

WETLANDS TAKE CARE OF WATER

2 February
World Wetlands Day



CONTENTS

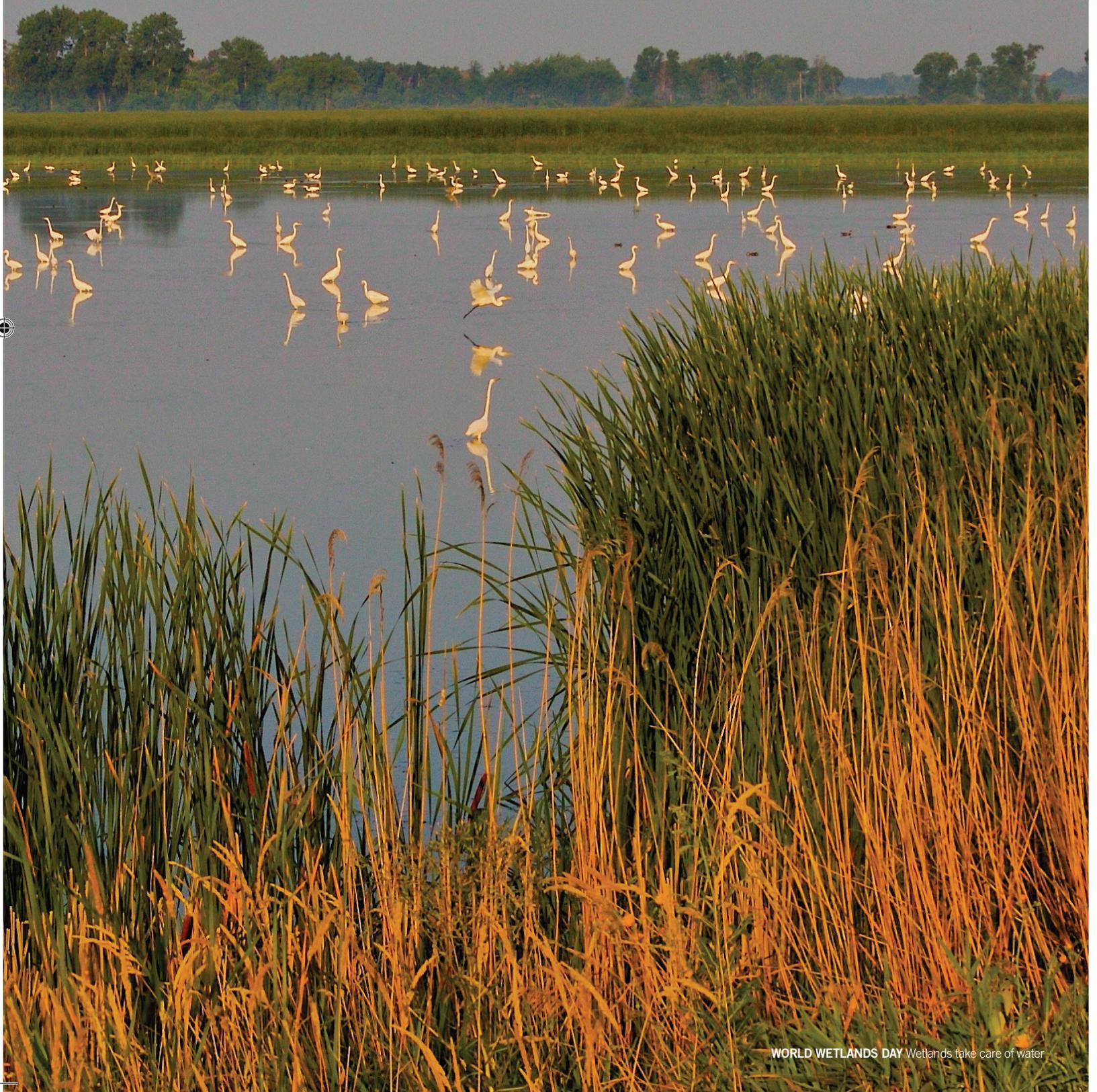
Wetlands and water management - the big picture	1
Ramsar, wetlands and water management.....	2
Who manages water?	3
The challenges for water management	4
Some water management perspectives.....	7
What can we do?.....	11
Ramsar & UNESCO.....	13
Recommended reading.....	13



This poster has been made possible thanks to the Danone/Evian Fund for Water



*Horicon Marsh Ramsar Site,
United States of America ©Jack Bartholmai*



WORLD WETLANDS DAY Wetlands take care of water





WETLANDS AND WATER MANAGEMENT - THE BIG PICTURE

“Thousands have lived without love, not one without water.”

W.H. Auden

All life on the planet depends on water. In designating 2013 as the UN International Year of Water Cooperation, the United Nations General Assembly recognizes that water is critical for sustainable development and for human health and well-being. This recognition is not new - Leonardo da Vinci captured the importance of the issue when he proclaimed that ‘Water is the driving force of all nature’.

The rise of the earliest great civilisations such as in the river valleys of the Nile, Tigris-Euphrates, Indus-Ganges and Yellow Rivers was dependent on the management of water and the benefits it provided. Yet human history is littered with examples of once thriving civilisations that are now no more than archaeological treasures buried in desert sands. In some cases the demise of these civilisations has resulted from a failure to manage water or to appreciate the delicate balance between wise use and exploitation. And human societies today continue to attempt to conquer and command water. However, water cannot be commanded.

As with the early great river civilisations, integrating the management of water, land and people remains a major

challenge for the 21st century. **Water is a critical natural resource upon which all socio-economic and environmental activities depend.** The UN Millennium Development Goals, the Ramsar Convention and a range of international and national initiatives (e.g. UNEP’s Green Economy initiative, the Aichi Biodiversity Targets) all highlight the importance of understanding the pressing need to resolve water management issues in an integrated, cooperative and holistic manner.

Water fundamentally connects. From source to sea and through the never-ending water cycle, water connects all corners of planet Earth. The Ramsar Convention recognises that wetlands occupy a key position in this interconnectivity and that the **wise use of wetlands is essential for the delivery of sustainable water management.**

The theme for World Wetlands Day 2013 is Wetlands and Water Management. Ramsar has always had the nexus of water, people and wetlands at its core. Wetlands constitute a resource of great socio-economic, cultural and scientific value, and their loss would be irreparable. Wetlands deliver essential ecosystem services, or the benefits people



Traditional water management at a Ramsar Site, Algeria ©Ammar Boumezbeur



Lake Burullus Ramsar Site, Egypt ©G. Mikhail



Large-scale irrigation to support agriculture ©istockphoto

obtain from nature, including acting as regulators and providers of water. Thus water management and the “wise use of wetlands” are inextricably linked. **The key objective of World Wetlands Day 2013 is to raise people’s awareness of the interdependence between water and wetlands, to highlight ways to ensure the equitable sharing of water between different stakeholder groups and to understand that without wetlands there will be no water.**

© istockphoto





RAMSAR, WETLANDS AND WATER MANAGEMENT

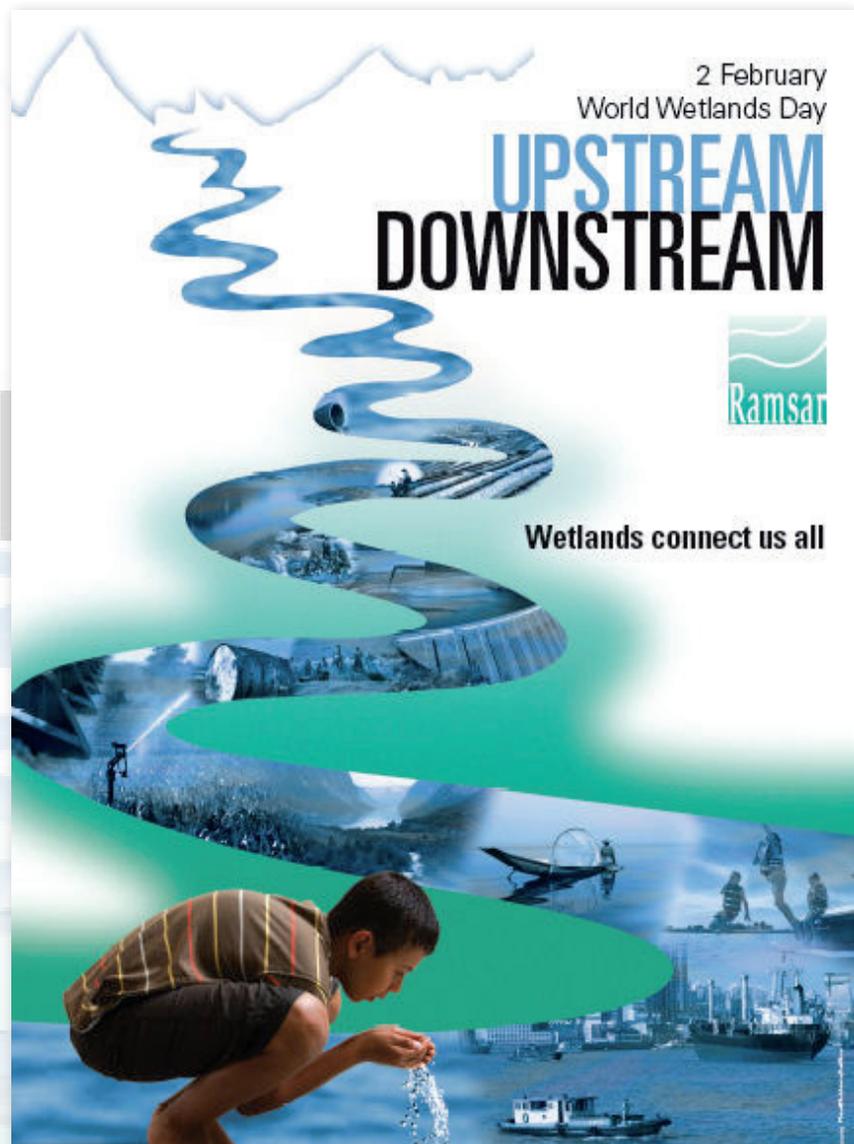
Access to a clean and adequate supply of water is a basic requirement for human survival. We constantly underestimate the role of wetlands as basic water management elements within the supply and regulation process upon which humanity depends. Impacts from changes in land use, water diversions, and infrastructure development continue to drive the degradation and loss of wetlands. Access to freshwater is declining for 1-2 billion people world-wide, and this in turn negatively affects food production, human health, and economic development, and increasingly it is resulting in social conflict.

The Ramsar Convention has long recognised the mutual dependency of water and wetlands. The preamble to the Convention text recognises that **wetlands are fundamental regulators of water regimes.** Since the Conference of the Contracting Parties in 1996, Ramsar has widely recognised that not only is water crucial for maintaining the important ecological functions of wetlands, but also that wetlands should be considered as essential components of overall water management infrastructure. Water management, therefore, and the Ramsar *wise use* concept, become vital for a sustainable future. To deliver wise use, which maintains the ecological character of a wetland, requires approaches to decision-making and management that are based on the ecosystem and operate at the basin-scale. Managing wetlands to support basin-scale water management and delivery (and *vice versa*) is essential. **Without the appropriate management of wetlands there is no water of the right quality and quantity, where and when it is needed.**

What does Ramsar have to say about wetlands and water? The Convention has produced a range of formal water-related guidance published through its Wise Use Handbooks. Handbook 8 *Water-related guidance: An Integrated Framework for the Convention's water-related guidance* (4th Edition) recognises that **wetlands are the primary resource from which**

humans derive water and they are a major and critical component of the water cycle that keeps us supplied with water.

A key message for World Wetlands Day 2013 is that we need to reconsider our view of wetlands within water management and recognise that the water resource requirements of human society are delivered by and through wetlands.

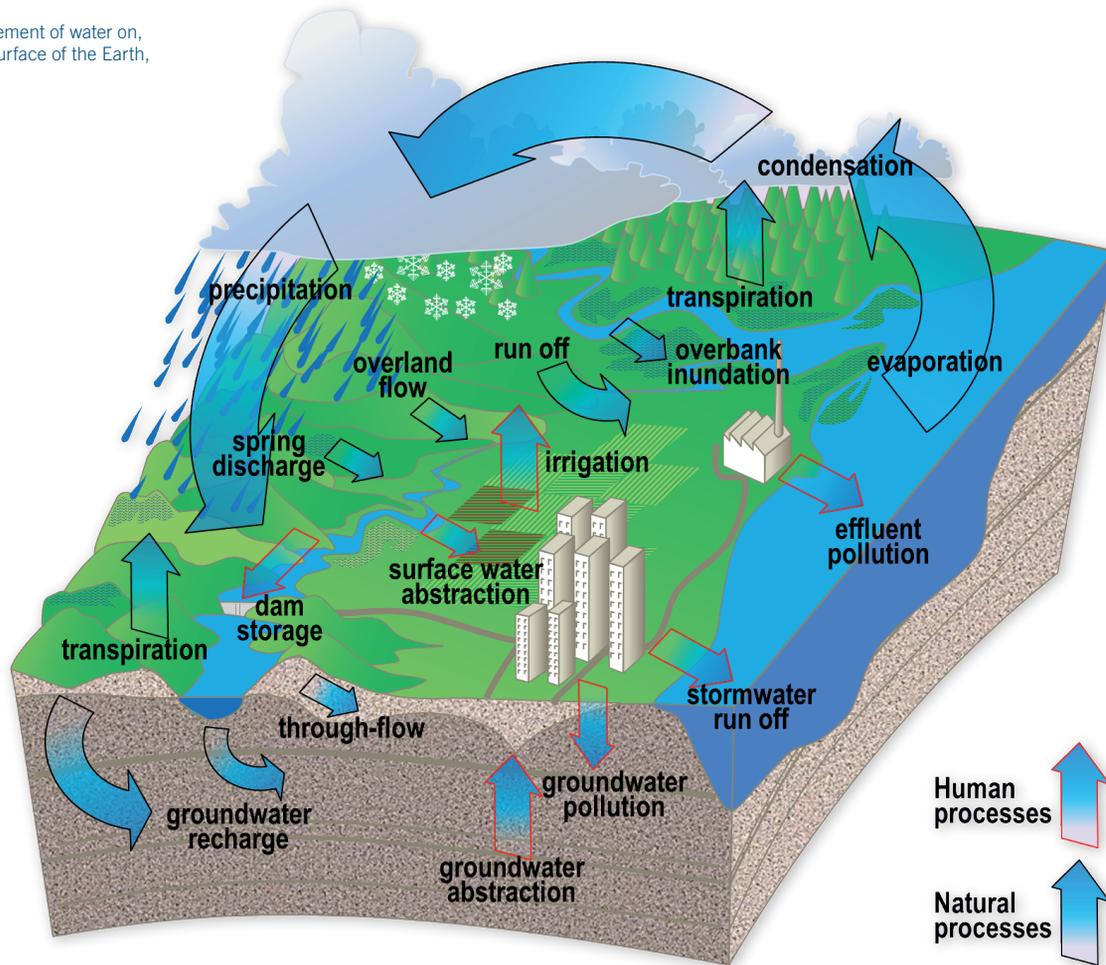


Poster for World Wetlands day 2009 with a focus on river basin management

THE WATER CYCLE

– the continuous movement of water on, above and below the surface of the Earth,

© Rob McInnes



WHO MANAGES WATER?

We are all water managers, not just the water companies or government regulators. Every time we turn on a tap or buy food we are responsible for a small element of the much larger water management cycle. At the most basic level, each human body on the planet contains more than 60% water.

The water cycle links atmospheric, terrestrial, aquatic, subterranean and marine ecosystems. Water moves around our Planet through complex interactions such as rainfall, evaporation, infiltration, surface flows and groundwater recharge. Wetlands can occupy vital positions through every stage of these interactions. From direct abstraction of groundwater to indirect impacts on global atmospheric processes, human activities impact upon this never-ending cycle of water. Changes to one part of the system can

result in unintended consequences in other parts of this interconnected cycle.

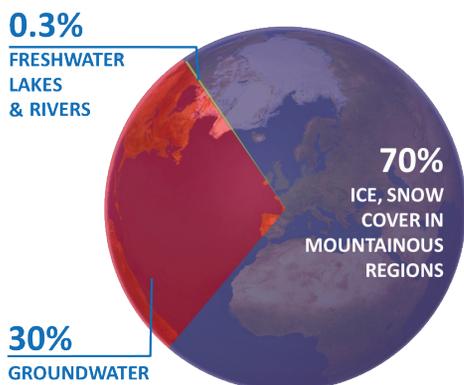
Human society is responsible for the management of water and, *de facto*, the management of wetlands. The responsibility to manage water extends across sectors, governments, nation states and individual citizens and should be recognised as an activity that requires cooperation and integration from local to international levels.

The links between water and wetlands are fundamental. Ramsar recognises that there is an urgent need to improve water governance and how wetlands are considered within integrated water management strategies. **Wetlands should not be viewed as competitors for water but rather as essential elements of water infrastructure within water management.**

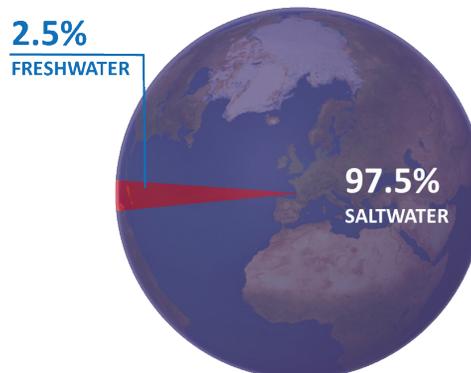
Wetlands are 'water providers', processing and purifying water. They are also 'water users': they need a certain amount of water input if they are to continue to supply the water output, not to mention the many other services and products they provide for humans. Their role in water cycles is integral to water resource management from the level of a local pond right up to trans-national river basins. Just as we are all water managers, **we all need to take responsibility for the wise use of wetlands in order to keep humankind supplied with water.**

THE CHALLENGES FOR WATER MANAGEMENT

Breakdown of freshwater resources



Total World Water



Total volume of water on earth and breakdown of freshwater resources.
Sources: United Nations Environment Programme (UNEP)

OUTLINING THE CHALLENGES

The total volume of water on Earth is about 1.4 billion cubic kilometres. The volume of freshwater resources is around 35 million cubic kilometres, or about 2.5% of the total volume. Only 0.3% of the freshwater resources are in our rivers and lakes. The total usable freshwater supply for ecosystems and humans is about 200,000 cubic kilometres of water, or *less than 1%* of all freshwater resources.

Every day, each one of us requires 20-50 litres of clean water, free from harmful chemical and microbial contaminants, for drinking, cooking and hygiene purposes. Yet in the 50 years from 1950 to 2000, human population growth has reduced the amount of available freshwater per person by 60%. Currently 884 million people (12.5% of the global population) are living without safe drinking water and 2.5 billion (two fifths of all humans) do not have adequate sanitation. **Sustainable water management is a key global concern - and a matter of life and death for a huge number of people.**

In addition to individual needs, such as water for drinking, cooking and

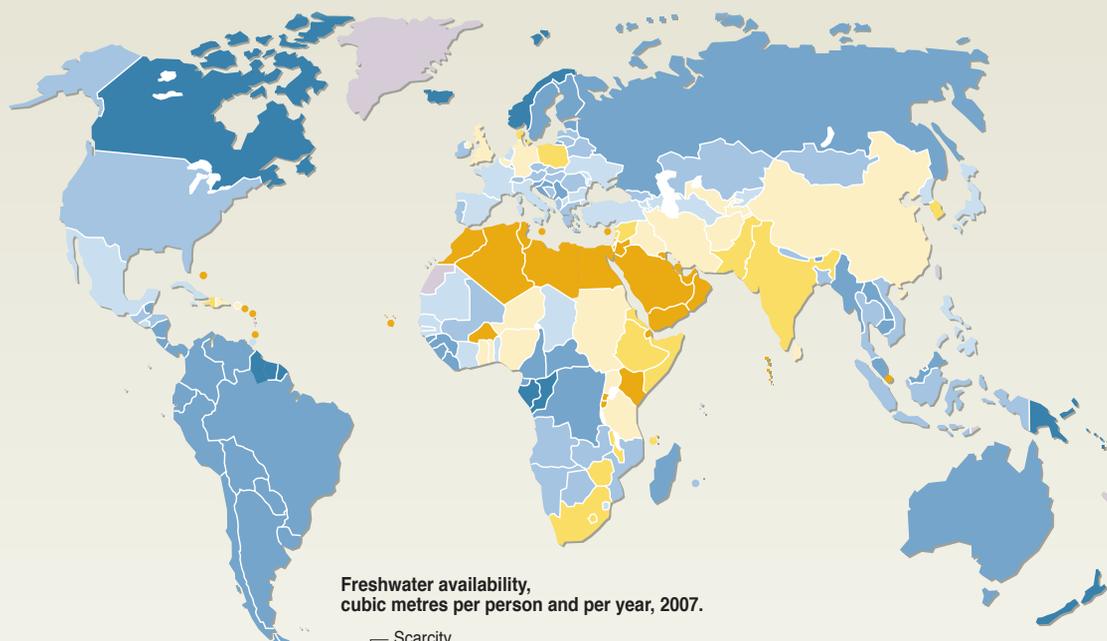
washing, we use vast water resources to satisfy our many other needs – such as producing food, paper, cotton clothes, etc. Agriculture alone accounts for 65-70% of global water use and is often a relatively low-value, low efficiency and highly subsidised user. **To deliver successful water management it is important to understand both direct and indirect water use from the perspectives of both consumers and producers of goods and products.** Understanding the ‘water footprint’ of an individual, a community or a business, or the total volume of freshwater that is used to produce the goods and services consumed by them, is an essential element of sustainable water management.

Of course with our desire for material things in this modern world our water footprints are becoming increasingly unsustainable. Water usage has been growing at more than twice the rate of population increase in the last century, and, although there is no global water scarcity as such, an increasing number of regions are chronically short of water. **By 2025, 1.8 billion people will be living in countries or regions with**

absolute water scarcity, and two-thirds of the world population could be under water stress conditions. The situation will be exacerbated as rapidly growing urban areas place heavy pressure on neighbouring water resources and associated wetlands.

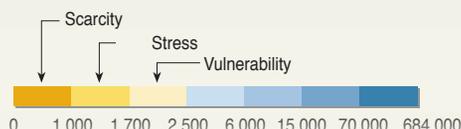
How do we ensure access to precious water resources for a growing population whilst ensuring the future protection of the very ecosystems upon which we depend? This is where recognition of the fundamental ecological functions of wetlands as regulators of water regimes comes into its own. **Wetlands are the earth’s natural water infrastructure, providing a clean source and store of freshwater. Their loss and degradation directly intensifies water supply issues and compromises human well-being.**

Just as water scarcity and security are not issues confined to the water sector but are really societal issues, **the role of wetlands in ensuring the security of water supply is also a matter of societal choice.** Governments and individual citizens can affect future decisions.



Source: FAO, Nations unies, World Resources Institute (WRI).

PHILIPPE REKACEWICZ
FEBRUARY 2008



Data not available

Global water stress and scarcity, © Philippe Rekacewicz for cartography commissioned and published by GRID-Arendal

Often water management issues extend beyond individual nations and across international boundaries. For instance, transboundary water basins cover more than 40% of the European and Asian land surface. In Africa there are more than 60 transboundary rivers and international river basins covering 60% of the continent. The water cycle embraces local to global processes. Water management boundaries do not always conveniently align with geo-political boundaries. **Transboundary cooperation is crucial where river basins span national (and local) administrative boundaries.**

Water underpins all aspects of a modern economy. Investment in water management infrastructure is big business and can be a key driver of economic growth and poverty reduction. It has been estimated that the cost of attaining Millennium Development Goal targets for water and sanitation could be as high as US\$30 billion per annum at a global level. However, wetland ecosystems are still largely left out of water economic equations. In order to correct the water management balance sheet wetlands can no longer be ignored when formulating

policies, shaping markets or rationalising investment decisions. **There is a need to place water at the heart of a green economy and to recognise that working with wetlands as water management infrastructure can be a cost-effective and sustainable way of meeting a diversity of policy, business and private objectives.**

Water management in all its forms is complex. There is not one solution that will fit all situations but experiences show that adaptive management processes that engage stakeholders and slowly build on management achievements and successes are essential tools for achieving sustainable economic, social and environmental outcomes. Processes, such as Integrated Water Resource Management (IWRM), incorporating river basin management, replace the traditional sectoral approach to managing wetlands and water resources and ensure that the complexities are embraced, rather than ignored or used as an excuse to prioritise investment decisions away from protecting natural wetland infrastructure.



@istockphoto

Water stress, water scarcity – what does it mean?

Hydrologists typically assess scarcity by looking at the population-water equation. An area is experiencing water stress when annual water supplies drop below 1,700 m³ per person. When annual water supplies drop below 1,000 m³ per person, the population faces water scarcity, and below 500 cubic metres “absolute scarcity”.

www.un.org/waterforlifedecade/scarcity.shtml



GOVERNANCE CHALLENGES

Managing water requires appropriate governance arrangements. Increasingly this requires that decisions regarding water management move from the margins of government to the centre of society. On national and local scales, appropriately funded infrastructure and adequately funded robust governance mechanisms are required to protect water resources and ensure sustainable development and, alongside this, more equitable sharing of water-derived benefits. The socio-economic impacts of limited access to water and sanitation are substantial. For instance, estimated annual losses in GDP associated with this in India, Ghana, and Cambodia are 6.4%, 5.2% and 7.2% respectively. There are real concerns about water resource availability on national and regional scales but often, on a local level, profound failure in water governance arises from poverty, a lack of political will, inequality and power imbalances.

Water resources are often managed in separate sectors, such as agriculture, health and development, with each focused on meeting specific objectives, rather than as part of an overarching framework that balances different water uses to optimize and share its various benefits across society and the economy. This **fragmentation of governance increases risks to the sustainability of water resources, may result in unintended negative consequences, and compromises the delivery of wetland ecosystem services.**

Sound wetland and water management requires an integrated, multi-sectoral and multidisciplinary approach, recognising the cross-cutting nature of water resources. A diverse range of government agencies, civil society organisations, private sector concerns and individuals are involved in water and wetland

management. Decision makers need to collaborate in a more integrated way so that policy and practice are better linked and truly reflect the realities on the ground. This can be achieved through the adoption of principles and processes which incorporate issues of equity, efficiency and environment.

The Ramsar Convention brings together this community of policy and practice in the only international convention focused on a particular ecosystem type. In adopting the wise use approach, strategies have been introduced to safeguard and enhance the livelihoods and needs of people who live in and around wetlands, thus protecting water resources for this and future generations.



10 countries share the Nile River basin
©2011 Google

SOME WATER MANAGEMENT PERSPECTIVES

TRANSBOUNDARY WATER MANAGEMENT

Approximately 40% per cent of the world's population lives in river and lake basins that comprise two or more countries, and perhaps more significantly over 90% lives in countries that share basins. Globally there are 263 shared water basins which hold 60% of fresh-water supplies, involving 3 billion people in 145 countries. In addition, 2 billion people rely on groundwater and there are an estimated 300 transboundary aquifers. As well as shared basins, there are many transboundary wetlands and lake systems – and there may even be challenges *within* countries where there are strong federal systems!

Transboundary waterbodies face hydrological, social and economic interdependencies between societies' challenges. Upstream water consumption for agriculture, industry, energy and for

use in settlements can result in water conflicts with downstream communities, putting pressure on water resources and jeopardising the maintenance of ecological character as well as the provision of a range of ecosystem services.

Transboundary water resource management agreements and governance structures involving all parties and stakeholders, often delivered through IWRM, are essential for resolving conflicts and reaching agreements on water management. The good news? At the international level water appears to provide reasons for transboundary *cooperation* rather than *conflict* with 105 of the 263 shared water basins having some form of cooperative management agreement.

The UN General Assembly Resolution on the "Law of Transboundary Aquifers" and its annexed draft articles (UNGA

Res. A/63/124) is an example of an international water law instrument that offers guidance to policy makers in formulating bilateral and multilateral agreements for the peaceful sharing of transboundary aquifers.

Ramsar plays an important role by emphasizing the need to manage wetlands at the basin level, with the Convention providing countries with the necessary tools to achieve this. Ramsar also formally addresses the need for countries that 'share' Ramsar Sites to designate them as transboundary sites which they manage jointly in a coordinated way and involving collaboration across borders with sharing of information and expertise, and development of joint management planning processes.



©Tobias Salathé

A TRANSBOUNDARY RAMSAR SITE

The three Ramsar Sites, Neusiedler See-Seewinkel (Austria) and Fertő and Nyrkai-Hany (Hungary), were declared a Transboundary Ramsar Site in 2009 – the culmination of over half a century of increasing cooperation.

In the early 20th century, deep channels were created to evacuate flood waters from the lake to the River Raab and to minimize seasonal lake water level fluctuations. By 1956 an Austro-Hungarian Water Management Commission had been established to regulate the operation of a new sluice that limited the lake water level fluctuations.

This transboundary approach was essential with the sluice gate and most drainage

channels on the Hungarian side and 80% of the lake itself in Austria.

While cooperation on water management was recognized as being essential, transboundary cooperation for nature conservation is more recent. The management of the area is now essentially coordinated by two National Parks, established in Hungary (1991) and in Austria (1993), which work in close cooperation. The challenges of the loss of rare habitats and threats to endangered species are managed through the exchange of scientific data, modification of land-use practices, the control of reed growth along the lake shores etc. Sustainable fisheries management is another area of cooperation.

Through the Commission, the cooperation towards the development of a transboundary management planning process is continuing, so too is work towards further synergies in research, management, education and ecotourism.

AGRICULTURAL WATER MANAGEMENT

Agriculture places the greatest single demand on water. Up to 70% of freshwater resources are utilized for agriculture and food production. To keep pace with the growing demand for food, it is estimated that 14% *more* freshwater will need to be withdrawn for agricultural purposes in the next 25 years. Our challenge today is to increase water efficiency in agriculture and reduce water losses and waste from field to fork.

Global water footprint figures for a variety of crops illustrate that cocoa beans, coffee and cashew nuts are the most thirsty crops: when planted in low rainfall areas there can be a significant negative impact on water resources. Rice forms the staple diet for over half the world's population

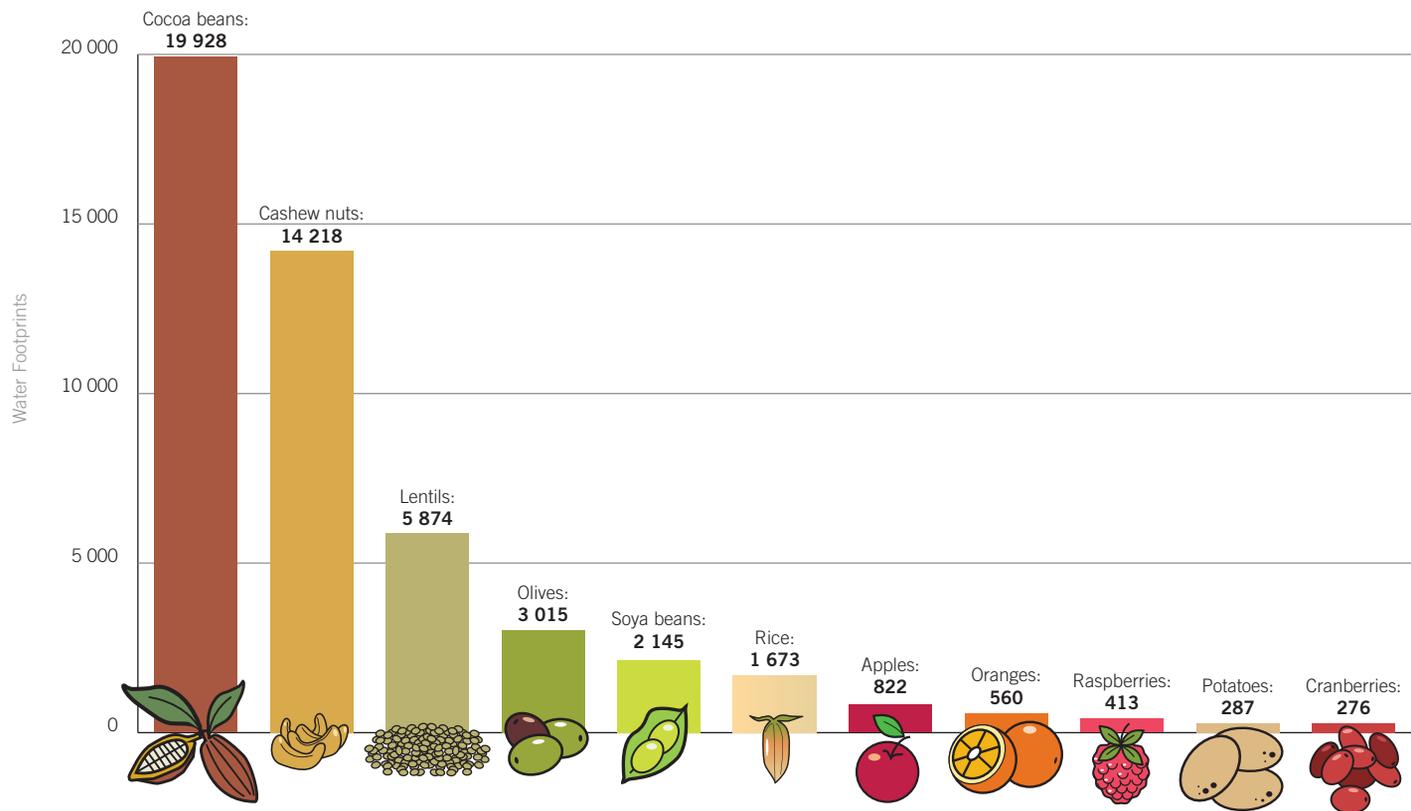
and provides 20% of the calories consumed worldwide. Yet pressures on water supply jeopardise this and other critically important crops. Poor agricultural water practices such as over abstraction, inappropriate irrigation techniques and the lack of water harvesting and storage of rainfall, can also result in negative impacts on the ecological character of wetlands and ecosystem services.

In addition to agriculture's demand for water, agricultural practices can adversely impact upon watercourses through diffuse pollution runoff. In New York City, the authorities paid landowners in the Catskill Mountains to improve land management and to prevent waste and nutrient runoff reaching watercourses,

which removed the necessity to build a new water treatment plant. The cost of paying landowners was US\$1-1.5 billion, whereas the cost of building a new treatment plant would have totalled US\$6-8 billion plus US\$300-500 million annual running costs.

Water demands for agriculture and the impacts agriculture can have on water quality are key management issues in maintaining both food and water security. Wetlands and the management of them are crucial in achieving a balance between food and water supply and the maintenance of ecological character and ecosystem services.

WATER FOOTPRINTS (IN M³/TON) OF COMMON CROPS FOR THE PERIOD 1996-2005





Vacaresti Urban Wetland,
Romania ©Helmut Ignat

URBAN WATER MANAGEMENT

For the first time in human history, more people live in cities than in rural areas – a trend that will continue throughout this century. Some estimates have suggested that 80% of the global population will dwell in urban areas by 2030. That could be 6.4 billion people. Much unplanned urban growth has taken place in peri-urban areas and in informal settlements, where the absence of adequate water supply and sanitation services threatens the quality of life of its inhabitants.

Uncontrolled and poorly planned urban development can place increased pressure on natural resources within and beyond urban areas. Wetlands have the

potential to operate as essential water management infrastructure and regulate the impacts of this increasing urbanization. There is an education role to increase awareness amongst urban and regional planners of the values of wetlands so that integrated urban wetlands can play their part in regulating and providing water in order to achieve a sustainable future.

Over recent years the Ramsar Convention has worked closely with UN-Habitat, which is mandated by the UN General Assembly to promote socially and environmentally sustainable towns and cities with the goal of providing adequate

shelter for all. With UN-Habitat we are addressing specific issues relating to urbanisation and have produced principles for the planning and management of urban and peri-urban wetlands. These clearly recognize the need to explicitly include wetlands as natural infrastructure in urban planning and as elements of water resource management. In support of promoting these approaches, Ramsar's COP11 in July 2012 adopted Resolution XI.11 on *Principles for the planning and management of urban and peri-urban wetlands*.

AN URBAN WETLAND PROVIDING VALUABLE ECOSYSTEM SERVICES FOR LOCAL COMMUNITIES



©Sinthala Vilaysom, IUCN Lao

Situated on the edge of Vientiane City, Lao PDR, That Luang Marsh provides important resources and agricultural land for local communities both in the city and in the bordering rural areas. It also provides considerable flood protection, through the retention of storm runoff generated by the city, and water treatment for domestic, agricultural and industrial wastewater. The goods and services provided by That Luang Marsh are worth just under US\$5 million annually (2004 prices). To maintain this flow of benefits depends on integrated and responsible water management by the local authorities and stakeholders.



WATER STORAGE ISSUES

Many factors have influenced the increased demand in recent years for water storage, including global and regional economics, demographics and climate change. One approach has been to increase our use of hard infrastructure such as dams. The amount of water impounded behind dams has increased by 400% since 1960; the amount of water held in reservoirs today is three to six times that in natural rivers.

Can wetlands provide alternative water storage options? Different wetland types function differently in terms of water storage. For example, floodplains often have a large above ground storage capacity, while some other wetlands such as headwater wetlands often have little available storage. Artificial wetlands are an option for enhancing the natural storage capacity of wetlands but maximising water storage needs to be weighed against compromising other ecosystem services such as agricultural production and flood control. The key issue is that some wetlands can be vital for water storage and their specific contribution as water stores needs to be considered in decision-making.

WATER DIVERSION SCHEMES

In recent decades large scale water diversion has become a tool in a number of countries to address water scarcity. Many countries have proposed or undertaken schemes, often amid considerable controversy concerning the potential negative consequences for people and the environment. In some cases the scale of the projects can be alarming. For example in China, in provinces along the Yellow River, in the northeast, and in the Beijing-Tianjin-Hebei triangle, there are currently dozens of water diversion projects under way. By the end of 2012 it is estimated China will have spent over US\$32 billion to divert the flows of its rivers in the direction of the arid areas in its north.

Water diversion can also be devastating on a local level where even small scale channel construction for irrigation can divert water away from communities and wetland ecosystems leading to a lack of water to support people, their livelihoods, wetland biodiversity and wetland ecosystem services. The long-term consequences of water diversion need to be carefully considered before a scheme is constructed to truly assess the costs and benefits and to ensure that detrimental impacts on people and the environment do not result.



WHAT CAN WE DO?

GLOBAL

The Ramsar Convention has called for local to national governments to recognise **wetlands as the primary sources from which humans derive water and that they are a major and critical component of the water cycle that keeps us supplied with water.** Through the Convention's Wise Use Handbooks Ramsar has produced a substantial range of guidance on understanding how wetlands can be integrated into water management processes for the benefit of all elements of society. **The key challenge is to ensure that Ramsar guidance is integrated into national and local policies and that the management of water across all social, economic and environmental activities is truly addressed.**

REGIONAL

Many river basin authorities and water agencies have insufficient appreciation of the socio-economic values and benefits provided by wetlands, such as the provision of fisheries, the regulation of flooding or their wider socio-economic importance. Successful water management remains an integrated, holistic and cooperative activity. The appropriate governance structures and integrated policies, including initiatives such as IWRM, need to be established **to ensure that sound water management decisions are made which do not compromise the livelihoods and well-being of current and future generations.**

LOCAL

Managing water is the responsibility of all of us. Local actions to recycle, reuse and conserve water are the basis of sustainable water management and should not be underestimated. Local stakeholders have a direct role to play in the delivery of broader water management initiatives, through domestic initiatives such as rainwater harvesting and water-friendly garden design or simply reducing water usage or enhancing local wetlands. Similarly stakeholders are encouraged to ensure that their experiences and concerns are integrated into water management decision-making. The power to change through grass roots advocacy and action should not be underestimated.

WATER MANAGEMENT STARTS AT HOME: WHAT CAN CONSUMERS DO?



Consumers can reduce the amount of water through direct action - by installing water saving toilets, applying a water-saving showerhead, shutting off the tap during teeth brushing, using less water in the garden, by not disposing of medicines, paints or other pollutants down the sink etc. They can also *support* the protection and restoration of wetland ecosystems.

But consumers also have an *indirect* water footprint and this is usually much larger than the direct one. To reduce their indirect water footprint consumers are faced with two basic options. The first option is to move from purchasing products with a large water footprint to an alternative product with a smaller water footprint. A second option is to continue with the same consumption pattern but to select a product that has a relatively low water footprint or that has its footprint in an area that does not have high water scarcity. Such choices require access to information

and it is important that consumers challenge manufacturers and ask for product transparency from businesses and governments alike. Only when information is available on the impacts of products on the water cycle system will consumers be able to make conscious choices about what they buy.

<http://www.waterfootprint.org/?page=files/YourWaterFootprint>



BUSINESSES AS WATER MANAGERS

The protection of the environment has been a priority for the Danone Group and evian® for decades. In 1998 they decided to engage with Ramsar to support the Convention's efforts to promote the conservation and wise use of wetlands and water resource management. This partnership has created successful programs such as the Danone Fund for Water.

Some of the concrete actions taken by Danone and evian®:

1. Protecting the water resource:

For 20 years evian® has developed a protection policy for its water source in collaboration with municipalities and farmers in the spring catchment in order to develop good practices in environment management. Thanks to the long-term actions put in place for the protection and wise use of its water sources and wetlands, in 2008 the evian® Impluvium was designated a Ramsar Site.

2. Reducing the environmental impact of the company:

Since 1995 evian® has lightened the weight of its bottles by 25%, and has introduced recycled plastic PET (a 100% recyclable material) in its bottles. In addition, evian® has changed its transport policy in favour of train use, has developed its private train station and increased its performance by 20%. In parallel with ISO 14001 Certification (environment management), the evian® factory has opened a waste recycling centre of 10,000 m² on the manufacturing site to sort and value above 95% of its wastes and give them a second life.

3. Monitoring water footprints of the factories:

evian® works also to reduce its own water consumption on site. Thanks to employees' awareness and the introduction of new technologies, the amount of water needed at each stage of production (cleaning, rinsing, cooling) has been reduced. In 5 years, evian® has reduced its water consumption intensity (volume of water consumption/volume of finished product) by 25% and energy consumption by 10%.

4. Wetland conservation and restoration projects:

In 2008 the group decided to accelerate its environmental policy by creating the Danone Fund for Nature with Ramsar and IUCN. An innovative approach to contribute to environment management was set up for wetland restoration, focusing on mangroves which store large quantities of carbon. The success of this program led to the creation in 2011 of the Livelihoods Fund, which is investing in projects on the ground with significant social and environmental benefits for rural communities.

The objectives of evian® to reduce its carbon emissions by 40% in 5 years (2008-2012) has been achieved. And throughout the world, the Danone and evian® teams continue their efforts to reduce energy use and packaging, to increase transport by rail, and especially to protect the wetlands providing the water sources that nature has given to us.



RAMSAR & UNESCO

The UN International Year of Water Cooperation 2013, coordinated by UNESCO, will provide a unique platform to celebrate World Wetlands Day 2013 and promote further actions at all levels to achieve a sustainable and peaceful management of water resources. The Ramsar Secretariat is pleased to be partnering with UNESCO-IHP in the preparation of our World Wetlands Day materials.

The Convention's broad partnership with UNESCO of course goes much further than this. UNESCO is the depositary for the Convention accession papers from each of the Ramsar Contracting Parties. At a practical level, Ramsar and UNESCO cooperate through UNESCO's World Heritage Convention, the Man and the Biosphere (MAB) Programme and in recent years with the International Hydrological Programme (IHP). UNESCO-IHP through its networks and partners actively contributes to the implementation

of the Ramsar Convention in particular by identifying and inventorying transboundary aquifers and groundwater-dependent ecosystems that are vital for the conservation and wise use of wetlands and their resources.

Saintes-Maries de la Mer, Camargue, France ©Pascale Schnetzer

RECOMMENDED READING

Acreman, M. C. 2012. Wetlands and water storage: current and future trends and issues. Ramsar Scientific and Technical Briefing Note no. 2. Gland, Switzerland: Ramsar Convention Secretariat. www.ramsar.org/bn/bn2.pdf

Coping With Water Scarcity: A strategic issue and priority for system-wide action. UN-Water 2006 *François Molle and Domitille Vallée. Chapter 9* Managing water competition for water and the pressure on ecosystems. http://www.unwater.org/downloads/20_WWDR3_ch_9.pdf

Emerton, L. & Bos, E. 2004. Value: Counting ecosystems as an economic part of water infrastructure. IUCN, Gland, Switzerland and Cambridge. 88p. <http://data.iucn.org/dbtw-wpd/edocs/2004-046.pdf>

Global Water Partnership. 2012. Increasing water security – A development imperative. GWP Perspectives Paper. GWP: Stockholm. <http://www.gwp.org>.

Hoekstra, A.Y., Chapagain, A.K., Aldaya, M.M. & Mekonnen, M.M. 2011. *The water footprint assessment manual: Setting the global standard*. Earthscan: London. <http://www.waterfootprint.org/downloads/TheWaterFootprintAssessmentManual.pdf>

Kravčík, M., Pokorný, J., Kohutiar, J., Kováč, M. & Tóth, E. 2007. *Water for the Recovery of the climate - A New Water Paradigm*. Municipalia: Slovakia. <http://www.waterparadigm.org>.

Law on transboundary aquifers (Resolution A/RES/63/124 adopted during the 63rd Session United Nations General Assembly, New York, 11 December 2008). Text of the Resolution available from www.un.org/depts/dhl/resguide/r63.shtml.

Puri, S. and Aureli, A. (eds.) 2009. *Atlas of Transboundary Aquifers – Global Maps, Regional Cooperation and Local Inventories*. UNESCO-IHP ISARM Programme. UNESCO, Paris.

Ramsar Convention Secretariat, 2010. Water-related guidance: An Integrated Framework for the Convention's water-related guidance. Ramsar handbooks for the wise use of wetlands, 4th edition, vol. 8. Ramsar Convention Secretariat, Gland, Switzerland. <http://www.ramsar.org/handbooks4>

Ramsar Convention Secretariat, 2010. *Water allocation and management: Guidelines for the allocation and management of water for maintaining the ecological functions of wetlands*. Ramsar handbooks for the wise use of wetlands, 4th edition, vol. 10. Ramsar Convention Secretariat, Gland, Switzerland. <http://www.ramsar.org/handbooks4>

Ramsar Convention Resolution XI.11: *Principles for the planning and management of urban and peri-urban wetlands* <http://www.ramsar.org/cop11-resolutions/>

UN-Water 2008. Transboundary Waters: Sharing Benefits, Sharing Responsibilities; UN-Water Thematic Paper.

Water in a Green Economy - A Statement by UN-Water for the UN Conference on Sustainable Development 2012 (Rio+20 Summit). UN-Water 2011

Wetlands International, 2010. Wetlands & Water, Sanitation and Hygiene (WASH) – understanding the linkages. Wetlands International, Ede, The Netherlands.

WWAP (World Water Assessment Programme). 2012. *The United Nations World Water Development Report 4: Managing Water under Uncertainty and Risk*. Paris, UNESCO



The Ramsar Convention on Wetlands

Rue Mauverney 28
CH-1196 Gland, Switzerland
Tel: +41 (0) 22 999 0170 - Fax: +41 (0) 22 999 0169
Email: ramsar@ramsar.org

www.ramsar.org



UNESCO International Hydrological Programme (IHP)

1 rue Miollis
75732 Paris Cedex 15, France
Tel: +33 (0) 1 45 68 40 01 - Fax: +33 (0) 1 45 68 58 11
Email: ihp@unesco.org

www.unesco.org/water