



GLOBAL
INNOVATION
FUND

CLIMATE STRATEGY

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Innovating for Climate Adaptation and Resilience

Context

Scientific consensus, underpinning the framework set out by the Paris Agreement, tells us that we need to limit global warming to well below 2°C and pursue efforts to limit it to 1.5°C if we are to avoid catastrophic damage. Urgent action is needed to mitigate carbon emissions in order to meet that goal.

However, even with rapid mitigation efforts, climate change is irreversibly in train, meaning that whatever happens, we will see huge impacts on livelihoods, water and food security, and health, and an increase in the frequency of shocks.

Already droughts are causing water taps across Morocco, Mexico and South Africa to run dry, forcing millions of people to pay significantly more for tanker truck water deliveries¹. Heat waves have struck cities from India to Europe. Torrential rains have triggered killer landslides in Kerala and the DRC², while fierce storms and floods have destroyed factories in Guangzhou and Dongguan. Erratic rainfall in the Indian state of Uttarakhand has disrupted traditional agriculture, and melting glaciers have caused water shortages in Peru and Bolivia³. Irrespective of whether we will achieve the target of 1.5°C, the climate will continue to change due to past emissions. In 2020, disasters, particularly weather-related, triggered three times more displacements than conflicts and violence did in the same year. Climate shocks will continue to intensify and the changes will be even more severe if the target is not met.

Societies worldwide are not even well-adapted to today's climate shocks, let alone the more severe ones to come. This burden falls most heavily on developing countries, which have heightened exposure to the shocks and more limited capacity to cope.

The challenge of climate adaptation is inextricably linked with GIF's core mandate: to accelerate innovation that improves the livelihoods of millions of the world's poorest people.

Why resilience and adaptation?

¹ Two billion people - a quarter of the world's population - now are using water much faster than natural sources, such as groundwater, can be replenished. [Running Dry: Competing for water on a thirsty planet, Reuters, 2019](#)

² [West and Central Africa: Flooding Situation \(As of 30 September 2021\), Relief Web, 2021](#)

³ [Imperial College London Grantham Institute – Climate Change and the Environment](#)

Today's impacts of climate change not only include the more recognisable acute events such as intense storms, wildfires and typhoons, but also chronic impacts such as water scarcity and drought. The frequency and intensity are also a changing characteristic of some climate-related events when they occur, creating greater propensity for mudslides, soil erosion and damage to infrastructure. Warming trends in some regions already exceed 2°C and the rate of warming is accelerating in some places faster than others. In the middle latitudes, where many developing countries are located, some regions are also experiencing temperature increases of 2°C or more, over historical averages. These regions are home to between 20-40% of the global population and to some of its poorest and most vulnerable people. They have heightened exposure and more limited capacity to cope.

- Cities in developing countries lack the basic infrastructure to cope with climate-related risks and cannot provide the services that their population will need in order to manage those risks. Around 90% of urban expansion in developing countries is near hazard-prone areas and built through informal settlements; around half a billion urban residents live in coastal areas, increasing their vulnerability to storm surges and sea level rise. Informal settlements often lack basic drainage infrastructure, have poor-quality and congested road networks and substandard housing, leaving inhabitants vulnerable to heat and cold waves, landslides or floods. Still, 940 million people lack access to electricity; 663 million have no access to safe drinking water; 2.4 billion people lack adequate sanitation facilities, and one billion live more than one kilometre away from an all-season road. Evidence indicates that following the COVID-19 pandemic, the 'new poor' will be more urban than the chronic poor and will live in congested urban settings.
- Many smallholder farmers in poor countries have low incomes, very few savings and little diversification of incomes. This makes them highly vulnerable to losing their crops due to droughts, floods or pests. Their savings are often tied up with livestock, irrigation, housing or some other material forms, which can be lost in a natural disaster.
- Many people in developing countries have limited access to healthcare or constrained health coverage. The World Health Organization (WHO) estimates that 100 million people fall into poverty each year paying for healthcare. Any disease, whether related to climate stresses and shocks or not, can push them into poverty. With the expected impact of higher temperatures on many water or vector-borne diseases, better access to healthcare will help reduce vulnerability.

This is the beginning of a journey for GIF. And we start by setting out the intention to unlock investment and finance in resilience and adaptation, by investing in solutions that can make an outsized difference to the poorest people, and that can be scaled, de-risking them for other investors.

So, why resilience and adaptation?

Firstly, resilience and adaptation are integral aspects of poverty reduction

Poverty is one of the main reasons why countries and people are highly vulnerable to climate change. As highlighted by the ND-Gain Index of Vulnerability, people living in the least developed countries have 10 times more chance of being affected by a climate disaster than those in wealthy countries each year. The index data shows that it will take over 100 years for lower income countries to reach the resiliency of richer countries.

In places like Liberia, Cameroon or Nepal, a large share of the poor live in regions that are both affected by conflict and facing high exposure to floods. Unchecked, climate change could push 100 million people back into poverty and internally displace another 150 million, according to the World Bank. As climate shocks become more frequent and acute, experience shows that poor people can be trapped in a vicious cycle of disaster loss, lack of capacity to recover and reduced resilience for when the next shock strikes. Income and access to public and financial services determine how people and communities are able to ‘bounce back’ from shocks and manage the direct and indirect effects of climate change.

Secondly, there is a substantial funding gap

Alongside mitigation, it is now essential to invest in ways to adapt to the current and ongoing effects of a changing climate.

These investments offer high returns. Every dollar invested in adaptation could result in \$2 to \$10 in net economic benefits. Making infrastructure more climate resilient, for example, has an upfront cost of approximately 3% but has a benefit-cost ratio of about 4:1. The World Bank has found that investing \$1 trillion in the incremental cost of making infrastructure more resilient in developing countries would generate \$4.2 trillion in benefits.

But, still, the financing need is staggering: resilience and adaptation are relatively neglected in the climate finance landscape. The overwhelming bulk of funding is devoted to greenhouse gas (GHG) mitigation and, within that, largely for renewable

energy. According to the Climate Policy Initiative,⁴ global climate finance reached \$632 billion in 2019/2020. Of that, only \$46 billion per year goes into adaptation finance, of which only \$1 billion is from private investment. This is against annual needs that are roughly estimated by UNEP at \$140 to \$300 billion by 2030.

There is a real need and scope for innovation, to make that investment more affordable and even more effective. This means making public services work better and more efficiently for poor people, because many adaptation activities need to be coordinated and undertaken by the government: watershed management, for instance, and climate-sensitive social safety nets.

But it also means tapping the power of the private sector to make markets work better for the poor by, for example, creating more resilient and efficient agricultural supply chains that reduce transport cost and food waste and maintain food security when climate shocks hit. GIF supports the use of pay as you go technology for water supply, allowing households cheaper access to better quality water while allowing water utilities to more securely invest in improved supply.

Why GIF?

Our core mission of poverty reduction is inherently about building the human foundations of resilience and adaptation. Our innovations make people wealthier, healthier, better educated, and they advance women's empowerment. This builds people's capacity to withstand shocks and adapt to today's climate stresses and those that are coming. Building on that foundation, we are experienced in areas such as social safety nets, migration, women's agency, behavioural nudges, agriculture, water supply, remote sensing, and harnessing data for decision-making. All of these have a strong part to play in adaptation and resilience.

We believe that GIF is well-suited to catalyse much needed innovation in and finance for adaptation and resilience.

- Poverty focus: GIF's approach focuses on poverty alleviation. We have deployed about \$100m in a portfolio that is on track to improve the lives of more than 130 million people per year by 2030, and between 2015 and 2020, just five of our early investments generated more than \$400 million in net social benefits.
- Resilience is an integral element of poverty reduction, and sustainable poverty reduction requires the capacity to adapt to the foreseen and unforeseen. GIF is an experienced investor in the foundations of adaptation: education, especially early childhood education, and women's and girls' agency. These innovations build the capacity of today's youth to adapt to the

⁴ [Global Landscape of Climate Finance, Climate Policy Initiative, 2021](#)

unimaginable climatic and labour market changes they will face during the coming century.

- Building on those foundations, GIF has demonstrated expertise in areas that are central to building resilience and adaptation to specific aspects of climate change. These include agriculture and water, and also cross-cutting themes that are prominent in resilience and adaptation, including social safety nets, behavioural nudges, and innovative information systems.
- A key barrier to private sector participation in adaptation is that much of adaptation involves government or community supported public goods: flood defences, early warning systems, and the like. Yet there can still be an important role for innovative private sector provision of supporting services. GIF can bring to this challenge its deep experience in supporting business-to-government (B2G) oriented enterprises.
- GIF also brings its special niche in supporting early-stage innovation, both public and private, on their path to scale. GIF backs innovations with the potential for social impact at scale, whether they are new technologies, business models, policy practices, or behavioural nudges. We can support innovators at all stages of their life cycles, in any developing country and in any sector relevant to international development. This model is well-suited to supporting resilience and adaptation solutions in developing countries, the core focus of our approach to Paris Alignment.
- Finally, GIF is devoted to the use and creation of evidence in the pursuit of impact. There is consensus that adaptation innovation has been hampered by the lack of relevant metrics and of impact studies.

GIF's partnership with Global Affairs Canada on the Innovating for Gender Equality Fund has proven our ability to deliver innovative approaches to finding, assessing, and funding development challenges, as we developed a portfolio of transformative investments in women's and girls' agency. We are now ready to apply this approach more directly to tackling the effects of climate change in developing countries, and in particular to the underfunded challenge of resilience and adaptation.

We believe that growth and climate action are mutually supportive. Climate change is part of the reality that developing countries face. Our mission as an investor is to improve the lives and opportunities of millions in the developing world, and we believe that the world's carbon budget should not unfairly bind the poor. The promotion of higher incomes, clean growth and sustainable jobs are instrumental in giving people agency and equipping the poorest with ways to manage the risks and cope with the shocks of a changing climate. Poverty reduction and development are effective climate adaptation options.

How will we support climate adaptation and become Paris aligned?

Broadly, we know many of the kinds of things that need to be done to improve lives and livelihoods. Many of these are foundational to climate resilience and adaptation: better education, better health, more empowered women. These things equip people and communities for improved livelihoods, and also equip them with greater capacity to react to shocks, both foreseen and unexpected. On top of these foundations, there is a roster of investments needed to climate-proof livelihoods against specific climate threats. These include things as diverse as drought-resistant seeds, disaster early-warning systems, social safety nets, more efficient water systems, and nature-based approaches to flood control and coastal protection. Well executed, these interventions will not just protect against losses, they will spur investment and boost employment and incomes.

The world is full of innovators with great ideas. At GIF, we know from experience that many promising entrepreneurs' good ideas fail to generate their full potential social impact because there is a mismatch between the kind of capital they need and the kind of capital that is available to them. Often early-stage organisations whose innovative ideas have the potential for impact at scale are not in a position to pursue funding from DFIs or commercial investors, and so they miss out altogether.

To fully unlock the power of innovation, we must ensure that innovators have access to the early-stage, flexible finance they need to test, adapt, and improve their ideas. Along the capital continuum that ranges from aid and philanthropic grant funding at one end to purely commercial capital at the other, we all need to make better use of the development finance toolkit. At GIF, we are focused on being creative about how we blend capital across the returns continuum, taking smart risks to fund innovation that has the potential for outsized social return. This is how we de-risk firms and get their impact to scale more quickly.

We, like many, are at the beginning of a journey with many milestones and prompted by an urgent need for action and valuable partnerships. Guided by the Paris Agreement, our approach to climate will be made up of four building blocks:

1) Building an evidence-based approach to adaptation

There is a serious lack of tools to measure adaptation effectiveness and track progress. The diversity of adaptation challenges has made it difficult to frame a standard metric; this is in contrast to climate mitigation, where tons of CO₂ abated provides a clear metric for investments. Lack of metrics has been a significant impediment to the ability of innovators to raise money from more established investors. And lack of impact evaluations impedes learning about which

interventions work best, under which conditions. A recent exhaustive review of the published literature found only 58 studies which reported the achieved impact of and intervention to promote adaptation.⁵

GIF is well prepared to advance measurement of adaptation effectiveness. GIF's core competence is in rigorous measurement of impact and in using measurement as the basis for prioritising investments. GIF has pioneered the use of evidence-based long-term impact forecasts. This is critical for adaptation and disaster risk reduction, where there can be a long lag between investments and the realisation of benefits. In the area of gender, GIF has championed the need to learn about cost-effectiveness and pioneered metrics for comparing impact across a wide variety of different interventions to promote women's agency. In pursuing this building block, we will work in partnership with the Adaptation Research Alliance (ARA), of which we are members. ARA is a global collaborative effort to catalyse increased investment and capacity for action-orientated research that supports effective adaptation to climate change. GIF will also work with the [Global Resilience Partnership](#) and others involved in monitoring, evaluation, and learning about resilience and adaptation.

2) **Actively investing in early stage climate adaptation and resilience solutions**

GIF's investments range in size from \$230,000 to \$15 million, with many in the \$1 million to \$2 million range. At COP26, with support from the FCDO, GIF launched a dedicated sub-fund to invest in early-stage climate resilience and adaptation solutions.

We are open to hearing from innovators, and we aim to take their good ideas, products, and services from niche to mainstream, to reach a tipping point and create outsized impact.

Whilst sector agnostic, we believe that there are areas where innovation can significantly contribute to resilience and adaptation:

- **Agricultural technologies:** Depending on how land management is done, it can promote or impede environmental goals. Unsustainable practices can lead to GHG emissions from deforestation, air pollution from the burning of crop residues, and drawdown of aquifers. Innovation in agriculture offers the prospect of increased resilience and adapting technologies to local

⁵ Berrang-Ford L. et al, 2021. A systematic global stocktake of evidence on human adaptation to climate change. *Nature Climate Change* 11: 989-1000.

conditions and then convincing farmers to adopt them. Feedback and learning are essential, and so are behavioural nudges. GIF has a large agricultural portfolio which addresses climate-smart agriculture.

- **Water and food security (including for conflict prevention):** All water suppliers will face disruption to their supply chain. Climate change manifests both as shock (e.g. increased droughts) and stress events (e.g. depleting groundwater levels), and necessitates that water systems build resilience to guard themselves against potentially devastating effects. Facing this threat, GIF has a water portfolio with solutions to address multiple issues faced by developing countries' urban water utilities in ensuring sustainable water provision.
- **Gender equality:** Societies where women have more agency and a stronger voice will be more flexible and capable of structural changes. For example, agriculture is of central importance to mitigation and adaptation - and women's agency in ownership and control of land and livestock will be essential in ensuring that agriculture responds to the climate challenge and does so in a way that promotes gender equality. Women's control over natural resources will also be important in implementing nature-based solutions.
- **Early warning systems:** Several countries have substantially reduced deaths by introducing effective early warning systems and more could be done to support communities and businesses to prepare before a shock: just 24 hours warning of a coming storm or heat wave can cut damage by 30% and spending \$800 million on early warning systems in developing countries would avoid \$3-16 billion per year in losses.
- **Social safety nets:** Social protection can cushion climate related shocks. GIF has extensive experience in this area including in testing ways of using behavioural nudges to help recipients of cash transfers to move money more efficiently. A horizon for innovation is more directly linking social protection with climate shocks. One proposal suggests using workfare-type social protection to invest in resilience enhancing infrastructure such as small dams. There is also the need for innovative approaches to embed near term climate resilience efforts in longer term adaptation efforts so as to avoid maladaptation.
- **Migration and displacement:** In 2018, the World Bank estimated that three regions (Latin America, Sub Saharan Africa and Southeast Asia) may generate 143 million more climate migrants by 2050. Migration, both spontaneous and facilitated, is and will be a response to climate change. GIF has pioneered in testing solutions, including investments in Give Directly (livelihoods for refugees and host communities), No Lean Season (reducing frictions to seasonal circular migration) and Talent Beyond Boundaries (facilitating job placements for refugees).

- **Nature-based solutions including reforestation and protection of coastal communities:** Lack of evidence is a barrier to the uptake of nature-based solutions. With its strong evidence orientation, GIF support can focus on testing these innovations and documenting their effectiveness. GIF has also invested in innovations that make it feasible to monitor environmental performance in near real time, including remote sensing for smallholders (tracking smallholder farm yield from space) and PATH (environmental monitoring of COVID-19). Systems like this will be essential for the kind of landscape management that underpins environmental services delivery.
- **Early Childhood Education (ECE):** Many children born today will live into the 22nd century. Over their lifetime they will face profound changes in climate and unimaginable changes in technology, labour markets, and society. A good education will enable them to better navigate the multiple transitions they will face in work, life and location. ECE has been shown, by GIF-supported research in connection with Lively Minds, to boost children’s cognition, socio-emotional maturity and health, providing a foundation for that education. While ECE may not formally qualify as adaptation finance, it complements other long-term interventions that are targeted at specific climate challenges.

3) **Applying a climate lens to everything we do**

GIF’s Climate Strategy embraces the application of a climate lens to everything we do, regardless of sector. Our model for this is the way that we have integrated a gender lens into our diligence. We are now in the process of adapting existing climate risk screening tools to GIF’s unique investment focus, ensuring that we can identify and mitigate climate risks to and from our investments, as well as boosting climate benefits.

4) **Developing new partnerships**

No single organisation or government can solve the challenge alone.

We believe that GIF will be more effective if it forges partnerships with organisations that have complementary expertise, reach and resources. For this reason, we are pleased to:

- Become a strategic innovation partner to the Global Resilience Partnership, a network of more than sixty organisations that have joined forces to work together to create a vision of the world where people and places are able to persist, adapt and transform in the face of shocks, uncertainty and change.

- Become a member and strategic innovation partner of the Adaptation Research Alliance, an international partnership of development finance organisations working together to accelerate and scale up private investment in climate adaptation and resilience in developing and emerging countries.
- Become an observer of The Global Innovation Lab for Climate Finance initiative, which aims to drive billions of dollars of private investment into climate change mitigation and adaptation in developing countries; and partner with other potential co-investors, large and small, to support us in identifying innovations and feed into our growing pipeline.
- Formally join the Adaptation and Resilience Investors' Collaborative, hosted by CDC Group, FCDO and the Global Centre for Adaptation.

We want to be part of a system change. Near-term resilience to climate shocks must be coordinated with long term adaptation to a changing climate in order to avoid locking communities into unsustainable livelihoods. GIF's scale and missions does not suit it for implementing systems change programmes. However, GIF can look for opportunities to contribute elements to an overall system strategy via partnerships with systems-oriented organisations such as Climate-KIC and with GIF's bilateral donors.

Conclusion

Addressing climate change is inextricably linked to improved livelihoods, and funding innovation has a key role to play.

GIF can be a connector, and an enabler of change.

For funders, this means that GIF can find and fund climate adaptation and resilience innovators across the world, working on efforts that have the potential to scale and become game changers in their sectors. We have a strong governance model and regular, comprehensive reporting on impact for all donors. We can develop and share pioneering metrics and a toolkit to define and track adaptation and resilience, and share lessons learnt for the public good.

For innovators, this means that GIF is looking for you. We can offer flexible funding, and a partnership that will help to de-risk and grow your enterprise or innovation.

We at GIF know that generating evidence of impact and scalability can be tricky. We want to address this challenge and partner with innovators like you to improve the rigour of measurement and evaluation of impact towards climate resilience and adaptation. In turn this will help us all to better understand the emerging innovations

that can make a difference to the ability of individuals to live their lives in a changing climate.