

**MEETING OF THE PARTIES TO THE  
PROTOCOL ON WATER AND HEALTH  
TO THE CONVENTION ON THE PROTECTION  
AND USE OF TRANSBOUNDARY  
WATERCOURSES AND INTERNATIONAL  
LAKES**

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IMPLEMENTATION OF THE PROTOCOL AND  
AGENDA ITEM 6 (a) OBLIGATIONS DERIVING FROM ARTICLE 6 OF  
THE PROTOCOL -SETTING OF TARGETS AND TARGET DATES**

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**REPUBLIC OF CROATIA**  
**MINISTRY OF AGRICULTURE, FORESTRY AND WATER MANAGEMENT**

**1st Meeting of the Parties to the Protocol on Water and Health**  
Geneva, Switzerland, 17-19 January 2007

**General statements on the Implementation of the Protocol on Water and Health**

The Republic of Croatia is a full Party to the Convention on the Protection and Use of Transboundary Watercourses and International Lakes from 1992, which was ratified and published in the Official Gazette – International Agreements No. 4/96 and which came into force on 23 March 1998. In compliance with Article 17 of the Convention, the Republic of Croatia participated at four meetings of the Convention, in Helsinki, Den Haag, Madrid and Bonn, and as a full Party actively contributed to the preparation and implementation of action programmes developed for the implementation of the Convention.

The Republic of Croatia took part in the Ministerial Conference in London, and signed the Protocol on Water and Health on 17 June 1999. As a member of the work group for the Protocol on Water and Health, the Republic of Croatia actively participated in the activities of the work group at the fourth, fifth and sixth meeting in Geneva. The Republic of Croatia ratified the Protocol on Water and Health, which was published in the Official Gazette – International Agreements No. 4/06, and by depositing the ratification certificate became a full Party to the Protocol. The competent ministries for the Protocol implementation are the Ministry of Agriculture, Forestry and Water Management and the Ministry of Health and Social Welfare.

The Republic of Croatia is fully aware that water is the fundamental element and condition for sustaining life, and that the provision of water of adequate quality and in sufficient quantities for the fulfilment of basic human needs is a prerequisite for ensuring and improving human health and, in general, the implementation of sustainable development. The Republic of Croatia takes appropriate measures in the prevention, control and elimination of water-related diseases within integrated water management systems, intended to achieve a sustainable use of water resources and water quality in the environment which does not endanger human health, and to protect aquatic ecosystems. Measures are also taken with the aim of improving human health and sanitary measures, and preventing water-related diseases through better management and water protection from pollution, including the improvement and construction of wastewater treatment systems. Efforts are made to achieve availability of drinking water and implementation of sanitary measures that would cover the entire population. In order to maintain a high level of efficiency in terms of protection from water-related diseases, the standards for drinking water quality are occasionally revised, as exemplified by the ongoing procedure of amending the Regulation on the Sanitary Quality of Drinking Water, by taking into account the minimum standards of control of sanitary water quality determined by the WHO Guidelines for drinking-water quality and the EU legislation on drinking water. Drinking water monitoring in Croatia is carried out according to the Regulation on the Sanitary Quality of Drinking Water, and implemented by the county institutes of public health and the institutions authorized by the Ministry of Health and Social Welfare.

Information and result assessments of testing sanitary quality of drinking water are published annually in the Croatian Health Service Yearbook, and as such are available to the general public. Croatia has systematically monitored water-related diseases as a part of infectious disease monitoring for over 70 years, with the aim to reduce disease occurrences and prevent epidemics outbreaks. At the national level, supervision and status assessment

pertaining to infectious diseases is carried out by the Epidemiology Unit of the Croatian National Institute of Public Health, in line with the Act on the Protection of the Population from Infectious Diseases and the Regulation on Mandatory Reporting of Infectious Diseases. Additionally, water supply and facilities for water supply are monitored, inventory of water supply facilities kept, and sanitary quality of drinking water (and water for recreation) monitored by means of regular analyses. For purposes of ensuring the safety of the collective sanitary system (i.e. water supply and sewerage) for the largest number of households, the Plan for Construction of Water Supply Facilities was developed with the aim to achieve 90% population coverage by 2015. At present, public water supply in Croatia covers 76% of its population. Population density in urban areas is the factor which dictates demand and use of drinking water in the households.

The Republic of Croatia carries out continuous control of urban wastewater from point sources of pollution. Intensive construction and restoration of public wastewater collection and treatment systems are planned, and shall increase the rate of population connection to the public sewerage systems from the present 43% to the total of about 60%. Croatian Water, as the legal person for water management, is responsible for the implementation of wastewater projects, construction of wastewater treatment systems and drinking water supply. Croatian Water partially participates in the financing of these projects. The "Adriatic Project" is currently under way, which the main focus on the construction of urban wastewater collection and treatment systems in the coastal area.

The legal basis for the Protocol implementation are the Water Act and related by-laws, whereas the adoption by the Croatian Parliament of the strategic basis for the Protocol implementation, the Strategy of Water Management, which is a long-term document defining the vision, mission, tasks and goals of state water management policy, is pending. The Strategy identifies strategic directions and development guidelines for water management by starting out from the present state of the water sector, its development needs, economic potentials, international obligations as well as the need for preservation and improvement of the status of water and aquatic and water-related ecosystems. The objective of the Strategy is to provide sufficient quantities of drinking water of adequate quality for population water supply, as well as the necessary water quantities for different economic uses. The Strategy adoption by the Parliament is expected in 2007.

As a part of the EU accession process, there is a project under way, i.e. the CARDS 2003 "Approximation of Croatian water management legislation with the EU ACQUIS", which is the basis for harmonization of water legislation with the relevant EU directives. A special emphasis is put on the harmonization of legislation in the area of sanitary protection zones of drinking water sources as well as on the drinking water quality legislation. It is further necessary to harmonize the legislation for urban wastewater treatment and for limit values of harmful and dangerous substances in wastewater that are discharged into surface waters and public sewerage systems.

With regards to public information and public participation in decision-making in the water sector, the activities are carried out in line with the European legislation.

Zagreb, 20. December. 2006

## **Czech Republic**

### **General statement on the implementation of the Protocol on Water and Health**

#### **Item 4 (a) of the provisional agenda**

The Protocol on Water and Health was ratified by the Czech Republic in 2001. In 2002, the Senior Hygiene Officer of the CR established a working team to prepare proposals for the national targets according to the Protocol. The members of the six-membered team include representatives of all three sectors whose competence encompasses the subject of water in the framework of the Protocol (Ministry of Health, Ministry of the Environment and Ministry of Agriculture). This team is responsible to the intersectoral Council for Health and the Environment, which submits a report on implementation of the Protocol each year.

In addition to various other activities of the working team (such as participation in international events in the framework of the Protocol or elevated public awareness of the Protocol), the main activities of the team consisted in preparation of an up-dated inventory of requirements for establishing national targets. This document systematically specified areas of the initiative required by the Protocol (in Articles 6 to 11) and the current state of work in this area in the CR is also described.

At the beginning of 2006, targeted letters and articles in the press addressed the professional and lay public and requested suggestions for national targets. The working team evaluated the suggestions it received and its own proposals and submitted a document to the Council for Health and the Environment in September of 2006, describing the current state of work in this area in the CR, existing instruments for improving conditions and proposals for national targets. The draft document is currently undergoing the commentary procedure in all the sectors. On the basis of received comments, the draft document will be modified in the first quarter of 2007 and will be submitted to the public for comments. It is expected that the final objectives will be made public at the beginning of the summer of 2007, following approval by the Government.

## **Czech Republic**

### **Target and target dates**

Item 6 (a) of the provisional agenda

The Czech Republic proposes objectives for the majority of the areas identified in the Protocol. No objective have been put forward in only seven cases, where conditions are considered satisfactory or fulfilled (e.g. the creation of certain mechanisms).

Where the objectives of the Protocol are identical with the requirements following, e.g., from the Framework Water Convention or other binding documents, the deadlines for achieving the targets are identical with these requirements. In the remaining cases, the future deadlines for meeting the objectives are a matter for national discussion.

## ESTONIA

### **General information**

Estonia ratified the Protocol on Water and Health to the 1992 Convention on the Protection and Use of Transboundary Watercourses and International Lakes on 9<sup>th</sup> September 2003. Starting that date Estonia has been guided from the Protocol.

### **Targets and target dates**

According to Article 6 of the Protocol Parties to the Protocol must set their national targets and target dates in order to ensure implementation of the Protocol. Estonia as a member of the European Union must also implement the EU water policy. The aim and idea of the Protocol coincide a lot with the water policy in the EU.

Estonian targets and target dates are following:

#### 1. Targets for drinking water

Estonia must ensure the quality of drinking water and its monitoring but also inform public according to the Council Directive 98/83/EC starting Estonian accession to the EU, this means starting from 1<sup>st</sup> May 2004. But in Estonia there is also a derogation period regarding indicators agreed upon during accession discussions; these and their expiration dates may be found in the accession agreement, specifically in Annex VI to the agreement. These exceptions are as follows:

a) Estonia will not be required to achieve the required limit concentrations for colour, hydrogen ion concentration, iron, manganese, odour, and turbidity:

    until 31 December 2007 at water works which supply drinking water to more than 2000 persons;

    until 31 December 2013 at water works which supply drinking water to fewer than 2000 persons.

b) Estonia will not be required to achieve the required limit concentrations for chlorides, electrical conductivity, and sulphates:

    until 31 December 2008 in communities of more than 2000 population;

    until 31 December 2013 in communities of fewer than 2000 population.

#### 2. Targets for waste water

Estonia must ensure wastewater treatment according to Council Directive 91/271/EEC in agglomerations with more than 10 000 p.e by 31 December 2009  
in agglomerations with 2000 until 9999 p.e by 31 December 2010

#### 3. Targets for bathing water

Estonia must ensure quality of bathing water, monitoring and inform public according to the Council Directive 2006/7/EC by 24 March 2008

## **Implementation of the targets**

### *Institutions*

In Estonia water issues are divided between the Ministry of the Environment and the Ministry of Social Affairs, specifically the latter's subsidiary agency, the Health Protection Inspectorate.

#### The Ministry of the Environment

Under the authority of the Ministry of the Environment falls the responsibility for assuring and preserving the quality of the water (both ground water and surface water).

The Ministry of the Environment is responsible for the following government functions: protection of the national environment and of nature; maintenance of the land and spatial databases; natural resources including estimation of the their quantities and regulation of their use, recycling, and protection; radiation safety; surveillance over the environment; organisation of meteorological, geological, cartographic, geodesic surveys and ecological/marine research; maintenance of the land and water cadastres; and drafting of legislation regarding these areas. In other words, the responsibility of the Ministry of the Environment is to organise and coordinate environmental policy.

The central office of the Ministry of the Environment are located in Tallinn, but each of the 15 counties has a County Environmental Department. Other agencies of the Ministry include the Land Board; the Environmental Inspectorate; the Centre for Forest Protection and Silviculture; the Estonian Environment Information Centre; the Estonian Institute of Meteorology and Hydrology; the Estonian Radiation Protection Centre; the State Forest Management Centre; the Geological Survey of Estonia; the Estonian Map Centre; the Estonian Environmental Research Centre; Tartu Environmental Research; Tartu Tree Nursery; Põlula Fish Farm; the Estonian Museum of Natural History; national parks, ecological reserves, and landscape conservation areas.

#### The Ministry of Social Affairs

Under the authority of the Ministry of Social Affairs falls the responsibility for protecting the health of the population and coordinating activities in this area. The Ministry drafts legislation aimed at assuring a healthful human environment, as well as strategies and policies to advance the same.

The Health Protection Inspectorate is a subsidiary agency of the Ministry of Social Affairs. The Inspectorate subsumes four regional services:

- 1) Tallinn Health Protection Service
- 2) Tartu Health Protection Service
- 3) Viru County Health Protection Service
- 4) Pärnu Health Protection Service.

Each of the 15 counties has a department of one of health protection services.

The organisational structure of the Health Protection Inspectorate includes microbiology, chemistry, physics, and virology laboratories as follows: the Tallinn Combined Laboratories in Tallinn; the Tartu Laboratory in Tartu; the Pärnu Laboratory in Pärnu; the Kohtla-Järve Laboratory in the Viru Counties region. The chemistry and microbiology laboratories of the Health Protection Inspectorate are accredited in the area of drinking water testing by the internationally certified Estonian Accreditation Centre.

The Health Protection Inspectorate conducts nationwide surveillance and provides national enforcement as specified by law. The Inspectorate has the following responsibilities:

- 1) to conduct nationwide surveillance and to provide legal enforcement to the extent provided by law;
- 2) to issue licences as provided by law; to make decisions regarding issuing the license or certificate or refusing the licence application;
- 3) to organise and conduct surveillance over drinking water;
- 4) to perform laboratory testing;
- 5) to register cases of infectious and parasitic diseases; to investigate the circumstances of infection and devise methods for diminishing and controlling transmission of infectious diseases;
- 6) to assess and estimate physical, chemical, and biological hazards that constitute health risks; risk reduction;
- 7) to gather and interpret information regarding environmental hazards;
- 8) to gather and interpret statistical data;
- 9) to inform the public regarding environmental factors, their deterioration or possibility of deterioration;
- 10) to resolve problems related to complaints regarding drinking water quality;
- 11) to consult on questions of water safety that arise during routine surveillance or complaint investigation;
- 12) to offer assistance and exchange information regarding health protection with other institutions and persons;
- 13) to the extent of its competence to work with other government agencies and international organisations;
- 14) to organise continuing education in their various specialties to its personnel;
- 15) to devise strategies for carrying out its responsibilities and refine its own organisational structure;
- 16) to perform other duties as set by law, decision of the Parliament, regulations and orders of the Government of the Republic, or regulations and orders of the Ministry of Social Affairs.

To carry out its responsibilities, the Health Protection Inspectorate is authorised:

- 1) receive information from physical or legal persons who are required to fulfill health protection requirements or from persons delegated to fulfill these requirements; to require documents from them and clarifications; to receive document copies free of charge;
- 2) to monitor enterprises, establishments, or other places where physical or legal persons conduct activities which are subject to surveillance, upon presentation of



identification which specifies the right to surveillance; the Inspectorate need not provide advance notice and may not be hindered in entering premises;

3) to issue citations for violations which require correction of these, to set penalties, and to employ other means of enforcement;

4) to require limiting, suspension, or cessation of an activity which endangers human health or the human environment;

5) to monitor the functioning of its own employees.

### *Legislation*

Estonia as a member of the European Union must implement the EU legislation. Water issues are regulated by the Public Health Act, the Water Act and the Public Water Supply and Sewerage Act and by regulations based on them. EU water issues are harmonised with these acts and regulations.

The Water Act is a framework law which establishes the organisation of water protection and water use in Estonia. It specifies the basic conditions and responsibilities with regard to water use, the activities needed for protection of water supplies and the protection of water supply zones, and sets the procedure for estimating supplies of ground water.

The Public Health Act lays down basic requirements for health protection and the human environment, including the provision that drinking water must be safe with respect to human health and must meet quality requirements.

Regulations of the Minister of Social Affairs and the Minister of the Environment detail the requirements for quality and control of drinking water. These include in full all the purposes, responsibilities and requirements prescribed in the drinking water directive.

The regulations of the Minister of Social Affairs and the Minister of the Environment are as follows:

1. Regulation 82 (31 July 2001) of the Minister of Social Affairs: "Quality and control requirements for drinking water and methods for testing"
2. Regulation 152 (21 December 2002) of the Minister of Social Affairs: "Procedure for applying for, issuing, altering, suspending, and revoking licences for sale of drinking water which does not meet quality requirements but is not hazardous to health"
3. Regulation 58 (4 April 2003) of the Minister of Social Affairs: "Procedure for certifying persons who sample drinking water"
4. Regulation 1 (2 January 2003) of the Minister of Social Affairs: "Quality and control requirements for surface water and ground water to be used or potentially used for production of drinking water"
5. Regulation 18 (26 March 2002) of the Minister of the Environment: "Procedure for issuing, altering, and revoking permits and temporary permits for the special use of water, list of materials which must be submitted in support of application, and forms for the permit"

Quality and control requirements for surface water which is to be used or may potentially be used for production of drinking water are in accordance with the responsibilities and requirements laid down in directives 79/869/EEC and 75/440/EEC.

Quality and control requirements for ground water which is to be used or may potentially be used for production of drinking water have been set at the national level such that the justification for precautions is described, the safety of drinking water is assured, contamination is rapidly detected, and deterioration of water quality is avoided at the level of the faucet.

Quality and control requirements for surface water and ground water which is to be used or may potentially be used for production of drinking water are laid down in the following regulations:

1. Regulation 1 (2 January 2003) of the Minister of Social Affairs: "Quality and control requirements for surface water and ground water which is to be used or may potentially be used for production of drinking water"
2. Regulation 18 (26 March 2002) of the Minister of the Environment "Procedure for issuing, altering, and revoking permits and temporary permits for the special use of water, list of materials which must be submitted in support of application, and forms for the permit"

#### *Surface water for drinking water purposes*

Surface water intended for drinking water is divided into three categories, which are taken into account in processing the water, the first category being the highest quality surface water and the third category the worst. In order to achieve healthful and safe drinking water, processing methods must be implemented which are appropriate to the quality or category of the surface water to be used.

If the surface water does not meet quality indicators (recommended as well as required) of any of the categories, it may not be used for drinking water.

For Category 1 surface water, the simplest processing methods -- filtration and disinfection -- are adequate for the production of drinking water.

For Category 2 surface water, chemical processing is required -- e.g., prior chlorination, coagulation, flocculation.

For Category 3 surface water the most thorough processing methods must be used -- coagulation, flocculation, filtration/decantation, follow-up purification and disinfection.

In order to use surface water for production of drinking water, before the potential water source can be put into use it must be under surveillance for one year to confirm the stability of the quality of the water source. To demonstrate stability of the quality, water samples are taken from the same site on a fixed schedule at least 12 times over that year.

A person applying for or holding a permit for the special use of water must compose a monitoring schedule for his/her water source to cover a period of five years. The monitoring schedule must cover the following points:

- 1) the number of persons who will be served by the holder of the permit
- 2) the quantity to be processed daily
- 3) the quality class of the water
- 4) a list of indicators to be tested for
- 5) the frequency of testing for each indicator
- 6) the number of sites where samples will be taken and their locations
- 7) potential sources of contamination which exist in the water supply protection zone.

Surface water is used for the water supply in Tallinn and Narva. Both bodies of water belong to Category 2 of surface water quality.

#### *Ground water for drinking water purposes*

For drinking water production from ground water in quantities less than 500m<sup>3</sup> per day, there must be one quality assessment of the ground water before that drinking water source can be taken into use. For drinking water production from ground water in quantities of 500m<sup>3</sup> or greater per day, stability of the quality of the drinking water source must be demonstrated by at least two tests for chemical parameters and four tests for microbiological parameters over a period of one year. The parameters are to be checked in accordance with the nomenclature given in Tables A, B and C of Annex I to Council Directive 98/83/EC.

The quality class of the source water is set in the course of testing; this quality class will determine the processing methods to be used.

When the quantity of ground water to be used for drinking water is 10m<sup>3</sup> or greater daily, and the water is being processed for public consumption or commercial activities, the holder of a permit for the special use of water must regularly monitor the quality of the source of drinking water at the locations at which the water enters the processing and the distribution systems.

In addition, the holder of such a permit must compose a monitoring schedule for the drinking water source, which must cover the following points:

- 1) the number of persons who will be served by the holder of the permit
- 2) the quantity to be processed daily
- 3) the quality class of the water
- 4) a list of indicators to be tested for
- 5) the frequency of testing for each indicator
- 6) the number of sites where samples will be taken and their location
- 7) potential sources of contamination which exist in the water supply protection zone.

### *Control of drinking water quality*

Drinking water is defined as that water which is used for drinking, the preparation of food, or for other household uses, and which reaches the consumer from a faucet (i.e., a water distribution system), a cistern, container, or bottle.

The directive lays down nearly 50 quality requirements, both microbiological and chemical as well as general indicators, which must be met by drinking water at the point at which it reaches the consumer. In addition to routine quality monitoring there must also be quality monitoring of the water source and during the processing of drinking water.

The quality and control requirements for drinking water do not extend to:

- natural mineral water
- water to be used for medicinal purposes
- drinking water processed in quantities of less than 10m<sup>3</sup> per day or which fewer than 50 persons use.

The drinking water handler guarantees that drinking water conforms to the quality requirements of drinking water, and is also responsible for presenting information regarding such quality to the consumer and to government surveillance workers.

A drinking water handler is any enterprise or establishment which deals with the production, storage, or processing of drinking water, or any other activities through which drinking water is made available to consumers or to other enterprises, either for a charge or for free.

The drinking water handler must assure the performance of check monitoring and audit monitoring of all water within its system or issuing from its system in accordance with the requirements in Tables A, B1, and B2 in Annex II of the directive.

The drinking water handler must compose a drinking water monitoring schedule covering at least three years and submit this for the approval of its local health protection service. This schedule must include the following:

- the quantity or mass of drinking water handled in one day
- a listing of indicators to be monitored broken down by sampling sites
- the number of sampling sites and their locations
- the frequency of monitoring of drinking water and the number of samples to be taken for each quality indicator during a specified period.

In order to assure a high level of quality for the monitoring and tracking of drinking water, there must be a critical understanding of all aspects of data gathering and its processing, from the taking of samples to the making public of information and assessments. To assure that laboratory results reliably reflect the quality of drinking water and that results are comparable to each other, Estonian law requires that water samples may be tested only in accredited laboratories and samples may be taken only by certified persons.

To prevent possible errors and inaccuracies the Health Protection Inspectorate performs supplementary quality testing of drinking water. The testing is suited to the risk category of a given water works. Financing of this testing comes from the national budget.

The communal water works are classified into high, moderate, or low risk water works in accordance with established risk criteria. The frequency of monitoring is dependent on the risk category of the water works, as follows:

- High risk water works are inspected and samples of drinking water taken twice per year
- Moderate risk water works -- once per year
- Low risk water works -- once every other year.

During the period when drinking water does not meet the quality requirements drinking water may be produced, stored, processed and distributed only with a licence which permits sale of water which does not meet quality requirements but which is not hazardous to human health.

Such a licence is issued by the applicant's local health protection service for three years upon submission of appropriate application materials.

The licence specifies the following:

- 1) the reasons for failure to meet drinking water quality requirements
- 2) the geographic area in which drinking water not meeting quality requirements will be sold
- 3) the specific quality indicators which fail to conform to quality requirements
- 4) the estimated quantity of drinking water not meeting quality requirements which will be offered for consumption, broken down by year, and the number of persons projected to consume it
- 5) a listing of establishments dealing with food or foodstuffs which will be supplied with drinking water not meeting quality requirements
- 6) an action plan for bringing the drinking water into conformity with quality indicators
- 7) the expected duration of failure to meet drinking water quality requirements
- 8) monitoring requirements for this drinkingwater.

The licence will not be issued under the following circumstances:

- 1) if the drinking water which fails to meet quality requirements presents a direct threat to human health or an indirect negative effect on human health
- 2) if the licence application includes data which are at variance with actuality.

#### *General description of drinking water quality*

All Estonian cities and many smaller communities have a water supply system. There are a total of 1377 water works.

According to Health Protection Inspectorate data, 77% of the population used communal water in 2004. However, the proportion of the population covered by communal water varies widely from region to region. Over-all, 86% of persons in

larger cities use communal water, and 59% of persons in rural communities do so. However, there is also considerable difference among cities: communal water supplies 95% in Paide, 66% in Türi, <50% in Elva, 19% in Vasalemma, but 100% in the town of Loo in Harju County.

Surface water is used for the drinking water supply in Tallinn and Narva. Both bodies of water are classified in Category 2 in terms of surface water quality.

Outside Tallinn and Narva the only source of drinking water is ground water.

Natural ground water has a low mineral content. The deeper, anaerobic parts generally contain excessive amounts of iron, manganese, and hydrogen sulphide.

In the deeper ground water layers the quality is dependent on the characteristics of the natural setting. In some areas the water contains an excess of fluoride, chloride and iron compounds. In the Cambrium-Vend groundwater aquifers of western and northern Estonia increased effective doses of radiation have been noted.

Water which is intended for use as a source of drinking water is extremely well protected by 70-90m-thick layers of clay, which make the introduction of a variety of contaminants into deeper ground water layers very unlikely.

Estonia is characterised by a large number (77%) of water works which use limited processing.

There are 23 water works which produce more than 1000m<sup>3</sup> per day; these comprise 2% of all water works and serve 842,440 persons (64% of the population).

There are 358 water works which produce less than 100m<sup>3</sup> per day; these comprise 28% of all water works but serve only 3,780 persons (2% of the population).

The quality requirements for drinking water are divided into three groups: microbiological parameters, chemical parameters, and indicators.

Microbiological and chemical requirements deal with direct threats to health.

Indicators affect the organoleptic characteristics of water and may indicate general contamination of the water. Excessive amounts of these indicators have an adverse effect on the conditions of use and quality of life, but they do not present a direct threat to health.

The following proportions of the population use drinking water which fails to meet quality standards:

Year	% whose water fails to meet microbiological parameters	% whose water fails to meet chemical parameters	% whose water fails to meet indicator limits
2004	0,004	2,5	29,6

## Microbiological parameters

There are no waterworks in Estonia which consistently fail to meet the requirements for microbiological parameters. Temporary deviations from the required microbiological parameters have been noted in 0.36% of water works under surveillance, primarily on the basis of technical problems in the final stage. Thus 500 persons (0.004% of the population) use water which varies in quality in terms of microbiological parameters.

Due to implementation of improved methods and government monitoring, there have been no outbreaks associated with drinking water during the past 10 years.

### a. Chemical parameters

The major problem is regional excess of fluoride content ( $>1.5$  mg/L), which derives from the ground water aquifer being used.

The content of other chemicals does not consistently exceed limit concentrations set in the directive.

## Fluorides

Health Protection Inspectorate data show that the fluoride content is excessive in the water of 103 water works. Of these, at two water works (Õisu village and Leie village in Viljandi County) the fluoride content is not consistently elevated and the situation requires further study.

Water which does not meet fluoride requirements is used by 27,057 persons (2.3% of the Estonian population). Those 15 water works which supply children's establishments and nursing homes (total population of ~3170) have been issued binding instructions to use only bottled water, which has served as a temporary solution in these water works.

All drinking water handlers have been variously issued binding instructions that they must assure conformity of the fluoride content of drinking water with the quality requirements which are in force. The health protection services have required that they submit an action plan for resolution of the fluoride problem.

To inform the public, all local governments as well as the drinking water handlers were sent data on the water quality of their water works and the possible effect on human health. Individuals, particularly families with small children, are recommended to use bottled water and to use fluoride-free toothpaste. This information reaches the consumer via local newspapers.

Data on the fluoride content at each water works and action plans for decreasing these may be found on the website [www.tervisekaitse.ee](http://www.tervisekaitse.ee).

## Heavy metals

Testing of heavy metals (antimony, arsenic, mercury, cadmium, chrome, nickel, lead, selenium, copper) was performed between 1998 and 2004 from both artesian wells in water supply zones and from water distribution networks. The content of these metals has been below the limit concentrations set in Table B of Annex I of Council Directive 98/83/EU or below the limit of detectability in both the ground water and in the network water.

#### Pesticides

The results of testing for pesticides which have been performed between 1998 and 2004 have not shown any pesticides in Estonian ground water. Since pesticides are not used in Estonia in the area of water supply zones and the natural protection of ground water is very good, the probability of pesticides occurring in ground water is very small.

#### Toxic organic compounds

Determinations exist for benzene, benzo(a)pyrene, 1,2-dichloroethane, polycyclic aromatic hydrocarbons, tetra- and trichloroethene, and total trihalomethanes. Their concentration in both ground water and in water distribution networks in Estonia during 1998-2004 has been below limit concentrations and below limits of detectability. The probability of these compounds finding their way into our ground water approaches zero, since there are no industries in Estonia which use these compounds.

#### Indicators

Failure of drinking water to conform to quality requirements is mainly related to excessive content of iron, manganese, ammonia, and chloride. These result mainly from their natural occurrence but often are related to poor condition of the distribution pipes.

Data from the health protection services show that levels of indicators exceed limit concentrations in water of 253 water works (41% of all water works), which serve 344,390 persons (29.6% of the population). The production, storage, processing, and distribution of this water which fails indicator standards takes place under special licences for marketing of water which doesn't meet quality requirements but is not hazardous to health. Such licences have been issued to 94% of these water works. They have also been presented action plans for improving water quality.

In addition, Estonia has a derogation for iron, manganese, and chloride and is therefore in a transition period for these and is not out of compliance with the requirements of the directive.

The content of tritium in natural waters and therefore also in drinking water is very low and of no importance from the standpoint of radiation safety. Concentrations of <sup>137</sup>C activity in drinking water have been below the sensitivity of the test. The content of <sup>137</sup>C activity at the level of sensitivity of the testing is less than one-



thousandth of the level (0.1 mSv per year), as calculated by WHO's methodology, which would present an actual risk to human health.

*Bathing water quality*

In Estonia there are 34 coastal beaches and 38 inland beaches. In 2005 there were no inland beaches that did not meet the quality requirements and only 8 coastal beaches that did not meet the requirements. In 2006 also all inland beaches complied with quality requirements and only 1 coastal beach did not comply with requirements.

*Waste water treatment*

Public water supply and sewerage are regulated with Public Water Supply and Sewerage Act.

Waste water treatment requirements in Estonia are regulated by regulation of the Government of Estonia "Procedure on discharging wastewater into water bodies or soil". There are no places in Estonia where untreated waste water is discharged directly to waterbody or soil – it is treated in waste water treatment plants according to the regulation of the Government of Estonia "Procedure on discharging wastewater into water bodies or soil" or, in small places, it is collected and then delivered to waste water treatment plants. For ensuring total compliance by the end of 2009 and 2010 investments are made for building and reconstruction of waste water treatment plants and pipelines.

MINISTRY OF SOCIAL AFFAIRS  
AND HEALTH  
Helsinki, FINLAND

14 December 2006

UNITED NATIONS  
Economic Commission for Europe  
Geneva, SWITZERLAND

WORLD HEALTH ORGANIZATION  
Regional Office for Europe  
Rome, ITALY

Ref. First Meeting of the Parties to the Protocol on Water and Health to the Convention on the Protection and Use of Transboundary Watercourses and International Lakes  
Geneva, 17-19 January 2007

Annotated Provisional Agenda for the First Meeting, 25 October 2006

Dear Mr Bärlund and Mr Bertolini,

With reference to your inquiry being included in the provisional agenda for the first meeting of the Parties we will give you information concerning the status of implementation of the Protocol on Water and Health and progress towards establishing target and target dates according to article 6 of the Protocol.

Item 4: Status of implementation of the Protocol on Water and Health

(a) Reports by Parties, Signatories and other observers

Finland signed the Protocol on Water and Health on the 17<sup>th</sup> June 1999 and ratified it on the 3<sup>rd</sup> March 2005.

In Finland, human health, safe drinking water, adequate sanitation and the protection of water sources has been considered very high. Finland has a long history in developing drinking water and sanitation services and technologies and establishing necessary legislation and administrative actions.

In Finland, there are no specific problems with the implementation of the Protocol. Legislation in Finland follows requirements set in the EU legislation which is consistent or in some respects goes beyond the requirements set in the Protocol. Furthermore in 1997, Finland launched a

compulsory reporting system for waterborne outbreaks which has worked well already nearly ten years.

In Finland, we find the ratification and implementation of the Protocol on Water and Health very important to strengthen actions for preventing, controlling and reducing water-related diseases within and around Europe. This is very important especially in those countries which are just establishing and developing systems relevant to the targets of the Protocol. We hope that ongoing and future actions within the programme of work will support the implementation of the Protocol.

Item 6: Target setting, review and assessment of progress and guidelines for reporting under the Protocol

(b) Obligations deriving from article 6 of the Protocol

In Finland, a working group consisting representatives from different administration sectors has started a task which aims to the establishment of specific targets and target dates according to article 6, paragraph 2. In this work the group follows requirements set in the EU legislation and nationally set plans and programmes which are relevant for the Protocol. The co-operation between health and environment administrations works fluently enabling the target setting in the timeframe set in the Protocol.

Thank you for considering Finnish views. We look forward to having successful meeting in Geneva.

Sincerely yours,

Jari Keinänen  
Senior Health Officer  
Ministry of Social Affairs and Health

**Protocol on Water and Health – Achievements and Challenges for the  
Compliance in Hungary  
Agenda item 4 (a)**

The first moves of the initiative in the mid-nineties to establish a Protocol aiming at fighting water related health impairments both on the domestic and the international level have already been attended by Hungarian experts and especially by the late Dr. Alan Pinter. He and his colleagues realised the utmost significance of this exemplary, international treaty aiming at the promotion of the protection of human health and well-being through a set of water management-related provisions with special stress on those fighting water related diseases.

Hungary has played a central role in the promotion and in the preparatory phases of the Protocol e.g. by providing the Chair to the WG on Water and Health established in the framework of the 1992 Convention on the Protection and Use of Transboundary Watercourses and International Lakes, the parent convention of the Protocol, with the special task of promoting the signature and ratification, and as the next stage, the interim implementation of it with special emphasis to the procedural and legal aspects.

Since the ceremony of the signature, this instrument has seen 2 meetings of the Signatories and 6 ones of the WG Water and Health, all aiming at promoting enough ratification and a progress of the interim implementation, and has been associated with several experts' meetings brought together to assist in specifying the way of progress regarding some key issues of the Protocol's provisions. Half of these events was organised in Hungary (see table A) and reflects the efforts of a couple of co-workers at the National Centre for Public Health's Institute of Environmental Health. These efforts have been made and have also been supported by the Hungarian government in order to realise the obligation of being the lead country in the context of promotion of international cooperation with an estimated direct expenditure of 53,500 USD not to mention the human efforts and labour costs.

In addition, Hungary has had another, much more difficult obligation to fulfil, namely the due implementation of the Protocol's provisions.

Talking about the implementation, let us first examine the schedule of compliance.

The progress called for by the Protocol is by no means an isolated process which is only driven by its provisions. The overall social-economic development of the past one-and-half decade has put its more or less pronounced expression on the field of water management and most of the subject matters concerned by the general provisions of the Protocol, which are the following:

- adequate supply of wholesome drinking water...;
- adequate sanitation...;
- effective protection of water resources... and their related ecosystems...;
- ...water for recreational purposes... .

The single most prominent case for development has been the accession of the Republic of Hungary to the European Community with the obligation of complying with the Acquis Communautaire but also by giving way to an unprecedented amount of development support.

EU legal obligations in most water- and water-management related fields harmonise with the requirements of the Protocol. Being rather rigid legal instruments, they miss one of the major achievements of the Protocol, the interrelated and integrated approach. Compliance with the EU legislation and the matching Hungarian law is under the control of various departments of different ministries and it is only envisaged by the Protocol to exert surveillance and hold an overall command of the development of different areas pertinent to the prevention and control of water related diseases.

Table B is a trial to summarise all relevant pieces of information on the state of the compliance with the Protocol's provisions. Main challenges and priorities of work are indicated in different colours.

The quality of public drinking water supplies has long been subject to strict control by the public health system, and as such, is one of the main fields for the NIEH to work on, with regard to data management, national assessment and informing strategic policy-making. The utmost driving force of the development is the relevant EU Directive and specifically the reporting system, recently elaborated to survey the compliance with the requirements. In contrast to the past system of national drinking water quality assessment, the upcoming EU reporting scheme is not really harmonised with the set of EHIS indicators, although for an advanced data-management system treating this problem shall not be a problem. Due to financial constraints, Hungary is in an interim phase of drinking water data management, and it makes the compliance with both kinds of reporting extremely difficult and of not always reliable quality. The NIEH Water and Health staff is the main data transfer and evaluation hub also for the National Drinking Water Quality Improvement Programme which is expected to eliminate all the major sources of quality problems from the public supply. The NIEH staff not only has had an essential role in collecting all pertinent water quality problem information, but they also give expertise and priority assessment when technical feasibility, economic value and health benefits are at stake in the planning and implementation phase of the programme's projects.

NIEH has also been involved in the preparation and the amendments of the pertinent Hungarian decree that implements the EU drinking water law and another important function of them has been to inform and guide the counties' environmental health inspectors and associates about the essential and practical issues of the implementation of the Drinking Water Directive 98/86/EEC.

To comply with both the new EU reporting system and the Protocol's requirements is a major challenge for the staff and beyond them for the whole public health information technology and electronic data management system.

The NIEH staff have also contributed to the development of the wider regulatory drinking water environment by taking part in the WHO/Euro's EHIS group as well as in the common EU/WHO ECOENHIS project. They also have participated in several European groups with relevance to this environment, like the Water Supply and Sanitation Technology Platform, Expert Group for the Construction Products Directive committed to prepare the EAS, the uniform European Approval System for materials and chemicals in contact with drinking waters, the WEKNOW (Web-based Knowledge Network on Water), funded by the EU FP 6 that made use of the most competent European experts' gatherings to support the Commission with evidence based decision-making on the field, etc. Together with this distinguished company, the Hungarian Water and Health staff is challenged to take part in the installation and

better formulation of the system of the Water Safety Plans that is expected to become soon one of the most powerful drinking water quality management tool-kit both in international and national dimensions.

As far as subparagraph b of Art 6(2) and also the closely related provisions in Art. 8 are concerned, water-related outbreaks are identified and managed in the framework of a well developed epidemiological surveillance system. The well-tried system has been active for decades and it is currently being upgraded by adapting up to date IT technologies and by integrating it into a comprehensive national public health data management system. To upgrade the WBD surveillance system and at the same time, integrate it into the general public health data management and surveillance system is still a major challenge for the Water and Health staff and allied colleagues from other departments, like the Dept. of Epidemiology of the National Centre of Epidemiology. Successful accomplishment would ensure compliance with the provision of paragraph 3 of Art 8 and would involve the maintenance of contingency plans and response capacities as one of the most fundamental task not only for them, but for the whole national public health management.

The Water and Health staff is the principal hub when it comes to the compliance with requirements regarding bathing waters and enclosed waters used for recreation (see subparagraphs j and k of Art. 6(2)). They are involved in close co-operation with the competent authorities in each critical step from the legislation to the control over implementation to reporting and serve as a professional advisory background to both the central and the county staff of the public health authority. The staff is involved both in scientific research (see later) and procedural and methodical development. On the laboratory field they are acting as the main source of advice as to methods development, also as active participants in the international and European standardisation (members of ISO/TC 147 and CEN/TC 230). They actively contribute to the international scientific co-operation by organising workshops and conferences – partly under the auspices of the Working Group on Water and Health, devoted to the interim implementation of the Protocol. Two recent significant international meetings organised by them were the International Conference on Health and Water Quality Aspects of the Man-Made Recreational Water Environment, March 10-11, 2005, and an expert consultation on the waterborne disease surveillance, 9-10 May, 2006.

The importance of the progress of public information provided for by subparagraph n) has been on the rise both technically and in policy setting since the early nineties. Well before the EU legislation became obligatory, the Water and Health staff has acted as a main source of data and assessments serving this process. They have contributed to publicising the bathing water quality data since the late nineties when the bathing water monitoring and assessment has first been organised on a nationally uniform basis.

There are development programmes of principal importance going on in the field of sewerage and sewage treatment, or on the protection and enhancement of security of drinking water resources which are managed by the Ministry of the Environment and Waters and its network. The relevant data on these fields are provided by them. It is still of elementary importance that compliance with the provisions of the Protocol as set out in Art. 6 (5) a-d are managed in close co-operation of the different departments and under the co-ordination of a national body responsible for the implementation of the Protocol. There is much left to do in this area in order to gain complete command over the compliance with the Protocol's provisions.

The presented overview on the implementation of the Protocol on Water and Health demonstrates the initial results and reflects the need to further significant development. In spite of the presently prevailing economical difficulties, the government of Hungary is devoted to the fulfilment of the requirements of the Protocol.

Budapest, 2006-12-18

**Footsteps for the interim implementation of the Protocol on Water and Health  
Agenda Item 4 (a)**

**Table A**

**Submitted by the Government of Hungary**

Title	Location	Date	C*
First meeting of the Signatories to the Protocol	<b>Budapest</b>	2-3 November, 2000	P
First meeting of the Working Group on Water and Health	<b>Budapest</b>	14-15 May, 2001	P
Small Working Group Meeting on the Evidence Base of Water Related Diseases	Bonn	25-26 October, 2001	T
Health Risks in Aquifer Recharge	<b>Budapest</b>	9-10 November, 2001	T
Waterborne Disease Surveillance – Goals and Strategies	<b>Budapest</b>	29-30 November, 2001	T
Second meeting of the Working Group on Water and Health	<b>Budapest</b>	28-29 October, 2002	P
Second meeting of the Signatories to the Protocol	Geneva	2-4 July, 2003	P
Third Meeting of the Working Group on Water and Health	<b>Budapest</b>	11-12 March, 2004	P
Roundtable on Water and Health in Europe	Oslo	28-29 September, 2004	P
Fourth Meeting of the Working Group on Water and Health	Geneva	9-10 December, 2004	P
International Conference on health and water quality aspects of the man-made recreational water environment	<b>Budapest</b>	10-11 March, 2005	T
Consultation on target setting and progress monitoring of water and wastewater services	Copenhagen	9-10 May, 2005	T
Fifth Meeting of the Working Group on Water and Health	Geneva	5-7 December, 2005	P
Meeting of an ad-hoc group on the draft programme of work 2007-2009 under the Protocol on Water and Health	Bonn	6-7 March, 2006	P
Consultation on the Waterborne Disease Surveillance	<b>Budapest</b>	9-10 May, 2006	T
Sixth Meeting of the Working Group on Water and Health	Geneva	31 May – 2 June, 2006	P

\*Characteristic of the meeting: P for policy and T for technical



Table C

**Activities of the Department of Water Hygiene, National Institute of Environmental Health, National Center for Public Health (The Water Staff) for the interim implementation of the Protocol on Water and Health 2000 - 2006**

Type of activity	Reference in Protocol /Art 6(2) /	Number of units (piece, day, etc.)	Remarks
Written Expert Opinion, Treatise, Policy paper, Guidance paper, etc.			
Re: expert support and policy judgment to legislation	a, f, j, k	49	also contributions to impact assessments
Re: Water Quality Amendment Programme	a,	95	e.g. eligibility assessment
Re: Implementation of the Drinking Water Regulations	a	14	
Re: materials in contact with drinking water and pools and spas	a, k	79	To be used for endorsement of commercial authorisation
Re: water treatment and disinfection technologies	a, e, k	38	
Re: water vendors and POU treatment devices	a, e	36	
Re: natural mineral waters	-	89	
Re: European Drinking Water Law	a	19	Position papers and meeting reports
R+D Projects	a, b, f, j, k and Art. 9	8	See below
Post-graduate education lectures and field staff training courses, presentations (internal and international)	a, b, c, e, f, j, k and Art. 8 and 9	41	Organised and prepared by the Water staff
Policy meetings and technical meetings (high level internal and international)	a, b, c, e, f, j, k and Art. 8, 9 and 10	54	Participation from the Water staff
Media appearances	a, b, e, f, j, k and Art. 10.	129	On paper, on air and on screen

R+D projects, 2000 through 2006.

- Allergenic effects of cyanobacteria populations from recreational waters; project funded by the National Fund for Primary Sciences (OTKA) 1998-2001
- Strategies for early warning detection and monitoring of cyanobacteria and their toxins in freshwater systems for human use (CYANOTOX) EU FP-4 project, 1999-2002.

- Toxic effects of Cyanobacteria in the lake-system Kisbalaton, 2000-2001 (Project funded by the Ministry of the Environment and Waters);
- Development of an ELISA testmethod for the detection of cylindrospermopsin, a cyanobacterial toxin, 2000-2002;
- Development of a Guideline for the Surveillance System for Water-related Diseases, 2001-2002, a project funded by the Ministry of Health;
- Exploration of risk sources of microbiological nature in lake Balaton with special emphasis on parasitic protozoa, 2004-5; a Project supported by the Office of Regional Development;
- Surveillance on evidence based waterborne diseases and risk assessment, 2005-7; a project to be carried out in consortium (lead) and funded by the National Development Agency;
- Assessment of Human Health Effects of Bathing Waters (EPIBATHE), 2005-8, an EU-FP 6 project, to be carried out in international consortium.

**Table of targets and target dates for the compliance with the provisions of the Protocol on Water and Health as listed in Art 6 (2)  
Agenda item 6 (a)  
Submitted by the Government of Hungary**

Ref. to Art. 6(2) subpara.	Subject matter	Targets to achieve ( <i>targets to be confirmed by 4 August 2007 in italics</i> )	Practicable target date	Main driving force	Indicator(s) to be used/ <i>to be explored (italicised)</i>	Existing or <i>anticipated</i> reporting systems/ requirements
a	Quality of drinking water supplied	Compliance with the legal requirements of all public supplies with respect to chemical parameters of direct health relevance. Microbiological incompliance kept below 0,1% in supply systems over 5000 and 1% for smaller community systems	2013 <sup>1</sup>	Government Decree No 201/2001 implementing Directive 98/83/EC	WatSan_S2 and WatSan_S3  <i>Percentage of population supplied with DW of adequate quality</i>	ECOEHIS system; Reporting under Directive 98/83/EC to be performed on the basis of CD 92/446/EC questionnaire  <i>(New reporting system underway for the EU DWD)</i>
b	Reduction of outbreaks and incidents of WRD	No outbreak to happen in any year and all apparent water related threats to health to be eliminated from public water supplies <sup>ii</sup>	Continuous	Provisions of the Protocol	WatSan_E1	HfA Database Proposed in ENHIS to monitor CEHAPE Regional Priority Goals
c	Drinking water supply	<i>Improvement of the safety of individual drinking water supplies</i>	2009	Provisions of the Protocol	WatSan_Ex1; Population with access to improved water supply	Joint Eurostat/OECD questionnaire; WHO/UNICEF JMP; HfA Database; MDG indicator

Ref. to Art. 6(2) subpara.	Subject matter	Targets to achieve ( <i>targets to be confirmed by 4 August 2007 in italics</i> )	Practicable target date	Main driving force	Indicator(s) to be used/to be explored ( <i>italicised</i> )	Existing or <i>anticipated</i> reporting systems/ requirements
d	Collective systems of sanitation	Coverage of all settlements in sensitive area over 10000 PE with sewerage and tertiary sewage treatment and Coverage of all settlements over 15000 PE with sewerage and secondary sewage treatment	2008, 31. Dec  2010, 31. Dec	Government Decree No 30/2006 (II.8.) on the compliance with Directive 91/271/EEC	WatSan_Ex2 WatSan_P1; [Population with access to improved sanitation?]	Reporting under Directive 91/271/EEC; Joint Eurostat/ /OECD questionnaire: Population connected to urban wastewater collecting systems EEA Waterbase (EIONET) and Eurostat: population connected to urban waste-water treatment; WHO/UNICEF JMP; HfA Database; MDG indicator
e	Performance of collective systems and other means of water supply and sanitation	<i>Establishing a National Code of Performance of Drinking Water Supply Systems</i>	2008, 31 Dec	Provisions of the Protocol	EEA Waterbase: several performance related indicators for wastewater treatment plants <i>Unaccounted-for water (m<sup>3</sup>/km/d)</i> <i>Pipe breaks (Nr of breaks/km/ /year)</i>	None; <i>Benchmarking data used by suppliers have been proposed by an hoc group under the UNECE Helsinki Convention (see <a href="http://www.unece.org/env/documents/2005/wat/wg.4/mp.wat.wg.4.2005.4.e.pdf">http://www.unece.org/env/documents/2005/wat/wg.4/mp.wat.wg.4.2005.4.e.pdf</a> )</i>

Ref. to Art. 6(2) subpara.	Subject matter	Targets to achieve ( <i>targets to be confirmed by 4 August 2007 in italics</i> )	Practicable target date	Main driving force	Indicator(s) to be used/to be explored ( <i>italicised</i> )	Existing or <i>anticipated</i> reporting systems/ requirements
f	Application of recognised good practices of management of water supply and sanitation	Completion of the drinking water resources diagnostic and security programme. <i>Coverage of 10% in the first and 25% in the second term of the drinking water supplies above 5000 population by comprehensive water safety plans;</i>	2007, 1 Sept  2009, 1 Sept and 2012, 1 Sept, resp.	Government Decree No 123/1997  Provisions of the Protocol	<i>WatSan_A2 &amp; Percentage of drinking water supplies operating a WSP system among all supplying more than 100000 population</i>	None; <i>Proposed in ECOEHIS for elaboration</i>
g	Discharges of untreated wastewater/untreated stormwater overflows	No particular targets set to date ( <i>potential targets to be explored by the competent authorities and stakeholders</i> )	<i>Continuous, up to 2015 and beyond</i>	Government Decree 30/2006, 220/2004 and 221/2004 implementing Directives 91/270/EEC and 2000/60/EC (WFD)	<i>Percentage of sewage waters discharged without at least secondary treatment</i>	Reporting obligation under Directive 91/270/EEC (Urban Waste Water Treatment) Eurostat: Population connected to urban waste water collection systems: without treatment
h	The quality of discharges from WWT installations into waters within the scope of the Protocol	No particular targets set to date ( <i>potential targets to be explored by the competent authorities and stakeholders</i> )	<i>Continuous, up to 2015 and beyond</i>	Government Decree 220/2004 and 221/2004 implementing Directive 2000/60/EC	EEA Waterbase: several related indicators	Several reporting obligations under the Directive 2000/60/EC (Water Framework Directive)

Ref. to Art. 6(2) subpara.	Subject matter	Targets to achieve ( <i>targets to be confirmed by 4 August 2007 in italics</i> )	Practicable target date	Main driving force	Indicator(s) to be used/ <i>to be explored (italicised)</i>	Existing or <i>anticipated</i> reporting systems/ requirements
i	The disposal and reuse of sewage sludge... ; the quality of wastewater used for irrigation purposes	No particular targets set to date ( <i>potential targets to be explored by the competent authorities and stakeholders</i> )	continuous	Government Decree No 50/2001 as amended by Government Decree No 208/2003 implementing 86/278/EEC (amended by Directive 91/692/EEC	EEA Waterbase: several related indicators	Implementation report via the questionnaire specified in Directive 94/741/EC referred to in Directive 91/692/EEC
j	The quality of waters used as sources of drinking water... bathing... aquaculture	Targets covered by schedule under 2000/60/EC (WFD)	continuous	e.g. National EH policy (Govt. Decision 2249/1995.) Govt Decree 6/2002 of the Min. of Waters and the Environm. Implementing Directive 75/440/EEC and 78/659/EEC; Government Decree 273/2001. implementing 76/160/EEC	WatSan_S1; WatSan_S2 and WatSan_S3	ECOEHIS system Several items of reporting obligation under the mentioned EU Directives; reporting as specified in Directive 92/446/EEC <i>Percentage of the population supplied from secure sources;</i>

Ref. to Art. 6(2) subpara.	Subject matter	Targets to achieve ( <i>targets to be confirmed by 4 August 2007 in italics</i> )	Practicable target date	Main driving force	Indicator(s) to be used/to be explored ( <i>italicised</i> )	Existing or <i>anticipated</i> reporting systems/ requirements
k	Management of enclosed waters for bathing	<i>Coverage of all significant aspects of the design, installation and operation control of all public pool and spa facilities by legislation</i>	End 2007	National EH policy: Decree No 37/1996 of Min. Health Volume 2 of the WHO Guidelines on Safe Recreational Water Environment	None <i>Indicator(s) on the basis of failed/passed samples</i> <i>Indicator(s) on management practices/WSP application</i>	None
l	Identification and remediation of contaminated sites adversely affecting waters	No particular targets set to date ( <i>potential targets to be explored by the competent authorities and stakeholders</i> )		Government Decree No 219/2004 Govt. Regulation implementing Directive 2000/60/EC and 80/68/EEC		Reporting as specified in Directive 91/691/EEC and CD 95/337
m	The effectiveness of systems for the management, development protection and use of water resources...	Harmonisation across sectors and comprehensive control should be subject to development.	Continuous	EU acquis communautaire and Protocol Provisions	None	None

Ref. to Art. 6(2) subpara.	Subject matter	Targets to achieve ( <i>targets to be confirmed by 4 August 2007 in italics</i> )	Practicable target date	Main driving force	Indicator(s) to be used/ <i>to be explored (italicised)</i>	Existing or <i>anticipated</i> reporting systems/ requirements
n	The frequency of publication of information on the quality of the drinking water supplied and of other waters relevant to the targets...	Major progress needed on drinking water quality communication	Continuous	Act XC of 2001 on the announcement of the Aarhus Protocol and Government Decree 311/2005 on the access to environmental information implementing Directive 2003/4/EC	<i>Number of publications/media appearances /websites/visits of relevant websites...</i>	To date none; Directives 98/83/EC and 2006/7/EC concern for the information of the public and intend to involve this topic in reporting obligations

- i: Established recently by a working group upon the review of the state of the National Drinking Water Quality Amendment Programme.
- ii: A comprehensive target which can only be achieved by the accomplishment of several targets under other subjects



**Table on the achievements and challenges to the compliance with the provisions of the Protocol on Water and Health  
as listed in Art 6 (2)  
Agenda item 4 (a)  
Table B  
Submitted by the Government of Hungary**

<b>Ref. to Art. 6(2) subpara.</b>	<b>Subject matter</b>	<b>Achievements to date</b>	<b>Legal provisions as driving force</b>	<b>Challenges</b>
a	Quality of drinking water supplied	Supply of 8.051.936 persons (81,54 percent of the total population is supplied) with drinking water of adequate quality with respect to chemical parameters of direct health relevance.	Government Decree No 201/2001 implementing Directive 98/83/EC on the quality of water intended for human consumption	Compliance with the legal requirements of all public supplies with respect to chemical parameters of direct health relevance.
b	Reduction of outbreaks and incidents of WRD	Traditionally well tried surveillance system supposedly revealing all major outbreaks. Ten water-borne outbreaks with 676 cases were revealed between 1996 and 2005.	Provisions of the Protocol	No outbreak to happen in any year and all apparent water related threats to health to be eliminated from public water supplies <sup>ii</sup>
c	Drinking water supply	96,15 percent of the total population is supplied from public drinking water distribution systems	Provisions of the Protocol	Improvement of the safety of individual drinking water supplies

Ref. to Art. 6(2) subpara.	Subject matter	Achievements to date	Legal provisions as driving force	Challenges
d	Collective systems of sanitation	About 65% of the dwellings is connected to the public sewerage system. 66,5% of the total amount of the collected sewage undergo biological treatment.	Government Decree No. 30/2006. (II.8.) implementing Directive 91/271/EEC concerning urban waste-water treatment	Coverage of all settlements in sensitive areas over 10000 PE with sewerage and tertiary sewage treatment and Coverage of all settlements over 15000 PE with sewerage and secondary sewage treatment
e	Performance of collective systems and other means of water supply and sanitation	Surveillance of water vendors and POU drinking water treatment devices through a central authorisation system before commercial distribution. Central authorisation system for materials in contact with drinking water and for water treatment chemicals and practices	Government Decree No. 201/2001 implementing Directive 98/83/EC	Establishing a National Code of Performance of Drinking Water Supply Systems and of Collective Sanitation Systems
f	Application of recognised good practices of management of water supply and sanitation	An ongoing drinking water resources diagnostic and security programme since 1997.	National EH Policy (Government Decision 2249/1995.) Govt. Decree No. 123/1997. on the protection of water sources  Provisions of the Protocol	Guaranteeing high-level security for all major drinking water resources by protection and follow-up measures Coverage of all supplies above 100000 population by comprehensive water safety plans;

Ref. to Art. 6(2) subpara.	Subject matter	Achievements to date	Legal provisions as driving force	Challenges
g	Discharges of untreated wastewater/untreated stormwater overflows	Achievements and development programme in connection with those mentioned under d and h (below)	Government Decree No. 30/2006, 220/2004 and 221/2004 implementing Directives 91/271/EEC and 2000/60/EC (WFD) establishing a framework for Community action in the field of water policy	Compliance with the requirements of WFD
h	The quality of discharges from WWT installations into waters within the scope of the Protocol	Strict schedule on the protection of surface waters and groundwaters under the effect of the Water Framework Directive. Point source discharges are under control by environmental authorisation process and are subject to compliance assessment	Government Decree 220/2004 and 221/2004 implementing Directive 2000/60/EC	Compliance with the requirements of WFD
i	The disposal and reuse of sewage sludge... ; the quality of wastewater used for irrigation purposes	Coverage of the subject by relevant national regulation. Sewage sludge disposal is under control by environmental authorisation process and are subject to compliance assessment	Government Decree No. 50/2001 as amended by Government Decree 208/2003 implementing Directive 86/278/EEC on the protection of the environment, and in particular of the soil, when sewage sludge is used in agriculture (amended by Directive 91/692/EEC	Potential targets to be explored by the competent authorities and stakeholders)

Ref. to Art. 6(2) subpara.	Subject matter	Achievements to date	Legal provisions as driving force	Challenges
j	The quality of waters used as sources of drinking water... bathing... aquaculture	Coverage by relevant regulation	<p>e.g. Decree No. 6/2002 of the Min. of Waters and the Environm. Implementing Directive 75/440/EEC concerning the quality required of surface water intended for the abstraction of drinking water in the Member States</p> <p>and 78/659/EEC on the quality of fresh waters needing protection or improvement in order to support fish life, Government Decree 273/2001. implementing Directive 76/160/EEC concerning the quality of bathing water</p>	Improvement of sources' security in general and eminently those of karstic nature. More specific targets to be explored by the competent authorities and stakeholders
k	Management of enclosed waters for bathing	Legal coverage and strict control by the public health authority for several decades;	National EH policy: Decree No 37/1996 of Min. Health Volume 2 of the WHO Guidelines on Safe Recreational Water Environment	Enhancing protection of public health on the basis of amended legislation and updated set of standards for enclosed recreational waters (eg. whirlpools, thema parks, spa-pools, etc.)
l	Identification and remediation of contaminated sites adversely affecting waters	Legal coverage and progressive development has been a national environmental priority issue	Government Decree 219/2004 implementing Directives 2000/60/EC and 80/68/EEC on the protection of groundwater against pollution caused by certain dangerous substances	Actual targets to be explored by the competent authorities and stakeholders)

Ref. to Art. 6(2) subpara.	Subject matter	Achievements to date	Legal provisions as driving force	Challenges
m	The effectiveness of systems for the management, development protection and use of water resources...		EU acquis communautaire and Protocol Provisions	Harmonisation across sectors and comprehensive control shall be subject to development
n	The frequency of publication of information on the quality of the drinking water supplied and of other waters relevant to the targets...	Bathing water information websites (NIEH, Min. Environment, etc.) Interviews and information to the media on request. Constantly developing communication on environmental subjects Lists of interest on authorised materials, vendors, POU devices on the web; list of mineral waters, etc.	Act XC of 2001 on the announcement of the Aarhus Protocol and  Government Decree 311/2005 on the access to environmental information implementing Directive 2003/4/EC on public access to environmental information and repealing Council Directive 90/313/EEC	Major progress needed on drinking water quality communication

- i: Established recently by a working group upon the review of the state of the National Drinking Water Quality Amendment Programme.
- ii: A comprehensive target which can only be achieved by the accomplishment of several targets under other subjects

**The speech of Head of the Delegation from Republic of Moldova  
at the First Meeting of the Protocol on Water and Health from Water  
Convention of the protection and use of transboundary watercourses and  
international lakes.  
Geneva, 17-19 January 2007**

**Tamara GUVIR**  
*Consultant*  
*Environmental Prevention Pollution Division*  
*The Ministry of Ecology and Natural Resources, Republic of Moldova*

**Ladies and gentlemen,  
Colleagues and friends**

Let me, on behalf of the Government of the Republic of Moldova, The Ministry of Ecology and Natural Resources, to congratulate all countries, who joined to our Protocol, and wish you all the best to implement this instrument, which is very important to our Health and Water Resources development, as in regions, so as abroad EECCA.

We estimate the Meeting of the Parties as a good will expression of our region countries and all over the world for achieving the results in order to provide the population with drinkable water and sewerage, to contribute at population's health and to a sustainable development.

We, the Republic of Moldova came to the First Meeting of the Parties of the Protocol with the following:

**In august 2005, according to the Law № 207-XVI**, signed by the Parliament on **29<sup>th</sup> of July 2005, the Republic of Moldova has ratified the Protocol for Water and Health**, which represents the main mechanism to implement the goals of Water Convention. This document has to contribute to a sustainable usage of water, and as a result, to improve the quality of water ecosystems favorable to human's health and his safety.

We understand that the countries responsibility, after the Protocol ratification has been increased, and in this context I would like to point that, the priority of the state politic is to implement the millennium tasks, and especially, the reduction of 50% of population which don't have the access to drinkable water. As we already mentioned, that by implementing all these goals, we'll succeed to execute also p. 6 of this Protocol.

In order to implement the requirements of this Protocol, in 2001 year it was elaborated the **Program "Environment and Health"**, which stipulates between all other activities, specific health risks for the population concerning drinkable water.

The responsible for this Program is the Ministry of Ecology and Natural Resources.

The tasks, established by the mentioned Program are:

- Water objects protection, used for bathe;
- Providing the health state for the population by means of permanent access to qualitative drinkable water;

- Decrease of illnesses level connected to water.

**In order to solve these problems, The Program has outlined the following tasks:**

- To reinforce the quality control of water surfaces;
- To study the impact of water consumption at human's health;
- To develop the information's system for drinkable water quality control;
- To elaborate the methods for risk's determination for human's health from low quality drinkable water;
- To provide the continuous access to drinkable water by the way of renovation the water supply network.

In 2002 year, then in 2005 year there was elaborated and refreshed the National Program

for water and sewerage systems in human's settlements in Republic of Moldova, till 2015 year. The mentioned Program stipulates concrete activities for construction and reconstruction of water and sewerage systems network that will improve the requirements for water supplying, will reduce the number of population which don't have access to drinkable water, and that will definitely reduce the water illnesses.

The above mentioned programs in our country are partially realized, in particularly because of financial resources shortage, and also because of their shortage in local and state's budgets.

In November 2006, in order to follow the Protocol's requirements, the Ministry of Ecology and Natural Resources has initiated the elaboration of National Strategy for water supply and sewerage in human's settlements in Republic of Moldova.

This strategy includes the following activities, directed to:

- A double reduction of the population which don't have the access to a qualitative drinkable water, and achievement of the Protocol requirements;
- To elaborate the plans for safety drinkable water supplying according to the Europe Directive requirements 98/83 EC;
- A double reduction of water illnesses;
- The transfer to a sewerage cleaning, according to the Europe Directive requirements 91/271/EEC;
- To improve the community access to the information, concerned to a rational usage of drinkable water;
- The harmonization of National Legislation for Europe Community Directives;
- The development and implementation of a complex management for water resources according to the Europe Water Directive;

After the elaboration of above mentioned activities, the strategy will determine its costs and deadlines for a short term period till 2010 year and long term period till 2025 year.

The importance of elaboration this Strategy was dictated, first of all because of an unfavorable condition in the country in water supplying and sewerage field and water illnesses. This kind of situation was connected, first of all with economy crisis in 90's, decentralization of water supplying and sewerage because of financial support shortage in all this period.

**Today in Republic of Moldova:**

1. There are centralized water supplies only in 720 places of settlements, and exactly:
  - Urban areas – (55 places) 100% supplied
  - Rural areas – (665 places) 48% supplied
  
2. There are supplied with drainage only 153 settlements, and exactly:
  - Urban areas – 55 places
  - Rural areas – 98 places
  
3. About 50% from 3, 6 mln of population are connected to water supplies (1,8 mln of people) and exactly:
  - Urban areas – 70%
  - Rural areas – 30%
  
4. The number of population which are connected to sewerage are about 1,1 mln of people, and exactly:
  - Urban areas – 80%
  - Rural areas – 20%

**The quality of drinkable water**, are supervised by the Ministry of Health, by thieving. In this way by microbiological indicators in systems, they are controlling water normality, but by Coliformi Totali and Coliformi Fecali indicators they are controlling water variance.

**There is no carried out drinkable water disinfection.**

Resulting from drainage level of human's settlements from Republic of Moldova, there are unequal and not too good indicators for discharges.

**The main volumes of water flows in Republic of Moldova, are discharged not enough purged. Thus, the most volumes of unrefined water flows (85%) are from human settlements.**

**The main pollutants in sewage are: weighted substances, organic substances, fatness, surface-active substances, and other pollutants.**

In Republic of Moldova are not properly carried out about rain waters sewage. There are missing sewerages and purification of these sewages in mostly urban areas. In this case, because of unequal waste management, rain waters are washing wastes and are throwing down in water resources, thumbing the last one.

Being a part of the Protocol, we understand that there is necessary to establish national target indicators and to determine the order for report presentation of their implementation in Protocol's framework. In this context, we can use partially our operating programs above mentioned, and in the same time, we hope to use the best practices and methods of other countries, and elaborated materials in framework of Working Group for Water and Health.



In this context I would like to thank the Secretariat of Water Convention and Working Group for Water and Health, which have elaborated such an important materials for our First Meeting and wish you all the best.

I also want to thank the host side for good organization of our meeting in Geneva, one of the most beautiful and cultural centre in Europe.

## **Norwegian Statements on the Implementation of the Protocol on Water and Health**

- *First Meeting of the Parties, Geneva, 17-19 January 2007*

### **Legal Requirements:**

- Norway signed the Protocol the 17<sup>th</sup> of June 1999, and ratified it the 6<sup>th</sup> of January 2004.
- The Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters (Aarhus Convention) was implemented in Norway in "Act relating to the right to environmental information and public participation in decision-making processes relating to the environment". According to Section 26 of the Constitution of Norway, this required a Proposition to the Parliament.
- In addition to the Aarhus Convention, the above-mentioned Act implements Article 10 of the Protocol on Water and Health. Further legal amendments were not considered necessary to implement the Protocol.
- However, according to the Constitution, the ratification of the Protocol required a Royal Decree. The decree was forwarded to the King in Council the 12<sup>th</sup> of December 2003. The Protocol was therefore ratified the 6<sup>th</sup> of January 2004.

### **Priorities of Work:**

- From the Norwegian point of view, the Protocol is a useful tool in developing safe water facilities and good sanitation.
- There is a proposal on the agenda concerning the establishment of an Ad Hoc Project Facilitation Mechanism. Norway has offered financial support to a Facilitator assisting the Joint Secretariat in coordinating and preparing the presentation of project proposals to be evaluated by the Ad Hoc Project Facilitation Mechanism. Establishing the Ad Hoc Project Facilitation Mechanism supported by a Facilitator will be an important impetus for the future work plan of the Protocol and will serve as an important tool to coordinate and support the reach out obligations stated in Article 14 of the Protocol. Furthermore, the goal is that the establishment of the Ad Hoc Project Facilitation Mechanism will contribute to that water and health can be given a higher priority on the national and the international agenda.

**Targets and Target Dates according to Article 6(2) of the Protocol on Water and Health**

- *First Meeting of the Parties, Geneva, 17-19 January 2007*

In order to achieve the objectives of this protocol Norway pursues, in the drinking water sector, the follow aims:

1. Increasing the proportion of the national population, which with maximal stability over time receives potable water, by
  - a. Increasing the public surveillance of the supply systems, and thereby
    - i. Decreasing the number of supply systems not in compliance with the national (EEA-based) legislation (Directive 98/83/EC)
    - ii. Identifying regions and/or areas in need of particular attention concerning safeguard measures to provide stable potable water
    - iii. Improving the system of notification and reporting of parameters relating to water quality, in particular when standards or guidelines are exceeded.
  - b. Increasing the safety and performance of the drinking water supply systems, and thereby
    - i. Ensure that surface water as a minimum is disinfected before supply to the public
    - ii. Ensure that water treatment chemicals in use are suitable
    - iii. Ensure that security plans are part of the management system for each plant
2. Implement the new national Regulation (adopted 15.12.2006 and into force from 01.01.2007), which is based on the EU water framework directive (Directive 2000/60/EC) in Norway.
  - a. The territory of Norway is divided in 9 water regions with a possibility of further subdivision, if needed.
  - b. The implementation prescribes close cooperation between different stakeholders to pave the way for a long term positive development of the environment including the water eco systems.
  - c. The first national action plan will be applicable from the end of 2009.

## **GENERAL STATEMENT ON THE IMPLEMENTATION OF THE PROTOCOL ON WATER AND HEALTH – MAIN CHALLENGES AND PRIORITIES**

### **Slovak Republic**

The Slovak Republic has ratified Protocol on Water and Health on 2<sup>nd</sup> October 2001 and in year 2003 has submitted to the Government for approval the National report on providing of obligations resulted for the Slovak Republic from Protocol on Water and Health. This document is updated in two years period and contains relevant information about legislative, institutional aspects, national objectives, priorities, monitoring, measures etc.

For fulfillment of obligations of the Protocol on Water and Health is responsible Ministry of Health of the Slovak Republic in co-operation with Ministry of Environment of the Slovak Republic. Under auspices of these ministries professional institutes fulfill many relevant tasks, e.g. monitoring and assessment of water, water balance, hydrological forecast etc. For drinking water supply and sanitation are responsible municipalities. Development of drinking water supply and sanitation has to be in harmony with document Conception of Water Management Policy of the Slovak Republic until 2015.

### **LEGISLATION**

Slovak Republic has transposed and implements all relevant directives of the European Union in branch of water. At present is fully in harmony with requirements of directive 2000/60/EC.

Plan for implementation of this directive has been approved by the Government and group of national experts from different relevant institutions has been set up to fulfill this tasks.

Based on Conception of Water Management Policy of the Slovak Republic until 2015 Plan of public waterworks and public sewerages development is now elaborated for drinking water supply and waste water treatment until 2010 and 2015 in linkage with directive 91/271/EEC concerning urban waste water treatment

### **NATIONAL TARGETS**

#### **1/ Improvement of situation concerning drinking water supply and sanitation:**

- In year 2005 85.3 % of inhabitants have been supplied by public waterworks. There are differences among different regions in Slovakia, worse situation is in East part of country. In harmony with document Conception of Water Management Policy of the Slovak Republic until 2015 there is a need to increase this number;
- Until 2010 to solve the problem of exceeded values of nitrates in drinking water supplied by public waterworks. Priority is to meet requirements for all parameters of directive 98/83/ES on quality of water intended for human consumption until 2010. It is estimation that in 2005 1.0 % of population (50 000 people) of Slovakia drank water with exceeded value of nitrates.

**2/ Ensure effective measures for preventions of water-related diseases, until 2010** establish the monitoring system of occurrence of infectious and non-infectious water-related diseases in Slovakia

**3/ Reduction of drinking water losses in drinking water pipes**

**4/ Reduction of untreated waste water discharges :**

In year 2005 57,08% inhabitants were connected to public sewerage. Based on negotiation with EU in accession process, until year 2010 all agglomeration with more than 10,000 PE and until 2015 all agglomeration with more than 2,000 PE have to be treated in harmony with directive 91/271/EEC concerning urban waste water treatment. To reach this objectives huge amount of financial sources is required. Ministry of Environment of the Slovak Republic sets up conditions for co-financing from EU funds and from state budget.

During last years priority is to finalize or upgrade waste water treatment plants and sewerages which are under construction.

**5/ Measures :**

- preparation of the Implementation Plan for directive 2000/60/EC
- identification of costs concerning implementation of directive 91/271/EEC concerning urban waste water treatment
- realization of program of health education of individual suppliers
- monitoring of drinking water quality in sources, in distribution system and at the tap
- long-term monitoring of water-related diseases
- evaluation of population exposure to selected contaminants in drinking water
- measures for strengthen public awareness and health education.

**TO UNECE Secretariat  
Geneva  
Switzerland**

**REPORT ON THE STATUS OF THE IMPLEMENTATION OF  
THE PROTOCOL ON WATER AND HEALTH  
IN THE REPUBLIC OF MACEDONIA**

In accordance to the UNECE - WHO **First meeting of the Parties to the Protocol on Water and Health**, Assoc. Prof. Mihail Kochubovski, MD PhD - specialist of hygiene and environmental health Chief of the Department of Waters and Communal Hygiene, from the Republic Institute for Health Protection - Skopje, has been nominated by the Ministry of Health of the Republic of Macedonia. This First meeting of the Parties to the Protocol on Water and Health is tackling the issues about the influence of water pollution to the health and the environment. As a representative of the health sector Assoc. Prof. Kochubovski, have been already included in this process and is responsible for matters concerning the quality of drinking water, natural mineral water and bathing water.

Republic of Macedonia has not signed yet the Protocol on Water and Health, but nevertheless we have worked hardly to implement the targets made during the Third Ministerial Conference on Environment and Health by the Protocol on Water and Health in London, June 1999. In the near future we hope that we will succeed to overcome broader issues that were obstacles for the signing and ratification of the Protocol on Water and Health. During past years Republic of Macedonia has worked on the NPAA (National Programme of Approximation) to the EU's legislation, and of the positive outcomes was status of a Candidate Country in 2005. We strongly believe that we should continue our negotiations on the necessity of becoming a Party to the Protocol, but we need some interministerial negotiation process between the Ministry of Health, Ministry of Environment and Physical Planning, Ministry of Agriculture Forestry and Water Economy and Ministry of Foreign Affairs. Until now, progress has been made but because of still not completed new legislation, poor economic status and some other issues Protocol has not signed yet.

**I. Current situation concerning the access to water supply and sanitation**

1. Water quality and safe sanitation seen as a priority

In the Republic of Macedonia water quality has the highest priority. Concerning safe sanitation it is a top priority regarding the urban area, but for rural area is still not like that, but there are some positive changes in that way.

2. Challenges in relation to water and health

At the national level there are not particular challenges in relation to water and health. But, regarding Sveti Nikole small town of 12,000 inhabitants (in the Central-East part of the country) there is a problem with water quality up to high level of aluminium and trihalomethanes in treated water from Drinking Water Treatment Plant. The high content of aluminium and THM are due to the fact that the Water Treatment Plant is conditioning surface water from the local Dam (built for irrigation in 1970s). This is a small dam with only 2,000,000 m<sup>3</sup> water, and during the past three years the quality of raw water was very bad (high content of aluminium and natural organic matter in raw water). In 2003 drinking water from Water Treatment Plant has been prohibited, and since than until now citizens drink

water from water tanks filled-up with safe water from water supplying system in Stip (neighbouring city). The new Water Treatment Plant has been built but is not finished yet.

3. Proportion of the population with continuous access to:

- an improved water supply
    - safe drinking - 93% (urban\* 99% and rural\*\* 78%) status in 2005
    - with prediction of 95% in 2010
    - unsafe drinking - 7%
    - rural 22%
      - centralized piped water supply 33%<sup>1</sup> (297,417 inhabitants - 14%<sup>2</sup>)
      - bacteriological improper samples - 2.3%
      - local piped water supply 54%<sup>1</sup> (489,213 inhabitants - 23%<sup>2</sup>)
      - bacteriological improper samples - 23%
      - local water supply sources 13%<sup>1</sup> (117,000 inhabitants - 6%<sup>2</sup>)
      - bacteriological improper samples - 30%
- <sup>1</sup> percentage from rural population (903,630 inhabitants)  
<sup>2</sup> percentage from total population (2,103,630 inhabitants)

\* urban population 1,200,000

\*\* rural population 903,630

29% of total populations that live in rural areas have water supplying with drinking water from local piped water supply and local water supply sources. In these settlement has been registered 26% of bacteriological improper samples. By approximation it could be estimated that about 239,303 inhabitants from rural areas (11% from the total population) are drinking potentially unsafe drinking water, because of lack of continuous chlorination which is precondition for safe drinking water. Our Government has a goal to improve the access to safe drinking water by construction of new water supply systems and improvement of disinfection of drinking water.

- improved sanitation
  - urban 90% (in 2005) with prediction of 95% (in 2010)
  - rural 15% (in 2005) with prediction of 30% (in 2010)

4. Children affected by water-related diseases in the Republic of Macedonia

- Bacillary dysentery: in 2005 = 8 cases in children/0-19 age/ compared to 5 cases in adults/20->60 (61.54% in children/0-19 age, compared to 38.46% in adults/20->60).
- Enterocolitis: in 2005 = 4350 cases in children/0-19 age/ compared to 2501 cases in adults/20->60 (63.49% in children/0-19 age, compared to 36.51% in adults/20->60).
- Hepatitis A: in 2005 = 535 cases in children/0-19 age/ compared to 171 cases in adults/20->60 (75.78% in children/0-19 age, compared to 24.22% in adults/20->60).

5. Steps taken to reduce the burden of water-related disease among children

There was a National Action Programme for Improvement of sanitary-hygienic situation in rural areas in the Republic of Macedonia since 1971-1991. The leader of that was the Republic Institute for Health Protection-Skopje, financed by Water Economy Secretariat and Health Insurance Fund. During this Action Programme have been built water supplying networks in 850 villages, as well 25 sewerages.

Since 1991-2006 have been built new water supplying networks in 90 villages.

In 1971 access to safe drinking water in the Republic of Macedonia was 64%, and after 1971-1991 National Action Programme and efforts from 1991-2003 access to safe drinking water in 2003 has increased to 93%.

6. Progress made since 2004, on reducing the number of children suffering from water-related disease

There was a significant progress in reducing the number of children with bacillary dysentery:

- (in 2004 = 14 cases in children/0-6 age/ compared to 2005 = 6 cases in children/0-6 age),
- (in 2004 = 5 cases in children/7-14 age/ compared to 2005 = 1 case in children/7-14 age),

There was decreasing in enterocolitis:

- (in 2004 = 3519 cases in children/0-6 age/ compared to 2005 = 3147 cases in children/0-6 age),
- (in 2004 = 1043 cases in children/7-14 age/ compared to 2005 = 820 cases in children/7-14 age).

But there was increasing of prevalence in hepatitis-A:

- (in 2004 = 36 cases in children/0-6 age/ compared to 2005 = 283 cases in children/0-6 age),
- (in 2004 = 70 cases in children/7-14 age/ compared to 2005 = 181 cases in children/7-14 age).

7. National programme to improve continuity and quality in the supply of water

Now, the implementation of the improvement of the water supplying is responsibility of the Ministry of Environment and Physical Planning, Ministry of Agriculture, Forestry and Water Economy and Ministry of Transport. The role of the Ministry of Health, respectively Republic Institute for Health Protection-Skopje is to monitor the quality of drinking water from new sources, and Regional (10) Institutes for Health Protection have the responsibilities to monitor water quality during the year according to the Preventative Health Programme.

The Government of the Republic of Macedonia represented by the Ministry of Agriculture, Forestry and Water Economy in cooperation with Ministry of Environment and physical Planning, Ministry of Health, Ministry of Local Self-Government and other relevant stakeholders, supported by JBIC and JICA are working on the improvement of water supply systems and irrigation in north-eastern part of Macedonia for seven municipalities - Kratovo, Probistip, Zletovo, Lozovo, Stip, Karbinci and Sveti Nikole, around 100,000 inhabitants. Process has started in 2005, but there were some previous investigations in 2001 as well. Special consideration is put on children' health and drinking water quality.

8. Challenges and constraints

There is a high level of political support, and high level of public awareness, but the finance of construction of new water supplying networks, as well maintenance of already built ones is a big problem.

## **II. Water quality**

9. National microbial failure rate of the water supply system (measured against E coli)

National microbial failure rate of the urban water supply system (1,200,000 population) is 0.8% because of increased number of aerobic mesophilic bacteria. But, for rural areas (489,213 population) this is much higher 23% of samples have been improper because of



microbial contamination, mostly as a result of lack of chlorination of drinking water. Only few percent are because of E. coli.

#### 10. National chemical failure rate of the water supply system

Urban water supply system in the Republic of Macedonia had 5.6% improper samples because of lack of residual chlorine, and higher values of manganese and iron (in Kocani and Stip). In Sveti Nikole since 2003 local water supplying system has been forbidden because of higher levels of aluminium and trihalomethanes in treated drinking water. In rural areas water supply system had 19% improper samples because of physico-chemical analyses mainly due to lack of residual chlorine, and only few up to high level of nitrate (some villages in Strumica), and 20% improper bacteriological samples because of higher content of coliform bacteria.

#### 11. Laboratories' carrying out the water quality assessment internationally accredited

Republic Institute for Health Protection-Skopje and its laboratories have been accredited for ISO 17025 (control of food quality - drinking water is a food according to the Food Safety Law, Official Gazette of the Republic of Macedonia No.54/2002). As well the regional Institutes for Health Protection (10) are conducting the accreditation for ISO 17025 but, for basic methods of food quality investigation.

### III. Surveillance

The surveillance system is aimed at prevention and early alert, as well outbreak detection and control/assessment of contagious diseases. There is already established an ALERT System supported by WHO in 2005.

#### 12. Collection of data:

- Data are collected based on gender and
- age: 0-6, 7-14, 15-19 and 20-60>

#### 13. Standardized death rate in the below-5 population, per 100 000, of diarrhoeal diseases

There was a decreasing trend in standardized death rate under five (1990 = 730/100,000 in 1997 = 390/100,000 and in 2002 = 265/100,000), all causes.

Standardized death rate under five population, per 100,000 of diarrhoeal diseases was 8.53 (last available).

Mortality (total) of under five population per 1,000 live born in 2003 was 11.3.

In 2004 and 2005 there were not registered any case of deaths caused by diarrhoeal diseases in the Republic of Macedonia.

#### 14. Incidence rate and case number of the following priority water-related diseases: cholera, enterohaemorrhagic E. coli, hepatitis A, Shigellosis/bacillary dysentery, typhoid?

Overall:

- Bacillary dysentery: in 2004 = 20 cases in children/0-19 age/ compared to 9 cases in adults/20->60 (68.97% in children/0-19 age, compared to 31.03% in adults/20->60).

- Bacillary dysentery: in 2005 = 8 cases in children/0-19 age/ compared to 5 cases in adults/20->60 (61.54% in children/0-19 age, compared to 38.46% in adults/20->60).

- Enterocolitis: in 2004 = 5010 cases in children/0-19 age/ compared to 2832 cases in adults/20->60 (63.89% in children/0-19 age, compared to 36.11% in adults/20->60).
- Enterocolitis: in 2005 = 4350 cases in children/0-19 age/ compared to 2501 cases in adults/20->60 (63.49% in children/0-19 age, compared to 36.51% in adults/20->60).
- Hepatitis A: in 2004 = 144 cases in children/0-19 age/ compared to 76 cases in adults/20->60 (65.45% in children/0-19 age, compared to 34.55% in adults/20->60).
- Hepatitis A: in 2005 = 535 cases in children/0-19 age/ compared to 171 cases in adults/20->60 (75.78% in children/0-19 age, compared to 24.22% in adults/20->60).
- Cholera and typhoid were not registered.

15. Incidence rate and case number of the following secondary water-related diseases

There are no data related to campylobacteriosis, cryptosporidiosis, giardiasis and diseases caused by norovirus.

16. Steps taken to reduce the endemic disease level, especially targeting children

Have been taken several steps to reduce the endemic diseases level, especially targeting children, mainly by improvement of access to safe drinking water and sanitation, raising public awareness, education and training etc.

17. Steps taken to reduce the number and severity of outbreaks (e.g. alert systems, improved communication systems, etc?)

Since 2006 has been introduced alert system in order to reduce the number and severity of outbreaks, with the help of WHO. The Ministry of Health is working on improved Health Information System.

#### **IV. Education and awareness**

18. Education or awareness programmes among the public, parents, schools, communities or included in professional training, on hygiene

There are topics about public health, hygiene, drinking water quality and management as educational programmes in schools (Green Packet), High Schools and Faculty of Medicine (Chair of Hygiene is teaching Environmental Health, Food Safety and Nutrition) and training programmes (150 hours) about water quality management for unemployed and professionals.

19. Involvement of Local authorities, NGOs, research and academic bodies, the media, private industry, and other sectors in water-related disease prevention activities

Local authorities, NGOs, research and academic bodies (medical), the media, private industry (Food Production by introducing HACCP), and other sectors are actively involved in water-related disease prevention activities.

20. Are there any relevant national websites, publications or research that you would like to mention?

Republic Institute for Health Protection-Skopje has its own web site: [www.rzzz.org.mk](http://www.rzzz.org.mk) and there you can find important information about prevention of water-related diseases, as well drinking water quality etc. Most of the data are in Macedonian, but there are some important topics in English. There is a plan of improving the web site content and proactivity.

## V. Institutional set-up

### 21. Departments responsible for drinking water supply

Public Enterprises of Communal Hygiene in all cities are responsible for safe drinking water supply, as well for some villages. They are under responsibility of the Ministry of Transport.

### 22. Department responsible for drinking-water quality

Republic Institute for Health Protection-Skopje and 10 Regional Institutes for Health Protection (in Skopje, Kumanovo, Kocani, Stip, Veles, Strumica, Bitola, Ohrid, Prilep and Tetovo) are responsible for monitoring of drinking-water quality. They report to the Food Directorate, part of the Ministry of Health. Food Directorate is established and started to work in 2005.

### 23. Interdepartmental coordination body

Minister of Health has established a multidisciplinary coordination body - Commission for drinking, bottled and natural mineral water safety, and has nominated 6 experts (specialists of hygiene, biologist, chemist, technologist and lawyer). Scope of work of this Commission is everything connected to solve any problem of high priority in drinking water quality at the national level.

## VI. Survey of drinking water quality in the Republic of Macedonia

### 24. Drinking water quality in urban areas for period 2001-2005

<i>Period of monitoring</i>	<i>Physical-chemical %</i>	<i>Bacteriological %</i>	<i>Number of samples</i>
2001	4.2	1.3	11534
2002	5.3	1.5	10681
2003	7.5	1	11932
2004	5.6	1	12136
2005	5.6	0.8	11946

### 25. Drinking water quality in rural areas for period 2001-2005

<i>Period of monitoring</i>	<i>Centralized piped water supply</i>		<i>Local piped water supply</i>		<i>Local water supply sources</i>		<i>Total</i>		
	<i>p-h %</i>	<i>bact. %</i>	<i>p-h %</i>	<i>bact. %</i>	<i>p-h %</i>	<i>bact. %</i>	<i>p-h %</i>	<i>bact. %</i>	<i>No. of samples</i>
2001	9.2	2.1	12	28	25	39	<b>15.4</b>	<b>23</b>	7428
2002	6.9	3.5	11.8	29	16.9	49	<b>11.8</b>	<b>27.1</b>	7238
2003	11	4.5	12.4	24.5	26.5	42	<b>15</b>	<b>24</b>	7953
2004	10	8	18	32	25	42	<b>17.5</b>	<b>27</b>	8594
2005	5.8	2.3	19.6	23	29	30	<b>19</b>	<b>20</b>	9028

### 26. Water quality of natural lakes for period 2001-2005

<i>Period</i>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>
	class	class	class	class	class

analyses	I-II	III-IV	I-II	III-IV	I-II	III-IV	I-II	III-IV	I-II	III-IV
physical-chemical	78%	22%	75%	25%	93.8%	6.2%	85.4%	14.6%	93.8%	6.2%
bakteriological	98%	2%	97%	3%	96.4%	3.6%	88%	12%	96.4%	3.6%
Number of samples	216		218		195		178		195	

Republic of Macedonia has three natural lakes: Ohrid, Prespa and Dojran. They are transboundary international lakes. Ohrid Lake usually belongs to the first class, and Prespa Lake to second class. Dojran Lake because of natural enrichment concerning physical-chemical analyses belongs to III-IV class (iron, manganese, iodine etc.). The monitoring of bathing water quality is made by the Republic Institute for Health Protection and three regional Institutes for Health Protection.

In the case of improper results the above mentioned institutes inform the State Sanitary and Health Inspectorate, part of the Ministry of Health. State Sanitary and Health Inspectorate prohibit the beaches with potentially polluted surface water and inform the public through public media.

## **VII. Approximation status of drinking water quality, natural mineral water quality and bathing water quality in the Republic of Macedonia**

### **27. Approximation in drinking water quality**

Republic of Macedonia as an accession country to European Union in 2004 had a goal to harmonize its national legislation related to the environmental protection. One of the achieved goals was a preparation of a new Book of Rules for Drinking Water Safety. The process has started with the translation of the Directive 2000/60/EC of the European Parliament and of the Council establishing a framework for Community action in the field of water policy, and Council Directive 98/83/EC on the quality of water intended for human consumption. During 2002-2003 has been done a lot of work on preparation of the new Law on Waters. There were three drafts prepared by the working group consisted by the nominated experts from the Ministry of Agriculture, Forestry and Water Economy, Ministry of Environment and Physical Planning and Ministry of Health, and in December 2003 has been finished a Final version of the new Law on Waters. This process has been supported by the European Union and managed by the European Agency for Reconstruction. In autumn 2003 the Republic Institute for Health Protection-Skopje has started a preparation of the new Book of Rules for Drinking Water Safety, according to the nomination done by the Ministry of Health. The first Draft has been sent by the Ministry of Health to the other respective Ministries, Institutions and Associations (of the Specialist of Hygiene and Environmental Health, Microbiologists, Chemists, etc.) in order to have an expert opinion and remarks. After collecting of all replies the First Draft has been revised and there were included all things that were appropriate in order to have a Book of Rules that will be applicable and recognized in practice by all stakeholders in the field of drinking water management. The Final Version has been sent to the Ministry of Health on 26 of December 2003. The new Book of Rules not applies to natural mineral waters in accordance with Council Directive 80/777/EEC, and waters which are medicinal products within the meaning of Council Directive 65/65/EEC. WHO recommendations (Guidelines for drinking water quality, 2nd Edition; Copenhagen; 1996) were also included in the new Book or rule, as well the local circumstances and priorities. This was only one step in the Process of the approximation and harmonization of the national

legislation with the European Union's one, in order to have sustainable development in the field of protection of water sources, treatment and disinfection of water, as well the monitoring of the drinking water quality in order to protect human health. Public information and communication is a part of this sub-law, in accordance with the EU Directive 98/83/EC and Convention on access to information, public participation in decision making and access to justice for questions related to the environment, set-up at Fourth Ministerial Conference "Environment for Europe" in Aarhus, 1998. The new Book of Rules for Drinking Water Safety was proscribed in Official Gazette of the Republic of Macedonia No.57/2004 and is a powerful tool for protection of human health. But because of publishing a new WHO recommendations (Guidelines for drinking water quality, 3<sup>rd</sup> Edition; Geneva 2004) there is a need for amending this Book of rule and it is planned for 2007.

#### 28. Approximation in natural mineral water quality

Republic of Macedonia as a Candidate Country to European Union has a goal to harmonize its national legislation related to the environmental protection. One of the achieved goals was a preparation of a new Book of Rules for Natural Mineral Water Safety. The process has started with the translation of the Council Directive 80/777/EEC, 96/70/EEC and 2003/40/EC of the European Parliament and of the Council for natural mineral water quality intended for human consumption. The new Book of Rules was proscribed according to the article 8, paragraph 1 of the Law for food safety and products and materials that are coming into contact with food ("Official Gazette of the Republic of Macedonia" No.54/2002). In spring 2004 the Republic Institute for Health Protection-Skopje has started a preparation of the new Book of Rules, according to the nomination done by the Ministry of Health. The first Draft has been sent to the members of the Committee for Natural Mineral Water, as well to different Institutions and Associations (of the Specialist of Hygiene and Environmental Health, Microbiologists, Chemists, etc.) in order to have an expert opinion and remarks. After collecting of all replies the First Draft has been revised and there were included all things that were appropriate in order to have a Book of Rules that will be applicable and recognized in practice by all stakeholders in the field of natural mineral water management. The new Book of Rules applies to natural mineral waters in accordance with Council Directive 80/777/EEC, 96/70/EEC and 2003/40/EC, but do not applies to waters which are medicinal products within the meaning of Council Directive 65/65/EEC. WHO Guidelines for drinking water quality, 2nd Edition; Copenhagen; 1996, and 3<sup>rd</sup> Edition; Geneva 2004, Codex Alimentarius Commission - Codex standards for natural mineral waters, Vol.XIII; Second Edition, Vol.XIII/1994, Methods of analysis and sampling; Codex standards for natural mineral waters, Vol.XII/1982 and Revision 1-11/1997; and Vol.XII/2001; General standard for bottled/package drinking waters (others than natural mineral waters, 227-2001; as well the local circumstances and priorities have been taken into consideration. This was only one step in the Process of the approximation and harmonization of the national legislation with the European Union's one, in order to have sustainable development in the field of protection of sources and treatment of natural mineral water, as well the monitoring, in order to protect human health. Public information and communication is a part of this sub-law, in accordance with the EU Directives 96/70/EEC, 2003/40/EEC and Convention on access to information, public participation in decision making and access to justice for questions related to the environment, Aarhus, 1998. The new Book of Rules for especial requirements for natural mineral water safety was proscribed in "Official Gazette of the Republic of Macedonia" No.32/2006 and is a powerful tool for protection of consumers' rights and human health.

#### 29. Approximation in bathing water quality

For period 2007-2008 is planned in NPAA to be proscribed a new Book of Rule for Bathing Water Quality harmonized with the Directive 2006/7 of the European Parliament and of the

Council concerning the management of bathing water quality and WHO (Guidelines for safe recreational water environments. Volume 1, Coastal and Fresh Waters; Geneva: 2003).

Ministry of Health is responsible for preparation and proscribing of this new Book of Rule in cooperation with the Ministry of Environment and Physical Planning.

The scope of this new Book of Rule should be:

- monitoring and classification of bathing water quality;
- management with the bathing water quality;
- public information concerning the bathing water quality.

The aim of this new Book of Rule will be to protect, and promote environmental quality and to protect human health by complementing/upgrading the Directive 2000/60/EC.

This new Book of Rule shall cover all elements of surface water where the responsible authority expects huge number of people for bathing and where is not established permanent prohibition for bathing, or issued permanent advice against bathing.

Sincerely yours,

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