International Society for Quality in Health Care

GREEN CARE IS HIGH QUALITY CARE

The ISQua Green Paper and Call to Action for Environmentally Sustainable and Climate Resilient Health Systems

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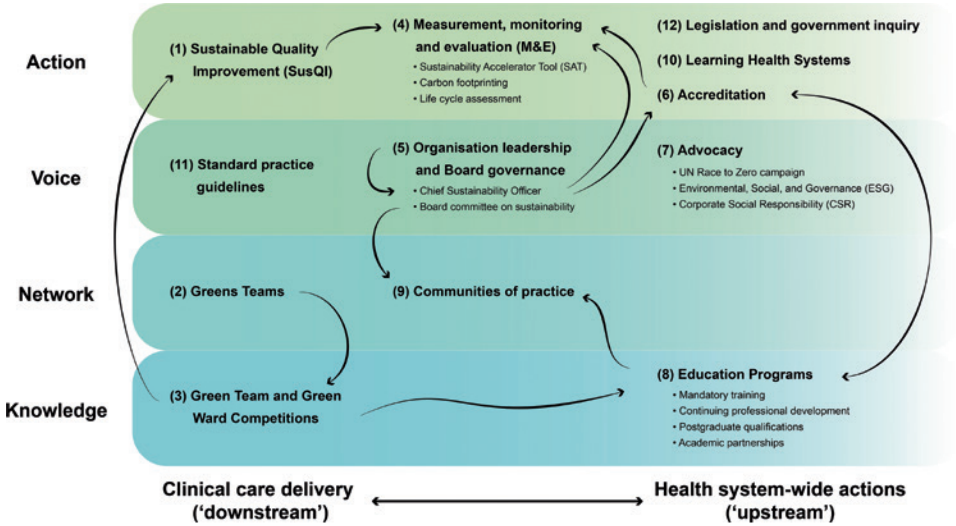
Executive summary

Our health depends on the health of the planet. Rising temperatures, pollution, and loss of biodiversity are the main elements of a global ecological disaster that threatens all life on earth. We must act now. As healthcare professionals, we need to be more aware and need a new skill set in order to cope with the health consequences. At the same time, our healthcare systems contribute substantially to this crisis, which means that we must redesign them to become more environmentally sustainable and resilient to climate change. This is a matter of critical importance and a significant responsibility as well. Green care is high-quality care. The good news is that there are many practical actions and tools available to us in our quest to build climate resilient, environmentally sustainable, and low-carbon health systems.

This Green Paper is ISQua's call to action for rapid transformation towards environmentally sustainable and climate resilient health systems – worldwide. It is accompanied by our assertion that green care is high-quality care, and that this ambition can be realized by following the ISQua Pathways for Practical Actions on Environmental Sustainability in Health Systems. We hope you will join us in walking along these pathways towards a better future. ISQua is committed to championing the knowledge, network, voice, and action of our membership to meet this vital, global challenge to the future of health.



ISQua Pathways for Practical Actions on Environmental Sustainability in Health Systems.

Chapter 1 – Why does ISQua need a position statement on the environment?

What are the future challenges for healthcare delivery, quality and safety, and health system management?

We live and work in an era where our health and our environment are increasingly intertwined – just as it was in the times before momentous shifts to human civilization were brought upon by the agricultural revolution, the industrial revolution, or the digital revolution. While these revolutions brought technological advancement and related material benefits, they also resulted in unsustainable development and the destruction of our living, natural environment. The consequences of these extractive practices are unequally distributed within countries and between countries and reinforce social injustices.

The way societies advance around the world – with insufficient attention on how deeply the natural environment determines our health – is now seriously impacting health outcomes for individuals and communities, impacting the effective and efficient functioning of health systems, and impacting the ability of health practitioners and managers to do their job well.

This is a topic of practical and acute concern for all health professionals, especially those who are interested in delivering safe and quality healthcare and building health systems that are efficient, effective, equitable, and resilient. The international health community has recognized the importance of this issue and charted a course of action through the global strategy on health, environment, and climate change [1]. Health systems with higher levels of organizational maturity on environmental sustainability have started to develop accreditation standards and certifications (such as the Sustainable Healthcare Certification launched by the Joint Commission in the United States), set expectations for net zero health services under national health and climate change law (such as the Greener NHS program in England), implement metrics and tools for carbon footprinting (such as Aga Khan Health Services and the International Committee of the Red Cross), and develop strategies to build climate resilient health systems (such as through Health National Adaptation Plans implemented by several countries in the Global South and Global North).

As these efforts intensify, we must now translate them at the regional, local, organizational, hospital, clinical, and workforce level. In all of this, while our actions must be practical, our intention must be transformative – only then will we truly meet the challenge we are up against. And we have no time to waste. If we are successful in addressing the challenge of developing climate resilient, environmentally sustainable, and low-carbon healthcare, we have the chance to improve the very nature of healthcare, as well as the upstream environmental and social determinants of health. As the Director-General of the World Health Organization has clearly stated, now is the time "for radical action to safeguard the health of the planet on which all life depends by addressing the existential threat of climate change" [2].

"It is now clearer than ever before that sustainability – in the broadest sense of the word – should be our main concern." – ISQua Chief Executive Officer

What is a Green Paper?

ISQua has previously developed White Papers on topics such as external evaluation (2021) or person-centred care (2022), and also on sustainable health systems (2016). The latter focused on important issues such as ageing, chronic and complex conditions, technology, and resource constraints. However, it was written in an era before we clearly understood the true scale and severity of ecological degradation impacting health and healthcare, and before concepts of planetary health and environmental stewardship by health systems had become mainstream.

This Green Paper builds upon the ISQua Statement on Sustainability in Health Care and its five principles regarding climate change published in 2019 [3]. Box 1 sets out these five principles.

Box 1: ISQua five principles regarding climate change [3]

1. ISQua recognises the serious consequences of climate change and pollution for the health of individuals and populations across the planet.
2. ISQua recognises that the healthcare sector has a responsibility to minimise its impact on climate change and pollution.
3. ISQua recognises the urgency and importance of climate change as part of its mission to inspire and empower people to advocate for and facilitate health and improvements in the quality and safety of healthcare worldwide.
4. ISQua believes that inspiring and empowering people to advocate for and facilitate health and improvements includes the promotion of climate sustainability and implementation of climate-friendly interventions.
5. ISQua will support the promotion of climate sustainability in the healthcare sector.

The Green Paper adds another domain of practice against which ISQua members, and indeed all health practitioners and managers, need to become conversant and competent. This Green Paper is written with the same purpose as ISQua's White Papers; it is very much a position statement that sets direction for ISQua and its members. We simply felt that "green" was the more fitting word for the subject matter.

This Green Paper is the first in a tranche of work on this far-reaching, challenging, and urgent theme, which is entirely relevant to ISQua's raison d'être: improving quality and safety in healthcare worldwide.

What are the objectives of this Green Paper?

This Green Paper does three things: it outlines the challenge before us (Chapter 1); provides a short primer on climate change, ecological disruption and health, and describes the latest international developments (Chapter 2); and provides practical actions to build climate resilient, environmentally sustainable, and low-carbon health systems (Chapter 3).

From ISQua's perspective as a member-based organization, the objectives of this Green Paper are:

- To improve the knowledge of ISQua members, and everyone working in health systems, on the acute threats to health from climate change, pollution, and biodiversity loss and the solutions to address these from a quality improvement and patient safety perspective.
- To set out the position of ISQua on the role of health systems in responding to climate change and the ecological crisis.
- To advocate for environmentally sustainable (green) interventions to transform health systems away from "business as usual" in order to avoid ecological collapse and societal disintegration and to sustain the provision of safe and quality healthcare.
- To further strengthen quality and safety in healthcare through the lens of environmental sustainability by presenting a suite of practical, solution-oriented quality improvement processes and tools.

How was this Green Paper developed?

This seed of this project was sown with the ISQua Cape Town Statement on Sustainability in Health Care in 2019 (Box 1). The Green Paper was conceptualized during the ISQua 2022 conference in Brisbane, Australia, which featured six presentations on the theme of climate change and health, including a keynote address. The ISQua President, Chief Executive Officer, and the Board subsequently approved the development of a position paper in alignment with ISQua's mission to inspire and drive improvement in healthcare, and engage in education and knowledge sharing through its global network. A dedicated Green Paper Working Group was established in 2023 and met on five occasions over the course of 12 months to develop the paper. Consultation with the ISQua membership occurred during the ISQua 2023 conference in Seoul, South Korea, and the Green Paper was launched at the ISQua 2024 conference in Istanbul, Turkey.

Chapter 2 – A short primer on climate change, ecological disruption and health

What are the health impacts of climate change?

The evidence for health impacts of climate change is now well described in the scientific, medical, and healthcare literature. Figures 1 and 2 provide visual representations of the health impacts that we should understand. Figure 1 outlines the environmental changes and the exposure pathways through which negative health outcomes are generated. Notice the mediating vulnerability factors (demographic, socioeconomic, gender, and other factors) which can have either protective or harmful effects on individuals and communities. The health outcomes are categorized according to pathophysiological systems and major disease groups. They may vary considerably between populations in different global geographical locations. Ultimately, these factors have impacts on individual healthcare facilities and entire health systems.

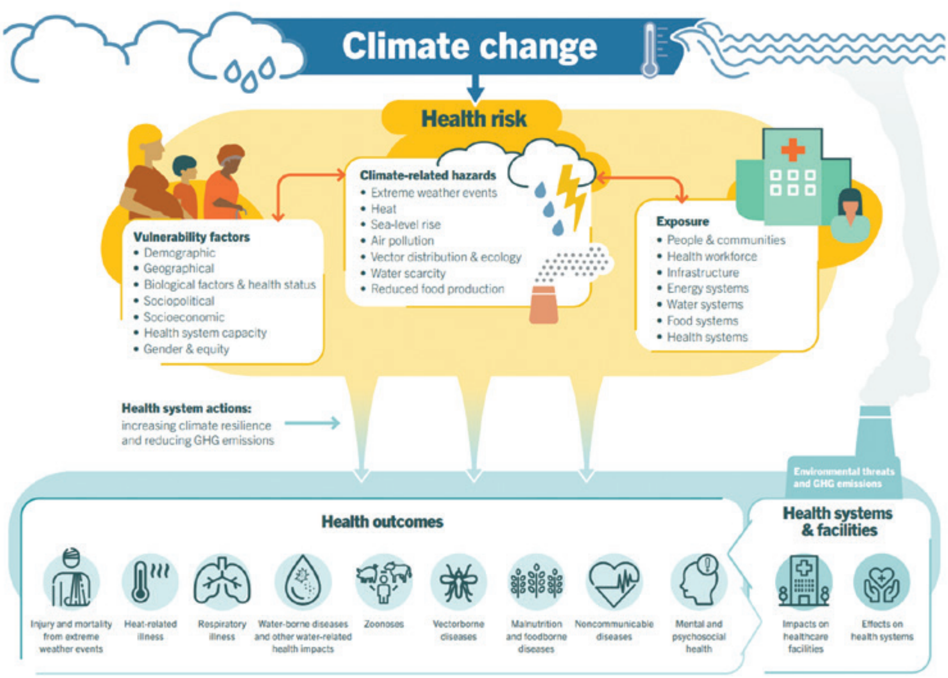


Figure 1: Risks to health and health systems from climate change [4]. GHG: greenhouse gas.

How can we respond to climate change through our development choices?

Adaptation and mitigation are complementary strategies for responding to the multiple ecological crises. Adaptation to climate change is about adjusting to actual or expected impacts of climate change (such as heatwaves or rising sea levels) and their consequences. Mitigation of climate change is about the reduction of greenhouse gas emissions, waste, and pollution, or enhancing biodiversity, so as to limit future damage to the ecological systems that we rely on. Both adaptation and mitigation actions can help to manage and avoid the risks of ecological degradation. However, we must ensure we do not develop "tunnel vision" on either managing the unavoidable (adaptation) or avoiding the unmanageable (mitigation) – we need to do both.

Figure 2 outlines the macro-level actions that can be taken to mitigate the further increase of greenhouse gas emissions, which causes climate change. As a species and a global community, we find ourselves at a crossroads. Understanding the future climate projections developed by the United Nations Intergovernmental Panel on Climate Change (IPCC) helps us to make decisions today to avoid an unliveable planet. There are potentially dire implications of the choices we make today (represented on the left side of the figure, with high concentrations of greenhouse gases), but also the potential for a transformative and just transition to a net zero economy (seen on the right side of the figure).

Emissions of greenhouse gases (such as carbon dioxide [CO_2]) into Earth's atmosphere result from burning fossil fuels (such as coal, oil, and gas) for generating energy and manufacturing, and contribute greatly to global warming. Given that this is an anthropogenic (human-made) situation, we can measure it and reduce it, and develop alternatives that are demonstrably better than burning fossil fuels. Reducing greenhouse gas emissions is critical, but sometimes we can develop "carbon tunnel vision", where we forget that the loss of biodiversity and environmental pollution is as much threatening our health and existence as CO_2 and other greenhouse gases. This comes down to the development choices we make at all levels of human organization – as villages, towns, cities, countries, and as an international community – because there are simply no feasible, large-scale, and just technological solutions available in the short term. And the crisis worsens every year.

> *"If we regard the earth as our patient, we see a necessity to acute medical intervention. We can only live in health, when our living environment is healthy. That is the essence of planetary health." – Professor Surgical Oncology*

How are health systems affected by climate change?

The ecological crisis affects all countries across the world – and their health systems. Low-resource settings are generally affected to a greater extent, but high-resource settings are not spared by rising temperatures, wildfires, or floods. Health systems face the challenge of working out both adaptation and mitigation strategies in order to protect and improve the building blocks of health systems

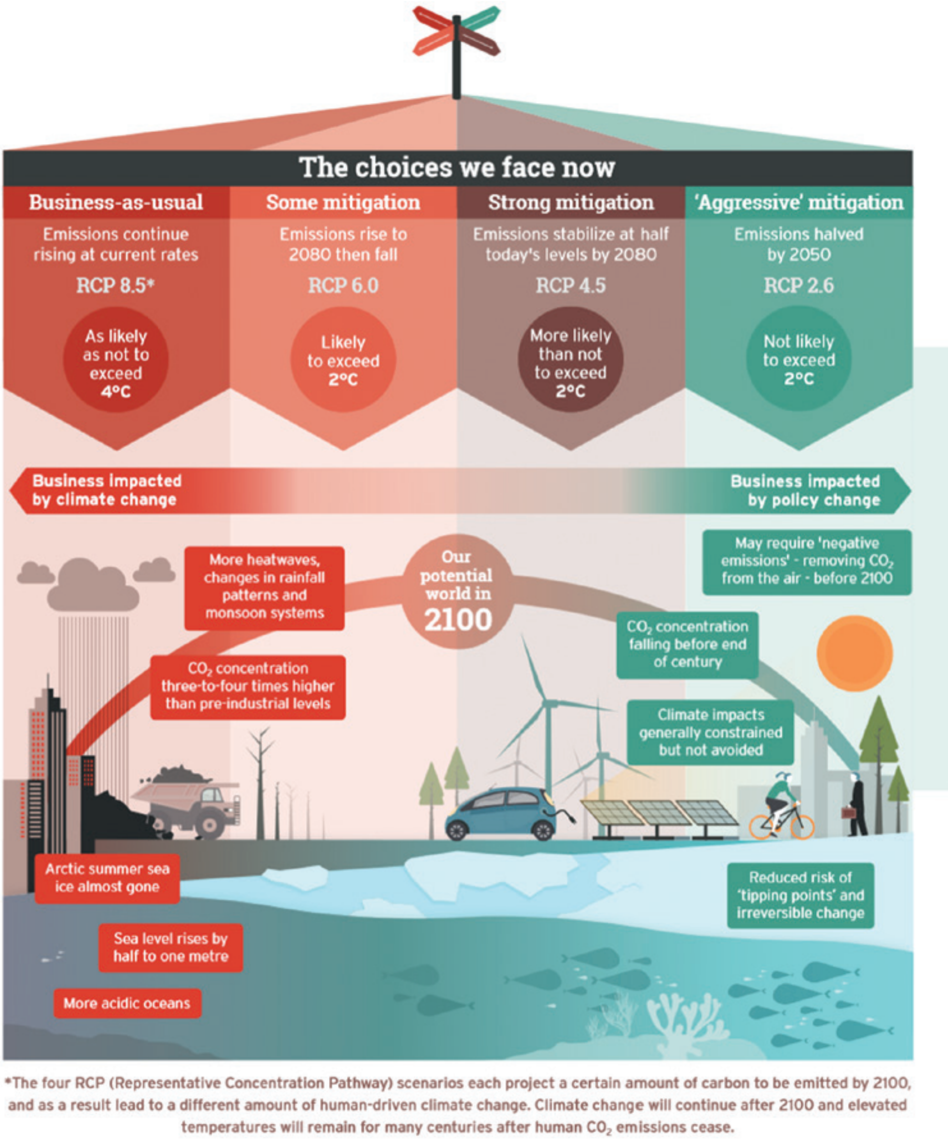


Figure 2: The carbon crossroads: four potential futures depending on the policies governments adopt to cut greenhouse gas emissions [5].

(Fig 3). All building blocks can be made more sustainable. Some fear that this new task of responding to climate change will put extra stress on the health systems' operations, but this climate reality can also be transformed into a motivational force.

Once the sobering reality of climate change hits, health leaders and organization managers will need to take immediate action to make a risk assessment, redirect budgetary resources, adjust service delivery, review infrastructure and supply chain resilience, reorganize information technology systems, and lead their health workforce into the transition to a resilient health system that functions in harmony with our natural environment. All of these actions will depend on the local context, organizational maturity, and patient and population health needs.

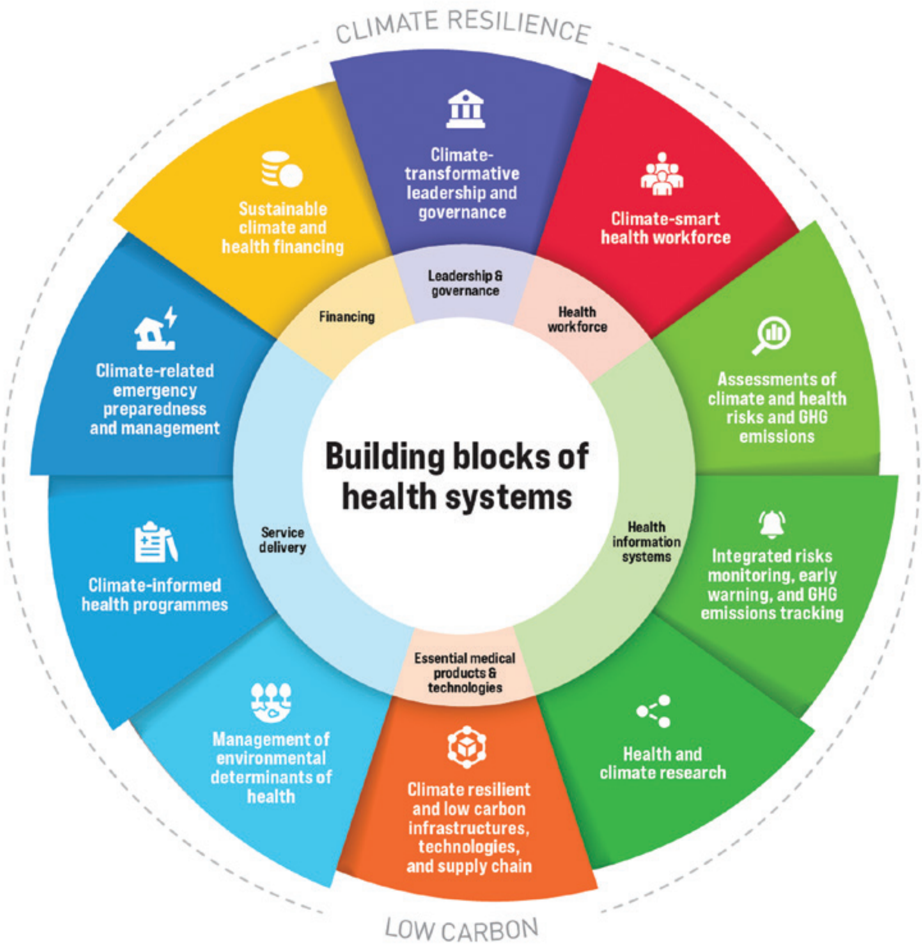


Figure 3: The 6 building blocks (inner circle) and 10 components (outer circle) of climate resilient, environmentally sustainable, and low-carbon health systems [4]. GHG: greenhouse gas.

The World Health Organization defines climate resilient and low-carbon health systems as being capable of anticipating, responding to, coping with, recovering from, and adapting to climate-related shocks and stress, while minimizing greenhouse emissions and other negative environmental impacts to deliver quality care and protect the health and well-being of present and future generations [4].

The resilience of health systems is determined by a combination of the vulnerabilities present, the intensity of the exposure, and the magnitude of the hazards. A health system's capacity defines the ability to withstand the impact of shock or stress to the system. In order to better cope with these impacts, we can learn from previous experiences and design preventive actions or recovery interventions for improved outcomes (Fig 4). Thus we can strengthen the building blocks that form the capacity of our organizations and positively protect ourselves, our patients, and our communities.

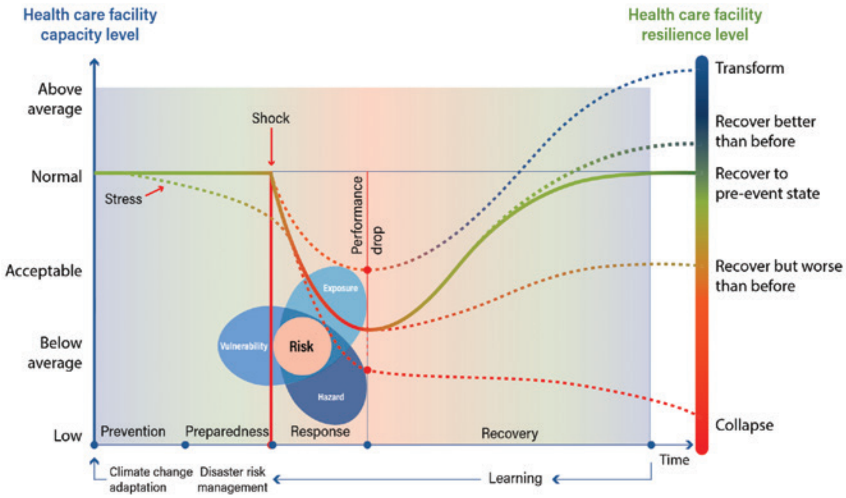


Figure 4: Health system capacity and resilience to climate change-related shocks and stresses, and possible pathways from collapse to transformation [6].

We should also be mindful that there are other important determinants of resilient health systems. Just as the global health community has endorsed the operational framework for climate resilient, environmentally sustainable, and low-carbon health systems (Fig 3), there is also an operational framework for primary healthcare (PHC) [7]. The Declaration of Astana in 2018, on the 40th anniversary of the seminal Declaration of Alma-Ata, reiterated the international commitment to PHC and emphasized the critical role of primary care in health systems around the world, and as an important element of universal health coverage.

How are health systems contributing to climate change?

Figure 5 shows the broad scope of any organization's carbon footprint, which we can also apply to the health sector. The health sector's energy consumption, transport, and product manufacture, use, and disposal all contribute to substantial greenhouse gas emissions. Emissions directly from healthcare facilities and healthcare-owned vehicles are categorized "Scope 1 emissions", making up 17% of the health sector's carbon footprint worldwide. Indirect emissions coming from purchased energy sources such as electricity, steam, cooling, purifying, and heating ("Scope 2 emissions") comprise another 12% of the health sector's emissions. "Scope 3 emissions" include every step in the healthcare supply chain – including the production, transport, and disposal of goods and services, such as pharmaceuticals, cleaning products and other chemicals, food and agricultural products, medical devices, hospital equipment, and instruments. These Scope 3 emissions that are upstream of the organization comprise the largest portion, 71% of the health sector's greenhouse gas emissions.

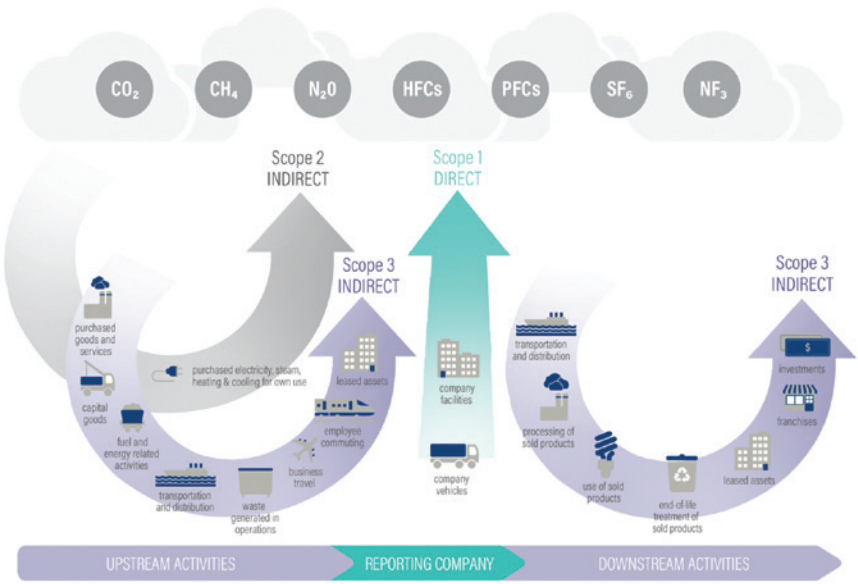


Figure 5: Scope 1, 2, and 3 greenhouse gas emissions of organizations [8]. CO_2: carbon dioxide; CH_4: methane; N_2O: nitrous oxide; HFCs: hydrofluorocarbons; PFCs: perfluorinated chemicals; SF_6: sulphur hexafluoride; NF_5: nitrogen pentafluoride.

How can health practitioners and health system managers address climate change and environmental sustainability?

Responding to the reality of climate change can feel difficult, distressing, or even impossible in our day-to-day roles as clinicians, health practitioners, health system managers, and related professions. Feelings of depression, eco-anxiety, and solastalgia are well documented [9, 10]. The good news is that the health sector is in a strong position to make rapid strides in addressing climate change and environmental sustainability. Mortimer and colleagues developed the seminal conceptual framework on environmental sustainability in healthcare. They identified a formula for describing 'sustainable value', which puts patient and population health outcomes at the centre, but considers them in the context of the "triple bottom line" of the environmental, social, and financial cost of healthcare activity (Fig 6). This is a conceptual formula rather than numerical formula – we cannot directly input metrics of health activities into this formula to figure out if we are creating sustainable value. Instead, this formula helps us to conceptualize and think about our quality improvement and patient safety work, by applying the lens of environmental sustainability.

$$Sustainable\ value = \frac{Outcomes\ for\ patients\ and\ populations}{\underset{(the\ 'triple\ bottom\ line')}{Enviromental + social + financial\ impacts}}$$

Figure 6: The sustainable value equation [11].

Mortimer and colleagues supplemented the sustainable value equation with the five principles of sustainable healthcare (Fig 7) to guide improvements. They arrived at these principles by starting with the outcome needed: to improve health, while also reducing carbon emissions of healthcare. The two primary drivers for producing this outcome are reducing low-value (unnecessary, ineffective, or unsafe) healthcare activity and reducing the carbon intensity of current clinical practice. The secondary drivers form the five principles of sustainable healthcare: (i) disease prevention, (ii) patient empowerment and self-care, (iii) lean pathways for health service delivery, (iv) preferential use of low-carbon alternatives that have lower environmental impact, and (v) energy and resource efficiency in healthcare operations.

Mortimer and colleagues have shown that quality improvement in healthcare (activities that aim to improve the processes and outcomes of healthcare) can go hand in hand with sustainability, that is, activities that aim to improve the processes and outcomes of healthcare in ways that optimize social, economic, and environmental value.

Many enterprises are now integrating sustainability in their business operations through environment, social, and governance (ESG) or corporate social

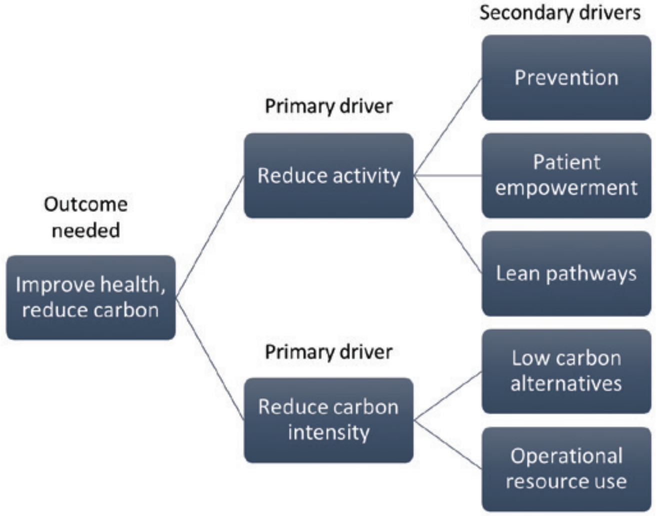


Figure 7: The principles of sustainable healthcare illustrated by a driver diagram [12].

responsibility (CSR) programs. An ESG strategy allows organizations to steer towards value creation now and in the future. Implementing an ESG strategy helps in two ways. First, it helps the organization with risk management and upholding a sound business model in a changing world. Second, it helps the organization to align with the values of their employees, customers, patients, stakeholders, environment, and society. In some parts of the world, this is already legally required. In the European Union, the Corporate Sustainability Reporting Directive entered into force in 2023, requiring large companies to report on ecological, ethical, social, and organizational issues [13]. Attention to ESG in healthcare is relatively new, but increasing worldwide. It is essential for any ambitious health organization today to make a genuine commitment to ESG, set clear goals, and develop a roadmap to achieve these goals.

Health organizations are not always very effective when it comes to new investments, sometimes having little or no financial reserve, and are perceived to have little policy power within the current budgetary conditions and financial systems. The good news is that well-designed environmental sustainability initiatives save money and have good return on investment. However, it still takes courageous leadership to push these limits and set new limits to how we manage health organizations. There is a need to look to longer time horizons in healthcare in order to avoid "short-termism". Despite potentially higher short-term costs, the long-term benefits of green investments are proven, with a high return on investment over time. Reflecting back on the sustainable value equation in Figure 6, we must remember that sustainability in healthcare is not just about money (the "financial bottom line") but in fact there is a "triple bottom line", and health organizations have fiduciary duties to people and the environment. Indeed, care of people is the core mission of health organizations, and health services could not operate without using environmental resources.

What are the upstream determinants of health we must consider?

Planetary health is an important transdisciplinary paradigm that examines how human health and well-being depend on the health of the Earth's ecosystems and the delicate balance of its natural processes [14]. Planetary health takes a holistic systems view of the world, recognizing the interconnectedness of the health and well-being of all life on Earth. Rather than just minimizing harm, it seeks out solutions for climate-related societal issues in the various disciplines from economics, sociology, architecture, law and ethics, migration, infectious disease prevention, and beyond.

Figure 8 visualizes the impacts of human activities that cause planetary changes which, in turn, affect human health. Driven by population and economic growth, a sharp increase in consumption and production, and the use of technologies with large environmental impacts, we produce ecological impacts such as climate change, biodiversity loss, and pollution of water, soil, and air. The scale of human activity now exceeds the Earth's capacity to contain and break down waste, or even to continue providing the resources that we are using. We are currently disrupting most of our planet's natural systems and violating planetary boundaries. Those disruptions (such as natural hazards, poor air quality, food insecurity) interact with each other in intricate ways to alter the fundamental conditions for human health and well-being. Depending on the presence and the weight of certain mediating factors, this will eventually affect every dimension of human and non-human health.

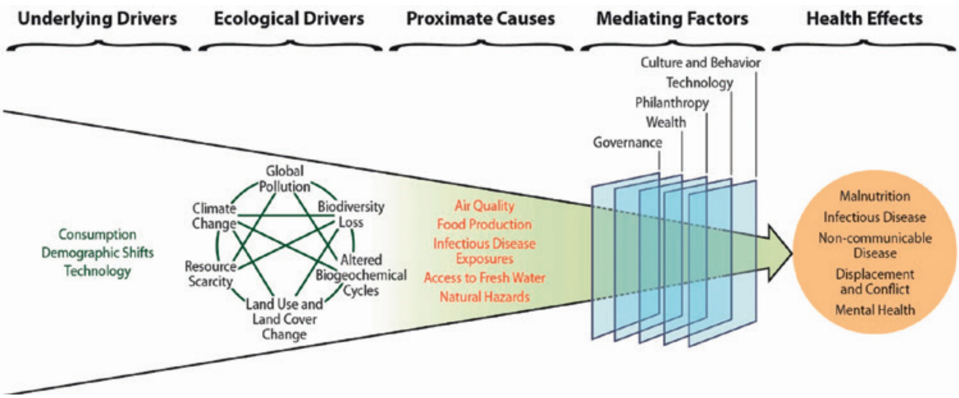


Figure 8: Conceptual framework of planetary health [15].

Climate justice is part and parcel of the planetary health paradigm. The major causes of the crises are rooted in serious inequities between and within continents, regions, and countries. Historically, the Global North has been responsible for the majority of greenhouse gas emissions, but the Global South (particularly countries in Asia) is fast catching up and now emitting more than Europe [16]. How we balance countries' development needs while reducing emissions around the world is the focus of discussions at the United Nations climate negotiations. These negotiations have agreed to a Loss and Damage Fund to assist developing countries that are particularly vulnerable to the adverse effects of climate change [17].

Our concern as ISQua members, health practitioners, and health system managers is on health and, by extension, on reducing inequalities and promoting justice, which are the enabling conditions for good health. Climate change disproportionally impacts low income communities, communities of colour and countries that have not benefitted from high-emissions development pathways. Therefore, a just transition to a sustainable world must consider the many different facets of social, gender, racial, and environmental injustices. These are society-wide conversations where the voice and engagement of health practitioners is critical and highly valuable. Today we see many scientists from all disciplines, including health and medicine, go out on the street to protest peacefully and call for social and ecological justice. Faced with the reality of an ecological and social crisis that threatens humanity, this emerging activism is quite understandable.

In Chapter 3, we will return to some practical actions and tools that can be used to realize the ambition set out by this conceptual framing of the challenge of climate change and planetary health.

Authoritative resources on climate change and health

We are now at a point in time when resources and information on climate and health are rapidly expanding, new evidence and research is emerging across many different settings and health systems, and there are multiple repositories of information. For readers who are less familiar with the topic of climate and health, we recommend the starting points for further reading outlined in Box 2.

Box 2: Authoritative resources to start your journey

- The Routledge Handbook of Climate Change and Health System Sustainability is recommended for those who are looking for a textbook that covers a wide scope of topics related to climate and health (available at https://doi.org/10.4324/9781032701196).

- The Intergovernmental Panel on Climate Change (IPCC) is the United Nations body for assessing the science related to climate change. The IPCC publishes accessible summaries for different audiences, such as its summary for policymakers (available at https://www.ipcc.ch/report/ar6/syr/).
- The Alliance for Transformative Action on Climate and Health (ATACH) community of practice was established by the World Health Organization and international partners and covers the latest developments from countries around the world (available at https://www.atachcommunity.com/).
- Health Care Without Harm (HCWH) is an international organization dedicated to providing resources, knowledge, and inspiration for the healthcare sector to reduce its environmental impact (https://noharm.org/). The vision is realized through the Global Green and Healthy Hospitals (GGHH) network of 2,000 healthcare member organizations in over 80 countries.
- The Global Consortium on Climate and Health Education (GCCHE) brings together health educators and provides open access educational resources on climate and health (available at https://www.publichealth.columbia.edu/research/programs/global-consortium-climate-health-education).
- The Lancet Countdown on Health and Climate Change is an international academic collaboration that tracks the link between climate change and health with indicators under five domains, with the ultimate intention of engaging with policymakers and support health professionals to take action on climate change (available at https://www.lancetcountdown.org/).
- The Planetary Health Alliance is a consortium of universities, non-governmental organizations, research institutes, and government entities from over 70 countries committed to understanding and addressing the impacts of global environmental change on human health and well-being (available at https://www.planetaryhealthalliance.org/home-page).
- The Climate Psychology Alliance draws on mental health practice and research to explore psychological responses to the climate and ecological crisis and to strengthen human relationships and resilience for a just future. Practical resources include training events and a Handbook of Climate Psychology (available at https://www.climatepsychologyalliance.org/).
- Health for Extinction Rebellion is part of a global movement which utilizes nonviolent resistance to avert climate breakdown, halt biodiversity loss, and minimize the risk of ecological collapse and human extinction (available at https://healthforxr.com/about/).

Historical perspectives on the international health, climate, and development agenda

For decades, scientists have warned of the consequences of the loss of biodiversity; pollution of air, soil, and water; the warming of the earth; and other signs of ecological degradation. It took a while for governments, societies, companies, and organizations to act upon these challenges. In this section, we highlight some key achievements – it is not comprehensive and is written as an informed but armchair perspective.

Almost all countries are members of the United Nations Framework Convention on Climate Change (UNFCCC), an entity tasked with international negotiations to respond to the threats of climate change. Through this mechanism, countries reached the landmark Paris Agreement in 2015 to limit global temperature rise to 1.5°C above pre-industrial levels. However, from the first UNFCCC meeting in Berlin in 1995 until today, global warming caused by the emission of atmospheric CO_2 and other greenhouse gases has increased significantly. This is established by continuous reports of the IPCC and many other independent scientific organizations. Top climate scientists therefore expect "catastrophic consequences" for humanity and the planet [18].

Denial of the reality of global warming has reduced perhaps, and we see much more debate about the actual severity of the respective crises and consequently the best way to handle it. There is also debate about how we fairly allocate the cost of climate change mitigation within and between countries, more in particular between the Global South and Global North, the North having created a far greater historical share of greenhouse gas emissions than the South.

The health of humans depends on the health of the planet. Caring for our natural environment is caring for ourselves. Ignoring this fundamental truth today is a recipe for disaster. Yet the impact of the ecological crisis on health is relatively new to the international climate agenda. The World Health Organization organized a conference on the health impacts of climate change as late as 2014. But it sent the message to a wider audience, and since then climate change has appeared more and more often on the agenda of many international healthcare conferences. This includes UNFCCC conferences, the World Medical Association Declaration of Delhi on Health and Climate Change [19], ISQua conferences [20], and the American Medical Association declaration of climate change as a public health crisis [21].

Critically, our healthcare systems add significantly to climate change, pollution, and waste. International assessments have shown that the health sector contributes 5-10% of national greenhouse gas emissions in many countries [8]. Needless to say that low-resource countries contribute relatively less and their healthcare systems have a relatively low environmental impact. Obviously people in low- and middle-income countries (LMICs), especially the most vulnerable groups, suffer the most from the adverse effects of the eco-crisis.

Therefore, "greenifying the healthcare routine" has attracted much more attention since 2019. Not just in policy, but also among healthcare professionals. Many of us went out on the streets to protest and demand more climate action. Like every other part of society, health must contribute to achieving national climate objectives in terms of reducing emissions, pollution, and waste. We can do that by responding to the needs of patients. Sustainability is our watchword. Sustainability in terms of what we can do to provide for the generations to come. In terms of preserving the natural resources and the ecosystems upon which life depends. Sustaining life on this planet as we know it. Delivering healthcare sustainably may be perceived as yet another task in an already packed workload. Or yet another theme in an already congested curriculum. Or the next financial burden. Sometimes we hear the argument that in health we have neither the expertise nor the time to do this. But we believe it is not only imperative to work and live more sustainably, but it is actually possible: as healthcare professionals, we are in a unique position to drive climate action and we have the tools for change at our hands.

In 2021, 19 international health journals and organizations urged political leaders to act with urgency and to overcome differences in order to protect the natural systems that are vulnerable and degraded more than ever by human activities [22]. In the same year, the Alliance for Transformative Action on Climate and Health (ATACH) was formed in the wake of the United Nations climate negotiations in Glasgow. Through this alliance, over 50 countries committed at the ministerial level to strengthen the climate resilience and to lower the emissions of health systems [23]. In 2023, the United Nations climate negotiations in Dubai were described as a historical milestone in delivering the first ever "health day" at such a conference and the UAE Declaration on Climate and Health [24]. The declaration was accompanied by a billion dollars in funding for climate and health initiatives, together with the COP28 Guiding Principles for Financing Climate and Health Solutions [25]. The health community also came together to present the COP28 Prospectus of Climate & Health Solutions, which presented case studies on a range of high-impact, evidence-backed interventions that can be rapidly scaled up to address climate change [26].

It is hoped that wider recognition of the health consequences of climate change and the health benefits of climate policies might mobilize more people and with them additional weight to the UNFCCC process. Figure 9 outlines the triple imperative for investing in health-led solutions to climate change, through the three pillars of action for centring health in the United Nations climate negotiations.

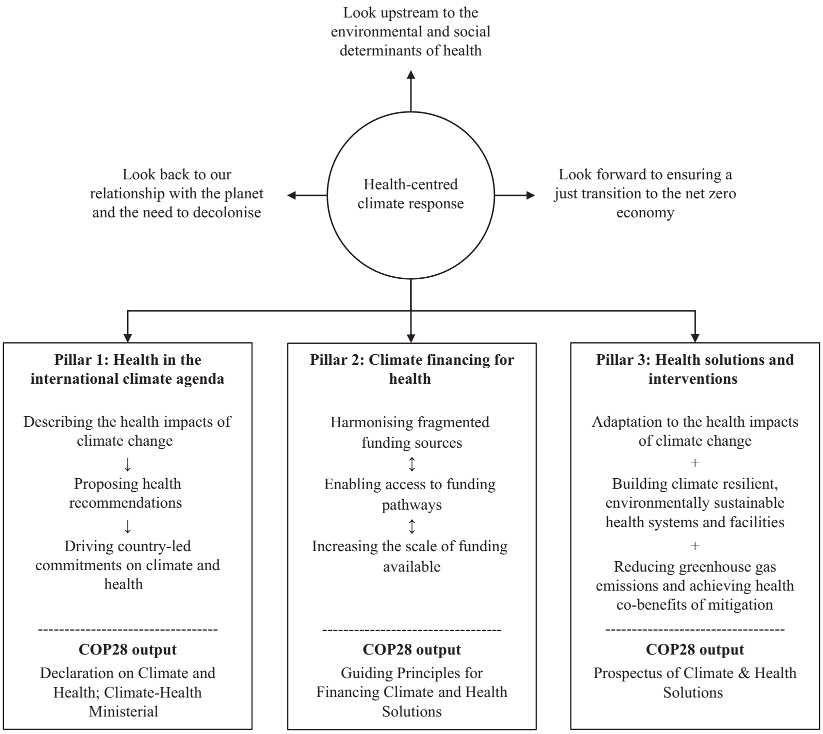


Figure 9: Three pillars of action for centring health in the United Nations climate negotiations [17].

But the time window is small. *We must act now.* Public health is a vital condition for health and prosperity worldwide. As health professionals, we enjoy a high level of trust. This implies we have an extraordinary role to play in driving "green" and sustainable healthcare [27]. We must do it. We can do it. And we will do it together.

Chapter 3 – Practical actions to build climate resilient, environmentally sustainable, and low carbon health systems

What can ISQua and its members do to advance environmental sustainability?

The ISQua community is ready to face the collective challenge of environmental sustainability through our 40-year track record of improving quality and safety in healthcare around the world. Indeed, ISQua is there to support healthcare professionals to achieve sustainability in their routines through our combination of *Knowledge*, *Network, Voice*, and *Action*.

This new environmental focus for ISQua means that our remit now extends beyond prevention, care, and cure – and on to stewardship – of health systems, of environmental resources, of people's well-being, and of the planet's well-being. Our new remit requires new manners, means, and methods. But we can utilize and improve the tools we already have at our disposal for our core business of quality improvement.

Before we consider the practical tools we can use, let us consider ISQua's four tag words, which can guide the scope of our activity on environmental sustainability.

Knowledge

Learn from a wide range of international experts and peers, and start making improvements within your own personal context.

Creating and sharing knowledge is central to what ISQua does as a member-based organization dedicated to quality improvement in healthcare. Many parts of the healthcare community, health professionals, and health educators are well on their way to building climate resilient health systems and developing low-carbon and environmentally sustainable healthcare. However, progress (and learning) is not evenly spread within countries and around the world. This is a shared challenge – not only to upskill our current cohort of health practitioners, managers, and leaders through continuing professional development, but also to develop the next generation of health practitioners to be socially and environmentally accountable. Health educators have described the need for "eco-ethical leadership" in healthcare [28], and the Association for Medical Education in Europe has developed a consensus statement on planetary health and education for sustainable healthcare [29].

ISQua will play an active role in increasing members' knowledge of sustainable health-care through its education initiatives such as the Fellowship Programme, Specialist Certificates, and the International Academy of Quality & Safety. A Sustainability in Healthcare course has been developed for the ISQua Fellowship Programme. This course will explain how healthcare quality and safety is inextricably linked to planetary health, and how a sustainable approach to healthcare is vital to improving health and outcomes globally, also in terms of achieving Sustainable Development Goals.

Network

Expand your professional network, make new contacts and become a valued member of our community.

From the start, ISQua has been an organization with dedicated members all over the world. Networking is an essential first step for those who are starting on their journey towards an eco-friendly health system. By expanding your professional network and making new contacts, you will become familiar with the quality and safety community as well as the climate and health community. Networks and communities of practice around healthcare sustainability exist at the international level – for example, the World Health Organization leads the ATACH community of practice, which has 80+ country members and numerous institutional participants (see Box 2).

Identifying the key organizations and actors on climate and health in your own setting, finding allies locally and internationally, and understanding the "lay of the land" can help you plan your next steps for action in your own health system. ISQua has made a commitment to strengthen engagement with professionals in LMICs through regional ISQua Communities of Practice in Africa and Latin America.

Voice

Share your thoughts, ideas and opinions, and showcase your research with international peers. Be recognised for your contribution to the community. Share your plans or ask for advice from the Community, offer your insight and experience on the discussion boards.

ISQua is a leading global voice and advocate for the healthcare quality and safety profession. This role takes it into the realm of responding to future challenges and opportunities for healthcare. As individual members, we should take the opportunity (as many have) to present at conferences and educate peers; some members have joined international research consortiums such as the Lancet Countdown on Health and Climate Change; while others have joined non-violent direct action movements such as Health for Extinction Rebellion (see Box 2). The voice of patients and informal carers is always important for quality improvement and transparency. The ISQua Board is supported by the Person and Family Centred

Advisory Council, a dynamic group of patient representatives that ensures they keep the patient at the core of its activities.

Wherever you find yourself along the spectrum of action, the important point is that you are expressing your voice on this critical issue, the biggest challenge of our times, and sharing your expertise and insights with the broader health community. Ensure also to include the patient voice – not just end-users of health services, but rather our partners in creating good health and well-being. The ISQua Board, President, and Chief Executive Officer will work to ensure that the organization uses its voice as a respected and vocal advocate for the health system's response to climate change and environmentally sustainable development. One example of this is the inclusion and increased focus on climate change and sustainability as a theme at ISQua's annual conferences.

Action

The Fellowship is full of practical advice on achieving positive improvements. Take action, test, measure, try again!

Inspiring and driving improvement in the quality and safety of healthcare worldwide is the overarching mission of ISQua. Our core work can readily be adapted to address the challenge of the climate crisis – we can borrow the maxim used by the emergency management sector that emergencies should be managed at the lowest effective level of response. For us, it is the healthcare delivery setting: our hospital wards, our clinics, the patient's bedside – that is what drives our action in quality and safety. So, too, must it drive our action on environmental sustainability by: targeting energy use, transport, buildings, medication, waste, water use, anaesthetic gases, disposable medical drapes, reuse of equipment, single-use instruments, and so forth?

ISQua's third-party external evaluation services provide a clear pathway for action, delivered by its subsidiary International Society for Quality in Health Care External Evaluation Association (EEA). Accreditation standards are optimally suited for healthcare climate action. The 8th edition of Joint Commission International (JCI) Accreditation Standards for Hospitals now contains environmental sustainability standards, which will be effective for all JCI-accredited hospitals outside the United States from 2025 (see https://ihf-fih.org/what-we-do/geneva-sustainability-centre/sustainability-standards/). ISQua will continue to drive action on climate change and environmental sustainability not only through accreditation, but also by supporting a range of practical actions – as outlined in the next section.

"The modern addiction to fossil fuels is not just an act of environmental vandalism. From the health perspective, it is an act of self-sabotage." – Director-General, World Health Organization

Pathways for practical actions on environmental sustainability in health systems

We do not have to re-invent the green wheel. Many practical actions have already been developed – and continue to emerge – for the health community to effectively address the climate crisis. Previous sections of this Green Paper have provided recommended further reading and introductory resources. In this section, we point to tangible, implementable, and practical actions that you can apply to your health organization straight away. This section also provides further resources for you to continue your environmentally sustainable healthcare journey.

Figure 10 provides a snapshot of the practical actions, and the pathways an organization can take between them. These actions are categorized according to the four ISQua tag words on the vertical axis (Knowledge, Network, Voice, and Action) and the level at which the action occurs on the horizontal axis (closer to the clinical care setting or at a whole-of-organization or whole-of-system level). The red connecting lines indicate the interdependencies between the actions and the potential pathways by which your journey on environmental sustainability can progress. Each action in the figure is numbered to allow cross-referencing to the actions presented in the text below.

There are multiple pathways an organization can take. For example, one health organization may start by forming a Green Team (action 2), which hosts a Green Team Competition (action 3) and then embeds Sustainable Quality Improvement (action 1), which leads to ongoing measurement, monitoring and evaluation (action

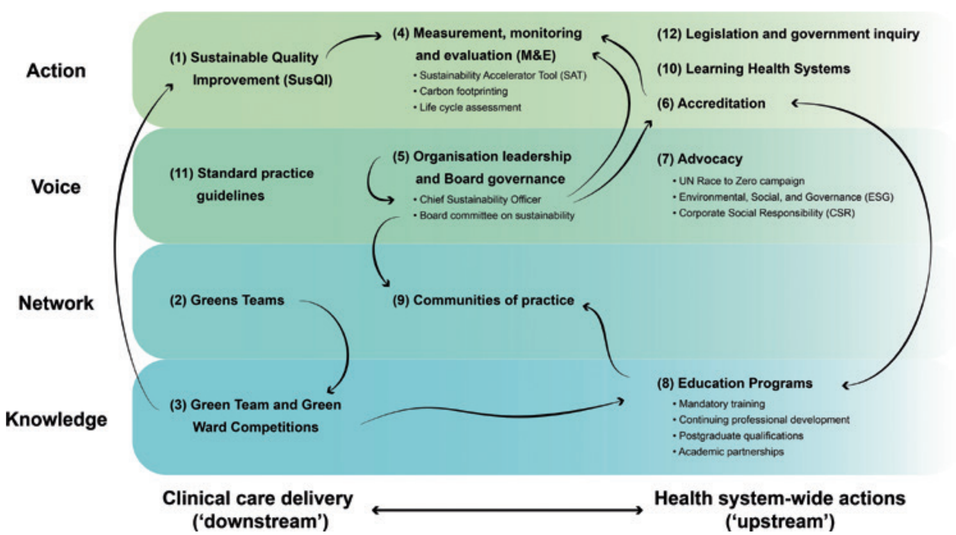


Figure 10: ISQua Pathways for Practical Actions on Environmental Sustainability in Health Systems.

4). However, a different health organization may choose to start with organizational leadership and Board governance (action 5), which leads to the development of an organization-wide community of practice (action 9), which is informed by an education program (action 8). Clearly there are different pathways to building a climate resilient and environmentally sustainable health system. Whatever you do, first find colleagues and partners to do it together. Second, do it systematically, advocate across the organization (upwards to the executives and sidewards to other teams), and realize that change takes time.

Action 1. Sustainable Quality Improvement (SusQI)

The SusQI toolkit has been developed by the Centre for Sustainable Healthcare to support the integration of sustainability into all mainstream quality improvement methodologies. This toolkit aligns with the Model for Improvement (or Plan-Do-Study-Act (PDSA) cycle) that we are familiar with in the field of healthcare quality and safety, while simultaneously applying the "triple bottom line" accounting framework. This form of accounting measures an organization's social, environmental, and financial impacts – it goes beyond the cost-driven or volume-driven measurement of healthcare activity. Effectiveness of the SusQI toolkit has been evaluated and published in the peer-reviewed literature [30–32]. Table 1 outlines the four steps of SusQI – note its similarities to the PDSA cycle. Extensive open access resources are available, including a step-by-step guide, an online course, and an educator's pack (available at https://www.susqi.org/step-by-step-guide).

Table 1: Four steps of SusQI and the intended benefits [11].

SusQI step	Model for Improvement question	Intended benefits
Set goals	What are we trying to accomplish?	Find new motivation for contributing to quality improvement by focusing on sustainability as a domain of quality and creating energy for change
Study the system	What change can we make that will result in an improvement?	Identify areas of high environmental and social resource use, highlighting opportunities for reducing harmful impacts which are often overlooked, and stimulating radical thinking
Design the improvement effort	What change can we make that will result in an improvement?	Learn how the principles of sustainable clinical practice direct us to the highest value improvements which future-proof our health system
Measure the impact	How will we know that a change is an improvement?	Gain skills in measuring social and environmental impact and return on investment, which allows sustainability benefits to be communicated to a broader audience, not exclusively regarding financial cost benefit

SusQI: Sustainable Quality Improvement.

Action 2. Green Teams in hospitals and clinical settings

A Green Team is a team of four to eight people who want to implement "green" sustainable alternatives in their hospital or health organization. It is as simple as that – these are your allies in your immediate work vicinity at the hospital level or department level. The purpose of the Green Team is to raise awareness about environmental sustainability, share knowledge, and support implementation projects. Here are five top tips for building successful Green Teams:

- Assemble enthusiastic colleagues. This will help to bring the right energy, build momentum, and activate your organization on this important topic – because the health workplace is already saturated with important duties, key performance indicators, and competing priorities.
- Form a multidisciplinary team, by involving nurses, doctors, allied health practitioners, quality officers, health managers, and others. This will give you a broad reach across your healthcare workplace. With time, involve senior executives or the organization's Board members.
- Identify a common problem. Addressing a common annoyance or issue that affects all members of the Green Team will ensure there is motivation to develop solutions.
- Make a plan, allocate roles, and set timelines. Write down a simple plan and make the roles and responsibilities clear between your Green Team members. By setting a milestone or timeline for your intervention, you will stay on track and make progress.
- Have fun! The Green Team should be a visible, engaging, and highly communicative experience. This will ensure you maintain your own energy and motivation as a team, but also spread that positivity around your colleagues.

Action 3. Green Team and Green Ward Competition

Green Team and Green Ward Competitions are a structured approach to engage in a friendly competition within a health workplace to cut greenhouse gas (carbon) emissions, reduce costs and save money, improve patient care, and improve staff well-being. The Green Team Competition invites six teams from a healthcare delivery organization to engage in a mentoring programme and begin their journey toward environmental sustainability. The competition is run in four phases over 8-12 months:

- Phase 1: Recruitment. Select six teams across the organization to take part in the competition. Teams can come from the same service (e.g. two different teams from the cardiology ward) and from across different services (e.g. cardiology team and surgical team). Teams can even be nonclinical, for example, building and facility management.
- Phase 2: Workshops. Run internal capacity building workshops to develop knowledge and skills on environmental sustainability. Resources and

facilitators are available to support this work, but you can also partner with existing clinical educators within your health service.

- Phase 3: Project delivery. Teams will develop and implement their sustainability project, undertake measurement of their service (e.g. carbon footprinting), and develop a high-quality case study report. This phase can be mentored by the research and education team within the health organization, or by external facilitators.
- Phase 4: Award ceremony. Green Teams present their project outcomes and share their lessons learnt with all six teams. A cash prize can be provided to the winning team, and this money can be used to implement further quality improvement initiatives.

The Green Team Competition is an innovative way to kick-start action on environmental sustainability. It does two things at once – the competition supports staff to address the gap in their knowledge and skills to transform towards low-carbon clinical practice, and it also offers an outlet for applying the knowledge gained through a practical project, thereby transforming knowledge into action. More information on the Green Team Competition is available at https://www.susqi.org/green-team-competition.

Action 4. Measurement, monitoring and evaluation (M&E) and dashboard tools

Remembering the saying that "what gets measured gets done", readers should establish a system for measuring their baseline and their progress – on any environmental sustainability project. Consider the key environmental impacts of healthcare that can be readily measured according to benchmarks or indicators such as waste generation, water use, raw material use, air pollution, medication spillage, energy usage, and carbon footprint (greenhouse gas emissions). Additional metrics such as electric vehicle fleets, food policies, public transport access, urban heat island effect, and green space access can also be measured. These findings and metrics can help to inform not only the implementing team, but also be used by senior leaders, regulators, insurers, investors, and patients.

Consider the two broad types of measurement, monitoring and evaluation (M&E) you will need: quantification of environmental impacts (such as carbon footprint) and organizational management dashboards (to report and benchmark your hospital's or organization's performance).

The International Hospital Federation's Geneva Sustainability Centre has developed two tools for organizational management:

- Sustainability Accelerator Tool (SAT), available at https://ihf-fih.org/what-we-do/geneva-sustainability-centre/sustainability-accelerator-tool/

- Carbon Emissions Learning Lab (CELL), available at https://ihf-fih.org/what-we-do/geneva-sustainability-centre/carbon-emissions-learning-lab/.

There are a number of tools now available to measure the carbon footprint of health services, and therefore assess their contribution to climate change. Some examples include:

- Climate Impact Checkup, developed by Health Care Without Harm (HCWH). This calculator helps health organizations estimate their greenhouse gas footprint. It provides a starting point to measure and manage your emissions, support mitigation goals, and develop action plans no matter where your facility is located. The tool is available at https://healthcareclimateaction.org/checkup and https://www.atachcommunity.com/resources/resource-repository/climate-impact-checkup-tool-and-guidance/.
- Aga Khan Health Carbon Management Tool, developed by the Aga Khan Development Network. This offline spreadsheet has been developed for use in LMIC settings, and tested and verified across eight countries and around 800 facilities. The tool is available at https://www.atachcommunity.com/resources/resource-repository/aga-khan-development-networks-tool-to-calculate-health-operations-emissions/.
- Environmentally extended multi-regional input-output (MRIO) methods for calculating the "top-down" health sector carbon footprint at the regional, national, and international level [33–35]. This is considered "top-down" because it starts with the organization's financial expenditure on healthcare activity, and then drills down into the carbon intensity of those activities. These approaches are technically complex, but have been successfully undertaken in many health organizations. You can partner with academic institutions with expertise in this area and can also link into national and international carbon accounting processes. This can result in a measurement system that is tailor-made for your organization, based on your organization's own data.
- Life cycle assessment (LCA) is a method for the "bottom-up" calculation of the environmental and climate impact of individual products or activities over their life cycle (from extraction of raw materials, to manufacture, to disposal). This is considered "bottom-up" because it starts with specific products, of which many hundreds or thousands are used in healthcare delivery. Several healthcare LCAs have been undertaken, including for morphine manufacture, pathology testing, and diagnostic imaging [36–38]. International standards (ISO 14040:2006) describe the principles and framework of this method. LCA can also be done in a "light" version using proxies for assessment, or in combination with other environmental assessment tools to allow for more comprehensive analyses [39].

Action 5. Organizational leadership and Board governance

After the initial enthusiasm for environmental sustainability in the clinical setting, a critical next step is to institutionalize sustainability within the organization's priorities. This creates ownership and accountability. Health organizations are managed in different ways, but all organizations will have a senior executive leadership structure. Find out the management structure of your organization – it may be a Board of Directors, or a Supervisory Board, or a Group of Trustees, or the Chief Executive Officer reporting directly to the Department of Health. Consider also end-users of the health service (such as patients), shareholders, or environmental regulators. Once you know where the ultimate decision-making authority lies, you can advocate for incorporating sustainability as an accountable, executive-level priority. An important first step can be to create an organizational mission statement, or embed sustainability in the existing statement of purpose.

Another important step is to articulate why your organization deals with sustainability. You may wish to frame it in terms of planetary health, "the health of human civilization and the state of the natural systems on which it depends" [14], or the Sustainable Development Goals, which focus on People, Planet, Prosperity, Peace, and Partnerships.

Having the organizational and board governance mechanisms in place is of utmost importance, because it can unlock resources and lead to further actions such as:

- Providing a budget for environmental sustainability actions.
- Appointing a Chief Sustainability Officer to lead a program of work across the organization.
- Developing business cases for the Board's approval of further activities to address sustainability.
- Establishing a Board committee on sustainability to monitor progress on sustainability plans.
- Including a standing agenda item on sustainability for all Board or executive committee meetings.
- Appointing Planetary Health or Green Care ambassadors at the operational level.
- Documenting and celebrating what has been achieved.

More guidance on Getting the Board on board is available at https://ihf-fih.org/news-insights/getting-started-getting-the-board-on-board/.

Action 6. Accreditation

Accreditation is a fundamental driver of quality improvement and healthcare safety practices at an organization-wide level. Several countries are starting to develop local accreditation requirements that incorporate environmental sustainability. At the international level, global environmental sustainability standards for healthcare have been developed through a collaboration between the Geneva Sustainability Centre and the JCI. These new standards focus on five key areas: (i) Governance, tracking, and reporting; (ii) Employee engagement and empowerment; (iii) Use of environmental resources, green operations, and process; (iv) Procurement and supply chain; and (v) Infrastructure and service resilience [40].

Consider the accreditation requirements for your own setting and how you can use this important international development to advocate for environmentally sustainable healthcare practice locally. You may be able to have your organization assessed by an accrediting body that is accredited through the International Accreditation Programme (IAP) provided by the ISQua EEA. The IAP provides an independent third-party assessment and validates that the accreditation service offered to your organization conforms to best practice in the field on an internationally recognized level. From the upcoming 8th edition, accreditation standards are required to include standards for sustainability, as, for example, the Global Health Impact chapter of JCI Accreditation Standards for Hospitals which will be effective for all JCI-accredited hospitals from 2025 outside of the United States.

More information on the ISQua EEA and its services is available at https://ieea.ch/accreditation/accreditation-programmes.html.

Action 7. Advocacy

Advocacy can take many forms, both internal to the health organization and external to it. A health organization can take an external-facing advocacy position on climate change by committing to the United Nations Race to Zero campaign. This campaign is the world's largest coalition of non-state actors taking immediate action to halve global greenhouse gas emissions by 2030. Table 2 explains the "5 Ps" around which the Race to Zero campaign is organized and how these have been adapted for the health sector by the Global Green and Healthy Hospitals program of HCWH. More information is available at https://healthcareclimateaction.org/action-guidance. By applying the "5 Ps" locally, you can shift your organization beyond perceiving accreditation as a negative or defensive tool and towards environmental sustainability as a positive and proactive tool to improve quality and ensure healthcare safety.

An internal-facing advocacy position can be to commit to ESG or CSR. In some jurisdictions such as Europe, this has become mandatory. In other jurisdictions such as Brazil, the National Accreditation Organization or Organização Nacional de Acreditação (ONA) methodology manual will be updated to include ESG and reinforce this through the accreditation process. However, regardless of the organization, these processes must start internally and then undertake external

Table 2: United Nations Race to Zero campaign adapted for health organizations [41].

<table>
<tr><th>The 5 Ps of Race to Zero</th><th>Actions across the Race to Zero campaign</th><th>Actions for the health sector</th></tr>
<tr><td>Pledge</td><td>Organizations commit to achieving net zero emissions by 2050, setting interim targets in line with global efforts to limit warming to 1.5°C, including a 50% GHG reduction by 2030 for high-emitting countries</td><td>Gather support and resource allocation from leadership and an expressed commitment to climate action</td></tr>
<tr><td>Plan</td><td>Organizations develop a plan describing how they will meet the Race to Zero pledge (including their interim targets) and an action plan to achieve it</td><td>Baseline and estimate emissions, risk, and vulnerability</td></tr>
<tr><td>Proceed</td><td>Organizations carry out mitigation actions as soon as possible and implement the plan to meet their pledge</td><td>Develop a Carbon Management Plan (CMP) or Climate Action Plan (CAP) to improve facility- and community-based adaptation and resilience</td></tr>
<tr><td>Publish</td><td>Organizations must publicly report on progress annually, disclosing emissions and describing actions implemented, challenges encountered, and strategies to continue advancing toward net zero</td><td rowspan="2">Prioritize and implement high-impact interventions to reduce emissions and build resilience and adaptive capacity; monitor, track, and report progress related to these interventions</td></tr>
<tr><td>Persuade</td><td>Organizations collaborate and partner with others across sectors to achieve the highest possible impact</td></tr>
</table>

GHG: greenhouse gas.

reporting. As we can see, organizational responses to addressing their environmental impacts have shifted from advocating on the issue to "business as usual".

Action 8. Education programs

Education is the foundation on which the other actions presented here can be built and also be enhanced. Education means not only having knowledge of the health impacts of climate change, but also the practical skills and capability to undertake interventions on environmental sustainability. The challenges here include a "crowded curriculum" and the need to target both senior and developing practitioners, as well as the next generation of the health workforce. However, this "new obligation" for sustainable healthcare education has been clearly articulated [42]; planetary health education has been confirmed as an "urgent and hot topic" [43]. Sometimes there may be a need for "educational activism", and there are good exemplars and case studies from which you can borrow [44].

ISQua will meet the demand for education through its initiatives such as a new Sustainability in Healthcare course developed for the ISQua Fellowship Programme. This course will explain how healthcare quality and safety is inextricably linked to planetary health and how a sustainable approach to healthcare is vital to improving health and outcomes globally, also in terms of achieving Sustainable Development Goals.

Action 9. Communities of practice

We are surrounded by various communities of practice in the health sector – for example, nurses, doctors, dentists, and allied health professionals would normally be examined by and become fellows or members of their respective college or association. This becomes a community of practice which guides and supports the practitioner's lifelong learning in their profession. ISQua itself is a membership-based organization, has a fellowship program, and hosts several communities of practice (see https://isqua.org/networks.html). Communities of practice have a great power in setting professional standards, expectations, and norms – and we can apply this powerful concept to environmental sustainability.

Consider joining or – where one does not exist – starting your own community of practice for environmental sustainability and climate resilient health systems. This can be at the local hospital or health service level (similar to a Green Team), but ideally it should be broader, across multiple hospitals, health districts, state-wide or even nationally. A strong justification for communities of practice is that they can support the development of quality improvement practices, and organizational transformation. Communities of practice can lead simple initiatives such as journal clubs, webinars, and informal gatherings for information sharing. But they can also take on and contribute to major health transformation processes and bigger initiatives such as developing Learning Health Systems.

Action 10. Learning Health Systems

A Learning Health System is one where science, informatics, incentives and culture are aligned for continuous improvement and innovation; with best practices seamlessly embedded in the care process; patients and families active participants in all elements; and new knowledge captured as an integral by-product of the care experience [45]. This holistic model can be applied to the complex task of improving health system sustainability and draw on data from multiple sources.

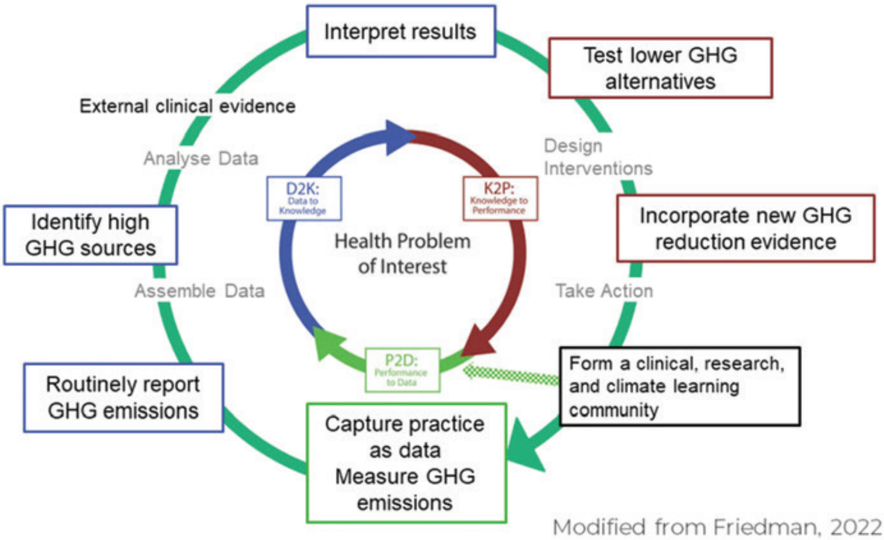


Figure 11: Creating a low greenhouse gas emissions Learning Healthcare System [46]. GHG: greenhouse gas.

For example, the carbon footprint of a health organization can be integrated into a continuous learning cycle in order to improve health system sustainability (Fig 11).

Consider the strengths and weaknesses of your organization's current approach on environmental sustainability and reducing its greenhouse gas emissions. Looking at Figure 11, are there strengths in terms of designing interventions and taking action (right side of the figure) or weaknesses in analysing and assembling data (left-hand side of the figure)? Perhaps the area of focus should be on transforming data to knowledge, knowledge to performance, or performance to data? Working through these questions will produce a "co-benefit" of both creating a learning health system, while reducing the environmental impacts of your health organization.

Action 11. Standard practice guidelines

Healthcare guidelines are an important tool for ensuring that care is delivered according to current best practice that reflects the scientific understanding of disease and treatment options. These guidelines are endorsed or developed by health and medical specialist experts such as medical or nursing colleges, or national standard-setting bodies such as National Institute for Health and Care Excellence (NICE) in the United Kingdom or the European Reference Networks for rare diseases. Efforts are now underway to integrate planetary health into clinical practice guidelines overall [47] and also into specific clinical specialties such as radiology [48], anaesthesiology [49], respiratory medicine [50], and general practice [51].

Standardization is also important from a patient perspective. Surveys such as the Consumer Quality Index and patient-reported experience and outcome measures (PREMs and PROMs) can be used to improve the delivery of care and improve systemic issues. This concept has been taken to its logical conclusion in relation to the environmental impacts of healthcare, with the proposal to develop environment-related outcome measures (EROMs) for "green breast surgery" [52]. This practice should be urgently extended, adapted, and applied to all forms of clinical care.

Information standards set out ways to systematically capture and categorize routinely collected health data, so that it can be used to support decision-making in health system planning and management. Information standards such as the 10th revision of the International Classification of Diseases (ICD-10), for coding patient episodes of care, and the Health Level Seven (HL7), for the transfer of clinical and administrative health data between applications, must be modified to incorporate metrics on environmental sustainability. These approaches can also be adjusted to support other actions such as the development of local monitoring and evaluation (M&E) and dashboard tools and Learning Health Systems.

Action 12. Legislation and government inquiry

Health practitioners and health systems can make use of the law to further actions on climate change and environmental sustainability in the health system. For example, the passing of England's Climate Change Act 2008 led to the formation of the National Health Service (NHS) Sustainable Development Unit. This resulted in over a decade of world-leading advancements on environmental sustainability in health, until the Health and Care Act 2022 was amended to establish an even larger Greener NHS program of work [53]. This is one example of how legislation can be used to promote action on this important topic.

Another example is to use powers within existing laws to undertake a government inquiry, produce recommendations, and then enact them through the Ministry or Department of Health itself. The Minister for Health for the State of Western Australia (WA) commissioned the Climate Health WA Inquiry under the Public Health Act 2016. The Inquiry was modelled on a parliamentary inquiry over several stages and reviewed written submissions, convened public forums, undertook targeted engagement, and held formal hearings. The important result of this Inquiry in 2020 was the production of a report with 10 recommendations for the health system, including the establishment of its own Sustainable Development Unit, and terms of reference for future work such as the development of a climate change health adaptation plan, which has since been undertaken [54].

Both these examples show that environmental sustainability and health system climate response can be initiated at the highest level of health system governance using legal instruments. Consider and better understand what laws are available locally to you and your organization – and make your own enquiries about whether they can be used for this purpose.

Conclusion

The ISQua Green Paper and Call to Action for Environmentally Sustainable and Climate Resilient Health Systems has outlined the challenge before us; provided a short primer on climate change, ecological disruption and health, and the latest international developments; and introduced the "ISQua Pathways for Practical Actions on Environmental Sustainability in Health Systems". This paper and its 12 actions have taken inspiration from the ISQua tag words of Knowledge, Network, Voice, and Action and set out the organization's commitment to addressing the climate crisis. The final word must be given to two simple truths: the health of humans depends on the health of the planet, and green care is high-quality care. With these truths in our mind, we will go forth to build better health systems for the future.

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Figures & Tables

Box 1 – Page 12 – ISQua five principles regarding climate change [3].

Box 2 – Page 24 – Authoritative resources to start your journey.

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