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ECONOMIC COMMISSION FOR EUROPE**

**WORLD HEALTH ORGANIZATION
REGIONAL OFFICE FOR EUROPE**

**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**

Task Force on Extreme Weather Events

First Meeting
Rome, Italy, 21-22 April 2008

REPORT OF THE MEETING

The Task Force on Extreme Weather events was established by the first Meeting of the Parties to the Protocol on Water and Health (Geneva, 17 – 19 January 2007). It has a mandate to share experience on good practice in the safe operation of water and sanitation facilities in urban and rural areas under critical situations induced by climate change, and to draft a strategy paper to provide guidance on the development of an adaptation strategy for water supply and sanitation. The meeting discussed cooperation with the Task Force on Water and Climate established under the 1992 Convention on the Protection and Use of Transboundary Watercourses and International Lakes, shared country experiences on changing environmental health determinants during extreme weather events specifically those related to water supply and sanitation, discussed the outline of the proposed *Guidelines on adaptation of water supply and sanitation systems to climate change*, reviewed best practice experiences at the country level, and explored its possible contribution to the fifth Ministerial Conference on Environment and Health.

CONTENTS

Opening of the meeting	1
Adoption of the Agenda.....	1
Mandate and Objectives of the Task Force	1
Cooperation with the Protocol’s Task Force on Surveillance and the Task Force on Water and Climate established under the Water Convention	2
Environmental health determinants during extreme weather events	4
Health-related aspects of water supply and sanitation in extreme weather events and adaptation to climate change: experience from countries.....	6
Guidelines on adaptation of water supply and sanitation systems to climate change.....	10
Review of best practice / sharing of experience.....	11
Adaptation strategy paper to reduce current vulnerability of climate change and integrate health risk reduction in long-term adaptation planning.....	11
Contribution to the fifth Ministerial Conference on Environment and Health.....	12
Date and time of next meeting.....	13
Closure	13
Annex 1 List of Participants.....	14

Opening of the meeting

The first meeting of the Task Force on Extreme Weather Events was organised under the auspices of the Protocol on Water and Health to the 1992 Convention on the Protection and Use of Transboundary Watercourses and International Lakes (the Protocol). The meeting was hosted by the Ministry of Environment, Land and Sea of Italy and held in the Ministry's premises, in Rome from 21 – 22 April 2008. The meeting was attended by representatives from twelve countries (Armenia, Azerbaijan, Bulgaria, Finland, Georgia, Hungary, Italy, Kazakhstan, Kyrgyzstan, Lithuania, Moldova, Slovakia, the Netherlands, Turkey, Ukraine). A representative of the United Kingdom intended to participate but was prevented from attending the meeting. Dr. Luciana Sinisi, Unit Head of the Department for Environmental Determinants of Health APAT Italy and Chair of the Task Force on Extreme Weather Events opened the meeting on 21 April 2008. The meeting was serviced by the Joint UNECE - WHO/EURO Secretariat for the Protocol on Water and Health.

Adoption of the Agenda

The Agenda was adopted as proposed, with some minor time changes to accommodate the late arrival of some key participants.

Mandate and Objectives of the Task Force

The Chairperson recalled the mandate, objectives and work to be undertaken by the Task Force, as agreed by the Parties at their first meeting.

The Task Force on Extreme Weather Events was established by the first Meeting of the Parties to the Protocol on Water and Health (Geneva, 17–19 January 2007) with the following mandate:

(a) Share experience on, and identify, relevant local/national good practices regarding the safe operation of water supply and sanitation facilities in urban and rural areas which are subject to the impact of short-term critical situations; and prepare guidelines to respond to short-term critical situations; and

(b) Draft a strategy paper on how to cope with the potential impact of climate change, and on adaptation and mitigation programmes for water supply and sanitation.

Further to this decision, the joint meeting of the Bureaux of the Water Convention and the Protocol on Water and Health held on 13 September 2007 called for close cooperation and integration of the results of the activities carried out by this Task Force and the Task Force on Water and Climate established under the Water Convention.

The Task Force on Water and Climate discussed the opportunity of combining these two tasks and producing one single document for consideration and possible adoption by the Meeting of the Parties. The combined document would cover both long term and critical situation aspects. It would also allow a more efficient cooperation with the other Task Forces established under the Protocol and the Water Convention, as recommended by both Bureaux.

Cooperation with the Protocol's Task Force on Surveillance and the Task Force on Water and Climate established under the Water Convention

General cooperation strategy

Ms Francesca Bernardini, UNECE, reviewed current activities under the Protocol on Water and Health and the Convention on the Protection and Use of Transboundary Watercourses and International Lakes. She recalled the mandate of the Task Force on Water and Climate, to “prepare a guidance on ‘Water and Climate Change Adaptation’ for adoption by the fifth Meeting of the Parties to the 1992 Convention on the Protection and Use of Transboundary Watercourses and International Lakes. The guidance document should:

- Provide a step-by-step framework for assessing climate change impacts, developing adaptation strategies and identifying adaptation measures
- Provide special emphasis on the specificities and requirements of transboundary basins
- Include health issues
- And issues related to water-dependent sectors

The Task Force on Extreme Weather Events established under the Protocol shall:

- Share experience on good practice regarding the safe operation of water supply and sanitation facilities subject to the impact of short-term critical situations; and prepare guidelines to respond to such short-term critical situations, and
- Draft a strategy paper on how to cope with the potential impact of climate change, and on adaptation and mitigation programmes for water and sanitation

Recalling a decision by the Joint Bureaus, she said that both Task Forces were enjoined to avoid duplication, and ensure integration of results.

Task Force on Water and Climate

Mr J Timmerman, Vice-Chair of the Task Force on Water and Climate informed on the mandate of the Task Force on Water and Climate and on the work done by this group. He reported on the preparation of a “*Guidance on Water and Adaptation to Climate Change*”, targeted to support cooperation and decision-making in transboundary basins. The document will be submitted for adoption at the Meeting of the Parties to the Water Convention at its fifth session (October 2009).

Information is currently being collected on water resources management and the health-related aspects by means of a questionnaire covering: the assessment of future impacts, adaptation measures, adaptation initiatives, and climate information. Results of the questionnaire are expected by July 2008.

Contributions related to health aspects are needed to strengthen the different sections of the draft guidance document. Information is particularly needed on evidence of climate-sensitive environmental health determinants and health outcomes. Specific case studies are being sought on coping and adapting measures, such as examples of public health action-related to public awareness and public information; environment and health early warning system, inputs related to water quality prevention including also bathing waters, etc

A workshop on “*Water and Adaptation to Climate Change*” (Amsterdam, the Netherlands, 1–2 July 2008) will: identify adaptive strategies towards effects of climate change on water management, identify information needs in support of such strategies, and discussion of the draft guidance document. Workshop participants are government officials dealing with health, water, and climate policies as well as scientists from meteorological, hydrological and public health services including those dealing with prediction and forecasting. The Workshop will address the following topics:

- Session 1 What do we know, where do we stand?
- Session 2 Laying the ground, policy legislation and institutions,
- Session 3 Reducing uncertainty: forecasting, modelling and vulnerability,
- Session 4 Making it happen,
- Session 5 Where should the money come from and
- Session 6 Final discussion on the guidance on water and adaptation to climate change.

The Task Force agreed that both activities developing of the *Guidance* and organisation of the workshop will be carried out under the auspices of the Water Convention and of the Protocol on Water and Health, and, consequently under their two respective Task Forces.

Task Force on Surveillance of Water-related Diseases

Mr E Funari, Chair of the Task Force on Surveillance, recalled its establishment at the 1st Meeting of the Parties to the Protocol on Water and Health (MOP-PWH). He explained that the Task Force works within a cooperation framework including the WHO Centralized Information System for Infectious Diseases (CISID), the WHO Health for all Database (HfA), the European Centre for Disease Surveillance and Control (ECDC), the WHO Epidemic and Pandemic Alert and Response System, the WHO Collaborating Centre for Health-promoting Water Management and Risk Communication and others.

The work to be undertaken is the preparation of “*Guidelines on surveillance, outbreak detection and early warning, contingency plans and response capacity*”, and the provision, upon request, of advice and guidance to Parties and non-Parties in the area of water-related disease surveillance. A first meeting of the Task Force has taken place at the Italian National Institute of Health, Rome, Italy, 24 – 25 September 2007 with participation from Finland, Germany, Hungary, Italy, Kyrgyzstan, Norway, Romania and Slovakia. Activities to date include the development and dissemination of an (electronic) questionnaire, and the development of a first draft of a guidance document (both technical and policy). Planned activities include the

implementation of an advisory mission to Tajikistan, and the holding of scientific workshops. The second meeting of the Task Force is expected to take place in September 2008 in Rome, Italy.

Environmental health determinants during extreme weather events

A general presentation was made on environmental determinants of emerging and re-emerging health risks in extreme weathers events.

Ms F Matthies, WHO, summarised the findings of the Intergovernmental Panel on Climate Change (IPCC) on the effects of extreme weather events, according to which general negative effects will outweigh positive impacts from climate change:

- Percentage of areas under high water stress may increase from 19% to 35% by 2070. The areas most prone for water scarcity are the Mediterranean basin; in some parts of central and Eastern Europe, summer flows may be reduced by up to 80%.
- Winter floods are likely to increase in maritime regions, snowmelt-related floods in central and Eastern Europe will increase as will flash floods throughout Europe.
- Coastal flooding is likely to physically threaten 2.5 million people annually in Europe.
- Accelerated glacier melt is likely to result in a decrease in river flows as glaciers disappear.

Speaker stressed the need to recognize that health effects can be direct or indirect:

- ***Flooding*** can have direct effects including drowning and physical injuries, increase in the outbreak of vector borne diseases, diarrhoeal events, mental health problems, loss of property, skin and eye infections. Other important outcomes include damage to infrastructure systems, health systems, damage to crops, and disruption of livelihoods.
- ***Droughts*** can lead to resurgence of hygiene-related diseases such as eye and skin infections, intestinal parasites, and may expose reduce the resistance of the population to vector-borne diseases.
- ***Changes in aquatic ecology*** may reduce the self-purification of rivers due to increased pollution load and reduced self-purification capacity, more stable vertical stratification of lakes affecting oxygen, nutrient recycling and plankton, increased risk of eutrophication and algal blooms
- ***Indirect effects*** include for example changes in the quality of the water use for aquaculture and consequently impact on quality of marine foodstuffs.

Countries could therefore benefit by developing health action plans to assess the current preparedness situation for both extreme events and more gradual climate change, and in particular by carrying out national risk assessments to measure what needs to be strengthened and which new measures need to be taken.

National Communications have been submitted by many countries to the UN Secretariat under the provisions of the United Nations Framework Convention on Climate Change (UNFCCC), but in several cases the health chapters still need to be further developed or strengthened.

At the invitation of the Chair several countries commented or shared their national experiences.

An important and growing number of countries have published national impact statements (**Finland, Germany, Portugal, and Italy**).

Azerbaijan reported that an increase of mean annual temperature by 4.7°C had been observed. A drought had occurred in 2000, while in 2006; major floods had occurred in the basin of the Kura River, with major destruction of 50 villages and major destruction of the sanitation infrastructure. Sanitation and health systems had been assessed; diarrhoeal outbreaks had been prevented due to the use of mobile water supply units, anti-epidemic disinfection of the water network and more intense monitoring of the drinking-water supply system. Closer cooperation between the different national services tasked with disaster preparedness and reduction was being called for.

Italy reported clear evidence of health outcomes of climate change particularly the first outbreak in Europe of vector-borne Chikungunya disease in Europe with 334 suspected and 204 laboratory-confirmed cases¹.

Finland has carried out a broad study of climate change impact. In 2002-2003 an unusual drought had passed through the country, while 2004 turned out exceptionally wet. Neither extreme event caused noticeable health impacts. The Government issued inter-ministerial guidance to water suppliers and managers of sanitation networks; neither extreme event caused noticeable health impacts.

Hungary has a Health Action Plan under preparation, and has a health wave advisory in place.

Georgia reported on the current efforts to upgrade its water supply system and sewerage areas (120 million USD over four years).

Kyrgyzstan referred to an *ad hoc* meeting held in 2000 to discuss a national scheme to deal with climate forecast but which had remained without follow-up. It recognized water scarcity, glacier meltdown, and very cold weather spells as important national concerns and identified a need for joint cooperation in the area of time series analysis and model development .

Lithuania stated that no specific health impact assessment had taken place, although a national climate change strategies had been developed.

Moldova recalled the link between climate change emergencies and the obligations of the IHR (2005), and informed on work done to comply with the provisions of the IHR (2005). The country expects to have a permanent information system in two year's time. Intersectoral cooperation has been developed between the Ministry of Health and HYDROMET. Water scarcity in rural areas is seen as the main emerging problem.

Slovakia was preparing a law on health impact assessment statements, and is implementing environmental impact assessments. The Ministry of Health and the Ministry of the Environment cooperate in the Anti-Flood Committee for the preparation of vaccination campaigns, the raising of public awareness and the provision of guidance on well disinfection.

¹ For a review of the outbreak, see Angeli R et al *Chikungunya in north-eastern Italy: a summing up of the outbreak* Eurosurveillance 20(47) of 22 November 2007 URL <http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=3313> accessed 11 May 2008.

Turkey considered water shortages to be the main concern, particularly with regard to their impact on agriculture. The cities of Ankara and Istanbul were being studied to assess and develop coping measures for water scarcity; leakage control actions are being implemented in Istanbul. Restructuring of the control laboratories will centralise water quality monitoring and assessments. The country at present uses mostly surface water for drinking-water production but is exploring groundwater reserves as alternative sources of water.

Ukraine has developed a national plan for the implementation of the Kyoto Protocol and will study the impact on health.

Mr **E Funari** (Italy) pointed out that increased erosion will impact the quality of coastal waters, including those used for recreation and shellfish cultivation. He stated that the situation was sufficiently worrisome that in certain areas pregnant women were advised to abstain from eating fish due to the elevated concentration of persistent organic pollutants (POPs).

Mr **R Aertgeerts**, WHO Regional Office for Europe, recalled that both health systems and water and sanitation systems can act as a buffer against the impact of climate change. He introduced the work done by WHO on the assessment and strengthening of national health systems, and identified the challenges which such health systems would face under extreme weather conditions and under more gradual climate change. Recalling that the term health systems has both a preventive and a curative component, he also reviewed the challenges for the water and sanitation systems, drawing the attention to the need of a holistic approach in water supply, sewerage and drainage, and ultimate wastewater treatment and disposal.

Health-related aspects of water supply and sanitation in extreme weather events and adaptation to climate change: experience from countries

Mr R Aertgeerts, WHO Regional Office for Europe, introduced the topic by recalling the Water Safety Plan (WSP) approach advocated in the WHO Guidelines for Drinking-water Quality² and suggesting that there is a need for more detailed guidance on how the risk assessment / risk management approach could be adapted to include climate change, and in particular extreme events.

Participants were invited to share experience and case studies on such different aspects of climate change adaptation including:

- Priority setting of climate change adaptation in environmental policy
- Geographic priority setting (urban versus rural)
- Vulnerability assessment
- Development of coping and adaptation measures
- Preparedness programmes
- Communication and information
- Design and development of ad hoc surveillance programmes

Special emphasis was given to safe water supply and sanitation in the event of floods and droughts. Experience sharing could support the development of environmental health integrated adaptation measures elements for public health, environmental and water professional decision makers.

² WHO(2004) Guidelines for Drinking-Water Quality 3rd edition WHO Geneva Chapter 4.

Ms G Ceci, Italy, presented the work of the CMCC project (Euro-Mediterranean Centre for Climate Changes) in the area of numeric models for monitoring and forecasting. The goal of the programme is to develop high resolution numerical simulations to forecast extreme meteorological events and their effects on the ground and coastal zone (floods and landslides). Activities include the numerical optimization and physical modeling, optimization of pre-existing numerical codes, and the coupling of meteorological and hydrological models. The work is performed by the Italian Aerospace Research Centre (CIRA). The results aim to warn and forecast hydrogeological events induced by heavy rains, particularly to predict flood events ahead of the rainfall, and this with a sufficient degree of reliability to use it as a basis for alarm systems.

Several countries then shared their national experience with regard to water supply and sanitation under extreme weather conditions.

Armenia identified floods as the main risk, with two major floods occurring in 1997 and 2004 respectively. Rural areas, especially those located along lakes, are particularly vulnerable. Droughts were considered a comparatively minor risk.

Azerbaijan experiences climate variation in the past 10 years including extreme temperature variations, storms and floods. A major drought occurred in 2000, while in 2006 a number of rivers flooded, affecting 50 villages particularly through the destruction of the sewer systems. Anti-epidemic measures were taken by the national health system, and diarrhoeal disease outbreaks were prevented by provision of water from mobile vehicles. Nevertheless, diseases such as typhoid and hepatitis increased in 2006. In general floods are seen as the more immediate threat particularly in mountainous areas. Priority areas for action are strengthening of forecasting and instantaneous monitoring capacity, which in turn will require laboratory strengthening.

Bulgaria has experienced several flood events, affecting human settlements throughout the country.

The preparation of the “*Guidelines on adaptation of water supply and sanitation systems to climate change*” was seen as the most important outcome of the work of the Task Force.

Finland had carried out a broad study on all impacts of climate change, and had made the outcome of the study publicly available. The country had experienced exceptional drought in 2002-2003, while 2004 had been very wet. Ensuring water safety is a recognized priority during both droughts and floods. Guidance documents on adaptation had been prepared in the national language by an inter-ministerial committee, and had been made available to water utilities. No big health impacts caused by extreme weather events.

Georgia suffers operational problems in its urban water distribution system because of pressure losses due to limited pumping capacity and comparatively high leak losses. There are at present no preventive measures in place to deal with the health outcomes of extreme weather events, due to weaknesses in the national health systems. The country is currently assessing the vulnerability of rural areas, and is paying attention to possible effects in mountains and coastal areas, both of which are important for the tourism industry. The country is developing a sewage management system however; treatment equipment is not yet available. The following topics were suggested for inclusion in the “*Guidelines on adaptation of water supply and sanitation systems to climate change*”:

- environmental prevention
- human resources for monitoring and surveillance
- infrastructure maintenance

Hungary has a climate change strategy in place, and has set up a health care alert system set up. A recent drinking-water contamination event stressed the need to have water treatment technologies in place that can take care of emergency situations caused by climatic events, and to strengthen protection of vulnerable water resources such as karst areas.

Italy experiences more flooding events in the north of the countries, and more drought periods in the south and on the two main islands. Outbreak of new diseases such as the Chikungunya infection creates new challenges for the public health system, as does the occurrence of invading cyanobacteria and algal blooms.

Kazakhstan is a mountainous country with mainly transboundary aquatic resources and specific climate-related challenges. Storm events, including snowstorms may cause landslides and flooding with severe impacts on livelihood. Extended cold spells have been experiences, particularly in the winter of 2007 – 2008. The country has experienced an increased frequency of extreme events and is developing an emergency response capacity.

Kyrgyzstan faces different challenges depending on the geographic region. The main problem areas are mountain regions where there is increased risk of avalanches and landslides during the wet season, but where drought may become a problem in the valleys. In the capital Bishkek there is significant risk for flash floods. An emergency plan for management of avalanches and landslides in mountainous areas is being developed with the assistance of the World Bank.

Lithuania has developed a national strategy for climate change and will carry out a health impact assessment. Floods occur every spring near the Baltic Sea because of melting snow, affecting especially the rural population affected. A few years ago, a drought occurred in rural areas.

Moldova has experienced unusual heat waves in the past few years with temperatures exceeding 35°C. In 2006 temperature exceeded 35°C for ten days, but in 2007 more than 15 days showed a temperature exceeding 35°C. Precipitation decreased from 600mm per year to less than 500mm in northern parts and 300mm in southern parts. About 80% of the shallow wells in rural areas were affected. The depth of the water level in the wells decreased by about 3 times, and 15% of wells dried up completely. This was the first time the rural population suffered from water scarcity and poor quality drinking water. As for urban areas, water demand in the capital Chisinau shot up from 200,000 m³/d to 300,000 m³/d. Recreational activities in surface waters were forbidden due to high microbial pollution. Two outbreaks of dysentery were recorded caused by deterioration of water stored during the drought period in cement storage tanks.

The country has developed an action plan for the implementation of the IHR (2005), including the strengthening of the surveillance systems. Further strengthening of the health system is foreseen, with daily data collection on relevant parameters such as mortality rates, hospital admissions, precipitation, temperature etc.

A national action plan on emergency preparedness needs to be developed for the benefit of local authorities and the public.

The Netherlands experience a higher frequency of flooding events, but also experience water scarcity during summer time

Slovakia is preparing public information material on how to cope with heat waves and water scarcity for use during the summer of 2008 through a close cooperation between the Ministry of the Environment and the Institute for Public Health. No specific health impact assessment has been carried out to date, but flood preparedness measures are in place. National legislation including regulatory environment is being reviewed and new legal instruments under preparation.

Turkey faces water supply challenges in its big cities, and is developing alternative water supplies as well as addressing leakage in the existing systems. The water supply sector is being reorganized and centralised. Decreasing rainfall is impacting agriculture, forcing changes in irrigation systems and increased vigilance against foodborne diseases.

Besides water scarcity, the country also experiences heavy rains and floods in mountainous areas, landslides in the coastal areas, and flooding. Contamination of the drinking-water supply is a concern in such cases. A new Ministry of the Environment is leading a multisectoral programme on climate change and flooding.

Ukraine experiences drought in the eastern part of the country and (flash) floods in the mountainous western part of the country. The coastal area of the Black Sea and the Sea of Azov are particularly vulnerable. Increased contamination of the coastal environment affects both the tourism and the fishery industry. No health impact assessment has been carried out to date, although separate government agencies have carried out independent studies.

Summarizing the session, the Chair concluded that there was agreement on the need to:

- Extreme weather events, both flooding and droughts, are now a concern shared by all countries in the European region and ensuring the continued operation of drinking-water and sewerage systems is a common concern shared by all.
- Specific risks exist in specific geographic sub-regions and ought to be recognized as such:
 - Mountainous areas have specific problems with snowmelts and landslides
 - Coastal areas are vulnerable both from rising sea levels as from penetration of saltwater into coastal aquifers, as from increased contamination of recreational waters and shellfish producing areas. Due to this triple vulnerability and their high population densities they deserve special attention.
 - Rural areas and their often more basic utility systems often present a particularly high vulnerability
- National preparedness and response plans need to be developed, preferably on a multi-sectoral basis, to assess the vulnerability of water supply and sewerage systems from extreme weather events, and to ensure their continued operation when such events occur or, in case of disruption, to ensure the quickest possible return to full functionality
- Recognize that many determinants are outside the control of the public health system, so that all stakeholders need to be made aware of the role and responsibility of the public health system in the case of extreme events, and of the possibility of mutually beneficial collaboration.

Guidelines on adaptation of water supply and sanitation systems to climate change

Mr Roger Aertgeerts, WHO Regional Office for Europe, presented a possible outline of the draft the “*Guidelines on adaptation of water supply and sanitation systems to climate change*” along the following lines:

- vulnerability of the resource
- vulnerability of the infrastructure during a flood
- vulnerability of infrastructure after a flooding event
- vulnerability of the infrastructure during a drought
- vulnerability of infrastructure after a heat wave/ drought

The in-depth discussion on this topic led to the following suggestions from the participants:

- Include management of the water-supply and sanitation networks under conditions of flood or extended drought to ensure continued supply safe water to inhabitants of areas that have been flooded or that suffer extreme drought.
- Include groundwater management, including artificial recharge of aquifers
- Promote and give advice on integrated planning – use the water safety plan approach as the basis for the planning of the water supply, but complement this with guidance on how to manage the sanitation system (sewers and wastewater treatment plants) under conditions of extreme drought and flood. Include detailed guidance on identification of preventive measures during the risk assessment/risk management phase of the water safety plan, but add a section on remedial measures if the services would have become disrupted due to a catastrophic event.
- Ensure that the guidance is formulated as a stand-alone document, and does not overlap with the strategy paper prepared by the Task Force on Water and Climate established under the Convention.
- Address the health system in a holistic manner; cover not only hospital services but also recognizing the role and possible contribution of the sanitary epidemiological services.
- The “*Guidelines on adaptation of water supply and sanitation systems to climate change*” are intended primarily for use by technical experts responsible for the management and operation of water and sewerage services and the style of writing should be selected with the intended user in mind.

It was agreed that the Chair, with the assistance of the Secretariat, would prepared an improved outline taking into consideration the comments and suggestions made. The revised outline will be circulated electronically to the members of the Task Force in order to agree by consensus on the proposed content, and to identify possible authors giving due regard to a just geographic distribution.

Members of the Task Force explored possibilities to contribute to the drafting of the “*Guidelines on adaptation of water supply and sanitation systems to climate change*”. Experts from Italy, Moldova, and Georgia committed to contribute to the drafting, while experts from Finland, Hungary, Slovakia, Turkey and the Ukraine expressed interest in contributing but needed to consult their respective home institutions before making a final commitment.

Review of best practice / sharing of experience

Discussion under this topic was informed by the presentation of a case study on a drinking-water outbreak due to karst water flooding in Miskolc (Hungary). It recently suffered a flooding incident in a water utility in Miskolc, where contamination of a karst aquifer caused 3.673 people got ill out of the 60.000 inhabitants living in the water supply zone and 161 patients were taken to hospital. The city, with 180,000 residents, receives water from a karst aquifer in the Bükk Mountains. The case led to immediate public health action, immediate public hygiene actions, and a revision of operating standards in the water utility. The presentation formed an excellent record of a case where a flooding event caused a direct negative outcome in a traditional water supply system. Forms for the similarly consistent collection and presentation of case studies based on the Hungarian example were developed during the meeting, distributed to the participants, and remain available from the Secretariat.

Different countries identified different additional key elements of best practice, including the establishment of preparedness plans, timely preventive action such as dyke rehabilitation and maintenance, efficient intersectoral cooperation during event forecasting, availability of sufficient emergency laboratory and field equipment, involvement of local authorities in planning and implementation particularly with regard to civil protection of the population at risk.

The Chair identified the Workshop on Water and Climate Change (Amsterdam, the Netherlands, 1-2 July 2008) as a suitable venue to share experience with a wider public, followed by a more formal publication for submission during the second Meeting of the Parties.

Adaptation strategy paper to reduce current vulnerability of climate change and integrate health risk reduction in long-term adaptation planning

Mr J Timmerman (the Netherlands) presented a draft of the “*Guidance Document on Water and Climate Adaptation*”. The aim of the document is to provide a framework or general roadmap for climate proofing water management by: assessing climate change impact on water resources, identifying adaptation measures to climate change, and developing adaptation strategies.

The guidelines will be a road map for climate proofing, covering general policy and general management. The target group are decision makers responsible for water management and **relevant health -related issues** and official and managers of other water- related sectors; the intent is that of a general policy guidance document, not that of a technical manual.

The contents were discussed, chapter by chapter.

Introduction

It was agreed that definitions should cover climate change and vulnerability, and that good use should be made of universally accepted reference sources such as the WHO Lexicon.

Ch 1 International commitments

Under “International commitments” it was agreed that the IHR(2005) should be covered and that reference should be made to the WHO Guidelines on Drinking water Quality

Ch 2 Policy, legislation and institutional frameworks

It was agreed that this should include a section on dialogue discussions i.e. government, public, scientists.

The relevance of the EU *acquis communautaire* was recognized, including where it provided supportive legal authority to request for data.

Ch 5 Information and monitoring needs for adaptation strategies and implementation

This should include health parameters, forecasting, early warning systems from all sectors including environment, water, health, agriculture. Sensitive parameters e.g. algae blooms, should be included. It should be noted that parties must assess their core surveillance systems, under IHR, by 2009.

The guidelines should consider what information the public health system should provide as well as information the public health systems will need to obtain from other agencies

Ch 6. Scenarios and models from impact assessment and water resources management

It was suggested that complicated, technical climate model be left out of this chapter and perhaps be put into an annex. Impacts should include impacts on health, tourism, agriculture and socio economic impacts

Ch 7. Vulnerability assessment for water resources management and water services

Water resources and water services should be separate

In vulnerability assessment the guidelines will need to address how the assessment will be integrated into WSPs

Water resources should include groundwater, surface water, bathing water and water used for aquaculture

Ch 8 Coping measures

The draft document will be circulated for comment. A request was made for working documents (not just final draft) to be in the Russian language.

It is not feasible for the Joint Secretariat to ensure translation of all drafts into Russian in a short period of time. Therefore, the Joint Secretariat informed that a more elaborated draft will be available in Russian language for comments in the second part of June 2008. This draft will be also submitted to the Joint Workshop on Water and Adaptation to Climate Change to take place on 1-2 July 2008 in Amsterdam.

It was suggested that one contributor from a Russian speaking country take the lead, post the draft on the web and collate all comments from Russian speaking countries. This final draft could then be merged with the draft from English speaking countries

Contribution to the fifth Ministerial Conference on Environment and Health

Ms Benedetta Dell'Anno presented a talk on the objectives of the 5th Ministerial Conference on Environment and Health, scheduled to take place in Rome, mid-2009.

The Task Force noted the emphasis to climate change and health as a cross-cutting issue during the Conference and the possible organization of a specific side event dedicated to the Protocol during the Ministerial Conference, and decided to explore a common contribution to the

Ministerial Conference at the time of the Working Group on Water and Health (Geneva, Switzerland, 26 – 27 June 2008).

Date and time of next meeting

Ms L Sinisi, Chair of the Task Force on Extreme Weather events, then recalled the expected main outcomes of its work:

- Development of the “*Guidelines on adaptation of water supply and sanitation systems to climate change*”
- Collation and publication of best practice case studies and sharing of experience
- Contribution to the development of a *Guidance on water and adaptation to climate change*, jointly with the Task Force on Water and Climate.

Consultations would take place between the Chairperson, the Secretariat and the members of the Task Force to identify a suitable date for the next meeting, and the dates would be announced as soon as possible through the usual electronic communication channels.

The final target date would be the second Meeting of the Parties to the Protocol on Water and Health (tent. Romania, July 2010).

Closure

The Chair closed the meeting on 22 April 2007 at 15:00 hrs.

Annex 1 List of Participants

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