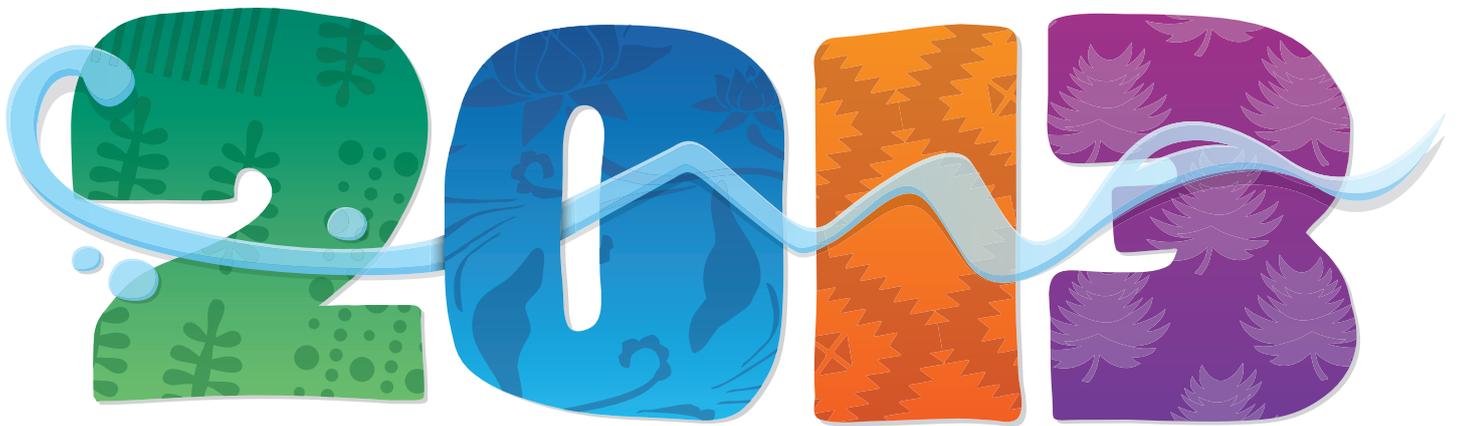
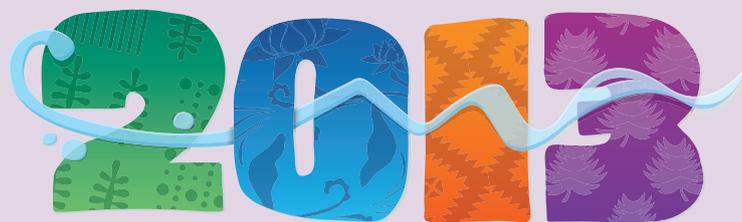


# Water cooperation in action: approaches, tools and processes



## International Year of Water Cooperation





International Year of  
Water Cooperation



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## Introduction

Proclaimed by the United Nations General Assembly on 11 February 2011, the objective of the International Year is to raise awareness, both on the potential for increased cooperation, and on the challenges facing water management in light of increasing demand for water.

Competition among uses and users of water is increasing in almost all countries. This competition for water could increasingly become a source of tension and conflict between states, sectors and communities. Other potential sources of conflict include degrading water quality, inadequate water management and infrastructure development such as dams. While most acute conflicts occur locally, they can present challenges to the larger context of (inter)national peace and security. However, water has also proven to be a productive pathway for confidence building, cooperation and conflict prevention. Water can even be a key factor in negotiating the end of a conflict. Cooperation in the search for solutions to resource scarcity and mismanagement can lead to innovation and the equitable sharing of costs, benefits and risks.

To ensure that water security and sustainability is achieved, concerted efforts must be made to promote water cooperation at river basin and local scales, including transboundary river basins, irrigation districts and cities. Cooperation is necessary to deal with major issues such as water allocation decisions, upstream and downstream impacts of water pollution and water abstraction, construction and management of new infrastructures, dealing with illegal abstractions and overexploitation of surface and groundwater, deciding on the financing of water management, and improving water-related disaster management. The role of negotiation, mediation and other dispute resolution mechanisms are key to improving cooperation processes.

### WHAT is water cooperation?

“Water cooperation” refers to the peaceful management and use of freshwater resources at local, national, regional and international levels among various players and sectors. The concept of water cooperation entails working together towards a common goal, in a way that is mutually beneficial.

History has often shown that the vital nature of freshwater is a powerful incentive for cooperation, compelling stakeholders to reconcile even the most divergent views. Water more often unites than divides peoples and societies.

#### Quick facts

Since 1948, there were only 37 incidents of acute conflict between riparian states over water involving violence. In the same period, 295 international water agreements were signed. (OSU 2011)

### WHY is water cooperation important?

Water is a cross-cutting issue which demands attention at all levels and across sectors. Water issues involve many stakeholders with conflicting and competing needs, and cross multiple physical, political and jurisdictional boundaries (Rio+20 2012). Cooperation is necessary to address issues such as water allocation decisions, upstream and downstream impacts of water pollution and water abstraction, infrastructure development, overexploitation, and financing of water management.

#### Quick facts

More than half of the world's population depends daily upon water resources shared by more than one country (INBO 2012).

40% of the world's population lives in river and lake basins that comprise two or more countries and 90% lives in countries that share basins (UN-Water 2008).

Water cooperation contributes to:

- **Poverty reduction and equity**

More inclusive governance of water and cooperation between different users can help overcome inequity in access to water, which is essential for satisfying basic human needs and reaching the Millennium Development Goals.

- **Economic benefits**

Cooperation can lead to more efficient and sustainable use of water resources, e.g. through joint management plans creating mutual benefits and better living standards.

- **Preserving water resources and protecting the environment**

Cooperation facilitates the exchange of data and information and can help develop joint management strategies to preserve water resources and protect water-related ecosystems.

- **Promoting peace**

Cooperation on water can help overcome cultural, political and social tensions and build trust between communities, regions and states.

## What are the CHALLENGES?

Conflicts can arise between various players at different levels on a range of issues. Challenges for water cooperation include:

- **Water demand.** Given the cross-cutting needs for water resources, there are competing demands for its use between sectors, nations, communities, urban and rural environments.
- **Water quality and water quantity.** Concerns about water quality and water quantity can form a challenge for water cooperation. While the perspectives of upstream and downstream uses often differ, both can have consequences on the quality and quantity of water.
- **Infrastructure development.** Infrastructure development such as dams may provide significant benefits for society, but can also negatively impact surrounding ecosystems and communities.
- **Climate change.** Climate change already impacts and is expected to further put pressure on water resources in many areas with fluctuations in water availability and water quality.
- **Economic interests.** Economic interests over water and its use can cause conflicts that change the balance of power in a region.
- **Financing.** Investment needs for sustainable financing of transboundary water management institutions often exceed the resources available to riparian countries.

(UNW-DPAC 2012, Shamir 2003)

## What are the BENEFITS of water cooperation?

Examples of benefits include:

- Cooperation can **avert costs** by reducing tensions and disputes between neighbours. Examples: Euphrates, Indus and Jordan basins.
- Cooperation at the basin level can promote **efficient techniques** for water storage and distribution, expanding irrigation acreage. Example: Indus Water Treaty.



- Cooperation at the basin level can enhance drought and **flood management**.
- Cooperation around international watercourses enables states to consider shared risks and opportunities, and paves the way for **regional cooperation in other domains** of politics, economics, environment and culture.
- Cooperation between municipalities and private providers can stimulate **resource mobilization**. Example: Water and Sanitation Pooled Fund in India.
- Cooperation between water users and across political borders is essential for the conservation of **healthy ecosystems**, their functions and services.
- Cooperation over shared water resources enables authorities and the private sector to jointly address common **external threats** such as climate risks and malaria.

#### Quick facts

Transboundary freshwater covers 45% of the world's land mass, connecting two or more countries in water resources above (surface) and below (groundwater) the earth's surface.

(UNW-DPAC 2012, World Bank 2012, GEF 2011)

## WHICH TOOLS can be used to promote water cooperation?

Water cooperation can be promoted at the local, national, regional and international levels. All stakeholders should be engaged, paying special attention to the livelihoods of the poor and most vulnerable people. Examples of tools to promote water cooperation include:

- Legal frameworks
- Institutional arrangements
- Sharing information and conducting joint assessments
- Incentives for cooperation
- Mediation and dispute resolution mechanisms
- Cost and benefit sharing
- Financing

#### Quick facts

60% of the world's 276 international river basins lack any type of cooperative management framework. (OSU 2011)

United Nations experts, representatives from case studies and key professionals from all around the world convened in Zaragoza, Spain, from **8 to 10 January** to prepare for the International Year of Water Cooperation 2013 and draw lessons from existing experiences of cooperation in relation to the use of the above tools.

There are many cases of successful water cooperation to learn from. In this document we describe and analyze 18 of them. Each case demonstrates how effective cooperation can be achieved and describes the difficulties encountered along the way. These examples may provide inspiration for other cases elsewhere by highlighting some of the crucial ingredients for success.

## The focus

The focus of this report is on the use of alternative dispute resolution approaches. Conflicts have existed in all cultures, religions, and societies for as long as humans have walked the Earth. Philosophies and procedures for dealing with conflicts have been part of human heritage and differ between cultures and societies. Nations,

groups, and individuals have tried throughout history to manage conflicts in order to minimize their negative and undesirable impacts. Conflicts can develop in any situation where people interact and where two or more persons, or groups of people, perceive that their interests are opposing, and that these interests cannot be met to the satisfaction of all the parties involved.

Dealing with conflicts – ‘conflict management’ or ‘conflict resolution’ as it has come to be known in professional circles – is as old as humanity itself. Stories of handling conflicts and the art of managing them are told at length throughout the history of every nation and ethnic group. Throughout history, individuals and groups have used a variety of means to resolve their disputes and attempt to reach a resolution acceptable to all parties. There is a common belief in all cultures that it is best to resolve disputes and to reach an agreed end to them, because conflict is a destructive force. In the twentieth century many reached the understanding that disputes are normal in human society, and not necessarily destructive, and that if they do not get out of hand they may have within them a potential for growth, maturity, and social change, an opportunity for new ways of thinking and new experiences.

Much can be learned about the different ways in which conflicts have been prevented in the past. In older societies, the role of resolving disputes was considered uniquely reserved for the wise and the elders of the community or for religious leaders. More recently, conflict prevention has become a primary focus of interest for everyone, and this has resulted in an ever-expanding field of study and practice.

The field of conflict resolution gained momentum in the last three decades of the twentieth century. It has developed into a widely accepted field of study, where skills and strategies are being taught, and changes in philosophical attitudes occur through training and enhanced self-awareness. The increasing academic activity and practical training initiatives have generated a vast and expanding body of research and publications. The field of ‘conflict resolution’ has matured as a multidisciplinary field involving psychology, sociology, social studies, law, business, anthropology, gender studies, political sciences, and international relations.

Some conflicts may not be resolved easily, and can last many years. Sometimes these conflicts persist in spite of the fact that they cause heavy losses of resources, and even human life. According to a study at Stanford University (Arrow et al., 1995) there are three categories of barriers to resolving conflicts:

- **Tactical and strategic barriers;** these stem from the parties’ efforts to maximize short or long term gains.
- **Psychological barriers;** these stem from differences in social identity, needs, fear, interpretation, values, and perceptions of one another.
- **Organizational, institutional and structural barriers;** these can disrupt the transfer of information, and prevent leaders from reaching decisions that are in the interests of the parties in dispute.

(UNESCO-WWAP 2012, OSU 2011, Shamir 2003, Visscher 2008, World Bank 2012).



## 1 The International Year of Water Cooperation

On 11 February 2011, the UN General Assembly, in its [resolution 65/154](#), decided to proclaim **2013 the International Year of Water Cooperation**. Resolution 65/154 calls on the United Nations system and all other actors to take advantage of the year to promote actions at all levels, including international cooperation, as appropriate, aimed at achieving the internationally agreed water-related goals contained in Agenda 21, the Programme for the further Implementation of Agenda 21, the United Nations Millennium Declaration and the Johannesburg Plan of Implementation, as well as to increase awareness of their importance.

**UN International Years** have been declared by the United Nations since 1959 in order to draw attention to major issues and encourage international action to address concerns which have global importance and ramifications. By declaring 2013 the International Year of Water Cooperation (IYWC), the international community recognizes the importance of peaceful and sustainable management and use of water resources. Nurturing opportunities for cooperation in water management and improving understanding of the challenges and benefits of water cooperation builds trust and mutual respect among water users. And in turn, it contributes to promoting peace, security and sustainable economic growth.

The IYWC is an opportunity to highlight the importance of science and of scientific cooperation to meet the challenges of water cooperation. Successful and sustainable water cooperation can only be achieved through a common understanding of the multifold aspects of the water crisis and the challenges it raises. The 2013 International Year and World Water Day will therefore attempt to build a consensus around the understanding of water cooperation and necessary actions.

The importance of water cooperation lies in the fact that water is a cross-cutting issue that demands attention at all levels and across sectors. Water cooperation will be a cornerstone to achieving the MDGs, and to ensuring 'water security' and a sustainable future. Consequently, the 2013 International Year on Water Cooperation calls on leaders to bring water to center stage, acting as the foundation for developing stronger ties between nations, states and communities.

The global water agenda has been widened within the [Rio+20 outcome document](#). It highlights water as being at the core of sustainable development and reaffirms commitments regarding the human right to safe drinking water and sanitation, the need to improve water quality, protection of ecosystems (and the services they provide in terms of enhancing water quality and quantity), water efficiency, water treatment and the financing required to achieve these tasks.

Since the Ministerial declaration of the [2<sup>nd</sup> World Water Forum](#) in The Hague in 2000, 'water security' has also been gaining international recognition. National governments have become increasingly aware of their water-related security challenges, how they are intricately related to human security, and the need to address these in a systematic way.

A main objective of the year is to form strong and lasting partnerships and initiatives on water cooperation that will help maintain peace and security among nations, communities and stakeholders, while ensuring the fair and equitable distribution of water resources for society and the environment. Another key component, which underscores the importance of 'water cooperation', is for all stakeholders to recognize the current challenges and stresses upon globally shared water resources so that a constructive and realistic dialogue may take place to address these challenges.

Experience shows that cooperation can be facilitated by legal and institutional frameworks and financing. However it is important to consider the *processes* of cooperation, specifically the mechanisms of dispute resolution, and to identify the local level specificities.

## 2 The water challenges: the need for cooperation

Action is needed to improve water resources planning, evaluate availability and needs within watersheds, re-allocate or expand existing storage facilities where necessary, manage water demand, develop a better balance between equity and efficiency in water use, and overcome inadequate legislative and institutional frameworks and the rising financial burdens of ageing infrastructure.

At each level there are a variety of issues that require water cooperation. Dealing with increasing water scarcity, water abstraction and decisions on water allocation, dam construction, and chronic and accidental water pollution by industry, as well as the implementation of existing treaty provisions, often require water cooperation. Water cooperation among stakeholders is often the key for effective and appropriate local level decisions both in cities and in agriculture. As growing populations, urbanizing cities and economic development all increase demands for water for agricultural, municipal and industrial uses, there are greater risks. This said, it is usually factors outside the water domain that are decisive in creating situations that require mutually acceptable decisions and agreements.

History has often shown that the vital nature of freshwater is a powerful incentive for cooperation, compelling stakeholders to reconcile even the most divergent views. Water more often unites than divides peoples and societies. Since 1948, history shows only 37 incidents of acute conflict over water, while during the same period, approximately 295 international water agreements were negotiated and signed. Clearly, averting disputes is often a strong political driver for initiating cooperation on transboundary waters, as riparian states recognize that they must safeguard their greater common interests.

Equitable sharing of water resources is a complex issue that has only become more so in recent years due to population growth, development pressures, and changing needs and values. The unequal distribution of water is heightened by political changes, resource mismanagement, and climatic anomalies. Inadequate legislative and institutional frameworks coupled with the rising financial burden of aging infrastructures add to this stress. These factors can trigger upheavals as well as demographic and developmental transformations, all of which, in turn, contribute to significant socio-economic differentiations. Growing competition between different sectors and groups has placed increasing strain on the quality and quantity of freshwater supplies. Competition for water also manifests in the demands for different uses – urban versus rural, quantity versus quality, present use versus future demand, and sanitation versus other social priorities. Competition among uses and users has increased in almost all countries, as have the links connecting them, calling for more effective negotiation and allocation mechanisms.

### Water demand

Among sectoral uses, **agriculture** is the greatest water user and consequently management strategies to improve water-use efficiency, especially for irrigated lands, will require specific attention. Production of crops and livestock is water intensive, and agriculture alone accounts for 70% of all water withdrawn by the combined agriculture, municipal and industrial (including energy) sectors. The booming demand for livestock products in particular is increasing the demand for water. The global demand for food is expected to increase by 70% by 2050. Best estimates of future global agricultural water consumption (including both rain-fed and irrigated agriculture), are of an increase of about 19% by 2050, but this could be much higher if crop yields and the efficiency of agricultural production do not improve dramatically. Much of the increase in irrigation will take place in regions al-



ready suffering from water scarcity. Responsible agricultural water management will make a major contribution to future global water security.

As regards to **direct human consumption**, the main source of demand comes from urban communities requiring water for drinking, sanitation and drainage. The urban population of the world is forecast to grow to 6.3 billion people in 2050 from 3.4 billion in 2009, representing both population growth and net migration from countryside to city. There is already a backlog of unserved urban populations, and the number of people in cities who lack access to improved water supply and sanitation is estimated to have grown some 20% since the **Millennium Development Goals** were established. While 64% of those who gained access to improved sanitation during the period 1990-2008 lived in urban areas, there is still a struggle to keep up with urban population growth.

## Water quality and quantity

The geographical nature of rivers and watershed basins is another dimension which can affect the relations between countries and communities. As rivers and tributaries run from highlands to lowlands, the upstream use and treatment of water can have consequences for downstream users. Water quality and quantity are at the center of upstream-downstream disputes.

Factors effecting water quality include agricultural runoff, industrial discharges, residential sewage disposal and land-use changes. These types of contamination can have deleterious impacts on drinking water supplies, the health of ecosystems and fish habitat on which humans depend, and on agricultural and industrial production systems that require high-quality and uncontaminated water supplies. Upstream and downstream water treatment is possible but costly.

Upstream users – who control sources – can significantly impact the quantity and flows of water to downstream users (e.g. the Nile, Sudan and Egypt). Increasing upstream withdrawals may lead to limited water supplies for downstream uses. In some extreme cases, even large rivers fail to meet the ocean now due to over-extraction and climate change (e.g. the Yellow, Murray-Darling, and Colorado rivers).

The construction of dams can particularly impact upstream-downstream relations. Dams may provide significant benefits for society, such as renewable energy, regulation of flows, and storage of water for drinking, irrigation and other productive uses. Best practices for dam development have also improved significantly over the years (e.g. natural flow regimes, fish stairways). But as demand for water increases globally, dam construction can be a particularly contentious and complex issue, given their potential to effect the timing and flows to downstream reaches, flood upstream reaches, displace populations, and affect surrounding ecosystems and fish migration routes. Therefore, they deserve special consideration when discussing conflict mediation and identifying possibilities for cooperation by sharing the benefits dams provide.

## Climate change

Adding to the already complex nature of water resource management is the uncertainty related to climate change. Global warming is expected to magnify regional differences in the world's natural resources and assets and lead to an increased risk of inland flash floods and more frequent coastal flooding, droughts, and so on. Relying on static models for forecasting water events is no longer feasible. There is a need for adaptive and resilient solutions and management plans that take climate change into account. The necessity to adapt to climate change, however, will also offer new opportunities for cooperation in developing adaptation strategies.

## Financing

Improving financing at all levels and strengthening financial institutions and their policies to help support the water sector is necessary to help create an attractive investment environment. In a recent UN-Water survey, for a majority of participating countries, obtaining finance was reported as being of ‘high’ or ‘highest’ priority. The availability of grants and funds, opportunities for private enterprise, and strong legal and administrative frameworks can help in this area. Financing means mobilizing funds for water resource management (e.g. for improving water committees, capacity building, basin organizations, monitoring, data collection) and water infrastructure (e.g. water and sewage treatment plants, distribution networks, sanitation facilities and dams).

A mixture of financing mechanisms and sources is typically used for transboundary water management; from national budgets and external bilateral or multilateral donor-funded projects to more strategic programmes and funds or private-public partnerships (e.g. the Mekong River Basin Development and Management).

Investment needs in most cases exceed the resources available to riparian countries; therefore various additional financing mechanisms are being developed and employed. International development banks or specialized development funds are successfully testing a number of innovative approaches such as strategic partnerships comprising regional funds, leveraging significant additional investment through these funds. Other innovative financing schemes, e.g. regional revolving funds, payment for ecosystem services, inter-riparian financing and cost recovery of water services, could be considered as options for sustainable financing of transboundary water management institutions. However, these require strong political support, good governance and appropriate institutional structures.

### Sources:

- *UN-Water Thematic Paper. Transboundary Waters: Sharing Benefits, Sharing Responsibilities.*
- *Web section on “Allocating water”. World Water Assessment Programme (WWAP).*
- *WWDR4 – Background Information Brief. World Water Assessment Programme (WWAP).*

### 3 The international legal frameworks

Important advances in the development of international legal frameworks have played a central role in enabling and promoting cooperation. The key international conventions on water are the 1997 UN Watercourses Convention; and the 1992 UNECE Water Convention or Helsinki Convention. The 1997 UN Watercourses Convention is a global multilateral instrument with 106 states that have voted in favor, requiring only six more ratifications to enter into force. Since its approval in 1992, the UNECE Water Convention has been enhanced by two protocols: Water and Health, and Civil Liability. The 2003 amendment to the 1992 UNECE Water Convention made the principles of the convention applicable worldwide. This enters into force during the International Year of Water Cooperation (6 Feb 2013). The two conventions are complementary and compatible with one another and are inspired by a similar set of principles.

#### The UNECE Water Convention

The UNECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes (**the Water Convention**) promotes cooperation on transboundary surface and ground waters and strengthens their protection and sustainable management. The Convention obliges Riparian Parties to prevent, control and reduce transboundary impact, use transboundary waters in a reasonable and equitable way and ensure their sustainable management. Parties bordering the same transboundary waters shall cooperate by entering into specific agreements and establishing joint bodies. The Convention includes provisions on monitoring, research and development, consultations, warning and alarm systems, mutual assistance, and exchange of information, as well as access to information by the public.

The work under the Convention contributes to:

- strengthening cooperation and prevention of conflicts over transboundary waters;
- promoting sound water management and protection at national level; and
- the implementation of integrated water resources management.

#### Parties to the Water Convention

The Water Convention has 39 Parties: the European Union (EU) and 38 countries from the UNECE region - Albania, Austria, Azerbaijan, Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Italy, Kazakhstan, Latvia, Liechtenstein, Lithuania, Luxembourg, Netherlands, Norway, Poland, Portugal, Republic of Moldova, Romania, Russian Federation, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkmenistan, Ukraine and Uzbekistan.

In the 20 years since its adoption in 1992, the Water Convention has provided a legal framework and an inter-governmental platform for the promotion of cooperation and sustainable management of water resources in the pan-European region. Its implementation has facilitated the adoption of better policies for the management of water resources resulting in an overall improvement of their status. During the past two decades, the pan-European region has become the most advanced in terms of cooperation on transboundary waters. By now, almost all the countries of the pan-European region have taken measures to establish cooperation on their shared waters, have entered into bilateral and multilateral agreements and have established joint bodies for transboundary water cooperation.

### Going global after 20 years of successful water cooperation

The Water Convention started as a regional convention. It was negotiated by the Member States of the United Nations Economic Commission for Europe (UNECE) and signed in Helsinki on 17 March 1992. It entered into force on 9 October 1996.

In 2003, driven by the desire to promote transboundary water cooperation worldwide the Parties to the Water Convention amended the Convention to make it possible for any United Nations Member State to accede to this instrument.

The 2003 amendment to the Convention opening it for accession by any United Nations Member State enters into force on 6 February 2013. On 30 November 2012 the Convention's Meeting of the Parties in Rome took a landmark decision allowing for accession by non-UNECE countries through the same procedures as for UNECE Member States, once the amendment is in force for all States and organizations that were Parties to the Convention in 2003. It is envisaged that non-UNECE States will be able to accede to the Convention as of end of 2013.

This 'global opening' of the Water Convention will be a major contribution to the International Year of Water Cooperation. It is expected to coincide with the entry into force of the 1997 Watercourses Convention. For this reason the Meeting of the Parties to the Water Convention included in its work programme for 2013-2015 activities to ensure synergies and coordination with the 1997 Watercourses Convention.

Since 2009, over 22 non-UNECE countries have participated in activities under the Water Convention, recognizing its relevance and role beyond the UNECE region. Eighteen non-UNECE States took part in the sixth Meeting of the Parties (Rome, 28-30 November 2012). During that meeting, Iraq and Tunisia expressed a strong interest in joining the Water Convention as soon as possible.

The Water Convention has been applied in very different settings and conditions; both in water-rich as well as water-scarce countries. As the level of ambition of implementation required is proportionate to the capacity and means of the Parties, the Convention is ratified and implemented by developed and wealthy countries as well as countries with economies in transition. As the Convention is based on equality and reciprocity, its Parties are both upstream and downstream countries.

### A supportive institutional framework

An important strength of the Water Convention lies in its institutional framework, based on the Meeting of the Parties (MOP), its subsidiary bodies such as working groups and task forces, and a permanent secretariat. This institutional framework assists Parties in the implementation and progressive development of the Convention, including exchange of experience and good practices, elaboration of guidelines and recommendations, the development of legally binding protocols and capacity building. In other words, a Party is not left alone to implement the Convention: its needs and expectations may be brought to the attention of the MOP and its subsidiary bodies.

The work under the Water Convention is very dynamic and responds to the challenges faced by Parties. Many activities take place in water-stressed regions, such as Central Asia and South Eastern Europe, and address emerging issues such as climate change.

The Water Convention partners with numerous international and non-governmental organizations to foster transboundary water cooperation and management. The International Water Assessment Centre – the Convention's collaborative centre based in Bratislava – is another important operational asset. Finally, non-Parties also participate in many activities under the Convention and can request assistance so that they can accede to it and implement its provisions.



### Facilitating higher environmental standards and national water sector reforms

The Water Convention has provided an invaluable framework to support Central and Eastern European countries that acceded to the EU in the 2004 and 2007 enlargements. The challenge facing those countries was to bring their legislation and regulations up to EU environmental standards. The Convention also provided an important platform for building capacity and exchanging experiences between old and new EU Member States as well as neighboring non-EU countries. For example, through the National Policy Dialogues, the Convention has facilitated national water sector reforms in Eastern Europe, the Caucasus and Central Asia, in line with principles of EU water-related directives.

## The UN Watercourses Convention

In 1997, more than 100 nations gathered to adopt the UN Watercourses Convention – a flexible and overarching global legal framework that establishes basic standards and rules for cooperation between watercourse states on the use, management, and protection of international watercourses.

### Quick facts

The cost of a single river gauging station for a medium-size river can easily exceed US\$1 million.

(UNESCO-WWAP 2012)

The **UN Convention on the Law of the Non-Navigational Uses of International Watercourses** (the UN Watercourses Convention) is the only treaty governing shared freshwater resources that is universally applicable. It is a framework convention, in the sense that it provides a framework of principles and rules that may be applied and adjusted to suit the characteristics of particular international watercourses.

The UN Watercourses Convention to date has been ratified by 27 states – eight short of the number required for entry into force.

In early 2006, the World Wide Fund (WWF) launched a **global initiative to promote the UN Watercourses Convention** and accelerate its ratification process. The initiative has mobilized several governments and other stakeholders in efforts to raise awareness, build capacity and support countries interested in becoming parties to the convention.

### Parties of the UN Watercourses Convention

Thirty-three countries are part of the Convention: Benin, Burkina Faso, Chad, Côte d'Ivoire, Denmark, Finland, France, Germany, Greece, Guinea-Bissau, Hungary, Iraq, Italy, Jordan, Lebanon, Libya, Luxembourg, Morocco, Namibia, Netherlands, Nigeria, Norway, Paraguay, Portugal, Qatar, South Africa, Spain, Sweden, Syrian Arab Republic, Tunisia, Uzbekistan, Venezuela (Bolivarian Republic of), Yemen.

## 4 Tools and mechanisms for cooperation

### 4.1. Information sharing and joint assessments

Accurate data and information on water and related natural resources obtained through monitoring and assessment activities are essential for informed **decision-making** and **policy-formulation** at the local, national and transboundary levels. (UN-Water 2008)

#### Supporting joint monitoring and assessments

Examples of UN programmes and initiatives:

- UNESCO World Water Assessment Programme
- WHO/UNICEF Joint Monitoring Programme (JMP) for Water Supply and Sanitation
- Water governance monitoring and assessments by UNDP Water Governance Facility at SIWI

Examples of UN standards and guidelines:

- International Glossary of Hydrology (UNESCO, WMO 1996)
- Guidelines on Monitoring and Assessments of Transboundary and International Lakes (UNECE 2002)
- SWITCH Guidelines for assessments at city level (Butterworth et al 2011)
- Strategies for Monitoring and Assessment of Transboundary Rivers, Lakes and Groundwaters (UNECE 2006)
- System of Environmental-Economic Accounting for Water (UNSD)
- Transboundary Water Assessment programme (GEF, UNEP)

Monitoring and assessing water resources requires **cooperation between different actors and states**, as river basins usually stretch over different administrative and geographical units and state borders. (UNECE 2006)

Exchange of information – including on pollution, infrastructure projects, extreme events and hydropower, navigation and irrigation activities – is also vital to building **trust** and a **shared vision** among the actors and states involved. (UN-Water 2008)

#### Basin level

**Joint institutions** such as river, lake and aquifer commissions can help develop assessment reports and management plans to identify the major water users, key issues, and prioritize improvements to be made.

In order to manage **transboundary basins effectively**, joint institutions and government agencies should have **comparable information**. This requires standardized or harmonized assessment methods, data management systems and uniform reporting procedures. Lack of technological capacity and knowledge can inhibit the effective exchange of data and information.

Working towards specific common goals requires a basic **agreement** on the conditions of the resource with regards to quantity and quality and overall demographic needs.

Without sharing data on stream flow and water quality, it is challenging for countries to **address critical situations** such as floods and droughts as they lack the crucial information for the whole basin.



**International agencies**, with representatives from each country involved, can help facilitate information exchange and joint monitoring and assessment activities.

#### **UNECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes (Water Convention): regular assessments**

The Water Convention's Working Group on Monitoring and Assessment carries out regional assessments in order to monitor the status of transboundary waters in the UNECE region, to benchmark progress and to provide the basis for continuous bilateral and multilateral work under the Water Convention. The First Assessment of Transboundary Rivers, Lakes and Groundwaters in the UNECE region was released in 2006 and the second in 2011. The Riparian Parties to the Convention have the obligation to exchange information on surface water and groundwater quality and quantity. They are also obliged to establish and implement joint programmes for monitoring the conditions of transboundary waters and to carry out joint or coordinated assessments of the condition of transboundary waters. (UNECE 2011 II)

## Cities

In **cities**, analytical frameworks such as the Resources, Infrastructure and Demand/Access (RIDA) framework can help stakeholders to jointly structure information relating to water services in a logical and transparent way. The framework can provide structure for monitoring systems, data analysis and stakeholder dialogue. (Butterworth et al 2011)

## Sharing information and joint assessments: conditions for success

- Sustainability of monitoring and assessment activities through long-term funding and support
- Quality systems to ensure the reliability of information obtained by monitoring
- Institutional arrangements at the transboundary, national and local level for organization of joint monitoring and assessment.
- Integration of transboundary monitoring and assessment programmes in the national monitoring programmes of the riparian countries.

(UNECE 2006)

Instruments for joint monitoring and assessments include: water meters, meteorological stations, joint fact-finding exercises, watershed management plans, assessment reports, and water scorecards.

### **Highlighting practice**

The **Columbia River Treaty** (CRT) is an agreement between the United States and Canada focused on flood control and power generation in the Columbia River basin. Information sharing is one of the key elements of its success. During the negotiation of the CRT there was continual information exchange through an International Joint Commission that acted as a neutral third party and undertook engineering studies on behalf of both parties. The Treaty obligates Canada and the United States to coordinate plans, exchange information and establish and maintain a hydrometeorological system. The countries closely cooperate in monitoring and evaluating the system. Weekly flow agreements detail the exact flows to be released during the following seven days. (GEF 2012)

### Quick facts

Since 805 AD more than 3,600 treaties related to international water resources have been drawn up. (UN-FAO 1984)

158 of the world's 263 international river basins and transboundary aquifer systems lack any type of cooperative management framework (UN-Water 2008)

## Contributing to water cooperation

Despite the complexity of water problems and the many interests at stake, records show that water disputes can be handled diplomatically. A **growing number of treaties, protocols, conventions and institutional arrangements** have been created on the use, development and protection of shared freshwaters and related ecosystems. These frameworks and arrangements increasingly help crystallize mechanisms for the prevention and peaceful resolution of disputes over water resources. (Rio+20 2012)

Case study reviews indicate that successful achievement of cooperative solutions is **facilitated by**:

- legal frameworks in place
- relatively good neighborly relations between the parties
- creation of joint institutions to address the problems
- agreement on dispute settlement mechanisms
- absence of significant adverse impact on the quantity or quality of waters flowing into the neighboring country.

(Source: UNW-DPAC 2012)

## 4.2. Legal frameworks

### Global rules and principles

- **UN Convention on the Law of the Non-navigational Uses of International Watercourses.**

This framework convention was adopted by the UN General Assembly in May 1997. It reconfirmed three key principles to guide the conduct of nations regarding shared watercourses: “equitable and reasonable use”, the obligation to prevent significant harm to neighbors, and the obligation of cooperation. It also included the mechanism of prior notification of and consultations on planned measures. Twenty-nine nations are parties to the Convention; six more ratifications are required for it to enter into force.

- **UN General Assembly Resolution on the Law of Transboundary Aquifers.**

This resolution was adopted by the UN General Assembly in December 2011. It calls for cooperation among States to prevent, reduce and control pollution of shared aquifers and could offer the basis for a future binding legal instrument on transboundary aquifers.

### Implementation

The implementation of existing agreements stands as a significant challenge. Water legislation and policies are often underdeveloped and weak; many treaties lack clear and tangible provisions. Appropriate enforcement mechanisms and monitoring provisions are usually not incorporated (WWF 2012). The implementation of treaties can also be hampered by lack of political will, inadequate water management structures and weak implementation capacities at national levels (Sources: Salman 2007, UNW-DPC 2009).



## Regional and bilateral

Many multilateral and bilateral transboundary agreements have been established, providing for the joint water management of shared waters.

**Convention on the Protection and Use of Transboundary Watercourses and International Lakes** (the Water Convention), adopted by UNECE in 1992, promotes cooperation on transboundary surface and ground waters and strengthens their protection and sustainable management. The Convention is intended to strengthen local, national and international measures for the protection and ecologically sound management of transboundary surface waters and ground waters. The Water Convention obliges riparian states to enter into agreements and to establish joint bodies.

### Quick facts

In the UNECE region there are currently 165 specific agreements on transboundary rivers, lakes and groundwaters in force between or with participation of UNECE countries. (UNECE 2011)

The river that flows through the largest number of countries is the Danube, which travels within the territory of 18 nations.

### UNECE Water Convention goes global

The Water Convention started as a regional convention. It was negotiated by the Member States of the United Nations Economic Commission for Europe (UNECE) and adopted in Helsinki on 17 March 1992. Thirty-eight UNECE countries and the European Union (EU) participate in the Convention. The three 'pillars' of the Convention are the obligation of equitable and reasonable utilization of transboundary waters, the obligation to prevent, control and reduce significant transboundary impact, and the obligation to cooperate through specific agreements and joint bodies. The Convention's highest authority is the Meeting of the Parties. It enhances cooperation under the Convention through the development of protocols, guidance documents, regular assessments, as well as projects and activities on the ground.

In 2003, the Parties amended the Convention to make it possible for any UN Member State to accede to this instrument. This amendment was proposed to promote transboundary water cooperation worldwide, to share the Convention's experience, and to benefit from experiences in other regions. The amendment enters into force in February 2013, turning the Water Convention into a global instrument. This 'going global' of the Convention will be a major contribution to the International Year of Water Cooperation.

Examples of regional non-UN agreements include:

- The **European Union Water Framework Directive** (2000) established a legal framework to protect and restore clean water across Europe and ensure its long-term, sustainable use. River basins are recognized as the main level for water management.
- The **SADC Revised Protocol on Shared Water courses** was set up by the members of the South African Development Community (SADC) in 2000. It sets the framework for utilization of watercourses shared by two or more SADC member states.

## Institutional arrangements for promoting water cooperation

Adequate institutional structures at the transboundary, national, and regional levels can play a crucial role in **balancing competing interests** over water resources and enabling sustainable water cooperation. The institutionalization of cooperation can help to **build**

### Quick facts

41% of the world's transboundary basins are covered by some form of cooperative institutional arrangement. (Gerlak 2007)

Where international water institutions exist relations among riparian states are generally more cooperative than in basins without treaties or other cooperative management mechanisms. (OSU 2011)

**trust** and numerous joint governance institutions have provided solutions for the challenges in shared waters. Research demonstrates that where institutional capacity for dialogue and the management of disputes is present, **conflict is less likely**. (Sources: UN-Water 2008, WB 2012, Jägerskog 2012)

## Transboundary

At the transboundary level, joint bodies such as river, lake and aquifer commissions are important to sustain cooperation between states and foster sustainable water management in a transboundary context. Political and financial support by governments and the involvement of a variety of stakeholders contribute to their success.

### Water cooperation in times of warfare

Legal agreements and institutional arrangements on water sharing have been negotiated and maintained even as conflicts have persisted over other issues. Cambodia, Laos, Thailand and Vietnam, have been able to cooperate since 1957 within the framework of the Mekong Committee, and they had technical exchanges throughout the Vietnam War. The Indus River Commission survived two wars between India and Pakistan.

## Transboundary institutional arrangements: some examples

### Senegal River Basin Development Organisation (OMVS)

The OMVS was founded in 1972 by its member states Mali, Mauritania, and Senegal (Guinea has an observer status). It is tasked with implementing the Senegal River Convention; promoting and coordinating development studies; and carrying out all technical and economic functions conferred to it by the member states. In 2002 its members adopted a Water Charter with a shared vision to manage the river sustainably. (GEF 2011).

### Nile Basin Initiative (NBI)

The NBI was launched in February 1999 by the water ministers of the countries that share the river: Egypt, Sudan, Ethiopia, Uganda, Kenya, Tanzania, Burundi, Rwanda, Democratic Republic of Congo, and Eritrea (the latter is observer). The NBI seeks to develop the river in a cooperative manner, share socio-economic benefits, and promote regional peace and security. It provides an institutional mechanism, a shared vision, and a set of policy guidelines to provide a basin wide framework for cooperative action. (GEF 2011)

### Mekong River Commission (MRC)

The MRC was established in 1995 by the Mekong Agreement and succeeds the Mekong Committee, founded by the UN in 1957. The MRC is an inter-governmental agency formed by Thailand, Cambodia, Vietnam, and Laos to coordinate water resources development in relation to the related natural resources and environmental protection in the Lower Mekong River Basin (LMRB). The two upper states of the Mekong River Basin, China and Myanmar, are dialogue partners. The MRC consist of three permanent bodies: a Council, Joint Committee, and a Secretariat. It engages a range of stakeholders into its programme work and strategic planning. (UN-Water 2008, GEF 2011, MRC)

## National

Managing water effectively and sustainably requires that all the stakeholders of a common water resource cooperate in jointly managing, protecting, and developing the resource. National and regional bodies, such as



water authorities and river basin organizations (RBOs) can manage the various differences and other issues that may arise between countries, cities or sectors.

### No blue print

Institutions are set up to respond to certain demands which are specific to the basin; cooperative mechanisms that work well in one basin may not work well in others. Any arrangement must be tailored to a given basin's characteristics and reflect its environmental, hydrological, political, economic, social and cultural circumstances. (UN-Water 2008, UNW-DPC 2009)

## Local

Stakeholder engagement and public participation are key to the coordination of various actors and interests at the local and river basin level. This can be facilitated by **stakeholder platforms**: forums in which different stakeholders have the space to articulate their concerns and reach negotiated settlements. Furthermore, **rural and irrigation cooperatives, water commissions and water juries** can play a role in local water management and resolving disputes between local stakeholders. **Water Users Associations** (WUA) are important where official monitoring and data collection are weak.

### Cities

The EU-funded SWITCH (Sustainable Water Management Improves Tomorrow's Cities Health) research programme set out to achieve more sustainable and integrated urban water management in the 'City of the Future'. It brought stakeholders from a range of institutions together in multi-stakeholder platforms ('learning alliances') at neighborhood, city and in some cases national and global levels. The stakeholders jointly discussed problems and developed and tested ideas for improved integrated urban water management. SWITCH was carried out in 2006-2011 by a consortium of 33 partners from 15 countries, coordinated by the UNESCO-IHE Institute for Water Education. (Butterworth ed. 2011)

## Conditions for successful transboundary agreements

Experts often name the following important elements of successful transboundary agreements:

- Clear rights and obligations and well-developed procedures for cooperation.
- Institutional arrangements.
- Requirements and measures for management and protection of water resources and related ecosystems.
- Measures for enforcement.
- Taking into account water quantity and quality, hydrological events, changing basin dynamics and societal values as well as all potential impacts of climate change.
- Dispute prevention and resolution mechanisms, including with regard to unilateral water development plans.
- Clear yet flexible means to share the benefits of water, water allocations and water-quality standards.
- Provisions for joint monitoring, information exchange and public participation as well as mutual assistance in case of extreme events.
- Ways to address risk and uncertainty, for example related to climate change.

## Challenges

Promoting water cooperation is a **long-term and resource-intensive process**. Funds need to be mobilized for long-term processes such as establishing collaborative structures and institutions, and building capacity, trust and consensus. (Jägerskog 2012) Also joint water resources management programmes and water infrastructure development require sustainable financing.

At the same time, transboundary cooperation often **reduces costs**. Joint measures to adapt to climate change for example tend to be more cost-efficient than unilateral ones. (UNECE, 2009)

Funds only devoted to the local, national or transboundary level will not achieve sustainable development or relieve water stress. It takes **action at all three levels simultaneously** to achieve sustainable institutional changes. (GEF 2012)

### 4.3. Financing Water Cooperation

Cooperation over **transboundary waters** requires financing for:

- Development and implementation of a legal framework.
- Capacity-building.
- Establishment and tailoring of institutional arrangements.
- Management costs of transboundary institutional arrangements.
- Cost of basin management: joint data collection, planning and monitoring.
- Long-term investment in water-related infrastructure for shared river management.

(ODI 2002, UN-Water 2008)

Promoting transboundary water cooperation is often **underfinanced**. Many national governments and donors are hesitant to finance processes without clear outcomes and timelines. (Jägerskog 2012) However, **preventing conflicts** and avoiding environmental degradation is less expensive than reacting afterwards. (GEF 2012)

## TOOLS for financing transboundary water cooperation

A **mixture of financing mechanisms** is typically used for transboundary water management. Financing mechanisms for transboundary water cooperation require strong political support, good governance and appropriate institutional structures. (UN-Water 2008)

**Financing mechanisms** for transboundary water cooperation include:

- **Inter-riparian financing by public means**; this requires countries to fund activities beyond their territories (e.g. dredging work on the Westerschelde undertaken by the Netherlands was largely funded by the Belgian Government).
- **Public-private partnerships**, e.g. in the Senegal River Basin.
- **Revolving funds** to engage private investors in projects with positive transboundary externalities.



- **Trust funds** for programme implementation, administered by a transboundary or international institution (e.g. Nile Basin Trust managed by the World Bank).

(SIWI/EUWI 2011, ODI2002)

## SOURCES for financing transboundary water cooperation

**Sources** of financial resources for transboundary water cooperation include:

- National budgets
- Bilateral instruments
- International organizations and agencies
- International financing institutions
- Private sources
- International capital markets
- International taxes, fees and charges
- Market creation
- Global and regional partnerships

(Jägerskog 2007)

Facilitating transboundary project preparation and cross-border financing entails in general higher project preparation costs – typically 5% of total financing- than for national projects (EUWI/SIWI 2011)

Investment needs often exceed the resources available to riparian countries. **International organizations, international financial institutions** or specialized development funds can play an important role in providing resources (e.g. process financing) to build and strengthen the enabling environments, in which financial cooperation over transboundary management becomes a possibility. (ODI 2001) Existence of a **river basin organization** increases a basin's chances of receiving donor support. (UNECE 2009)

**Examples of external funding and facilitation include:**

- World Bank in the Indus Treaty negotiations and the Nile Basin Initiative.
- International Development Association (World Bank Fund) in the Senegal River Basin
- Global Environment Facility in the Guaraní basin.
- UNECE and OSCE support under the 'Environment and Security' Initiative in the process of development of the Dniester Basin Treaty

The Global Environment Facility (GEF) unites 182 countries in partnership with international institutions, civil society organizations (CSOs), and the private sector. The GEF is the largest public funder of projects to improve the global environment. It is an independently operating financial organization which provides grants for projects related to biodiversity, climate change, international waters, land degradation, the ozone layer, and persistent organic pollutants.

The GEF International Waters Focal Area was established to help countries collectively manage their transboundary surface water basins, groundwater basins, and coastal and marine systems in order to share the benefits from them. (GEF website)

## 4.4. Alternative dispute resolution techniques

### Quick facts

Even the most hostile enemies have a capacity for cooperation on water. Most governments recognize that violence over water is seldom a strategically workable or economically viable option. (UNW-DPC 2009)

**Alternative Dispute Resolution (ADR)** is a general term, used to define a set of approaches and techniques aimed at resolving disputes in a **non-confrontational way**, such as mediation, negotiation and arbitration.

While legal settlements can produce win-lose outcomes that leave one party frustrated, adopting (ADR) mechanisms can lead to mutually-beneficial, **win-win outcomes** for **long-term gain**. Which approach from the ADR 'menu' is most relevant in any given situation depends on the particular circumstances and context of the water conflict. (CAPNet 2008, Shamir 2003, Visscher 2008)

A conflict may store within it the potential for a future major dispute, but at the same time it also contains the possibility for creative cooperation, provided the parties seek what is called a 'win-win solution'. To accomplish this, one must learn to negotiate in a manner that is less competitive and adversarial, thereby invoking the potential for cooperation.

By working together as 'joint problem solvers' seeking joint solutions and not working against one another, the participants can 'enlarge the pie' of benefits that is to be shared between them. This can be done either by **negotiation**, or with the help of an impartial third party who will act as mediator.

**Third-party intervention** is used when a negotiation reaches an impasse. It is used to restore belief in the possibility of a beneficial resolution for the parties, future dialogue, and restored relationships, while leaving the control over the decisions with the parties.

An outside third party, whether a person, a group of people, a representative of a state, or an international organization can act as a mediator, in an attempt to help the parties reach an understanding, and an agreed solution to the conflict.

A third party, a neutral, can also act as an arbitrator, hear the parties' arguments and reach a decision which can be binding, or non-binding according to the agreement made beforehand.

**Adjudication** is another method that can be used as an alternative in the international arena (the International Court in The Hague) and in the national legal system. The courts have the ability to enforce the law in the case of a failure of the parties to reach agreement through negotiation or mediation. There is a law, and a way to enforce it without the consent of the parties.

In international disputes, where states are involved, when problems arise due to opposing interests, such as security and/or resources, an outside enforcer cannot act where it is not acceptable to one or more of the parties involved. Ruling by the International Court can end the conflict only if the two countries agree to abide by its ruling.

### Quick facts

In 2030, 47% of the world's population will be living in areas of high water stress (UNESCO-WWAP 2012)

**Conflict prevention, de-escalation, management, and resolution** can all be applied to conflicts involving water. The choice of the applicable process will depend on the particular circumstances and context of the water conflict. The conference will examine each of these key processes and then review their potential role in water conflicts.



## Mediation

Mediation as dispute resolution mechanism has become a viable alternative to adjudication and arbitration. It plays an important role in national and international conflicts.

- In a mediation process **an impartial person or persons** facilitates the negotiation between the parties.
- These **mediators** have no direct interest in the conflict and its outcome. They have control over the process, but not over its outcome.
- The aim is to reach a mutually accepted resolution; an agreement by **consent**.
- The parties participate **voluntarily** in the mediation process.
- Mediation aims to restore and **improve the relationships** between the disputing parties.

(Shamir 2003)

### Steps in mediation process

- Clarify the conflict and the main stakeholders.
- Create a workable relationship.
- Establish the (underlying) interests and views of parties.
- Identify options for mutual gain.
- Review opposing interests in a reasonable manner.
- Weigh and choose potential solutions.
- Achieve an implementation mindset.

(Shamir 2003, Visscher 2008)

### Key elements for successful mediation

- Separate the people from the problem, to avoid emotions blocking possible solutions.
- Focus on interests not positions; the aim is to meet the legitimate interests of the actors.
- Develop multiple solutions to choose from, searching for options for mutual gain.
- Insist on using objective criteria.
- (Shamir 2003, Visscher 2008)

## Negotiation

Negotiation is a process in which disputing parties discuss possible outcomes **directly with each other**. Parties exchange proposals and demands, make arguments, and continue the discussion until a solution is reached, or an impasse is declared. (Shamir 2003)

'Some of the world's most vociferous enemies have negotiated water agreements or are in the process of doing so, and the institutions they have created often prove to be resilient, even when relations are strained' (Wolf et al 2005).

## Arbitration

In arbitration processes an **external party** (accepted by the parties to the dispute) imposes a decision after hearing the arguments of the parties involved in the conflict. (Visscher 2008)

## Applying ADR mechanisms

### Some key techniques

- Consensus building.
- Visioning.
- Scenario building.

The Competing for Water research programme investigated local conflict and cooperation in 5 districts in Bolivia, Mali, Nicaragua, Vietnam and Zambia. In the period 1997-2007 an estimated 3,135 conflictive public water-related events and 2,955 cooperative events took place, highlighting that agreement and conflict resolution between water users can be achieved (DIIS 2010)

## Some key skills

- Communication skills: active listening, talking clearly and precisely.
- Understanding and recognizing the points of views and interests of the involved parties.
- Objectivity, validating both sides.
- Ability to generate trust.
- Re-framing positions as interests.
- Asking open questions.
- Separate the people from the problem.

(Shamir 2003, Visscher 2008)

Experience shows how these approaches might help transforming potential disputes into sustainable cooperation agreements.

**Adjudication** can be found in the Treaty signed by Slovakia and Hungary after they went to the International Court of Justice which recommended them to them to negotiate in good faith. Another example can be found in the dispute between Uruguay and Argentina over the River Uruguay. Argentina alleged the decision to build a pulp mill harmed its interest and took the case to the International Court of Justice. After a long dispute both governments met and they ended up signing an agreement on the management of the river.

**Negotiation** is a situation where two parties converge with the purpose of influencing each other's decisions and, when successful, reduces confrontation and eventually leads to an agreement between the parties. Anyone involved in the process knows that the key to a self-enforceable agreement lies in each party's capacity to understand and satisfy not only its own interest but also that of its counterpart and of all third parties that are not directly represented in the negotiation. No agreement is ideal for any of the parties involved but it is always better than the alternative. Fair standards and creative thinking are often necessary to overcome the traditional responses and challenges. An early example of this is the 1973 Protocol between USA and Mexico over the Colorado River where joint investment and management efforts to generate new benefits increased the chances of cooperation.

**Mediation** is where a third party/ mediator, recognized by the parties for not having a vested interest in the outcome of the process, supports the negotiation process and facilitates the dialogue. This has been, for example, the case in the Zambezi River where the Vatican acted as a mediator.

**Consensus building** is where all the parties concerned are effectively included in the dialogue and all particular interests are recognized in the final agreement. This has been the case in the Reservoir in San Antonio Texas. There was a deadlock, and all the parties came together and they collectively solved the problem.

### Examples of UN initiatives to support ADR

- The UNDP Shared Waters Partnership (SWP) promotes cooperative approaches to shared waters. SWP is a component of UNDP's Transboundary Waters Programme and is implemented by the UNDP Water Governance Facility at SIWI and the UNDP Bratislava Regional Centre.
- The UNESCO (IHP/WWAP associated Programme)'From Potential Conflict to Cooperation Potential (PCCP)' facilitates multi-level and interdisciplinary dialogues in order to foster peace, cooperation and development related to the management of transboundary water resources.
- The Water Convention's Implementation Committee was established by Parties to the Convention on the Protection and Use of Transboundary Watercourses and International Lakes (Water Convention) in November 2012. It will render practical case-tailored assistance to prevent water-related disputes. The mechanism is expected to be simple, non-confrontational, non-adversarial, transparent, supportive and cooperative in nature.



## 5 The experiences: transnational cooperation

Despite the complexity of water problems and the many interests at stake, records show that water disputes can be handled diplomatically. A growing number of treaties, protocols, conventions and institutional arrangements have been created on the use, development and protection of watercourses and related ecosystems. These frameworks and arrangements increasingly help crystallize mechanisms for the prevention and peaceful resolution of disputes over water resources.

A review of case studies where international law has been a part of resolving conflict has shown that successful achievement of cooperative solutions is facilitated by:

- a legal framework in place (series of treaties);
- relatively good neighborly relations between the parties;
- creation of joint commissions to address the problems;
- agreement to submit the matter to arbitration.

International diplomacy has played a key role in many cases around the world. Water diplomacy efforts have been often directed to the establishment of a global framework for water governance which can facilitate the further development of multilateral and bilateral water treaties and agreements.

Currently, the [UN Convention on the Law of the Non-Navigational Uses of International Watercourses](#) and the [Convention on the Protection and Use of Transboundary Watercourses and International Lakes \(the Water Convention\)](#) form useful frameworks where general principles and prescriptive obligations are set out. The adoption of these conventions facilitates effective transboundary cooperation and conflict prevention. One of the objectives of water diplomacy will be to highlight the importance of these conventions in enhancing cooperation and to encourage states to ratify the conventions.

### 5.1. The experiences

#### World Bank experiences

World Bank experience in the Ganges (a complex system between Bangladesh, India and Nepal), the Nile Basin Initiative (NBI), and the Amu Darya Basin, show the critical importance of water cooperation in advancing towards each country's ambitious development goals particularly in areas such as growth, poverty alleviation, sustainable development, and food, energy and water security.

According to the World Bank (*Reaching across the waters. Facing the Risks of Cooperation in International Waters*. World Bank, March 2012), cooperation is a long process requiring a set of enabling conditions that need to exist before the opportunity of reaching mutually beneficial and enforceable agreements may arise. A clear understanding of how this happens is the key to foster similar processes in the future. While the associated economic benefits and costs of cooperation are generally well analyzed, the perceptions of decision-makers regarding political risks and opportunities have been much less explored. The critical institutional change that needs to be promoted is the shift in people's perception so that, first, opportunities must be perceived as more important than the risks involved in cooperation and, second, the perceptions of the benefits are more significant than the opportunity costs of not coming to an agreement. As the World Bank experience shows, in many countries risk reduction was an important pre-condition before countries would progress to negotiated outcomes. Reduced risks

provided sufficient motivation for countries to reconsider the cooperation deal, and even sign an agreement. For that reason the World Bank has identified seven areas that, depending on the context, may help in reducing risk and facilitating a shift from confrontation or deadlock to productive agreements. These areas are: knowledge and skill expansion, institutional development, program design, financing, facilitation, and decision legitimacy.

### International Sava River Basin Commission

The case of the **International Sava River Basin Commission** is an example of how International Water Conventions have supported cooperation and the development of permanent structures. Sava is a major drainage basin of South-Eastern Europe and the Sava river is the richest-in-water Danube tributary, widely known for its high environmental and socio-economic values (i.e. for natural beauty, an outstanding biological and landscape diversity, high retention capacity, and high potential for development of economic activities, such as waterway transport, hydropower generation, tourism and recreation). A well-balanced approach is necessary to harness the potential and preserve the existing values simultaneously. The *Framework Agreement on the Sava River Basin (FASRB)*, the legal framework for transboundary water cooperation in the Sava river basin, was created as a response to two major challenges: (a) the need (and obligation) for environmental protection of the basin and the need for economic development of the countries; and (b) the need for a new, international framework for water management on the basin level, as a consequence of the geopolitical changes in the region during the 1990s (i.e. the decay of the former Yugoslavia), which turned the Sava river from the biggest national river into an international river with responsibility for water management lying with the newly established countries at the national level.

The *FASRB* is the first development-oriented multilateral agreement concluded in the region after the agreements on peace and succession. The key objective of the agreement was to establish and maintain transboundary cooperation through the coordination and preparation of integrated plans, establishment of integrated systems and development of economic activities (e.g. navigation, tourism). Despite all the challenges, the *FASRB* is considered a solid basis for integrated water resources management in the Sava river basin. The *FASRB* implementation process is fairly demanding in terms of its needs for resources and continuous cross-sectoral cooperation among the different ministries, and it requires permanent joint efforts from the Parties. However, it is perceived as an initiative that provides multiple benefits for the Parties, and is making steady progress toward the key objective – sustainable development of the region within the basin, including reconciling navigation and the environment. The framework agreement broadened over time to include the interests of all the countries: water quality, flood protection, tourism, and navigation. There are differences of interest among different users of water at national and transboundary level, which will probably increase in the future due to climate change. Given the broad scope of the *FASRB*, there are some developments that are necessary, including: (a) protocols; (b) focal points and good cross-sectoral coordination and communication; (c) human and financial resources; (d) considerable efforts towards raising awareness on the benefits and importance of the existing cooperation arrangements.

### Spanish-Portuguese Albufeira Convention

Spain and Portugal share five river basins (Miño, Limia/Lima, Duero/Douro, Tajo/Tejo, and Guadiana). Around 70% of the annual water resources of these rivers are generated in Spain. The total area of these five basins represents 45% of the surface area of the Iberian Peninsula, and nearly 64% of Portuguese territory. Extreme variations in rainfall – from season to season and year to year – exacerbate scarcity in water flows, particularly in the drier south. Irrigation, a highly consumptive use, is the main source of demand in both countries. There are water scarcity and allocation problems. The traditional focus of both countries has been on supply policies: dam construction and large-scale water transfers from wetter to drier regions (from the Tajo to the Segura, from the Guadiana to the Sado, Odiel and Piedras river basins).



The first water treaty between both countries dates from the 19<sup>th</sup> century (on navigation). Later, in 1927, a first treaty regulating the use of the border stretch of the Douro River for hydropower production was signed, and was followed in 1964 and 1968 by two new treaties. Environmental protection was not part of these treaties, only prescriptions on fish life. With these treaties the hydropower potential of the border stretches of the five basins and their tributaries was shared in equal parts between the two States. In 1993 the Spanish Government prepared its National Hydrological Plan wherein a proposal for a new transfer of 1 billion m<sup>3</sup> water from the Douro River towards the Mediterranean region was announced. The Portuguese Government reacted and negotiations followed that led to the signature of a new water treaty in 1998, the so-called Albufeira Convention. This convention is inspired by the traditional spirit of friendship and cooperation between both Nations and seeks to balance environmental protection with sustainable use of the water resources within the framework of International and EU Law, whilst at the same time respecting the provisions of previous water treaties. The agreement included annual average river flows in the frontier and estuaries and in 2008 these became weekly and every three months. Negotiations included technical and diplomatic staff and were characterized by some diverging views. Spain considered that per capita and per Ha water resources availability was much lower in Spain than in Portugal (only 9% of runoff in natural conditions). This required building storage dams and Portugal benefitted from flood regulation. Attitudes that respected and accommodated the interests of the other parties were key in the negotiation process. Loyalty and trust were part of the process. Although technical negotiators had an important role, there were also ministerial summits to discuss the issues. The Ministry of Environment and Agriculture in Spain had some differences in relation to the agreement. These were resolved finally in the Presidential summit for the signature of the agreement. There is a Conference of the Parties and some technical working groups as a follow-up on the Convention. No technical secretariat has been established, although it was in the agenda.

## The Tisza River Basin

The Tisza River Basin shared by five countries is the largest sub-basin in the Danube River Basin, covering 157,186 km<sup>2</sup> or 19.5% of the basin. Together with its tributaries, the Tisza River drains the largest catchment area in the Carpathian Mountains before flowing through the Great Hungarian Plain and joining the Danube River. The International Commission for the Danube River Basin (ICPDR) serves as the platform for coordination in the implementation of the WFD on issues of Danube Basin-wide importance. Transboundary issues not covered by the ICPDR are solved at the appropriate level of cooperation such as bilateral river committees or international agreements.

The work on the Tisza River is being carried out in the framework of the ICPDR Tisza Group with the involvement of all five countries from the Tisza River Basin and the EU. The Tisza Group is the platform for strengthening coordination and information exchange related to international, regional and national activities in the Tisza River Basin and to ensure harmonization and effectiveness of related efforts. The Tisza Group was established in 2004 for coordination as well as implementation of basin-wide cooperation based on a Memorandum of Understanding. The work is supported by the ICPDR experts groups, observers (NGOs, stakeholders), and EU, GEF, UNDP, and UNEP funds. The Carpathian Convention and the Tisza Group are involved in ongoing cooperative activities and the members of the Convention participate in the Tisza Group as observers.

Local/regional issues remain a national task. The coordination efforts, conducted mainly through the respective Ministries responsible for water and environment issues, have been largely directed at inter-ministerial coordination.

The main issues in the basin relate to mining, agriculture, forestry (disappearance of the forests), hydropower generation and pollution accidents. The main actors involved in cooperation are the countries themselves. There has been also strong support from the EC and financial support for different projects from various organizations:

UNDP, GEF, UNEP and Carpathian Convention. In the Tisza River case some countries are not in the EU, but have accepted the requirements of the WFD. Now the next step after preparation of the programmes of measures of the River Basin Management Plans is to implement these measures to reach good status of the waters. The countries are committed but the main challenge is that the future financial basis still needs to be secured.

## Agreement between Russia and Finland on the Utilization of the Frontier Watercourses

Cooperation between **Finland and Russia** is based on the 1964 Agreement (Finnish Russian Agreement on the utilization of frontier watercourses). The 1964 agreement greatly influenced the 1992 Helsinki Convention. It includes provisions on: water flow and structural measures; floods and water scarcity; timber floating and navigation; fisheries; pollution and water quality; frontier guard issues (related to water); public health and economic considerations.

The Joint Finnish – Russian Commission was established in 1965. Each party appoints three members, three deputy members, experts, and a secretary. The Commission has Annual meetings (the 50<sup>th</sup> meeting of the Commission took place in 2012), permanent working groups and involves governmental officials, scientists, and diplomats. This initiative has facilitated a high level of trust between the countries which has enabled significant achievements and implementation.

Long-term cooperation within the framework of the Commission has been successful and well respected in the field of water protection. The monitoring of transboundary waters started in 1966, initially including all major rivers. As most transboundary waters were (and still are) almost in a natural state, monitoring was concentrated in the south-eastern part of the river basin where wastewater from communities and pollution from industries are the challenges.

For water quality and water protection there are common monitoring programs. The main challenges relate to water regulation, hydropower production and flood control. Working bodies have been created with users from industry, agriculture and other water-using sectors.

One of the most significant results stemming from this cooperation is the Discharge Rule between Saimaa and Vuoksi. The integrated water management group played a major role in the preparation of this rule at the end of the 1980s. Participation by energy companies has been essential.

This case highlights the importance of respecting the interest and satisfying the needs of the other party. The main problem is not to do with funding, but lies with formulating and agreeing on the aims. The long-term cooperation demonstrates that mutual understanding can achieve positive results when managing scarce resources. There are some important lessons to be learned from this case including: identification of shared interests and goals; analysis of multiple interests looking beyond the state borders; finding an optimal solution for sharing costs and benefits; participatory approach; long-term commitment; openness and transparency.

The remaining challenge for cooperation is climate change (increased occurrence and variability of heavy precipitation and drought periods; shorter snow period; less spring floods; alterations in ice conditions). Forecasting with a view to developing an optimal flow control becomes crucial as well as flood risk management tools.

## 5.2 Issues in transboundary cooperation

Countries that have signed International Water Conventions agree that they have been important drivers for cooperation even where there were pre-existing cooperation agreements. Countries have committed to respect



the principles of the Conventions as was the case of the pre-existing Finnish Russian agreement and the Helsinki Convention. Other common legal frameworks such as the Water Framework Directive allowed for clear objectives to be set for water management, as in case of Spain and Portugal, and clarified the purposes of collaborative agreements.

It is important to recognize that in transboundary cooperation there is no one-size-fits-all model for cooperation. Rather than replicating models, efforts may be best focused on using available resources efficiently and creating the pre-conditions that may favor dialogue and agreement. The most important factor is to have political willingness for cooperation.

A cooperation agreement is an institutional framework enabling countries to deal with problems as they emerge and define new priorities. Ironically, accidents or emergencies often become the drivers for transboundary cooperation, as happened with pollution accidents and the Russian-Chinese cooperation. In a similar vein, the evolving cooperation between Finland and Russia has expanded to deal with issues not included in the original agreement.

Opening channels for dialogue and frequent meetings serve to create trust between parties and recognize the diversity of interests. The dialogue helps identify synergies and common interests. For example, while water regulation in Spain is important this reduces flood risk in Portugal. Dialogue channels beyond high level officials may help in identifying common benefits.

Transparency is key to achieving implementation and political acceptance. Harmonizing the activities of countries sharing river basins saves and economizes financial resources. However in some basins, financial constraints are still an important barrier for implementation of the agreed actions.

### Highlights

**The legal imperative.** International legal frameworks, such as those provided by the UNECE Water Convention and the UN Watercourses Convention at a global scale or the EU Water Framework Directive at a regional one, have played a fundamental role in fostering cooperation agreements. They have been key in Sava, Tisza, in the Albufeira Conventions and in other countries in Europe.

**Institutions are essential.** It has to be recognized that cooperation is a long-term commitment and requires sustained efforts. The creation of joint institutions is essential to sustain these cooperative efforts. This has been the case for Sava, Senegal, and Russia-Finland cooperation experiences, among others. Having funding for the cooperative efforts is also important both as an incentive to start (by international organizations) and for long-term development of cooperation (by the countries or the interested parties). This has been important in the cases of Tisza, Myanmar, and Sava.

**The Secretariat role** in insuring transparency has often been vital to generate the necessary trust among parties. Exchanging information and establishing monitoring and assessment systems have also contributed. The UNECE, the case of Senegal and the ETI and Jordan show how this works in practice.

**Process matters.** Mediation can be important for enabling long-term cooperation. Mediators and diplomats have played at key role in cases like the Jordan River Basin, in the Albufeira Convention and in different African cases where the World Bank has been involved (Nile, Senegal, etc.). They have been catalytic for assisting the parties and have supported processes geared towards acknowledging differences and the legitimate interests of the parties. The role of third parties, such as the World Bank, has been essential in establishing strategies to manage the perceived risks of cooperation (sovereignty and others) and has helped overcome barriers to cooperation.

**Context matters.** Although situations of extreme drought or other shocks may complicate the achievement of an agreement, they can be also opportunities to incentivize cooperation (Albufeira Convention). However, an economic crisis context must not imply that markets rule. Markets must be at the service of common objectives (Russia).

## 6 The experiences of stakeholder cooperation in river basins

Managing water effectively and sustainably requires that all the stakeholders of a common water resource cooperate in jointly managing, protecting, and developing the resource. National and regional bodies, such as water resource ministries and river basin organizations (RBOs) can manage upstream-downstream issues that may arise between groups of stakeholders. Bringing parties to the table, raising awareness of challenges to be faced, and changing attitudes will be necessary if new agreements are to be reached and accepted.

### 6.1. The experiences

#### Irrawaddy River in Myanmar

The Ayeyarwady (Irrawaddy) River is an important lifeline for Myanmar. The 2170 km river stretch is home to different ethnic groups of which many live in poverty and lack access to safe water and adequate sanitation services. The river has high potential for hydro-electric power generation and industrial water use is growing. At the same time, a large portion of the country's rural population depends on the river to sustain their livelihood. The Myanmar national development strategy concentrates on poverty reduction and rural development. The 2012-2015 UN-strategic framework for Myanmar has four priorities: (1) inclusive and sustainable growth; (2) equitable access to social services; (3) building resilience to natural disasters and climate change; and (4) good governance. Water, although not explicitly mentioned as a priority area, is key for the sustainable development of the country. With 75% of the population residing in rural areas, and agriculture, livestock and fishery being the principal source for their livelihoods, agricultural water use is the first priority in water resources management at present.

In the **Irrawaddy River** there is no river basin organization although many of its functions are covered by the Irrawaddy research commission that unites scientists and people from the Ministry. Standing at a crossroad, Myanmar is in a unique position to develop water cooperation from scratch. Significant hydropower development opportunities cannot be exploited without settling the disputes among neighboring countries. Cooperation among social groups may be an important precondition to establishing and strengthening international agreements, for example between Myanmar and China. This requires an inclusive approach and involvement of ethnic groups and women associations. Good water governance would require all cooperation levels to be addressed simultaneously, and include bottom-up mechanisms that ensure that institutional frameworks have the intended effect, address social, economic and environmental issues alike, and benefit different stakeholders equally. Governments may use existing social structures, such as women's networks, considering the appropriate level of intervention. Before the start of any cooperation, all stakeholders need to be empowered so that they can enter into any initiative as equals.

#### The Senegal River

With a length of 1,800 km, the **Senegal River** crosses Guinea, Mali, Mauritania and Senegal. The river basin extends over 337, 500 km<sup>2</sup> and has a population of around 3,500,000 inhabitants (16% of the total populations of these states). The **Senegal River** has a long history of water cooperation among the basin states (dating back to colonial times) and some 13 international agreements have been signed. A milestone in this history was the creation of the *Organisation pour la Mise en Valeur du Fleuve Sénégal* (OMVS) in 1972 when the basin countries were experiencing the worst drought in decades. The document, which was signed by the four countries, gives the Commission the responsibility of managing water in the basin. This included the role of controlling



and monitoring the river courses, and facilitating navigation to allow for industrial development in the area. A very unique feature of this cooperation is the shared ownership of the dams that were constructed along the river by Mauritania, Mali and Senegal, which is quite exceptional for a transboundary river.

Over time cooperation and negotiations between the four countries have continued despite some disagreements. There have been some challenges, often due to 'micro-nationalisms' and the desire of some parties to act independently. However, no country was able to find sufficient funding on their own. Cooperation has been successful in part because it has included the different categories of stakeholders. The permanent commission is composed of the technical services and management agencies of the state, as well as different users and associations. The representatives of the water users, the NGOs, are increasingly interested in how this is managed. Each state has a representation which includes the scientific community. The experts committee meets every three months to examine any forthcoming activities.

Communication is a challenge in stakeholder engagement, due to the low literacy in these countries. There are also communication problems and conflicts that arise at different levels, e.g. politicians, scientific community, etc. Communication efforts need to highlight that the OMVS was created for the mutual benefit of the four countries.

Despite a good level of cooperation and the existence of institutional arrangements, riparian states still face many challenges related to climate change, poverty, and environmental and human impacts of the dams (public health).

### Lake Turkana: Ethiopia and Kenya

Conflict does not always mean armed conflict, but a conflict of interests. In the case of **Lake Turkana** which is shared by **Ethiopia and Kenya**, the two countries face significant challenges due to climate change and drought. Another emerging issue is the significant potential and rush for oil in the region. It is important that representatives from the two countries are jointly involved in discussions and activities for implementing a joint environmental assessment, capacity building, and the sharing of data, information and knowledge. There is support from the EU for the proposal. One of the challenges is that it is not easy to regulate in the same way in both countries. Both Ethiopia and Kenya have expressed a willingness to use the ecosystem approach. A consultation meeting between the two countries led to a draft concept for cooperation which succeeded in arriving at a common understanding on difficult issues, such as environmental challenges. Important success factors included political will, initial trust between parties, involvement of stakeholders, and the role of a facilitator/mediator trusted from both sides. For building cooperation, the emphasis may need to be on environmental diplomacy and ensuring that natural resources are used sustainably.

### Cooperation in decentralized countries

In decentralized countries, the sub-national level is an important layer that is sometimes overlooked. However, regional governments have the power to make decisions over water. There are various cases of **basins in decentralized states**. This includes historically federal countries such as Australia and decentralized countries such as Spain and Italy. Many of these basins have a basin-wide plan. However, the decentralized nature of the basin can impact the negotiations and there can be tensions between administrative bodies. Cooperation is facilitated if there are legal obligations with clear timeframes, such as in Italy and Spain where the EU WFD requires the countries to develop river basin management plans. For Australia, there was a legal requirement by the government with a deadline in 2011. In Italy, different levels of government started working at the technical

level, trying to involve the different regions in the technical work. In decentralized basins, political will to reach agreements is very important, as is legal power (capacity to sue) and sufficient funds.

## 6.2. Stakeholder cooperation in river basins

Dispute resolution mechanisms need to be structured at different levels. While at a local level traditional rules and norms do exist to reconcile expectations and conflicts among individuals, at a regional and national level active stakeholder engagement serves to channel disputes among regions and sectors of the economy. Considering these three distinct levels of cooperation allows us to ask some important questions such as, how can stakeholder involvement be improved while taking into account local populations, and is it useful to create transnational water users associations?

Any agreement requires considering the legal framework and its ability to address stakeholder disputes. In cases such as the Senegal River, there is no common legal framework for dispute resolution among countries, and this needs to be incorporated into the cooperation agreement and might depend on particular resolutions signed by states. In this particular case, the permanent water commission that was created has the technical means to address transboundary conflicts, by calling a meeting of the commission to try and find a solution to the problem.

### Highlights

**Inclusivity and addressing asymmetries.** Considering the asymmetries between the parties and incorporating the different actors involved is inherent to any cooperation strategy.

**Beyond governments.** In transnational basins, the incorporation of the concerned parties – beyond institutions – has enabled the introduction of mechanisms to share the benefits, costs and compensations among different types of users and different countries.

**Scale matters.** On the one hand, it is important to establish cooperation mechanisms that are appropriate at each level (Myanmar); and on the other, mechanisms for coordinating between different levels must be considered (decentralized basins and cooperation in cities).

**Incentives matter.** Coherence between users (agriculture, mining, fishing, etc.), location (upstream downstream) and between urban and rural areas, needs to be based on the understanding of water as an economic resource; payment for environmental services can facilitate reconciliation between users.

**Decentralization** (e.g. allowing water policy decisions to take place at a municipal or provincial level) presents a challenge to managing water at a basin scale. Cooperation needs to be built from the bottom up, relying on local communities, water users and river associations.



## 7 Experiences of local cooperation in rural areas

Water commissions, water juries and irrigation cooperatives play important roles in helping to resolve disputes and manage water between local stakeholders, such as within farming cooperatives, cities, and industrial sectors. These local bodies are indispensable where there is competition for scarce water resources and where there is need to control illegal water withdrawals and wastewater disposal which compromise the resource and may instigate conflict.

### 7.1 The experiences

#### Overview of WUA performance

According to ICID (*Suresh A. Kulkarni, and Avinash C Tyagi, 2013 Participatory Irrigation Management: Understanding the Role of Cooperative Culture*), the philosophy of Participatory Irrigation Management (PIM) is based upon the involvement of farmers in the operation, management, and maintenance of irrigation systems at secondary and tertiary levels through 'Water User Associations' (WUAs). During the last three decades about **60 countries** with significant irrigated area have adopted PIM to varying degrees. WUAs are considered the most appropriate institution for bringing together farmers being served by a given infrastructure. They act as an interface between the farmers and the Irrigation Agency for the purposes of conflict resolution, cooperation and building synergies among all stakeholders.

An **FAO study (2007)** has pointed out some key weaknesses of the present model of PIM, including poor service delivery, excessive layers and high transaction costs, poor cost recovery, financing of WUAs, lack of upgrading of the main system, blurred/ skewed management responsibilities, and an acute need to develop capacity at all levels of professionals. IWMI and FAO have recommended a five pronged strategy for revitalizing Asia's irrigation (*Mukehriji et al., 2009*). Of these strategies, those that relate to PIM are: modernizing irrigation systems both technically and institutionally; managing groundwater use; opting for public-private partnership; and providing incentives to irrigation officials in achieving better irrigation performance. Based on the recent experiences collated through various ICID workshops (1998, 2007) and authors' own field experiences of PIM, the following lessons have been distilled on the success or otherwise of WUAs:

- **Sense of ownership.** Real participation of farmers comes from a sense of ownership. Unfortunately, governments are still perceived as the owners of the irrigation infrastructure and water. Building a sense of ownership requires engagement with stakeholders in a lengthy process that demands time and patience.
- **Cultural factors.** The new institutions should be based on a thorough analysis of the social, cultural and political relations among various actors in the existing irrigation water management practices.
- **Legal framework.** A transparent and responsive governance structure is an important aspect of WUAs which is necessary for conflict resolution and accountability. It should clearly articulate the possible sources of income, including water charges, subsidies, etc.
- **Financial viability.** It is necessary to develop a viable capital financing plan that identifies the amount of money needed to establish and maintain the functions of the WUA. Potential sources of the financial capital include the members themselves, surpluses generated by the WUA's activities, or from outsiders. In most cases, governments provide the initial start-up costs.
- **Initiatives and incentives.** Unless a 'win-win' situation is clearly evident, the WUAs will not be able to deliver their objectives. It is unlikely that WUAs established through a top-down or forced approach will be

sustainable. Both ‘top-down’ and ‘bottom-up’ approaches are required for the start-up and effective functioning of WUAs.

- **Capacity development.** WUAs managing the activities of cooperatives require skills in financial and administrative management and should be backed by technical know-how. At the same time, the cooperative attitude is mostly driven by a dedicated and exemplary leader within a society. Such leaderships can and should be nurtured through various leadership building programs.
- **Integrated approach.** Most water resource schemes besides irrigation have multiple objectives and there are competing interests mainly from domestic, industrial, hydropower, and environmental uses. The participation of WUAs in such schemes can be made simpler by integrating similar functions.
- **Replicability.** There is no blueprint for a successful WUA. PIM involves interaction between different social groups, farmers, villagers and government. Since these interactions and their historical backgrounds differ among different societies, replicating a successful WUA model from a given country may not necessarily lead to success elsewhere.
- **Smallholder agriculture.** Intervention in smallholder irrigation development through a top-down approach generally encounters difficulties such as too many implementing agencies and long delays caused by bureaucratic procedures. It becomes much more complex when organizing and dealing with a large number of smallholder farmers. Smallholders often face constraints such as weak property rights, resource poverty, lack of access to markets and financial services, and limited ability to tolerate risks.

Structural factors affect the effectiveness and performance of WUAs, as seen in the case of the pioneering 1976 **groundwater user organizations** in the Delta del Llobregat in Spain. Nineteen other groundwater collective institutions were subsequently set up in Spain as this was a legal requirement for aquifers that had been officially classified as overexploited. Of the institutions that emerged in a bottom-up fashion, those that later received support from the Administration have fared better than those that had little support. Those that were created with a top-down approach but had little buy-in from users have shown more erratic performance in terms of water management, needing the input of external incentives and lacking the intrinsic motivation seen in the self-emergent institutions.

In the case of Spain, the few examples of groundwater users associations that have become effective resource managers share three things in common. First, they have managed to secure access to the resource in a stable agreement with the regulator, which is either formalized in water rights or takes the form of an informal agreement subject to ongoing re-negotiation. Second, they have mutually accepted rules on the access and use of resources which is backed up by a strong sanctioning regime. The users themselves are actively involved through the clear establishment of social norms, penalties for deviant behavior and support by the regulator for those that repeatedly deviate. Third, these organizations have been supported by the ‘official’ Administration which provides legitimacy and endorsement of their actions, as well as a stable and reliable framework for management. There still remains room for improvements and a need to develop closer cooperation on key pending issues such as the inventory of rights, the establishment of collaboration agreements with basin organizations, and reinforcement of the sanctioning system. Resource conservation issues and the protection of groundwater-associated ecosystems are still outstanding issues in the model of community governance and co-management between basin organizations and user organizations. It is also essential to consider the more problematic aspects of collective management, i.e. capture by local elites or agricultural unions, inequality of power between different users, and the implementation of internal sanctioning regimes.

### Cooperation between irrigators’ associations in the watershed of Altiplano-Valles in Bolivia

The irrigation project of Tiraque-Punata (which covers 8000 Has and serves 5000 families) is located in the mountainous area of Cochabamba in Bolivia. It is a project designed to be self-managed by the users. This case



illustrates the importance of traditional customs of use and management of a common water resource, mediated by reciprocal relations among local communities and irrigation committees, dispute and negotiation practices, and the joint search of solutions for improving infrastructures. The changes in relationships between the stakeholders involved and the implications for the State and water-related institutions are of great interest.

In Cochabamba there is a problem of multiculturalism – different viewpoints regarding field irrigation by farmers and indigenous inhabitants. The irrigation project focused primarily on infrastructure and building works, neglecting other important issues such as social organization, beneficiaries' participation, etc. The project focused on more technical aspects in an effort to maximize efficiency. The search for efficiency led to the creation of a network of channels based on irrigation blocks that were adapted to the topographic conditions. However, this design did not fit into the communities' boundaries, neither did the channels. The communities had established times for each user to receive the water, but this system was impossible to continue with the new infrastructure.

The social context was also not taken into account in the project. There was a territorial incompatibility between blocks and communities, which raises the important question of how to organize users. In a participatory design, the network of channels and the characteristics of the system are discussed and defined with the users. The network of channels is adapted to the common territories. This is a socio-cultural problem. The academic/technical/university vision of agriculture (following European models) differs from the indigenous perspective. Theoretically, institutions and technicians design projects for users. This case shows that it is better to allow the users to make suggestions and communicate their needs, and for the institutions provide their services according to these requirements. Self-managed irrigation systems, managed by the users themselves, should be the goal. Within communities in Bolivia, cooperation and mutual reciprocity bonds serve to solve the challenges that they jointly face (e.g. climate, ability to work the land).

The main lessons from this case relate to (1) the agreements and disagreements over water distribution in the river basin and their changing dynamics; and (2) the interculturalism and differences in visions among farmers and technical experts. The case highlights the role played by the user associations.

### Connecting impoverished women with micro irrigation markets in Guatemala

Guatemala has a history of 36 years of internal armed conflict causing poverty, discrimination and violence which mostly affected women, children and indigenous communities. Despite the positive developments since the peace agreements in 1996, there is still a long way to go. One out of every two children is undernourished and there is a clear link between the undernourishment of children and the level of education of their mothers. The goal of the 'Scaling-up Micro-Irrigation Systems' project (SCAMPIS) was to assist families in producing their own food (and selling surpluses) by making efficient use of water and other resources that are available in the communities. Women were the target group for the project. Especially in rural areas, it is women that care of the children, and are in charge of selecting food and preparing the family meals.

As a result of the SCAMPIS project, micro food producers gained access to low-cost irrigation tools and technologies. Seventy percent of the producers that adopted the technologies provided by the project are women. These empowered women increased their participation in the community and provided them with business opportunities. Many of the participating women have experienced exclusion and have limited opportunities to participate in capacity building and decision-making processes. The project has been supported by IFAD and the Spanish Water Fund. The project works with groups of municipalities for training and hydrological studies, and at schools with a micro-basin model. The objective is to change from a project cycle to a service cycle vision.

## Mt. Kenya East Pilot Project for Natural Resource Management

Mount Kenya is one of the five water towers in Kenya whose water yield contributes close to 49% of the flow of the Tana River (the biggest river in Kenya). The river supports close to 50% of the hydropower generated in Kenya, irrigated agriculture, fisheries, livestock production, biodiversity conservation in the lower basin, and is therefore strategic to Kenya's economic development. These functions were being increasingly threatened by environmental degradation in the upper and middle catchment of the river. Deforestation, inappropriate land use practices and overgrazing triggered soil erosion which contributed to high sediment load to the river, its tributaries and the hydroelectric dams. Increased cultivation reduced the ability of the land to hold rainwater, causing fluctuation in the river regime during the rainy season and depressed base flows in the dry season, thereby impairing water supply. Ultimately, the allocation of water resources became a sensitive issue with the potential to trigger ethnic tension and conflicts. To reverse this vicious degradation cycle, the Government of Kenya initiated the Mt. Kenya East Pilot Project for Natural Resources Management Project (MKEPP-NRM). The International Fund for Agricultural Development (IFAD) and Global Environmental Facility (GEF) were approached for assistance in project financing. The overall goal of the project is to reduce poverty through improving food security and income levels of farmers - particularly rural women. It focuses on the effective use of natural resources, improving access to water and introducing better farming and water management practices for sustainable use of land and water resources.

MKEPP-NRM has supported community-based water resources management and the formation of Water User Associations (WUAs), River User Associations (RUAs) and Catchment Area Advisory Committees (CAACs). The project was implemented between 2004 and 2012. The key actors involved were: the public sector, interested parties, polluters, lead and enforcement agencies. Results and achievements of cooperation have been: formation and capacity building of WRUAs, legalization of WRUAs, and institutionalization of the planning process. The main challenges encountered were: financial limitations, inadequate statistical data/info, technological limitations, the poverty/environmental nexus, customs/beliefs, inadequate land laws and weak enforcement, and climate change. The key lessons from cooperation relate to: participation of key actors, data/information, gender equity, accountability, capacity building, participation of both upstream/downstream stakeholders, and replicability.

## Green Water Credits in Kenya

Shortage of fresh water jeopardizes the development and livelihoods of upstream and downstream communities, and ecosystems in many parts of the world. The source of all fresh water is precipitation. Depending on soil use and management, precipitation may be lost as surface runoff, evaporate, or infiltrate into the soil where it either may be used by plants (*green water*) or recharge groundwater and stream baseflow (*blue water*).

*Green water* management comprises effective soil and water conservation practices put in place by land users. These practices reduce soil surface evaporation, increase (productive) transpiration through crops, control runoff, encourage groundwater recharge and decrease flooding. It links water that falls upstream on rainfed land and is used there, to the water resources of rivers, lakes and groundwater further downstream: *green water* management aims to optimize the partitioning between *green* and *blue water* to generate benefits both for upstream land users and downstream consumers. Moreover, *green water* management increases carbon storage in the soil and thereby contributes to climate change mitigation.

Green Water Credits (GWC) is a financial mechanism that supports upstream farmers to invest in improved *green water* management practices. It addresses poverty directly by diversifying income and enabling sustainable management that contribute to food and water security. In Kenya, a GWC fund has been created by downstream private and public water-use beneficiaries. Initially, public funds may be required to bridge the gap be-



tween investments upstream and the realization of the benefits downstream. The GWC project in Kenya is set to start and will assist 400,000 smallholder farmers with soil and water management in the Upper Tana River Basin. Soil and water conservation practices introduced here will improve water availability in the lower areas, where the water is used for electricity generation, urban water supply and irrigation. According to project studies, annual downstream benefits of better soil and water management, at just 20% coverage of the upland, would amount to anywhere between US\$ 6 and 48 million annually for hydropower facilities and urban water provision, whereas costs would be in the range of US\$ 0.5 to 4.3 million. Other benefits will be higher production for upstream farmers, carbon sequestration and reduced flood damage in the Tana delta - where the mangroves are particularly vulnerable. Green water credits in Kenya have enhanced cooperation between water users.

## OTELP India

Scaled micro irrigation schemes in India have substituted the previous unsustainable farming practices, increased yields, reduced poverty and enable the creation of a community-based rural economy. Pilot micro-irrigation systems have been introduced in India since 2009 as the main investment to facilitate women integration and the generation of surpluses and market income, protect populations from meteorological risks and create a stable economy. This low-scale irrigation system based on rainwater harvesting has so far successfully engaged 1,500 households and is expected to cover 5,000 by 2014 in the pilot area. Similar programs are being designed for neighboring provinces. The tradition of paying for the services provided by nature has served to finance community-based initiatives that help meet other collective needs such as ensuring drinking water quality, social services such as nurseries and the development of collective production services (such as quality seedlings).

## 'Scaling-up Micro-Irrigation Systems' in Madagascar

Madagascar has a largely rural population (70%) and a high potential for agricultural production. However, the country is faced with a situation of poverty and extreme food insecurity due to a lack of policy frameworks for the agricultural sector. The incidence of rural poverty is at risk of rising further due to dwindling water supplies, aggravated by the models of water use practiced by the most of farmers (manual watering, crop flooding and irrigation line). The strategy of the SCAMPIS project has focused on the creation and strengthening of the supply chain of materials adapted to the local context. This strategy has mobilized several actors from the public and private sectors. Measures have been implemented to facilitate the producers' access to materials. Approximately 9,500 families gained access to the technologies through the supply chain (three small manufacturers, and 60 resellers of equipments) and other stakeholders (NGOs, projects, economical operators). This project was implemented during the period 2009-2012, thanks to the initiative of IFAD and the Foundation COOPERNIC, that supported the NGO 'Agronomes et Vétérinaires Sans Frontières' (AVSF).

## The use of local funds allocation committees (CLAR) and 'concursos' in water management, Peru

In Peru there are major conflicts around water governance between mining corporations, hydropower corporations and indigenous communities. Conflicts with the mining companies generally arise due to lack of communication. Companies are required to have a social responsibility department whose management is often quite paternalistic. There are companies that pay attention to social/cultural factors and some have established local committees to allocate resources, an approach promoted by the new Ministry of Agriculture. In the project, the communities themselves were the ones who claimed the changes they needed. Previously in Peru, a project was implemented without checking the social reality first. This project assesses the past, current and future prospects before implementation. The community identifies their needs and the government tailors the project accordingly.

The water management tenders (*Concursos de Agua*) are well accepted and even demanded by the local population. They enable social empowerment, help reduce degradation, foster creativity and place value on local knowledge. They are also powerful means to raise awareness and enhance the perception of water as a common asset and about the importance of preserving water sources. The lack of financial resources in the poorest sectors may limit their ability to translate good ideas into practice.

The Users Committee of Chorro-Solis is located in the Caserio-La Florida in the farming community of Juan Velasco Alvarado in Yamobamba, district of Huamachuco, province of Sanchez Carrión, Department of Libertad in Peru. This committee belongs to the irrigation Commission of Cushurio and the Board of Irrigation Users of Huamachuco. Water abstracted from the el Chorro El Solis Channel comes from two sources, the River Urischaca and a spring. There are 32 members irrigating by gravity or by flooding for the different campaigns to cultivate potatoes and pastures from June to September. Payment for water use rights is S0.63 cents per hour, and is paid at the end of the cultivation period (according to the number of accumulated hours during the 5 months). Users pay the Irrigation Commission of Cushuro and this in turn pays the Users Board of Huamachuco. The Users Board returns 50% of income for the maintenance of the irrigation channel.

### Bolivia's mechanism for funds transfer to deprived groups

The Río Rocha basin plan aims to tackle a number of challenges: the basin is highly polluted, mainly by the cities and towns' wastes; there are floods and disruptions to drainage networks and security areas; and water used for irrigation is polluted and of very low quality. Water expropriation at some areas in the community has caused conflicts in Cochabamba. Furthermore, there is growing competition and conflict over access and use of water due to multiple factors such as growing demand, climate change, urban growth, megaprojects and changing consumption patterns. Threats and challenges are related to the creation of institutions, the political and legal authorities, management bodies and technical secretariats. Water has been declared a human right and a good which much remain in the public domain. Leaders in the country have recognized that they must listen to citizens. A Ministry of social inclusion has been created to search for and establish better mechanisms for achieving social inclusion. A national authority of water was created to manage and coordinate water-related issues. However, power is asymmetric, and social and cultural values are different.

## 7.2 Water cooperation issues in rural areas

Forming and developing effective water user associations, building legal capacity, and creating social and private responsibility rules are three elements with significant potential to enhance cooperation processes. However, no one of these can be singled out as the main driver and there is not a sequence in their development that will guarantee best performance. The critical factor and the right sequence for developing a conducive institutional set-up will depend on the context. In some cases the legal provisions are already in place, such as in Kenya, and the solution does not necessarily rely on enacting the missing legal norms but on making local communities responsible.

Empowering user associations to perform water allocation and management roles, such as the irrigation communities in Spain, might be an effective way to find common interest and avoid conflicts and overexploitation of water. For instance, the right to use water is not only tied to land ownership but the farmer must also belong to an irrigation community in such a way that communal interest prevails over individual interests and expectations.

When water is managed by user associations it might be easier to take advantage of existing opportunities that benefit all parties. Irrigation systems in Egypt operated by the water user associations used the benefits obtained from achieving higher water productivity to decrease conflict, relieve pressure on water resources, and increase farmers' incomes.



Water user associations present a window of opportunity to make development inclusive by, for instance, allowing women to play an active role in family and community decisions, as in the case of Egypt. Anticipating challenges and giving the community and the locals an active role from the onset is a critical requirement for cooperation projects funded from foreign sources, as once the project is built its sustainability depends on local capacity. In Guatemala, the challenge has been to ensure that the project continues once funds are finished and small-scale financing models for families are being considered.

### Highlights

**Financing matters but it is not enough.** Financial support for cooperation by foreign donors is important and without them the creation of user communities might have been impossible in many places. However, in the long term, it is essential that irrigators in the communities understand the need for cooperation and mutual support. Financial priorities must address capacity building needs. For example, the need for transparent monitoring in the case of overexploited aquifers. Successful cases, such as the aquifer at the Lower Llobregat, show that it is the shared perception of the need to cooperate that has been key to achieving sustainable water management.

**Attitudes and perceptions are important.** Water authorities and public administration authorities have an important role in promoting, enabling and supporting cooperation but paternalistic attitudes are common amongst public officials and experts and this can act as an impediment to the development of community-based water management. Technical factors are useful to inform the collective decision-making process but decisions should not be made based on technical factors alone. The most important conditions for enhancing the technical efficiency, productivity and feasibility of the projects depend heavily on the context, the institutions and the decision rules in place. The Peru and Kenya cases provide examples of adequate solutions that take into account the perceptions of traditional communities. Theoretically efficient and technically optimal irrigation systems, for instance, might be incompatible with traditional borders, land tenure practices and water sharing agreements, and so despite looking good on paper, they will not be implementable. Conflicting views between technical solutions (mostly based on efficiency and yield maximization) and cultural and social rules (based on empowerment, fairness and legitimacy) need to be reconciled through communication and effective public participation from the start.

**The need for social empowerment and building on existing social and cultural traditions.** Institutional arrangements to promote good water management practices (such as the water concourses) enable social empowerment through rewarding good practices and innovations that make better use of water at a local level. They convey information and facilitate the dissemination of good practices among households, farms and individual users. Despite financial constraints, the scaling up of micro-irrigation projects has been able to achieve autonomy of the whole supply chain in rural areas in India and Madagascar. Traditional agriculture is associated with solidarity, stability and strong cooperative links. The solution lies in adapting the technology options available to the social and cultural environment. Local communities must be engaged in the decision process from its early stages in order to guarantee a solution that is both technically feasible and locally acceptable and implementable.

**Combination of rules and incentives to enable cooperation.** Experiences in Kenya and Bolivia show how the emergence of collective action arrangements are the result of enabling legal frameworks. However, the incentives in place must be sufficient to prevent further water resource degradation, which in many cases requires credible sanctions. The implementation of these rules and incentives must be done by the community itself and not be perceived as an imposition from others.

**Sharing values and agreeing on principles** is a critical step to managing water as a collective good. These preconditions open the road for effective community-based water management and will increase the effectiveness of capacity building strategies and the profitability of financial support. The main challenges lie with building institutions and agreeing on water management principles (solidarity, subsidiarity and interculturality). This is not the outcome of a negotiation between 'equals' but an intercultural dialogue in which diverse local values need to be recognized and accepted.

## 8 Experiences of local cooperation in cities

Cities cannot be sustainable without ensuring reliable access to safe drinking water and adequate sanitation. Coping with the growing needs of water and sanitation services within cities is one of the most pressing issues of this century. The need for sustainable, efficient and equitable urban water management has never been as great as in today's world. Half of humanity now lives in cities and in two decades, three out of five inhabitants on the planet will be urban dwellers. This urban growth is faster in the developing world and creates unprecedented challenges. The relationship between water and cities is crucial; cities require a very large input of freshwater and in turn have a huge impact on freshwater systems.

Cities are sources of innovation in water management, creating new models for water and sanitation service delivery and financing, spurring technological development, and driving increases in efficiency of water use (with some utilities promoting demand management for example). At the same time, cities are sources of intense competition over scarce water resources, and scenes of violence, pollution and water poverty. Many slum dwellers and peri-urban citizens in rapidly growing cities lack decent services and pay a high price for the water and sanitation services that they do receive, buying water from vendors or through their own efforts (e.g. digging a well, harvesting rainwater or constructing a latrine). Further afield, the footprint of cities' freshwater consumption and waste disposal has huge impacts on agriculture, livelihoods and the environment<sup>1</sup>. These tensions between creativity and competition, between the positive and the negative side of water use in cities are of course linked, and these trends may well co-exist in the same city. High demand for better services and pressures on scarce resources can drive innovation and improvements in some contexts with favorable governance arrangements, or lead to real hardships and environmental damage. The pressures are especially acute in the peri-urban periphery where governance deficits are frequent (Butterworth *et al*, 2007).

Cooperation is particularly important where there are many actors and interests in the same location. Nowhere is this more the case than in cities. It is the dense complexity of actors and activities in cities that makes water management there so challenging, and at the same time which allows cities to generate so many innovative solutions. The majority of our human and economic exchanges happen in cities and this is where we can have the most significant influence on our sustainable future.

Stakeholder engagement and public participation are key to the coordination of various actors and interests in cities. Stakeholder platforms can bring together urban planners, water service providers, consultants and civil society organizations in stakeholder platforms, to develop dynamic integrated approaches. In stakeholder platforms a variety of stakeholders have the space to articulate their concerns and then come to negotiated agreements. Stakeholder platforms can exist at all levels of water management, from the local to the transboundary.

### 8.1 The experiences

#### City Stakeholder platforms

In 12 cities across four continents – Lima, Cali, Bogota, Belo Horizonte, Accra, Alexandria, Birmingham, Zaragoza, Hamburg, Lodz, Tel Aviv, and Beijing – the SWITCH project set out to test what was needed for a transition to more sustainable urban water management through a combination of demand-led research,

1. There are several good books and films on this topic especially from Los Angeles and California, e.g. the book Cadillac Desert and films Chinatown and Erin Brockovich.



demonstration activities, multi-stakeholder learning and training, and capacity building. Successfully engaging key stakeholders in each city was central to making the shift towards more sustainable and coordinated urban water management. An important part of the project was the development of learning alliances – a specific type of multi-stakeholder platform (Warner, 2007) that aims to have a greater impact on policy and practice. SWITCH was a case study in water cooperation. It encouraged new means for collaboration between different mixes of actors in the search for new solutions to some of the most pressing urban water management issues.

### Promoting cooperation in Bogota, Colombia

The Río Bogotá is highly polluted and SWITCH focused on preventing pollution by small-scale and informal sector tanneries on the upper part of the river. Key players that engaged throughout the project included a tanners' association, the environmental regulator, local government, an NGO, a university and the Chamber of Commerce. Almost half of the polluting enterprises have now implemented cleaner production principles thereby removing much of their pollution. This has also led to an increase in their productivity. SWITCH supported a process of conflict resolution, capacity building and dialogue, and the regulator is now pursuing these alternatives to a punitive and legalistic approach. The research undertaken supported the tanners in making changes and a follow-up project is now expanding this approach across a wider catchment area.

*Source: Sanz, M. & Osorio, L. (2011)*

This case study highlights some of the tools that were used by SWITCH learning alliances - visioning and scenario-based planning, facilitating communication and process documentation - which all have much wider applicability for water cooperation beyond cities and the problems of urban water management. The intention is not to be exhaustive but to highlight some of the tools that worked to promote cooperation and some the lessons that were learned. Other tools include action research, rapid urban water assessment and monitoring learning alliances.

According to the background document elaborated by the IRC International Water and Sanitation Centre, some possible conclusions that may have relevance for other projects of this nature:

1. It is much easier to 'go with the flow' and put support behind things that are already happening than to start projects from scratch. In almost all of the cities, there was an initiative or underlying problem that some researchers and practitioners had started to address. In the best cases these proved to be fruitful areas for the learning alliance approach, for demonstration projects and for research.
2. It takes a long time to bring stakeholders who are not already working together into an effective learning alliance. If SWITCH were to start again it would make sense to begin here before fixing the research agenda, so that demand-led research could be a reality. Work could have been phased with much more attention paid to appropriate timing.
3. Multi-stakeholder platforms such as learning alliances require dedicated facilitation that must be funded. Facilitators may need to be trained and they certainly need to be nurtured. This is not something that can be bolted on to a project as an after-thought. This is an area where funding is hardest to achieve, because nobody wants to pay for what they fear might be a talking shop. Without a credible and well trained facilitator, learning platforms will be dominated by the strongest participants.
4. Process documentation on the intervention logic, progress and challenges stimulates joint reflection and helps identify the best pathway forward. This too needs to be well resourced and requires outside support. Peer reviewing as part of process documentation provides an objective outsider's perspective and can help build capacity.

5. No matter how big the global project, and how grand the launch party, in every city you are a newcomer, and if you want respect, then you have to treat the existing structures with some respect and work to gain credibility. In Accra, the facilitator knew she had made a breakthrough when, after repeated visits to the Ministry, she began to be recognized and other stakeholders greeted her saying “there is SWITCH!” When SWITCH worked in harmony with the local way of doing things, progress was made. In Tel Aviv for example, the ‘Water Club’ sounded less threatening to the people who joined it than a ‘learning alliance’. In Cali, the word *platanizado* refers to an outsider who picks up the local patterns of speech and SWITCH worked best when it was *platanizado*.
6. In order to get people to participate in the meetings and ongoing activities of the platform, it must be worthwhile for them to contribute their time and energy. Feeding back the results of research and involving them in the planning of relevant demonstration projects are attractive incentives. Stakeholders must become part of the team rather than be passive observers. This not only applies to meetings; as someone said in Alexandria, “things need to happen in between the meetings to keep our interest.”
7. Five years pass quickly. A common theme in the SWITCH projects was the delay of the planning phase, which meant that implementation started late and time to install and assess demonstration projects quickly ran out. Teams in Alexandria, Accra and Belo Horizonte were working on demonstration projects right until the end of the project, which meant there was not sufficient time to properly assess their impact. Delays were caused by time pressures of key actors, bureaucracy or time taken to obtain permission from water or sanitation authorities. In Alexandria there was a contradiction between national policy and local by-laws that made it very difficult to provide basic but improved water services because they did not match an unobtainable national norm.
8. Due consideration must be given to what will happen after the project ends. Will the learning alliance continue in some form? A post-project period where there are some resources to support successful initiatives that are not yet self-sustainable is recommended. In many cases this just means ensuring that the existing organizations and stakeholders that are involved in and benefit from the project are supported to incorporate its components into existing institutions and practices.

Many problems can only be solved through collaboration among the different stakeholders. Improving horizontal and vertical cooperation (global, national, city, community/local levels) can be facilitated by a learning alliance facilitator. According to the **SWITCH** project, the basic principles for effective communication in learning alliances are that it is: interactive; inclusive; targeted; and that it follows short cycles. By bringing together the stakeholders, it often becomes apparent that the problem being focused on is not only the only problem or is part of other bigger problems. There are examples of successful project follow-up, such as strategic planning for cities in Tel Aviv which was taken up and continued by the World Bank.

Stakeholder cooperation in Zaragoza has been built through a number of initiatives: saving 1 Hm<sup>3</sup> in domestic water consumption in one year (mainly focused on behavioral rather than technological change); 160,000 public commitments related to water saving; solving water conflicts through social mediation; advocacy for water as a human right: the pavilion for citizen initiatives, FARO; ZINNAE, urban cluster for water efficiency; and a water alliance for Central America, the Water Nexus. There are 10 lessons learned from these experiences.

(1) Building trust among participating actors as a primary objective of these multi-sector projects. To do so it is necessary to invest time and resources.

(2) The intangible issue of creating trust is the most important factor for success.

(3) The importance of identifying a collective and shared challenge



- (4) Set up objectives that are simple, concrete, and possible to achieve and that will appeal the general public
- (5) Triple therapy: a new public regulation, civic awareness and active citizens, responsible market instruments. The triple therapy requires a cooperative environment to be established between three main actors: public administrations, NGOs and business entities.
- (6) The importance of creating a dynamic 'core' group of entities committed to the project. The role of the facilitator is particularly important.
- (7) It is very important to manage partners' egos.
- (8) Identify the active minority that can become a network of allies for change. Minorities have always had a leading role in change
- (9) The success of reaching agreements through mediation has a shortcoming: it might be an agreement that does not take into account some less visible actors (such as future generations).
- (10) Patience is essential for building up the revolution in water management that is needed.

## Collective action by companies

According to the **CEO Water Mandate** there are some main water-related challenges for companies: operational crisis, damaged social and legal license to operate; diminished brand value due to irresponsible or unsustainable behavior; increased operational costs spent complying with relevant regulations. Much can be done to address water risks within the factory fence line. In relation to business care, it is important to differentiate between internal versus external action.

There has been a shift in the type of partnerships, from community investment grants to a more sophisticated analysis of the risks business faces. In 2006, The United Nations Development Programme (UNDP) and the Coca-Cola Company (TCCC) joined forces to help make the promise of improved access to clean water reality. The overarching goal of the partnership is to accelerate the achievement of the water and sanitation related MDG targets. Every Drop Matters is a model of how business sector partnerships can work for development. UNDP and TCCC work as partners, from project design through to implementation. The Every Drop Matters initiative has implemented more than 50 projects in some 20 countries of East Europe and CIS, Asia Pacific and Middle East, partnered with more than 30 NGOs/CBOs. In total the project enabled 320,000 people to gain access to water and sanitation, it improved around 204,000 people's resilience to climate change and it educated more than 166,000 individuals on the responsible use of water sources.

## Water operators' partnerships

Water utilities are important because of their role in realizing the human right to water and sanitation. Rapid urbanization and other pressures magnify the need for effective and responsive water supply. Ninety percent of water utilities are public water operators. WOPs are a simple and effective mode of providing water and sanitation. The guiding principles are: provide mutual support; make the most of existing expertise; not-for-profit partnerships; use of a guiding code of conduct; long-term cooperation; inclusivity, involvement of civil society, local authorities and all stakeholders responsible for urban water provision; and a strong basis of confidence, trust, and solidarity. There are many existing examples of North-South cooperation but there are also increasingly examples seen of South-South cooperation. WOPs do not only focus on technical issues but also on the quality of the system and satisfaction of the users. There are many examples of private utilities supporting public operators on a not-for-profit basis.

Two major limiting factors in WPOs schemes were identified: the availability of mentor water utilities and the cost. It is important to convince a funding agent that there is a need for capacity development and not only infrastructure. There are ten South-South WOPs found in Africa. Globally, there are around 100 WOPs existing, mainly in Asia. WOPs are very cost-effective. Nowadays WOPs at a regional level are organized through professional water associations, which gather and organize the water utilities. Through these regional platforms South-South cooperation has been made possible. Some regional associations are becoming more and more independent and are sourcing funding from the regional development banks.

### Cases studies of cooperation among water operators

(1) Twins Philippines (Metro Cebu) and Australia (City West Water) utilities.

This is a partnership which focuses on non-revenue water reduction and improving operations performance. It is a sustainable partnership and has long-term effects: both operators still cooperate today on technical aspects. Scaling up is being supported by the Asian Development Bank.

(2) USUG (Mongolia) and Vitens Evides Intl

There were improvements in performance, water quality, number of users, and also the operation controls. The utilities were able to make their own financial decisions on priority areas for investment. Other similar activities are being supported in Asia (Philippines, Vietnam) and Africa (Mozambique). Key success factors include: proper matching between mentor and recipient operators, commitment to the WOPs; availability of key personnel and management and resources; confidence building – establishing good working relationship; well-defined objectives and work plan.

(3) Water Utility in Belize and California

There was an exchange of expertise and technical visits on both sides. The results have included: development of a BWS action plan, leveraging WOP's added value capacity building (loan from IDB), and real-time advice.

The general lessons learned from WOPs are: sustainable efficiency of water utilities can only be achieved by long-term investment; WOPs can help identify priority areas and fill capacity development plans; WOPs need to prove that they are efficient, through indicators and benchmarking; water utilities that are more likely to receive loans are those in capital cities and those more closely linked to the national governments. Water utilities in rural areas and small-scale utilities especially need support to help them increase their visibility and gain financial and political backing.

## 8.2 Local cooperation issues in cities

Companies are increasingly trying to understand their direct water use as well as the water footprint related to their supply chains, which is a tricky task. It is a mistake to focus exclusively on urban water supply and sanitation because this is just a small part. Impact assessment should be much broader, and companies should focus on wider environmental and socio-economic impacts. The Sustainable Development Goals will involve the private sector (which encompasses two-thirds of GDP and a quarter of employment globally).

Managing the cooperation process in cities and determining the right sequence of activities is essential for reaching effective agreements. Implementing gradual actions which can demonstrate clear improvements can be a way to capture stakeholders' attention and interest. Focused actions based on mobilizing existing resources and widening the scope of their use offer promising possibilities for enhancing cooperation. For instance, water utility technicians can train their colleagues – training trainers – thereby gathering and disseminating relevant information and skills. Experiences with collaboration among utilities show the need to be more inclusive and involve all actors. There is a need to support small-scale operators, peri-urban and poorer areas in the cities, which requires an analysis of the capacity gap as part of the planning process.



## 9 Highlights for improving water cooperation processes

Water cooperation is about building the institutions for sustainable development. Water cooperation is inescapable as population growth and development ambitions need to be reconciled with the limited capacity of water ecosystems to support this growth and increasing demand for essential water services. Not only does water use need to be decoupled from economic growth, but uncertainty linked to climate change requires new strategies and responses to risk. Building social capital takes time and can be a difficult process. To advance a holistic sustainable development pathway, water must be linked to the other sectors (e.g. energy, agriculture). In international negotiations all the separate plans may be present, but the difficulty lies in integrating them. The question is, how can we get all partners to be citizens of the world? The key is to try **to be a citizen of the world while being a citizen of your own country**.

### About the process

1. It takes time.
2. A long-term perspective and the building of trust are needed.
3. Temporary, everything changes. You have to be ready to change.
4. Science-based information/data is very relevant for capacity building and the way technology is used.
5. It is participatory.
6. Empowerment of women.
7. It is important to set objectives – water cooperation is the means not the end.
  1. The process must be fair.
  8. Be creative, be pragmatic, but overall keep your ideal and be persistent.
9. Political will and legal frameworks

### Political will can help a lot.

1. The legal framework helps. All European countries have EU legislation.
2. Accountability.
3. Partnerships.
4. National water policies.

### Financing cooperation

1. Money helps.
2. You need a structure to help the cooperation system. There must be a compromise between the number of actors and the resources used.
3. Economic model, economic sustainability. Never ask people to spend more than 2% of their income on water.

### Technology

1. Technology is very important: technological developments for water are accompanied by developments in IT. The meter has been revolutionary and it is very important to have a water accounting or footprint system.
2. Design. E.g. in a farming system in Sahel, stones are used to keep the humidity. Now the satellites help placing the stones. This is the era of reusing and recycling water and we need to find affordable technologies for that.
3. Sanitation encompasses reusing and recycling water. Singapore is a good example.
4. Technology has to match the social structure.
5. Technicians: knowledge, indigenous people, traditions, culture.

## 10 Key lessons learnt on promoting water cooperation

Climate change, poverty, economic progress and population growth implies an increasing competition for water resources that can become a source of local, regional and international conflicts. However, water has proven to be a productive pathway to cooperation and conflict prevention. Experience shows that, sooner or later, the advantages of cooperation and of sharing its benefits become evident for all the parties involved. Confrontation, although possible, is not a viable alternative to negotiation: parties will need to or communicate for the purpose of arriving to a mutually agreeable solution.

Future generations will rely on water cooperation. Dialogue and consensus building are called upon to be the institutional framework for conflict resolution and water governance. As many successful examples show, cooperation might evolve towards becoming an effective instrument able to guarantee the preservation of natural capital while allowing covering water needs for life and the equitable functioning of the economic system.

Cooperation for water management is a long-term social endeavour. There are different approaches for Alternative Dispute Resolution (ADR) concerning water. That is to say all alternatives on how to improve processes of cooperation in the preservation of the critical water resources of which all the parties and their welfare depend upon, and to share the mutual benefits thus obtained.

There are examples of processes of cooperation between countries on managing rivers or among different water users in cities and rural areas. These show the tools, institutions and specific ADR practices that proved successful in enhancing cooperation.

While the benefits of cooperation rather than pursuing conflicting paths may need to be further understood and promoted, implementing good processes from the initial dialogue to being able to progress all the way to a constructive and enforceable agreement and its joint implementation, is still a challenging social goal. Examples show the importance of mediation, water diplomacy, information, shared views and goals, and of enabling institutional, financing and legal conditions to support cooperation and sustainable outcomes.

This document contains the main lessons learnt from some key experiences. These lessons are organized around two key issues: tools for enabling and sustaining cooperation and tools for improving implementation of cooperation processes.

### 10.1. Lessons on to the role of tools for enabling cooperation

#### 10.1.1. Legal frameworks and institutional arrangements

- **The role of international conventions**

International multilateral framework instruments such as the 1992 Convention on the Protection and Use of Transboundary Watercourses and International Lakes (Water Convention) and the 1997 Convention on the Law of the Non-navigational Uses of International Watercourses serve as important legal frameworks for fostering cooperation on transboundary waters.

While the experience accumulated under Finnish-Russian cooperation since 1960s has influenced the negotiations over the UNECE Water Convention, the Water Convention proved to be instrumental in contributing to the development of cooperation and agreements shared by the Russian Federation with other countries. (Russia-Finland)

The International Sava River Basin Commission benefited from the UNECE Water Convention by using the Convention as a model for the integrated approach to transboundary water management and also cooperating in the framework of the Convention's institutional structure. Furthermore, two assessments on transboundary waters, carried out under the Water Convention, provided valuable information on the state of waters and supported the activities on the preparation of the first Sava River Basin Management Plan.

During the negotiations between Spain and Portugal over their shared waters, both countries were at the same time engaged in the negotiations on the EU Water Framework Directive in Brussels. This accelerated the conclusion of the Albufeira treaty between the two states. Also the fact that both states were already parties to UNECE environmental conventions, including the Water Convention, was considered important for the negotiation process. (Albufeira)

- **Political will**

Political willingness of the Spanish and Portuguese governments to arrive to a conclusion in due time was a key factor to success in the Albufeira negotiations. There were frequent meetings at the highest political level where the issue was on the top of the agenda. Also in the transboundary water cooperation process on the Rio Coco basin in Central-America, permanent political will at the national and local level was considered crucial to its success.

- **The Permanent River Basin legal/administrative framework provides sustainability**

The establishment of a permanent comprehensive legal/administrative framework and a Secretariat enables co-riparian states and stakeholder in river basins to address water-related issues in an organized manner, thereby avoiding problems associated with ad hoc approaches. This has been the case in the Sava River and in the Ebro River.

- **Make use of previous experiences and technical support**

Making use of the experiences of previous cooperative efforts allowed the framework of cooperation established by the Mekong Committee to be more specific and realistic. Detailed technical preparation and institutional support by UNESCAP formed important elements for the constitution of the Mekong Committee's legal and institutional framework for cooperation.

- **Flexibility**

In the Columbia River Treaty negotiations, it was considered important that the agreement had some flexibility, containing provisions for periodic review and assessment so that emergent societal values, changing market conditions, and other unforeseen circumstances could be addressed. The Albufeira Convention between Spain and Portugal allowed countries to respond to the challenges posed by the impacts of climate change through the adoption of 2008 Protocol.

- **Role of Water Users Associations**

Water Users Associations (WUA) are proven means to channel stakeholder involvement in the whole cooperation process. In the Mt. Kenya case Water Users Associations (WUAs) and River Users Associations (RUAs) effectively channelled and facilitate community participation. Through these associations communities participate for example in monitoring the flow of the river.

In the Tiraque-Punata river basin in Bolivia, it was not until the WUAs were formed and engaged that a breakthrough in the cooperation process could be achieved. They didn't only play an important role in the negotiation process towards developing a new irrigation scheme, but they continue playing an essential role in

its implementation by, for example, contributing to the perception of the transparency and fairness of the scheme, by monitoring the distribution of water to its members, and by playing an undisputable role in solving conflicts related to the management of the irrigation system.

- **Local authorities**

Apart from stakeholders representing the parties involved in the cooperation process, the role of local and regional authorities is essential to provide the required political, financial and practical support. This is particularly relevant in the case of community based cooperation initiatives where local communities are able to perceive the advantages of cooperation but lack the financial resources, the technical skills, the expertise and the access to the relevant information to reach an agreement and put it into practice (such as in the micro irrigation projects in Guatemala).

However, at a higher level, agreements such as interregional or international ones local authorities act as legitimate representatives of local interests and not just as a government institution representing the common interest. In such situations (e.g. the Albufeira agreement), the involvement of regional authorities was considered challenging since they do not perceive trade-offs that the national authorities may consider.

- **Multi-stakeholder platforms**

Allowing stakeholder involvement should be more than setting a place to go to listen to other people. Co-operation processes at local levels can be facilitated by multi-stakeholder platforms or collective 'learning alliances', bringing together representatives from government, civil society, universities and other research institutions and the private sector. Feeding back the results of research and involving them in planning relevant demonstration projects and implementation are attractive incentives.

- **Institutional arrangements to provide access to decision-making processes**

A recommendation from the Lake Victoria negotiations in Australia is to create permanent institutional arrangements which can provide reassurance to politically marginal communities – in this case the aboriginal community – that they will have relatively access to policy decision making and management processes if they feel that problems are developing. The Lake Victoria case showed that a group that feels disenfranchised and has the capacity to mobilize political and societal support can bring operations to a halt for a very long time.

## 10.1.2. Financing

- **Financing from multiple sources**

Apart from the government sources of financing, other stakeholders in the water catchment can support financing of cooperation activities. In the Mt. Kenya case the community water users contributed to the operation and maintenance of water supply systems, irrigation schemes and catchment environmental conservation activities. Development partners also supported the local initiatives in financing cooperation strategies which include formation and capacity building of local level institutions. Also in the cooperation process around the Rio Coco in Central-America, the combination of national and international funding sources enhanced the possibility of strengthening institutional and human capacities to make the cooperative water management sustainable.

- **Process financing and low-level cooperation**

In the negotiation process between Jordan and Israel, it was identified that support geared at low-level co-operation can be instrumental when politics are not allowing for more. Process financing can enable securing



and improving water-related collaboration in transboundary basins where the parties have a low degree of other forms of cooperation. The long term support prior to the agreement of the UNTSO in facilitating low level cooperation was a key in this case. In Water User Associations and Local cooperation external donor funding has provided an important incentive for cooperation. Maintaining the cooperation requires multiple sources of financing, including agreed member's quotas that provide the necessary financing for maintaining cooperative management of water resources, including dealing with conflicts on water use and water allocation.

- **International recognition of cooperation efforts**

The recognition of the common cooperation efforts of the riparian countries in the Lower Mekong Basin by a wide variety of donor countries and international organizations contributed to its success. The recognition of the Mekong spirit of cooperation resulted in an important flow of assistance and investment to the sub-region.

## 10.2. Lessons on the use of tools for improving sustained cooperation processes

### 10.2.1. Participatory approaches and involving stakeholders

- **Wide stakeholder consultation**

Stakeholders are any party who may affect or be affected by the outcomes of projects or programs, ranging from governments, regulatory agencies, businesses, communities, civil society and NGOs. Water conflicts tend to put the emphasis on the conflicts of interest between a limited number of persons or on the groups directly involved (such as upstream and downstream users, farmers and herders, urban and rural areas), but an effective agreement cannot be obtained without all other parties to which water issues are important. The perception that agreement is more likely when negotiators are few and powerful is against the construction of social and sustainable agreements to govern water. In the Australian Lake Victoria case, a very wide consultation precluded deals in backrooms by key leaders. Although such deals can be tempting, it was felt that they have a low chance of surviving without strong understanding and support of the various groups in contention.

- **Inclusive approach**

Engaging all stakeholders in the cooperation process implies reaching out to groups who normally do not get involved in water issues, but who could be affected by the outcomes of negotiation. The outcome of cooperation depends on each party having the incentives to act in a particular way. Incentives to change traditional courses of action require a clear understanding of the benefits involved. For instance, in the Murray-Darling Basin (MDB), a new management plan involved a reduction in water security for the many communities dependent on the River Murray. The communities were involved in the negotiation process because they needed to understand the benefits to be gained by taking on that risk so that the new arrangements would be robust and sustainable in the long-term.

The effective and active participation of specific traditionally marginalized stakeholders, such as women or indigenous people must be actively pursued. It does not only consist in opening a communication channel or sending formal invitations to join the discussion. An inclusive approach is only possible if an enabling environment is created for their meaningful participation and sufficient means are provided for them to overcome their limitations.

Experiences in transboundary water cooperation shows that incomplete agreements, those not involving all riparian countries, are easier to sign but difficult if not impossible to implement and enforce. The effective in-

involvement of the smaller and politically or technically weaker riparian countries could be even in the best interest of those countries with that are better placed to impose their conditions in the negotiation table. The active international support to Lao in order to make the country an active and convinced partner in the Mekong agreement is perceived as one of the critical challenges in promoting the sustainable economic development in the Mekong river basins.

- **Representativeness**

Building up of a cooperation agreement requires the acceptance and active compromise of the individuals and stakeholders to whom water and how it is used and preserved is important. Those persons need to be included in the process but not all of them could possibly have a single voice on the bargaining table. Cooperation requires the pre-existence of channels for anyone to be represented in the process and for stakeholders to become real alliances of interest. Success in reaching sustainable agreements requires also the existence of participation channels able to convert the agreement among the few seated at the negotiation table into a social pact to manage water in the interest of all the citizens, the parties, the regions involved.

For instance, in the Green Water Credits project in Kenya, successful implementation relied on “contracts” between downstream water users and upstream water providers. These contracts could not be established between individuals, but by stakeholders’ organizations (like Water Users Associations). To reach effectiveness and self-monitoring it was necessary to group the major stakeholders of major operators and to involve WUAs.

In the negotiation process on the Australian Lake Victoria, the regional Aboriginal community was initially difficult to negotiate with because they lacked processes for the selection of representatives that could negotiate compromises that would then be accepted by the wider society. Some members of the community argued that the institutional practice of selecting and empowering representatives was culturally alien to their traditions.

Lack of representativeness can lead to failures such as that in the irrigation project in Bolivia which consisted in designing the water distribution system, the channels and the plots relying only on a technical model and ignoring the existing land distribution and the social rules used by the community to distribute water traditionally in a non-conflicting way.

- **Gender**

One of the lessons learnt from projects in Kenya and Guatemala was that actively encouraging gender mainstreaming practices helps to ensure that all individuals, male and female, have the opportunity to participate and benefit equally in the cooperation process. Implementation improved and was more cost-effective.

## 10.2.2. Building a shared vision and mutual understanding

- **Shared vision**

Creating a shared vision between the involved parties is highlighted as a key element for effective cooperation processes. It implies building a common understanding of the importance of preserving the water resources as a means to maintain its capacity to provide the water services required for anyone, the flows of services appreciated by each party and the functioning of the environment on which the maintenance of all water related activities depend.

Water scarcity, pollution, floods and droughts, poverty and deprivation and other consequences of unsustainable water decisions provide vivid examples of the need to reverse degrading trends and in many cases are the main driver to start looking for an agreement. Accurate information (possibly through investigations



by a third party) is necessary to underpin this process. The importance of independent and reliable information was an evident ingredient in the Mekong, the Incomati, the ETI and the IW-Learn examples.

- **Transparency and information sharing**

Transparency is emphasized as one of the key principles underpinning effective GEF Transboundary Diagnostic Analysis/Strategic Action Program Processes. It implies that all stakeholders agree to freely share the necessary information and information products. Producing adequate information on water issues, water quality, water uses and sharing this information contributes to strengthening mutual understanding. It often forms a first step in the cooperation process. In the Incomati basin process, it was considered imperative to conduct the negotiations in a structured way; starting with information exchange, via shared understanding of facts, towards ultimately reaching agreement about a shared vision.

- **Exchanging experiences**

Exchanging local experiences and knowledge can also contribute to mutual understanding and accelerate the cooperation process. In a rural cooperative irrigation project in Guatemala, the exchange of local experiences enabled community members to acquire new techniques and practices that they could apply in their communities.

- **Stepwise consensus building**

Cooperation is not a sprint but an endurance course. It must advance step by step depending on the agreements that are possible at each moment. Continue bargaining is often better than pushing up a majority agreement that could be challenging to enforce and might need to be revised shortly. Even the agreement to disagree in a particular moment can be an important step for building confidence and make a better agreement in the future.

Some successful cooperation schemes are based on a collective learning by doing process in which agreements become gradually more ambitious and precise as the group advance in building a shared vision of the problem. For example, building consensus at every step of the process was identified as a key requirement for successful GEF Transboundary Diagnostic Analysis/Strategic Action Program Processes. By including clear stakeholder representation at all stages, consensus-building is more likely, increasing the probability that the outcome will be “owned” by the stakeholders and sustainable in the long-term.

- **Scenario building**

Once a common vision of the water challenges is in place, decisions can be improved by building a shared vision of where society is leading to and how this prospect can be changed depending on the decisions of anyone involved and the agreements reached by all.

Almost all city learning alliances from the SWITCH project developed a shared vision. Scenario-based planning proved a valuable method in SWITCH cities for promoting cooperation between stakeholders and achieving this shared vision. The participatory development of visions, scenarios and strategies was one of the more effective integrating activities that helped to give the learning alliances more coherence and purpose.

### 10.2.3. Dealing with perceptions

- **Perceptions and cultural values**

Independent and sufficient information is but one external condition required for building a common vision of the importance of water cooperation. In addition a change in the peoples’ perception of water may be es-

sential. It implies overcoming, for instance, with the perception that water is abundant and only public works are needed to match water demand and supply. In other situations cooperation might require looking beyond the traditional vision that see water management issues as mostly technical problems not requiring social participation to identify, compare and choose among the options at hand. For example, in the Australian Murray-Darling Basin, cooperation arose by the need to adapt this project to the real society to which it was intended to serve. Engineers and managers running the system changed their original perceptions, namely, that the cultural and political values that underpinned the position of the regional Aboriginal community may not need to interfere with the operation of the system.

Water cooperation may require that the previous or simultaneous change in the cultural perception of water from traditional views to a modern one that recognizes the need and the importance of cooperation.

- **The transition from risk to opportunities and from costs to benefits**

Building a cooperative relationship is by itself an institutional process which most important outcome consists in changing the social arrangements used to cope with water challenges from a conflict and competition to common goals and cooperation.

The transition from risk to opportunity and from costs to benefits in the way people perceive water challenges might be an important precondition to create an institutional setting that favour cooperation.

Bargaining and agreeing on water requires a previous shift from a situation where water problems are mostly perceived as risks (water scarcity, conflicts of use, exposure to natural disasters, pollution threats from neighbour countries, communities or competitors) to another when water challenges are associated to opportunities for improving individuals and community welfare through joint efforts to manage shared water assets.

In the same sense, when conflict and competition is present compromises to use and preserve water are perceived as a burden while as reactive reactions are understandable. Once this perception is changed and the benefits of collective action are perceived cooperation and agreement becomes possible.

- **Intercultural dialogue**

Cultural dialogue is an integral part of the cooperation process. For example, in the water cooperation project in Kenya, communities perceived water as a gift from God and did not consider the need for conservation. As in many other situations it was until the rise of water conflicts –especially during the dry seasons- that people/users understood what they can do to avoid these problems and how cooperation was urgently required.

In the Tiraque-Punata river basin in Cochabamba, Bolivia, an intercultural dialogue was set up to build mutual understanding between different communities and overcome their different (cultural) visions on water management and agriculture. This was essential for engaging in joint irrigation projects.

## 10.2.4. Recognizing the parties individual and mutual benefits

- **Cooperation built on mutual benefits**

Cooperation in the Mekong Delta has been built on the foundation of the perception of mutual benefits among the riparian countries. This created opportunities for development, mobilizing international assistance, and promoting stability of peace in the sub-region.

Cooperation implies understanding how the individual decisions and opportunities of all the parties are interdependent with each other and thus why managing water must be a matter of long term social agreement to preserve these opportunities rather than short term competition to capture their benefits.



- **Satisfying instead of optimizing approach**

A lesson learned from the Columbia River Treaty (CRT) between Canada and the United States was that reaching an agreement is more attainable if a satisfying approach is adopted instead of aiming to optimize cooperative water-related outputs (in the narrow economic sense). Negotiators started with optimization as the goal but were overwhelmed by complexities stemming from the timing, siting, and sizing of the many alternative projects. They eventually agreed that it would be sufficient if cooperative development of the Columbia resulted in benefits to each country greater than those that would accrue to each if independent development were pursued.

- **Strive for win-win agreement**

In the negotiation process between Spain and Portugal on the Albufeira agreement, a key lesson was that negotiators should aim to accommodate all relevant issues raised by the other party. If the agreement is not a win-win agreement, there is a risk that one party will not make efforts to fully implement the agreement and that the expectations will not be accomplished.

- **Voluntary basis**

Real and sustainable cooperation could only be achieved if the parties entered the process on a voluntary basis. This can be achieved when all parties perceive the benefits of the cooperation process. In the case of Mexico and the US, both countries contributed to the transboundary sanitation problem and both would benefit from improving the water quality of the river.

## 10.2.5. Communicating, Raising Awareness, and documenting the process

- **Communication**

Knowledge sharing in a network has specific challenges because members may not have the same values, interests, language and world views; their interests might even be conflicting. Experiences in SWITCH projects revealed that differences in culture, working methods and disciplines of city alliance members were key challenges in the learning alliance process. Communication efforts that help alliance members develop a common understanding of the issue at hand and a shared vocabulary can support the process of moving beyond a platform for exchange to harnessing collaboration around a particular issue.

- **Process documentation**

Process documentation is a valuable tool in action research and learning alliances because it can trigger reflection and debate on what worked, and on what did not work, on blockages along the way and how were they overcome. It can also provide insights into how factors such as historical context, politics and stakeholder relations, or people's beliefs and attitudes impact on the course and outcomes of an intervention.

- **Awareness raising**

Informing national and international stakeholders about the key challenges, upstream-downstream, the interrelationships and cooperation benefits, contributes to raising awareness on the importance of the cooperation process. This contributes to the sustainability of the process. (Examples include Kenya GWC, Sava)

- **Information channels**

To disseminate the information effectively, information channels are needed. New channels can be created and/or existing ones may be mobilized. Local media can play a key role in facilitating this. E-mail and internet provide channels that can be managed easily e.g. by project staff.

## 10.2.6. Generation of trust

- **Recognizing the legitimacy of the interest of the different parties**

Any cooperation process implies the recognition of the different interest of the parties involved. At the end all parties must be interested in the same goal but for very different reasons and these differences need to be accepted and publicly recognized. The early recognition of these differences in the river basin shared between Portugal and Spain has been one of the keys to explain the success of the Albufeira agreements. In the water cooperation process between Jordan and Israel, it was felt that the institutionalization of cooperation was instrumental in building trust and providing solutions for the challenges in the shared waters. The institutionalization of the Joint Water Committee to regularly meet and coordinate from both sides was an essential ingredient of making the cooperative agreement function. The advantage in the case of the Israeli-Jordanian agreement was that there existed a code of practice and the issues were understood by the two sides which provided for easier negotiations.

- **Allowing time for developing relationships based on trust**

Turning a potential conflict into a workable cooperation agreement is a real institutional change that requires the transformation of many cultural values, emotions and perceiving as trustful partners the same persons that were previously seen as rivals or enemies. The importance of allowing time for relationships of trust to develop between the representatives of the different groups was identified as a key lesson learnt in the Australian Lake Victoria case. This was particularly true for the Aboriginal groups involved who had experienced nearly two centuries of dispossession as a result of European settlement of the MDB. Institutions able to represent Aboriginal interests are still poorly developed and highly prone to internal splits.

- **Long-term commitment**

To realize a successful water cooperation process, various stakeholders need to accept the agreements and commit to work on the discussed issues for a long time. Successful international water management is more likely when co-riparian states have a history of harmonious relations. A history of amiable relations enhanced efforts by Canada and the United States to effectively address numerous issues over the use of international and transboundary waters. The cooperation between Spain and Portugal on issues related to transboundary watercourses dating from the 19th century contributed to the successful negotiations on the Albufeira agreement.

- **Participative capacity building for trust generation**

Capacity building in participatory groups allows the stakeholders to share their queries and ideas and contributes to generating trust between the participants and the facilitator. It allows the participants to share what they have learned, discuss problems and inform and sensitize the other participants. This also helps to solve any problems in the process before they turn into conflicts. (Examples include Guatemala and Peru)

- **Joint projects and arrangements**

Joint projects can speed up the generation of trust. This may develop in the process of change of a collective vision where water decisions are viewed as a zero sum game towards a new one that focuses on the joint creation of opportunities through the joint use and preservation of water resources.

In the Mekong Delta, the achievement of the construction of the Lao Nam Ngum dam provided the Mekong Committee with a showpiece for further mobilization of financial support and investment. Other undertakings of the Mekong Committee have also been instrumental in strengthening mutual trust among the riparian countries, such as the Friendship Bridge, and Mekong Ferry Crossing. In the cooperation process between



Jordan and Israel, the storing arrangements of “Jordanian” water in Lake Tiberias in Israel functioned well, which generated trust among the two countries.

### 10.2.7. Adopting an Honest, Flexible, and Open Attitude

- **Honest and assertive**

Honestly and clearly expressing the perceptions on the issue on the negotiation table smoothens the negotiation process. The involved parties may benefit from adopting an assertive attitude. This means that they have to critically assess the arguments and standpoints of the other party and verify if these are coherent.

- **Open and flexible attitude in order to build good relationships**

In the Albufeira case, confidence building and good relationships between the two administrations and the people in charge proved to be important. Maintaining these good relationships in spite of the differences of opinion required the open exchange of points of view on all issues at stake and flexibility to accommodate legitimate points of view of the other party.

- **A Window of Opportunity Approach**

A recommendation coming out of the Albufeira negotiations is to adopt an opportunistic approach. The opportunity to negotiate may well not present itself again for many years. Negotiating parties should take advantage of the moment as sudden political changes may take away the moment. Evading difficult issues by postponing them to the future may not be advisable, as reopening negotiations is always difficult.

- **Pragmatic and practical**

Adopting a pragmatic and practical approach enables the development of concrete “products” such as joint plans, development programs, protocols, etc. These products can form examples of good practices for cooperation processes in other regions.

### 10.2.8. The critical role of third parties

- **Recognizing the diverse and critical role of third parties**

Scientists, technicians, mediators, facilitators and all other agents are called to play a critical role in the cooperation process. The many roles they can play include: providing transparency, helping recognize the benefits of joint actions, finding the balance between the aspirations and the options of each of the parties involved, helping to root discussions on technical and scientific evidence rather than on emotions or ideology, facilitating the access to finance and other resources, etc.

- **Role of scientists**

Epistemic communities (i.e. scholars/scientists) can play a role in negotiation processes; they can for example address issues that are not explicitly on governmental agendas and provide accurate scientific information. Additionally, they might provide fresh approaches to problems that seem to be at an impasse in deliberations among officials. (Examples include the Euphrates-Tigris case)

- **Knowledge brokers**

Knowledge brokers can facilitate the implementation of water cooperation processes. Although time-consuming, the continuous interaction of knowledge brokers with all stakeholders was identified as a key success factor in the implementation of the Green Water Credits projects in Kenya and Morocco.

- **Skilled multidisciplinary team of experts**

In the Albufeira negotiations a skilled team of hydraulic engineers, jurists and diplomats was engaged in the preparation of technical documents, drafts of the terms of agreement and the negotiations. Engineers provided the required technical basis of the agreement. Diplomats as experts in negotiations brought realism and an understanding of the wider implications of the negotiations. Experts on international public law were engaged for their indispensable knowledge and expertise on legally binding documents between governments.

- **Technical negotiations**

Even when the political conditions do not favour or act against the cooperation process, maintaining the discussions at the technical level in the shade will help increasing the possibilities of success once the policy condition are again in place. The Incomati basin case study show how thanks to this continuous contact among experts, once started, negotiations advanced rapidly, Mozambique was able to secure a share of its waters thanks to the technical meetings that continued during the period 1974–91, when the official political relations were almost entirely hostile.

- **Key facilitator role**

The facilitator plays a key role in creating a conducive environment for cooperation. Without a credible and well trained facilitator, stakeholder platforms can easily be dominated by the strongest participants. In the SWITCH learning alliance project the role of the learning alliance facilitator was central to the cooperation process. This role went beyond facilitating meetings and events and involved ongoing efforts to push and pull information, and to engage alliance members and stakeholders outside the alliance.

- **Skilled mediator**

Generating trust among the stakeholders in the cooperation process can form a huge challenge. In the Murray-Darling Basin, the mediator played a key role in winning the trust of all the contending stakeholders, which was crucial for a successful cooperation process.

- **Role of third independent party**

Before coming to an agreement, Israel and Jordan had basic coordination of some of their actions in the Jordan Basin via the so called 'Picnic Table Talks'. This 'umbrella' for discussions on water coordination in spite of the absence of a peace agreement was facilitated by the UN Truce Supervision Organization (UNTSO).

In the Incomati river basin, the role of a third riparian country as broker between the other two riparian countries was acknowledged as a key success factor. In negotiations between Spain and Portugal, the European Commission played an important role at the start before things were handled by both parties on the basis of a good neighbourhood and friendship. The Commission and the Stability Pact for South Eastern Europe positively influenced the negotiations of the Framework Agreement on the Sava River Basin.

## 10.2.9. Dealing with asymmetries

- **(E)quality of cooperation**

Analyzing cooperative activities can reveal (power) asymmetries between the parties involved. On whose terms is the cooperation happening? Research seems to suggest that if parties can engage on more equal terms the prospects for equitable and lasting cooperative processes increase. (Jordan)



- **Equality instead of equity**

The riparian countries have equality of rights, but the benefits shall be distributed equitably. This does not mean that water, when insufficient to cover all the “reasonable and beneficial uses” must be distributed equally but that the agreed distribution must be perceived as coherent with the principle that each State is entitled to use and benefit from the transboundary waters in an equitable manner. Although this equity principle depends on the context, its application provides more certainty and less opportunity for subjectivity. This can result in many different allocation of the benefits that are perceived as equitable, including, for example, the Columbia River Treaty (CRT) in which downstream hydropower and flood-control benefits from upstream storage are equally shared and the but other downstream benefits are not shared across the international border by either Canada or the United States.

- **Compensation for communities**

Agreements over international water management can provide means to compensate communities that will suffer dislocation and other losses from water development schemes. Funds for compensation may be drawn from principal project beneficiaries.

- **Powerful interests versus changing values**

In the negotiation process on the Australian Lake Victoria, it was difficult for powerful interests to continue with business as usual at the time of changing values in the wider society. This gave increasing weight to the claims of groups that were previously politically marginal, in this case the Aboriginal communities. It took the Murray Darling Basin Ministerial Council many years to adopt a new approach.

- **Upstream and downstream**

During the negotiations on the Albufeira treaty between Spain and Portugal, the positions of the two parties were very much influenced by their relative position; Spain upstream and Portugal downstream. It was only when some kind of symmetry was introduced in the draft agreement that the negotiations started moving (e.g. environmental impact assessments on projects with criteria that disregard relative position; minimum flows in predetermined sections both in Spain and in Portugal).

- **Training of personnel as an inclusive mechanism**

Capacity building can contribute to overcoming differences between the riparian countries in terms of relevant expertise, to level the playing field and to make the cooperation and water management sustainable. In the Mekong River Basin, emphasis was placed on the training of riparian personnel in various fields of cooperation, contributing to sustainable cooperation and sustainable development of the Mekong River Basin.

## Annex 1: Specific experiences

### Water Action Hub- CEO Water Mandate of the Global Compact

The **CEO Water Mandate** recognizes that water and sanitation management are vital in both developing and developed economies. Certain areas of the world are experiencing, or are expected to experience, acute water stress. Business organizations have an important stake in helping to address the water challenge faced by the world today. It is increasingly clear that lack of access to clean water and sanitation in many parts of the world causes great suffering in humanitarian, social, environmental and economic terms, and seriously undermines development goals.

The CEO Water Mandate seeks to make a positive impact with respect to the emerging global water crisis by mobilizing a critical mass of business leaders to advance water sustainability solutions – in partnership with the United Nations, civil society organizations, governments, and other stakeholders. The CEO Water Mandate seeks to build an international movement of committed companies, both leaders and learners. In this spirit, the initiative is open to companies of all sizes and from all sectors, and from all parts of the world. As a special initiative of the UN Secretary-General, the CEO Water Mandate offers a unique action platform to share best and emerging practices and to forge multi-stakeholder partnerships to address the problems of access to water and sanitation.

The CEO Water Mandate invites business leaders to endorse its vision and objectives, and to adopt its strategic framework. The Mandate is voluntary and aspirational. Nonetheless it represents a commitment to action. Its structure covers six key areas and is designed to assist companies in developing a comprehensive approach to water management. The six areas are:

- Direct Operations
- Supply Chain and Watershed Management
- Collective Action
- Public Policy
- Community Engagement
- Transparency

The initiative requires the endorsement of a company's Chief Executive Officer, or equivalent. Endorsers of the Mandate recognize that through individual and collective action they can contribute to the vision of the UN Global Compact and the realization of the **Millennium Development Goals**. Participation in the CEO Water Mandate is restricted to existing corporate endorsers of the **UN Global Compact**. However, companies that are not currently signatories of the UN Global Compact may endorse the Mandate provided they intend to join the UNGC within six months of endorsing the Mandate. One key initiative of the Mandate is the **Water Action Hub**, which businesses do not have to be a Mandate endorser to utilize. The Hub is an enabling platform designed to promote collaboration among business and other stakeholders. It helps organizations efficiently identify potential collaborators and engage with them in water-related collective action to improve water management in river basins of critical strategic interest.

### Cooperation in intensively developed aquifers

The intensive development of groundwater is a fact in almost every arid or semiarid region. This usually means that non-renewable or very slowly renewable groundwater resources from long-time reserves are being used.



This is an unstoppable reality linked to short- and long-term benefits and costs that besides the hydrological consequences has important economic, social, and ecological implications in many countries, which affect the present and the future generations. They need a deep analysis that goes beyond what has been commonly carried out up to the present, and a revision of part of current water resources policies.

## Cooperation experiences in Spain

Spain is an interesting case of how early the social perception about the importance of water for economic development leads to practical and successful cooperation arrangements. For instance the Valencia Water Tribunal (*Tribunal de Aguas de Valencia*) has been settling disputes over irrigation water for more than a thousand years and its still uncertain origin can be traced back to the Roman Empire. From the 8<sup>th</sup> to the 15<sup>th</sup> century many water associations were formed to develop and manage irrigation schemes such as the 'azudes' (small water reservoirs and water diversions from rivers) and the 'azarbes' drainage systems ensuring the water supply for downstream users. In all these cases water scarcity, resulting from low and highly variable rainfall, has probably contributed to recognition of the need to find effective cooperative arrangements for solving water conflicts and coping with water scarcity. Since the end of the 19<sup>th</sup> century, a number of agreements appear to join efforts and financial resources to help address the many challenges and harness the opportunities posed by water. This happened in Valencia, where rivers run dry for the most part of the year but floods are common in the rainy season, but also in the Ebro river valley where rain and runoff is more stable but still highly variable and the resource supply is very low during spring and summer when demand for irrigation water is highest. Total water resources might be of an equivalent quantity as existing demand, but their distribution in time and space means not all needs are can be met. Reconciling supply and demand is clearly beyond the capacity of any individual user, especially in areas such as the Ebro and the Jucar where the rural economy was not controlled by a few landowners but by many medium and small farmers.

Shifting from rainfed to irrigated agriculture might be the cornerstone to overcoming the subsistence production system and transforming it into a prosperous agricultural system. But this will not only require installing the pumps and the irrigation devices needed in each plot, but bringing in the social, technical and financial capacity to build the infrastructures required to store and distribute the water through time and space. If competition for the limited and variable resources available was the cause of many problems and social unrest, cooperation and the setting of shared, transparent and enforceable water use rules was fairly rapidly perceived as the solution. And if poverty and the lack of financial resources was the constraint impeding the development of water resources, pooling financial means and agreeing on sharing the benefits of collective efforts was perceived as the key to start agricultural development.

This explain why in many parts of Spain, water authorities were not the result of a policy decision to gain control over water resources, but of a bottom-up approach motivated by the interest of many entrepreneurs (not just farmers but merchants, constructors, transport entrepreneurs, electricity producers, etc.) to make water an integral part of what was perceived as a promising development strategy. The creation of water authorities about a century ago owes more to the spontaneous cooperation among private entrepreneurs, than to the initiative of a politician or civil servant. Initially these associations were called syndicates (e.g. of farmers, fishermen, builders, etc.). The first river basin authorities, the Ebro founded in 1926 and the Segura in 1931, were created as private-public partnerships for water development. Although these entities were progressively transformed into government institutions (as they have been at least since 1958) due to their origin, users have always had a voice in any important decision and formal mechanisms do exist to channel water users' views and preferences.

The institutional framework, in particular since 2002 when the process to draft new River Basin Management Plans required by the EU Water Framework Directive started, has moved towards more active and transparent stakeholder involvement including:

- Collective and cooperative decision-making, which allows choice from among the range of the available options and decides not only what pressures are acceptable, but also determines the desired ecological status of the rivers, when and how this status is to be achieved, what uses, under what circumstances, and so forth. In the new context, rather than being a technical problem, water management becomes a collective policy dilemma.
- Public participation conceived as a means to communicate the main water policy challenges to society and share information about the expectations of the different stakeholders, e.g. water users with potentially conflicting demands and compatibility with the objectives of preserving water resources. Participation is a means of choosing a collective course of action and overcoming vested private and short-term interests in favor of a social and long-term perspective on water management problems.
- A social opportunity to build a management system with the aim of being ethical, efficient and sustainable within the whole basin framework.
- A cooperative model that includes all stakeholders within the shared authority of the watershed organization. Participation is seen as a cornerstone from the top to the bottom: from the water council of the river basin through a participatory network reaching all the sub-basins in the river basin.

Public participation in water management in Spain is complex. Today's system is the result of the last 100 years of interactions between different stakeholders under changing political and economic conditions. Water differs significantly from other 'public domains' and public participation therefore takes a number of particular forms. It is important to distinguish between participation at different scales of river basin management; the different aspects of water management open for participation and the different levels of participation. It is important then to distinguish between participation at national, river basin, regional, and local scales. There is participation in policy-making and legislation development; participation in planning decisions; in investment infrastructure decisions; in management decisions; and in 'administration' and regulatory decisions. Participation also varies depending on whether there is an advisory role, decision-making role, implementation role, and monitoring and/or evaluation role for those that participate in the different types of water management activities.

The rich history of public involvement in water policy has resulted in the current existence of many different institutions in charge of channeling public concerns about water. These include:

- The National Water Council
- The River Basin District Committees
- The Users Assembly of RBAs
- The Exploitation Boards of the RBAs
- The Dam Management Commissions of the RBAs
- The River Basin Councils
- The Committees of Competent Authorities (created with the Water Framework Directive)
- The Irrigation Associations
- The Users Associations
- The Irrigation Juries



- The Irrigation Tribunals
- The General Communities
- The Central Assembly of Users
- The Communities of Discharge Authorizations Holders.

Cooperation and users' involvement is an integral part of Spanish water policy and of the institutions managing water in Spain. The conflict resolution schemes have allowed the gradual establishment of common and transparent rules that have been effectively enforced to settle disputes peacefully. Public participation also provides a useful institutional framework to agree on practical, observable and enforceable environmental objectives as demonstrated when setting the targets for the status of water bodies, minimum flows and drought indicators.

## Water cooperation: some Spanish schemes

### Stakeholder platforms at river basin scale

River basin authorities in Spain are models of stakeholder involvement in planning and management. They were founded as private-public partnerships to develop collective infrastructures able to support economic development based upon the agro-food and electricity industry made possible by the construction of more than 100 multipurpose dams. Users are represented and take part in most of the decision-making process. Empowerment and participatory budget are key driving factors to explain the austerity in water management. Both hydroelectricity and irrigation users see the participation scheme as valid one for building trust and make democratic decisions but complain about the growing public pressure to give a greater role and voting capacity to the users and their associations.

Making sustainable decisions about water management requires an appropriate institutional set-up which must be able to reach social agreement among all water users in the river basin. This requires considering trade-offs, exchanging information, and building a common and shared vision of water as a collective rather than privately-used asset. This also requires reaching agreements to reconcile the needs and expectations of all the users (households, farmers, manufacturers and entrepreneurs in the many water-using economic activities) with the actual and limited capacity of the existing water resources to meet these demands sustainably.

The Water Councils of each river basin have the ambitious task of managing the public participation process and being the focal point of the policy-making process for any important decision concerning water management. The Council is in charge of approving the River Basin Plan; of assessing the problems and opportunities in the basin; and of informing any development initiative which will have significant impact on the status of water bodies (including house construction, manufacturing developments, irrigation projects, etc.).

Although they were created relatively recently, as a requirement of the implementation of the Water Framework Directive, the Councils are a natural continuation of the public participation mechanisms already in place. Particularly in the Ebro basin, the creation of the Water Council in October 2011 was seen as a form of enhancing and adapting the multiple entities that have played this role in recent decades with relative success and social acceptance.

### The Water Operators' Association

Since 1971, the Spanish Association of Water Supply and Sanitation (AEAS by its name in Spanish), has been a pioneering professional non-profit organization for the promotion and development of the scientific, technical,

administrative and legal aspects of urban water supply and sanitation. The objectives of the Association are to promote and develop urban water services to improve efficiency; meet the needs, expectations and interests of present and future citizens; protect water resources; ensure lasting use; and protect the environment.

AEAS currently has 330 partners and integrated operating entities in association serving more than 35 million people in more than 1,700 municipalities. As a means to achieve these ends, AEAS works with national authorities; promotes training, understanding and knowledge sharing between industry professionals; collaborates in the activities of associations and organizations, whether national or international; organizes conferences and meetings; and publishes technical publications.

### The Cooperation Fund for Water and Sanitation (FCAS)

FCAS is the instrument chosen by the Spanish government to help ensure access to safe water and sanitation to the neediest populations in Latin America and the Caribbean. The lack of these basic services is one element that keeps millions of people in poverty, and has a negative impact on health, education, gender equality, and environmental sustainability in the region. It represents the commitment to implement the human right to water and sanitation, as set out in the Third Master Plan for Spanish Cooperation, and is expected to make an important contribution to achieving the Millennium Development Goals.

The Fund is an initiative of development cooperation embodying the principles of the Paris Declaration (PD) on Aid Effectiveness to Development. Established in 2007, it began operations in 2008 and is endowed with 1,500 million dollars. The Fund supports water and sanitation programs and projects in partner countries of the region, giving priority to the poorest and most vulnerable populations. It focuses on initiatives that provide infrastructure; assist in establishing systems of governance, give technical advice to help build efficient, transparent and participatory services; and strengthen institutions and agencies of recipient countries to promote the design and implementation of comprehensive policies to ensure the sustainability of water resources.

The Fund is managed by the Spanish Agency of International Cooperation for Development (AECID), through the Directorate of Sectoral and Multilateral Cooperation AECID, where the Department is part of the Cooperation Fund for Water and Sanitation. It is provided with an Executive Committee which includes several ministries related to the subject, and an Advisory Board involving public, private and NGO actors.

### The Aragon Water Pollution Fee: a fair instrument to share costs

Guaranteeing the ecological quality of all the water bodies across a country or region is one of the ambitious tasks of the current water policy in Europe. Although reaching this target is feasible within the range of the existing technical capabilities, practical implementation requires addressing many financial and distributional issues. Many small and medium enterprises might not be in the position to pay for the water treatment required without compromising their business viability in the medium term, small rural hamlets cannot benefit from the scale economies and the relative cheap costs of collecting and treating each cubic meter of waste water in big towns, and the ability to pay of each single household depends on the distribution of income.

The water disposal charge recently approved in Aragon is an innovative solution to cope with the above mentioned challenges that, instead of setting individual prices for users and places, sets a common environmental tax that will serve to share the costs of reaching and protecting the environmental quality of all the water bodies across the whole territory. If the benefits of preserving the water sources are collective, these should be generated via a collective mechanism. This way water becomes more a social responsibility than a private one, the places where water quality objectives are cheaper to reach can cross-subsidize more expensive areas



and the overall objective of improving water quality does not depend on the differences between the ability to pay of any particular user.

## ZINNAE, Urban Cluster

*The city of Zaragoza takes great pride in the way it has managed its water. It has achieved impressive results in reducing water losses, increasing investments in wastewater treatment, and above all, it has obtained high degrees of participation in aspects of water management from citizens, organized civil society and local government departments. All of this culminated in the 2008 Expo held in Zaragoza with the theme 'water and sustainable development'. (SWITCH project)*

One example is the ZINNAE Urban Cluster for the efficient use of water. It integrates the main economic agents that are linked with water efficiency in the city of Zaragoza: companies of different nature (water saving technology, water measuring and meter-reading technology, water supply, water treatment, sanitation, water facilities, etc.), the main research and training centers in the region, as well as the local, regional and national water public administrations.

ZINNAE brings together a varied critical mass of companies linked to the water cycle, covering different activities related to the efficient use of water (supply, treatment, products, green areas, etc.). Zaragoza has an impressive track record of achievements related to water quality improvement and water demand reduction. The city hosts research and training centers linked to water and energy efficiency. The 'Zaragoza, Water Saving City' project has been running since 1997, with the objective to save water and to use it efficiently in the city through both behavioral and technological change. Thus, the city becomes a space for permanent demonstration and an innovation forum for projects related to urban water use.

## Riegos del alto Aragon

(Source: Hispagua and web page of Riegos del Alto Aragon)

Since 1898 water users and other public water assets that benefit from the same outlet or concession must be established as user communities. The role of the user communities is the internal management and planning of water rights and other assets under the supervision of the River Basin Authority. They are corporations of public law and have their own legal identity. They are governed by its statutes and ordinances which are approved by the River Basin Authority, which in turn can only withhold approval or introduce variations with the approval of the National Water Council. The WUA acts in accordance with the procedures established in the Water Act and the Statutes and Ordinances, in accordance with the provisions of Law 30/1992.

In 1952 the WUA 'Riegos del Alto Aragón' was created. The main objective of the WUA is to perform functions of policing, distribution and administration of water and dealing with all conflicts that may arise among the users and the different communities in the system. The WUA includes 58 sub-communities with 125,000 hectares of crops and provides drinking water to 114 local communities in Huesca and Zaragoza and to ten industrial areas. Around 25,000 families live from the irrigation crops: rice, maize, fruit, and vegetables, among others. Water is distributed through 2,000 km of channels and 3,000 km of return flow channels.

Generally the users associations have the following bodies:

- *Meeting or Assembly*  
Formed by all users, this is the sovereign body. Their agreements are executed immediately.

- *Governing Board*  
Elected by the General Board, this is responsible for enforcement of ordinances and resolutions adopted by it and by the General Meeting.
- *Jury*  
This deals with issues between users and violations, imposing sanctions, penalties, indemnities and obligations. Its judgments are executed immediately.

## Stakeholder participation in water planning in Navarra

The CRANA foundation, supported by the European Commission and the Navarra Government, develops community-based cooperation schemes to restore rivers in order to mitigate flood risk. The program has implemented cooperation schemes along entire river stretches. This has been possible due to the use of relevant technical information and the creation of a discussion space to identify and compare measures to recover the ecological status of the river and build a collective purpose. As part of a social learning experience, public participation makes reaching an agreed solution more likely and improves knowledge and social awareness.

## Key issues in cooperation experiences in Spain

It is fundamental to **clearly define water use rights**. This includes provisions required to coordinate uses in the headwater and downstream areas, among activities such as mining and agriculture (as in Peru) and trade-offs between hydropower and irrigation developments (as in Egypt), as well as provisions for defining prices for water use. Maintaining a record of the existing property rights is challenging even for countries with advance water management institutions (e.g. Spain) due to historical changes in land use and legislation and due to scarcity and droughts.

**Registry and enforcement** of water use rights is easier in users-based water management: irrigators' communities have incentives and means to maintain transparent and effective control of water rights and ensure that water is used efficiently (as in the Maestrazgo in Spain). The need for collective action has been recognized, particularly to curb the depletion of groundwater caused by competing individual interests and actions. Only cooperation and social rules have the potential to reverse these trends and guarantee the sustainable use of water (as in Saudi Arabia). Users' organizations seem to be in a better position to tackle these sorts of problems (as in similar aquifers in the Mediterranean area).

**The scale for water management.** One of the less debated principles is that the river basin is the best scale for water management. Basin or sub-basin scales are defined as combinations of existing local or regional political or administrative units (as in Bolivia) and sometimes, although water plans are set at a basin scale its implementation requires coordinating different government levels, municipalities, economic sectors, local organizations and might give rise to sensitive regional concerns or perceptions of centralization of decisions (the ideal river basin scale might not be the one in which decisions are easiest to implement). Pilot basins might work as transitional solutions and might serve as a test for institutional changes in the interim.

**Defining and enforcing water prices** in order to finance the sustainable provision of water services is also a challenge. Distinguishing between a price for the raw water, covering the costs of the public services and the costs associated with guaranteeing the sustainability of supply, and the price of other services like transport distribution and treatment might be a way to both improve the sustainable provision of water and the financial sustainability of water utilities (e.g. the water prices in Spain).