



POLICY BRIEF

PB - 2021 - 01



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Climate Adaptation in Post-Pandemic Economic Recovery

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The COVID-19 pandemic has caused the most severe recession in recent decades, with a cumulative loss to global GDP of around \$9 trillion. Climate disasters continue to affect the most vulnerable populations and countries, affecting more than 50 million people in 2020. Investments in climate adaptation and resilience have been insufficient in recent years. Global investments only reached \$30 billion in 2017-2018, against estimated needs in developing countries between \$140 and \$300 billion per year by 2030. As governments worldwide design and begin implementing post-pandemic economic recovery programs, investments in adaptation and resilience provide a unique opportunity to generate jobs, restart economic growth, and tackle the inequities made more acute by the pandemic. We discuss practical policy and program options to achieve these multiple objectives.

CLIMATE DISASTERS – A GROWING CHALLENGE ON TOP OF THE COVID-19 PANDEMIC

At the time of writing this policy brief, the COVID-19 pandemic had claimed more than 2.3 million lives and had infected more than one hundred million people. The Covid-19 pandemic represents the most significant shock to the global economy in almost 100 years. What the IMF has labeled “The Great Lockdown” has led to major reductions in both production and consumption¹. According to the World Bank, following a collapse last year, global economic output is expected to expand 4 percent in 2021 but remain more than 5 percent below pre-pandemic projections². This shock represents a cumulative loss to global GDP of around \$9 trillion over 2020 and 2021. Some countries are already seeing record unemployment. The ILO³ estimates that working

KEY RESULTS:

The post-COVID19 pandemic economic recovery plans provide a unique opportunity to make economies and communities more adapted and resilient to climate change. Key efforts could include:

- Design recovery investments and infrastructure programs to achieve the dual objective of rapid economic recovery and enhanced climate adaptation and resilience
- Create new financial instruments and mobilize private financing for adaptation and resilience
- Innovation, new technologies, and better governance are key for accelerated change and scale in climate adaptation

1 IMF (2020). The Great Lockdown: Worst Economic Downturn Since the Great Depression. <https://blogs.imf.org/2020/04/14/the-great-lockdown-worst-economic-downturn-since-the-great-depression/>

2 World Bank (2021) Global Economic Prospects. <https://www.worldbank.org/en/publication/global-economic-prospects>

3 ILO (2020) April Monitor: COVID-19 and the world of work. Third edition https://www.ilo.org/global/about-the-ilo/newsroom/news/WCMS_743036/lang--en/index.htm

hour reductions will occur equivalent to 305 million jobs, with 1.6 billion informal economy workers suffering damage to their earning capacity⁴.

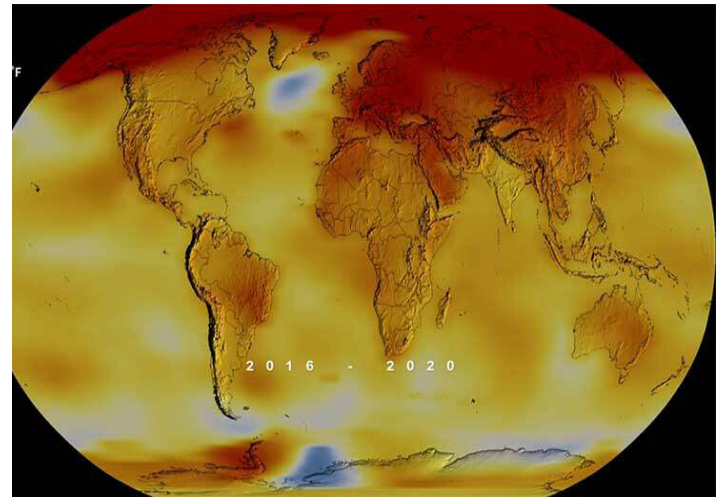
At the same time, climate change continued its worrisome trend. The year 2020 tied with 2016 as the warmest year on record, according to NASA. Compared to the 1951-1980 baseline, the globally averaged temperature was 1.02 degrees Celsius warmer in 2020⁵ (Fig 1). Recent research has shown that the melting of ice sheets worldwide has been faster than expected and in line with the IPCC's worst-case scenarios over the past three decades. The losses in the Greenland and Antarctic ice sheets have been the fastest⁶. This faster melting has pushed the rate of sea-level rise to 4.8 millimeters per year⁷. Current estimates indicate that seas have risen as much as 20 centimeters since the 1900s⁸.

Over 50 million people were affected in 2020 by floods, droughts, and storms⁹. Last year, the locust outbreak caused by unusual weather conditions was the largest in 25 years and left about one million people food insecure across the Horn of Africa. More than 2.2 million people in China had to be evacuated due to severe flooding in July 2020.

These climate disasters pile on top of a global pandemic crisis estimated to have pushed over 150 million people into extreme poverty last year. According to the World Bank, global extreme poverty rose in 2020 for the first time in more than two decades¹⁰.

The long-term projections are equally worrisome. For example, aggregated climate impacts on Africa could decrease its GDP by up to 30 percent by 2050¹¹. The number of people who may lack sufficient water, at least one month per year, will soar from 3.6 billion today to more than 5 billion by 2050. Sea level rise and its implications on stronger coastal storm surges

Figure 1: 2020 Earth's global average surface temperature increase



Source: Nasa (2021) <https://climate.nasa.gov/news/3061/2020-tied-for-warmest-year-on-record-nasa-analysis-shows/>

could displace hundreds of millions of people in coastal areas. Coastal cities stand to lose more than \$1 trillion each year by 2050¹².

Governments around the world are evaluating options and designing economic recovery programs while responding to the COVID-19 pandemic. Achieving climate-compatible smart growth will require governments to pursue growth-enhancing fiscal and structural reforms that support adaptive resilient investments backed up with efficient, cost-effective adaptation policies. Given the urgency of jobs and economic growth, is it reasonable to consider climate adaptation a priority for action in the short term?

THE BENEFITS OF CLIMATE ADAPTATION AND RESILIENCE

The IPCC has defined adaptation as the process of adjustment to actual or expected climate and its effects. It has defined resilience as the ability of a system and its component parts to anticipate, absorb, accommodate, or recover from a hazardous event's

4 GCA (2020). <https://gca.org/reports/covid-19-and-adaptation-finance-risks-opportunities-and-recommendations-for-governments-and-development-finance-institutions/>

5 [2020 Tied for Warmest Year on Record, NASA Analysis Shows – Climate Change: Vital Signs of the Planet](#)

6 Slater, T., et al.: Review article: Earth's ice imbalance, *The Cryosphere*, 15, 233–246, <https://doi.org/10.5194/tc-15-233-2021>, 2021

7 R. S. Nerem, B. D. Beckley, J. T. Fasullo, B. D. Hamlington, D. Masters, G. T. Mitchum: Climate-change–driven accelerated sea-level rise, *Proceedings of the National Academy of Sciences* Feb 2018, 115 (9) 2022-2025

8 Dangendorf, S., Hay, C., Calafat, F.M. *et al.* (2019) Persistent acceleration in global sea-level rise since the 1960s. *Nat. Clim. Chang.* 9, 705–710 (2019). <https://doi.org/10.1038/s41558-019-0531-8>

9 <https://public.wmo.int/en/our-mandate/climate/wmo-statement-state-of-global-climate>

10 World Bank. (2020). *Poverty and Shared Prosperity 2020: Reversals of Fortune*. Washington, DC: World Bank

11 Burke, M., Hsiang, S. M., & Miguel, E. (2015). Global non-linear effect of temperature on economic production. *Nature*, 527(7577), 235-239.

12 *Adapt Now: A Global Call for Leadership on Climate Resilience* September 2019 <https://gca.org/reports/adapt-now-a-global-call-for-leadership-on-climate-resilience/>

impact in a timely and efficient manner¹³.

Climate adaptation and resilience brings a variety of multi-dimensional benefits. The most discussed benefit is the avoidance of future losses. For example, early warning systems, complemented with preparedness plans, effectively save lives and household assets. A climate disaster warning issued a day in advance of a storm or heatwave can cut damages by 30 percent. Globally, estimates indicate that an investment of \$800 million in developing countries would result in benefits due to avoided losses of \$3-16 billion per year.

The Global Commission on Adaptation¹² has found that investments in five areas to enhance adaptation and resilience have benefit-cost ratios between 2:1 and 10:1. An investment of \$1.8 trillion globally in these areas could generate \$7.1 trillion in total net benefits over the next ten years.

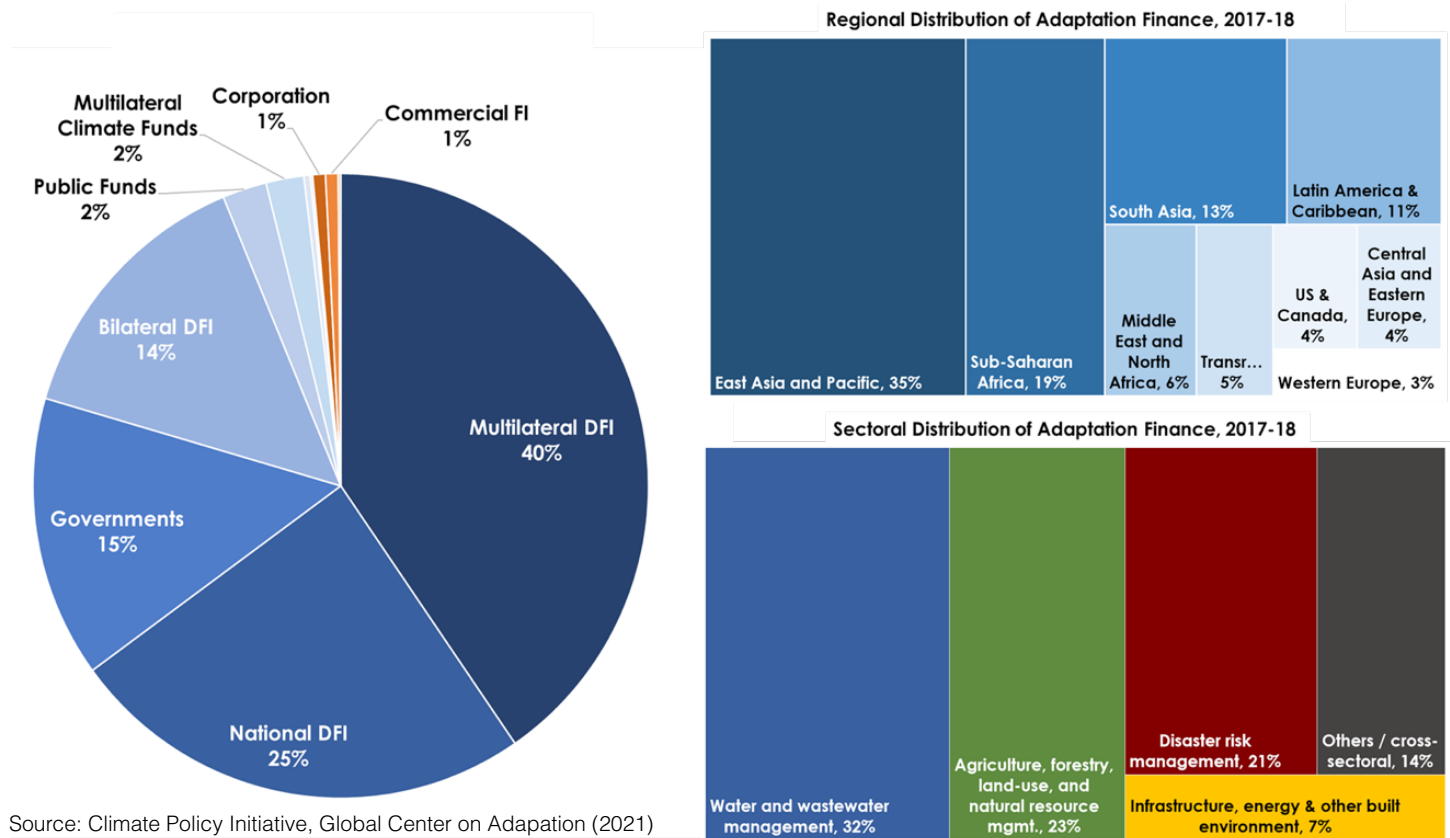
Well-designed programs on adaptation and resilience have important benefits to reduce inequality. Excluded

and vulnerable populations – from women and girls to persons with disabilities and ethnic minorities – suffer disproportionately from the impacts of climate change. Globally 26 million people fall back into poverty every year due to climate disasters¹⁴.

The Sustainable Development Goals cannot be achieved without decisive action on climate adaptation and resilience. There are many SDGs linked to adaptation and resilience, ranging from the SDG of Zero Hunger to the sustainable cities SDG that aims at reducing the impacts of disasters. The Water SDG is one of the goals most related to adaptation and resilience. Globally, 23 countries have water stress levels above 70 percent, including 12 countries in the Middle East and North Africa region. A review of SDG reporting shows that 60 percent of 172 countries reporting are unlikely to reach the target of integrated water-resources management by 2030¹⁵.

Despite these unique opportunities for investments in climate adaptation and resilience, the global levels are well below needs. Developing countries alone need

Figure 2: Sources of adaptation finance



Source: Climate Policy Initiative, Global Center on Adaptation (2021) <https://gca.org/reports/adaptation-finance-in-the-context-of-covid-19/>

13 IPCC. (2012). Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation. Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation. Intergovernmental Panel on Climate Change (IPCC)

14 GFDRR (2020) Adaptation Social Protection: the delivery chain and shock response

15 [secretary-general-sdg-report-2020--EN.pdf \(un.org\)](https://www.un.org/secretary-general-sdg-report-2020--en.pdf)

between \$140 and \$300 billion per year by 2030.¹⁶ Global investments barely reached \$30 billion in 2017-2018¹⁷ (Fig 2) and the top three sectors receiving finance included water and wastewater management (USD 9.8 billion), agriculture and land use (USD 6.9 billion), and disaster risk management (USD 6.3 billion). Recent estimates by the Global Center for Adaptation show that these levels decreased by as much as ten percent in 2020.¹⁸

As governments worldwide are planning to spend trillions of dollars in economic recovery programs from the pandemic, the question of whether – and how – to include adaptation and resilience investments in those packages is quite relevant and timely.

CHALLENGES FOR ACTION ON CLIMATE ADAPTATION AND RESILIENCE

Our analysis of recent analytical work shows that the insufficient action for climate adaptation and resilience action has its roots in many factors, ranging from data and actionable knowledge to planning systems and capacities. Specifically:

Weather forecast and climate predictions: are indispensable for communities and societies to be ready for climate risks today and in the future. The only way to generate high-quality forecasts is through real-time, international exchange of observational data from all over the world. The global capacity for weather data collection is weak and reducing fast. The World Meteorological Organization estimates that a reasonable data collection network in small island states and least-developed countries needs about 2300 observation stations. To achieve this goal, close to 2000 of them need to be rehabilitated or newly installed¹⁹.

Down-scaled climate projections and deep uncertainty: climate-sensitive investments (such as infrastructure that may be affected by future flood and drought regimes) cannot be designed using the traditional approaches with historical weather and climate data. Unfortunately, current climate models

do not provide sufficient precision to allow optimal designs due to a mismatch in scale and time²⁰. Engineering designs need to move from “optimal” designs to “robust” designs that can balance the wide range of predictions by different climate models.

Agreed indicators of adaptation and resilience: the ability of project developers, decision-makers, and planning agencies to make informed choices on the wide range of climate adaptation and resilience actions need robust indicators. There is a wide range of indicators, but they tend to be partial and generally linked to many other factors. Some examples include fatalities, annual damages, and water-related indicators. Lack of agreed indicators also hampers the ability to identify with certainty pilot initiatives that can be scaled up for transformational adaptation and resilience results.

Preference for mitigation actions: The urgency to tackle the climate crisis, combined with the single measure of climate mitigation action (tons of greenhouse gases avoided), makes investments in climate mitigation and, particularly in the energy sector, easier to identify, fund, and implement. The OECD estimates that in 2018, adaptation represented only 21 percent of the climate funds from developing countries to the developing world²¹.

Depressed growth and private investment: Reduced risk appetite among private investors will make it harder to finance and test the new technologies, products, and services needed to transition towards resilient economic growth pathways. A subsequent debt crisis would further compound this, with public goods projects and investments with uncertain or long-term returns suffering most, particularly in vulnerable developing countries²². The availability of private capital in developing countries will be further diminished by the projected 20% fall in global remittances caused by the health crisis²³.

Insufficient adaptation and resilience planning strategies: There are two key planning instruments for climate adaptation and resilience. Progress in

16 UNEP. December 2018. “UN Environment Adaptation Gap Reports”. Available at: <https://www.unenvironment.org/resources/adaptation-gap-report>

17 <https://www.climatepolicyinitiative.org/publication/global-landscape-of-climate-finance-2019/>

18 GCA (2021). Adaptation Finance in the Context of Covid-19 <https://gca.org/reports/adaptation-finance-in-the-context-of-covid-19/>

19 WMO (2020) The gaps in the Global Basic Observing Network (GBON) https://library.wmo.int/doc_num.php?explnum_id=10377

20 World Bank (2012) Investment Decision Making Under Deep Uncertainty - Application to Climate Change. Hallegatte et al. <https://openknowledge.worldbank.org/bitstream/handle/10986/12028/wps6193.pdf?sequence=1&isAllowed=y>

21 OECD (2020) Climate Finance Provided and Mobilised by Developed Countries in 2013-18 <https://www.oecd.org/environment/climate-finance-provided-and-mobilised-by-developed-countries-in-2013-18-f0773d55-en.htm>

22 World Bank (2020). World Bank Predicts Sharpest Decline of Remittances in Recent History. https://www.worldbank.org/en/news/press-release/2020/04/22/world-bank-predicts-sharpest-decline-of-remittances-in-recent-history?cid=ECR_E_NewsletterWeekly_EN_EXT&deliveryName=DM61330

23 GCA (2020) Covid-19 and Adaptation Finance: Risks, Opportunities and Recommendations for Governments and Development Finance Institutions http://gca.org/wp-content/uploads/2020/12/COVID-19_and_Adaptation_Finance_0.pdf

the preparation of both instruments in developing countries has been slow. Specifically:

1. *National Adaptation Programs (NAPs):*
The NAPs were established under the Cancun Adaptation Framework in 2010 to support countries' development of medium- and long-term adaptation strategies. As of November 2020, 125 of the 154 developing countries had started the process to formulate them, but only 20 countries had completed them²⁴. Other planning documents include National Adaptation Plans of Action (NAPAs), of which 51 have been prepared, and Nationally Determined Contributions (NDCs) that have been enhanced to include adaptation.
2. *National Disaster Risk Reduction Strategies:*
The Sendai Framework for Disaster Risk Reduction aims to reduce existing and prevent new disaster risks. So far, only 85 countries—slightly over 40 percent—had national disaster risk-reduction strategies aligned, to some extent, to the Sendai Framework²⁵.

OPTIONS FOR ENHANCING CLIMATE ADAPTATION AND RESILIENCE AS PART OF POST-PANDEMIC ECONOMIC RECOVERY PROGRAMS

Despite the economic and debt challenges faced by many developing countries, their governments have begun to plan and, in some cases, implement economic recovery programs. Many of these programs focus on large infrastructure programs that take time to design, bid, and build. Unfortunately, most recovery programs announced to date do not include adaptation and resilience components. Ethiopia is an exception where a \$3.6 million project is designed to use nature-based solutions to prevent ecosystem degradation, improve water resources, and create jobs²⁶. There are practical options to achieve the dual objective of rapid economic recovery and enhanced adaptation and resilience. For example:

- Infrastructure maintenance and targeted adaptation resilience improvements (from design upgrades to flood protection enhancements) can meet the dual objectives of economic stimulus and enhanced resilience. Prioritizing this type of measure can deliver multiple dividends in

economic, environmental, and social terms. In addition to vulnerability reduction, they can lead to greater productivity and benefits to natural ecosystems.

- Speed of implementation is essential in recovery programs. Nature-based solutions and local water infrastructure can deliver the jobs that economies urgently need.
- Accelerate mainstreaming of climate risk into public policy and spending. The difficult fiscal situation of most developing countries requires decisive action to reformulate policies and better target subsidies. Some action areas include new or redesigned climate-responsive safety nets and reformulation of subsidies to promote climate-smart agriculture.

The sharp decline in government revenues and the emergency spending needed to respond to the pandemic crisis have caused a significant fiscal gap for most developing countries. Climate risks will continue, and the numerous disasters in 2020 showed that the fiscal burden caused by these disasters is only going to increase in the future. There are several actions that governments and the private sector can take to mobilize more resources for adaptation and resilience. For example,

- **Encourage mobilization of private financing for adaptation and resilience.** Many countries are moving forward with regulations requiring greater disclosure of climate risks of investments. Besides, the private sector needs an in-depth knowledge of the financial benefits of adaptation and resilience and better systems to identify financially viable resilient investments and asset classes.
- **Create new financial instruments for adaptation and resilience.** Some of these new financial instruments could include: COVID response facilities and liquidity support that mainstream climate resilience actions; public-private partnerships for adaptation and resilience investments; and climate resilience bonds, or debt for resilience swaps to free up fiscal space for adaptation. Countries will need to carefully consider debt sustainability and local financial market conditions. Additional debt may not be an advisable strategy for many countries.

²⁴ https://unfccc.int/sites/default/files/resource/sbi2020_inf13.pdf

²⁵ UNISDR (2019) UN Global Assessment Report on Disaster Risk Reduction (GAR) <https://gar.undrr.org/>

²⁶ WRI (2021) NDC Enhancement and COVID-19 Recovery: Building Blocks for a Sustainable Future <https://www.wri.org/news/ndc-enhancement-and-covid-19-recovery-building-blocks-sustainable-future>

International Financial Institutions can play an intermediary role in structuring these instruments, giving investors confidence and improving recipient countries' debt terms.

- **Increased financial flows to the most vulnerable:** The International Institute for Environment and Development (IIED) has calculated that less than 10 percent of international adaptation funds actually reach the poorest and the most vulnerable communities²⁷. Better targeting of limited resources available on the most vulnerable through new tools such as adaptation microfinance and micro-insurance would be an effective way to enhance resilience.

Finally, accelerated investments in adaptation and resilience will need to find cost-effective solutions, leverage new technologies, and better governance. Specifically,

- **Nature-based solutions at large scales could reduce costs by 90 percent for the same level of adaptation benefits.** With the increased urgency to support the 2030 target to protect 30 percent of land proposed under the UN Convention on Biodiversity, it is essential to find opportunities for investment programs to achieve multiple objectives.
- **Greater leverage of digital and disruptive technologies are needed for scaled-up action on adaptation and resilience.** For example, promising technologies such as early warning systems, earth observation systems, digital climate services for agriculture, and other climate-affected sectors are practical examples ready for broad utilization.
- **New governance mechanisms and more robust institutions for adaptation and resilience:** These are needed to better understand and assess climate impacts and design policies and programs for today's disasters and the rapidly changing climate risks. Countries need institutions with capacities, mandates, and cross-institutional collaboration platforms better suited to respond to climate change.

CONCLUSION

The COVID-19 pandemic crisis has slowed down financing and action on climate adaptation and resilience globally. The economic and job recovery

programs under design and implementation by developing countries can provide a unique opportunity to catch up. In addition to increased financing, it is possible to design investment programs that generate jobs, reduce the fiscal burden and the poverty impacts of climate disasters, and foster innovation and private sector engagement. Better climate information and open data, stronger institutions' capacity, and greater leverage of disruptive technologies are additional elements needed to accelerate action on adaptation and resilience.

In approaching these issues, countries will need to thoroughly consider debt sustainability and local financial market conditions, recognizing that for many countries, additional debt may not be an advisable strategy. DFIs can play an intermediary role in structuring these instruments, to give confidence to investors and help improve the terms of the debt for recipient countries. The GCA is working with partners to promote understanding among both issuers and investors of how to classify and structure investments in resilience, to lay the ground for potential innovative new instruments.

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Suggested citation:

Saghir, J. & E.J. Ijjasz-Vasquez. (2019). Climate Adaptation in Post-Pandemic Economic Recovery. *Global Governance Lab Policy Brief*. Montreal, Canada: Institute for the Study of International Development, McGill University.



Produced with support from McGill University. The observations and views expressed in this work are the sole responsibility of the author.

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27 IIED (2017) Soanes et al. Delivering real change: getting international climate finance to the local level