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Promoting and managing change towards environmentally sustainable health systems

Report of a meeting in Bonn, Germany

24–25 October 2016



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ABSTRACT

Improved environmental sustainability in health systems (ESHS) can yield benefits for patients, practitioners, health systems functions and the environment and supports the strategic objectives of Health 2020. The latest in a series of technical and policy workshops on ESHS took place on 24 and 25 October 2016 at the WHO European Centre for Environment and Health, Bonn, Germany. The participants – health systems experts and representatives of Member States, United Nations agencies and nongovernmental organizations – discussed the promotion and management of ESHS in the Region and considered a revised version of a draft strategic document to support relevant policy discussions. They stressed the importance of mobilizing and informing national support for ESHS, and discussed proposals for SMART targets for ESHS and possible elements of a draft statement for inclusion in the ministerial declaration of the Sixth Ministerial Conference on Environment and Health in 2017.

Keywords

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Abbreviations

ECEH	WHO European Centre for Environment and Health
ESHS	environmental sustainability in health systems
NHS	United Kingdom National Health Service
SAICM	Strategic Approach to International Chemicals Management
SDG	Sustainable Development Goal
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNICEF	United Nations Children's Fund
WASH	water, sanitation and hygiene

Scope and purpose of the meeting

Fostering environmental sustainability in health systems (ESHS) can yield benefits for patients, the health-care workforce, health services, financing and the environment. It can also support progress towards the strategic objectives of the Health 2020 policy framework, adopted by the WHO Regional Office for Europe in 2012.

The latest in a series of technical and policy workshops on ESHS took place on 24 and 25 October 2016 at the WHO European Centre for Environment and Health (ECEH), Bonn, Germany, organized by the WHO Regional Office for Europe and funded by the German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety. The meeting was opened by Elizabet Paunovic, Head of ECEH. Ms Irma Khonelidze (Georgia) was elected Chairperson.

The participants – representatives of Member States, experts in health systems and other relevant technical areas, and partners including United Nations agencies and nongovernmental organizations – discussed the promotion and management of change towards ESHS in the WHO European Region, specifically:

- the role of regional policy processes in the global framework of related World Health Assembly resolutions in promoting ESHS;
- how to manage governance-driven change towards ESHS while promoting provider-driven initiative;
- the role of national environmental sustainability policies for health systems; and
- strategic partnerships towards ESHS, including ideas for resource mobilization.

Participants also discussed a draft strategic document on ESHS, elaborated by the WHO Regional Office for Europe in 2015 and subsequently revised on the basis of recommendations by an earlier meeting (Bonn, Germany, 11–12 November 2015) and a multi-stakeholder web-based consultation.

The intended outputs of the meeting were: 1) a set of proposals for revision of the “change management” and “next steps” sections of the draft strategic document which would, in turn, feed into discussions leading to, and at, the Sixth Ministerial Conference on Environment and Health in 2017; 2) proposed elements for a draft statement to be included in the ministerial declaration of the conference; and 3) proposals for specific, measurable, achievable, relevant, time bound (SMART) objectives.

For the programme of the meeting, see Annex II. For the list of participants, see Annex III.

The case for environmentally sustainable health systems

The existing evidence suggests that the benefits of ESHS include improved patient care, increased staff satisfaction and financial savings. Health systems are major consumers of energy and resources, and major producers of waste and emissions that may affect health. Making health systems more environmentally sustainable can help reduce the burden of disease due to environmental factors, achieve financial savings and efficiency gains, promote physical activity and increase the resilience of health systems.

A growing basis of evidence is becoming available about the impact of the health sector on the environment in the Member States of the European Region. The newly published review *Towards environmentally sustainable health systems in Europe*¹ identifies those areas where solid evidence is available and those, including climate change resilience, where

¹ Towards environmentally sustainable health systems in Europe. A review of the evidence. Copenhagen: WHO Regional Office for Europe; 2016:7 (<http://www.euro.who.int/en/health-topics/environment-and-health/Climate-change/publications/2016/towards-environmentally-sustainable-health-systems-in-europe.-a-review-of-the-evidence-2016>, accessed 19 November 2016).

more research is needed. An additional pool of evidence lies in governmental and intergovernmental reports, case studies and publications of communities of practice. WHO compiles, evaluates and analyses all available sources on a continuous basis to support efforts in this area.

The mandate for improving the environmental sustainability of health systems is provided at the regional level by policy documents such as the Health 2020 policy framework,¹ the Tallinn Charter² and the Parma Declaration on Environment and Health, adopted by the Fifth Ministerial Conference on Environment and Health (Parma, Italy, 10–12 March 2010).³ At the global level, action is mandated by the Sustainable Development Goals (SDGs), conventions adopted under the aegis of the multilateral environmental agreements, such as the Minamata Convention on Mercury,⁴ and several relevant World Health Assembly resolutions.⁵

At present, ESHS activities are mainly provider-driven and with limited potential for scaling up: there is scope for top-down, governance-driven activities which will create a regulatory and institutional framework for ESHS, ensure strategic planning, monitoring and self-assessment and promote stakeholder buy-in, as well as influencing upstream determinants of health. In general, ministries of health have the authority to set guidelines, general policy and standards in health systems within their countries, so the distribution of health competencies is not generally an obstacle for the adoption of national policies.

The Sixth Ministerial Conference on Environment and Health, scheduled for June 2017, is a good opportunity to raise political awareness at a high level and obtain commitments to action. The economic argument is a particularly powerful one when seeking to influence politicians and decision-makers: moreover, many efficiency gains, and therefore cost savings, can be achieved in the relatively short term. The required changes cannot be achieved without collaboration between the health sector and other sectors including energy, water and sanitation, waste management, businesses, transport and education, among others.

Presentation of the revised strategic working document (Environmentally Sustainable Health Systems) and supporting evidence

The draft strategic document on ESHS was prepared by the WHO Regional Office for Europe and discussed at a technical workshop in November 2015. The draft was revised in the light of the workshop's conclusions and a subsequent multi-stakeholder web-based consultation. The consultation identified the main areas for action as waste and hazardous

¹ Health 2020: a European policy framework supporting action across government and society for health and well-being. Copenhagen: WHO Regional Office for Europe; 2012 (EUR/RC62/9; <http://www.euro.who.int/en/publications/abstracts/health-2020-a-european-policy-framework-supporting-action-across-government-and-society-for-health-and-well-being>, accessed 19 November 2016).

² Tallinn charter: health systems for health and wealth. Tallinn: World Health Organization; 2008.

³ Parma declaration on environment and health. Copenhagen: WHO Regional Office for Europe; 2010 (<http://www.euro.who.int/en/health-topics/environment-and-health/Climate-change/publications/2010/protecting-health-in-an-environment-challenged-by-climate-change-european-regional-framework-for-action/parma-declaration-on-environment-and-health>, accessed 19 November 2016).

⁴ Minamata Convention on Mercury. Geneva: United Nations Environment Programme; 2013 (http://www.mercuryconvention.org/Portals/11/documents/conventionText/Minamata%20Convention%20on%20Mercury_e.pdf, accessed 5 December 2016).

⁵ See, for instance, resolutions WHA59.15 (Strategic Approach to International Chemicals Management - SAICM), WHA61.19 (climate change and health), WHA63.25 (environmentally sound waste management), WHA64.24 (water, sanitation, hygiene and health), WHA67.11 (Implementation of the Minamata Convention on Mercury), WHA68.8 (addressing the health impact of air pollution), WHA69.4 (role of health sector in SAICM) and WHA69.18 (response to the adverse health effects of air pollution).

chemicals; air pollution and greenhouse gases; and intersectoral action for environment and health.

Participants suggested other issues which should be taken into consideration, including the need for positive examples, especially in the areas of sustainable procurement and distribution of health-care products, and for practical advice and examples for implementation; the significance of environmental effects not only within a single country, but also across borders and throughout the life cycle of the product, from manufacture to final disposal; potential barriers to implementation, especially among overworked health professionals; difficulties in local procurement of health-care supplies by international aid agencies because of fair-bidding rules; and health-waste management in conflict situations.

Change management in health systems: application to the adoption and implementation of environmental sustainability policies and practices

Environmental sustainability in health requires large-scale change in organizational culture, strategic planning and operational practice. Large-scale, transformational change requires committed, long-term, stable leadership – at all levels – if it is to succeed. It is clear why change is needed and usually clear what should change: the challenge is **how** to bring about sustainable change.

A WHO expert meeting on the theme of “health system transformation: making it happen” (Madrid, Spain, 17–18 December 2015) identified a number of barriers to change, including political opposition and unfavourable public opinion. It considered a number of theoretical frameworks, including the Kotter eight-step change management process.¹ Change should be seen as a process, not as a one-off event.

Key messages for change management include the importance of personal energy and commitment from well-placed people (“champions”). Leadership must be distributed through the various levels of governance. Trust must be maintained, particularly if jobs may be lost as a result of the change.

Experts and participants presented a selection of case studies illustrating change management towards Environmentally Sustainable Health Systems (a summary is available in Annex I). The lessons learnt from these case studies were consistent with, and reinforced several of the key principles of change management discussed.

Questions and comments from the floor on this item of the programme focused on ways of sharing and communicating information which is already available. The WHO Regional Office for Europe is preparing a survey on wastewater management in health-care facilities across the Region. The United Nations Development Programme works with both suppliers and hospitals in the context of international development assistance.

Towards a wider adoption of environmentally sustainable health systems: entry points and cross-sectional areas

It is essential to find “entry points” where sustainability can be put on to the agenda of other sectors. The economic opportunities and potential cost savings associated with ESHS provide a powerful argument for action.

¹ Kotter JP. *Leading change*. Boston, MA: Harvard Business School Press; 1996.

For example, the NHS Sustainable Development Unit (SDU) found an entry point in the connection of energy, carbon and costs savings. The SDU estimates¹ that electricity costs in the NHS in England will rise by 50% and fuel costs by 25% by the year 2025, without taking inflation into account: energy supply will thus be a key driver of costs. The Climate Change Act 2008 sets a target of reducing the United Kingdom's carbon footprint by at least 80% by 2050: the projected improvements in low-carbon hospital buildings, goods and services will almost, but not entirely, achieve the required savings in the health-care sector.² Further reductions could be achieved by installing combined heat and power systems, promoting active travel, improving procurement practices and models of care, increasing staff energy awareness and addressing fuel poverty. Telehealth and telecare systems provide health benefits and cost and carbon savings, estimated at 5.1 million pounds sterling over 15–20 years. Other savings, such as prescription of non-propellant inhalers for asthma patients, save on carbon emissions but are not so financially advantageous. The payback period (length of time required to recoup initial investment) of the activities considered is generally 6–7 years but may be as little as one year for measures such as staff behaviour change. The estimated cumulative savings from energy measures alone implemented in the NHS in England since 2007 amount to approximately 1.85 billion pounds sterling.³

Another entry point, already tested in several settings, is procurement. The United Nations Informal Interagency Task Team on Sustainable Procurement in the Health Sector (SPHS)⁴ brings together 10 key United Nations and other international agencies, which use their normative and purchasing power to lower the environmental impact of health-sector procurement. The United Nations Development Programme (UNDP) acts as its Secretariat. SPHS seeks to develop tools and investigate ways of using the leverage of major buyers to encourage suppliers and health-care institutions to improve their environmental performance, focusing on three areas – greenhouse gas emissions, resource depletion and chemical pollution – and contributing to the implementation of SDGs 3, 8, 12 and 17. Key achievements include the development of a tool to monitor compliance with international environmental conventions; an environmental questionnaire; and an online knowledge hub of best practices in sustainable health procurement and manufacturing. A training course in Ukraine in October 2016 was held for 23 procurement managers and officers from the Ministry of Health, hospitals and nongovernmental organizations. In the area of waste management, rapid assessments of health-care waste production have been conducted to assess the environmental impact of grants from the Global Fund to Fight AIDS, Tuberculosis and Malaria, for example for health-care waste in Belarus and the greenhouse-gas footprint of HIV/AIDS and tuberculosis programmes in Montenegro and Tajikistan. A practical toolkit for health-care waste management is in development.

Because of its central role, improvements in water, sanitation and hygiene (WASH), and wastewater treatment may constitute an adequate entry point. Improved WASH services bring many health benefits (diarrhoeal and other communicable disease prevention and treatment), health system benefits (reduced nosocomial infections and antimicrobial resistance, reduced costs), increased climate change and disaster resilience and improved staff morale and performance. Although only limited data are available for the WHO European Region, it appears that many health-care facilities still do not meet the WHO

¹ Securing healthy returns: realising the financial value of sustainable development. Cambridge: NHS Sustainable Development Unit; 2016:5 (<http://www.sduhealth.org.uk/policy-strategy/engagement-resources/financial-value-of-sustainable-development.aspx> , accessed 4 December 2016).

² Sustainable development in the health and care system: health check 2016. Cambridge: NHS Sustainable Development Unit; 2016:6 (<http://www.sduhealth.org.uk/policy-strategy/reporting/sustainable-development-in-health-and-care-report-2016.aspx>, accessed 4 December 2016).

³ Securing healthy returns: realising the financial value of sustainable development. Cambridge: NHS Sustainable Development Unit; 2016:3 (<http://www.sduhealth.org.uk/policy-strategy/engagement-resources/financial-value-of-sustainable-development.aspx> , accessed 4 December 2016).

⁴ See <http://www.savinglivesustainably.org/> (accessed 4 December 2016).

WASH standards (WHO, 2008). The SDGs provide an opportunity to take further action on WASH in the health-care system. Under SDG6, core indicators for WASH in health-care facilities have been finalized and relevant indicators are to be included in existing survey instruments. Under the global action plan on WASH in health-care facilities adopted by WHO and the United Nations Children's Fund (UNICEF), four task teams have been established, dealing with advocacy, leadership and action; monitoring; evidence and operational research; and policy, standards and facility improvements.¹ The joint WHO/UNICEF Water and Sanitation for Health Facility Improvement Tool (WASH FIT) is a risk-based management approach to improving WASH in health care facilities and has been used in a number of African countries to date. It has been used in national policy strengthening and guideline development and to support national advocacy platforms. Lessons learned include the importance of small, feasible actions; the engagement of community technicians in change; the use of environmentally sustainable options such as solar-powered water pumps and environmentally friendly waste treatment); and the importance of leadership, monitoring and accountability at the facility level.

A fourth potential point of entry for ESHS activities may be the area of chemical safety. The health-care sector is a major consumer of chemicals, including cleaning, disinfecting and sterilizing agents, laboratory chemicals, medical gases and anaesthetics. These chemicals may affect human health (e.g. antimicrobial resistance, resistance to disinfectants, mercury poisoning from mercury thermometers), the environment and wildlife (e.g. genotoxic waste, dioxins produced by incomplete incineration of health-care waste, feminization of fish by hormonally active chemicals released into watercourses).

Parties to the Minamata Convention on Mercury are committed to banning the manufacture, import or export of mercury-added products by 2020. WHO has issued a number of publications on the elimination of thermometers and sphygmomanometers in health-care settings.² A WHO meeting on health-sector involvement in the implementation of the Minamata Convention: assessment and prevention of mercury exposure (Bonn, Germany, 24–25 June 2015) discussed the identification of exposed populations, risk assessment and communication, professional education, setting up and running laboratories and management of mercury-containing hospital waste. A joint WHO/UNEP project³ aims to harmonize approaches and strengthen capacity for mercury analysis in humans and the environment, including human biomonitoring. Another proposed WHO/UNEP project aims to raise awareness among policy-makers in the health sector about mercury, global policies, the responsibilities of the health sector, the use of mercury-added products in the health sector and its consequences; support the development of national strategies and the management of hazardous hospital wastes; and eliminate mercury-added products in pilot health care settings.

Environmentally persistent pharmaceutical pollutants are recognized as an emerging policy issue in the context of the Strategic Approach to International Chemicals Management (SAICM), with the main priorities being: information dissemination and awareness-raising, availability of and access to information, knowledge gaps related to exposure to and effects

¹ WASH in health care facilities [website]. Geneva: World Health Organization (<http://www.washinhcf.org>, accessed 5 December 2016).

² See, for instance: Developing national strategies for phasing out mercury-containing thermometers and sphygmomanometers in health care, including in the context of the Minamata Convention on Mercury: key considerations and step-by-step guidance. Geneva: World Health Organization; 2015 (http://www.who.int/ipcs/assessment/public_health/WHOGuidanceReportonMercury2015.pdf, accessed 5 December 2016).

³ Health sector involvement in the implementation of the Minamata Convention (Meeting report) (http://www.euro.who.int/_data/assets/pdf_file/0018/303642/Minamata-Convention_Meeting-Report.pdf?ua=1, accessed 5 December 2016)

of environmentally persistent pharmaceutical pollutants; improving regulations and guidance for pharmaceutical waste management; and pharmaceutical take-back programmes. Key elements in improving health-care waste management include building a comprehensive system to address responsibilities, resource allocation, handling and disposal; raising awareness of the risks related to health-care waste and of safe practices; and protecting people when collecting, handling, storing, transporting, treating or disposing of waste.

Working groups discussions

Participants divided into three working groups along two sessions to discuss the following questions:

- How could the process of establishing and adopting a national environmental sustainability policy for health systems be initiated?
- Who would be the main stakeholders within the administrations, providers, civil society, etc.?
- How can we leverage the European Environment and Health Process (EHP) to promote ESHS in the region?
- Possible actions and SMART targets for endorsement at the 2017 Ministerial Conference
- What strategic partnerships need to be created?

Below is a summary of their collective answers and the subsequent discussion:

Ministries of health generally have the authority to adopt relevant regulations, which provides a good starting-point for increasing top-down governance. However, ESHS activities will actually be implemented at the local level, so it is important to think about adequate strategies in countries where health care is devolved to the regional (subnational) level. The Ministries of environment and finance, among others, should be involved and encouraged to take responsibility for ESHS, with the ministry of health taking the lead.

At an early stage, a high-level forum (national round table, inter-ministerial committee or regional advisory group) should be convened involving all stakeholders. Potential stakeholders include:

- ministries of health, environment, social affairs, finance, and construction;
- health-care providers and suppliers;
- United Nations agencies: UNEP, UNICEF, UNDP, United Nations Framework Convention on Climate Change (UNFCCC);
- European Union;
- donors (World Bank, European Investment Bank, Asian Development Bank, Global Funds, Development agencies, etc.);
- nongovernmental organizations – national and international, e.g. Health Care Without Harm;
- patients' associations (national and international, e.g. at European Union level);
- local authorities (responsible for compliance, local hospitals, etc.);
- health professional associations (health workforce education);

- academia;
- private sector: health-care suppliers (products and services), construction sector, etc.; and
- health insurance funds.

A firm commitment to ESHS at the Sixth Ministerial Conference will strengthen the arguments put forward by ministries of health and environment, particularly in countries working towards membership of the European Union, where funding available for alignment with the EU acquis can be leveraged towards ESHS activities

Identifying influential “champions” at all levels of government can be a challenge. It is important to raise awareness among the general public, civil society organizations, non-profit organizations and United Nations agencies. ESHS activities should be integrated into, and clearly linked with, the implementation of the SDGs or current health reform efforts, using existing national and local programmes, strategies and tools wherever possible rather than creating a whole new programme.

Evidence must be collected in order to convince ministries of finance and other decision-makers of the potential cost savings to be made through implementation of ESHS. Health-care facilities could be asked to produce an annual report containing basic data (water and energy consumption, carbon footprint, amount of waste produced – general and hazardous waste and wastewater) which are already collected for other reporting purposes. It is advisable to look for “easy wins” and small, short-term successes at first, and to identify possible entry points to get non-health and environment stakeholders involved, e.g. carbon footprints or emergency response.

Participants called upon WHO to develop a framework for ESHS activities to be presented at the Sixth Ministerial Conference, as well as methodologies and indicators for tasks such as demonstrating the benefits of ESHS and measuring the carbon or environmental footprint of a health system. Technical input from experts and sharing of experiences (failures as well as successes) will be required. More materials should be made available in Russian.

It must be made clear who will lead each action and identify possibilities for funding. WHO, UNDP and UNEP should provide guidance and technical assistance, in collaboration with Member States with relevant experience. WHO can provide background information and documents for national events on ESHS held before the Sixth Ministerial Conference.

Member States should measure and publish basic data on energy and water consumption and waste production in the health-care sector, with WHO assistance. They should decide on their own priorities, then develop and cost a national action plan. Possible indicators to follow progress include:

- number of Member States with a national ESHS plan;
- number of health workers specifically assigned to ESHS activities;
- number of Member States that have assessed the environmental performance in their national health system as a baseline (including carbon footprint); and
- number of countries where the health workforce curricula include elements of environmental sustainability.

Activities should be undertaken to facilitate the exchange of best practices between Member States whose situations are comparable. One publication should be prepared to inform ministers about ESHS and another to provide advice on practical action. WHO should provide technical assistance, normative guidance and a methodology for measuring the environmental footprint of national health systems. Country offices can act as facilitators right from the start.

The WHO Regional Office for Europe should continue to compile and evaluate available evidence, including from small-scale studies and/or available only in the “grey” literature through careful evaluation. It should continue to work to establish partnerships for ESHS with other United Nations agencies, particularly the UNEP, professional associations and civil society organizations.

Potential strategic partners include international institutions (WHO, European Union, UNDP, UNFCCC, World Bank, etc.) and national-level private and public health-care providers, health insurance providers, national and international non-profit organization in the areas, professional organizations and technical partners working with health-care facilities. Partners will coordinate among themselves to map the information and resources available for the promotion of ESHS and the creation of a joint dissemination platform, and will adopt a joint country-support strategy for ESHS.

Regarding the lead up to the Sixth Ministerial Conference, all technical meetings discussing the input into the Conference have called for more networking. A single mechanism established by the Conference could meet this need, and the Working Group on Health in Climate Change of the Environment and Health Task Force could provide a suitable model. There would be no funding implications for such a mechanism. Alternatively, the participants in the current meeting could reconvene for further meetings.

Member States were encouraged to use the remaining time until the Conference to marshal the key messages and data prepared by WHO, including the evidence in favour of ESHS, and bring them to the attention of ministers and other key national stakeholders, potentially through a meeting arranged under the country’s collaboration agreement with WHO. To this end, more materials should be translated into Russian.

Summary of the two days and next steps

The existing evidence supports action towards greater environmental sustainability of health systems, both in terms of the need to reduce the environmental impact of health systems and also on the opportunities and benefits for patients, practitioners, health-system functions and the environment.

Currently, most of the impetus for change towards environmentally sustainable health systems is bottom-up and driven by providers, posing a challenge for scaling-up and coordination. Therefore, there is value in promoting top-down, governance-driven change towards ESHS.

An assessment of the baseline situation in each Member State is required, covering existing national policies and strategies; existing basic data on resource consumption, waste generation, carbon footprint, etc.; comprehensive stakeholder mapping at the international, national and subnational levels; and training curricula or continuing professional education courses which teach environmental sustainability.

Member States may wish to adopt a national policy aimed at the development of an ESHS strategy and action plan by 2020. The policy development process should feature a national round table or multi-stakeholder, multisectoral task force involving all levels of government, experts, the private sector and civil society. A broad set of incentives may facilitate the adoption of national policies. These may be purely financial (i.e. return on investment in interventions) or include potential clinical benefits for patients or increased staff satisfaction. The “low-hanging fruit” (“easy wins”) should be identified and prioritized, as well as entry points relevant for different countries.

It is important to raise awareness and identify champions beyond the ministries of health and the environment, for instance among the general public, civil society organizations, non-profit organizations and United Nations agencies.

Member States may wish to write and publish annual sustainability reports for their health systems. Partners (WHO, UNDP, UNEP, Health Care Without Harm, etc.) will provide guidance and develop a set of core indicators on ESHS to measure progress. The role to be played by WHO is that of a facilitator and convenor, coordinating the work of all stakeholders, including the private sector.

A firm commitment to ESHS at the Sixth Ministerial Conference on Environment and Health will provide support for existing initiatives, as well as kick-starting action in other areas; this commitment should be accompanied by proposed basic indicators of progress and should make explicit the links between the ESHS strategic framework and the SDGs.

In the run-up to the Sixth Ministerial Conference, it is important to continue to build the case for ESHS, based on sound evidence and featuring both success stories and the lessons learned from failures.

Partners will map the information and resources available for the promotion of ESHS and adopt a joint country support strategy for ESHS.

Closure of meeting

Dr Paunovic declared the meeting closed at 15:10 on 25 October 2016.

Annex I. Summary of case studies presented

The NHS journey towards sustainability:

The campaign to reduce the carbon footprint of the NHS in England was initiated as a response to the mandate for change imposed by the Climate Change Act 1988. A large part of the carbon footprint was accounted for by pharmaceuticals, especially prescriptions written by family doctors – the energy used in manufacture, packaging, transport and eventual disposal of the product is all taken into account. Hospital buildings are another major element of the carbon footprint.

The NHS Sustainable Development Unit expended considerable effort in ascertaining the views and priorities of health professionals, patients and the general public: for instance, nurses made an effort to dim lighting in hospital wards because it helped patients to sleep better, as well as saving energy. If change is to be sustainable, it must be embedded in institutional processes and in mission statements and charters like the NHS Constitution. The Marginal Abatement Cost (MAC) curve¹ is an effective way of showing areas where carbon reduction measures will save the most money – a powerful argument for convincing decision-makers. Change must be introduced in a stepwise fashion and regularly monitored and evaluated.

Also within the NHS, the North East Transformation System has worked for the implementation of “lean” principles for quality improvement in all NHS organizations in north-eastern England since 2007. An evaluation conducted at 14 study sites between 2009 and 2013 identified a number of factors which helped to embed and sustain change: commitment at the top combined with empowerment elsewhere, i.e. both top-down and bottom-up leadership; stability in leadership, including sound succession planning and the confidence to persist with change even in the face of setbacks; and the importance of key people (clinicians and technicians as well as managers and directors) and champions of change.

EU-funded multi partner applied research into sustainable health care:

The LCB-Health care project,² which ran between 2009 and 2012, initiated a series of pilot projects for CO₂ reduction strategies in the Netherlands, Norway, Poland and the United Kingdom. It achieved a number of short-term gains, including an improved national planning strategy prioritizing energy-efficient, low-carbon buildings (Norway), environmentally friendly hospital uniforms (Poland), efficient hospital-ward lighting systems (United Kingdom) and a sustainable bed disinfection system (Netherlands). The barriers identified during the project included the capacity and capability of the people involved, organizational and cultural barriers and a lack of appetite for change.

The EcoQUIP project,³ which ran between 2012 and 2016, was intended to build capacity among leaders, facilitators and associates in support of collaborative procurement actions in the health sector. It delivered a new approach to facilities management including a whole-life carbon reduction strategy (Italy), efficient and effective management of hospital beds and mattresses (United Kingdom), an ultra-low-carbon energy system for a major hospital (United Kingdom), comfortable temperatures for patients and staff, plus energy production (Poland) and a low-energy, low-chemical cleaning system for hospital beds (Netherlands).

¹ See <http://www.sduhealth.org.uk/delivery/measure/finance/macc.aspx> (accessed 19 November 2016).

² See www.res-hospitals.eu (accessed 4 December 2016).

³ See www.ecoquip.eu (accessed 4 December 2016).

Hospital environmental sustainability survey in Hungary:

In Hungary, an environmental sustainability survey was conducted in 27 major regional hospitals in 2015. It is planned to survey all hospitals in due course, covering energy efficiency, climate change impact, ventilation and air quality. A good-practices document was disseminated to hospitals in 2016. National standards and legislation have been adopted, governing recommendations for action during heatwaves, checks on heating and air conditioning systems, natural and artificial ventilation, prevention of damp and mould and storage of medicines. The waste management policy focuses on reduced consumption, reuse and recycling, with disposal of residual waste by incineration or burial in landfill sites.

Health Care Without Harm Europe activities:

The nongovernmental organization Health Care Without Harm advocates for policies that protect the environment, promote good health and reduce the environmental footprint of the health sector. The most recent session of the CleanMed Europe conference on sustainability within the health-care sector took place in Copenhagen, Denmark, on 19–21 October 2016. The organization has a number of working groups in the WHO European Region, and associated activities include ethical public procurement, pharmaceuticals, including the publication of the brochure “How doctors can help reduce pharmaceutical pollution”;¹ a food pledge, where health-care systems undertake to provide more healthy and sustainable food and reduce food waste; and the Viennese Database for Disinfectants (WIDES), produced by the City of Vienna Climate Protection Programme.²

The Global Green and Healthy Hospitals Agenda³ presents 10 interconnected goals with action items for implementation by hospitals and health systems. Under the same programme, Health Care Without Harm has also launched the “2020 Health care Climate Challenge” which aims to increase mitigation activities, resilience and leadership in health-care organizations and collect more data on the impact of health-care systems on climate change, since the available data come mainly from the United Kingdom and United States of America.

¹ How doctors can help reduce pharmaceutical pollution. Brussels: Health Care Without Harm Europe; 2014 (<https://noharm-europe.org/sites/default/files/documents-files/3026/HCWH%20Europe%20-%20%20Pharma%20Leaflet%20for%20Doctors.pdf>, accessed 4 December 2016). See also www.saferpharma.org (accessed 4 December 2016).

² See <https://www.wien.gv.at/english/environment/protection/oekokauf/disinfectants/> (accessed 4 December 2016).

³ www.greenhospitals.net (accessed 19 November 2016).

Annex II. Programme

Monday 24 October

- 08:30–09:00 Registration
- 09:00–09:10 Welcome (Elizabet Paunovic, WHO)
- 09:10–09:20 Introduction to the topic and scope of the meeting (Gerardo Sanchez Martínez, WHO)
- 09:20–09:45 Tour de table: Introduction of participants and election of chair and rapporteur
- 09:45–10:15 Session 1: The case for environmentally sustainable health systems
- The global and European policy mandate for environmentally sustainable health systems (Elizabet Paunovic, WHO)
 - The need for a transition towards Environmentally Sustainable Health Systems (Srdan Matic, WHO)
- 10:15–10:30 Questions and answers
- 10:30–11:00 Session 2: A strategic approach towards environmentally sustainable health systems
- Benefits and opportunities of environmental sustainability in health systems (Martin Kraye von Krauss, WHO)
 - Environmentally sustainable health systems: a strategic document (Gerardo Sanchez Martínez, WHO)
- 11:00–11:15 Questions and answers
- 11:15–11:30 Coffee break
- 11:30–12:30 Session 3: Managing change in health systems – principles and application to the adoption and implementation of environmental sustainability
- Managing change in health systems (Marton Kis, Semmelweis University)
 - Governance-driven change towards ESHS – the example of the United Kingdom NHS (Sonia Roschnik, consultant)
 - Bottom-up change towards ESHS – selected examples from WHO European Member States (Anja Leetz, Health care Without Harm Europe)
 - The links between leadership, transformational change, efficiency and environmental sustainability (Jonathan Erskine, Durham University)
- 12:30–13:00 Questions and answers; Interventions from Member States
- 13:00–14:00 Lunch break
- 14:00–14:10 Organization of the group work and introduction to group work questions (Gerardo Sanchez Martínez, WHO)
- Group work questions:
- How could the process of establishing and adopting a national environmental sustainability policy for health systems be initiated?
 - Who would be the main stakeholders within the administrations, providers, civil society, etc.?
- Working paper 06: Environmentally Sustainable Health Systems: a strategic document
- 14:10–16:00 Group work

- 16:00–16:15 Coffee break
- 16:15–17:00 Presentation of group results and discussion
- 17:30–18:30 Reception, 29th floor

Tuesday 25 October

- 09:00–09:15 Summary of day 1 (Gerardo Sanchez Martinez, WHO)
- 09:15–10:15 Towards a wider adoption of environmentally sustainable health systems: entry points and cross-sectional areas:
- Sustainable procurement in health systems: leveraging buying power towards sustainability (Ignacio Sanchez, UNDP)
 - The economics of environmentally sustainable health systems: return on investment in low carbon in the United Kingdom (Imogen Tennison, NHS)
 - Water, sanitation and wastewater in health care facilities (Arabella Hayter, WHO)
 - Chemicals and environmental sustainability in health systems (Irina Zastenskaya, WHO)
- 10:15–10:30 Organization of the group work and introduction to group work questions (Martin Krayer von Krauss, WHO)
- How can we leverage the European Environment and Health Process (EHP) to promote ESHS in the region?
 - Possible actions and SMART targets for endorsement at the 2017 Ministerial Conference
 - What strategic partnerships need to be created?
- Material: Background documents
- 10:30–11:15 Group work
- 11:15–11:30 Coffee break
- 11:30–12:15 Continuation of group work
- 12:15–13:00 Presentations of the group work and discussion
- 13:00–14:00 Lunch break
- 14:00–15:00 Discussion and conclusions:
- Next steps
 - Mechanisms for collaborative work
 - Technical work 2017
 - Support from WHO
 - Countries or organizations volunteering to host the next meeting
- 15:00–15:15 Coffee break
- 15:15–15:30 Summary of the two days (Gerardo Sanchez Martinez, WHO)
- 15:30–16:10 Conclusions and next steps (Srdan Matic and Elizabet Paunovic, WHO)
- 16:15 Closure of the meeting

Annex III. List of participants

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**The WHO Regional
Office for Europe**

The World Health Organization (WHO) is a specialized agency of the United Nations created in 1948 with the primary responsibility for international health matters and public health. The WHO Regional Office for Europe is one of six regional offices throughout the world, each with its own programme geared to the particular health conditions of the countries it serves.

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Improved environmental sustainability in health systems (ESHS) can yield benefits for patients, practitioners, health systems functions and the environment and supports the strategic objectives of Health 2020. The latest in a series of technical and policy workshops on ESHS took place on 24 and 25 October 2016 at the WHO European Centre for Environment and Health, Bonn, Germany. The participants – health systems experts and representatives of Member States, United Nations agencies and nongovernmental organizations – discussed the promotion and management of ESHS in the Region and considered a revised version of a draft strategic document to support relevant policy discussions. They stressed the importance of mobilizing and informing national support for ESHS, and discussed proposals for SMART targets for ESHS and possible elements of a draft statement for inclusion in the ministerial declaration of the Sixth Ministerial Conference on Environment and Health in 2017.

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