TECHNICAL FACT SHEET 1

Strengthening the resilience of WASH services in health care facilities to climate impacts

The impacts of climate change (e.g. higher temperatures, more intense storms and cyclones, droughts, floods, sea level rise) are expected to increase risks to health, particularly in low- and middle-income countries. The impacts of weather variability often result in increased demand for health services when the functionality of health care facilities, including water, sanitation and hygiene (WASH) services, is even more important. All new health care facilities should be built with climate-resilient WASH services, and efforts should be made to retrofit existing facilities.

A climate-resilient health system is one that is "capable to anticipate, respond to, cope with, recover from and adapt to climate-related shocks and stress, so as to bring sustained improvements in population health, despite an unstable climate" (*WHO Operational framework for building climate resilient health systems*, 2015).

Climate considerations within the Water and Sanitation for Health Facility Improvement Tool (WASH FIT) cycle

Step	Activity	Additional considerations
Preparation	Review existing national guidelines, standards, policies and activities on climate-resilient health systems, and WASH infrastructure and services, as well as existing climate vulnerability assessments. Review early-warning systems and national preparedness mechanisms.	Modify indicators to align with national standards. Explore possible collaboration and synergies with other climate efforts. Consider investment opportunities linked to climate funds and activities.
Step 1: Establish the team	Engage individuals with environmental and climate-related expertise, including water resource specialists, climatologists, emergency planners and adaptation planners.	Identify other experts and discuss joint goals, timelines and target areas. Experts may be engaged on an ad hoc basis as needed to ensure that the most relevant information is considered in the risk assessment.
Step 2: Assess the facility	Specific elements to assess include water storage, water reuse and reduction strategies, drainage and flood-proofing, energy-efficient lighting and heating/cooling, PPE and waste reduction strategies, and environmentally sustainable waste treatment technologies.	All climate-related indicators are highlighted in the assessment tool. A climate score could be calculated for relevant indicators in each of the WASH FIT domains, for the overall facility and even for entire districts or the country.
Step 3: Risk assessment	Consider the current and future climate-related impacts on risk and the possible threat to the climate resilience of the facility.	Note the most pressing climate needs and prioritize these in the risk assessment and analysis. For example, if the facility is near a coastal area and climate projections indicate that there is a threat of hurricanes and cyclones, the risks associated with structural damage and disruption of water and power supplies may be high. Priority should thus be given to reinforcing infrastructure and installing backup power supplies.
Step 4: Develop and implement improvement plan	Consider the feasibility of addressing climate-related problems. Prioritize quick wins and low-cost climate-related improvements and changes that facilities can make easily. For example, improving waste segregation, fixing leaking pipes and reducing unnecessary glove use. Other items, such as installing solar power and additional raised water storage, will necessitate securing additional capital and funds for operation and maintenance. Procuring supplies with less packaging and phasing out mercury-containing devices will require discussions and coordination with subnational and national authorities.	Highlight quick wins on a chart that is visible to all staff (and possibly facility users). Track progress regularly (at least weekly) towards addressing these. Recognize when quick wins have been achieved through awards and at staff meetings. Develop a longer-term strategy and investment plan to complement shorter-term improvements.
Step 5: Monitor, review, adapt, improve	Climate-resilient WASH and energy infrastructure and practices are rapidly evolving, and it is important to stay informed about local and global practices and innovation.	Check in regularly with climate, energy and WASH experts at national level on new technologies and practices, and consider how to adapt the facility.

Improvements

Climate-smart WASH improvements are listed below according to domain, starting with those that can be managed directly at the facility level with minimal resources through to more complex, higher-cost improvements.

Domain	Improvement
Water 	▪ **Repair leaking pipes.** Water loss in a distribution system can be anywhere from 20% to >50%, depending on the age and condition of the network. Leaking pipes contribute to a significant amount of this water wastage. They can also serve as a source of infection by allowing inflow of contaminated water, and/or causing water to pool and provide a breeding ground for mosquitoes. ▪ **Reduce water use.** Turn off water while scrubbing hands, install low-flow fittings to washbasin taps, reuse wash water to water plants, and use low-flow toilets and low-water washing machines for laundry. ▪ **Install rainwater harvesting.** In areas that receive regular rainfall, installing rainwater collection systems on roofs may cost as little as US$ 1000, with very few recurrent costs. They should include a first-flush system and filter boxes to ensure water quality. ▪ **Clean and disinfect water tanks.** Covering, and routinely cleaning and disinfecting tanks will provide immediate health gains and build resilience against many future rainfall scenarios. ▪ **Test water quality and procure treatment supplies.** Drought, floods and other extreme weather events can worsen water quality, as a result of municipal water treatment plants shutting down or having reduced capacity, or compromised sanitation systems. Procuring low-cost, rapid water quality test kits along with water treatment supplies (e.g. filters, chlorine) can allow quick detection of contamination and adjustments to treatment. Ensure an adequate stock of consumable reagents on-site as a buffer to climate-related supply disruptions (e.g. road closures following storms/floods). Also ensure that robust procurement and supply chains are in place, with adequate redundancy to ensure continuity of supply during emergencies. ▪ **Increase water storage.** Health care facilities should have sufficient water storage to meet water needs for at least 2 days. Water storage tanks should be raised to protect against floods and to allow water to flow by gravity (thus saving energy). They should also be covered, and regularly cleaned and disinfected. Such actions will provide immediate health gains and build resilience against many future climate scenarios.
Hand hygiene 	▪ **Reduce unnecessary use of gloves.** Gloves are the highest-volume disposable product purchased by the health care sector. Glove use has increased dramatically, in part due to COVID-19; however, many medical interactions (e.g. vaccinations, consultations, most examinations) do not require use of gloves (see WHO 2021 in "Related tools and further reading"). Overuse creates unnecessary extra waste, which contributes to carbon emissions. Instead, clean hands as appropriate (according to the WHO 5 Moments for Hand Hygiene; see WHO 2009 in "Related tools and further reading").
Health care waste 	▪ **Reduce and segregate waste.** Only 15% of health care waste is infectious. The rest can be recycled and/or disposed of in landfill. Treating only infectious waste saves energy, costs and emissions from burning and/or autoclaving, the two main types of treatment. ▪ **Switch to mercury-free devices.** Mercury is toxic, and nearly all countries have agreed to phase out mercury thermometers and sphygmomanometers under the Minimata Convention. ▪ **Use non-burn technologies for health care waste.** Choose technologies, such as autoclaves, that minimize the formation and release of chemicals, hazardous emissions and carbon emissions. ▪ **Compost or biodigest organic waste.** Biogas can be used as a renewable fuel.
Energy and environment 	▪ **Switch to low-energy light bulbs.** Use of efficient LED light bulbs can save up to 79% of energy required for lighting. ▪ **Install renewable and backup energy (e.g. solar).** Solar power is cost-effective and can provide a more reliable (compared with the grid) source of energy for heating and pumping water, lighting facilities and powering basic equipment (e.g. refrigerators). ▪ **Source medical supplies with less packaging.** Procuring vaccines, medicines and other supplies that do not use plastic packaging and use less packaging overall saves costs and reduces the amount of waste that is disposed of (and eventual carbon emissions).

Related tools and further reading

Global Green and Healthy Hospitals. *Guidance documents for sustainability action* (procurement, waste, energy, water, buildings). http://www.greenhospitals.net/guidance-documents/

Health Care Without Harm (2021). *Protection without pollution: COVID-19 waste-reduction strategies*.
https://noharm-global.org/covidwaste

WHO (2009). *WHO guidelines on hand hygiene in health care*.
https://apps.who.int/iris/handle/10665/44102

WHO (2015). *Comprehensive safe hospital framework*.
https://www.who.int/publications/i/item/comprehensive-safe-hospital-framework

WHO (2020). *WHO guidance for climate resilient and environmentally sustainable health care facilities.*
https://apps.who.int/iris/handle/10665/335909

WHO (2022). *Global analysis of health care waste in the context of COVID-19: status, impacts and recommendations*.
https://apps.who.int/iris/handle/10665/351189