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Article 9 Water Framework Directive: Do we really need to calculate environmental and resource costs?

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Article 9 of the EU Water Framework Directive (WFD) requires Member States to take account of the principle of recovery of the costs of water services, including environmental and resource costs (ERCs). Whilst legally the Member States have broad scope for discretion when applying Article 9, the idea that the EU legislator has effectively assigned the Member States a mathematical task to determine the level of cost recovery achieved for environmental and resource costs as well is increasingly gaining ground in the Common Implementation Strategy (CIS) process. The present paper shows 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.

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1. Taking account of environmental and resource costs – but how?

In Article 9 (para. 1, sub-para. 1) of the Water Framework Directive (WFD) the EU legislator calls for the Member States to “take account of” the “principle of recovery of the costs” of “water services” including environmental and resource costs. At the same time it is up to the Member States to “ensure” that “water-pricing policies provide adequate incentives for users to use water resources efficiently, and thereby contribute to the environmental objectives of this Directive” (para. 1, sub-para. 2). Lastly, “in doing so” – that is, in fulfilling their obligations under sub-paragraphs 1 and 2 – the Member States may “have regard” to the “social, environmental and economic effects of the recovery of the costs” (para. 1, sub-para. 3).

Precisely what, in practical terms, “taking account” of environmental and resource costs means in the context of the “principle of recovery of the costs” for the implementation of Article 9 is debatable and cannot be clearly inferred from the unwieldy formulation. As a result, the legal literature persistently emphasises the flexibility of the methods and instruments available as well as the discretionary scope afforded to the Member States for the implementation of the assessment.[1] Nevertheless, the notion of a concrete “calculation” of environmental and resource costs and levels of cost recovery on the basis of monetised externalities (cost recovery assessment [2]) is increasingly gaining ground in the realm of implementation. Without further efforts to interpret Article 9 advocates of this approach implicitly assume that environmental and resource costs can be determined by calculation or deem such a calculation “desirable”.[3] The European Environment Agency (EEA), for example, in its stock-taking report on cost recovery states that:

“Comparable systems for the reporting of utility costs and revenues are desirable, especially for the inclusion of environmental and resource costs [...]. An international reporting system for the recovery of environmental and resource costs can be created by ensuring that the data collected [...] contain the information needed to get an idea of whether environmental and resource costs are truly being incorporated into the costs recovered by the utilities.”[4]

The European Commission also supports a “calculation” approach to ensuring that environmental and resource costs are accounted for. At least this is suggested by the Commission’s line of argumentation in its infringement proceedings against Germany¹ and also by the requirements of the current reporting system, which unapologetically calls for “cost data” and “cost recovery levels” for environmental and resource costs. In the process, environmental and resource costs are to be managed in the same way as market costs following the theoretical model of internalisation. Here, “taking account of” essentially means “calculating” and also treating these costs as ascertainable market costs. Corresponding methodological proposals have meanwhile been put forward.[5]

However this approach leads to a dead end for a number of reasons. It can neither refer to a corresponding obligation from Article 9 itself, nor can it refer to the economic theory of environmental policy, which long ago abdicated “internalisation” as a practical guideline in environmental policy. Instead, the implementation process threatens to wear itself out with fruitless discussions on the methodological issues of data acquisition and assessment of the ultimately incalculable, and creates alternative, dubious derivative concepts or leads, at enormous expense, to a practically meaningless accounting bureaucracy. This way, little ground can be gained in terms of water protection, as clearly illustrated by the lack of

¹ Infringement case 2007/2243, submitted to Court 2012.

progress made since 2000. Therefore the time has come to take a more pragmatic approach to the task of considering environmental and resource costs drawing on findings from environmental economics theory on the practical challenges of accounting for resource scarcity and external environmental burdens in environmental policy. After all, it is not as if the problem of accounting for environmental and resource costs emerged for the first time in 2000 in the context of the design and implementation of Article 9 WFD. Environmental economists have been examining the issue for over 100 years now.[6]

2. Nine arguments against focusing on calculating environmental and resource costs

2.1 Environmental and resource costs cannot be calculated

First, to the most obvious argument: Due to irresolvable information problems the idea that accurate data on environmental resource costs can be collected area-wide, expressed in monetary terms and individually allocated according to the polluter pays principle in the context of a European water protection policy is illusory, both now and in the future. Those who continue to cling to the concept must agree on pragmatic substitutes that hold all kinds of methodological pitfalls. Not surprisingly then, the current debate [7] centers on well-known problems relating to the practical determination, assessment and recovery of environmental and resource costs [8]. At this point, the cost recovery policy prescribed by Article 9 visibly disintegrates into a largely fruitless discourse about methods and data. At any rate, 14 years after the WFD entered into force, not much has been brought to the table that could be put to practical use to recover environmental and resource costs – with no improvement in sight.

2.2 There is more to taking account of environmental and resource costs than identifying formal cost recovery levels

The notion that with Article 9 the EU legislator has assigned Member States the mathematical task of determining on the one hand *the extent of the costs to be taken into account* and on the other hand the *respective costs that have already been taken into account* is apparently widespread. But what this perception fails to recognise is that, due to the lack of a clear cost analysis (100% of what exactly, assessed according to which concept?), the problem of taking account of environmental and resource costs cannot be reduced to the formal problem of calculating a level of cost recovery. Assessment problems of this kind arise even when financial costs are being considered which, in contrast to environmental and resource costs, are generally not fraught with intractable data collection and allocation problems. For example, to determine whether municipal water abstraction and disposal charges cover at least the financial costs “fully”, i.e. to 100%, it must first be clear what exactly 100% of these costs are. But precisely this is impossible, since it depends on the respective assessment concept for reportable target-based costs (refinancing, maintenance of assets, profitability comparison, resource utilisation)[9].

Consequently, all other circumstances being the same, full cost recovery can result in simultaneously lower or higher values. Alone for asset maintenance, economic cost accounting theory offers dozens of sub-concepts for the assessment. Because the challenge faced here is not so much a mathematical problem as a complex assessment task, the solution cannot be simply “calculated”. For this reason, the premature claim that full cost recovery

water prices have been calculated for Germany in the meaning of Article 9 is methodologically untenable.[9] Naturally, this applies even more so to environmental and resource costs because here – in contrast to financial costs – not even the underlying quantities are known, which would have to be determined on the basis of status and function, and then assessed and allocated according to the polluter-pays principle. Moreover, in the case of environmental and resource costs there is the additional problem of determining for which water status these value losses would actually have to be derived, because of course the environmental and resource cost level changes according to water conditions. Again the same question arises: 100% of what? A satisfactory answer can only be given within the framework of a functional concept that is fully spelled out and provides sufficient information about what exactly accounting for environmental and resource costs aims to achieve. Here, the mere formal reference to 100% cost recovery, including recovery of environmental and resource costs, appears all too simple.

2.3 Calculation problems give rise to dubious derivative concepts

Of course it has not escaped the notice of advocates of calculated environmental and resource costs that a complete determination, assessment and allocation of environmental and resource costs according to the polluter pays principle is difficult, if not impossible. Consequently they tend to make do with the notion of a gradual convergence and/or pragmatic intermediate approaches, without losing sight of the long-term objective.[10] Two prominent examples of such intermediate concepts are reporting systems and the approximation approach to environmental and resource costs based on the cost of state measures. While reporting systems can only deliver preliminary information for cost recovery policy and contribute to transparency as well as implementation monitoring, a “cost-based approach” that proposes to use the costs of state measures as a (lower) reference value can serve as a material concept of cost recovery policy.

Replacing environmental and resource costs with the costs of measures seems charming in that it promises a calculable, i.e. apparently exact solution to the environmental and resource cost problem based on data problems that are actually solvable. In addition, as a derivative, this approach appears to make a direct connection between the internalisation and assessment approach of economic theory and therefore enjoys its methodological authority. The fact that there is broad support for this approach in Germany is therefore not surprising.[11] The greater the pressure for a “calculable” solution to the problem of accounting for environmental and resource costs, the stronger the support for this “way out” is likely to become.

Admittedly, two significant problems emerge from the approximation of environmental and resource costs based on costs of measures. First, economic theory of valuation does not lend itself to the approximation of environmental damages based on the costs of state measures in its simple form [12]. Second, the approach fails to lead to a convincing implementation of Article 9 in terms of water protection policy. On the contrary, here accounting for environmental and resource costs is essentially reduced to little more than an instrument for financing politically defined measures. In addition, the problem is disposed of by definition: If environmental and resource costs always correspond to measures that are planned anyway, then they are in any case accounted for and only have to be refinanced. In this way the additivity of both burdens (the adjustment burden of the change in behavior *and* additionally

the cost responsibility for the remaining environmental consequences) gets lost in the economic concept of efficient utilisation of resources – evil be to him who evil thinks. The sub-distribution of a politically defined amount of expenditure has just as little to do with a preference-based approximation of damages as with the efficiency effect of a factor price for water utilisation on all water-intensive production and consumption processes in the economy. Finally, an assessment of cost disproportionality in accordance with Article 4 WFD (by balancing the costs of measures against the reduced environmental and resource costs resulting from water protection gains) would be meaningless, because by definition both values would always be equal.

The concept of using the “pure” costs of measures as a proxy for environmental and resource costs should therefore be rejected. Moreover such a concept is not supported by Article 9. Simply documenting the costs of measures that have to be refinanced anyway can hardly be said to represent the recovery of environmental and resource costs according to the internalisation of external costs approach.

2.4 There is no legal obligation to provide a calculation solution

Under Article 9(1) of the Water Framework Directive Member States are not legally obliged to provide a calculation solution to accounting for environmental and resource costs. This is also the view unanimously expressed in the relevant German literature.[1] Article 9 is basically open in terms of the methods and instruments applied and grants the Member States scope for discretion in the implementation of the assessment. However, Member States have a duty to report, document and justify their actions (para. 2; para. 4, sentence 2).

Furthermore, no such legal obligation can be inferred from Annex III on the economic analysis referred to in Article 9, paragraph 1, sub-paragraph 1 (taking account of the principle of recovery including environmental and resource costs “based on the economic analysis conducted according to Annex III”). It states that “enough information in sufficient detail” is required for the economic analysis “in order to [...] make the relevant calculations necessary for taking into account under Article 9 the principle of recovery of costs of water services [...]”. But even the wording leaves one perplexed: What is meant by “enough information in sufficient detail” as a basis for “relevant calculations” which, however, are only deemed “necessary” so that a “principle” can be “taken into account”? On the contrary, Annex III also contains a clear warning not to lose sight of the relationship between marginal costs and marginal yield, because the collection of data for the economic analysis is to be carried out “taking account of the costs associated with collection of the relevant data”. The economic analysis according to Annex III obviously refers to the cost recovery concept to be designed under Article 9(1), and not the other way round. Therefore, no more can be inferred from the requirements of the analysis according to Annex III than what is “necessary” for the implementation of the respective concept to be defined by the Member States.

The reporting obligation in Article 9(2) does not refer to a determination of environmental and resource costs by calculation either, but merely refers in a very general way to the need for the Member States design their cost recovery policies “taking account” of environmental and resource costs. Hence, according to the wording of Article 9(2), the Member States are only required to report the “planned steps towards implementing paragraph 1”.

From a legal perspective, therefore, although one might regret that the Member States have avoided binding and comprehensive obligations to take account of environmental and resource costs when transposing Article 9 into national legislation, attempting to retroactively enforce a binding legal obligation retroactively in the common implementation process appears not only legally but also conceptually questionable.

2.5 Environmental economics does not necessarily support calculation approaches

Motivated by the obvious hopelessness of its practical implementation and the overburdening of the legislator with data collection, environmental economists have long since abandoned the notion that external depreciation can be continuously and comprehensively determined, assessed at scarcity prices, and individually allocated to the respective polluter in order to create an optimal cost-benefit allocation of resources. In the history of environmental economic thought this concept was subsequently succeeded by the so-called standards and prices approach, the sole aim of which is to achieve a *politically* defined target in a cost-efficient manner, followed by the demerit goods approach, which generates a price signal that is entirely politically defined in order to initiate sustainable structural change with no defined target. Reduced use of vulnerable resources is the only other requirement, the actual design of which is left to decentralised discovery procedures. Here, environmental and resource costs are only a categorical justification for price administration, and no longer provide a basis for the calculation of the expected costs of the use of resources.

In fact, in the history of economic thinking taking environmental and resource costs into account in environmental policy was never designed to fully allocate damage functions: as early as 1912 *Pigou* proposed the economic concept of state internalisation with an abstraction that specifically sought to confront the polluter with the concept of “marginal damage at the optimum”; here full recovery of environmental and resource costs from the polluter is not the intention. Instead, a fictitious burden of payment falls to the state, which is only a vague representation rather than a concrete illustration of the residual damage at the optimum. This is intended to serve a very specific environmental and resource cost allocation function, namely, to bring about behavioral change that will lead to an “optimal” private use of environmental resources.

Therefore, economic theory does not necessarily lend itself to *general* statements about cost recovery levels (of environmental damages) of 100%. The reverse conclusion is that in order to implement the principle of recovery of costs there is a need for a *recovery concept*, i.e. a statement about the exact purpose to be served. Internalisation through a Pigouvian tax follows a very particular concept of recovery: it focuses above all on the short-term marginal effects of controlling behavior and not on the full recovery of costs in the sense of a compensation or adjustment function for a certain level of environmental damage. Despite the “internalisation” approach, the burden of payment for the remaining use does not correspond to the environmental and resource costs at the optimum but at best represents them. In comparison, the concept of cost recovery in Article 9 is clearly broader and encompasses not only the long-term effects and income effects of environmental and resource cost allocation but also the factors of cost compensation and financing. This is reinforced by the embedding of the recovery of costs according to Article 9(1) in the economic analysis, the express stipulation of the polluter pays principle, and by the cost correction requirement between the

different water use sectors in Article 9(1), sub-paragraph 2, 2nd indent and, finally, by the general purpose of the Directive under Article 1 to establish a “framework” for overall sustainable water management. In other words: the functional objective of the allocation of environmental and resource costs in this complex steering context has to be fully spelled out in the cost recovery policy and cannot be reduced to the calculation of a percentage (cost recovery level). The economic theory of environmental policy at any rate does not deliver any mandatory blueprint for this task.

Contemporary economic theory of environmental policy continues to refer to the theoretical concept of internalisation as a mere *source of orientation and justification*. However, this concept is no longer expected to guide environmental policy on the practical distribution of the burden. *Endres* speaks here of the residual function of an “indispensable vision”.^[13] Incidentally, such an “enlightened” perspective also makes it possible to focus on simple improvements to taking account of environmental and resource costs vis-à-vis a situation of non-consideration. In this way even “small” improvements can be appreciated. At the same time, such a perspective can avoid the problems associated with focusing on an imaginary internalisation scenario: becoming discouraged (postponement until problems are solved), resorting to dubious derivatives (costs of measures as proxy variables) or “calculating” fictitious figures with whatever data are at hand (formal cost recovery levels of whatever).

Although *Hansjürgens/Messner* also initially assume the principle of monetisation and internalisation, they clearly identify, in this respect, the need for a *practical process only guided* by the idea of internalisation.^[14] In a similar way, *Ammermüller* ultimately views the meaning of Article 9 less as a numbers-based glass bead game than as an instrument of information and transparency that explicitly forces the Member States to process hitherto forgotten costs and the related conflicts of interest and to continuously comment and report on these (“cost transparency”).^[15]

These reduced expectations do not contradict the fact that the economic assessment of environmental goods is highly developed, both in theory and in practice, and progress continues to be made in this area.^[16] For certain projects that focus on one particular problem, at great expense to publically funded research, if one is prepared to invest time and apply numerous valuation methods, each with its own advantages and serious disadvantages, as well as a comprehensive set of assumptions and conditions, it is certainly possible to perform an assessment of practically all environmental goods and their value aspects in the context of the total economic value ^[17] – even, if desired, in monetary terms. But what economic valuation theory cannot do is provide an all-encompassing, affordable and readily applicable assessment of all the environmental and scarcity impacts from highly diverse water uses, including tracing point sources among a complex system of dischargers, that in its implementation would yield scientifically “unambiguous” results, create political consensus and put an end to legal uncertainty.^[18]

There is another problem here: not only would Article 9 suddenly be subject to a set of methods not prescribed by the EU legislator. Given the practical impossibility of implementing the “internalisation” approach – as described above – there would also be a need to resort to derivative supporting concepts that would allow a more “pragmatic” approach (expert opinions, cost of measures approach, etc.). While most authors insist on the fundamental need for a calculation approach to environmental and resource costs,^[19] the numerous and disparate “pragmatic solutions” developed to support the implementation of the approach have little in common and really only serve to confirm the methodological pluralism

and discretionary scope afforded to the Member States when accounting for environmental and resource costs. In this way pragmatism inevitably turns into casuistry. However, in the process, these pragmatic strategies forfeit much of the legitimacy that economic theory seemed to attribute to the approach: precisely because many pragmatic options are open, none appears particularly compelling. This applies in particular to calculation results that only appear to be accurate: “bookkeeping”, e.g. on the recovery of the costs of state measures has very little to do with the internalisation of external environmental effects and the individual allocation of true-cost scarcity prices, but apparently it should be vested with its economic authority and simultaneously also even declared as “the only alternative”.

2.6 Calculation approaches are costly and time-consuming

Efforts to design a calculation approach to accounting for environmental and resource costs have so far barely progressed beyond the drawing board because of the complexity of the problem and the almost insurmountable difficulties of finding an intersubjectively verifiable way to determine, assess and individually allocate environmental and resource costs. Many see a reporting system as desirable, but as an information instrument it can only serve as an initial step in the actual cost recovery policy and is currently not even close to being available, despite the fact that the accounting and efficiency requirements of Article 9 have been fully effective at the latest since 2010. On the other hand the approach is undeniably complex and time-consuming. If and when it will be able to achieve its self-defined objectives is entirely uncertain. One must accept that for the foreseeable future the calculation approach can only meet the present immediate requirements of the WFD – accounting, incentivisation and efficiency – through continuous efforts to refine the methodological and informational aspects of what is essentially merely a pre-reporting system. Clearly, that is not enough.

In this connection, the costs and possible benefits of an elaborate reporting system should also be critically evaluated. Annex III of the WFD explicitly states that the “required” collection of information should take account of an acceptable cost-income ratio. Excessive collection of data or extensive documentation of reporting with no practical utility for cost recovery policy is hardly in line with this requirement.

2.7 Calculation approaches distract from the real challenges

Under Article 9 the Member States are required, here and now, to independently formulate a cost recovery policy, to report on this policy and to document and justify any planned exemptions. However this does not mean that the EU legislator has called on the Member States and the EU Commission to re-address a hitherto unsolved problem which, after 100 years of debate among environmental economists, has been declared practically unsolvable. Nor does it mean that the Member States are required to take a step-by-step approach towards an imaginary ideal state by implementing an open-ended, costly process to refine methods and improve the data situation. If that were so the principle of recovery of the costs of water services (including environmental and resource costs) would not be implementable in practice at any time in the foreseeable future. The current focus of the implementation debate on questions of data collection and methods distracts from the real challenges of cost recovery policy. What’s more, valuable resources are tied up and there is a risk of creating a bureaucratic system of ineffective reporting of environmental and resource costs that –

fittingly – could be the subject of debate for a long time to come. In the meantime, there would be little pressure to provide an effective solution to accounting for environmental and resource costs in the context of a practical cost recovery policy.

In the area of agriculture, for example, there are certainly a number of interesting, *immediate* implementation tasks that do not involve extensive bookkeeping of environmental and resource costs or decades-long examination of open questions about methods and data. And the information that forms the basis for action is already available today: Agriculture is explicitly named in Article 9(1) 2nd indent as one of the water use sectors required to make an adequate contribution to the recovery of the costs of water services according to the *polluter pays* principle. However, in reality, when it comes to water protection the principle of the *polluter profits* continues to apply almost across the board in the German agricultural sector. This is clearly in conflict with the requirements of Article 9.[20] In this case, there is no need to close the information gap or clarify difficult methodological questions in order to correct water pricing policy. This problem can be tackled directly at political level.

2.8 Calculation approaches are not required from a conceptual point of view

All of the mentioned problems and shortcomings appear to be avoidable because ultimately there is no need to resort to a calculated determination of environmental and resource costs. In the search for a feasible and expedient method of “taking account” of environmental and resource costs, environmental economic theory has for decades demonstrated practical ways of do so without getting caught up with the comprehensive determination of, say, existence values and option values for fish populations; since 1976 the German Waste Water Charge serves as an example of how environmental and resource costs can be accounted for in practice without succumbing to overwhelming information requirements or postponing taking account of environmental and resource costs until a perfect internalisation of externalities appears practicable (i.e. until some never-never day), as has been called for by some.

The fact that this process is not likely to result in an area-wide landscape of charges is primarily due to the specific requirements of the different water-related scarcity problems to be solved and the respective allocative limitations of environmental charges.[21] To that extent, ideas about “all-embracing” water use charges [22] are probably illusory from the outset.[23] On the other hand, however, traditional command-and-control approaches which systematically *do not* take account of the environmental and resource costs that result from the respective remaining water uses and *cannot* make demands for resource efficiency, are unlikely to provide a comprehensive and long-term solution to the specific requirements of Article 9.[24] Plainly, if one were to infer that the only task assigned under Article 9 is the implementation of regulatory measures already required by the remaining articles of the Water Framework Directive, Article 9 itself would be completely superfluous.

Ultimately, in the context of a cost recovery policy articulated in Article 9, there seems to be no alternative to implementing water use charges according to the pragmatic demerit goods approach. It will be up to the individual Member States to transparently determine where and in what form this should reasonably be introduced in water protection to support cost recovery policy. With the help of demeritorizing charges environmental and resource costs will be politically determined, namely via “political selling prices”. The principle criticism brought against this decisionist approach, on the other hand, is not convincing (see section 3).

2.9 Calculation approaches weaken the political legitimisation of cost recovery policy

Finally, the “calculation approach” also fails to recognise that spuriously accurate calculations are susceptible to political resistance: If a national legislator instead of relying on political evaluation relies on one of numerous scientifically conceivable calculation results that can ultimately provide only possible estimations, the political legitimisation of the environmental policy action is likely to be far more fragile than if no such reference 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. As an example, currently the “study market” for the monetisation of the environmental costs of climate change offers values of between 0 and 120 euros per ton of CO₂ equivalent.[25] Obviously, such a quantification approach that demands too much detailed knowledge in fact does weaken climate policy action instead of supporting it.

Against this background it is no coincidence that for instance groups representing the interests of those required to pay German waste water charges have already gladly seized upon the argument that a calculation of environmental and resources costs, whose representation definitely still refers to the charge in the context of the demeritisation approach, has not taken place and so there is no legitimisation for the charge rates.[26] Here, it is obvious that it is practically impossible to “calculate” (continuously) a uniform charge rate in a manner that is even partly methodologically robust using the internalisation or even the standards and prices approach. Relying on “calculations” that are both impracticable and methodologically contentious would neither provide a better legitimisation of the “selling prices” nor support water protection. Under these circumstances the state is still clearly responsible for policy design. In doing so it would be well advised to steer clear of attempts to legitimise its actions on the basis of spuriously accurate, exhaustive scientific calculations. On the other hand, the non-availability of such calculations should not be allowed to impede state action.

3. Response to the criticism of politically defined environmental and resource costs

If the amount and individual allocation of environmental and resource costs in the context of a cost recovery policy is determined *politically* by the legislator using flat-rate values – as in the case of the so-called “demerit goods approach” of waste water charges and water abstraction fees with no defined target – then the requirement to “take account” under Article 9 will be implemented on the basis of a decisionist approach. This approach has met with criticism from several quarters. For example, some have expressed concern that purely politically defined environmental and resource costs would fail to meet the objectives of Article 9 [1] and carry the risk of “inefficient resource allocation”[2]. In addition, referring to the history of its origins, a purely political definition of environmental and resource costs is “not planned” by the EU legislator.[3]

3.1 Are the legal requirements being watered down?

Is there a danger that the requirements of Article 9 could be “watered down” by a “purely political definition” of environmental and resource costs? This opinion, which the EU Commission evidently shares, seems surprising in legal terms considering the effort – sometimes seen as fruitless – invested in inferring any binding “dictates” at all from Article 9 paragraph 1, but particularly from sub-paragraph 1. At the same time, given the amount of conflict over the interpretation of Article 9 and the difficulties of making even the term “environmental and resource costs” workable, it is surprising that pragmatic implementation concepts should be classified as insufficient when a reference scenario for what allegedly could be “sufficient” is not even available. The general concern regarding the insufficient implementation of the cost recovery requirement more likely results from the complex legislative history than to serious methodological objections to certain solutions, especially since they have no scientific basis in environmental economics (section 2.5).

The various relativisations in sub-paragraph 1 (“principle”, “taking account”) and sub-paragraph 3 (a further proportionality analysis of the “effects of the recovery”) refer in equal measure to the *circumstances, extent* and *manner* of “taking account” of environmental and resource costs. It cannot be reasonably assumed that the circumstances and the extent of the cost recovery, including environmental and resource costs, will be left to the legislators of the Member States, but not the manner in which the environmental and resource costs are included.[4] Article 9 is clearly riddled with discretionary scope for the Member States; but the barely achievable determination, assessment and allocation of environmental and resource costs of all things should be exempt from this? At any rate the far-reaching power of relativisation in sub-paragraph 3 does not provide for a methodologically discretion-free implementation. At the same time, one should keep in mind that, in general, according to Article 288 TFEU the legal institution of the “directive” is only binding for Member States with regard to the effect to be achieved (in this case: taking account of the environmental and resource costs); the form (determination of the environmental and resource costs) and methods (charge, tax, regulation) used to implement a directive are at the discretion of the Member States.

Besides, at least in the area of German national jurisprudence, it has long been acknowledged that the determination of costs (say, for setting a charge rate) must include political decisionist elements given that the current findings from the field of environmental economics do not allow a more precise determination in practice.[5] Particularly when it comes to charges and taxes the national legislator has decision-making scope and is allowed to make generalisations. In the debate on the allocation of environmental and resource costs within the context of Article 9 WFD no such solid legal foundation has yet been achieved due to the lack of relevant EU case law. Nevertheless, it can be concluded from the decades-long legal treatment of waste water charges and water abstraction fees at national level that taking account of environmental and resource costs through demeritorisation charges also constitutes an adequate approach to the implementation of Article WFD.[6]

3.2 Estimation problems and inefficiency

Concerns voiced about the “inefficient allocation of resources” [7] arising from purely politically defined estimations of the allocation of environmental and resource costs fail to convince. Apart from the fact that *all* of the available assessment methods – which

incidentally contradict one another – merely provide estimations, temporarily abandoning the allocation of environmental and resource costs or selecting a different estimation method is not likely to get rid of the fuzziness problem. In this respect spuriously accurate calculations represent little more than possible estimation alternatives that are considerably more expensive, available later, open to dispute over assumptions and must be considered “out of date” after a short time. One cannot seriously claim here that the national legislator is tied to a particular “calculation result” in order to overcome the fuzziness/uncertainty of estimations. This is precisely ruled out by discretionary scope granted to Member States under Article 9.

3.3 The political paradox: To wait for the impossible or to do the obvious?

Concerns over a politically induced dilution of the legal requirement become virtually paradoxical when the same authors who propose postponing the more ambitious internalisation approach until further notice due to its lack of implementability in the same breath declare the approach alone to be sufficient.[8] The alternative of not being in a position to implement a theoretically ambitious concept *at all* for the foreseeable future due to insurmountable practical problems as opposed to being in a position to implement a pragmatic, tried and tested, and by all means expedient concept immediately and across the board at an acceptable cost, and the fact that the pragmatic approach falls behind the theoretical concept can hardly be interpreted as a weakening of the requirement to take account of environmental and resource costs in practice. Obviously, quite the opposite is the case: it is the pragmatic accounting concept of e. g. demerit charges that makes it at all possible to fulfill the task of “including” environmental and resource costs when applying the principle of the recovery of costs.

3.4 The lack of enforcement monitoring and vested interests in a calculation approach to taking environmental and resource costs into account

Clearly, the reservations expressed against a “political determination” are driven by concerns about an “undersize scenario”, where the Member States impede the inclusion of environmental and resource costs through political settlements. Standardised reporting and benchmarking systems may indeed be desirable in this regard and could create the necessary transparency for monitoring the enforcement of Article 9 WFD. But this would do nothing to change the discretionary scope granted to Member States at national level under Article 9. The bemoaned enforcement deficit is plainly written into in the article itself.

The EU Commission’s understandable concerns about the otherwise elusive control of the enforcement of Article 9 should not mislead one into believing that the calculation route is the one dictated by Article 9, or even that it is the most practical and convincing one. Similarly, one should not be misguided by the understandable pride of the advocates of economic valuation or their interests in an expansive assessment bureaucracy which they could gainfully serve for decades to come if the calculation approach were to be established.

3.5 Interim conclusions

On the whole, the arguments put forward against a political-decisionist allocation of environmental and resource costs are not convincing: The task of implementing Article 9 is necessarily connected with considerable political-administrative scope for decision-making and this is just as unlikely to be “narrowed” by an internalisation concept that is impossible to implement in practice as by ineffectual attempts to replace the assessment with a pragmatic calculation model or derivative concepts that, for instance, simply refer to the costs of measures taken as proof of the allocation of environmental and resource costs. The implementation of water use charges, which place a burden on the “remaining use”, i.e. without “cut-off” environmental and resource costs, but operate on the basis of a political settlement might in practice contribute much more to the recovery of costs, to reducing water contamination and to reaching good status than endless, fruitless discussions about “even better” internalisation concepts, the collection of irrelevant data or a false solution defined on the basis of costs of measures – even if the charge rate is defined “only politically” and not on the basis of full knowledge of environmental and resource costs. Article 9 WFD is open in equal measure to this decisionist approach. In any case a political determination of environmental and resource costs that however takes full account of remaining use is more likely to result in fewer deviations from a perfect, yet impossible, internalisation than an arbitrary approximation of environmental and resource costs on the basis of costs of measures which, in addition, are to be dropped once the environmental objective has been reached, as has been repeatedly proposed.

Both European community law and German constitutional law grant the legislator broad scope for the absorption of special benefits and for “taking account” of environmental and resource costs. A comprehensive monetisation and area-wide individual allocation of external costs according to the polluter pays principle is not practicable and also not necessarily required by subparagraph 1, which merely refers to “taking account” of a “principle”. Relying on impracticable “calculations” that are open to attack in terms of methodology and therefore give cause for endless political wrangling would neither achieve a better legitimisation of the cost recovery policy nor contribute to water protection. Here, the “environmental state” must continue to assume responsibility for policy design.

4. Farewell to ERC accounting?

The concept of “calculating” environmental and resource costs has clearly led to an impasse in the debate on the implementation of Article 9 WFD. The basic idea behind the approach has simultaneously degenerated into a pragmatic casuistry of barely manageable proxies and interim solutions. Similar to the costs-of-measures approach, dubious derivative concepts are being offered which are far removed from the actual task assigned by Article 9. The fact that efforts to come up with a practicable “accounting concept” have on the whole been unsatisfactory has led to growing pressure to draw on the findings from environmental economic theory on accounting for environmental and resource costs and to systematically implement Article 9 on the basis of these findings.

However, two opposing and powerful forces currently stand in the way of the effective implementation of the principle of cost responsibility according to Article 9 as part of the regulatory framework for sustainable and efficient water management.

On the one hand, particularly in the German legal literature, remarkable efforts have been made to avoid and resist the requirements of Article 9. These include claims that the regulatory content is both unclear and unclarifiable, that the traditional command-and-control approach and the (substantively clearly deviating) cost recovery principle in the individual federal state laws on municipal charges are sufficient, a narrow interpretation of the term “services”, calls for the task of taking account of environmental and resource costs to be abolished once the environmental objective has been reached, and the suggestion that environmental and resource costs should be determined on the basis of the costs of state measures that are anyway required. Such arguments render Article 9 totally superfluous as an independent and special component of the regulatory framework for sustainable water management which emphasises and demands that resource users assume cost responsibility in the interests of water conservation. However, this marginalisation strategy does not have a large following, and rightly so: Article 9 – at the legislative level – introduces a fundamentally new aspect of water management.[9] The Member States are obliged to take on the task.

However, adversity looms on the opposing side too. Those who claim that Article 9 has finally put an end to the long failed internalisation strategy in environmental policy are not doing water protection any favors either. They may even make the achievable successes of a strategy of cost responsibility more unlikely by focusing on a distant illusion, the great internalisation solution, and by their tendency to delegitimise less complex decisionist approaches. Even an enormous assessment and accounting bureaucracy dedicated to recording sector-specific cost recovery levels and heaps of studies on their methodological suitability, which would appear to be on the horizon, are not likely to be able to substitute for the power of policy to solve very simple issues such as how to cover the consequential costs of agricultural water uses. Individual Member States have long been demonstrating how the principle of cost responsibility can be satisfied in the interests of water protection with pragmatic approaches such as the waste water charge (Germany) or pesticide charges (Denmark, Sweden) .[10] The EU legislator explicitly does not call for *comprehensive* and *binding* cost responsibility in the area of water management in Article 9. The resulting lack of obligation cannot now be enforced after the fact in the context of implementation. This seems not only legally questionable but risks getting mired in a fruitless ERC documentation bureaucracy. In this way, valuable resources are directed into dubious channels and much time is lost.

Therefore, incorporating the state of knowledge in environmental economic theory into the practical implementation of cost responsibility policy seems to make more sense and at the same time the objectives of the Water Framework Directive would be better served than continuing to try to solve the obviously unsolvable internalisation problem. A water protection policy that consistently takes into account that even free ecosystem services come at a cost to society (for example, legally conceded residual uses) and administers the related cost responsibility in the light of findings from environmental economics according to the polluter pays principle, but with a discriminating use of instruments (requirements and prohibitions, charges, fee calculation rules), is within the meaning of Article 9 WFD. A standardised but lean reporting system and/or a benchmarking approach that is manageable in terms of administrative cost could create the necessary transparency between water uses and water protection and stimulate competition between the different Member States’ systems.

So, in terms of practical design, what form should an information and reporting instrument take that will also allow the Commission to determine whether the Member States have met their obligations under Article 9 WFD without providing a specific, centrally defined concept for taking account of environmental and resource costs? This question is not easy to answer. Although the literature contains a number of different proposals[11], they are still too heavily shaped by the monetisation ideal. It appears crucial that the central transparency function of *reporting* should place stronger demands on *procedural* and *conceptual* elements, i.e. Member States should be required to self-report about *how* their cost recovery policy intends to take account of environmental and resource costs and *in what way* national monitoring is to take place rather than to provide a standardised calculation or percentage result that consistently follows a particular methodological approach. Such an approach is not required by Article 9 and at best might become established as a conventional method at supranational level at some time in the future, or perhaps never.

References

- [1] See for example *Kolcu*, Der Kostendeckungsgrundsatz für Wasserdienstleistungen nach Art. 9 WRRL, 2008, p. 112; *Desens*, Wasserpreisgestaltung nach Art. 9 WRRL, 2008, p. 204. Some authors even claim to recognise only “clichés” that are unsuitable for implementation purposes: *Reinhardt*, Natur und Recht 2006, 737, 740 f.
- [2] *Ammermüller*, Assessing Cost Recovery: A New Comparative Framework in Line with WFD Article 9, 2011, p. 157 ff.
- [3] See for example *Ammermüller* [2], p. 157, who refers to an “ideal path to cost-recovery” to which “an iterative approximation” can be applied in accordance with Article 9, and the *European Environment Agency* (EEA), Assessment of cost recovery through water pricing, Technical Report 16/2013, p. 14.
- [4] EEA [3].
- [5] See for example *Ammermüller* [2], p. 157 ff.; in the context of the EU project *Aquamoney* (the results of which are available at www.ivm.vu.nl/en/projects/Projects/economics/aquamoney/index.asp) and in particular *Görlach et al.*, Policy maker demand for economic information assessment in the implementation of the EC Water Framework Directive, 2007), a DWA working group report (*Palm et al.*, Korrespondenz Abwasser 2011, 362; *id.*, Korrespondenz Abwasser 2013, 103) and *Proeger*, Umwelt- und Ressourcenkosten in der EU-WRRL, 2009.
- [6] *Pigou*, Wealth and Welfare, 1912, first came up with the concept of a charge rate in the amount of the external damage at the optimum as an internalization instrument to correct for environmental externalities, therewith establishing the field of environmental economic theory.
- [7] *Görlach/Interwies*, Die Ermittlung von Umwelt- und Ressourcenkosten nach der Wasserrahmenrichtlinie: die Situation in Deutschland, 2004; *Hansjürgens/Messner*, Erhebung kostendeckender Preise in der WRRL, in: Handbuch der EU-WRRL, 2nd edition, 2006, p. 409 ff.; *Ammermüller* [2], p. 157 ff.; EEA [3], p. 98 ff.
- [8] For a general, instructive overview see *Endres/Holm-Müller*, Die Bewertung von Umweltschäden. Theorie und Praxis sozioökonomischer Verfahren, 1998.
- [9] For an in-depth analysis see *Gawel*, Journal for Public and Non-Profit Services 2012, 243; *id.*, Kommunale Steuer-Zeitschrift 2012, 1.
- [10] For a typical example see the argumentation in *Ammermüller* [2], p. 339: “Environmental and resource costs continue to pose major difficulties for implementation across European Member States. While pan-European research projects are under way, which will deliver insights on the applicability of economic monetisation approaches [...] their area-wide application will not prove feasible for the

next implementation cycle (at least). Hence, pragmatic intermediate approaches need to be relied upon in the meantime.”

[11] *Palm et al.*, Korrespondenz Abwasser 2011, 362, 365 (proposed by the DWA working group “Economic Aspects of the WFD”); LAWA² Committee on Water Law, *Gemeinsames Verständnis zu Umwelt- und Ressourcenkosten*, 2013. Similarly *Fries/Nafo*, Korrespondenz Abwasser 2006, 154, 156: “The simplified assessment of external environmental and resource costs assumes that the damage costs are at least as high as the environmental protection costs.” (transl. by the author). *Proeger/Buchs*, Maßnahmenkosten als untere Grenze für Umwelt- und Ressourcenkosten gemäß Art. 9 WRRL, in: *Handbuch zu den ökonomischen Anforderungen der europäischen Gewässerpolitik*, 2012, p. 193 ff. See also *Ammermüller* [2], p. 336: “[...] the cost-based approach, which draws on the information provided by the programme of measures, could be applied.” The approximation of environmental and resource costs on the basis of costs of measures was already discussed by the *Drafting Group Eco2* in their *Assessment of Environmental and Resource Costs in the Water Framework Directive*, 2004, and by *Görlach/Interwies* in *Die Ermittlung von Umwelt- und Ressourcenkosten nach der WRRL: die Situation in Deutschland*, 2004, p. 19 f.

[12] For an in-depth analysis see *Gawel/Unnerstall*, Korrespondenz Abwasser 2014, 223 ff.

[13] *Endres*, *Umweltökonomie*, 4th edition, 2013, p. 50 ff.. See also *Gawel* on the reduced functionality of internalisation as a model in: *Ökonomie der Umwelt. Ein Überblick über neuere Entwicklungen*, 1994.

[14] *Hansjürgens/Messner* [7], p. 423 f.: “The concrete implementation of this task is an open process. This process [...] through its focus on the macroeconomic perspective (including environmental and resource costs) comprises long-term directedness and goal orientation.” (transl. by the author).

[15] *Ammermüller* [2], pp. 51 and 204.

[16] This also applies to the theory of valuation (see the overview by *Endres/Holm-Müller*, *Die Bewertung von Umweltschäden*, 1998; *Hanley/Spash*, *Cost-Benefit Analysis and the Environment*, 2003) as well as innumerable practical studies and guidelines on case-based valuation methods (rather than many, *Schaafsma/Brouwer*, *Overview of existing guidelines and manuals for the economic valuation of environmental costs and benefits*, 2006).

[17] The *total economic value* refers to the combination of the use value of a resource (direct use value, indirect use value, e.g. via ecosystem functions, and option value) and its non-use value (existence and bequest value) – see for example *Pearce/Moran*, *The Economic Value of Biodiversity*, 1994, p. 19 ff. Whether the (fundamentally inverse) values or costs of a resource (as its consumption) are considered, depends on the method of analysis – see also *Brouwer*, *Practical Working Definition Environmental and Resource Costs and Benefits*, 2006, p. 4 f.

[18] For a similar view see *Ammermüller* [2], concedes that assessment studies are “time-consuming (and often expensive) in execution. [...] their area-wide application will not prove feasible” (p. 339). And: “The present data and information base in most European Member States will only allow for a comprehensive assessment at case study level. Given limited resources for the relevant assessments and severe time constraints, an area-wide assessment of environmental costs for the first implementation process (and likely beyond) may thus only be achieved through alternative procedures.” (p. 188).

[19] See for example *Ammermüller* [2], p. 188, who sees hope that the pragmatic data collection procedures “may progressively and iteratively move to a fully monetised environmental cost assessment”.

[20] See for example the law on the levying of water abstraction fees (WasEG) of the German federal state of North Rhine-Westphalia, where agricultural irrigation is not only exempt from the charge (Art.

² LAWA (Länderarbeitsgemeinschaft Wasser) is the German Working Group on water issues of the Federal States and the Federal Government represented by the Federal Environment Ministry – see <http://www.lawa.de/About-LAWA.html>.

1 para. 2(10) WasEG), it also provides incentives for the agricultural sector to benefit from payments of the drinking water utilities through offsetting (Art. 8 para. 1 WasEG). For a critique with reference to Art. 9 see also *Gawel*, Das Wasserentnahmeentgeltgesetz NRW. Bestandsaufnahme und Evaluierung, 2014.

[21] See also *Gawel*, Zum Für und Wider von Wassernutzungsabgaben, *Korrespondenz Abwasser* 2012, 652 and 738.

[22] See in particular *Palm*, Beitrag zur Erweiterung des Einsatzes ökonomischer Instrumente im Rahmen einer gesamtheitlichen Flussgebietsbewirtschaftung, 2006; *Palm/Wermter*, *Korrespondenz Abwasser* 2008, 782; *Grünebaum et al.* in: 40. Essener Tagung für Wasser- und Abfallwirtschaft, 2007, 29/1; *Palm*, in: Lauterbach et al., *Handbuch zu den ökonomischen Anforderungen der europäischen Gewässerpolitik*, 2012, p. 215 ff.

[23] For a more detailed and differentiated analysis see *Gawel/Köck et al.*, *Weiterentwicklung ...*, 2011.

[24] *Gawel*, *Instrumente zur Berücksichtigung von Umwelt- und Ressourcenkosten, Natur und Recht* 2014, p. 77 ff.

[25] See for example *Tol*, *Energy Policy* 2012, 288.

[26] For example the argumentation put forward by association representatives against the waste water charge – see conference proceedings: *Gawel/Köck et al.*, *Reform der Abwasserabgabe*, 2014, Annex 9. *Palm et al.* also call for charge rates to be based on a calculation in the German Law on Waste Water Charges in *Palm et al.*, *Korrespondenz Abwasser* 2012, 1048, 1056.

[27] See also *Desens*, *Wasserpreisgestaltung nach Art. 9 WRRL*, 2008, p. 208.

[28] *Desens* [1], p. 205.

[29] *Desens* [1], p. 208.

[30] See also *Reese*, *JEEPL* 2013, 355, 376: “All in all, this Article seems to provide an ample margin of discretion as to how and how far Member States apply the CRP [cost recovery principle] and pricing instruments.”

[31] See the “waterpenny” decision of the German Federal Constitutional Court of 20.01.2010: BVerfG, *Beschl. v. 20.01.2010, NVwZ* 2010, 831 – *Wasserpennig Niedersachsen*.

[32] Compare among others *Gawel/Köck et al.*, *Zeitschrift für Wasserrecht* 2014, 37 ff. and in a similar vein *Kolcu* [1], p. 90 f., who expresses doubt about the “most elegant economic path” and would rather see a pragmatic consideration of “how the economic instruments can serve the WFD in a practicable and cost-efficient manner.”

[33] *Desens* [1], p. 205; on the contrary *Gawel*, *Konzepte zur „Berücksichtigung“ von Umwelt- und Ressourcenkosten nach Art. 9 WRRL*, *Verwaltungs-Archiv* 2014, in press.

[34] *Desens* [1], p. 208, for example, calls for the requirement to take account of environmental and resource costs in the implementation of Article 9 WFD to be suspended until such time as the methodological problems have been solved by economic theory.

[35] See also *Ammermüller* [2], p. 331: Art. 9 “formulates new and unprecedented objectives for water management in Europe whose implementation will require the adaptation of existing practices”.

[36] For an overview see OECD, *Pricing Water Resources and Water and Sanitation Services*, 2010.

[37] See in particular the very elaborate analysis by *Ammermüller* [2], but also in the context of the EU *Aquamoney* project (www.ivm.vu.nl/en/projects/Projects/economics/aquamoney/index.asp, in particular *Görlach et al.*, *Policy maker demand for economic information assessment in the implementation of the EC Water Framework, 2007*), a working group of the German Association for Water, Wastewater and Waste (DWA) (see *Palm et al.*, *Korrespondenz Abwasser* 2011, 362; *id.*, *Korrespondenz Abwasser* 2013, 103) as well as *Proeger*, *Umwelt- und Ressourcenkosten in der EU-WRRL*, 2009.