COUNCIL OF THE EUROPEAN UNION

Brussels, 19 November 2012

16425/12
ADD 2

ENV	**867**
AGRI	**772**
DEVGEN	**308**
CHIMIE	**85**
RECH	**417**
ENER	**476**
TRANS	**403**
PROCIV	**186**
REGIO	**132**
MARE	**11**
PECHE	**485**
IND	**195**

COVER NOTE

from:	Secretary-General of the European Commission, signed by Mr Jordi AYET PUIGARNAU, Director
date of receipt:	14 November 2012
to:	Mr Uwe CORSEPIUS, Secretary-General of the Council of the European Union
No Cion doc.:	SWD(2012) 382 final / Volume I
Subject:	Commission staff working document Impact assessment accompanying the document Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions A Blueprint to Safeguard Europe's Water Resources

Delegations will find attached Commission document SWD(2012) 382 final / Volume I.

_____

Encl.: SWD(2012) 382 final / Volume I

EUROPEAN
COMMISSION

Brussels, 14.11.2012
SWD(2012) 382 final

1/2

COMMISSION STAFF WORKING DOCUMENT

IMPACT ASSESSMENT

Accompanying the document

COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS

A Blueprint to Safeguard Europe's Water Resources

{COM(2012) 673 final}
{SWD(2012) 381 final}

TABLE OF CONTENTS

COMMISSION STAFF WORKING DOCUMENT

IMPACT ASSESSMENT

Accompanying the document

COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS

A Blueprint to Safeguard Europe's Water Resources

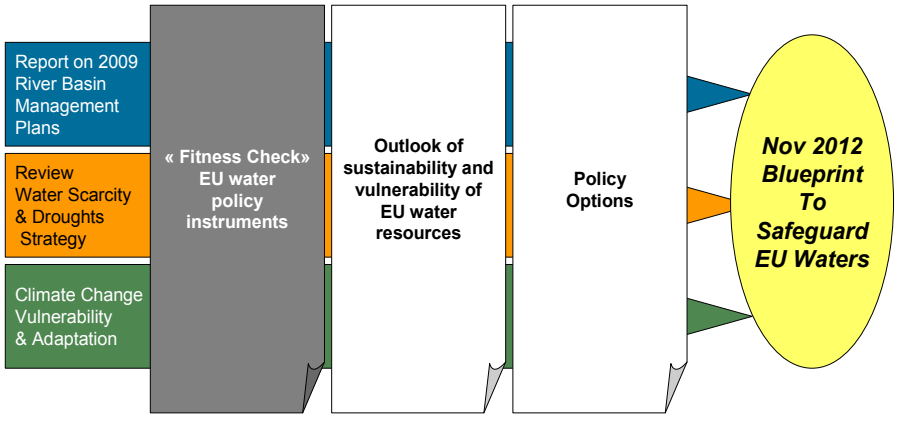
Introduction

The EU has developed over several years a comprehensive water policy where addressing the environmental impacts of major water-using sectors has gradually complemented the policy addressing mainly health concerns. Since 2000, with the adoption of the Water Framework Directive (WFD), water policy has made another step-change taking an integrated approach to water management, on the basis of the concept of 'river basin management' aimed at achieving good status of all EU waters by 2015. The 2007 Floods Directive (FD) provides further legislative building blocks in this integrated approach.

However, as stressed by the EEA in the 2010 State of the Environment Report[1], the achievement of EU water policy goals is still challenging due to a number of old and emerging water management issues. The Communication "A Blueprint to Safeguard Europe's Water Resources" (the 'Blueprint') is based on an assessment of the effectiveness of the implementation of the existing legislation, the gaps related to the current EU policy framework and the evolving vulnerability of the water environment, and identifies further actions and tools that may be needed at Member States and EU level to address all the challenges ahead.

The Impact Assessment (IA) of the Blueprint brings together the output of the assessment of River Basin Management Plans (RBMP), the review of the Water Scarcity and Droughts (WSD) policy, the review of the vulnerability of water resources to climate change and other man made pressures and the Fitness Check of EU freshwater policy,[2] by conducting several cross-cutting strands of analysis, covering gaps and making the link with other studies and research projects. It focuses on the identification of the key challenges for water resources management and the identification and assessment of a set of policy options for action at EU level. The IA pays specific attention to subsidiarity aspects and to the articulation with the current Common Implementation Strategy (CIS) of the Water Framework Directive.[3]

Figure 1. The Blueprint architecture



1 EEA 2010: http://www.eea.europa.eu/soer

2 The Fitness Check report, the assessment of the RBMPs and the review of the WSD policy are subject to 3 separate reports to be published at the same time as the Blueprint.

3 The CIS is an informal process that brings together Water Directors from all Member States and EEA countries as well as a wide range of stakeholders to discuss and agree ways to improve the WFD implementation, including by developing guidance documents.

The 1st section of this report describes the organisation of the process leading to the elaboration of the Blueprint and this supporting Impact Assessment. The 2nd section provides a description of the problem, based on an analysis of the trends in the sustainability of water resources management and the identification of the need to act at EU level. The 3rd section describes the objectives that sustain the identification (in the 4th section) of policy options, which are further analysed and compared in the 5th and 6th sections respectively. Finally the 7th section describes the process to be set up for the further monitoring and evaluation of Blueprint's proposals.

This main report is complemented by an executive summary and annexes, available in separate documents. The annexes provides more details on 1) Water resources baseline and scenarios, 2) Impacts and barriers for the implementation of water resource management measures, 3) Stakeholder and public consultations, 4) Inter-service group meetings, 5) Studies/work carried out by external consultants and 6) References. This report is also complemented by two external support studies[4]:

1. PROCEDURAL ISSUES AND CONSULTATION OF INTERESTED PARTIES

The Blueprint is included in the Commission Work Programme 2012 under *2012/ENV/005*.

1.1. Organisation and timing

Preparatory work for the Blueprint started in April 2010, with the identification of key issues and preparatory action to be included in the 2011 management plan. Open calls for tender were launched during the first semester of 2011, for several support contracts (see Annex 5). The core team for drafting IA & Communication was in DG ENV.D1. Other DG ENV units as well as DG ESTAT, DG JRC and the EEA were closely associated to the preparatory studies. No formal task force was set up. An inter service group was created; the following services were involved: SG, ENV, AGRI, CLIMA, COMP, ECHO, ECFIN, ELARG, EMPL, ENER, ESTAT, INFSO, JRC, MARE, MARKT, MOVE, REGIO, R&I, SANCO, SJ, TRADE and TAXUD. See more details on inter-service meetings in Annex 5.

1.2. Consultation of the IAB

A draft Impact Assessment report was discussed at the Impact Assessment Board on 18/07/2012. In its opinion of 20/07/2012, the IAB recommended, *inter alia,*

(1) To strengthen the problem definition by presenting up-front a comprehensive overview of the implementation gaps, market failures behind and legal problems of the current water policy framework, and by subsequently identifying clearly the concrete problems to be addressed by the Blueprint. On that basis the report should develop a fully integrated baseline scenario showing the evolution of the

---

4 **JRC, 2012.** *Service contract to support the impact assessment of the Blueprint to safeguard Europe's waters - A multi-criteria optimisation of scenarios for the protection of water resources in Europe* and **IEEP et al, 2012**, *Service contract to support the impact assessment of the Blueprint to safeguard Europe's waters - Assessment of policy options for the Blueprint*, Studies for the European Commission, DG Environment,see: http://ec.europa.eu/environment/water/blueprint/index_en.htm

problematic issues and discuss the legal base for the elements of the toolkit that would require legislative action.

(2) To express the objectives in more specific terms and link them better to the refocused set of problems to provide greater clarity on what the Blueprint in practice intends to achieve. The report should also explain the available policy measures and the construction of the options/alternative sets of measures in more detail.

(3) To better assess the impacts of the options, mainly with respect to Member State/regional effects, enterprises/SMEs, and the development (reduction) of administrative costs.

These comments have been fully taken on board in a new version submitted to inter service consultation. Details are provided in Annex 4.

1.3. Consultation and expertise

The drafting of the IA relied on a wide external consultation process. The stakeholder consultation took place since the early stages in the IA process through the established Common Implementation Strategy for the Water Framework Directive (CIS – WFD) that brings together the Member States, the Commission, the Accession and EEA Countries as well as stakeholders and NGOs. Support studies and draft results have been discussed in the meetings of Water Directors, Strategic co-ordination group and the different working and expert groups of the CIS-WFD.

A stakeholder conference (3rd EU Water Conference) took place on 24-25 May 2012 to discuss draft policy options and the results of many studies feeding into the Blueprint have been presented during several sessions of DG ENV flagship environmental conference – Green Week – which was devoted entirely to water issues (22-25 May 2012). The IA also takes into account the outcome of bilateral meetings and position papers which are described in Annex 3

In the Blueprint process, the Commission's minimum standards for consultation have all been met. Two 12-weeks public consultations took place: first, on the Fitness Check between 6/12/2011 and 27/2/2012 and second, the public consultation on policy options between 16/3/2012 and 8/6/2012. The consultation on the policy options provided the context of the Blueprint and explained the main problems facing Europe's waters. The public were then asked for their views on a range of specific options of different types to determine which, if any, were supported and by which type of stakeholder. Overall, 221 public consultation responses were received and, in the majority of cases, they were supportive of non-legislative approaches to EU action to tackle water problems. This included support for guidance and tools in relation to water balances, target setting and cost-recovery, as well as action on improving information and reporting efficiency. Some legislative options also received support, such as a possible new Regulation on water re-use standards. On introducing additional conditionality into EU funding such as the CAP, there were strongly divergent views, although in each case the majority supported introducing further conditionality. There was also strong support for using different EU funds to support water infrastructure needs. Detailed results are presented in Annex 3 and reflected in sections 2 and 5.

External expertise was used: the Impact Assessment builds on a large number of studies and reports that provide a solid knowledge base. A detailed description of the studies and other sources is provided in Annexes 5 and 6.

2. POLICY CONTEXT, PROBLEM DEFINITION AND SUBSIDIARITY

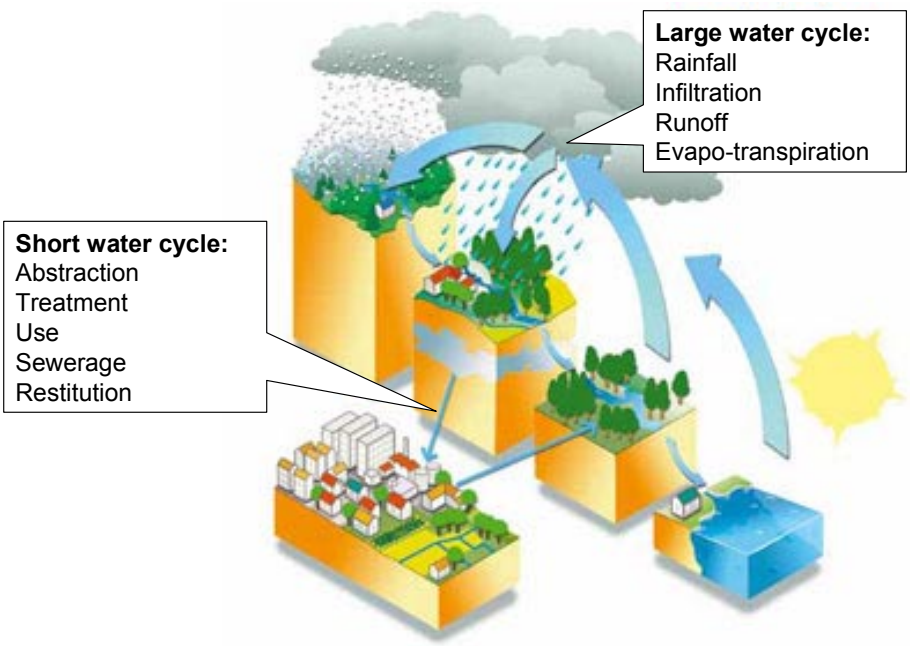
2.1. Policy context

The Water Framework Directive (WFD), adopted in 2000, established a legal framework to achieve sustainable water management in the EU. It built on 30 years of EU water policy. It has been a front runner in integrated water management as it takes a holistic approach to water management in the river basin and reflects this in binding regulatory instrument. In particular, it provides for:

- expanded water protection to all waters: inland surface and groundwater; as well as coastal waters;
- achievement of "good status" for all waters by 2015;
- management of water at the hydrological scale of river basins;
- ensuring that water prices provide adequate incentives for water users to use water resources efficiently;
- close involvement of citizens and stakeholders in water management;
- streamlining of legislation by repealing a number of legislative instruments.

In summary, the WFD introduces objectives and tools which aim at creating a win-win situation between ecology and economy at the appropriate geographical scale and therefore truly achieving a sustainable and integrated water resource management. This means moving from a “small water cycle” perspective to a “large water cycle” perspective, widening the perspective of water as a raw material and introducing the concept of ecosystem and ecosystem services.

Figure 2 - Small and Large Water Cycles - Source: ONEMA

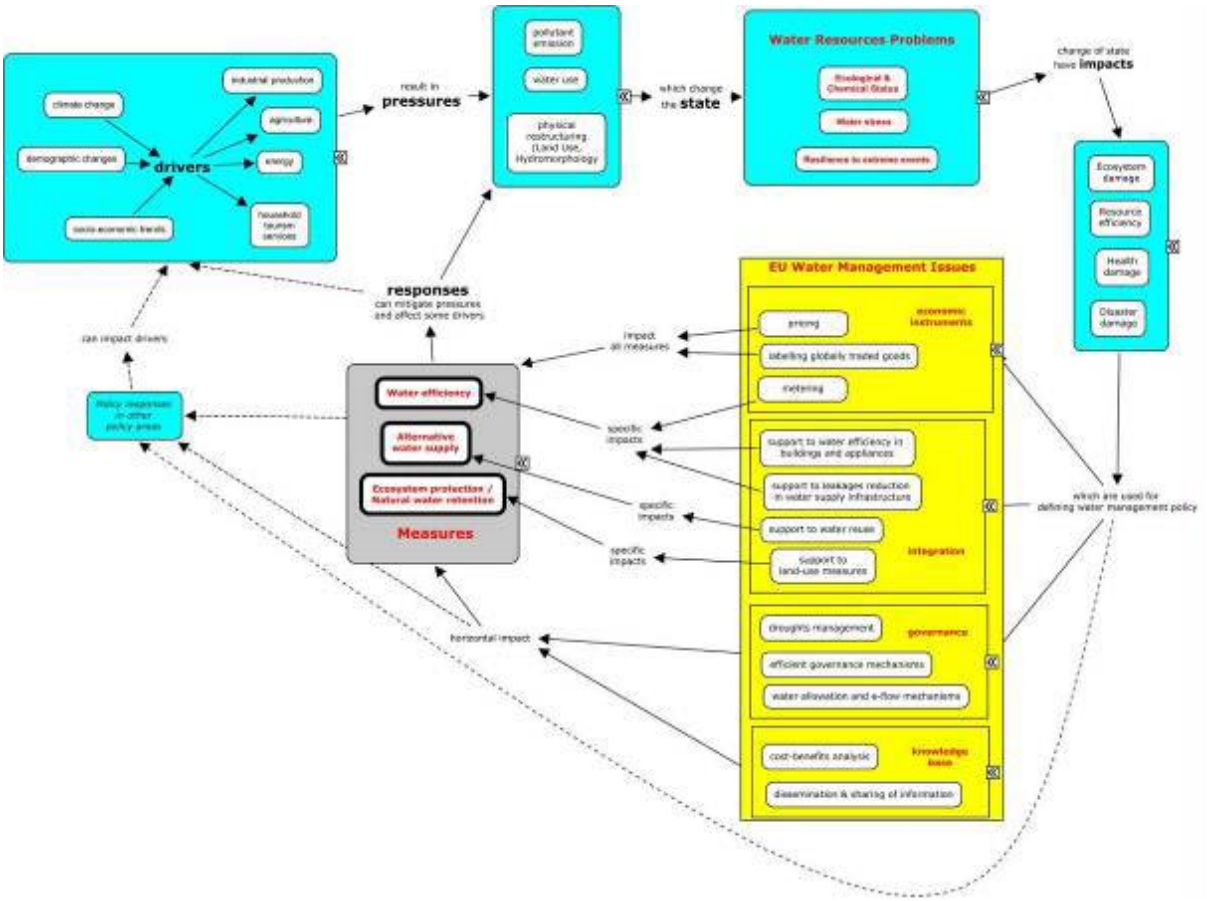


The policy cycle of the WFD is based on periods of 6 years. Member States were required to deliver their first RBMPs by the end of 2009 and shall review these plans every 6 years. The Programmes of Measures (PoMs) developed under the plans have to be operational by the end of 2012. Therefore, the 2nd cycle RBMPs need to be in place by the end of 2015. By 2019, the WFD should be rewiewed and, if necessary, revised.

2.2. Assessment framework: DPSIR framework

The architecture of the Impact Assessment is based on an enhanced **DPSIR (**Drivers Pressures Status Impacts and Responses) framework designed for the Blueprint:

Figure 3 – Enhanced DPSIR framework for the Blueprint



The IA starts from environmental problem linked to the **state** of water resources, with 3 main dimensions (ecological/chemical status, water stress and vulnerability to extreme event), that should be solved through targeted measures (**responses**) which are in many cases available but not sufficiently implemented at River Basin level because of water management problems falling within 4 categories:

– Weak implementation of economic instruments

– Lack of policy integration in support to specific measures

– Ineffective Governance

– Inefficient gathering and policy connection of knowledge base

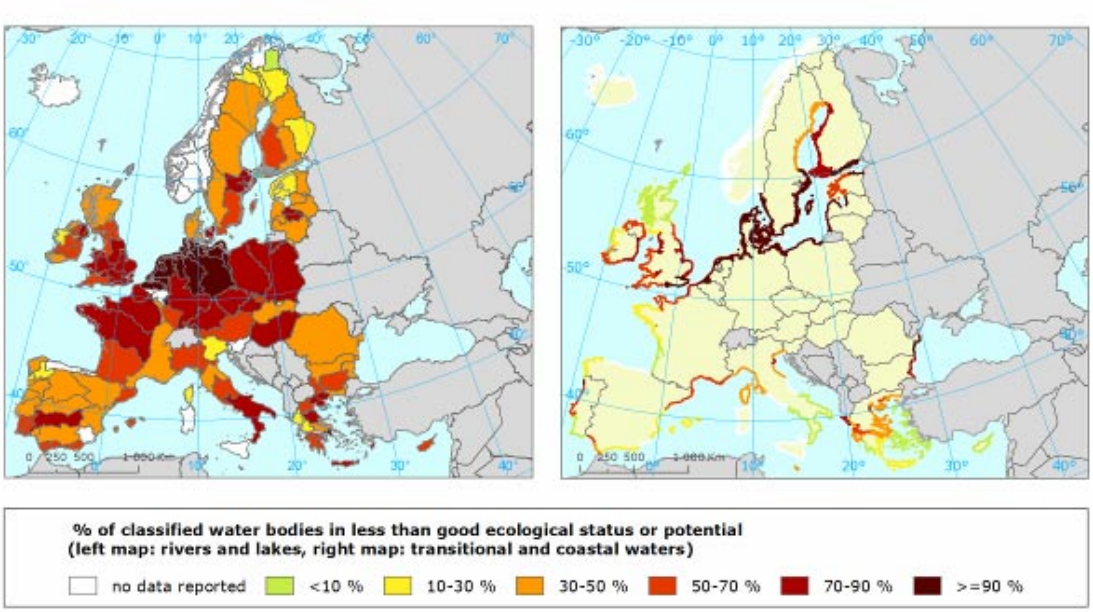
From the analysis of the state of the water resources, 12 water management problems have emerged. They are used to structure the problem definition of this impact assessment and the definition of the set of policy options.

2.3. The state of EU water resources, drivers and pressures

2.3.1. State of EU water resources

The present section takes on board the key messages from the State of Water Report[5], which provides a detailed presentation of the challenges that Europe's waters are facing. The most relevant issues are presented below:

Figure 4 - Reported ecological status of surface water bodies in 2009 – Source: EEA, 2012



The information reported in the first (2009) River Basin Management Plans (RBMPs) indicates that more than half of the surface water bodies in Europe are in less than **good ecological status**[6] or potential[7], and will need additional measures to those established under older (Nitrates, Urban Waste Water) Directives to meet the WFD objectives.

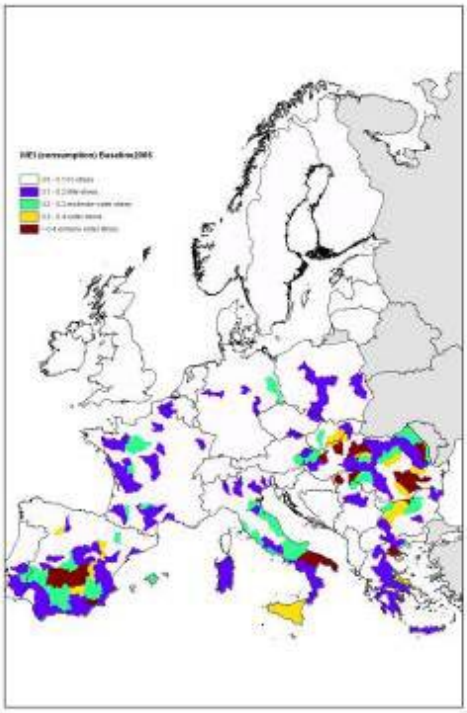
---

5 To be published by the EEA report together with the Blueprint. Drafts are available at: http://forum.eionet.europa.eu/nrc-eionet-freshwater/library/public-section/2012-state-water-thematic-assessments/

6 The quality elements used to assess ecological status are: 1) **biological** quality elements; 2) **chemical** and physicochemical elements; and 3) **hydromorphological** quality elements. The ecological status of a water body is determined by combining assessment results for biological, chemical and physicochemical quality elements; the quality element most severely affected by human activity determines the overall ecological status. For Groundwater, the assessment is focused on the chemical and quantitative status.

7 Where the benefits achieved by the physical modification of surface water bodies (storage of drinking water, agriculture, hydropower, navigation, flood protection) cannot be reasonably achieved by other means that are a significantly better environmental option, Article 4.3 of the WFD allows Member States (MS) to designate the water bodies as **Heavily Modified Water Bodies** (HMWB). This is subject to the condition that the change necessary to bring back the water body to good ecological status would have a significant adverse effect on a sustainable development activity. An alternative objective to good ecological status is applied to these water bodies, namely **good ecological potential**, which takes into account the physical modification that is necessary for the use.

Figure 5 - Water stress indicator[8] 2000 – source JRC, 2012



Water stress is spreading in Europe, affecting one third of the territory all year round. During summer months water scarcity is more pronounced in Southern European basins but is also becoming increasingly important in Northern basins, including UK and Germany. Even in areas where water stress indicators are well below the thresholds, water saving is an issue, in particular for domestic consumption, due to the energy consumption linked with water distribution, use and treatment.

The frequency and intensity of **floods and droughts** and their environmental and economic damage appear to have increased over the past thirty years. South-eastern Europe is increasingly facing extended periods of droughts, and both Northern and Western Europe have been affected in more recent years (EEA, 2012). Similarly, analyses of trends of past flood events show that flood risks have increased in parts of Europe. (Barredo et al., 2008). This can be attributed mainly to anthropogenic pressures, in particular land use changes and it is postulated by researchers that a cause and effect relationship exists between different extreme events in different parts of Europe (Millán Millán, 2012).

8 The Water Exploitation Index is calculated by the JRC along the lines of the CIS Expert Group Water Scarcity and Drought recommendations as WEIcns = (abstraction – return flow) / (external inflow + internal flow). The index is calculated for single entire years (from 1st October until 1st October) for the entire simulation period, in this case 30 years, and then averaged. A monthly calculation would be technically possible but requires detailed information and simulation of seasonal water storages, which is a considerable effort in data acquisition, as is recognized by the WSDEG.

2.3.2. The causes of sub-optimal management of water resources

The current state of water resources and trends over the last years is heavily influenced by various ***Pressures*** (pollutant emissions, water use, physical restructuring), triggered by anthropogenic and natural ***Drivers*** such as climate and demographic change; socio-economic trends; industrial, agricultural and energy production; water use by households, tourism and services' sectors. These are described in Annex 1.

The impacts of pressures and drivers can be managed through the implementation of policy ***Responses***, i.e. concrete measures with impact on the physical environment and support actions (institutional framework, policies and legislations, allocation instruments, knowledge base). The policy responses available to the challenges faced by the water environment consist of water resource management measures[9] to improve ecosystem protection, water efficiency and water availability (see DPSIR figure):

- **Ecosystem protection and Natural Water Retention Measures** (NWRM) aim to safeguard and enhance the water storage potential of soil and ecosystems. This includes forestry measures, sustainable agriculture practices (that impact evapotranspiration and enhance the preservation and restoration of soil functions), sustainable drainage systems and measures that focus on increasing the storage in catchment and alongside rivers (i.e. restoration of wetlands, floodplains). These measures have direct impacts on hydrology, water retention, and water purification, and at the same time deliver co-benefits, in particular biodiversity protection, disaster prevention, climate change adaptation and mitigation. In this respect, depending of the context where they are applied, they can prove cheaper and/or more effective than traditional alternatives such as dams or dykes.

- **Water efficiency** measures are often a sustainable and cost-effective method to deal with water stress situations and they offer, for instance in building, a significant energy saving potential associated with water savings. A great variety of actions have been undertaken by Member States to promote water saving, but a substantial reduction of water consumption could still be achieved by promoting water use efficiency in all sectorsand would be necessary in the areas that are currently under water stress or prone to water stress in the future.

- Together with the above mentioned NWRM, several measures are able to increase **water availability**, such as water re-use or desalination, as alternative to water transfers. They require a continue enhancement of technologies in order to lower the use of energy and minimize environmental impacts on the aquatic environment. This is, therefore, an area for investment in innovation to ensure their cost-effectiveness of measures.

The above measures, which cover the inextricably linked water qualitative and quantitative aspects, are already in place in some River Basins, but the assessment of the Programmes of Measures included in River Basin Management Plans reveals that the uptake of the key measures is not sufficient to achieve a sustainable situation. The assessment of the plans,

[9] Annex 2 provides a more detailed analysis for each category of water resource management measure

supporting studies and discussions with stakeholders have led to the identification of the main barriers to the further implementation of the measures. These barriers constitute the problems that the Blueprint wants to address.

2.4. Problem definition for the Blueprint

Water resources problems identified above (water status, water stress, extreme events) and the subsequent analysis of drivers illustrate the broad challenges faced by Europe's waters. In line with the principle of subsidiarity, the Blueprint should focus on problems and policy instruments that are relevant for EU level water management, taking also into account the evaluation performed in the context of the Fitness Check[10], the assessment of River Basin Management Plans[11] and the review of Water Scarcity and Droughts policy[12]. This is why, on the basis of the analysis of the **barriers** to the implementation of key measures able to solve the above mentioned water resources problems, we have identified **four categories of water management problems** that are relevant at EU level and that the Blueprint should address. These are the following:

2.4.1. Insufficient use of economic instruments to address market failures

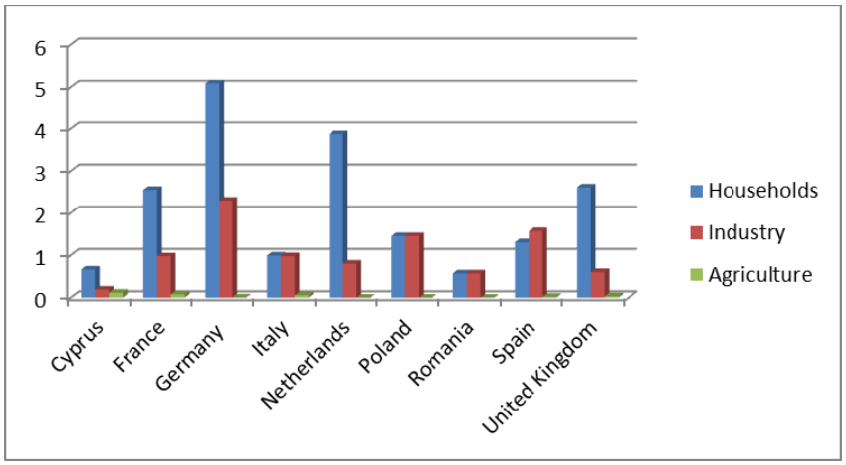
EU policy, in particular WFD Art. 9 already promotes the use of economic instruments in water management and effective use of such instruments would provide the right price signal and the resources needed for a further implementation of measures targetting water efficiency, ecosystem protection, natural water retention or water availability.

- However, as highlighted by the assessment of the RBMPs, current **pricing schemes** in Europe often fail to combine the objectives of **efficiency** (marginal social cost pricing), **fairness** (polluter/user pays principle, removal of harmful subsidies) and do not allow a sustainable degree of cost **recovery** for the financing of the measures.Therefore, the above mentioned water efficiency or alternative supply measures do not, at current pricing levels, represent an alternative to pumping from groundwater aquifers or surface waters which are already under water stress. This is a consequence, inter alia, of not including environmental and resource costs into the price of abstracted water. Subsidies, especially at national/regional level, e.g. in bioenergy and agriculture or for the constructions of dams or reservoirs, may lead to excessive consumption or pollution of water resources, as water users or polluters do not face the full cost of their activities. Reasons for the constraints on understanding and implementing such instruments include insufficient knowledge, barriers to acceptance, lack of transparency in the calculation of cost recovery and subsidies, inappropriate structures of the instruments and lack of pre-conditions for the use of these instruments (e.g. metering, see below). In some cases, there are historical rights to water that prevent a better allocation of resources. For 8 Member States, an infringement procedure is open for the narrow definition of water services (WFD Art. 2(38)) used for the application of the cost recovery principle, covering only public water supply and waste water collection/treatment. This limits very significantly the potential incentive to water efficiency that would be given by a

[10] add reference
[11] add reference
[12] add reference

wider application of the cost recovery principle, which includes environmental and resource costs, in particular to self abstraction (pumping from groundwater aquifers and surface waters).

Figure 6 - Prices of water in chosen Member States by sector (€/m^3)[13]:



- Water pricing needs a volumetric element in order to provide an incentive to reduce consumption. This requires water use to be determined either through **metering** or alternative monitoring techniques, not only in households: According to RBMPs assessment, domestic volumetric pricing is reported to be in place only in 63% of the basins, water metering in 53% of RBMPs. but more crucially in agriculture, where effective metering has been found out in 10 Member States It is of note that the number may be higher, as some other EU Member States also apply volumetric charges which necessitates some type of water metering. Member States (ARCADIS et al, 2012).. Illegal abstraction in some parts of the EU puts at risk ground water availability and quality (as illegally abstracted water is often also discharged illegally after use).

- Information and communication instruments usually improve the effectiveness of economic instruments. There are an increasing number of initiatives globally aimed at estimating the footprint or life-cycle impacts of products, or at developing certification standards for application across commodity supply-chains[14]. This is relevant not only from the perspective of ensuring that consumption and production processes in Europe do not actually simply transfer water consumption and pollution problems to developing nations less prepared to deal with these impacts, but also from a competitiveness perspective, when the implementation of pricing policies affect the production of **globally traded goods**.

---

13 Various sources: Kuik 2012, OECD 2008, BIO Intelligence Service 2011, most recent prices paid to water provider, excludes self-abstraction.

14 RPA and Cranfield University (2011). Assessment of the efficiency of the water foot printing approach and of the agricultural productions and foodstuff labelling and certification schemes. Study for the European Commission, DG Environment.

2.4.2. Lack of policy integration in support to specific measures

Even if a proper implementation of economic and communication instruments can help for a further uptake of measures that can provide a cost-efficient response to water resource problems, there are cases for which additional support from policy and funding instruments is needed:

- **Ecosystem protection and natural water retention measures (NWRM)** are potentially very effective measures that enable improvement of ecological status, improvement of resource efficiency and reduction of water stress and improvement of the resilience to extreme events. However, certain barriers in terms of integrating measures targeting natural water retention, diffuse pollution control, and ecosystem protection with other policies lead to low degree of implementation. The co-financing potential for these measures appears to be unexploited and there is lack of binding targets (both within policies and funding instruments). Currently most of the investments financed by EU funds in the 2007-2013 period or co-financed by European financial institutions (European Investment Bank and European Bank for Reconstruction and Development) target large scale water infrastructure programmes rather than investment in ecosystem protection or "green infrastructure[15]" projects, or water efficiency projects in individual sectors (f.i. agriculture, housing). Due to the voluntary character of most of the natural water retention measures a support through the 1st pillar of the CAP is not currently an option. The 2nd pillar (EAFRD) offers more possibilities as it gives the Member States the flexibility to choose the measures they want to support in accordance with the European orientations, while agro-environmental measures are appropriate for targeting water retention actions. The main limitation remains that a national, regional or even private co-financing is expected, which is unattractive for certain Member States/regions or even difficult to attain for some actors (i.e. municipalities). Moreover, WTO requirements concerning compensation for the provision of environmental services (loss of income and additional costs) make that it is not always possible for public water authorities to use payment for ecosystem services (PES) to support the full scale of costs involved[16] in efficient water protection measures. On the contrary these requirements do not apply to the private sector which enjoys more flexibility in the level of support they can bring. Several success stories have been experienced for instance by mineral water suppliers (e.g. Vittel in France), showing that PES can be a very cost-effective and innovative financing tool.

- There is a large potential for water savings in domestic consumption, agriculture, industry and energy. Further implementation of water efficiency measures, as well as of alternative water supply, is mostly conditioned by the pricing level and structure, as mentioned above. However, the assessment of the measures (see Annex 2) show that a lack of policy integration persists in specific contexts:

---

15 See http://ec.europa.eu/environment/nature/ecosystems/index_en.htm

16 i.e. costs incurred for the scientific development of the project and for buying land and implementing land use restrictions, as well as frequently high opportunity costs

– The **design of building and water using appliances** does not sufficiently factor in water efficiency. Wastage could be up to 15% of water consumption[17] which is problematic in areas which are water stressed or at risk of becoming water stressed. It also causes a waste of energy used to heat the water: most water-savings measures in this sector are energy saving and could be further embedded into energy efficiency regulations.

– There is a large diversity of conveyance efficiency in potable water supply systems (from 52% to 92.7%[18]) accross catchments, although this should be only considered as problematic if it decrease the net availability of water resources in the catchment and if the cost of the resource justifies intervention (this leads to the concept of Sustainable Economic Level of Leakage - SELL). The economic efficiency of the network is relevant from an EU perspective due to the potential contribution of EU funding to water infrastructure.

– The lack of common EU **standards for water re-use** for agriculture and industrial uses limits a potentially important alternative water source - especially for water stressed areas where this option could be cheaper than desalinisation or transfers[19]. The lack of common health/environmental standards threatens farmers using re-used water to irrigate crops for export within the single market and prevents industry from making long-term investment decisions. It also constitutes a barrier for innovation.

There are also barriers to the development and implementation of innovative solutions related to inertia, lack of awareness, business as usual, etc that need to be addressed in order to unlock the potential and dissemination of successful solutions (e.g. natural water retention measures, water re-use, etc.). Innovations are not limited to technology and research, but also include governance, management, land use planning, ICT, financial, legal, administrative and other areas. This topic is however not further developed in the context of this IA as it is fully covered under the European Innovation Partnership for Water[20].

2.4.3. Ineffective water governance to tackle coordination problems

In addition to the contribution of economic instruments and the support to specific measures via policy integration, it is also important to put in place an effective governance system to ensure the implementation of those instruments and measures. In this respect, a number of obstacles have been identified:

- Governance of water and sectoral policies at Member State level is, in some cases, **fragmented** and limited by a lack of capacity and resources to fully address water

---

17 Bio IS, Study on water performance of buildings, Final Report to the Commission 2009

18 ERM et al., Resource and Economic efficiency of Water Distribution Networks, Final Report to the Commission 2012

19 The total volume of reused water in Europe accounts for less than 3% of the treated effluent, but this rate is 100% in Cyprus, 60% in Malta and 12% in Spain. It was estimated that increasing water reuse for irrigation by 1% could have reduced the economic impact of drought in the EU by € 1 billion in the next 20 years. Substantial economic benefits from water reuse will also come from a more cost-efficient treatment of water and avoided nutrient inputs. (TYPSA, 2012).

20 http://ec.europa.eu/environment/water/innovationpartnership/index_en.htm

management objectives. In some cases, there is lack of coordination in river basins shared between different administrative entities within Member States, between Member States and with third countries.

- National and regional authorities are generally in charge of developing the programme of measures and also implementing it. For the CAP and EAFRD the implementation at national level is crucial and requires **inter-sectoral coordination** which is a key element for an effective water- governance. This is also important for the aquaculture plans under the reform of the Common Fisheries Policy. Water management and spatial planning in particular need better coordination[21] but, due to subsidiarity, this can only be addressed at the national or regional level, while EU policy instruments such as the SEA and EIA Directive can be relied upon. The implementation of NWRM can lead to potential conflicts between land users and different stakeholders. While the costs of these measures are quantifiable at the local level, the benefits are often fully quantifiable at a larger scale (even though there are local benefits). Coordination and integration under the planning processes between different levels of authorities (EU, national, regional, local) and a broad range of stakeholders representing different sectors is required. This needs dynamic, flexible, well integrated and efficient governance structures, which are not present in all Member States. Coordination is also important for the **long-term** to sustain implementation as many measures require a commitment to continuous management and maintenance as well as collective action (See annex 2).

- Moreover, authorities responsible for development and implementation of policies and stakeholders do not sufficiently integrate **financial needs** early on in the planning process in order to get the necessary public and private sector commitment to the financing, maintenance and operation of the measures.

- **Water balances** and adequate water allocation including the basic needs for nature i.e. the ecological flows are poorly implemented at river basin level. This is both a water quantity and quality problem since good water status cannot be achieved without adequate water allocation. While EU water law sets a number of objectives for water bodies, there is still a major gap in the ability of (at least some) water managers to set clear targets and implement them at river basin level. This is often due to lack of capacity and/or awareness. For example, quantitative aspects are frequently considered but not in combination with qualitative objectives or standards. This leads to neglecting the ecological flow that is needed to ensure the viability of water ecosystems and the provision of their ecosystem services on which many activities depend (e.g. water purification and regulation). Capacity building is required for introducing ecological flow requirements in the RBMPs and for their climate proofing. There is a need for more standardised methods and the development of a common understanding on the setting of ecological flow at EU-level, based on Member States monitoring data.

---

[21] See EEA Technical report No 4/2012 "Territorial cohesion and water management in Europe: the spatial perspective", http://www.eea.europa.eu/publications/territorial-cohesion-and-water-management

- **Drought management** is poorly integrated into overall river basin management in many cases. The 2007 Communication on Water Scarcity and Droughts stated that the WFD has "sufficient flexibility to develop specific Drought Management Plans (DMP) in relevant river basins". Moreover, droughts risks and pressures on the aquatic environment should be addressed within RBMPs.However, the assessment of the latter reveals that further efforts are required to develop and implement a coherent set of actions to address drought at the river basin scale within the planning process of the WFD[22]. Thus there is a need to improve the preparedness of Member States to manage future droughts, and protect economies and society from drought impacts, which are expected to increase in frequency, intensity and geographical scope with climate change.

*2.4.4. Knowledge **gaps:***

Economic instruments, policy integration and governance cannot be effective without an adequate knowledge base enabling the right decisions to be taken at all levels.

- The most crucial knowledge gap evidenced by the assessment of the plans and the studies supporting the Blueprint relates to the poor quality of the assessment of **costs and benefits** of water related measures and plans and programmes affecting water resources (or of lack of action), which are not properly understood or quantified. In many cases river basin authorities set objectives for water bodies while lacking the capacity to link specific measures (e.g. on hydromorphology) to the expected effects on water status and the related water uses. This also prevents the further implementation of economic instruments for water resources management, notably pricing schemes and payments for ecosystem services.

- There is insufficient **dissemination and sharing of compatible data** and other information between Member States, European bodies and third countries leading to an incomplete understanding and quantification of the problems Europe's waters are facing and, potentially, to incoherent water management choices. Data provision is not timely, there is a lack of interoperability of various information systems and integration of different sources (EU and national Statistics, EEA reporting, JRC modeling, information reported to international organisation such as WMO, etc.). Access and availability of data at various levels (from local to EU and global level) is the basis for policy making, implementation and evaluation. From the RBMPs reported by the Member States and from the building of water accounts or the EU hydro-economic model, it appears that there are still considerable information gaps (on water balances, ecological flows, large scale water transfers between river-basins, local water storages in reservoirs, lakes and other storage facilities etc.) or when information exists it is not necessarily in a comparable form or readily available at the adequate decision level. For instance, without a certain level of interoperability of information sources it is very difficult to operate effective cross-border water management as data from different parts of the same basin are not comparable. This is particularly important as 60% of EU river basins are transboundary. There is also low effectiveness in the current monitoring and

[22] ref 2012 communication on WSD

reporting schemes: The Fitness Check has highlighted the administrative burden that arises from the fact that the reporting cycles of the UWWTD and Nitrates Directive are not synchronised with the WFD). New and emerging knowledge needs must be addressed through research activities.

2.5. How will the problems evolve?

For each of the four problem categories above, this section tries to anticipate how the problems would evolve, in particular whether they would get worse if no action is taken. This is done on the basis of the assessment of the 121 river basin management plans received by the Commission and other studies, while taking into account current Commission policy proposals and projected changes in the the drivers and pressures..

2.5.1. Unsustainable trends in water resources use and availability

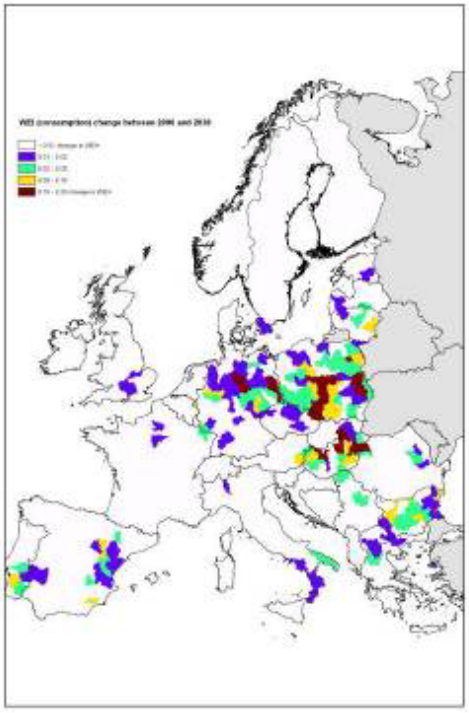
A lack of ambition has been found in many RBMPs as regards achieving the environmental objectives of good ecological status or potential as well as extensive reliance on exemptions. In general, the extensive use of exemptions is not supported by transparent justification of the criteria applied, indicating a degree of arbitrariness in their application. Where deadlines for achieving the environmental objectives are extended beyond 2015, it is often unclear by when the objectives will be reached.[23]

The policy responses currently in place are not fundamentally reversings the trend in water scarcity in the medium time horizon (2030). Without modification to the institutional and policy measures already implemented or planned, water scarcity in 2030 is expected to increase.

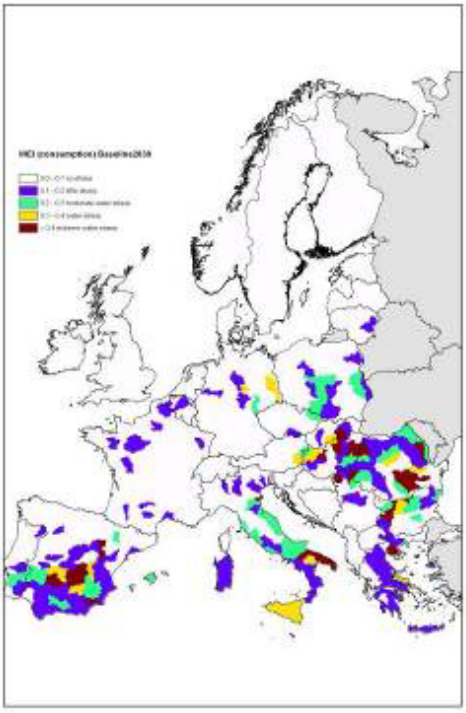
Figure 7 – Evolution water exploitation index including returns (WEI+), baseline 2006-2030[24]:

[23] See Annex A RBMP Assessment.

[24] source JRC, 2012



Change in WEI-consumption between 2006 and 2030



Water Exploitation Index (consumption) for 2030

The frequency of heavy precipitation events is likely to increase in many areas of the globe, including Europe; this can cause flash flood and pluvial flood events. It is also very likely that mean sea level rise will contribute to upward trends in extreme coastal high water levels.[25] Droughts are also projected to increase in frequency, duration and intensity.

At global level, the recent GEO-5 report[26] states that *despite the progress, there are concerns that the limit of sustainability of water resources, both surface- and ground-water, has already been reached or surpassed in many regions, that demand of water continues to increase and that water-related stress on both people and biodiversity is escalating rapidly*. These trends (mapped e.g. in Vörösmarty et al. 2010) confirm the importance of complementing the analysis of EU water resources with an assessment of the impact of goods and services imported into the EU on global water resources, taking into account local water management contexts.

The future water situation and developments in the water sector have been examined in Europe until 2050 by the ClimWatAdapt project[27] in terms of vulnerability to water scarcity, droughts and floods. Future vulnerability to water scarcity will primarily depend on socio-economic development, i.e. changes in water use are likely to have more impact on water scarcity than changes in water availability resulting from climate change. However, the

---

25 Special report of the Intergovernmental Panel of Cliamte Change : "Managing the risks of extreme events and disasters to advance climate change adaptation - Summary for Policy makers", IPPC, 2012.

26 http://www.unep.org/geo/geo5.asp

27 http://ec.europa.eu/environment/water/adaptation/index_en.htm

analyses show that climate change could have a major effect on extreme events, e.g. the occurrence of droughts and floods. Water quality could deteriorate as a consequence of climate change, e.g. because in cases where reduced runoff will lead to lower dilution rates or, on the other hand, in cases where a much higher runoff will cause higher nutrient loads.

2.5.2. Use of economic instruments:

- If no further actions are taken at EU level for better enforcing the implementation of the WFD economic requirements, it is expected that work on economic instruments will continue in some but not all Member States: 49% of RBMPs include modification of the water **pricing** system to foster a more efficient use of water. However, a coordinated better implementation of WFD-economic tools and a "level playing field" regarding economic incentives cannot be expected as there are different views on how economic aspects should be further developed in the context of the WFD. Some Member States will focus on better addressing environmental and resource costs, others will extend their efforts to make payments for ecosystem services workable. Others may do nothing. The impact of the economic crisis[28] on the public funding of infrastructure and further removal of environmentally harmful subsidies is unclear. The latter is a priority in the context of the European Semester.

- 40% of the RBMPs include measures to enhance water **metering** which is a pre-condition for incentive water pricing. The EU has a number of public financial instruments that can be used to improve water efficiency and plays a role in poorer regions to develop the necessary water infrastructures, including water supply and accompanying measures such as metering. The European Commission presented its proposals for cohesion policy 2014-2020 in October 2011. However, the use of regional and Structural and Cohesion Funds to support metering will depend strongly on the regional plans developed by national or regional authorities.

- Regarding **labelling** of products or supply chains, there are global or European-wide initiatives such as the forthcoming ISO standard 14046 expanding the scope of the water footprint to life cycle analysis, the European Water Stewardship (EWS[29]) part of the global Alliance for Water Stewardship (AWS), etc. These initiatives may contribute to awareness raising for sustainable water management but their success will largely depend on whether they will be implemented on a large scale e.g. thanks to regulatory requirements or to awareness campaigns. It is also unclear whether the EU Water Initiative (EUWI) support for improved water resource management in third countries is going to continue.

2.5.3. Policy integration in support to specific measures

Trends in CAP and Cohesion policy show that there is potential for further policy integration and coherence that can emerge from the implementation of the EU multi-annual financial framework. However, there is a high level of uncertainty on what will actually happen at

[28] Ref task 4b Pressures and Measures study

[29] http://www.ewp.eu/activities/water-stewardship/

national and river basin level, and very scarce information can be extracted from RBMP on this topic.

Structural and Cohesion Funds will be available for water resource protection measures, in particular waste-water treatment or recycling plants. They can also further support actions for green infrastructure projects (natural water retention measures), as they relate to other investment priorities (low-carbon strategies for urban areas, adaptation to climate change, biodiversity, urban environment improvement). The degree of which these measures will be supported is highly dependent on the investment priorities included in the Member States' operational programs and on the selection of investments that is made to support these priorities. It also depends on the outcome of the ongoing discussions on the Commission proposals on Structural and Cohesion Funds..

The European Commission's proposals for a reform of the **CAP** after 2013 include a number of measures with a direct or indirect impact on water resources management, in particular:

- The new greening component of the CAP legal proposal for Pillar I could potentially support most of the agriculture related measures but the degree to which the measures will be supported and their effectiveness highly depends on what texts will be finally agreed and on their implementing rules at European and national levels.

- Cross-compliance standards for maintaining soil organic matter level and the protection of wetlands and carbon rich soils. Both standards are aimed at climate change mitigation and adaptation but they should also benefit water quality and water quantity. The proposal also foresees the inclusion of elements of the Water Framework Directive and of the Directive on the Sustainable Use of Pesticides into cross-compliance, once they are fully implemented by the Member States and concrete rules relevant to farmers are identified.

- Rural development policy should continue to offer a range of measures which will influence water quality, water quantity and the hydro morphology. Particular conditions have been proposed regarding support for investments in irrigation, including minimum efficiency thresholds.

- Extension of the scope of the Farm Advisory System to *inter alia* the protection of water

The priorities for the European Innovation Partnerships for water and for agricultural productivity and sustainability will be defined at the end of 2012 or beginning of 2013; action under these instruments will provide additional support to unlock promising measures.

2.5.4. Governance

- As the policy framework for water **governance** is already in place, the question is how well Member States will meet current obligations and how the framework is expected to evolve. Some improvement in existing structures for water management and co-ordination of functions is expected to occur as experience in implementing the WFD continues. It is difficult to predict whether cases where transboundary co-operation is poor will improve as the WFD continues to be implemented or whether there are systemic barriers that are likely to remain. In considering the future status

of water governance in Europe, it is important to stress again the potential impact of the current economic crisis. Public expenditure is being cut in many Member States and public authorities are suffering from reduced budgets affecting staff numbers, equipment investment, etc. The consequences are expected to last several years and, for some of the hardest hit Member States, these impacts could have long-term consequences. Therefore, efficiency in the administration of water management is an important objective which will be given greater emphasis. As a result, while it is reasonable to argue that previous implementation of the WFD has been a learning experience for Member States authorities (whether on individual actions, transboundary co-operation, etc.) and future governance improvements might be expected, the economic crisis could reduce the effectiveness of governance in some cases. Thus support for key governance challenges through the Blueprint is even more important.

- In the preparation of the Blueprint the Commission has started a number of activities for the development of EU **water accounts** at sub-catchment level, for the assessment of **ecological flows** and for the building of a hydro-economic model that can support the assessment of policy scenarios and the formulation of **targets** for water efficiency and reduction of vulnerability. If these activities are not integrated under the Common Implementation Strategy and synergies are not found with similar initiatives at national or regional level, there is arisk of duplication and ineffecctiveness.Moreover, if the current data gaps and inconsistencies are not solved with additional action, these tools will not be useful.

- **Drought** hazard and related risks will continue to be substantial and may even be exacerbated in many parts of Europe. A recent study[30] using the WaterGap model concludes that, in the absence of further policy action to improve drought management in the EU, an increasing number of Spanish, French and Northern river basins in particular could become water stressed over time. A growing number of Eastern European basins near the Black sea are also likely to face increased drought-related problems. **Drought risk management** will therefore become ever more necessary but it is unlikely to improve if Member States awareness is not raised, in particular with regard to the shortcoming of their current RBMPs.

2.5.5. Knowledge base

- Regarding the analysis of **costs and benefits**, despite the problems mentioned above, only very limited additional work is indicated in some RBMPs on this issue for the next management cycle(s). Hence, very limited progress is expected in the baseline situation, which calls for action at EU level. For the latter, there are important on-going projects, such as the building of the hydro-economic modelling by the JRC (see Annex 1), the database of measures[31], both developed in the context of the Blueprint, as well as other developed in the current policy context, initiatives at a wider scale such as the mapping of ecosystem services, that could contribute to

30 ACTeon et al. (2012). Water Scarcity & Droughts Policy in the EU - Gap Analysis. Report to the European Commission. Tender ENV.D.1/SER/2010/0049.

31 Ref Pressures & Measures study

some improvement in the knowledge base, together with other initiatives at Member State level.

- On-going activities (under the current CIS framework) will contribute to improve **dissemination** of the knowledge base, such as the further development of the Water Information System for Europe (WISE) and the European Drought Observatory, which have already taken some important steps in information sharing for water policy; and the on-going activity to streamline monitoring and reporting obligations under water, marine and biodiversity policies. However, the move towards fully interoperable information systems is slow[32] and reporting requirements can only be changed through legislative amendments. Within the 'Global Monitoring for the Environment and Security' (GMES) programme, some initiatives contributing to sustainable water management are on-going which can help demonstrate the potential of GMES in supporting sustainable water management and tackling current problems such as illegal water abstraction. A fully-fledged GMES programme is expected to be in place in the course of the next multi-annual financial framework, starting in 2014. Water related research projectes under the current 7th Framework programme and the new Horizon 2020 should contribute to improving the knowledge base and the science-policy interface (SPI), providing the current SPI initiative in the context of the CIS is maintained.

2.6. Who is affected and how?

This section describes how the main actors would be affected by the continuation of a business as usual situation for water management, both directly and through the consequences on water status.

2.6.1. Environmental impacts.

The environment as a whole is affected by the state of waters. Indeed, there is a bidirectional relationship between the status of water bodies and the **health of ecosystems:** The status of surface water and groundwater bodies affects the state of aquatic and terrestrial dependent ecosystems which greatly impacts their functions and their capacity to provide **ecosystem services**. These water related ecosystem services include water provisioning (for multiple uses), water flow regulation (increase in infiltration and groundwater recharge), erosion control, flood hazard reduction, water purification (leading to increased availability of clean water). Similarly, the functioning of ecosystems affects water resources, their status, and their vulnerability to climate change and anthropogenic pressures.

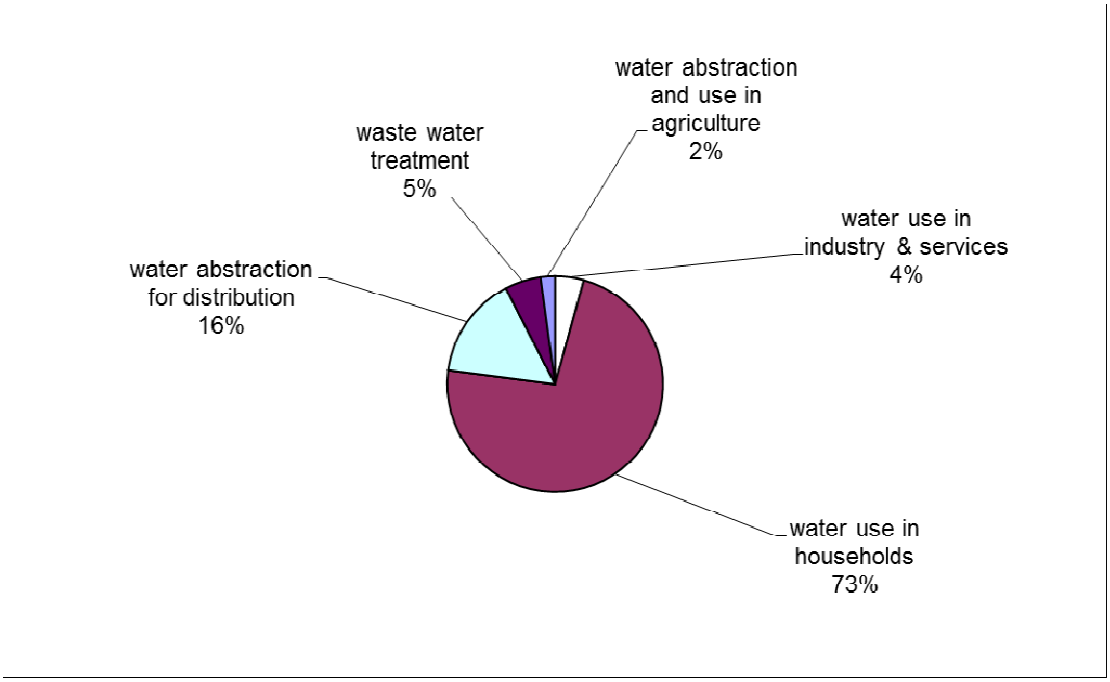
Regarding **coastal and marine environment**, nitrogen and phosphorus loads discharged from water bodies to European seas are expected to increase by 2020 (cf FATE BAU scenario, JRC, 2012). Furthermore, saltwater intrusion has already become a problem in large parts of the Mediterranean, due to groundwater over-abstraction for public water supply, agricultural water demand, and tourism related abstractions (MedWSD, 2007). At global level, between 25% and 40% of global sea level rise can be attributed to groundwater depletion mainly to irrigate crops (Wada et al. 2010, Pokhrel et al, 2012).

---

[32] The INSPIRE Directive, when fully implemented in 2019, will enable data from one Member State to be seamlessly combined with data from all other States.

As for the problem of water scarcity, it goes beyond the physical water gap: Abstracting, conveying, purifying, using and further treating the water can have large impact on energy consumption and GHG emissions:

Figure 8 – energy consumption linked with water abstraction, use and treatment[33]



As regards wildlife habitat and biological productivity, they may be degraded through the loss of wetlands, lakes and riparian vegetation.

Lower surface and groundwater levels due to over-exploitation may endanger river dependent ecological and economic functions, including surface water abstractions, dilution of effluents, navigation and hydropower generation.

Water quality problems such as pollution by nutrient can be intensified by low water quantity. If water is abstracted at too high a rate, there may not be enough water to dilute excess nutrients that have leached into water bodies. Higher concentrations of nutrients and toxic substances can negatively affect fish spawning and increase algae blooms.

2.6.2. Economic sectors affected and likely impacts of the baseline situation

A number of economic sectors are directly dependant on availability of water at specific quality levels.

- Residential (Potable water)
- Agriculture (irrigation and livestock)

[33] Source:DG Environment based onEU water accounts,see Annex 1

- Aquaculture
- Food production and other manufacturing
- Energy production (cooling water for power plants and hydropower)
- Transport (navigation)
- Commercial fishing
- Recreation (bathing, boating, fishing etc.)
- Tourisms (cultural, historical and aesthetic values)

The current trends are leading to substantial cross-sectoral externalities: the lack of proper internalisation of costs (see section 2.4) mean that costs have to be unduely covered by domestic concumers, SMEs or taxpayers. Pollution of surface and groundwater represent an additional cost for the provision of drinking or irrigation water. Work is still on-going at EU, national or OECD levels for a quantification of the efficiency losses throughout the economy through unavailability of clean water, to provide a more accurate green growth rationale for freshwater policies.

Based on the projections of ClimWatAdapt, Southern Europe and parts of Western Europe are likely to suffer from water scarcity during summer, primarily caused by agricultural water use. In Western Europe, the energy sector is extremely vulnerable to water scarcity and droughts because of increased electricity production. Scarcity costs have been calculated for domestic, industry and tourism in Cyprus (Zachariadis, 2009) and results show that the present value of total costs due to water shortages in the period 2010-2030 may reach €200 million (2009 prices).

The quality of EU bathing waters has improved significantly since 1990 — in 2010, (more than 90 %) of bathing areas complied with mandatory values.

Economic damage from floods in EU are estimated at 6400 M€/year for the period 2006-2010. The total additional damage from climate change scenarios ranges from 7700 to 15000 M€/year, more than doubling the annual average damages over the 1961-1990 period. (PESETA project, JRC, 2009)

2.6.3. Social impacts

There is scarce evidence on distribution of water pollution or extreme events impacts, but it appears that, overall, impacts are concentrated in lower income countries and in regions with low level of development, in particular rural areas. (see OECD[34], 2010) , as well as in small water supplies. This is due to a lower rate of implementation of drinking water and waste water treatment regulations, to weak enforcement or absence of land-use planning rules in flood-prone areas, and lower access to water saving technologies and know-how. Access to

[34] ENV/EPOC/WNEP(2010)

safe drinking water and sanitation must also be considered within a human rights framework[35].

2.7. The need to act at EU level:

In the discussion of the four problem categories described in sections 2.4 and 2.5, 12 specific water management problems have emerged:

Weak implementation of economic instruments

(1) Weak implementation pricing policy

(2) Low implementation of metering in some sectors or countries

(3) Need for labelling of globally traded goods

Lack of integration of water issues into other policies

(4) Land use measures

(5) Buildings and appliances

(6) Water infrastructures (leakages)

(7) Water re-use

Governance

(8) Need for more effective governance

(9) Lack of water balances, eflows and targets.

(10) Weak drought management

Knowledge base

(11) Lack of a consistent methodology to calculate costs and benefits

(12) Weak dissemination and sharing of compatible data

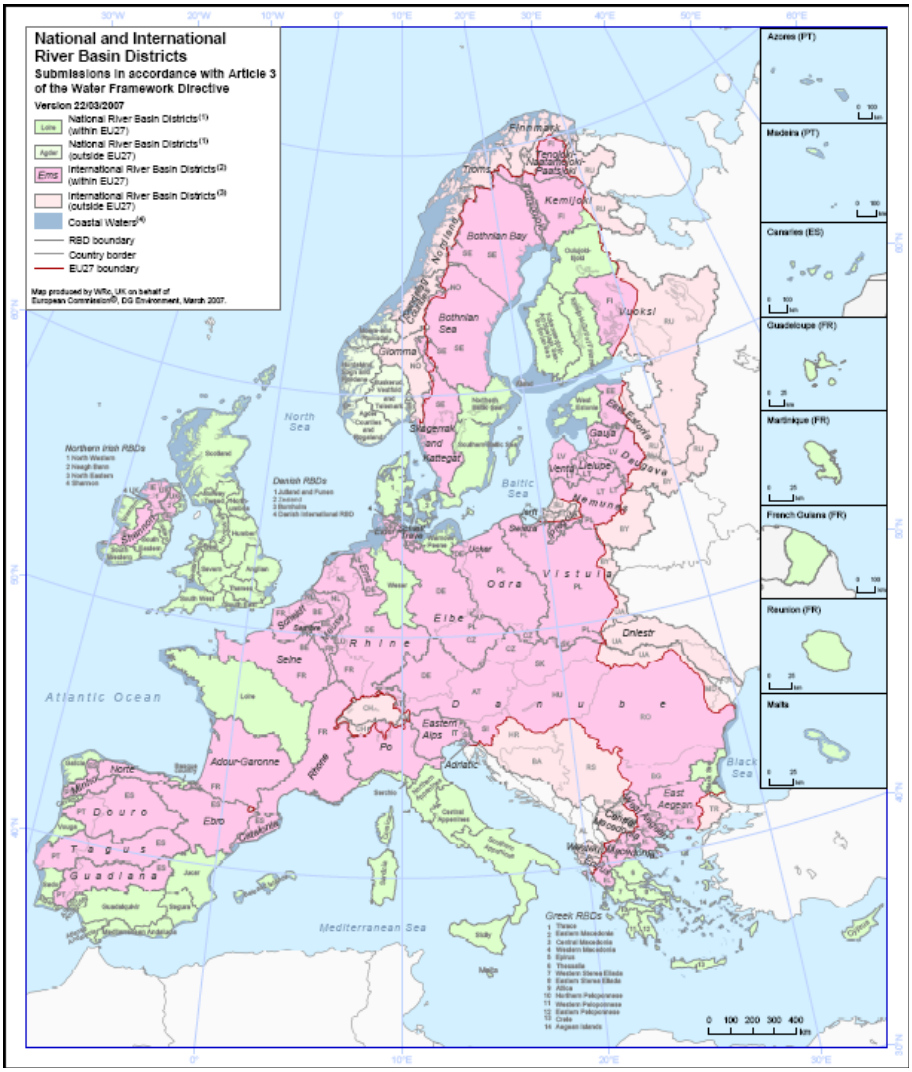
These specific problems have been screened to ascertain whether the Commission should put forward policy proposals taking into account the subsidiarity and proportionality principles.

First of all, it is essential to recall that 60% of EU river basins are international, shared by 2 up to 19 countries (Danube) and action taken by a single or a few States is not sufficient, for instance in relation to quantitative aspects of water management or cross border water pollution. Water management is also an issue for Enlargement and Neighbourhood policies.

---

[35] In 2002, the United Nations Committee on Economic, Social and Cultural Rights adopted its general comment No. 15 on the right to water, defined as the right of everyone "to sufficient, safe, acceptable, physically accessible and affordable water for personal and domestic uses."

Figure 9 – transboundary river basins



In addition, for each the 12 specific issues, there are concrete additional reasons to act at EU level, which are explained here below:

Weak implementation of economic instruments

- The basis for action on **pricing** is the need to facilitate the implementation of the WFD, in particular Art 9.In order to be effective in cross-border basins and to prevent negative effects on the internal market, economic incentives to use water at its true cost for society should be applied in a consistent fashion in the EU.Moreover, the identification of environmentally harmful subsidies is an essential element of Europe 2020, and their reduction is part of the Resource Efficiency Roadmap.

- For **metering**, the basis for action is the same as for pricing, as metering is a necessary pre-condition for the proper implementation of pricing policies in water stressed areas.

- Regarding the **labelling** of globally traded goods, the rational for action at EU level is based on internal market consideration (need for consistent labelling), on the fact that products with embedded water reach the EU through its trade policy and that the EU promotes sound water management in third countries through its Development Aid policyr.

Lack of integration of water issues into other policies

- Further support to **Land use measures** is directly linked with EU policy instruments, in particular CAP and Cohesion Policy. Moreover, due to the transboundary nature of the large hydrological cycle (e.g. impacts of deforestation or cropping patterns on precipitation regimes in other regions), the implementation of most land-use management measures should also be assessed from an EU perspective.

- On **buildings** and **appliances** the need for action at EU level is driven by internal market consideration such as ensuring common standards for appliances put on the single market and also by the link to the achievement of Energy and Climate Policies objectives such as climate mitigation and energy efficiency.

- Regarding **water infrastructures**, supportive action at EU level is justified as it focuses on exploiting the potential of EU funding instruments as well as sharing best practices.

- The main barrier to expansion of **water re-use** is the lack of common standards at EU level, in particular in agriculture. While guidelines for agricultural water re-use have been defined by the World Health Organisation[36], and by different countries, such as the USA[37] and Australia, a uniform solution for Europe is lacking. Establishing standards for the functional operation of the single market is an appropriate EU level response, taking into account EU Health, Agriculture and Energy policies

Governance

- Effective **governance** is a necessary precondition for implementation of EU law. However, EU water law only contains general requirements – such as the appointment of river basin district authorities – and does not prescribe institutional structures as this is left to the member States.. Therefore, it is appropriate for EU level action to set out ways to support the institutions responsible for water management – enhancing their capacity and effectiveness. It is also appropriate to examine whether EU water law is clear on the requirements for Member States institutions and for the Commission. It is in these areas, therefore, that options for consideration in the Blueprint need to be further developed.

---

36 WHO (2006). Guidelines for the Safe Use of Wastewater, Excreta and Greywater, vol.II Wastewater Use in Agriculture. World Health Organization.

37 http://www.epa.gov/nrmrl/wswrd/dw/smallsystems/pubs/625r04108.pdf

- In many EU Member States, there is a lack of a consistent methodology for calculating **water balances, eflows and targets**. Action at EU level is triggered not only by the need to ensure consistency of water allocation mechanisms in transboundary basins and a level playing field in the implementation of the WFD, but also by the economies of scale and quality improvements that can be achieved by common methodologies and datasets.

- The extent and effectiveness of **drought management** planning in some Member States is still below what is necessary to meet theis challenge and protect economies and society from drought impacts. In a transboundary river basin context this calls for action at EU level

Knowledge base

- There is a lack of a consistent methodology to calculate **costs and benefits** of the programmes of measures and of the lack of action. This prevents a level playing field for implementation of the Water Framework Directive, in particular Art 4.7 (justification for new water bodies modifications) and 9 (pricing).

- Finally, economies of scale in **dissemination and sharing** of compatible data are expected in undertaking efforts at EU level for capacity building, research, information and data gathering, knowledge transfer and exchange of best practice. The streamlining of existing EU reporting requirements, including on statistics, can only be done at EU level.

3. OBJECTIVES

3.1. Overarching objective – the link with Europe 2020

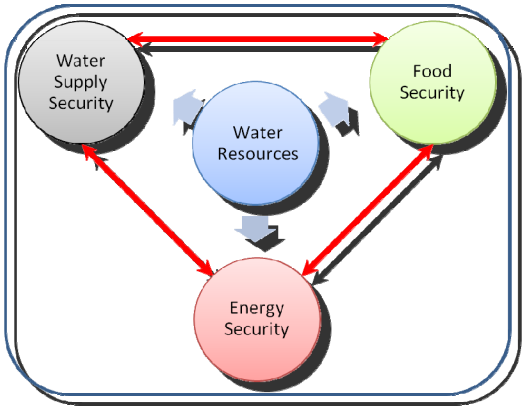
The Blueprint will present the policy response to the challenges described in the previous sections with the long-term aim **to ensure availability of good quality water for sustainable and equitable water use**.

This is fully in line with broader EU objectives. Indeed, the importance for Europe to engage in the sustainable management of water as a key resource is underlined in the Europe 2020 Resource efficient Europe flagship initiative[38]. The Roadmap to a resource efficient Europe[39] highlights the efficiency gains that can be made and the Blueprint will be the water milestone on that Roadmap.The global economy and society depend largely on water resources and ecosystem services, as illustrated by the concept of the water-food-energy nexus:

Figure 10 - Water-food-energy nexus (source: Bonn2011 Nexus Conference)

[38] Resource efficient Europe, COM(2011)21 final

[39] Roadmap to a resource efficient Europe, COM(2011) 571 final



Furthermore, protection of Europe's water resources contributes to all 3 dimensions of Europe 2020 strategy (Smart, Sustainable and Inclusive Growth)[40]:

- Developing efficient water management necessarily goes hand in hand with fostering innovation and knowledge (smart growth) in water-related fields, hence increasing EU competitiveness. Water supply and management sectors already represent 32% of EU eco-industries value added and EU companies hold more than 25 % of the world market share in water management[41]. This competitive advantage can be strengthened by the objective of further improving EU water status, as an incentives to develop innovative water solutions.

- Likewise, working towards ensuring availability of good quality water for all users also contributes to the sustainable growth of the EU, promoting a more resource efficient, greener and more competitive economy. Indeed, efficient water management not only generates economic benefits (in terms of productivity gains for water-using companies and innovation potentials for water management companies) but also contributes to decreasing health impacts and preserving ecosystem services, hence saving costs for private and public entities. Measures aiming at water efficiency, re-use and natural water retention (including green infrastructure) are cost-effective solutions supporting green growth while strengthening the resilience of our economy to natural hazards and climatic risks.

- Finally, efficient water management can participate actively to an inclusive growth, fostering a high-employment economy while delivering economic, social and territorial cohesion. In terms of employment, waste water treatment and water supply sectors represent between 22 and 34% of EU eco-industries employment[42] (depending on the methodologies used)[43] and have a growing-potential which is well spread among all EU regions. In addition to employment effects, improving the status of EU waters goes hand in hand with social inclusion purposes.Access for all users to good quality water at a fair price (reflecting the amount consumed and the environmental impact) would jointly deliver social, economic and environmental

40 http://ec.europa.eu/europe2020/targets/eu-targets/index_en.htm

41 http://ec.europa.eu/environment/enveco/industry_employment/pdf/facts_and_figures.pdf

42 Which themselves employ around 3.4 million people, ie around 1.5% of all Europeans in employment, more than in car manufacturing, chemicals or textiles

43 http://ec.europa.eu/environment/enveco/jobs/pdf/jobs.pdf, p.39

benefits. More informed consumption choices could help consumers choosing products that are resource efficient. Eco-labelling, as well as pricing policies and instruments, together with awareness campaigns can help trigger large scale behavioural change, and also bring benefits to the economy and the environment.

3.2. General objectives – the link with EU policies

To achieve the above mentioned overarching objective, it is necessary to implement at EU level a balanced approach focusing on:

- Achieving Good Status in EU water bodies by 2015 as a rule, or by 2027 at the latest for specific water bodies covered by WFD exemptions
- Reducing water stress taking into account the need to maintain ecological flows at a level compatible with the achievement of WFD objectives
- Reducing vulnerability to climate change and extreme events

For water stress and vulnerability, concrete targets have to be established at RB level. Annex 1 provides an illustration at EU level of the kind of targets that could be established.

The Blueprint offers synergies with other EU policy goals, such as:

- Building a resource efficient Europe in accordance with the Resource Efficiency Roadmap.
- The protection and restoration of EU biodiversity and the water/water dependant ecosystem services it provides as set out in the EU biodiversity strategy to 2020[44].
- Energy efficiency and climate change mitigation objectives as in most cases, water efficiency leads to lower energy consumption. Energy and climate constraints need to be fully taken into account for the design of the programme of measures in the RBMPs to address water stress, as there are trade-offs in the case of water supply (e.g. desalination).
- Climate change adaptation and disaster prevention, through reducing vulnerability to extreme events related to water (floods and droughts in particular).

3.3. Specific objectives for the Blueprint

Four sets of specific objectives that mirror the above discussed four problem categories and 12 specific water management problems have been identified. They are:

(1) **Increasing the use of economic instruments for a better allocation of resources and internalisation of external costs**, through:

[44] COM(2011) 244 final

- Full compliance with WFD Art 9, ensuring pricing levels and structure are set in a transparent way, providing incentives for the reduction of pressures on water, contributing to the recovery of the costs of the provision of water services and following the polluter-pays principle.

- Metering or monitoring of all significant water uses (e.g. irrigation) properly integrated into the the 2nd round of RBMPs

- Increased use of clear communication and labelling tools supporting the implementation of economic instruments, providing information on the impacts of products and supply chains on water resources at global level.

(2) **Fostering integration of water concerns into sectoral policies, by providing specific support to water management measures:**

- The specific objective of the blueprint under this heading is to ensure a further uptake of **natural water retention measures**, water efficiency in **building** and **appliances**, **water re-use** and decrease in **leakages** in water supply infrastructure. However, most of these are non-binding measures, and the likely level of uptake is extremely variable accross river basins. Therefore, there is no quantitative target, the concrete objective being that they are properly integrated into the the 2nd round of RBMPs, with an analysis of their cost-effectiveness including alternative long-term scenarios, including climate change.

(3) **Achieving a more efficient water governance and effective working relationships between institutions, and fully integrate water quality, quantity and hydromorphology concerns in water management.** This implies that:

- All stages of the production of the 2nd round of RBMPs (revised analysis, drafting, consultation, final publication, etc.) are accomplished within the required timetable, that water authorities have an enforcement strategy/plan in place and that the instances of non-compliance are measured, recorded and are seen to decline year on year, and that consistency is achieved in all management plans of the same transboundary basin.

- Water balances and the quantification of e-flows are available in all catchments within the next two years to assist in developing the 2nd round of RBMPs, that should include water allocation targets.

- Drought Management Plans are available for all vulnerable basins and fully integrated the 2nd round of RBMPs and sectoral planning tools.

(4) **Improving knowledge and tools available to water managers, enabling effective decision making and reducing administrative burden**, by:

- Improving economic analysis and assessment of costs and benefits of reference scenarios and of the programme of measures in the 2nd round of RBMPs.

- Developing WISE to provide a full inter-operable database and platform within the next two years to ensure rapid **access to and sharing of data**, applicable for water management and made available in practical ways for Member States authorities. Administrative burden from inconsistent reporting should be removed.

4. POLICY OPTIONS

The policy options have been identified for each of the 12 above-mentioned specific problems. A preliminary list of options was submitted to public and stakeholder consultation, making clear that the presence of an option on the list by no means implied that it was supported by the European Commission at that stage.

The problem description highlighted that water resource management faces cumulative barriers that all need to be addressed in order to get to grips with the water status issues. However, these barriers are not the same in all basins and the concrete measures and support instruments depend on the circumstances in the different basins.

In this context, the policy options to be developed in the Blueprint aim at providing a "toolkit" for the Member States, supporting the implementation of the most relevant measures. This has an impact on the kind of assessment that can be provided in the present report, as the costs and the benefits depend on the actual measures to be chosen by the Member States, which cannot be assessed in the context of the current Impact Assessment.

Against that background, the assessment of the responses to the public and stakeholder consultation and a preliminary evaluation resulted in 40 options or sub-options selected that can be classified under 4 approaches, reflecting a specific focus for action at EU level:

(a) Focus of EU action is on capacity building for local water managers, by producing more non-binding **guidance**, exchange of best practices, peer review, etc. This is supported by a stronger knowledge sharing platform.

(b) Focus of EU action is on filling specific gaps of current **legislation**, including WFD.

(c) Focus of EU action is on further integrating the protection of water resources into EU funding and policy instruments, through **conditionality** mechanisms.

(d) Focus of EU actions is on ensuring **priority** for water resource protection measures in specific funds or **financing** instruments.

Options are not necessarily mutually exclusive and could often be combined or graduated over time. Based on the comments received from the public consultation, from stakeholder in particular at the 3rd EU Water Conference, from Member States at an ad-hoc Water Directors meeting and from the IA Steering Group, the list of options to be further considered in this Impact Assessment has been slightly reviewed, as explained in IEEP et al, 2012.

The 40 options are presented below, in correspondence with the specific objective they respond to and with the policy approach in which they are embedded.

	Approaches

specific objective	a) Voluntary	b) Regulation	c) Conditionality	d) Priority in funding
1 pricing	Guidance for trading schemes	n/a	Inclusion in cross compliance CAP Pillar I	n/a
2metering	Use of GMES	Amendment WFD on Art 11 Amendment WFD on metering	Inclusion in cross compliance CAP Pillar I	n/a
3 labelling globally traded goods	Voluntary labelling	Mandatory labelling	n/a	n/a
4 NWRM	CIS Guidance	Amendment WFD	Under CSF implementing rules	Under CSF & EIB loans
5.1 Appliances/Water related products	Voluntary labelling	Mandatory labelling Inclusion in Ecodesign work programme[45]	n/a	n/a
5.2 Buildings	Voluntary rating	Mandatory rating Minimum requirements Directive	n/a	n/a
6 Leakages	Guidance	n/a	n/a	Under CSF & EIB loans
7 Water reuse	CIS Guidance CEN standard	Regulation	n/a	Under CSF & EIB loans
8 Governance	Peer review	Amendment WFD on legal status plans Amendment WFD on mediation role Amendment SEA Directive	n/a	n/a
9 Target setting	CIS guidance on water accounts & e-flows CIS guidance on target setting	Amendment WFD on water accounts & e-flows Amendment WFD on target setting	n/a	n/a

[45] The inclusion of water using devices is been discussed in the context of the Ecodesign Directive Work Plan 2012-2014,.

	Approaches			
specific objective	**a) Voluntary**	**b) Regulation**	**c) Conditionality**	**d) Priority in funding**
10 Droughts planning	Recommendation	Amendment WFD Droughts Directive	n/a	n/a
11 Costs and benefits	CIS Guidance	Amendment WFD	n/a	n/a
12 Knowledge dissemination	Further development WISE	Review reporting & statistic legal requirements	n/a	n/a

A short description of each of the 40 options and sub-options is provided below:

4.1. Pricing

Two options were considered. The first (option 1c) is to add national water pricing obligations for farmers as a cross-compliance requirement under the CAP and the second (option 1b) is to develop guidance and tools on the use of trading in water rights. Option 1c got support in stakeholder consultation. However,this option does not fit with cross compliance principles, which do not cover private contract clauses such as correct payments by farmers of their water bills. Moreover this option would raise important control problems since checks should cover also these private contracts. However water metering as a measure under Article 11, which serve also the purposes of water pricing provisions of the WFD (see 4.2), is certainly a potential candidate for its inclusion in due course into cross compliance since it addresses a legal requirements to respect abstraction limits. Option 1c is therefore discarded and not further assessed in this report.

4.2. Metering

Metering is necessary for the volumetric measurement of water use and is, therefore, necessary for an effective pricing policy. The four options initially considered to promote metering are (option 2a) mapping all EU large irrigated areas via the GMES initiative and match these areas with water abstraction permits to help Member States enforce them and tackle illegal abstraction, (option 2b1) amending the WFD to make explicit that Art. 11 includes mandatory metering, (option 2b2) amending the WFD to require metering of significant individual water consumption in water scarce areas and (option 2c) making CAP pillar 1 payments conditional upon the installation of metering devices for individual users. Although extension of cross-compliance was strongly supported in the stakeholder consultation, this option cannot be taken forward at present as no new cross compliance requirement can be introduced if it is not a pre-existing requirement from the water framework directive, which by definition ecompasses all water-related measures at farm level. In other words, amending the WFD to introduce metering as an explicit requirement would be a pre-condition for a potential inclusion of metering in cross-compliance in a future revision of the CAP.

4.3. Labelling globally traded goods

The options address the issue of embedded water in products through either raising business and consumers' awareness of the impact of products on water resources[46] through voluntary labelling (option 3a) or requiring mandatory labelling of most embedded water intensive products (option 3b).

4.4. Natural water retention measures

The options focus on stimulating the uptake of natural water retention measures (NWRMs) as effective tools for delivering water management objectives. Option 4a seeks to achieve this through guidance, option 4b by mandatory application through a WFD amendment and option 4c by including NWRMs as conditions for the spending of Funds under the Common Strategic Framework and provision of funding through Cohesion Funds and/or EIB loans (Option 4d). .

4.5. Buildings and appliances

Seven options are considered under this problem. Three concern appliances: voluntary labelling of water efficiency (option 51a), mandatory labelling (option 51b1) and setting minimum water efficiency requirements using the Ecodesign Directive (option 51b2). For buildings: voluntary performance rating (option 52a), mandatory performance rating (option 52b1), minimum performance requirements (option 52b2) and a directive on water efficiency requirements in buildings (option 52b3).

4.6. Water efficiency in distribution systems

Leakage in water distribution systems is a waste of water, an economic loss for the water industry (and consumers) and wasteful for chemicals and energy. The options aim to assist Member States in tackling this problem not by setting targets (which is not appropriate at EU level), but by provision of a tool for assessing the sustainable economic level of leakage (option 6a) and through provision of funding through Cohesion Funds and/or EIB loans (Option 6d).

4.7. Water re-use

The problem analysis highlighted that a critical problem to address in the Blueprint is that there are no common standards for waste water reuse. Taking account of the detailed problem analysis and baseline, the following options were identified to be assessed within the Impact Assessment: develop CIS guidance on certification schemes for water re-use (Option 7a1), the Comité Européen de Normalisation (CEN) to adopt standards water re-use (Option 7a2), an EU Regulation establishing standards for water re-use (option 7b) and provision of funding through Cohesion Funds and/or EIB loans (Option 7d).

[46] Through water footprint, life cycle impact or other methodologies

4.8. Governance

Governance problems cover a range of issues and a number are addressed by options set out under other problems (e.g. improving information and tools for water management). The options specific to governance are not alternatives addressing a similar point, but are focused on specific issues that were identified in the problem analysis. These are developing a peer review process for Member State water management authorities (option 8a), amending the WFD to ensure that RBMPs are binding documents across Member State institutions (option 8b1) and amending the WFD to enhance the mediation role of the Commission in transboundary river basins (8b2) and amending the SEA Directive to ensure major development plans for hydropower, navigation, desalination, etc., are subject to SEA (8b3).

4.9. Target setting

To address the problems of water accounting, identifying ecological flows and target setting, four options are considered. Options 9a1 and 9b1 are to develop a model for water accounting either at Member State level or at European level and support this with guidance on its use, including establishing ecological flows. Option 9a1 is a voluntary option, setting out the approach in guidance, while option 9b1 achieves this through amending the WFD. Options 9a2 and 9b2 support water allocation and target setting in river basins, again either through a voluntary/guidance approach (option 9a2) or by WFD amendment (option 9b2). It is important to stress that options 9a2 and 9b2 can only be effectively taken forward where there is good water accounting and, therefore, require that one of options 9a1 and 9b1 have progressed.

4.10. Droughts

Drought management requires a coherent assessment of the causes and consequences of drought, including impacts and contributions to and from specific sectors, ideally integrated into wider water management planning. The WFD already encourages such activity and guidance has been produced, yet to date drought management planning is poor in a number of Member States. The options, therefore, do not include a guidance option (as this is already in place), but seek to encourage or prescribe drought management through a Recommendation (option 10a), a WFD amendment (option 10b1) or a stand-alone drought management Directive (option 10b2).

4.11. Costs and benefits

The two options seek to overcome the lack of assessment of the costs and benefits of measures in WFD programmes of measures, or the lack of assessment of not taking measures, through the development of guidance (option 11a) on the assessment of costs and benefits or by requiring a cost/benefit assessment of potential measures through a WFD amendment (option 11b).

4.12. Knowledge base

The options are to develop a fully inter-operable, SEIS based, shared water knowledge system for which 2 sub-options have been identified: centralised (12a1) and decentralised (12a2) systems, and (option 12b) to enhance minimum WFD reporting requirements and statistical obligations e.g. through framework regulations on environmental accounts and statistics and harmonising the reporting timetables of EU water Directives.

5. ANALYSIS OF THE IMPACTS OF THE OPTIONS

This section presents the main elements of the analysis of the options in terms of effectiveness, efficiency, coherence, acceptability and - when relevant - environmental, economic and social impacts. A more comprehensive analysis is presented in IEEP et al, 2012.

5.1. Pricing

Trading schemes promoted by Option 1a would impose some administrative burdens on authorities supervising trading and those undertaking it, while potentially delivering more equitable and economically justified distribution of water allocation between users. The environmental benefits that would result would need to be set within a system where environmental targets (ecological flows – see problem 9) are respected. However, these impacts are those of a trading system per se, while the option is to develop guidance, which would be able to explore the respective costs and benefits of different approaches and Member State administrative contexts and identify cost-effective solutions. It is worth noting that the public consultation found strong opposition to water rights trading, due to the fact that the question was generic.

5.2. Metering

Option 2a on GMES would enhance water governance at the river basin and local level. New governance structure will be needed. Investment costs are expected to be outweighed by benefits in terms of effective water management. The approach is expected to be more effective and efficient than ground-based inspections alone.

Options 2b1 and 2b2 (WFD amendments) both aim to require that metering is expected to meet the requirements of the WFD for significant water users in areas where there is water scarcity. Installation of meters would impose costs either to users or utilities, that would obviously affed the Member State and sectors where metering is not implemented and where it represent a cost-effective solution. However, the options are designed to ensure WFD implementation rather than an additional obligation and, therefore, the wider environmental, social and economic impacts are those of the WFD. The impacts would be both to help control illegal abstraction and ensure national obligations for water payment are met, stimulating greater water efficiency. The impacts on business would depend on national price levels, as would the impacts on local water resources. The public consultation found strong support for option 2a, opinions equally divided on option 2b, with strong concerns on the generalisation of monitoring requirements echoed by agricultural stakeholders.

5.3. Labelling globally traded goods

A voluntary option would enable the development of critical thinking by consumers and businesses on embedded water and so inform the choices they make. This can have knock-on benefits in other areas of water use (and indeed other aspects of the environment). The issues that would be raised by the option are equally applicable to products from inside and outside the EU. However, the option simply raises awareness and does not ensure delivery of any particular outcomes.

A mandatory labelling option would be binding and uniform across the EU, thus providing a common reference framework for consumers and businesses. It would stimulate similar

critical thinking to a voluntary awareness raising option, but this would only be achieved if a labelling option was backed-up by an information campaign. Labelling would impose costs on producers (inside and outside the EU). While the labelling itself imposes some costs, the majority of costs would arise from determining the water footprints which form the basis for the label classification and, in particular, about relating water use to water stress (i.e. distinguishing where water use is or is not an issue). This poses methodological challenges as well as financial challenges.

The public consultation found very strong support for the option to raise awareness of the water footprint of products, but opposition for the option for mandatory labelling.

5.4. Natural water retention measures

A detailed assessment of environmental, economic and social impacts of NWRM is presented in Annex 2. Moreover, the costs and benefits will be highy dependant on the local conditions. The comparison of options is therefore focused on their effectiveness, efficiency, coherence and acceptability.

Option 4a would help to improve the integration of water objectives into agriculture and nature conservation policy, and positively increase the use of economic instruments by providing guidance on payments for ecosystem services. It can be seen as a preparatory action for options 4b or 4c, by improving knowledge and tools, spreading best practice and promoting economic tools to support changes in land use management. Option 4c would have a strongly positive impact on fostering the integration of water into sectoral policies by requiring EU funds to more concretely take impacts on water ecosystems into account in project design and implementation.

In terms of efficiency, the ability of option 4a to encourage Member States to implement natural water retention measures requires guidances to be ready to influence the 2nd planning period, which may result difficult taking into account official CIS guidance takes around 2 years to develop. This could be solved ensuring the development of the guidance includes a strong participation process and already influences the elaboration of the plans. On the other hand, option 4b would more likely ensure the uptake of NWRM in the RBMP compared to options 4a or 4c. However, the time horizon of this measure is even more long-term, as a review of the WFD is not expected before 2019. Its impacts, therefore, would not be realized until at least the 3rd planning cycle commences. From this perspective, option 4c is efficient as it would take into effect already in 2014, providing NWRM can be properly reflected in the implementation of the CAP and regional policy.

Option 4d (funding) is not an alternative to other options, but can accompanying this option or be taken forward independently. Given public and private expenditure constraints, investment in natural water retention and ecosystem restoration measures is constrained in some regions. Indeed, finance could be targeted at those locations where co-benefits are more evident and NWRM constitute a cost-effective alternative to infrastructure-based flood protection or water storage measures. The effectiveness of this option (and the resulting economic, social and environmental impacts) would be directly proportional to the level of available investment.

5.5. Buildings and appliances

The effectiveness of the options for both appliances and buildings depends on their ability to influence both producers/constructors and consumers. Mandatory labelling (5.1bx and 5.2bx) could be more effective than a voluntary approach (5.1a and 5.2a), but only if consumer choices would be based on such labels. This is more likely to be the case for an appliance than a building. Furthermore, appliances are traded within the internal market where buildings are not, so that there is a stronger case for minimum mandatory performance requirements of traded appliances than for buildings – ensuring a level playing field. The environmental impacts of all options are to deliver increased water efficiency (with knock-on energy efficiency benefits) which benefits water resources in water scarce areas.

The costs to meet the **appliance options** will arise for manufacturers to develop more efficient products. The actual economic, environmental and social impacts are extremely context dependant. Elements of assessment are provided in Annex 2. The public consultation found that there was majority support for options for voluntary labelling of appliances (5.1a) and for adopting minimum efficiency requirements using the Ecodesign Directive (5.1.b2). A mandatory labelling scheme (5.1.b1) was not supported in the consultation.

Implementing labelling or minimum efficiency requirements will cause costs during **building** or refurbishment and for the certifier to verify compliance, but also to set up the scheme against which the building is audited. In the case of mandatory labelling and minimum requirements, constructors would bear compliance costs. Improved water efficiency does translate into potential increased house values and savings in water bills, which can offset the costs of improved building design. Social impacts potentially vary – such as benefits to lower income households, issues of data protection with smart meters and health issues if water recycling systems are not properly maintained. None of the building options received majority support in the public consultation – all being opposed except for the option on minimum performance ratings (5.2b1) for which opinion was equally divided.

5.6. Water efficiency in distribution systems

Addressing leakages to the appropriate level brings a variety of economic, social and environmental benefits that are detailed in Annex 2. The level of appropriate leakage control is addressed by option 6a, which aims at a common method to determine the level of leakage control that is economically justified (e.g. that is cheaper than alternative new water sources). This option would not only provide the basis for delivering the above benefits, it is focused on optimising the economic performance of utilities. However, this option is voluntary, so application cannot be guaranteed and, indeed, would be unlikely to be taken up at an early stage where finance for investment is particularly constrained.

Option 6d (funding) is not an alternative to option 6a, but can accompanying this option or be taken forward independently. Given public and private expenditure constraints, investment in improvements in water supply infrastructure is constrained in some regions. Indeed, finance could be targeted at those locations where leakage reduction is most justified, such as through using a tool developed under option 6a. Areas eligible for Cohesion Funds and EIB loans can benefit from additional investment support. The effectiveness of this option (and the resulting economic, social and environmental impacts) would be directly proportional to the level of available investment.

In conclusion, all of the options can be progressed, supporting each other to support leakage reduction. All of the options received support in the public consultation. However, they no not have direct impact on leakage control in water stressed areas, but they constitute important interventions that are appropriate at an EU level.

5.7. Water re-use

The options concerned with water re-use all seek to stimulate the re-use of waste water in agriculture as a means of providing an alternative water supply and so reduce the pressure on surface and ground water sources and provide a stable supply to users in times of scarcity and drought. The impacts of water re-use are, therefore, common to all of the options and largely only differ to the extent that the options would be effective at stimulating water re-use.

The primary economic benefits of water re-use are to the agriculture sector and water industry sector. Water re-use ensures to farmers and horticulturalists a more reliable water supply, less dependant on precipitations, as it benefits from the priority given to drinking water in periods of drought, leading to more certainty in economic investment. Furthermore, farmers can benefit from nutrients contained in waste water, so reducing their costs for the use of fertilisers. The water industry sector benefits from alternative water treatment requirements, which can be less stringent and, therefore, less costly than requirements for treatment for discharge to surface waters.

The economic benefits translate into social benefits. Security of the agricultural producers enables jobs to be secured, providing benefits to local communities. Furthermore, it can enable traditional agricultural production to continue in water stressed areas that would otherwise be under threat from water scarcity and so maintain cultural traditions. However, health concerns do arise from the re-use of water for agricultural products. Therefore, the standards proposed to be adopted for options 7a, 7b1 and 7b2 would all be required to meet the necessary health standards. Furthermore, funding (option 7d) should only be provided to schemes which guarantee health standards are to be complied with.

The environmental benefits are proportional to the reduction in pressure on surface and ground waters from supply of re-used water as an alternative to abstraction. Ecological flows are more likely to be maintained, protecting aquatic ecosystems and, therefore, helping to meet WFD requirements. Furthermore, diversion of waste water to agriculture may result in less discharge of nutrients, etc., to surface waters.

The extent of these impacts is proportional to the effectiveness of the options. The primary problem facing water re-use is the lack of EU-level standards which could result in different standards across the Member States, leading to barriers in the trade of agricultural products. Voluntary standards (option 7a1) developed at EU level would provide a basis for a common approach, but the option cannot prevent Member States adopting a different approach and, therefore, cannot prevent barriers in the internal market. CEN standards (option 7a2) might be more likely to be adopted by Member States, but they suffer the same flaw as option 7a1. A Regulation (option 7b) does not have this problem and would guarantee that internal market barriers would not arise. The development of each of these options has similar costs, although the direct applicability of a Regulation would have lower burdens on Member States as it would not require transposition. The public consultation and stakeholder views all show more support for a binding Regulation as the effective means to overcome the problem

compared to the other options. The option would be fully coherent with other EU water law and policy.

Option 7d (funding) is not an alternative to the other options, but can accompany any of the other options. Given public and private expenditure constraints, investment in water treatment and distribution for irrigation is constrained in some regions. Areas eligible for Cohesion Funds and EIB loans can benefit from additional investment support. The effectiveness of this option (and the resulting economic, social and environmental impacts) would be directly proportional to the level of available investment.

5.8. Governance

Peer review (8a) has proved to be an effective process in other areas of EU law. Sharing of experience between colleagues allows for a problem-solving approach to be taken. The option is entirely voluntary based on the needs of those authorities which wish to have a peer review. Costs from other peer review process are small, impacting on both the recipient authority and those from other Member States conducting the review. However, results from other peer reviews are positive and this option is likely to be effective. The public consultation showed support for this option.

Option 8b1 aims at ensuring that RBMPs are binding documents across Member State institutions. Member States already have an obligation to implement all basic measures listed in WFD Art. 11.3 a) to l) and supplementary measures under Art. 11.4, which include a number of legally binding and voluntary measures. This obligation needs to be respected independently of the legal nature of the RBMPs. A WFD amendment to make the RBMPs binding could ensure better RBMP implementation in some cases. However, a WFD amendment would take several years and the option would not, therefore, be able to enhance WFD implementation in the short-term.

Option 8b2 promotes the mediation role of the Commission in disagreements in transboundary river basins. The opinion of the Commission would not be binding – it is not an arbitration role. The effectiveness of the option is not clear, as it would depend on individual circumstances, although it is likely to be positive.

Amending the SEA Directive (8b3) to address plans for hydropower, navigation, new water supply infrastructure, is entirely consistent with the approach of the Directive and would be effective in allowing for an integration of the SEA analysis with the analysis, objectives and measures within RBMPs. It would also stimulate institutional integration between water management and land-use planning. SEA sets out impacts and alternatives, but does not prescribe decisions. Therefore, outcomes cannot be guaranteed. The public consultation found a little more support than opposition for amending the SEA Directive.

5.9. Target setting

An EU level water accounting system is being developed to allow for accounting at sub-catchment level. However, this requires provision of data from Member States and these are not effectively delivered in all cases. Guidance (option 9a1) is unlikely to be effective in this regard. However, a WFD amendment (option 9b1)would not be developed until the WFD review and, therefore, not come into force for several years. As a result, the two options need not be viewed as alternatives. A voluntary approach better supported by guidance from the

Commission could be taken forward and the regulatory option proceeded with if Member States fail to supply data or otherwise support water accounting where it is needed.

Effective water allocation and target setting is needed in water scarce river basins. This can ensure not only the maintenance of ecological flows, but also an economically and socially equitable distribution of water. Option 9a2 aims to support Member States authorities' action in this area through guidance. There is some lack of information and tools and the option would be effective where this is currently a barrier. Furthermore, guidance is able to explore a wide range of different aspects of target setting (different sectors, types/sizes of river basin, water rights contexts, etc.), maximising its usefulness. It can also be taken forward relatively quickly. A WFD amendment (option 9b2) would be binding and ensure target setting respects ecological flows as part of Good Ecological Status. However, it would take several years to enact. As with options 9a1 and 9b1, the two options can be viewed together as a voluntary option, followed by a regulatory option if target setting remains a significant problem in the EU. The public consultation demonstrated support for a voluntary guidance approach, but opposition to a regulatory one, emphasising the need for flexibility to take account of different circumstances in the EU and for transparency in application.

5.10. Droughts

The options all seek to encourage drought management planning of the same kind that is currently the subject of guidance. The impacts of all options, if implemented, would be similar in providing better drought management, but where the options differ is how likely they are to be implemented and when, i.e. in their effectiveness.

A Recommendation is not a binding instrument, but it can be viewed as a stronger message than current CIS guidance. It can also stimulate more detailed reporting from Member States. It is, therefore, more likely to stimulate change in drought management in some cases. However, where there are barriers (institutional, financial, cultural, etc.) to taking forward drought management, a Recommendation may not overcome these and, therefore, be ineffective.

The other two options are binding and, therefore, should stimulate significant changes in drought management practices. Implementation failure can be pursued by the Commission. Depending on how each is drafted, the options could cover similar issues and, therefore, be similar in their impacts. However, a WFD amendment is only likely to be taken forward during the WFD review and, therefore, would not influence drought management for several years. A stand-alone Directive could be developed at an earlier date. The public consultation was, overall, not supportive of a regulatory option, but did support further action on drought management within the next round of RBMPs.

5.11. Costs and benefits

The options both seek to ensure implementation of the WFD and, therefore, the economic, social and environmental impacts are those of the WFD and are not subject to separate assessment. The review of RBMPs has shown the lack of ambition of Member States in developing measures and in many cases a failure to show any analysis to support the lack of measures or justification for exemptions. Moreover, the further implementation of payments for ecosystem services (PES), which appears to be an effective and innovative tool for water resource management, is hampered by the current lack of quantification of benefits. Thus the

options aim to overcome this and deliver the benefits that would arise from implementing the WFD and ensure transparency in decision making to all stakeholders.

As a means of ensuring that Member States undertake a cost/benefit assessment, a WFD amendment would be more effective – it would be binding where guidance is not. Furthermore, such an option would be similar to a provision already contained in the Marine Strategy Framework Directive and so be coherent with other water law. However, a WFD amendment was not supported in the public consultation. Furthermore, if an amendment were taken forward in the WFD review, it would be too late to influence the 2nd round of RBMPs.

Guidance on cost/benefit assessment can be taken forward at an early stage and could influence the next round of RBMPs. Furthermore, such guidance can explore different methods of assessment and particular problems or issues with assessing particular types of measures, economic sectors, etc., in a way that is not possible in writing law. It can also facilitate exchange of experience between Member States and link to options addressed in this IA (such as the peer review option under governance). However, as noted above, guidance is not binding. This option was strongly supported in the public consultation.

Therefore, both options are more or less effective in different ways. Guidance is flexible and quicker to adopt, while a WFD amendment is binding. Finally, although the two options are presented as alternatives, they could be taken forward sequentially – guidance at an early stage to help Member States, followed by a regulatory change if improvements in assessment of measures is not forthcoming in the next round of RBMPs.

5.12. Knowledge base

The options all aim to improve the knowledge base and tools and strategies to do so, specifically targeting improved data management, data access, sharing, harmonization, interoperability and seamless integration of data and services. A substantial share of the effort is related to geographical or spatial data.

Regarding effectiveness, all the options contribute positively, but indirectly, to fostering integration of water into sector policies by providing better information, in particular on water quantity. The effects are expected to be strongest for option 12b, which provides significant new data on an EU wide basis.

More efficient governance would be achieved by addressing the gaps in reporting. A decentralized shared water knowledge system (12a2) is expected to be particularly effective as a consequence of the better ownership and tailoring of the data and tools by local/regional policy makers. Both options are expected to have a positive impact on efficiency. This is expected to be strongest for option 12a1, as a shared centralised system will provide comparable outputs without the need for extensive coordination.

All of the options were strongly supported in the public consultation, including the need for regulatory amendment (option 12b).

6. IDENTIFYING THE PREFERRED OPTIONS PACKAGE AND ITS IMPACTS

For each issue, on the assessment performed in the previous section, it is possible to select the best option(s), the combination of which will form the selected package to be considered for the Blueprint Communication. This takes on board also the possible synergies and trade-offs between options.

6.1. Proposed package

In order to further the **implementation of economic instruments**, the following preferred options will be taken forward in the Blueprint:

- **Water pricing** is a key instrument for efficient water management. While further action on pricing itself is not needed beyond enforcing current legislation (Art 9 WFD), there is a need to address water rights allocation. Water rights' trading is one means to achieve this and the proposed option is to explore this measure in more detail through the development of guidance on this issue which Member States could use if they consider such a measure appropriate to their water management circumstances.

- On **metering,** there would be benefits to clarifying metering obligations by WFD amendment. However, this option cannot be progressed at this stage due to the fact an amendment of the WFD is only considered for the 2019 legally required review. Therefore, it is appropriate in the Blueprint to refer to the possibility for the Commission to foster metering take up through the enforcement of article 9 of the WFD and through the enhanced use of GMES mapping to support Member States in monitoring water abstraction at catchment level.

- **Globally traded products** contain embedded water and it is appropriate for the Blueprint to seek to reduce the impact that such products have on water resources (inside and outside the EU). A regulatory approach is not appropriate (not least due to methodological limitations). Therefore, the preferred option is to support voluntary labelling initiatives that help consumers and businesses understand the issue of embedded water and its consequences and incentivise sustainable behaviours.

In order to enhance integration of water measures into other policies, the following preferred options will be taken forward in the Blueprint:

- Wider use of **natural water retention measures** (NWRM) is critically important in delivering a wide range of water objectives (with a number of additional benefits). Due to the above mentioned obstacles to the revision of the WFD and the MFF at this stage, the preferred option is to develop guidance on the assessment and application of NWRMs. This guidance can fully explore different types of NWRMs for different water objectives in the widely divergent water management contexts across the EU.

- On **buildings**, the support study[47], including public consultation, concluded that the appropriate EU level intervention on this issue is for the Commission to develop guidance to support improved water efficiency techniques and standards for different types of buildings, appropriate to different water scarce catchment contexts. Other interventions are not justified. Therefore, this guidance option could be taken up in the Blueprint. On **water using appliances**, the study found that an EU level intervention on the standards for water efficiency of appliances would be a simple and effective approach also in view of internal market considerations. The preferred option is to take this forward within the context of the Ecodesign Directive which already provides the basis for establishing standards for the environmental performance of products. The final list of the priority product groups to be included in the Ecodesign Working Plan 2012-2014 is currently subject to inter-service discussions.

- With regard to the **efficiency of water distribution systems**, there is a need to assess the sustainable economic levels of leakage (SELL) as a pre-requisite for effective and efficient spending on leakage control. This will be taken forward in the Blueprint by the Commission working with Member States, the water industry and others to develop guidance and a tool to assess SELL which utilities and others can use for more effective decision making.

- Regarding **water re-use** there is a need to ensure the effective operation of the internal market to support investment and use of re-used water. The assessment, including stakeholder consultation, found that this can only be achieved through the development of new regulatory standards at EU level. Therefore, the preferred option is for the Commission to pursue appropriate health/environment protection standards for re-use of water and, subsequently, to propose a new Regulation containing these subject to a specifi impact assessment.

- For the issues of NWRMs, water distribution system efficiency and water re-use, there are major challenges for the financing of new initiatives (or of maintenance). Therefore, a further preferred option for the Blueprint is to ensure that EU funds (Cohesion, Rural Development and EIB loans), where appropriate, prioritise (along with other water and environmental objectives) spending in these areas consistently with the objectives of EU water law and policy and with the respective programming processes of the funds concerned.

In order to improve **governance including transboundary and quantitative water management**, the following preferred options will be considered for the Blueprint:

- The need to improve the **effectiveness of water management bodies** was highlighted above. Options to amend the WFD in this regard are premature at this time. However, there are benefits and support for the creation of a peer review process for water management bodies, facilitating the sharing of experience and

[47] Bio Intelligence and Cranfield University, 2012: Water Performance of Buildings, Study for the European Commission, DG Environment http://ec.europa.eu/environment/water/quantity/pdf/BIO_WaterPerformanceBuildings.pdf

discussion of problems between Member States. Therefore, this option can be taken forward in the Blueprint.

- Effective water management (and in particular implementation of the WFD) is impeded by lack of **quantitative assessment of water accounts** and ecological flows and, furthermore, lack of target setting for water uses based on such accounts and targets. Due to the current data gaps and the diversity of the situations across basins, a regulatory approach is not appropriate at this stage. Therefore, the preferred option is for the Commission to continue in developing an EU-wide water accounting tool and hydro-economic model with the support of Member States and to develop guidance on the use of water accounts, on setting ecological flows and establishing targets for water uses.

- Regarding **droughts**, the preferred option is to encourage Member States to better integrate drought risk management and climate change aspects in their future RBMPs. This can be done by providing feedback through the Commission assessment of the RBMPs since Member States are already required to address drought risks under the WFD.

In order to support an improved **knowledge base** for water management and policy making, the following preferred options can be taken forward in the Blueprint:

- The assessment of the **costs and benefits of measures** (and inaction) in programmes of measures in a transparent way is needed to ensure cost-effectiveness of action and the appropriate level of ambition to deliver WFD benefits. As amending the WFD is not currently appropriate, the preferred option is to develop guidance for Member States in understanding the costs and benefits of measures and how these can be assessed in order to improve the quality of RBMPs.

- To support the **development and dissemination of knowledge**, the IA has demonstrated the need for three options to be taken forward. Harmonising reporting requirements in EU water law would reduce administrative burdens and enhance the utility of the data. Therefore, an appropriate legal amendment could be proposed. The Commission will also work with Member States to develop a fully inter-operable information-sharing system with a strong "centralised" EU-wide component to allow for more rapid and useable data sharing.

On the basis of the above assessment, it appears clearly that for most of the issues, the most appropriate options are under the "guidance" approach. The "regulation" approach is selected only for 3 issues (appliances, water re-use and dissemination). The option proposed under the approach "priority" is selected, while the current policy context, in particular with respect to the implementation of WFD and the Multi Annual Financial Framework, leads to postponing most of the policy options under “regulation” and “conditionality” approaches to a later stage.

It shall be stressed that the elements that would entail legislative changes will not be proposed together with the Blueprint but will be the subject of further analysis and would only be proposed on the basis of an instrument-specific impact assessment.

The table below provides an overview of the envisaged options package

	Approaches			
specific objective	**a) Voluntary**	**b) Regulation**	**c) Conditionality**	**d) Priority in funding**
1 pricing	**Guidance for trading schemes**	n/a	~~*Inclusion in cross compliance CAP Pillar I*~~	n/a
2metering	**Use of GMES**	~~*Amendment WFD on Art 11*~~ ~~*Amendment WFD on metering*~~	~~*Inclusion in cross compliance CAP Pillar I*~~	n/a
3 labelling globally traded goods	**Voluntary labelling**	~~*Mandatory labelling*~~	n/a	n/a
4 NWRM	**CIS Guidance**	~~*Amendment WFD*~~	~~*Under CSF implementing rules*~~	**Under CSF & EIB loans**
5.1 Appliances/Water related products	**Voluntary labelling**	~~*Mandatory labelling*~~ **Inclusion in Ecodesign work programme**[48]	n/a	n/a
5.2 Buildings	**Voluntary rating**	~~*Mandatory rating*~~ ~~*Minimum requirements*~~ ~~*Directive*~~	n/a	n/a
6 Leakages	**Guidance**	n/a	n/a	**Under CSF & EIB loans**
7 Water reuse	~~*CIS Guidance*~~ ~~*CEN standard*~~	**Regulation**	n/a	**Under CSF & EIB loans**
8 Governance	**Peer review**	~~*Amendment WFD on legal status plans*~~ ~~*Amendment WFD on mediation role*~~ ~~*Amendment SEA Directive*~~	n/a	n/a

[48] The inclusion of water using devices is been discussed in the context of the Ecodesign Directive Work Plan 2012-2014,.

	Approaches			
specific objective	**a) Voluntary**	**b) Regulation**	**c) Conditionality**	**d) Priority in funding**
9 Target setting	**CIS guidance on water accounts & e-flows** **CIS guidance on target setting**	~~*Amendment WFD on water accounts & e-flows*~~ ~~*Amendment WFD on target setting*~~	n/a	n/a
10 Droughts planning	~~*Recommendation*~~	~~*Amendment WFD*~~ ~~*Droughts Directive*~~	n/a	n/a
11 Costs and benefits	**CIS Guidance**	~~*Amendment WFD*~~	n/a	n/a
12 Knowledge dissemination	**Further development WISE**	**Review reporting & statistic legal requirements**	n/a	n/a

The following sections provide an assessment of the impacts of the proposed package, in terms of effectiveness, efficiency, coherence, and environmental, economic and social impacts. As mentioned above, the proposed package is a toolkit, therefore costs and benefits depend very much on Member States choices for the measures and support instruments to be implemented in the forthcoming river basin management plans.

6.2. Assessment of the effectiveness of the proposed package

6.2.1. Objective 1: Increase the use of economic instruments

The proposed guidance and tools would explore the interaction with specific economic instruments and how to integrate these in River Basin, Floods and Droughts Management Plans. They would provide information to support increased use of economic instruments. However, the proposed package is not binding and the further uptake of such instruments is not guaranteed.

6.2.2. Objective 2: Foster integration of water into sectoral policies

The package proposed promotes wider integration of water into sectoral policies through guidelines, improved planning and target setting tools that cover various aspects of sectoral integration. The implementation would take relatively limited time (e.g. the CIS process takes approx. 2 years). It will enable water management concerns to be better taken into account in the project selection applicable for CAP and Cohesion Policy funding. Thereby, the option fosters water saving/quality by influencing behaviour in several sectors (e.g. agriculture, regional development).

However, there is no guarantee that measures will be implemented, as implementation remains voluntary. Uptake is expected to come mainly from Member States/River Basins. Suboptimal outcomes may be expected in case of divergent or incompatible interpretations leading to failure to achieve a common EU approach but in any event the option should increase harmonisation beyond baseline.

A delay in the final adoption of or fundamental changes to the Commission proposal for new Regulations on the CAP and Cohesion & Structural Funds could be a barrier as the proposed package would need to be taken forward as soon as possible.

6.2.3. Objective 3: Achieve a more efficient water governance

The guidance included in the proposed package, e.g. on water trading and on water balances/targets, would address the efficiency of governance in water resources planning leading to increased transparency and more effective decision making. In particular, peer reviews would specifically address efficiency issues and make recommendations for change. The improved information platforms and information provision at EU level would improve the efficiency of water governance at EU, national and river basin level. However, the degree of increased efficiency will depend on uptake levels.

Unnecessary burdens from existing reporting requirements in EU water law would be removed.

6.2.4. Objective 4: Improve knowledge and tools

The proposed package includes a wide range of guidance and new tools to address the most pressing needs facing water managers at different governance levels. Information on water balances and ecological flows would close major knowledge gaps for water managers. Improved information platforms and information provision at EU level would provide greater access to more timely and interoperable data to deliver more effective water management decisions and policy development at EU, national and river basin levels. Moreover, the assessment of impact on water resources to be provided for funding application (e.g. under RD or CF) would improve the knowledge base of the potential applicants.

6.3. Assessment of efficiency, coherence and acceptability

6.3.1. Efficiency

The proposed package improves efficiency of EU water policy by filling the knowledge gaps, improving governance and focusing reporting requirements to decrease admininstrative burden. It leaves flexibility to tailor instruments to situations where cost-effectiveness is high.

6.3.2. Coherence

The guidance included in the proposed package would foster a uniform approach e.g. on ecological flow or target setting and improve coherence in the implementation of water law by the Member States. However uptake is voluntary. Improved information platforms can also aid practical coherence of decision making. Amendments that could be proposed to water law reporting requirements would overcome the existing coherence problems. The proposed package would increase coherence between relevant EU policies (in particular CAP, Structuraal & Cohesion Policy and Energy).

6.3.3. Acceptability

As shown by the results of the stakholder consultation (Section 5 and Annex 3), the acceptability of the proposed package is high for many measures, such as the tools and improved information systems to support water management, the measure to reduce

administrative burden and the proposed regulation on water re-use. There is also strong support to the provision of financial support from EU sources, although the focus should be on measures delivering multiple benefits (climate change adaptation, energy efficiency, biodiversity, etc.) to ensure support and avoid competition for funding.

6.4. Environmental, economic and social impacts

In addition to the qualitative assessment of the effectiveness of the policy options in the proposed package against specific objectives performed above, it is important to also consider the effectiveness of the proposed package against the general objectives, namely status of EU waters, water stress and vulnerability to extreme events. This should allow identifying direct and indirect economic, social and environmental impacts of the preferred options package, althought as mentioned above, a detailed assessment is not relevant at this stage.

The modelling work undertaken by the JRC for the Blueprint (JRC, 2012), together with the assessment of individual measures performed in Annex 2, provide elements for the assessment of the economic, environmental and social impacts of the implementation at EU level of the different categories of measures. This section of the impact assessment provides examples of the main potential economic, social and environmental impacts linked with the cost-effective implementation of the measures. The analysis remains at a macro level, since the actual impacts will develop at the level of each of the 110 EU river basins or even at sub-catchment level and therefore it is not practicable to provide an exhaustive analysis.

6.4.1. Impact on EU water resources: examples from modelling results

Results of JRC modelling available in the support study (JRC, 2012) provide indications of the overall effectiveness of groups of measures in tackling the problems linked with the state of water resources:

- Although the scale of the assessment does not allow providing estimates of the impact on the ecological status of water bodies, the modelling of EU-wide application of the ecosystem protection and natural water retention measures promoted by the proposed package (N-fixing winter crops, optimum fertilisation application crop selection and buffer strips) shows trends in pollutant emissions, restoration of key hydromorphological features and ecological flows that contribute to a substantial reduction of pressures on water resources and ecosystems. (e.g. - 55 % of N loads to European seas by 2020 compared with the baseline)

- Results of optimisation modelling for scenarios including water saving, natural water retention and alternative water supply measures indicate that the Water Exploitation Index (WEI) can be improved by several scenario combinations at a net economic benefit. As an example, the WEI is reduced by 13% in the "France-Atlantic" region, in the most cost-effective scenario including irrigation efficiency, water reuse, water savings in households, desalination, leakage reduction and urban greening measures, with positive side effects on flood prevention and ecological flows

- Natural water retention measures are the subject of various components of the proposed package including guidance at river basin and land-user levels to

encourage their take up. JRC modelling shows that they contribute to a cost-effective reduction of flood and drought risk, although for the former, "grey infrastructure" based approach are still needed to tackle low probability – high damages scenarios.

For each basin or combination of basins modelled, a different set of measures is effective depending on the climate, flow-regime, land-use and socio-economic conditions.

6.4.2. Other environmental impacts

The options on cost-recovery, payments for ecosystem services, maintenance of ecological flow and NWRMs have a number of additional positive environmental impacts which are directly related to the achievement of good water status, including reduction of water stress. The most relevant are:

- A reduction of pollutant emissions with a positive impact on the status of coastal and marine waters, decreasing eutrophication.

- Preservervation of biodiversity and of the functioning of ecosystems. However, the assessment of measures at river basin scale needs to take into account potential trade-offs between e.g. water retention and biodiversity goals.

- Positive impact on soil quality or resources in the case of ecosystem protection and natural water retention, by increasing soil moisture and decreasing soil pollution.

- Ecosystem protection and natural water retention measures are associated to a decrease in nitrates applications and subsequent ammonia emissions with a positive impact on air quality and greenhouse gases emissions.

The application of water efficiency measures in agriculture and in domestic consumption will reduce (the risk of) water stress. Water reuse will also contribute to this objective. However, planning at river basin level will need to take into account potential negative impacts (increase salinity, soil contamination with reused water, etc.).

In relation to climate and energy effects, water efficiency measures (ecodesign, target setting) in domestic consumption will trigger important energy savings. Natural water retention measures such as forestation and soil management contribute to net carbon storage and CC mitigation. Changes in agriculture practices for ecosystem protection and natural water retention are often associated with a lower dependency on external nutrients and lower treatment costs for drinking water, decreasing life-cycle energy consumption. However, increased reuse of water and desalination are energy intensive processes. At river basin level, the assessment of the mix of measures should therefore take into account the energy balance and resulting GHG emissions.

6.4.3. Economic Impacts

The improvement of the state of water resources will trigger substantial economic benefits in terms of more efficient allocation of resources, reduction of cross-sectoral externalities (cost of de-pollution) and provision of ecosystem services and reduction of damages from extreme events. The implementation of the measures will however have distributive impacts across sectors and regions.

- Agriculture: Reliable irrigation water supply decreases the risk of crop failure and consequently income losses. The JRC modelling shows that most ecosystem protection measures do not entail losses in production. However, water efficiency and alternative water supply cannot be introduced without changes in water price structure and level. In general, therefore, it is extremely difficult to assess the overall potential impact of increasing water prices in agriculture at the broad EU level. In fact, these impacts should be better assessed and analysed at river basin level so that all relevant local and regional circumstances can be taken into account. It can be however expected that water pricing policies are likely to have strong impact on the agricultural sectors of Mediterranean countries. In order to avoid these potentially negative effects and to deliver ecosystem services, payments for ecosystem services delivered by agriculture and forestry could be considered as a complement to incentive pricing. Installation of metering in all irrigated EU land, on the basis of French experience, could cost around 243 M€. (See details of the calculation in IEEP et al, 2012)

- Some sectors like aquaculture, recreational fishing, tourism, provision of drinking water, etc. benefit directly from the improvement in the quality of surface, ground and coastal waters.

- Industrial and domestic water consumption will be less affected at EU level by changes in water prices, due to the current level of prices. Water efficiency improvements are associated with energy savings and would be cost-effective. There is no precise data on the percentage of the households not subject to water metering in EU, but this is estimated at 11%. Full scale implementation of metering for the whole EU would cost 3080 M€, and obviously there is a need for a proper assessment at river basin level of the cost effectiveness of the measure. (See details of calculation in IEEP et al, 2012)

- Reduction of water stress level and maintaining ecological flows contributes to decreasing the vulnerability of energy production (both thermal and hydropower) and inland navigation, although there is a need for a proper assessment of impacts in the context of river basin management plans

Re-use or efficiency standards included in the proposed package can trigger technological developments and innovation which can secure jobs in a certain sector. For alternative water supply and water reuse the affected sector would be the water sector in particular those companies developing water re-use technologies. There are some **administrative burden** and implementation costs impacts, in particular for **SMEs**, linked to the above mentioned standards, which are analysed in detail in IEEP et al, 2012, although a full estimation will be performed, if and when detailed rules are agreed, in the context of a further Impact Assessment.

6.4.4. Social impacts

Where agricultural activity is secured by lower water stress (through improved efficiency, increased retention of precipitations and reuse of water), employment benefits are an important social impact.

Technical advances for water efficiency, water reuse and alternative water supply are important for employment in the water industry while implementation of ecosystem protection and natural water retention measures are labour intensive investments that can provide job opportunities in rural areas.

The implementation of water pricing schemes in all sectors according to WFD principles and the reduction of pollution at the source triggered by ecosystem protection measures can lead to a lower burden on domestic water consumers, in particular low-income households which are currently charged for water treatment. There are concerns that an increase in water price could negatively affect low-income population but pricing in accordance to the WFD needs to take into account social considerations.

Health impacts are relevant in the context of water reuse, and depend upon the conditions imposed on the treatment and subsequent use of that water. In this context, the proposed water re-use regulation is likely to achieve this health protection outcome than the discarded voluntary instrument.

7. MONITORING AND EVALUATION

The implementation and monitoring of the Blueprint will use the **Common Implementation Strategy**[49] (WFD-CIS) as platform. Implementation will take place in two phases that correspond to the two forthcoming periods of the CIS:

- In the first phase (2013-2015), the objective will be to influence the preparation of the next RBMPs, to be submitted by Member States by end 2015, and to strengthen the knowledge base and tools that will support the assessment of these plans and the review of the WFD.

- The second phase (2016-2018) will be dedicated to the assessment of these plans and the preparation of the review of the WFD

A Blueprint Scoreboard will be developed to monitor the implementation of the Blueprint proposal and evaluate progress. It will be discussed every year within the Strategic Coordination Group and Water Directors.

The CIS could develop the following working areas, with a further involvement of water resource managers at local level and of stakeholders:

- Target setting and Planning, including integration of the current workflows on ecological status, ecological flows and quantitative management, water allocation mechanisms and targets, including sectoral targets, to achieve water balance at river basin and water body level to support integration of quantity and quality management in the WFD implementation and address water efficiency in an integrated way.

[49] http://ec.europa.eu/environment/water/water-framework/objectives/implementation_en.htm

- Implementation of measures, including assessment of the costs, effectiveness (ecological status, water stress and vulnerability), impacts and implementation issues of the measures, continuous feeding to a practical database of measures to be used at EU, national and local levels.

- Governance, including international transboundary cooperation, planning, integration of all level (International, national, regional, local, sectoral), EU policy instrument integration

- Knowledge Base, focusing on the improvement and accessibility for managers of monitoring, reporting, statistics, research, best practices an integrated assessment tools, and the development of horizontal guidance on assessment.

An in-depth evaluation of the Blueprint process will coincide with the review of WFD foreseen for 2019 at the latest.

Annexes are presented in a separate document