



INCLUSIVE GREEN FINANCE: FROM CONCEPT TO PRACTICE



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EXECUTIVE SUMMARY

Until recently green finance and financial inclusion have been treated in the academic and policy literatures mostly as two distinct, largely unrelated concepts. However, this study shows that there are meaningful overlaps between these two areas of finance. Key target groups for financial inclusion tend to be disproportionately exposed to the risks and impacts of local and global environmental change, while also playing an important role in mitigating environmental change. This study hence calls for a holistic approach that combines green finance and financial inclusion policies in an integrated inclusive green finance (IGF) approach.

In making the case for IGF, the study approaches the issue area from two perspectives.

First, it provides a conceptual framework of how financial inclusion can enable and support climate change adaptation and mitigation in principle. Based on a review of the empirical literature it shows how financial services in general and digital finance in particular have allowed vulnerable groups to address climate risks, enhance their resilience to climate-related economic shocks, and use financial tools to reduce environmental degradation and mitigate climate change.

Vulnerable groups play a key role in achieving a just transition to a resilient and environmentally sustainable economy. Without improving the socioeconomic situation of vulnerable groups, climate mitigation policies may run into fierce opposition. The study highlights the links between climate change and environmental degradation, vulnerable groups, social inequity and tensions, and financial stability. It argues that while not a panacea, IGF can play an important role in supporting vulnerable groups in adapting to global environmental change, strengthening their resilience and enabling mitigation of climate change and environmental degradation.

Second, the study approaches IGF from a policymaker's perspective. It builds on the conceptual analysis to help

practitioners devise policies that can foster IGF on the ground. Scaling up IGF has two main policy purposes: adaptation and mitigation while enhancing social outcomes and empowering those at the base of the economic pyramid. When approaching the spectrum of financial inclusion policies that serve green purposes, it is also useful to distinguish between direct and indirect measures. Implementing effective IGF policies along these lines reveals a 2x2 matrix that can help policymakers structure and sharpen their thinking about this important new policy area. It is also congruent with the four areas of IGF, developed by the members of the Alliance for Financial Inclusion (AFI), known as the 4Ps of Inclusive Green Finance, as well as the Sharm El Sheikh Accord on Financial Inclusion, Climate Change, and Green Finance that AFI members have endorsed in 2017.



While the conceptual framework derived from the economics of IGF presented in this study is new, policy initiatives that aim to foster IGF are not. AFI members have engaged in a wide spectrum of IGF policies aimed at promotion, provision, protection, and prevention. The descriptive part of this study reviews the existing and emerging practices among central banks and financial regulators in the AFI network.

The study concludes by highlighting the role of IGF in making economic recovery after the COVID-19 crisis more sustainable, and by discussing potential next steps in advancing IGF globally.

Read more from AFI on Inclusive Green Finance.

- Inclusive Green Finance Special report
- Sharm El Sheikh Accord

INTRODUCTION

Against the backdrop of the impending climate and biodiversity crises, a growing number of central banks and financial regulators have recognized the need for addressing environmental risks through their prudential policies, and for scaling up green finance to support the transition to a sustainable and resilient economy.

Green finance (GF) can be defined as comprising “all forms of investment or lending that consider environmental effect and enhance environmental sustainability” (Volz et al. 2015: 2). Important aspects of GF are sustainable investment and banking, where investment and lending decisions are taken based on environmental screening and risk assessment to meet sustainability standards, as well as insurance services that cover environmental and climate risk. Environmental risks, and climate risks in particular, have been recognized by central banks and financial regulators as a material risk to the stability of individual financial institutions and the financial system at large (NGFS 2019, Bolton et al. 2020).¹ GF comprises two key areas: (i) the financing of adaptation investment and insurance solutions that enhance resilience to environmental change, and (ii) investment in mitigation action, including investment in renewable energy, low-carbon infrastructure, and energy efficiency.

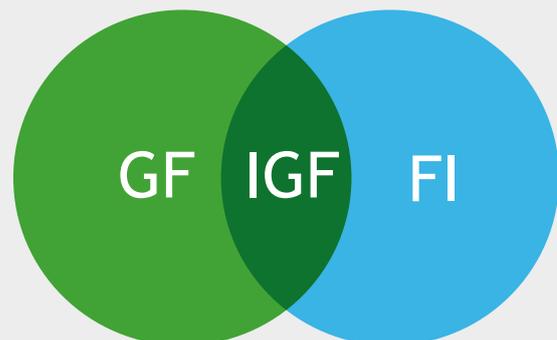
To address environment-related financial risk and to promote GF, eight central banks and regulators established the Network of Central Banks and Supervisors for Greening the Financial System (NGFS) in December 2017. As of November 2020, the NGFS has grown to a membership of 75 central banks and supervisors and 13 observers, including the Bank for International Settlements and the International Monetary Fund. In a series of reports, the NGFS has highlighted the macroeconomic and financial stability impacts of climate change and considered how central banks and regulators can advance the GF agenda.

For a much longer time, central banks and regulators have worked on promoting financial inclusion (FI). Financial inclusion is a multi-faceted concept that relates to the access, usage and quality of financial products and services to households and businesses.²

FI policies aim to promote access to affordable financial products and services to households and businesses that otherwise would be excluded. These are usually poorer households at the base of the economic pyramid and micro, small and medium enterprises (MSMEs), but also certain groups that are more vulnerable to the impacts of climate change, such as women and youth.

To date, GF and FI have been treated in the academic and policy literatures mostly as two distinct, largely unrelated concepts. Likewise, in practice, central banks and financial regulators have mostly handled GF and FI as two separate agendas, often with different teams working on these issues. However, as will be shown in this study, there are meaningful overlaps between GF and FI, as the key target groups for FI tend to be disproportionately exposed to the risks and impacts of local and global environmental change, while also playing an important role in mitigating environmental change.³ This study hence, calls for a holistic approach that links green and financial inclusion policies into an integrated inclusive green finance (IGF) approach (Figure 1).

FIGURE 1: OVERLAPS BETWEEN GREEN FINANCE AND INCLUSIVE FINANCE



- 1 The NGFS (2020, 9) defines climate-related risks as “financial risks posed by the exposure of financial institutions to physical or transition risks caused by or related to climate change, for example, damage caused by extreme weather events or a decline in asset value in carbon-intensive sectors.” Environmental risks are defined by the NGFS (2020, 9) as “financial risks posed by the exposure of financial institutions and/or the financial sector to activities that may potentially cause or be affected by environmental degradation (such as air pollution, water pollution and scarcity of fresh water, land contamination and desertification, biodiversity loss, and deforestation) and the loss of ecosystem services.”
- 2 AFI centres financial inclusion on access, usage and quality. Within the AFI network there is a belief that financial inclusion should be defined within each national context. See AFI (2017).
- 3 Global environmental change comprises climate change, stratospheric ozone depletion, changes in ecosystems due to loss of biodiversity, changes in hydrological systems and the supplies of freshwater, and land degradation, among others.

In particular, this study makes two contributions.

- > **First**, it provides a conceptualization of IGF and discusses the state of the art in the economics of green finance and financial inclusion to identify challenges and opportunities related to developing IGF approaches. It highlights the importance of social risk and equity concerns in devising green policies and outlines how IGF can be instrumental for a just transition to a sustainable economy.
- > **Second**, it reviews current policies and practices adopted by monetary and financial authorities in developing and emerging economies.

The study also discusses emerging trends in IGF and presents a novel framework for policy approaches on how to leverage IGF for climate change adaptation and mitigation. It also reflects on how IGF-related policies could contribute to the implementation of the Paris Agreement and the Sustainable Development Agenda.



In doing so, the study links to on-going debates around the COVID-19 crisis responses and the role of monetary and financial authorities in supporting recoveries.

The remainder of the study is structured as follows.

- > **Chapter 2 develops** a conceptual framework for IGF, based on an examination of the theoretical and empirical linkages between environmental sustainability, poverty alleviation and social inclusion, and the role of finance in addressing these goals.
- > **Based on this, Chapter 3 presents** a new policy framework for IGF and connects it to the 4P policy framework that AFI members are already successfully engaged in.
- > **Chapter 4 reviews** reviews the emerging practices among central banks and regulators in the area of IGF.
- > **Chapter 5 discusses** how IGF policies could contribute to more sustainable COVID-19 crisis responses.
- > **Chapter 6 concludes** and discusses some of the potential next steps in advancing IGF globally.



Community working extracting water from a well Wassadou, Senegal. (Photo by Hector Conesa/Shutterstock)

CONCEPTUALIZING INCLUSIVE GREEN FINANCE

There are multiple ways in which environmental sustainability and the reduction of environment-related financial systemic risk - the main goals of GF - and poverty alleviation and social inclusion - the main goals of FI - are connected.

In the following, we distinguish three main linkages:

- i. Environmental degradation and climate change place higher burden on poorer, more vulnerable groups - the role of FI in enabling adaptation.
- ii. Reducing environmental degradation and mitigating climate change requires the involvement of all parts of the economy - the role of FI in enabling mitigation.
- iii. Social risks threaten a successful transformation to a low-carbon, environmentally sustainable economy - the role of IGF in facilitating a “just transition”.

THE ROLE OF FINANCIAL INCLUSION IN ENABLING ADAPTATION

While climate change affects humanity as a whole, it is expected to have significantly negative impacts on people at the base of the economic pyramid. This holds true both within countries and from a cross-country perspective. Emerging markets and developing economies (EMDE) are more vulnerable to climate change than advanced economies because of geography, demographic pressures, and a reduced availability of resources to invest in adaptation and mitigation measures. As early as 2003, the Asian Development Bank highlighted that climate change is compounding existing risks and vulnerabilities, including ecosystem goods and services, water scarcity, agriculture and food security, involuntary displacement, migration and conflicts (ADB et al. 2003).

Cross-border differences in vulnerability to climate change are mirrored by inequalities within each country. A significant proportion of low-income households live in less-favored agricultural areas and low-elevation coastal zones at greater risk from climate change and its effects. Flooding, drought, natural disasters and other climate change-related catastrophes

are more likely to affect them than higher-income households (Barbier and Hochard 2018). At the same time, households at the base of the economic pyramid have fewer resources available to protect themselves against adverse shocks. Hallegatte et al. (2016, 1) spell out the risks: “Poor people and poor countries are exposed and vulnerable to all types of climate-related shocks— natural disasters that destroy assets and livelihoods; waterborne diseases and pests that become more prevalent during heat waves, floods, or droughts; crop failure from reduced rainfall; and spikes in food prices that follow extreme weather events. Climate-related shocks also affect those who are not poor but remain vulnerable and can drag them into poverty—for example, when a flood destroys a microenterprise, a drought decimates a herd, or contaminated water makes a child sick.”

Unequal exposure to environmental risks threatens to fuel a vicious cycle, whereby vulnerable parts of the population suffer disproportionately from the adverse effects of climate change, thus further exacerbating social inequalities (Islam and Winkel 2017). While climate change has complex, multi-dimensional and context-specific linkages to poverty, which are hard to quantify, researchers tend to agree that it has a regressive impact on economies, hurting low-income households more than the rich (Skoufias et al. 2011, Leichenko and Silva 2014).

Climate change has deleterious consequences not only for households but also for firms, especially for small ones and for firms in EMDE. Using panel data from 71 countries in 1999-2017, Kling et al. (2021) find that climate vulnerability increases financing costs for firms and worsens firms’ access to finance. Such problems are particularly pronounced for MSMEs, which have scarce recourse to capital markets, and often struggle to access financial services.

Adaptation to climate change is as multifaceted as its effects, involving a range of policies and actions both by the public and the private sector. The Global Commission on Adaptation (2019) orders elements of adaptation into three dimensions, namely reduce, prepare, and restore. Reduction and prevention of climate change effects includes actions such as land use planning, the promotion of nature-based solutions to protect people and assets, and the management of permanent relocation of vulnerable population segments. Exposure to climate vulnerability can be reduced by the development of sturdier crops, more resilient agricultural processes and climate-proof buildings and infrastructure. Public authorities can

improve climate change preparedness by developing early warning systems, engaging in contingency planning and by strengthening first responders and evacuation teams. Finally, after environmental disasters have wreaked havoc on the economy, restoration and recovery efforts are key. Here, the social safety net provided by the state, as well as resilient social services in health and education, play an essential role. Private sector solutions such as insurance and risk finance instruments allow affected economic agents to restore and rebuild their livelihoods, ideally in ways that have a lower carbon footprint and greater resilience to environmental shocks than before.

Financial services can play a key role in empowering vulnerable parts of the population to adapt to climate change, but only if they are accessible, useful, and well-designed.

Traditional financial services have often failed to meet those standards. Researchers in the behavioral economics tradition have established a direct link between financial inclusion and poverty reduction by showing that poor people face a “triple whammy” of low income, uncertain income streams and no good financial tools to handle them. The use of financial

diaries by researchers such as Collins et al (2009) show that for much of the population in developing countries, existing financial instruments are risky, poorly designed for their needs, unreliable, or expensive. The authors assert: “This made us realize that if poor households enjoyed access to a handful of better financial tools, their chances of improving their lives would surely be much higher” (Collins et al. 2009, 4).

To address this problem, policymakers in the AFI network and beyond have dedicated major efforts to help households and companies access financial services that are affordable, useful, and of high quality. For much of the past three decades, authorities have used regulation, subsidies or moral suasion to incentivize traditional financial services providers to extend their offerings to underserved populations. In India, for example, central government initiatives pushed local banks to offer no-frills accounts for the unbanked, providing financial access to almost 500m adults between 2011 and 2017 (D’Silva et al. 2019). And in Brazil, regulators instituted agent banking as early as 2003, allowing traditional banks to increase their point-of-service network dramatically (BCB 2012). Nevertheless, the track record of traditional financial inclusion efforts is mixed. Bankers have argued that due to high operating and transaction costs, they require

TABLE 1: BASIC ELEMENTS OF CLIMATE CHANGE ADAPTATION

**REDUCE
(AND PREVENT)**

- > Agriculture research and development
- > Climate-proofing buildings and infrastructure
- > Land-use planning
- > Nature-based solutions to protect people and assets
- > Permanent relocation (migration)



**PREPARE
(AND RESPOND)**

- > Early warning systems
- > Forecast-based action (contingency planning)
- > Strengthen first responders
- > Temporary evacuation



**RESTORE
(AND RECOVER)**

- > Insurance and risk finance instruments
- > Social safety nets
- > Recovery services, including health and education
- > Build back better



Source: Global Commission on Adaptation (2019).

either high margins or large volumes to be commercially sustainable. For this reason, banks in many developing countries have been reluctant to open access points in rural areas or offer services to the base of the economic pyramid, favoring high net worth individuals, large corporates, or customers in densely populated areas instead. Such supply-side constraints are complemented by barriers on the demand-side, including volatile and small incomes, geographical barriers, informality, and illiteracy (Pazarbasioglu et al. 2020). It is noteworthy that some of the same conditions that increase vulnerability to the effects of climate change also represent obstacles to financial inclusion.

The digital financial revolution promises to upend the old economics of financial inclusion. Digital automation dramatically reduces the transaction cost of financial services. It allows firms to harness economies of scale that make financial inclusion a profitable endeavor, rather than a regulatory requirement to be met. Interestingly, non-banks have done much more to foster financial inclusion over the past decade than traditional financial services providers. In particular, mobile network operators (MNO) and BigTech firms have extended financial services through extensive agent networks and affordable mobile phones, exploiting platform economics, artificial intelligence, and big data analytics in ways that traditional providers cannot (Osafo-Kwaako et al. 2018, Frost et al. 2019).

While traditional financial services have helped vulnerable parts of the population increase their climate resilience in the past, digital financial services (DFS) do merit particular attention today and in the future.

As early as 2013, mobile money schemes had already spread to over 80 EMDE (Beck and Cull 2013). Six years later, 290 mobile money services in 95 countries count on over one billion registered accounts, of which 372 million have been active over the past three months (GSMA 2019). Already by 2017, mobile money had overtaken traditional service providers as the main gateway to financial inclusion in 10 African jurisdictions.

Serious access gaps along income, geographic, and gender lines exist in digital finance, too, but they are less pronounced than with traditional financial services (Demirgüç-Kunt et al. 2018). Vulnerable populations can use DFS in various ways to adapt to climate change and increase their resilience. The following paragraphs provide a brief overview over research on the use of (1) person-to-person payments, (2) government-to-person

transfers, (3) savings, (4) insurance and (5) microcredit to enhance the resilience of users at the base of the pyramid.

Retail payments between individuals are a relatively new area of financial inclusion, and one that entails previously unexpected benefits in increasing climate resilience, especially for low-income households and MSMEs. Field research in Kenya and elsewhere has revealed that mobile money lowers transaction costs for domestic remittances and thus, allows households to weave a wider net of informal insurance and risk sharing (Jack and Suri 2013, 2014, 2016; Bharadwaj et al. 2019). When faced with droughts, flooding, or other extreme weather events for example, households in need of financial support can reach out to friends and family near and far for emergency transfers, rather than having to decrease consumption or sell assets. Such informal risk sharing mechanisms do not neatly fit financial market categories: it is insurance but without a premium, it is credit but at zero interest and with contingent repayment terms, and it is a financial network of diffuse reciprocity rather than a transaction between a firm and customers. In this respect, financial anthropologists in the tradition of Mauss (1925/2000), who conceive of (financial) gifts as a community-constituting web of support, obligation, and group solidarity, might have a more valid assessment of the economic function of mobile money than mainstream economists (Sykes and Sykes 2005, Johnson 2016). While this network of informal insurance and credit does not generate rent for the providers of capital, it significantly improves the economic situation of its members: Financial inclusion allows individuals to avoid asset sales or risky behavior such as transactional sex, and invest in climate resilience-enhancing tools, supplies, and production methods. Women are more than twice as likely to benefit from growth in financial access (Jack and Suri 2016, Jones and Gong 2019, Wakadha et al. 2013).

This interpersonal safety net of diffuse reciprocity is complemented by that provided by governments. Here too, digital financial technology can increase efficiency and facilitate access to hard-to-reach parts of the population. In the early 2000s, Brazil was among a small number of countries that pioneered conditional cash transfers by allowing recipients to withdraw funds directly from ATMs using a debit card. This allowed the government to cut the administrative cost of delivering millions of Bolsa Familia grants nearly seven-fold, from 14.7 percent to 2.6 percent of grant value disbursed (Pickens et al. 2009). In India, replacing indirect or in-kind social transfers with direct payments to bank

accounts and associated debit cards was key in reducing leakage from imprecise beneficiary targeting and corruption, saving the government an estimated \$7bn over 2.5 years alone (Pazarbasioglu et al. 2020). In Fiji, the government has leveraged DFS in the aftermath of Tropical Cyclone Winston, sending transfers directly to the mobile phones of recipients in the disaster zone (AFI 2020).

Financial policymakers have recently turned to digital finance to enhance resilience of the population to a non-environmental shock, namely Covid-19 and the economic fallout it caused.

As early as April 2020, regulators in Kenya and 13 other EMDE ordered firms to waive transaction fees for low-value mobile money transactions and increased transaction caps and storage limits on e-wallets (GSMA 2020, Njogore 2020). The Bangladeshi government harnessed digital finance for its Covid-19 relief efforts by channeling unconditional cash transfers in April 2020 through mobile financial services, reaching millions of workers in the informal sector that would be hard to reach with traditional policy tools (Islam and Divadkar 2020). Similarly, the Indian government uses digital payments to provide a minimal universal basic income of 500 rupees per month to all eligible holders of a no-frills Jan Dhan account (Kejriwal 2020, Sridhar 2020, Kapur et al. 2020).

DFS providers can promote resilience by offering better savings products, too. Traditionally, low-income

households would invest a part of their savings in livestock or crops, which are vulnerable to environmental disasters. Financially excluded people also tend to save in cash, a non-interest bearing and risky method. Traditional institutions such as savings and loans cooperatives provide small-scale services around the world, but they are eclipsed by digital competitors in a growing number of countries. In Kenya and Tanzania, by 2015 the cellular phone had won in popularity over its traditional contender: the mattress (secret hiding place or kibubu) (FII 2016). Thus, financially included households have a chance to access savings more safely and conveniently to enhance their resilience vis-à-vis economic shocks caused by climate change or other forces.

Microinsurance is another use case where digital transformation holds promise. Micro-insurance products have helped customers adapt and become more resilient to climate change for years. However, just as in banking, transaction costs in the traditional insurance business were often too high to be affordable for smallholder farmers and other vulnerable groups. Digitally powered microinsurance may address this problem. By incorporating meteorological information, geospatial data, and even pictures uploaded by insurance holders, microinsurance companies can make granular actuarial assessments at very low cost. Insurance premium payments and disbursements can be made using mobile technology, reducing human involvement and adding convenience especially for customers in rural areas, where traditional points of financial access are sparse. Micro-insurance products



Young african man using his smartphone. Nigeria. (Photo by i_am_zews/Shutterstock)

that cover adverse weather events in particular allow vulnerable populations to manage climate risk and increase their resilience to negative economic shocks caused by climate change (Chamberlain 2017).

Microcredit is the oldest use case of financial inclusion and one that continues to be of significance in many EMDE. Low-income households and MSME can leverage microcredit to reduce their sensitivity to natural disasters and better cope in their aftermath (Pantoja 2002, Dowla 2018). It may also help them overcome financial barriers to invest in adaptation options such as climate proofing crops, arable land, and buildings (Fenton et al. 2017). Digital microcredit harnesses user-generated data such as cash flow or transaction history to make risk assessments with minimal human involvement and thus, at a much lower cost than its traditional counterparts. Digital credit is still in its infancy, and there are concerns that digital technology exacerbates discrimination and biases in credit risk assessment. However, the few empirical tests published to date show that digital models are as accurate in predicting default as traditional models (Freedman and Jin 2018, Petralia et al. 2019). They also work with similar accuracy for “unscorable” customers, who are not registered at credit information bureaus and have no collateral (Berg et al. 2018; Hau et al. 2018; FinRegLab 2019; Jagtiani and Lemieux 2018, 2019). Responsible financial access and debt spirals are a concern, whether microcredit is delivered digitally or not. It is one of the reasons why empirical studies have not found a significant welfare-enhancing effect of microcredit over the past decades (Banerjee et. al 2015, Hammill et al.

2008). Rising over-indebtedness in Kenya, Tanzania, and South Africa, for example, indicate that some digital lenders are expanding with business models that are not dissimilar from that of traditional loan sharks (Izaguirre and Mazer 2018, Kaffenberger et al. 2018, Bharadwaj et al. 2019, Gwer et al. 2019).

Financial regulators can devise rules to ensure the (digital) microcredit sector helps increase the climate resilience of vulnerable groups, rather than adding financial turmoil to the risks they are exposed to.

In addition to responsible access to credit, cyber-risk, fraud and exploitation of vulnerable groups must be addressed by regulators (AFI 2020b).

While DFS promise to alleviate financial exclusion and reduce vulnerability to climate risk, policymakers must remain aware of underlying inequities in access. In many EMDE, women’s livelihoods are dependent on climate-sensitive sectors such as subsistence agriculture, forestry and water (Meyer and Camacho 2020). At the same time, women are 8 percent less likely than men to own a mobile phone and 20 percent less likely to access the internet in low- and middle-income countries (GSMA 2020). Even though the widest observed gender gaps are beginning to close, climate finance needs to be gender-inclusive and reduce inequities in access, in order to deliver on its promise to enhance resilience and facilitate adaptation for those who need it most.



Indian small finance bank officer arranging credit access from SME. Katni, India. (Photo by Neeraz Chaturvedi/Shutterstock)

THE ROLE OF FINANCIAL INCLUSION IN ENABLING MITIGATION

While adaptation is a key priority to increase the resilience of vulnerable populations vis-à-vis climate change, it needs to go hand in hand with mitigation measures that reduce global warming. Economic agents at the base of the pyramid are an essential part for global mitigation, even if it is recognized that the bulk greenhouse gas emissions are not coming from the base of the economic pyramid in EMDEs. Financial inclusion can play an important role in helping them contribute to the much-needed transition to a low-carbon economy.

Large corporations and high-income households account for a disproportionate share of historical and current greenhouse gas emissions.

But they usually benefit from financial tools and subsidies provided by governments or the private sector that help them invest in climate mitigation measures. In contrast, MSMEs and low-income households often are hard to reach both by governments and traditional financial services providers. Inclusive green finance has the potential to address this problem.

MSMEs tend to operate in sectors that are energy-intensive and in need of technological change for climate change mitigation. A report by UNDESA (2020) shows that millions of small enterprises in agriculture, forestry and fishing, manufacturing and other climate-sensitive sectors can make a difference in reducing their carbon footprint by switching to energy-efficient approaches for lighting, buildings, and refrigeration, using renewable energy sources, or improving water conservation. In China for example, MSMEs are estimated to produce 53 percent of the country's CO₂ emissions (Meng et al. 2018). Land use is a significant source of carbon emissions. Climate change mitigation must thus, address not only large agrobusiness but also smallholder agriculture.

Even when technological change is cost-saving for MSME in the medium or long run, many businesses do not have the financial tools at their disposal to invest in low-carbon technology, which often require higher upfront investment while delivering lower operating cost. Here, financial inclusion can make a clear difference.

For example, in Kenya, the pay-as-you-go product M-Kopa harnesses mobile money transaction data to allow qualifying business owners to lease and eventually own solar panels to power their shops. Credit assessment, disbursement, and payments are made electronically without human intervention. The scheme allows MSMEs to rely on their own solar power and reduce their dependence on energy grid operators (Costa and Ehrbeck 2015, Omwansa and Sullivan 2013). Similar pay-as-you-go financing schemes have helped MSME transition to more climate-friendly technologies of energy and water provision across Sub-Saharan Africa and beyond (IRENA 2020, Sharma 2019).

Cooking fuel is another use case for inclusive green finance. Currently, over three billion people cook their food on open fires, using wood, animal dung, coal and biomass as fuel. This traditional way of cooking does not only emit toxins that impair the health of household members, it also releases significant amounts of methane and CO₂ into the atmosphere, constituting a “significant source of anthropogenic emissions” (Lacey et al. 2017: 1269). While cookstoves are most common in Sub-Saharan Africa and South Asia, emissions in Central European countries such as Azerbaijan, Ukraine, and Kazakhstan likely have a disproportionately large effect on climate, because the so-called “black carbon” is transported to the Arctic where it darkens the snow and causes it to reflect less heat. Recent research estimates replacing traditional stoves with a clean cookstove technology would not only reduce greenhouse emissions equivalent to a decade's worth of global warming, it could also prevent around 10 million premature deaths before 2050 alone, by improving ambient air quality (Lacey et al. 2017, Bailis et al. 2015, Mitchell et al. 2020).

Agricultural innovations from seeds to irrigation systems can help reduce land degradation, pollution, and carbon emission. They also help address the impact of economic development on biodiversity and the ecosystem (Tallisa 2015). What all of the above climate change mitigation measures have in common is that they entail significant upfront costs even though they provide benefits for the household in the medium and long term. Financial inclusion in general and maturity transformation services, such as credit or leasing in particular can help low-income families make the kind of investment that can contribute to better health, poverty alleviation, and climate change mitigation at once - one of the few cases where a win-win solution is not mere business talk.

THE ROLE OF INCLUSIVE GREEN FINANCE IN FACILITATING A “JUST TRANSITION”

The economic and social effects of global environmental change may affect inequality between and within countries. It is well established that climate change is disproportionately affecting developing countries in warmer climates. Using counterfactual historical temperature trajectories, Diffenbaugh and Burke (2019, 9808) found a “very high likelihood that anthropogenic climate forcing has increased economic inequality between countries.” Their results indicated that the ratio of per capita income in the top and bottom deciles is 25 percent larger because of global warming. Even though between-country inequality has fallen over the last five decades, their findings give a likelihood of about 90 percent that the reduction was slower because of climate change.

Within countries, the economic and social effects of climate change may accentuate the social tensions within a society and fuel political instability.

Islam and Winkel (2017) describe the impact of climate change on within-country inequality as a vicious circle, in which the adverse impacts of global warming disproportionately affect vulnerable groups, which causes inequality to worsen. They identify three main channels: (i) greater exposure of vulnerable groups to climate hazards; (ii) greater susceptibility to climate-related losses and damage; and (iii) a lower ability to cope with and recover from losses and damage, due to a lack of resources.

Inequality may also be enhanced by the transition impacts of climate change. The transition to a low-carbon, environmentally sustainable economy is a process of structural economic and social change that is the result of deliberate policy, changing preferences and technological change (Semieniuk et al. 2020). The forced decline of carbon-intensive parts of the economy can cause transitional unemployment and “stranded workers” who may not be easily re-employed (Heim 1984).

It has been recognized that social risks threaten a successful transformation to a low-carbon, environmentally sustainable economy. The Paris Agreement has therefore acknowledged “the imperatives of a just transition of the workforce and the creation of decent work and quality jobs in accordance with nationally defined development

priorities” (UN 2015).⁴ The protests of the “gilets jaunes” (yellow vests) that started in France in October 2018 as a reaction to climate policies that were felt as placing an unfair burden on lower income groups, have highlighted the importance of placing greater emphasis in climate policies on equitable and inclusive policies.

The just transition concept originated from labour movements in North America in the 1990s, seeking support for workers whose jobs were at risk due to environmental protection policies (Smith 2017). Today, the concept is usually understood in a broader sense, as a “deliberate effort to plan for and invest in a transition to environmentally and socially sustainable jobs, sectors and economies” (Smith 2017, 3). As pointed out by Robins et al. (2020, 10), the just transition “represents the next phase in the evolution of climate action, supplementing the historic focus on confronting climate risk, seizing green economic opportunities and building resilience”. Recent contributions have highlighted the important role that the financial sector ought to play in facilitating a just transition (Robins et al. 2019, Robins and Rydge 2019).

In particular, the financial sector is needed to enable investments in new opportunities for those affected by environmental change. People and communities who lose their jobs or livelihood because of the low-carbon transition or the physical effects of environmental change need to find alternative employment and opportunities. Those at the base of the economic pyramid are disproportionately affected by the impacts of environmental change and they need particular support. IGF can help new businesses to develop in areas that are aligned with climate and sustainability goals, and become more resilient to the impacts of environmental change. Financial services targeted to the specific needs of those affected by the physical or transition impacts of environmental change can facilitate adaptation, foster mitigation, and help to realize new opportunities and sustain livelihoods. Importantly, IGF can also help to empower the base of the economic pyramid to be a driver of transition, thus making it “just”. This specifically relates to MSMEs and the business opportunities arising from a transition.

⁴ The United Nations Framework Convention on Climate Change states that “Parties should protect the climate system for the benefit of present and future generations of humankind, on the basis of equity and in accordance with their common but differentiated responsibilities and respective capabilities” (UNFCCC 1997, §3.1).

As highlighted by the United Nations Task Team on Social Dimensions of Climate Change (2011, 5), “[p]eople are not only the victims of negative impacts of climate change; they are the drivers of climate change and the essential agents for redirecting development trajectories”; “[c]limate policies will consequently succeed, fail or, at minimum, be enhanced by the everyday actions of empowered and capable individuals, households, communities and countries”.

Robins et al. (2019, 9) highlight the “centrality of the human in the just transition” (Figure 2) and the resulting importance for financial actors to integrate the social dimension into their climate strategies, using existing human rights frameworks such as the ILO’s core labor standards (ILO 2010), the UN’s Guiding Principles of Business and Human Rights (UN 2011), and the Organisation for Economic Co-operation and Development’s Guidelines for Multinational Enterprises (OECD 2011).

There is also an important financial stability dimension to the just transition. As pointed out by Robins et al. (2019), “[t]he just transition sits at the intersection of ... environmental and social risks to the stability and functioning of the financial system. One systemic

concern is that failing to take account of the social dimension will generate pressures to delay, dilute or abandon climate policy.”

Ignoring the imperative of a just transition increases the likelihood that the transition will be delayed or fail altogether, escalating the likelihood of a catastrophic climate change scenario with potentially dramatic consequences for economic, financial and social stability.

For the financial sector, a delayed, disorderly transition will amplify climate-related transition risk (Figure 3). Moreover, to the extent that transition risks have adverse effects on the wealth and income of businesses and households, heightened transition risks could cause problems for the repayment of loans or undermine the customer base of financial institutions. It is therefore crucial that financial regulators also consider social stability risks associated with the low-carbon transition, and that financial authorities support the scaling up of green and inclusive finance to smoothen the transition. By doing so, they can complement other public policies aimed at fostering a just transition.

FIGURE 2: THE HUMAN DIMENSION OF THE JUST TRANSITION

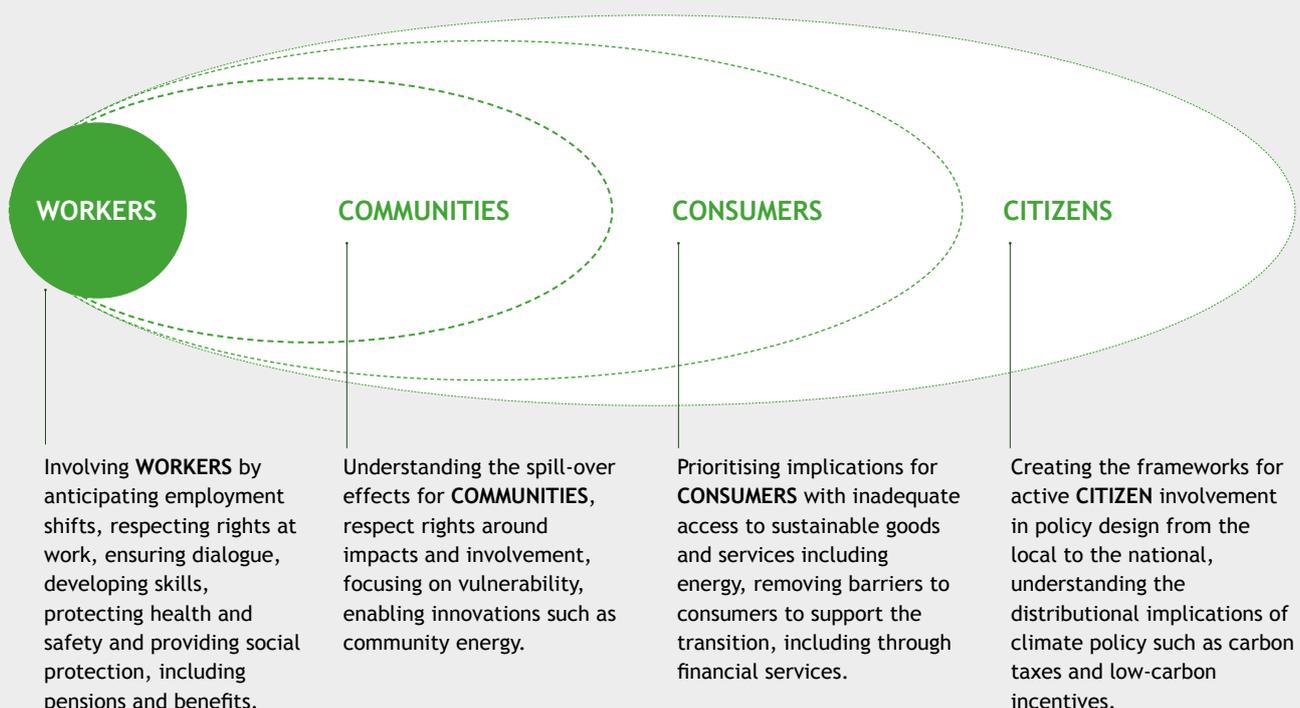
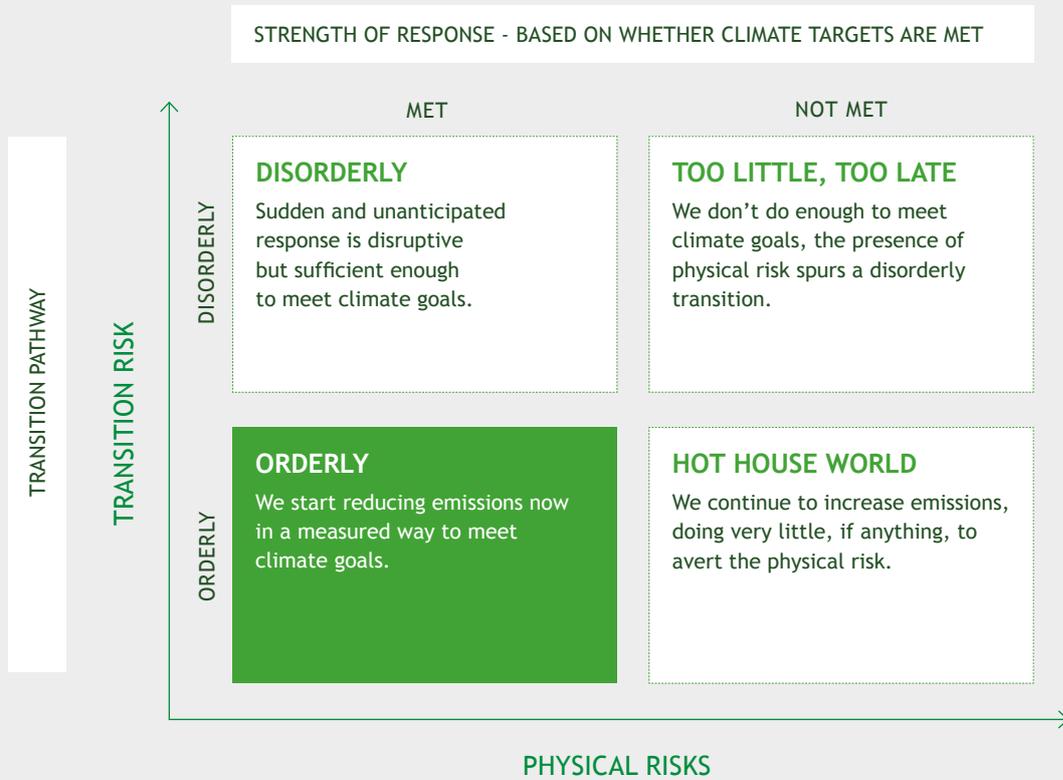


FIGURE 3: SCENARIO ANALYSIS FRAMEWORK FOR CENTRAL BANKS AND SUPERVISORS



Source: NGFS (2019).



Rohingya refugee shopkeeper in his shop in the Balukhali refugee camp in Ukhia, Cox's Bazar, Bangladesh. (Photo by Mamunur Rashid/Shutterstock)

SUMMARY OF THE LINKS BETWEEN CLIMATE CHANGE AND ENVIRONMENTAL DEGRADATION, VULNERABLE GROUPS, SOCIAL INEQUITY AND TENSIONS, AND FINANCIAL STABILITY

Figure 4 graphically displays the links between climate change and environmental degradation, vulnerable groups, social inequity and tensions, and financial stability. As discussed, climate change and environmental degradation can have immediate impact on vulnerable groups and vice versa. By threatening the livelihoods and assets of vulnerable groups, climate change and environmental degradation can have adverse impacts on social equity and contribute to intra-society conflicts and tensions. At the same time, lower income households and MSMEs have no means and little capacity for reducing their environmental footprint and hence, may cause significant harm to the environment through their actions. Social inequity and exclusion from economic opportunities limit the capacity of vulnerable groups to protect themselves from the effects of environmental change. Although not a panacea, IGF can play an important role in supporting vulnerable groups in adapting to global environmental change and strengthening their resilience. Likewise, IGF can facilitate mitigation action of vulnerable groups while supporting their economic opportunities.

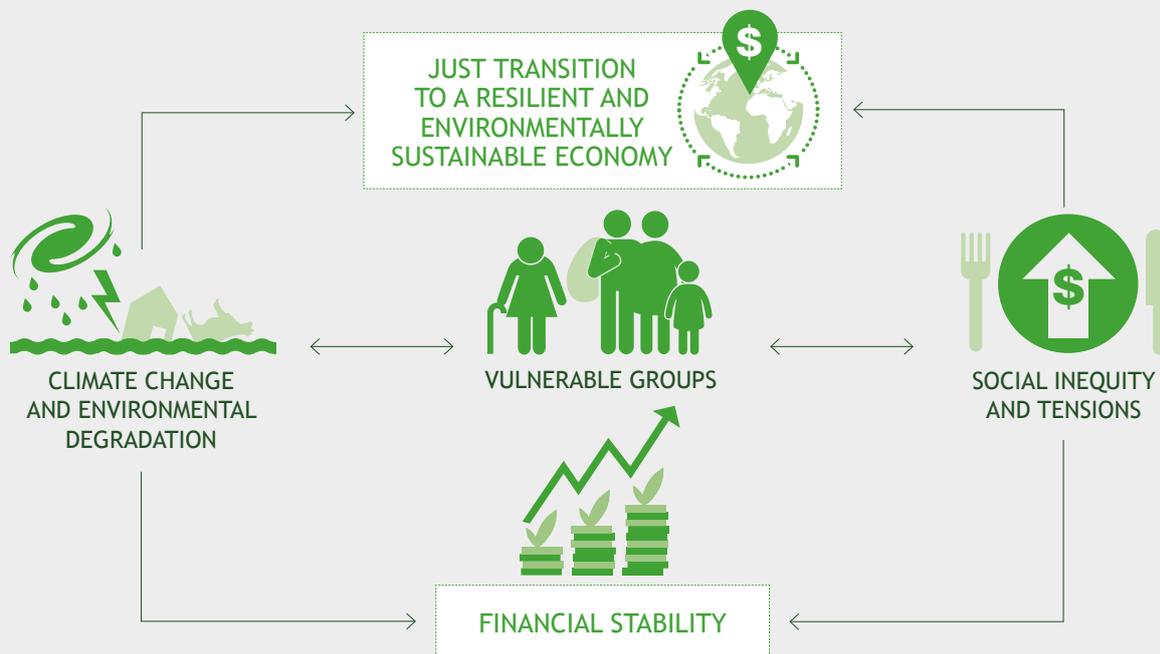
Moreover, Figure 4 also displays that vulnerable groups play a key role in achieving a just transition to a resilient and environmentally sustainable economy.

Without improving the socioeconomic situation of different vulnerable groups, climate mitigation policies may run into fierce opposition. Without empowering households at the base of the pyramid and enhancing the business opportunities of MSMEs, a just transition will remain a wishful thinking. IGF can play an important role in supporting the just transition.

Last but not least, both environmental and social risks can constitute a material risks to financial stability. The physical impacts of (unmitigated) climate change, as well as disruptions caused by a disorderly transition, pose material risks to financial stability. Likewise, worsening social inequity and tensions may undermined the customer base of financial institutions and affect the repayment of loans, or lead to a disorderly transition. Moreover, social inequality and stagnant income by lower income groups and attempts by policymakers to address these problems through easier access to credit could compromise financial stability.⁵ Central banks and regulators therefore need to address both environmental and social risks to the stability and functioning of the financial system through prudential policy. They should also consider if and how IGF policies can contribute to enhancing macroeconomic and social resilience.

⁵ Rising income inequality and increased debt of low- and middle-income households in the United States have been identified as a contributor to the subprime mortgage crisis of 2007 and 2010 (Rajan 2010).

FIGURE 4: THE LINKS BETWEEN CLIMATE CHANGE AND ENVIRONMENTAL DEGRADATION, VULNERABLE GROUPS, SOCIAL INEQUITY AND TENSIONS, AND FINANCIAL STABILITY



A NEW POLICY FRAMEWORK FOR INCLUSIVE GREEN FINANCE

Financial regulators, supervisors, and government finance executives have various tools at their disposal to turn the concept of inclusive green finance into actionable policies. In harnessing the synergies between green finance and financial inclusion they can help improve the livelihood of low-income households and MSME, while simultaneously contributing to climate change adaptation and mitigation. This section lays out the key elements of a new policy framework for IGF, and Section 4 enlivens this framework with a descriptive overview of IGF policies that AFI members are already engaging in.

Scaling up inclusive green finance has two main policy purposes as discussed in Section 2: adaptation and mitigation. While some policies may serve both goals at once, most IGF efforts fit one of the two categories, allowing policymakers to select areas of attention in line with their jurisdiction’s exposure to environmental change. Depending on the country’s idiosyncratic conditions, they may prioritize policies that help vulnerable populations adapt and increase their resilience to climate-related disasters and other forms of environmental risk in the short run. For its part, mitigation policies deserve sustained attention not only because they also increase the resilience of vulnerable populations, but also because anthropogenic warming of the atmosphere and environmental degradation cannot be halted without them, let alone reversed.

When approaching the spectrum of financial inclusion policies that serve green purposes, it is useful to distinguish between direct and indirect measures. The latter are designed to shape the market in ways that lets private actors develop and offer services that increase financial inclusion. Rather than intervening directly, the state lays out market rules and incentive structures that guides business operations in a desirable

FIGURE 5: A NEW POLICY FRAMEWORK FOR INCLUSIVE GREEN FINANCE

		INCLUSIVE FINANCE	
		MARKET-SHAPING POLICIES	DIRECT INTERVENTIONS
GREEN FINANCE	ADAPTATION TO ENVIRONMENTAL CHANGE & ENHANCING RESILIENCE	<ul style="list-style-type: none"> > Implement regulatory enablers for mobile money, microinsurance and other resilience-supporting (digital) financial services. > Enact ESRM guidelines that incorporate environmental and social risks. > Awareness-raising and capacity building measures for financial institutions. > Green finance taxonomies for MSMEs and smallholder farming. > Consumer protection, awareness-raising and capacity-building measures for vulnerable end-users 	<ul style="list-style-type: none"> > (Digital) cash transfers to disaster affected. > Subsidies or guarantees for credit to invest in adaptation / resilience-enhancing activities. > Directed credit / sectoral credit targets.
	MITIGATION OF ENVIRONMENTAL CHANGE	<ul style="list-style-type: none"> > Regulatory enablers for Pay-as-you-go solar and water. > Prudential rules that incentivize credit to green MSMEs or sustainable agriculture. > Enact ESRM guidelines that incorporate environmental and social risks. > Awareness-raising and capacity-building measures for financial institutions. > Guidance and incentives for inclusive green FinTech innovation. 	<ul style="list-style-type: none"> > Subsidies or guarantees for credit to invest in new resource-efficient / low-carbon practices / technologies. > Directed credit / sectoral credit targets.

direction. In contrast, direct interventions encompass all policies where the state is the protagonist, dedicating its own capacities and budgetary resources towards fostering financial inclusion, or requiring financial institutions to support specific activities. Implementing effective IGF policies along these lines reveals a 2x2 matrix (Figure 5) that can help policymakers to structure and sharpen their thinking about this important new policy area. It is also congruent with the four areas of IGF known as the 4Ps of Inclusive Green Finance, as well as the Sharm El Sheikh Accord on Financial Inclusion, Climate Change, and Green Finance that AFI members have endorsed in 2017 (Box 1).

Market-shaping policies for IGF include and extend beyond the promotion policies of the AFI approach. They are designed not just to prepare the private sector to offer financial services for green projects that also support vulnerable groups, but to also create the right incentive structures as businesses compete in delivering those services. Some of these services (such as microinsurance or credit risk guarantee schemes) are specifically designed to enhance the protection of vulnerable populations, others, such as retail mobile payments, and provide the technology for a de facto safety net among individual clients. A gender-sensitive and intersectional lens is crucial for such policies, green or not, because financial exclusion is more prevalent among women, minorities, rural and low-income

households than in society at large. While the resilience-enhancing functions of traditional financial services should not be underestimated, digital finance holds a particular promise for the base of the economic pyramid. Financial inclusion can enhance resilience and adaptation in the ways outlined in Section 2, but only if and when policymakers implement regulatory enablers to a thriving market in digital payments, mobile money, and the second and third-generation services that build on this infrastructure. Financial inclusion experts have distilled years of policy research to identify four regulatory enablers that are key for DFS to thrive, namely non-bank e-money issuance, use of agents, risk-based customer due diligence, and consumer protection (Staschen and Meagher 2018). The latter is particularly important for vulnerable populations: unfettered growth of a poorly regulated DFS market can leave economic agents exposed to monopoly pricing and predatory lending on top of environmental degradation, rather than increasing their resilience and adaptive capacity. On the positive side, the power of private solutions under the right market-shaping policy framework should not be underestimated: arguably, the network of diffuse solidarity that people are able to weave using mobile money, along with some innovative business solutions such as microinsurance, have done more to increase resilience among climate-vulnerable populations in many jurisdictions than direct government intervention has.

BOX 1: THE ALLIANCE FOR FINANCIAL INCLUSION'S FOUR PS OF INCLUSIVE GREEN FINANCE



PREVENTION: Avoid undesirable outcomes by lowering social and environmental risk.



PROTECTION: Socialize climate risk and associated potential losses through risk-sharing mechanisms.



PROMOTION: Prepare the private sector to offer financial services that address climate change.



PROVISION: Provide financial resources for green projects and activities to qualified beneficiaries.

Similarly, policymakers can harness market forces to overcome the financing bottlenecks that prevent many economic agents from investing in climate change mitigation. For example, they can provide an enabling environment for the market entry of pay-as-you-go providers of climate-friendly technologies, which low-income households or MSMEs would not otherwise be able to afford. Moreover, regulators can adjust prudential risk weights in ways that incentivize lenders to provide credit for green products and services. Along the same lines, regulators can endorse prevention policies by enacting Environmental and Social Risk Management (ESRM) guidelines to proactively assess and address the environmental and social risks of financing decisions, steering them away from environmental degradation and towards greener, socially beneficial economic activities. MSMEs with green credentials and farmers who invest in sustainable farming technologies could also receive favorable regulatory treatment. Regulators can also guide the development of the insurance market towards preferential treatment of green practices. For example, the Central Bank of Armenia has established an agricultural insurance agency for that purpose (see Section 4).

There is a thin but conceptually relevant line between this kind of regulatory treatment and direct intervention in the market, for example by providing credit guarantees or sectoral credit targets for green MSMEs or climate-mitigating farmers. What all of the above policies have in common is that they promote green inclusive finance by inducing the private sector to channel financial resources towards climate adaptation and mitigation.

Direct interventions in the financial market can take a variety of forms that fall into the provision or protection categories of the AFI approach. Here again, we distinguish conceptually between policies aiming to foster adaptation to environmental change and enhancing resilience and policies for mitigating environmental change. Unlike the market-shaping policies discussed above, direct intervention refers to deliberate government efforts to address environmental change through the financial sector. In many jurisdictions, the executive branch of government provides the authority (and budget) for such direct interventions, whereas central banks and regulatory authorities tend to focus on market-shaping policies under their prudential supervisory mandate.

The primary government policy to enhance the resilience of populations vulnerable to the impacts of environmental change is to weave a social safety net

that can encompass a variety of transfer schemes. In principle, financial inclusion in general and digital finance in particular, allows governments to provide funds to those in need in a rapid, efficient, and precise fashion, be they affected by climate disasters or other disruptions to their livelihoods caused by environmental change. At the same time, policymakers need to remain mindful of financial inclusion gaps. Inequalities in financial access along the lines of gender, location, age, and income can imply that those most in need of state transfers are out of reach of formal financial services, even of the digital kind. In Kenya, for example, financial inclusion experts warn that digital inequality may deepen income and economic inequality, even in a country where 91 percent of adults have mobile phones (Were 2020).

Beyond direct transfers, governments can foster inclusive green finance by providing subsidies or guarantees for credit to activities that help vulnerable populations adapt and enhance their resilience to environmental change.

Some governments choose to go further and set specific targets for the disbursement of loans for green projects or sectors. Such activities straddle the line between adaptation and mitigation. For example, smallholder farmers may benefit from credit at subsidized rates to climate-proof their business. At the same time, investment in better irrigation or switching to less resource-intensive crops or farming practices can help them reduce their carbon footprint and thus contribute to climate change mitigation. Again, such policies can only benefit vulnerable populations when they have access to financial services. For example, an MSME can improve its business outlook when it can substitute its reliance on loan sharks and other informal lenders for formal ones, which can significantly reduce borrowing costs. It has even better chances to thrive when such access to formal finance comes with state-provided benefits for climate-sensitive investments.

Policymakers have the opportunity to explore a self-reinforcing cycle here: state support and preferential rates for green financing make financial access attractive for hitherto excluded populations and growing financial inclusion can help the government cast a wider net to steer the economy towards environmentally sustainable activities.

REVIEW OF EMERGING INCLUSIVE GREEN FINANCE POLICIES AND PRACTICES

IGF started as a new policy area in 2017 with members of the Alliance for Financial Inclusion adopting the Sharm El Sheikh Accord on Financial Inclusion, Climate Change, and Green Finance. This was further articulated in the 2018 Nadi Action Agenda, which laid down the priority areas for AFI's work on inclusive green finance (AFI 2018). IGF is framed into four policy categories namely: promotion, provision, protection, and prevention. Promotion is the introductory phase that also cuts across the other categories, while the three Ps are the implementation phase that provides direct intervention to direct finance towards climate resilience-building and ensure financial stability in the midst of emerging risks associated with climate change (AFI 2020).



PROMOTION

PROMOTION INITIATIVES AND POLICIES undertaken by financial regulators intended to prepare the private sector to offer services to activities that are geared towards building resilience to the impacts of the changing climate, as well as to activities that help mitigate carbon emissions (AFI 2020). This policy category is a preparatory phase that lays down the foundation for future policy developments on IGF, including the formulation or revision of national financial sector strategies.

- a. **Moral suasion, awareness raising, and capacity building.** Moral suasion is one of the commonly observed promotional initiatives from financial regulators. In the Philippines the Bangko Sentral ng Pilipinas (BSP) influences commercial banks to venture into green investments/lending. This policy is also observed in promoting similar policies especially those that do not require mandatory compliance, such as the implementation of ESRM Guidelines, which was observed in Nepal and

Paraguay. Most AFI members are taking proactive stance to raise awareness in the financial sector on the need for inclusive green finance and green finance in general, while they try to build their regulatory capacities (AFI 2020).

- b. **Data collection** is another area observed as a preparatory phase in developing IGF policies and subsequently, monitoring. There is very limited data on GF in general, but few regulators are currently gathering and monitoring green data. For instance, the Bangladesh Bank, which has already mainstreamed green banking in its financial system, monitors green banking activities and this is reflected in their quarterly Green Banking Activities Reports. The BSP on the other hand, is gathering data and conducting research on the impacts of extreme weather events on banking operations to quantify the impacts of disasters on banking performance. It also intends to improve reporting requirements that will facilitate specific data collection to monitor and assess climate and environmental risks (AFI 2020). Furthermore, some financial regulators are now trying to integrate IGF into their National Financial Inclusion Strategies (NFIS). Some regulators are now trying to include IGF data in Demand-Side Surveys (DSS), one of the preparatory steps conducted by financial regulators to inform the development or updating of an NFIS, to take stock of consumer demand for green products that are aligned with disaster resilience-building and reduction of greenhouse gas emissions.

- c. **Interagency coordination and collaborations** are another important initiative that financial regulators among AFI members are doing to pave the way for buy-in on IGF and GF in general, while ensuring alignment with national climate objectives. This is commonly observed in countries such as Thailand, Morocco, the Philippines, and other countries (AFI 2020).



PROVISION

PROVISION POLICIES help to ensure that financial resources for green projects are available to qualified beneficiaries. Most of these policies are monetary tools that were repurposed for a greener agenda (AFI 2020).

Financing for Individuals and MSMEs

- a. **Mandatory allocation of resources to support low carbon emitting projects** This is one of the most direct intervention observed in some AFI members

such as Bangladesh, Nepal, Fiji, and Egypt. In Bangladesh, the Bangladesh Bank introduced a regulatory requirement in 2014, wherein five percent of total loan disbursements is allocated to support green projects. Such requirement was integrated into the CAMELS rating system of the bank, thereby directly affecting bank performance. The Nepal Rastra Bank's approach was through priority sector lending and directed all commercial banks to allocate ten percent of their portfolios for green projects, while the Reserve Bank of Fiji required commercial banks to hold two percent of deposits and similar liabilities for renewable energy. The Central Bank of Egypt, on the other hand, required twenty percent of the credit portfolio to be allocated for MSMEs, which includes renewable energy and at an interest rate lower than market rate (AFI 2020).

- b. **Dedicated lending facilities** with preferential, if not subsidized interest rates, were utilized to promote lending for low-carbon projects and support post-disaster recovery. Bangladesh Bank used refinancing facilities to subsidize credits for low carbon technologies, such as solar power, biogas, and waste management project. Another refinancing facility for subsidized loans of around

\$9,000 to rebuild from floods and fires, modelled on a program that supported post-earthquake recovery and reconstruction was offered by the bank. The State Bank of Pakistan through its refinancing facility offered concessional loans for solar and wind projects at a minimal interest rate of two percent per annum (AFI 2020).

Other dedicated lending facilities for low carbon projects that either offer lower interest rates, subsidized loans or offer longer loan terms for low-carbon financing, include the Central Bank of Jordan's Medium-Term Advances to Licensed Banks Program; the Central Bank of Seychelles' Seychelles Energy Efficiency and Renewable Energy Program (SEEREP); and Central Bank of Armenia's German-Armenia Fund (GAF) (AFI 2020).

On the other hand, refinancing facilities for post-disaster recovery are made available mostly in countries frequented by disasters. The Central Bank of Sri Lanka introduced a refinancing facility in 2017, following disasters associated with natural hazard events to support the resumption of economic activities. The Reserve Bank of Vanuatu designed its Natural Disaster Reconstruction Credit Facility to assist businesses affected by Tropical Cyclone Pam, through concessional lending to



Parabolic solar heater for hot water. Nepal. (Photo by Taras Shchetinin/Shutterstock)

commercial banks at interest rates of one percent that were capped at a maximum of five percent for on-lending to businesses. Similar to Vanuatu, the Reserve Bank of Fiji established its Disaster Rehabilitation and Containment Facility to support post-disaster recovery. In the Philippines, its Countryside Financial Institutions - Calamity Assistance Program established by the Bangko Sentral ng Pilipinas, the Philippine Deposit Insurance Corporation, and the Landbank of the Philippines help fund early recovery and reconstruction activities in areas affected by typhoons, disasters and other natural calamities (AFI 2020).

- c. **Introduction of innovation funds** such as the ‘Innov Invest’ Fund in Morocco to support start-ups in fields ranging from FinTech to renewable energy, including “cleantech” (AFI 2020).
- d. **Monetary policy intervention** are also used to support post-disaster rehabilitation and recovery. Lowering of reserve requirements was used by the Reserve Bank of Vanuatu to encourage banks to lend to the affected population following Cyclone Pam in 2015. Along with this, RBV also lowered its base interest rate by 0.5 points (AFI 2020).



PROTECTION

On the other hand, **PROTECTION POLICIES** reduce financial risk by “socializing” potential losses through insurance, credit guarantees, social payments or other related risk-sharing mechanisms. These policies provide safety nets to build resilience and accelerate economic recovery following a natural hazard event (AFI 2020).

- a. **Climate-related insurance and risk management products**
 - i. **Microinsurance offers insurance services** to low income people that cannot access mainstream insurance. It provides a coping mechanism for low income people to weather the impacts of a hazard event and recover economically. There has been a massive development in this area with the emergence of InsurTech that facilitates wider and massive distribution of microinsurance products. In the Philippines, a ground-breaking regulation defining microinsurance, identifying essential features, and lowering of capitalization requirement issued by the Insurance Commission to address the proliferation of informal insurance schemes, paved the way to the development of the microinsurance industry. Distribution channels for microinsurance in the country includes MFIs,

cooperatives, pawnshops, and later banks with the approval of the bancassurance regulation (Geron et. al. 2017).

- ii. **Index-based agricultural insurance.** Agriculture is a major mainstay across developing countries. However, the changing climate in the form of reduced precipitation and increased drought in some regions, which is also opposite to other regions that experience increased precipitation, and thus, experience flooding, cyclones, and frosts in the northern region, is causing decreases in agricultural production affecting mostly smallholder farmers. In Armenia, the Central Bank of Armenia initiated the establishment of the Agricultural Insurers’ National Agency (AINA), a public-private partnership responsible for market development of agriculture insurance. Morocco also introduced a “climate multi-risk” insurance product in 2011 to protect investments in major cereal crops against a variety of climate-related damage, including drought, excess moisture, hail, frost, wind and sandstorms. The Central Bank of Nigeria established the Anchor Borrower’s Program, which includes revenue index insurance that provides automatic pay-outs to farmers, based on predicted crop yields using satellite data on precipitation (AFI 2020).

- b. **SME Finance and climate change**

- i. **Credit guarantees for SMEs.** Credit guarantees are commonly made available as a risk-sharing mechanism to encourage banks to lend to MSMEs and most of the time, these are under the purview of finance ministries. This mechanism is also used to propel green lending for MSMEs in two AFI members. The Nigeria Incentive-Based Risk Sharing System for Agricultural Lending (NIRSAL), established by the Central Bank of Nigeria, provides a 50 percent risk cover for smallholder farmer loans, in case of default due to climate change events. The program includes a \$300 million risk-sharing facility through which 30 to 75 percent of a commercial bank’s risk on agricultural loans is shared with the Central Bank. Similar to NIRSAL, the Ghana Incentive-Based Risk-Sharing System for Agricultural Lending (GIRSAL), which was supported by the Bank of Ghana, was established to boost lending to the agricultural and agribusiness sectors through the issuance of agricultural credit guarantee instruments. Coverage of the credit guarantee cuts across the entire value chain (horticulture, cereals, tree crops, roots and tubers, legumes and poultry) and includes insurance products for smallholder farmers (AFI 2020).



PREVENTION

PREVENTION is another IGF policy category that aim to lower social, financial, and environmental risks. These policies are somehow linked with Provision policies, in terms of credit risk management. The most prominent is the Environmental and Social Risk Management (ESRM) Guidelines, which are present in countries such as Nepal, Paraguay, Brazil, and Bangladesh. In other countries such as the Philippines and Pakistan, this is included in other national financial sector policies. In the Philippines, this is integrated in its Sustainable Finance Framework, while in Pakistan, ESRM is integrated in its Green Banking Guidelines (AFI 2020).

INTEGRATING IGF INTO NATIONAL STRATEGIES

Over the years, beyond the preceding policy developments and practices discussed above, IGF has also seen some integration in national financial sector strategies in some AFI members.

- a. **Climate change in National Financial Inclusion Strategies (NFIS).** Across the AFI network, some members that had already started integrating green

elements into their NFIS. One of the strategic goals of Bangladesh Bank's draft NFIS-B, for instance, is to "Broaden and Deepen Financial Inclusion of Women, Population affected by Climate Change and other underserved segment of population". Furthermore, green finance and MSMEs are already integrated in the other strategic goals of the NFIS-B (BB 2019). Other countries that have added some green considerations into their NFIS include Fiji, Argentina, Jordan, and Rwanda (AFI 2020).

- b. **IGF in other Financial Sector Strategies.** AFI members have also added elements of financial inclusion and climate change into financial sector strategies. Very recently, the Royal Monetary Authority of Bhutan approved its Green Finance Roadmap with elements of IGF. Other AFI members includes Morocco's National Roadmap for Aligning the Financial Sector with Sustainable Development; Nigeria's Nigeria Sustainable Banking Principles; Ghana's Sustainable Banking Principles and Sector Guidance Notes; Central Bank of Sri Lanka's Sustainable Finance Roadmap; and Thailand's Sustainable Banking Guidelines (AFI 2020).



Aerial view of an irrigated smallholder farm in the middle of the jungle in Sri Lanka. (Photo by Stefano Borsa/Shutterstock)

THE ROLE OF INCLUSIVE GREEN FINANCE IN SUSTAINABLE RECOVERIES

The Covid-19 crisis has highlighted how vulnerable the global economy is to natural disasters. At the same time, it shows that people can harness financial services, especially in digital form, to better deal with adversity and economic hardship.

Mobile money payments have surged across Sub-Saharan Africa as friends and families support each other during the lockdowns caused by the pandemic (Carboni and Bester 2020, Njogore 2020). Transactions at Venmo (a US-based retail payment FinTech firm) and RapiPago (a Latin American FinTech) have increased by 52 percent and 142 percent, respectively in 2020 (Economist 2020). Governments around the world take advantage of previous financial inclusion efforts as they channel emergency support transfer to vulnerable populations using branchless agent banking networks and digital channels.

These financial networks between individuals and between people and the government can be expected to be as useful in enhancing resilience and supporting recovery after future natural disasters as they are during the current public health crisis.

While the global pandemic helps spur financial inclusion, it also provides an urgent reminder that much more work remains to be done.

Financial networks can only be leveraged meaningfully for recoveries if all vulnerable populations have access. There is a risk that policymakers in the wake of a climate-related crisis become reticent to reach the financially excluded because directing emergency funds through digital financial networks can be so much more cost-effective than alternative channels. Such behavior would exacerbate existing inequalities along the lines of income, education, gender, and location because financially excluded parts of the population are also likely to be those most in need of state support in the wake of a natural disaster.

Every crisis, be it economic or otherwise, brings unexpected opportunities. The current economic crisis allows governments to break with past climate-polluting policies and channel funds to green recovery projects. For example, low oil prices mean that a phasing out of subsidies for fossil fuels is less painful than in other periods, and such measures free funds that cash-strapped governments need more than ever to support vulnerable populations and finance economic recovery (Volz 2020). More importantly, central banks and regulators can incorporate climate and sustainability factors into the crisis response measures (Dikau et al. 2020).

While many green finance policies are aimed at large corporations and other actors that are well embedded in the formal financial system, financial inclusion also has a role to play here. MSMEs for example, can be incentivized to invest in more environmentally-sustainable technologies and activities if they can access credit for green projects at favorable rates. For instance, as part of COVID-19 response, the Bangladesh Bank increased its forex denominated refinancing facility called Green Transformation Fund by infusing an additional capital of €200m to the existing \$200m to support export-oriented manufacturing businesses to replace assets or upgrade processes to greener technologies. The facility was originally intended to support transformation of the MSMEs-dominated leather and textile industry of the country but was later extended to all export-oriented manufacturers (BB 2020).

By exploring the synergies between green finance and financial inclusion, policymakers have the opportunity to direct financial flows in ways that

- (1) address equity concerns, and
- (2) facilitate a transition to a low-carbon economy, all while
- (3) safeguarding financial stability.

Only when financial policy reflects and incorporates all three of the above goals can economic recovery become a catalyst in a larger process of a just transition to an environmentally sustainable economy.

CONCLUSION

Global environmental change is one of the mega challenges of our times. Central banks and regulators have recognized the need to address financial risks related to global environmental change through prudential policies and their role in aligning the financial system with the Paris climate targets and other sustainability goals. The financial sector needs to make important contributions to facilitating a just transition to a low-carbon, environmentally sustainable economy.

Climate change and environmental degradation can have substantial impact on vulnerable groups at the base of the economic pyramid. By threatening the livelihoods and assets of vulnerable groups, climate change and environmental degradation can worsen social equity and contribute to intra-society conflicts and tensions. Social inequity and exclusion from

economic opportunities not only limit the capacity of vulnerable groups and MSMEs to protect themselves from the effects of environmental change and boost their resilience, it also limits the scope for effective mitigation strategies. IGF, although not a panacea, can play an important role in supporting vulnerable groups to adapt to global environmental change and strengthen their resilience. Likewise, IGF can facilitate mitigation action of vulnerable groups while supporting their economic opportunities. Without empowering households at the base of the pyramid and enhancing the business opportunities of MSMEs, a just transition to a low-carbon, environmentally sustainable economy will be impossible to achieve.

Importantly, both environmental and social risks can constitute a material risks to financial stability. The physical impacts of (unmitigated) climate change, as well as disruptions caused by a disorderly transition, pose material risks to financial stability. Equally, worsening social inequity and frictions may erode the customer base of financial institutions and affect the repayment of loans, or lead to a disorderly transition. Hence, it is imperative that central banks and regulators address both environmental and social risks to the stability and functioning of the financial system, through prudential policy and by supporting IGF.



Going forward, central banks and regulators need to mainstream sustainability considerations in their monetary and prudential frameworks, addressing both environmental and social factors. Building on the various existing examples for IGF policies, they need to consider how market-shaping policies, as well as direct interventions can best help promote IGF. Pilot programmes can be launched to test the efficacy of IGF policies before these are scaled up.

When developing IGF policies, a gender-sensitive and intersectional lens is crucial. Financial exclusion is more prevalent among women, minorities, rural and low-income households. IGF policies should take the specific needs of these groups into account to ensure that measures are targeted and effective. To this end, it is important to identify the IGF services that can contribute the most in strengthening the resilience of people at the base of the economic pyramid. While the resilience-enhancing functions of traditional financial services should not be underestimated, digital finance holds a particular promise for providing targeted financial services at low cost to the base of the economic pyramid. It is, however, important that consumer protection is safeguarded and those without access to internet services are not forgotten.

To advance IGF policy development there is a need for definitions of which products and services are considered green. This will assist in further policy development, as well as essential data collection related to IGF progress and impact. Another important consideration is collaboration and coordination across different national level actors and institutions with regards to IGF policy development.

IGF is one part of a much larger effort to advance mitigation and adaptation to climate change and environmental degradation and should not be designed or implemented in isolation.

The financial sector ought to play a key role in facilitating a just transition by empowering communities and enabling investments in new opportunities for those affected by environmental change. IGF is not a silver bullet, but it can make an important contribution to making societies and economies not only fairer but also more resilient.

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