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Protection Prevention Preparedness Response Resilience Recovery



ANTIMICROBIAL RESISTANCE
TACKLING A QUIET CHAOS

One Health | Crisis Leadership |
Vaccine Transparency | Auckland Flood |
Bangladesh Cyclone | Poultry & AMR

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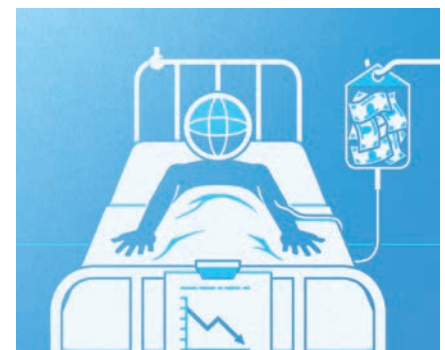
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Cover image: John Holcroft | Ikon Images

comment

Years ago, I remember having a conversation where I happily explained to a friend that being medication-averse meant I would not have to deal with multidrug resistance or antibiotic resistance health complications.



However, it was only much later that it became more obvious to me that the amount of medicines I allowed myself to consume had no bearing on my exposure to antimicrobial resistance (AMR). Like many others, I too did not realize that AMR doesn't always hop in through the front door. It is hiding in plain sight, in corners where we least expect it. It can be present in the food we eat, in the water we drink, in the places we work, and even in the healthcare facilities we end up in to find treatment and help.

This volume of CRJ, like so many others that we have worked on, aims to help it readers understand just how connected such crises can be. On p74 a team from ICARS explains the many ways AMR and poultry intersect. On p78, Anita Punwani takes a look at the need for a One Health approach for a global pushback, while Lubna Jerar Naqvi examines the role played by climate change. Meanwhile, Shefalika Maini and Evie Lunn explore the solutions, where one tackles the subject of AI prescriptions and the other explores AMR and conflict zones. This is not just a crisis of healthcare systems or practices; it is one of leadership. On p12, Thomas Lahnthaler explores at what leaders must do to adapt.

The truth is that AMR is a slow-moving chaos that not many of us can avoid. It is already affecting our lives, and we cannot see or understand it. AMR, much like time, will wait for no one. It does need our understanding or acknowledgement to spread. However, CRJ's readers are always those who put out fires that aren't always visible. I hope this issue helps inform your everyday practices and the work that you do.

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Dodge the disaster

Can we avoid a disaster? Or when a crisis occurs, are we destined to suffer the consequences, ask **Gareth Byatt** and **Ilan Kelman**

The consequences include human lives lost, livelihoods destroyed, and long-lasting damage to nature. We know that disasters can, and should be, avoided. No disaster should be a shock or 'black swan' because we should know the hazards and threats we face – we have surely had enough practice and experience at this point.

While not all hazards are fully predictable, we can predict and redress vulnerabilities and exposures when we choose to focus on them and act in an appropriate way that values life. We can measure quantifiable outcomes that show economic benefits as well as human and environmental ones. Good things happen when committed people and organisations collaborate to prevent a disaster from happening, sometimes in surprising and unexpected ways.

To prevent disasters, we require a mindset, an approach, and a drive for co-ordinated action that does not have to be expensive. This effort involves diverse groups of people, ranging from local community members who willingly volunteer their time to support those around them, to policymakers and advisors working at national and international levels. It is crucial to ensure clear and transparent visibility of the actions taken by all these groups. The key elements that binds these groups together are good governance and shared accountability. Achieving this goal is possible; it can be done. Through the NASA-funded project Disasters Avoided we are documenting examples from around the world that show how disasters are being avoided.

There are numerous challenges in addressing disasters worldwide. The mid-term review of the *Sendai Framework for Disaster Risk Reduction 2015-2030*, completed in mid-2023, emphasised an increase in the number of people affected by disasters since 2015. It also highlighted the expensive nature of disaster response and the stalled funding for disaster risk reduction efforts.

According to the *Global Assessment Report on Disaster Risk Reduction (GAR) 2022 Summary*, there have been commitments to enhance resilience, address climate change, and promote sustainable development. However, the current societal, political, and economic choices are having the opposite effect. The report highlights that the goals outlined in the framework may not be attained, and progress towards the Paris Agreement and the Sustainable Development Goals (SDGs) is insufficient. It also emphasises the need for new approaches to change the course, requiring a transformation in the values of governance systems and how systemic risk is perceived and addressed. Merely continuing with existing practices will not be sufficient.

In order to approach disasters differently, with a preventive focus, we must foster conversations around preventive strategies. Different viewpoints must be taken into account, and there cannot be any 'elephants in the

room'. Some of the changes and decisions needed may be challenging and hard, but will certainly be inspiring and with substantial positive ripple effects. Numerous examples demonstrate that intelligent collaboration leads to success. Of course, emergency management and disaster response remain essential for major situations. We emphasise the need for upfront planning and resource allocation to prevent disasters stemming from vulnerabilities and exposures, alongside ensuring that response efforts are appropriately planned.

Bolting the lock

A key theme we see time and again in avoiding a disaster is that success comes when a wide variety of people and groups come together in a symphony of action, using good data (such as Earth observations from satellite and ground-based monitors) to make good, informed decisions.

As we mentioned earlier, the common threads uniting these actions are good governance and accountability, which provide visibility to everyone involved in addressing challenges, taking action, and receiving feedback for ongoing improvement. It is crucial to allocate limited scarce resources and funding based on scientific evidence and data to ensure informed good decision-making.

Good governance comes from a political drive to provide sufficient resources and foster a society that can withstand and work in harmony with nature's energies and forces. Disasters do not come from nature; they come from the choices we make to live and build in spaces that are at risk and from our inaction when we find ourselves in such situations. In effect, 'natural disasters' do not exist; they are just 'disasters.'

Examples of avoiding disasters exist. As we have seen with Covid-19, no place is immune from catastrophe. Yet upfront planning and action, and open knowledge sharing of what works well and what more needs to be done, help us cope better. The key is a willingness across the board to invest in saving lives and livelihoods. Doing so invariably reaps economic and financial rewards at the same time, which is beneficial for everyone.

In our work, we document case studies of disasters that have been avoided. It is perhaps obvious, but avoiding a disaster is life-changing for individuals, families, and communities. It bolsters the resilience of townships, cities, and rural areas. At the state, department, and country levels, it provides important macroeconomic benefits. Let us examine some of the cases.

In Australia, we observed that major wildland fires in recent decades have severely tested the country's resilience. Indigenous communities have long lived with wildland fire, and today's Australia is understanding their traditional methods within overall risk management efforts (supported by strong federal and state governments)

to mitigate wildfires and their cascading effects on vegetation and soil. The co-ordinated actions of many stakeholder groups are yielding positive results and positive economic outcomes.

In Bangladesh, an economic analysis of the country's disaster management efforts shows some clear wins. Severe flooding from cyclones, monsoons, and fluvial discharges poses a threat to life and leads to billions of dollars of damage (see p22). National and local governments, non-profit organisations, businesses, insurers, academia, and ordinary people, including volunteers, are actively engaged in preventing the loss of lives and livelihoods, and protecting the environment. While flood risk cannot be entirely eliminated, effective governance, accountability, thorough preparation, and constant vigilance are aiding in the management of these hazards. When Cyclone Mocha approached Bangladesh in May 2023, the country was ready for it, given that it tracked its path using continuous Earth observations.

In Chile, we found that proactive wildfire management is saving lives, livelihoods, and properties. With the help of Earth observations, good land management is preventing wildfires from taking hold with ensuing death and destruction. Economic analysis underscores the significant financial benefits of proactive measures.


Vietnam experiences major annual floods, with a coastline spanning 3,200 kilometres. Coastal provinces, home to nearly 12 million people, bear the brunt of flooding, and eroding coastlines host more than a third of settlements. A United Nations Development Program (UNDP) Vietnam/Green Climate Fund (GCF) project (with others) is a five-year resilience endeavour on the country's mid-coast to provide 4,000 flood-resilient houses and plant coastal mangroves to mitigate storm surges. In late 2019, storm Matmo struck the midcoast area of Quang Ngai, destroying many houses. However, new flood-resilient houses survived, keeping people safe and supporting their livelihoods. This is important given that one major flood can ruin an entire year's crop yield.

According to a 2021 estimate by *The Lancet*, heat-related deaths occur worldwide annually, ranging from 300,000 to 730,000, with India being particularly vulnerable. The process of urbanisation has led to a reduction in vegetation and natural water areas, while human-made structures trap heat, exacerbating the problem. The economic effect of heat in India is estimated to be in the many billions of dollars per year. Outdoor workers, who make up a large proportion

of India's workforce, are particularly affected. The city of Hyderabad, with a population of nine to ten million, is taking action to avoid issues caused by heat, appreciating that extreme heat continues to be a major challenge to deal with across India. According to the Urban Lab Centre for Science and the Environment, a mapping of local areas with Landsat imagery shows urban heat island (UHI) hotspots that can guide mitigation actions. Telangana Ku Haritha Haram (TKHH) is a tree planting programme by the state of Telangana (which contains Hyderabad), in place since 2015. Ponds and lakes are being revived and improved in part to combat the UHI. Additionally, steps are being taken to improve air quality, as pollution is further compounded by the heat.

Worldwide, the estimated economic costs of the Covid-19 pandemic are in the tens of trillions of dollars at the lower end of the scale, excluding the consideration of long Covid. The annual budget of the World Health Organization (WHO) for its activities is less than US\$4 billion.

The cost of international co-operation on pandemic prevention, whether with or without the involvement of WHO, should be below tens of billions of dollars per year. Notably, the costs of prevention are significantly lower

than the expenses incurred by pandemics and lockdowns, even when considering the occurrence of one pathogen per millennium. As the United Nations Office for Disaster Risk Reduction (UNDRR) Head Mami Mizutori has said: "Disasters can be prevented, but only if countries invest the time and resources to understand and reduce their risks." 

■ During 2023 and 2024, the project will release case studies and examples of disasters that have been and are being avoided, spanning a range of geographies, hazards, and vulnerabilities.



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