Convention on Protection and Use of Transboundary Watercourses and International Lakes

SEMINAR ON THE ROLE OF ECOSYSTEMS AS WATER SUPPLIERS
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HUNGARY NATIONAL REPORT

BACKGROUND

Although the territory of Hungary is hardly 1 percent of that of Europe, the richness of our natural assets greatly exceeds this proportion. Between the Carpathians, the Alps and the Dinaric Mountains, the country situated in the central and western parts of the Carpathian Basin. The Basin is extends beyond the borders, and this fact enhances the significance of international co-operation in nature conservation as well. The basin character greatly affects both climate and the drainage network. Due to the different climatic effects and geographical circumstances the phytogeography and zoogeography of the country is very diversified.

A quarter of Hungary's present territory was a flood area just 150 years ago. Now with the regulation of the rivers between dykes, it is less than 2 percent of the whole territory of the country. In the past 100 years, the land reclamation for agricultural purposes has become general. Due to this reason, half of the country's territory is now used as a plough-land. Due to intensive human utilization and pressures, a significant proportion of natural habitats has perished or fragmented, despite the efforts of nature conservation.

Forestland in Hungary amounts to nearly 1,787,400 hectares, and the proportion of areas covered by forests (forest stands) is 19.2 per cent (this rate also includes tree plantations). The extension of forests in nature conservation areas is 348,944 hectares, which amounts to 19.5 per cent of the country's forested areas, and 3.8 per cent of Hungary's total territory. The proportion of strictly protected forests does not exceed 5 per cent of the country's forested areas.

Water resources: Lake Balaton is the largest and warmest freshwater lake of Central Europe. The two most important rivers, the Danube (its length in Hungary is 417 kilometres), and the Tisza (597 kilometres), cross the country from North to South. Flood can endanger 52% of the country. The renewable water source is 120 billion m^3 annually, what is mainly provided by the Danube river (the amount of inflowing water per capita in Hungary is one of the highest in the world). About three fourth of the country's groundwater resources (shallow groundwater, bank-filtered and karstic water) are vulnerable. The half of the population is supplied by drinking water from bank-filtered wells, located along the Danube and other rivers that have excellent quality. The country is rich in thermal waters.

Water users are partly responsible for the protection of subsurface drinking water sources to the extent specified in their licenses. The municipalities are responsible for healthy drinking water supply, sanitation and municipal waste water treatment. In Hungary, practically all settlements have mains water supply with 98% of the population supplied with water. However, the quality of more than 42% of the drinking water supplies does not fully meet some of the limit values contained in the EC directive[1] and the Hungarian government decree published in 2001. Only 58% of the population live in settlements where the quality of drinking water meets quality standards.

In Hungary, the number of homes connected to the sewerage system was only 56.1% by the end of the year 2002, despite intensive developments since 1993. In 2002, the public utility gap was 36.9%, which means that wastewater collection considerably lags behind public utility water supply. This lack of, and in many cases improper, wastewater collection endangers potential drinking water resources. In the period between 1994 and 2000, the length of the sewerage network increased by approximately 7,500 km to 22,300 km. By the end of the year 2002, the ratio of biologically treated communal waste water increased to 61%, and 32% of biologically treated waste water (19.5% of the total waste water) underwent tertiary treatment. In 1992 an intensive development program has started to meet the requirements of the EU at latest by 2015. The program

[1] 98/83 /EC directive about the quality of drinking water

is already in process, the treatment facilities of the major cities already under planning or construction.

Flood control issues: Hungary, being situated in the bottom of the Carpathian basin has to face major floods along her principal rivers, most of them generated abroad, in the upper river basins. The importance of flood control as a key prerequisite of social and economic development has been recognised early in Hungary. As a consequence of the special hydrographic situation of the country, flood plain sections bounded by natural topographic features and flood defences, called flood basins, form 22.3% of her present territory, which are exposed to potential inundation by floods recurring often several times annually. The aggregate area of the 148 flood basins is 20 712 km^2, of which 20 090 km^2 is protected. The remaining 622 km^2 being referred to as "open" or unprotected flood plains.

The comprehensive flood control development programme was launched in the first third of the 19th century and continued to these days. As a result the total length of main-line flood defences has attained 4181 km. In their majority (4003 km) these consist of earth embankments (levees), and flood walls. Over the remaining 178 km long section the defences consist of natural high ground.

There are 628 communities, including 60 towns, in the protected flood plains, with 2.3 million people, close to one-fourth of Hungary's population.

Development projects over the decades have created levees of 2421 km total length, which meet the specified safety criteria. The sections to be strengthened are thus close to 1500 km long.

The reducing trend of levee failures in the valleys of the Danube and Tisza rivers is attributable to the emergency response capability that supplement these levees and the control measures in cases of potential levee failure or overtopping.

The lesson learned from the floods in 1998, 1999, 2000, 2001 and 2002 was that large numbers of people and considerable economic assets are still exposed to flood hazards in flood plain sections protected by levees of inadequate flood safety.

Further strengthening of the defences is therefore an essential requirement to guarantee the safety of the population and to promote the development of industry, agriculture, the communities and the region in these flood basins. This should be done in due consideration to water ecosystems.

Due to natural, hydrographical and geographical location, Hungary has special water balance conditions. Surface water resources per capita in the country are among the biggest in Europe, but the spatial and time distribution of the resources do not accommodate to the needs. Consequently, conflicts and damage caused by flood and draught may occur. A decisive factor is that 96 per cent of surface water resources come from abroad; pressures beyond the border determine its quality to a great extent. As a result of progress in wastewater treatment programmes and economic restructuring in Central- Eastern Europe and due to great diluting capacity, water quality of the big rivers is acceptable.

Drinking water supply of the country is decisively based on groundwater aquifers and it will continue to be. 92 per cent of Hungarian drinking water is supplied from subsurface waters. Approximately the 65 % of these groundwater sources are situated in (hydromorphologiacally) voulnarable regions. In order to protect the drinking water sources a governmental action program was launched in 1996 to be finished in 2009. A part of deep aquifers used for drinking water supply contain greater concentration of natural materials (arsenic, boron, organic material, ammonium, iron, manganese) in drinking water than permissible. Bank filtered waters and the ones from karstic aquifers are of high quality.

A. PROTECTION AND RESTORATION OF WATER-REALTED ECOSYSTEMS

In relation to the implementation of the Ramsar Convention on wetlands of international importance, especially as waterfowl habitats, 8 new areas have been added to the list of wetland habitats of international importance by Hungary during the last six years. With this the number of Ramsar sites has increased to 21 (with a total area of 150,000 hectares). A transboundary Ramsar site, extending to several countries, and planned in the territory of the Upper Tisza will be announced soon. 63 forest reserves have also been identified (13,101 hectares). For technical considerations the network needs to be further extended.

Sanctuary oxbows have also been identified and registered alongside the rivers Danube and Tisza.

In the past years several *wetland habitat restorations* at smaller or larger scale have taken place, partly with Dutch financial support: the Navat Brook peat moss marsh, 'Zsibolya' marsh, 'Júlia' grove. The biggest project in this respect in 2003-2004 period was the restoration of wetland habitats that facilitated the implementation of the transboundary conservation area 'Béda-Karapancsa' (Danube-Drava National Park) and the Croatian 'Kopácsi' meadow.

The impact of changes in forest cover on high waters within the Tisza Basin was also studied. Alternatives for emergency flood control storage for the Hungarian section of the Tisza Basin were evaluated and various technical and economic aspects analysed. Flood control and storage studies were also carried out with reference to the Tisza green corridor programme.

Catastrophic floods and the new governmental concept: The New Vásárhelyi Plan

Within a period of only 28 months (1999-2001), the Tisza recorded four of its highest floods since records began. The flood in the spring of 1999 was considered to be 'the flood that occurs once in every 100 years', whilst the flood in 2000 was supposed to be 'the flood that occurs once in every 1000 years'.

After so many recent floods the water management sector (Ministry of Environment and Water) has come under increasing pressure to prevent further such events from occurring again. In 2000 a team of experts (hydrologic engineers, flood prevention experts, ecologists, agriculture experts) was formed and began to elaborate a plan for flood control, which had to be based on innovative ideas, i.e. 'the dykes cannot grow up to the sky'. The team came up with a draft framework in 2001, which basically stated that emergency reservoirs should be created along the Tisza beyond the dykes. A draft plan was formed for a series of 14 reservoirs, which later became 32.

The main principles of the new concept:

- the reservoirs are surrounded by dykes. Water in- and outflow as well as water level are regulated by sluices,
- in the case of extremely high floods (which are expected to occur once in every 30 years) the reservoirs will be flooded, and
- the land use of the reservoirs can remain arable farming, except in the instances that farmers want to switch to alternative land uses (a draft plan of alternative uses has been drawn up).

This governmental concept 'The New Vásárhelyi Plan' (VTT from the Hungarian acronym) named after Pál Vásárhelyi who was the leader of the river regulations in the 19th century. Since its very beginning environmental NGOs have been criticising the VTT. This is due to the fact that the first version was based on implementing an engineering solution for a natural phenomenon. After the first version was published, the nature conservation authorities (the regionally responsible National Park Directorates) experts and NGOs expressed their objections. Several conferences, seminars, experts' meetings and discussions followed. These combined with the results from *restoration*

projections on model sites have influenced the key decision makers in the Ministry of Environment and Water.

'The New Vásárhelyi Plan' is under continuous development. It is important to stress, that there has been a general shift in focus from the original single aim of flood prevention to now a much broader complex number of aims (as described above). In order to ensure that conservation interests are taken into account a number of NGOs need to strongly lobby their case. This is needed during the selection of reservoirs, the drafting of the complex plan and the detailed planning of reservoirs and natural water storing depression areas.

Concerning to Lake Balaton, there are several projects for sediment and nutrient retaining, the most important are the following:
The maintenance, protection and management of the reeds stuff of Lake Balaton. Reeds have significant effect on nutrient cycle and biodiversity.
Fields of filtration over Lake Balaton for nutrient and sediment reduction.
Restoration of marshland Small Balaton.

Concerning to restoration of landscape, the most important and of great size the three bottom
Restoration of "Dél - borsodi" bottom land/highwater overflow storage
Restoration of "Nagyköru" bottom land/highwater overflow storage
Restoration of "Vezsenyi kanyar" bottom land

B. THE INTEGRATED APPROACH AS A DEVELOPMENT OPPORTUNITY

1. Integrated Water Resources Management plans

The Integrated Water Resources Management (IWRM) as the Johannesburg target is fully in accordance with the goal of the EU Water Framework Directive. Hungary – together with the EU member states and the Danubian countries started the implementation of the Framework Directive. The Danube basin wide implementation of the WFD is the main task of the International Comission of the Danube River Protection Convention. At national level the subt-basins of the Danube, Tisza, Drava and the lake Balaton have been designated for the river basin management plan (due to be completed in 2009).

The structure of water management in Hungary was already organized for 50 years ago on the basis of the river basin principle. The regional institutions of the water and environmental sector cover 12 regions of the country. The *National Environmental Programme* includes substantial provisions and measures for the conservation and management of surface and subsurface water resources. Some of the key targets and approved policy directions are: regulation development to encourage sustainable and economical water use; improvement of water quality for the main watercourses/water bodies (Danube and Tisza Rivers, Lake Balaton); gradual increase (to a level of 65%) of the number of settlements having sewer systems; at least biological treatment of wastewater from sewers; nitrate and phosphorous load reductions for highly protected and sensitive waters.

The governmental program, the New Vásárhelyi Plan (see above) has started in 2004 on the enhancement of flood safety and the related regional and rural development in the Tisza Valley. The Plan comprises a complex program which covers beyond the creation of a higher level of flood safety, the improvement of the living standards of the rural and urban population of the region, the formulation and introduction of new types of agro-ecological land use in the area of the emergency flood retention reservoirs and the modernisation of the infrastructure in the settlements along the Tisza River.

2. Information dissemination and public participation

Access to environmental information and public participation in environmental administrative decision-making are basic principles laid down in the Hungarian Act on Environment. Access to all kinds of public information is regulated by Act No. LXIII of 1992 on the protection of personal data and access to data of public interest. According to the act, state and municipal agencies are obliged to provide all kinds of information of public interest upon request. Exemptions are made regarding qualified data, such as those related to national defense or national security. Business secrecy is no exemption under law. There is no detailed "right to know" legislation, just broad legislation for state and municipal agencies.

As *regards public participation*, under the Act on Environment, environmental NGOs have a standing before administrative agencies and courts in environmental cases. The scope of environmental cases has not yet been clarified, and there are different judicial practices related to this issue.

Professional conferences and technical boards generally provide an adequate grounding for the accessibility and acquaintance with information related to the decision making process (strategies, programs, plans). Nevertheless, the existing public consultation mechanisms make it difficult for non-governmental stakeholders to prepare well-considered comments and truly influence the final documents. This is due to the fact that the timeframe available for comments is often short and the procedures to consider the received comments in the final documents are not clearly defined.

The existing provisions for public information about decision-making processes are currently mainly conducted through involvement of non-governmental stakeholders in studies, conferences, seminars etc. Governmental resources are available (by application) for non-governmental organisations to conduct studies, as well as to hold conferences and other events. The so-called Water Associations are a positive and promising framework to foster the cooperation of water suppliers and water management governmental and civil organisations.

The *civil organisations* in Hungary have been especially active on the field of nature conservation for decades. They run programs for protection of different species and ecosystems, habitat restoration projects (in particular for wetlands), organise trainings and public campaigns, publish leaflets and brochures, and make research. The oldest and largest environmental NGO in Hungary is the Hungarian Association for Ornithology and nature Conservation – having a specialised section for protection of water-birds – runs a project on wetland research, concerning monitoring and practical protection activities.

3. Research and capacity-building

Special experts in the field of freshwater protection and of wastewater handling are trained in post-graduate education courses: „part-time" students, who are graduated from engineering, attend these. Basic education is given in the environmental engineering courses. *The National Environmental Education Programme* deals also with the issues of protection of freshwater resources, and it includes pre- and in-service teacher training courses on this matter. From the beginning of the 1990s, the students of Hungarian schools participated in the "River watch" European programme.

In Hungary water management is an important topic in professional training and higher education, both at engineering and agronomic faculties, therefore human resources are generally available in the country. But further professional adult training is necessary for getting acquainted with means and measures of water related ecosystems.

Academic institutes whose multidisciplinary curricula include ecologically sound management of water-related ecosystems:

- Department of Zoological Ecology and Hydrobiology, University of Debrecen (main profile: hydrobiology, ecology)
- Research Institute of Fishery and Irrigation, Szarvas (main profile: freshwater aquacultures)
- Limnological Institute, Tihany (limnology, research of Lake Balaton and Kis-Balaton)
- Institute for the Research of the Danube, Göd (research of River Danube)

The National Programme for Environmental Research and Development was formulated jointly by the Ministry for Environment and Water and the NCTD. The programmes place special emphasis on improving the technical and technological conditions for environmental protection. Elements of these programmes include: development of environmentally sound public utilities; technologies for healthy drinking water supply; environmentally-sound technologies integrated into production; material, energy and water saving technologies; and environmental sanitation.

4. Social and economic aspects

Hungary is located at the lowest part of one of the most enclosed basins on Earth, with a considerable proportion of surface waters with no outlet, or prone to inundation. Hungary has the great area requiring flood protection. The property value at risk is valued at over 5,000 billion HUF. This includes the gross value of properties and investments in industry, agriculture, the construction industry, tourism, retail trade, catering, accommodation, municipal and treasury properties and the value of houses.

The New Vásárhelyi Plan, besides flood safety *aims a sustainable regional and rural development in the Tisza Valley*. After the implementation of the Vásárhelyi Plan, flood risks to more than 1 million residents living on the flood plain of the River Tisza and economic and cultural assets accumulated there will drop to one third of the current risks.

As a result of a controlled system, it will be possible to enrich wetland and to establish new types of farming besides the flood protection function. Important infrastructural developments - drainage, sewage treatment, forestation, building of cycle tracks, and investment in area management, irrigation, the creation of mosaic landscapes - are connected to the comprehensive program. The envisaged cleaner, healthier environment, improved infrastructure will greatly contribute to the regions' socio-economic development in the Tisza valley.

C. LEGAL AND ADMINISTRATIVE DIMENSION

1. Legal measures

The Hungarian Government has recently accepted a package of three decrees that give a new framework for the management of water-related ecosystems, and serve the legal harmonisation of EU Water Framework Directive

- Government Decree 219/2004 (VII. 21.) on the protection of subsurface water bodies
- Government Decree 220/2004 (VII. 21.) on the regulations pertaining to the protection of surface water bodies
- Government Decree 221/2004 (VII. 21.) on certain regulations pertaining to river basin management

The forest act, passed parallel with the act on nature conservation, includes a number of provisions favourable for nature conservation in connection with sylvicultural activities permitted in protected forests. The new laws have extended the powers and responsibilities of nature conservation authorities in respect of forest planning, and forest authority procedures to a quite large extent.

Within the framework of EU law harmonisation the government has undertaken to develop the National Forest Strategy. In close co-operation with scientific workshops that endeavour to create the basis for the National Forest Strategy, the development of nature conservation guidelines is going on under the ministry's guidance and with the involvement of external experts.

International connections:

Cooperation with neighbouring countries is a significant priority. Existing agreements on transboundary waters is harmonized to certain extent with the relevant provisions of international agreements and EU regulations. Hungary actively participates in the collaboration under the various international treaties and in the international organizations, which deal with the problems of freshwater resources.

The country is an active participant in international agreements, such as the Ramsar Convention on Wetlands of International Importance Especially as Wildlife Habitat. Besides international actions and cooperation in order to implement these conventions, several bilateral cooperation agreements have been initiated and are in progress devoted in particular to the establishment and management of transboundary protected areas.

Hungary plays active role in the ICID (International Commission on Irrigation and Drainage), especially in the work of the European Regional Work Team on Drought.

The most important field of international co-operation is the transboundary co-operation with the seven neighbouring countries in the subject of frontier waters. These agreements are well developed in some aspects of flood prevention and the monitoring network related to water quality and quantity. Hungary undertakes an active role in the International Commission of the Protection of the Danube River (ICPDR). In May, 2001 the Tisza Water Forum was set up on Hungarian initiative with the aim of striving to decrease the risks caused by floods. The country is also actively participating in the International Network of Basin Organisations. The next Assembly of INBO will be held in Hungary in 2006.

The most comprehensive environmental cooperation agreement is in place with two of Hungary's neighbours: The Slovak Republic and Romania. Their executive organs are the Hungarian –Slovak Joint Commission on Environment and Nature Conservation and the Hungarian – Romanian Joint Commission on environmental Protection.
In the Hungarian – Slovak relation the Joint Commission has ten Working Groups among them Working Group for Nature Conservation and Working Group for Protection of Environmental Elements and Informatics. The latter is engaged in water quality issues. The Hungarian – Romanian committee was established in 2004 and already made significant progress in its work.

However, the cooperation between the countries still needs to be improved across the boarder in relation to biodiversity and nature protection

2. Intersectoral coordination

National coordination, decision-making:

As a regular mechanism, integrated decision-making takes place at government level (inter-ministerial conciliation mechanism in course of preparation of all new pieces of regulation). As an additional institutional element, the Hungarian Commission on Sustainable Development was

established by government resolution in 1993 as a permanent inter-ministerial body responsible for the coordination of analysis, planning, and implementation of national programmes for sustainable development and for participation in relevant international programmes. The Commission includes representatives from all relevant ministries and government authorities: Prime Minister's Office, Ministry for Environment and Water, Ministry for Agriculture and Rural Development, Ministry for Education, Ministry for National Cultural Heritage, Ministry of Finance, Ministry of Foreign Affairs, Ministry of Economic Affairs, Ministry of Justice, Ministry of Social and Family Affairs and Ministry of Health (Institute of Public Health) etc. The para-statal bodies, institutions and NGOs are associated with the Commission. In addition the National Environmental Council was established in 1996 as an advisory body to the government in accordance with the provisions of the 1995 Environmental Act. The main non-government constituencies are represented in the Council (environmental groups, academic institutes and business organizations).

According to a government decision an inter ministerial Strategic Committee has been set up in 2001 for the nation wide implementation of the Water Framework Directive, with the involvement of NGOs and different technical associations. The government has determined the tasks and responsibilities of the different governmental bodies together with the schedule of the implementation procedure.

The government agency primarily responsible for the policies on protection of freshwater resources is the *Ministry for Environment and Water*. The basic regulatory framework consists of the Water Act of 1995, and the legal instruments on environmental impact assessments. In addition, there are important general provisions on freshwater resources under the Act on Environmental Protection (1995).

The cooperation between the environmental, nature protection and water management authorities is at acceptable level and is being improved during the implementation process of the EU Water Framework Directive (WFD).