BUILDING A CLIMATE-RESILIENT, POLIO-FREE WORLD

POLIO GLOBAL ERADICATION INITIATIVE

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Health and the climate crisis

Promoting climate resiliency in the health sector—the process of adapting to the realities of a hotter world, while also mitigating greenhouse gas emissions—is paramount to protect the health of people and the planet.

The climate crisis is one of the biggest health threats facing humanity today *(1)*. Extreme weather events like heatwaves, floods and storms have become more common and severe, while typical weather patterns continue to drastically change, affecting the availability of resources like food, water and energy. These events disrupt health services, particularly in the poorest and most marginalized communities, exacerbating existing health inequities while threatening the capacity of the health workforce and infrastructure to respond *(2)*. At the same time, the health sector has a vital role to play in reducing its own impact on the climate crisis, as it represents 4.4% of global greenhouse gas (GHG) emissions—if the sector was a country, it would be the fifth-largest emitter on the planet *(3)*.

The climate crisis and polio eradication

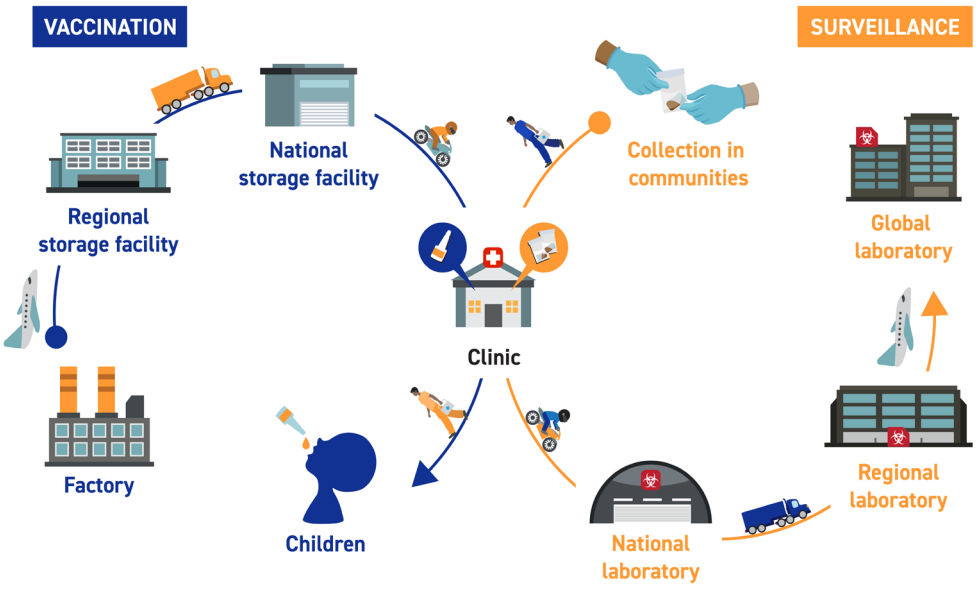
The GPEI can build on its history of innovating in the face of adversity to protect its staff, activities and the communities it serves from the realities of a hotter world.

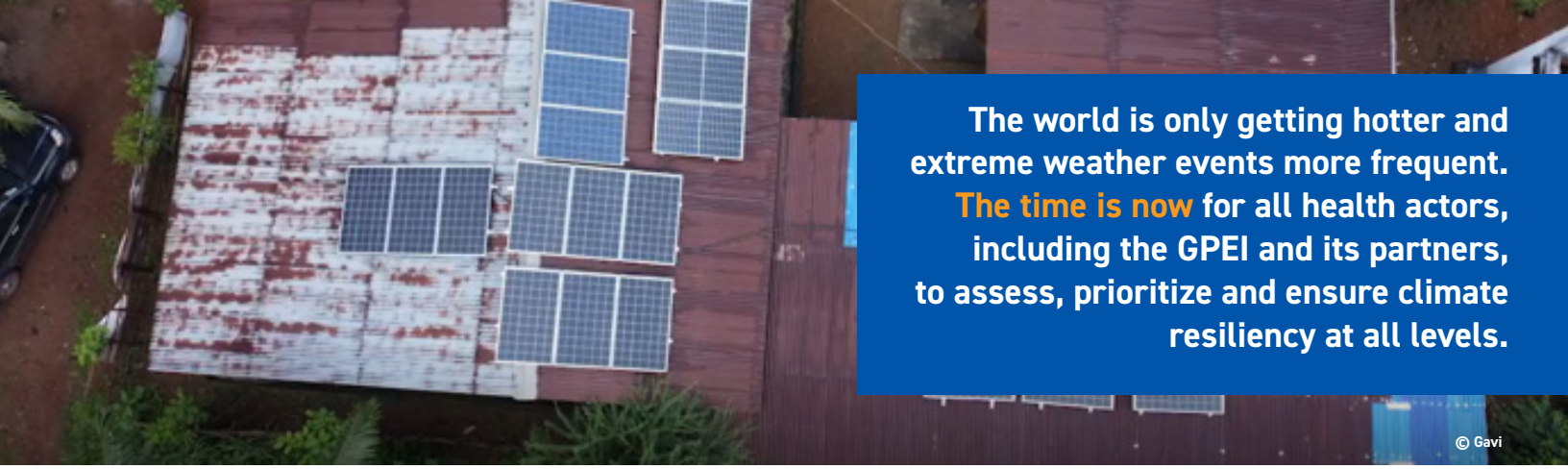
The climate crisis and its threat to health cannot be ignored in the pursuit of a polio-free world. From Pakistan to Mozambique, countries at high-risk for polio are already disproportionately experiencing the impacts of a hotter world *(4)*. Like other immunization programmes, the Global Polio Eradication Initiative (GPEI) is both impacted by and contributes to the climate crisis across its life cycle (see figure below).

Extreme weather exposes polio workforces to new occupational hazards, disrupts and damages GPEI operations, and worsens water, sanitation, and hygiene (WASH) conditions, which can heighten the risk of spreading diseases like polio *(5)*. Changes in resource availability can also trigger increased population movements and, in some cases, cause conflict. This not only puts more people at risk of encountering and spreading viruses like polio, but also makes it harder to reach every child with the necessary vaccines to protect them. As long-term weather patterns change, prolonged periods of higher temperatures could even extend the high transmission season for polio, which is during the hottest times of year.

At the same time, efforts to eradicate polio, particularly those related to vaccination, also contribute to rising global temperatures by emitting GHGs—from carbon dioxide to refrigerant gases like hydrofluorocarbons (HFCs). Out of all GPEI activities, producing, transporting, delivering and disposing of polio vaccines and supplies likely accounts for the largest proportion of the GPEI's overall carbon footprint.

The GPEI Life Cycle





The world is only getting hotter and extreme weather events more frequent. The time is now for all health actors, including the GPEI and its partners, to assess, prioritize and ensure climate resiliency at all levels.

As one of the largest global health partnerships, the GPEI is in a unique position to improve its climate resiliency by further collaborating with cross-sector partners, national and local authorities, and the communities it serves. Though actions needed to mitigate and adapt to the climate crisis are much broader than the polio eradication effort, the GPEI recognizes the urgent need to take stock of its role and responsibility to help address this planetary emergency.

To both deliver a polio-free world and help ensure a climate-resilient future, the GPEI and its partners should explore the following areas to reduce its carbon footprint (mitigation) and protect polio staff, activities and communities from the effects of a hotter world (adaption). ***See the full technical brief*** *for more information on this abbreviated list.*

Climate crisis mitigation activities

PRODUCTION AND PROCUREMENT

- Ensure compliance with respective sustainable procurement policies.
- Limit the use of plastic products and packaging.
  - Reduce single-use materials in favor of recyclable plastics.
  - Require the use of more sustainable plastics.
- Procure locally as much as possible and help build local development and manufacturing capacities.
- Explore designs for smaller, less carbon-intensive products that deliver the same function.
- Identify and implement tools to measure GPEI carbon footprint.

GPEI OPERATIONS FROM TRANSPORT, REFRIGERATION, LAST-MILE ACTIVITIES TO LABS

- Shift to alternative energy sources for key delivery activities where possible.
- Use alternative refrigerant technology with low global warming power.
- Bundle shipments from suppliers to countries as much as possible.
- Conduct multi-antigen campaigns to deliver more services with less vehicles and resources.
- Reduce air travel requirements for personnel.

END OF LIFE AND REUSE

- Advocate for the development of local systems to safety collect and reuse products when possible.
- Encourage national and local authorities to use more sustainable waste disposal and treatment technologies.
- Include sustainable waste disposal and treatment systems in any GPEI-funded construction.

Climate crisis adaptation activities

PRODUCTION, PROCUREMENT AND TRANSPORT

- Shorten supply chains by procuring locally.
- Incentivize national authorities to build and maintain climate-resilient infrastructure.

REFRIGERATION AND COOLING

- Lower the dependency on grid supplied energy by continuing rolling out of renewable energy sources.
- Explore the use of new vaccine delivery strategies and technologies to reduce reliance on cold chains.
- Train managers on how to prepare for, respond to and recover from extreme weather events.

LAST-MILE VACCINE DELIVERY AND SURVEILLANCE SAMPLE COLLECTION, AND END OF LIFE AND REUSE

Foster resilient communities & health care workforces

- Review local climate vulnerability and adaptation assessments in places at high-risk for polio.
- Create clear contingency plans to guide operations.
- Train the workforce on how to prepare for, respond to and recover from extreme weather events.
- Provide reliable access to personal protective equipment for staff.
- Ensure women are included in all decision-making.
- Explore providing educational and behavior change interventions alongside campaigns on the localized risks of the climate crisis.

Advocate for climate-resilient GPEI-funded infrastructure

- Support local authorities in using materials, construction and design approaches that are responsive to climate risks.
- Ensure access to climate-resilient WASH systems in programme facilities.
- Create backup waste storage sites, safe from flooding or sea-level rises.

CLIMATE RESILIENCE IN ACTION

The use of solar power in the fight to end polio

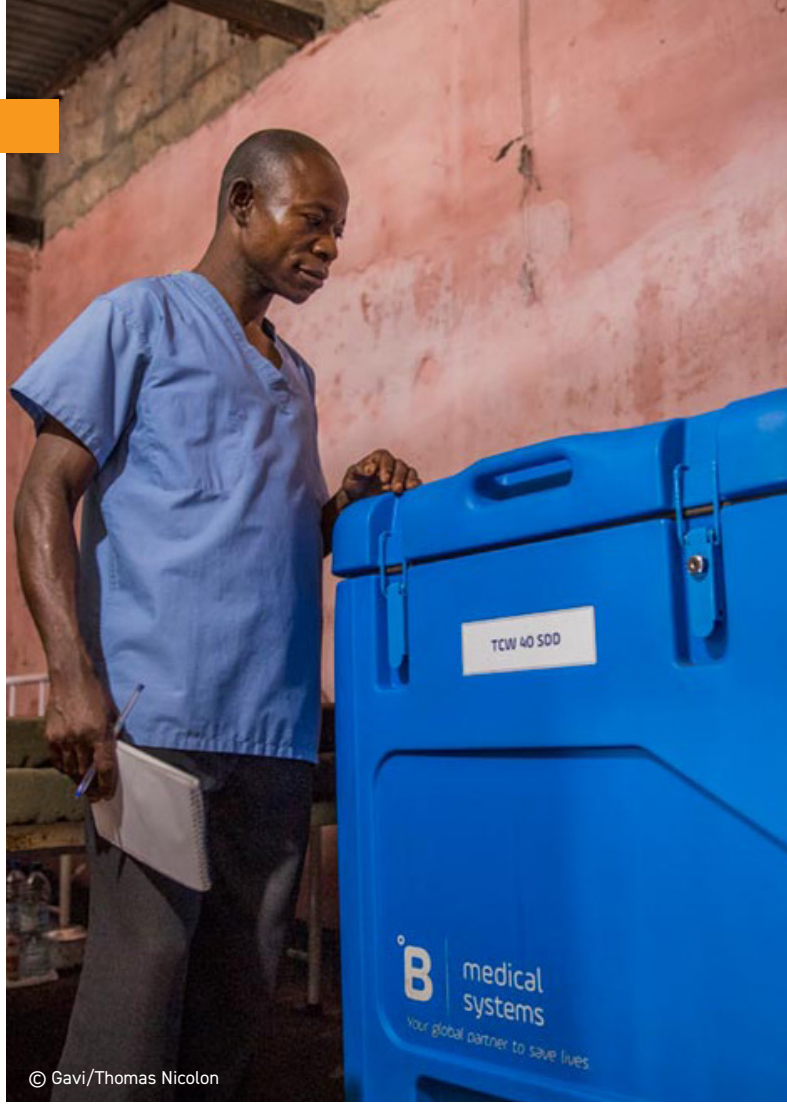
Nearly 1 billion people globally are served by health care facilities that do not have regular or consistent power, leading to disruptions in routine and emergency care—from running diagnostic tests to ensuring vaccines stay cold *(6)*. As extreme weather events become more common, energy disruptions are expected to increase. To address this, the GPEI and partners have turned to solar power, a more affordable, reliable and climate-resilient energy source to power polio vaccination and surveillance activities.

For decades, fossil fuel-powered refrigerators were essential to maintaining vaccines at just the right temperature. Yet, these refrigerators emitted GHGs, were relatively expensive to operate and were vulnerable to disruptions in the national energy supply.

Now, the GPEI and its partners significantly rely on solar power, specifically, Solar Direct Drive (SDD) vaccine refrigerators *(7)*. SDD refrigerators can run for days without power if needed, not only making them more dependable, but also extending the programme's reach in some of the most difficult yet critical areas to end polio, like in the Democratic Republic of the Congo. In 2016, just 16% of health centers in the country had a working refrigerator. Between 2018 and 2021, Gavi and its partners helped address this gap by delivering over 5,500 new solar-powered fridges across the country *(8)*.

On the remote islands of Lake Chad, the introduction of solar-powered refrigerators means that parents and health workers can go to the community center on the island, rather than travelling long distances by boat to receive or administer polio vaccines *(9)*. Meanwhile, in Somalia, a country that experiences frequent interruptions in power supply, all vaccine refrigerators from the regional storage points down to the community-level administration are now powered by SDD refrigerators.

From refrigerators to powering entire laboratories, solar power technology has become a key energy source to help reduce the GPEI's GHG emissions and ensure a polio-free future.



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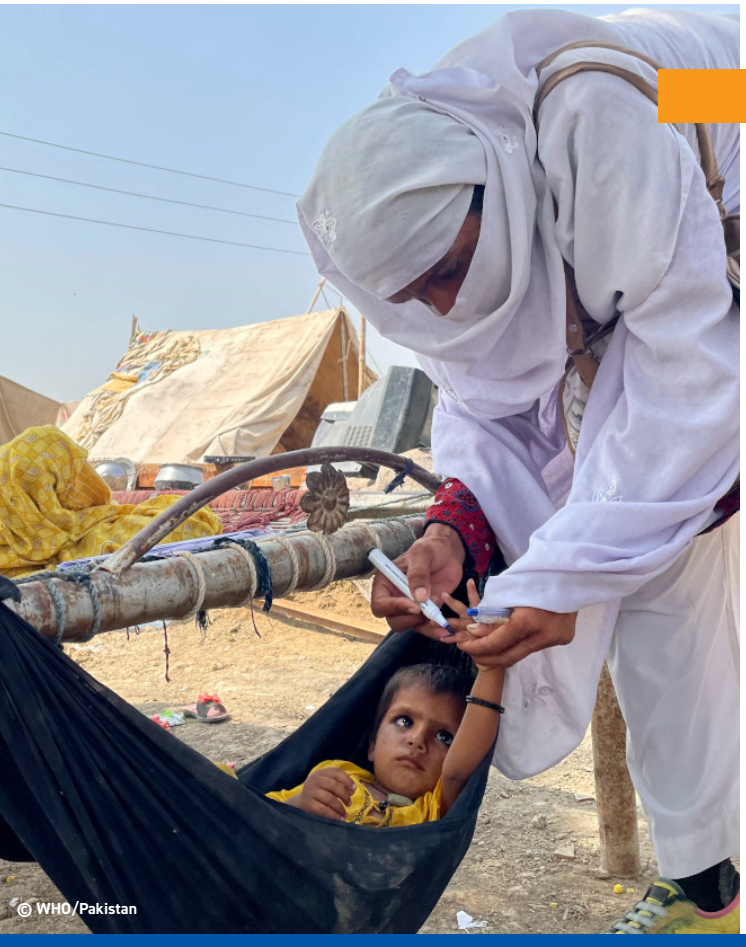
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Pakistan's fight to end polio amid the climate crisis

Pakistan, one of the last two endemic countries for wild polio, is among the countries most vulnerable to the climate crisis. As the world becomes hotter more frequent and severe heatwaves, intense droughts and devastating floods, threaten the incredible progress that has been made against polio in the country.

From May to October 2022, almost one-third of Pakistan was under water at the peak of historic floods, displacing eight million people, damaging critical infrastructure and heightening the risk of people encountering and spreading diseases like polio *(10)*.

In response, the programme adjusted campaign schedules and strategies, conducting vaccinations at health camps, at transit points and in settlements for displaced persons. Despite the extraordinary circumstances, the programme managed to reach nearly 32 million children in the country during its August 2022 campaign *(11)*.

The GPEI also committed to supporting more than 12,500 polio workers across the country who were impacted by the floods, securing funds to compensate those who suffered full or partial damage to their homes *(12)*. Lastly, the programme helped establish critical health camps in flood-affected districts to provide basic health services and continued critical surveillance and outbreak response activities to fight polio and other infectious diseases.

Working hand-in-hand with communities and local authorities, the GPEI was able to adapt its operations to ensure progress against polio in Pakistan was not lost and the polio workforce and affected communities were supported in the aftermath of this climate disaster.