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WATER QUALITY MANAGEMENT AND LEGISLATION IN HUNGARY – A RIVER BASIN APPROACH

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ABSTRACT

The project summarised in this paper was aimed at developing water quality legislation in Hungary and funded through the PHARE programme of the European Union. Hungary, in common with the other former Eastern European countries, is in a period of transition as it moves from a state socialist system to a free market economy and a full member of the European Union. The project sought to explore the means whereby water quality could be managed on a river basin basis and the legislative, institutional, economic and regulatory challenges resolved. A key element of the project was the carrying out of five case studies, on different catchments, to evaluate the various approaches. An important element of these studies was the participation of all interested parties in the individual catchments. The project showed that to move to a full system of integrated river basin management would be a step too far at this stage and, instead, recommended a system of Catchment Planning Commissions, accountable to Central Government, for the development of catchment based water quality objectives and plans for their achievement together with the monitoring and reporting of progress on implementation. The concomitant legal requirements were detailed and the need for public participation emphasised. © 1999 Published by Elsevier Science Ltd on behalf of the IAWQ. All rights reserved

KEYWORDS

Catchment planning commission; environmental charge; European Union; Hungary; institutional development; integrated river basin management; water quality objectives; water resources framework directive.

THE CHANGING BACKGROUND OF WATER QUALITY MANAGEMENT IN HUNGARY

In the previous, state socialist system the State was responsible for both environmental preservation, and for environmental pollution in an indirect way. On the one hand, the State was the owner of all production plants, had the responsibility for providing the basic services and goods for the population, on the other hand it was the major authority responsible for regulation and environmental supervision of these production and service activities. In this contradictory context the interests of the environment have always been prioritised after production interests, since the uninterrupted development of production was of primary political importance. This is how it was possible over a long period for the smoking chimney to become the symbol of development.

This situation determined the philosophy of water protection legislation and law enforcement practice. The general national regulation was sometimes unrealistically strict, but it was followed by weak law enforcement. The system was based on sanctions including a large variety of exceptions. Furthermore this was supplemented by a biased monitoring and evaluation system for the state of the water environment. In this system everything was intensively examined which only slightly changed, and anything that changed significantly (e.g. wastewater emission) was ignored, not to spoil the rosy picture. Water pollution control was almost totally insensitive to the administrative costs of enforcement and any economic consequences of authority decisions. Of course, this practice was not the result of an enormous nation-wide conspiracy. It was simply the nature of the political system, which led to a situation where all players were interested in showing positive results and avoiding conflict, in full knowledge of the fact that all the important questions would be decided at the political level anyway.

The outlined (and perhaps a little over-sharpened) legislative background and practice became unsuitable for controlling the situation which evolved in the early 1990s through social and economic change. The most important elements were the following:

- the state withdrew from the direct control of the economy, its direct responsibility for production and supply of goods ceased.
- the majority of the former State companies were privatised. In most cases their production profile changed, frequently they split into several small businesses, several of them went into liquidation, leaving behind the environmental problems.
- the economic recession resulted in significant decrease of water pollution load from both point and non-point sources with consequential improvements in water quality.
- the fees for community services escalated upwards, partly because of inflation, partly due to a decline in state subsidy. The annual increase, sometimes over 30%, represented an intolerable portion on family budgets.
- with the expansion of democracy social awareness towards the environment grew. It became significant for people to know what quality service was on offer for the increased service charge.
- the economic recession which had set in made budget cutbacks necessary thereby reducing the effectiveness of the institutions of environment protection. The effectiveness was further reduced by a series of reorganisations concluding in uncertainty about the future. As a result, environmental authorities were unable to follow the stormy changes in the economy within the old regulatory framework still in effect.
- the intention to join the European Union was formulated as a strategic programme. As a consequence, the standards of the Union had to be adopted in Hungary. Environment protection occupied a prominent place on the list of priorities eligible for EU subsidies. The availability of funding enabled the total reconsideration of the legal and organisational framework of environment protection.

The necessity of changes in the field of water quality protection met with the opportunity of obtaining funding from the European Union, for harmonisation of the Hungarian water regulation with the EU directives. A project aiming at developing water quality legislation was proposed within the framework of the PHARE programme, the major aid programme administered and supported by the European Union (Water Quality Management and Legislation in Hungary—a River Basin Approach, Phare Project No. ZZ 92118/0801)(DHV Hungary, 1995). Several Hungarian, Dutch and British experts in the field of environmental economics, law, sanitation, water quality management and public participation contributed to the project, which was carried out in close co-operation with the respective ministries (Ministry of Environment and Regional Policy, Ministry of Transport, Telecommunications and Water Management), as well as with regional and local authorities.

THE PROJECT: HYPOTHESIS AND METHODS

The hypothesis was that the river basin should be the basis for water quality management and regulation. The river basin is the smallest natural unit of water protection where the impact of land use can be assessed and potential conflicts of upstream abstractions and dischargers on downstream water users made evident. This improved understanding can, with the active involvement of all interested parties, enable the

development of use related water quality objectives and a timescale for their achievement in a way which does not impose an unaffordable economic burden on the population.

It was important that the legislative proposals should be founded on real experience from other countries that had moved to the adoption of the use of water quality objectives in a river basin management context. The requirement to integrate new legislation and institutional arrangements within the framework of both the Hungarian legislative experience and EU Directives was sufficiently challenging without promoting novel, untried solutions.

An important component of the project was the investigation of the potential environmental, economic and social impacts of different regulatory approaches in selected case study areas. Water management computer models assisted the calculation of these impacts. Five different test river basins were selected as case study areas, in order to give sound basis for nation-wide extrapolation of the results (DHV Hungary, 1996c):

1. The *Zala* river basin - a predominantly agricultural area with some medium size towns and one major city. The pollution of the catchment constitutes a major part of the nutrient load of Lake Balaton, a large shallow lake sensitive to eutrophication. The wastewater treatment requirements are rather strict due to the sensitive recipient;
2. The *Sajo* river basin - a transboundary catchment (some 25% within Slovakia) with vulnerable groundwater resources and significant industrial activities within Hungary;
3. The *Maros* river catchment - a rural area with unsewered settlements and intensive agriculture, big animal farms on top of an important groundwater resource. The catchment is one of the most fertile agricultural areas of Hungary but the land use puts the drinking water resource at risk;
4. *Szeged* is a large city discharging into the River Tisza, which originates in Romania. The Tisza is a major river with high background transboundary and domestic pollution and high dilution capacity.
5. *Debrecen* is a typical case of a large city discharging into a small recipient, therefore wastewater treatment requirements must meet the most stringent standards of best available technology. Further improvement of the recipient's water quality could be achieved only by importing water from other watersheds for dilution purposes.

The representatives of the main parties involved carried out the five case studies. These included the officials of relevant regional authorities (environmental inspectorates, water management directorates, public health authorities), local government officials, managers of the main polluters, and representatives of public utility companies (e.g. water works, sewage treatment facilities). Involvement of the local government representatives was especially important, because the majority of pollution controlling tasks including wastewater collection and treatment in settlements is their responsibility.

Project phases

The project started in 1996 and consisted of four phases:

Phase I: Baseline study
This comprised an overview and assessment of current water quality and its management together with an examination of legal and institutional practices in Hungary and elsewhere. The results of these investigations were summarised in the Baseline Study (DHV Hungary, 1996a).

Phase II: Setting of alternatives
This required the detailing of five alternative regulatory approaches for evaluation in the case study areas. The alternatives ranged from continued reliance on the current Hungarian water quality categories defined and allocated nationally, to the full river basin approach with responsibility for determination and achievement of water quality objectives delegated to a number of river basin authorities (DHV Hungary, 1996c).

Phase III: Technical evaluation of alternatives in case study areas
In this phase the alternative approaches were tested in the five case study areas to show the implications of regional differences and their socio-economic impact. Each case study included determination of:

- existing water quality and details of discharges;
- ambient water quality objectives and associated effluent standards for the different approaches;
- the most cost-effective sanitation strategies;
- the institutional requirements;
- the economic impacts and methods of financing the selected sanitation strategies and institutional arrangements;
- determination of the legal implications.

The results were summarised in case study reports (DHV Hungary, 1996c).

Phase IV: Final recommendations
An important element in developing recommendations was the holding of individual workshops for each case study area where the results were examined and discussed by representatives of all the parties involved. The case studies verified the basic acceptability of the proposals developed and identified that the main issue to be faced is the weakness of the existing institutional background. The outcome was a set of recommendations proposing that a number of river basin based bodies (Catchment Planning Commissions) be established, accountable to the national government, with responsibility for producing water quality plans and monitoring their achievement (DHV Hungary 1997).

DISCUSSION

The overall objective of the project was to develop alternative approaches and to provide recommendations and guidance for future water quality legislation in Hungary. The basic aims were to provide an appropriate legal framework and institutional background to ensure protection of receiving water quality together with determination and achievement of the desired water quality improvement, all in a manner that harmonised with EU Directives. Additionally, a proposal was elaborated for a more efficient system of revenue collection for water pollution investment and for partial financing of the water quality protection control activities.

This discussion will focus on the institutional and legal issues since, although it is evident that issues of technical competence and resource provision are also significant, the case studies demonstrated that the issue of institutional adequacy is key to the successful establishment and operation of any new water quality management system. This is not to relegate the other issues to a low level of importance but to emphasise that unless the institutional base is properly established the task will not be properly accomplished.

It is apparent that any new, or changed, institutional arrangements must link closely with existing structures. Tempting though it may be to establish a totally new organisation charged with full accountability for the management, planning, investment, implementation and reporting in river basins, on the lines of the Water Authorities of England and Wales in the period 1974–89, this is not a viable option in the present Hungarian situation. But the present, rather complex, institutional structures would act more as a hindrance than a help in securing required water quality and some institutional change is clearly required.

In recognition of this it was proposed that there be established, for each identified river basin, a body named as a Catchment Planning Commission. These Commissions which may be seen as broadly similar to the French Agences de L'Eau, would be set up by, and accountable to, the competent ministry and have responsibility for establishing locally agreed Water Quality Objectives, for developing management plans setting targets and timescale for improvement and for annual reporting on progress in achieving these plans. Commissions would meet as a Board drawn from the representatives of all parties interested in water quality management. The responsibility of the Commission covers water quantity and quality issues in order to provide an integrated approach to water resources management as proposed in the (Draft) EU Water Resources Framework Directive. The crucial element of the work of the Commissions is the comprehensive local involvement so that the objectives and plans should be "owned" by the communities, industries, water users etc in the river basin.

The Commissions would employ no staff but be serviced by the Environmental Inspectorates who would require additional resources and also additional technical training and expertise. It was suggested that the

currently available expertise be acknowledged by strengthening the existing water sections within the Regional Inspectorates and that their wider role be emphasised by recognising them as Water Divisions. The Divisions would then provide the support services to the Commission(s) and necessary co- ordination with the national water directorates in addition to the responsibilities of permitting, monitoring and enforcement already included in their responsibilities. The establishment of these Water Divisions and their new role provides another example of necessary institutional change and development.

It is evident that, if institutional change is to be effective, there needs to be concomitant legislative changes. It is pertinent to summarise the major recommendations from the project in order that the requirements for new or amending legislation may be better appreciated.

The project proposed the following major recommendations to secure the move towards river basin management:

1. Establish Catchment Planning Commissions;
2. Improve public access to water quality information;
3. Introduce use-related Water Quality Objectives;
4. Develop Catchment Water Quality Plans;
5. Strengthen the Environmental Inspectorates;
6. Strengthen permitting and enforcement procedures;
7. Establish an Environmental Charge;
8. Introduce prioritised project financing;
9. Improve monitoring and reporting of surface and groundwater emissions.

Examination of these recommendations reveals that the National Law will need to incorporate provisions to bring the majority of them into effect with Government guidance for the remainder. The legal status of the Catchment Planning Commissions must be established, their duties and responsibilities clearly defined; if Water Quality Objectives are to be truly effective as the basis for catchment plans then they should be confirmed as statutory requirements. As previously discussed, the involvement of all interested parties in the development of objectives and plans is crucial to success but, for this to be effective, environmental data and information must be freely available to the public. The requirement for this information to be made available will need to be included in the legislation together with provisions for enforcement.

The strengthening of the permitting procedure may also require legislative amendment so as to allow the issue of individual (to the discharger) permits with conditions that become progressively more stringent over permit specific time periods. Legislation should also provide for information on the quality of emissions, including degree of compliance with permit conditions, to be freely available to the public.

The Environmental Charge is put forward as a means to provide an assured revenue stream calculated on a consistent basis. This charge would be levied on all dischargers, proportional to their pollutant load as specified in the permit.

The charging system may serve as a tool for reaching one, or all, of several targets:

- to cover the administrative costs of the national agencies, insofar as they relate to the development, implementation and monitoring of water quality objectives, catchment plans and the permitting of individual discharges—an application of the 'polluter pays principle';
- to raise revenues for funding water protection investment programmes. The overall level of charge in this option is the result of balancing between needs and social impacts;
- to provide incentive for the polluters to reduce pollution beyond the level allowed in the permit. The level of charge should be comparable with the incremental pollution reduction costs.

The mechanisms for levying and collecting the Environmental Charge need to be given proper legal status as do the allocation and distribution of the income and rules for its use.

In addition to the environmental charge a sewerage charge will continue to be levied, by the municipalities, on those connected to sewer systems/treatment plants. The objective of this charge is to recover the costs of operation and maintenance of the wastewater system, together with the annualised costs of investment in improvement as required by the Water Quality Plan.

It is evident, from the experiences of other countries, that water quality protection could not be managed without substantial contribution by the State. State funding is needed for speeding up the pollution reduction programme, for equalising the differences in affordability from local resources and to enforce nation-wide priorities. It is recognised that the long life of wastewater assets dictates a need for financing mechanisms which allow for large scale, long-term borrowing.

If financial support is to be properly targeted to the cost-effective achievement of prioritised water quality and sanitation improvements then the rules under which the present financing system operate need substantial revision. Whilst not necessarily a legislative item, changes in State systems require clear definition of new procedures and accountability. It appears appropriate that the State funding philosophy should be based on the National Action Programme for Wastewater Management, a part of the National Environmental Programme. The subsidy mechanism should have a clear, auditable decision procedure with tight monetary control.

IMPLEMENTATION

As a result of close, continuous co-operation between the project-team and the respective authorities, several suggestions generated during the project have been included in the regulation concept of the Ministry of Environment and Regional Policy, and have been officially accepted. The detailed elaboration of the laws and regulations based on the recommendations of the project is currently in progress.

Another outcome of the project is that the Ministry of Transport, Telecommunications and Water Management has initiated a regional water management planning programme, based on the results of the investigations in the case study areas. Within the framework of this programme, planning activities in five river basins are currently in progress.

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