Ladies and Gentlemen,

It is an honour to address you today. One for which I am personally grateful, because I participated in discussions that led to the Protocol as newly-recruited staff of WHO's Regional Office for Europe.

Then, Europe had not long emerged, peacefully, from a long period of division, conflicts were redefining some national boundaries, and in many countries former environment and health institutions had collapsed and their successors were not yet in place.

Even in division, environment and health had provided for dialogue and sometimes agreement. The 1989 [Frankfurt] European Charter on Environment and Health[1] was brokered before the changes that redrew our maps of Europe; and the 1994 [Helsinki] Environmental Health Action Plan for Europe[2] was in turn born of instability and uncertainty.

So I joined the region after a charter and a plan, when it was judged time to focus on action for the third Inter-ministerial Conference on Environment and Health. At that same time the position of health within the then brand-new Convention on Protection and Use of Transboundary Watercourses and International Lakes was a priority. The ambitious idea of a legally-binding instrument on water and health emerged. Because member states were reeling under a deluge of new instruments, the partnership between WHO and UNECE importantly used an existing instrument. The Protocol evolved rapidly under Hungarian leadership, and some inspired drafting group meetings! Such that by the third inter-ministerial conference in London in 1999[3], the Protocol on Water and Health that we know today was centre stage among commitments.

To link the emergence of the Protocol in 1999 to last year's launch of the Sustainable Development Goals we need to traverse the Millennium Declaration[4] and Millennium Development Goals[5], themselves inspired in part by that deluge of instruments.

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[1] http://www.euro.who.int/__data/assets/pdf_file/0011/116012/WA3095.pdf
[2] http://www.euro.who.int/__data/assets/pdf_file/0003/136227/EUR_ICP_CEH_212A.pdf
[3] http://www.euro.who.int/__data/assets/pdf_file/0007/88585/E69046.pdf
[4] http://www.un.org/millennium/declaration/ares552e.htm
[5] http://www.un.org/millenniumgoals/

For Europe, I see two especially difficult weaknesses in the MDGs:

- Firstly mainstream development thinking – to the extent that they were not relevant in much of what we once referred to as the first and second worlds.

  One example: I recall presenting on the MDGs at an international conference in around 2004. When we broke for refreshment the Minister of Environment for a former Soviet state came up to me and, with lucid objectivity and real passion, told me that the MDGs were disastrous for him and his country. Because he had a lot of work to do. But the MDGs told his President that their work on drinking water and sanitation was complete.

  He was right. Today [JMP[6]] reports show the Caucuses and Central Asia region did not meet the MDG drinking water target; in fact piped water supply declined among poorer urban populations in some countries. And Europe missed the MDG sanitation target. Our own work shows the majority of sewage in middle income countries, like his, is entirely untreated[7].

- Alongside lack of relevance was low receptivity.

  I remember being told by a representative of one of Europe's wealthiest nations that they had no need for a water-related disease monitoring system, because they had no water-related disease. She was aghast when I asked her how she knew there no outbreaks with no system to detect them.

  In part thanks to the Protocol outbreak detection and reporting has improved. It teaches us humility: 12,000 people affected in a single outbreak in Prague in 2015, more than 3000 in an outbreak in Finland, an outbreak this year in Turkey … The 185 detected and documented outbreaks are the tip of an iceberg that includes 14 deaths daily[8].

Against this backdrop recall the Protocol exceeded the ambition of the MDGs:

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[6] http://www.wssinfo.org/

[7] *Sanitation: A Global Estimate of Sewerage Connections without Treatment and the Resulting Impact on MDG Progress.* Rachel Baum, Jeanne Luh, and Jamie Bartram. Environ. Sci. Technol. 2013, 47, 1994–2000.

[8] http://www.euro.who.int/en/health-topics/environment-and-health/water-and-sanitation/publications/2016/situation-of-water-related-infectious-diseases-in-the-pan-european-region-the-situation-of-water-related-infectious-diseases-in-the-pan-european-region-the-2016

- The MDGs began with only a drinking-water target, supplemented with sanitation at the Earth Summit[9] in 2002.

  In contrast the protocol's target-setting clause (6.2) in 1999 already covered both drinking water and sanitation and also demanded sanitation that protected the environment as well as human health - something only now captured in the SDGs [through target 6.3]

- The Protocol demands effective protection of water resources used as sources of drinking-water, and their related ecosystems, again belatedly reflected in the SDGs
- It demands safeguards for human health against water-related diseases. That emphasis on safeguards was prescient. In my own work I was astounded to discover that introducing Water Safety Plans in Iceland had reduced clinical diarrhea by 14%[10]. And in ongoing work in Spain and France we are seeing better water quality, higher rates of regulatory compliance and – in one setting– better health outcomes.
- And the Protocol does require effective systems for monitoring and responding to outbreaks or incidents of water-related disease.

I recite all of this because, while the principles of the Millennium Declaration were universal, the MDGs focused on least and less developed countries. In the void of direction arising elsewhere, the Protocol [on Water and Health] played a critical role.

Today I have been asked to focus on "the *vision, challenges* and *opportunities* for achieving the water sanitation and health related goals and targets under the 2030 agenda". Let me take these in turn

Firstly *vision.* Undoubtedly the vision of the SDGs is fundamentally different to that of the MDGs.

[9] http://www.un.org/geninfo/bp/enviro.html

[10] *Benefits of Water Safety Plans: Microbiology, Compliance and Public Health* Maria J. Gunnarsdottir, Sigurdur M. Gardarsson, Mark Elliott, Gudrun Sigmundsdottir and Jamie Bartram. Environ. Sci. Technol. 2012, 46, 7782−7789.

- Most notably they are for all countries and all peoples. They confront wealthier nations with the twin challenges of improving their own situation and assisting others less fortunate to improve their situation.

  In improving their own situation, the Protocol established standards of mutual accountability and country-specific target setting now demanded under the SDGs.

  The role of assisting others merits critical reflection. It is widely believed that development aid funds water and sanitation services, but our own work shows that 1% of spending on drinking water and sanitation in low and middle income countries comes from aid, primarily as loans[11]. Fact: financing is overwhelmingly by households, whether through tariffs or self-supply.

  Households rationally invest in drinking-water and sanitation. In my own work we have shown that $1 invested in water and sanitation in low and middle income countries is associated with benefits valued at $9[12]. The figure for Europe is reported here to be $5.

  This matters. Because water and sanitation are good investments – benefits outweigh costs. And because of leverage. Careful investment mobilises household spending. I emphasise careful because in practice subsidies often support the already-served or better-served, not the neediest.

- The second major difference in vision concerns equality and universality. These together set the standard to be reached. Universal seems straightforward – everyone deserves health-protecting water and sanitation services and water resources and ecosystems. However combining universal with equitable requires also that everyone enjoys the greatest benefits associated with these.
- This brings to bear my third major dimension of vision: human rights, referred to in the Millennium Declaration but conspicuously absent from the MDGs. The human right to water and sanitation garnered recognition –

[11] *Universal access to Drinking-water: the role of aid.* Rob Bain, Rolf Luyendijk and Jamie Bartram. WIDER Working Paper no. 2013/088. ISBN 978-92-9230-665-6.

[12] *Global Cost-benefit analysis of water supply and sanitation interventions.* Hutton G, Haller L and Bartram J. Journal of Water and Health 5(4) pp481–502, 2007. PMID: 17878562

from the 2002 General Comment 15[13] and the 2010 resolutions of the UN General Assembly[14] and Human Rights Council[15]. Meanwhile the MDG water and sanitation target was criticised in human rights terms because the wording of 'halving the proportion of the unserved' allowed many to be left behind, perpetuating inequalities; and for omitting water resource and ecosystem dimensions of the Human Right.

Remarkably these components of the SDG vision were already reflected in the Protocol from 1999:

- The drinking water and sanitation targets being for everyone [clause 6.1]
- Demanding country-defined targets[16].
- "Equitable access … for all members of the population" is called for in clause 5l;
- And while human rights are not explicit, there is careful wording about balancing entitlements with obligations and about disadvantaged groups [5l]

So far so good – strong alignment between the Protocol and the SDGs! So what *Challenges* arise from this ambitious shared vision? Three stand out to me as meriting special mention:

- Firstly institutionalising integration. The SDGs largely comprise sectoral targets. In contrast, this continent has led the way in exploring the concept of a 'Nexus'[17] – the idea that we can no longer treat water, energy, food, climate in isolation. Because in our increasingly water-scarce world they are inter-dependent. We continue to manage water in sector silos at our peril.
    - 70% of water extracted is used in food production – especially irrigation –increasing with population.
    - Many of us live, work or play in buildings with antiquated standards of water conservation.

[13] http://www2.ohchr.org/english/issues/water/docs/CESCR_GC_15.pdf
[14] http://www.un.org/es/comun/docs/?symbol=A/RES/64/292&lang=E
[15] http://www.right2water.eu/sites/water/files/UNHRC%20Resolution%2015-9.pdf
[16] http://www.unece.org/fileadmin/DAM/env/water/mop4/Informal_doc/1623151_E_FinalWEB.pdf
[17] *The Water, Energy, Food and Climate Nexus: Challenges and an Agenda for Action.* Felix Dodds and Jamie Bartram (Eds). 2016. Routledge, Abingdon and New York.

- In some cities half of energy use is on water – treating it, delivering it, heating it, removing it and treating it again. Water efficiency conserves energy and supports climate change mitigation.
- And increasingly frequent weather extremes – droughts, floods – change water availability and predictability; and impact water infrastructures and services.

Every adaptation to these circumstances carries potential benefits and detriments to health. Wastewater use carries risks from pathogens and toxic chemicals, low flow plumbing increases microbial growth and so on. But the science underpinning direct and especially indirect use of wastewater, and underpinning plumbing requirements, is weak and associated regulation could be vastly improved. Some adaptations have transboundary consequences, demanding international as well as local response.

- My second major challenge derives from that vision of universality, equality and human rights.

  The MDGs encouraged us to extend the benefits of water for health – halving the proportion of the unserved. Good. But that is a very different challenge to targeting underserved populations. For which we are under-prepared.

  Small water systems are an example, notoriously prone to failure and contamination yet supply around 23% of Europe – 200 million people[18]. They are inadequately regulated or supported in many countries.

- Thirdly "adequate" services must be continuously available for all,

  Continuous availability

  - … means just that. When I talk about intermittent water supply I normally use examples from India. But many European countries have cities with a few hours service daily;

[18] http://www.euro.who.int/en/health-topics/environment-and-health/water-and-sanitation/publications/2016/status-of-small-scale-water-supplies-in-the-who-european-region.-results-of-a-survey-conducted-under-the-protocol-on-water-and-health-2016

- and continuous availability also concerns the fact that we spend the majority of our waking hours outside our homes. So our needs extend into schools, workplaces both formal and informal, and healthcare. A report to be launched here reports a third of schools in the Caucuses and Central Asia lack either a toilet or water supply[19]. Our own work shows a third of health facilities lack either water or soap in low and middle income countries[20] and we are now supporting the Protocol in understanding the European situation.

And available to all also requires that we respect the vulnerable and dependent.

- Vulnerable populations more susceptible to disease – the young the elderly, pregnant women and those with compromised health. Groups such as the elderly are increasing and have needs are insufficiently understood and often inadequately addressed.
- Dependent populations include migrants and prison populations. Hugely relevant in Europe today, they have equivalent needs for drinking water and sanitation, and the same human rights, as those of us gathered here.

All of this must be overcome against external pressures:

- While we can speculate this week about the future of international climate change mitigation efforts, there is no reason not to exploit the no-regrets opportunities for adaptation to weather extremes
- And while slowing population growth may appear an asset, households, not people, receive services and are increasing far faster than population. In

[19] http://www.euro.who.int/en/health-topics/environment-and-health/water-and-sanitation/publications/2016/situation-of-water,-sanitation-and-hygiene-in-schools-in-the-pan-european-region-the-2016

[20] *Water, Sanitation and Hygiene in Health Care Facilities: status in low and middle income countries and way forward.* Cronk R and Bartram J, 2015. World Health Organization, Geneva.

Lack of Toilets and Safe Water in Health-care Facilities (editorial). Jamie Bartram, Ryan Cronk, Maggie Montgomery, Bruce Gordon, Maria Neira, Edward Kelley and Yael Velleman. Bull World Health Organ. April 2015.

fact the number of households will triple between 1990 and 2050. In France by 80% despite stagnant population[21].

- And changing circumstances – for example we may have to fundamentally rethink wastewater treatment standards in response to the challenge of anti-microbial resistance that raises healthcare costs and imperils treatment.

And so to the *opportunities* presented by the SDGs.

Perhaps the greatest opportunity and challenge together come from the fact that the SDGs have caught up with the Protocol. So what is the future value of the Protocol?

I would ask you to join me in imagining ourselves in 2030 looking back to these discussions. And to reflect on which ideas are likely to have stood the test of time, and which might make us look silly. Four things strike me:

- Firstly, a target for drinking water anything less than safe and reliable water in every home, school, workplace, health care facility and public setting would not be credible.
- Secondly, pursuing sanitation by counting toilets rather than also as an insidious environmental contaminant – bridging the WaSH versus water resources divide – and satisfying the demand for productive use of wastewater and increasingly recovery of nutrients.
- Thirdly, failing to manage water resources and their ecosystems on the basis of the demands placed upon them by economic sectors. Doing so offers opportunities to fuel human wellbeing, economy and a healthy world. Tackling head-on the difficult trade-offs between uses; finding the clever ways to sequence uses to get more use per drop.
- Fourthly failing to collaborate in generating knowledge to then using it to act effectively and efficiently.

Every one of these is implicitly or explicitly addressed in the Protocol. All align with the SDG6 water targets. But none of the SDGs will be met if we fail on SDG6 and

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[21] *Getting Wet, Clean and Healthy: why households matter.* Bartram J, Elliott M and Chuang P. Lancet (commentary) 10 July 2012 doi:10.1016/S0140-6736(12)60903–9.

the integrated management and efficient action are critical for that. And it is these that most challenge our established ways of working.

Which brings me to one further opportunity and my concluding remark. Leadership.

- I am proud to have played a small role in nurturing the Protocol on Water and Health and have immense admiration for those that carried it through signature and ratification, into the systems of countries gathered here, to impact the lives and wellbeing of many.
- It has provided a unifying force for improving water and sanitation management for health across our diverse region. The coherence between the Protocol and the SDGs is an endorsement of its relevance, today.
- Looking forwards I hope the continuing implementation of the protocol delivers continuing European leadership:
    - Leadership in protecting health;
    - Leadership in generating and using evidence in decision-making to maximise benefits and minimise costs;
    - leadership in supporting other countries in protecting the health of their populations;
    - and leadership in tackling emerging challenges
    - We are living – again – times of turmoil and dissent. Water enabled dialogue and agreement at such times in the past and can do so again. And the purpose of the Protocol [protecting health and wellbeing in a framework of sustainable development through improving water management] remains as relevant today as ever

Thank you