The Lancet Countdown on Health and Climate Change

Policy brief for Médecins Sans Frontières

2021

LANCET COUNTDOWN: TRACKING PROGRESS ON HEALTH AND CLIMATE CHANGE

MEDECINS SANS FRONTIERES

Introduction

In November 1971, a group of doctors and journalists formed Médecins Sans Frontières (MSF), outraged at the suffering that they were witnessing, and at the expectation that they should remain silent about it. Today, as the MSF movement marks 50 years of existence, its work providing emergency medical assistance is no less necessary as the world faces unprecedented health crises. Climate-related disasters are overwhelming the response capacity of health systems already struggling to meet the needs arising from the COVID-19 pandemic, while progress on issues like malaria, tuberculosis (TB) and HIV is in reverse.

These public health threats are interlinked, and cannot be addressed by half-measures or in isolation. Weak infrastructure combines with conflict and climate-related hazards, resulting in successive crises with little time to recover in between. Clearly, resilient health systems are needed to face up to such compounding, interconnected health issues, and to lead in holistic, coordinated and intersectoral responses. Equally important – and currently lacking in many contexts – is the political will needed to build them.

With this in mind, MSF is adapting many of its medical programmes to be better able to withstand these challenges. Driven by the principle of 'do no harm', which requires the organisation to lead medical activities today in such a way as to protect health and lives tomorrow, we are also making efforts to mitigate our environmental footprint. Hearkening back to the concern for justice upon which the MSF movement was founded, we also note the inequity inherent in the climate crisis: the countries most vulnerable to its impacts are those that have contributed least to its root causes.

These efforts are borne of a broader desire to best serve and be accountable to the communities in which we work. MSF's organizational structure – a vestige of its founding in France fifty years ago – has historically concentrated decision-making power, procurement, and recruitment in Europe.[1] This model has implications for many aspects of our operations, including their environmental impact. Motivated by important discussions on anti-racism and the realities of the climate crisis, we have been querying this as the status quo, and reckoning with the biases and barriers that have maintained it.[2] The experience of the COVID-19 pandemic, meanwhile, has highlighted that high-quality care in MSF programs continues in the absence of international staff and cargo flights from Europe. It is clear that to remain relevant fifty years after our founding, the organization must continue to champion new, more efficient, and more equitable ways of working.[3,4]

This brief details MSF's experiences providing humanitarian assistance in contexts heavily affected by climate change; adapting our operations to climate-related threats; and working to reduce our environmental impact. Much like the process of 'greening' this vast, global movement, this brief is incomplete, imperfect: it tells an infinitely complex story from a limited range of perspectives, and poses more questions than it answers as we grapple with emergent facts. Given the imminent existential threat presented by current levels of environmental degradation, these limitations can probably be forgiven. But as we witness the human toll and deep injustice of the climate crisis, silence is, once again, not an option.

From crisis to crisis: Why planetary health matters in humanitarian aid

An auto-rickshaw visiting alley lanes of Mumbai's M-East Ward to raise awareness about COVID-19. Already struggling with public health issues like high rates of HIV and TB and two devastating waves of the COVID-19 pandemic, parts of India have experienced record-breaking heat this year.[5] Photo: Premananda Hessenkamp

Dr. Lachlan McIver

The COVID-19 pandemic has dramatically altered human society. In the century since the H1N1 influenza pandemic, only major wars have exceeded the death toll and socio-economic impacts of the current catastrophe. The novel virus responsible, SARS-CoV-2, is considered to be of zoonotic origin, having arisen in a non-human vertebrate species and then spread to humans,[6] like H1N1 and the majority of other pathogens responsible for pandemics over the last century.[7]

As SARS-CoV-2 has extended its deadly tentacles across the globe, mutating as it does so, other major global health crises have been neglected with devastating consequences. Diseases such as TB and malaria still cause millions of new infections and deaths per year, with the pressures on health systems due to COVID-19 having already led to a notable increase in the incidence of such deadly infections in some regions.[8] The burden of drug-resistant infections – already approaching one million per year – has potentially been made worse by attempts to treat COVID-19 patients with precious antimicrobial medicines.[9] Meanwhile, air pollution is causing around seven million deaths annually,[10] and climate change is taking approximately 250 000 lives each year, due to its direct effects on heat, natural disasters, food security, and vector-borne diseases, among others.[11] The immense suffering that it causes indirectly through illness, injury, and loss, and by compounding other health threats, is difficult to quantify but likely exceeds the aforementioned estimate.

Many of the greatest health challenges of this century are due to changing interactions between humans, animals and the environment, and are thus exacerbated by processes such as globalisation, environmental degradation, biodiversity loss and climate change.[12] These health challenges are often connected and mutually reinforcing, as the case reports that follow will detail. As the world looks forward to moving from crisis to recovery; as it addresses these and other neglected health problems and prepares for the next pandemic; it is imperative that holistic, coordinated, inter-sectoral approaches are taken to identifying, anticipating and tackling new threats. The fate of humanity, and of this planet, depends on it.

Climate change, instability and undernutrition in Somalia

Children pose for the camera at Dagahaley camp, Dadaab, Kenya. During the conflict in Somalia in the 1990s and a nutrition crisis in 2011, thousands of Somalis settled in Dagahaley camp. Because of insecurity and precarious living conditions in Somalia, many have never returned. Photo: Paul Odongo/MSF

Patricia Nayna Schwerdtle, Mariano Lugli, Arjun Claire

Over two decades of conflict, political instability, and extreme climatic conditions have led to one of the most protracted humanitarian crises in the world in Somalia.[13] More intense and frequent floods and droughts combined with desert locust swarms have disrupted food security and diminished livelihoods.[14] This has increased competition for scarce resources, adversely affecting marginalised groups, and exacerbating existing community tension.[15] Where the impact of climate hazards and conflict remain unmitigated because of weak governance, societies are left with little time to recover before the next climate shock hits. This erodes resilience over time. These compounding, connecting, and cascading disasters[16] stretch the already limited capacity of humanitarian agencies to ensure basic needs are met.

The most significant impact of climate change manifests as undernutrition among children.[17] Increasing temperatures and rainfall variability in the horn of Africa are linked to decreased agricultural yields, rising food prices and food shortages.[18] If climate change continues as projected, diminished food production and reduced nutritional quality of some cereal crops threaten to increase the risk of undernutrition,[19,20] with infants often the worst affected by the long-lasting and debilitating effects of undernutrition.[21] In Somalia, widespread instability further exacerbates undernutrition.

> "Jubaland is facing a deadly cascade of emergencies. An erratic cycle of droughts, floods, and disease outbreaks is taking a toll on people who barely have time to recover from one crisis before another hits. The worst part is that this pattern is set to continue and get worse over time."
>
> **Mariano Lugli,**
> **MSF's program manager for Somalia**

Somalis are surviving the combined impact of climate and conflict by adopting various coping strategies, including income and food diversification, divesting from non-essential domestic assets as well as social connectedness.[22] Displacement is both an outcome of the multiple shocks and a coping strategy. However, groups affiliated with more powerful clans have an adaptive advantage over those who are not.[23]

MSF teams in Somalia are seeing an accelerating pattern of one emergency closely followed by the next, with short interludes for recovery. Simultaneous and unpredictable floods, food and water

insecurity in combination with diverse medical needs make emergency response extremely challenging in Somalia. MSF runs a hunger gap program in southern Somalia, which aims to prevent and address acute malnutrition during the lean season through active surveillance, screening, and ambulatory treatment. Vaccination, health promotion, and health education are also essential elements of the response. In 2021, in the Gedo and Lower Juba regions, MSF initiated three emergency responses, treating children for severe acute malnutrition, vaccinating thousands of children against measles, and addressing critical water shortages in Afmadow and El Wak districts.

"More people are moving in search of food and water, even as the risk of COVID-19 remains and a measles outbreak continues unabated in Dhobley and Kismayu. Pastoralist communities are also affected as they have lost livestock that has reportedly died of thirst due to water shortages."

Mohamed Ahmed,
MSF's project coordinator in Jubaland

Understanding the mental health and psychosocial consequences of climate change

A growing body of literature describes the links between climate change and mental health. Changes to the physical environment and related losses of livelihoods can indirectly impact mental and emotional well-being,[24] while exposure to traumatic events such as weather-related disasters can bring about or exacerbate stress and anxiety, even leading to mental disorders and suicide.[25] Displacement following extreme weather events is consistently associated with negative mental health and psychosocial outcomes such as post-traumatic stress disorder.[26]

MSF works in many settings where the effects of climate change take a heavy toll, such as Central America. Last year, MSF intervened in the emergency generated by the hurricanes Eta and Iota in Honduras. Widespread destruction pushed more than 500 000 people from their homes, with many deciding to make the perilous migration northward.[27,28] In addition to medical care, MSF provided psychosocial support to affected people, including group sessions and individual consultations dealing with issues of grief, loss and stress management.[29] Symptoms related to depression and anxiety were the most common ones observed among the population.

MSF has formally recognised the importance of providing mental health care as part of its emergency response activities since the late 1990s.[30] While employing psychosocial indicators in the humanitarian contexts in which it works, MSF does not yet have a systematic approach to addressing psychosocial needs generated by the increasing frequency and severity of extreme weather events attributable to climate-related factors. Given their role as health care providers in so-called "climate hotspots", humanitarian organisations like MSF are well-positioned to develop and assess evidence-based responses to the psychosocial consequences of climate change.

"We have slept in the fields. We have endured hunger and sleepless nights. At the Coatzacoalcos shelter, they told us that it was closed. I am afraid of staying on the street because anything can happen to us. I am afraid that my son will be taken from me. I don't sleep because while my son sleeps, I keep watch."

Kimberly, a Honduran woman who lost her home and possessions in the hurricanes, while travelling through Mexico with relatives

MSF staff dialogue with groups of men about the damage left by Hurricanes Eta and Iota in Honduras. Photo: Deiby Yanes/MSF

Health care on a changing planet: The need for resilient health systems

Marcos Tamariz, Diogo Galvao, Dr. Monique Kamat

In late 2020, when hurricanes Eta and Iota hit Central America in quick succession, more than 120 health centres in Honduras were damaged or destroyed[31] – some simply disappearing into the mud. Two million people were left with limited or no access to care.[32] Yet even before the storms, the health system in Honduras had been under considerable strain. Hospitals struggled to accommodate COVID-19 patients, while a dengue outbreak driven by insecticide-resistant mosquitoes loomed as a result of poorly-implemented vector control efforts.[33,34] MSF teams responded to address basic needs as the health system was pushed to its limits.

Without significant action to tackle climate change, such scenarios will become more common: health systems squeezed by connected and compounding health crises. But climate change is only one of multiple factors that contribute to the negative health impacts of climate-related hazards, like extreme weather events, drought, and climate-sensitive diseases. Weak infrastructure, mismanagement and a lack of surveillance compromise the ability of health systems to withstand and contain them.

In recognition of this, MSF has implemented measures to bolster health system resilience to climate-related threats in Honduras. These include vector control activities and a dengue fever surveillance system to pre-empt outbreaks, which place additional stress on the health system. MSF teams are also providing preventive health care for thousands of people on the move in the country, and are working to improve water and sanitation systems and rehabilitate health structures.

There is a clear need for systems that are adapted to face emerging health issues related to climate change.[35,36] Investments in health infrastructure, epidemiological surveillance and data collection, and primary and psychosocial care and prevention are essential to improve resilience.[37] As in the case of Honduras, a country heavily impacted by the climate crisis, strengthening health systems now could mean protecting health in years to come.

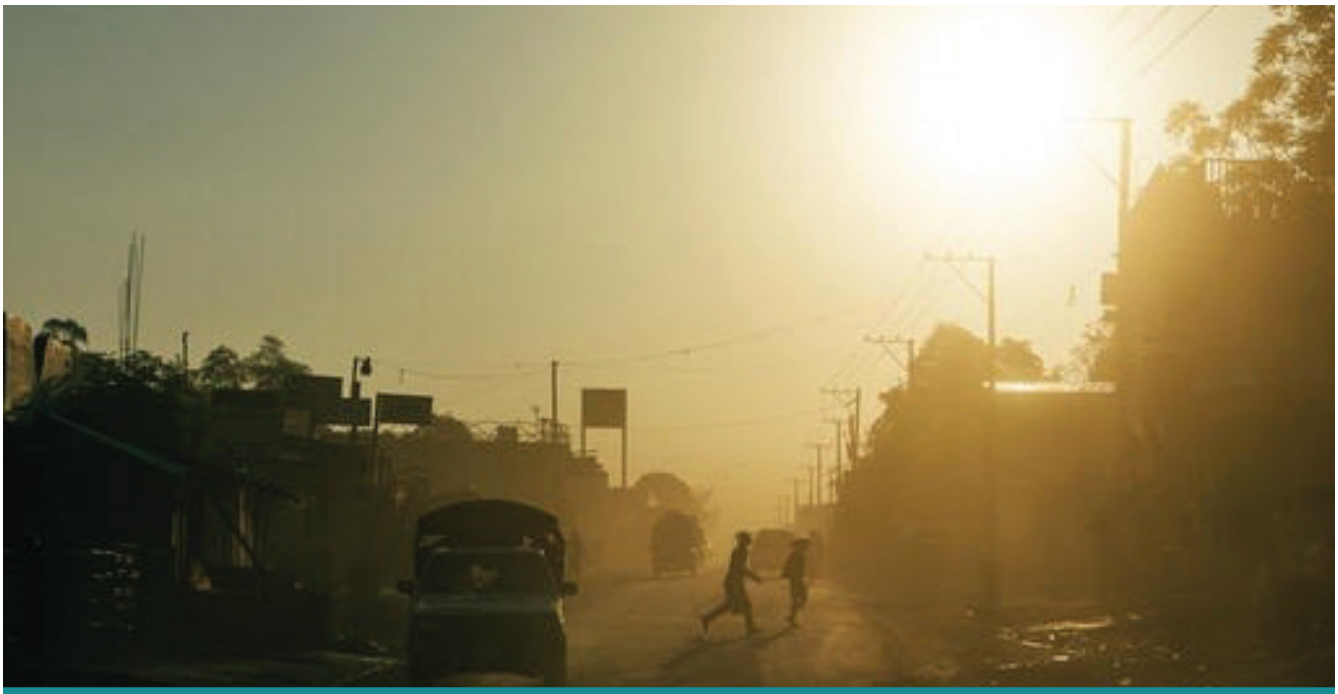
An MSF staff member carrying out fumigation activities against dengue in the northern part of Honduras. Photo: Cecila Duran/MSF

"We all live in communities where decision making about and understandings of risk are shaped by cultural, social, environmental, and economic factors. The response to climate-related health threats must be embedded in local realities. Adaptation should be an ongoing process of engagement, empowerment and knowledge-sharing. It should take a coordinated approach, involving trusted local leaders, existing community networks, and a wide range of partners and allies in interrelated and complementary actions."

Dr. Monique Kamat,
President of MSF South Asia Regional Association

View from Bor to Pibor, South Sudan, during flooding in 2019. In Pibor, outbreaks of violence and severe flooding regularly forced MSF to suspend its medical activities and required large-scale repairs of damaged facilities. In June 2020, MSF closed its clinic and reoriented its programme in Pibor to be more responsive to the changing health needs of this community. Photo: MSF

Case report: Bridging the gap between environment and health in Haiti



The road to Martissant, the second-largest informal settlement in Port-au-Prince, Haiti.
Photo: Johan Lolos/MSF

Léo Tremblay, Kirollos Fares

Most nurses at MSF's Emergency Centre in Port-au-Prince's Martissant neighborhood are used to one-off encounters with patients. But those caring for asthmatic patients are accustomed to seeing the same patients multiple times every week.

They do not know precisely what triggers their patients' recurrent asthma attacks, but the list of potential culprits in Martissant is long: workplace exposures to irritants, exhaust from vehicles traveling on the busy *Route Nationale 2*, emissions from the charcoal used for cooking in many households,[38] smoke from the burning of rubbish, nearby wildfires, or the periodic Saharan dust intrusions[39] that have reportedly become more severe and frequent in parts of the Caribbean.[40]

Over the last few years, asthma-related complaints have become more and more common in the MSF-supported Martissant emergency health centre. From 2019 to 2020, MSF observed a 25% increase in the number of asthmatic patients admitted. The reasons behind this increase are yet to be determined due to the lack of epidemiological and environmental-related data.

A new project launched by MSF aims to tackle this issue by bridging the gap between environmental indicators and health outcomes in Haiti. To better understand the epidemiology of asthma, a weather station coupled with an air quality sensor will be installed in Port-au-Prince, tracking important air quality indicators such as levels of particulate matter in the air to help identify the factors that could be leading to an increase of asthma patients at our facilities.

Sadly, this project will do little in the short term to help patients of the Martissant emergency health centre already suffering from asthma. But by endeavouring to shed light on conditions like asthma and to identify their underlying causes and risk factors – including those that are aggravated by climate and environmental change – we will be in better position to anticipate related health needs in MSF facilities, advocate for measures to mitigate their impact, and raise awareness about these neglected diseases.

Adaptation and mitigation in humanitarian aid: Two sides of the same coin

People in the south-east of Madagascar are facing the most acute nutritional and food crisis the region has seen in recent years. MSF began setting up mobile clinics in Amboasary district in late March to screen and treat acute malnutrition in remote villages like those of Ranobe commune, providing ready-to-use therapeutic food and medical care. Photo: iAko M. Randrianarivelo

Dr. Maria Guevara

As a responder to humanitarian crises, MSF can attest that few of today's deadliest disasters can truly be considered "natural". Human-made factors – weak infrastructure, poor governance, corruption, poverty, inequality and greed – are almost always at play, exacerbating vulnerability and turning climate-related hazards into human tragedies.[41] We are witnessing the consequences of a Great Collision[42] between humanity and other parts of the natural environment – one that overwhelms coping mechanisms and stretches humanitarian response capacity.

Looking back at MSF's now 50-year history, a pattern emerges– one that has become increasingly clear. Many of the places considered the most vulnerable to the effects of climate change[43] are the ones where MSF has intervened in response to hunger crises, conflict, and disease outbreaks – often many times over. In other words, they are places that have suffered the kind of explosive, protracted and recurrent crises that require international humanitarian support. By and large, they are also places that have contributed the least to the root causes of anthropogenic climate change. Climate change is not solely a risk factor for health, but also a matter of social justice.

For medical practitioners, prevention and cure are complementary strategies for promoting well-being. In a similar way, MSF sees mitigation and adaptation as two sides of the same coin – mutually reinforcing means of protecting health and addressing injustice in the age of the climate crisis. As such, we are adapting our medical activities to be more resilient and responsive to the devastating impacts of climate change. But in keeping with the ethical principle of 'first, do no harm' that guides our medical humanitarian action, we must also think critically about and manage the footprint that we leave on this planet.

"As medical practitioners, our job is not only to treat people, but to prevent future illness from occurring. We must not create problems for tomorrow while trying to solve the health problems of today."

Dr. Monica Rull,
MSF Medical Director

Powering health care with solar energy in Balochistan, Pakistan

Sandra Smiley, Faraz Qasim

According to the ND-Gain climate vulnerability matrix, Pakistan is the 39th most vulnerable country to climate change globally.[44] Its south-western Balochistan province is particularly exposed: consistent warming trends have been observed in several of its cities,[45] and many people are experiencing food insecurity, driven by climate-related factors like drought, locust infestations, and flooding.[46] Meanwhile, insecurity, poverty, and weak infrastructure compound vulnerability to shocks.[47,48]

In four districts of Balochistan, MSF supports health facilities that provide care to more than 12,000 expectant mothers and approximately 10,000 children suffering from malnutrition each year.[49] It is important to maintain cool temperatures in these facilities for patient and health worker comfort and safety, and to stop drugs and equipment from degrading. This is a challenge given frequent power cuts and temperatures that can reach 50°C in the summertime.

To address this, MSF has installed solar panel systems at the facilities it supports in Dera Murad Jamali, Chaman, and Kuchlak. Supplemented by grid or generator electricity, these systems provide uninterrupted power for lighting, air conditioning and fans, and water pumping and cooling, while averting more than 50,000 kg of carbon emissions per year. In addition, they reduce reliance on fuel and fuel-fed generators, minimise fuel-related costs, and contribute to improvements in local air quality.

Increasing demands on a deteriorating energy distribution system mean that people in Balochistan now face power outages of up to 18 hours a day. The provincial government has announced plans to adopt solar technology throughout the public sector,[50] signalling opportunities for cooperation and skills transfer between MSF and local actors, and potential energy efficiency gains within the province's health care system.

MSF technicians install solar panels on the roof of a hospital compound in Balochistan, Pakistan. Photo: Faraz Qasim

What you measure, you can mitigate: Climate action within MSF

Alexandra Malm, Carol Devine, Stephen Cornish

The prognosis is clear: the health and humanitarian impacts of unmitigated climate change are and will continue to be deadly. The humanitarian sector is reviewing how assistance is delivered to ensure that it can continue to respond to increasing needs, while minimising the human and carbon costs of these activities. Recognising its own contribution to the global crisis of human-caused environmental disruption, MSF has committed to significantly reducing its environmental impact.[i]

This process began in earnest in 2019, when the organisation launched the Environmental Impact Toolkit. The Toolkit provides a supportive framework through which MSF's offices and medical programmes can measure their carbon emissions and waste production. It also offers advice on mitigation activities and policy and behavioural change. Pilot tests of the Toolkit in five countries identified air transport of medical and other goods, personnel travel, and fuel use for generators as the most significant sources of carbon emissions. By mid-2021, MSF offices and medical programmes in over 40 countries had measured their carbon emissions, and many had undertaken discussions on how to reduce these impacts most effectively. Our objective is for 60% of MSF programs to be using the Toolkit to analyse their carbon emissions by 2024.

Women fetching water at a water point in the informal settlement of Stoneridge in Southern Harare, Zimbabwe. MSF's Environment and Health Service Delivery Project (ZimHub) has piloted innovative techniques to improve environmental health in Zimbabwe, including drilling the solar-powered borehole feeding this water point. The site is now maintained by the local community health club after training by ZimHub teams.
Photo: Samuel Sieber/MSF

The results of these measurement exercises are already informing target setting, strategic planning, and energy transition investments within the organisation. MSF's operational centre in Geneva, Switzerland, is the first MSF hub to set reduction targets, committing to reduce its carbon emissions by at least 50% by 2030.[51] In January 2020, an MSF-supported hospital in Kenema, Sierra Leone, began to function fully on solar power.

The experience of supply chain disruptions and travel restrictions during COVID-19 has also resulted in a more flexible mindset on reducing travel, transport and waste. As a result, we are further digitising workstreams and forming relationships with more local and regional suppliers.

The road to decarbonisation presents considerable challenges, and indeed opportunities, for MSF – an emergency medical organisation whose work is intrinsically carbon-intensive. Adapting our *modus operandi* while ensuring continued emergency response capacity is a major task requiring systematic change, inclusive action and determination.

"As an emergency organisation, it's a daunting task to 'green' our operations because our priority is still to provide rapid assistance in some of the world's most remote places. While we don't yet know exactly how we are going to get there, we know that we must. That is why we have set this target and why we are committing to it publicly and transparently to report on the progress we make towards meeting it. We simply have no other choice."

Christine Jamet,
MSF Director of Operations

i - In 2020, the MSF Movement issued an Environmental Pact, in which the organisation committed to measure and set targets and adapt operations to reduce the environmental impact of its emergency medical projects; as well as to engage in knowledge exchange and collaboration with communities, local actors, and organisations to further these mitigation efforts.

Conclusion/Key messages

1. Climate change is interacting with other global health threats to create connected, compounding and cascading crises. In many contexts where it works, MSF is observing an accelerating pattern of one emergency closely followed by the next, with little time in between for communities and the health system to recover.

2. These crises stretch the capacity of humanitarian responders – both local and international – to ensure basic needs are met. Coordinated, holistic, and inter-sectoral responses are needed to manage and mitigate these interconnected global health threats. Investment is required to build and support climate-resilient, networked health systems capable of leading robust and inclusive responses. Strengthening health infrastructure, epidemiological surveillance, primary and psychosocial care, and health promotion and prevention is essential to improving resilience.

3. Given the carbon-intensive nature of MSF's work responding to crises around the world, decarbonising this global humanitarian organisation presents many challenges. Even so, MSF recognises its contribution to human-caused environmental disruption and its ethical obligation to 'do no harm' to people or planet. The organisation has committed to taking action to reduce its environmental footprint and communicating about the progress it makes toward this goal.

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Organisations and acknowledgements

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Medical review by Dr. Monica Rull (Medical Director, MSF Operational Center Geneva) and Dr. Kiran Jobanputra (Reflection and Analysis Network, MSF Operational Center Amsterdam). Peer review by Brian Willett (Planetary Health Coordinator, MSF Operational Center Geneva), Dr. Carolina Batista (Board Member, MSF International Board), Dr. Abubakar Bakri (Health Advisor, MSF East Africa Unit, MSF Operational Center Barcelona), Dr. Rita Issa (University College London), Joe Belliveau (Executive Director, MSF Canada) and Ruby Gill (President, MSF Canada). Guidance on behalf of the Lancet Countdown was shared by Dr. Frances MacGuire.

THE LANCET COUNTDOWN

The Lancet Countdown: Tracking Progress on Health and Climate Change is a multi-disciplinary collaboration monitoring the links between health and climate change. It brings togethers lead researchers from 43 academic institutions and UN agencies in every continent, publishing annual updates of its findings to provide decision-makers with high-quality evidence-based recommendations. For its 2021 assessment, visit www.lancetcountdown.org/2021-report/

MÉDECINS SANS FRONTIÈRES/DOCTORS WITHOUT BORDERS (MSF)

MSF is an international, independent, medical humanitarian organization working to alleviate suffering and to provide medical assistance to people affected by conflict, epidemics, disasters, or exclusion from healthcare in over 70 countries today. Climate change, a human-induced reality, is also of great concern to MSF, as it may well alter the dynamics of conflict and the incidence of disease, impacting communities already at risk. On the basis of scientific reports outlining what can be expected in the future, the organization recognizes how vital it is to prepare to assist the people most affected. At the same time, MSF is assessing its own carbon footprint and taking steps to incorporate environmentally responsible working methods, products and equipment into its projects. Adapting the way MSF operates could greatly impact the communities it serves, and as such it is working urgently to define and adopt a strategy

This policy brief has been produced to accompany "The 2021 report of the *Lancet* Countdown on health and climate change" which published with *The Lancet* on Oct 20, 2021.
This document has not been published by, or peer-reviewed by, *The Lancet*.