Europe's water at the crossroads

Foreword

The European Environmental Bureau (EEB), the EU's largest federation of environmental organisations, and WWF, the global conservation organisation, are working to make Europe's water policy reform under the Water Framework Directive deliver benefits for people and for nature – and to change the ways in which we use, manage and value our water.

In this document, we present five priorities for consideration by the European Commission, national governments, NGOs and other stakeholders as they finalise their policies in water management. These priorities will also act as performance indicators to measure progress governments and authorities are making.

WWF

EEB

Fundación Biodiversidad

Europe's water at the crossroads

The EU's Water Framework Directive provides a once-in-a-generation opportunity to restore Europe's rivers, lakes and wetlands to ecological health by 2015. Public consultations on the objectives of water management, and how to achieve them by 2015, are to begin in each of Europe's 110 river basin districts by the end of 2008. From these consultations authorities and politicians will develop River Basin Management Plans, which set out the specific objectives and actions necessary to restore the healthy ecology of our waters, and the financial and regulatory instruments required to do so. These plans are to be finalised by the end of 2009.

Introduction

Water challenges

Governments and authorities are now acknowledging that Europe's water environment is in a worse state than expected. The majority of rivers, lakes and coastal waters have been degraded to the point where they cannot sustain functioning ecosystems, or their services to humans such as fishing, bathing and the provision of a clean, unpolluted water supply.

The main reason for this decline is insufficient natural space and water volume left for nature to maintain functioning ecosystems and landscapes. Groundwater levels are falling and pollution levels remain high. In many areas there is not enough data to assess the quantity or quality of these water resources.

Although some progress has been made in the last 30 years of EU water protection, Europe now needs to take the next step. Water use has become increasingly efficient through technological progress and better governance, but not enough to keep pace with our water-thirsty production and consumption patterns. Moreover, although most governments understand the need for change in theory, in practice old habits die hard, especially in the face of strong lobbying from vested interests.

Europe has a choice: Business as usual is not an option

Europe has to make a choice now. It can maintain its bad habits of pollution, destruction and excessive water use, and face the consequences further down the line – in the form of diminishing water supplies, ever more expensive treatment, ever-increasing impacts on the economy and greater exposure to catastrophic events. Or it can continue with the effort to balance water use with natural realities, and to increase the resilience of both human and natural water systems.

Climate change and energy – new challenges and opportunities for water management

Europe's response to the climate and energy crisis is also taking shape at this time, and its consequences will be equally far-reaching. Will it lead to increasing water abstractions to compensate for reduced summer rainfall and winter snow cover – or will it bring about a reduction in water use, leaving more water in our rivers? Will it force rivers to adapt to bigger and bigger ships, or will it force ships to adapt to the river? Will it lead to intensifying land and fertiliser use to grow energy crops, and dam-building to generate hydropower – or to a reduction in energy consumption and chemical pollution, and to creating more space for rivers?

Five key priorities for better water management

The River Basin Management Plans will have to cover new ground if they are to achieve sustainable water management and honour legal commitments to restore the water ecology to health. Leaving well-trodden paths of treating water in isolation, the plans must tackle climate, agriculture, transport and energy challenges and grasp the resulting opportunities.

EEB and WWF present the following five priorities which we believe must be tackled most urgently. Carefully considered and based on a decade of close involvement in EU water policy reform, these priorities will also act as indicators to help assess how governments are performing and whether their draft plans will rise to the challenges of sustainable water management.

1. Transparent and publicly owned water management
2. Reducing wastage and using water well
3. More space for living rivers
4. Healthy, safe water for people and nature
5. Visionary and adaptive water policies.

Priorities for better water management in the EU

1. Transparent and publicly owned water management

Many people dismiss water management as boring and technical. This is not just a misguided public attitude, it represents a failure on the part of water managers. Water is too important to remain the Cinderella of public policies and communication.

Safe water remains one of the top environmental concerns of EU citizens. Water connects people with their environment and is central in defining our way of life. Issues such as water shortages, floods and droughts, and the impact of pollution on the everyday lives of people and their health, show that there is an urgent need to raise public awareness and involve the public in decision-making. Public involvement in water management is not just a legal requirement of the EU Water Framework Directive: it is essential if a new, sustainable approach to water management is to succeed.

Three steps to improve public involvement in water management

- Ensure transparency

This means more than providing access to data and technical background information. It means communicating in a consistent and coherent way what the current situation is, what options we have and which ones are proposed for action and why. More specifically, it means the assessment must include information on who pays for which water use, and whether natural services offered by catchments, streams, aquifers, wetlands and flood plains are accounted for. Underlying assumptions and constraints must be made clear, and doors remain open for ongoing communication, for public consultation to be meaningful.

- Consider a variety of consultation channels

These may include professionally facilitated working groups, a broad range of publicity tools, and online consultations, to name a few.

- Manage expectations and make it clear how comments will form part of decision-making.

This is not about producing consensus based on lowest common denominator outcomes, but about creating water management plans which motivate the public and which are owned by experts as well as ordinary citizens and businesses. This provides a sound basis on which to implement policies successfully, mobilise the necessary resources and change individual behaviour.

How the public can be involved

A pilot scheme to involve citizens in water management decision-making in the German region of Baden-Wurttemberg was so successful that it has been made a model for consultation on draft River Basin Management Plans for the entire region.

All interested citizens, not just organised stakeholder groups, were engaged in the process. They were invited to propose solutions to current water challenges faced by the region during workshops (in which they were given relevant information and maps), and the responsible authorities dealt with their input through a transparent public process. Up to 200 people participated in some of these meetings and around 60% of proposed ideas were taken on board. Where ideas were rejected, the reasons were clearly explained.

According to a recent Eurobarometer only 9% of EU citizens trust their governments to be a reliable source of environmental information. Environmental NGOs across Europe expect public authorities to be more transparent about water management.

86%

of EU citizens agree that they can play a role in protecting the environment[1]

In 2005, up to 300,000 citizens across the EU participated in Big Jump events, demonstrating their support for restoring and protecting Europe's rivers. Last year 120 Big Jumps took place in 15 countries[2].

Priorities for better water management in the EU

2. Reducing wastage and using water well

Water is a finite resource. What is consumed or polluted upstream is then absent or unusable downstream – whether in southern Spain or alpine Austria.

Very little can be done to increase the amount of water available for human use, and doing so requires significant amounts of space, energy and other natural resources. Reducing water use and managing water demand is thus the inherently better option, reducing the pressure on many scarce resources at the same time.

Today, the majority of our rivers have little water left to sustain a great diversity of life and deliver the services we rely on, like fishing, bathing and natural clean drinking water. Groundwater levels are falling, reducing our reserves of clean drinking water and threatening wetlands and forest ecosystems. The situation will get worse as climate change reduces summer rainfall and winter snow cover. In addition, increasing levels of consumption will require more and more water for the production of goods, energy and services such as food, housing, mobility and tourism, without policies to address this.

Ways to improve water use

The problem is the way in which water is legally allocated, financially valued, physically distributed and inefficiently used. That's why there needs to be a new approach to water governance, with these considerations integrated into policies on manufacturing, energy production, agriculture, domestic supply and tourism.

Protecting and restoring surface waters and groundwater to 'good status', as required by the Water Framework Directive, can be achieved only if we waste less water and leave enough water for wetlands and rivers to serve us. That means making reducing water wastage everybody's business, through:

- Establishing water-saving objectives and controlling water abstractions
- Restoring and protecting environmental flows to maintain functioning freshwater ecosystems and landscapes
- Introducing fair water pricing, which takes into account environmental and resource costs and is not only applied to domestic water uses but all uses in specific agriculture, transport and energy production
- Developing ambitious public procurement and support programmes for the best water saving measures and techniques.

How to save water and energy

Simple and available water saving devices, like efficient shower heads and low flush toilets, could reduce household water consumption by up to 40%, while avoiding 77 million tonnes of CO_2eq (carbon dioxide equivalent) per year, and reducing household energy bills by 26 billion euros/year[3]. Much higher water savings can be achieved with additional measures. In Estonia, water consumption in households decreased by 50% between 1992 and 2004 – from almost 200 litres/capita/day to less than 100 litres/capita/day – when water prices gradually increased from virtually free to approximately 9 EEK (0.58 euro)/cubic metre, and more advanced sanitation devices were introduced.

Efficient farming

Illegal and inefficient agriculture is causing falling groundwater levels and fertilizer contamination in one of Europe's most important wetland reserves, the Spanish National Park Doñana. Joint efforts by WWF, farmers and supermarkets to reduce illegal farmers' access to market, and to promote water-efficient irrigation schemes, could reduce overall abstractions by up to 4 million cubic metres annually.

Many of our rivers are over-abstracted and abused, leaving little water to sustain a great diversity of life and deliver the services we rely on, like fishing, bathing and natural clean drinking water. Climate change is expected to make the situation worse.

Over **40%** of water currently used in the EU could be saved through applying best available techniques[3]

The water-saving potential of irrigation ranges from 10 to 60% when more efficient methods are used: for example, by using the drip irrigation method. The water saved should be returned to nature to keep our rivers flowing and wetlands wet.

3. More space for living rivers

Space is as important for living rivers as the amount of water they receive. Rivers can only perform their natural functions if they are given enough space, both along their banks and their courses.

The preparatory work for the River Basin Management Plans in recent years has clearly identified the lack of space for rivers and their physical modification as a major obstacle in achieving sustainable water management and good ecological status.

Over the last 200 years, most rivers in Europe have been straightened, dammed and put into concrete channels, in order to appropriate space for human use. Every day, more land is sealed for urbanisation and transport, and is no longer available to regulate river flows. Such rivers have lost their ability to provide natural services: to sustain a diversity of fish and plants, and provide clean water for people. They have lost their connection with groundwater and wetlands, and with people.

Estuaries and coastal waters are in a similar situation. Here the outlook is even more dramatic, with predicted sea levels rising about one metre by the end of this century, substantially reducing the available space.

What needs to be done

By giving rivers more space, we can reconnect rivers and lakes to the land and to people.

- Most urgently, buffer zones in which permanent human activities are restricted, reduced or even removed need to be created next to rivers and flood risk zones.
- We need to restore the natural functionality of flood plains, wetlands and estuaries by removing obsolete dams and dykes, and avoid creating new ones.
- Land use always means water use. Although land is often privately owned, water rarely is. Land use rights must therefore be accompanied by water protection duties, including control and pricing mechanisms.

More space for rivers will reduce flood risks, provide cleaner waters and more diverse habitats, and even increase carbon storage. This in turn will make us more resilient to the impacts of climate change.

Reducing flood risk by storing water at the source

In the Maas river basin in the Netherlands and Belgium, it has been calculated that increasing natural storage capacity in the middle mountains by converting a total of 10% of agricultural land to wetlands could reduce flood peaks by 500 cubic metres/second. These wetlands act as natural sponges, holding and releasing water slowly to reduce flood intensity and damage downstream. This compares favourably to the engineering solutions applied so far to the downstream section of the Maas, which have only achieved a reduction of 300 cubic metres/second.

Working with nature, not against it

After the Danube flooded in 2006, WWF assessed the potential of remaining flood plains and retention areas to reduce the impacts of floods in the Danube Basin. Forty-three different flood plains with high potential for flood risk mitigation were identified, representing more than 17,500 km^2 of flood plains or potential restoration sites. If these sites were to be included in the Danube River Basin Management Plan for proactive restoration, rehabilitation and management actions, they would reduce flood impacts, enhance the resilience of riverine ecosystems and minimise the effects of climate change.

80% of the Danube's natural flood plains and 90% of the Rhine's have disappeared in the last century. This has contributed to more devastating floods, which have claimed more human lives and inflicted more economic damage. The Association of British Insurers estimates that the cost of flooding in Europe could rise to 120 billion euros by 2080.

50%

of EU wetlands have been lost to development[4]

Projects to restore river system functionality are now under way along several European rivers – proving that, with ambitious restoration efforts, adaptation in water management is possible. This will reduce our vulnerability and increase our resilience to expected climate change impacts, as well as improving the livelihoods of local people and enhancing the conservation of freshwater biodiversity.

Priorities for better water management in the EU

4. Healthy, safe water for people and nature

Water is the final recipient and carrier of all the chemicals and pollutants we release, knowingly and unknowingly, while producing and consuming goods and services, or simply moving around.

Some of those substances can be broken down in the aquatic environment; others stay there for many decades, ultimately ending up in the world's oceans, and our food.

A lot has been done to reduce pollution, and levels for some well known pollutants have been stabilised – but at too high a level, as in the case of nitrates. Natural drinking water is scarce and most water we drink has to be treated, which involves the use of chemicals and energy. Ecosystems are further deteriorating and fish populations dwindling. Moreover, we don't fully understand, or have only recently discovered, the negative effects of many substances like some pharmaceuticals and textile and plastic additives found in our rivers and lakes, which potentially reduce fertility of fish or damage brain development in humans.

Measures we can take to reduce water pollution

- Increase the amount of water and space available to restore the natural functions and services of the aquatic environment.
- Reduce the amount of pesticides and fertilizers used in farming, and reduce pollution from transport and households.
- Tackle pollution at source by avoiding unnecessary use of chemicals in general, and substitute chemicals of concern with safer alternatives.
- Make the polluter pay for the costs of cleaning up pollution and for water services lost.

Europe has made encouraging progress in providing hygienically safe bathing waters for its people. Now it's time to provide healthy and safe water for sustaining ecosystems and long-term human health.

Substitution of hazardous chemicals

Many dangerous substances are released during the life-cycle of PVC products, including DEHP – a commonly used plasticizer. DEHP, which is contaminating water resources widely, can cause testicular cancer and interfere with hormone systems. Safer and better alternatives to PVC are available making the use of DEHP obsolete. For alternatives see http://archive.greenpeace.org/toxics/pvcdatabase/productalt.html

Wetland restoration to reduce nitrate load

By restoring wetlands along rivers, nutrient run-off from agricultural land to the water can be significantly reduced:

- In Denmark, a 10-year national wetland restoration programme has led to the restoration of over 3,060 hectares of wetlands. These wetlands were found to remove 39-372 kg of nitrates per hectare per year.
- In Germany, the nitrates pollution reduction value of restoring flood plains along the Elbe river is estimated to be 585 euros per hectare, assuming an average annual removal of 200kg of nitrates per hectare per year.

The quality of Europe's rivers, lakes and groundwater is being threatened by the discharge of sewage and industrial waste, and by excessive application of pesticides, manure and fertilizers.

50-80%

of nitrogen load in water comes from agriculture[5]

The costs and energy needed to clean up polluted water is emerging as a compelling new reason for treating pollution at source and protecting any relatively pristine systems.

5. Visionary and adaptive water policies

Addressing the priorities we have identified – ensuring transparency and ownership for the new water management in Europe; providing more water and space for rivers; and reducing pollution – will require a strong vision.

This cannot be laid down solely as a legal requirement in European law. It needs political will, sufficient financial budgets, and a readiness to adapt and learn from past mistakes.

For the first time in Europe, water management will be carried out systematically at the level of the river basins, some of which cover thousands of square kilometres and host millions of people. It is not a question of making small technical improvements or restoring a small wetland here or there. To be effective, water management must originate at the highest level, and be closely integrated with industrial, agricultural, transport and energy development policies in that river basin.

Most crucially, however, governments should stop repeating the errors of the past – such as the continuous over-engineering and destruction of river systems to satisfy short-sighted and unsustainable supply concerns in the field of energy, transport, housing and agriculture. The EU has a once-in-a-lifetime opportunity to make its water management fit for the 21st century.

Water management must be a key component of those policies within a sustainable development framework. Otherwise, it will get mired in complaints about affordability and lack of funds to do this or that; it will disappoint people by applying exemptions rather than achieving environmental outcomes; it will fail to grasp the opportunities arising from current energy, transport, agriculture and climate policy developments; and it will be unable to tackle the big, immediate challenges – either of restoring the functionality of aquatic environments or of adapting to climate change.

Water management has defined how civilisations have developed in the past and will continue to do so in the future.

Damming the last stretches of free-flowing rivers in Europe?
Far from taking the visionary approach described above, a number of governments are currently moving in the opposite direction, and planning the construction of dams for hydropower, outdated water transfer and storage systems, on some of the last stretches of free-flowing rivers in Europe.

New dam building projects should only be accepted if better environmental options – like water and energy-saving measures and better renewable energy alternatives – are technically impossible or disproportionately expensive for the general public.

If these essential and common-sense checks are not applied, governments risk increasing energy, land and natural resource use, undermining their countries' ability to cope responsibly with climate and energy challenges and ridiculing the EU water policy reform.

Let's make it happen

Delivering on these five priorities requires a concerted and lasting effort by all involved.

Citizens across Europe will need to join and actively contribute to discussions during the public participation processes in 2009.

Governments and **water management authorities** at national level will need to grasp this opportunity to make real and lasting changes by 2015.

The European Commission will have to support ambitious implementation through guidance, and where necessary, enforcement.

Members of the European as well as **national parliaments** will need to use their powers to support implementation efforts.

Users of water services and other **stakeholders** will need to engage constructively in developing and implementing effective measures.

Environmental organisations will need to engage, prioritise and communicate effectively on the importance of protecting crucial water resources to help societies become more resilient to environmental change.

Notes

1 According to a recent Eurobarometer, 42% of Europeans are worried about water pollution; 86% of people agree that they can play a role in protecting the environment; and 37% reduced their water consumption in the past month (Special Eurobarometer 295: Attitudes of European citizens towards the environment, March 2008).

2 The Big Jump is an initiative of a group of environmental organisations. Every year they organise a European River Swimming Day, aiming to reconnect people with their rivers. For more information go to www.rivernet.org/bigjump/

3 According to the recent report EU Water Saving Potential. Ecologic/ ACTeon, 2007, water use in the European Union could be reduced by about 40% – nearly twice as much as previously estimated. One area with the highest water-saving potential is agricultural irrigation, where better conveyance and application efficiency, changes in irrigation practice and use of more drought-resistant crops can bring about potential water savings of between 10 and 60%, depending on the region and existing irrigation technologies. A 2007 study for the European Commission, 'Eco-design Water Heaters, Executive Summary' by VHK engineering consultants, estimated energy consumption and GHG emissions from water heating and efficiency potentials quoted in this publication.

4 According to Ramsar Convention data, Europe lost 50% of its wetlands in the last century. In addition, many natural flood plains have been cut off – for example, 80% of the Danube and 90% of the Rhine. Between 1990 and 2000 in the EU, 136 hectares of land per day (nearly 200 football fields) was sealed and therefore unable to regulate water flows, according to the European Environment Agency's 2007 outlook report.

5 According to the EEA's 2007 outlook report, run-off from agricultural land contributes to 50-80% of total nitrogen load in water and has remained constant over the last 30 years. Only recently, and slowly, are measures to reduce losses starting to show results. As regards pesticides, according to Commission impact assessments, in Belgium, Denmark, France, Germany, Netherlands and the UK, between 5-10% of resources regularly contain pesticides in excess of the legal limit of 0.1 µg/l. In the UK alone, the water industry spent £1 billion in capital expenditure and £100 million per year in running costs between 1990 and 2000 to eliminate pesticides from water sources. According to the Australian Prime Minister's Science, Engineering and Innovation Council, "It costs between ten and a hundred times more to repair a damaged natural system than it does to maintain it."

Text written by Stefan Scheuer, consultant www.stefanscheuer.eu
with input from EEB and WWF Water experts

For more information contact:
Pieter de Pous, EEB Water Policy Officer, pieter.depous@eeb.org
Sergey Moroz, WWF Water Policy Officer, smoroz@wwfepo.org

With the financial support of the Fundacion Biodiversidad, Dutch Environment Ministry and the European Commission

Photography
Hartmut Jungius/WWF-Canon: front cover.
Anton Vorauer/WWF-Canon: page 7 top.
Jiri Rezac/WWF-UK: page 9 top and bottom; page 11 top.
Frank Parhizgar/WWF-Canada: page 13.

Design and production Mark Noad Design

Printed by Beacon Press using their *pure*print® environmental print technology

Printed on Revive 75 Silk environmentally friendly paper.