



## **A BLUEPRINT TO SAFEGUARD EUROPE'S WATER RESOURCES**

*Discussion document for Water Directors Meeting 2-3/12/2010 v1.1*

### **1. INTRODUCTION AND POLICY CONTEXT**

Commissioner Potočnik is planning to make 2012 his year of water and in this context present a Blueprint to safeguard Europe's water resources. To this end DG Environment is carrying out an evaluation of the EU water policy that will be based on 3 main pillars, i.e.:

- the assessment of the River Basin Management Plans delivered by the Member States under the Water Framework Directive (WFD),
- the review of the policy on water scarcity and drought and
- an assessment of the vulnerability of water resources to climate change and other man made pressures.

This evaluation has a twofold purpose:

- It will look back and assess the implementation and achievements of policies and measures in place to ensure the protection and availability of EU water resources, while identifying gaps and shortcomings.
- It will look forward at the evolving vulnerability of the water environment to assess the sufficiency of existing measures and tools, and evaluate potential new instruments to ensure a sustainable use of good quality water in the EU in the long term.

The Blueprint will synthesise policy recommendations drawing from the evaluation exercise, and will be accompanied by a number of reports and new initiatives, including of a legislative nature if appropriate.

### **2. THE 3 PILLARS OF THE BLUEPRINT**

#### **2.1. The review of the implementation of the WFD**

Member States had to report their WFD River Basin Management Plans (RBMP) to the Commission by March 2010. As of November 2010, 16 Member States have adopted and reported their RBMPs.

DG Environment has set up a process to assess the contents of the RBMPs, supported by a consortium of consultants. The EEA is also actively participating and supporting the process. It involves the assessment of a vast amount of information in all official EU languages.

The analysis of the RBMP should provide information on how MS have changed their water management since the adoption of the WFD, and how the WFD principles have been incorporated into the legal, administrative and implementation practice in MS.

The compliance checking exercise should be able to provide information on how MS are implementing the key technical elements of the WFD: environmental objectives, exemptions, Heavily Modified Water Bodies, classification of ecological status and potential, supplementary measures, etc.

In addition, the analysis of the RBMP should be able to provide a comparable picture of what MS are doing to tackle the main threats and challenges for water: diffuse pollution from agriculture; hydromorphological alterations/degradation; chemical pollution; eutrophication; overabstraction; water scarcity and droughts; climate change adaptation, etc.

Finally, the assessment will assess the level of commitment of the measures (e.g. legal obligation vs. voluntary, financial resources earmarked), allowing comparing the overall level of ambition of MS action.

The methodology has been concluded in summer 2010 and the assessment started in autumn 2010.

## **2.2. The review of the Water Scarcity and Droughts policy**

In 2007 the European Commission addressed the water scarcity & droughts challenge in the European Union in a Communication (COM (2007) 414 final). Since the adoption of the strategy in 2007, a number of studies, research and other activities have been launched and the implementation of the policy options identified by the 2007 Communication has been assessed on an annual basis.

The Environment Council adopted conclusions on the Commission Communication on 30 October 2007. The conclusions were supportive of the priorities identified and invited the Commission to review and further develop the strategy for WS&D by 2012.

This review will be based on specific on-going assessments of water efficiency potential and policy instruments in water supply infrastructure, buildings and agriculture, and on the current development of more informative indicators for WS&D, together with the EEA & pilot countries. The review will further:

- establish an overview of magnitude of the water scarcity & droughts problem in Europe until now and the medium term perspective, taking into account the effects of climate change
- identify the driving forces, pressures and the impacts on ecosystems, societies and the economy associated with water scarcity & droughts throughout the EU
- identify and assess the adequacy of existing measures to prevent, manage or mitigate water scarcity & drought situations in Member States (national, regional or local level)

- carry out an ex-post evaluation of the water scarcity & droughts policy at EU level, including the policy options identified in the 2007 Communication
- identify gaps, suggest new measures or mix of measures to deal with water scarcity and droughts issues in the EU and carry out an assessment of the environmental, economic and social impacts and the feasibility of the proposed measures
- provide support for the stakeholder/public consultation processes

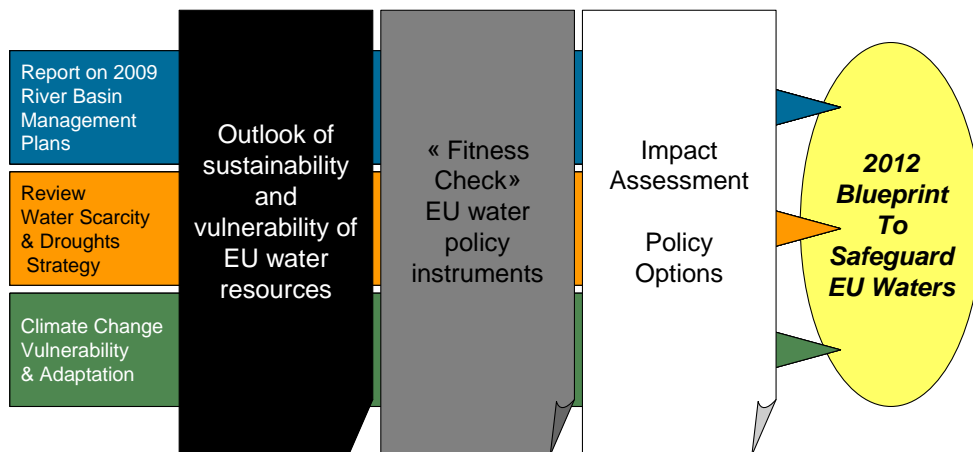
### **2.3. Vulnerability and adaptation of water resources to climate change**

Observational records and climate projections provide abundant evidence that water resources are vulnerable and can be strongly impacted by climate change, with wide-ranging consequences for human societies and ecosystems. As stated in the Impact Assessment carried out for the Commission's White Paper on Adaptation to Climate Change, a precise understanding of the vulnerability of ecosystems, infrastructure economic activity and society to changes in water quantity and quality under different climate and socioeconomic scenarios is needed for a proper identification of the more cost-effective adaptation measures. The assessment of vulnerability has to address not only extreme events but also water management in general under the influence of climate change and variability and related uncertainty. A structured information dataset based on socio-economic and climate scenarios and subsequent hydrological modelling will be set up to better understand the territorial and sectoral distribution of vulnerability to climate change impacts (vulnerability being defined as a function of 1) the exposure to CC impacts, 2) the sensitivity and 3) the adaptive capacity of a system or a territory.

On that basis, options for adaptation strategies and measures at sectoral and cross-sectoral level will be identified; their ecological, social and economic potential, benefits and costs will be assessed and no-regret measures will be identified. The above mentioned Impact Assessment stated that land use and land management measures that strengthen the resilience of water and environmental resources have a potential for providing cost-effective adaptation to climate change, inter alia through increases in water retention by soil and ecosystems. Such measures may provide multiple benefits in the form of water resource retention, water self-purification, biodiversity benefits, flood protection and soil improvements.

### **3. IMPACT ASSESSMENT OF THE BLUEPRINT**

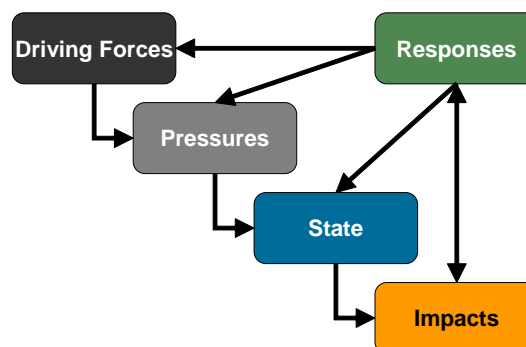
The impact assessment of the Blueprint will cover the above mentioned 3 pillars, by conducting several cross-cutting strands of analysis.



### 3.1. Outlook of sustainability and vulnerability of EU water resources

Building on forthcoming EEA's State of the Environment Report 2010 and complementing it with on-going assessments and modelling exercises, the IA should draw a “D-P-S-I-R” framework, combining water quality, hydro-morphology and water quantity, looking both at long-term trends and extreme events.

- Regarding **Driving Forces**, the IA will build on the assessment of current drivers and scenarios for demographic and socio-economic developments and climate change. The outlook will have a medium term horizon enabling the identification of gaps in current policy implementation, and a longer term horizon with a greater uncertainty component, to be used for the building of a robust decision making framework.



- The analysis of **Pressures** will follow a cross-sectoral perspective, and identify changes in production or consumption processes leading to excessive use of resources, changes in hydro-morphology and land use, and pollutant emissions.
- The assessment of the **State** of water and environmental resources should lead to a better understanding of the thresholds for both ecosystems and human use of water resources, and of the time needed for the improvement of status.
- The assessment of **Impacts** will make a strong emphasis on ecosystem services and will aim at demonstrating how the restoration or improvement of the state of water resources lead to net socio-economic benefits that need to be properly accounted.
- Finally under **Responses**, the IA will provide an overview of current and potential policy action, leading to a short listing of priority action at EU level.

Although focused on river basins in EU and neighbouring countries, the IA will take into account connections to the rest of the global water system, on the one hand through the interplay of land cover/use, atmosphere and hydrology, and on the other hand through “virtual” transfers of water embodied in traded food and other commodities. Moreover, the scope of the Blueprint will also cover ultra-peripheral regions.

### 3.2. Fitness Check of EU Water Policy

The European Commission will conduct, as part of its smart regulation policy, a "Fitness Check" (FC) of EU laws. This means a systematic check that all EU laws meet their objectives in an efficient way. The area of water policy has been selected as a pilot area for this new process. The objective of the Fitness Check will be to assess the effectiveness of the policy measures taken, both in environment policy and in other policy areas, in achieving the objectives already agreed in the context of water policy and identify whether any gap needs to be filled to deliver our environmental objectives more efficiently.

In order to ensure consistency between the development of the Blueprint and the results of the Fitness Check and to ensure an efficient use of resources, it will be necessary to ensure that the scope of and the timing of the Fitness Check corresponds to that of the Blueprint. For a proper coverage of the drivers of the Water Framework Directive environmental objective of good status, it is essential that the Fitness Check covers both the Urban Waste Water Directive and the Nitrates Directive, on top of the complementary Directives adopted under the WFD (Groundwater and Environmental Quality Standards). The inclusion of the Floods directive is also essential as its implementation is closely tied in with the WFD Common Implementation Strategy.

The Fitness Check will look at:

- An review of above mentioned regulatory instruments and a synthesis of the main objectives EU intervention intended to achieve.
- The main problems and obstacles (including from other policy areas) preventing the achievements of the agreed objectives;
- Specific issues related to implementation and compliance, including evidence from infringements and complaints;
- The overall coherence of the regulatory framework in place and the possible presence of overlaps, inconsistencies and/or obsolete measures.

It is too soon to assess the degree of achievement of the objectives of the WFD, and the above mentioned on-going compliance checking of the River Basin Management Plans will already provide some insights. However, the WFD and Floods Directive are also leading to important governance reforms, essential for the achievement of environmental objectives, which can already be assessed in the context of the Fitness Check.

A preliminary list of questions for which the FC should contribute to provide an answer can be established as follows:

- (1) Concerning **effectiveness**, notwithstanding the ongoing implementation of the existing regulatory instruments, are the preliminary achievements in line with the stated objectives?
- (2) Concerning **efficiency**, the ongoing implementation of the WFD should be assessed, with a special focus on the degree of co-operation and policy integration between the river basin level and the different administrative units in Member States, and between Member States in trans-boundary basins. Moreover:

- Are availability of and access to funding a constraint in the implementation of the Directives, as well as of agreed policies on water scarcity and droughts?
  - Are there regulatory gaps, inconsistencies, overlaps or evidence of excessive administrative burdens?
- (3) Concerning **coherence**, what is the degree of integration of WFD with the other instruments covered by the FC? Moreover:
- What is the degree of integration of water policy across Member States and sectors? are there substantial divergences between Member States in defining and implementing the key concepts of the WFD, such as ecological objectives, inter-calibration, monitoring, integrated management of ground and surface waters, pricing policies, etc.?
  - What is the degree of integration and coherence with other policy instruments addressing the use (or re-use) of water for specific purpose, such as drinking water, bathing water, use of water for irrigation, food and drink production, industry, etc?
  - Is the scope for integration of WFD with other policy objectives (e.g. biodiversity & nature protection, flood protection, management of water availability, adaptation to climate change) fully exploited?
  - Are current instruments sufficient for the sustainable management of freshwater resources? For example, is the management of water demand (pricing, "gaps", buildings, agriculture, leakage, implementation of the water hierarchy and land use) and water availability (hydro-morphology, land use and green infrastructure) well covered by existing EU legislation? Are there shortcomings to address?
  - Is enough attention being given to the control of pollution at the source to reduce the reliance on end of pipe solutions (e.g. for waste water treatment), which may have higher costs for end-user and higher externalities?

### **3.3. Policy options**

The final list of policy options for the Blueprint to be assessed will emerge from the previously described reviews and Fitness Check. The options will be mainstreamed into Europe 2020 priorities, in particular promoting a more resource efficient, greener and more competitive economy, but also developing an economy based on knowledge and innovation, and fostering a high-employment economy delivering economic, social and territorial cohesion. Options would be developed e.g. in the following areas: Demand management in water stressed areas; improved water efficiency (urban infrastructure, buildings, industrial processes, agriculture, tourism facilities and water using products); spatial measures to improve water retention, flood protection and water availability; management of water infrastructure (drinking water, sewage, irrigation, flood management, etc.); boost innovation in the water sector, etc.

In each area, the IA would cover the broad scope of potential policy options; from legislative approach to standardisation, incentives, funding, communication instruments, etc.

### 3.4. Integrated Assessment Framework

The Impact Assessment will rely on an integrated analysis framework based on 3 main elements:

- The setup of water and ecosystem accounts, at river basin level, enabling a precise quantification of pressures on water resources and of sectoral/geographical variations.
- An integrated modelling framework, linking land-use, hydrological and resource efficiency models, enabling the proper quantitative assessment of the scenarios and policy options.
- A knowledge mapping, identifying the key relations between driving forces, pressures, states, impacts and policy responses, and providing access to reports, research projects and case studies. This mapping will also enable the identification of knowledge gaps.

This toolbox will be built on the basis of a co-ordinated work between DG ENV and other Commission services and organisations, in particular DG ESTAT, JRC, RTD and the EEA.

DG Environment has launched or will launch before the end of 2010 a set of contracts which cover to a large extent the scope of the Blueprint Impact Assessment, and are summarised in the table below:

<b>Contract</b>	<b>Duration</b>	<b>Main Deliverables</b>
Modelling water vulnerability & adaptation	12/09 – 08/11	Vulnerability indicators for Floods, WS, Droughts and impacts on W quality. Database of adaptation measures with potential impacts. Integrated assessment tool. Draft results to be discussed at stakeholder meeting in March 2011
Support WFD implementation	06/10 – 06/12	Assessment of RBMP
Support in preparation of the Impact Assessment of the 2012 Groundwater Directive revision	05/11 – 03/12	Impacts assessment of the options for the review of the Annex I and II of the GWD
Costs and Benefits of natural water retention measures	12/10 – 12/11	Based on a typology of natural water retention measures, provide estimates of their costs and benefits, and of their potential for increasing resilience to climate change; analyse the potential of EU policy and funding instruments to promote no-regret measures
Assessment of options for EU action on water efficiency of buildings	12/10 – 03/12	Recommendation on policy options for water efficiency of buildings
Assessment of the possibilities of introducing water related information on food and agricultural product labels	12/10 – 08/11	Review of applications of the water footprint and foodstuff labelling and recommendation on how these can be applied in policy. Overview on how water information is integrated in labelling and certification schemes and a proposal for best -practice guidelines
Water pricing & water allocation in agriculture	12/10 – 12/11	Case studies on water pricing policies for the agricultural sector in selected river basins. Recommendation on best practices
Assessment of the options for water saving in agriculture and the costs and benefits of the different options	12/10 – 12/11	Establishment of solid information on possibilities for water saving in agriculture. Clarification on existing data. Application of the findings to selected European pilot river basins

<b>Contract</b>	<b>Duration</b>	<b>Main Deliverables</b>
Support in preparation of the Impact assessment of the 2012 review of the Water Scarcity and Droughts	12/10 – 02/12	Identification of the extent of water scarcity & droughts in Europe. Identification and assessment of existing measures. Identification of possible new measures. Assessment of impacts and feasibility of selected water scarcity & droughts measures
Pilot Project - Development of prevention activities to halt desertification in Europe - Call for proposals	12/10 – 07/12	3-5 pilot projects focusing on innovative technologies, techniques or practices in order to contribute to the exchanges of good practice and innovation at the local level for halting desertification in Europe
Pilot project on the economic loss due to high non-revenue-water amounts in cities	12/10 – 07/12	5-8 pilot studies in water-scarce parts of Europe will analyse and quantify the factors of relevance for leakages at a river basin level and determine the links between the leakages and the cost structures. Identification of best practices for reducing water-losses in the EU or other countries. Recommendations on policy options for water efficiency in distribution systems

To complement the above mentioned contracts, a **support contract for the elaboration of the IA** of the Blueprint will be launched mid-2011, with the objective of gathering all relevant information in a structured framework, and performing additional assessments e.g. in the following areas:

- establishment of cost curves for water supply and demand, providing geographical and sectoral level of detail;
- quantitative assessment of water resources related vulnerabilities and of measures to strengthen resource resilience;
- valuation of water related ecosystem services; definition of changes needed in regulatory regimes or implementation strategies for integrated multipurpose land use measures;
- assessment of the effectiveness of the mix of policy instruments (in particular economic and communication instruments) in managing the vulnerability of water resources and trade-offs between sectors, regions & systems;
- development of relevant maps and indicators to support decision making;
- support to stakeholder workshop and conferences to discuss interim results of the Blueprint; etc.

Moreover, the **JRC** will contribute to the Blueprint, as reflected in its draft work programme, with the following actions:

- Testing and application of the integrated Land Use Modelling Platform (LUMP), providing pan-European scenarios for policy impact assessment and integration with thematic models, including Water
- Further development and maintenance of hydrological modelling framework LISFLOOD for water quantity management, including water use

- Evaluation of the impacts of climate change, land use change and water use on extreme events (floods, droughts) and water related sectors including hydropower (water availability to large reservoirs) and water use. Multi-hazard (flood, drought, forest fire) risk and damage mapping at a pan-European scale.
- Testing of a global water quantity assessment & early warning system, including the extremes: floods and droughts
- Analysis of options for balancing competing demands for agriculture, energy, industry, human consumption, recreation and ecosystems
- Analysis of water footprint of production chains and trade as a measure to manage demands.
- Focus on Ecosystem Services for trade-off and scenario analyses (land use, climate, policy) and an assessment of vulnerability and cost and benefits of action/inaction
- Spatial explicit mapping and valuation of water ecosystem services

The EEA will contribute through:

- The assessment of state and pressure information from reporting information; the assessment of the vulnerability and integrity of water ecosystems;
- the setup of a more comprehensive indicator framework in particular for the Water Scarcity and Drought policy and for the decoupling water management from its environmental impacts;
- a cross-sectoral 'water economics' assessment with a view to the integration into ecosystems accounts; scenarios for key environmental and sectoral policy priorities, etc.

The building of water asset accounts (at river basin level) by the EEA in cooperation with **DG ESTAT** and JRC, will be a central methodological element to underpin the IA of the Blueprint, in particular water balances, the fast track implementation plan for physical ecosystem accounts in Europe and statistics on overall water use and uses by sector.

**WISE** will be used to support the Blueprint, including making accessible all the data, information, studies and modelling results that will underpin it. The presentation of the Blueprint can then be accompanied by a major update of WISE in which we deliver an interactive platform to access a broad range of information on water at European level, serving at the same time as a driver for a step change in the functionality and ambition of the information system.

The outcome of completed or on-going relevant **research projects** (FP6/7, ERA-NETs, national research projects, etc.) will be integrated in the knowledge mapping. A preliminary list is given by the table below:

Project	URL	Project	URL
ACQWA	<a href="http://www.acqwa.ch">www.acqwa.ch</a>	IRWM-Net	<a href="http://www.iwrm-net.eu">www.iwrm-net.eu</a>
CapHazNet	<a href="http://www.caphaz-net.org">www.caphaz-net.org</a>	MEDIATION	<a href="http://www.mediation-project.eu">www.mediation-project.eu</a>
CIRCE	<a href="http://www.circeproject.eu">www.circeproject.eu</a>	MIRAGE	<a href="http://www.mirage-project.eu">www.mirage-project.eu</a>

Project	URL	Project	URL
ClimateWater	<a href="http://www.climatewater.org">www.climatewater.org</a>	PSIConnect	<a href="http://www.psiconnect.eu">www.psiconnect.eu</a>
CLIMSAVE	<a href="http://www.climsave.eu">www.climsave.eu</a>	REFRESH	<a href="http://www.refresh.ucl.ac.uk">www.refresh.ucl.ac.uk</a>
CLIWASEC	<a href="http://www.cliwasec.eu">www.cliwasec.eu</a>	RESPONSES	<a href="http://www.responsesproject.eu">www.responsesproject.eu</a>
ConHaz	<a href="http://www.conhaz.org">www.conhaz.org</a>	SCARCE	<a href="http://www.idaea.csic.es/scarceconsolidate">www.idaea.csic.es/scarceconsolidate</a>
CORFU	<a href="http://www.corfu-fp7.eu">www.corfu-fp7.eu</a>	SCENES	<a href="http://www.environment.fi/syke/scenes">www.environment.fi/syke/scenes</a>
CIRCLE-2	<a href="http://www.circle-era.eu">www.circle-era.eu</a>	SedNet	<a href="http://www.sednet.org">www.sednet.org</a>
CRUE ERA-NET	<a href="http://www.crue-eranet.net">www.crue-eranet.net</a>	THESEUS	<a href="http://www.theseusproject.eu">www.theseusproject.eu</a>
EQUIP	<a href="http://www.equip.leeds.ac.uk">www.equip.leeds.ac.uk</a>	UrbanFlood	<a href="http://www.urbanflood.eu">www.urbanflood.eu</a>
FLOODprobe	<a href="http://www.floodprobe.eu">www.floodprobe.eu</a>	WATCH	<a href="http://www.eu-watch.org">www.eu-watch.org</a>
FRMRC	<a href="http://www.floodrisk.org.uk/index.htm">www.floodrisk.org.uk/index.htm</a>	WETWin	<a href="http://www.wetwin.net">www.wetwin.net</a>
GENESIS	<a href="http://www.genesis-fp7.eu">www.genesis-fp7.eu</a>	WISER	<a href="http://www.wiser.eu">www.wiser.eu</a>
HYDRATE	<a href="http://www.hydrate.tesaf.unipd.it">www.hydrate.tesaf.unipd.it</a>	XEROCHORE	<a href="http://www.feem-project.net/xerochore">www.feem-project.net/xerochore</a>
IMPRINTS	<a href="http://www.imprints-fp7.eu">www.imprints-fp7.eu</a>		

Finally, the IA will take on board the outcome of on-going activities in international organisations (OECD Environmental Outlook, UNEP, UNESCO-IHP<sup>1</sup>, ICPDR, Global Water System Project (GWSP), etc.) and other organisations such as WssTP, EWP, etc.

### 3.5. Communication and consultation

During the whole process for the elaboration of the Blueprint and the Fitness Check, a far-reaching communication and consultation campaign will be organised, giving the necessary openness, transparency and visibility to the process. Wide consultations will be carried out to test the findings of the evaluations and assess the practicability and enforceability of the different policy options.

At a major Stakeholder Conference on water policy (3rd European Water Conference 2012) in the spring of 2012, the options identified as the result of the impact assessment will be presented and discussed.

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<sup>1</sup> <http://typo38.unesco.org/index.php?id=240>

### 3.6. Calendar

The adoption of the Blueprint is foreseen for November 2012.

	2010-IV	2011-I	2011-II	2011-III	2011-IV	2012-I	2012-II	2012-III	2012-IV
Main Blueprint Milestone			Fitness Check Evaluation	Start IA		Outlook EU waters	Draft policy options	Draft IA discussed at IA Board	Adoption Blueprint
Stakeholder Conferences		C					C		
Timing main DG ENV contracts									
Modelling water & adaptation									
Natural water retention measures									
Support Evaluation Fitness Check			W						
Water efficiency of buildings									
Water related information on food/agricultural labelling									
Water pricing & water allocation in agriculture					W				
Water saving in agriculture									
Support for review of the Water Scarcity and Droughts									
Support to Blueprint IA									