
Exploratory note, vs. 2

“Working on the Water Framework Directive”

“Working on the Water Framework Directive” – exploratory note in relation to the future article 19.2. review of the Directive

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Description of involvement of the EEAC

Regulatory basis:	EEAC-Framework, art. 7
Starting date of co-operation:	July 5 th , 2017
Councils actively involved, until now:	Council for Sustainable Development in Catalonia (CADS – Catalonia), Council for the Environment and Infrastructure (RLI – Netherlands), Environment and Nature Council (Minaraad – Flanders), National Council for Ecological Transition (CNTE – France), National Environment Council (OKT – Hungary), National Council of the Environment and Sustainable Development (CNADS – Portugal), German Advisory Council on the Environment (SRU)
Working group:	Working Group Fresh Water Affairs
Meetings	Starting hearing VLEVA/MINA/EEAC, July 5 th , 2017 EEAC WG Discussion session, October 10 th , 2017 Procedure of written comments, until December 20 th 2017, on version 1 EEAC WG Renewed discussion, June 26 th , 2018

The Water Framework Directive – in full, the Directive 2000/60/EC, establishing a framework for Community action in the field of water policy; abridged: the “WFD” – dates from October 23rd, 2000, and was publicized on December 22nd, same year. The EEAC-network – the network of European environmental advisory councils – was actively involved in the run-up to the Water Framework Directive, i.e. in the second half of the nineties. To begin with, the EEAC annual conference of 1996 (21st-22nd October, Stockholm, Sweden) was specifically dedicated to the “*Sustainable Use and Management of Europe’s Freshwater*”. As a follow-up, the EEAC organized mid 1997 an Expert-meeting on the oncoming “*Framework Directive on Water*” (July 1st, Brussels, Belgium). At its annual conference of 2000 (2nd-5th June, Sesimbra, Portugal – “*The Coastal Zone Sustainable Development Policies in Europe*”), the EEAC called “*for a rapid and effective implementation of the Directive’s aim to restore ecological quality.*”

Article 19.2. WFD states that “*the Commission will review this Directive at the latest 19 years after the date of its entry into force*”, i.e. in 2019, “*and will propose any necessary amendments to it.*” In the run-up to this, and in order to re-acquaint with the WFD, the EEAC-network organized a hearing on July 5th. 2017 in Brussels. The participants decided to propose to continue working on the WFD. This exploratory note is meant to be a contribution to this work, as it should bring the EEAC’s to a level playing field concerning their knowledge about the WFD and raise awareness among the EEAC’s that are not yet involved.

Disclaimer: since this document is conceived as an exploratory note, it doesn’t bind the participating Councils or organizations. However, the document, once approved, can be accepted as an informative and general background paper at further work of these Councils.

Exploratory note – European Water Policy

1 The Water Framework Directive

1.1 The making of the Water Framework Directive

- [1] **Two generations water-directives before the WFD.** The European Framework Directive (2000/60/EC) was designed to lead to a new era in European water management. Before the WFD, there existed several European directives on water policy. In *a first generation*, before the nineties, a “*kaleidoscopic*”¹ number of separate directives were introduced, i.e. on surface water, fish water, shellfish water, groundwater, on dangerous substances and on measurement methods for fresh water quality.

Of *a second generation*, and still in place, are the Urban Waste Water Treatment Directive (Directive 91/271/EEC) and the Nitrates Directive (Directive 91/676/EEC) (which taken together tackle the problem of eutrophication), the IPPC (Directive 96/61/EC, now replaced by Directive 2008/1/EC, which deals with chemical pollution from point sources) and the Drinking Water Directive (Directive 98/83/EC, which imposes and/or harmonizes quality standards for essential outputs of the water system).

The directives of the first and second generation tended to guide the Member-States towards traditional environmental management practices. They demanded the adoption of objectives that are specific for separate compartments of the water system or for separate activities, and they lead to the management of related pressures in isolation. “*Although this paradigm had been effective for a long time and enabled developed industrial societies to address the most serious health-threatening environmental impacts, it failed to consider the complexity of ecosystems or the interactions and trade-offs at different scales*”².

- [2] **Preparatory phase.** The systemic intent of WFD generated from “*the emergence of integrated watershed management in several countries throughout the world, the growing recognition of the multiple–often competing– uses of water, and the increased awareness of the interrelationships of water systems with other physical and socio-economic systems*”. This led to the requirement to understand “*the relationship between land and water under different socio-economic drivers in the management of water resources*”. The introduction of the WFD was meant to facilitate this shift, i.e. from the existing “*fragmented policies to a holistic approach, integrating all parts of the wider environmental system*”³.

A Communication of the European Commission in February 1996⁴, preceded by declarations of the Council and the Environment Committee of the European Parliament, instigated an

¹ ARNOLD, R.D. and WADE, J.P. (2015), p. 2.

² VOULVOULIS et al. (2017), p. 359.

³ All these fragments from VOULVOULIS et al. (2017), *ibidem*.

⁴ EUROPEAN COMMISSION (1996).

extensive consultation process in the following months and years, with, among others, a two day Water Conference in May 1996, attended by some 250 delegates. Consequentially, a four-year negotiation process ensued, leading to the adoption of the WFD in October 2000.

1.2 Contents of the WFD

- [3] **Purpose.** The WFD is meant “*to establish a framework for the protection of inland surface waters, transitional waters, coastal waters and groundwater*”⁵, i.e. for the full range of the water environment, “*from source to sea*”, in order (as first among a list of general objectives) to prevent “*further deterioration*” and enhance “*the status of aquatic ecosystems*”⁶.

In sum, the goal is “*the sustainable management of water resources by taking due account of environmental, economic and social considerations*”⁷. The objectives “*should be pursued for each river basin [or catchment area], so that measures in respect of surface water and groundwater belonging to the same ecological, hydrological and hydrogeological system are coordinated*”⁸.

- [4] **Defining the river basins and description of these basins.** In order to reach the objectives, the logical first-order obligation for the Member-States was to “*identify the individual river basins lying within their national territory*”⁹, to regroup them into “*river basin districts*” and subsequently to identify, for each basin, “*the appropriate competent authority, for the application of the rules of this Directive*”¹⁰.

Where the river basin covers the territory of more than one Member State, an international river basin district was to be installed. In such cases, the appropriate arrangements were to be ensured so as to have competent authorities in place for the application of the Directive on the portion of the river basin that is on the territory of the Member State¹¹. The European Commission would serve as a negotiation forum in case of coordination problems between Member States¹².

Finally, the Member-States were obliged to generate a description of the natural characteristics of the river basin districts they were set to manage (i.e. the “*reference conditions*”); moreover they were to review the environmental impact of human activities

⁵ For definitions of these terms, see WFD, art. 2, 1-8.

⁶ WFD, art. 1 (a).

⁷ VLACHOPOULOU, M. (2014), p. 684.

⁸ WFD, preamble, consideration 33.

⁹ i.e. “*the area of land from which all surface run-off flows through a sequence of streams, rivers and, possibly, lakes into the sea at a single river mouth, estuary or delta*”. see WFD, art. 2, 13.

¹⁰ WFD, art. 3.1. and 3.2.

¹¹ WFD, art. 3.3.

¹² WFD, art. 12.

thereupon (the “*pressures*”) as well as to analyse the economic weight and function of water use in the district¹³.

[5] **The “good status”.** Centrally, the WFD imposes upon the Member-States the obligation to reach the “*good status*” for these river basins. The “*good status*” is in fact a composite, which means that the obligation encompasses a multi-layered assessment of water bodies: surface waters in terms of their ecological and chemical status, and groundwater by its quantitative and chemical status. These multiple status are at their turn linked to specific criteria¹⁴. Two peculiarities are prominent:

- For each criterion apart and for the assessment of waters in general, the “*good status*” is defined in relation to a “*high status*”. “*High status*” is more or less equal to the pristine conditions of a given water body (“*the reference conditions*”). “*Good status*” is then the situation where the values that are monitored in reality “*show low levels of distortion resulting from human activity*” and “*deviate only slightly from those normally associated with the ... water body type under undisturbed conditions*”¹⁵.
- On the other side of the spectrum, the differentiation between “*moderate status*” and “*poor status*” or even “*bad status*” is important. “*Poor or bad status*” for one criterion for a specific water body influences decisively the general status of this water body – in case the water body is deficient for one criterion, then the water body as a whole is considered deficient: this is the so-called “*one-out all-out approach*”¹⁶.

For water bodies that are heavily modified, i.e. “*which as a result of physical alterations by human activity are substantially changed in character*”¹⁷, or artificial, i.e. “*bodies of surface water created by human activity*”¹⁸, Member-States shall protect and enhance the bodies of water, with the aim of achieving good ecological potential and good surface water chemical status¹⁹. The ecological potential can be “*Maximum ecological potential*”, “*Good ecological potential*” “*Moderate ecological potential*”, also according to a multi-layered assessment on biological, hydromorphological and chemical (general, etc.) elements.

¹³ All this from WFD, art. 5, together with Annex II and III.

¹⁴ The ecological status of surface waters in itself contains the criteria biological quality (mainly biodiversity at the level of species), hydro-morphological quality (river continuity, flow, substrate, etc.) and physico-chemical quality (temperature, oxygenation, pH, nutrient conditions, etc.). The chemical status of surface waters is measured by reference to quality standards for substances that are defined at the European level (i.e. maximum annual concentrations for a number of chemical pollutants). Additionally, the Priority Substances Directive (2013/39/EU)²⁶ lists 45 ‘priority’ substances for surface waters. The quantitative status of groundwater is expressed by the measure to which a body of groundwater and/or its dependent surface waters are affected by direct and indirect abstractions. Chemical status of groundwater is measured by reference to the concentration of specified pollutants and, moreover, to electrical conductivity. Additionally, the Groundwater Directive (2006/118/EC) requires to limit inputs of pollutants into groundwater. For the detail of this system of these environmental objectives, see WFD, art. 4, combined with Annex V.

¹⁵ WFD, Annex V, Table 1.2.

¹⁶ This principle is expressed in the WFD, Annex V, 1.4.2. for the ecological status of surface water; 1.4.3. for the chemical status of surface water; for groundwater, there is no similar explicit instruction formulated in Annex V.

¹⁷ WFD, Art. 2, 8.

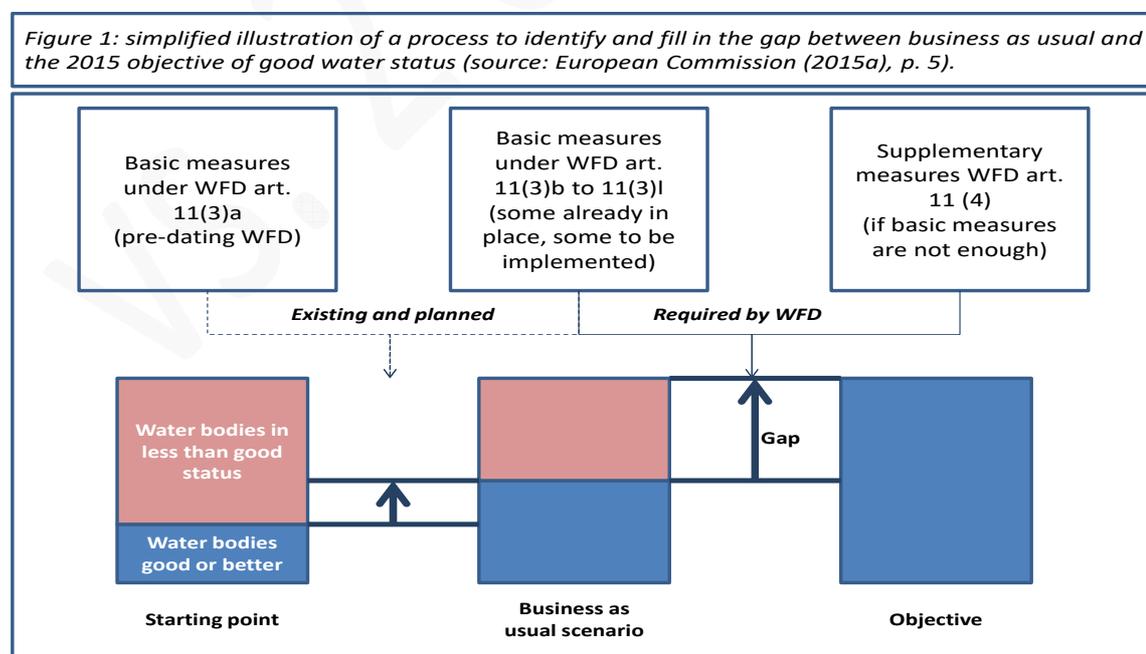
¹⁸ WFD, Art. 2, 8.

¹⁹ WFD, Art. 4, 1, iii.

- [6] **Monitoring.** In order to give substance to the aforementioned obligations, Member States needed to establish, before end 2006, dedicated monitoring programmes, for the assessment of the status of surface water and of groundwater. These monitoring activities had to be performant enough (enough scale and detail, together with sound calibration, methods and assessments) in order to produce a coherent and comprehensive overview of the water status within each river basin district²⁰.
- [7] **Programme of measures.** Having defined river basin districts and competent authorities, and having defined the reference situation (i.e. the “*high status*”), and the monitoring mechanisms of the river basins, each Member State is obliged to establish, for the districts within its territory, a “*programme of measures*”, in order to achieve the environmental objectives of the “*good status*”²¹.

Each programme of measures includes “*basic measures*” and “*supplementary measures*”. The “*basic measures*” are generally those that were comprised in the pre-existing water directives that the WFD wanted to replace (the water directives of the first generation) or the implementation of which it wanted to co-ordinate (the water directives of the second generation). But also all kinds of other business-as-usual, technology-driven, source- or usage-based, control measures should be incorporated and implemented.

The “*supplementary measures*” are then the additional measures, which a Member-State is to introduce, when it becomes clear (after monitoring)²² that the “*good status*” in a river basin would not be reached. The Member State is obliged to identify why this is the case, and to design the additional measures to satisfy all the objectives established (see Figure 1).



²⁰ WFD, art. 8, to be read together with the requirements of Annex V.

²¹ The system of “*programme of measures*” is defined in WFD, art. 11, together with Annex VI.

²² For monitoring obligations, see WFD, art. 8.

- [8] **Integration of description and measures in the form of a “river basin management plan”.** In order to get to this complementarity between (basic) source-based and (supplementary) quality-based measures, the concept of “river basin district” leads to another integrative innovation of the WFD: for each of the river basin districts, a “river basin management plan” is to be established. In the case of international river basins, the related Member States shall ensure coordination with the aim of producing a single international river basin management plan.

These management plans are considered to be “the main tool for water management of all water bodies within a specified river basin district”²³. They comprise all the aforementioned measures and would need to be updated every six years, in order to generate in all river basins an evolution to meeting the general objectives of “good status” or “good ecological potential” by 2015.

The management plans are meant to contain a detailed account of how the objectives would be reached, that are set for (every water body within) the river basin. They are to be founded on the river basin’s characteristics and on a review of the impact of human activity; they should estimate, for each particular basin, the effects of existing legislation, i.e. the “basic measures”; they would give an approximation of the remaining “gap” for each river basin to meeting the objectives, and, if necessary, should introduce, for the basins to which they relate, the aforementioned set of “supplementary measures”²⁴.

- [9] **Participation.** Member States are obliged “to encourage the active involvement of all interested parties” in the design and follow-up of these river basin management plans. This participation has to be organized even at the strategic level, as the Member-States should give insight, two years before the implementation period of a plan, into “the significant water management issues identified in the river basin”²⁵. This is meant to create an impetus for the integration of multiple perspectives and skills in freshwater governance, so as to be able to manage the inherent complexity of water resources management.

- [10] **Economic analysis.** In order to enable a more rational discussion about the choice between the various possible measures, the management plans are to be accompanied with an economic analysis of water use within the river basin. What is required, is the identification of major drivers and pressures in each River Basin District²⁶.

While implementing the WFD, Member States are obliged to “take account of the principle of recovery of the costs of water services, including environmental and resource costs”. One should take note that, without mentioning it, this obligation is in essence an enshrinement of the principle of payment for ecosystem services (PES)²⁷. In order to realize this principle of cost-recovery, the Member States must build on the aforementioned economic analysis of

²³ EUROPEAN COMMISSION (2012c), p. 39.

²⁴ The basics of river basin management plans are defined in WFD, art. 13, combined with Annex VII.

²⁵ WFD, art. 14.

²⁶ WFD, art. 5.1., to be combined with Annex III.

²⁷ VLACHOPOULOU et al. (2014), p. 685.

water uses. Based on this principle and these economic analyses, Member States are required (1) to ensure *“that water-pricing policies provide adequate incentives for users to use water resources efficiently”*, in order to *“contribute to the environmental objectives of this Directive”*; and (2) that the different water uses, *“disaggregated into at least industry, households and agriculture”*, would contribute adequately *“to the recovery of the costs of water services”*. Nevertheless, derogations for social, economic or environmental reasons remain possible, e.g. in less-favoured areas or to provide basic services at an affordable price. The implementation of the principle of cost recovery is part of the basic measures that are to be included into the river basin management plans²⁸.

- [11] **Timetable and possible extension of time limit.** As has been mentioned, the river management plans are based on a six-year cycle, whereby the environmental objectives were to be met by 2015. However, the Directive recognised that the *“good status”* might not be met within the given time limit. The WFD provided therefore with the possibility for the Member States to invoke a deadline extension and/or exception, if the achievement of *“good status”* in time would be disproportionately expensive or if the magnitude of improvement needed would only be achievable in a timeframe exceeding the 2015 target for reasons of technical feasibility²⁹. Member States that avail themselves of such extension beyond 2015, would be required to achieve all WFD environmental objectives by the end of the second and/or third management cycles, which extend from 2015 to 2021 and 2021 to 2027 respectively (**see timetable**).

WFD: Timetable for implementation ³⁰		
Year / due date	Issue	Reference
2000, December 22 nd	Directive entered into force	Art. 25
2003, idem	Transposition in national legislation Identification of River Basin Districts and Authorities	Art. 24 Art. 3
2004, idem	Characterization of river basin (pressures, impacts and economic analysis)	Art. 5
2006, idem	Establishment of monitoring network; start public consultation	Art. 8, 14
2008, idem	Present draft river basin management plan	Art. 13
2009, idem	Finalize first river basin management plan including program of measures	Art. 13, 11
2010, idem	Introduce pricing policies	Art. 9
2012, idem	Make operational programs of measures	Art. 11
2015, idem	First management cycle ends; meet environmental objectives; Second river basin management plan First flood risk management plan	Art. 4
2019, idem	Review of the Directive 19 years after the date of its entry into force	Art. 19
2021, idem	Second management cycle ends	Art. 4, 13
2027, idem	Third management cycle ends Final deadline for meeting objectives	Art. 4, 13

²⁸ WFD, art. 9.1. and art. 11.3.b.

²⁹ WFD, art. 4.4.

³⁰ From http://ec.europa.eu/environment/water/water-framework/info/timetable_en.htm.

As can be seen, the time-limit can only be extended to a maximum of two further updates of the river basin management plan. There is, however, an exception, for these cases in which the natural conditions are such that the objectives even cannot be achieved within this period.

- [12] **Other types of flexibility.** Apart from the potential delays that are provided for in the timetable, other types of flexibility are foreseen. If a water body is so affected by human activity (and/or its natural condition is such) that achieving “*good status*” (or the “*good ecological potential*”) would be infeasible or disproportionately expensive, and, moreover, if the environmental and socioeconomic needs served by the human activity cannot be achieved by other means (... which are a better environmental option and not entailing disproportionate costs), then less stringent environmental objectives are permitted to be introduced instead of the goal of “*good status*”³¹. Moreover, a temporary derogation can be granted in case a water body is affected by an exceptional natural cause (e.g. extreme flooding or prolonged drought) or *force majeure* (accidents) which could not reasonably have been foreseen³².

1.3 Reception of the WFD, and legislative evolution since then

- [13] **The start of the third generation of water directives.** The WFD has been labelled, at the time, as “*the most substantial piece of legislation ever produced by the European Commission*”³³. Its core was different from the previous directives, as the WFD is in essence not really target-based; “*instead, it sets specific operational and technical implementation obligations for Member States, that could be referred to the EU Court of Justice if these were not followed correctly. Overall, the WFD was seen as the first European Directive that focused on environmental sustainability, and partly because of this, its introduction and innovations created revolutionary prestige for the Directive, which was considered as a potential template and pilot for future environmental regulations*”³⁴. In the water policy field, the WFD served as the start of a third generation of water directives, i.e. the Floods Directive³⁵ (hereafter FD), the Marine Strategy Framework Directive³⁶.
- [14] **Amendments and changes to the WFD.** In the decades that ensued, the WFD has undergone several changes:
- Directive 2008/32/EC of the European Parliament and of the Council, of 11 March 2008, “*amending Directive 2000/60/EC establishing a framework for Community action in the field of water policy, as regards the implementing powers conferred on the Commission*”, amended the articles 8 “*Monitoring of surface water status, groundwater*

³¹ WFD, art. 4.5.

³² WFD, art. 4.6.

³³ VLACHOPOULOU, M. et al (2014), p. 684.

³⁴ VOULVOULIS, N., et al. (2016), p. 359.

³⁵ Directive 2007/60/EC of the European Parliament and of the Council of 23 October 2007 on the assessment and management of flood risks.

³⁶ Directive 2008/56/EC of the European Parliament and of the Council of 17 June 2008 establishing a framework for community action in the field of marine environmental policy.

status and protected areas”, 20 “*Technical adaptations to the Directive*” and 21 “regulatory committee”. The amendments are technical in nature and concern committee procedure only. They did not lead to extra transposition measures, to be undertaken by the Member States.

- Directive 2009/31/EC of the European Parliament and of the Council, of 23 April 2009, “*on the geological storage of carbon dioxide and amending Council Directive 85/337/EEC, European Parliament and Council Directives 2000/60/EC, 2001/80/EC, 2004/35/EC, 2006/12/EC, 2008/1/EC and Regulation (EC) No 1013/2006*”, was introduced to allow for injection of CO₂ into saline aquifers, for the purposes of geological storage. Any such injection is subject to the provisions of Community legislation on the protection of groundwater, and must be in accordance with Article 4(1)(b)³⁷ of Directive 2000/60/EC and with the Groundwater Directive 2006/118/EC.
- Directive 2013/39/EU of the European Parliament and of the Council, of 12 August 2013, “*amending Directives 2000/60/EC and 2008/105/EC as regards priority substances in the field of water policy*” amended article 16 “*Strategies against pollution of water*” by changing the periodicity of the review of the adopted list of priority substances to every six years, instead of to every four years, after the first adoption of the list. That first adoption should have taken place at the latest four years after the date of entry into force of the WFD. Moreover, Annex X, Priority substances, was replaced by a new list.
- Directive 2014/101/EU, of 30 October 2014, “*amending Directive 2000/60/EC of the European Parliament and of the Council establishing a framework for Community action in the field of water policy*”. Annex V, 1.3.6, of the WFD, was replaced to align some standards – addressing biological sampling of phytoplankton, macrophytes and phytobenthos, benthic invertebrates, fish and hydromorphological characteristics – with those published by the European Committee for Standardisation (CEN) and to remove some others.

The conclusion is that the WFD has undergone some changes in the past years, but that these amendments did not interfere with the general principles of the WFD.

2 Ex post evaluation

2.1 Implementation of the WFD (output)

- [15] **Implementation preparation: Common Implementation Strategy.** The implementation of the Water Framework Directive raised a number of shared conceptual and technical challenges for the Member States and for the stakeholders involved. As many of the European river basins were in fact crossing administrative and territorial borders, a common understanding and approach in those basins was crucial to the successful and effective implementation of the Directive.

³⁷ Article 4, Environmental objectives, (1) In making operational the programmes of measures specified in the river basin management plans, (b) for groundwater.

For these reasons, the Member States and the Commission agreed on a Common Implementation Strategy (CIS) for the Water Framework Directive, with a EU team of national experts working together in order to ensure harmonization across national assessment methods of water ecological quality. The activities surrounding this Strategy have delivered almost 50 guidance and/or related documents³⁸.

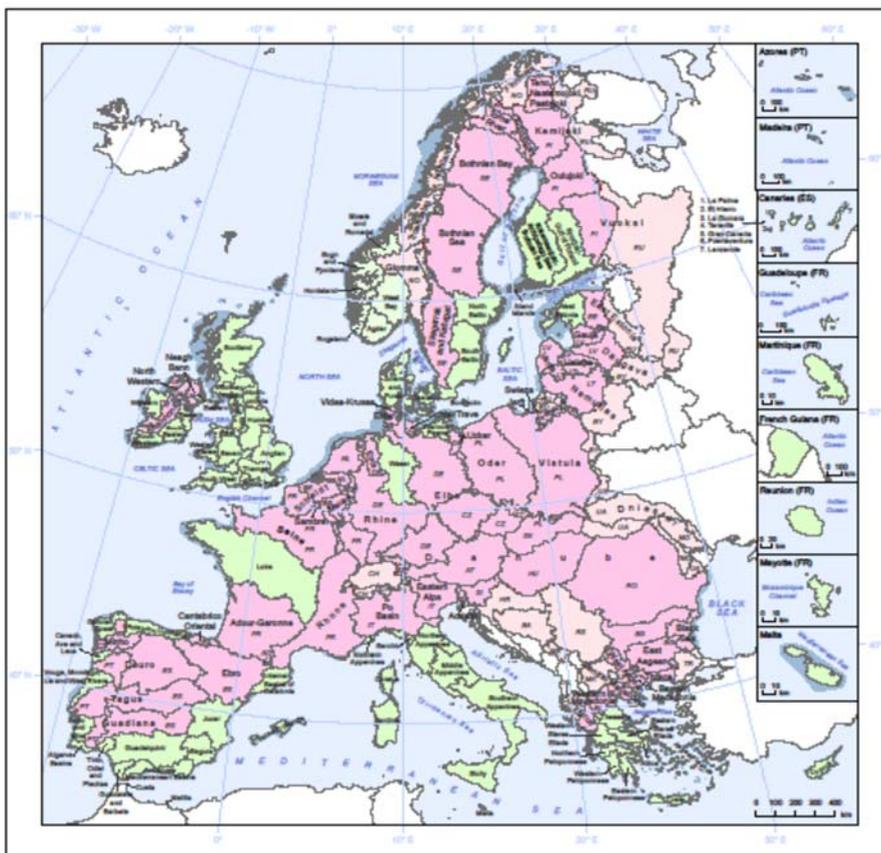
- [16] **Implementation follow-up: regular reporting.** Under article 18 WFD, the European Commission is obliged to publish on a regular base reports on the implementation of the Directive. The Commission has thus publicized her 1st implementation report, on the first stage of implementation, in March 2007; her 2nd implementation report, on monitoring networks, in April 2009; her 3rd implementation report, on the River Basin Management Plans, in November 2012; and her 4th implementation report, on the Programmes of Measures and the Flood Directive, in March 2015³⁹.
- [17] **Definition of river basin districts and competent authorities.** The tasks of the first phase of implementation comprised the identification of the river basin districts, the assignment of groundwater and coastal waters to these districts, the establishment of proper administrative arrangements and of cooperation between Member States on international river basin districts, and this before end 2003, in order to report about it to the European Commission before half 2004. *“Most EU25 Member States submitted the report in time or shortly after the expiry of the deadline. In addition, Bulgaria and Romania submitted reports on a voluntary basis in 2004 already. ... The implementation of Article 3 is largely complete across EU27. This has resulted in the establishment of 110 river basin districts (RBDs) across the EU.”*⁴⁰. In 2012, *“following the initial designation of river basin districts in 2004, and after a number of changes”, there were “128 or 170 River Basin Districts in the EU depending on how national parts of international river basin districts are counted”*⁴¹. This resulted in the following map of European river basin districts (**see map in version 2009**):

³⁸ See http://ec.europa.eu/environment/water/water-framework/facts_figures/guidance_docs_en.htm.

³⁹ For links to all these documents, see http://ec.europa.eu/environment/water/water-framework/impl_reports.htm.

⁴⁰ EUROPEAN COMMISSION (2007), p. 14 and 15.

⁴¹ EUROPEAN COMMISSION (2012c), p. 31.



[18] **Monitoring programmes.** In 2009, almost all Member States had reported on the monitoring programmes that they were expected to have installed under article 8 of the WFD. By then, more than 50,000 WFD monitoring stations were in place for surface waters, and a similar number for groundwater. However, as the European Commission noted, the quality of the information that was reported varied greatly, as well as of the assessment methods. The general conclusion of the Commission was that *“it appears that the provisions of Annex V to the WFD and the existing guidance documents on monitoring of surface water and groundwater have been applied, although there is room for improvement in some Member States [...]for the] application of the basic concepts of surveillance, operational and investigative monitoring.”*⁴²

[19] **River basin management plans.** In 2012, the European Commission had received 124 River Basin Management Plans; 75% of these plans concerned transboundary river basins. 23 Member States had adopted and reported all their Plans; 4 Member States had either not adopted Plans or only adopted and reported some plans⁴³. *“In terms of transparency”, the European Commission found “that the river basin management plans from 11 Member States were considered clear and well structured, whilst in some plans it was difficult to find the relevant information.”*

Many plans suffered from incompleteness, due to a perpetuated lack of sufficient monitoring data or waterbody-specific information. Moreover, many plans had a weak

⁴² See, for all this, EUROPEAN COMMISSION (2009), p. 16-19, 38 and 54.

⁴³ EUROPEAN COMMISSION (2012), p. 4.

legal status or a weak legal effect. These weaknesses were problematic in relation to the implementation of the programmes of measures themselves, and also in relation to other policy planning instruments, such as those for land use policy and spatial planning. Finally, the Commission pointed to the insufficient “*availability of financial resources for the implementation of water management measures, including for tasks such as ensuring appropriate monitoring*”⁴⁴.

- [20] **Implementation of programmes of measures.** In 2015 and for the whole of the EU, “22 Member States” had “reported in their first RMBPs that all basic measures under Article 11.3.a had been implemented in all their national RBDs and their national parts of international RBDs. For the remaining 6 Member States some of the basic measures had not been implemented in all RBD’s.” However, in relation to the significant pressures on surface water bodies, these measures were in many cases considered to be not sufficient to achieve good status by 2015. Further, “23% of WFD-specific basic measures (Article 11(3) b to l) were reported as completed, 66% on-going and 11% not started. The figures reported for supplementary measures (Article 11(4)) were 29% completed, 54% on-going and 17% not started”⁴⁵.

2.2 Effects of the WFD (outcome)

- [21] **Status of the water bodies.** In 2012, the European Commission communicated her “*Blueprint to Safeguard Europe’s Water Resources*”. It aimed “to tackle the obstacles which hamper action to safeguard Europe’s water resources and is based on an extensive evaluation of the existing policy”⁴⁶. Pointing to the fact that only slightly more than half of the surface waters would reach the “good status” in 2015, the European Commission stated that “major additional action is ... needed to preserve and improve EU waters”⁴⁷.

The European Environment Agency had reported in the same year that about 50% of surface waters were in poor ecological status in 2012 and that more than 40% had unknown chemical status. The situation for groundwater was better, with about 90% of groundwater bodies across the EU reported to be in “good” status” in 2012 ([see table](#)).

⁴⁴ EUROPEAN COMMISSION (2012c), p. 39-44.

⁴⁵ EUROPEAN COMMISSION (2015b), p. 10, 27-29.

⁴⁶ EUROPEAN COMMISSION (2012d), p. 2.

⁴⁷ EUROPEAN COMMISSION (2012d), p. 3.

	Number of member states	Number of water bodies	Water bodies in good status or potential 2009 (%)	Water bodies in good status or potential 2015 (%)	Progress 2009-2015 in %
Ecological status of surface waters	21 (*)	82.684	42 %	52 %	10 %
Chemical status of surface waters	Information unclear to establish the 2009 baseline (**)				
Quantitative status of groundwater	24 (***)	12.022 (5.197)	89 % (85)	96 % (92)	7 % (7)
Chemical status of groundwater	24 (****)	12.022 (5.197)	83 % (68)	89 % (77)	6 % (9)
Notes:	<p>(*) Ecological status of surface water: Ecological status: Greece and Spain are excluded from the calculations due to lack of plans. Finland, Poland and Italy are excluded from the calculation due to high numbers of surface water bodies holding unknown status. Denmark is excluded as it did not report exemptions and therefore it is not possible to estimate the expected status in 2015. Information from Belgium refers to Flanders and coastal waters only.</p> <p>(**) Chemical status of surface water: More than 40 % of the surface water bodies are reported as having 'unknown chemical status'. The assessment of chemical status for the other 60 % of water bodies is not comparable. Therefore, it is not possible to present a reliable picture of surface water chemical status and expected progress at EU level.</p> <p>(***) Quantitative status of groundwater: Numbers in parentheses are calculated excluding Finland and Sweden, both of which reported a large proportion of groundwater bodies (around half of the EU total) that are largely in good status.</p> <p>(****) Chemical status of groundwater: Spain and Greece are excluded from the calculations due to lack of plans. Denmark is excluded as it did not report exemptions, and therefore it is not possible to estimate the expected status in 2015. Information included from Portugal refers to draft plans.</p>				

Summarizing, one can conclude that the WFD, in the fifteen years since it was adopted, and despite the considerable amount of outputs it has caused, has not effectively delivered its main objective, i.e. of non-deterioration of water status and the achievement of a “good status” for all European waters. One can wonder what are the causes for this partial failure.

2.3 Potential explanations for this partial failure

2.3.1 Explanation 1: more time and/or more money is needed

[22] **Not enough time and/or not enough money.** One potential explanation is that there was not enough budget within the Member States, to reach the goals of the WFD in time (i.e. 2015), or, *vice versa*, that this time-limit was set too early in relation to the available budgets. There are several indications that point to this kind of problems:

- Though it is not often said, it was clear from the beginning that in many Member-States, there were already not enough funds for the some important “*basic measures*”: water sewage treatment is expensive, and a socially and economically justifiable

⁴⁸ EEA (2012), p. 76, with reference to EC (2012a).

solution for the nitrate emission from agriculture is not easy to be found without reconversion funding⁴⁹.

- Moreover, funding proved also to be a problem for the “*supplementary measures*”, as this problem “... *is the most common reason indicated for delays in implementing supplementary measures, affecting 7% of the supplementary measures at EU level; EU funds have been reported as used sparsely in funding supplementary measures.*”⁵⁰
- The time-path to 2015 can be considered as tight, when one takes into account that, in order to get to the “*good status*” of river basins, Member-States also had, in 15 years’ time, to undo the results of the investments and practices of the past half century, as far as these have had substantial negative impact on the “*good status*” of water bodies.
- Another reason why the time-path could be considered to be tight, is that, after the due measures have been taken, hydro-ecological systems often need time to return to their former “*good status*”. One can speak of “*a mismatch between the legal expectations of the Directive and the ecological timeframes required to facilitate an achievement of good ecological status*”⁵¹.

[23] **Incompressibility of the time/money-problem.** Lack of money and lack of time can be considered as communicating problems – when there is not enough time, more money is needed, when there is not enough money, more time is needed. Taken together these problems seem to be very real and, moreover, not compressible. This is especially true when one just takes the budgets that are assigned to water policy into consideration. Consequently, when the problem of the insufficient implementation of the WFD is solely framed in this way, it is reasonable to suspect that the “*good status*” will not be reached in the coming 10 years either. In other words, this means that the ultimate goal of “*good status*” within the time-limit of 2027 is impossible to reach.

[24] **Other explanations needed.** At the same time, it is probably not adequate to consider the problem of the implementation of the WFD solely as a problem of government-budget for water policy – i.e. the competent authorities for water policy of the Member-States pouring not enough money (or not enough in time) into investments and regulations directed at sources of degradation. The structure of the WFD suggests that the hierarchical view on government and the ensuing expectations towards the government budget are partly outdated. It is exactly this one-dimensional approach that the WFD sought to transcend, with two novelties: (1) The WFD points to two potential money-streams that should be taken into account, i.e. the benefits that water users harvest from the water system, and the contributions the water users are supposed to pay to the management of the water system they use. (2) The WFD entails a much more systemic

⁴⁹ See EUROPEAN COMMISSION (2012b), p. 10: “*Implementation of the Nitrates Directive is relatively advanced in the old Member States (EU15), but significantly less in the Member States that joined the EU since 2004 (EU12) and enjoy transitional periods. Lack of financial support and appropriate planning are the main bottlenecks.*” and also for the Urban Waste Water Treatment Directive “*Availability of resources to cover investments remains a bottleneck for compliance.*”.

⁵⁰ EUROPEAN COMMISSION (2015b), p. 11.

⁵¹ VOULVOULIS et al. (2017), p. 363; a more detailed discussion in Hering et al. (2010), under 4.4.

view on the water bodies and basins that are to be managed – these are hydro-ecological systems, influenced by water users that operate within social systems and that are subject to many more policy domains than solely water policy. Next, we discuss these other potential explanations.

2.3.2 Explanation 2: economic thinking not yet at heart of water policy

[25] **The conceptual, scientific and administrative challenge of economic thinking.** The WFD required the Member States to found their water management on cost-effectiveness analyses, to implement the principle of cost recovery as well as incentive pricing, and to define exemptions in terms of disproportionality of costs. *“In the process of achieving the environment and ecological objectives [...], the role of economics is put in the core of the water management.”*⁵² Fulfilling these obligations would have the potential to solve the money-/time-problem (i.e. the problem of explanation type 1).

However, these obligations formed *“a considerable administrative challenge for water management, both methodologically and in terms of data”*⁵³. Therefore, given the newness and the complexity of these tasks, the first guidance document that was produced under the Common Implementation Strategy, in 2001, was the Guidance on water economics (the so-called WATECO), which provided the necessary concepts and scientifically sound methods, thus *“contributing to strengthening and homogenisation of the economic knowledge in the field of water throughout Europe”*.

[26] **Relatively poor record in the obligation to report in economic terms.** In the 1st WFD implementation report, about 5 years later, it was pointed out that the economic analysis was the weakest part of the Member States reporting⁵⁴. And still in 2012, it was observed that there persisted, in the river basin management plans, a great diversity in the type of economic information provided across different countries and river basin districts. In the case of costs, comparison, statistical analysis and aggregation had, however, become possible between and on the plans, *“although the resulting cost figures must be taken as a first indication”*. For the benefit-side, the available figures were so sparse and diverse, that there were severe limitations *“to the possibilities of data analysis, comparison and aggregation”*⁵⁵.

[27] **Implementation of cost recovery principle only partial.** In 2012, the European Commission stated that *“incentive and transparent water pricing is not applied across all Member States and water-using sectors, also due to the lack of metering. Only 49% of RBMPs plan to change the water pricing system to foster a more efficient use of water and only 40 % include measures to improve water metering.”*⁵⁶

⁵² KONDOURI, P. et al. (2016), p. 90.

⁵³ VLACHOPOULOU, M. et al. (2014), p. 685.

⁵⁴ See http://ec.europa.eu/environment/archives/water/implrep2007/pdf/sec_2007_0362_en.pdf.

⁵⁵ DE PAOLI, G. et al. (2012), p. 7-9.

⁵⁶ EUROPEAN COMMISSION (2012d), p. 10.

In 2015, the implementation of the principle of cost recovery was, for 24 Member States and 144 River Basin Management Districts, reported to be completed for somewhat less than 1/3 of the cases; in somewhat 2/3 of the cases, the implementation was ongoing; in less than 10% of the cases, there was reported to be no implementation⁵⁷.

It is however not very clear what value can be attached to this reporting. While the unconditional applicability of the principle of cost recovery is relatively clear for the supply of drinking water and the disposal and treatment of wastewater, it is much less clear for other water uses/services. And even for that kind of use of water that is relatively clear, the differences between Member States may be important.

At a certain point, the European Commission considered water services, that were subject to the duty of cost recovery, to include also “*water abstraction for the cooling of industrial installations and for irrigation in agriculture; the use of surface waters for navigation purposes, flood protection or hydro-power production; and wells drilled for agricultural, industrial or private consumption.*”⁵⁸ This interpretation led the Commission to introduce a case (November 19th 2011, C-525/12) before the European Court of Justice, against Germany, pending on the result of which more cases against several other Member-States would be started. On September 11th, 2014, the Court decided however against the Commission, pointing to the fact that “*Article 9(4) of Directive 2000/60 provides that the Member States may, subject to certain conditions, opt not to proceed with the recovery of costs for a given water-use activity, where this does not compromise the purposes and the achievement of the objectives of that directive*”⁵⁹.

[28] **Resistance underestimated.** In 2012, the European Commission summarized the state of affairs as follows: “*not putting a price on a scarce resource like water can be regarded as an environmentally-harmful subsidy. Moreover, the narrow interpretation of the concept of water services by some Member States is hindering progress in implementing cost recovery policies beyond drinking water and sanitation. This limits considerably the potential impact of these WFD provisions.*”⁶⁰

However, the fact that not putting a price on water resources is equivalent to a hidden subsidy, leads immediately to another⁶¹ explanation why these cost calculations are not performed: “*spuriously accurate calculations are susceptible to political resistance. If a national legislator [...] relies on one of numerous scientifically conceivable calculation results that can ultimately provide only possible estimations, the political legitimization of the environmental policy action is likely to be far more fragile than if no such reference*

⁵⁷ EUROPEAN COMMISSION (2015b), p. 30.

⁵⁸ See http://europa.eu/rapid/press-release_IP-12-536_en.htm?locale=en.

⁵⁹ See <http://curia.europa.eu/juris/document/document.jsf?jsessionid=9ea7d2dc30d61e79bdee706f4d1ab8bfa76accd8081b.e34KaxiLc3qMb40Rch0SaxyMbN50?text=&docid=157518&pageIndex=0&doclang=en&mode=lst&dir=&occ=first&part=1&cid=774374>, §57.

⁶⁰ EUROPEAN COMMISSION (2012d), p. 10. The European Commission promised, collaterally, a new guidance document on the methodology to assess the costs and benefits of water measures

⁶¹ I.e. besides the conceptual, scientific and administrative challenge these calculations imply.

were used. This is because interest groups can easily present contrary calculations, raise doubts about the methods used, and play off certain costs to those affected against the uncertain benefits of accounting for environmental and resource costs or, in short, undermine the environmental policy argument.”⁶² This, and comparable considerations, have even brought some authors to conclude that “*this strict interpretation of taking account of environmental and resource costs has no basis in Article 9, is conceptually misleading, and could even prove counter-productive for the practical application of water protection.*”⁶³.

In short, it seems to be true that economic thinking is not yet at the heart of the water policies of the Member-States. Though this could serve as explanation for the partial failure of the WFD, it could well be that this explanation is not very helpful.

2.3.3 Explanation 3: systems thinking not yet at heart of water policy

- [29] **Systems thinking at the heart of the WFD.** A third potential explanation is that the paradigm shift towards a systems approach⁶⁴, that was claimed to be central in the thinking of the WFD, was not fully integrated in the water policies of the Member States and the Commission.

The systems thinking of the WFD was based on a Drivers-Pressures-State-Impacts-Responses sequence; and was meant to provide a systemic understanding of the relationship between environmental effects, environmental quality, the causes thereof (the pressures) and the measures taken. This systems thinking is meant to lead to a holistic approach, wherein the “good status” means that social, ecological and economic needs can be fulfilled together and over the long term. Measuring the state of a system then implies the use of indicators that provide synthetic and action-oriented knowledge. The actual status of a water system is to be interpreted as an indicator of the distance between the current state and the desired “good” one.

- [30] **The one-out, all-out principle lead to a reductionist approach.** In reality, indicators have not been used as synthetic knowledge-instruments, but as analytic instruments to instigate or continue specific policy measures. When monitoring the separate environmental indicators, and then summarizing the results, two types of errors can occur. Type I errors consist in detecting a difference (from the reference) where no real difference exists; type II errors occurs when real differences (from the reference) are not detected. “*One of the challenges of the WFD results from the combination rules stipulated. In general, different organisms are sampled per water body and assessed independently. The lowest score of all assessment results determines the overall ecological quality class (i.e. [...]) the ‘one-out, all-*

⁶² GAWEL, E. (2014), p. 10.

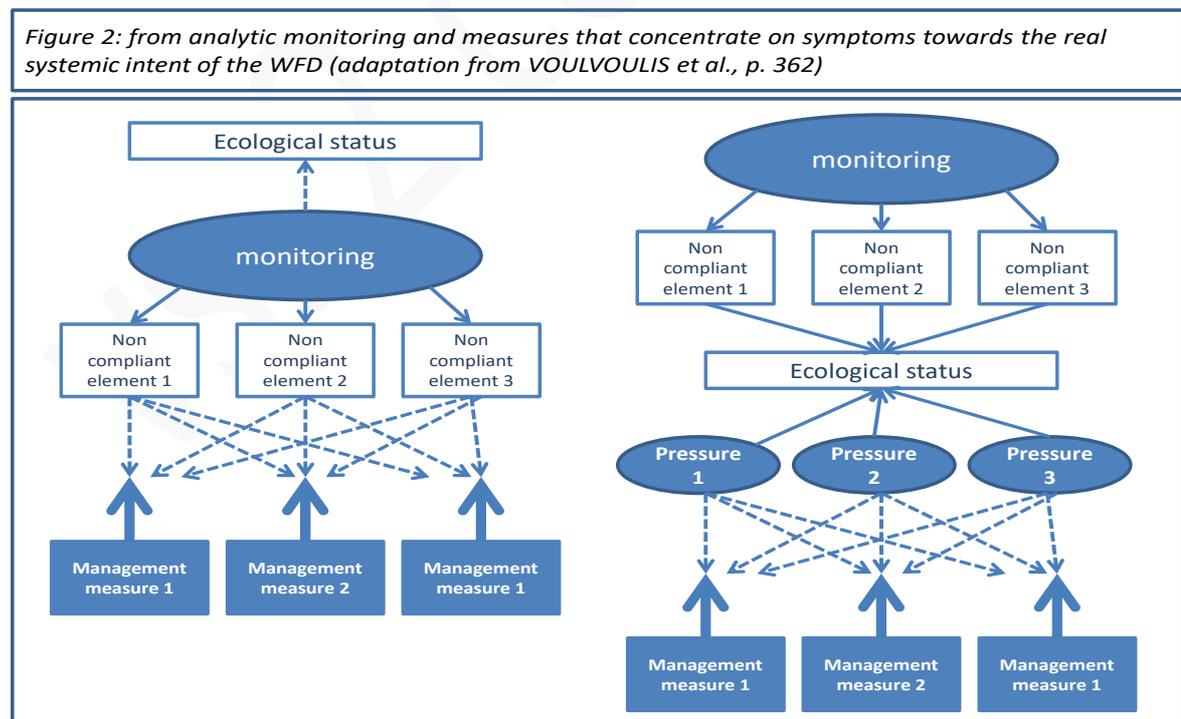
⁶³ GAWEL, E. (2014), p. 1.

⁶⁴ For a definition of systems thinking, see ARNOLD, R.D. and WADE, J.P. (2015): “*Systems thinking is a set of synergistic analytic skills used to improve the capability of identifying and understanding systems, predicting their behaviours, and devising modifications to them in order to produce desired effects. These skills work together as a system.*”

out'-principle [...]). This procedure is prone to reduce type II errors (i.e. reducing the likelihood that a water body is classified a good status, when in reality it is below good status). The 'one-out, all-out' principle is thus in line with the precautionary principle [...]. At the same time this principle will also tend to inflate type I errors [...] thus posing a risk of implementing measures where they are not strictly needed.”⁶⁵

- [31] **Not enough systems thinking in the implementation of the WFD.** In practice, the majority of the Member States seems thus to have designed monitoring programmes that focused “on the monitoring of individual structural parameters, on the assumption that good quality of such elements corresponds to good functioning of ecosystems”. Programmes of action that built on these monitoring endeavours, tended to concentrate on symptoms, rather than on “the causes of water degradation”. Consequently, “in 21 of 27 Member States there were no clear links between pressures and programmes of measures, and in 23 out of 27 Member States, the gap analysis had not been effectively implemented for the development of appropriate and cost-effective measures”⁶⁶.
- [32] **Systems thinking implies concentrating on the pressures.** In short, the WFD requires to go further than what was needed for the good implementation of the preceding directives, away from the tendency to separate, “easy fixes”, and this towards the realization of the systems understanding that is required to manage catchment areas.

According to some authors, the focus should shift from system symptoms to system pressures. This shift is summarized in **figure 2**:



⁶⁵ HERING et al. (2010), p. 7.

⁶⁶ These two paragraphs based on VOULVOULIS et al. (2017), p. 359-361.

“Unless current implementation efforts are reviewed or revised in light of this, enabling the paradigm shift required to ensure a more sustainable and holistic approach to water management, the fading aspirations of the initial great expectations that came with the Directive could disappear for good”⁶⁷.

3 Future prospects

3.1 Immediate prospects: the article 19 review

[33] As has been explained, article 19.2. WFD states that *“the Commission will review this Directive at the latest 19 years after the date of its entry into force”*, i.e. in 2019, *“and will propose any necessary amendments to it”*

In order to fulfil this task, the European Commission has stated it would organize a “fitness check” of key EU water policies, i.e. the policies as enshrined in the WFD, the FD and the other “daughter-directives” on Groundwater (2006/118/EC) and on Environmental Quality Standards (2008/105/EC). This policy evaluation will look at the relevance, effectiveness, efficiency, coherence and EU added value of the directives, including an assessment of the potential for regulatory simplification and burden reduction.

In a roadmap document published on Friday October 20⁶⁸, 2017, the Commission announced the publication, in 2018, of the implementation reports on the management plans of WFD and FD, as the real starting point of the fitness check. Next, an online public consultation will be launched, and in the third quarter of 2018 a European Water Conference will be organised. The implementation reports will be elements for discussion with authorities and stakeholders.

3.2 Types of interventions that can be expected

[34] [for further work and discussion]

3.3 Prospects in adjacent policy domains

[35] [for further work and discussion]

⁶⁷ VOULVOULIS et al. (2017), p. 358.

⁶⁸ https://ec.europa.eu/info/law/better-regulation/initiatives/ares-2017-5128184_en

Bibliography

- ARNOLD, R.D. and WADE, J.P. (2015), A Definition of Systems Thinking: A Systems Approach, 2015 Conference on Systems Engineering Research
- BOULEAU, G. and PONT, D. (2015), Did You Say Reference Conditions? Ecological and Socio-economic Perspectives on the European Water Framework Directive, Environmental Science and Policy, Elsevier, 2015, 47, pp.32-41.
- DE PAOLI, G., MATTHEISS, V. and STROSSER, P. (2012), Guidance note on the assessment and reporting of costs and benefits – Task 4 b: Costs & Benefits of WFD implementation in the Comparative study of pressures and measures in the major river basin management plans in the EU, Acteon, 2012.
- DUFOUR, M., GAVENTA, J., NESBIT, M., PAQUEL, K., PRIMOVA, R. (2017), The Future of Europe and the Future of Climate Action – Reflections and Scenario's for the EU27, E3G, IEEP and HBS EU, November 2017
- EUROPEAN COMMISSION (1996), Communication to the European Parliament and the Council – The European Community Water Policy, COM (96) 59 final, Brussels, 21 February 1996
- EUROPEAN COMMISSION (2007), Staff Working Document accompanying the Communication “Towards Sustainable Water Management in the European Union” – First stage in the implementation of the Water Framework Directive 2000/60/EC, SEC (2007) 362, Brussels, 22 March 2007
- EUROPEAN COMMISSION (2009), Staff Working Document accompanying the Report from the Commission to the European Parliament and the Council in accordance with article 18.3 of the Water Framework Directive 2000/60/EC on programmes for monitoring of water status, SEC (2009) 415, Brussels 1 April 2009
- EUROPEAN COMMISSION (2012a), Attitudes of Europeans towards Water-related Issues – Summary, Flash Eurobarometer 344, March 2012, Brussels
- EUROPEAN COMMISSION (2012b), Report on the Implementation of the Water Framework Directive (2000/60/EC) – River Basin Management Plans, COM (2012) 670 final, Brussels 14 November 2012
- EUROPEAN COMMISSION (2012c), Staff Working Document – European Overview accompanying the document Report on the Implementation of the Water Framework Directive (2000/60/EC) – River Basin Management Plans, SWD (2012) 379 final.
- EUROPEAN COMMISSION (2012d), Communication to the European Parliament and the Council – A Blueprint to Safeguard Europe's Water Resources, COM(2012) 673 final, Brussels, 14 November 2012
- EUROPEAN COMMISSION (2015a), Communication to the European Parliament and the Council – The Water Framework Directive and the Floods Directive: Actions towards the 'good status' of EU water and to reduce flood risks, COM(2015) 120 final, Brussels, 9 March 2015
- EUROPEAN COMMISSION (2015b), Staff Working Document – Report on the progress in implementation of the Water Framework Directive Programmes of Measures, Accompanying the document Communication to the European Parliament and the Council – The Water Framework Directive and the Floods Directive: Actions towards the 'good status' of EU water and to reduce flood risks, SWD(2015) 50 final, Brussels, 9 March 2015
- EUROPEAN COMMISSION (2017a), White Paper on the Future of Europe - Reflections and scenarios for the EU27 by 2025, Brussel, 1 maart 2017, p. 8

- EUROPEAN COMMISSION (2017b), Communication The Future of Food and Farming, Brussels, COM(2017) 713 final, Brussels, 29 November 2017
- GAWEL, E. (2014), Article 9 Water Framework Directive: Do we really need to calculate environmental and resource costs?, UFZ Discussion Papers, No. 13/2014
- GIAKOUMIS, T. and VOULVOULIS, N. (2017), Progress with the WFD implementation in five European basins: Significant differences but similar problems, 15th International Conference on Environmental Science and Technology, Rhodes, Greece, 31 August to 2 September 2017
- HERING D., BORJA A., CARSTENSEN J., CARVALHO L., ELLIOTT M., FELD C.K., HEISKANEN A.S., JOHNSON R., MOE J., PONT D., SOLHEIM A.L., VAN DE BUND, W. (2010), The European Water Framework Directive at the age of 10: A critical review of the achievements with recommendations for the future, *Science of the Total Environment*, doi: 10.1016/j.scitotenv.12010.05.031
- KONDOURI, P., KER RAULT, P., PERGAMALIS, V., SKIANIS, V., and SOULIOUTIS, I. (2016), Development of an integrated methodology for the sustainable environmental and socio-economic management of river ecosystems, *Science of the Total Environment* 540 (2016) 90–100.
- PRIESTLEY, S. (2015), Water Framework Directive: achieving good status of water bodies, House of Commons Library Briefing Paper, CPB 7246, 27 November 2015
- VLACHOPOULOU, M., COUGHLIN, D., FORROW, D., KIRK, S., LOGAN, P. and VOULVOULIS, N. (2014), The potential of using the Ecosystem Approach in the implementation of the EU Water Framework Directive, *Science of the Total Environment* 470-471 (2014), 684-694
- VOULVOULIS, N., ARPON, K.D., GIAKOUMIS, T. (2017), The EU Water Framework Directive: From great expectations to problems with implementation, *Science of the Total Environment* 575 (2017) 358-366.