Global Road Map for Health Care Decarbonization

A navigational tool for achieving zero emissions with climate resilience and health equity
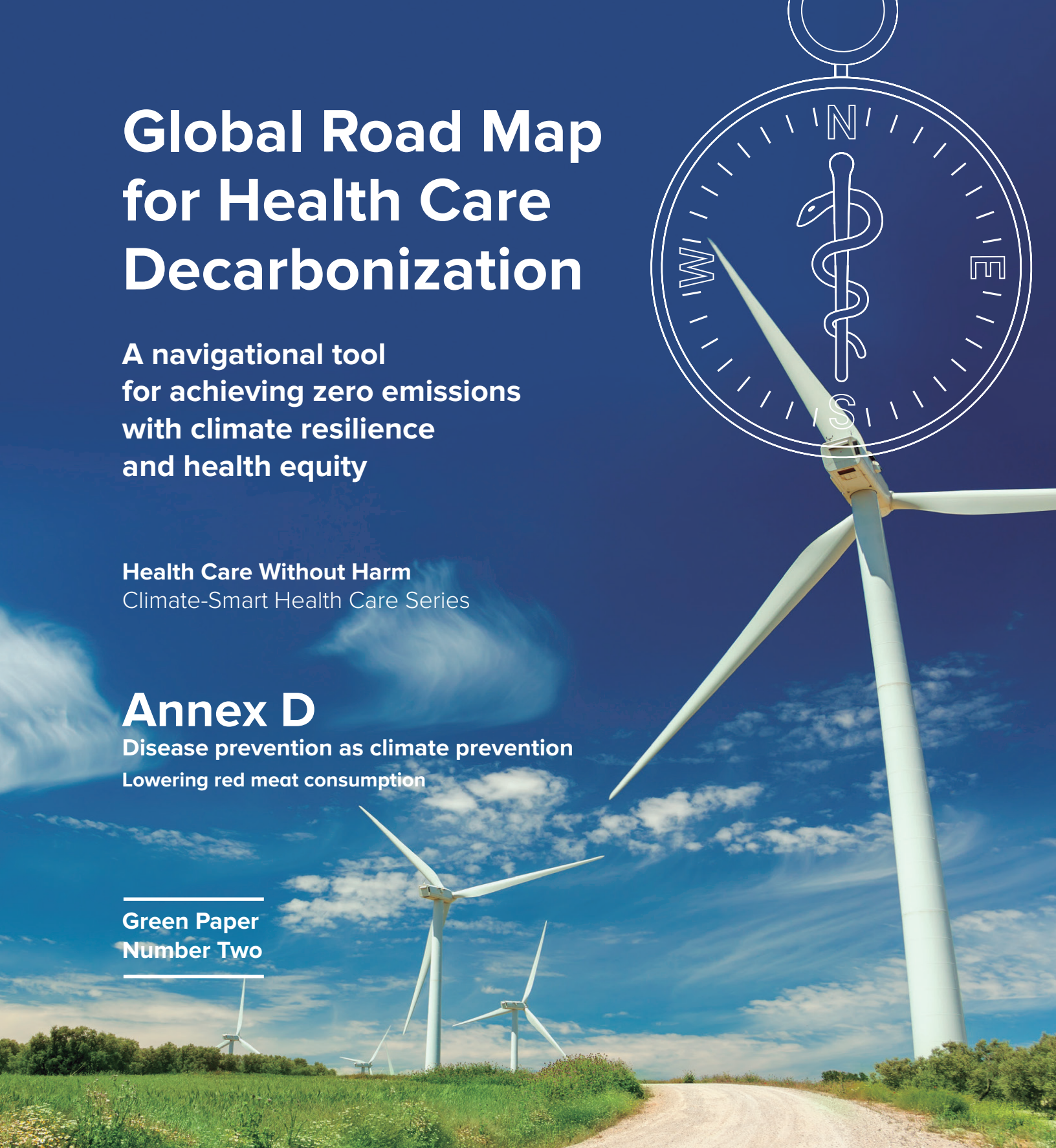
Health Care Without Harm
Climate-Smart Health Care Series

Annex D
Disease prevention as climate prevention
Lowering red meat consumption

**Green Paper Number Two**

Health Care Without Harm

Annex D: Disease prevention as climate prevention - Lowering red meat consumption

Lowering red meat consumption is good not only for people's health, it is also beneficial for the planet's health, as doing so will reduce greenhouse gas (GHG) emissions from the production of red meat as well as GHGs coming from the utilization of health care due to diseases related to red meat consumption.

Why is it important for global health?

In 2015, WHO classified red meat (e.g., beef, lamb, pork) as probably carcinogenic, and processed meat – those transformed through salting, curing, fermentation, and smoking – as carcinogenic[1]. Levels of meat consumption are higher in richer countries (Figure 1), while poorer regions of the world, like countries in Africa, are consuming less meat per capita, resulting in protein deficiency[2].

| No data | Below 40g | 40-165g | Over 165g |
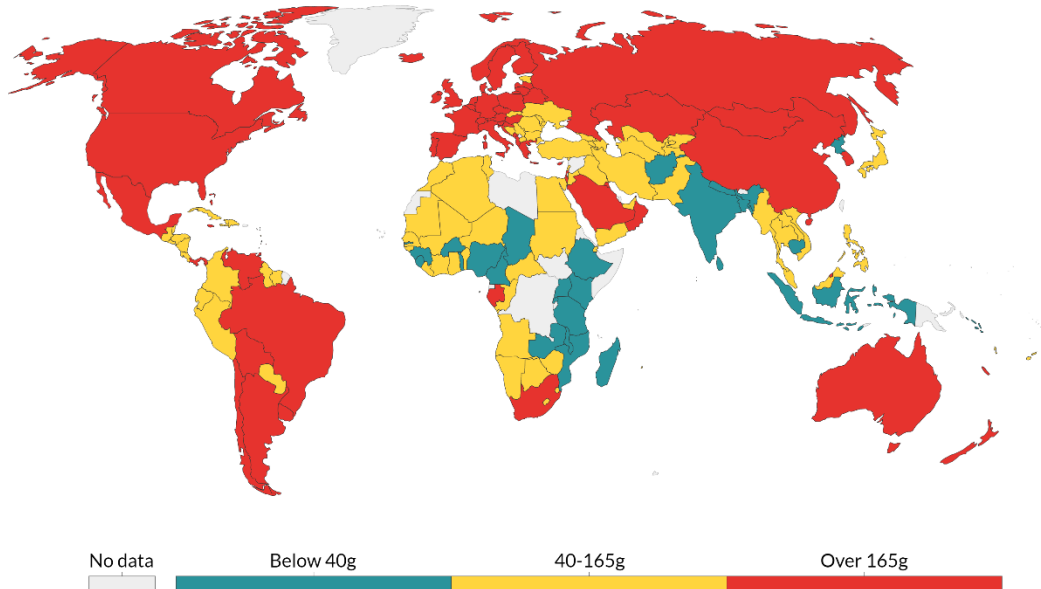
Figure 1. Daily meat consumption (in grams) per person, 2013[3]

The consumption of red and processed meat is also associated with increased risk of other noncommunicable diseases (NCDs), like cardiovascular disease and type 2 diabetes mellitus[4]. A modeling study estimated that there were 860,000 deaths due to the consumption of red meat and

1,530,000 deaths due to processed meat globally in the year 2020 – collectively causing 4.4% of all projected deaths worldwide[5]. This excess disease burden resulted in health care spending amounting to $285 billion USD in that year alone. The greatest number of deaths – and health care spending – are incurred in high-income countries with the highest levels of meat consumption.

Apart from cancer and other NCDs, the meat industry is also contributing to two other pressing global health problems: increasing risk of zoonotic infections[6], which jump from animals to human beings (a prime example of which is the COVID-19 pandemic), and rise in antimicrobial resistance (AMR), largely because of the widespread use of non-therapeutic antibiotics in animals[7].

Why is it important for tackling the climate crisis?

The Food and Agriculture Organization estimates that meat and dairy production accounts for 14.5% of total GHG emissions globally[8]. Emissions happen in different stages of meat production, ranging from agricultural input production, feed production, and livestock production to slaughtering, meat processing, and retail[9]. Moreover, different types of meat emit varying levels of GHGs. For instance, beef production emits far more GHGs than producing pork or chicken. Thus, shifting the global diet from predominantly meat-based to a more plant-based diet, as well as promoting the consumption of healthier and less carbon-intensive meat products, like white meat and fish, will significantly contribute to lowering the meat industry's share in global GHG emissions and reduce other environmental impacts resulting from the use of water, land, and energy resources.

How will this help decarbonize health care?

Figure 2 illustrates the pathways that link reduction of meat consumption to both direct GHG emissions reductions from the meat industry and indirect emissions reductions through the decarbonization of health care. When meat consumption is reduced globally, especially in high-consuming, developed countries, fewer people with meat consumption-related NCDs can be expected. This would mean a smaller number of patients coming to hospitals and other health facilities for chronic management of cancer, cardiovascular disease, and diabetes, as well as for acute treatment of complications (i.e., heart surgery or limb amputation). The potential for reduced health care utilization offers many opportunities for GHG emission reduction in health care coming from the use of resources like electricity, water, and food, as well as the entire manufacturing and supply chain of products needed for clinical care, like pharmaceuticals and syringes.
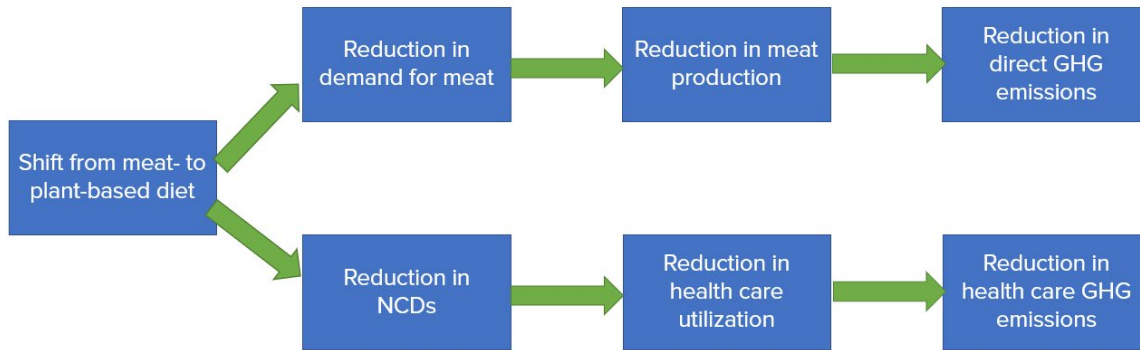
Figure 2. GHG emission reduction from reducing meat consumption through direct and indirect pathways[10]

Using available estimates of health care spending for meat-related diseases[11] and projecting a scenario where a global per capita meat consumption of 43 g/day by 2050 (which is aligned with the recommendations of the EAT-Lancet Commission) is achieved[12], it is estimated that there would be an annual reduction in total health care spending of 3.5%, which translates to a cumulative reduction in health care's climate emissions by 600 million metric tons from 2014 to 2050 (Figure 3)[13]. This amount is equivalent to one year of GHG emissions from 154 coal fired power plants or from burning more than 1.4 billion barrels of oil[14]. Thus, implementing measures that reduce meat globally and reduce meat-related health care utilization also generates significant climate co-benefits.
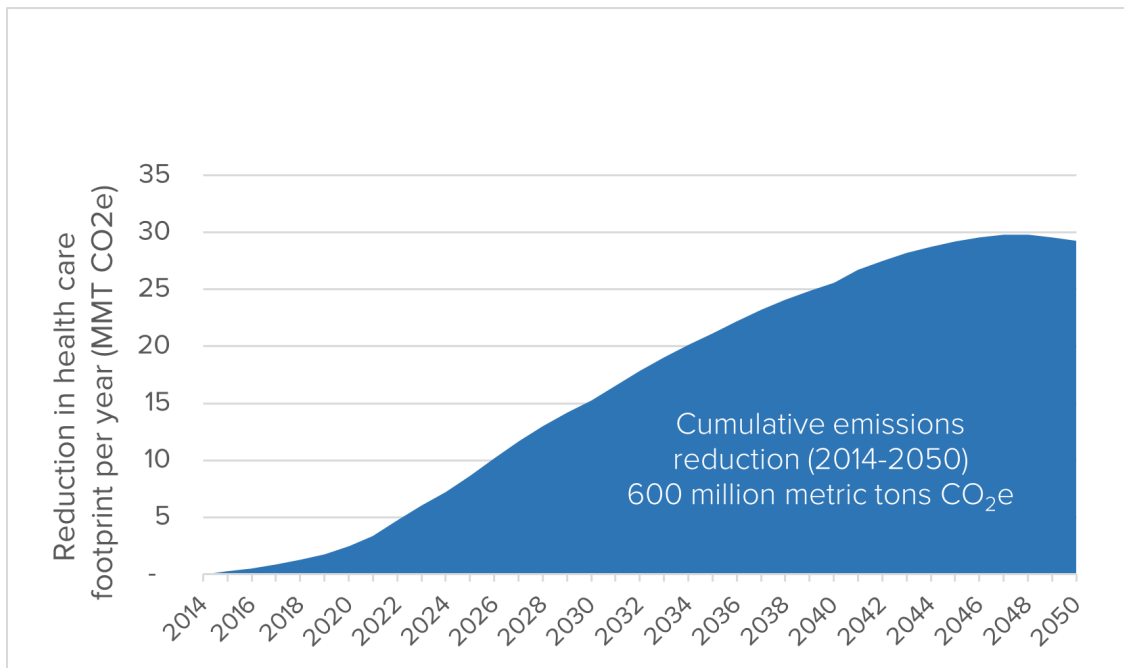

Figure 3. Annual health care emissions reduction from reduced red meat consumption from 2014 to 2050

We recognize that one major limitation of this approach is that spending, and in turn emissions averted by these interventions may simply be reallocated to a later point in a person's life or to another part of a health system budget. This is otherwise known as a rebound effect, which is difficult to model specifically and therefore often not considered in climate modeling exercises.

Despite this limitation, the results we have generated illustrate the potential climate benefits of top priority health interventions, like meat reduction. These findings underscore the need for further research and greater understanding of the role that individual and population health can play in contributing to reduced climate impact.

What must the global health community do?

The EAT-Lancet Commission recommended that global consumption of meat (and other unhealthy foods) must be reduced by 50% to improve health, mitigate climate change, and protect the integrity of other planetary boundaries (like terrestrial and marine ecosystems)[15]. The transition from a predominantly meat-based to a more plant-based diet must begin with the wealthy, high-meat consuming nations.

To reduce meat consumption, several measures are already being implemented, like promoting diets with less or no animal products (e.g., vegetarian, vegan, pescatarian), scheduling meat intake (e.g., "Meatless Mondays"), consuming meat analogues made from plants (e.g., tofu, seitan), and imposing health-motivated meat tax similar to sugar, tobacco, and alcohol tax (STAX)[16]. Hospitals and health care systems can also reduce meat in meals served to patients and staff[17].

The global health community must continue pushing for policy solutions that will lower the consumption of red meat globally. This will ensure the achievement of the Sustainable Development Goals (SDG), particularly SDG 3.4, reducing premature mortality from NCDs by one-third. Lowering red meat consumption worldwide will help save lives and, through reduced direct and indirect GHG emissions, save the planet as well.

April 2021
Health Care Without Harm
www.healthcareclimateaction.org/RoadMap

References

[1] World Health Organization. (2015, October 26). *Cancer: Carcinogenicity of the consumptions of red meat and processed meat.* https://www.who.int/news-room/q-a-detail/cancer-carcinogenicity-of-the-consumption-of-red-meat-and-processed-meat.

[2] Schönfeldt, H. C., & Gibson Hall, N. (2012). Dietary protein quality and malnutrition in Africa. *The British journal of nutrition*, *108 Suppl 2*, S69–S76. https://doi.org/10.1017/S0007114512002553

[3] Our World in Data. (2013). *Daily meat consumption per person.* https://ourworldindata.org/grapher/daily-meat-consumption-per-person

[4] Battaglia Richi, E., Baumer, B., Conrad, B., Darioli, R., Schmid, A., & Keller, U. (2015). Health risks associated with meat consumption: A review of epidemiological studies. *International journal for vitamin and nutrition research*, *85*(1-2), 70–78. https://doi.org/10.1024/0300-9831/a000224

[5] Springmann, M., Mason-D'Croz, D., Robinson, S., Wiebe, K., Godfray, H., Rayner, M., & Scarborough, P. (2018). Health-motivated taxes on red and processed meat: A modelling study on optimal tax levels and associated health impacts. *PloS one*, *13*(11), e0204139. https://doi.org/10.1371/journal.pone.0204139. Based on this study, about two-thirds of attributable deaths were due to stroke (for red meat), and coronary heart disease (for processed meat), followed by type-2 diabetes mellitus (14–17%) and colorectal cancer (4–11%). About two-thirds of attributable deaths (64%) occurred in middle-income countries, one-third (32%) in high-income countries, and a small portion (4%) in low-income countries.

[6] Rohr, J. R., Barrett, C. B., Civitello, D. J., Craft, M. E., Delius, B., DeLeo, G. A., Hudson, P. J., Jouanard, N., Nguyen, K. H., Ostfeld, R. S., Remais, J. V., Riveau, G., Sokolow, S. H., & Tilman, D. (2019). Emerging human infectious diseases and the links to global food production. *Nature sustainability*, *2*(6), 445–456. https://doi.org/10.1038/s41893-019-0293-3

[7] Martin, M. J., Thottathil, S. E., & Newman, T. B. (2015). Antibiotics overuse in animal agriculture: A call to action for health care providers. American journal of public health, 105(12), 2409–2410. https://doi.org/10.2105/AJPH.2015.302870

[8] Food and Agriculture Organization of the UN. (2014). *Tackling climate change through livestock: A global assessment of emissions and mitigation opportunities.* Rome: Food Agriculture Organization. http://www.fao.org/3/i3437e/i3437e00.htm

[9] Aan den Toorn, S.I., Van den Broek, M.A., & Worrell, E. (2017). Decarbonising meat: Exploring greenhouse gas emissions in the meat sector. *Energy Procedia*, *123*, 353-360. https://doi.org/10.1016/j.egypro.2017.07.268

[10] Not included are the indirect health care emission reduction from prevented zoonotic infections and reduced risk of antimicrobial resistance

[11] Springmann, M., Mason-D'Croz, D., Robinson, S., Wiebe, K., Godfray, H., Rayner, M., & Scarborough, P. (2018). Health-motivated taxes on red and processed meat: A modelling study on optimal tax levels and associated health impacts. *PloS one*, *13*(11), e0204139. https://doi.org/10.1371/journal.pone.0204139

[12] More information about the methodology can be found in Annex A. https://healthcareclimateaction.org/sites/default/files/202105/HCWH%20Road%20Map%20for%20Health%20Care%20Decarbonization%20-%20Annex%20A.pdf

[13] This reduction in meat consumption is aggregated across the globe, with the greatest reductions occurring in the wealthier nations with a high baseline of meat consumption. For nations where the per capita consumption falls below this level, they were assumed to have increased their consumption towards the global mean.

[14] Environment Protection Agency. (2021). *Greenhouse gas equivalencies calculator.* https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator

[15] Willett, W., Rockström, J., Loken, B., Springmann, M., Lang, T., Vermeulen, S., Garnett, T., Tilman, D., DeClerck, F., Wood, A., Jonell, M., Clark, M., Gordon, L. J., Fanzo, J., Hawkes, C., Zurayk, R., Rivera, J. A., De Vries, W., Majele Sibanda, L., Afshin, A., ... Murray, C. (2019). Food in the Anthropocene: the EAT-Lancet Commission on healthy diets from sustainable food systems. *Lancet*, *393*(10170), 447–492. https://doi.org/10.1016/S0140-6736(18)31788-4

[16] Carrington, D. (2020, February 4). EU urged to adopt meat tax to tackle climate emergency. *The Guardian.* https://www.theguardian.com/environment/2020/feb/04/eu-meat-tax-climate-emergency

[17] Karliner J., & Guenther R. (2011). *Global Green and Healthy Hospitals: A comprehensive environmental agenda for hospitals and health systems around the world.* USA: Health Care Without Harm. https://www.greenhospitals.net/sustainability-goals/
World Health Organization. (2020). *WHO guidance on climate-resilient and environmentally sustainable health care facilities.* Geneva: World Health Organization. https://www.who.int/docs/default-source/climate-change/2833-phe-300920-electronic.pdf?sfvrsn=e7af8744_1&download=true