The Lancet Countdown on Health and Climate Change

Policy brief on humanitarian impacts

DECEMBER 2020

LANCET COUNTDOWN: TRACKING PROGRESS ON HEALTH AND CLIMATE CHANGE

MEDECINS SANS FRONTIERES
DOCTORS WITHOUT BORDERS

Introduction: No lockdown for cascading crises

Caroline Voûte, Dr. Maria Guevara

The year 2020 will be marked in history as the year of COVID-19. Humanitarian organizations, global health actors, governments and all sectors have been entreated to work urgently and collectively on the common causes and solutions to pandemics without forgetting the climate crisis.

In a matter of months, the COVID-19 pandemic has stopped the world in its tracks, infecting, killing and posing serious challenges for people and especially vulnerable populations the world over, and driving health and social systems to their knees. Amidst multiple and cascading health and humanitarian crises and extreme weather events, the pandemic is outstripping the health and humanitarian response capacity in most parts of the world.

Today, a growing body of knowledge describes the profound impact of environmental change on human health. Advancements in climate science allow for greater accuracy and certainty in attribution of extreme weather events: studies from 2015 to 2020 have shown that climate change had a role to play in 76 floods, droughts, storms, and temperature anomalies.[1] In 2018, the global land surface area affected by excess Drought was more than twice that of the historical baseline. Drought poses multiple risks for health, threatening drinking water supplies, sanitation, and crop and livestock productivity, and enhancing the risk of wildfires.[1]

As the expanding human population continues to exploit and encroach on nature and remaining wildlife habitat, its activities contribute to climate change, biodiversity loss, and land degradation. These phenomena, themselves a source of insecurity, breed political conflicts that in turn threaten human health and well-being.[2] Infectious diseases of zoonotic origin threaten to (re-)emerge as humans disturb and destroy natural habitats,[3] while the global burden of disease – including antimicrobial-resistant infections and non-communicable illnesses – is only projected to grow.

The intertwined crises of climate change, environmental degradation and COVID-19 have increased humanitarian needs and vulnerabilities. The former is a threat multiplier for ill health, while climate change and environmental degradation have exposed disproportionate inequalities and underlined systemic failures towards people and health systems that must be actively recognized, tackled and dismantled.[4]

Responding to concurrent complex emergencies is pushing medical humanitarian organizations like Médecins Sans Frontières/Doctors Without Borders (MSF) to their limits. Already striving to provide access to essential healthcare in more than 70 countries, MSF has been responding to COVID-19 since early January 2020.[5] Unfortunately, faced with travel restrictions and lockdowns, lack of available human resources and limited medical supplies, the organization made the difficult decision to temporarily suspend some pre-existing medical activities to accommodate COVID-19 related interventions.[6] The needs and healthcare challenges created by the pandemic have also led to additional MSF operations, including new emergency responses in Brazil, Italy, Belgium, Germany, Spain, Switzerland, and the USA. These interventions focus primarily on meeting the needs of populations rendered particularly vulnerable such as migrants, people experiencing homelessness, the elderly and Indigenous communities, and providing technical support with respect to infection prevention and control measures.[6]

The global political response to COVID-19 presents worrying trends – potential harbingers of what may also unfold in the response to climate change and the ecological crisis. Instead of the swells of solidarity and unity for the common good that were hoped for, governments are violating international laws and agreements[7] and evading accountability.[4] Narratives of multilateral collaboration contrast with the nationalism, populism and protectionism that can be observed.[8,9] Some governments are using this moment to further emergency responses within a securitization narrative, including through xenophobic rhetoric and the creation of exclusionary policies that, instead of protecting public health, undermine it.[10] Such actions also reinforce the criminalization of people, especially migrants, and humanitarian aid itself, as MSF has witnessed in Greece, Libya and Mexico.[11-13] In some cases, states block and criminalize the humanitarian act itself, condemning migrants on the Mediterranean Sea to untold suffering and death. [14,15]

This brief highlights specific issues and challenges with respect to climate change that MSF is witnessing in the course of its humanitarian work. It describes how MSF is responding to concurrent crises today, shares lessons learned, and outlines the organization's concerns for what lies ahead to respond to future emergencies. The impacts of COVID-19 have been catastrophic for both people and national economies, and the pandemic is without a doubt the defining crisis of the decade. However, the response to COVID-19 has been a dress rehearsal in preparation for a higher mortality pandemic and a "slower-burn" catastrophe: the climate crisis. The world must not repeat the mistakes of the COVID-19 pandemic a second time around. In order to buffer the devastating impacts of climate change and the ecological crisis on health, a multisectoral, coordinated, committed and truly multilateral response is required.

MSF Mobile Team in Mexico: In total, since the arrival of COVID-19 in Mexico in March 2020 MSF has offered advice on COVID-19 to 52 migrant shelters. The teams visited the shelters in Chiapas, after having already assessed the humanitarian situation in Oaxaca. Extreme levels of violence at home is a major factor in the decision for nearly half of the people MSF sees who leave Central America to seek safety in the US. Increasingly, environmental factors are also cited as related reasons for displacement, such as lack of water or crop failure.

Photo: Owen Breuil/MSF

Assisting people in need regardless of their status

Across the world, political and governance systems have repeatedly failed to deliver for either people or planet. Political and systemic ideologies increasingly trump scientific evidence in the same way they do international humanitarian law. Short-term sighted and mediocre political leadership has been unable to confront and reverse narratives which are populist even when not overtly xenophobic.

Subsequently, governments choose to prioritize security over the health, well-being and dignity of people. Resources spent raising walls and reinforcing police and military capacities is money not spent responding to populations' needs, including health and life-saving activities as well as short- and long- term preparedness and response. The current unnecessary sacrifice of lives and the progressive degradation of ecosystems are direct reflections of systematically applied double standards which accept these losses as collateral damages in order to allegedly protect the current privileged status of wealthy societies. In these times of retreat from international legal frameworks, such as International Humanitarian Law or Refugees Convention, we are seeing and expecting more unprotected people on the move, including what some sources refer to as 'environmental migrants'. MSF restates its commitment to assist people regardless of their status.

Dr. David Noguera, President MSF Spain, Global Climate and Health Alliance meeting, during COP25, Madrid, December 2019

Integrating a planetary health lens and strategy into the humanitarian response

Dr. Maria Guevera

The scientific diagnosis is unequivocal: a climate emergency is at hand, where the consequences for humanity and the environment are worsening every day.[16] Climate change has been described as the biggest global health threat of the 21st century, while the response to climate change provides the greatest opportunity to protect health.[17,18] Planetary health, which considers the health impacts of human-caused disruptions to the Earth's natural systems[19] highlights environmental damage as a threat alongside climate change, as well as others such as

biodiversity loss, pollution and deforestation, putting humans in direct connection with and responsible for their natural ecosystem.[20]

Faced with these crises, no institution can escape its own responsibilities; namely, becoming informed and involved in the managerial and operational choices of not only achieving carbon neutrality and mitigating environmentally harmful practices, but also recognizing the ecological crisis as a catalyst and exacerbator of humanitarian crises, in the same way as conflicts, epidemics or endemic diseases, exclusion, social violence and "natural" disasters.[16] For MSF, this means future-proofing the capability to fulfil the organization's social mission and translating it into responsive, responsible, and resilient medical humanitarian action.[21]

MSF is now looking at framing humanitarian crises through a planetary health lens. It aims to address the issues of climate change and environmental degradation directly through the pillars of operational adaptation, mitigation practices to limit its ecological footprint and bearing witness to climate-related impacts and injustices. While mitigation and more environmentally friendly practices have been important first steps over the past years, adaptation of MSF's operations remains a critical action and an increasing focus for the organization. It entails a detailed examination of the organization's analytical, assessment and anticipatory capacities to ensure that it is well-equipped to provide a better response to the health and humanitarian consequences of the ecological crisis. Case studies, in-depth desk reviews and operational research; development of new predictive analytics and rapid health and environment assessment tools; and incorporation of climate-related scenarios into emergency preparedness planning and staff briefings on planetary health are some of the concrete actions that will be carried out under the planetary health thematic.

For example, MSF field teams are undertaking a food security assessment from a regional perspective in East Africa looking at the implications for MSF regional projects. MSF is systematically integrating planetary health scenarios in operational planning and project strategy. In Kyrgyzstan, for example, MSF has an environmental health project which examines the health impacts of the extractive industry on the community in collaboration with environmental health experts TerraGraphics International Foundation.[22,23] Together they are developing a practical health risk assessment tool applicable for field use. Building on such collaborations, MSF is creating a larger community of practice with planetary health and humanitarian-related expertise or experience.

Before COVID-19 hit Kyrgyzstan, MSF teams were carrying out home visits for some consultations, working with the region's health authorities. But since the start of the coronavirus pandemic, home visits and remote consultations via WhatsApp have become the norm. Here an MSF paediatrician and a health promoter, plus a Ministry of Health nurse, visit a new mother and her eight-day-old baby in a home-based post-natal consultation. Syrt, Kyrgyzstan, February 2020.

Photo: MSF

Climate-related migration in Bangladesh

Patricia Nayna Schwerdtle, Celia McMichael, Kathryn Bowen

Climate change will increase vulnerability to humanitarian crises, with significant and multidimensional projected impacts. This extra demand will be highly challenging to meet, as humanitarian assistance is currently insufficient at the global scale.[24,26] Climate change-related shocks, both acute (e.g. floods) and chronic (e.g. drought and desertification), continue to drive human mobility. Increasing human mobility and humanitarian caseloads are likely in Bangladesh, one of the world's most climate-vulnerable countries, mainly due to its high population density, vast coastline, high poverty rate and reliance on natural resources.[27]

Almost 25% of the Bangladeshi population lives in coastal areas and is projected to be increasingly exposed to storms, flooding, and tropical cyclones. The current saline intrusion reaches 100 km from the Bay of Bengal, impacting agriculture, drinking water and livelihoods.[27,28] Health systems are struggling: the health sector does not have adequate funding, infrastructure, human resource capacity, logistics, or services, leaving many without access to basic healthcare.[27]

Internally displaced people, leaving their homes in relation to environmental and climatic stressors, find themselves in situations of unstable employment with poor access to social protection. They are at increased risk of preventable illness and injury.[29] This is particularly concerning for groups of people who move to urban settings and are exposed to crowded and insecure living conditions, water and food insecurity, and polluted and hazardous workplaces.[30]

MSF is providing primary healthcare and occupational healthcare for people in Dhaka's Kamrangirchar slum. Many residents were forcibly displaced after flooding contaminated their farmland with saltwater. These newly-arrived residents of the Kamrangirchar variously suffer from injuries and work-related illness, waterborne disease, and gender-based violence amplified by challenging living conditions.

"It was good in the village. In this place (Dhaka) people are sicker, loud words, screaming and slums disturbance, waste-garbage, uncountable mosquitoes."

A migrant, Dhaka

A man disembarks a boat on the highly polluted Buriganga river in Kamrangirchar.

Photo: Connor Hana

Heat waves and heat-related illness and death in Pakistan

Sandra Smiley, Dr. Hassaan Zahid

Heatwaves – prolonged periods of extreme heat and humidity – are associated with increased risk of illness and death, and are expected to increase in both frequency and severity due to climate change.[31] The health effects of heatwaves may be direct, such as life-threatening heat stroke. Excessive heat may also aggravate existing health problems such as cardiac and pulmonary conditions, psychiatric illnesses and renal disorders.[32]

In recent years, summer has brought intense heat to Pakistan, and particularly its southern regions. This includes Karachi, a city of nearly 15 million people. Over several days in June 2015, more than 1200 deaths were reported as temperatures exceeded 40 degrees. In Karachi, high heat and humidity were exacerbated by the "urban heat island" effect and power outages.[33,34] Morgues were reported to be at capacity, and health facilities struggled to cope with demand.[35] It is estimated that Karachi's deadly 2015 heatwave was made 800% to 100000% more likely by climate change.[1]

Heatwaves have recurred in Pakistan since 2015, and have brought about record numbers of deaths and exposure events in recent years.[1] They are also expected to become more frequent.[36] MSF has integrated planning for heatwaves into its emergency preparedness strategy in the country. This includes community sensitization activities on the prevention of heat-related illness, the establishment of water points and outpatient medical care. Since 2015, efforts have been made by local actors to strengthen local planning and emergency response[36] – a fact to which one of the authors (HZ), who in 2016 organized such activities for local non-governmental organizations in Karachi, can attest. Given current trends, coordinated interventions by a variety of actors will likely be needed.

In general, the emergency management experience and technical capacity of organizations like MSF could be leveraged for robust life-saving responses in heatwave-prone areas. Where appropriate, these could include establishing mobile medical units from fuel-efficient cooled containers, similar to what was done in Karachi in 2016. In managing the consequences of extreme heat, much could be learned and carried forward from collaborations with emergency responders in Pakistan.

There is no access to safe drinking water in Machar Colony, Karachi and so residents buy it from water tankers. Residents can be seen here heading off to fill their water receptacles. Water shortages were identified as a factor contributing to deaths and illness during the heat wave of 2015.

Photo: Sa'adia Khan

Meteorological and climate anticipation in MSF projects: Haiti and beyond

Léo L. Tremblay

Extreme weather events such as tropical cyclones or major floods are commonly the first domino in a chain leading to the rapid aggravation of a humanitarian crisis and significant impacts on health. The case of tropical cyclone Matthew, hitting Haiti's Tiburon peninsula during the 2016 Hurricane season, is a compelling case in this regard. The passage of Matthew resulted in hundreds of deaths and injuries, the destruction of infrastructure – houses, roads, bridges, drinking water networks – and devastation of agricultural crops. The contamination of the already limited water supply triggered an increase of cholera cases, with 550 patients suffering from the disease treated by MSF during the weeks following the event.[37] Vector-borne diseases including dengue and chikungunya find favorable conditions following tropical cyclones as new mosquito breeding sites are created as water accumulates in and around debris.

The MSF Meteorological and Climatic Anticipation (MACA) project was initiated in 2019 to support earlier and more effective action in response to extreme weather events, which are expected to increase in intensity and/or frequency in many regions of the world, with resulting humanitarian impacts. Improving forecasting of such extreme weather events can enable an organization such as MSF to be better prepared by anticipating future medical humanitarian needs. Part of this work involves looking retrospectively at past extreme weather events that induced humanitarian crises to understand their causes and connections. Linking this knowledge with a real-time surveillance mechanism opens up a whole new world of opportunities, allowing humanitarian actors to conduct targeted actions to mitigate the hazard's impact and improve the medical humanitarian emergency response.

As the recent 2020 Atlantic hurricane season, fueled by ever-warmer sea surface temperatures and favorable wind patterns induced by a La Niña event, enters history as one of the most active on record, it is urgent that humanitarian actors use all the tools available as well as internal institutional knowledge to be prepared to respond to such events.

MSF doctor Marie Camille measures a two year old child during a mobile clinic visit in Coteaux following Hurricane Matthew in Haiti, checking for malnutrition risk. By November 30 2016, two months after Hurricane Matthew, thousands of people were still severely affected by inadequate shelter, and lack of food and access to safe drinking water. MSF responded to communities severely affected with mobile clinics, and a local healthcare centre in Port-à-Piment focusing on maternal health. MSF also assisted with a second round of cholera vaccinations, treated cholera patients in Martissant and CRUO and supported the Ministry of Health with epidemiological surveillance.

Photo: Jeanty Junior Augustin

The Sahel spotlight on Niger: Responding to a series of shocks in a fast-warming region

Dr. Chibuzo Okonta and Dr. Fatouma Mabaye

Altered precipitation patterns increase the risk of localized flood events, resulting in direct injury, the spread of infectious diseases, and impacts on mental health.[1] Furthermore, both flood and drought can potentially lead to forced migration.

The rainy season in Niger and the surrounding region regularly results in flooding, but the exceptionally heavy rainfall in 2020 and drought in this land-locked country has been magnified by the climate crisis. Temperatures in the Sahel are increasing 1.5 times faster than the global average,[38] which has dramatic consequences for livelihoods and contributes to land and resource pressures, conflict, displacement and nutritional crises.[39]

In August 2020, MSF responded to the humanitarian needs of people in Niamey, the capital of Niger, after the Niger riverbanks broke, plunging part of the capital under water and driving tens of thousands of people from their homes. The flooding killed at least 71 people and submerged rice fields leading to 350,000 people adversely impacted, of which many experienced food insecurity and related health issues.[40]

MSF's response aims to mitigate the increased risks of disease outbreaks related to flooding, such as acute diarrhea, malaria and cholera and to provide emergency relief. MSF set up water tanks to provide safe drinking water, in addition to providing medical care and basic supplies to affected families. It also worked to strengthen distribution of mosquito nets. The flooding coincided with the seasonal peak period of malaria, with 50% of the 3500 outpatient consultations concerning malaria amongst flood victims in early September 2020.[41]

When the COVID-19 pandemic spread to Niger in March, MSF began to respond in the country's large cities of Niamey and Zinder, conducting mass awareness campaigns, transporting samples from suspected cases to labs and providing logistical support to regional health structures to reinforce hygiene measures and train medical staff in infection prevention and control.

Looking ahead, MSF is concerned that with the shocks from floods and the pandemic, human pressures on and competition for land – given the large numbers of displaced people, food insecurity and vulnerability – will contribute to increased socio-economic, political and conflict risk in a region already devastated by drought and explosive conflict.

"We are facing an exceptional situation, which does not only concern Niger, since the Niger River originates in Guinea and ends in Nigeria via Mali, Niger – all the regions of these countries will be affected. I have just returned from Niamey and all the villages and towns around the river are flooded, the populations have had to leave these regions in large numbers, they no longer have a home and they no longer have anything to eat because their reserves are gone, and the rice fields are flooded."

Dr. Fatouma Mabaye, September, 2020

Anambra State, Nigeria. Niger River flooding. Aug 2020. Photo: Ezenwa Nwosu.

Innovative cholera response and oral vaccine in and around Lake Chilwa climate hotspot, Malawi

Dr. Francisco Luquero and Carol Devine

The Chilwa Basin is one of Malawi's most severely climate change-affected regions.[42] Drought and erratic rainfall change the size and depth of Lake Chilwa, Malawi's second largest lake. The lake is a source of employment, protein and drinking water for local and mobile fishing communities. Those living on and around the lake also use it for ablutions, contributing to high levels of fecal contamination, which can vary over seasons depending on the climate conditions.[43]

As the lake recedes, communities can be cut off from reliable water and are prone to cholera outbreaks.[44] Cholera transmission is shaped by environmental factors,[44] and progresses quickly in those infected, causing watery diarrhea and vomiting and leading to severe and potentially lethal dehydration. Outcomes from well-treated cholera infection, however, are generally excellent, with appropriate medical support, including water and sanitation improvement, strict hygiene measures, case management and vaccines.

MSF has used an oral cholera vaccine (OCV) to respond to outbreaks, including in Malawi, South Sudan, Zambia and DRC. (Some of the campaigns were organized as a single vs two dose strategy as a result of vaccines shortages.) MSF initiated a novel cholera oral vaccine distribution in 2016 for Lake Chilwa: a standard strategy to individuals and households on the lake shores; a simplified cold-chain strategy on islands in the lake; and an 'out-of-cold-chain' strategy for clusters of fishermen living in floating homes, called *zimboweras*. Community engagement and a simplified delivery process, including off-label, out-of-cold-chain administration of the OCV has meant successful results and adequate coverage.[45] Out-of-cold-chain administration for temperature-stable vaccines increases immunization coverage by allowing simplified logistical setup and transport for vaccines that is adapted to the local reality.

For next steps, in early 2020 researchers including MSF Epicentre,*Ministry of Health Malawi, Johns Hopkins and WHO completed the analysis of vaccine effectiveness among the fishermen who received the vaccine out-of-cold-chain in Lake Chilwa.[46] In addition to flexible strategies for cold chain storage, MSF is exploring innovative strategies for cholera vaccine delivery, including delay of second dose administration in countries such as Zambia and Haiti.[47,48]

Cholera response on and around Lake Chilwa, Malawi. These fishermen have just been vaccinated for cholera. They leave with the second dose that they will have to take two weeks later.

Photo: Aurelie Baumel/MSF

*Epicentre conducts field epidemiology activities, research projects and trainings in support of goal of providing medical aid in areas where people are affected by conflict, epidemics, disasters, or otherwise have poor or non-existent access to.

Do no harm and futureproofing: Avoiding, reducing and mitigating MSF's environmental impact

Carol Devine

"We are a medical humanitarian organization caring for people's lives - as such, planetary and human health cannot be disconnected as the health of a person is influenced by the environment where she/he lives. As a medic I need to care for my patient and to do so I cannot give him/her his medicine in a glass of contaminated water. Therefore, I must make all efforts to at the very least not contribute to that contamination in whatever form."

Dr. Monica Rull, Medical Director, MSF

Building on action to date and its institutional commitment to significantly reduce its negative environmental impacts by 2023, MSF is increasing mitigation efforts alongside incorporating a planetary health approach. This means reducing environmental harms resulting from MSF operations and practices to save lives, alleviate suffering and reduce vulnerabilities, while recognizing the health co-benefits and potential cost savings of transitioning to renewable energy, avoiding and reducing waste and carbon emissions related to transportation.

MSF is expanding use of Climate Smart MSF's Environmental Impact Toolkit[49] to measure carbon emissions and waste to inform mitigation. In Southeast Asia, measuring emissions illustrated that the main impacts are from electricity and air freight. Solutions identified include increasing sea freight instead of air freight, connecting to the electrical grid and using meters to better understand and reduce consumption.

In 2020, MSF made its first estimate of the carbon emissions of its outbound supply to projects and of estimated emissions of products in its supply chain. The measures identified high impact 'hotspots', gaps and opportunities for increasing sustainability. Amongst other initiatives, MSF has a Sustainable Procurement project and burgeoning volunteer "Green Teams" in over 15 countries who drive local mitigation including plastic pollution sensitization and reduction.

Becoming 'climate smart' and 'futureproof' suggests measuring impacts to scale mitigation, rapidly adapting operations and building organizational resilience, especially in low-resource, difficult-to-reach or fragile settings and given the concurrent crises we are facing and will face.

MSF seeks to strengthen collaboration with organizations such as the International Committee of the Red Cross (ICRC) and Global Green and Healthy Hospitals and is exploring alternative finance to enable exponential decarbonization. It also acknowledges the WHO's important guidance to countries and healthcare providers to try to ensure health facilities are sufficiently resilient to withstand climate shocks.[50] Decades of experience responding to humanitarian emergencies resulting from disasters make MSF aware of the challenges of supporting, establishing and maintaining healthcare facilities in unstable environments, and MSF is committed to continuing to improve the way it cares for patients in climates becoming ever more extreme.

Finally, the personal protective equipment (PPE) shortage and supply chain disruption due to COVID-19 required MSF to adapt procurement such as purchasing locally produced cloth masks and gowns with related rapid quality assurance. COVID-19 also highlighted the ability of humanitarians to permanently reduce non-essential travel, as well as the serious energy needs for health responses: autonomous, affordable, accessible energy for ventilators; air conditioning for pharmacies, hospitals and clinics; and cold chain equipment for when a vaccine is finally available. The issue of PPE and medical waste disposal (and more current redesign) is another related and pressing global challenge alongside energy needs, equity pricing and vaccine access, as well as an opportunity for long-term more environmentally sustainable health and humanitarian care.

MSF installed a solar panel system at the General Hospital of Kigulube in South Kivu, Democratic Republic of Congo (DRC) to give autonomy to health structures for the next 20 years. "A strong healthcare system implies having reliable and sustainable energy and energy sources." - Iñaki Goicolea, electrical engineer who helped convert two MSF solar hospitals in a remote, unstable region of the DRC in 2019.

Photo: Pablo Garrigos/MSF

Key messages

1. Humanitarian needs already outstrip the capacity of governments and global humanitarian actors to respond. The needs will only continue to multiply in ever increasing complex emergencies, as has already been demonstrated by the COVID-19 pandemic in the context of anthropogenic climate change and environmental degradation.

2. Governments are retreating from multilateralism and their obligations under international and national law. This has been observed in the context of both COVID-19 and the climate crisis, and has negative consequences on health – especially the health of the most vulnerable people.

3. To maximize the efficiency and effectiveness of responses to climate-related disasters, humanitarian actors should consider integrating hazard mapping, epidemiological and meteorological forecasting into their operations. Climatic and environmental factors and forecasts, as well as mitigation activities and opportunities, should be included in context analyses for humanitarian projects.

4. The emergency management experience and technical capacity of international humanitarian organizations like MSF can be leveraged for robust responses in climate disaster-prone areas. There is ample opportunity for humanitarian actors to learn from local emergency responders in climate shock-prone countries.

5. Humanitarian responders must listen to, build trust and collaborate with communities and local actors, who are experts in responding to the challenges they face. Frontline staff managing the effects of the climate crisis directly should be empowered by increasing their access to information, accelerating the decentralization of knowledge, mentoring and peer support.

6. Humanitarians, health and all other actors must take steps to significantly reduce their own negative impacts on the environment as a matter of urgency.

Conclusion

The needs generated by humanitarian crises continue to outstrip the sector's capacity to respond. In 2020, the rapid spread of COVID-19 and proliferating climate-linked disasters added additional layers of complexity and serious challenges to this work.

Many governments, meanwhile, have balked at global cooperation in favor of strategies of self-interest. The result has been state-sanctioned violence, exclusion and the criminalization of people in distress – even, at times, of humanitarian aid itself.

Like a number of other infectious diseases, COVID-19 worst affects people who are already vulnerable. The pandemic compounds the effects of the untenable systemic oppression and exclusion from which their vulnerability results. Climate change is having the same effect, albeit in slow-motion.

As the pandemic has emerged and rapidly escalated, it has become ever clearer that uncoordinated, self-interested approaches are insufficient to minimize its harms. Similarly, protecting people from the disastrous consequences of climate change will require integrated responses by humanitarians, global health actors, governments and communities alike.

Humanitarians must listen to, build trust within and collaborate with communities and local actors. This is particularly important in the current global political context, characterized by the use of public health rhetoric to stoke the fires of xenophobia and fear. As is clear from the case of Pakistan, there is ample opportunity for organizations to learn from each other as they respond to unprecedented climate-related events together.

Humanitarians should also build capacity with a view to maximizing responsiveness to climate-related disasters. Early-warning systems the one being developed by the MSF MACA project are one such strategy for this.

By applying a climate lens to their work, humanitarian actors will be better placed to respond not only to the acute phase of climate-related events, but also to their downstream impacts such as displacement, food insecurity and disease. MSF's experiences in Bangladesh, Niger and Malawi demonstrate the need to look beyond disasters to anticipate and respond to their secondary effects.

As climate-related disasters increase in frequency and intensity, humanitarian assistance will become increasingly vital. With this in mind, it is crucial that humanitarian and other global health actors reflect on and urgently act to mitigate their contributions to climate change and the ecological crisis.

References

1. Watts N, Amman M, Arnell N et al. The 2020 report of The Lancet Countdown on health and climate change: responding to converging crises. Lancet, 2020.

2. Whitmee S, Haines A, Beyrer C, et al. Safeguarding human health in the Anthropocene epoch: report of The Rockefeller Foundation– Commission on planetary health. Lancet 2015; 386: 1773-2028. Available from: https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(15)60901-1/fulltext

3. Jones KE, Patel NG, Levy MA, et al. Global trends in emerging infectious diseases. Nature 2008; 451(7181): 990–993. https://www.nature.com/articles/nature06536

4. Biorklund L, Healy, S. From COVID-19 to the climate emergency: Lessons from this global crisis for the next one. The Conversation [Internet]. 2020 Oct 5 [cited 2020 Nov 24]. Available from: https://theconversation.com/from-covid-19-to-the-climate-emergency-lessons-from-this-global-crisis-for-the-next-one-146673

5. Médecins Sans Frontières Canada. Responding to COVID-19: Global Accountability Report- March to May 2020 [Internet]. Toronto: MSF; 2020 Aug 2 [cited 2020 Nov 24]. Available from: https://www.doctorswithoutborders.ca/responding-covid-19-global-accountability-report-march-may-2020

6. Médecins Sans Frontières. Our response to the coronavirus COVID-19 pandemic [Internet]. Geneva: MSF; updated 2020 Oct 6 [cited 2020 Nov 24]. Available from: https://www.msf.org/covid-19-depth

7. Médecins Sans Frontières Canada. Responding to the coronavirus while protecting asylum seekers [Internet] Toronto: MSF; 2020 Mar 19 [cited 2020 Nov 24] Available from: https://www.doctorswithoutborders.org/what-we-do/news-stories/story/responding-coronavirus-crisis-while-protecting-asylum-seekers

8. Médecins Sans Frontières Canada. Public health and international legal obligations first: Closing Canada's border to refugee claimants is dangerous and illegal, and must be reversed [Internet]. Toronto: MSF; 2020 Mar 30 [cited 2020 Nov 24]. Available from: https://www.doctorswithoutborders.ca/article/closing-canada%E2%80%99s-border-refugee-claimants-dangerous-and-illegal-and-must-be-reversed

9. Kharas H, Snower D, Strauss, S. The future of multilateralism: Towards a responsible globalization that empowers citizens and leaves no one behind [Internet]. G20 Insights. Updated 2020 Jul 7 [cited 2020 Nov 24] Available from: https://www.g20-insights.org/policy_briefs/multilateralism-responsible-globalization-citizens-no-one-behind/

10. Godefroy B. Linking human security and health security in the age of COVID-19 [Internet]. Washington DC: Center for Civilians in Conflict. 2020 Apr 1 [cited 2020 Nov 25]. Available from: https://civiliansinconflict.org/blog/linking-human-security-and-health-security/

11. Médecins Sans Frontières Canada. Moria Camp: If the only way to break free is to burn your house, something is wrong [Internet]. Toronto: MSF; 2020 Sep 11 [cited 2020 Nov 24]. Available from: https://www.doctorswithoutborders.ca/article/moria-camp-if-only-way-break-free-burn-your-house-something-wrong

12. Médecins Sans Frontières. Conflict and COVID-19 adds up to a crisis within a crisis in Libya [Internet]. Geneva: MSF; 2020 Jun 2 [cited 2020 Nov 24]. Available from: https://www.msf.org/conflict-and-covid-19-adds-crisis-libya

13. Médecins Sans Frontières Canada. MSF calls on Mexico to prevent spread of COVID-19 and release migrants from detention [Internet]. Toronto: MSF; 2020 Apr 3 [cited 2020 Nov 24]. Available from: https://www.doctorswithoutborders.org/what-we-do/news-stories/story/msf-calls-mexico-prevent-spread-covid-19-and-release-migrants

14. Médecins Sans Frontières. Detainment of fifth search and rescue ship in five months condemns people to die at sea [Internet]. Geneva: MSF; 2020 Sep 20 [cited 2020 Nov 24] Available from: https://www.msf.org/detaining-fifth-search-and-rescue-ship-five-months-condemns-people-die-sea

15. Médecins Sans Frontières. European policies continue to claim lives on the Mediterranean Sea [Internet]. Geneva: MSF; 2019 Jun 12 [cited 2020 Nov 24]. Available from: https://www.msf.org/european-policies-continue-claim-lives-mediterranean-sea-migration

16. Jochum B, Delfosse F, Guevara M, Tremblay LL, Devine C. Choices at the time of the climate emergency. Alternatives Humanitaires 2019; 11; 44-63. http://alternatives-humanitaires.org/wp-content/uploads/2019/07/AH_N11_2_Focus_4_MSF_VEN.pdf

17. Watts N, Amann M, Ayeb-Karlsson S, et al. The Lancet Countdown on health and climate change: from 25 years of inaction to a global transformation for public health. Lancet 2018; 391: P581-630. Available from: https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(17)32464-9/fulltext

18. Knowlton K. New Lancet study calls climate change 'the biggest global health threat of the 21st century' [Internet]. New York: Natural Resources Defense Council; 2009 May 15 [cited 2020 Nov 22]. Available from: https://www.nrdc.org/experts/kim-knowlton/new-lancet-study-calls-climate-change-biggest-global-health-threat-21st-century

19. Planetary Health Alliance. Planetary Health [Internet]. Boston: Planetary Health Alliance; [date unknown] [cited 2020 Nov 22]. Available from: https://www.planetaryhealthalliance.org/planetary-health

20. Horton R, Lo S. Planetary health: a new science for exceptional action. Lancet 2015; 386: 1921-1922. Available from: https://www.thelancet.com/pdfs/journals/lancet/PIIS01406736(15)61038-8.pdf

21. Willett B. Planetary Attitude. MSF OCG Tag Publication. 2020 Oct [cited 2020 Nov 22].

22. Terragraphics International Foundation [Internet]. Moscow ID;[date unknown] [cited 2020 Nov 22]. Available from: https://www.terragraphicsinternational.org

23. Médecins Sans Frontières. Kyrgyzstan [Internet]. Geneva: MSF; [date unknown] [cited 2020 Nov 22]. Available from https://www.msf.org/international-activity-report-2019/kyrgyzstan

24. United Nations Office for the Coordination of Humanitarian Affairs. Global humanitarian overview [Internet]. Geneva: OCHA; 2020 [cited 2020 Sep 18]. 88p. Available from: https://www.unocha.org/sites/unocha/files/GHO-2020_v9.1.pdf

25. International Federation of the Red Cross. The cost of doing nothing: The humanitarian cost of climate change and how it can be avoided [Internet]. Geneva: IFRC; 2019 [cited 2020 Sep 14]. 46 p. Available from: https://media.ifrc.org/ifrc/wp-content/uploads/sites/5/2019/09/2019-IFRC-CODN-EN.pdf.

26. Nayna Schwerdtle P, Irvine E, Brockington S, et al. Calibrating to scale: a framework for humanitarian health organizations to anticipate, prevent, prepare for and manage climate-related health risks. Globalization Health 2020; 16. Available from https://globalizationandhealth.biomedcentral.com/articles/10.1186/s12992-020-00582-3

27. World Health Organization. Health and climate change: country profile 2015: Bangladesh [Internet]. Geneva: WHO; 2016 [cited 2020 Nov 22]. 8p. Available from: https://www.who.int/publications/i/item/health-and-climate-change-country-profile-2015-bangladesh

28. Chen J, Mueller V. Coastal climate change, soil salinity and human migration in Bangladesh. Nat Clim Change. 2018; 8: 981–985. Available from: https://www.nature.com/articles/s41558-018-0313-8

29. Haque R, Parr N, Muhidin S. Climate-related displacement, impoverishment and healthcare accessibility in mainland Bangladesh. Asian Popul Stud 2020; 16(2): 220-239. Available from: https://www.tandfonline.com/doi/abs/10.1080/17441730.2020.1764187

30. Devine C, Dettmer N. Triple jeopardy for Bangladesh: An MSF review on the medical and humanitarian consequences of climate change and environmental deterioration. Toronto: MSF; 2020 (unpublished report).

31. Perkins-Kirkpatrick, SE, Lewis, SC. Increasing trends in regional heatwaves. Nat Commun 2020; 11: 3357. https://www.nature.com/articles/s41467-020-16970-7

32. Gasparrini A, Guo Y, Sera F, Vicedo-Cabrera AM, et al. Projections of temperature related excess mortality under climate change scenarios. Lancet Planet Health 2017; 1: e360-367. https://www.thelancet.com/journals/lanplh/article/PIIS2542-5196(17)30156-0/fulltext

33. Sajjad SH, Blond N, Batool R, Shirazi SA, Shakrullah K, Bhalli MN. Study of urban heat island of Karachi by using finite volume mesoscale model. J Basic Appl Sci 2015; 11: 101-105. https://pdfs.semanticscholar.org/93f4/4fc62faf27175fe5fe877b8a807359f5f169.pdf

34. Commissioner Karachi. Karachi heatwave management plan: A guide to planning and response [Internet]. Karachi: Commissioner Karachi; 2018. Available from: http://www.lead.org.pk/attachments/HeatwaveManagementPlan.pdf

35. Why did so many die in Karachi's heatwave? BBC News [Internet]. 2015 Jul 2 [cited 2020 Sep 28]. Available from: https://www.bbc.com/news/world-asia-33358705

36. Finance Division, Government of Pakistan. Pakistan Economic Survey, 2018-2019 [Internet]. Islamabad: Government of Pakistan; 2019. Available from: http://www.finance.gov.pk/survey_1819.html

37. Médecins Sans Frontières. Health status two months after Hurricane Matthew, in the hardest-hit provinces [Internet]. Geneva: MSF; 2016 Dec 6 [cited 2020 Nov 24] Available from: https://www.msf.org/health-status-two-months-after-hurricane-matthew-hardest-hit-provinces

38. Niang I, Ruppel OC, Abdrabo MA, et al. Africa. In: Barros VR, Field CB, Dokken DJ, et al., editors. Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part B: Regional Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge and New York: Cambridge University Press; 2014. p. 1199-1265. Available from: https://www.ipcc.ch/site/assets/uploads/2018/02/WGIIAR5-Chap22_FINAL.pdf

39. International Committee of the Red Cross. Mali-Niger: Climate change and conflict make an explosive mix in the Sahel [Internet]. Geneva: ICRC; 2019 Jan 22 [cited 2020 Nov 22]. Available from: https://www.icrc.org/en/document/mali-niger-climate-change-and-conflict-make-explosive-mix-sahel

40. UN Refugee Agency. UNHCR assisting displaced families affected by floods in the Sahel [Internet]. Geneva: UNHCR; 2020 Sep 24 [cited 2020 Nov 22]. Available from: https://www.unhcr.org/news/press/2020/9/5f6b79f44/unhcr-assisting-displaced-families-affected-floods-sahel.html

41. Unpublished programmatic data. [cited 2020 Nov 22]. Médecins Sans Frontières.

42. Wellcome Trust. Complex adaptive modelling climate change health impacts in Malawi [Internet]. London: Wellcome Trust; [date unknown] [cited 2020 Nov 22]. Available from: https://wellcome.org/grant-funding/people-and-projects/grants-awarded/complex-adaptive-modelling-climate-change-health

43. Médecins Sans Frontières. A cholera response among fishing communities on and around Lake Chilwa [Internet]. Geneva: MSF; 2016 April 4 [cited 2020 Nov 22]. Available from: https://www.msf.org/photo-story-cholera-response-among-fishing-communities-and-around-lake-chilwa-malawi

44. US Department of Agriculture National Agricultural Library. Effects of climate change on cholera dynamics and prediction [Research Project Database Entry]. Washington DC: USDA; [date unknown] [cited 2020 Nov 22]. Available from: https://www.nal.usda.gov/fsrio/research-projects/effects-climate-change-cholera-dynamics-and-prediction

45. Grandesso F, Rafael F, Chipeta S, et al. Oral cholera vaccination in hard-to-reach communities, Lake Chilwa, Malawi. Bull World Health Organ 2018; 96(12): 817-825. Available from: https://pubmed.ncbi.nlm.nih.gov/30505029/

46. Grandesso F, Kasambara W, Page A, et al. Effectiveness of oral cholera vaccine in preventing cholera among fishermen in Lake Chilwa, Malawi: A case-control study. Vaccine 2019; 37(28): 3668-3676. Available from: https://www.sciencedirect.com/science/article/pii/S0264410X19306681

47. Ferreras E, Matapo B, Chizema-Kawesha E, et al. Delayed second dose of oral cholera vaccine administered before high-risk period for cholera transmission: Cholera control strategy in Lusaka, 2016. PLoS One 2019; 14(8): e0219040. Available from: https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0219040

48. Sharp A, Blake A, Backx J, et al. High cholera vaccination coverage following emergency campaign in Haiti: Results from a cluster survey in three rural Communes in the South Department, 2017. PLoS Negl Trop Dis 2020; 14(1): e0007967. Available from: https://journals.plos.org/plosntds/article?id=10.1371/journal.pntd.0007967

49. Médecins Sans Frontières. Transformational Investment Capacity, Climate Smart MSF [Internet] Geneva: MSF; [date unknown] [cited 2020 Nov 24] Available from: https://msf-transformation.org/news/climate-smart-msf/

50. IPCC, 2014: Summary for policymakers. In: Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Field CB, Barros VR, Dokken KJ, et al. (eds.)]. Cambridge and New York: Cambridge University Press; 2014. Available from: https://www.ipcc.ch/site/assets/uploads/2018/02/ar5_wgII_spm_en.pdf

51. Médecins Sans Frontières. International Activity Report [Internet]. Geneva: MSF; [date unknown] [cited 2020 Nov 22]. Available from https://www.msf.org/international-activity-report-2019

Organizations and acknowledgements

This policy brief was written by Dr. Maria Guevara (Senior Operational Positioning and Advocacy Advisor MSF Operational Centre Geneva), Carol Devine (MSF Canada, Dahdaleh Institute for Global Health Research, York University Canada), Sandra Smiley (MSF, Johns Hopkins Bloomberg School of Public Health), Patricia Nayna Schwerdtle (Institute of Public Health, Faculty of Medicine, Heidelberg University, Heidelberg, Germany; MSF Australia; Nursing and Midwifery, Faculty of Medicine, Nursing and Health Sciences, Monash University, Australia), Kathryn Bowen (Fenner School of Environment and Society & Research School of Population Health, Australian National University, Australian Capital Territory, Australia, Institute for Advanced Sustainability Studies, Potsdam, Germany), Celia McMichael (The School of Geography, The University of Melbourne, Australia), Caroline Voûte (Health Policy Advisor MSF UK), Dr. Chibuzo Okonta (MSF, President MSF West and Central Africa Association (WaCA)), Dr. Fatouma Mabaye (MSF, WaCA), Léo L Tremblay (MSF Meteorological and Climate Anticipation), Dr. Hassaan Zahid (Assistant Medical Focal Point MSF Pakistan), Dr. Francisco Luquero (Epicentre) and Brian Willett (MSF Planetary Health Coordinator). Medical validation by Dr. Monica Rull (Medical Director, MSF Operational Centre Geneva) and Dr. Kiran Jobanputra (Head of Manson Unit/Deputy Medical Director MSF Operational Centre Amsterdam). Peer review by Linn Biorklund Belliveau (Dahdaleh Institute for Global Health Research, York University, Canada), Juan Carlos Arteaga (MSF, Project Coordinator, PhD Student in migration and environment) and Dr. Lachlan McIver (MSF, Tropical & Infectious Diseases Advisor). Guidance on behalf of the Lancet Countdown was shared by Jessica Beagley and Dr. Marina Romanello, PhD.

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. Following a motion passed by our International General Assembly in 2019, MSF is evaluating how to address environmental issues most effectively. 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.[51]

THE LANCET COUNTDOWN

The Lancet Countdown: Tracking Progress on Health and Climate Change is an international, multi-disciplinary collaboration that exists to monitor the links between public health and climate change. It brings together 38 academic institutions and UN agencies from every continent, drawing on the expertise of climate scientists, engineers, economists, political scientists, public health professionals and doctors. Each year, the Lancet Countdown publishes an annual assessment of the state of climate change and human health, seeking to provide decision-makers with access to high-quality evidence-based policy guidance. For the full 2020 assessment, visit www.lancetcountdown. org/2020-report/