor Biwater, concerning an agreement for the provision of water services in Dar es Salaam from 2003–2005. In May 2005, the Tanzanian government announced termination of the contract because Biwater had failed to provide clean drinking water to millions of people in Dar es Salaam. Biwater is demanding compensation under the UK-Tanzania Bilateral Investment Treaty.

The brief calls into question the responsibilities of foreign investors undertaking international investment agreements, particularly where investments might affect human rights or sustainable development objectives.

This dispute shows how problematic foreign investment agreements are, particularly if they include investor-state provisions, which allow investors to sue host governments in international tribunals and in this way avoid submission to national law. It is argued in the brief that governments should be encouraged to refuse investor-state provisions or investment provisions more generally, because by accepting a foreign investment, governments accept that the investor will be allowed to operate under international law (and not necessarily national law), with rights of access to natural resources. There is therefore a risk that the investment will not meet local needs and compensation may be demanded under international law.

The court has broad discretion to grant or to deny the NGOs permission to act as *amicus curiae*. In principle, an *amicus curiae* brief may be filed only if accompanied by written consent of all parties, or by leave of court granted on motion, or at the request of the court. A motion of *amicus curiae* to participate in the oral argument is usually granted only for extraordinary reasons.

5.4.6 Civil penalties

Criminal sanctions should not be the only means of law enforcement. There should also be provision for enforcement through civil actions, particularly in circumstances where third parties may have suffered harm or loss because of a violation. Appropriate compensation mechanisms then become relevant.

In South Africa, for example, the National Water Act authorizes a court, in the same proceedings where a person has been convicted of a criminal violation, to enquire into harm or loss allegedly suffered by a third party. Pleadings or the filing of additional and separate papers are not needed. The Act merely requires that a third party make written application for such an enquiry. The State, through the responsible Minister, may also make a similar written application. In both instances, the enquiry must take place in the presence of the convicted person. After making a determination, the Court is empowered to award civil damages – i.e., monetary compensation – for the harm or loss suffered. It may also order the convicted person to institute appropriate remedial measures or to pay the costs of measures that have been or will be implemented.

"CRIMINAL SANCTIONS SHOULD NOT BE THE ONLY MEANS OF LAW ENFORCEMENT"

5.4.7 Injunctive relief

'Supportive' enforcement mechanisms should be included in a new water law, in addition to criminal and civil sanctions. In some circumstances, rapid and highly efficient steps need to be taken

by a State agency. The availability of interdictory (injunctive) measures in a water law may assist in achieving this goal. For example, a water law may provide an enforcement agency with powers to apply to a court for an interim order for the cessation of a particular activity that presents a threat to a water resource. Alternatively, in appropriate circumstances, an order may be sought compelling a particular action or activity to prevent such threat. In addition, a water law may include the powers needed to suspend or withdraw a permit or licence while further investigation is done or while waiting for a ruling by a court or any other appropriate independent tribunal.

"SUPPORTIVE ENFORCEMENT MECHANISMS SHOULD BE INCLUDED IN A NEW WATER LAW"

Case 5.12 Court injunction provides relief to community with contaminated water in Argentina

In 1987, the EDAR Bajo Grande municipally operated water treatment facility was opened on the banks of Argentina's Suquía River, 2km upstream from the Chacras de la Merced community. Because of the continued growth of the nearby city of Córdoba, additional sewage connections were authorized, increasing the volume of sewage going into the plant. Later, the plant began operating at approximately 70 percent of its original capacity, but was receiving 600,000–800,000 litres of sewage that it could not treat, resulting in daily spills of untreated sewage into the Suquía River.

The Centre for Human and Environmental Rights (*Centro de Derechos Humanos y Ambiente, CEDHA*) invited a scientist from the National University of Cordoba's laboratory to test the water quality around the facility. The test results demonstrated that the concentration of fecal coliform in the river was 40 percent higher downstream from the facility, compared with upstream. Furthermore, tests taken from family wells in the Chacras de la Merced community showed concentrations as high as 2,000 coliform bacteria per 100 millilitres of water, far exceeding World Health Organization recommendations that there should be no fecal coliform in water destined for human consumption.

To immediately secure safe drinking water for the community, CEDHA and community representatives presented the test results to the court and requested an injunction. The court ordered that 'the municipality of Cordoba adopt all of the measures necessary relative to the function of the EDAR Bajo Grande, in order to minimize the environmental impact caused by it, until a permanent solution can be attained with respect to its functioning; and that the Provincial State assure the injunction filers a provision of 200 daily litres of safe drinking water, until public works be carried out to ensure the full access to the public water service.' Thus through an injunction the court was able to provide some relief to the community while that legal matter was being addressed.

5.5 RULE: A framework for effective water governance

The workings of courts are just one component of the framework that water managers and policy makers need to develop to ensure effective water governance arrangements that are sustainable, equitable and efficient. The international discourse has set the tone for reform of water governance to become more mindful of environmental limits (and opportunities) and more focused on distributing the rights and benefits of water in an equitable fashion. Water resources that are developed in a way that is environmentally sustainable will outlast those that are depleted by overdevelopment or ruined by pollution. Widespread access to clean water and sanitation inevitably improves people's health and productivity and ultimately the economic success of a country.

Reform of water laws is often attempted piecemeal with sometimes discouraging results. Instead, a country needs to build a strong WGC as a means to achieving effective water governance. Water governance capacity requires development of a coherent set of policies and laws, and strong institutions to implement them through regulations, negotiations and incentives. Without the backbone of national policy and law, other elements of reform may not provide a coherent whole or be able to endure for long. Ideally a country goes through a process that moves from a vision of how water resources should be managed to serve national goals, to a policy or set of policies that can implement that vision. Thence, to laws that codify the policies and craft them in obligatory terms. This then provides continuity on down to negotiations, contracts, regulations and incentives that actually prohibit or promote institutional or individual behaviours that produce the results foreseen in the vision.

"A COUNTRY NEEDS TO BUILD A STRONG WATER GOVERNANCE CAPACITY AS A MEANS TO ACHIEVING EFFECTIVE WATER GOVERNANCE"

Governmental and non-governmental organizations, civil society and the private sector interact from the creation of the vision to the enforcement of regulations. Governments must always retain their public-interest stewardship function for guaranteeing that water resources are managed for the benefit of citizens and the national interest. Private companies may be contracted to provide

Photo 5.1 Public protest over water issues (Nicaragua). Governments must always retain their stewardship role in guaranteeing that water is managed for the benefit of citizens and the national interest.

delivery, clean-up or construction services, and can often do so more efficiently than government agencies, but they must be monitored by government agencies for cost, environmental and other parameters that affect the public. Likewise non-governmental civil organizations can be partners in delivering services. For example, many countries have committees of local farmers that maintain irrigation works and allocate water amongst themselves. Civil society organizations can also give meaningful input to every step of the WGC process from vision to enforcement. Citizen groups are even known to use the courts to force government agencies to fulfil commitments made in policies or laws.

Good water governance must not only have the right content (such as the environmental and equity features described in the international discourse) and a strong capacity, but it must also have certain process-oriented characteristics such as transparency, certainty and accountability. These characteristics help reinforce the rule of law and fend off corruption. For regulations, contracts, negotiations and incentives – the management tools of government – to succeed, there must be a sense of trust among the actors that the rules will apply equally to everyone, that infractions will be punished, and that the government will uphold its end of the contract or deliver on the promised incentives. A corrupt government breaks this trust by using a shadow agenda of private gain rather than its stated agenda of public stewardship.

By establishing policies and laws that demand transparency in all its dealings, a government allows citizens, a loyal opposition and a free press to examine its actions and blow the whistle on corrupt practices. By establishing a strong independent judiciary, a government increases the certainty that those who violate the rules will be brought to justice and that individuals, organizations or corporations can settle disputes in an impartial forum. All actors can help hold each other accountable through the courts, other mechanisms of dispute resolution, and the ever-present tribunal of public opinion best expressed in free elections. Although governmental systems vary in their degree of centralization and democratic participation, all can find ways to promote transparency, certainty and accountability to create an enabling environment for reform of water governance.

Cases and boxes

Tables and figures

Glossary

Chapter 1

Effective water governance
Normative approach that aims towards transparent, coherent and sustainable water management and development.

Governance
The act, process or power of governing. It involves four aspects: social, political, economic and legal.

Institution
Established organization within society, normally of a public nature, with a specific mandate, and of significant importance for a given sector.

Integrated Water Resources Management (IWRM)
Paradigm for sustainable management of water resources, which also considers related and connected resources.

Law
The regime that orders human activities and relations in accordance to a given policy.

Policy
General principles that guide a government in its management of public affairs.

Reform
The process of change, amendment and modification of policies, laws and institutions, but also the instruments and vehicles to promote that change.

Rights-based approach
Water management paradigm that centres inalienable rights of individuals in the core of the development and management scheme.

Water governance
The process of managing and developing water resources by engaging and interacting social, political, economic and legal institutions.

Water governance capacity
Level of competence of a society to implement effective water arrangements, by means of transparent, coherent and cost-efficient institutional settings that enhance water governance.

Chapter 2

Accountability
Principle by which managers and decision makers in the government, the private sector and organized civil society are responsible towards the public for the actions they do or take within their positions.

Common law jurisdictions
Common law as opposed to civil law. Common law jurisdictions (most of which descend from the English legal system) place great weight on common law decisions which take great account of precedents, as opposed to 'civil law' or 'code' jurisdictions (many of which descend from the Napoleonic code) in which the weight accorded to judicial precedent is much less.

Customary laws
Long-established practices commonly accepted as correct rules of action at local, national and international levels.

Efficiency
Principle by which individuals and institutions must use the best processes available to produce better results, meeting the goals traced while using the least amount of resources needed.

Enactment
Act of officially publishing a law leading to compliance and enforcement.

Equity
Principle under which all individuals that are in the same situation must abide by the same laws, without any type of distinction or discrimination.

New Public Management
Economic policy movement which argues for cost reduction in public policy and its implementation. It is seen as a paradigm for modernizing public administration.

Participatory decision making
Political process which allows (and advises) that individuals have a voice in the decisions that affect their interests, either directly or indirectly.

Pattern of behaviour
A way of working that is consistent with an overarching plan. It emerges over time and can be influenced through incentives.

Perspective
Evaluation or consideration of a specific topic.

Plan
Strategy to attain outcomes consistent with broader policy objectives.

Policy arrangement
Implemented outcome of a specific set of ideas and concepts materializing a discourse into a framed practice.

Position
Point of view adopted in a particular topic.

Sustainability
Development approach that focuses on economic growth parallel to environmental protection, preserving it for future generations.

Chapter 3

Bylaw
Administrative decision adopted within an organization or corporation for its internal governance.

Duty
A legal obligation, the breach of which may give rise to liability or possibility of sanction by the law.

Forfeiture
The loss of property or right as a result of a violation of the law.

Jurisdiction
Generally speaking this means the geographical area over which authority or control may be exerted. A specifically legal interpretation refers to the authority of a court to hear and rule on a particular matter within a specific territory, or within a specific subject matter.

Jurisprudence
The study of law or legal questions, commonly referred to with respect to case decisions.

Legislation
A law or group of laws, also known as statutes, acts, decrees, edicts, codes (to codify means to put legal principles into a code or statute form). In certain situations, there can be a hierarchy of legislation according to the source of law making, for example ordinances are frequently issued by municipal government, and in cases of conflict, and the latter may not have the same authority as acts issued by the principal law-making authority in the state.

Precedent
A legal rule or principle established by a case (the higher the court that establishes the rule the greater its precedent value) which may be applied in later cases on the same legal issue.

Property law
Governs various forms of ownership over property which can take the form of tangible assets such as land or items, or immovable or personal property such as bank accounts. A property right refers to ownership of title to that property.

Regulation
Order or rule legally binding adopted by an administrative agency or local government.

Sanction
A coercive measure that results from failure to comply with a law, rule or order.

Usufruct
The right of enjoyment or use of property that belongs to another, including the rights to enjoy the profits and advantages of the object, provided there is no damage to the property (usufructuary = adjective).

Water right
A legal right to:

- Abstract or divert and use a specified amount of water from a natural or man-made source (for so-called 'off-stream' uses).
- Impound or store water in a natural source behind a dam or other hydraulic structure.
- Use water in a natural source (for so-called 'in-stream' uses).

As to their legal form, water rights may be created by the direct operation of the law, but mostly on the basis of a legal instrument issued by the state agency responsible for water resources management.

Water right trading
The transfer or exchange of permits or licences for water extraction granted by government.

Chapter 4

Affermage contract
A lease contract whereby the government agrees to finance a facility but the private company operates the system and is responsible for providing work capital. The local government is responsible for all capital outlays. A formula fixes rates that often include a surcharge to be remitted to the government for repayment of debts.

Capacity building
Cooperative training network for sustainable development. This is linked directly to 'good governance' as building the capacity of institutions and people, in particular at the national level, is necessary for 'good governance', which in turn is critical to achieving sustainable development.

Decentralization
The act by which the central government transfers powers, rights and duties to lower political and administrative hierarchical units.

Devolution
The act by which the government transfers core powers, rights and duties to individuals or groups of individuals that are located within or outside of the government.

Legal personality
The legal conception by which the legal system regards entities, which can be physical persons or artificial persons (business).

Monitoring
Recording activities carried out to meet set environmental objectives.

WUAs
Associations of water users at the local level to manage commonly the resource in their best interest and according to the legal constraints established.

Subsidiarity
Legal principle that aims to bring the decision-making process to citizens. It is a bottom-up approach. State institutions will only intervene in the absence of capacity of lower institutions.

Chapter 5

Compliance
To act according to the prescriptions of law and regulations.

Corruption
The misuse of a position of trust (where one receives authority in order to act on behalf of an institution) to gain profit.

Customary water management laws
Group of non-formal norms and behaviours that are accepted by the community, and that have endured over time in the society.

Enforcement
To compel observance of or obedience to laws and regulations by imposing certain sanctions.

Incentive
Mechanism to incite the behaviour and choice patterns of a given population.

Negotiation
The process of bringing different interests into settlements or arrangements of some matter.

Negotiation capacity
The qualification that determines one's ability to engage in valid negotiations in a parity situation towards the other contracting parties.

Regulation
Legal restrictions imposed by the government to adjust the conducts of the citizens. The goal of regulations might be to produce outcomes that without the introductions of the restrictive measures would not have otherwise occurred.

Public participation
Mechanism by which organized civil society can take part in the decision-making process of plans and projects that affect them directly or indirectly.

Transparency
The capacity to avoid corruption in the governance system by means of clear and open decision-making processes as well as accountable officers.

Water arrangement
Outcome of the process of negotiation, where two or more parties come to a settlement or agreement on water issues. The outcome might be formal or informal.

Photo credits

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Rule – Reforming water governance
Effective water governance capacity is the foundation of efficient management of water resources. Water governance reform processes must work towards building capacity in a cohesive and articulated approach that links national policies, laws and institutions, within an enabling environment that allows for their implementation. This guide shows how national water reform processes can deliver good water governance, by focussing on the principles and practice of reform. *RULE* guides managers and decision makers on a journey which provides an overview of what makes good law, policy and institutions, and the steps needed to build a coherent and fully operational water governance structure.

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