Planet and Health Resilience

GRI Standards:

201-2: Economic Performance - Financial implications and other risks and opportunities due to climate change

EXECUTIVE SUMMARY

Climate and environmental changes increasingly impact, directly and indirectly, health in multiple ways (mortality, morbidity, or health services demand). In addition, healthcare systems are a significant source of carbon emissions and can also have negative impacts on the environment, and consequently on health.

This global threat requires action from all key stakeholders and Sanofi, as a global healthcare company, is committed to playing its role by:

- Being exemplary in its operations and mitigating the impact of its activities on the environment, including the reduction of its carbon footprint;
- Supporting healthcare systems to adapt and become more resilient to climate change;
- Leveraging its existing portfolio and exploring innovative solutions to tackle new or existing diseases exacerbated by climate change, especially in heavily affected disease areas such as respiratory diseases, allergies, diabetes, cardiovascular diseases, and infectious diseases; and
- Supporting, through Sanofi's Foundation S, vulnerable populations already heavily impacted by climate change.

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1. Context

Climate change is one of the most pressing risks to global health[i]: rising temperatures are resulting in an increase in hospital admissions and heat-related deaths; extreme weather events such as flooding and droughts are disrupting food systems, displacing people, or undermining access to healthcare. Climate change is also exacerbating the incidence of many communicable and non-communicable diseases (NCDs)[ii], including cardiovascular and respiratory illnesses, through increased air pollution, extreme heat, and other factors [iii](see Figure 1).

The environmental change is also a leading factor in the geographical spread of diseases and their increased prevalence and severity (figure 1). Globally pollution alone is responsible for 9 million premature deaths annually, three times more deaths than from AIDS, tuberculosis, and malaria combined. This trend is only set to increase as deaths caused by modern pollution risk factors, have risen by 7% since 2015 and by over 66% since 2000[iv].

Environmental factor	Symptom of environmental change	Impacted disease area
Pollution	Air pollution	Respiratory (lung cancer, pulmonary conditions, asthma)
	Water pollution	Water borne diseases (Cholera, typhoid, diarrhea)
	Chemical pollution	Toxicity-related diseases
Climate change	Extreme heat	Cardiovascular (Heat-related illness, cardio failure)
	Shift in seasonal patterns	Immunology (Respiratory allergies, asthma)
		Mental health
Biodiversity loss	Spread of pathogens	Pathogenic diseases
	Spread of allergens	Immunology (Respiratory allergies, asthma)
	Changes in vector ecology and parasitic activity	Epidemics / infectious diseases (malaria, dengue, Zika, Chikungunya)
		Pandemics (influenza & sars)

Figure 1: Illustrative link between environmental factors, symptoms of environmental change and impacted disease areas (non-exhaustive)[1]

For more information, see our Document Center: Climate-related Financial Disclosures on Risks and Opportunities related to Climate Change (TCFD) Factsheet.

At the same time, the healthcare sector is a key contributor to global CO2 emissions, as it generates approximately 5% of total global CO2 emissions, and care pathways are responsible for over 40% of these. Three main areas drive health system emissions: products and supply chains (50%); patient care (45%), including care facilities and direct patient emissions; and R&D (5%)[v]. Choices in patient care – in terms of the design of healthcare facilities, the way care is delivered, or the choice of intervention – can play a critical role in reducing the environmental impact of healthcare systems (see Figure 2).

[1] Sanofi Internal analysis (synthesis of several scientific sources)

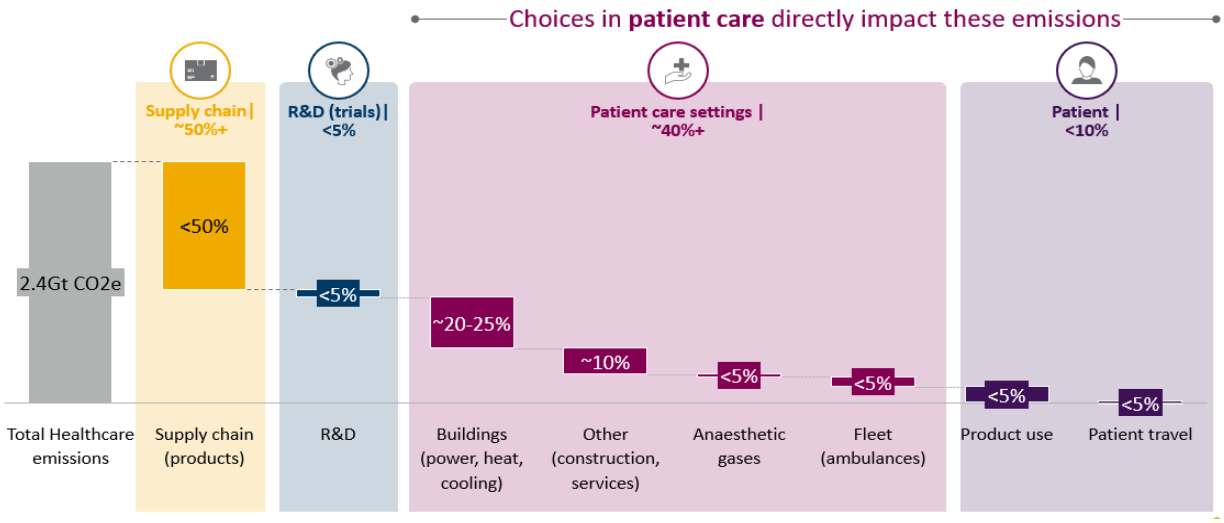

Figure 2: Choices in patient care have a direct impact on ~45% of healthcare emissions[2]

Although there is still low awareness and many research gaps about the impact of climate change in healthcare and diseases, at present, more than 60 countries have joined WHO Alliance for Transformative Action on Climate and Health and have formally committed to develop climate resilient and low carbon, sustainable health systems[vi].

2. Our activities to strengthen Planet & Health resilience

As a committed company in fighting climate change and its impact on health, Sanofi's actions run on three parallel tracks.

2.1. MINIMIZE THE IMPACT OF OUR ACTIVITES AND PRODUCTS ON THE ENVIRONMENT

Between 2019 and 2022 we reduced our carbon emissions (Scope 1 & 2) by 29%, achieving an 'A' ranking on the Carbon Disclosure Project (CDP) Climate Change questionnaire. Sanofi is committed to move towards carbon neutrality by 2030 and net zero greenhouse gas emissions (all scopes) by 2045, , which includes taking actions related to clinical trials, manufacturing and its supply chain. Our objectives have been validated by the Science Based Target *initiative* (SBT*i*), which provides a scientific seal of approval for our objectives, as part of the planet-wide efforts needed to limit global warming to 1.5°C.

For more information see our Carbon Footprint Factsheet in the Document Center *and Section 4.3.10 of our 2022* Declaration of Extra-Financial Performance*.*

2.2. LEVERAGE SANOFI'S PORTFOLIO AND EXPLORE INNOVATIVE SOLUTIONS TO TAKLE DISEASES EXACERBATED BY ENVIRONMENTAL CHANGE

Sanofi strives to better understand the implications of a changing environment on human health. As such, Sanofi is taking an end-to-end approach to identify the key issues, focusing on the treatment and

[2] BCG analysis drawing from: Healthcare without Harm/Arup (2019), UK National Health Services (2020), The Lancet Countdown (2020-2018), Health Affairs (2020)

prevention of five heavily impacted therapeutic areas; immunology, vector-borne and infectious diseases, pandemic pathogens, non-communicable chronic conditions (like respiratory diseases and cancer) and allergies. With Sanofi's portfolio, as well as its people and partners, Sanofi is uniquely positioned to prevent, treat and cure disease in these therapeutic areas.

Indeed, research shows that various environmental factors put the human metabolism and immune system under stress, often resulting in inflammatory conditions[vii], which already contribute to more than half of deaths worldwide[viii]. Air pollution alone is already responsible for up to 7 million premature deaths per year[ix] and has a significant impact on respiratory health such as Chronic obstructive pulmonary disease (COPD)[x]. Allergies affect between 10-30% of the population with prevalence rates and severity increasing worldwide as scientists predict that average pollen counts in 2040 will be more than double what they were in 2000[xi].

Sanofi has effective immunology therapies, such as dupilumab (Dupixent®), to treat patients suffering from asthma and, more recently, chronic obstructive pulmonary disease (COPD), both which are heavily exacerbated by air pollution.

Its portfolio and pipeline of vaccines is equipped to prevent growing Vector and air-borne infectious diseases and pandemic respiratory pathogens. Specifically through the development of a novel vero-cell-culture yellow fever vaccine and its unique know-how and development of next generation seasonal influenza vaccines, Sanofi is also investing to further expand its ramp-up in pandemic preparedness capabilities with developments in mRNA (messenger ribonucleic acid) technology and agile leading-edge Evolutive Vaccine Facilities.

Finally, the Sanofi Consumer Healthcare portfolio is well-equipped with widely accessible over-the-counter drugs to treat the symptoms of allergies and is contributing to improved awareness of the role of indoor and outdoor air pollution in aggravating allergic respiratory symptoms through our Global CHC Allergy Medical Team.

2.3. SUPPORT CLIMATE ADAPTATION FOR THE COMMUNITIES MOST VULNERABLE TO CLIMATE CHANGE IMPACTS

Additionally, Sanofi's philanthropic organization, Foundation S, works to help the most vulnerable communities disproportionally impacted by climate change adapt and build resilience to the impacts of climate change on health while advocating for Health impact centered policy and long-term sustainability of local and innovative adaptation.

In Bangladesh, the sixth most impacted country by climate change, Foundation S, in partnership with the NGO Friendship, supports projects to restore access to healthcare systems for communities deeply impacted by floods and extreme weather events. The local adaptation program is implemented by satellite clinics, community health workers and mobile hospitals, to ensure accessibility and uptake of essential health services by hard-to-reach populations living on "chars," while supporting community-based sustainable development initiatives that help to prepare and adapt to a long-term crisis.

In Africa, Foundation S and the NGO "With My Own Two Hands" work together to fund fully equipped Water, Sanitation and Hygiene (WASH) stations and local capacity building across six different health clinics throughout Samburu County, Kenya impacting over 36,000 lives.

In 2023, Foundation S launched its Climate Action & Health Resilience Grants Program, which aims to support adaption solutions that are informed and implemented by communities themselves and that seek to address both, the current and future, impacts of the climate crisis on community health. More than 135 projects were submitted, which focus on delivering immediate actions from 30 low- and middle-income countries, including 25 from Sub-Saharan Africa. The final selection is in progress and is looking to fund projects of merit that contribute to building community resiliency to the inevitable effects of climate change and support innovative locally led actions and scalable solutions.

2.4. DECARBONIZE THE PATIENT CARE PATHWAY IN HEALTHCARE SYSTEMS

In 2021, at the COP26, Sanofi joined the Sustainable Markets Initiative (SMI) Health Systems Task Force working with other companies as well as global and public institutions such as UNICEF or WHO. Its work is driven by the conviction that a whole system approach is needed to decarbonize healthcare.

Within this initiative, Sanofi is leading the working group on "patient care pathway decarbonization". Ahead of the COP27, Task Force members have launched common commitments, actions, and recommendations to deliver near-term targets and support the transition to net zero, sustainable healthcare. These actions focusing on three priority areas (supply chain, patient care pathways and clinical trials) include aligning on a set of common supplier standards to incentivize decarbonization efforts across the supply chain, and jointly pursuing renewable power purchase agreements and green transportation corridors. Task Force members will build an end-to-end care pathway emissions calculation standard and tool that allows stakeholders to measure and track emissions across the care pathway and will publish product-level life cycle assessments (LCA) data to increase transparency on treatment emissions. In addition, a common framework to measure the emissions from clinical trials will be created[xii].

Along with the SMI collaboration at global level, Sanofi is working locally to accelerate the reduction of environmental impact of the entire health ecosystem by:

- Encouraging the prioritization of health care policies and actions to achieve the WHO ambition of sustainable "low carbon" health systems by 2030 and "net zero" emissions by 2045 in countries committed to the Alliance for Transformative Action on Climate and Health (ATACH);
- Measuring the reduction of carbon emissions along the patient journey by generating data on its innovative products and programs allowing to identify hotspots of carbon emissions within healthcare systems and adopting the necessary interventions to reduce the carbon footprint. Sanofi is also working with the SMI to build an end-to-end pathway measurement framework that will allow stakeholders to have common standards to measure and track emissions along the care pathway.
- Contributing to the recognition of the value of Sanofi medicines, vaccines and programs in supporting the reduction of carbon emissions of Health Systems.

Sanofi is continually reflecting on further actions to be taken. From providing robust evidence to create momentum and amplify awareness of Planet & Health resilience issues, to embedding environmental factors at every point in its strategic decision-making journey, Sanofi is committed to pioneer and lead the response of healthcare players to the changing environmental and climate landscape.

3. Publications

For more information about the findings of The Lancet Commission on Health and Climate Change 2015 and The 2022 Lancet Countdown:

The 2022 report of the Lancet Countdown on health and climate change: health at the mercy of fossil fuels - The Lancet

For air pollution and respiratory allergies: Peden D. J Allergy Clin Immunol 2018; 141:878-9; Landrigan P.J. Lancet 2018; 391: 462–512].

For more information on the study about the effects of Diesel Exhaust Particulates on allergic rhinitis symptoms: Ellis AK, Murrieta-Aguttes M, Furey S, et al. Effect of fexofenadine hydrochloride on allergic rhinitis aggravated by air pollutants. ERJ Open Res 2021.

For more information on Sanofi climate-related financial disclosures, see our Document Center: Climate-related Financial Disclosures on Risks and Opportunities related to Climate Change (TCFD) Factsheet.

[i] World Health Organization. Climate Change and Health. [Updated 30/10/21]. Available from: https://www.who.int/news-room/fact-sheets/detail/climate-change-and-health. [Accessed 21/09/22]
[ii] European Academies Science Advisory Council. 2019. The Imperative of Climate Action to Protect Human Health in Europe. Halle (Saale): German National Academy of Sciences Leopoldin.
[iii] Hadley MB, Vedanthan R, Ebi KL, et al. 2022. Climate Cardiology. BMJ Global Health 7(6): e008860.

[iv] Landrigan, P., Fuller, R., Acosta, N., Adeyi, O., Arnold, R., Basu, N., Baldé, A., Bertollini, R., Bose-O'Reilly, S., Boufford, J., Breysse, P., Chiles, T., Mahidol, C., Coll-Seck, A., Cropper. 2018. "The Lancet Commission on pollution and health." The Lancet 462-512.

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[vi] https://www.who.int/initiatives/alliance-for-transformative-action-on-climate-and-health/country-commitments

[vii] Silva, Genevieve S, Misha Rosenbach. 2021. "International Journal of Women's Dermatology - Climate change and dermatology: An introduction to a special topic, for this special issue." *International Journal of Women's Dermatology vol. 7,1.*

[viii] Furman, D., Campisi, J., Verdin, E., Carrera-Bastos, P., Targ, S., Franceschi, C., Ferrucci, L., Gilroy, D., Fasano, A., Miller, G., Miller, A., Mantovani, A., Weyand, C., Barzilai, N., Goronzy, J., Rando, T., Effros, R., Lucia, A., Kleinstreuer, N. and Slavich, G., 2019. Chronic inflammation in the etiology of disease across the life span. *Nature Medicine*, 25(12), pp.1822-1832.

[ix] WHO. *News Release: 7mn premature deaths annually linked to air pollution.* 2014. https://www.who.int/news/item/25-03-2014-7-million-premature-deaths-annually-linked-to-air-pollution.

[x] WHO Global Health Observatory. Ambient air pollution. [Online] https://www.who.int/data/gho/data/themes/topics/indicator-groups/indicator-group-details/GHO/ambient-air-pollution.

[xi] *Predicting onset and duration of airborne allergenic pollen season in the United States.* Zhang, Yong, et al. 2015, Sciencedirect.
[xii] Seven Pharma CEOs Announce New Joint Action to Accelerate Net Zero Healthcare | Sustainable Markets Initiative (sustainable-markets.org)