

# **Endbericht**

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## **Weiterentwicklung von Abwasserabgabe und Wasserentnahmeentgelten zu einer umfassenden Wassernutzungsabgabe**

von

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## Summary

### Developing waste water charges and water extraction charges into an all-embracing water utilisation charge

*The use of economic instruments in water protection policy already has a long tradition in Germany in the form of the waste water charge under federal law and the various water extraction charges under Land law. However, the criticism from academic, practical and political circles which has accompanied these instruments has an equally long history. Calls for revitalisation of the steering instruments, which are felt to be conceptually inadequate, are balanced by repeated calls for their abolition. Art. 9 of the EC Water Framework Directive, which among other things requires the principle of recovery of costs for water services (including environmental and resource costs) to be taken into account, gives occasion to re-examine these instruments. To what extent do the waste water charges and the water extraction charges contribute to achieving the objectives laid down in the new Community legislation on water quality? Can their effectiveness and efficiency be improved by modifying their design, and could they even serve as a model for extending compulsory charges to other uses of water? Here too the Water Framework Directive makes it necessary to consider what uses of aquatic ecosystem services the application of economic steering mechanisms should be extended to cover. Any reform and modernisation of these charges, and any introduction of new charges, must take into account not only the requirements of European law and German constitutional law, but also economic and financial steering aspects and changes in water management framework conditions. Against this background, the report undertakes an interdisciplinary analysis examining the performance and reform options of existing water utilisation charges and the introduction of new kinds of water utilisation charges in the fields of agriculture, shipping and hydropower.*

### Requirements of national and European law in the Water Framework Directive

Under Art. 9 of the Water Framework Directive, the Member States are obliged to observe the principle of recovery of costs when setting prices for water services, and to ensure by 2010 that appropriate incentives are created for users to utilise water resources efficiently. In addition to the charges for use of supply and disposal infrastructure services, this also includes levying additional charges to take account of environmental and resource costs. Water uses which are not water services within the meaning of the Water Framework Directive are also required to make an appropriate contribution to the recovery of costs if they have the effect of making water services more expensive. Shipping, hydropower, and also the use of fertilisers and pesticides in the agricultural sector are water uses within the meaning of the Water Framework Directive. Whether shipping and hydropower have the effect of increasing costs in the water supply and waste water disposal sectors is a question that requires closer examination, whereas there is no doubt about this in the case of agricultural practice with regard to fertiliser and pesticide application. Under the Water Framework Directive, any departure from recovery of costs and appropriate allocation of costs in line with the polluter pays principle at least requires justification, especially in cases where it is planned to dispense in future with existing instruments within the meaning of Art. 9.

Today the German financial constitution provides a reliable legal framework for levying charges relating to water uses. Current court practice is that water utilisation charges can be justified, because state facilitation of the use of water is an individually attributable public service which in view of the scarcity of the resource represents a special advantage for which levies are reasonable.

### **Economic analysis of the allocation effects of water utilisation charges**

From an economic point of view, an environmental charge with a steering function brings about a correction of allocation, i.e. a change in behaviour with regard to the use of water resources by making a change in relative prices which renders use of the resource more expensive. This influence on behaviour is due not only to direct incentives to substitution (primary change in behaviour), but also to the absorption of purchasing power for the remaining uses (secondary market and price effects and innovation stimuli). The political discussion is usually dominated by the erroneous assumption that a public charge has no steering effect if it fails to achieve a certain pin-point target (though this is not specified with the charge) or to produce tangible reductions over time; the importance of the revenue accruing from the charge and the burden of payment on other uses is usually not recognised or is regarded as alien to the steering function. In practice, however, environmental charges are typically “demerit charges” – their aim, without any specific pin-point target, is to set in motion a comprehensive process of ecological structural change. In fact, steering deficits of existing charges tend to arise from the fact that a number of offsetting and reduction clauses have been used to reduce the effective burden of payment for residual pollution and to seek a close connection with regulatory law.

An analysis of the successes and deficits of the waste water charges and the water extraction charges reveals the following picture: The federal waste water charges, as an aid to enforcement of regulatory law and as a financing instrument, has made demonstrable contributions to the success of steering measures in the field of waste water discharges, but its allocation and innovation effect in the field of residual pollution is thwarted by the reduced effective charging rates and its excessively close dovetailing with regulatory requirements. Furthermore, eleven of the German Länder levy a water extraction charge. Among other things, the various charges differ in design, e.g. differentiation by intended use or exemptions for various user groups. This does not produce a clear picture as far as steering policy is concerned; across the board, the rates appear to be too low. Moreover, in view of conceptual deficits and dovetailing with regulatory law, few tangible steering successes can be identified.

### **Conceptual realignment and reform of existing water utilisation charges**

In view of the deficits that undoubtedly exist in the design of the waste water charges, the focus should be on its conceptual refurbishment as a residual pollution charge. Although the quality objectives of the Water Framework Directive and the system of management by river basin districts raise the question of regional differentiation on the basis of water body status, the Water Framework Directive does not place the levying Member State under any obligation to operate a system that regionalises the burden of charges. In fact the approach used is based on a combination of the emission and immission principles and explicit emission-related requirements (marine protection, ban on deterioration). In view of this, even a quality-oriented management concept is probably best served for the moment by a uniform burden of charges based on units of pollution load and the hazardousness of individual substances (adherence to emission principle). The rates levied for the waste water charges have always been regarded as too low. There has long been a lack of any inflation adjustment on the nominal rates that might offset increases in the price of prevention and renunciation measures and thereby maintain the steering incentive in real terms. As far as the basis for assessment is concerned, the question arose with the introduction of the Waste Water Charges Act as to whether the “notice solution” currently practised (assessment on the basis of an official notice under water law) or an alternative “measurement solution” is the more suitable variant, though in the latter case it is important not to lose sight of the additional administrative input involved. It would also be advisable to extend the assessment basis to take in parameters of relevance to water quality policy; examples include total organic carbon, heat load and salts. The present practice of granting a reduction in the residual pollution load to 50 % of the nominal rate should be discontinued. Moreover, companies in the same industry may be

subject to different financial burdens depending on the extent to which they are classified as direct or indirect dischargers (intra-sectoral distortion). A possible solution to this problem could be to put in place a charge for indirect discharges. For various reasons, the opportunities for offsetting the charges owed against investment expenditure give rise to distortion with regard to implementation of the most efficient options: measures which are particularly expensive and inefficient tend to pay off best, since they bring the biggest reduction in the charges payable. This also reduces the steering incentives.

In view of the fact that water supplies in Germany are “sufficient”, the criticism of the steering function of water extraction charges cannot be sustained on the basis of an economic definition of scarcity that is not a “shortage concept”, nor on the basis of the precautionary and sustainability principles either. Moderate price elasticity levels and inadequate perception of the price stimulus in some users are not arguments against steering objectives in an extraction charge. Even a fairly low price elasticity, which reflects a great readiness to pay for a good, is not without steering effects in the long term, even if no substitution takes place in the short term: in the industrial sector, secondary market and price effects and innovation incentives ensure a long-term ecological structural shift away from water-intensive production processes. Even in Länder with comparatively high rates, the level of charging rates is too low and needs adjustment. Furthermore, there is no inflation adjustment to compensate for loss of value over time. The existing differences in the levels of charging rates between and within the Länder give rise to a number of dubious incentive effects and economic distortions. These effects should be counteracted by nationwide harmonisation of the design of the charges, and by a thorough review of existing grounds for reductions and exemptions. Harmonisation does not militate against retaining special features specific to the individual Länder; however, the resulting differences that already exist should be oriented more closely to uniform nationwide (hydrological) criteria. In the course of harmonisation of the various existing approaches, the reductions in charges and the exemptions of certain uses from the obligation to pay charges should be subjected to a critical review in the light of environmental policy objectives, and should be weighed against economic interests. It would be desirable, but not absolutely essential, if the design of the charges included dedication of the charges to a specific purpose.

### **Levying new charges on hydropower, shipping and agriculture**

The report is based on a broad economic definition of water utilisation which describes all production and consumption related water uses and encompasses the definition of use from the Water Framework Directive. With regard to new charging solutions for further uses of water, however, it confines its focus to three priority water uses in view of the pressure of the environmental policy problems.

Increased fertiliser and pesticide pollution by the agricultural sector can have adverse effects on aquatic ecosystems, cause eutrophication of bodies of water, and – especially if it reaches the groundwater – impair drinking water supplies. From a steering point of view, charges levied on fertilisers and pesticides are basically particularly suitable for taking efficient action to combat ongoing water pollution and for supplementing the existing – inadequately enforced – regulatory requirements. They could help not only to create economic incentives for reducing use of these substances, but also to shift the external environmental costs into the agricultural sector which is responsible for causing them. There are various possible approaches to charges on fertilisers, with the different variants (charges on commercial fertilisers, farm manure or nitrogen excess) displaying differences in the cost and effort involved in levying them and in the associated administrative and supervision costs. A charge on plant protection agents could not only reduce the use of pesticides in general, but also encourage farmers to use less hazardous agents as substitutes for the hazardous agents. In general, levying a charge on plant protection agents causes fewer problems than a charge on fertilisers; from that point of view a charge on plant protection agents could be a first step towards greater internalisation of the external costs of agriculture. Given appropriate design, charges on fertilisers

and plant protection agents are compatible with the ban on discrimination, the Common Agricultural Policy, and the ban on inadmissible state aid.

There is a certain amount of ambivalence with regard to the environmental assessment of hydropower for generating electricity. On the one hand it plays an important role in climate protection policy as second-largest producer of renewable energy, while on the other hand, hydropower has considerable adverse ecological effects. The construction and operation of hydropower plants requires a permit under water law, which has to observe the general management principles of the German Federal Water Act (Wasserhaushaltsgesetz – WHG) for maintaining the ecological functional performance of bodies of water. The construction of hydropower plants is an intervention in nature and landscape and gives rise to obligations under nature conservation law in the fields of prevention, compensation and charges, but at the same time hydropower is promoted under the Renewable Energy Sources Act by means of feed-in tariffs and priority purchase of electricity. With regard to the authorisation of new hydropower plants, a charge-based solution takes second place to existing regulatory law in the institutional competition between the instruments: Morphological changes due to hydropower can to a large extent be offset by a range of regulatory instruments. By contrast, the potential steering effect of a charge relating to authorisation of new hydropower plants must be rated low, because the construction of major installations is not a matter of ongoing marginal decisions within a space of alternatives, but of simple “yes or no” decisions about major capital projects. The establishment of a charge absorbing the benefits of the use of hydropower in order to factor in environmental and resource costs would basically be legally possible and would also be in line with the concept. In view of the legal framework conditions, however, levying such a charge would give rise to substantial political and intra-ecological conflicts of objectives, since setting a price on this use of water would be at variance with the promotion of hydropower under the Renewable Energy Sources Act and the Federal Water Act.

The classification of inland waterway shipping as an environmentally sound mode of transport is controversial. Particularly the construction and development of inland waterways and their maintenance for the purposes of inland shipping entail serious ecological impacts. The construction, development and maintenance of federal waterways are interventions in nature and landscape within the meaning of the Federal Nature Conservation Act, which means that the obligations to manage the consequences of these impacts have to be observed. It is necessary to consider whether and to what extent the impacts of shipping can be steered and offset with the aid of economic instruments. One conceivable solution would be a direct burden on waterway development by means of a charge based on the development of waters. It must however be remembered that in the field of water development there are already extensive regulatory provisions designed to protect the morphology and ecology of water bodies. Moreover, the development of federal waterways is not a matter of ongoing marginal decisions, but of non-recurring “yes or no” decisions on capital projects accompanied by complex planning measures. The steering contribution of a charge would be negligible here. However, as a water utilisation charge for shipping one possibility would be to make the existing shipping charges more ecological, taking account of environmental and resource costs. In the case of transboundary rivers, however, this leads to conflicts with international agreements; it is also important to note that an increase in financial burdens would reduce the attractiveness of shipping as a mode of transport, with the result that the transport sector might switch to other modes of transport.

## Conclusions

Present-day uses of water are extremely varied. The scope and effectiveness of the basic regulatory steering instruments and the implications of the overlapping environmental, energy and transport policies vary in the individual fields of law as much as the performance of the individual charges. It would therefore seem

impracticable at present to put in place a uniform codification of an all-embracing water utilisation charge – including the existing waste water charges and the water extraction charges. To the extent that the waste water charges and the water extraction charges serve the purpose of allocating environmental and resource costs, they constitute an important instrument for recovering the costs of water services. In view of the obligations arising from Art. 9 of the Water Framework Directive, it is not possible simply to abolish these charges. In the agricultural sector, charges on fertilisers and pesticides are a suitable means of combating the ongoing water pollution efficiently and of supplementing the existing regulatory requirements. However, the steering potential of charges is limited when it comes to influencing hydromorphological changes arising from hydropower plants and the development of inland waterways. Thus, charges will not enhance the ecological benefit of hydropower. Although national measures that levy shipping charges to allocate the costs of shipping-related adverse environmental effects are basically conceivable, they largely miss the point of the central decisions of morphological relevance. Here too, moreover, it is necessary to consider conflicts with international law in the case of transboundary rivers, and also environmentally problematical shifts between modes of transport.