

The Effectiveness of the Water Framework Directive - Will Great Expectations in Brussels be Dashed at the Regional Scale?

Britta Kastens

Institute of Environmental Systems Research
University of Osnabrück
Barbarastr. 12
D-40976 Osnabrück
britta.kastens@usf.uni-osnabrueck.de

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Abstract

The aim of this paper is to investigate whether the implementation of the WFD will be successful in terms of the actual improvement in water quality. The article focuses on the current European water regulations and their present implementation in Germany concerning the reduction of nitrate pollution in surface and groundwater bodies. Given the significance of the regional scale for implementation, it is assumed that the implementation of the WFD will also depend on the specifics of the regional and local level. While socio-economic conditions and regional and local actors may be factors that hinder successful implementation, particularly newly institutionalised participatory processes provide the chance for a more successful outcome in the WFD's implementation.

1 Introduction

In order to overcome the implementation problems perceived in European environmental legislation, the EU has adopted new policy styles within its directives for the past decade. The most recent example of the ‘new generation’ of European Directives (Moss 2004: 86) is the Water Framework Directive (WFD), which combines the ‘shift from government to governance’ (Kaika and Page 2003, p. 315) with traditional means of the command-and-control approach. As to the latter, the directive makes monitoring and reporting procedures as well as stringent time scales obligatory; sanctions for non-compliance can be levelled by the Commission (cf. Art. 23 WFD, Moss 2003, p. 216). The new policy style, on the other hand, becomes apparent in the directive’s public participation provisions (Art. 14 WFD) and in the adaptive management requirements through iterative river basin planning cycles every six year. Further, according to the subsidiarity principle, the WFD takes into account the differences between member states and regions, and allows for an adjustment of both environmental objectives and measures to the regionally specific geographical, economic and social conditions (Petry and Dombrowsky 2007).

Yet, the implementation of directives within the European multi-level system still poses great challenges for lower scales. Though most implementation researchers of the top-down school disavowed from their traditional point of view that in multi-level implementation systems effective policy delivery becomes less probable the more ‘clearance points’ are involved (Pressman and Wildavsky 1984 [1973]), nevertheless different recent implementation studies revealed that implementation deficits are still of unprecedented concern and become even more important in member states with federal structures, such as Germany (Knill and Lenschow 2000, Dimitrakopoulos and Richardson 2001, p. 336). Besides the restricted control mechanisms of the European Commission, reasons for these deficits are traced back to the rising likelihood that “goals formulated at the European level are likely to be remoulded” (Blom-Hansen 2005, p. 625) in the course of implementation at lower scales and the risk of regulatory capture of local authorities (Demmke 1997; Flynn 2000, p. 78).

Is the WFD, as an example of modern EU legislation, able to improve implementation by its new procedural structures, or will these new steering mechanisms deliver new difficulties for effective implementation? The aim of this contribution is to assess the chances of the WFD to be in fact ‘successful’ in terms of the actual improvement in water quality. The article investigates the current regulations and their present implementa-

tion in Germany concerning the reduction of nitrate pollution in surface and groundwater bodies.

The analysis of the implementation success of the WFD also has to take into account the characteristics of the regions that finally meet the new European environmental demands at lowest scales. In particular, regions that sustain their socio-economic configuration on highly specialized and firmly established production structures often have difficulty in adapting to changing conditions (Grabher 1995 [1993]). Production patterns in these regions are accompanied by close actor networks and a tightly knitted social and administrative system that reflect the specific economic environment. While optimising the capacities along this environment, these regions tend to lose their ability to reorganize their internal structures in order to cope with new political or structural challenges (*ibid.*, p. 264 et seqs.). Given the significance of the regional scale for implementation, it can be assumed that the 'success' of the European legislation will depend to a great extent on the regional and local specifics. This paper, therefore, seeks to explore both the potentials and risks of the WFD's leeway during implementation and specific regional and local conditions that might affect the successful implementation of the WFD. The Hase river catchment in Lower Saxony, Northwest Germany, will serve as a case study. Here, diffuse nitrate pollution is particularly significant. In Lower Saxony, the results of the first inventory show that due to diffuse nitrate pollution by agriculture, the achievement of the good status is unlikely or yet unclear for 86 out of 129 groundwater bodies (MU Nds. 2004).

The paper is organised as follows: in section 2 the requirements of the WFD and its daughter directive, the Groundwater Directive (GWD) on nitrate reduction and their implementation in Germany will be analysed. Emphasis is put on the leeway that is provided by the European legislation for the further implementation. The utilisation of this leeway at lower scales allows a first judgement on the effective implementation. Section 3 opens up the context to the regional scale. The section shows which conditions at lowest implementation scale can hamper the WFD's implementation. In section 4 the chances of public participation as an important instrument to achieve the goals of European water legislation are discussed. Finally, the conclusions will try a first final judgement on the likelihood of the achievement of the WFD's goals in terms of nitrate reduction and will provide first recommendations for further implementation in intensive agricultural regions.

2 WFD requirements on nitrate reduction and their national implementation

For nitrate reduction in surface and groundwater bodies, the overall goal of the WFD, the ‘good status’, is not precisely defined within the directive. Rather than giving exact limit values for nutrients, the WFD delegates both the further operationalisation of the overall objectives and the setting of the instruments to the member states (cf. Kallis and Nijkamp 1999: 14). This is also confirmed by document 13 of the Common Implementation Strategy (CIS), which states the need to define specific nutrient limits for the different water types at lower implementation scales (EU 2003, p. 15). Also for groundwater, the WFD stays imprecise in terms of nitrate limits but refers to the recently adopted Groundwater Directive (GWD) for more precise definitions. For nitrate, the GWD imposes a quality standard of 50 mg/l. This limit value had been established before by former European directives, but the quality standard of 50mg/l for nitrate is now more strictly as it is for the first time binding and has to be achieved for all groundwater bodies. In contrast to this, the limit formerly served as an orientation value to implement action plans for nitrate reduction according to the Nitrates Directive of was exclusively binding for drinking water extraction areas, which fall in the scope of the Drinking Water Directive.

According to the German constitution, the implementation of federal laws, and thus also of EU law, is generally delegated to the federal states (*Länder*), which, moreover, have the primary right to legislate in the field of water protection. New regulations in terms of nitrate limit values cannot be found in the amended water laws of the federal states. Nevertheless, nitrate pollution is taken seriously by the federal states, which manifests less in water legislation, but rather in the executive implementation of the WFD. In this context, the leeway for interpretation of the WFD becomes particularly apparent.

Implementation of the WFD is co-ordinated among the federal states by support of the ‘Working Group of the Federal States on Water Problems (LAWA)’. Comparable to the CIS group, the LAWA provides guidance documents for the German implementation of water laws, such as the WFD. Although not legally binding, the obligations of the LAWA documents are widely accepted among the German *Länder*. According to Annex II No. 1.1 ii WFD 24 different surface water types were identified for whole Germany, which serve as a basis for the assessment of the good ecological status. For each surface water type so-called leaflets of characteristics were developed including the biological, morphological and abiotic quality components as well as complementary descriptions on the

hydrology and water conditions, such as physico-chemical aspects. Even though, the LAWA has announced the development of orientation values for nitrate limits, they are neither included in the leaflets of characteristics nor yet specified in any other context (LAWA 2006: 1).

The success of nitrate reduction will thus depend on how stringent goals are set at the scale of the *Länder*. Since some *Länder* might define more ambitious goals than others, goal achievement might become more likely in these than in those *Länder*, where quality standards for nitrate are less stringent. Due to the lack of precise limit values for surface water bodies on both the European and the national scale, the *Länder* mainly referred to the chemical water quality classification developed by the LAWA in 1998 (LAWA 1998). This classification, however, follows a five-step valuation instead of the seven-step valuation as demanded by the WFD. In consequence, the federal states applied different values for nitrate in surface waters. Even though the single procedures can be expected to be sound valuation methods, a comparison of the chosen approaches remains difficult and thus does not allow a judgement on whether the single federal states apply more or less strict limits for nitrate (for more details see Kastens and Newig 2007; Kastens and Newig in press a).

Moreover, Art. 10 WFD demands a combined approach of water quality limits and land use values. This combined approach is certainly a positive step towards effective nitrate reduction, since diffuse nitrate pollution in German water bodies mainly refers to agricultural land use and both the judgements on the pollution status and the deduced land use changes according to the status deficits can thus be better conducted. To support the approaches of the federal states, the LAWA suggests six different ways for fixing land use standards, such as the proportion of land under agricultural use in comparison to the whole land use, the intensity of agricultural land use in terms of animal units or the amount of fertiliser applied on the agricultural land (LAWA 2003: 45 ff.). The federal states usually follow one of these approaches, which, however, differ in their complexity. Moreover, slight changes and the combination of approaches makes a comparison of the strictness of the different approaches applied difficult. Thus, just as the operationalisation of quality limits, also the valuation of land use standards differs greatly between the German *Länder*.

A similar variability can be investigated for the federal state's operationalisation of nitrate limits in groundwater bodies. Even though the GWD specifies a precise limit of 50mg/l for nitrate, uncertainties arise due to imprecisely formulated assessment and valuation procedures within the directive. Currently, the GWD leaves open, whether the limit has to be achieved as an annual mean at each single point of measurement or whether a further average determination of the whole groundwater body is

allowed too. The latter would imply a less strict regulation. While the WFD allows an average determination, the GWD clearly states that the limit value of 50mg/l has to be achieved for each measurement point. One reason for the high variability in operationalisation has to be seen in the delayed passage of the GWD. The directive came into force in January 2007 and thus four years later than originally intended. By this time, however, the operationalisation of nitrate goals had already been finalised in Germany. Moreover, many *Länder* face difficulties in the density of measurement points. Particularly for groundwater bodies the amount of measurement points is not sufficient (NLWKN 2005: 66). In consequence, most *Länder* had to apply an average determination, which was conducted in various ways that are not easily to compare.

In conclusion of the WFD's goals and policy style towards a successful implementation, the new European water legislation involves factors that can be expected to support as well as factors that are likely to hamper comprehensive nitrate reduction. The analysis shows that both the WFD and the GWD partially prescribe higher standards than the previously applicable European law, advancing the reduction of nitrate pollution particularly in groundwater bodies. Experts however, question, whether the limit of 50mg/l shows the right signal for nitrate reduction. The natural value of nitrate in groundwater is usually limited to 10mg/l (UBA 1994: 144). A higher limit, which is oriented on drinking water standards, would thus value groundwater pollution against usage rather than ecological aspects. Yet, according to the target of the effective nitrate reduction, the value of 50mg/l has to be judged as a success as, for the first time in European legislation, it is binding for all groundwater bodies (see also Kastens and Newig in press a).

However, imprecise nitrate limits for surface water bodies and legal uncertainties in the groundwater bodies led to nitrate goals at the *Länder* scale, which are not comparable. A judgement on whether the goals are more ambitious in some *Länder* than in others is thus virtually impossible. However, a continuous and comprehensible comparison between the different approaches of operationalisation is not only important for the reports, which have to be delivered to the European Commission, but complies also with the harmonisation efforts in European water management and protection. Coordination difficulties between the different *Länder* that now have to work across the boundaries of river basins are foreseeable (ibid.). Where consistent nitrate standards and valuation methods for surface water bodies were applied, or at least recommended for whole Germany, these coordination difficulties could have been avoided.

The procedural nature of the European water policy also provides leeway for interpretation and action that will be pivotal for the assessment of implementation success on lower administrative and political scales. The following example aims to explore the strengths and weaknesses for the effective implementation of the WFD on the regional scale. It shows the possible discrepancy between the European water management goals and regional and local interests on the one hand and the opportunities and restrictions of active stakeholder involvement for successful implementation on the other.

3 The Hase catchment: regional lock-in effect and its consequences for nitrate reduction

3.1 Economic background and the problem of diffuse nitrate pollution

The case study area¹ comprises the Hase river catchment, which is a sub catchment of the river Ems and located in the federal state Lower Saxony in Northwest Germany. Intensive livestock farming including the preceding and subsequent production chain is an important pillar of regional economy (MI Nds. 2006). 80% of the whole region is agricultural land (Bezirksreg. Weser Ems/ NLWK 2004: 4f.). With 4.7 million animals, the area is home to 20 % of all pigs in Germany (Klohn and Windhorst 2003: 51 et seqs.). Moreover, the gross value added in agriculture averages 3.4%, in some administrative counties of the region even more than 6% (average Lower Saxony: 2.2%, state of 2005, NLS 2005). The regional wealth generated by highly efficient agriculture took mainly place without governmental financial aid and has contributed to a high identification of inhabitants with their region and its characteristic economic structure, which is reflected by the interests and perceptions of many actors involved in the implementation process of the WFD (for more details see Kastens and Newig 2007).

¹ The study of the Hase catchment was carried out within the 'PartizipA' project at the University of Osnabrück (see www.partizipa.net). 26 in-depth interviews with 37 representatives of different regional organizations constitute the empirical basis for this paper.

However, the economic success of the Hase catchment has also revealed its ecological drawbacks. Particularly the high amounts of manure from livestock farming have led to various environmental impacts: in the Hase catchment, four out of five groundwater bodies will not achieve the good chemical status stipulated by the WFD due to potential nitrate concentrations (NLWKN 2005: 33, 39). The reduction of these high nitrate intakes, and thus a gradual amelioration of ground and surface water quality, is therefore a particular challenge faced by the regional implementation of the WFD.

3.2 Lock-in effect in the regional actor network

The core of the agricultural actor network² is composed of two actors, the Chamber of Agriculture and its local departments and the agricultural associations. The Chamber of Agriculture owns a double role. On the one hand it constitutes the public authority with official competencies such as the supervision and control of production and land use standards by agriculture (Nischwitz et al. 2002: 5). On the other hand it acts as a self-administered organisation that works in the professional interests of all employers and employees in agriculture, forestry and market gardening in terms of education, advice and production support. Flynn (2000: 78) judges such double roles as generally critical, since the scope for ‘regulatory capture’ rises, “the closer agencies responsible for inspection duties are to their target groups”. The agricultural associations of Lower Saxony (“Niedersächsisches Landvolk”) are non-governmental organisations and represent the regional or local agricultural interests in political manner. Their high degree of structural organisation and important influence on farmers and authorities provides them with specific influence within the WFD’s implementation.

The water management actors important in the context of the WFD and regional nitrate pollution are the Ministry of the Environment, its environmental state agencies and the administrative counties. While the authority in charge of implementing the WFD in Lower Saxony is the Ministry of the Environment, the technical and operational work is delegated to the environmental state agency (NWKN), which acts on the regional level and has tight bounds to all other regional actors. As local water authorities, the

² For further details on the regional actor network and the data basis of the analysis in the Hase catchment, see Kastens and Newig 2007; Kastens in press a, b.

administrative counties (German Landkreise) are currently not in charge of implementing the WFD, but will become important actors when measures are implemented within their territory. Likewise, they represent their constituency's interests in their administrative area, and generally feel obliged to sustain economic stability within the area.

Further actors that are important for the regional actor network are the water boards and the water suppliers: first, the water boards, supervised by the counties, serve as "connectors between water management and agriculture" (Kastens 2003: 302). Being in charge of the maintenance of surface waters, the water boards have an interest in groundwater protection, where activities such as managing the preservation of buffer strips lead to positive effects on nitrate reduction. As paying members of the boards, farmers have a considerable influence on water board's work and political orientation. The interest of regional water suppliers as the second actor group lies in drinking water extraction areas, rather than in overall groundwater protection.

Finally, environmental NGOs in the region have a sound knowledge of water regulations and local water bodies. Yet, their expertise, and particularly their current influence on implementation mainly focuses on biological and hydromorphological aspects. In contrast to this, diffuse pollution to this date has virtually been absent from their work.

The economic role and cultural meaning of agriculture in the region has accumulated into a powerful position of the sector that dominates most other actor's interests in the region. Moreover, the traditions and practices in the region's strategies for nitrate reduction provide a further basis for a regional lock-in effect in terms of future nitrate reduction. The actor network illustrates the existence of strong inter-organisational ties between agriculture and water management in the region. As Grabher (1995 [1993]) shows, such long-standing personal ties result in mutual orientations involving common world views regarding the given economic and environmental structures. These world views determine which phenomena are perceived and which are ignored (*ibid.*: 262).

Besides the implementation of technical measures such as manure application technologies and nitrate reduced feeding, the main strategy in the region to reduce high nitrate intakes are so-called drinking water co-operations. From 1992, these co-operations were established between water suppliers and farmers in Lower Saxon drinking water protection areas (MU Niedersachsen, 2002). Farmers have bound themselves by contract to implement specific land use changes in favour of the reduction of agricultural nitrate pollution. To this end, they received expert advice by the Chamber of Agriculture regarding optimized fertilization. Funded by a water fee and supervised by the Ministry of the Environment, the concept has

been highly successful, but also vastly expensive. These institutions have furthered mutual trust among participants (MU Niedersachsen 2002) and built up a network composed of water management and agricultural actors, while excluding third-party interests such as environmental groups. In particular, the network of drinking water co-operations involves a certain tradition on how to deal with nitrate pollution, and has deeply institutionalized strategies of nitrate reduction for the Hase catchment. These co-operations are based on ‘weak’ measures for nitrate reduction, such as economic incentives, voluntary agreements and consultancy. Even though implementation of such measures has proven successful in water protection, these instruments in the case of the Hase catchment have also led to a situation in which command-and-control measures or the internalization of external costs remain undisputed alternatives among most actors. Instead, the experiences made by the drinking water co-operation over the past 15 years, when farmers were reimbursed for water protection measures, have even supported the conviction that agricultural measures with ecological benefits have to be paid for by the whole of society:

“For us...and this is fact for the farmers (...) measures can only being carried out in a manner that does not harm the economic interests of farmers. Agriculture is just too important to act in a different way” [agric. ass. II]

“When measures are developed to achieve a better ecological status of waters, this is not something that only farmers benefit from, this is beneficial for society, and that is the reason why they [the farmers] are sensible and say: we do not want to assume responsibility. And I agree with them, this is impossible.” [water board]

“To make sure that the WFD is not attached to an individual, it has to be paid for by society. Society has to bear this. When times come in which measures are fixed, they must not be attached to those people who happen to live in that area and have to work there.” [admin. county]

Even though regional stakeholders have different specific interests in the region, most generally perceive the issue of nitrate pollution in the context of the WFD similarly to agricultural actors. Agricultural actors in the Hase catchment provide an understanding of the urgency of the nitrate problem and of dealing with nitrate pollution in the context of the WFD in a form that clearly conform to their interests. Nearly all regional actors have a clear awareness of water pollution. Yet, the discussion on the problem’s urgency and who has to take ultimate responsibility to solve regional ni-

trate problems do not refer to aspects immediately related to the farmers themselves. In many cases, interview partners detracted from the regional nitrate problem either by emphasizing other regions with even more severe problems or by highlighting earlier times when nitrate intakes were even more severe than today as the following examples show:

“...I think, problems are even bigger in other regions where livestock farming is even more intensive [water board]

“Concerning manure, I think one has to see the historical background. In former times (...) one was advised differently. At that time it was said, on maize you can apply manure and it won't matter how much is applied, it won't harm it. A lot helps a lot and even more might help even more and this is how farmers used to work (...). A great deal has changed in the past 15 to 20 years.” [farmer II].

Further, many actors show the tendency to pass ultimate responsibility for solving nitrate pollution to factors outside their own regional farming system. Most interview partners shared the opinion that economic responsibility for the reduction of nitrate pollution should remain with consumers, since they are usually unaware of the relationships between nitrate pollution and product prices for food. They state that farmers, who are forced to produce as cheaply as possible to meet consumer demands for low-priced food, lack the economic ability to change agricultural practices affecting water protection:

“A consumer who wants three chickens for five euros cannot likewise claim nitrate-free drinking water. This is impossible, incompatible. Here, consumers should also assume a duty.” [water supplier II]

A more critical perception of agricultural nitrate pollution is only held in interviews by regional environmental actors, who mainly discussed the issue by complaining about the “*dumping of manure*” [env. NGO I] in the region and state that, although awareness of the problem among farmers has increased, there are still “*quite a few [farmers] who just want to get rid of the manure*” [env. NGO II]. In general, environmental NGOs frame the issue of nitrate pollution in a wider and more international context by highlighting the global consequences of regional farming structures due to fodder imports from Brazil and the general ecological impact of intensive livestock farming.

4 Public participation as a means to support the successful implementation of the WFD

The local context of the Hase catchment appears anything but favourable to the effective implementation of the WFD's policy goals. This is because of the high nitrate levels due to intensive agriculture, the economic importance of agriculture and the high identification of all actors with this sector in the region as well as the established strategies of nitrate reduction. The question remains, how the regional lock-in effect can be opened up in order to enhance and facilitate the implementation of sustainable agricultural policies.

One important option is given by the forms of active involvement now established in the Hase catchment to fulfil the participatory demands of the WFD. The WFD calls for various modes of public participation and involvement, stating that the ultimate success of its implementation relies on information, consultation and active public involvement (Preamble 14 WFD). As a local and direct form of active involvement, 30 so-called 'area co-operations' covering the whole of Lower Saxony were established by the water authority in charge in autumn 2005 (MU Nds. 2005). One of these area co-operations have also been initiated for the Hase catchment. Based on an edict decreed by the Ministry of the Environment (*ibid.*), the co-operations have been designed as long-term institutions with the aim of contributing to drafting river basin management plans, while leaving the final decision competence to the state authorities. The Hase area cooperation consists of about 15 participants representing different regional organisations, including water management, agriculture and nature conservation (see also Kastens and Newig *in press b*).

Newly institutionalised processes of participation can provide the opportunity "to break open closed policy networks" and to allow new outcomes to be produced beyond contextual constraints (Mostert 2003: 185). Although the process of the area co-operation in the Hase catchment is still in an early stage, some factors already indicate that structures can be changed through the process. Participatory processes are always implemented within a social context, and existing inequalities are likely to be reproduced within these processes (Cooke and Kothari 2001). Yet, important motives behind stakeholder involvement "are to diminish the power of various societal actors by involving them in decision making" (Edelenbos and Klijn 2005: 417). Compared to the drinking water co-operations so far conducted in the region, the area co-operations are spatially extended to the whole catchment instead of exclusively referring to the areas for drinking water extraction. The new co-operations will explicitly involve

further actors besides the players of water management and agriculture. Representatives with more ecological backgrounds and interests will thus receive a voice within the processes (Kastens and Newig in press a, b).

Due to the strong stance of agriculture in the Hase catchment, an ecologically successful implementation of the WFD requires actors who are capable of balancing agricultural interests. As our above introduction of the regional actors suggests, the only actors with exclusively environmental interests that have this potential are the environmental NGOs. They explicitly could serve as advocates for environmental as opposed to the prevailing economic interests. Although the environmental NGOs are not yet strong on the issue of diffuse pollution, the area co-operation in the Hase catchment will give them the opportunity to become more involved in this matter. Whelan and Lyons (2005) demonstrate the importance of the scientific and technical capacity for environmental NGOs to gain credibility and access to the scientific community by delivering and analysing data for the decision-making process. Results of the PartizipA project have shown that the competencies of regional environmental NGOs on water protection are generally high and that their organisational strength has already grown during the implementation process of the WFD. For example, they have established a regional network as a communication and cooperation platform to support the interested public in WFD issues. To this end, the network provides a website (www.wassernetz.org) and organises seminars and workshops. For each of the 30 area co-operations in Lower Saxony, an expert representative has been appointed who is engaged in the regional implementation as a contact for the water authorities and the public (Kastens and Newig in press b). If the environmental NGOs succeed in combining their competencies to become strong negotiation partners for other stakeholders and to raise more public awareness on diffuse water pollution, the expansion of the discussion framework between the different regional actors is likely. Information exchange becomes more productive and the process can thus allow ideas to be generated, e.g. in terms of new solutions to WFD goal achievement, which might have not been considered previously. In this way, new communication procedures may support the break-up of captured interests and may allow social learning processes to find further solutions to cope with nitrate pollution in the context of regional WFD implementation.

One main factor for a successful stakeholder process is “to develop shared commitment to possible solutions” (Burroughs 1999: 801). That particularly the area co-operations have the potential to build up a common problem perception and shared commitment to stronger water protection is shown by a study recently conducted for the Ministry of the Environment in Lower Saxony. The study evaluated all area co-operations and revealed

that the majority of stakeholders achieved a better understanding for the other stakeholder's positions as well as the need for improvement of water quality (Ridder et al. 2007). The study showed that the area co-operations activate learning processes, which will also increase the willingness to take financial responsibility for measures to realise the WFD's goals. While for example the polluter-pays-principle is currently neglected by most actors, the area co-operations in the long-term can achieve that the non-state actors show more willingness to pay for those measures, which would have met strong resistance without the area co-operations.

Particularly those measures that serve multiple functions appear particularly promising for the exploration of financial options (LWK 2003: 92 et seqs.; Anthony and Lagemann-Kohnhorst 2003). A very local example of such measures is the cultivation of intertillages, where hunters share the costs with farmers, since intertillages improve wildlife habitats. While the costs cover the seeds, the work of cultivation is done voluntarily by the farmers. Multi-beneficial measures are not only more likely to enjoy acceptance among stakeholders, but also financial options might be investigated that were not taken into account in the first place, offering new funding opportunities (Kastens and Newig in press a).

5 Conclusions

The aim of the paper was to investigate, whether the procedural policy style of the WFD will rather foster or hinder the successful implementation of the directive and hence the achievement of its policy goals. In general, the openness of implementation due to the subsidiarity principle and the WFD's procedural mode of steering are important in the search for applicable implementation of European policies on lower levels. They provide the opportunity for a better adjustment of national, sub-national and regional conditions to the European regulations. Nevertheless, precise and clearly defined nitrate limits and measurement procedures support the WFD's goal of harmonising water protection all over Europe. While both the more stringent and binding nitrate limit of 50 mg/l for groundwater bodies and the demand for a combined approach of water quality and land use standards can be judged as supporting factors for a comprehensive reduction of diffuse nitrate pollution, imprecise nitrate limits for surface water bodies can be assumed as a restraint for the achievement of these water management goals. Great differences in the operationalisation of nitrate goals at the sub-national scale in Germany can neither be easily controlled

by the Commission nor support the harmonisation process on the European level. Since acceptable nitrate limits in surface water bodies also depend on the different habitats and biological conditions, it would have been nearly impossible to set precise limits at the European scale. Rather, the national scale of Germany, e.g. the LAWA, could have provided at least orientation values for nitrate and concrete measurement procedures to foster a consistent process. In that case, success or failure in the member state's policies on the reduction of nitrate pollution would have been easier to control and compare. Improvements on the European level refer to the decrease of legal uncertainties in terms of inconsistent regulations between the WFD and the GWD.

In general, the paper demonstrated that 'implementation' not only means carrying out orders from above in a technical sense, but also involves important elements of political bargaining at all scales including the regional and local level. Particularly the conditions on lowest implementation levels can have great influence and might hinder the successful implementation. The Hase catchment served as an example for a region, where given power structures of agriculture and the strong identification of the region with its predominant economic sector bear great obstacles for the achievement of the WFD's goals. Moreover, the impreciseness of the WFD also offers scope for the strategic use of uncertainty particularly at the regional and local scale. The involved actors may thus use uncertainties in quality standards to slow down the process of implementation or use loopholes for abusing derogations from the good status. In consequence, the Commission would be well advised to closely monitor local goal setting and the use of exemptions. Moreover, also the support of the implementation with financial means is an important step to foster the goal achievement. Yet, with regard to the 'great expectations' connected with the WFD, it would be premature to assume that these will be 'dashed' locally (see also Kastens and Newig 2007: 243).

Changes towards a comprehensive reduction of nitrate pollution can be achieved, if a stronger commitment for the ecological dimension of water management is achieved and water protection also has an advocate, who succeeds to bring ecological goals more on the regional agenda. Especially the processes of active involvement, as established with the area co-operations in Lower Saxony, provide opportunities to become successful platforms for the negotiation of the water management goals to be achieved and the distribution of financial responsibility for measures to be implemented.

Even though the example of nitrate reduction in the Hase catchment provides a problematical case for the implementation of the WFD, the case study region is not an isolated case. It can be expected that any re-

gions with strong economic ties to a single sector, either agriculture or others, will face similar problems. Nevertheless, single-case studies are certainly limited in terms of their generalisability. Further research is demanded to gain valid insights regarding the implementation processes at the regional scale and the potential of participation to achieve the outcomes of European environmental policies.

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