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COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT AND THE COUNCIL

Addressing the challenge of water scarcity and droughts in the European Union

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(Text with EEA relevance)

Access to good quality water in sufficient quantity is fundamental to the daily lives of every human being and to most economic activities. But water scarcity and droughts have now emerged as a major challenge – and climate change is expected to make matters worse. This is a worldwide problem, and the European Union is not spared.

Over the past thirty years, droughts have dramatically increased in number and intensity in the EU. The number of areas and people affected by droughts went up by almost 20% between 1976 and 2006. One of the most widespread droughts occurred in 2003 when over 100 million people and a third of the EU territory were affected. The cost of the damage to the European economy was at least € 8.7 billion. The total cost of droughts over the past thirty years amounts to € 100 billion. The yearly average cost quadrupled over the same period[1].

While "drought" means a temporary decrease in water availability due for instance to rainfall deficiency, "water scarcity" means that water demand exceeds the water resources exploitable under sustainable conditions. At least 11% of the European population and 17% of its territory have been affected by water scarcity to date. Recent trends show a significant extension of water scarcity across Europe.

Water scarcity and droughts are therefore not just a matter for water managers. They have a direct impact on citizens and economic sectors which use and depend on water, such as agriculture, tourism, industry, energy and transport. In particular, hydropower which is a carbon neutral source of energy, heavily depends on water availability. Water scarcity and droughts also have broader impacts on natural resources at large through negative side-effects on biodiversity, water quality, increased risks of forest fires and soil impoverishment.

In a context where changes in climate are foreseen in spite of significant EU mitigation efforts, this trend is expected to continue and even worsen, as underscored in the recently adopted Commission Green Paper on adaptation to climate change. According to the Intergovernmental Panel on Climate Change[2], climate change would bring water scarcity to between 1.1 and 3.2 billion people if temperatures rose by 2 to 3° C. Drought affected areas are likely to increase in extent. In these circumstances, it has become an EU priority to devise effective drought risk management strategies.

On 10 January 2007 the Commission adopted an Energy and Climate package to guide the EU towards a sustainable, competitive and secure energy policy. One of its central themes is to tackle the energy challenge by first making an effort to use energy more efficiently before looking at alternatives. This approach is also valid for water scarcity and droughts. In order to

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1 http://ec.europa.eu/environment/water/pdf/1st_report.pdf

2 IPPC WGII Fourth Assessment Report, 6 April 2007.

come to grips with water scarcity and droughts, the first priority is to move towards a water-efficient and water-saving economy. Saving water also means saving energy, as extracting, transporting and treating water comes at a high energy cost. In this context, it is essential to improve water demand management. Just like energy, water is necessary for all human, economic and social activities. A wide range of policy options will therefore need to be considered.

Against the above background, this Communication presents an initial set of policy options at European, national and regional levels to address and mitigate the challenge posed by water scarcity and drought within the Union. The Commission remains fully committed to continuing to address the issue at international level, in particular through the United Nations Convention to Combat Desertification and the United Nations Framework Convention on Climate Change.

This Communication also responds to the request for action on water scarcity and droughts from the Environment Council in June 2006.

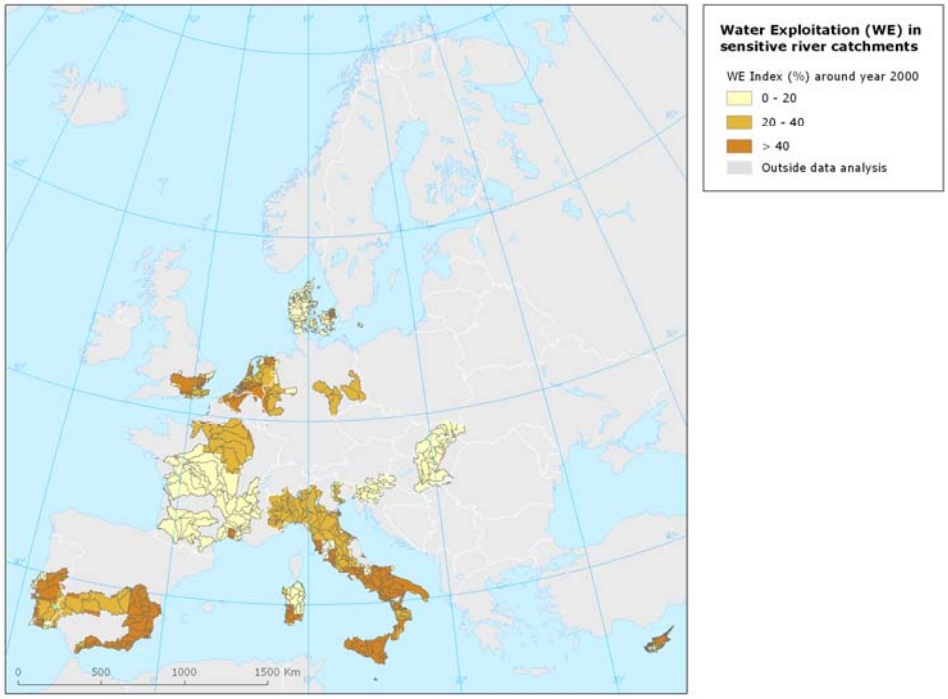
1. SETTING THE SCENE

The following challenges need to be addressed:

- **Progressing towards full implementation of the Water Framework Directive**[3] (hereinafter "WFD"), the EU's flagship Directive on water policy, is a priority in order to address mismanagement of water resources.

- This issue is often a result of **ineffective water pricing policies** which generally do not reflect the level of sensitivity of water resources at local level. The 'user pays' principle is hardly implemented beyond the sectors of drinking water supply and waste water treatment. Introducing this principle at EU level would put an end to needless losses or waste, ensuring that water remains available for essential uses across Europe, including all parts of transboundary river basins. In other words, it would encourage efficient water use.

[3] Directive 2000/60/EC establishing a framework for Community action in the field of water policy.



- **Land-use planning** is also one of the main drivers of water use. Inadequate water allocation between economic sectors results in imbalances between water needs and existing water resources. A pragmatic shift is required in order to change policy-making patterns and to move forward effective land-use planning at the appropriate levels.

- There is huge potential for **water saving** across Europe. Europe continues to waste at least 20%[4] of its water due to inefficiency. Water saving must become the priority and all possibilities to improve water efficiency must therefore be explored. Policy making should be based on a clear **water hierarchy**. Additional water supply infrastructures should be considered as an option when other options have been exhausted, including effective water pricing policy and cost-effective alternatives. Water uses should also be prioritised: it is clear that public water supply should always be the **overriding priority** to ensure access to adequate water provision.

- Further **integration** of water-related concerns into water-related sectoral policies is paramount in order to move towards a water-saving culture. Integration achievements at EU, national and regional levels vary widely from one sector to another. In general terms, there is a lack of consistency and, in some cases, even counter-productive effects on water resource protection.

- Finally, in order to be fully effective, policy action on water scarcity and droughts needs to be based on **high-quality knowledge and information** on the extent of the challenge and projected trends. Existing European and national assessment and monitoring programmes are neither integrated nor complete. Filling knowledge gaps and ensuring data comparability across the EU is therefore a precondition. In this context, research has a significant role to play providing knowledge and support to policy making.

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[4] Ecologic, Report on EU water saving potential, June 2007.

2. ADDRESSING THE CHALLENGE: POLICY ORIENTATIONS FOR FUTURE ACTION

It emerges from stakeholder consultations and the proportionate impact assessment carried out for this Communication that an integrated approach based on a combination of options would be the most appropriate approach for addressing water scarcity and droughts, compared to alternatives based on water supply or economic instruments only.

Further economic and legal analyses will be required in the coming months to specify in detail the potential, feasibility and possible timeframe for each of the options considered. Impact assessments should be carried out prior to the introduction of any of the proposed measures.

2.1. Putting the right price tag on water

The issue:

The Commission actively promotes the use of market-based instruments in an environmental context, as underscored by the recently adopted Green Paper on Market-Based Instruments[5]. The existing legal framework in the WFD offers ample room for tackling both water scarcity and droughts through such instruments. In spite of the WFD's specific requirements (Article 9), economic instruments have not been widely used by Member States thus far. Pricing policies that may appear to be very well designed can prove totally ineffective if most water abstraction is not even metered or registered by the authorities. The WFD (Article 11) requires the implementation of systematic control over water abstraction.

Way forward:

At national level, by 2010:

- Put in place water tariffs based on a consistent economic assessment of water uses and water value, with adequate incentives to use water resources efficiently and an adequate contribution of the different water uses to the recovery of the costs of water services, in compliance with WFD requirements. The 'user pays' principle needs to become the rule, regardless of where the water comes from. Nevertheless, private households should, irrespective of their available financial resources, have access to adequate water provision.

- Enhance efforts to introduce compulsory metering programmes in all water using sectors.

- More broadly, ensure full implementation of the WFD in order to guarantee or recover sustainable water resources.

Good practice:

In France, irrigators have to be equipped with water meters whenever they go beyond abstraction thresholds. In period 2000-2003, the level of equipment rose from 54% up to 71%, representing 85% of the overall irrigated area.

[5] Green Paper on market-based instruments for environment and related policy purposes - COM(2007) 140.

2.2. Allocating water and water-related funding more efficiently

2.2.1. Improving land-use planning

The issue:

The economic development of some river basins can lead to adverse effects on water resource availability. Particular attention needs to be paid to river basins facing quasi-permanent water stress or scarcity. Existing EU policies have tended to exacerbate the sensitivity of these basins. The widespread development of tourist resorts in sensitive river basins, for instance, has led to significant impacts on local water resources. Farming also has significant impacts notably related to irrigation. Over-abstraction remains an issue also due to incomplete decoupling by some Member States. Successive reforms of the CAP and in particular rural development support have already contributed to improving the situation. Future adjustments of the CAP and the 'Health check' of 2008 could provide opportunities to examine how to further integrate water quantity issues in the relevant CAP instruments. In this context, it should be for instance considered to what extent the CAP and the "Health check" of 2008 could promote more complete use of full decoupling and increased support for water management within rural development programmes. It will be also important to analyse the impact of the increase in biofuels on water availability. All production including irrigated and biomass production and all economic activities should be adapted to the amount of water available locally. This is a key condition for sustainable land-use planning across Europe.

Way forward:

At European level:

- The increased emphasis on sustainable agriculture over the past decade provides a useful platform for policy debate on further progress in order to increase water management sustainability. This will be of particular importance in the period up to the implementation of the river basin management plans in 2010.

- Further assess the inter-linkages between biofuel development and water availability.

At national level:

- Ensure stringent implementation of the Directive[6] on Strategic Environment Assessment in all economic sectors. Member States still need to strengthen their national procedures and ensure that the conditions attached to the final decisions adequately prevent any environmental impact.

- Encourage Member States to identify river basins which face quasi-permanent or permanent water stress or scarcity.

- For those river basins, set up appropriate regulations to restore a sustainable balance. Voluntary schemes could make a positive contribution and need to be promoted. If results prove insufficient in very sensitive areas, compulsory measures on water saving and water efficiency should be introduced. All measures will ultimately be part of the WFD programmes.

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[6] Directive 2001/42/EC (OJ L 197, 21.7.2001, p. 30).

Good practice:

In the framework of the UN Convention to Combat Desertification, Greece has issued a National Action Programme which considers specific measures to address imbalances between demand and supply.

2.2.2. Financing water efficiency

The issue:

The potential for water efficiency is not exploited to the fullest extent in the EU. Even though they are cost-effective, a number of measures are not taken owing to unaffordability.

Addressing the consequences of climate change in particular water scarcity and droughts is one of the priorities of EU regional policy in the period 2007-2013. The new legislative framework provides for investments in infrastructure related to water management (storage, distribution, treatment), clean and water-efficient technologies as well as risk prevention measures.

European funds and State aids offer significant opportunities to meet this challenge, but budgets are undoubtedly insufficient to duly cover all the issues.

National priorities can also be counterproductive in promoting additional water supply infrastructure as the primary option, going against the logic of the water hierarchy and the need to support water-saving and efficiency measures in the first place. It continues to be essential to ensure that the allocation of funding is sufficiently conditional on independent and ex-ante evidence of full utilisation of water savings and efficiency, effective water pricing policy and metering, minimum performance of public water supply networks or recovery of the costs of projects by the water users concerned. National support measures must also fully respect State aid rules where applicable.

Way forward:

At EU level:

- Refine existing Community strategic guidelines for water infrastructures and in the context of the regional and rural development policies, determine whether further progress needs to be made as regards environmental preconditions related to effective water management before support can be given to any additional water supply infrastructure or equipments.

- Explore how sectoral policies could better and further contribute to effective water management, utilising associated funds to foster the delivery of environmental services by water users in an efficient way.

At national level:

- Ensure efficient use of EU and national funds to improve water demand management, in particular through measures of adaptation, sustainable practices, more water savings, monitoring systems and adapted risk management tools.

- Develop fiscal incentives for the promotion of water-efficient devices and practices, in particular in water scarce areas, taking into account the social context and the potential regional differences.

Good practice:

Cyprus has taken conservation measures at household level by encouraging the re-use of "grey water" (i.e. from washing and washing machines) for watering gardens and flushing toilets, reducing per capita water consumption by up to 40%. In 2007, government subsidies cover 75% of the cost of the system.

In Germany, one fifth of the biggest cities have been supporting rainwater harvesting for more than 10 years with the objective of equipping 15% of buildings by 2010.

2.3. Improving drought risk management

2.3.1. Developing drought risk management plans

The issue:

Following the increasing droughts in the past few years, some Member States have moved from crisis management to drought risk management. The associated measures often result in comprehensive drought risk management plans with water stress area mapping, alert levels, warning systems, etc. The WFD has all the necessary flexibility to develop specific drought management plans in relevant river basins.

Way forward:

At European level:

Foster exchanges of information and best practices on drought risk management. Identify methodologies for drought thresholds and drought mapping. By the end of 2008, develop recommendations.

At national level:

- By 2009, set up specific drought management plans to supplement WFD river basin management plans, where needed, in accordance with WFD provisions (Article 13(5)).

Good practices:

Spain and the Netherlands have already implemented national plans to address drought risks.

The European Expert Network set up as part of the Common Implementation Strategy of the WFD is working on the development of drought management plans. A first workshop was held on the initiative of Spain in June 2007.

2.3.2. Developing an observatory and an early warning system on droughts

The issue:

The Commission is currently developing a European Drought Observatory which will enhance the knowledge of the issue. Efficient alert systems are also an essential dimension of risk management. An early warning system will therefore follow suit to improve the drought preparedness of the relevant authorities. This system will integrate relevant data and research results, drought monitoring, detection and forecasting on different spatial scales, from local and regional activities to continental overview at EU level, and will make it possible to evaluate future events.

Way forward:

At European and national levels:

- By 2012, develop prototypes and set up implementing procedures for operational European Drought Observatory and early warning system.

Good practice:

Within the context of the United Nations Convention to Combat Desertification, Slovenia is hosting a Drought Management Centre for South-Eastern Europe which works on drought preparedness, monitoring, forecasting and management.

Within the context of FP5, a European Drought Centre has been proposed. This is a virtual knowledge centre, which promotes collaboration and capacity building between scientists and the user community, and thereby increases preparedness and resilience of society to drought.

2.3.3. Further optimising the use of the EU Solidarity Fund and European Mechanism for Civil Protection

The issue:

Up to now, Member States affected by severe droughts have never applied for assistance under the European Union Solidarity Fund (EUSF). Nor have they asked for civil protection assistance to obtain urgent water supplies.

Way forward:

At EU level:

- Reiterate the Commission's readiness to fully examine any request for **EUSF** support communicated by a Member State seriously affected by a drought while ensuring that the request is not the indirect result of inefficient water management and that appropriate drought management plans are in place.

- In the context of the EUSF regulation, examine whether further progress needs to be made as regards the definition of the criteria and eligible operations in order to allow the Solidarity Fund to better respond to drought events.

- The **Mechanism for Civil Protection** will consider all opportunities to incorporate drought issues in future annual work programmes. One objective will be to identify all possibilities of assistance in cases of severe droughts, having consequences such as forest fires, and to aim at using and complementing the scarce resources available in the best way.

- The Civil Protection Expert Group on Early Warning Systems will be requested to develop an approach to optimise the use of the drought early warning system at European and national levels and to anticipate any civil protection preparatory action.

2.4. Considering additional water supply infrastructures

The issue:

In regions where all prevention measures have been implemented according to the water hierarchy (from water saving to water pricing policy and alternative solutions) and taking due account of the cost-benefit dimension, and where demand still exceeds water availability, additional water supply infrastructure can in some circumstances be identified as a possible other way of mitigating the impacts of severe drought.

There are several possible ways of developing additional water infrastructures, such as storage of surface or ground waters, water transfers, or use of alternative sources.

The constructions of new water supply dams and water transfers are subject to EU legislation. Interruption or transfers of stream flow inevitably change the status of water bodies and as such are subject to specific and strict criteria. In addition, large projects often provoke social and political conflict between donors and receiving basins, which calls their sustainability into question.

Alternative options like desalination or waste water re-use are increasingly considered as potential solutions across Europe. Any definitive Commission position on these options will have to be based on further work on risk and impact assessment, taking into account the specific bio-geographical circumstances of Member States and regions.

Way forward:

At EU level:

- By the end of 2008, prepare a Commission assessment of all alternative options

At national level:

- Ensure that all adverse effects linked to any additional water supply infrastructure like dams or desalination plants - are fully taken into account in the environmental assessment. The changes expected as a possible consequence of climate change and the objectives to be achieved within the Energy Policy for Europe must be fully considered in order to avoid any incompatibility.

Good practice:

Research projects such as MEDINA[7] and MEDESOL[8] (6th Framework Research Programme) are currently underway with a view to minimising the volume of brine or reducing energy consumption in case of desalination.

2.5. Fostering water efficient technologies and practices

The issue:

All economic sectors need to continue to develop water-efficient technologies and practices. Water performance could still be considerably improved across the EU. In some regions, up to 30% of the volume of water consumed in buildings could be saved[9]. In some cities, leakages in public water supply networks can exceed 50%. Similar wastage of water has been recorded in irrigation networks. In addition to improving technologies, the upgrading of water management practices is a necessary instrument in all sectors where huge quantities of water are used (e.g. agriculture, manufacturing or tourism).

Way forward:

At EU level:

- Consider developing standards for water-using devices such as irrigation systems and other farm energy-using equipments.
- Consider developing legislation to cover non-energy-using products including water-using devices (taps, shower heads, toilets).
- Include water efficiency criteria in performance standards for buildings when harmonising Life Cycle Assessments and Environmental Product Declarations.
- Consider developing a new directive similar to the Energy Performance of Building Directive[10] for water performance of buildings. This could cover taps, showers and toilets, rainwater harvesting and reuse of "grey water".
- Consider adopting of a performance indicator on the use of water in the revision of the EMAS Regulation to be presented by the Commission. Working towards the possible certification of all buildings of the European Institutions gradually over the next years.
- Encourage enhanced research on adaptation of economic activities to water scarcity and droughts, water efficiency and decision-making tools.

At national level:

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7 MEDINA: Membrane based desalination: an integrated approach.

8 MEDESOL: Seawater desalination by innovative solar-powered membrane distillation system.

9 Ecologic, June 2007.

10 Directive 2002/91/EC of the European Parliament and of the Council of 16 December 2002 on the energy performance of buildings.

- Encourage the adoption of binding performances for new buildings and for public and private networks, with systems of fines for excessive leakages.

At EU and national levels:

- Develop voluntary agreements with all economic sectors that need water (builders, building managers, manufacturers, tourism professionals, farmers, local authorities) to develop more water-friendly products, buildings, networks and practices.

Good practices:

In Spain, proactive water-saving programmes have been launched in several towns and have produced significant results. In 1997, Zaragoza launched a comprehensive programme based on updated water devices and equipment, introduction of metering and raising public awareness. Its implementation resulted in the saving of 1.2 billion litres of water per year and the lowest water consumption per inhabitant and per day in Spain (96 l/person/day).

2.6. Fostering the emergence of a water-saving culture in Europe

The issue:

Developing a responsible water-saving and efficiency culture requires an active awareness-raising policy in which all actors in the water sector need to be involved. Information, education and training are priority areas for action.

Consumers increasingly demand more information on the way water is used at all stages of the industrial or agri-food process. Labelling is an effective way to provide targeted information to the public on water performance and on sustainable water management practices. The marketing of ever more efficient devices or "water-friendly" products should be encouraged.

In line with Corporate Social Responsibility (CSR), economic operators involved in quality or certification schemes should be encouraged to promote their products on the basis of the demonstrated efficient use of water.

Way forward:

At EU level:

- Explore, together with the European Business Alliance on CSR, the possibility of launching an Alliance initiative on the efficient use of water.

- Encourage the inclusion of rules on water management in existing and future quality and certification schemes.

- Explore the possibility of expanding existing EU labelling schemes whenever appropriate in order to promote water efficient devices and water-friendly products.

At national level:

- Further encourage the development of educational programmes, advisory services, exchanges of best practices and large targeted campaigns of communication focused on water quantity issues.

Good practice:

In summer 2006, France launched a national campaign entitled "Will everyone get enough water?" This campaign based on television and radio spots encouraged individual efforts at water saving. The public considered the messages were convincing. 88% said that they make efforts to save water.

2.7. Improve knowledge and data collection

2.7.1. A water scarcity and drought information system throughout Europe

The issue:

Reliable information on the extent and impacts of water scarcity and droughts is indispensable for decision-making at all levels. Shared definitions are necessary to ensure data consistency at EU level. The recently published Water Information System for Europe (WISE)[11] provides the ideal platform to integrate and disseminate such information.

Way forward:

- Present an annual European assessment, based on agreed indicators and data provided by Member States and stakeholders to the Commission or the European Environment Agency on a yearly basis.

- Fully exploit the Global Monitoring for Environment and Security (GMES) services for the delivery of space-based data and monitoring tools in support to water policies, land use planning and improved irrigation practices.

2.7.2. Research and technological development opportunities

The issue:

Support, coordination and dissemination of research efforts between the EU and national levels will ensure the best match between research needs and what is on offer to society including practitioners and policy makers. LIFE+ and transboundary programmes under the European Neighbourhood and Partnership Instrument (ENPI) on water scarcity and drought management should be coordinated. Synergies have to be sought between policy and research in this respect.

[11] http://water.europa.eu

Way forward:

- Disseminate and facilitate the use and exploitation of the results of research on water scarcity and drought issues.

- Explore, enhance and encourage research and technological activities in this area, including networking, under the opportunities that the Seventh Community Research Framework Programme may bring. These research results may start to be operational and integrated to policy by 2009.

3. CONCLUSIONS

The challenge of water scarcity and droughts needs to be addressed both as an essential environmental issue and also as a precondition for sustainable economic growth in Europe. As the EU seeks to revitalise and reinvigorate its economy and to continue to lead on tackling climate change, the devising of an effective strategy towards water efficiency can make a substantial contribution.

This Communication identifies a first set of policy options with a view to opening up a wide-ranging debate on how to adapt to water scarcity and droughts, two phenomena that could potentially increase in a context of climate change. The options proposed in the Communication could already start to bear fruit in the short term. The Commission therefore believes that more has to be done to introduce these measures swiftly at EU level. In this sense it is important to consider the role of the state of the art research results can play for policy making. The Commission will review progress towards the set orientations and will report on them to the Council and the European Parliament. The report will be presented in the context of a Stakeholder Forum to be held in 2008.

In the light of the discussions on this Communication in the Council of Ministers - starting with the Informal Environment Council on 1 September 2007- and the European Parliament and of the results of the above-mentioned report, the Commission will consider follow-up initiatives and action within the coming few years.