



**FORUM  
FOR THE  
FUTURE**

# **DRIVING CO-BENEFITS FOR CLIMATE AND HEALTH**

**How private sector action  
can accelerate progress**

# ABOUT THIS REPORT

This report is written by Forum for the Future with support from Bupa, GSK Consumer Healthcare and Walgreens Boots Alliance.

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*Disclaimer: The views expressed in this report are not necessarily representative of these partners or other contributors to this report.*

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# ABOUT FORUM FOR THE FUTURE

Forum for the Future is a leading international sustainability non-profit with offices in London, New York, Singapore and Mumbai. We leverage our expertise in systems change and futures to accelerate change on global challenges, and to cultivate the capacity of organisations and individuals to create long-term and transformative change. For over 25 years, we've been working in partnership with business, governments and civil society to accelerate transformation toward a just and regenerative future.

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# EXECUTIVE SUMMARY

It's generally acknowledged that climate change poses a real and urgent threat to our society and economy. What is not so widely understood is its potentially devastating impacts on human health. A combination of extreme weather events, ecosystem breakdown and socio-economic disruption is set to unleash one of the greatest public health crises the world has ever seen.

Some of these effects are already apparent, from heatwave fatalities in Europe to more far-reaching, if under-reported, impacts on the poor of the developing world, as rural economies in particular are stressed beyond endurance. More severe health consequences will follow as the planet warms. Diseases like malaria are predicted to spread to new regions, including Europe and North America, while whole swathes of the Global South are likely to become uninhabitable, triggering mass movements of climate refugees as starvation takes hold. And the mental impact of 'climate anxiety', particularly on young people, should not be downplayed.

Meanwhile, many of the drivers of climate change are also health issues in their own right. Air pollution from fossil-fuel power plants, transport and industry kills and debilitates millions each year, while forest destruction damages water supplies and creates the conditions for further infectious diseases.

**We cannot divorce our own health from that of the planet. Without healthy planetary systems, such as ample fresh water, clean air, and reliable weather, we cannot have healthy humans. The climate crisis is a health crisis, and needs to be addressed as such.**

The world's governments and many of its leading businesses have pledged to tackle climate change. Just weeks away from the vital COP26 summit, it's clear that most are doing too little, too late. Yet as the experience with COVID-19 demonstrated, when faced with a health emergency, governments and companies alike are more than capable of responding at speed and scale. Reframing climate change as the health emergency it really is, could spur the much more rapid action that is needed to keep global temperatures within liveable limits.

Many of the actions we take to mitigate and adapt to climate change bring immediate health benefits. Actions such as cutting air pollution, making our cities cleaner and greener, encouraging active travel, insulating and naturally ventilating our homes, restoring forests and other ecosystems, providing farmers with the knowledge and resources to restore soils and produce nutritious food sustainably – all these have a hugely positive impact on our health and wellbeing in the here and now. As *The Lancet* put it: "Addressing climate change is the greatest public health opportunity for the century." But not all actions we take to boost wellbeing – whether at

the household or societal level – are benign: energy and resource-intensive creature comforts or complex treatments can and do help drive global warming.

So we have to see – and act on – climate and health as part of a single system. And business has a key role to play in doing so. Companies today face a twin challenge. They must ramp up their efforts on climate change as both a business risk and opportunity, and a social responsibility. And they must also prepare for a complex and volatile future where the unavoidable impacts of climate change and ecosystem degradation unfold. Developing an integrated strategy on climate and health will be key to rising to this challenge.

The benefits of doing so are considerable. Studies suggest that companies who adopt such a systemic approach have the potential to increase their sales by 20%, employee productivity by 13% and cut staff turnover by half. Together, these could lead to a 6% rise in the share price.

Tackling the twin crises of climate and health through a single, systemic lens is both an urgent social priority, and a clear business opportunity.

This report makes a series of recommended actions enabling business as a whole, along with key specific sectors, to meet this challenge.



## RECOMMENDED ACTIONS FOR BUSINESS

### FOR BUSINESS ACROSS THE BOARD:

- **Switch power supplies** from coal, oil and gas to renewable energy (the World Health Organization (WHO) estimate the resultant health gains would repay the investment twice over).
- **Switch logistics** to electric or hydrogen vehicles, and explore innovative mobility solutions such as delivery hubs.
- **Invest in clean, green buildings** with zero- or low-carbon energy systems, green roofs and walls, natural light and ventilation, and features to enhance biodiversity.
- **Invest in the wellbeing** of staff and the local community, via promotion of more plant-based sustainable foods for a balanced diet, active travel programmes and employee volunteering schemes that have positive climate and health impacts.
- **Increase climate/health resilience of supply chains** with initiatives such as long-term contracts and the provision of clinics and health advice, and of access to finance for sustainable business transitions.
- **Strengthen existing offers to customers**, by incorporating climate/health-positive services, advice or information.
- **Engage customers and policy influencers** with strong human stories to bring success to life; make the case for change to governments and industry bodies, leveraging the potential of cross-sector collaboration.

- **Influence local, national and international government policy** to shift subsidies to support climate/health-positive solutions, and use public procurement policies to stimulate demand for them; regulate for a wellbeing economy; and provide access to finance for vulnerable countries to build climate and health resilience.

### FOR SPECIFIC SECTORS:

#### • FOOD

**Drive demand for healthier, balanced diets** including increasing the inclusion of vegetables and other plant-based products; shift product portfolios accordingly; support suppliers to shift to regenerative farming.

#### • BUILDING AND INFRASTRUCTURE

**Adopt environmental net gain principles** for all new developments; build and retrofit to Passivhaus or similar standards.

#### • HEALTHCARE

**Explore precision medicine, circular principles, AI analytics and digital delivery methods** to cut carbon footprint and improve health outcomes. **Innovate product portfolios and R&D investment** in the light of future climate and health trends.

#### • FINANCE

**Take account of health impacts when assessing climate-related ESG risks and returns** and apply a climate lens to all investments including in healthcare: will they increase or reduce emissions? Advocate for economic metrics based on wellbeing.

This report aims to address the gap in practical guidance available for business. In adopting the recommendations put forward, businesses and government can ensure that each action they take towards Net Zero drives maximum impact - in all cases for health, and in many cases for health and nature. Only joined-up thinking and catalytic action will enable the deep transformation needed to stay below 1.5°C and deliver a just and regenerative future for all.

To learn more and explore how your organisation can drive co-benefits for climate and health, please contact [info@forumforthefuture.org](mailto:info@forumforthefuture.org).

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# 01

## PURPOSE OF THIS DOCUMENT

This document is designed to assist the private sector to address one of the most critical threats to human health - that of climate change - in ways that also tackle the growing public health crisis. By developing strategies which deliver simultaneous progress on these two interconnected, systemic challenges, the private sector can play a key role in contributing to progress on both.

The guidance in this document has been developed from a series of roundtable discussions during 2020-2021 led by Forum for the Future and Walgreens Boots Alliance with support from GSK Consumer Healthcare and Bupa. These brought together businesses, NGOs, scientists, philanthropists and government advisors from across Europe and the USA. The roundtables focused on three topics where climate and health issues come starkly together: air pollution, malaria and nutrition. This report and the roundtables build on an original [Business Leadership Brief](#) exploring the links between climate and health led by the United Nations Global Compact (UNGC)<sup>1</sup>, involving both Forum for the Future and Walgreens Boots Alliance, and a more recent narrative update from the [UNGC](#)<sup>2</sup>.

For those in the health sector, the report shares practical ways to achieve positive health outcomes through climate change mitigation and adaptation. For those working in climate, this report highlights the potential positive (or sometimes negative) health impacts of multiple mitigation and adaptation strategies. For all businesses, this report reveals the huge potential to address climate and health in a joined up way, and to drive co-benefits for greater positive impact.

The document starts with the case for action on climate and health, highlighting the general links between the two, as well as specific links through the lens of air quality, malaria and nutrition. Chapter 3 provides a framework for delivering systemic change in climate and health. Specific guidance to help business develop integrated strategies is presented in Chapter 4. The Appendix provides greater detail on air quality, malaria and nutrition and their intersection with climate and health.



A close-up photograph of a young girl with dark skin and hair, looking down at a public water tap. She is cupping her hands under the running water, drinking from them. The background is a soft-focus green, suggesting an outdoor setting. The image is partially overlaid by a teal text box on the left and a white footer at the bottom.

## PLANETARY HEALTH: HUMAN HEALTH DEPENDS ON THE HEALTH OF OUR PLANET

Without healthy planetary systems, such as fresh water, clean air, and predictable and reliable weather, it is not possible to protect or advance human health. A healthy planet, with healthy ecosystems, providing the fresh water we drink, the fresh air we breathe and the healthy soils and pollination services that allow us to grow our food, are a fundamental requirement for healthy people. This gives rise to the concept of [planetary health](#)<sup>3</sup>, rooted in an understanding that human and environmental health are inextricably linked.



## TAKING A SYSTEMS APPROACH – CLIMATE AND HEALTH AS SYSTEMIC CHALLENGES

Systemic challenges are multi-causal and multi-faceted and require more than one approach to solve. Climate and health are classic systemic challenges. Any action on either one of them has the potential to impact progress on the other, for good or ill. And they are impossible to address in isolation from the broader health of natural systems. Positive action to improve ecosystem health offers the potential to improve mental wellbeing, mitigate and adapt to climate change, and protect physical health by avoiding the release of novel new viruses and minimising the impact of floods and droughts.

Systemic challenges need a systems approach – where the focus shifts from individual parts of a system – such as a hospital or pharmaceutical manufacturer – to the organisation and connections inherent in the system.

Understanding the connections between our natural systems, including climate, and human health offer us opportunities to deliver system change – the reconfiguration of systems to a different set of outcomes – in this case healthy people and a healthy planet. A systems approach also allows us to see and address root causes of complex challenges.

Viewing climate and health as interconnected challenges has the potential to accelerate change, and to ensure that every action taken towards net zero could also deliver benefits for human and ecosystem health.

## THE VISION – A JUST AND REGENERATIVE FUTURE

Bolting sustainability onto the current way society and the economy works will not deliver the transformational change needed in climate and health. We need to fundamentally alter all the systems we rely on, from food to energy and health, rewiring and repatterning these systems so that they allow people and planet to prosper. This is the foundation of a just and regenerative future.

Just and regenerative goes beyond many of our current definitions of sustainability. It means putting more back into natural and social systems than we take out. It also means ensuring that any system has the capacity to adapt and evolve, creating the conditions in which ecosystems and communities can thrive. Finally, it means shifting to more fair and just ways of how the system operates and how economic value is created and distributed. In turn, this means shifting what is valued.

Catalytic action at the intersection of climate, health, and nature, is a way of driving multiple benefits in multiple systems, and shifting these systems towards a more just and regenerative future.







# — 02

## WHY NOW : THE CASE FOR ACTION



## 2.1

# WHAT'S THE URGENCY?

Huge advances in human health have been made over recent decades, but some of these at least – particularly those achieved through energy- and resource-intensive means – have also contributed to climate change and wider environmental degradation. And in turn, this is now threatening to undermine those health gains.

The WHO estimates that nearly 13 million people die each year from environmentally related health risks<sup>4</sup>. A shocking 90% of the world's population breathe polluted air<sup>5</sup>; in 2020, one in four people lacked access to safely managed drinking water in their homes<sup>6</sup> and more than 2 billion did not have access to enough safe and nutritious food<sup>7</sup>.

The impacts of climate change on health can be both acute and chronic. Severe floods, heat stress or drought can have immediate and devastating impacts on health. Gradual rises in temperature can have longer term impacts, exacerbating both non-communicable diseases and infectious diseases<sup>8</sup>. Our continued destruction of biodiversity and forests also increases likelihood of future pandemics and infectious diseases. All of these experiences can also indirectly affect health in both the short and longer term and exacerbate existing vulnerabilities, through reduced access to nutrition, livelihoods and safe shelter<sup>9</sup>.

Climate change also impacts mental health<sup>10</sup>, whether as a result of the trauma of living through severe weather disasters, or more widely suffering so-called 'eco-anxiety' and 'eco-grief'<sup>11</sup>.

This can range from the very present fear of a poor harvest for a rural farming family in the global South, to the less tangible but still deeply affecting sense felt by many young people in particular that their lives will be lived under a cloud of growing social and economic disruption.

Governments across the world have committed to tackling climate change, but progress is far too slow. As the latest Intergovernmental Panel on Climate Change's (IPCC) report makes clear, current commitments fall short of what is needed to restrict the rise in global temperatures to 1.5 degrees – seen as essential for avoiding disastrous consequences<sup>12</sup>.

Doing so requires nothing less than an urgent and fundamental restructuring of the global economic, energy, food, and transportation systems<sup>13</sup>.

It is, to put it mildly, a big ask. But, just as the recent pandemic has raised awareness of the environment around us, it has also showed that humanity can respond with speed when needed. And as we begin to emerge from the pandemic, we have a unique opportunity to rebuild our businesses, our economies and our lives for a healthier, more equitable future.



## THE INTERCONNECTIONS BETWEEN CLIMATE AND HEALTH

Climate change can have multiple acute and chronic impacts on health. The diagram below highlights some of these impacts and connections – while not aiming to suggest causation or represent the full range of impacts.

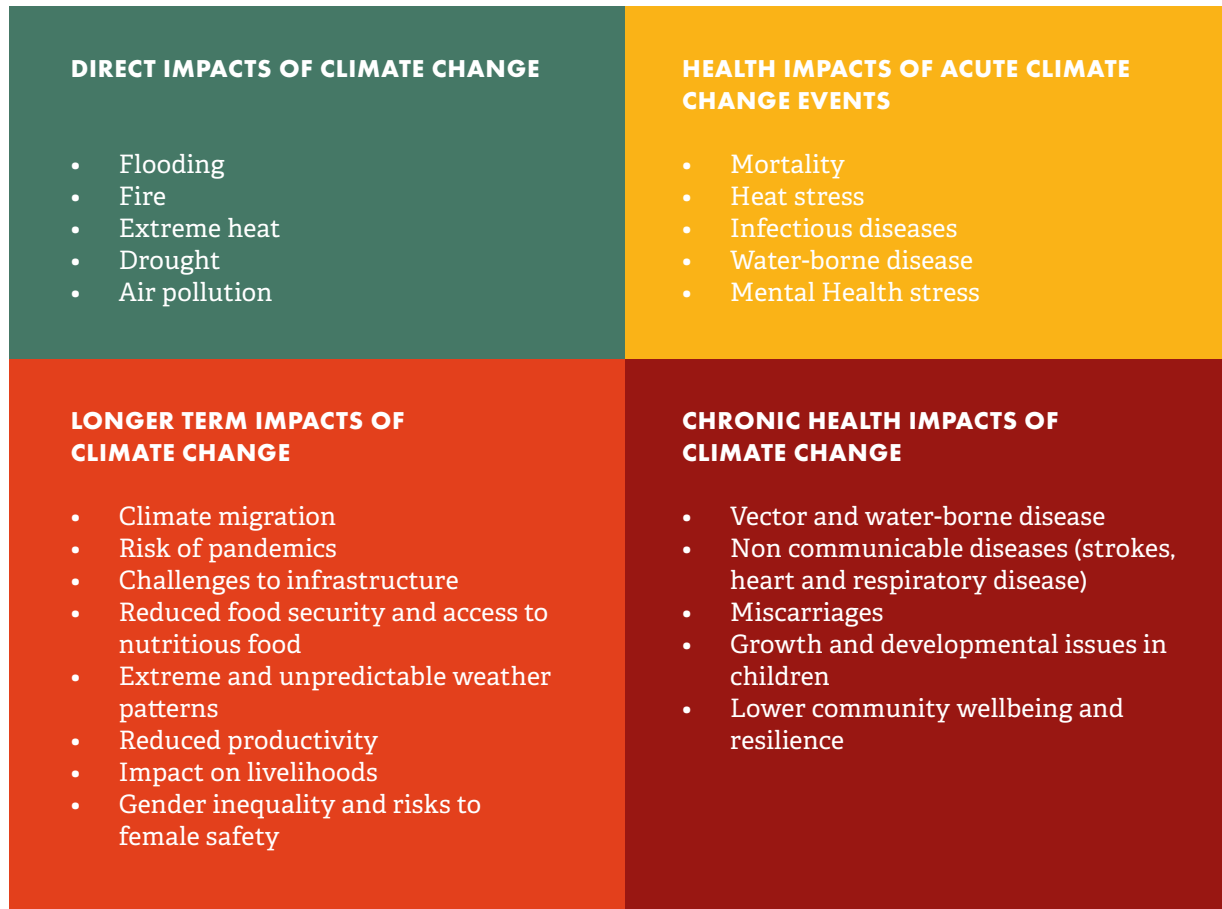


Diagram 1: Examples of interconnections between climate change and health

## WIDER IMPLICATIONS

Many sectors will face serious disruption as a result of climate change - within the cotton industry, for example, exposure to heat stress (defined as temperatures above 40°C) is predicted to increase in 75% of cotton growing regions by 2040, undermining the health of those working on land or in factories<sup>14</sup>.

The number of climate refugees is also expected to more than double to 250 million by 2050<sup>15</sup>, or in some estimates rise as far as 1.2 billion<sup>16</sup>. People on the move will be the defining reality of the climate crisis over the next few decades, leading to widespread disruption in multiple sectors, as well as significant health, social, geopolitical and economic impacts<sup>17</sup>.





## 2.2

# CLIMATE AND HEALTH CAN BEST BE TACKLED TOGETHER

At a global level, those most vulnerable to poor health are those most threatened by the spiraling impacts of climate change<sup>18</sup>. These often compound poor underlying health, which is in turn driven by lack of equitable access to nutrition and disproportionate exposure to poor air and water quality. So addressing the social and economic drivers of health in these communities is also a climate adaptation strategy.

Indeed, so much of what we need to do to tackle climate change is also good for our health in the here and now. As Sir Andrew Haines of the London School of Hygiene and Tropical Medicine explains: “emphasizing these (co)benefits can help us to achieve multiple goals at the same time”<sup>19</sup>. Actions such as cutting air pollution, making our cities cleaner and greener, encouraging active travel such as walking and cycling, insulating our homes, restoring forests and other ecosystems, providing farmers with the knowledge and resources to restore soils and farm sustainably as a route to improving the nutritional quality of crops – all these have a hugely positive health impact. Demonstrating the links between climate and health can make clear the immediate, tangible human benefits to climate action: action which can sometimes seem remote from most people’s daily lives.

**As the authoritative medical journal, *The Lancet*, put it: “Addressing climate change is the greatest public health opportunity for the century”<sup>20</sup>**

That said, we must also recognise that it’s not automatically a win-win. It’s possible to design and deliver a net zero solution in a way that has a negative impact on health. A reforestation scheme using poorly chosen non-native species can deplete the water supply for local communities<sup>21</sup>. While mandating a switch to radically different household heating systems without appropriate financial support can leave vulnerable people dangerously out of pocket – with all the poor health impacts which poverty brings.

This is particularly true when it comes to the question of jobs. According to the International Labor Organization (ILO), a shift to a low-carbon economy is set to deliver 20.5 million jobs by 2030<sup>22</sup>. This has great potential for providing healthy work at decent levels of pay. But a rapid transition can also disrupt the lives and livelihoods of those dependent on the sort of jobs – coal mining, for example – which will have to be phased out. Indeed, there is a risk that the poorest and most vulnerable will





suffer both the worst impacts of climate change and also lose out the most from the changes required to address it, whether that is loss of jobs, land, or affordability of nutritious food, goods and services.

Vulnerability is a function of exposure, sensitivity and adaptive capacity, and climate will impact a range of social and behavioral contexts, such as access to care and community health infrastructure, access to air conditioning and filtration, commuting for work, green spaces, and others that could change any of the determinants of vulnerability. Hence the importance of a 'just transition': of designing net zero pathways that incorporate social justice issues and have health equality at their heart, helping to reduce vulnerability to health impacts and increase resilience, alongside climate co-benefits.

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## **NATURE-BASED SOLUTIONS – A LEVER FOR CHANGE AT THE INTERSECTION OF CLIMATE, HEALTH AND ECOSYSTEMS**

Nature-based solutions such as mangrove restoration or reforestation are seen as critical to global efforts to mitigate and adapt to climate change<sup>23</sup>. They are designed to mitigate climate change by sequestering carbon and if they are co-created with the participation of local communities they also have the potential to be powerful drivers of adaptation and wider change. They can help local communities adapt to climate shocks by providing flood and drought protection through their ability to soak up water and prevent soil or coastal erosion, and simultaneously diversifying livelihoods, enhancing nutrition and improving health. If done in ways that exclude access to resources by local people, however, they equally have the potential to undermine livelihoods and wellbeing.





## 2.3 BUSINESS BENEFITS OF AN INTEGRATED STRATEGY ON CLIMATE AND HEALTH

The costs of inaction on climate and health are significant. The WHO predicts that health costs associated with climate change are estimated to reach up to \$4 billion by 2030<sup>24</sup>. The ILO goes on to predict that under a 1.5°C scenario, 2.2% of work hours will be lost by 2030<sup>25</sup>.

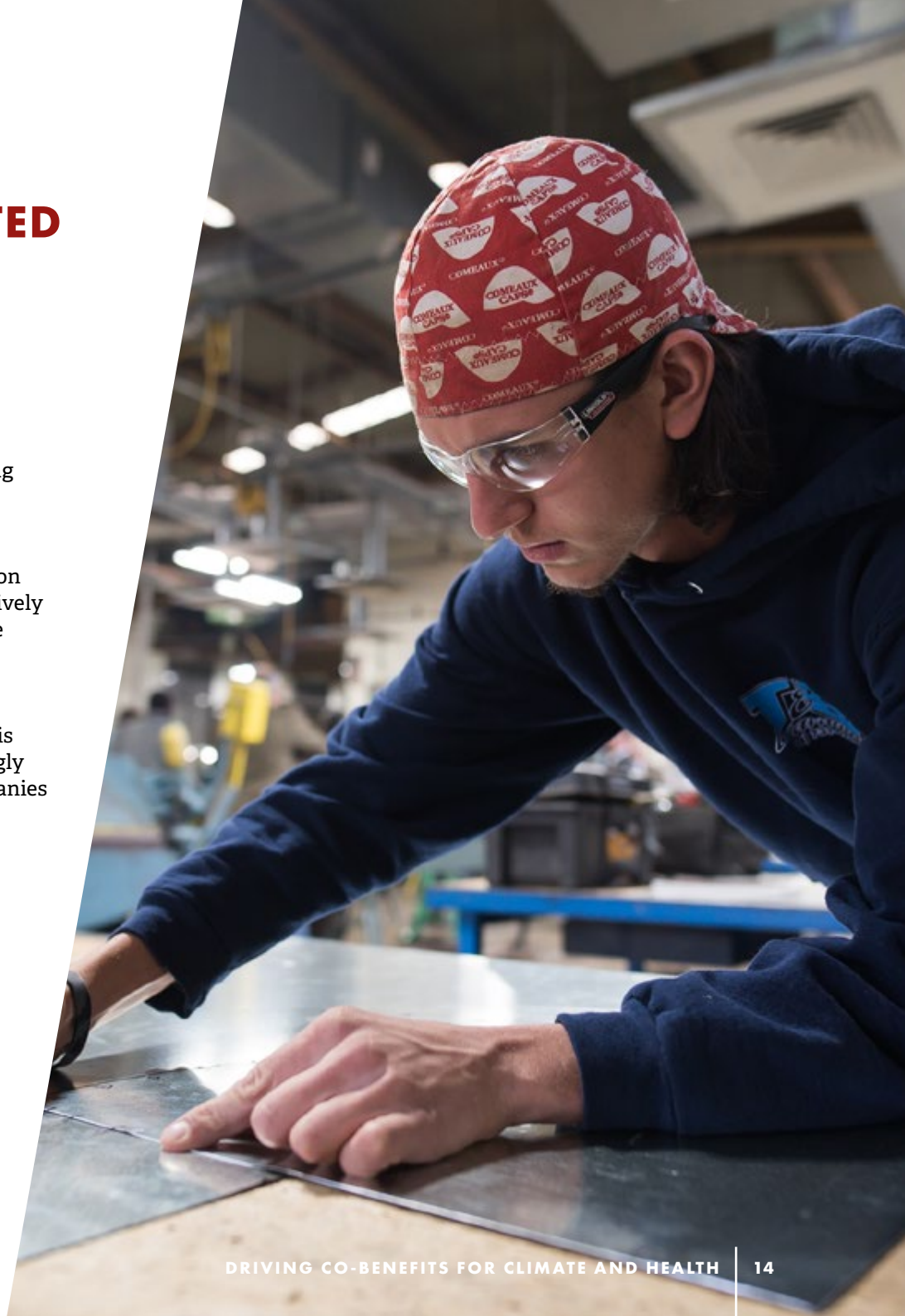
Few businesses can hope to prosper in a chaotic climate, with all the attendant social and economic disruption it will entail. Such a world would be one of fractured supply chains, crumbling infrastructure and an increasingly weak and impoverished customer base. By taking decisive action to improve climate and health outcomes for wider society, business can influence how this new landscape is shaped. Investing now in the infrastructure needed for climate adaptation and health resilience will avoid paying an even higher price tomorrow and will be pivotal to operating and remaining competitive in the world we are moving to. It is critical that the private sector acts now, and plays an active role in creating the conditions in which everyone can thrive.

There are also shorter-term business benefits:

**Improving business resilience** and minimising disruption by strengthening workforces, communities and supply chains.

**Anticipating regulation** by taking action in advance of government, and pro-actively engaging with regulatory bodies on the issues, thereby proactively navigating financial implications.

**Attracting and retaining talent.** There is an emerging generation who increasingly have a preference for working in companies which take climate seriously<sup>26, 27</sup>.



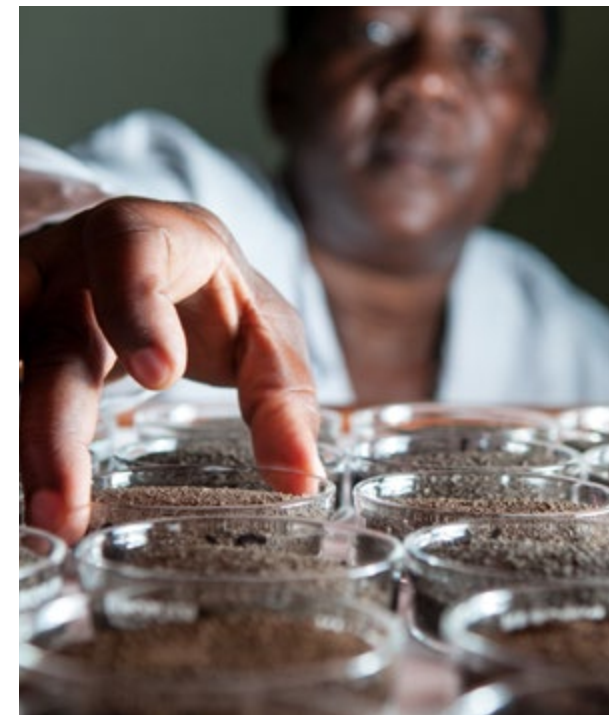


## 2.4 MAKING THE CONNECTIONS REAL

There are a myriad of connections between climate and health. To bring these connections to life and illustrate how strategies for both issues must come together, we've explored three critical challenges - air pollution, malaria and food supply. The table below shows how for these three challenges there are specific actions that can be taken to drive co-benefits for climate and health. More detail is available on each of these challenges in the [appendix](#).

THE CHALLENGE	ACTIONS DRIVING CO-BENEFITS FOR CLIMATE AND HEALTH
<p><b>AIR POLLUTION</b> - kills an estimated 7 million people worldwide each year, and causes chronic health problems for many millions more, posing the greatest risk to the most vulnerable – babies, children and older people. It also makes people more vulnerable to infectious diseases<sup>28</sup>.</p> <p>Across the world, 9 out of 10 people breathe polluted air, making it one of the biggest and most urgent and global health threats<sup>29</sup>. Dirty air also directly impacts climate<sup>30</sup>.</p>	<p>Cutting emissions from high carbon power plants, transport and manufacturing is one of the most straightforward ways to reduce GHG emissions and improve public health.</p> <p>Reimagining our cities and our lives to reduce the need for fossil-fuelled transport and heating in particular, and encourage active travel will reduce emissions and drive positive public health outcomes.</p> <p>Outside of cities, reducing agricultural waste burning also has the dual benefit of improving air quality and reducing GHG emissions.</p>

THE CHALLENGE	ACTIONS DRIVING CO-BENEFITS FOR CLIMATE AND HEALTH
<p><b>MALARIA</b> – kills approximately 400,000 people per year, and is known to be amongst one of the most climate-sensitive diseases<sup>32</sup>.</p> <p>Changes in temperature, rainfall and humidity could lead to increases in malaria transmission, and extend the range of malarial mosquitoes, putting many more people at risk<sup>33</sup>.</p>	<p>Some nature-based climate solutions, such as restoring forests and conserving soil, can curb the flood waters which allow malarial mosquitoes to breed, often in close proximity to humans.</p> <p>Promoting sustainable livelihoods and decent living conditions for people in malaria-prone areas can help cut their exposure to the disease, combined with providing the right resources such as nets and medication.</p>
<p><b>FOOD</b> – climate change will impact food security by disrupting agricultural production and food supply chains, and will also reduce access to healthy food<sup>34</sup>.</p>	<p>There are huge opportunities to deliver climate and health benefits in the food system. For example<sup>35</sup>:</p> <ul style="list-style-type: none"> <li>• Reducing the need for high-carbon impact chemical inputs will diminish GHG emissions and the pollution of drinking water.</li> <li>• Restoring soil health so that it can act as a carbon sink and also improve nutritional quality.</li> <li>• Rebalancing overconsuming Western diets to be more plant-based can reduce land use pressures and increase access to food, as well as lower GHG emissions.</li> </ul> <p>Increasing resilience to climate impacts and weather shocks such as drought can improve food security.</p>



**Diagram 2: Actions that drive co-benefits for climate and health: for air pollution, malaria and food supply**





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# 03

## DESIGNING FOR SYSTEM CHANGE IN CLIMATE AND HEALTH



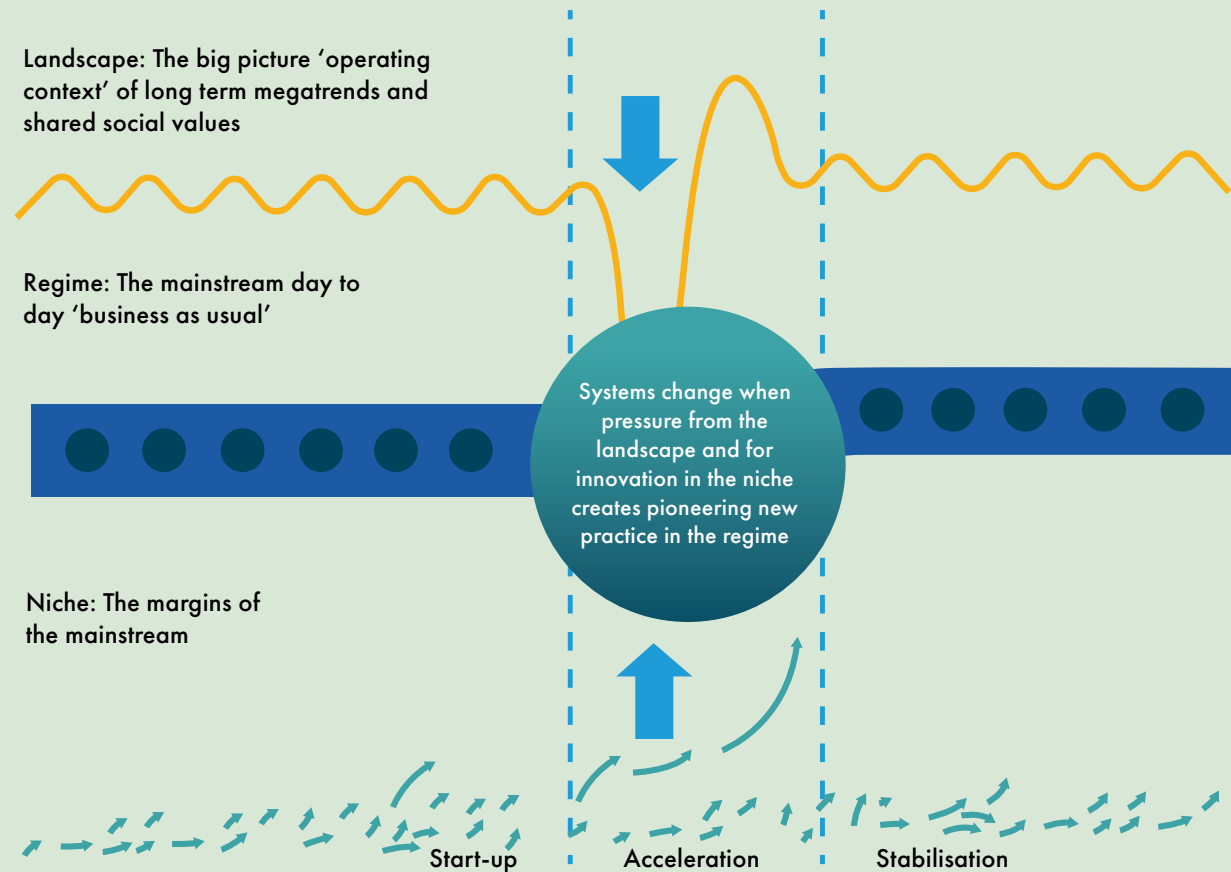


## 3.1 HOW DO SYSTEMS CHANGE?

System change comes about when relationships between different aspects of the system alter such that the system moves towards new outcomes and goals. Diagram 3 illustrates how systems change using the multi-level perspective model. This model describes a system as being made up of three levels: landscape, regime and niche. A system can be an ecosystem, a societal structure such as education and even an organisation.

Systems begin to change when pressures from the landscape (for example macro trends such as climate change or rapid shifts in societal expectations) or the development of strong alternative solutions in the niche combine to disrupt business as usual. If supported by people willing and able to push things further, these isolated instances of pioneering practices can tip into mainstream practice, which eventually creates a sustainable “new normal”.

The transition of our global energy system from a system powered by carbon-intensive fossil fuels to renewables is an example of system change in action. As the scientific evidence surrounding the climate threat became known in the mainstream, combined with renewable technologies scaling thanks in part to costs falling, along with a willingness to act on the part of decision makers, so it produced the accelerated system change we are currently experiencing.



**Diagram 3: How Systems Change – The Multi-Level Perspective**

# A FRAMEWORK FOR DESIGNING SYSTEM CHANGE IN CLIMATE AND HEALTH – EIGHT LEVERS FOR CHANGE

The multi-level perspective allows us to understand the different levers for change that need to be addressed in order to change systems. Through our work in designing strategies for system change at both an organisational and sectoral level, we have identified eight levers for system change (Diagram 4). Each lever is generally (but not always) specific to a particular phase of system change. To create change, usually all levers need to be pulled, although not necessarily in a particular order, and not necessarily simultaneously.

One of the main reasons why system change is so challenging, and has yet to happen at the scale required to address our climate and health crises, is that a systems change perspective is rarely used, and change strategies rarely focus on all eight levers.

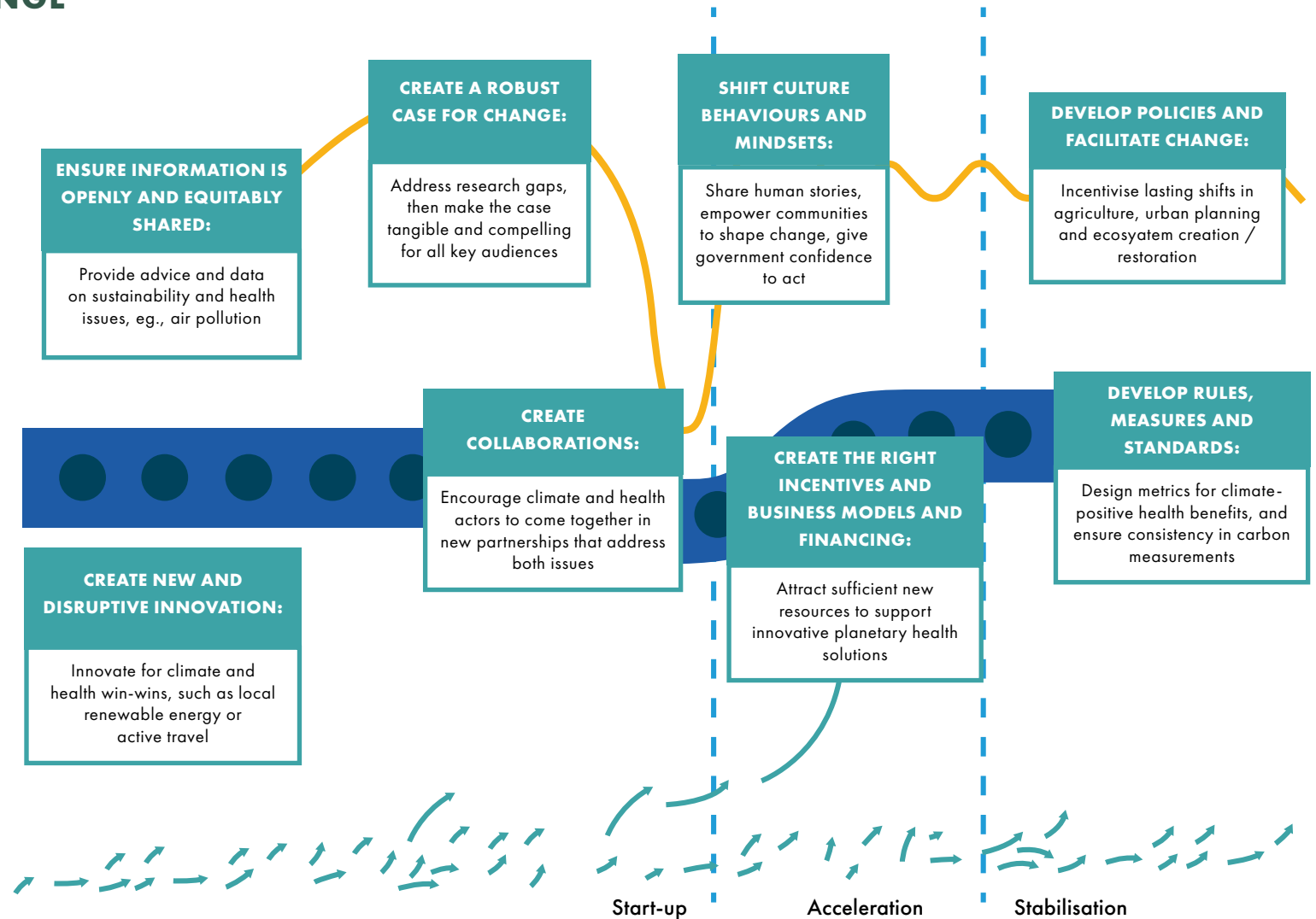


Diagram 4: The eight levers to shift a system



## 3.2

# THE EIGHT LEVERS FOR SYSTEM CHANGE IN CLIMATE AND HEALTH

### CREATE A ROBUST CASE FOR CHANGE

This is where change starts. When it comes to the intersections of climate and health, a robust case for change has already been made. Now we need to make sure that this case for change reaches decision makers in ways that enable action that delivers multiple benefits for climate and health. This is the basis of the guidance in Chapter 4.

### ENSURE NEW FLOWS OF INFORMATION, OPENLY AND EQUITABLY SHARED

Creating new information as well as new flows of existing data can enable better decision-making and create new feedback loops that reinforce change towards new outcomes. For example, an informed public, aware of climate and health issues, has the potential to stimulate demand for 'climate-healthy' products and practices, and trigger new flows of investment by brands into these products. The growth of plant-based protein in Western diets has been fueled partly by enhanced public awareness of its health and environmental benefits through several high profile documentaries and celebrity voices, alongside traditional brand marketing activities.

### NEW AND DISRUPTIVE INNOVATION

Innovation of products and services for solving specific challenges is a strength of the private sector. Chapter 4 provides specific examples of product and service innovation for climate and health benefits.

### COLLABORATION

This is an essential part of tackling systemic challenges. Collaborations should focus on practical interventions, not just diagnosis of the challenge, and make sure they include those actors with the power and influence to change the system. The phenomenal speed at which COVID-19 vaccines were developed has shown the benefits of collaboration in accelerating action.

For interlinked climate and health challenges, it is critical to have business in the same room as academics and policy makers, and to take an interdisciplinary approach. Some of the systemic issues that would benefit from collaboration include tackling misinformation; factoring in the true cost of climate impacts into decision-making; effective modelling of future climate impacts on health; and incentivising businesses to work towards prevention rather than treatment of disease.

### INCENTIVES, BUSINESS MODELS AND FINANCE

Scaling new solutions requires market incentives and, usually, access to capital (whether new money, or redirected investment). In turn, new business models may also be required.

### DEVELOP POLICIES AND FACILITATE CHANGE

To stabilise shifts in systems and allow the change to be self-sustaining, policy changes which incentivise and sustain the new ways of operating are usually

needed. Such enabling policies not only sustain the change, but can also create a level playing field. This encourages action by the laggards and creates a context in which leaders can continue to lead. Businesses themselves need to be active advocates for progressive policy. Section 4.6 provides recommendations for messages the private sector could deliver to government.

### DEVELOP RULES, MEASURES AND STANDARDS

By changing the measures that are used to evaluate the system's success, a reconfigured system will continue to operate to a new set of goals. New measures and standards can be social, market-based or regulatory. A lack of consistent measurement or acknowledgment of the benefits emerging from interventions can slow down progress or even lead to unintended consequences. Currently, the health impacts of climate action often go unmeasured. If measurement or recognition of co-benefits were more widespread, it would provide a greater evidence base for businesses and governments to act, as well as help identify which interventions were likely to drive most impact across the multiple challenges.

### SHIFT CULTURE AND MINDSETS

Any systemic change relies on culture and mindset shifts. Past studies, such as the work of Donella Meadows, suggests that deep change only prevails if other aspects of system change are accompanied by change at the personal level. The COVID-19 pandemic

has opened society's eyes to the threat of global disease and the drivers and solutions for public health are now much more widely understood. This realisation has laid the ground for the type of culture and mindset shifts that are needed to drive system change in climate and health.

However, more work is needed to make the climate and health story a human one, and so make both a rational and emotional case for change.

Shifting behaviors and the mindsets that underpin that behaviour is difficult, and as such, is often overlooked when it comes to drawing up strategies for change. For example, our current mindset on health is focused largely on treating illness rather than preventing it and fostering wellness. Shifting our mindset towards a focus on prevention and wellbeing could significantly lower costs of healthcare around the world<sup>36</sup> – and lead to a healthier, more resilient population.







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**04**

**ACTIONS FOR  
BUSINESS**







## 4.1 GENERAL APPROACH TO STRATEGY DEVELOPMENT

Every business in every sector should have strategies aimed at mitigating climate change (via rapid decarbonisation) and adapting to its unavoidable impacts.

The former should as a minimum be driven by a [science-based target](#) to achieve net zero carbon emissions by 2050 at the latest, and to halve emissions by 2030 as defined in the Race to Zero campaign minimum requirements<sup>37</sup>.

Adaptation strategies should focus on building resilience in the face of the complex and volatile future that is an inevitable consequence of the climate change already built into the natural system. For example, the solarisation of some healthcare systems in rural India has enabled efficient service delivery and improved health outcomes, while strengthening resilience to climate shocks<sup>38</sup>.

The recommendations in this document are designed to strengthen existing net zero strategies, integrate both mitigation and adaptation, and focus on ways of activating co-benefits for climate and health. Our recommendations can also be used to develop new, integrated strategies.



## SPHERES OF INFLUENCE IN AN INTERCONNECTED WORLD

Critical to unlocking the potential of any strategy is to understand the world as a set of interconnected systems, and then use this understanding to identify where action will drive the biggest possible positive impact in multiple systems.

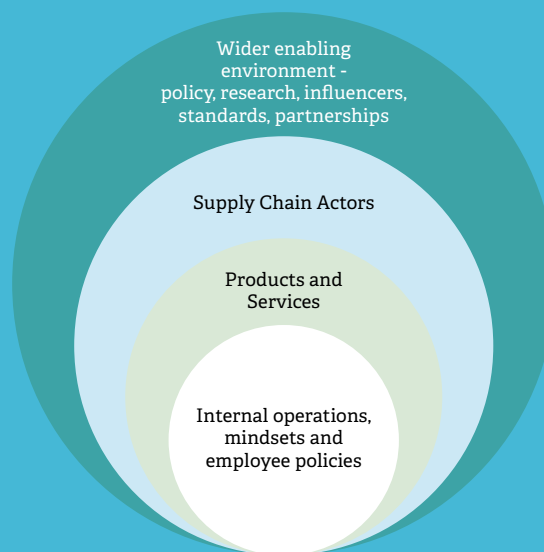
Every business has a range of spheres of influence. Often the easiest place to start is with direct operations, products and services (including consumer use and behaviour) and employee policies and programmes. Then there are supply chains, over which all companies have influence, from that of quite a direct influence at the downstream end of chains, to less direct influence upstream.

Meanwhile, consumers, employees, investors and other stakeholders increasingly expect businesses to utilise the influence they have over the wider landscape they operate in, to shape the rules and policies that govern or guide their particular sectors. This type of influence is often exerted through advocacy, collaboration or partnerships around key systemic issues, such as [Growing Our Future](#), a Forum for the Future-led collaboration which seeks to transform the agriculture system in the United States through scaling up regenerative agriculture.

Ideally, businesses should be designing strategies that deliver co-benefits for climate and health across all spheres of influence.

For a food company for example, this means reducing carbon emissions in manufacturing and delivering positive health outcomes through employee programmes. All food companies can then innovate their products and services with positive climate

and health outcomes in mind (see Specific Actions for Food Businesses), as well as contribute to a wider enabling environment for change. Investing to improve soil health will both increase the soil's ability to act as a carbon sink, and boost the nutritional quality of crops: one single intervention, delivering both climate and health benefits.



**Diagram 5: Business spheres of influence**

The sections below outline how all businesses can act across their spheres of influence to drive progress on climate and health. We have also provided more sector-specific actions for food, building infrastructure, healthcare and finance businesses, to add depth to the guidance, and to recognise that these four sectors have high impact potential.



## 4.2

# INTERNAL OPERATIONS AND EMPLOYEES

This is often the easiest place for a business to start, and full of opportunities for positive climate and health outcomes. These are actions all businesses should consider.

### 4.2.1

## DIRECT OPERATIONS

- **Set ambitious climate targets and reduce direct emissions**, with key milestones and plans on how to achieve those commitments. Delivering clean air through switching heating and air conditioning to renewable energy is likely to be a key component of these plans. The WHO estimate that the health gains resulting from switching away from coal, oil and natural gas would repay the cost of investment twice over<sup>39</sup>.
- **Switch logistics** to electric or hydrogen vehicles, and explore innovative mobility solutions such as delivery hubs.
- **Invest in clean, green buildings** with zero- or low-carbon energy systems, green roofs and walls, and features to enhance biodiversity.
- **Set an internal cost on carbon** to encourage more green and sustainable investments.
- **Invest in local initiatives** such as creating and restoring green spaces, or supporting local sustainable mobility schemes.

### 4.2.2

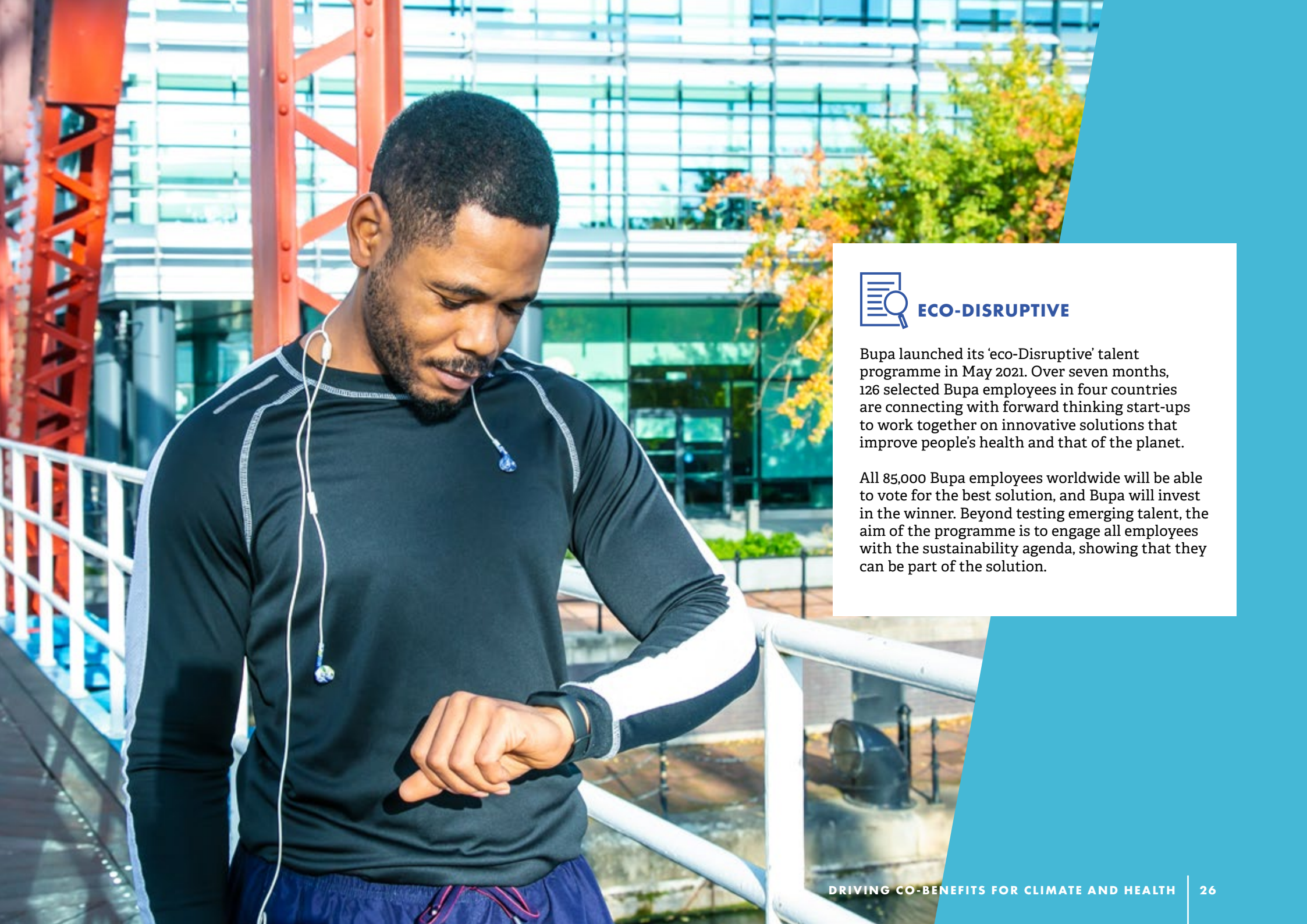
## EMPLOYEES

- **Engage employees in climate mitigation and adaptation conversations and actions**, recognising the mental health impacts caused for some. Employees based in different geographies may have differing levels of direct experience of the impact of climate change effects and how urgent or proximate these have felt in their lives. Understanding and sharing different perspectives is key to engaging employees across the business.
- **Encourage employees to feel part of the solution** through strong company commitments on climate and health and discussions around the company's sustainability strategy. These commitments might include climate-positive investments via pensions, land assets and portfolios, supporting volunteering on local environmental rehabilitation programmes, or simply enabling staff to spend reflective time in green spaces.
- **Help employees take actions that are better for their health and the climate.** These might include active travel-to-work schemes, offers

for using green energy at home, or plant-based, sustainable food provision on site. Support these behavioural changes through free or discounted access to such solutions. Employees in locations where climate change impacts are likely to be experienced severely, such as those in regions prone to hurricanes, typhoons or floods, may need additional support for preparedness and adaptation plans.

- **Be aware of potential tensions between climate and health initiatives.** Business class travel may be good for an individual's wellbeing, but it also drives up emissions. Consider alternatives, such as enabling additional time for travel by train where that's possible, or factor in an extra night in a comfortable hotel to recover from a cramped economy flight.





## ECO-DISRUPTIVE

Bupa launched its 'eco-Disruptive' talent programme in May 2021. Over seven months, 126 selected Bupa employees in four countries are connecting with forward thinking start-ups to work together on innovative solutions that improve people's health and that of the planet.

All 85,000 Bupa employees worldwide will be able to vote for the best solution, and Bupa will invest in the winner. Beyond testing emerging talent, the aim of the programme is to engage all employees with the sustainability agenda, showing that they can be part of the solution.

## 4.3

# PRODUCTS AND SERVICES

- **Embed climate and health priorities into product innovation goals** by linking carbon intensity reduction targets with those on health benefits. Examples are provided in the sector specific boxes (add links).
- **Strengthen existing offers to customers**, such as offering information and guidance, where appropriate, on both climate and health issues.



### CLIMATE AND HEALTH GUIDANCE

Walgreens Boots Alliance is raising awareness of Climate Change and Health amongst its pharmacists, as well as encouraging them to use active transport to reduce their emissions while strengthening their health.



- **Encourage behavioural change and shape culture via communications, services and products.** Tackling the challenge of climate and health will require our collective global society to make significant changes to how we live<sup>40</sup>. Businesses can help drive this conversation through their many consumer touchpoints.
  - **Packaging and in-store activity offer opportunities to engage consumers in novel narratives that catch their attention**, through for example highlighting the links between soil, nutrition and climate<sup>41</sup> and between public transport, air quality and health<sup>42</sup>.
  - **Digital technology and tools**, such as mobile apps and social media can provide a cost-effective way to deliver key messages about climate change and health to multiple consumers in a way that prompts both interaction and active engagement.<sup>43,44</sup>
  - **Changing how choices are presented** so that the default option is a more sustainable option. 'Green defaults' is likely to be highly effective as consumers must take action to 'opt-out' rather than 'opt-in'<sup>45</sup> Reducing the number of steps consumers must take to do the right thing can also increase the likelihood of good intentions turning into action<sup>46</sup>.
- **Showcase the human story.** To change individual mindsets, we need to tell strong stories that bring to life the impact of environmental and health issues on real people. A food business, for example, could highlight the experience of individual farmers in its supply chain; a bank could showcase how its loans are helping individual clean energy entrepreneurs; a building services company might profile contractors who have switched to e-bikes; And so on. And by telling stories and framing messages to highlight impact on personal health, companies can bring to life issues that are too often discussed in complex, opaque language which can seem remote from ordinary people's everyday experiences, reducing the tendency for consumers to dismiss climate change as a remote, distant threat<sup>47</sup>.
- **Lean into the power of influential, trusted voices.** As humans, we tend to listen and take advice from voices we perceive to be influential and trustworthy (e.g. established brands, doctors, pharmacists, local and national leaders or relevant celebrities) to decide on how we should think and behave.





## THE ATTENBOROUGH EFFECT

David Attenborough's striking pronouncements on climate change and plastic waste, backed up by powerful footage, helped convince many of the reality and urgency of the crisis – and his credibility was enhanced by the fact that he had been something of a self-confessed 'climate sceptic'<sup>48</sup>. Announcing a new strategy on plastic waste, UK Environment Secretary Michael Gove commented how he had been "haunted" by images of pollution in Attenborough's Blue Planet II series.



## 4.4 SUPPLY CHAIN

- **Work with suppliers to design strategies for carbon reduction and positive health outcomes in the supply chain.** This might include investing in health resilience of supply chain workers, such as funding clinics or advice centres; or enabling climate resilient infrastructure such as typhoon shelters or contour dams for terraced fields. It could also include the incorporation of digital tools in the supply chain to aid decarbonisation and increase the safety of workers.
- **Work with suppliers to design strategies to reverse biodiversity loss** and invest in nature-based solutions. Foster responsible land use, zero deforestation and ways to enhance biodiversity (by for example, restoring mangroves or backing community greening initiatives in cities). As well as tackling climate change, these can also help improve access to healthy nutrition, reduce risk of infectious diseases, and limit the mental health impacts from the loss of green spaces.
- **Foster long-term and secure contracts with farmers/producers** to strengthen community resilience and enable producers to invest in transitioning to sustainable production methods or, in the case of farmers, regenerative land-use.
- **Ensure environmental protection measures do not come at the cost of the rights, livelihoods or resource access of local communities.** Some rigorous forest protection measures, for example, have been criticised for excluding local communities who had traditionally made use of the forest. Set clear expectations of suppliers to meet environmental targets in ways that are co-created with communities.
- **Enable easier access to finance** for suppliers to transition to climate-positive practices, and explore the use of targeted low-interest loans to help build long-term community resilience, and improve physical and mental health in the shorter term. For example, Danone has offered its farmers in the USA access to slow loans in partnership with rePlant Capital, with lower interest rates and longer timelines in recognition of the time it takes to both transform and to realise profit from new farming practices<sup>49</sup>.





## SUPPORTING CONSUMERS TO ADAPT AND MITIGATE AGAINST CLIMATE CHANGE

GSK Consumer Healthcare is helping people understand the intersection of climate, air pollution and respiratory health, as well as equipping them with tips to mitigate the impact on their health. For example, their respiratory brand Otrivin is encouraging users to make a range of changes, from avoiding pollution hot spots, choosing less polluted routes to work or school and walking, cycling, or using public transport where possible. Meanwhile their allergy brand, Flonase is raising awareness of the links between climate change and lengthening allergy season. With rising temperatures, increasing concentration of CO<sub>2</sub> and more storms and rainfall the allergy season in the UK is 20 days longer since 1990. Such awareness raising is combined with strong climate mitigation commitments across their operations and supply chains.



## HOLISTIC WATER STEWARDSHIP

Diageo's water stewardship strategy reflects their different spheres of influence, and aims to achieve an overall positive water impact, and associated health benefits, in their supply chains and beyond. It recognises that a narrow focus on water efficiency in operations will not future-proof the business in an increasingly water-stressed world. Instead, they are perusing a watershed stewardship approach that integrates farmer engagement, community water and sanitation projects and advocacy for better water governance and infrastructure. Examples of action include: supporting farmers (especially smallholders) to improve water irrigation efficiency; advocating for more collective action for a better water world for everyone, including working with governments to ensure that water stressed markets have water issues embedded in public policy planning; and providing clean water and sanitation facilities to communities through projects such as SHE in India where water purification plants with chillers run by women-led micro-enterprises<sup>50</sup>.



## 4.5

# CONTRIBUTING TO A WIDER ENABLING ENVIRONMENT

It is futile for a business to attempt to become sustainable, in an unsustainable system - businesses need to look beyond their own boundaries to help shape an environment in which ecosystems and people can thrive<sup>51</sup>. Given its resources, lobbying power and breadth of consumer touchpoints, the private sector has a critical role to play in contributing to and enabling public discourse that supports the case for systemic change.

Specific actions include:

- **Provide new data and new flows of information, sharing data and tools to identify what works.** Continue to advance research into connections between climate and health, identifying effective ways of measuring and valuing impact. Collaborate with others to find new ways of integrating data sources to highlight successful climate and health interventions and create information flows which reinforce them.
- **Continue to make the case for change.** Businesses have a huge reach across consumers, suppliers, investors, government and other business through industry or business platforms. Use this reach to help government and players in other sectors to comprehend the health impacts of their climate actions and galvanise support for delivering co-benefits. More could be done specifically on climate and health issues. For instance, how might health be incorporated into standardised Environmental and Social Governance (ESG) reporting? Could metrics such

as those promoted by the Taskforce on Climate Related Financial Disclosures (TCFD) incorporate malaria or air pollution risks in future? What policies might support regenerative agriculture?

- **Create in-sector and cross-sector collaborations.** Many sectors have complementary expertise and influence. For instance, the agriculture, health and energy sectors can work together to reduce the impact of climate change on their businesses, while also acting to mitigate the root causes of health and climate challenges. Within the healthcare sector, communities already exist to share information and develop ideas to address these interconnected challenges, such as the Pharmaceutical Environment Group, the Sustainable Healthcare Coalition and the World Economic Forum Health and Healthcare Group.



## BREATHE EASY

Since 2016, Johnson and Johnson have partnered the [C40 group](#) of cities committed to sustainability, funding research and pilots which explore and measure the health benefits of climate and air quality action. To date they have worked with 26 cities in the network<sup>52</sup>.

GSK founded The Clean Breathing Institute in 2018 to conduct research into the links between air pollution and respiratory health, raise awareness, advocate for change and equip Health Care Practitioners and people suffering from worsening respiratory health with practical advice on what they can do to improve things. To reach more people, they are partnering with others such as FiP, the industry body for pharmacists, to equip their personnel with trusted advice to share with patients.



## THE IMPORTANCE OF A REGENERATIVE MINDSET

Adopting a 'regenerative mindset' – where we embrace the interconnections between planetary health and human health – is critical if we are to succeed in rewiring and rethinking our systems, building their capacity to adapt, to flourish, to thrive – all in the long term.

In turn this means:

- **Understanding potential**, not fixating on problems. How might you build the capabilities and capacity of the people and systems around your business? From skills development for staff through to restoration of polluted ecosystems, understanding potential can create rapid pathways to change.
- **Focusing on the overall health of the system** your business is part of. How does the health of your business relate to the health of the wider system it is part of? Nothing is separate; it isn't possible to have a sustainable business in an unsustainable system.
- **Embracing interconnectedness**. It is at the intersection between issues and systems that often the greatest potential for change exists. This is why the climate and health intersection has so much potential.



## THE ROLE OF PRIVATE SECTOR PUBLIC POLICY ADVOCACY

Whilst the private sector has an important role to play in creating the enabling conditions for systemic change in climate and health, it cannot do this by acting alone - government also has a critical role to play. There is huge potential for the private sector to use its powerful voice to influence local, national and international government policy.

The private sector should be calling on government to work alongside them to:

### SHIFT CULTURES AND BEHAVIOURS

- **Governments have a critical role to play in shifting societal norms.** When it comes to climate and health businesses should be encouraging government to promote public awareness of practical lifestyle choices that deliver climate and health benefits, from low carbon, healthy diets to transport modes.

### CREATE THE RIGHT INCENTIVES AND FINANCING

- **Only governments can provide the right policies, incentives and frameworks to de-risk** the huge investment that's needed from the private sector to deliver net zero pathways that will also benefit health, including through financial mechanisms such as social impact bonds.
- **Governments can re-channel subsidies** into climate positive solutions, ending support for fossil fuels and shifting it into renewables, and removing incentives that promote high carbon activities and unhealthy food.

- **Governments can set and enforce tax regimes** capable of fully funding the infrastructure needed for climate adaptation and health resilience.
- **Government's spending power is enormous.** Business should be advocating for public procurement policies that stimulate demand for climate-positive food, energy and products.
- **At an international level, governments should** scale up access to finance for vulnerable and lower income countries to build climate and health adaptation plans.

### DESIGN POLICIES THAT DRIVE SYSTEMIC CHANGE

- **Governments should develop regulations** for climate action that enshrine the rights of communities and enable them to strengthen their livelihoods and wellbeing through a green economy.
- **At a local and regional level governments can promote urban planning** designed for positive climate and health outcomes, such as active travel infrastructure to encourage cycling and walking, and access to green spaces. For example, Santander bikes in London or e-scooters in Taiwan.
- **Local governments can also adjust regulations around high risk areas such as schools.** Discourage school bus and car idling, and consider closing access to school roads at peak times.



## COOL SCHOOL STREETS

The London School Streets scheme – where streets outside schools were closed during arrival and leaving time during 2020 - led to a 23% reduction in nitrogen dioxide (NO<sub>2</sub>) pollution. It also had a greater impact on reducing car travel to school compared to the impact of coronavirus<sup>53</sup>. Initiatives similar to this have led to a 97% reduction in the number of schools in London in areas which exceed the legal pollution limit.

### DEVELOP RULES, MEASURES AND STANDARDS

- **The private sector should be encouraging governments to create a carbon trading mechanism** that ensures a proportion of funds is allocated to adaptation, with carbon trading focused on both offsetting and actual reduction in carbon emissions. They could also explore the implementation of carbon prices and carbon taxes.
- **Governments also need to strengthen ways to measure social value**, to support the prioritisation of health and social outcomes.
- **Governments can be encouraged to incorporate health into the National Climate Plans (NDC)** to develop 'healthy NDCs', including committing to measures that maximise health and climate benefits and calculating the associated health costs savings of climate actions<sup>54</sup>.

## SPECIFIC ACTIONS FOR FOOD BUSINESSES

### PRODUCTS AND SERVICES

- **Design product development and innovation from the outset** to deliver against sustainable nutrition goals.
- **Shift product portfolios towards a better balance for healthy diets**, including a move towards increasing the inclusion of vegetables and other plant-based products.
- **Drive demand for products which improve climate and health** by building a greater understanding of the issues via using consumer communication tools, such as messages on pack, in store and online.
- **Empower consumers to make sustainable and healthy food choices** through more transparent information about food production and nutritional quality, as well as building skills and supporting wider community efforts to enable people to experiment with new ingredients and healthy cooking and meal choices.
- **Shift pricing structures and business models** to promote accessibility and affordability of healthy food.

### SUPPLY CHAIN

- **Incentivise climate positive practices** through, for example, longer-term contracts giving suppliers security as they transition to regenerative agriculture, introducing peer-to-peer learning opportunities, and offering farmers and landowners payment in return for providing ecosystem services.



## SUSTAINABLE NUTRITION AT THE HEART OF BUSINESS STRATEGY

Dairy giant Danone has put health and regeneration at the core of its global business strategy, shifting from being primarily a dairy product company, to one that focuses on healthy tasty accessible nutrition. Its 2030 goals focus on 'One Planet. One Health' and sit across financial, health, environmental and social performance.

At the heart of this approach is a shift to regenerative agriculture. Danone has offered its farmers in the USA access to slow loans in partnership with replant Capital, with lower interest rates and longer timelines in recognition of the time it takes to both transition and to realise profit from new farming practices. Danone is also investing in research, setting up peer-to-peer networks within its French dairy supply chain to foster knowledge transfer as well as building industry collaborations to help form wider recommendations for policy, regulations, finance and industry norms<sup>55</sup>.







## SPECIFIC ACTIONS FOR BUILDING AND INFRASTRUCTURE BUSINESSES

### PRODUCTS AND SERVICES

- **Innovate building design and retrofits to cut emissions and boost health and wellbeing.** A host of interventions are relevant here, such as improving ventilation and daylighting, integrating renewables and low-carbon technologies and ensuring ample insulation. New build projects in particular offer a host of potential, including incorporating Passivhaus techniques, building with sustainable materials such as timber or bamboo, and incorporating green walls and roofs.
- **Invest in broader development and urban design projects which maximise human health and climate benefits.** These might include adopting sustainable drainage systems, and incorporating all the infrastructure needed to encourage active travel, such as walking and cycling, and easy access to public transport.
- **Incorporate biodiversity 'net gain' principles in new developments using a** mitigation hierarchy approach, so that these enhance rather than reduce their biodiversity<sup>56</sup>. In the UK, the Environment Bill contains a new requirement stipulating that a new development must achieve a net gain of 10% in biodiversity in order to win planning permission. This can either be through actions on the site itself – such as nature corridors – or can be supplemented by funding actions elsewhere, such as investing in regenerative agriculture to deliver biodiversity gains, or other biodiversity initiatives on nearby land<sup>57</sup>.

There are also a growing number of buildings that illustrate this principle in practice, such as the [Robinson Tower in Singapore](#), which incorporates a wide range of green spaces in a confined urban footprint.





## INDIA IN BLUE AND GREEN

Infrastructure planning in India is starting to turn from grey to blue-green. Traditional 'grey' water infrastructure - engineered solutions such as canalising rivers, wastewater treatment plants, pumping stations in flood prone zones, pipelines, dams and reservoirs – involved the construction of hard surfaces and the plentiful use of concrete, asphalt and steel. Blue-green infrastructure is designed for climate resiliency, featuring nature-based and other ecological solutions with both climate and health positives, including restoring urban rivers, many of which have been lost to development<sup>58</sup>.



## BUILDING WELL

Most urban people spend up to 90% of their lives indoors, which means the quality of the indoor environment has a huge impact on our health. That is why the WELL Building Standard, which originated in the USA, focuses on optimizing design and occupational practices to advance human health and wellbeing.



## HEALTHY CITIES

Since 2015, Sanitas (Bupa's business in Spain) has been running the Healthy Cities Initiative with the objective of promoting physical and mental wellbeing in parallel with healthier, more sustainable communities. It aims to develop resilience both in individuals and the wider community, by investing in healthy lifestyles and in healthy environments, as well as raising awareness about the link between our health and the health of the environment where we live.

Through a digital platform, Bupa is bringing together companies, employees, public institutions, NGOs, associations and foundations to participate in a community challenge that requires a commitment to wellbeing activity which then, in turn, generates investment in an urban regeneration project. Participating businesses challenge their employees to walk 6,000 steps a day over six weeks, promoting the WHO's recommended daily exercise, and to eschewing the use of their car once a week. Once the challenge is completed, it unlocks a donation by Sanitas to improve and increase green areas in several cities in Spain.

In 2021, 80 businesses joined the challenge, with a total of 250,000 employees taking part, so avoiding the emission of over seven tonnes of CO<sub>2</sub> over six weeks.





## SPECIFIC ACTIONS FOR HEALTHCARE BUSINESSES

With an estimated climate footprint equivalent to 4.4% of global net emissions<sup>59</sup>, there is huge potential for the global health care sector, including businesses such as pharmaceutical and medical technology companies, to take action that reduces carbon emissions, and by virtue of their products and services, to improve health.

### PRODUCTS AND SERVICES

- **Reduce the carbon intensity of products and patient care pathways.** 70% of the healthcare sector's carbon footprint is in medicines and consumables<sup>60</sup>. Precision medicine, AI analytics, genomics and digital treatment support could reduce the carbon intensity of products and care pathways, as well as improve health outcomes. Incorporating circularity principles including re-assessing pricing models will also reduce waste and improve health outcomes.
- **Reduce environmental impact of Research and Development (R&D).** Laboratories are one of the most resource-intensive spaces in any industry, burning through five to 10 times more energy per square foot than offices, even more so for clean rooms and other specialised facilities<sup>61</sup>. Business can use My Green Lab principles and certification to reduce the impact of R&D on GHG emissions, water and waste.
- **Innovate product portfolios and R&D investment** in the light of future climate and health trends. Specifically, consider the increased emergence of certain infectious diseases, especially among vulnerable communities, as well as changing health profiles and challenges as a result of climate change.
- **Increase consumer understanding of how to mitigate and adapt to climate change impacts.** For instance, business could tell the stories of people whose health has been affected by climate change and healthcare professionals could advise consumers about air pollution.
- **Longer term, consider how to shift towards health creation models** (or prevention models) and away from business models that focus on treatment.



## COLLABORATING TO MAXIMISE IMPACT ON COMMUNITY HEALTH AND WELLBEING

Walgreens Boots Alliance (WBA) has partnered with organisations that have healthcare expertise and provide healthcare services at national and international levels for many years, to tackle important health issues including malnutrition, disease prevention and cancer research, prevention and support as well as youth empowerment. WBA's approach to its Collaboration for Cancer Prevention, Research and Support formed in 2019 with four major cancer organizations, is an example of a partnership model that could be adopted for climate and health progress. This collaborative approach facilitates joint initiatives to develop and support innovative cancer research infrastructure and supports the charity partners to share best practices in patient-centred care.



## SPECIFIC ACTIONS FOR FINANCE BUSINESSES

- **Apply a climate lens to assessments of all investments**, including health sector investments. Ask whether they are likely to curb carbon emissions – or increase them. In which case, is there a way of delivering a health benefit in a more sustainable way?
- **Take account of health impacts when assessing climate-related ESG risks and returns**. Is the low-carbon solution also the healthiest one for the people most affected by it? If not, how can that be addressed?
- **Seek out and finance opportunities that co-deliver climate and health benefits**, such as nature-based solutions, regenerative agriculture, and zero-emissions urban transport.
- **Advocate for a well-being economy**. Shift from Gross Domestic Product (GDP) as a measure of economic progress to a broader based metric that includes environmental and social health.
- **Encourage consumers to engage with their investments** through shareholder engagement and voting at Annual General Meetings, using the health story to help make climate investments relevant to people.

To learn more and explore how your organisation can drive co-benefits for climate and health, please contact [info@forumforthefuture.org](mailto:info@forumforthefuture.org).



## THREE CRITICAL CHALLENGES BROUGHT TO LIFE

### 1.1 AIR POLLUTION

#### THE CHALLENGE

Air pollution is a public health challenge across the world, with both developing markets and developed regions suffering from its effects, although the greatest impact is in low and middle income countries<sup>62</sup>. It kills an estimated 7 million people worldwide each year<sup>63</sup> largely as a result of increased mortality from strokes, heart and lung disease, lung cancer and acute respiratory infections.

Air pollution impacts can also lower resistance to other diseases or health challenges<sup>64</sup>, potentially having a knock on effect on a person's ability to work or care for others. This indirect impact can create a downwards spiral or vicious circle where underlying physical health problems can lead to mental health issues or poverty, which harms a person's health further and makes them even more susceptible to both the social and environmental impacts of climate change<sup>65</sup>.

Air pollution poses a greater risk to the most vulnerable – to babies, children, and those over 65, but also to those living in close vicinity to main roads, industry or areas with few open spaces and greenery, who are often among the poorest.<sup>66,67</sup>

#### THE INTERSECTION WITH CLIMATE

While some air pollutants, notably sulphur dioxide (SO<sub>2</sub>), can have a cooling effect by reflecting some of the sun's heat back into space<sup>68</sup>, the vast majority – including black carbon and ground-level ozone (created by chemical reactions between oxides of nitrogen (NO<sub>x</sub>) and volatile organic compounds) – are significant greenhouse gases (GHG) in themselves.

Some air pollutants, such as black carbon, a component of fine particulate matter (PM<sub>2.5</sub>), and ground level ozone are short-lived climate pollutants (SLCPs). Reducing SLCPs alongside carbon dioxide emission is seen as key to slowing the rate of near-term climate change and limiting warming to 1.5°C<sup>69</sup>.

Reducing pollutant emissions can both improve public health and also provide major climate benefits, as stated by IPCC Working Group Co-Chair Panmao Zhai:

*“Stabilizing the climate will require strong, rapid, and sustained reductions in greenhouse gas emissions, and reaching net zero CO<sub>2</sub> emissions. Limiting other greenhouse gases and air pollutants, especially methane, could have benefits both for health and the climate.”<sup>70</sup>*

However, most governments and policymakers still address climate change and air pollution separately, which means we are missing out on opportunities to drive co-benefits, particularly in relation to health, and are sometimes making decisions on climate action that may have a negative impact on air pollution.

#### ACTION DRIVING CO-BENEFITS FOR CLIMATE AND HEALTH

An integrated approach to policymaking and action that addresses both climate and air quality at the same time is crucial to ensure health co-benefits can be realised.

Unsurprisingly, acting on air quality can positively impact local health in a very short space of time, with two-thirds of benefits realised within two years – and some becoming apparent much sooner<sup>71</sup>. During the Covid-19 lockdowns, air pollution levels in many cities fell dramatically, in some cases by up to 45%<sup>72</sup>. According to one estimate by the Centre for Research on Energy and Clean Air, the Spring 2020 lockdown in Europe resulted in 11,000 fewer deaths from air pollution<sup>73</sup>. Meanwhile, during the Atlanta Olympics in 1996, 17 days of traffic reduction resulted in more than 40% decrease in children's medical visits for asthma.

## 1.2 MALARIA

Malaria kills approximately 400,000 each year, and afflicts over 200 million people in 87 countries throughout Africa, Asia, and Latin America<sup>75</sup>. Variation in climatic conditions, such as temperature, rainfall patterns, and humidity, has a profound effect on malaria transmission. Changes in the climate could therefore increase the length of the malaria season in endemic countries and see malaria spread into new regions, including Europe and North America. It's not surprising, then, that the WHO and World Meteorological Organization have identified malaria as among the most climate-sensitive diseases.

### THE INTERSECTION WITH CLIMATE

Mosquitoes use standing water in which to breed, and as incidences of extreme rainfall and floods increase, so such bodies of water become more prevalent, particularly in urban areas. This in turn could lead to an increase in malaria epidemics<sup>76</sup>. Increasingly erratic weather patterns will make it harder to predict outbreaks and could extend the malaria season<sup>77</sup>. Estimates suggest that climate change could increase the population at risk of acquiring malaria by 5–7% across Africa by 2100<sup>78</sup>, and result in 60,000 additional malaria deaths per year between 2030 and 2050<sup>79</sup>.

Disruption from climate change can also lead to social degradation and economic loss, which can interrupt access to medical facilities and prevents people from seeking early diagnosis and

treatment for malaria. The implementation of malaria control measures may also be disrupted by extreme weather, meaning even those who can reach a health facility may not receive the treatment they need<sup>80</sup>. These underlying societal challenges combined with climate events can also impair surveillance and preparedness measures which seek to minimise the impact of malaria, such as mosquito net distribution campaigns, insecticidal spraying or public health initiatives.

### ACTION DRIVING CO-BENEFITS FOR CLIMATE AND HEALTH

Malaria incidence will increase in some areas as temperatures rise, so every tonne of carbon averted slows the spread to new regions. There is an upper temperature threshold for malaria, so in some places its incidence will reduce as temperatures rise, but this benefit will be more than offset by its spread to other regions – and by the other severe damaging impacts of high temperatures in areas benefiting from reduced malaria.

Some climate mitigation strategies such as nature-based solutions (e.g. restoration of coastal habitats, forests and wetlands) and regenerative agriculture can help curb floods and so reduce levels of stagnant water. Climate strategies that support livelihoods, resilience and diversification opportunities for poor people who are often the most vulnerable to malaria can also cut the disease's impact.





## 1.3 SUSTAINABLE NUTRITION

### THE CHALLENGE

Malnutrition in all its forms, including obesity, undernutrition, and other dietary risks, is the leading cause of poor health globally, affecting over 2 billion adults and 233 million children annually<sup>81</sup>. Malnutrition increases health care costs, reduces productivity, and slows economic growth, which can perpetuate a cycle of poverty and ill-health<sup>82</sup>.

### THE INTERSECTION WITH CLIMATE

The way we produce much of our food today drives climate change and damages health.

Widespread use of nitrogen-based fertilisers boosts GHG emissions, biodiversity loss in waterways and drinking water contamination. Climate disruption threatens food security, as changing temperatures, weather patterns and acute climatic shocks drive down crop yields, increase the risk of crop failure due to disease and disrupt supply – especially through climate induced conflict. On top of the many existing inequalities and challenges in the food system, *The Lancet* predicts that by 2050, climate change could lead to more than 500,000 deaths per year through unhealthier diets<sup>83</sup>. Failure of the rice crop in southern China due to heatwaves could change from a one-in-a-100-year event to one-in-four-years by 2100<sup>84</sup>.

Rebalancing Western diets in particular towards a so-called 'planetary health diet'<sup>85</sup> – which incorporates more nuts, seeds and vegetables and is less reliant on animal based agriculture, could prevent 11 million deaths annually<sup>86</sup>. Not only would it improve human health, it would also significantly reduce pressure on ecosystems and have a major positive impact on climate change.

At the same time, ensuring access to sufficient healthy protein is essential to address malnutrition. Animal source foods can provide important micronutrients for growth and development. Accessibility of sustainable nutrition is interlinked with both public health, economic development and climate resilience. According to *The Lancet*, “food is the single strongest lever to optimise human health and environmental sustainability on earth”<sup>87</sup>.

### ACTION DRIVING CO-BENEFITS FOR CLIMATE AND HEALTH

A focus on climate resilient diets needs to address issues of climate and nutrition together. *The Lancet* positions obesity, undernutrition and climate change as a synergy of epidemics, because they interact with each other, and share common underlying societal drivers<sup>88</sup>.

That opens up the possibility of interventions that tackle all three simultaneously. For example, national dietary guidelines could be extended to include sustainability, which in turn would lead to greater food security, and an improvement in diet quality, human health and wellbeing and social equity – as well as tackling climate change<sup>89</sup>.

Other specific actions include:

- Increasing soil health and vegetation cover in drought prone environments to increase resilience<sup>90</sup>.
- Optimising the use of agrichemicals and intensive farming techniques, so reducing greenhouse emissions and water pollution<sup>91</sup>.

- Switching to sustainable and climate resilient livestock farming and animal feeds<sup>92</sup>.
- Restoring biodiversity and healthy soils through regenerative agriculture, such as switching to more diverse production systems that also provide nutrient-rich food<sup>93</sup>.
- Supporting better local circular food systems that support the cycling of natural resources and sustain food access and jobs for local communities<sup>94</sup>.



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# REFERENCES

- <sup>1</sup> United Nations Global Compact (UNGC) (2019). 'Business Leadership Brief For Healthy Planet, Healthy People'. Available from: <https://www.unglobalcompact.org/library/5714>
- <sup>2</sup> UNGC (2021). 'Tackling Climate Change is the Greatest Global Health Opportunity of the Twenty-First Century - An Empowering Business Narrative and Call for Health Resilient Climate Action'. April 2021. Available from: <https://www.unglobalcompact.org/library/5881>
- <sup>3</sup> Richard Horton and Selina Lo. (2015) 'Planetary health: a new science for exceptional action'. The Lancet. Volume 386, Issue 10007, P1921-1922, 14 November 2015. DOI: [https://doi.org/10.1016/S0140-6736\(15\)61038-8](https://doi.org/10.1016/S0140-6736(15)61038-8) Available from: [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(15\)61038-8/fulltext#%20](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(15)61038-8/fulltext#%20)
- <sup>4</sup> World Health Organization (WHO). (2016). 'An estimated 12.6 million deaths each year are attributable to unhealthy environments' (Press Release) Available from: <https://www.who.int/news/item/15-03-2016-an-estimated-12-6-million-deaths-each-year-are-attributable-to-unhealthy-environments>
- <sup>5</sup> WHO (2021). Air Pollution. Accessed 06 September 2021. Available from: <https://www.who.int/airpollution/en/>
- <sup>6</sup> UNICEF and WHO. Progress on household drinking water, sanitation and hygiene 2000-2020 - Five years into the SDGs. Available from: <https://washdata.org/sites/default/files/2021-07/jmp-2021-wash-households.pdf>
- <sup>7</sup> Action Against Hunger. (2021) World Hunger Facts. Accessed 06 September 2021. Available from: <https://www.actionagainsthunger.org.uk/why-hunger/world-hunger-facts>
- <sup>8</sup> Centres for Disease Control and Prevention (CDC). (2021). Climate Effects on Health. Accessed 31 August 2021. Available from: <https://www.cdc.gov/climateandhealth/effects/default.htm>
- <sup>9</sup> United Nations: Department of Economic and Social Affairs. (2016). World Economic and Social Survey (WESS) 2016: Climate Change Resilience—an Opportunity for Reducing Inequalities. 03 October 2016. Available from: <https://www.un.org/development/desa/publications/wess-2016.html>
- <sup>10</sup> Leonard. J. (2021) 'How does climate change effect human health?' Medical News Today. Accessed 31 August 2021. Available from: <https://www.medicalnewstoday.com/articles/climate-change-and-health#mental-health>
- <sup>11</sup> Cunsolo A, et al. (2020) 'Ecological grief and anxiety: the start of a healthy response to climate change?' The Lancet: Planetary Health. VOLUME 4, ISSUE 7, E261-E263, 01 July 2020. Available from: [https://www.thelancet.com/journals/lanplh/article/PIIS2542-5196\(20\)30144-3/fulltext#%20](https://www.thelancet.com/journals/lanplh/article/PIIS2542-5196(20)30144-3/fulltext#%20)
- <sup>12</sup> International Panel on Climate Change (IPCC). (2021) [https://twitter.com/IPCC\\_CH/status/1430080436105977861](https://twitter.com/IPCC_CH/status/1430080436105977861)
- <sup>13</sup> IPCC. (2018). Special Report on Global Warming of 1.5°C. Chapter 4: Executive Summary. 08 October 2018. Available from: <https://www.ipcc.ch/sr15/>
- <sup>14</sup> Cotton 2040. (2021). Global analysis of climate risks to cotton growing regions. Acclimatize UK and Forum for the Future. Available from: <https://www.acclimatise.uk.com/collaborations/cotton-2040/>
- <sup>15</sup> International Federation of Red Cross and Red Crescent Societies (IFRC). (2019). The Cost of Doing Nothing: The Humanitarian Price of Climate Change and How it Can be Avoided. 19 September 2019. Available from: <https://media.ifrc.org/ifrc/the-cost-of-doing-nothing/>
- <sup>16</sup> Institute for Economics & Peace (IEP). (2020). Ecological Threat Register 2020: understanding Ecological Threats, Resilience and Peace. Page 4. September 2020. Available from: <http://visionofhumanity.org/reports>.
- <sup>17</sup> United Nations High Commissioner for Refugees (UNHCR). Climate change and disaster displacement. Accessed on 13 September 2021. Available from: <https://www.unhcr.org/uk/climate-change-and-disasters.html>
- <sup>18</sup> Ebi K and Hess J. (2020). 'Health Risks Due To Climate Change: Inequity in Causes and Consequences'. Health Affairs. Available from: <https://www.healthaffairs.org/doi/10.1377/hlthaff.2020.01125>
- <sup>19</sup> McMahon J, quoting Sir Andy Haines, a professor of Environmental Change and Public Health at the London School of Hygiene and Tropical Medicine. (2021). 'Seven climate actions that also improve human health'. Forbes. 08 January 2021. Available from: <https://www.forbes.com/sites/jeffmcmahon/2021/01/08/seven-climate-actions-that-also-improve-human-health/?sh=30de61a5213a>
- <sup>20</sup> Watts N, Adger WN, Agnolucci P, et al. (2015). 'Health and climate change: policy responses to protect public health'. Lancet. 23 June 2015. Available from: [http://dx.doi.org/10.1016/S0140-6736\(15\)60854-62](http://dx.doi.org/10.1016/S0140-6736(15)60854-62)
- <sup>21</sup> University of Oxford. (2020). 'Nature- based solutions can help fight climate change and biodiversity loss'. 10 September 2020. Available from: <https://www.ox.ac.uk/news/2020-09-10-nature-based-solutions-can-help-fight-climate-change-and-biodiversity-loss>
- <sup>22</sup> International Labour Organisation (ILO). (2021) ILO: A green recovery would add 20 million jobs by 2030. 28 April 2021. Available from: [https://www.ilo.org/brussels/information-resources/news/WCMS\\_785635/lang-en/index.htm](https://www.ilo.org/brussels/information-resources/news/WCMS_785635/lang-en/index.htm)
- <sup>23</sup> International Union for Conservation of Nature (IUCN). (2021). Nature Bases Solutions for People and Planet. Accessed 13 September 2021. Available from: <https://www.iucn.org/theme/nature-based-solutions#:~:text=Nature%2Dbased%20Solutions%20are%20actions,well%2Dbeing%20and%20biodiversity%20benefits>

- <sup>24</sup> WHO. (2018). 'Fact Sheet: Climate change and health'. 01 February 2018. Accessed 14 September 2021. Available from: <https://www.who.int/news-room/fact-sheets/detail/climate-change-and-health>
- <sup>25</sup> ILO. (2019). 'Working on a WARMER planet The impact of heat stress on labour productivity and decent work'. Available from: [https://www.ilo.org/global/about-the-ilo/newsroom/news/WCMS\\_711917/lang--en/index.htm](https://www.ilo.org/global/about-the-ilo/newsroom/news/WCMS_711917/lang--en/index.htm)
- <sup>26</sup> Alec Tyson, Brian Kennedy, Cary Funk (2021) 'Gen Z, Millennials Stand Out for Climate Change Activism, Social Media Engagement With Issue'. Pew Research Centre. 26 May 2021. Available from: <https://www.pewresearch.org/science/2021/05/26/gen-z-millennials-stand-out-for-climate-change-activism-social-media-engagement-with-issue/>
- <sup>27</sup> Mier A. (2020) 'Gen Z grew up with climate change. Now it's starting to have an effect on their career choices'. CNBC College Voices 2020. 12 November 2020. Accessed 13 September 2021. Available from: <https://www.cnbc.com/2020/11/12/gen-z-grew-up-with-climate-change-now-its-affecting-career-choices.html>
- <sup>28</sup> Office for National Statistics (2020) 'Does exposure to air pollution increase the risk of dying from the coronavirus (COVID-19)?' 13 August 2020. Available from: <https://www.ons.gov.uk/economy/environmentalaccounts/articles/doesexposuretoairpollutionincreasetheriskofdyingfromthecoronaviruscovid19/2020-08-13>
- <sup>29</sup> WHO. (2018). '9 out of 10 people worldwide breathe polluted air, but more countries are taking action'. Available from: <https://www.who.int/news/item/02-05-2018-9-out-of-10-people-worldwide-breathe-polluted-air-but-more-countries-are-taking-action>
- <sup>30</sup> WHO. (2021). Air Pollution, viewed 31 August 2021, ([https://www.who.int/health-topics/air-pollution#tab=tab\\_1](https://www.who.int/health-topics/air-pollution#tab=tab_1))
- <sup>31</sup> WHO. (2021). Strategies for healthy and sustainable cities. Viewed 31 August 2021. Available from: <https://www.who.int/initiatives/urban-health-initiative/strategies>
- <sup>32</sup> WHO. (2020). World Malaria Report 2020. Available from: <https://www.who.int/publications/i/item/9789240015791>
- <sup>33</sup> Felipe J Colón-González, Maquins Odhiambo Sewe, Adrian M Tompkins, Henrik Sjödin, Alejandro Casallas, Prof Joacim Rocklöv, et al. (2021), 'Projecting the risk of mosquito-borne diseases in a warmer and more populated world: a multi-model, multi-scenario intercomparison modelling study' *The Lancet Planetary Health*. DOI: [https://doi.org/10.1016/S2542-5196\(21\)00132-7](https://doi.org/10.1016/S2542-5196(21)00132-7)
- <sup>34</sup> IPCC. (2019). Special Report On Climate Change and Land. Chapter 5, Executive Summary. Available from: <https://www.ipcc.ch/srccl/chapter/chapter-5/>
- <sup>35</sup> Ibid
- <sup>36</sup> The WHO makes the case for investment in public health in the following report targeted at healthcare providers and policy makers. WHO: Regional Office for Europe. (2020) 'The case for investing in public health'. Available from: [https://www.euro.who.int/\\_\\_data/assets/pdf\\_file/0009/278073/Case-Investing-Public-Health.pdf](https://www.euro.who.int/__data/assets/pdf_file/0009/278073/Case-Investing-Public-Health.pdf). The narrative around businesses being more actively centred on preventative health is still in its relative infancy due to the significant changes to businesses models that it would entail
- <sup>37</sup> Race to Zero. (2021) 'Minimum criteria required for participation in the Race to Zero campaign'. Accessed 13 September 2021. Available at: <https://unfccc.int/sites/default/files/resource/Minimum-criteria-for-participation-in-RTZ.pdf>
- <sup>38</sup> Anil Urs. (2020). 'Solarisation of primary healthcare centres in rural India key to tackle Covid crisis'. *The Hindu Business Line*. 30 April 2020. Available from: <https://www.thehindubusinessline.com/news/national/solarisation-of-primary-healthcare-centres-in-rural-india-key-to-tackle-covid-crisis/article31472625.ece>
- <sup>39</sup> WHO. (2020). 'WHO Manifesto for a healthy recovery from COVID-19'. 26 May 2020. Available from: <https://www.who.int/news-room/feature-stories/detail/who-manifesto-for-a-healthy-recovery-from-covid-19>
- <sup>40</sup> Inger Andersen. (2020) 'We must change how we live'. United Nations Association UK (UNA-UK) SDG's building back better. 23 October 2020. Available from: <https://www.sustainablegoals.org.uk/we-must-change-how-we-live/>
- <sup>41</sup> Bazerman M.H and Hoffman A.J. (2000). 'Sources of Environmentally Destructive Behavior: Individual, Organizational and Institutional Perspectives' 01 February 2000. Ross School of Business Paper No. 1350, *Research in Organizational Behavior*, 21: 39-79., Available from: SSRN: <https://ssrn.com/abstract=2940342> or <http://dx.doi.org/10.2139/ssrn.2940342>
- <sup>42</sup> WHO. (2021). Strategies for healthy and sustainable cities. (Accessed 31 August 2021). Available from: <https://www.who.int/initiatives/urban-health-initiative/strategies>
- <sup>43</sup> Fauville, G., Queiroz, A. C. M., & Bailenson, J. N. (2020). 'Virtual reality as a promising tool to promote climate change awareness'. *Technology and Health*, 91-108. Available from: <https://www.stanfordvr.com/pubs/2020/virtual-reality-as-a-promising-tool-to-promote-climate-change-awareness/>
- <sup>44</sup> Scurati, G. W., Ferrise, F., & Bertoni, M. (2020). 'Sustainability awareness in organizations through gamification and serious games: a systematic mapping'. *Design Society 101: Proceedings of NordDesign 2020*, Lyngby, Denmark, 12th-14th August 2020, 1-10. Available from: <https://www.designsociety.org/publication/42501/Sustainability+awareness+in+organizations+through+gamification+and+serious+games%3A+a+systematic+mapping>
- <sup>45</sup> Sunstein, C. R. & Reisch, L. A. *Harvard Environ. Law Rev* 38, 127 (2014). And Sunstein, C.R. Green defaults can combat climate change. *Nat Hum Behav* 5, 548–549 (2021). <https://doi.org/10.1038/s41562-021-01071-2>
- <sup>46</sup> Behavioural Insights Team (BIT). (2020). *The Little Book of Green Nudges*. Available from: <https://www.bi.team/publications/the-little-book-of-green-nudges/>
- <sup>47</sup> Scannell L, Gifford R. 'Personally Relevant Climate Change: The Role of Place Attachment and Local Versus Global Message Framing in Engagement'. *Environment and Behavior*. 2013;45(1):60-85. doi:10.1177/0013916511421196



- <sup>48</sup> Hickman L. 'The 2004 lecture that finally convinced David Attenborough about global warming'. Carbon Brief. 13 August 2018. Available from: <https://www.carbonbrief.org/the-2004-lecture-that-finally-convinced-david-attenborough-about-global-warming>
- <sup>49</sup> Danone North America. (2020). Danone North America Announces Partnership with rePlant Capital. (Press Release) Available from: <https://www.danonenorthamerica.com/news/danone-north-america-announces-partnership-with-replant-capital/>
- <sup>50</sup> Diageo (2021). 'Meeting our water replenishment targets and supporting communities through Covid-19' Accessed 13 September 2021. Available from: <https://www.diageo.com/en/society-2030/case-studies/meeting-our-water-replenishment-targets-and-supporting-communities-through-covid-19/>
- <sup>51</sup> Solitaire Townsend. (2020). 'We Urgently Need 'Scope X' Business Leadership For Climate'. Forbes. 29 June 2020. Available from: <https://www.forbes.com/sites/solitairetownsend/2020/06/29/we-urgently-need-scope-x-business-leadership-for-climate/>
- <sup>52</sup> C40 Cities. (2020). New Research Gives Cities Plans to Tackle GHG Emissions & Air Pollution Simultaneously (Press Release). (Accessed 06 September 2021). Available from: [https://www.c40.org/press\\_releases/toward-a-healthier-world](https://www.c40.org/press_releases/toward-a-healthier-world)
- <sup>53</sup> Mayor of London and London Assembly. (2021) New studies show School Streets improve air quality. (Press Release). 09 March 2021. Accessed 06 September 2021. Available from: <https://www.london.gov.uk/press-releases/mayor/school-streets-improve-air-quality>
- <sup>54</sup> The Global Climate and Health Alliance, (2021) 'Why do healthy national climate commitments matter in 2021'. Accessed 13 September 2021. Available from: <https://climateandhealthalliance.org/initiatives/healthy-ndcs/>
- <sup>55</sup> Danone North America. (2020). 'Danone North America Announces Partnership with rePlant Capital' (Press release) 29 January 2020. Available from: <https://www.danonenorthamerica.com/news/danone-north-america-announces-partnership-with-replant-capital/>
- <sup>56</sup> IUCN, 'Business and Biodiversity Net Gain'. Accessed 13 September 2021. Available from: <https://www.iucn.org/theme/business-and-biodiversity/our-work/business-approaches-and-tools/business-and-biodiversity-net-gain>
- <sup>57</sup> APEM. (2021). 'What is Biodiversity Net Gain (BNG) and what are the obligations'. 29 March 2021. Available from: <https://www.apemltd.co.uk/what-is-biodiversity-net-gain-bng-and-what-are-the-obligations/>
- <sup>58</sup> Sayli Udas-Mankikar and Berjis Driver.(2021) 'Blue-Green Infrastructure: An Opportunity for Indian Cities'. Observer Research Foundation (ORF). Occasional Paper No. 317, May 2021. Available from: [https://www.orfonline.org/research/blue-green-infrastructure-an-opportunity-for-indian-cities/#\\_edn12](https://www.orfonline.org/research/blue-green-infrastructure-an-opportunity-for-indian-cities/#_edn12)
- <sup>59</sup> Health Care Without Harm. (2019) 'Healthcare's Climate Footprint'. September 2019. Available from: [https://noharm-global.org/sites/default/files/documents-files/5961/HealthCaresClimateFootprint\\_092319.pdf](https://noharm-global.org/sites/default/files/documents-files/5961/HealthCaresClimateFootprint_092319.pdf)
- <sup>60</sup> Ibid
- <sup>61</sup> Wenzel E. (2021). 'How My Green Lab is leaning up R&D'. Green Biz. 19 January 2021. Available from: <https://www.greenbiz.com/article/how-my-green-lab-cleaning-rd>
- <sup>62</sup> United Nations Environment Programme (UNEP). (2019). 'Air pollution hurts the poorest most'. 09 May 2019. Available from: <https://www.unep.org/news-and-stories/story/air-pollution-hurts-poorest-most>
- <sup>63</sup> WHO. (2021) Air Pollution. Accessed 06 September 2021. Available from: [https://www.who.int/health-topics/air-pollution#tab=tab\\_1](https://www.who.int/health-topics/air-pollution#tab=tab_1)
- <sup>64</sup> John Hopkins Medicine. 2020. 'Coronavirus and COVID-19: Who is at higher risk?' 25 June 2020. Available from: <https://www.hopkinsmedicine.org/health/conditions-and-diseases/coronavirus/coronavirus-and-covid19-who-is-at-higher-risk>
- <sup>65</sup> Environmental Defence Fund. (2021). Health impacts of air pollution. Accessed 31 August 2021. Available from: <https://www.edf.org/health/health-impacts-air-pollution>
- <sup>66</sup> Folk E. (2020) 'Air pollution harms most vulnerable'. The Ecologist. 09 November 2020. Available from: <https://theecologist.org/2020/nov/09/air-pollution-harms-most-vulnerable>
- <sup>67</sup> Lauren Ferguson, , et al. (2020) 'Exposure to indoor air pollution across socio-economic groups in high-income countries: A scoping review of the literature and a modelling methodology'. Environment International. Volume 143. October 2020. Available from: <https://doi.org/10.1016/j.envint.2020.105748>
- <sup>68</sup> Robert K. Kaufmann, Heikki Kauppi, Michael L. Mann, James H. Stock (2011), 'Reconciling anthropogenic climate change with observed temperature 1998–2008'. Proceedings of the National Academy of Sciences. July 2011, 108 (29) 11790-11793; DOI: 10.1073/pnas.1102467108. Available from: <https://www.carbonbrief.org/sulfur-emissions-may-have-slowed-temperature-rise>
- <sup>69</sup> 17 IPCC (2018) Mitigation Pathways Compatible with 1.5°C in the context of sustainable development. In: IPCC Special Report on 1.5C. Available from: <https://www.ipcc.ch/sr15/>
- <sup>70</sup> <https://www.ipcc.ch/2021/08/09/ar6-wg1-20210809-pr/>
- <sup>71</sup> Shindell D. (2020) Multidisciplinary Studies of Climate Science and Human Society- Testimony to US Congress. Duke University. Accessed 06 September 2021. Available from: <https://sites.nicholas.duke.edu/drewshindell/bringing-science-to-congress/>

- <sup>72</sup> Jean-Philippe Bonardi et al. (2021). 'Saving the world from your couch: the heterogeneous medium-run benefits of COVID-19 lockdowns on air pollution' *Environmental Research Letters*. Volume 16 Number 7. 25 June 2021. Available from: <https://iopscience.iop.org/article/10.1088/1748-9326/abee4d#erlabee4dfn7>
- <sup>73</sup> Lauri Myllyvirta and Hubert Thieriot. (2020). '11,000 air pollution-related deaths avoided in Europe as coal, oil consumption plummet'. Centre for Research on Energy and Clean Air (CREA). 20 April 2020. Available from: <https://energyandcleanair.org/air-pollution-deaths-avoided-in-europe-as-coal-oil-plummet/>
- <sup>74</sup> Friedman M. S et al. (2001) 'Impact of changes in transportation and commuting behaviors during the 1996 Summer Olympic Games in Atlanta on air quality and childhood asthma'. *JAMA Network*. 21 February 2001. doi:10.1001/jama.285.7.897. Available from: <https://jamanetwork.com/journals/jama/fullarticle/193572>
- <sup>75</sup> WHO. (2020). *World Malaria Report 2020*. Available from: <https://www.who.int/publications/i/item/9789240015791>
- <sup>76</sup> Smith MW, Macklin MG, Thomas CJ. (2013) 'Hydrological and geomorphological controls of malaria transmission'. *Earth-Science Reviews*, January 2013; 116: 109–27. Available from: <https://www.sciencedirect.com/science/article/abs/pii/S0012825212001547>
- <sup>77</sup> Felipe J Colón-González, et al. (2021) 'Projecting the risk of mosquito-borne diseases in a warmer and more populated world: a multi-model, multi-scenario intercomparison modelling study'. *The Lancet Planetary Health*, Volume 5, Issue 7, July 2021, Pages e404–e414, [https://doi.org/10.1016/S2542-5196\(21\)00132-7](https://doi.org/10.1016/S2542-5196(21)00132-7). Available from: <https://www.sciencedirect.com/science/article/pii/S2542519621001327>
- <sup>78</sup> Tanser FC, Sharp B, le Sueur D. (2003) 'Potential effect of climate change on malaria transmission in Africa'. *Lancet*. 29 November 2003. 362(9398):1792-8. doi: 10.1016/S0140-6736(03)14898-2. PMID: 14654317. Available from: <https://pubmed.ncbi.nlm.nih.gov/14654317/>
- <sup>79</sup> WHO. (2014). Quantitative risk assessment of the effects of climate change on selected causes of death, 2030s and 2050s. Available from: <https://apps.who.int/iris/handle/10665/134014>
- <sup>80</sup> WHO Strategic Advisory Group on Malaria Eradication. (2020) *Malaria eradication: benefits, future scenarios and feasibility*. Geneva: World Health Organization; 20 April 2020. Licence: CC BY-NC-SA 3.0 IGO. Available from: <https://www.who.int/publications/i/item/9789240003675>
- <sup>81</sup> WHO. (2021) *Malnutrition*. 09 June 2021. Accessed 06 September 2021. Available from: <https://www.who.int/news-room/fact-sheets/detail/malnutrition>
- <sup>82</sup> Ibid
- <sup>83</sup> Springmann M, et al. (2016). 'Global and regional health effects of future food production under climate change: a modelling study'. *The Lancet*. VOLUME 387, ISSUE 10031, P1937-1946, 07 MAY 2016. Available from: [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(15\)01156-3/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(15)01156-3/fulltext)
- <sup>84</sup> Carrington. D. (2016). More than half a million could die as climate change impacts diet – report. *The Guardian*. 03 March 2016. Available from: <https://www.theguardian.com/environment/2016/mar/03/more-than-half-a-million-could-die-as-climate-change-impacts-diet-report>
- <sup>85</sup> Eat Forum (2021). *The Planetary Health Diet*. Accessed 06 September 2021. Available from: <https://eatforum.org/learn-and-discover/the-planetary-health-diet/>
- <sup>86</sup> Willet. W, et al. (2019). Food in the Anthropocene: the EAT-Lancet Commission on Healthy Diets from Sustainable Food Systems. *The Lancet*. 16 January 2019. Available from: [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(18\)31788-4/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(18)31788-4/fulltext)
- <sup>87</sup> United Nations Global Compact (UNGC). (2021). *Tackling Climate Change is the Greatest Global Health Opportunity of the Twenty-First Century - An Empowering Business Narrative and Call for Health Resilient Climate Action*, Page 31. Available from: <https://www.unglobalcompact.org/library/5881>
- <sup>88</sup> Swinburn B.A, et al. (2019). 'The Global Syndemic of Obesity, Undernutrition, and Climate Change: The Lancet Commission report'. *The Lancet*. VOLUME 393, ISSUE 10173, P791-846, 23 February 2019. Available from: <https://www.thelancet.com/journals/lancet/article/PIIS0140-6736%2818%2932822-8/fulltext>
- <sup>89</sup> Ibid
- <sup>90</sup> Project Drawdown. *Silvopasture*. Accessed 13 September 2021. Available from: <https://www.drawdown.org/solutions/silvopasture>
- <sup>91</sup> International Atomic Energy Agency (IAEA). (2021). *Greenhouse gas reduction*. Accessed 06 September 2021. Available from: <https://www.iaea.org/topics/greenhouse-gas-reduction>
- <sup>92</sup> Gerber, P.J, et al. (2013). *Tackling Climate Change through Livestock. A global assessment of emissions and mitigation opportunities*. United Nations Food and Agriculture Organization (FAO). Available from: <http://www.fao.org/policy-support/tools-and-publications/resources-details/en/c/1235389/>
- <sup>93</sup> Hans P – Ikea Foundation (2021). '5 ways to transform our food system to benefit people and planet', *World Economic Forum*. 05 March 2021. Available from: <https://www.weforum.org/agenda/2021/03/5-ways-transform-food-system-sustainable/>
- <sup>94</sup> Ibid





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